TDI - BROOKS INTERNATIONAL, INC.
B&B Laboratories, Inc.
College Station, TX

Arcadis
Mayflower AR Project
(Contract # B0086022.1301)
November 19, 2013 and November 20, 2013
Collection Dates

Determination of:
Polycyclic Aromatic Hydrocarbons
(PAHs – 44 selected analytes) in Sediment Samples

(QC Batch ENV 3167)

December 18, 2013

Technical Report 13-3164

Arcadis
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Narrative

Technical Report 13-3164
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Introduction

B&B Laboratories received a shipment of one (1) ice chest that was sent by Jessica Geurts of Arcadis using FedEx on November 20, 2013 and arrived on November 21, 2013 in College Station, Texas. The ice chest arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	1.2°C 0.6°C (Temp Blank)	Twenty (20) soils in 8oz jars. Two (2) 1L water samples in B/R amber bottles.

The water and sediment/soil samples were collected November 19, 2013 and November 20, 2013 in support of the Mayflower AR, Project (Arcadis-US Contract # B0086022.1301). The water samples were logged in according to B&B Laboratories standard operating procedure (B&B 1009) and were stored in an access-controlled refrigerator (4.0°C) prior to analysis. The sediment/soil samples were logged in according to B&B Laboratories standard operating procedure (B&B 1009) and were stored in an access-controlled freezer (<-16.0°C) prior to analysis. Selected soil samples were analyzed for Polycyclic Aromatic Hydrocarbons (PAH) by GC/MS-SIM.

The analytical results for PAH (the Arcadis list of 44 selected PAHs) in the sediment samples are included in this report.

Analytical Methods

The standard operating procedures for PAH, hopane's, and TAS are listed in Table 1.

Table 1. Standard Operating Procedures for each analytical test.

Matrix	Extraction	PAH
Sediment	B&B 1003	B&B 1006

Data Reporting

The reporting units for each analyte are listed in Table 2. Analytes that are detected below the method detection limit are qualified as "J". Analytes that are detected in the procedural blanks greater than 3X MDL are qualified with a "B". Analytical interference's that are detected in the sample are qualified with an "I". Analytes not detected in the samples are qualified with a "U". The RPD for analytes in duplicate samples that are <3X MDL are qualified with a "X". Spiked levels of analytes in matrix spikes that are <50% of the native levels are considered invalid spikes and are qualified with a "Y". Any QC result

reported to be outside the corresponding QC criteria is discussed in the QA/QC variance section of this report. Data Qualifier Definitions are listed in Table 3. The method detection limits (MDL) for each analyte are listed in Table 4.

Table 2. Analytical reporting units.

Matrix	PAH
Sediment	ng/dry g

Table 3. Data Qualifier Definitions.

Qualifier	Definition
B	Analyte detected in the procedural blank greater than 3X MDL
D	Diluted Value
E	Analyte concentration exceeds the calibration range of the GC/MS for that specific analysis.
I	Analytical interference
J	Analyte detected below the method detection limit
L	Loss due to matrix effect
NA	Not Applicable
U	Analyte not detected
X	Analyte <3X MDL
Y	Spiked level of analyte <50% of the native concentration
*	Outside QA limits, refer to narrative

Table 4. Method Detection Limits.

PAH Sample size Unit of measure	Sediment MDLs 15.0 g, 1ml final extract volume ng/g
Naphthalene	0.342
C1-Naphthalenes	1.029
C2-Naphthalenes	0.684
C3-Naphthalenes	0.684
C4-Naphthalenes	0.684
Acenaphthylene	0.041
Acenaphthene	0.103
Fluorene	0.183
C1-Fluorenes	0.367
C2-Fluorenes	0.367
C3-Fluorenes	0.367
Anthracene	0.115
Phenanthrene	0.208
C1-Phenanthrenes/Anthracenes	0.077
C2-Phenanthrenes/Anthracenes	0.285
C3-Phenanthrenes/Anthracenes	0.285
C4-Phenanthrenes/Anthracenes	0.285
Dibenzothiophene	0.116
C1-Dibenzothiophenes	0.064
C2-Dibenzothiophenes	0.232
C3-Dibenzothiophenes	0.232
C4-Dibenzothiophenes	0.232
Fluoranthene	0.333
Pyrene	0.136
C1-Fluoranthenes/Pyrenes	0.469
C2-Fluoranthenes/Pyrenes	0.469
C3-Fluoranthenes/Pyrenes	0.469
C4-Fluoranthenes/Pyrenes	0.469
Benz(a)anthracene	0.192
Chrysene/Triphenylene	0.116
C1-Chrysenes	0.232
C2-Chrysenes	0.232
C3-Chrysenes	0.232
C4-Chrysenes	0.232
Benzo(b)fluoranthene	0.203
Benzo(k,j)fluoranthene	0.098
Benzo(a)fluoranthene	0.098
Benzo(e)pyrene	0.177
Benzo(a)pyrene	0.101
Perylene	1.226
Indeno(1,2,3-c,d)pyrene	0.050
Dibenzo(a,h)anthracene	0.064
Benzo(g,h,i)perylene	0.088
Individual Alkyl Isomers	
2-Methylnaphthalene	1.295
1-Methylnaphthalene	0.546
4-Methyldibenzothiophene	0.091
2/3-Methyldibenzothiophene	0.091
1-Methyldibenzothiophene	0.091

PAH (continued) Sample size Unit of measure	Sediment MDLs 15.0 g, 1ml final extract volume ng/g
3-Methylphenanthrene	0.097
2/4-Methylphenanthrene	0.097
2-Methylanthracene	0.097
9-Methylphenanthrene	0.097
1-Methylphenanthrene	0.097

Quality Assurance/Quality Control – Sediment

Polycyclic Aromatic Hydrocarbons (PAH)

The quality assurance/quality control procedure for this program included the analyses of a method blank, laboratory duplicate, a matrix spike/matrix spike duplicate, and a sediment SRM (NIST SRM 1941b) of no more than 19 samples. A standard reference oil (NIST 2779) was analyzed with this data set. Method blanks are used to determine that sample preparation and analyses are free of contaminants. The laboratory duplicate sample is used to determine the precision of the analysis. The matrix spike/matrix spike duplicate is used to measure accuracy and precision of the analysis. A SRM is a material for which a mean and confidence interval are certified for specific analytes. SRMs are selected based on matrix similarities as well as type and level of certified analytes. All SRMs are traceable to NIST. SRMs are used to verify analytical accuracy. All QC samples are subject to the identical preparation and analysis steps as samples. The QC criterion for blanks specifies no more than 2 analytes to exceed 3x target MDL unless analyte not detected in associated sample(s) or analyte concentration >10x blank value. The QC criteria for spike recoveries are between 40-120% (except for Biphenyl which is 40% to 140%, Decalin which is 25% to 120%, and Perylene which is 10-120%). The QC criterion for RPDs for valid spiked duplicates is ≤30%. The QC criterion for RPDs for valid laboratory duplicates is ≤30%. The QC criterion for the reference sediment 1941b SRM is ± 30% the NIST certified concentration range for those compounds whose concentration is greater than the laboratory method detection limit. The QC criterion for the reference oil 2779 SRM is ± 20% the NIST reference range for those compounds whose concentration is greater than the detection limit of10 ng/g.

Surrogate solutions equivalent to 5-10X the MDL are prepared for various hydrocarbon analyses. The appropriate surrogate solution is added to every sample including quality control samples. The data are corrected based on surrogate recovery up to 100%. The QC criteria for surrogate recoveries are between 40-120%, except d12-perylene whose recovery criteria are 10-120%. Refer to Table 5 for Method Performance Criteria for PAH.

Quality Assurance/Quality Control Variances – Sediment

Polycyclic Aromatic Hydrocarbons (PAH)

Initial Calibration (Six Point)

Observation

- No variances were observed.

Initial Calibration Verification

Observation

- No variances were observed.

Mass Discrimination Ratio

Observation

- No variances were observed.

Internal Standard Area Response

Observation

- No variances were observed.

Continuing Calibration Checks

Observation

- No variances were observed.

Surrogate Recoveries

Observation

- d12-Perylene was detected outside of the QC% recovery limits of 10 to 120% in twelve (12) client submitted samples and three (3) internal QC samples (which used client submitted samples; laboratory duplicate, MS, MSD).

Comment

- The recovery of this surrogate outside the QC limits is due to a matrix effect and is qualified with an "L" when appropriate.

Method Blank

Observation

- No variances were observed.

Matrix Spike/Matrix Spike Duplicate

Observation

- Acenaphthylene and Benzo(a)pyrene were detected outside of the QC %recovery limits of 40-120% in ENV3167C (MS (SED-DA-037R (1-1.5)) and ENV 3167D (MSD (SED-DA-037R (1-1.5)). Perylene was also detected outside of the QC %recovery limit of 10-120% in ENV3167C (MS (SED-DA-037R (1-1.5)) and ENV 3167D (MSD (SED-DA-037R (1-1.5)).

Comment

- Perylene is an invalid spike due to high native concentrations of this analyte in the original sample and the MS and MSD samples. This peak is qualified with a "Y". It is unknown as to why Acenaphthylene and Benzo(a)pyrene were detected outside of the laboratory QC recovery limits.

Laboratory Duplicate

Observation

- No variances were observed.

Laboratory Control Standard (Solution, Sediment, and Petroleum)

Observation

- No variances were observed

Additional QC Batch Information

Observation

- The concentrations reported for the C1-Naphthalenes, C1-Dibenzothiophenes, and the C1-Phenanthrene/Anthracenes are calculated using the RRF of the parent compound (Naphthalene, Dibenzothiophene, and Phenanthrene). The concentration of these individual isomers is based on their RRF or an individual isomer from the same family.

- Labeling of d12- Perylene outside of the laboratory recovery limits is labeled with the "L" qualifier to indicate a loss due to matrix effect was made in consultation with Dr. Ted Sauer.

Table 5. Method Performance Criteria for Extended PAH (Parent and Alkyl Homologs) and Related Compounds.

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Tuning	Prior to every sequence	Tune as specified in laboratory SOP	Resolve before proceeding.
Initial Calibration (All parent PAH and selected alkyl homologue PAH)	Prior to every sequence, or as needed based on continuing calibration/verification check.	6-point calibration curve over two orders of magnitude RPD ≤ 20%	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or 6-9 field samples	RPD ≤ 25%, No more than 2 analytes can be between 25% and 35% RPD.	Perform instrument maintenance. Re-analyze affected samples.
Initial Calibration Verification (Second Source or can be met if CCV is second source)	Per initial calibration	%R target analytes 80-120%	Resolve before proceeding.
SRM 1941b for sediment; SRM 1974c for tissue If available use SRMs for appropriate matrices	One per batch/every 20 field samples	Within ±30% of NIST 95% uncertainty range for analytes within the quantitation range. No more than 2 analytes may exceed this criterion.	Resolve before proceeding.
SRM 2779 Reference Oil	One per batch/every 20 field samples	Peak resolution >70% of 4/9-methylphenanthrene from 1-methylphenanthrene (m/z 192). Within ±20% of NIST 95% uncertainty range for analytes within the quantitation range. No more than 2 analytes may exceed this criterion.	Resolve before proceeding.
Matrix Spike/Matrix Spike Duplicate (Sediments, Soils, Tissues only)	One per batch/every 20 field samples	%R 40% - 120% for target analytes, except biphenyl (40-140%), decalin (25-120%) and perylene (10-120%); RPD ≤30%, average %R 60-120% for valid spikes. No more than 2 analytes may exceed 40-120% recovery or >35% RPD.	Evaluate impact to data, discuss with lab manager to determine if corrective action is needed.
Blank Spike/Blank Spike Duplicate	One per batch/every 20 field samples	See MS/MSD criteria above.	Evaluate impact to data, discuss with lab manager to determine if corrective action is needed.
Method Blank	One per batch/every 20 field samples	No more than 2 analytes to exceed 3x target MDL unless analyte not detected in associated sample(s) or analyte concentration >10x blank value	Resolve before proceeding. Lab manager may be contacted to resolve issues.
Laboratory Duplicate (not required for aqueous samples)	One per batch/every 20 field samples	RPD ≤ 30% if analyte concentration is 3x greater than the MDL, no more than 2 individual analyte RPDs with conc. 3x MDL can exceed 35%.	Evaluate impact to data, discuss with lab manager, and determine if corrective action is needed.

Table 5. Continued. Method Performance Criteria for Extended PAH (Parent and Alkyl Homologs) and Related Compounds.

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Mass Discrimination	Initial calibration and CCVs (mid-level)	Ratio for the concentration of Benzo[g,h,i]perylene to phenanthrene ≥0.70	Resolve before proceeding.
Internal Standard (IS)	Every sample	50% - 200% of the area of the IS in the associated calibration standard	Resolve before proceeding.
Surrogates	Every sample	%R 40-120% except d12-perylene which is 10-120%	Re-extract affected samples. Evaluate impact to data, discuss with lab manager, if corrective action is needed.

We appreciate the opportunity to serve your analytical needs and please do not hesitate to contact us should you have any questions.

Juan A. Ramirez
Environmental Laboratory Manager

Donell S. Frank
Project Quality Manager

Sample/Analyses Description

B&B Laboratories
Project J13034
Report 13-3164

Arcadis - Mayflower AR
Sample Inventory

Client Project #B0086022.1301

#	File Number	Client Identification	Collection Date	Received Date	Analysis	Matrix	Comments	B&B SDG	Client Project #
1	ARC2009	SED-DA-036R (0.5-1)	11/19/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
2	ARC2010	SED-DA-036R (1-1.5)	11/19/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
3	ARC2013	SED-DA-037R (0.5-1)	11/19/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
4	ARC2014	SED-DA-037R (1-1.5)	11/19/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
5	ARC2016	SED-DA-038R (0.5-1)	11/19/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
6	ARC2017	SED-DA-038R (1-1.5)	11/19/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
7	ARC2019	SED-DA-033R (0.5-1)	11/20/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
8	ARC2020	SED-DA-033R (1-1.5)	11/20/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
9	ARC2022	SED-DA-034R (0.5-1)	11/20/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
10	ARC2023	SED-DA-034R (1-1.5)	11/20/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
11	ARC2025	SED-DA-035R (0.5-1)	11/20/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301
12	ARC2026	SED-DA-035R (1-1.5)	11/20/13	11/21/13	PAH	Sediment	44 analytes	13112101	B0086022.1301

Sediment Samples

Polycyclic Aromatic Hydrocarbon Concentration

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC2009.D		ARC2010.D		ARC2013.D		ARC2014.D		ARC2016.D	
Client Name	SED-DA-036R (0.5-1)		SED-DA-036R (1-1.5)		SED-DA-037R (0.5-1)		SED-DA-037R (1-1.5)		SED-DA-038R (0.5-1)	
Matrix	Sediment		Sediment		Sediment		Sediment		Sediment	
Collection Date	11/19/13		11/19/13		11/19/13		11/19/13		11/19/13	
Received Date	11/21/13		11/21/13		11/21/13		11/21/13		11/21/13	
Extraction Date	11/27/13		11/27/13		11/27/13		11/27/13		11/27/13	
Extraction Batch	ENV 3167		ENV 3167		ENV 3167		ENV 3167		ENV 3167	
Date Acquired	12/5/13 3:51		12/5/13 4:58		12/5/13 6:04		12/5/13 8:17		12/5/13 9:23	
Method	PAH-2012.M		PAH-2012.M		PAH-2012.M		PAH-2012.M		PAH-2012.M	
Sample Dry Weight (g)	15.0		15.1		15.1		15.1		15.1	
% Dry	77		78		56		72		40	
% Moisture	23		22		44		28		60	
Dilution	1X		1X		1X		1X		1X	
Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Naphthalene	3.79		4.41		15.8		4.61		28.8	
C1-Naphthalenes	2.53		3.17		10.1		2.98		20.0	
C2-Naphthalenes	<0.7	U	3.32		<0.7	U	<0.7	U	20.9	
C3-Naphthalenes	<0.7	U	3.51		<0.7	U	<0.7	U	14.3	
C4-Naphthalenes	<0.7	U	<0.7	U	<0.7	U	<0.7	U	8.65	
Acenaphthylene	<0	U	<0	U	1.89		<0	U	4.53	
Acenaphthene	<0.1	U	<0.1	U	1.16		<0.1	U	2.16	
Fluorene	0.881		0.992		8.18		1.78		12.5	
C1-Fluorenes	<0.4	U	0.338	J	7.02		1.79		7.04	
C2-Fluorenes	<0.4	U	<0.4	U	8.52		<0.4	U	23.3	
C3-Fluorenes	<0.4	U	<0.4	U	8.92		<0.4	U	17.3	
Anthracene	0.102	J	0.096	J	<0.1	U	0.204		6.66	
Phenanthrene	1.55		1.53		11.7		2.53		20.3	
C1-Phenanthrenes/Anthracenes	<0.1	U	<0.1	U	9.67		<0.1	U	16.3	
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	11.0		<0.3	U	23.3	
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	9.49		<0.3	U	39.0	
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	8.14		<0.3	U	43.0	
Dibenzothiophene	0.131		0.09	J	4.39		0.414		4.10	
C1-Dibenzothiophenes	<0.1	U	<0.1	U	1.89		<0.1	U	4.71	
C2-Dibenzothiophenes	<0.2	U	<0.2	U	3.99		<0.2	U	12.2	
C3-Dibenzothiophenes	<0.2	U	<0.2	U	5.31		<0.2	U	22.5	
C4-Dibenzothiophenes	<0.2	U	<0.2	U	3.03		<0.2	U	19.3	
Fluoranthene	1.06		0.903		11.3		2.33		22.2	
Pyrene	0.554		0.396		7.49		0.814		19.4	
C1-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	9.80		<0.5	U	27.3	
C2-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U	30.6	
C3-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U	22.0	
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U	18.9	
Benz(a)anthracene	<0.2	U	<0.2	U	3.70		0.292		10.5	
Chrysene/Triphenylene	<0.1	U	<0.1	U	12.7		0.911		27.2	
C1-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	44.0	
C2-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	26.5	
C3-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	22.7	
C4-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	15.2	
Benzo(b)fluoranthene	<0.2	U	<0.2	U	29.2		1.47		52.2	
Benzo(k,j)fluoranthene	<0.1	U	<0.1	U	3.68		0.378		7.38	
Benzo(e)pyrene	<0.2	U	<0.2	U	8.70		<0.2	U	19.4	
Benzo(a)pyrene	<0.1	U	<0.1	U	2.57		<0.1	U	6.60	
Perylene	27.7		2.30		445		58.9		244	
Indeno(1,2,3-c,d)pyrene	<0.1	U	<0.1	U	32.8		3.66		17.8	
Dibenzo(a,h)anthracene	<0.1	U	<0.1	U	30.5		3.93		8.32	
Benzo(g,h,i)perylene	<0.1	U	0.100		20.2		0.591		16.90	
Total PAHs	38.3		21.1		748		87.6		1030	
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	2.89		3.30		10.8		3.03		21.4	
1-Methylnaphthalene	1.24		1.88		5.70		1.84		11.2	
4-Methyldibenzothiophene	<0.1	U	<0.1	U	1.41		<0.1	U	3.21	
2/3-Methyldibenzothiophene	<0.1	U	<0.1	U	0.950		<0.1	U	2.56	
1-Methyldibenzothiophene	<0.1	U	<0.1	U	0.267		<0.1	U	0.758	
3-Methylphenanthrene	<0.1	U	<0.1	U	2.88		<0.1	U	5.10	
2-Methylphenanthrene	<0.1	U	<0.1	U	3.15		<0.1	U	5.57	
2-Methylanthracene	<0.1	U	<0.1	U	5.00		<0.1	U	6.47	
4/9-Methylphenanthrene	<0.1	U	<0.1	U	1.64		<0.1	U	3.79	
1-Methylphenanthrene	<0.1	U	<0.1	U	1.64		<0.1	U	3.21	
Surrogate Recovery										
Naphthalene-d8	88		90		82		82		88	
Acenaphthene-d10	54		40		56		46		77	
Phenanthrene-d10	94		96		91		91		93	
Chrysene-d12	95		97		104		99		99	
Perylene-d12	3	L	1	L	1	L	1	L	3	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC2017.D	ARC2019.D	ARC2020.D	ARC2022.D	ARC2023.D
Client Name	SED-DA-038R (1-1.5)	SED-DA-033R (0.5-1)	SED-DA-033R (1-1.5)	SED-DA-034R (0.5-1)	SED-DA-034R (1-1.5)
Matrix	Sediment	Sediment	Sediment	Sediment	Sediment
Collection Date	11/19/13	11/20/13	11/20/13	11/20/13	11/20/13
Received Date	11/21/13	11/21/13	11/21/13	11/21/13	11/21/13
Extraction Date	11/27/13	11/27/13	11/27/13	11/27/13	11/27/13
Extraction Batch	ENV 3167	ENV 3167	ENV 3167	ENV 3167	ENV 3167
Date Acquired	12/5/13 10:29	12/5/13 11:35	12/5/13 12:41	12/5/13 13:48	12/5/13 14:54
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.0	15.1	15.2
% Dry	69	75	79	71	76
% Moisture	31	25	21	29	24
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Naphthalene	9.68		2.84		4.37		6.42		2.45	
C1-Naphthalenes	6.29		1.64		3.26		3.55		1.51	
C2-Naphthalenes	4.26		2.06		<0.7	U	3.14		1.33	
C3-Naphthalenes	3.71		3.55		<0.7	U	4.12		1.45	
C4-Naphthalenes	1.77		4.19		<0.7	U	2.15		1.02	
Acenaphthylene	0.269		0.113		<0	U	0.504		0.072	
Acenaphthene	0.212		0.178		<0.1	U	0.528		0.116	
Fluorene	2.59		1.13		1.43		2.06		0.869	
C1-Fluorenes	0.922		0.719		0.50		<0.4	U	0.368	
C2-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U	<0.4	U
Anthracene	0.336		<0.1	U	0.062	J	0.593		0.092	J
Phenanthrene	5.78		2.16		1.88		4.68		1.65	
C1-Phenanthrenes/Anthracenes	5.29		<0.1	U	<0.1	U	5.21		<0.1	U
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	4.97		<0.3	U
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	1.97		<0.3	U
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	1.43		<0.3	U
Dibenzothiophene	0.779		0.286		0.089	J	0.561		<0.1	U
C1-Dibenzothiophenes	0.642		<0.1	U	<0.1	U	0.663		<0.1	U
C2-Dibenzothiophenes	0.507		<0.2	U	<0.2	U	1.01		<0.2	U
C3-Dibenzothiophenes	0.581		<0.2	U	<0.2	U	1.10		<0.2	U
C4-Dibenzothiophenes	<0.2	U	<0.2	U	<0.2	U	0.731		<0.2	U
Fluoranthene	3.18		1.08		0.527		3.95		1.00	
Pyrene	1.50		0.584		0.317		2.62		0.564	
C1-Fluoranthenes/Pyrenes	3.22		0.602		<0.5	U	2.40		0.473	
C2-Fluoranthenes/Pyrenes	2.54		<0.5	U	<0.5	U	3.47		<0.5	U
C3-Fluoranthenes/Pyrenes	1.11		<0.5	U	<0.5	U	3.44		<0.5	U
C4-Fluoranthenes/Pyrenes	3.37		<0.5	U	<0.5	U	3.96		<0.5	U
Benz(a)anthracene	0.591		<0.2	U	<0.2	U	0.989		<0.2	U
Chrysene/Triphenylene	3.99		<0.1	U	<0.1	U	3.00		<0.1	U
C1-Chrysenes	8.73		<0.2	U	<0.2	U	<0.2	U	<0.2	U
C2-Chrysenes	3.13		<0.2	U	<0.2	U	<0.2	U	<0.2	U
C3-Chrysenes	2.42		<0.2	U	<0.2	U	<0.2	U	<0.2	U
C4-Chrysenes	1.50		<0.2	U	<0.2	U	<0.2	U	<0.2	U
Benzo(b)fluoranthene	5.94		<0.2	U	<0.2	U	5.10		<0.2	U
Benzo(k,j)fluoranthene	0.540		<0.1	U	<0.1	U	0.766		<0.1	U
Benzo(e)pyrene	1.60		<0.2	U	<0.2	U	2.05		<0.2	U
Benzo(a)pyrene	0.377		<0.1	U	<0.1	U	0.496		<0.1	U
Perylene	41.0		32.9		4.59		223		25.1	
Indeno(1,2,3-c,d)pyrene	1.51		<0.1	U	<0.1	U	<0.1	U	<0.1	U
Dibenzo(a,h)anthracene	0.695		<0.1	U	<0.1	U	<0.1	U	<0.1	U
Benzo(g,h,i)perylene	1.19		<0.1	U	<0.1	U	1.96		<0.1	U
Total PAHs	132		54.0		17.0		302		38.1	
Individual Alkyl Isomers and Hopa										
2-Methylnaphthalene	6.51		1.70		3.40		3.67		1.51	
1-Methylnaphthalene	3.78		0.984		1.94		2.13		0.957	
4-Methyldibenzothiophene	0.500		<0.1	U	<0.1	U	0.459		<0.1	U
2/3-Methyldibenzothiophene	0.343		<0.1	U	<0.1	U	0.383		<0.1	U
1-Methyldibenzothiophene	0.047	J	<0.1	U	<0.1	U	0.077	J	<0.1	U
3-Methylphenanthrene	1.03		<0.1	U	<0.1	U	0.947		<0.1	U
2-Methylphenanthrene	1.40		<0.1	U	<0.1	U	1.08		<0.1	U
2-Methylanthracene	4.46		<0.1	U	<0.1	U	4.68		<0.1	U
4/9-Methylphenanthrene	0.370		<0.1	U	<0.1	U	0.582		<0.1	U
1-Methylphenanthrene	0.567		<0.1	U	<0.1	U	0.421		<0.1	U
Surrogate Recovery										
Naphthalene-d8	83		86		94		86		86	
Acenaphthene-d10	64		53		40		61		46	
Phenanthrene-d10	94		93		94		94		91	
Chrysene-d12	97		97		94		98		91	
Perylene-d12	0	L	0	L	0	L	1	L	1	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC2025.D		ARC2026.D	
Client Name	SED-DA-035R (0.5-1)		SED-DA-035R (1-1.5)	
Matrix	Sediment		Sediment	
Collection Date	11/20/13		11/20/13	
Received Date	11/21/13		11/21/13	
Extraction Date	11/27/13		11/27/13	
Extraction Batch	ENV 3167		ENV 3167	
Date Acquired	12/5/13 16:00		12/5/13 17:06	
Method	PAH-2012.M		PAH-2012.M	
Sample Dry Weight (g)	15.1		15.0	
% Dry	60		74	
% Moisture	40		26	
Dilution	1X		1X	
Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Naphthalene	16.7		8.15	
C1-Naphthalenes	11.3		5.96	
C2-Naphthalenes	8.23		3.53	
C3-Naphthalenes	5.44		2.39	
C4-Naphthalenes	2.85		0.796	
Acenaphthylene	1.49		0.147	
Acenaphthene	1.15		0.256	
Fluorene	5.82		2.42	
C1-Fluorenes	1.95		0.624	
C2-Fluorenes	<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U
Anthracene	2.26		0.143	
Phenanthrene	10.4		4.37	
C1-Phenanthrenes/Anthracenes	8.34		<0.1	U
C2-Phenanthrenes/Anthracenes	9.73		<0.3	U
C3-Phenanthrenes/Anthracenes	7.79		<0.3	U
C4-Phenanthrenes/Anthracenes	7.33		<0.3	U
Dibenzothiophene	1.71		0.166	
C1-Dibenzothiophenes	1.83		<0.1	U
C2-Dibenzothiophenes	3.31		<0.2	U
C3-Dibenzothiophenes	5.16		<0.2	U
C4-Dibenzothiophenes	<0.2	U	<0.2	U
Fluoranthene	8.63		1.73	
Pyrene	7.54		0.987	
C1-Fluoranthenes/Pyrenes	7.82		0.754	
C2-Fluoranthenes/Pyrenes	10.5		<0.5	U
C3-Fluoranthenes/Pyrenes	5.16		<0.5	U
C4-Fluoranthenes/Pyrenes	5.40		<0.5	U
Benz(a)anthracene	3.05		0.222	
Chrysene/Triphenylene	8.33		0.271	
C1-Chrysenes	10.7		<0.2	U
C2-Chrysenes	8.67		<0.2	U
C3-Chrysenes	7.85		<0.2	U
C4-Chrysenes	3.48		<0.2	U
Benzo(b)fluoranthene	17.1		0.718	
Benzo(k,j)fluoranthene	1.09		0.288	
Benzo(e)pyrene	6.14		0.212	
Benzo(a)pyrene	2.15		0.088	J
Perylene	724		15.4	
Indeno(1,2,3-c,d)pyrene	4.13		0.252	
Dibenzo(a,h)anthracene	1.27		<0.1	U
Benzo(g,h,i)perylene	6.94		0.274	
Total PAHs	963		50.2	
Individual Alkyl Isomers and Hopa				
2-Methylnaphthalene	12.0		6.08	
1-Methylnaphthalene	6.52		3.68	
4-Methyldibenzothiophene	1.30		<0.1	U
2/3-Methyldibenzothiophene	0.974		<0.1	U
1-Methyldibenzothiophene	0.254		<0.1	U
3-Methylphenanthrene	2.19		<0.1	U
2-Methylphenanthrene	2.39		<0.1	U
2-Methylanthracene	5.15		<0.1	U
4/9-Methylphenanthrene	1.54		<0.1	U
1-Methylphenanthrene	1.08		<0.1	U
Surrogate Recovery				
Naphthalene-d8	83		80	
Acenaphthene-d10	68		44	
Phenanthrene-d10	92		94	
Chrysene-d12	96		98	
Perylene-d12	6	L	1	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Method Blank Report

Sample Name	ENV3167A.D
Client Name	Method Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	11/27/13
Extraction Batch	ENV 3167
Date Acquired	12/4/13 22:20
Method	PAH-2012.M
Sample Dry Weight (g)	15.0
% Dry	NA
% Moisture	NA
Dilution	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	3X MDL	Actual MDL
Naphthalene	0.260	J	1.03	0.342
C1-Naphthalenes	0.080	J	3.09	1.03
C2-Naphthalenes	<0.7	U	2.05	0.684
C3-Naphthalenes	<0.7	U	2.05	0.684
C4-Naphthalenes	<0.7	U	2.05	0.684
Acenaphthylene	<0	U	0.122	0.041
Acenaphthene	<0.1	U	0.308	0.103
Fluorene	0.039	J	0.550	0.183
C1-Fluorenes	<0.4	U	1.10	0.367
C2-Fluorenes	<0.4	U	1.10	0.367
C3-Fluorenes	<0.4	U	1.10	0.367
Anthracene	<0.1	U	0.346	0.115
Phenanthrene	<0.2	U	0.624	0.208
C1-Phenanthrenes/Anthracenes	<0.1	U	0.232	0.077
C2-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
C3-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
C4-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
Dibenzothiophene	<0.1	U	0.348	0.116
C1-Dibenzothiophenes	<0.1	U	0.191	0.064
C2-Dibenzothiophenes	<0.2	U	0.696	0.232
C3-Dibenzothiophenes	<0.2	U	0.696	0.232
C4-Dibenzothiophenes	<0.2	U	0.696	0.232
Fluoranthene	0.050	J	1.00	0.333
Pyrene	0.072	J	0.408	0.136
C1-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C2-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C3-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C4-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
Benz(a)anthracene	<0.2	U	0.577	0.192
Chrysene/Triphenylene	<0.1	U	0.347	0.116
C1-Chrysenes	<0.2	U	0.695	0.232
C2-Chrysenes	<0.2	U	0.695	0.232
C3-Chrysenes	<0.2	U	0.695	0.232
C4-Chrysenes	<0.2	U	0.695	0.232
Benzo(b)fluoranthene	<0.2	U	0.609	0.203
Benzo(k,j)fluoranthene	<0.1	U	0.294	0.098
Benzo(e)pyrene	<0.2	U	0.530	0.177
Benzo(a)pyrene	<0.1	U	0.304	0.101
Perylene	<1.3	U	3.80	1.27
Indeno(1,2,3-c,d)pyrene	<0.1	U	0.151	0.050
Dibenzo(a,h)anthracene	<0.1	U	0.193	0.064
Benzo(g,h,i)perylene	<0.1	U	0.264	0.088
Total PAHs	0.501			

Individual Alkyl Isomers and Hopanes				
2-Methylnaphthalene	0.088	J	3.89	1.30
1-Methylnaphthalene	0.042	J	1.64	0.546
4-Methyldibenzothiophene	<0.1	U	0.274	0.091
2/3-Methyldibenzothiophene	<0.1	U	0.274	0.091
1-Methyldibenzothiophene	<0.1	U	0.274	0.091
3-Methylphenanthrene	<0.1	U	0.291	0.097
2-Methylphenanthrene	<0.1	U	0.291	0.097
2-Methylanthracene	<0.1	U	0.291	0.097
4/9-Methylphenanthrene	<0.1	U	0.291	0.097
1-Methylphenanthrene	<0.1	U	0.291	0.097

Surrogate Recovery	
Naphthalene-d8	91
Acenaphthene-d10	95
Phenanthrene-d10	96
Chrysene-d12	99
Perylene-d12	101

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC2014.D	ENV3167C.D	ENV3167D.D
Client Name	SED-DA-037R (1-1.5)	MS (SED-DA-037R (1-1.5))	MSD (SED-DA-037R (1-1.5))
Matrix	Sediment	Sediment	Sediment
Collection Date	11/19/13	11/19/13	11/19/13
Received Date	11/21/13	11/21/13	11/21/13
Extraction Date	11/27/13	11/27/13	11/27/13
Extraction Batch	ENV 3167	ENV 3167	ENV 3167
Date Acquired	12/5/13 8:17	12/5/13 0:33	12/5/13 1:39
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	72	72	72
% Moisture	28	28	28
Dilution	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Recovery (%)	Q	Q1	Su. Corrected Conc. (ng/dry g)	Q	Recovery (%)	Q	Q1	RPD (%)	Q	Spike Amount (ng)
Naphthalene	4.61		10.7		92			10.9		95			2		100
C1-Naphthalenes	2.98		NA					NA							
C2-Naphthalenes	<0.7	U	NA					NA							
C3-Naphthalenes	<0.7	U	NA					NA							
C4-Naphthalenes	<0.7	U	NA					NA							
Acenaphthylene	<0	U	1.30		20	*		1.00		15	*		26		99.2
Acenaphthene	<0.1	U	5.35		80			5.03		76			6		100
Fluorene	1.78		8.59		102			8.53		102			1		100
C1-Fluorenes	1.79		NA					NA							
C2-Fluorenes	<0.4	U	NA					NA							
C3-Fluorenes	<0.4	U	NA					NA							
Anthracene	0.204		3.07		43			2.86		40			7		100
Phenanthrene	2.53		8.70		94			8.86		96			2		99.1
C1-Phenanthrenes/Anthracenes	<0.1	U	NA					NA							
C2-Phenanthrenes/Anthracenes	<0.3	U	NA					NA							
C3-Phenanthrenes/Anthracenes	<0.3	U	NA					NA							
C4-Phenanthrenes/Anthracenes	<0.3	U	NA					NA							
Dibenzothiophene	0.414		8.03		116			8.20		119			2		98.6
C1-Dibenzothiophenes	<0.1	U	NA					NA							
C2-Dibenzothiophenes	<0.2	U	NA					NA							
C3-Dibenzothiophenes	<0.2	U	NA					NA							
C4-Dibenzothiophenes	<0.2	U	NA					NA							
Fluoranthene	2.33		9.22		103			9.40		107			2		100
Pyrene	0.814		6.38		84			6.21		81			3		100
C1-Fluoranthenes/Pyrenes	<0.5	U	NA					NA							
C2-Fluoranthenes/Pyrenes	<0.5	U	NA					NA							
C3-Fluoranthenes/Pyrenes	<0.5	U	NA					NA							
C4-Fluoranthenes/Pyrenes	<0.5	U	NA					NA							
Benz(a)anthracene	0.292		6.94		100			7.08		103			2		100
Chrysene/Triphenylene	0.911		8.02		108			8.44		114			5		99.4
C1-Chrysenes	<0.2	U	NA					NA							
C2-Chrysenes	<0.2	U	NA					NA							
C3-Chrysenes	<0.2	U	NA					NA							
C4-Chrysenes	<0.2	U	NA					NA							
Benzo(b)fluoranthene	1.47		9.03		114			9.15		116			1		100
Benzo(k,j)fluoranthene	0.38		7.66		110			7.39		106			4		100
Benzo(e)pyrene	<0.2	U	7.87		119			7.85		119			0		100
Benzo(a)pyrene	<0.1	U	0.36		5	*		0.29		4	*		22		100
Perylene	58.9		47.4		-175		Y	61.6		39		Y	26		100
Indeno(1,2,3-c,d)pyrene	3.66		11.0		112			10.8		110			1		98.3
Dibenzo(a,h)anthracene	3.93		11.0		108			10.7		103			3		99.1
Benzo(g,h,i)perylene	0.591		3.99		52			3.85		50			4		99.1
Average % Recovery					77	*				86					
Individual Alkyl Isomers and Hopanes															
2-Methylnaphthalene	3.03		9.36		95			9.54		98			2		100
1-Methylnaphthalene	1.84		7.66		88			7.77		90			1		100
4-Methyldibenzothiophene	<0.1	U	6.40		96			6.55		98			2		101
2/3-Methyldibenzothiophene	<0.1	U	NA					NA							
1-Methyldibenzothiophene	<0.1	U	NA					NA							
3-Methylphenanthrene	<0.1	U	NA					NA							
2-Methylphenanthrene	<0.1	U	NA					NA							
2-Methylanthracene	<0.1	U	NA					NA							
4/9-Methylphenanthrene	<0.1	U	NA					NA							
1-Methylphenanthrene	<0.1	U	6.62		101			6.85		104			3		98.9

Surrogate Recovery						
Naphthalene-d8	82		83		83	
Acenaphthene-d10	46		69		59	
Phenanthrene-d10	91		88		89	
Chrysene-d12	99		97		100	
Perylene-d12	1	L	1	L	1	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC2020.D	ENV3167E.D
Client Name	SED-DA-033R (1-1.5)	Dupl. (SED-DA-033R (1-1.5))
Matrix	Sediment	Sediment
Collection Date	11/20/13	11/20/13
Received Date	11/21/13	11/21/13
Extraction Date	11/27/13	11/27/13
Extraction Batch	ENV 3167	ENV 3167
Date Acquired	12/5/13 12:41	12/5/13 2:45
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0
% Dry	79	79
% Moisture	21	21
Dilution	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	RPD %	Q Q1	3X MDL	MDL
Naphthalene	4.37		4.24		3		1.03	0.342
C1-Naphthalenes	3.26		3.14		4		3.09	1.03
C2-Naphthalenes	<0.7	U	<0.7	U			2.05	0.684
C3-Naphthalenes	<0.7	U	<0.7	U			2.05	0.684
C4-Naphthalenes	<0.7	U	<0.7	U			2.05	0.684
Acenaphthylene	<0	U	<0	U			0.122	0.041
Acenaphthene	<0.1	U	<0.1	U			0.308	0.103
Fluorene	1.43		1.29		10		0.550	0.183
C1-Fluorenes	0.503		0.449		11	X	1.10	0.367
C2-Fluorenes	<0.4	U	<0.4	U			1.10	0.367
C3-Fluorenes	<0.4	U	<0.4	U			1.10	0.367
Anthracene	0.062	J	0.078	J	23	X	0.346	0.115
Phenanthrene	1.88		1.87		1		0.624	0.208
C1-Phenanthrenes/Anthracenes	<0.1	U	<0.1	U			0.232	0.077
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U			0.855	0.285
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U			0.855	0.285
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U			0.855	0.285
Dibenzothiophene	0.089	J	0.082	J	8	X	0.348	0.116
C1-Dibenzothiophenes	<0.1	U	<0.1	U			0.191	0.064
C2-Dibenzothiophenes	<0.2	U	<0.2	U			0.696	0.232
C3-Dibenzothiophenes	<0.2	U	<0.2	U			0.696	0.232
C4-Dibenzothiophenes	<0.2	U	<0.2	U			0.696	0.232
Fluoranthene	0.527		0.555		5	X	1.00	0.333
Pyrene	0.317		0.355		11	X	0.408	0.136
C1-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
C2-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
C3-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
Benz(a)anthracene	<0.2	U	<0.2	U			0.577	0.192
Chrysene/Triphenylene	<0.1	U	<0.1	U			0.347	0.116
C1-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
C2-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
C3-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
C4-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
Benzo(b)fluoranthene	<0.2	U	<0.2	U			0.609	0.203
Benzo(k,j)fluoranthene	<0.1	U	<0.1	U			0.294	0.098
Benzo(e)pyrene	<0.2	U	<0.2	U			0.530	0.177
Benzo(a)pyrene	<0.1	U	<0.1	U			0.304	0.101
Perylene	4.59		4.51		2		3.80	1.27
Indeno(1,2,3-c,d)pyrene	<0.1	U	<0.1	U			0.151	0.050
Dibenzo(a,h)anthracene	<0.1	U	<0.1	U			0.193	0.064
Benzo(g,h,i)perylene	<0.1	U	<0.1	U			0.264	0.088
Total PAHs	17.0		16.6		3			

Individual Alkyl Isomers and Hopanes								
2-Methylnaphthalene	3.40		3.27		4	X	3.89	1.30
1-Methylnaphthalene	1.94		1.86		4		1.64	0.546
4-Methyldibenzothiophene	<0.1	U	<0.1	U			0.274	0.091
2/3-Methyldibenzothiophene	<0.1	U	<0.1	U			0.274	0.091
1-Methyldibenzothiophene	<0.1	U	<0.1	U			0.274	0.091
3-Methylphenanthrene	<0.1	U	<0.1	U			0.291	0.097
2-Methylphenanthrene	<0.1	U	<0.1	U			0.291	0.097
2-Methylanthracene	<0.1	U	<0.1	U			0.291	0.097
4/9-Methylphenanthrene	<0.1	U	<0.1	U			0.291	0.097
1-Methylphenanthrene	<0.1	U	<0.1	U			0.291	0.097

Surrogate Recovery				
Naphthalene-d8	94		91	
Acenaphthene-d10	40		50	
Phenanthrene-d10	94		95	
Chrysene-d12	94		94	
Perylene-d12	0	L	0	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Standard Reference Material Report

Sample Name	ENV3167B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	11/27/13
Extraction Batch	ENV 3167
Date Acquired	12/4/13 23:27
Method	PAH-2012.M
Sample Dry Weight (g)	4.0
% Dry	98
% Moisture	2
Dilution	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	RPD (%)	SRM 1941b Certified Conc. (ng/dry g)	-30% Certified Conc. (ng/dry g)	+30% Certified Conc. (ng/dry g)
Naphthalene	779		9	848 ± 95	527	1226
C1-Naphthalenes	229					
C2-Naphthalenes	203					
C3-Naphthalenes	129					
C4-Naphthalenes	75.7					
Acenaphthylene	77.2					
Acenaphthene	27.7					
Fluorene	58.3		37	85 ± 15	49.0	130
C1-Fluorenes	45.5					
C2-Fluorenes	76.6					
C3-Fluorenes	183					
Anthracene	201		9	184 ± 18	116	263
Phenanthrene	424		4	406 ± 44	253	585
C1-Phenanthrenes/Anthracenes	298					
C2-Phenanthrenes/Anthracenes	285					
C3-Phenanthrenes/Anthracenes	214					
C4-Phenanthrenes/Anthracenes	122					
Dibenzothiophene	52.5					
C1-Dibenzothiophenes	66.0					
C2-Dibenzothiophenes	116					
C3-Dibenzothiophenes	115					
C4-Dibenzothiophenes	72.3					
Fluoranthene	713		9	651 ± 50	421	911
Pyrene	531		9	581 ± 39	379	806
C1-Fluoranthenes/Pyrenes	387					
C2-Fluoranthenes/Pyrenes	391					
C3-Fluoranthenes/Pyrenes	163					
C4-Fluoranthenes/Pyrenes	114					
Benz(a)anthracene	375		11	335 ± 25	217	468
Chrysene/Triphenylene	417		4	399 ± 36	254	566
C1-Chrysenes	250					
C2-Chrysenes	158					
C3-Chrysenes	91.3					
C4-Chrysenes	34.5					
Benzo(b)fluoranthene	533		16	453 ± 21	302	616
Benzo(k,j)fluoranthene	442		0	442 ± 23	293	605
Benzo(e)pyrene	356		9	325 ± 25	210	455
Benzo(a)pyrene	276		26	358 ± 17	239	488
Perylene	358		10	397 ± 45	246	575
Indeno(1,2,3-c,d)pyrene	292		15	341 ± 57	199	517
Dibenzo(a,h)anthracene	40.1		28	53 ± 10	30.1	81.9
Benzo(g,h,i)perylene	251		20	307 ± 45	183	458
Total PAHs	10022					

Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	256					
1-Methylnaphthalene	118					
4-Methyldibenzothiophene	46.6					
2/3-Methyldibenzothiophene	32.5					
1-Methyldibenzothiophene	12.5					
3-Methylphenanthrene	106		1	105 ± 13	64.4	153
2-Methylphenanthrene	119					
2-Methylanthracene	65.6					
4/9-Methylphenanthrene	76.9					

Surrogate Recovery	
Naphthalene-d8	85
Acenaphthene-d10	90
Phenanthrene-d10	99
Chrysene-d12	100
Perylene-d12	96

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Standard Reference Material Report

Sample Name	MS50183K.D
Client Name	AR-SRM2779-WK-4.0-003
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3167
Date Acquired	12/4/13 21:14
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)	Q	Q1	RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
Naphthalene	883			3	855 ± 46	647	1081
C1-Naphthalenes	1839						
C2-Naphthalenes	2227						
C3-Naphthalenes	1399						
C4-Naphthalenes	806						
Acenaphthylene	7.75	J					
Acenaphthene	19.8						
Fluorene	154						
C1-Fluorenes	346						
C2-Fluorenes	417						
C3-Fluorenes	343						
Anthracene	3.24	J		5	3.42 ± 0.59	2.26	4.81
Phenanthrene	285			10	258 ± 27	185	342
C1-Phenanthrenes/Anthracenes	664						
C2-Phenanthrenes/Anthracenes	761						
C3-Phenanthrenes/Anthracenes	473						
C4-Phenanthrenes/Anthracenes	247						
Dibenzothiophene	58.2			12	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	150						
C2-Dibenzothiophenes	215						
C3-Dibenzothiophenes	126						
C4-Dibenzothiophenes	69.9						
Fluoranthene	4.05	J		7	4.36 ± 0.40	3.17	5.71
Pyrene	13.9			6	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	84.1						
C2-Fluoranthenes/Pyrenes	172						
C3-Fluoranthenes/Pyrenes	146						
C4-Fluoranthenes/Pyrenes	113						
Benz(a)anthracene	7.75	J		10	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	50.2			6	47.4 ± 1.7	36.6	58.9
C1-Chrysenes	125						
C2-Chrysenes	166						
C3-Chrysenes	114						
C4-Chrysenes	49.2						
Benzo(b)fluoranthene	5.96	J		6	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene	0.808	J					
Benzo(e)pyrene	12.5			15	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	1.81	J					
Perylene	0.788	J					
Indeno(1,2,3-c,d)pyrene	0.707	J					
Dibenzo(a,h)anthracene	0.518	J		10	0.574 ± 0.091	0.386	0.798
Benzo(g,h,i)perylene	2.47	J		16	2.11 ± 0.26	1.48	2.84
Total PAHs	12566						

Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	1810		10	1630 ± 50	1264	2016
1-Methylnaphthalene	1202		5	1140 ± 20	896	1392
4-Methyldibenzothiophene	114					
2/3-Methyldibenzothiophene	58.4					
1-Methyldibenzothiophene	36.6					
3-Methylphenanthrene	242		16	206 ± 32	139	286
2-Methylphenanthrene	243		6	230 ± 14	173	293
2-Methylanthracene	20.5					
4/9-Methylphenanthrene	289		22	232 ± 19	170	301
1-Methylphenanthrene	189		11	169 ± 10	127	215

Surrogate Recovery	
Naphthalene-d8	88
Acenaphthene-d10	90
Phenanthrene-d10	91
Chrysene-d12	93
Perylene-d12	92

Peak Resolution	
4/9-Methylphenanthrene from 1-Methylyphenanthrene (m/z 192)	89%

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

Sample Name	MS50183J.D
Client Name	AR-WKCC-250-039
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3167
Date Acquired	12/4/13 20:08
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)	Q	RPD (%)	LCM Certified Conc. (ng/mL)	-15% Certified Conc. (ng/mL)	+15% Certified Conc. (ng/mL)
Naphthalene	262		4.7	250	213	288
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Acenaphthylene	231		7.2	248	211	285
Acenaphthene	251		0.1	251	213	288
Fluorene	244		2.5	251	213	288
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Anthracene	242		3.7	251	213	288
Phenanthrene	255		2.9	248	211	285
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	253		2.7	247	210	283
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	240		4.0	250	213	288
Pyrene	252		0.9	250	213	288
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Benz(a)anthracene	230		8.1	250	212	287
Chrysene/Triphenylene	240		3.4	249	211	286
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	247		1.6	251	213	288
Benzo(k,j)fluoranthene	247		0.7	249	212	286
Benzo(e)pyrene	251		0.7	249	212	286
Benzo(a)pyrene	248		0.6	250	212	287
Perylene	250		0.0	250	213	288
Indeno(1,2,3-c,d)pyrene	244		0.9	246	209	283
Dibenzo(a,h)anthracene	247		0.1	248	211	285
Benzo(g,h,i)perylene	256		3.4	248	211	285

Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	257		2.5	250	213	288
1-Methylnaphthalene	256		2.5	250	212	287
4-Methyldibenzothiophene	259		2.8	252	214	290
2/3-Methyldibenzothiophene	NA					
1-Methyldibenzothiophene	NA					
3-Methylphenanthrene	NA					
2-Methylphenanthrene	NA					
2-Methylanthracene	NA					
4/9-Methylphenanthrene	NA					
1-Methylphenanthrene	240		2.9	247	210	284

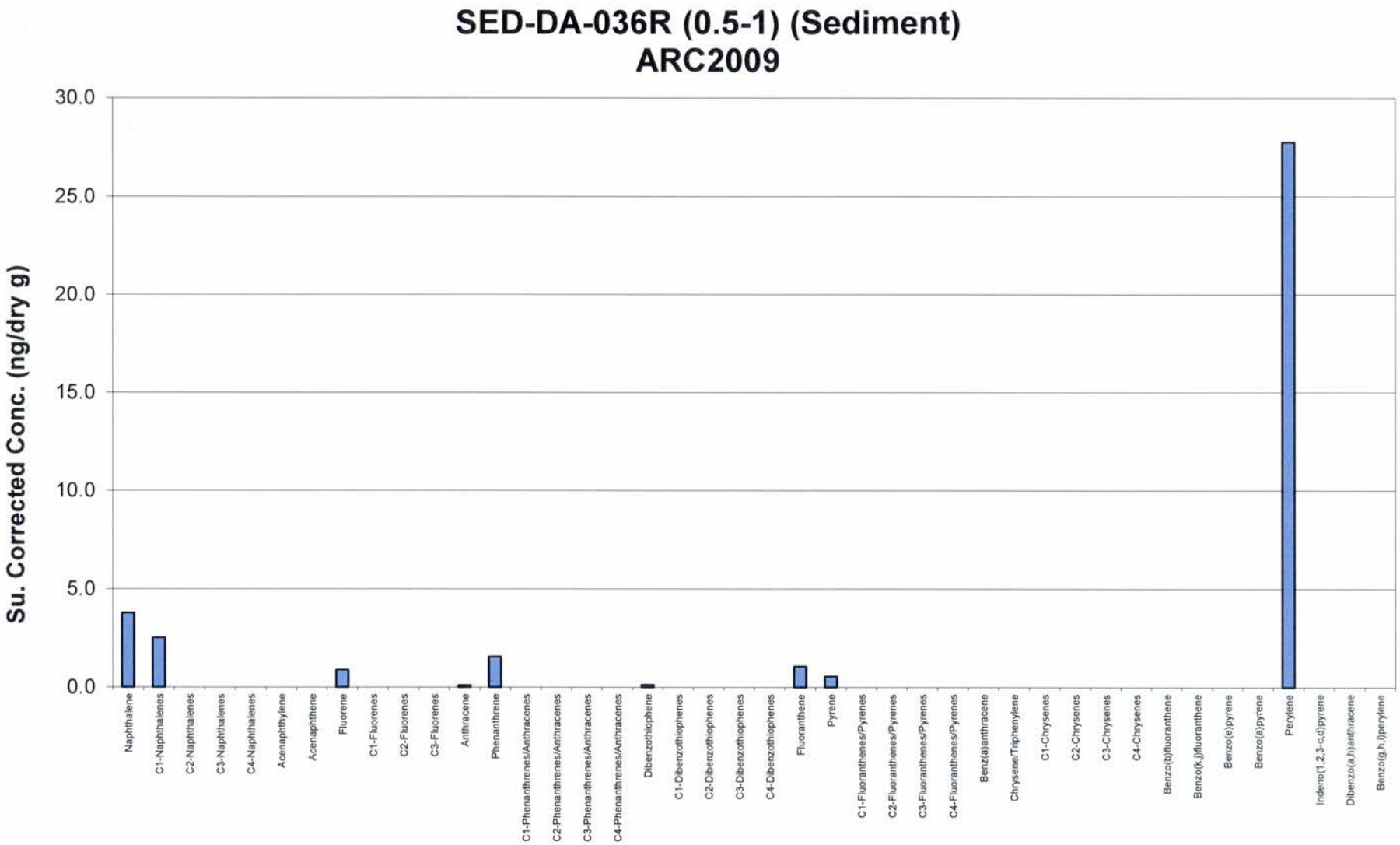
Surrogate Recovery	
Naphthalene-d8	104
Acenaphthene-d10	100
Phenanthrene-d10	103
Chrysene-d12	100
Perylene-d12	99

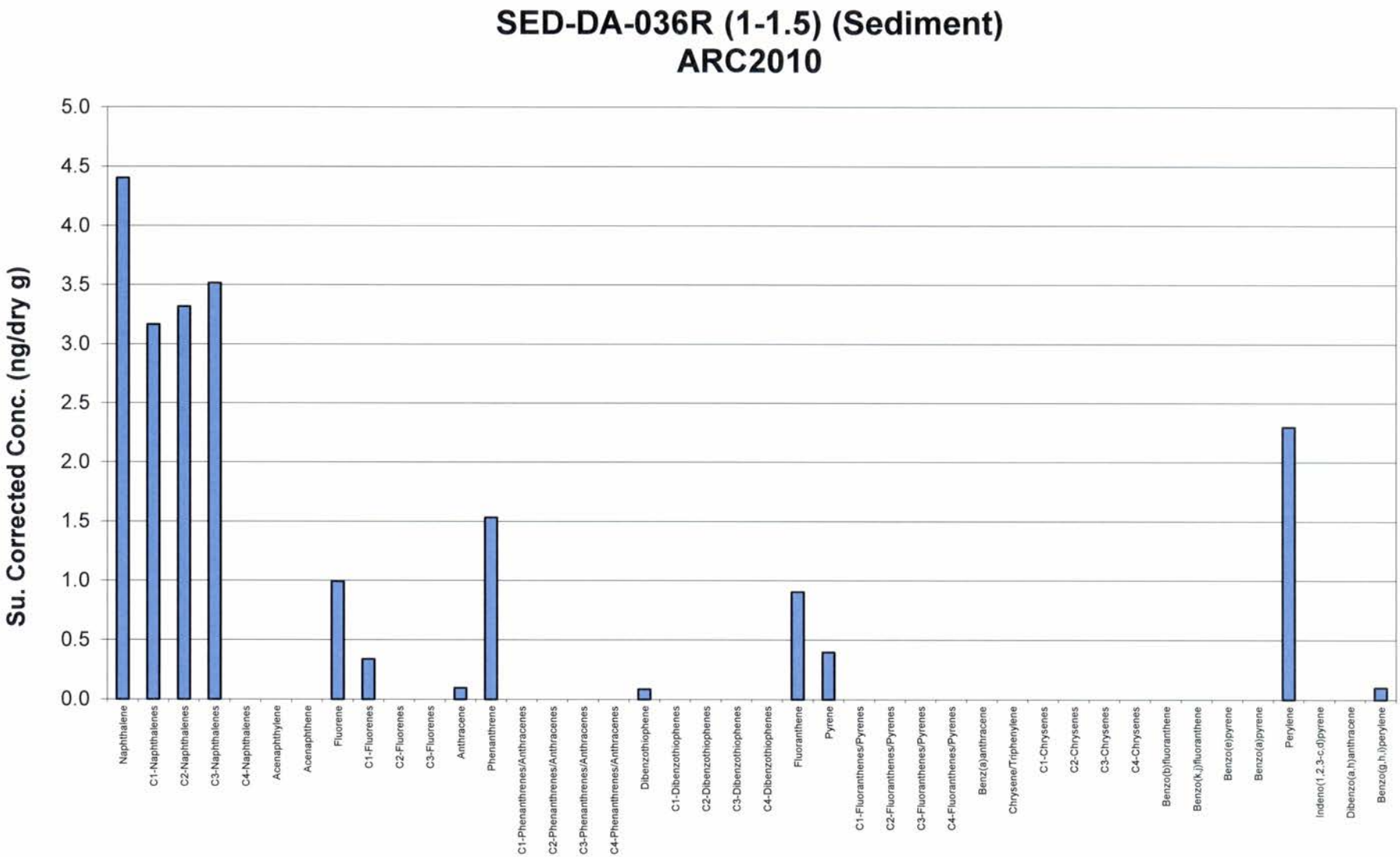
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

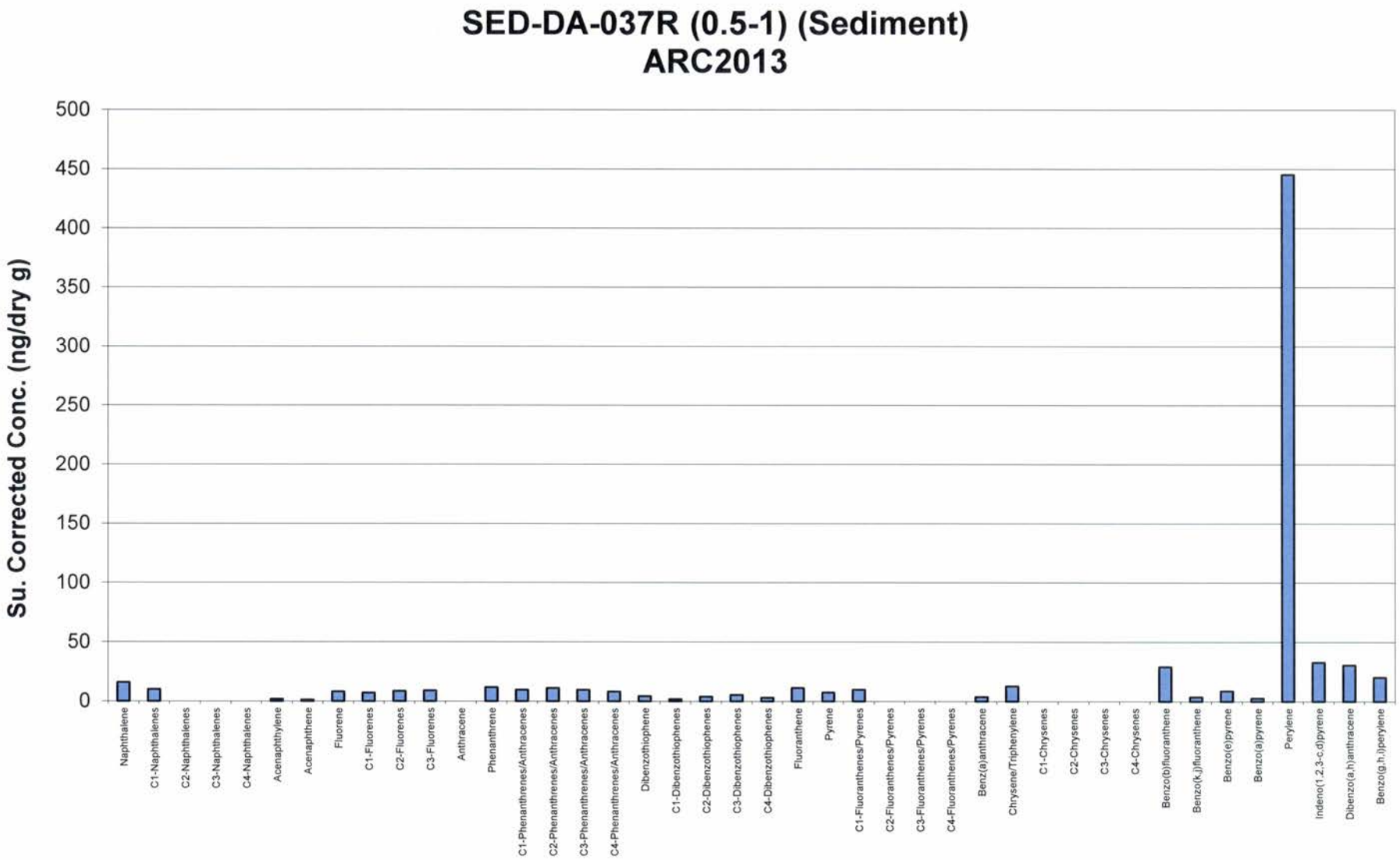
Sample Name	MS50183I.D
Client Name	AR-WKICV-250-005
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3167
Date Acquired	12/4/13 19:02
Method	PAH-2012.M
Sample Volume (mL)	1.0

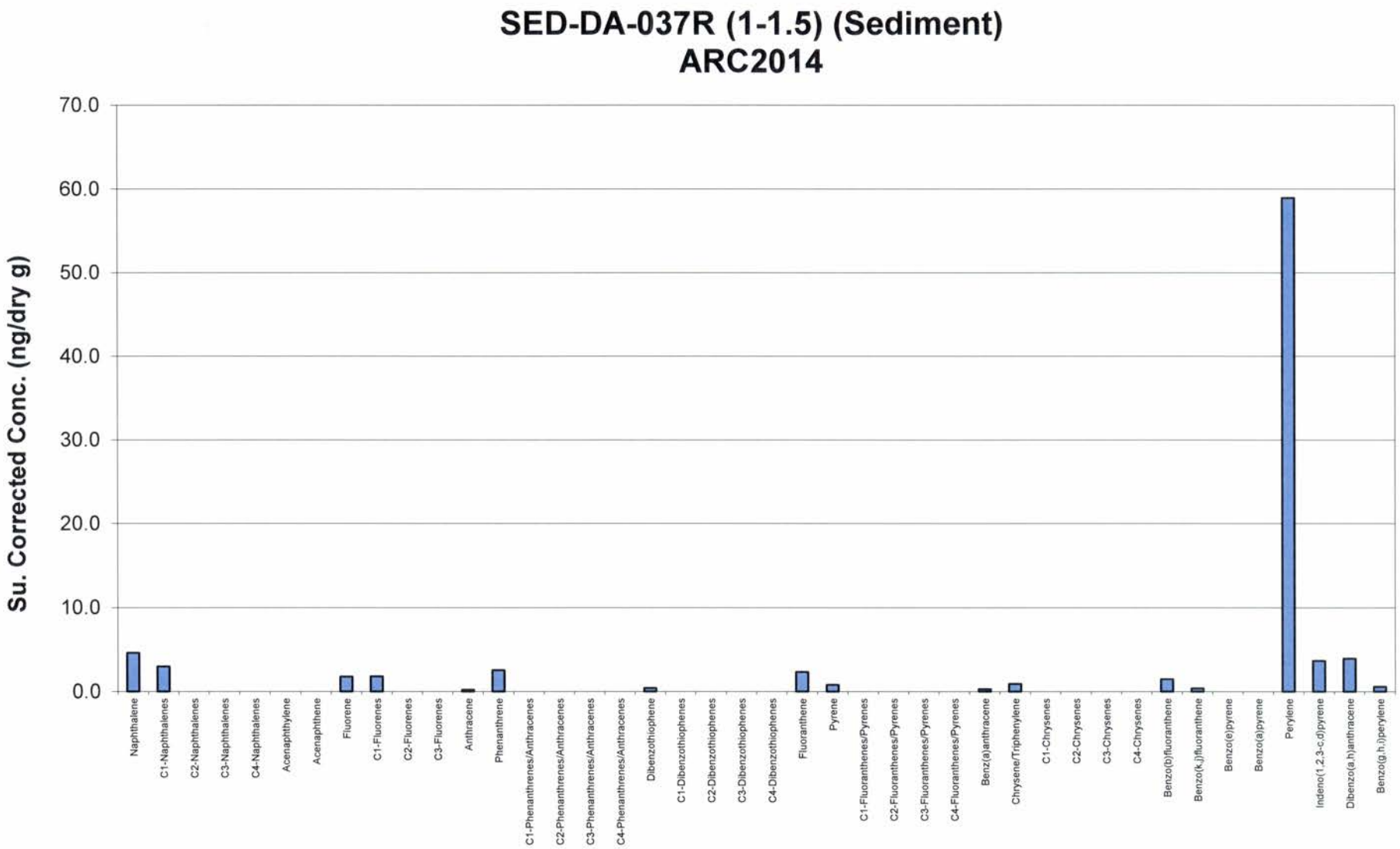
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
Naphthalene	274		9.1	250	200	300
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Acenaphthylene	246					
Acenaphthene	270		7.8	250	200	300
Fluorene	257		2.6	250	200	300
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Anthracene	252		0.6	250	200	300
Phenanthrene	268		6.7	250	200	300
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	265		5.8	250	200	300
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	253		1.3	250	200	300
Pyrene	268		6.7	250	200	300
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Benz(a)anthracene	254		1.5	250	200	300
Chrysene/Triphenylene	258		3.1	250	200	300
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	274		9.1	250	200	300
Benzo(k,j)fluoranthene	266		6.0	250	200	300
Benzo(e)pyrene	264		5.3	250	200	300
Benzo(a)pyrene	252		0.6	250	200	300
Perylene	259		3.2	251	200	301
Indeno(1,2,3-c,d)pyrene	266		6.1	250	200	300
Dibenzo(a,h)anthracene	275		9.4	250	200	300
Benzo(g,h,i)perylene	271		7.8	250	200	300
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	278		10.4	250	200	301
1-Methylnaphthalene	280		11.1	251	200	301
4-Methyldibenzothiophene	NA					
2/3-Methyldibenzothiophene	NA					
1-Methyldibenzothiophene	NA					
3-Methylphenanthrene	NA					
2-Methylphenanthrene	NA					
2-Methylanthracene	NA					
4/9-Methylphenanthrene	NA					
1-Methylphenanthrene	249		0.5	250	200	300
Surrogate Recovery						
Naphthalene-d8	274		9.2	250	200	300
Acenaphthene-d10	264		5.5	250	200	300
Phenanthrene-d10	265		5.9	250	200	300
Chrysene-d12	264		5.6	250	200	300
Perylene-d12	259		3.4	250	200	300

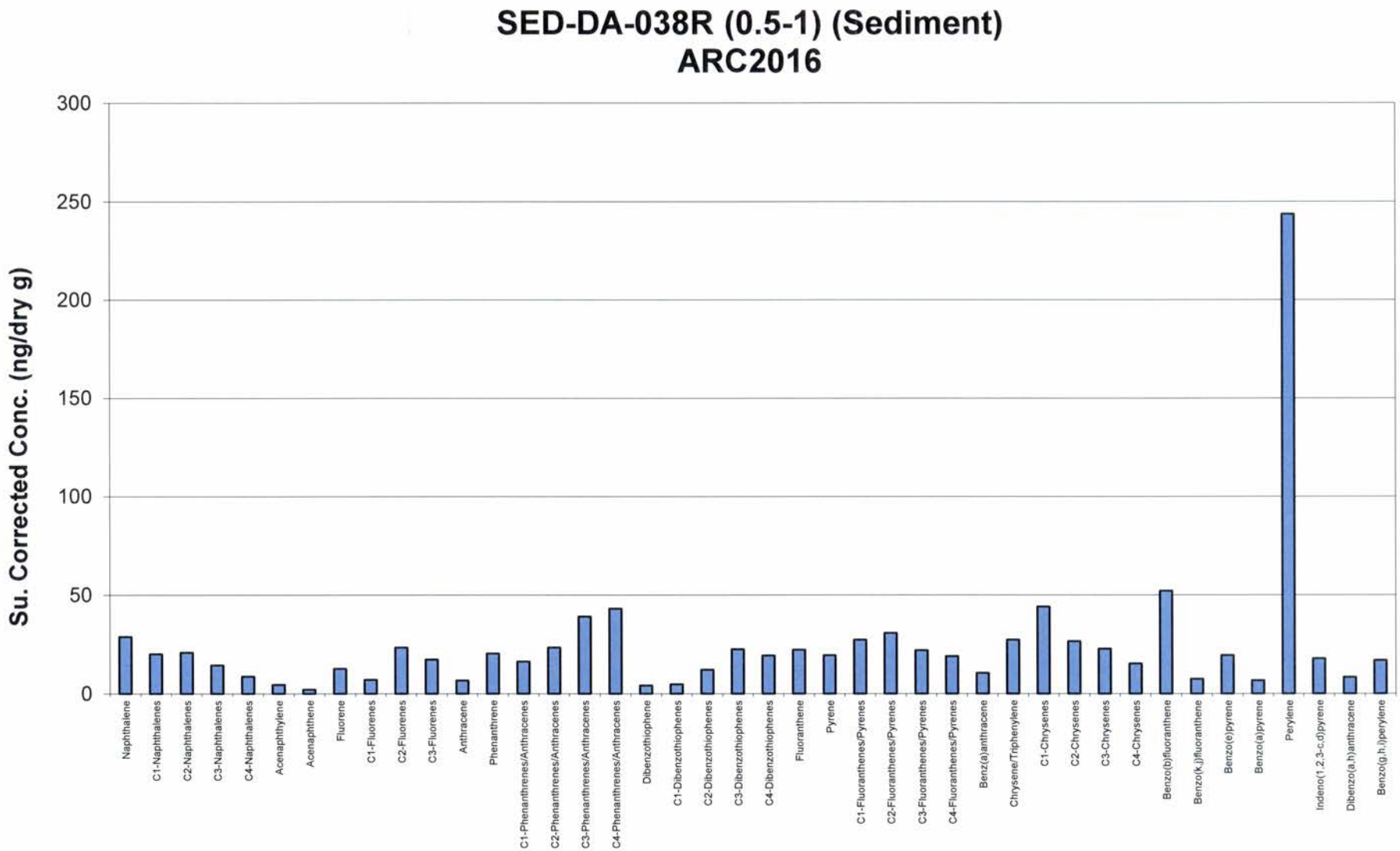
Polycyclic Aromatic Hydrocarbon Histograms

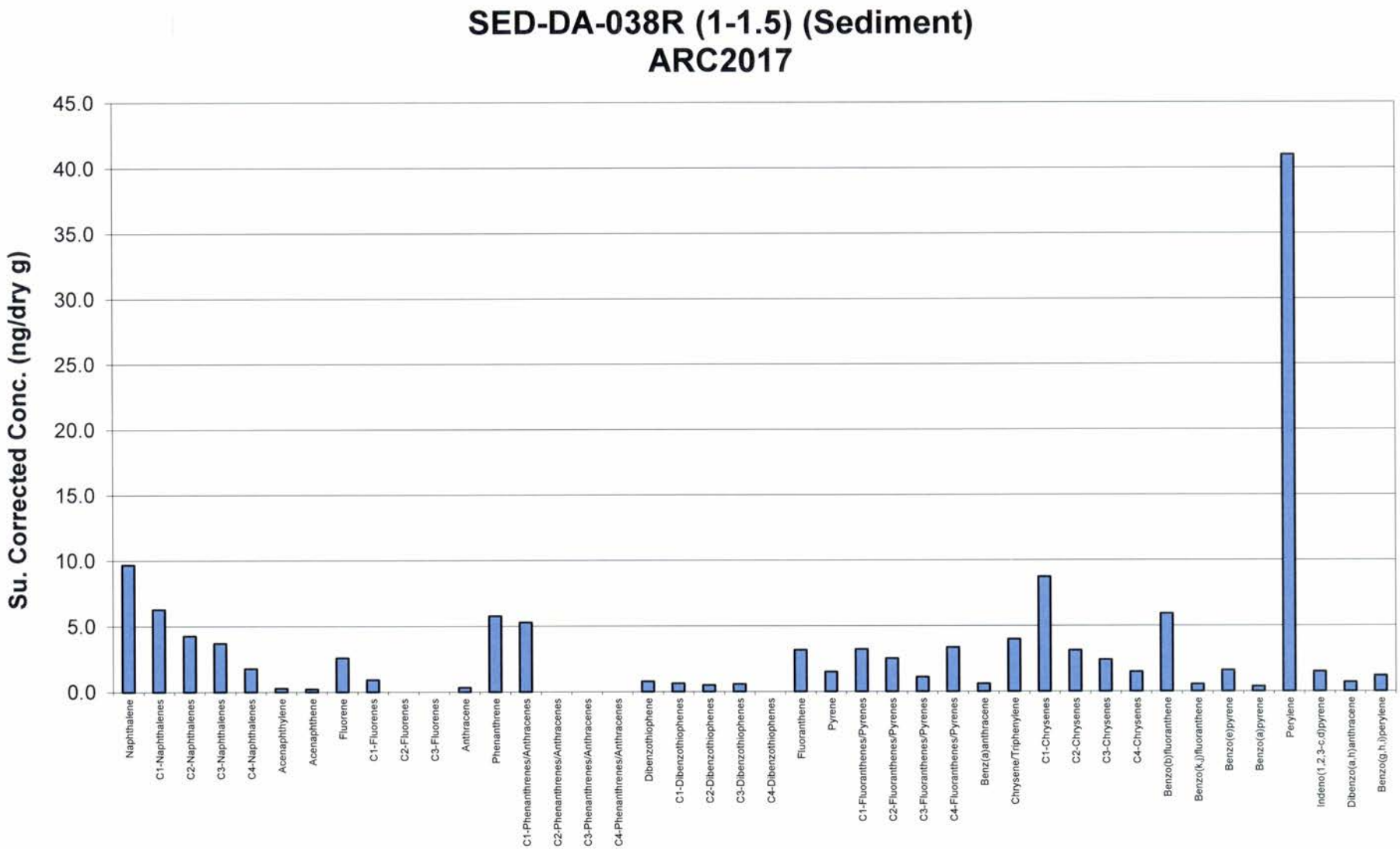

SED-DA-036R (0.5-1) (Sediment)
ARC2009
Su. Corrected Conc. (ng/dry g)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

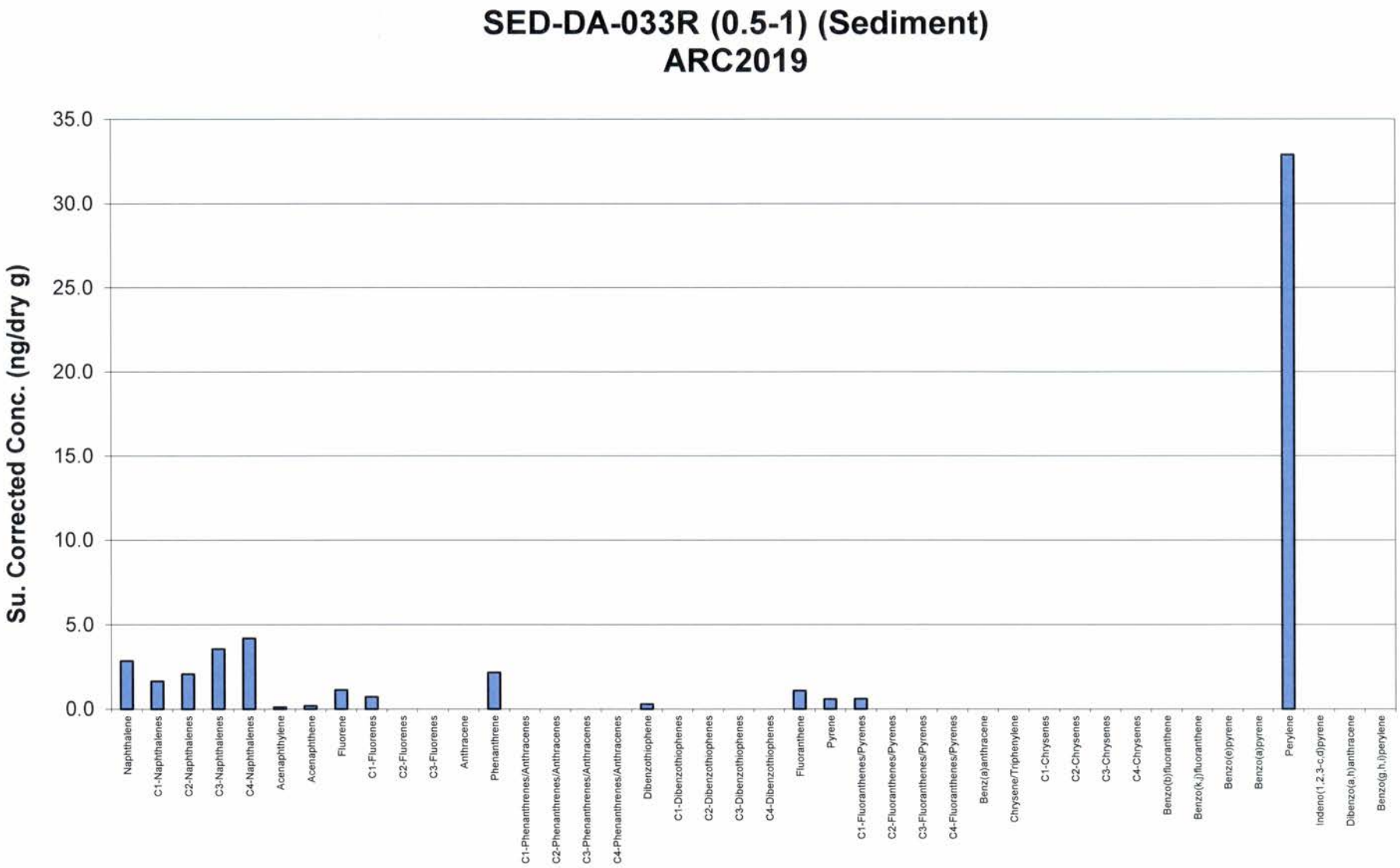

SED-DA-036R (1-1.5) (Sediment)
ARC2010
Su. Corrected Conc. (ng/dry g)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

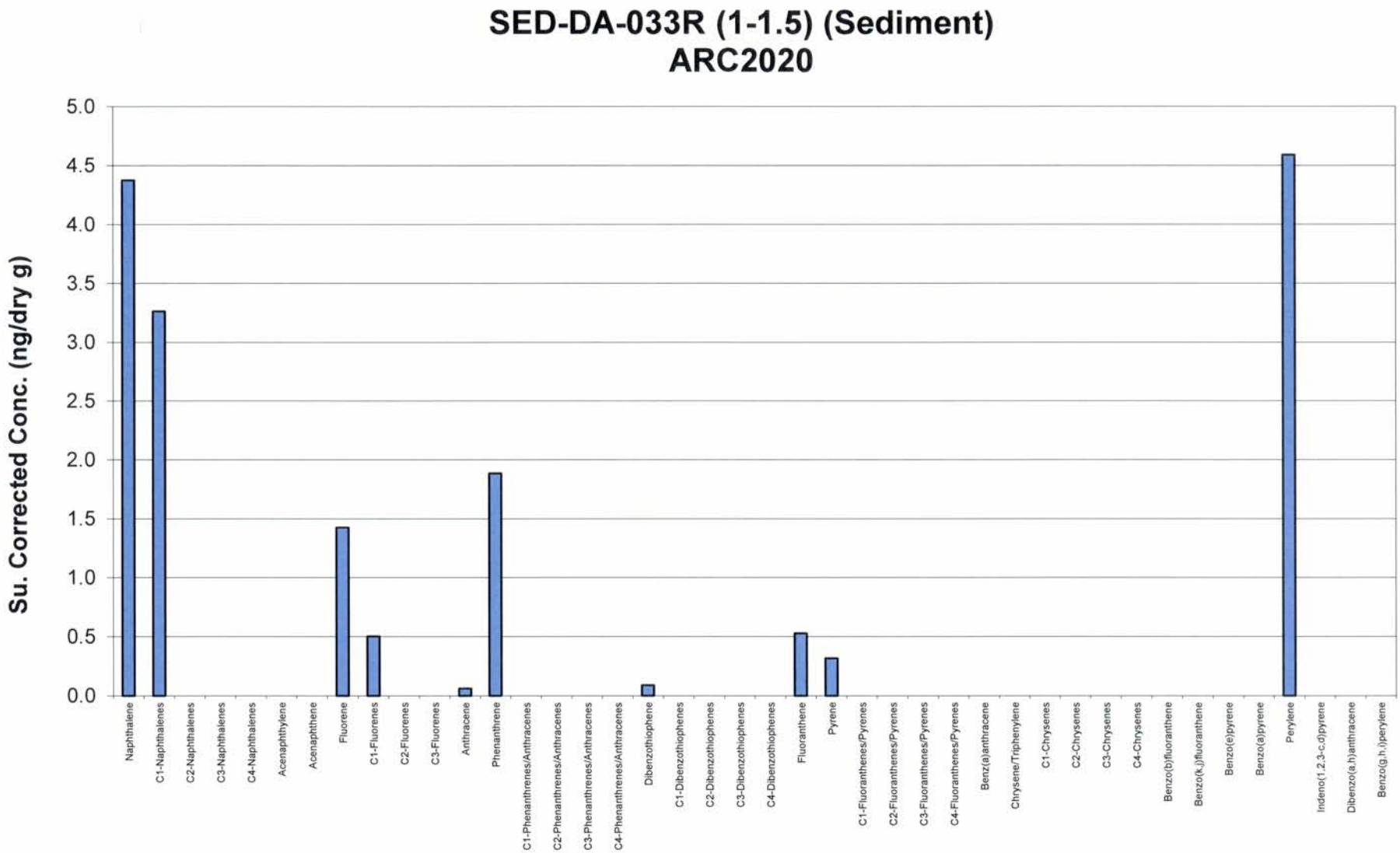

SED-DA-037R (0.5-1) (Sediment)
ARC2013
Su. Corrected Conc. (ng/dry g)
500
450
400
350
300
250
200
150
100
50
0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

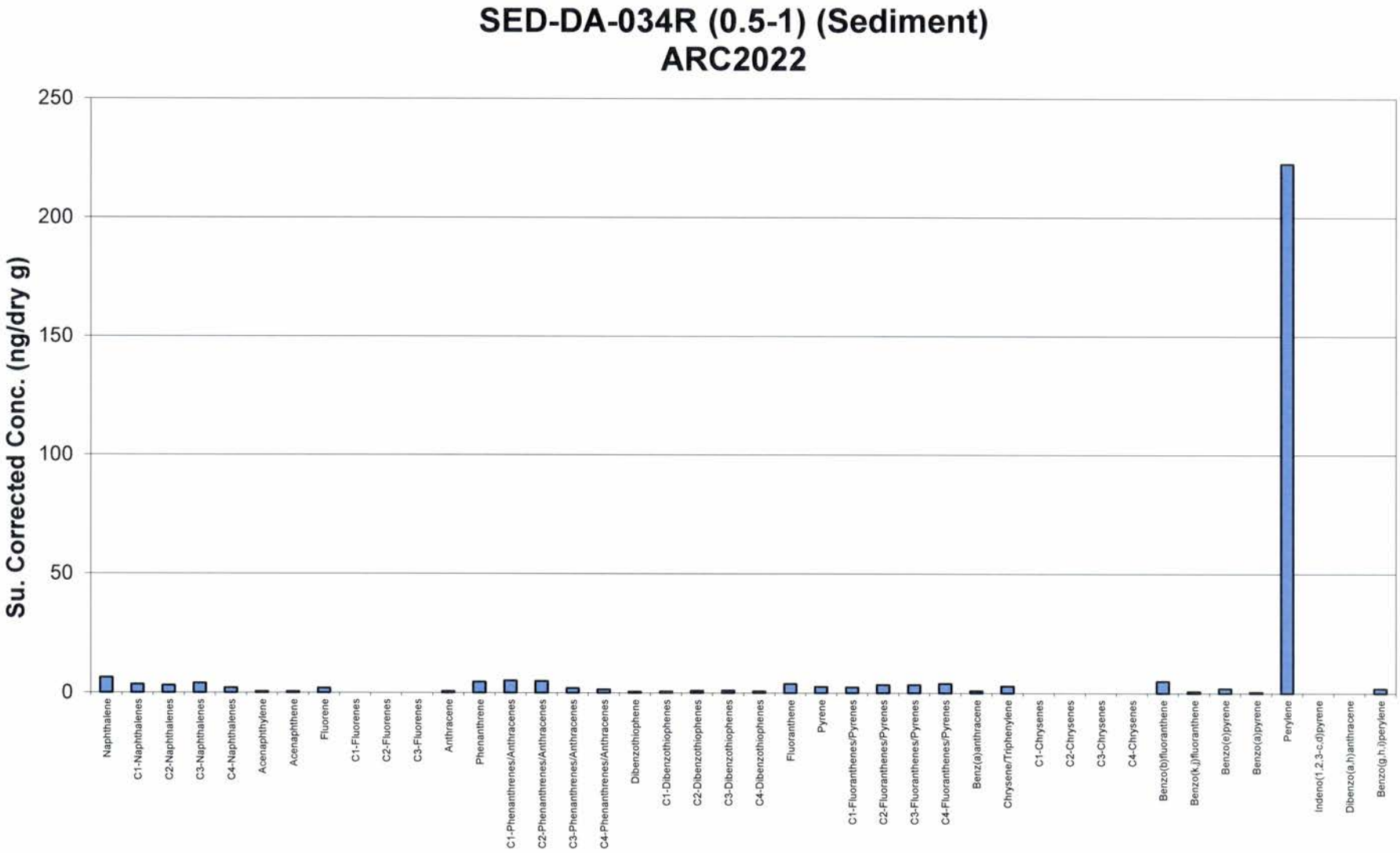

SED-DA-037R (1-1.5) (Sediment)
ARC2014
Su. Corrected Conc. (ng/dry g)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

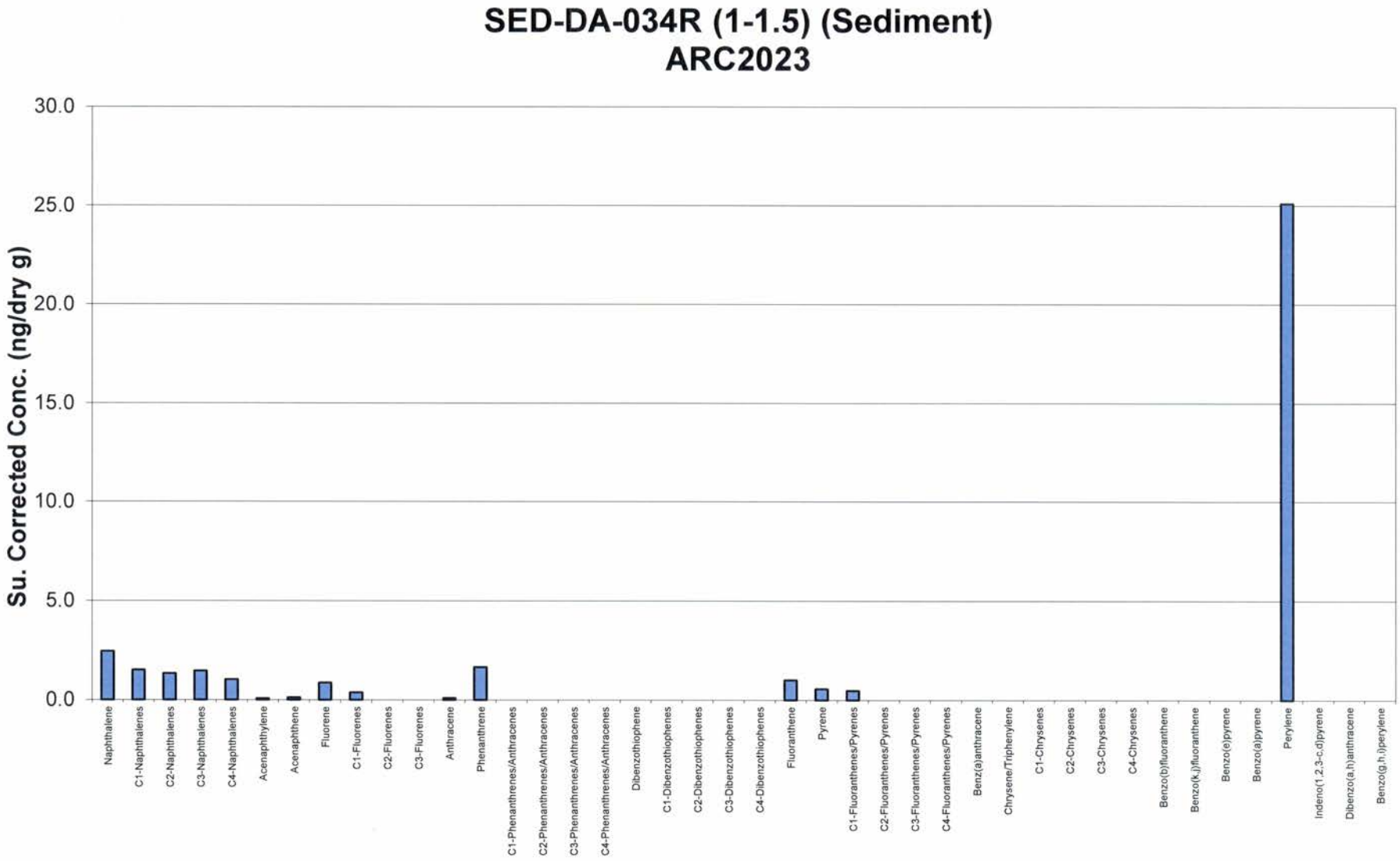

SED-DA-038R (0.5-1) (Sediment)
ARC2016
Su. Corrected Conc. (ng/dry g)
300
250
200
150
100
50
0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

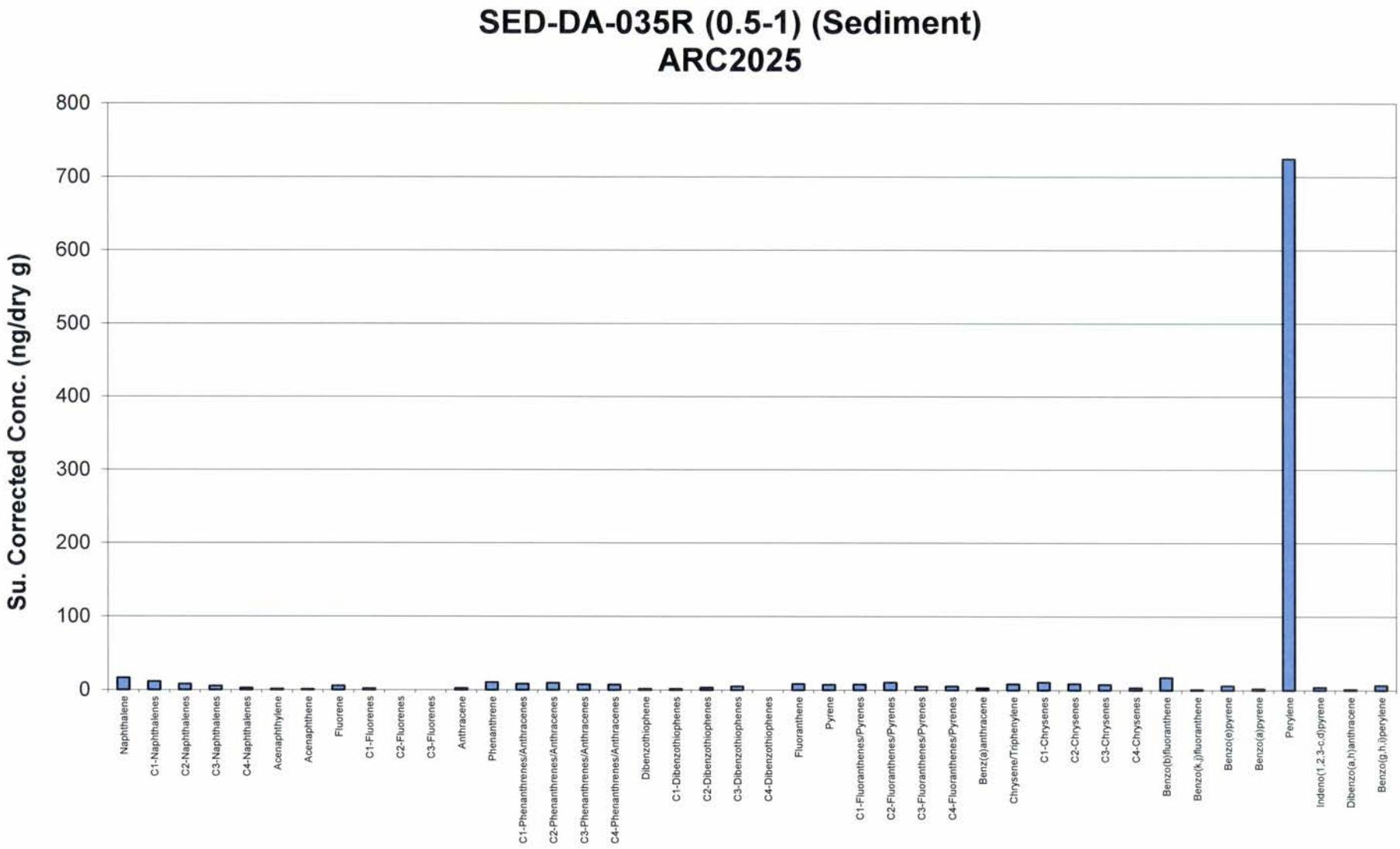

SED-DA-038R (1-1.5) (Sediment)
ARC2017
Su. Corrected Conc. (ng/dry g)
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

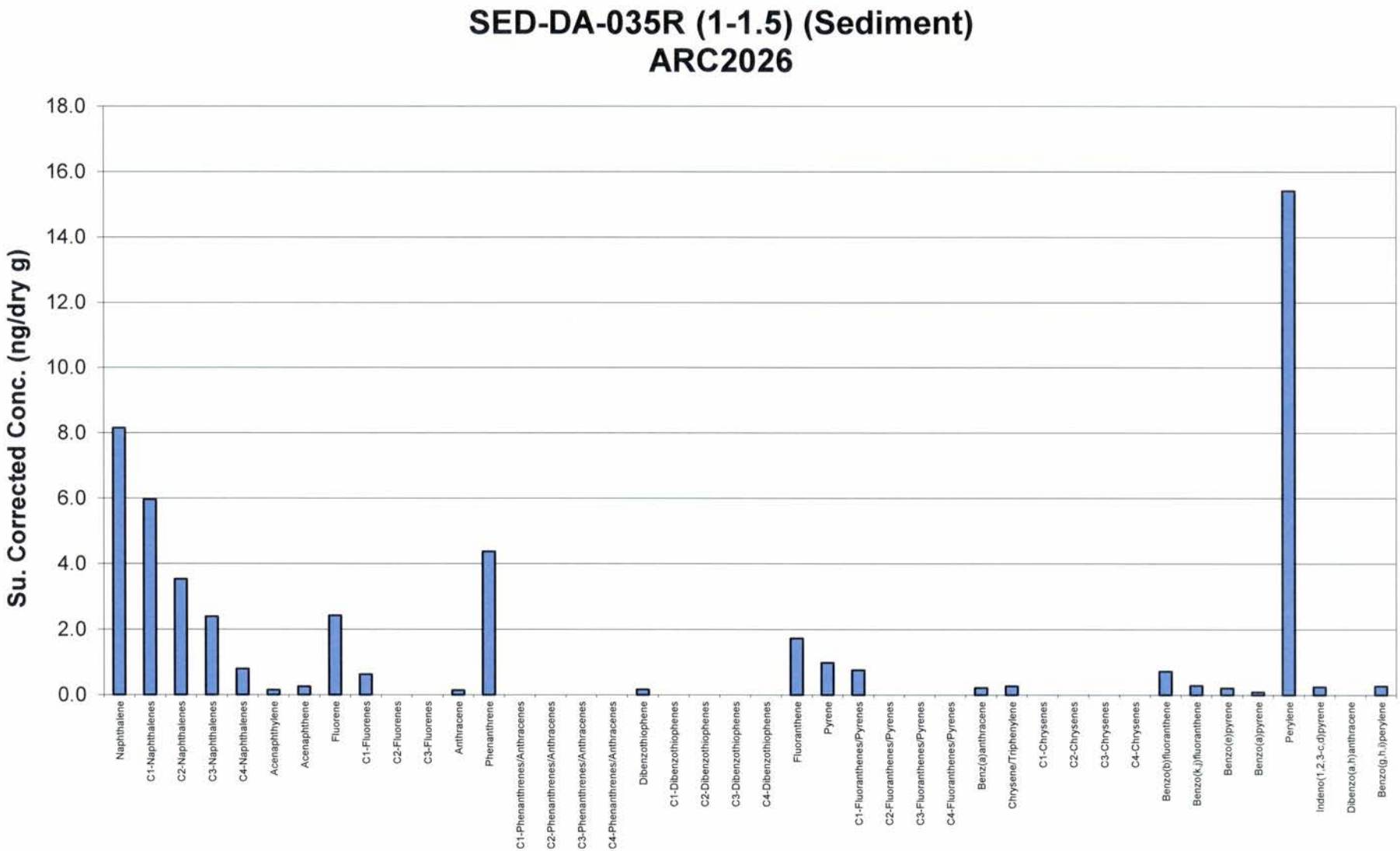

SED-DA-033R (0.5-1) (Sediment)
ARC2019
Su. Corrected Conc. (ng/dry g)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SED-DA-033R (1-1.5) (Sediment)
ARC2020
Su. Corrected Conc. (ng/dry g)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SED-DA-034R (0.5-1) (Sediment)
ARC2022
Su. Corrected Conc. (ng/dry g)
250
200
150
100
50
0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

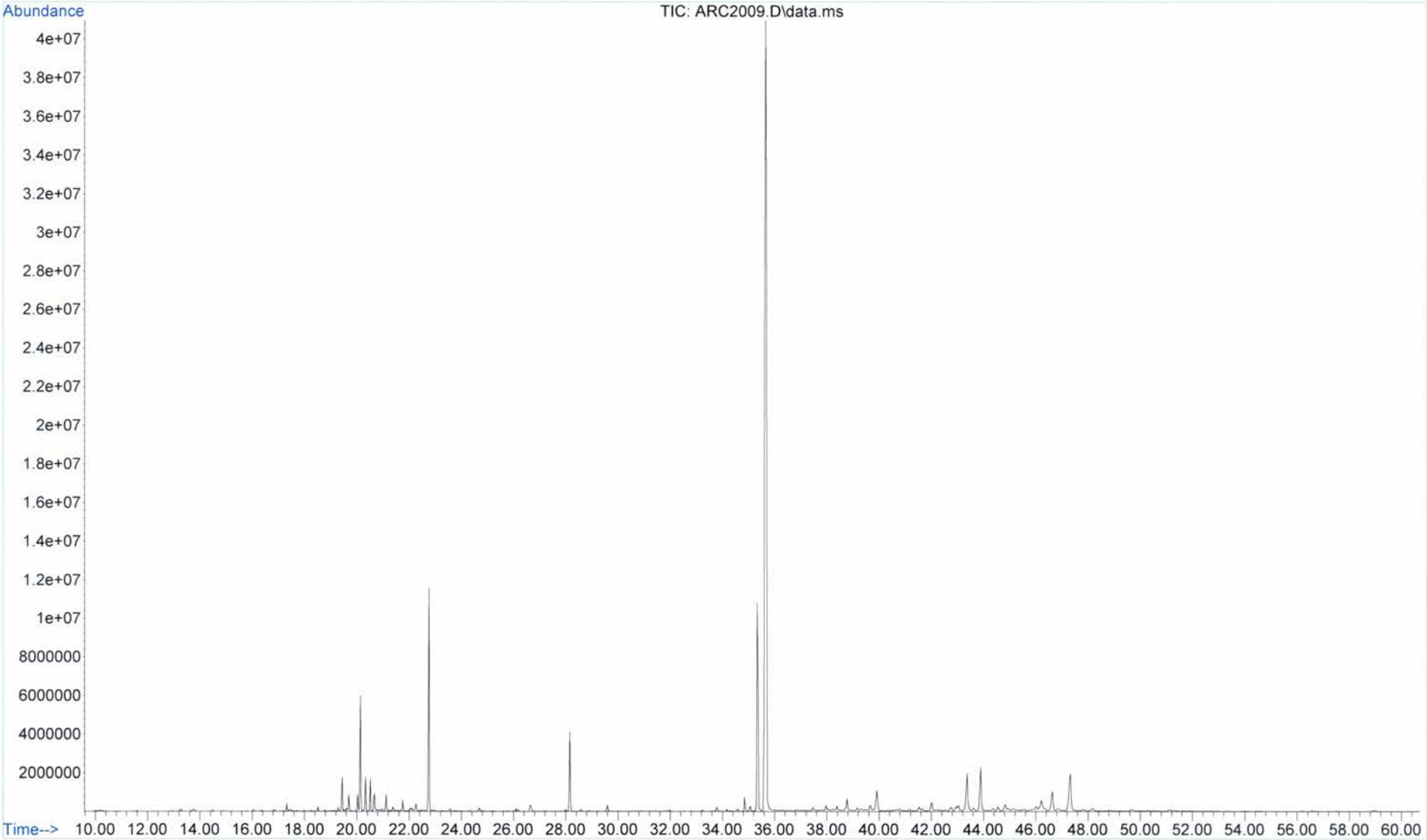

SED-DA-034R (1-1.5) (Sediment)
ARC2023
Su. Corrected Conc. (ng/dry g)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SED-DA-035R (0.5-1) (Sediment)
ARC2025
Su. Corrected Conc. (ng/dry g)
800
700
600
500
400
300
200
100
0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

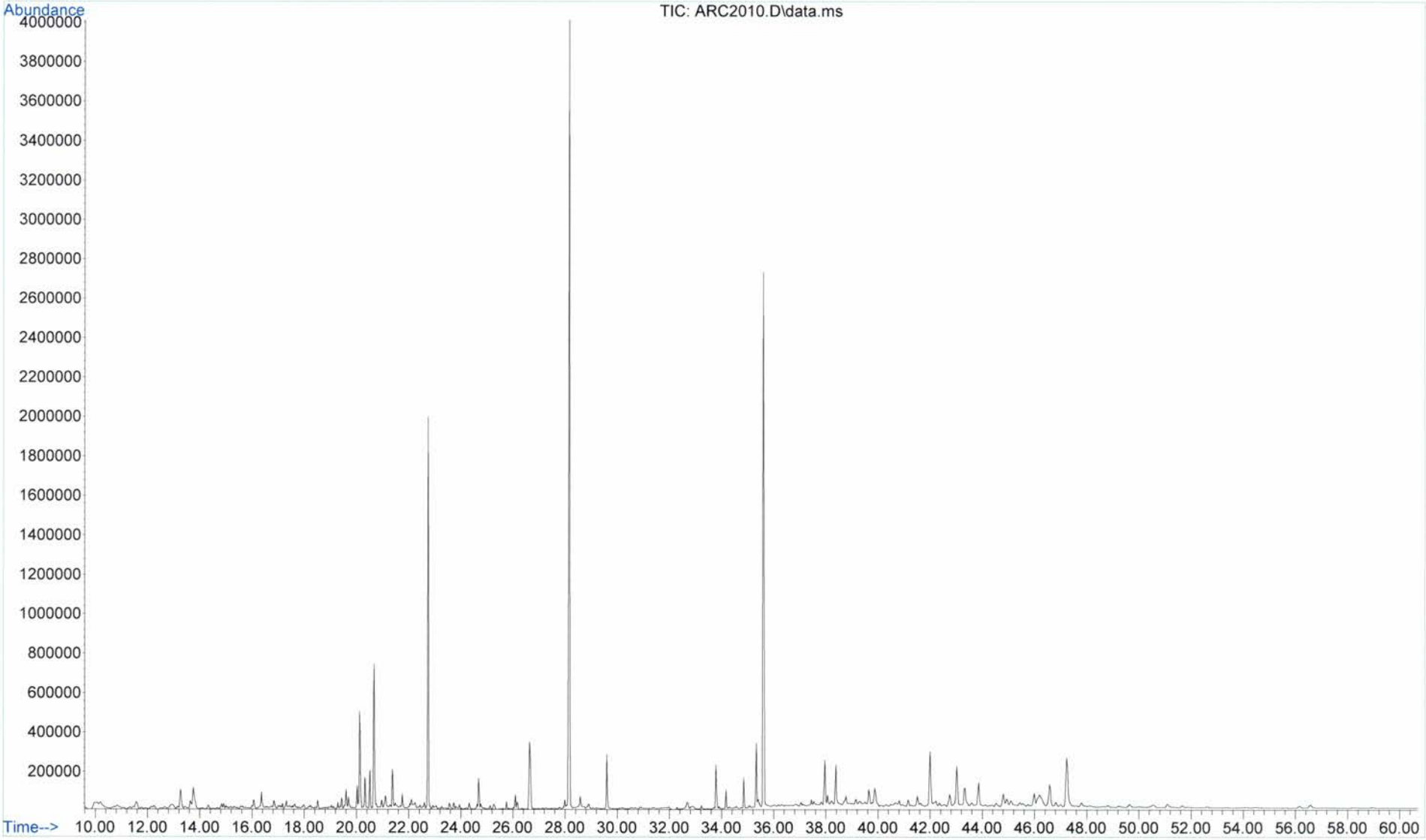

SED-DA-035R (1-1.5) (Sediment)
ARC2026
Su. Corrected Conc. (ng/dry g)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Acenaphthylene
Acenaphthene
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

Polycyclic Aromatic Hydrocarbon Total Ion Chromatograms

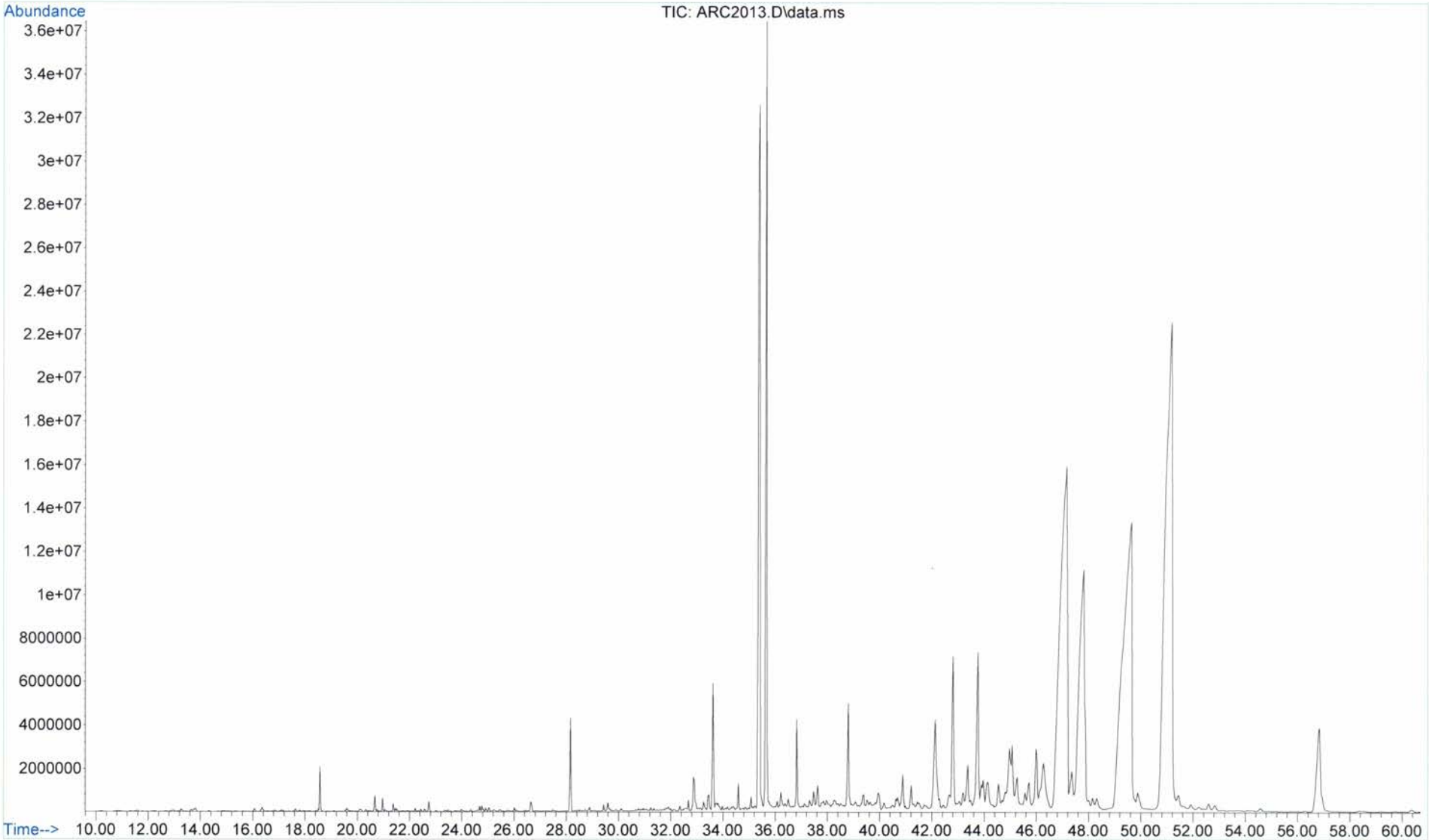
```
File        :C:\GCMS5\MS50183\ARC2009.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013   3:51     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-036R (0.5-1)
Misc Info   :
Vial Number: 17
```



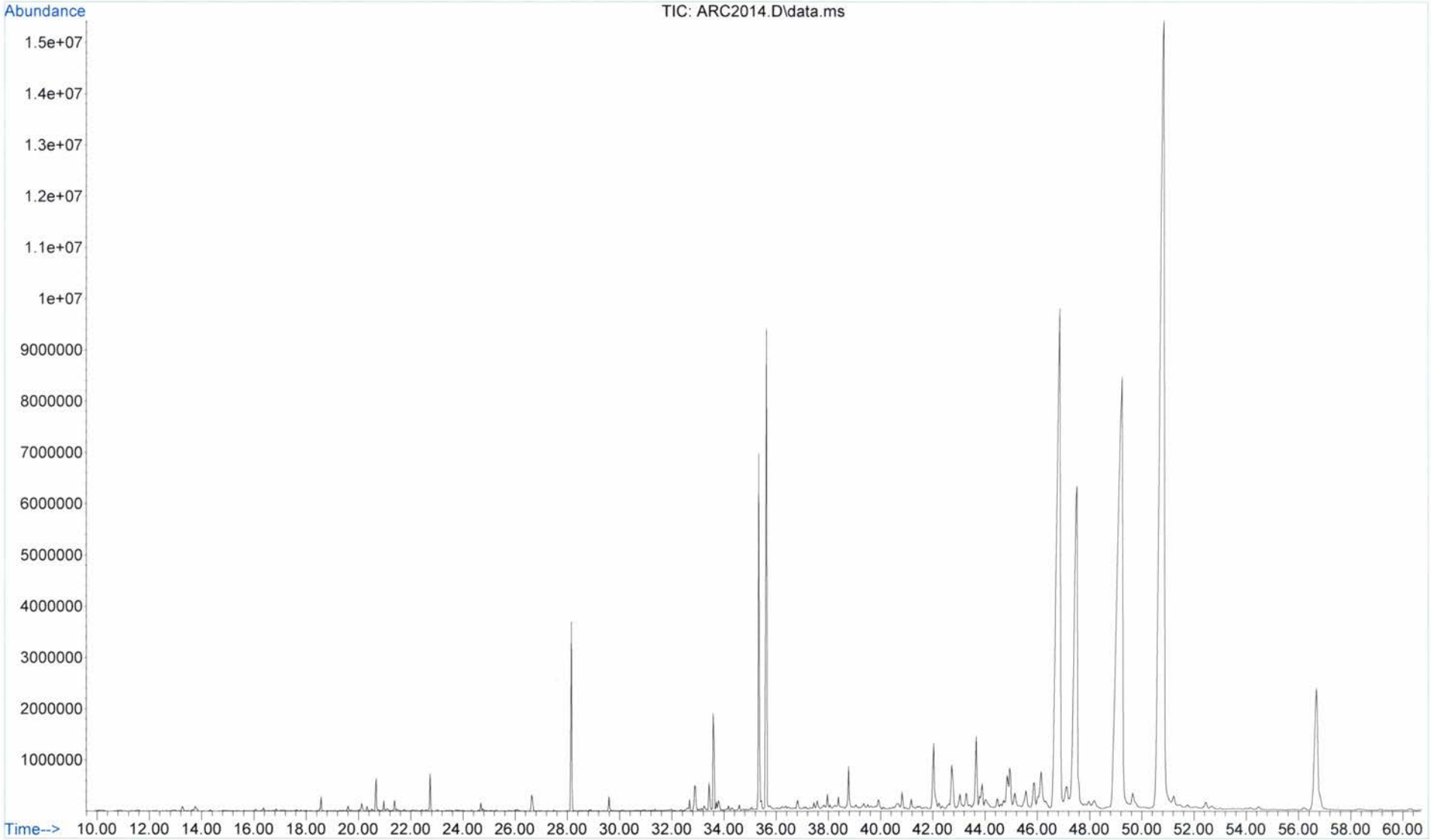
```
File        :C:\GCMS5\MS50183\ARC2010.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013   4:58     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-036R (1-1.5)
Misc Info   :
Vial Number: 18
```



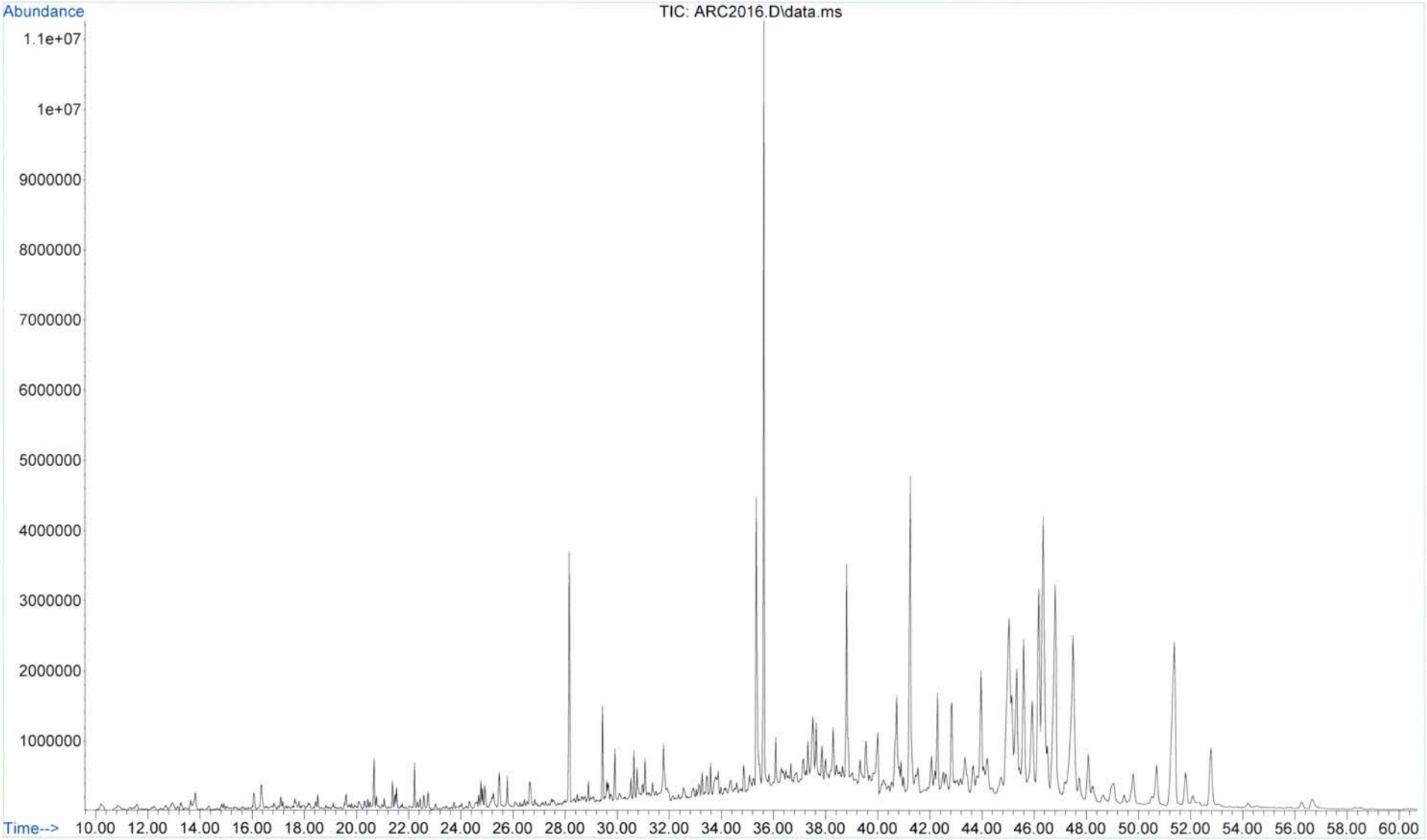
```
File        :C:\GCMS5\MS50183\ARC2013.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013   6:04     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-037R (0.5-1)
Misc Info   :
Vial Number: 19
```



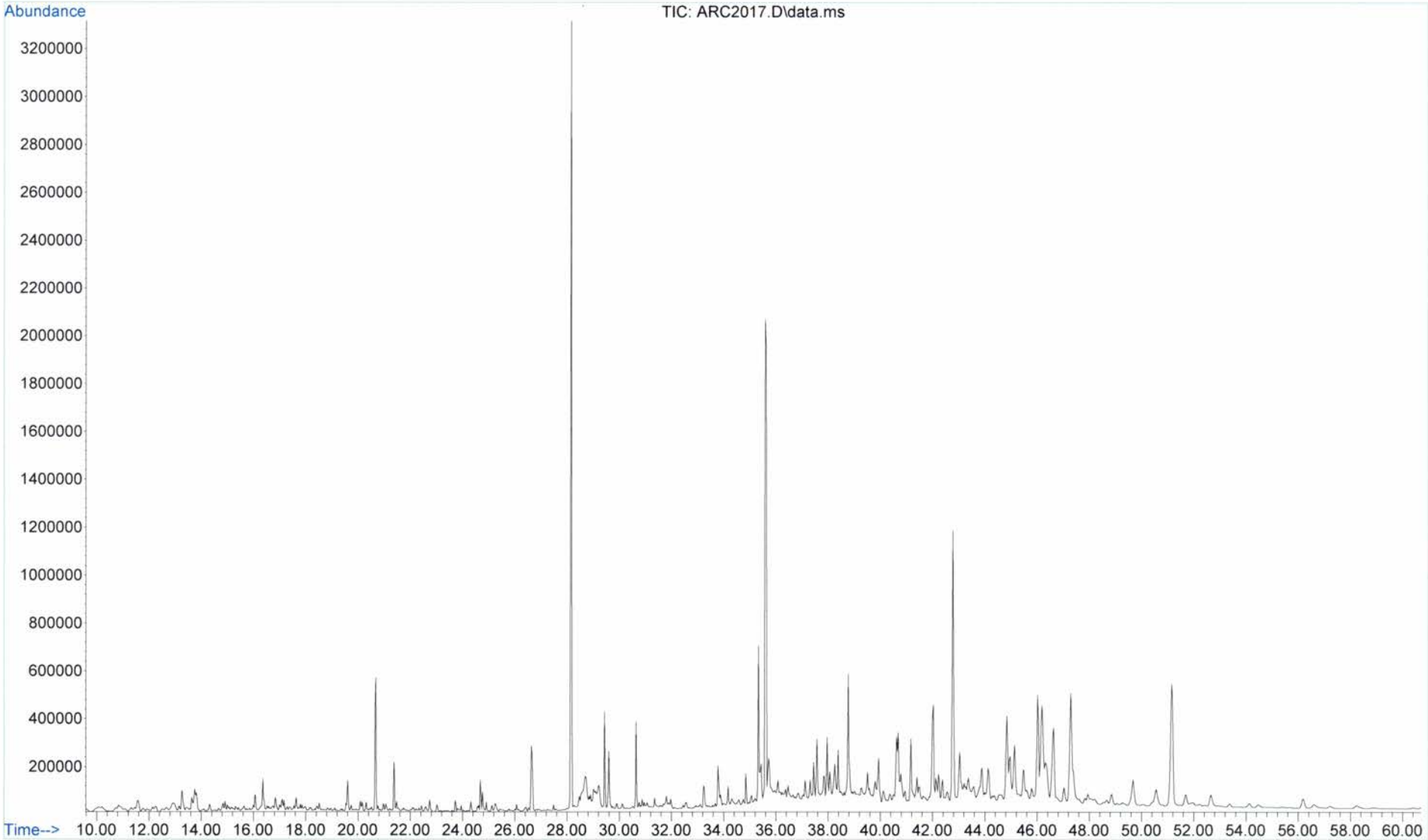
```
File        :C:\GCMS5\MS50183\ARC2014.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013   8:17     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-037R (1-1.5)
Misc Info   :
Vial Number: 21
```



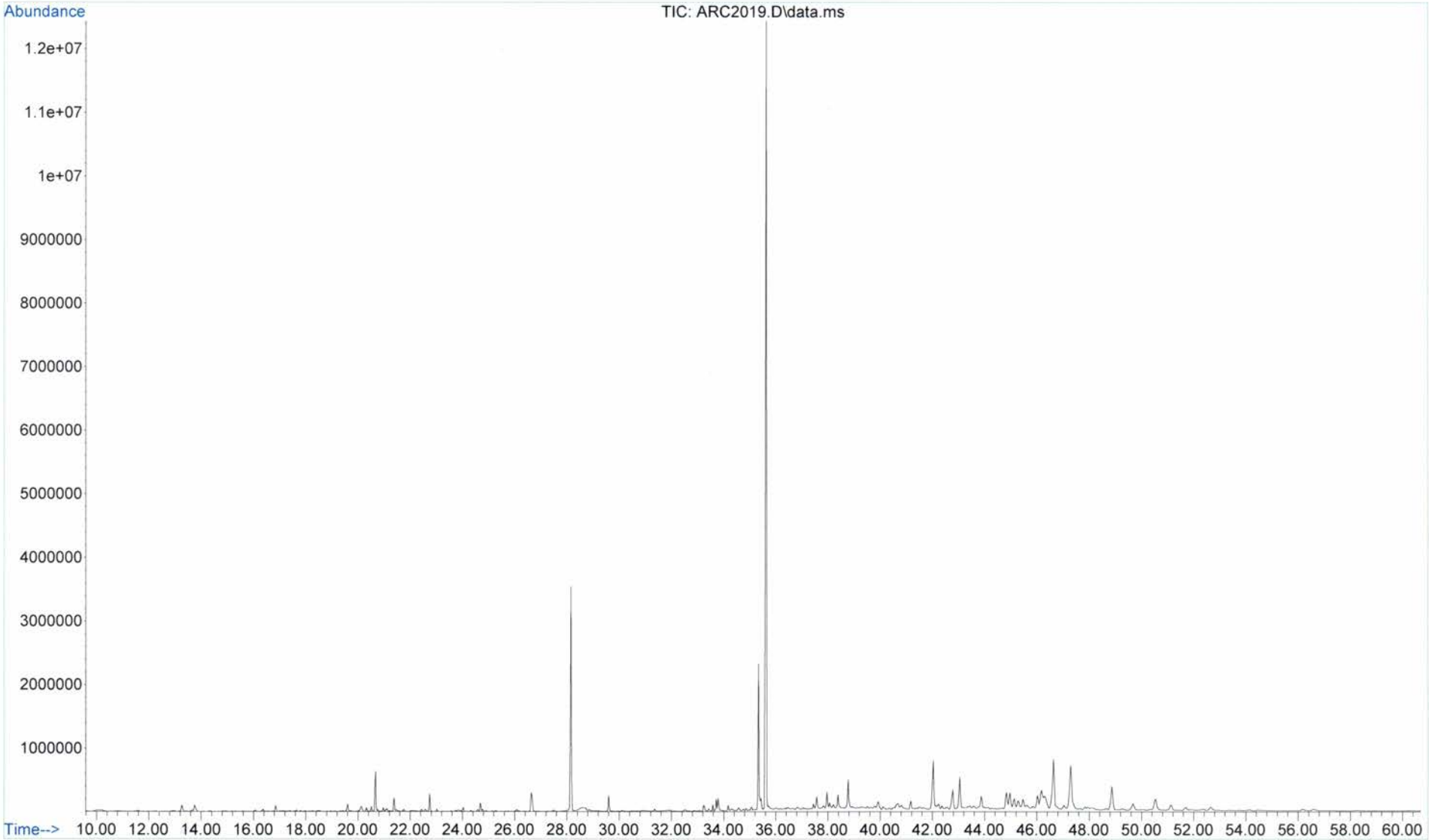
```
File        :C:\GCMS5\MS50183\ARC2016.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013   9:23     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-038R (0.5-1)
Misc Info   :
Vial Number: 22
```



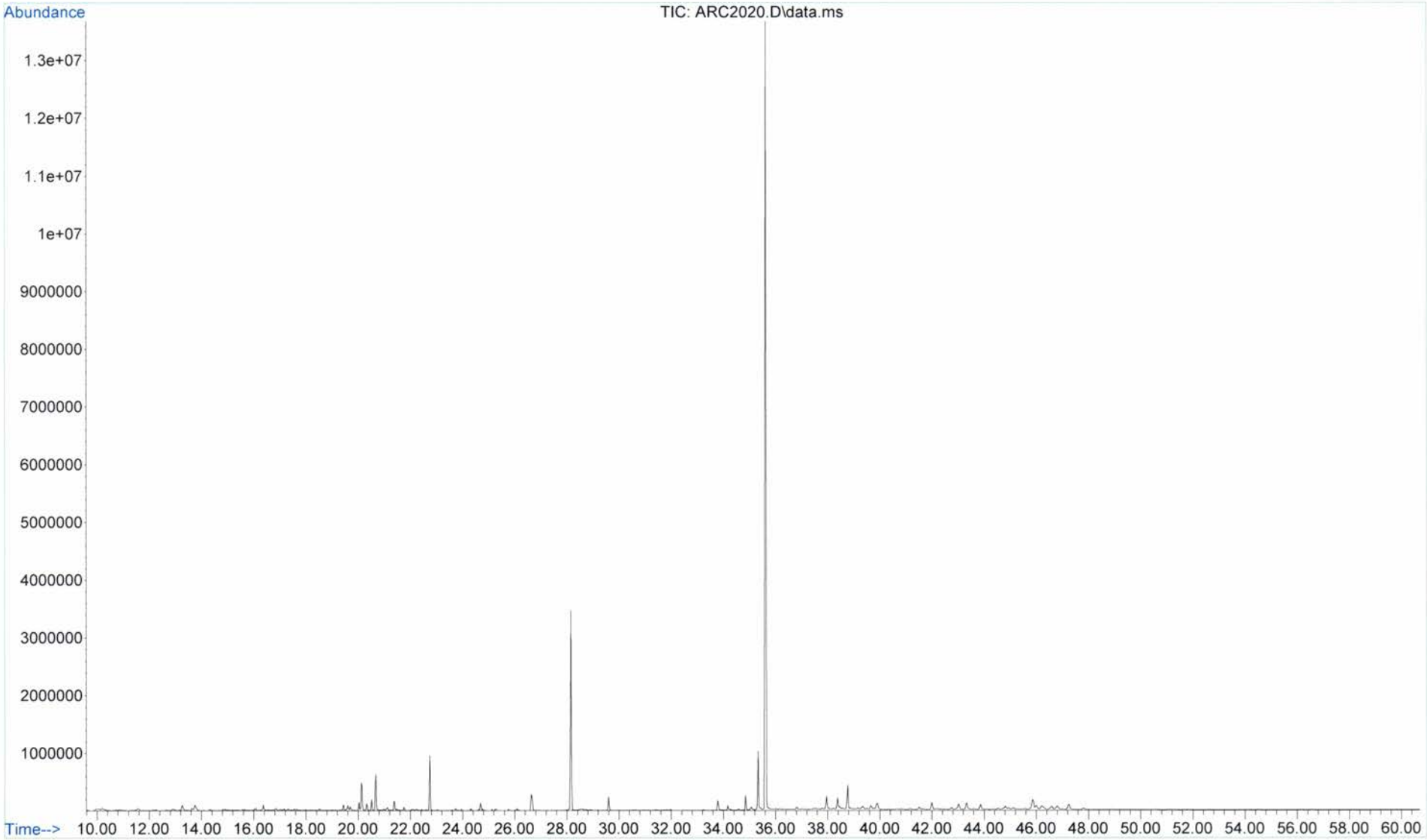
```
File        :C:\GCMS5\MS50183\ARC2017.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  10:29     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-038R (1-1.5)
Misc Info   :
Vial Number: 23
```



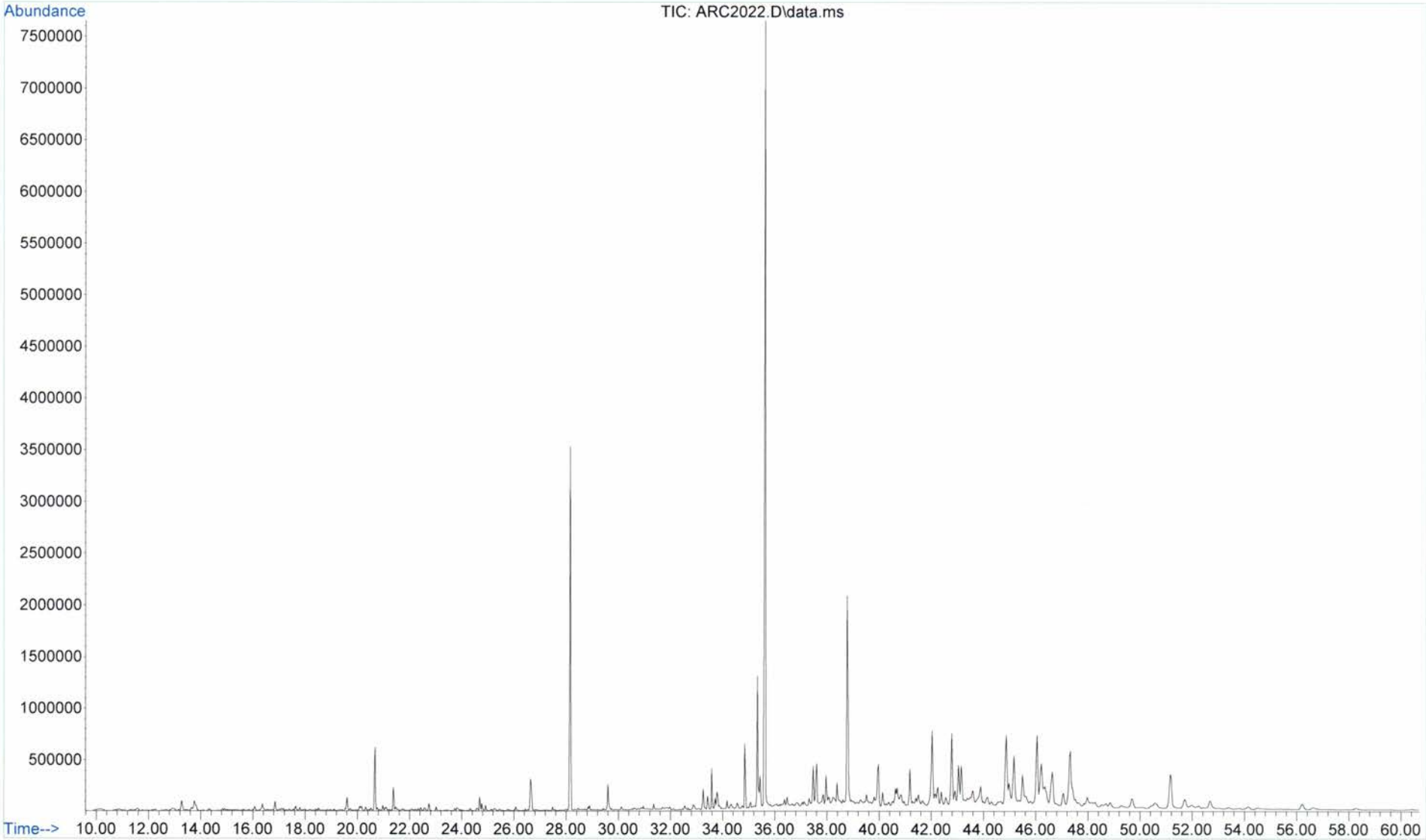
```
File        :C:\GCMS5\MS50183\ARC2019.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  11:35     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-033R (0.5-1)
Misc Info   :
Vial Number: 24
```



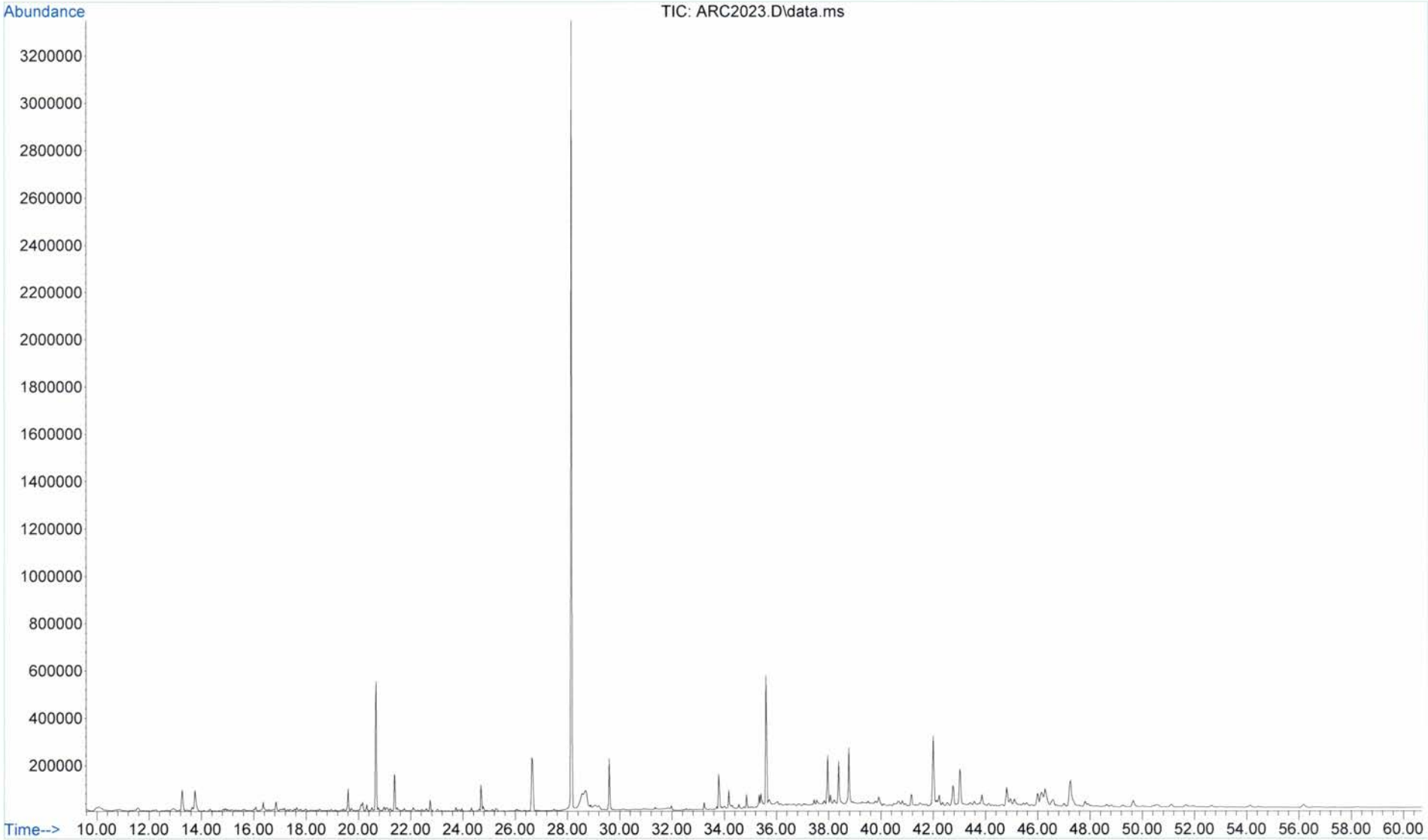
```
File        :C:\GCMS5\MS50183\ARC2020.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  12:41     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-033R (1-1.5)
Misc Info   :
Vial Number: 25
```



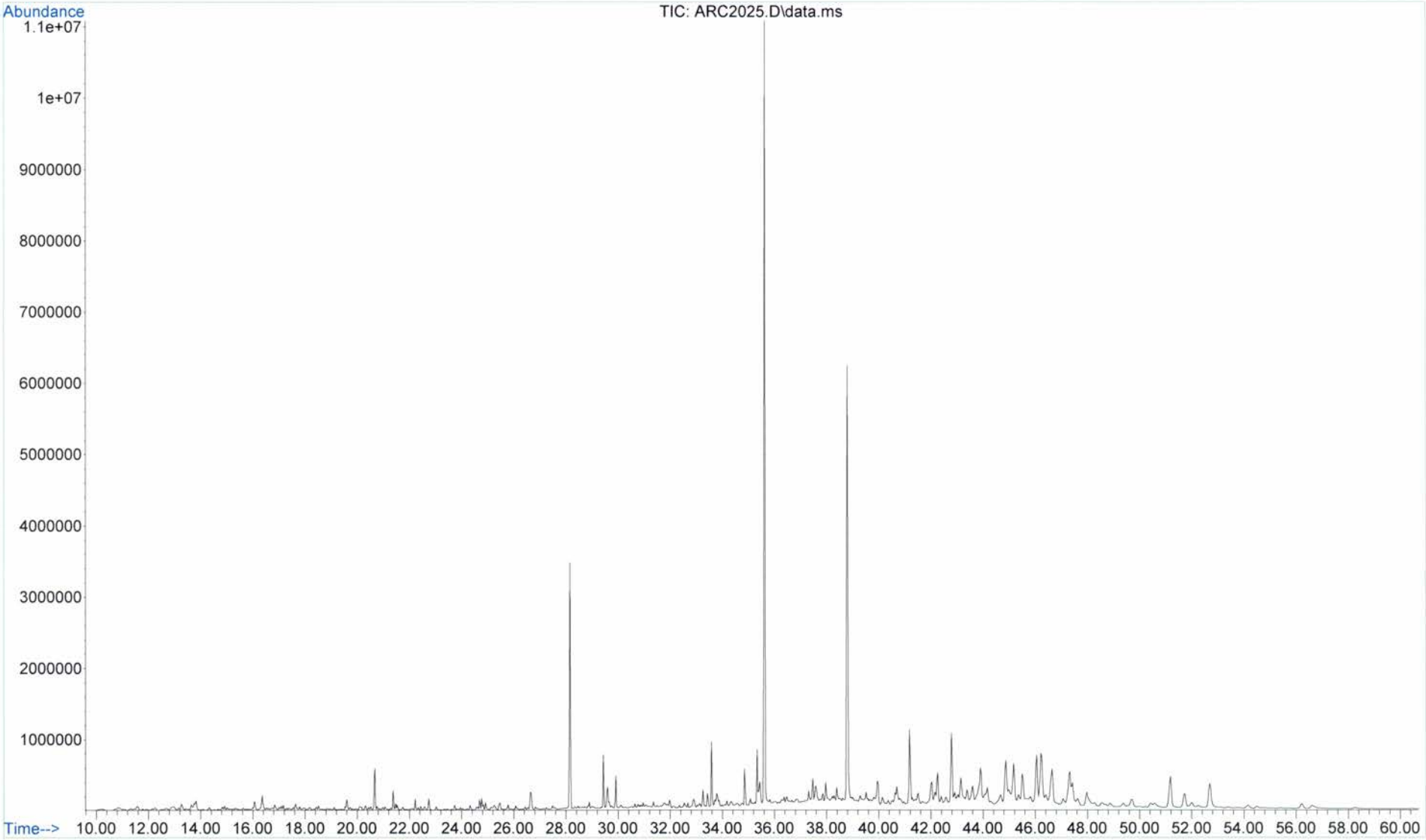
```
File        :C:\GCMS5\MS50183\ARC2022.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  13:48     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-034R (0.5-1)
Misc Info   :
Vial Number: 26
```



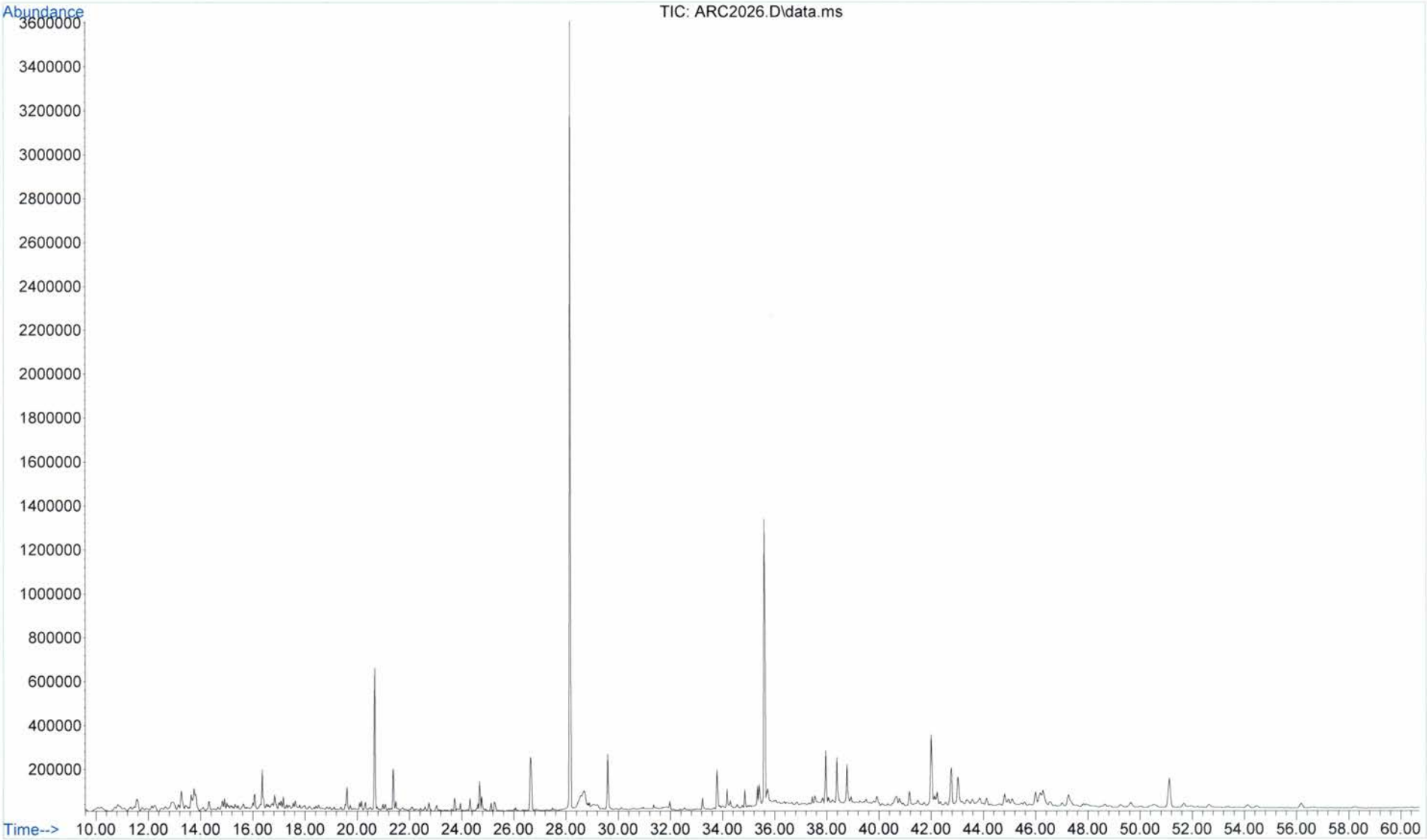
```
File        :C:\GCMS5\MS50183\ARC2023.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  14:54     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-034R (1-1.5)
Misc Info   :
Vial Number: 27
```



```
File        :C:\GCMS5\MS50183\ARC2025.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  16:00     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-035R (0.5-1)
Misc Info   :
Vial Number: 28
```



```
File        :C:\GCMS5\MS50183\ARC2026.D
Operator    : ECM(YMIAO)
Acquired    :  5 Dec 2013  17:06     using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: SED-DA-035R (1-1.5)
Misc Info   :
Vial Number: 29
```



Polycyclic Aromatic Hydrocarbon Raw Data

B&B LABORATORIES PAHs QA FORM

Extraction Page:	ENV 3167	Analyst:	Y. Miao
Client:	Arcadis - Mayflower AR	Date:	December 10, 2013
Job: #:	J13034	Project Quality Manager:	W Frank
SDG #:	13112101	Date:	12/18/13

Initial Calibration:	No failures	ICV (from the second source):	No failures

Surrogate Recoveries:	d12-Perylene were detected outside of the laboratory % recovery limits in 12 client submitted samples and three internal QC samples that used client samples (Lab duplicate, MS, and MSD)
Procedural Blank:	No failures
Blank Spike:	NA
Blank Spike Duplicate:	NA
Laboratory Duplicate:	No failures
Matrix Spike:	Acenaphthylene and Benzo(a)pyrene were detected outside of the laboratory %recovery limits of 40-120%. Perylene was detected outside of the laboratory % recovery limits of 40-120%. However this compound is outside of the limits due to high native concentrations of PAHs in the sample. Peaks are qualifed with a "Y" - invalid spike
Matirx Spike Duplicate:	Acenaphthylene and Benzo(a)pyrene were detected outside of the laboratory %recovery limits of 40-120%. Perylene was detected outside of the laboratory % recovery limits of 40-120%. However this compound is outside of the limits due to high native concentrations of PAHs in the sample. Peaks are qualifed with a "Y" - invalid spike
SRM/LCS (Solution, Tissue, Sediment):	Solution: No failures SRM1941b (Sediment): No failures
CCC (from a second source):	No failures
SRM-2279 Reference Oil	No failures
Mass Discrimination Check (benzo(ghi)perylene/phenanthrene ≥ 0.7)	No failures

```
   Sequence Name: C:\msdchem\1\sequence\MS50183.s
         Comment: Arcadis Mayflower AR-PAH (12/04/13)
        Operator: ECM(YMIAO)
       Data Path: C:\MSDCHEM\1\DATA\MS50183\
Instrument Control  Pre-Seq Cmd:
Data Analysis       Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis      Post-Seq Cmd:

    Method Sections To Run       Sequence Barcode Options
    (X) Full Method              (X) On Mismatch, Inject Anyway
    ( ) Reprocessing Only        ( ) On Mismatch, Don't Inject
                                 ( ) Barcode Disabled
   ---------------------------------------------------------------------
   Line                    Sample Name/Misc Info
 1)  Sample          1  MS50183A PAH-2012 Solvent
 2)  Sample          2  MS50183B PAH-2012 AR-WKC1-020-031
 3)  Sample          3  MS50183C PAH-2012 AR-WKC2-100-031
 4)  Sample          4  MS50183D PAH-2012 AR-WKC3-250-031
 5)  Sample          5  MS50183E PAH-2012 AR-WKC4-500-031
 6)  Sample          6  MS50183F PAH-2012 AR-WKC5-1000-031
 7)  Sample          7  MS50183G PAH-2012 AR-WKC6-5000-031
 8)  Sample          8  MS50183H PAH-2012 AR-WKISSU-250-005
 9)  Sample          9  MS50183I PAH-2012 AR-WKICV-250-005
10)  Sample         10  MS50183J PAH-2012 AR-WKCC-250-039
11)  Sample         11  MS50183K PAH-2012 AR-SRM2779-WK-4.0-003
12)  Sample         12  ENV3167A PAH-2012
13)  Sample         13  ENV3167B PAH-2012
14)  Sample         14  ENV3167C PAH-2012
15)  Sample         15  ENV3167D PAH-2012
16)  Sample         16  ENV3167E PAH-2012
17)  Sample         17  ARC2009  PAH-2012
18)  Sample         18  ARC2010  PAH-2012
19)  Sample         19  ARC2013  PAH-2012
20)  Sample         20  MS50183L PAH-2012 AR-WKCC-250-039
21)  Sample         21  ARC2014  PAH-2012
22)  Sample         22  ARC2016  PAH-2012
23)  Sample         23  ARC2017  PAH-2012
24)  Sample         24  ARC2019  PAH-2012
25)  Sample         25  ARC2020  PAH-2012
26)  Sample         26  ARC2022  PAH-2012
27)  Sample         27  ARC2023  PAH-2012
28)  Sample         28  ARC2025  PAH-2012
29)  Sample         29  ARC2026  PAH-2012
30)  Sample         30  MS50183M PAH-2012 AR-WKCC-250-039
```

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183J.D
Acq On : 4 Dec 2013 8:08 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 06 15:54:09 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	90	0.02
2	S	Naphthalene-d8	1.728	1.795	-3.9	93	0.00
3	T	cis/trans Decalin	0.345	0.367	-6.4	94	0.00
4	un	C1-Decalins	0.345	0.000	100.0#	0#	-12.63#
5	un	C2-Decalins	0.345	0.000	100.0#	0#	-13.41#
6	un	C3-Decalins	0.345	0.000	100.0#	0#	-16.12#
7	un	C4-Decalins	0.345	0.000	100.0#	0#	-18.78#
8	T	Naphthalene	1.822	1.909	-4.8	94	0.00
9	T	2-Methylnaphthalene	1.126	1.155	-2.6	93	0.02
10	T	1-Methylnaphthalene	1.093	1.121	-2.6	92	0.00
11	T	2,6-Dimethylnaphthalene	0.998	1.000	-0.2	91	0.00
12	T	1,6,7-Trimethylnaphthalene	0.935	0.917	1.9	90	0.00
13	un	C2-Naphthalenes	1.822	0.000	100.0#	0#	-18.82#
14	un	C3-Naphthalenes	1.822	0.000	100.0#	0#	-19.98#
15	un	C4-Naphthalenes	1.822	0.000	100.0#	0#	-22.33#
16	T	Benzothiophene	1.408	1.467	-4.2	93	0.02
17	un	C1-Benzothiophenes	1.408	0.000	100.0#	0#	-15.42#
18	un	C2-Benzothiophenes	1.408	0.000	100.0#	0#	-18.33#
19	un	C3-Benzothiophenes	1.408	0.000	100.0#	0#	-20.25#
20	un	C4-Benzothiophenes	1.408	0.000	100.0#	0#	-21.95#
21	S	Acenaphthene-d10	0.944	0.943	0.1	91	0.00
22	T	Biphenyl	1.383	1.405	-1.6	92	0.02
23	T	Acenaphthylene	1.617	1.505	6.9	85	0.00
24	T	Acenaphthene	0.988	0.989	-0.1	91	0.00
25	T	Dibenzofuran	1.415	1.431	-1.1	92	0.00
26	T	Fluorene	1.177	1.147	2.5	90	0.00
27	T	1-Methylfluorene	0.677	0.632	6.6	87	0.03
28	un	C1-Fluorenes	1.177	0.000	100.0#	0#	-23.44#
29	un	C2-Fluorenes	1.177	0.000	100.0#	0#	-25.84#
30	un	C3-Fluorenes	1.177	0.000	100.0#	0#	-26.97#
31	I	Pyrene-d10	1.000	1.000	0.0	88	0.00
32	S	Phenanthrene-d10	0.806	0.828	-2.7	93	0.00
33	T	Carbazole	0.694	0.596	14.1	77	0.00
34	T	Dibenzothiophene	0.887	0.911	-2.7	90	0.00
35	T	4-Methyldibenzothiophene	0.640	0.658	-2.8	92	0.00
36	un	2/3-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.18#
37	un	1-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.49#
38	un	C2-Dibenzothiophenes	0.887	0.000	100.0#	0#	-27.79#
39	un	C3-Dibenzothiophenes	0.887	0.000	100.0#	0#	-28.41#
40	un	C4-Dibenzothiophenes	0.887	0.000	100.0#	0#	-30.42#
41	T	Phenanthrene	0.986	1.015	-2.9	90	0.00
42	T	Anthracene	0.834	0.804	3.6	87	0.00
43	un	3-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
44	un	2-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
45	un	2-Methylanthracene	0.666	0.000	100.0#	0#	-26.88#
46	un	4/9-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
47	T	1-Methylphenanthrene	0.666	0.647	2.9	89	0.00
48	T	3,6-Dimethylphenanthrene	0.625	0.581	7.0	86	0.00
49	T	Retene	0.305	0.286	6.2	87	0.00

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183J.D
Acq On : 4 Dec 2013 8:08 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 06 15:54:09 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
50	un	C2-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-28.52#
51	un	C3-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-29.37#
52	un	C4-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-32.12#
53	T	Naphthobenzothiophene	1.049	0.981	6.5	85	0.00
54	un	C1-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-34.20#
55	un	C2-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.02#
56	un	C3-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.41#
57	un	C4-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.15#
58	T	Fluoranthene	1.027	0.987	3.9	87	0.00
59	T	Pyrene	1.119	1.129	-0.9	90	0.00
60	T	2-Methylfluoranthene	0.716	0.673	6.0	85	0.00
61	T	Benzo(b)fluorene	0.681	0.592	13.1	80	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-31.49#
63	un	C2-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-32.16#
64	un	C3-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-34.20#
65	un	C4-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-35.82#
66	S	Chrysene-d12	0.905	0.905	0.0	91	-0.03
67	T	Benz(a)anthracene	1.008	0.930	7.7	83	0.00
68	T	Chrysene/Triphenylene	1.121	1.084	3.3	87	0.00
69	un	C1-Chrysenes	1.121	0.000	100.0#	0#	-35.40#
70	un	C2-Chrysenes	1.121	0.000	100.0#	0#	-36.66#
71	un	C3-Chrysenes	1.121	0.000	100.0#	0#	-38.09#
72	un	C4-Chrysenes	1.121	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	83	0.00
74	un	C29-Hopane	0.525	0.000	100.0#	0#	-40.66#
75	un	18a-Oleanane	0.525	0.000	100.0#	0#	-42.00#
76	T	C30-Hopane	0.525	0.547	-4.2	89	-0.03
77	T	Benzo(b)fluoranthene	1.121	1.103	1.6	84	0.00
78	T	Benzo(k,j)fluoranthene	1.148	1.139	0.8	85	0.00
79	un	Benzo(a)fluoranthene	1.148	0.000	100.0#	0#	-37.31#
80	T	Benzo(e)pyrene	1.222	1.230	-0.7	86	0.00
81	T	Benzo(a)pyrene	1.112	1.105	0.6	85	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.278	1.267	0.9	86	0.00
83	T	Dibenzo(a,h)anthracene	1.019	1.017	0.2	86	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.63#
85	un	C2-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-49.45#
86	un	C3-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.80#
87	T	Benzo(g,h,i)perylene	1.100	1.138	-3.5	88	0.00
88	S	Perylene-d12	1.083	1.071	1.1	85	0.00
89	T	Perylene	1.186	1.185	0.1	84	0.00
90	S	5(b)H-Cholane	0.267	0.273	-2.2	86	0.00
91	un	C20-TAS	1.649	0.000	100.0#	0#	-33.81#
92	un	C21-TAS	1.649	0.000	100.0#	0#	-34.20#
93	un	C26(20S)-TAS	1.649	0.000	100.0#	0#	-38.67#
94	T	C26(20R)/C27(20S)-TAS	1.649	1.515	8.1	79	-0.03
95	un	C28(20S)-TAS	1.649	0.000	100.0#	0#	-40.62#
96	un	C27(20R)-TAS	1.649	0.000	100.0#	0#	-40.62#
97	un	C28(20R)-TAS	1.649	0.000	100.0#	0#	-41.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183J.D
Acq On : 4 Dec 2013 8:08 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 06 15:54:09 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183J.D
Acq On : 4 Dec 2013 8:08 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 06 15:54:09 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	248316m	251.05	0.02
31) Pyrene-d10	29.597	212	438565m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	404734m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	444042m	259.85	0.00
21) Acenaphthene-d10	19.603	164	233248m	249.69	0.00
32) Phenanthrene-d10	24.681	188	362671m	257.23	0.00
66) Chrysene-d12	33.777	240	395767m	249.83	-0.03
88) Perylene-d12	38.673	264	433021m	247.25	0.00
90) 5(b)H-Cholane	34.166	217	110211m	255.00	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.107	138	89754m	263.07	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.812	128	472163m	261.94	
9) 2-Methylnaphthalene	16.070	142	285808m	256.54	
10) 1-Methylnaphthalene	16.383	142	276813m	256.07	
11) 2,6-Dimethylnaphthalene	18.150	156	247290m	250.42	
12) 1,6,7-Trimethylnaphtha...	21.011	170	226675m	245.18	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.991	134	360493m	258.83	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.635	154	344281m	251.75	
23) Acenaphthylene	19.111	152	369082m	230.75	
24) Acenaphthene	19.715	154	245013m	250.81	
25) Dibenzofuran	20.296	168	351990m	251.56	
26) Fluorene	21.481	166	284258m	244.27	
27) 1-Methylfluorene	23.466	180	157433m	235.24	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.529	167	258574m	212.94	
34) Dibenzothiophene	24.342	184	392941m	253.28	
35) 4-Methyldibenzothiophene	25.839	198	290302m	259.31	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	439891m	255.07	
42) Anthracene	24.935	178	352601m	241.59	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183J.D
Acq On : 4 Dec 2013 8:08 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 06 15:54:09 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

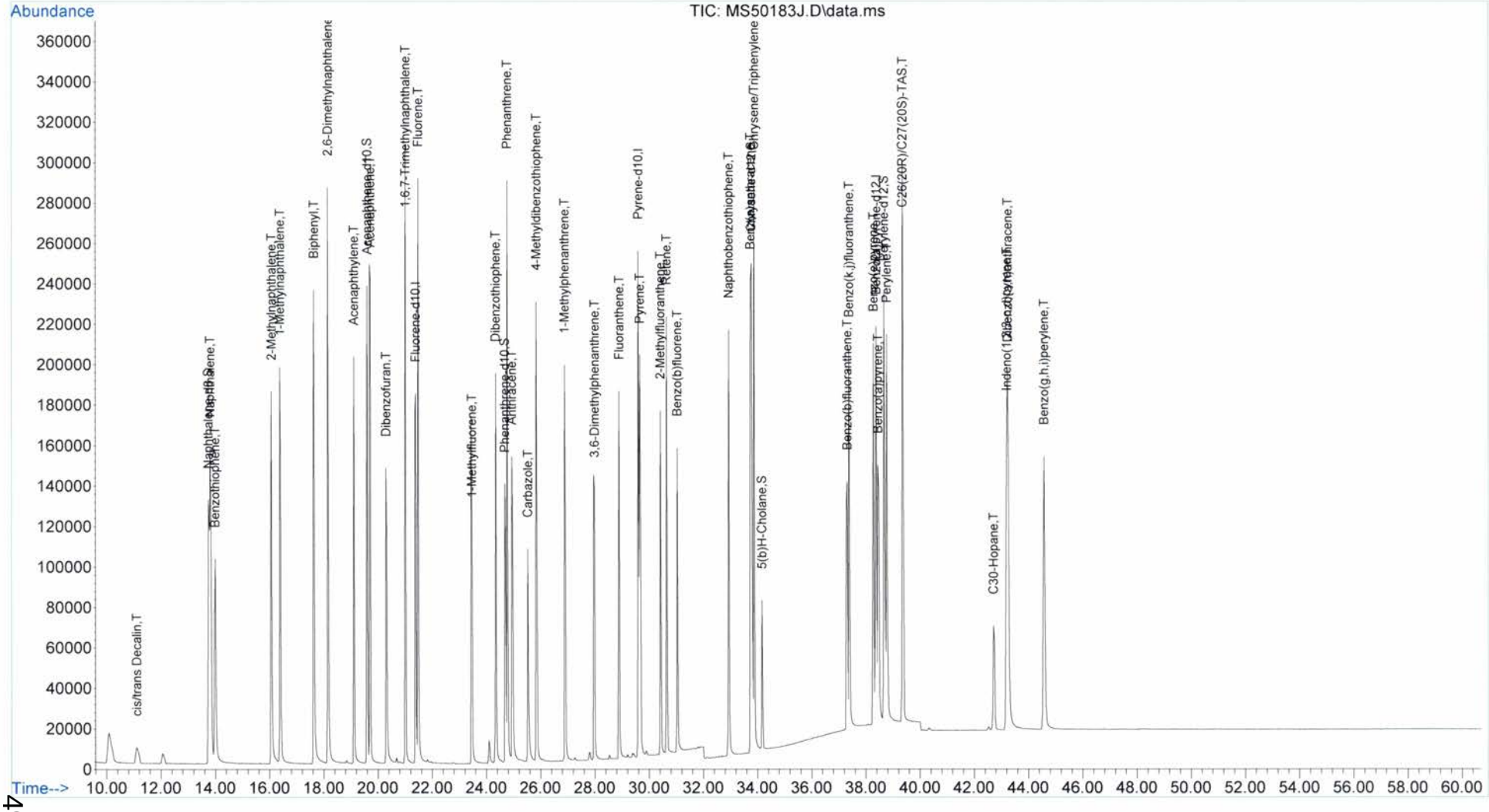
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46)	4/9-Methylphenanthrene	0.000		0	N.D. d	
47)	1-Methylphenanthrene	26.885	192	279883m	240.29	
48)	3,6-Dimethylphenanthrene	27.986	206	254654m	233.00	
49)	Retene	30.642	234	111828m	209.59	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53)	Naphthobenzothiophene	32.934	234	432004m	235.38	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58)	Fluoranthene	28.891	202	432277m	240.45	
59)	Pyrene	29.653	202	493981m	252.31	
60)	2-Methylfluoranthene	30.416	216	296622m	236.76	
61)	Benzo(b)fluorene	31.038	216	261132m	219.06	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67)	Benz(a)anthracene	33.745	228	406123m	230.13	
68)	Chrysene/Triphenylene	33.874	228	471199m	240.19	
69)	C1-Chrysenes	0.000		0	N.D. d	
70)	C2-Chrysenes	0.000		0	N.D. d	
71)	C3-Chrysenes	0.000		0	N.D. d	
72)	C4-Chrysenes	0.000		0	N.D. d	
74)	C29-Hopane	0.000		0	N.D. d	
75)	18a-Oleanane	0.000		0	N.D. d	
76)	C30-Hopane	42.716	191	220916m	260.40	
77)	Benzo(b)fluoranthene	37.311	252	446845m	246.57	
78)	Benzo(k,j)fluoranthene	37.376	252	458744m	247.22	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.284	252	495166m	250.65	
81)	Benzo(a)pyrene	38.446	252	445764m	247.93	
82)	Indeno(1,2,3-c,d)pyrene	43.206	276	503240m	243.57	
83)	Dibenzo(a,h)anthracene	43.239	278	407503m	247.45	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87)	Benzo(g,h,i)perylene	44.579	276	455745m	256.34	
89)	Perylene	38.770	252	479653m	250.16	
91)	C20-TAS	0.000		0	N.D. d	
92)	C21-TAS	0.000		0	N.D. d	
93)	C26(20S)-TAS	0.000		0	N.D. d	
94)	C26(20R)/C27(20S)-TAS	39.353	231	612508m	229.78	
95)	C28(20S)-TAS	0.000		0	N.D. d	
96)	C27(20R)-TAS	0.000		0	N.D. d	
97)	C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183J.D
Acq On : 4 Dec 2013 8:08 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 06 15:54:09 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183L.D
Acq On : 5 Dec 2013 7:10 am
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 06 16:04:53 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	73	0.02
2	S	Naphthalene-d8	1.728	1.670	3.4	71	0.00
3	T	cis/trans Decalin	0.345	0.340	1.4	72	0.00
4	un	C1-Decalins	0.345	0.000	100.0#	0#	-12.63#
5	un	C2-Decalins	0.345	0.000	100.0#	0#	-13.41#
6	un	C3-Decalins	0.345	0.000	100.0#	0#	-16.12#
7	un	C4-Decalins	0.345	0.000	100.0#	0#	-18.78#
8	T	Naphthalene	1.822	1.748	4.1	70	0.00
9	T	2-Methylnaphthalene	1.126	1.114	1.1	73	0.02
10	T	1-Methylnaphthalene	1.093	1.085	0.7	73	0.00
11	T	2,6-Dimethylnaphthalene	0.998	0.998	0.0	74	0.00
12	T	1,6,7-Trimethylnaphthalene	0.935	0.959	-2.6	77	0.00
13	un	C2-Naphthalenes	1.822	0.000	100.0#	0#	-18.82#
14	un	C3-Naphthalenes	1.822	0.000	100.0#	0#	-19.98#
15	un	C4-Naphthalenes	1.822	0.000	100.0#	0#	-22.33#
16	T	Benzothiophene	1.408	1.363	3.2	71	0.02
17	un	C1-Benzothiophenes	1.408	0.000	100.0#	0#	-15.42#
18	un	C2-Benzothiophenes	1.408	0.000	100.0#	0#	-18.33#
19	un	C3-Benzothiophenes	1.408	0.000	100.0#	0#	-20.25#
20	un	C4-Benzothiophenes	1.408	0.000	100.0#	0#	-21.95#
21	S	Acenaphthene-d10	0.944	0.944	0.0	75	0.00
22	T	Biphenyl	1.383	1.373	0.7	74	0.02
23	T	Acenaphthylene	1.617	1.686	-4.3	78	0.00
24	T	Acenaphthene	0.988	0.995	-0.7	75	0.00
25	T	Dibenzofuran	1.415	1.415	0.0	75	0.00
26	T	Fluorene	1.177	1.183	-0.5	76	0.00
27	T	1-Methylfluorene	0.677	0.722	-6.6	81	0.00
28	un	C1-Fluorenes	1.177	0.000	100.0#	0#	-23.44#
29	un	C2-Fluorenes	1.177	0.000	100.0#	0#	-25.84#
30	un	C3-Fluorenes	1.177	0.000	100.0#	0#	-26.97#
31	I	Pyrene-d10	1.000	1.000	0.0	83	0.00
32	S	Phenanthrene-d10	0.806	0.743	7.8	79	0.00
33	T	Carbazole	0.694	0.666	4.0	81	0.00
34	T	Dibenzothiophene	0.887	0.801	9.7	75	0.00
35	T	4-Methyldibenzothiophene	0.640	0.609	4.8	80	0.00
36	un	2/3-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.18#
37	un	1-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.49#
38	un	C2-Dibenzothiophenes	0.887	0.000	100.0#	0#	-27.79#
39	un	C3-Dibenzothiophenes	0.887	0.000	100.0#	0#	-28.41#
40	un	C4-Dibenzothiophenes	0.887	0.000	100.0#	0#	-30.42#
41	T	Phenanthrene	0.986	0.896	9.1	75	0.00
42	T	Anthracene	0.834	0.796	4.6	82	0.00
43	un	3-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
44	un	2-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
45	un	2-Methylanthracene	0.666	0.000	100.0#	0#	-26.88#
46	un	4/9-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
47	T	1-Methylphenanthrene	0.666	0.635	4.7	83	0.00
48	T	3,6-Dimethylphenanthrene	0.625	0.590	5.6	82	0.00
49	T	Retene	0.305	0.314	-3.0	90	0.00

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183L.D
Acq On : 5 Dec 2013 7:10 am
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 06 16:04:53 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
50	un	C2-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-28.52#
51	un	C3-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-29.37#
52	un	C4-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-32.12#
53	T	Naphthobenzothiophene	1.049	1.010	3.7	83	0.00
54	un	C1-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-34.20#
55	un	C2-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.02#
56	un	C3-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.41#
57	un	C4-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.15#
58	T	Fluoranthene	1.027	0.968	5.7	80	0.00
59	T	Pyrene	1.119	1.076	3.8	81	0.00
60	T	2-Methylfluoranthene	0.716	0.726	-1.4	87	0.00
61	T	Benzo(b)fluorene	0.681	0.670	1.6	86	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-31.49#
63	un	C2-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-32.16#
64	un	C3-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-34.20#
65	un	C4-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-35.82#
66	S	Chrysene-d12	0.905	0.915	-1.1	87	-0.03
67	T	Benz(a)anthracene	1.008	1.053	-4.5	89	0.00
68	T	Chrysene/Triphenylene	1.121	1.057	5.7	81	0.00
69	un	C1-Chrysenes	1.121	0.000	100.0#	0#	-35.40#
70	un	C2-Chrysenes	1.121	0.000	100.0#	0#	-36.66#
71	un	C3-Chrysenes	1.121	0.000	100.0#	0#	-38.09#
72	un	C4-Chrysenes	1.121	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	82	0.00
74	un	C29-Hopane	0.525	0.000	100.0#	0#	-40.66#
75	un	18a-Oleanane	0.525	0.000	100.0#	0#	-42.00#
76	T	C30-Hopane	0.525	0.509	3.0	82	-0.03
77	T	Benzo(b)fluoranthene	1.121	1.140	-1.7	86	-0.03
78	T	Benzo(k,j)fluoranthene	1.148	1.158	-0.9	85	0.00
79	un	Benzo(a)fluoranthene	1.148	0.000	100.0#	0#	-37.31#
80	T	Benzo(e)pyrene	1.222	1.179	3.5	81	0.00
81	T	Benzo(a)pyrene	1.112	1.117	-0.4	85	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.278	1.226	4.1	82	0.00
83	T	Dibenzo(a,h)anthracene	1.019	0.987	3.1	83	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.63#
85	un	C2-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-49.45#
86	un	C3-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.80#
87	T	Benzo(g,h,i)perylene	1.100	1.042	5.3	80	0.00
88	S	Perylene-d12	1.083	1.069	1.3	84	0.00
89	T	Perylene	1.186	1.169	1.4	82	0.00
90	S	5(b)H-Cholane	0.267	0.309	-15.7	96	0.00
91	un	C20-TAS	1.649	0.000	100.0#	0#	-33.81#
92	un	C21-TAS	1.649	0.000	100.0#	0#	-34.20#
93	un	C26(20S)-TAS	1.649	0.000	100.0#	0#	-38.67#
94	T	C26(20R)/C27(20S)-TAS	1.649	1.660	-0.7	85	-0.03
95	un	C28(20S)-TAS	1.649	0.000	100.0#	0#	-40.62#
96	un	C27(20R)-TAS	1.649	0.000	100.0#	0#	-40.62#
97	un	C28(20R)-TAS	1.649	0.000	100.0#	0#	-41.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183L.D
Acq On : 5 Dec 2013 7:10 am
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 06 16:04:53 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183L.D
Acq On : 5 Dec 2013 7:10 am
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 06 16:04:53 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	203240m	251.05	0.02
31) Pyrene-d10	29.597	212	415268m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	399768m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	338189m	241.80	0.00
21) Acenaphthene-d10	19.603	164	191223m	250.10	0.00
32) Phenanthrene-d10	24.681	188	308069m	230.76	0.00
66) Chrysene-d12	33.777	240	379219m	252.82	-0.03
88) Perylene-d12	38.673	264	426845m	246.75	0.00
90) 5(b)H-Cholane	34.166	217	123225m	288.65	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.107	138	68078m	243.79	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.812	128	353800m	239.81	
9) 2-Methylnaphthalene	16.070	142	225646m	247.46	
10) 1-Methylnaphthalene	16.383	142	219291m	247.85	
11) 2,6-Dimethylnaphthalene	18.150	156	202058m	250.00	
12) 1,6,7-Trimethylnaphtha...	21.011	170	194114m	256.53	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.991	134	274142m	240.48	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.635	154	275417m	246.06	
23) Acenaphthylene	19.111	152	338543m	258.60	
24) Acenaphthene	19.715	154	201697m	252.27	
25) Dibenzofuran	20.296	168	284897m	248.77	
26) Fluorene	21.481	166	239927m	251.90	
27) 1-Methylfluorene	23.438	180	147159m	268.65	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.529	167	273507m	237.87	
34) Dibenzothiophene	24.342	184	327076m	222.66	
35) 4-Methyldibenzothiophene	25.839	198	254499m	240.08	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	367899m	225.29	
42) Anthracene	24.935	178	330567m	239.20	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183L.D
Acq On : 5 Dec 2013 7:10 am
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 06 16:04:53 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

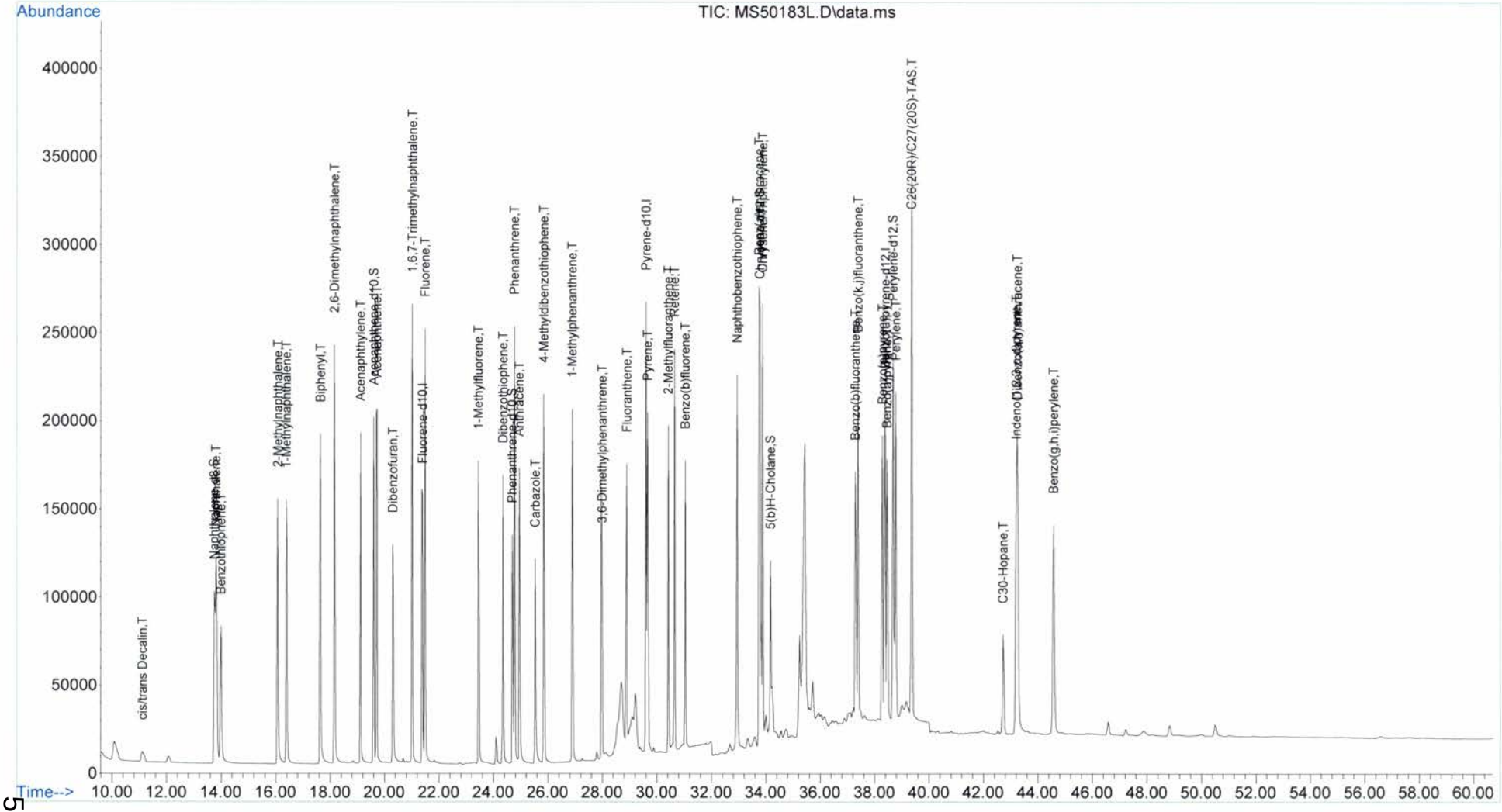
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46)	4/9-Methylphenanthrene	0.000		0	N.D. d	
47)	1-Methylphenanthrene	26.885	192	260264m	235.98	
48)	3,6-Dimethylphenanthrene	27.986	206	244856m	236.60	
49)	Retene	30.642	234	116274m	230.15	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53)	Naphthobenzothiophene	32.934	234	421037m	242.28	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58)	Fluoranthene	28.891	202	401517m	235.87	
59)	Pyrene	29.653	202	445822m	240.48	
60)	2-Methylfluoranthene	30.416	216	302605m	255.09	
61)	Benzo(b)fluorene	31.038	216	279826m	247.91	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67)	Benz(a)anthracene	33.745	228	435401m	260.56	
68)	Chrysene/Triphenylene	33.874	228	435077m	234.22	
69)	C1-Chrysenes	0.000		0	N.D. d	
70)	C2-Chrysenes	0.000		0	N.D. d	
71)	C3-Chrysenes	0.000		0	N.D. d	
72)	C4-Chrysenes	0.000		0	N.D. d	
74)	C29-Hopane	0.000		0	N.D. d	
75)	18a-Oleanane	0.000		0	N.D. d	
76)	C30-Hopane	42.715	191	203129m	242.41	
77)	Benzo(b)fluoranthene	37.279	252	455916m	254.70	
78)	Benzo(k,j)fluoranthene	37.376	252	460318m	251.15	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.284	252	468747m	240.23	
81)	Benzo(a)pyrene	38.446	252	444912m	250.53	
82)	Indeno(1,2,3-c,d)pyrene	43.206	276	481232m	235.81	
83)	Dibenzo(a,h)anthracene	43.239	278	390318m	239.96	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87)	Benzo(g,h,i)perylene	44.579	276	412267m	234.77	
89)	Perylene	38.770	252	467175m	246.68	
91)	C20-TAS	0.000		0	N.D. d	
92)	C21-TAS	0.000		0	N.D. d	
93)	C26(20S)-TAS	0.000		0	N.D. d	
94)	C26(20R)/C27(20S)-TAS	39.353	231	662562m	251.64	
95)	C28(20S)-TAS	0.000		0	N.D. d	
96)	C27(20R)-TAS	0.000		0	N.D. d	
97)	C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183L.D
Acq On : 5 Dec 2013 7:10 am
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 06 16:04:53 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183M.D
Acq On : 5 Dec 2013 6:13 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 06 16:14:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	68	0.02
2	S	Naphthalene-d8	1.728	1.752	-1.4	69	0.00
3	T	cis/trans Decalin	0.345	0.371	-7.5	73	0.00
4	un	C1-Decalins	0.345	0.000	100.0#	0#	-12.63#
5	un	C2-Decalins	0.345	0.000	100.0#	0#	-13.41#
6	un	C3-Decalins	0.345	0.000	100.0#	0#	-16.12#
7	un	C4-Decalins	0.345	0.000	100.0#	0#	-18.78#
8	T	Naphthalene	1.822	1.835	-0.7	69	0.00
9	T	2-Methylnaphthalene	1.126	1.155	-2.6	71	0.02
10	T	1-Methylnaphthalene	1.093	1.118	-2.3	70	0.00
11	T	2,6-Dimethylnaphthalene	0.998	1.029	-3.1	71	0.00
12	T	1,6,7-Trimethylnaphthalene	0.935	0.966	-3.3	72	0.00
13	un	C2-Naphthalenes	1.822	0.000	100.0#	0#	-18.82#
14	un	C3-Naphthalenes	1.822	0.000	100.0#	0#	-19.98#
15	un	C4-Naphthalenes	1.822	0.000	100.0#	0#	-22.33#
16	T	Benzothiophene	1.408	1.416	-0.6	68	0.02
17	un	C1-Benzothiophenes	1.408	0.000	100.0#	0#	-15.42#
18	un	C2-Benzothiophenes	1.408	0.000	100.0#	0#	-18.33#
19	un	C3-Benzothiophenes	1.408	0.000	100.0#	0#	-20.25#
20	un	C4-Benzothiophenes	1.408	0.000	100.0#	0#	-21.95#
21	S	Acenaphthene-d10	0.944	0.971	-2.9	71	0.00
22	T	Biphenyl	1.383	1.415	-2.3	71	0.02
23	T	Acenaphthylene	1.617	1.672	-3.4	72	0.00
24	T	Acenaphthene	0.988	1.010	-2.2	71	0.00
25	T	Dibenzofuran	1.415	1.469	-3.8	72	0.00
26	T	Fluorene	1.177	1.202	-2.1	72	0.00
27	T	1-Methylfluorene	0.677	0.716	-5.8	75	0.00
28	un	C1-Fluorenes	1.177	0.000	100.0#	0#	-23.44#
29	un	C2-Fluorenes	1.177	0.000	100.0#	0#	-25.84#
30	un	C3-Fluorenes	1.177	0.000	100.0#	0#	-26.97#
31	I	Pyrene-d10	1.000	1.000	0.0	75	0.00
32	S	Phenanthrene-d10	0.806	0.782	3.0	75	0.00
33	T	Carbazole	0.694	0.694	0.0	77	0.00
34	T	Dibenzothiophene	0.887	0.855	3.6	72	0.00
35	T	4-Methyldibenzothiophene	0.640	0.635	0.8	76	0.00
36	un	2/3-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.18#
37	un	1-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.49#
38	un	C2-Dibenzothiophenes	0.887	0.000	100.0#	0#	-27.79#
39	un	C3-Dibenzothiophenes	0.887	0.000	100.0#	0#	-28.41#
40	un	C4-Dibenzothiophenes	0.887	0.000	100.0#	0#	-30.42#
41	T	Phenanthrene	0.986	0.937	5.0	72	0.00
42	T	Anthracene	0.834	0.812	2.6	75	0.00
43	un	3-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
44	un	2-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
45	un	2-Methylanthracene	0.666	0.000	100.0#	0#	-26.88#
46	un	4/9-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
47	T	1-Methylphenanthrene	0.666	0.656	1.5	78	0.00
48	T	3,6-Dimethylphenanthrene	0.625	0.621	0.6	79	0.00
49	T	Retene	0.305	0.321	-5.2	83	0.00

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183M.D
Acq On : 5 Dec 2013 6:13 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 06 16:14:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
50	un	C2-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-28.52#
51	un	C3-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-29.37#
52	un	C4-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-32.12#
53	T	Naphthobenzothiophene	1.049	1.077	-2.7	80	0.00
54	un	C1-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-34.20#
55	un	C2-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.02#
56	un	C3-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.41#
57	un	C4-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.15#
58	T	Fluoranthene	1.027	1.025	0.2	77	0.00
59	T	Pyrene	1.119	1.135	-1.4	78	0.00
60	T	2-Methylfluoranthene	0.716	0.756	-5.6	82	0.00
61	T	Benzo(b)fluorene	0.681	0.682	-0.1	80	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-31.49#
63	un	C2-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-32.16#
64	un	C3-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-34.20#
65	un	C4-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-35.82#
66	S	Chrysene-d12	0.905	0.946	-4.5	81	-0.03
67	T	Benz(a)anthracene	1.008	1.093	-8.4	83	0.00
68	T	Chrysene/Triphenylene	1.121	1.062	5.3	74	0.00
69	un	C1-Chrysenes	1.121	0.000	100.0#	0#	-35.40#
70	un	C2-Chrysenes	1.121	0.000	100.0#	0#	-36.66#
71	un	C3-Chrysenes	1.121	0.000	100.0#	0#	-38.09#
72	un	C4-Chrysenes	1.121	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	80	0.00
74	un	C29-Hopane	0.525	0.000	100.0#	0#	-40.66#
75	un	18a-Oleanane	0.525	0.000	100.0#	0#	-42.00#
76	T	C30-Hopane	0.525	0.505	3.8	79	-0.03
77	T	Benzo(b)fluoranthene	1.121	1.107	1.2	81	0.00
78	T	Benzo(k,j)fluoranthene	1.148	1.140	0.7	82	0.00
79	un	Benzo(a)fluoranthene	1.148	0.000	100.0#	0#	-37.31#
80	T	Benzo(e)pyrene	1.222	1.190	2.6	80	0.00
81	T	Benzo(a)pyrene	1.112	1.079	3.0	80	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.278	1.152	9.9	75	0.00
83	T	Dibenzo(a,h)anthracene	1.019	0.937	8.0	76	0.00
84	un	C1-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.63#
85	un	C2-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-49.45#
86	un	C3-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.80#
87	T	Benzo(g,h,i)perylene	1.100	0.966	12.2	72	0.00
88	S	Perylene-d12	1.083	1.034	4.5	79	0.00
89	T	Perylene	1.186	1.056	11.0	72	-0.29
90	S	5(b)H-Cholane	0.267	0.282	-5.6	85	0.00
91	un	C20-TAS	1.649	0.000	100.0#	0#	-33.81#
92	un	C21-TAS	1.649	0.000	100.0#	0#	-34.20#
93	un	C26(20S)-TAS	1.649	0.000	100.0#	0#	-38.67#
94	T	C26(20R)/C27(20S)-TAS	1.649	1.627	1.3	81	-0.03
95	un	C28(20S)-TAS	1.649	0.000	100.0#	0#	-40.62#
96	un	C27(20R)-TAS	1.649	0.000	100.0#	0#	-40.62#
97	un	C28(20R)-TAS	1.649	0.000	100.0#	0#	-41.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183M.D
Acq On : 5 Dec 2013 6:13 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 06 16:14:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183M.D
Acq On : 5 Dec 2013 6:13 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 06 16:14:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	189317m	251.05	0.02
31) Pyrene-d10	29.597	212	376578m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	389124m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	330409m	253.61	0.00
21) Acenaphthene-d10	19.603	164	183148m	257.15	0.00
32) Phenanthrene-d10	24.681	188	294004m	242.86	0.00
66) Chrysene-d12	33.777	240	355369m	261.26	-0.03
88) Perylene-d12	38.673	264	401889m	238.68	0.00
90) 5(b)H-Cholane	34.166	217	109717m	264.04	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.107	138	69223m	266.12	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.812	128	345874m	251.68	
9) 2-Methylnaphthalene	16.070	142	217943m	256.59	
10) 1-Methylnaphthalene	16.383	142	210596m	255.53	
11) 2,6-Dimethylnaphthalene	18.150	156	194044m	257.74	
12) 1,6,7-Trimethylnaphtha...	21.011	170	182202m	258.49	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.991	134	265294m	249.84	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.635	154	264303m	253.49	
23) Acenaphthylene	19.111	152	312763m	256.48	
24) Acenaphthene	19.715	154	190865m	256.27	
25) Dibenzofuran	20.296	168	275477m	258.24	
26) Fluorene	21.481	166	226980m	255.83	
27) 1-Methylfluorene	23.438	180	136056m	266.65	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.528	167	258202m	247.63	
34) Dibenzothiophene	24.342	184	316783m	237.80	
35) 4-Methyldibenzothiophene	25.839	198	240398m	250.08	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	348674m	235.45	
42) Anthracene	24.935	178	305841m	244.05	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183M.D
Acq On : 5 Dec 2013 6:13 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 06 16:14:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

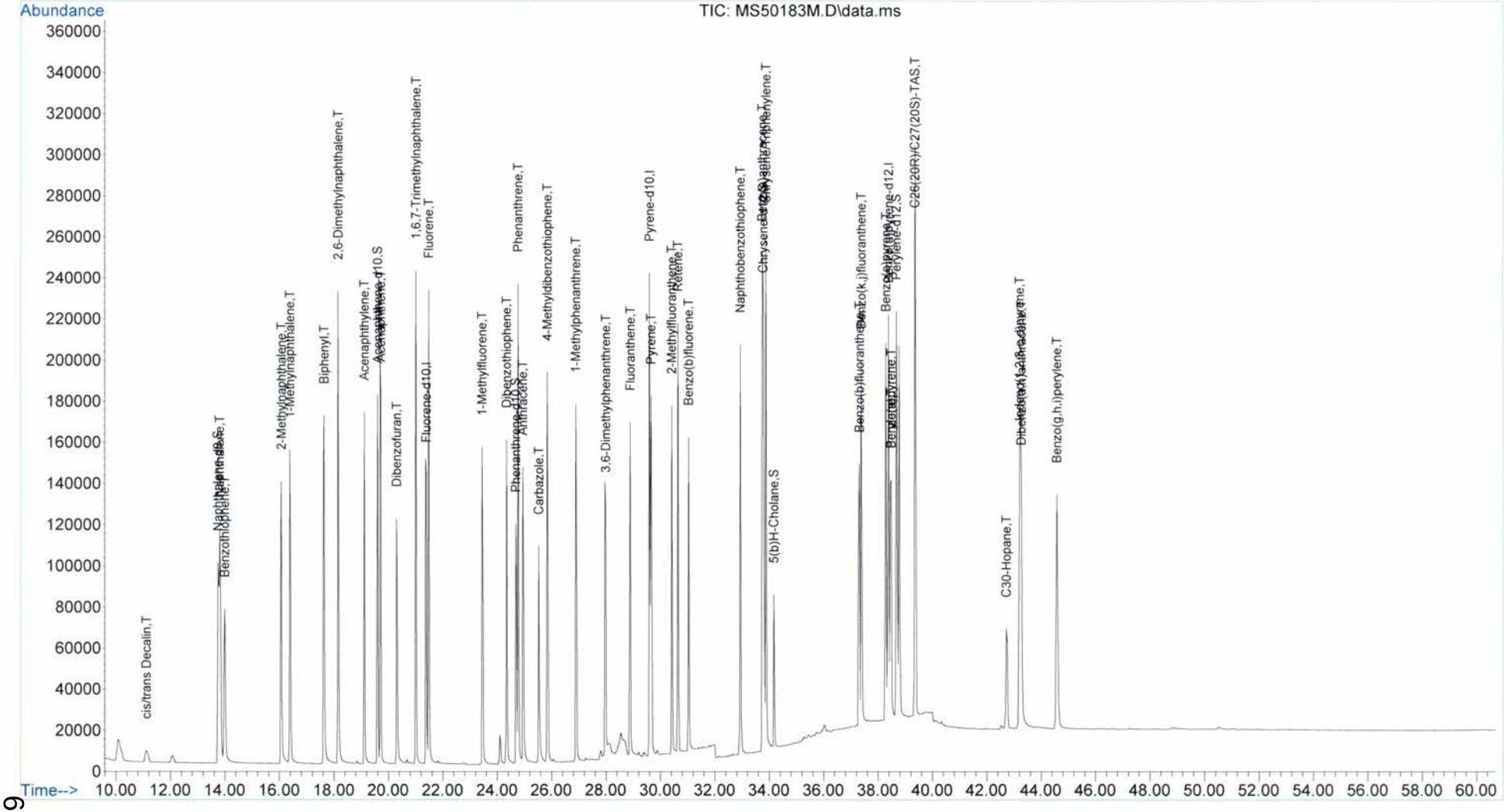
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46)	4/9-Methylphenanthrene	0.000		0	N.D. d	
47)	1-Methylphenanthrene	26.885	192	243777m	243.74	
48)	3,6-Dimethylphenanthrene	27.986	206	233551m	248.86	
49)	Retene	30.642	234	107725m	235.13	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53)	Naphthobenzothiophene	32.934	234	407003m	258.26	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58)	Fluoranthene	28.891	202	385572m	249.78	
59)	Pyrene	29.653	202	426234m	253.54	
60)	2-Methylfluoranthene	30.416	216	285829m	265.70	
61)	Benzo(b)fluorene	31.038	216	258579m	252.62	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67)	Benz(a)anthracene	33.745	228	409796m	270.43	
68)	Chrysene/Triphenylene	33.874	228	396706m	235.51	
69)	C1-Chrysenes	0.000		0	N.D. d	
70)	C2-Chrysenes	0.000		0	N.D. d	
71)	C3-Chrysenes	0.000		0	N.D. d	
72)	C4-Chrysenes	0.000		0	N.D. d	
74)	C29-Hopane	0.000		0	N.D. d	
75)	18a-Oleanane	0.000		0	N.D. d	
76)	C30-Hopane	42.715	191	196122m	240.45	
77)	Benzo(b)fluoranthene	37.311	252	431066m	247.40	
78)	Benzo(k,j)fluoranthene	37.376	252	441304m	247.36	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.284	252	460771m	242.60	
81)	Benzo(a)pyrene	38.478	252	418619m	242.17	
82)	Indeno(1,2,3-c,d)pyrene	43.206	276	440239m	221.62	
83)	Dibenzo(a,h)anthracene	43.271	278	360803m	227.88	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87)	Benzo(g,h,i)perylene	44.579	276	372026m	217.65	
89)	Perylene	38.478	252	410967m	222.94	
91)	C20-TAS	0.000		0	N.D. d	
92)	C21-TAS	0.000		0	N.D. d	
93)	C26(20S)-TAS	0.000		0	N.D. d	
94)	C26(20R)/C27(20S)-TAS	39.353	231	632421m	246.77	
95)	C28(20S)-TAS	0.000		0	N.D. d	
96)	C27(20R)-TAS	0.000		0	N.D. d	
97)	C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183M.D
Acq On : 5 Dec 2013 6:13 pm
Operator : ECM(YMIAO)
Sample : AR-WKCC-250-039
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 06 16:14:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name MS50183H.D
Data File Path C:\GCMS5\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/4/2013 17:55
Acq. Method File PAH-2012.M
Sample Name AR-WKISSU-250-005
Misc Info 0
Instrument Name GCMS5
Vial Number 8
Sample Multiplier 1
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

MS50183H.D
AR-WKISSU-250-005
12/4/2013 17:55
PAH-2012.M
1

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	0.00	0	0.0000	0.0000
9)+10)	C1-Naphthalenes	0.00	0	0.0000	0.0000
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	0.00	0	0.0000	0.0000
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	0.00	0	0.0000	0.0000
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	0.00	0	0.0000	0.0000
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	0.00	0	0.0000	0.0000
59)	Pyrene	0.00	0	0.0000	0.0000
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	0.00	0	0.0000	0.0000
10)	1-Methylnaphthalene	0.00	0	0.0000	0.0000
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	435545	258.82	103.48
21)	Acenaphthene-d10	19.60	230707	250.79	100.25
32)	Phenanthrene-d10	24.68	341656	245.46	98.11
66)	Chrysene-d12	33.78	342519	219.02	87.59
88)	Perylene-d12	38.67	429775	249.13	99.64
90)	5(b)H-Cholane	34.17	106318	249.74	99.90
	Internal Standards				
1)	Fluorene-d10	21.39	244534	251.05	
31)	Pyrene-d10	29.60	432964	250.63	
73)	Benzo(a)pyrene-d12	38.38	398663	250.33	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183H.D
Acq On : 4 Dec 2013 5:55 pm
Operator : ECM(YMIAO)
Sample : AR-WKISSU-250-005
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 06 15:34:29 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	244534m	251.05	0.02
31) Pyrene-d10	29.597	212	432964m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	398663m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	435545m	258.82	0.00
21) Acenaphthene-d10	19.603	164	230707m	250.79	0.00
32) Phenanthrene-d10	24.681	188	341656m	245.46	0.00
66) Chrysene-d12	33.777	240	342519m	219.02	-0.03
88) Perylene-d12	38.673	264	429775m	249.13	0.00
90) 5(b)H-Cholane	34.166	217	106318m	249.74	0.00

Target Compounds				Qvalue
3) cis/trans Decalin	0.000	0	N.D. d	
4) C1-Decalins	0.000	0	N.D. d	
5) C2-Decalins	0.000	0	N.D. d	
6) C3-Decalins	0.000	0	N.D. d	
7) C4-Decalins	0.000	0	N.D. d	
8) Naphthalene	0.000	0	N.D. d	
9) 2-Methylnaphthalene	0.000	0	N.D. d	
10) 1-Methylnaphthalene	0.000	0	N.D. d	
11) 2,6-Dimethylnaphthalene	0.000	0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000	0	N.D. d	
13) C2-Naphthalenes	0.000	0	N.D. d	
14) C3-Naphthalenes	0.000	0	N.D. d	
15) C4-Naphthalenes	0.000	0	N.D.	
16) Benzothiophene	0.000	0	N.D. d	
17) C1-Benzothiophenes	0.000	0	N.D. d	
18) C2-Benzothiophenes	0.000	0	N.D. d	
19) C3-Benzothiophenes	0.000	0	N.D. d	
20) C4-Benzothiophenes	0.000	0	N.D. d	
22) Biphenyl	0.000	0	N.D. d	
23) Acenaphthylene	0.000	0	N.D. d	
24) Acenaphthene	0.000	0	N.D. d	
25) Dibenzofuran	0.000	0	N.D. d	
26) Fluorene	0.000	0	N.D. d	
27) 1-Methylfluorene	0.000	0	N.D. d	
28) C1-Fluorenes	0.000	0	N.D. d	
29) C2-Fluorenes	0.000	0	N.D. d	
30) C3-Fluorenes	0.000	0	N.D.	
33) Carbazole	0.000	0	N.D. d	
34) Dibenzothiophene	0.000	0	N.D. d	
35) 4-Methyldibenzothiophene	0.000	0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000	0	N.D. d	
37) 1-Methyldibenzothiophene	0.000	0	N.D. d	
38) C2-Dibenzothiophenes	0.000	0	N.D. d	
39) C3-Dibenzothiophenes	0.000	0	N.D. d	
40) C4-Dibenzothiophenes	0.000	0	N.D. d	
41) Phenanthrene	0.000	0	N.D. d	
42) Anthracene	0.000	0	N.D. d	
43) 3-Methylphenanthrene	0.000	0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183H.D
Acq On : 4 Dec 2013 5:55 pm
Operator : ECM(YMIAO)
Sample : AR-WKISSU-250-005
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 06 15:34:29 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	0.000		0	N.D. d	
59) Pyrene	0.000		0	N.D. d	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D.	
78) Benzo(k,j)fluoranthene	0.000		0	N.D.	
79) Benzo(a)fluoranthene	0.000		0	N.D.	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	0.000		0	N.D. d	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183H.D
Acq On : 4 Dec 2013 5:55 pm
Operator : ECM(YMIAO)
Sample : AR-WKISSU-250-005
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 06 15:34:29 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

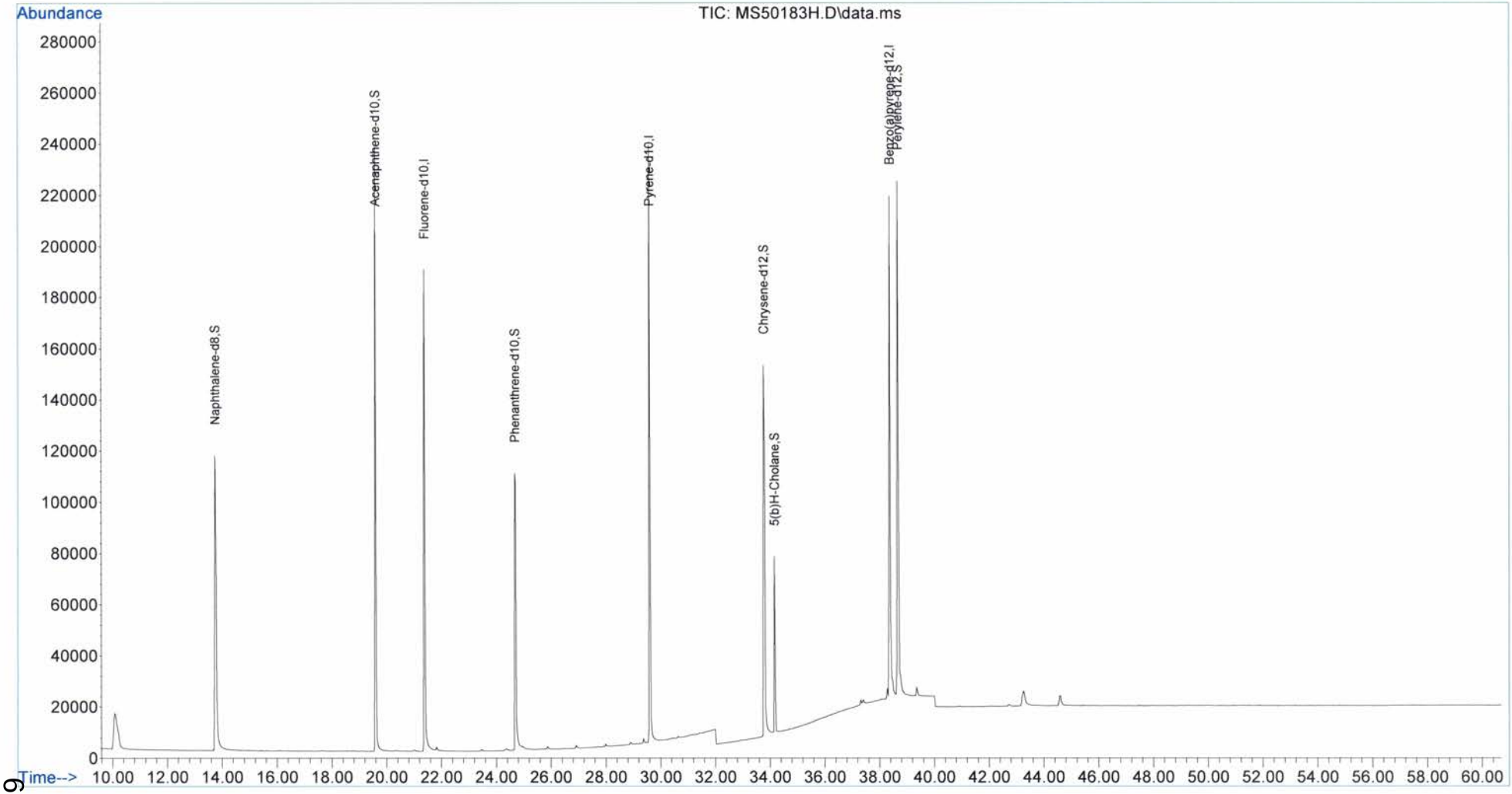
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183H.D
Acq On : 4 Dec 2013 5:55 pm
Operator : ECM(YMIAO)
Sample : AR-WKISSU-250-005
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 06 15:34:29 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name MS50183K.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/4/2013 21:14
Acq. Method File PAH-2012.M
Sample Name AR-SRM2779-WK-4.0-003
Misc Info 0
Instrument Name GCMS5
Vial Number 11
Sample Multiplier 0.24461
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

MS50183K.D
.R-SRM2779-WK-4.0-003
12/4/2013 21:14
PAH-2012.M
4.088140305

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.11	1312860	790.5330	865.5567
4)	C1-Decalins	12.27	1721610	1036.6621	1135.0440
5)	C2-Decalins	14.64	1370970	825.5270	903.8716
6)	C3-Decalins	16.61	1118260	673.3575	737.2609
7)	C4-Decalins	17.64	700687	421.9180	461.9591
8)	Naphthalene	13.81	7073830	806.2150	882.7269
9)+10)	C1-Naphthalenes	16.23	14740020	1679.9421	1839.3730
13)	C2-Naphthalenes	18.42	17846700	2034.0129	2227.0460
14)	C3-Naphthalenes	20.43	11207100	1277.2947	1398.5133
15)	C4-Naphthalenes	22.76	6461020	736.3715	806.2551
16)	Benzothiophene	14.01	70436	10.3895	11.3755
17)	C1-Benzothiophenes	15.58	254871	37.5941	41.1619
18)	C2-Benzothiophenes	18.31	151255	22.3105	24.4278
19)	C3-Benzothiophenes	20.25	247583	36.5190	39.9848
20)	C4-Benzothiophenes	22.69	196631	29.0037	31.7562
22)	Biphenyl	17.64	1069010	160.5906	175.8311
23)	Acenaphthylene	19.11	55127	7.0806	7.7526
24)	Acenaphthene	19.71	86091	18.1054	19.8236
25)	Dibenzofuran	20.30	209019	30.6895	33.6020
26)	Fluorene	21.48	797667	140.8183	154.1823
28)	C1-Fluorenes	23.47	1791120	316.2000	346.2082
29)	C2-Fluorenes	25.19	2155090	380.4566	416.5629
30)	C3-Fluorenes	26.83	1774540	313.2745	343.0050
33)	Carbazole	25.53	36812	5.8527	6.4081
42)	Anthracene	24.91	22384	2.9610	3.2420
41)	Phenanthrene	24.77	2329060	260.7298	285.4737
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.66	5416641	606.3733	663.9197
50)	C2-Phenanthrenes/Anthracenes	28.35	6211970	695.4042	761.3999
51)	C3-Phenanthrenes/Anthracenes	29.91	3858870	431.9837	472.9801
52)	C4-Phenanthrenes/Anthracenes	31.74	2012270	225.2650	246.6433
34)	Dibenzothiophene	24.34	427437	53.1926	58.2408
35)+36)+37)	C1-Dibenzothiophenes	26.16	1104473	137.4468	150.4908
38)	C2-Dibenzothiophenes	27.25	1575170	196.0234	214.6265
39)	C3-Dibenzothiophenes	28.78	923340	114.9058	125.8106
40)	C4-Dibenzothiophenes	30.19	513253	63.8721	69.9337
58)	Fluoranthene	28.89	34476	3.7024	4.0538
59)	Pyrene	29.65	129142	12.7347	13.9433
62)	C1-Fluoranthenes/Pyrenes	30.81	715411	76.8288	84.1201
63)	C2-Fluoranthenes/Pyrenes	32.58	1463190	157.1336	172.0459
64)	C3-Fluoranthenes/Pyrenes	34.00	1243470	133.5377	146.2108
65)	C4-Fluoranthenes/Pyrenes	35.11	963995	103.5246	113.3493
53)	Naphthobenzothiophene	32.93	304984	32.0823	35.1270
54)	C1-Naphthobenzothiophenes	34.10	599475	63.0607	69.0453
55)	C2-Naphthobenzothiophenes	35.82	798949	84.0438	92.0198
56)	C3-Naphthobenzothiophenes	37.18	613472	64.5330	70.6574
57)	C4-Naphthobenzothiophenes	38.15	174944	18.4029	20.1494
67)	Benz(a)anthracene	33.74	64715	7.0798	7.7517
68)	Chrysene/Triphenylene	33.84	465759	45.8372	50.1873
69)	C1-Chrysenes	35.24	1162330	114.3894	125.2453
70)	C2-Chrysenes	36.57	1536380	151.2008	165.5501
71)	C3-Chrysenes	37.99	1062270	104.5419	114.4632
72)	C4-Chrysenes	39.39	456478	44.9236	49.1870
77)	Benzo(b)fluoranthene	37.31	57613	5.4415	5.9580
78)	Benzo(k,j)fluoranthene	37.34	8004	0.7383	0.8084
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	132042	11.4407	12.5264
81)	Benzo(a)pyrene	38.48	17386	1.6552	1.8122
89)	Perylene	38.77	8066	0.7201	0.7884
82)	Indeno(1,2,3-c,d)pyrene	43.24	7791	0.6454	0.7067
83)	Dibenzo(a,h)anthracene	43.27	4555	0.4734	0.5184
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.58	23467	2.2593	2.4737

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	8965480	1653.2847	1810.1857
10)	1-Methylnaphthalene	16.38	5774540	1097.4354	1201.5849
11)	2,6-Dimethylnaphthalene	18.19	4940750	1027.8855	1125.4345
12)	1,6,7-Trimethylnaphthalene	21.01	856245	190.2672	208.3240
27)	1-Methylfluorene	23.47	856977	263.0658	288.0315
35)	4-Methyldibenzothiophene	25.84	601244	103.6853	113.5253
36)	2/3-Methyldibenzothiophene	26.15	309331	53.3445	58.4071
37)	1-Methyldibenzothiophene	26.49	193898	33.4379	36.6113
43)	3-Methylphenanthrene	26.43	1331250	220.6575	241.5985
44)	2-Methylphenanthrene	26.52	1339320	221.9948	243.0627
45)	2-Methylanthracene	26.69	112811	18.6987	20.4733
46)	4/9-Methylphenanthrene	26.80	1590430	263.6162	288.6341
47)	1-Methylphenanthrene	26.88	1042830	172.8522	189.2563
48)	3,6-Dimethylphenanthrene	27.99	311952	55.1050	60.3346
49)	Retene	30.64	20554	7.4372	8.1431
60)	2-Methylfluoranthene	30.44	48526	7.4779	8.1876
61)	Benzo(b)fluorene	31.04	109440	17.7244	19.4065
74)	C29-Hopane	40.69	122833	24.7829	27.1349
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.03	247455	49.9269	54.6650
91)	C20-TAS	33.32	118549	7.6123	8.3347
92)	C21-TAS	34.39	127313	8.1751	8.9509
93)	C26(20S)-TAS	38.51	71850	4.6137	5.0515
94)	C26(20R)/C27(20S)-TAS	39.42	233967	15.0236	16.4493
95)	C28(20S)-TAS	40.20	165928	10.6546	11.6658
96)	C27(20R)-TAS	40.66	147018	9.4404	10.3363
97)	C28(20R)-TAS	41.77	117612	7.5521	8.2689
	Surrogate Standards				
2)	Naphthalene-d8	13.75	446156	53.64	87.67
21)	Acenaphthene-d10	19.60	250493	55.09	90.02
32)	Phenanthrene-d10	24.68	408187	55.90	91.33
66)	Chrysene-d12	33.78	466195	56.82	92.90
88)	Perylene-d12	38.67	572624	55.96	91.51
90)	5(b)H-Cholane	34.17	159893	63.32	103.55
	Internal Standards				
1)	Fluorene-d10	21.39	295659	61.41	
31)	Pyrene-d10	29.60	555657	61.31	
73)	Benzo(a)pyrene-d12	38.38	578396	61.23	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183K.D
Acq On : 4 Dec 2013 9:14 pm
Operator : ECM(YMIAO)
Sample : AR-SRM2779-WK-4.0-003
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Dec 11 08:14:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	295659m	251.05	0.02
31) Pyrene-d10	29.597	212	555657m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	578396m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	446156m	53.64	0.00
21) Acenaphthene-d10	19.603	164	250493m	55.09	0.00
32) Phenanthrene-d10	24.681	188	408187m	55.90	0.00
66) Chrysene-d12	33.777	240	466195m	56.82	-0.03
88) Perylene-d12	38.673	264	572624m	55.96	0.00
90) 5(b)H-Cholane	34.166	217	159893m	63.32	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.107	138	1312855m	790.53	
4) C1-Decalins	12.270	152	1721610m	1036.66	
5) C2-Decalins	14.640	166	1370971m	825.53	
6) C3-Decalins	16.607	180	1118260m	673.36	
7) C4-Decalins	17.636	194	700687m	421.92	
8) Naphthalene	13.813	128	7073826m	806.21	
9) 2-Methylnaphthalene	16.071	142	8965481m	1653.29	
10) 1-Methylnaphthalene	16.384	142	5774542m	1097.43	
11) 2,6-Dimethylnaphthalene	18.194	156	4940753m	1027.89	
12) 1,6,7-Trimethylnaphtha...	21.011	170	856245m	190.27	
13) C2-Naphthalenes	18.418	156	17846681m	2034.01	
14) C3-Naphthalenes	20.430	170	11207134m	1277.29	
15) C4-Naphthalenes	22.755	184	6461015m	736.37	
16) Benzothiophene	14.014	134	70436m	10.39	
17) C1-Benzothiophenes	15.579	148	254871m	37.59	
18) C2-Benzothiophenes	18.306	162	151255m	22.31	
19) C3-Benzothiophenes	20.251	176	247583m	36.52	
20) C4-Benzothiophenes	22.688	190	196631m	29.00	
22) Biphenyl	17.636	154	1069006m	160.59	
23) Acenaphthylene	19.111	152	55127m	7.08	
24) Acenaphthene	19.715	154	86091m	18.11	
25) Dibenzofuran	20.296	168	209019m	30.69	
26) Fluorene	21.481	166	797667m	140.82	
27) 1-Methylfluorene	23.466	180	856977m	263.07	
28) C1-Fluorenes	23.466	180	1791115m	316.20	
29) C2-Fluorenes	25.190	194	2155094m	380.46	
30) C3-Fluorenes	26.828	208	1774541m	313.27	
33) Carbazole	25.529	167	36812m	5.85	
34) Dibenzothiophene	24.342	184	427437m	53.19	
35) 4-Methyldibenzothiophene	25.839	198	601244m	103.69	
36) 2/3-Methyldibenzothiop...	26.150	198	309331m	53.34	
37) 1-Methyldibenzothiophene	26.489	198	193898m	33.44	
38) C2-Dibenzothiophenes	27.252	212	1575170m	196.02	
39) C3-Dibenzothiophenes	28.778	226	923340m	114.91	
40) C4-Dibenzothiophenes	30.190	240	513253m	63.87	
41) Phenanthrene	24.766	178	2329061m	260.73	
42) Anthracene	24.907	178	22384m	2.96	
43) 3-Methylphenanthrene	26.433	192	1331246m	220.66	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183K.D
Acq On : 4 Dec 2013 9:14 pm
Operator : ECM(YMIAO)
Sample : AR-SRM2779-WK-4.0-003
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Dec 11 08:14:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	26.517	192	1339315m	221.99	
45) 2-Methylanthracene	26.687	192	112811m	18.70	
46) 4/9-Methylphenanthrene	26.800	192	1590427m	263.62	
47) 1-Methylphenanthrene	26.885	192	1042833m	172.85	
48) 3,6-Dimethylphenanthrene	27.987	206	311952m	55.10	
49) Retene	30.642	234	20554m	7.44	
50) C2-Phenanthrenes/Anthr...	28.354	206	6211968m	695.40	
51) C3-Phenanthrenes/Anthr...	29.908	220	3858866m	431.98	
52) C4-Phenanthrenes/Anthr...	31.744	234	2012266m	225.27	
53) Naphthobenzothiophene	32.934	234	304984m	32.08	
54) C1-Naphthobenzothiophenes	34.102	248	599475m	63.06	
55) C2-Naphthobenzothiophenes	35.820	262	798949m	84.04	
56) C3-Naphthobenzothiophenes	37.181	276	613472m	64.53	
57) C4-Naphthobenzothiophenes	38.154	290	174944m	18.40	
58) Fluoranthene	28.891	202	34476m	3.70	
59) Pyrene	29.653	202	129142m	12.73	
60) 2-Methylfluoranthene	30.445	216	48526m	7.48	
61) Benzo(b)fluorene	31.038	216	109440m	17.72	
62) C1-Fluoranthenes/Pyrenes	30.812	216	715411m	76.83	
63) C2-Fluoranthenes/Pyrenes	32.578	230	1463188m	157.13	
64) C3-Fluoranthenes/Pyrenes	34.004	244	1243469m	133.54	
65) C4-Fluoranthenes/Pyrenes	35.107	258	963995m	103.52	
67) Benz(a)anthracene	33.745	228	64715m	7.08	
68) Chrysene/Triphenylene	33.842	228	465759m	45.84	
69) C1-Chrysenes	35.236	242	1162331m	114.39	
70) C2-Chrysenes	36.565	256	1536378m	151.20	
71) C3-Chrysenes	37.992	270	1062268m	104.54	
72) C4-Chrysenes	39.386	284	456478m	44.92	
74) C29-Hopane	40.688	191	122833m	24.78	
75) 18a-Oleanane	0.000		0	N.D.	d
76) C30-Hopane	42.029	191	247455m	49.93	
77) Benzo(b)fluoranthene	37.311	252	57613m	5.44	
78) Benzo(k,j)fluoranthene	37.344	252	8004m	0.74	
79) Benzo(a)fluoranthene	0.000		0	N.D.	d
80) Benzo(e)pyrene	38.284	252	132042m	11.44	
81) Benzo(a)pyrene	38.478	252	17386m	1.66	
82) Indeno(1,2,3-c,d)pyrene	43.239	276	7791m	0.65	
83) Dibenzo(a,h)anthracene	43.271	278	4555m	0.47	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d
87) Benzo(g,h,i)perylene	44.579	276	23467m	2.26	
89) Perylene	38.770	252	8066m	0.72	
91) C20-TAS	33.323	231	118549m	7.61	
92) C21-TAS	34.393	231	127313m	8.18	
93) C26(20S)-TAS	38.511	231	71850m	4.61	
94) C26(20R)/C27(20S)-TAS	39.418	231	233967m	15.02	
95) C28(20S)-TAS	40.198	231	165928m	10.65	
96) C27(20R)-TAS	40.656	231	147018m	9.44	
97) C28(20R)-TAS	41.767	231	117612m	7.55	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183K.D
Acq On : 4 Dec 2013 9:14 pm
Operator : ECM(YMIAO)
Sample : AR-SRM2779-WK-4.0-003
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Dec 11 08:14:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

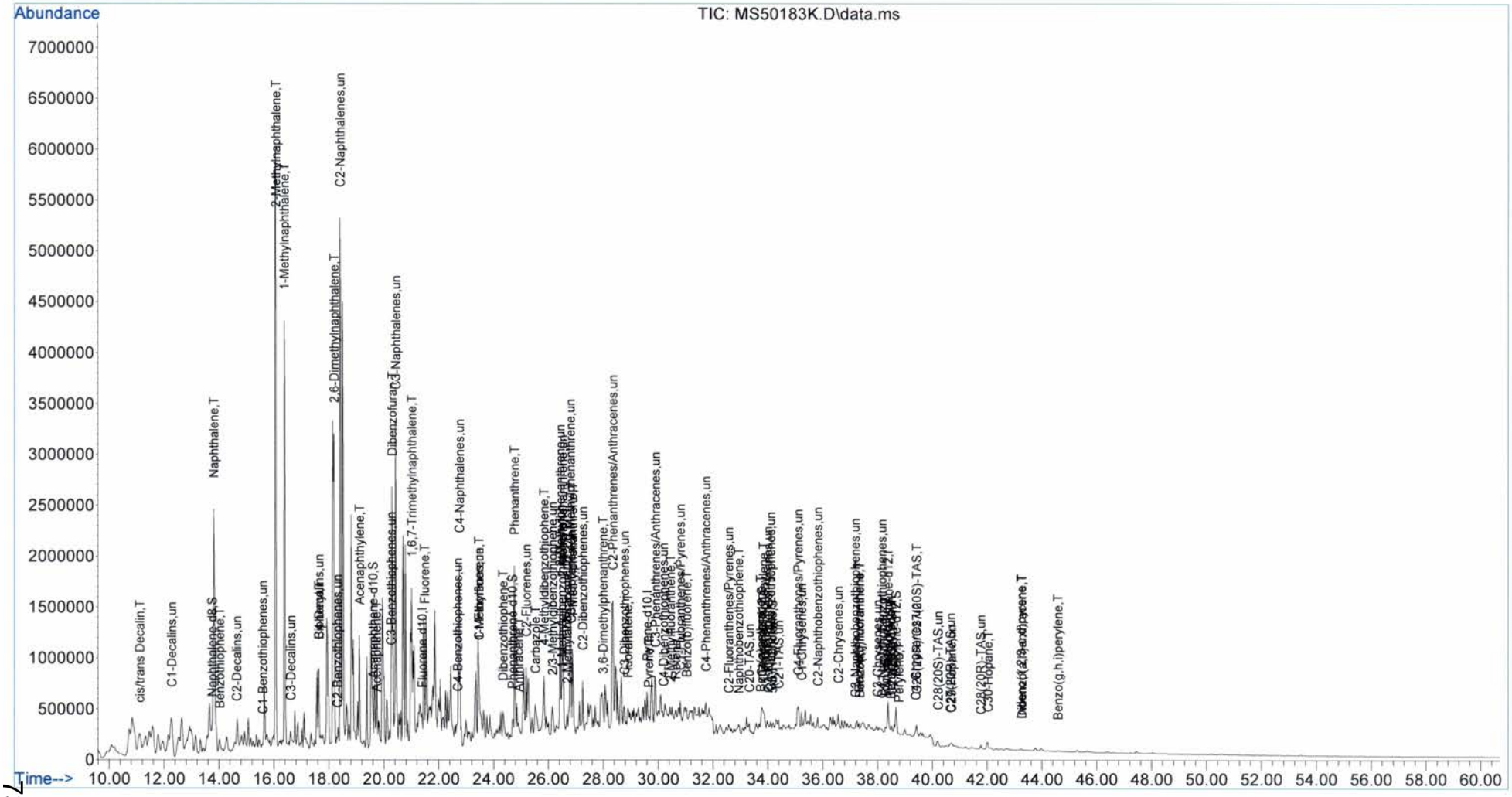
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : MS50183K.D
Acq On : 4 Dec 2013 9:14 pm
Operator : ECM(YMIAO)
Sample : AR-SRM2779-WK-4.0-003
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Dec 11 08:14:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ENV3167A.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/4/2013 22:20
Acq. Method File PAH-2012.M
Sample Name Method Blank
Misc Info 0
Instrument Name GCMS5
Vial Number 12
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3167A.D
Method Blank
12/4/2013 22:20
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	6331	0.2501	0.2602
9)+10)	C1-Naphthalenes	16.24	1937	0.0765	0.0796
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	617	0.0378	0.0393
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	0.00	0	0.0000	0.0000
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	0.00	0	0.0000	0.0000
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	1322	0.0480	0.0499
59)	Pyrene	29.65	2082	0.0694	0.0721
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	1324	0.0846	0.0880
10)	1-Methylnaphthalene	16.41	613	0.0404	0.0420
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	363384	15.15	90.82
21)	Acenaphthene-d10	19.60	207805	15.84	94.99
32)	Phenanthrene-d10	24.68	346658	16.04	96.14
66)	Chrysene-d12	33.78	402682	16.58	99.46
88)	Perylene-d12	38.67	462958	16.84	101.05
90)	5(b)H-Cholane	34.17	136418	20.11	120.67
	Internal Standards				
1)	Fluorene-d10	21.39	232444	16.74	
31)	Pyrene-d10	29.60	448306	16.71	
73)	Benzo(a)pyrene-d12	38.38	423455	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167A.D
Acq On : 4 Dec 2013 10:20 pm
Operator : ECM(YMIAO)
Sample : Method Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Dec 09 08:27:21 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.392	176	232444m	251.05		0.02
31) Pyrene-d10	29.597	212	448306m	250.63		0.00
73) Benzo(a)pyrene-d12	38.381	264	423455m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.746	136	363384m	15.15		0.00
21) Acenaphthene-d10	19.603	164	207805m	15.84		0.00
32) Phenanthrene-d10	24.681	188	346658m	16.04		0.00
66) Chrysene-d12	33.777	240	402682m	16.58		-0.03
88) Perylene-d12	38.673	264	462958m	16.84		0.00
90) 5(b)H-Cholane	34.166	217	136418m	20.11		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.813	128	6331m	0.25		
9) 2-Methylnaphthalene	16.071	142	1324m	0.08		
10) 1-Methylnaphthalene	16.406	142	613m	0.04		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.481	166	617m	0.04		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	0.000		0	N.D.	d	
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	0.000		0	N.D.	d	
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167A.D
Acq On : 4 Dec 2013 10:20 pm
Operator : ECM(YMIAO)
Sample : Method Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Dec 09 08:27:21 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	1322m	0.05	
59) Pyrene	29.654	202	2082m	0.07	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	0.000		0	N.D. d	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167A.D
Acq On : 4 Dec 2013 10:20 pm
Operator : ECM(YMIAO)
Sample : Method Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Dec 09 08:27:21 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

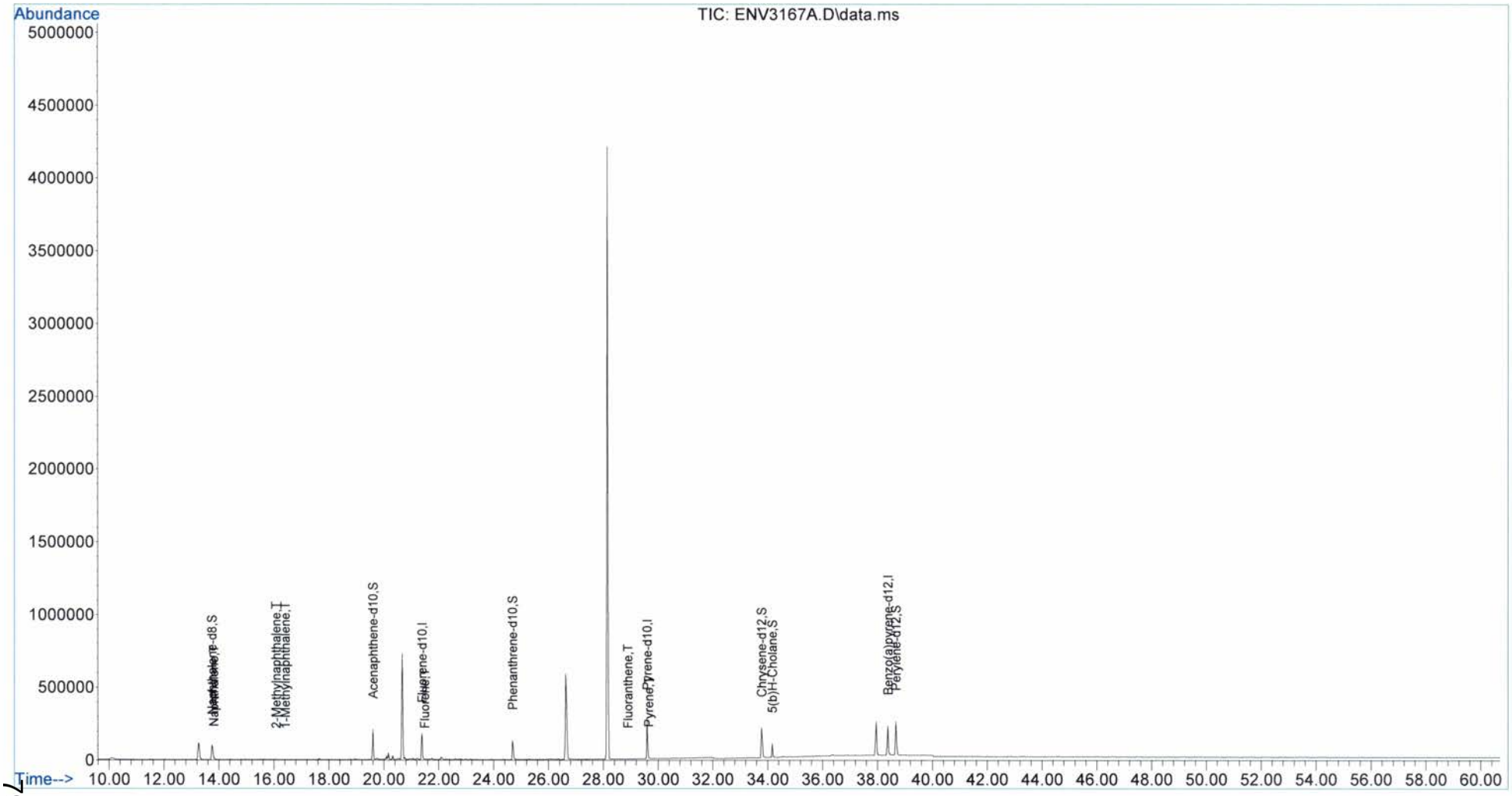
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167A.D
Acq On : 4 Dec 2013 10:20 pm
Operator : ECM(YMIAO)
Sample : Method Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Dec 09 08:27:21 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ENV3167B.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/4/2013 23:27
Acq. Method File PAH-2012.M
Sample Name SRM 1941b
Misc Info 0
Instrument Name GCMS5
Vial Number 13
Sample Multiplier 0.24938
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3167B.D
SRM 1941b
12/4/2013 23:27
PAH-2012.M
4.009944663

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	6110130	771.6241	778.5384
9)+10)	C1-Naphthalenes	16.22	1797513	227.0008	229.0349
13)	C2-Naphthalenes	18.42	1592710	201.1367	202.9390
14)	C3-Naphthalenes	20.79	1015570	128.2516	129.4009
15)	C4-Naphthalenes	22.76	593734	74.9803	75.6522
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	537791	76.5385	77.2243
24)	Acenaphthene	19.71	117999	27.4971	27.7435
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	295292	57.7629	58.2805
28)	C1-Fluorenes	23.35	230666	45.1211	45.5254
29)	C2-Fluorenes	26.07	388117	75.9205	76.6008
30)	C3-Fluorenes	27.56	926374	181.2102	182.8340
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.94	1417460	199.2940	201.0798
41)	Phenanthrene	24.77	3529110	419.9135	423.6762
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.66	2484989	295.6781	298.3276
50)	C2-Phenanthrenes/Anthracenes	28.35	2372150	282.2533	284.7825
51)	C3-Phenanthrenes/Anthracenes	29.77	1779160	211.6952	213.5921
52)	C4-Phenanthrenes/Anthracenes	31.74	1019900	121.3533	122.4407
34)	Dibenzothiophene	24.34	393737	52.0803	52.5469
35)+36)+37)	C1-Dibenzothiophenes	26.15	494905	65.4619	66.0485
38)	C2-Dibenzothiophenes	27.25	872305	115.3811	116.4150
39)	C3-Dibenzothiophenes	28.78	863449	114.2098	115.2332
40)	C4-Dibenzothiophenes	30.81	541476	71.6219	72.2637
58)	Fluoranthene	28.89	6190100	706.5659	712.8972
59)	Pyrene	29.65	5021880	526.3489	531.0654
62)	C1-Fluoranthenes/Pyrenes	30.81	3359390	383.4567	386.8927
63)	C2-Fluoranthenes/Pyrenes	32.55	3392930	387.2846	390.7550
64)	C3-Fluoranthenes/Pyrenes	33.97	1415110	161.5277	162.9751
65)	C4-Fluoranthenes/Pyrenes	35.30	992811	113.3240	114.3395
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	3196280	371.6635	374.9938
68)	Chrysene/Triphenylene	33.87	3948590	413.0331	416.7342
69)	C1-Chrysenes	35.24	2371880	248.1044	250.3276
70)	C2-Chrysenes	36.57	1495270	156.4089	157.8104
71)	C3-Chrysenes	37.38	864936	90.4746	91.2853
72)	C4-Chrysenes	39.42	326798	34.1840	34.4903
77)	Benzo(b)fluoranthene	37.31	5140630	528.2542	532.9877
78)	Benzo(k,j)fluoranthene	37.31	4362870	437.8514	441.7749
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	3738960	352.4637	355.6220
81)	Benzo(a)pyrene	38.48	2641620	273.6123	276.0640
89)	Perylene	38.77	3651670	354.6732	357.8513
82)	Indeno(1,2,3-c,d)pyrene	43.21	3212580	289.5601	292.1548
83)	Dibenzo(a,h)anthracene	43.24	351677	39.7694	40.1257
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.58	2374300	248.7017	250.9302

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.05	1241700	253.7167	255.9902
10)	1-Methylnaphthalene	16.38	555813	117.0438	118.0926
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	251731	46.1413	46.5547
36)	2/3-Methyldibenzothiophene	26.12	175799	32.2231	32.5119
37)	1-Methyldibenzothiophene	26.49	67375	12.3496	12.4602
43)	3-Methylphenanthrene	26.43	598140	105.3780	106.3223
44)	2-Methylphenanthrene	26.52	672129	118.4131	119.4742
45)	2-Methylanthracene	26.69	369159	65.0371	65.6198
46)	4/9-Methylphenanthrene	26.80	432435	76.1846	76.8673
47)	1-Methylphenanthrene	26.88	413126	72.7828	73.4350
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	398664	53.11	85.14
21)	Acenaphthene-d10	19.60	230188	56.09	89.91
32)	Phenanthrene-d10	24.68	424874	61.84	99.11
66)	Chrysene-d12	33.78	480846	62.29	99.89
88)	Perylene-d12	38.67	560873	59.64	95.65
90)	5(b)H-Cholane	34.17	152609	65.76	105.47
	Internal Standards				
1)	Fluorene-d10	21.37	272032	62.61	
31)	Pyrene-d10	29.60	532976	62.50	
73)	Benzo(a)pyrene-d12	38.38	541985	62.43	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167B.D
Acq On : 4 Dec 2013 11:27 pm
Operator : ECM(YMIAO)
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24938

Quant Time: Dec 09 08:39:30 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	272032m	251.05	0.00
31) Pyrene-d10	29.597	212	532976m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	541985m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	398664m	53.11	0.00
21) Acenaphthene-d10	19.603	164	230188m	56.09	0.00
32) Phenanthrene-d10	24.681	188	424874m	61.84	0.00
66) Chrysene-d12	33.777	240	480846m	62.29	-0.03
88) Perylene-d12	38.673	264	560873m	59.64	0.00
90) 5(b)H-Cholane	34.166	217	152609m	65.76	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	6110131m	771.62	
9) 2-Methylnaphthalene	16.048	142	1241703m	253.72	
10) 1-Methylnaphthalene	16.384	142	555813m	117.04	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.418	156	1592710m	201.14	
14) C3-Naphthalenes	20.788	170	1015566m	128.25	
15) C4-Naphthalenes	22.755	184	593734m	74.98	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	537791m	76.54	
24) Acenaphthene	19.715	154	117999m	27.50	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	295292m	57.76	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.353	180	230666m	45.12	
29) C2-Fluorenes	26.066	194	388117m	75.92	
30) C3-Fluorenes	27.563	208	926374m	181.21	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	393737m	52.08	
35) 4-Methyldibenzothiophene	25.840	198	251731m	46.14	
36) 2/3-Methyldibenzothiop...	26.122	198	175799m	32.22	
37) 1-Methyldibenzothiophene	26.489	198	67375m	12.35	
38) C2-Dibenzothiophenes	27.252	212	872305m	115.38	
39) C3-Dibenzothiophenes	28.778	226	863449m	114.21	
40) C4-Dibenzothiophenes	30.812	240	541476m	71.62	
41) Phenanthrene	24.766	178	3529110m	419.91	
42) Anthracene	24.935	178	1417455m	199.29	
43) 3-Methylphenanthrene	26.433	192	598140m	105.38	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167B.D
Acq On : 4 Dec 2013 11:27 pm
Operator : ECM(YMIAO)
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24938

Quant Time: Dec 09 08:39:30 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units Dev(Min)
44) 2-Methylphenanthrene	26.518	192	672129m	118.41
45) 2-Methylanthracene	26.687	192	369159m	65.04
46) 4/9-Methylphenanthrene	26.800	192	432435m	76.18
47) 1-Methylphenanthrene	26.885	192	413126m	72.78
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d
49) Retene	0.000		0	N.D. d
50) C2-Phenanthrenes/Anthr...	28.354	206	2372151m	282.25
51) C3-Phenanthrenes/Anthr...	29.767	220	1779163m	211.70
52) C4-Phenanthrenes/Anthr...	31.744	234	1019897m	121.35
53) Naphthobenzothiophene	0.000		0	N.D. d
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d
58) Fluoranthene	28.891	202	6190099m	706.57
59) Pyrene	29.654	202	5021878m	526.35
60) 2-Methylfluoranthene	0.000		0	N.D. d
61) Benzo(b)fluorene	0.000		0	N.D. d
62) C1-Fluoranthenes/Pyrenes	30.812	216	3359385m	383.46
63) C2-Fluoranthenes/Pyrenes	32.545	230	3392934m	387.29
64) C3-Fluoranthenes/Pyrenes	33.972	244	1415114m	161.53
65) C4-Fluoranthenes/Pyrenes	35.301	258	992811m	113.32
67) Benz(a)anthracene	33.745	228	3196282m	371.66
68) Chrysene/Triphenylene	33.875	228	3948585m	413.03
69) C1-Chrysenes	35.236	242	2371876m	248.10
70) C2-Chrysenes	36.566	256	1495267m	156.41
71) C3-Chrysenes	37.376	270	864936m	90.47
72) C4-Chrysenes	39.419	284	326798m	34.18
74) C29-Hopane	0.000		0	N.D. d
75) 18a-Oleanane	0.000		0	N.D. d
76) C30-Hopane	0.000		0	N.D. d
77) Benzo(b)fluoranthene	37.311	252	5140626m	528.25
78) Benzo(k,j)fluoranthene	37.311	252	4362869m	437.85
79) Benzo(a)fluoranthene	0.000		0	N.D. d
80) Benzo(e)pyrene	38.284	252	3738957m	352.46
81) Benzo(a)pyrene	38.478	252	2641621m	273.61
82) Indeno(1,2,3-c,d)pyrene	43.206	276	3212581m	289.56
83) Dibenzo(a,h)anthracene	43.239	278	351677m	39.77
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d
87) Benzo(g,h,i)perylene	44.580	276	2374301m	248.70
89) Perylene	38.770	252	3651670m	354.67
91) C20-TAS	0.000		0	N.D. d
92) C21-TAS	0.000		0	N.D. d
93) C26(20S)-TAS	0.000		0	N.D. d
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d
95) C28(20S)-TAS	0.000		0	N.D. d
96) C27(20R)-TAS	0.000		0	N.D. d
97) C28(20R)-TAS	0.000		0	N.D. d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167B.D
Acq On : 4 Dec 2013 11:27 pm
Operator : ECM(YMIAO)
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24938

Quant Time: Dec 09 08:39:30 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

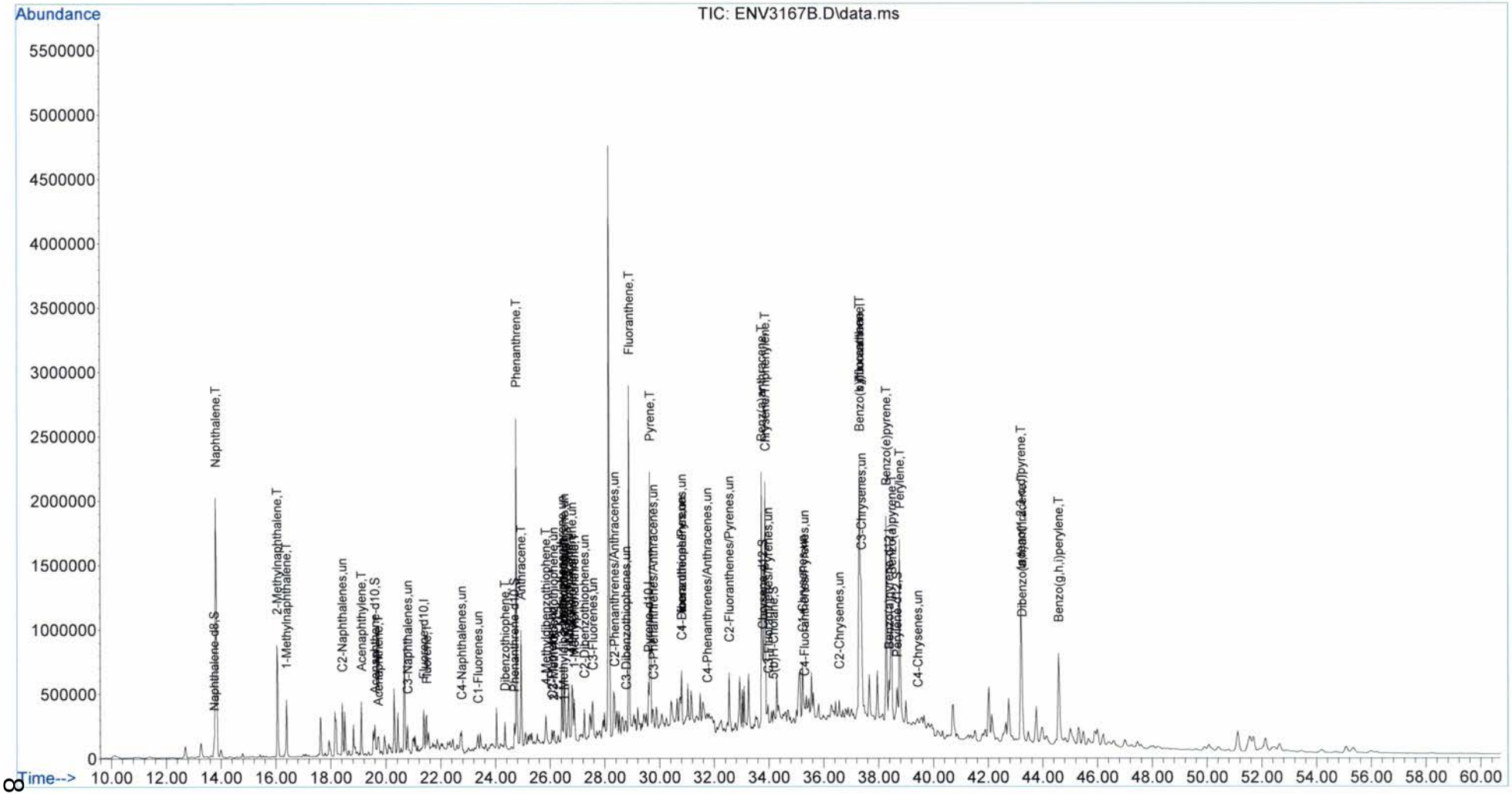
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167B.D
Acq On : 4 Dec 2013 11:27 pm
Operator : ECM(YMIAO)
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24938

Quant Time: Dec 09 08:39:30 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ENV3167C.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 0:33
Acq. Method File PAH-2012.M
Sample Name MS (SED-DA-037R (1-1.5))
Misc Info 0
Instrument Name GCMS5
Vial Number 14
Sample Multiplier 0.0664
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3167C.D
IS (SED-DA-037R (1-1.5))
12/5/2013 0:33
PAH-2012.M
15.06024096

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	266776	9.4508	10.7239
9)+10)	C1-Naphthalenes	16.23	258199	9.1470	10.3791
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	28676	1.1449	1.2991
24)	Acenaphthene	19.71	72154	4.7167	5.3520
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	137930	7.5687	8.5883
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.94	72468	2.7060	3.0705
41)	Phenanthrene	24.77	242614	7.6667	8.6995
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.38	124738	3.9418	4.4728
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	201571	7.0810	8.0348
35)+36)+37)	C1-Dibenzothiophenes	8.61	115870	4.0704	4.6187
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	267994	8.1242	9.2185
59)	Pyrene	29.65	201856	5.6189	6.3757
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	198124	6.1184	6.9426
68)	Chrysene/Triphenylene	33.87	254439	7.0685	8.0206
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.31	245099	7.9538	9.0252
78)	Benzo(k,j)fluoranthene	37.38	212961	6.7494	7.6585
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	232965	6.9352	7.8694
81)	Benzo(a)pyrene	38.48	9703	0.3174	0.3601
89)	Perylene	38.77	1363240	41.8135	47.4459
82)	Indeno(1,2,3-c,d)pyrene	43.24	339884	9.6743	10.9775
83)	Dibenzo(a,h)anthracene	43.27	272526	9.7324	11.0434
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	106418	3.5202	3.9944

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	143914	8.2491	9.3602
10)	1-Methylnaphthalene	16.38	114285	6.7512	7.6606
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	115870	5.6406	6.4004
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.88	124738	5.8364	6.6226
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	369203	13.80	83.07
21)	Acenaphthene-d10	19.60	166940	11.41	68.70
32)	Phenanthrene-d10	24.68	378757	14.64	88.13
66)	Chrysene-d12	33.81	470385	16.18	97.47
88)	Perylene-d12	38.64	4887	0.16	0.99
90)	5(b)H-Cholane	34.17	144070	19.60	118.09
	Internal Standards				
1)	Fluorene-d10	21.37	258201	16.67	
31)	Pyrene-d10	29.60	534337	16.64	
73)	Benzo(a)pyrene-d12	38.38	456970	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167C.D
Acq On : 5 Dec 2013 12:33 am
Operator : ECM(YMIAO)
Sample : MS (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Dec 09 09:07:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	258201m	251.05	0.00
31) Pyrene-d10	29.597	212	534337m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	456970m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	369203m	13.80	0.00
21) Acenaphthene-d10	19.603	164	166940m	11.41	0.00
32) Phenanthrene-d10	24.681	188	378757m	14.64	0.00
66) Chrysene-d12	33.810	240	470385m	16.18	0.00
88) Perylene-d12	38.640	264	4887m	0.16	-0.03
90) 5(b)H-Cholane	34.166	217	144070m	19.60	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	266776m	9.45	
9) 2-Methylnaphthalene	16.071	142	143914m	8.25	
10) 1-Methylnaphthalene	16.384	142	114285m	6.75	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	28676m	1.14	
24) Acenaphthene	19.715	154	72154m	4.72	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	137930m	7.57	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	201571m	7.08	
35) 4-Methyldibenzothiophene	25.839	198	115870m	5.64	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	242614m	7.67	
42) Anthracene	24.935	178	72468m	2.71	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167C.D
Acq On : 5 Dec 2013 12:33 am
Operator : ECM(YMIAO)
Sample : MS (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Dec 09 09:07:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	26.885	192	124738m	5.84	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	267994m	8.12	
59) Pyrene	29.653	202	201856m	5.62	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	198124m	6.12	
68) Chrysene/Triphenylene	33.875	228	254439m	7.07	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	245099m	7.95	
78) Benzo(k,j)fluoranthene	37.376	252	212961m	6.75	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	232965m	6.94	
81) Benzo(a)pyrene	38.478	252	9703m	0.32	
82) Indeno(1,2,3-c,d)pyrene	43.239	276	339884m	9.67	
83) Dibenzo(a,h)anthracene	43.272	278	272526m	9.73	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.612	276	106418m	3.52	
89) Perylene	38.770	252	1363241m	41.81	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167C.D
Acq On : 5 Dec 2013 12:33 am
Operator : ECM(YMIAO)
Sample : MS (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Dec 09 09:07:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

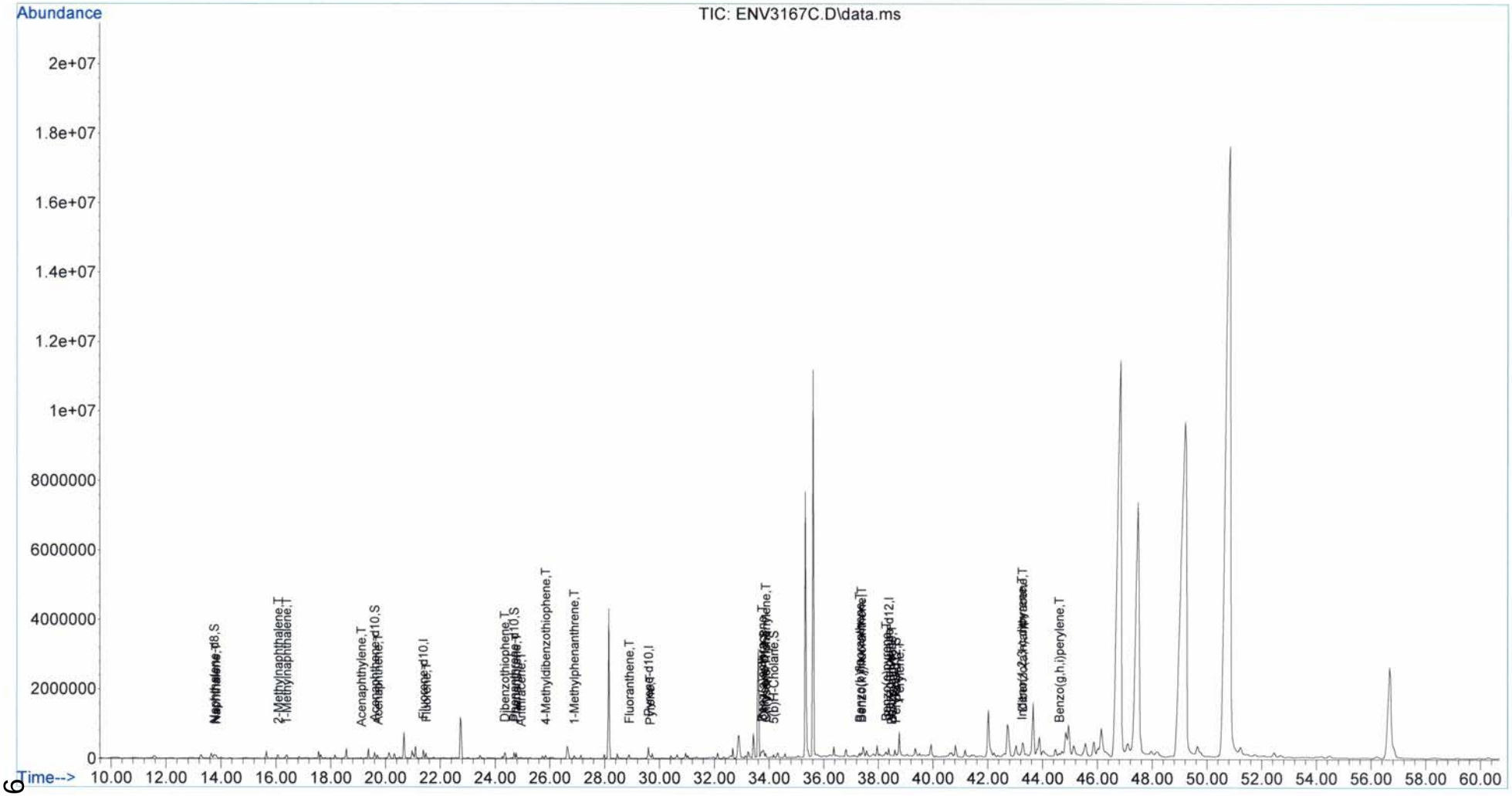
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167C.D
Acq On : 5 Dec 2013 12:33 am
Operator : ECM(YMIAO)
Sample : MS (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Dec 09 09:07:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ENV3167D.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 1:39
Acq. Method File PAH-2012.M
Sample Name MSD (SED-DA-037R (1-1.5))
Misc Info 0
Instrument Name GCMS5
Vial Number 15
Sample Multiplier 0.06627
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3167D.D
SD (SED-DA-037R (1-1.5))
12/5/2013 1:39
PAH-2012.M
15.08978422

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	258296	9.6874	10.9128
9)+10)	C1-Naphthalenes	16.23	249831	9.3699	10.5552
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	21035	0.8891	1.0016
24)	Acenaphthene	19.71	64495	4.4635	5.0281
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	130392	7.5751	8.5332
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	64135	2.5415	2.8629
41)	Phenanthrene	24.77	234514	7.8644	8.8592
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.38	122438	4.1059	4.6253
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	195369	7.2832	8.2045
35)+36)+37)	C1-Dibenzothiophenes	8.61	112583	4.1970	4.7279
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	259485	8.3478	9.4037
59)	Pyrene	29.65	186587	5.5118	6.2090
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	191907	6.2892	7.0848
68)	Chrysene/Triphenylene	33.87	254096	7.4910	8.4386
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.31	245146	8.1262	9.1541
78)	Benzo(k,j)fluoranthene	37.38	202593	6.5587	7.3883
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	229180	6.9692	7.8507
81)	Benzo(a)pyrene	38.48	7643	0.2554	0.2877
89)	Perylene	38.77	1744360	54.6527	61.5659
82)	Indeno(1,2,3-c,d)pyrene	43.24	331071	9.6260	10.8436
83)	Dibenzo(a,h)anthracene	43.27	260594	9.5062	10.7087
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	101131	3.4172	3.8494

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	139497	8.4651	9.5359
10)	1-Methylnaphthalene	16.38	110334	6.9003	7.7731
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	112583	5.8160	6.5517
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.88	122438	6.0795	6.8485
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	349490	13.83	83.41
21)	Acenaphthene-d10	19.60	135727	9.82	59.25
32)	Phenanthrene-d10	24.68	358806	14.72	88.77
66)	Chrysene-d12	33.81	453535	16.56	99.93
88)	Perylene-d12	38.64	5410	0.19	1.12
90)	5(b)H-Cholane	34.17	139562	19.40	117.09
	Internal Standards				
1)	Fluorene-d10	21.37	243410	16.64	
31)	Pyrene-d10	29.60	502529	16.61	
73)	Benzo(a)pyrene-d12	38.38	446483	16.59	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167D.D
Acq On : 5 Dec 2013 1:39 am
Operator : ECM(YMIAO)
Sample : MSD (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.06627

Quant Time: Dec 09 09:09:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	243410m	251.05	0.00
31) Pyrene-d10	29.597	212	502529m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	446483m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	349490m	13.83	0.00
21) Acenaphthene-d10	19.603	164	135727m	9.82	0.00
32) Phenanthrene-d10	24.681	188	358806m	14.72	0.00
66) Chrysene-d12	33.810	240	453535m	16.56	0.00
88) Perylene-d12	38.640	264	5410m	0.19	-0.03
90) 5(b)H-Cholane	34.166	217	139562m	19.40	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	258296m	9.69	
9) 2-Methylnaphthalene	16.071	142	139497m	8.47	
10) 1-Methylnaphthalene	16.384	142	110334m	6.90	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	21035m	0.89	
24) Acenaphthene	19.715	154	64495m	4.46	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	130392m	7.58	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	195369m	7.28	
35) 4-Methyldibenzothiophene	25.839	198	112583m	5.82	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	234514m	7.86	
42) Anthracene	24.964	178	64135m	2.54	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167D.D
Acq On : 5 Dec 2013 1:39 am
Operator : ECM(YMIAO)
Sample : MSD (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.06627

Quant Time: Dec 09 09:09:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	26.885	192	122438m	6.08	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	259485m	8.35	
59) Pyrene	29.654	202	186587m	5.51	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	191907m	6.29	
68) Chrysene/Triphenylene	33.875	228	254096m	7.49	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	245146m	8.13	
78) Benzo(k,j)fluoranthene	37.376	252	202593m	6.56	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	229180m	6.97	
81) Benzo(a)pyrene	38.478	252	7643m	0.26	
82) Indeno(1,2,3-c,d)pyrene	43.239	276	331071m	9.63	
83) Dibenzo(a,h)anthracene	43.272	278	260594m	9.51	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.612	276	101131m	3.42	
89) Perylene	38.770	252	1744362m	54.65	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167D.D
Acq On : 5 Dec 2013 1:39 am
Operator : ECM(YMIAO)
Sample : MSD (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.06627

Quant Time: Dec 09 09:09:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

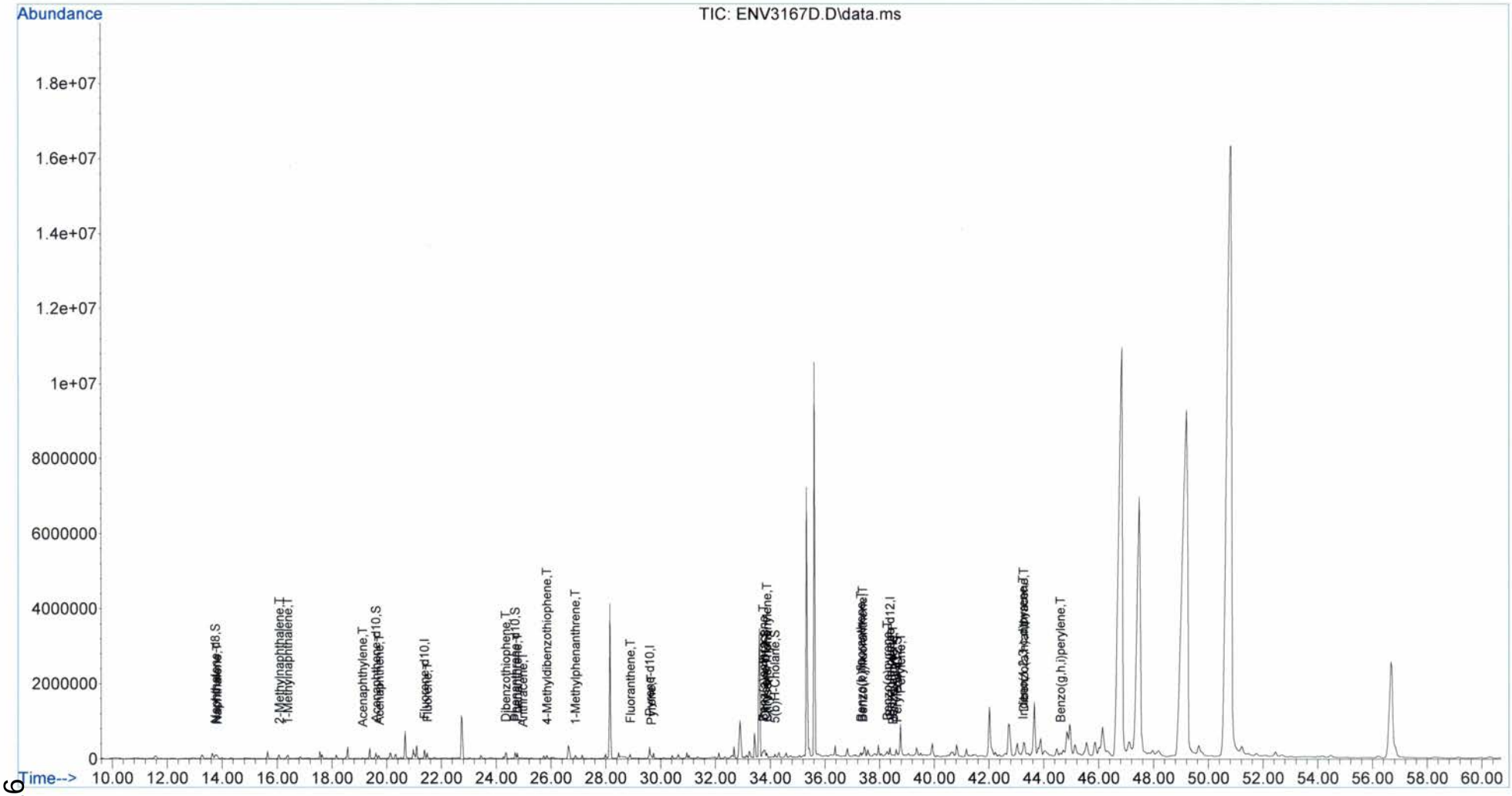
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167D.D
Acq On : 5 Dec 2013 1:39 am
Operator : ECM(YMIAO)
Sample : MSD (SED-DA-037R (1-1.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.06627

Quant Time: Dec 09 09:09:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ENV3167E.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 2:45
Acq. Method File PAH-2012.M
Sample Name Dupl. (SED-DA-033R (1-1.5))
Misc Info 0
Instrument Name GCMS5
Vial Number 16
Sample Multiplier 0.06658
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ENV3167E.D
ıpl. (SED-DA-033R (1-1.5))
12/5/2013 2:45
PAH-2012.M
15.01952538

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	101070	4.0493	4.2420
9)+10)	C1-Naphthalenes	16.23	74798	2.9967	3.1394
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	19808	1.2292	1.2878
28)	C1-Fluorenes	23.47	6903	0.4284	0.4488
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	1639	0.0745	0.0780
41)	Phenanthrene	24.77	46448	1.7864	1.8715
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	1836	0.0785	0.0822
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	14357	0.5297	0.5549
59)	Pyrene	29.65	10012	0.3392	0.3553
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	128589	4.3045	4.5095
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	48173	3.1228	3.2714
10)	1-Methylnaphthalene	16.38	26625	1.7787	1.8634
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	359244	15.18	91.17
21)	Acenaphthene-d10	19.60	108498	8.39	50.36
32)	Phenanthrene-d10	24.68	337981	15.90	95.46
66)	Chrysene-d12	33.78	373850	15.65	94.03
88)	Perylene-d12	38.67	1554	0.06	0.34
90)	5(b)H-Cholane	34.17	126084	18.72	112.49
	Internal Standards				
1)	Fluorene-d10	21.37	228929	16.71	
31)	Pyrene-d10	29.60	440212	16.69	
73)	Benzo(a)pyrene-d12	38.38	419840	16.67	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167E.D
Acq On : 5 Dec 2013 2:45 am
Operator : ECM(YMIAO)
Sample : Dupl. (SED-DA-033R (1-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:19:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	228929m	251.05	0.00
31) Pyrene-d10	29.597	212	440212m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	419840m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	359244m	15.18	0.00
21) Acenaphthene-d10	19.603	164	108498m	8.39	0.00
32) Phenanthrene-d10	24.681	188	337981m	15.90	0.00
66) Chrysene-d12	33.777	240	373850m	15.65	-0.03
88) Perylene-d12	38.673	264	1554m	0.06	0.00
90) 5(b)H-Cholane	34.166	217	126084m	18.72	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	101070m	4.05	
9) 2-Methylnaphthalene	16.071	142	48173m	3.12	
10) 1-Methylnaphthalene	16.384	142	26625m	1.78	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	0.000		0	N.D. d	
24) Acenaphthene	0.000		0	N.D. d	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	19808m	1.23	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	6903m	0.43	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	1836m	0.08	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	46448m	1.79	
42) Anthracene	24.964	178	1639m	0.07	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167E.D
Acq On : 5 Dec 2013 2:45 am
Operator : ECM(YMIAO)
Sample : Dupl. (SED-DA-033R (1-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:19:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	14357m	0.53	
59) Pyrene	29.653	202	10012m	0.34	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	38.770	252	128589m	4.30	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167E.D
Acq On : 5 Dec 2013 2:45 am
Operator : ECM(YMIAO)
Sample : Dupl. (SED-DA-033R (1-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:19:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

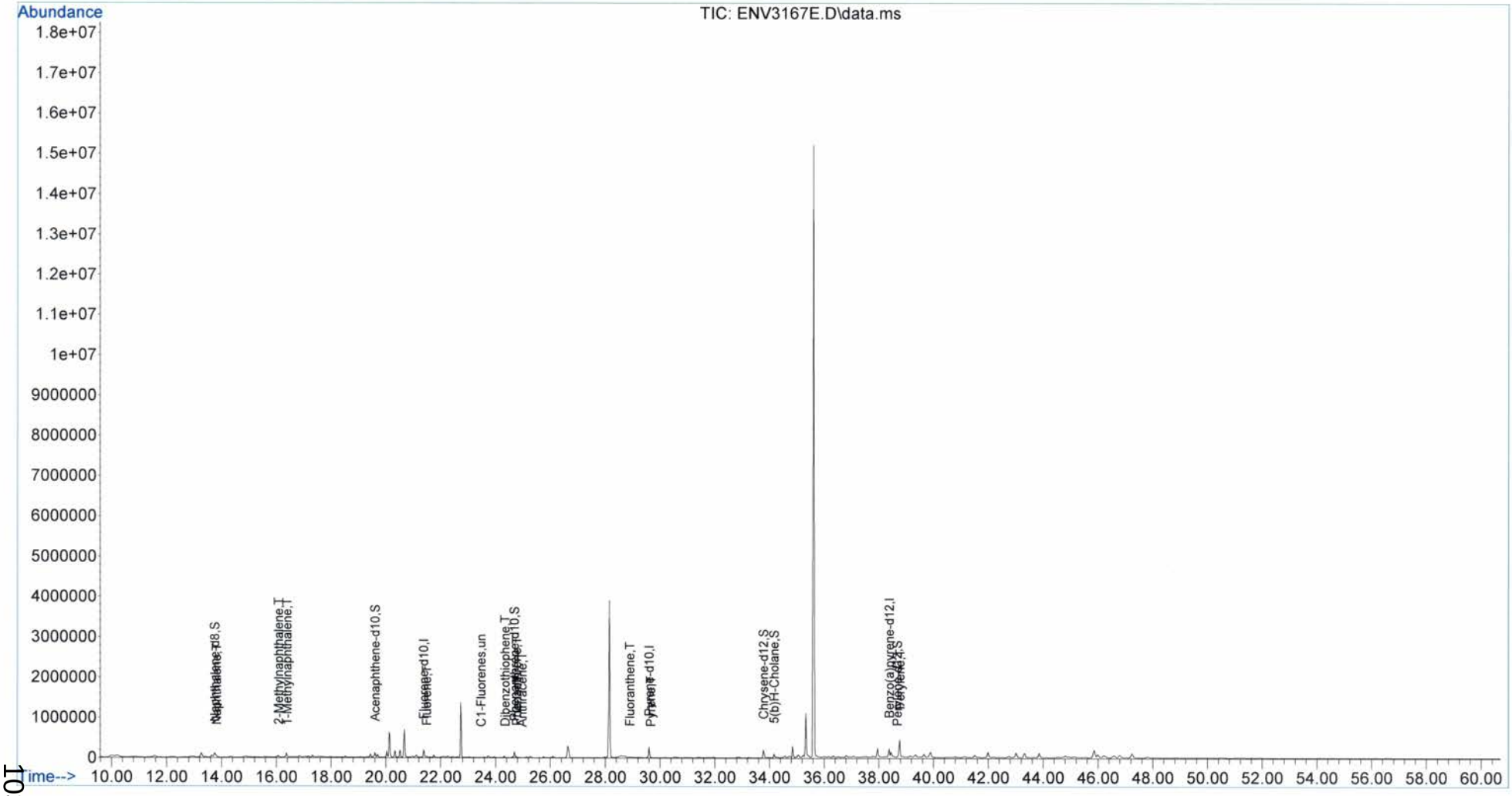
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ENV3167E.D
Acq On : 5 Dec 2013 2:45 am
Operator : ECM(YMIAO)
Sample : Dupl. (SED-DA-033R (1-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:19:24 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2009.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 3:51
Acq. Method File PAH-2012.M
Sample Name SED-DA-036R (0.5-1)
Misc Info 0
Instrument Name GCMS5
Vial Number 17
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2009.D
SED-DA-036R (0.5-1)
12/5/2013 3:51
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	95317	3.5501	3.7905
9)+10)	C1-Naphthalenes	16.23	63623	2.3696	2.5301
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	14300	0.8250	0.8809
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	2344	0.0959	0.1024
41)	Phenanthrene	24.77	41895	1.4508	1.5491
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	3187	0.1227	0.1310
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	29862	0.9921	1.0592
59)	Pyrene	29.65	17022	0.5193	0.5544
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	876091	25.9864	27.7463
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	44943	2.7084	2.8918
10)	1-Methylnaphthalene	16.38	18680	1.1601	1.2387
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	374535	14.71	88.24
21)	Acenaphthene-d10	19.60	126287	9.08	54.42
32)	Phenanthrene-d10	24.68	368792	15.62	93.66
66)	Chrysene-d12	33.78	418787	15.79	94.72
88)	Perylene-d12	38.71	14199	0.46	2.77
90)	5(b)H-Cholane	34.17	138354	18.21	109.23
	Internal Standards				
1)	Fluorene-d10	21.37	246591	16.74	
31)	Pyrene-d10	29.60	489567	16.71	
73)	Benzo(a)pyrene-d12	38.38	474456	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2009.D
Acq On : 5 Dec 2013 3:51 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (0.5-1)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06667

Quant Time: Dec 09 09:39:12 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	246591m	251.05	0.00
31) Pyrene-d10	29.597	212	489567m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	474456m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	374535m	14.71	0.00
21) Acenaphthene-d10	19.603	164	126287m	9.08	0.00
32) Phenanthrene-d10	24.681	188	368792m	15.62	0.00
66) Chrysene-d12	33.777	240	418787m	15.79	-0.03
88) Perylene-d12	38.705	264	14199m	0.46	0.03
90) 5(b)H-Cholane	34.166	217	138354m	18.21	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	95317m	3.55	
9) 2-Methylnaphthalene	16.071	142	44943m	2.71	
10) 1-Methylnaphthalene	16.384	142	18680m	1.16	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	0.000		0	N.D. d	
24) Acenaphthene	0.000		0	N.D. d	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	14300m	0.82	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	3187m	0.12	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	41895m	1.45	
42) Anthracene	24.964	178	2344m	0.10	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2009.D
Acq On : 5 Dec 2013 3:51 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (0.5-1)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06667

Quant Time: Dec 09 09:39:12 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	29862m	0.99	
59) Pyrene	29.654	202	17022m	0.52	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	38.770	252	876091m	25.99	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2009.D
Acq On : 5 Dec 2013 3:51 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (0.5-1)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06667

Quant Time: Dec 09 09:39:12 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

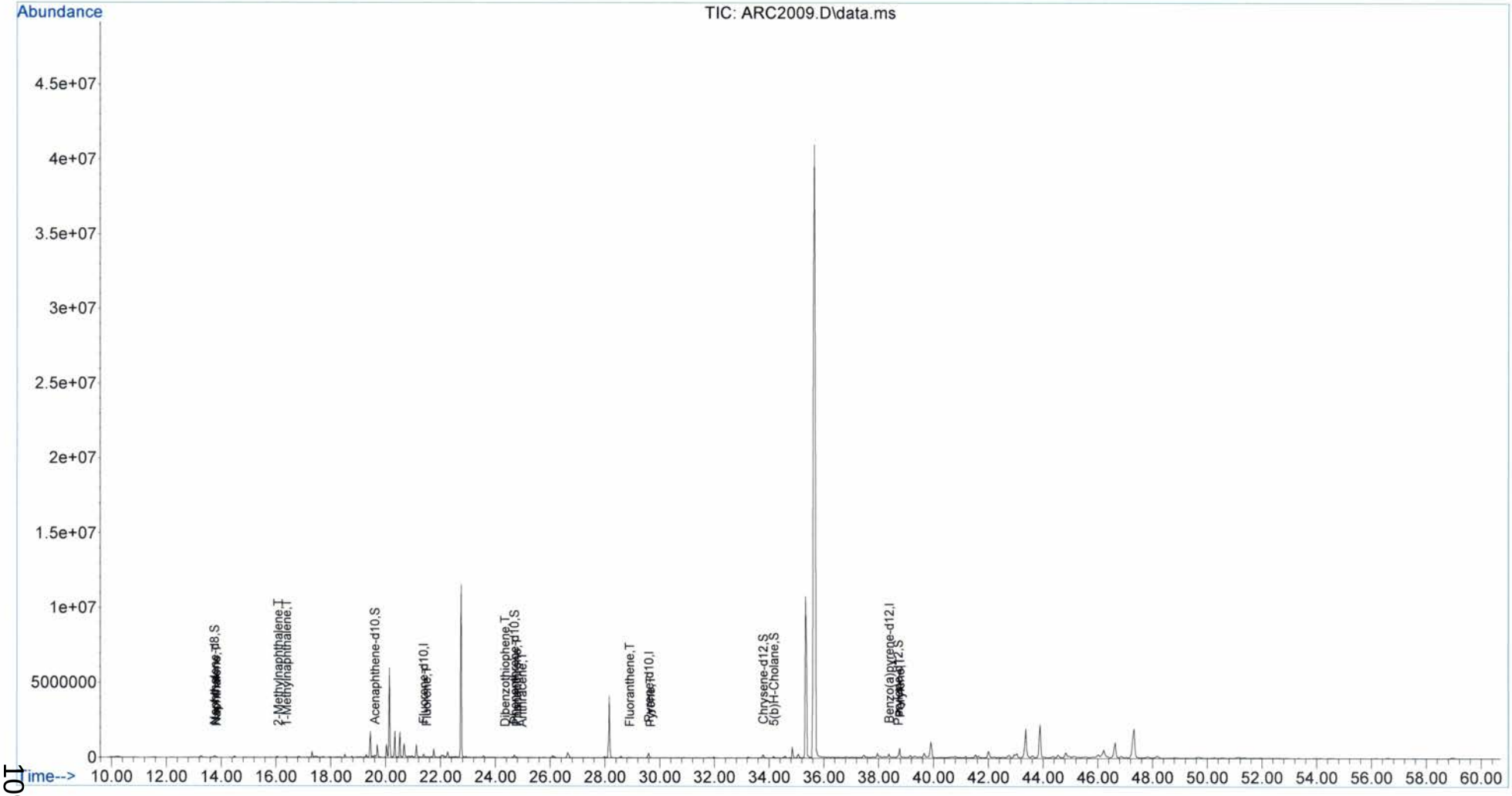
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2009.D
Acq On : 5 Dec 2013 3:51 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (0.5-1)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06667

Quant Time: Dec 09 09:39:12 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2010.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 4:58
Acq. Method File PAH-2012.M
Sample Name SED-DA-036R (1-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 18
Sample Multiplier 0.06609
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2010.D
SED-DA-036R (1-1.5)
12/5/2013 4:58
PAH-2012.M
15.13088213

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	101413	4.2264	4.4053
9)+10)	C1-Naphthalenes	16.23	72868	3.0368	3.1653
13)	C2-Naphthalenes	18.51	76349	3.1819	3.3165
14)	C3-Naphthalenes	20.97	80901	3.3716	3.5143
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.64	25082	1.3778	1.4361
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	14738	0.9514	0.9917
28)	C1-Fluorenes	23.47	5029	0.3246	0.3384
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	2114	0.0925	0.0964
41)	Phenanthrene	24.77	39731	1.4708	1.5331
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	2010	0.0827	0.0862
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	24391	0.8662	0.9029
59)	Pyrene	29.65	11663	0.3803	0.3964
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	67886	2.2043	2.2975
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	2725	0.0954	0.0995

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	46941	3.1653	3.2992
10)	1-Methylnaphthalene	16.38	25927	1.8018	1.8780
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	337898	14.85	89.86
21)	Acenaphthene-d10	19.60	82527	6.64	40.14
32)	Phenanthrene-d10	24.68	350322	15.86	95.94
66)	Chrysene-d12	33.78	398037	16.04	97.08
88)	Perylene-d12	38.74	2953	0.10	0.64
90)	5(b)H-Cholane	34.17	129346	18.63	112.77
	Internal Standards				
1)	Fluorene-d10	21.37	218458	16.59	
31)	Pyrene-d10	29.60	453984	16.56	
73)	Benzo(a)pyrene-d12	38.38	429652	16.54	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2010.D
Acq On : 5 Dec 2013 4:58 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (1-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Dec 09 13:37:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	218458m	251.05	0.00
31) Pyrene-d10	29.597	212	453984m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	429652m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	337898m	14.85	0.00
21) Acenaphthene-d10	19.603	164	82527m	6.64	0.00
32) Phenanthrene-d10	24.681	188	350322m	15.86	0.00
66) Chrysene-d12	33.777	240	398037m	16.04	-0.03
88) Perylene-d12	38.738	264	2953m	0.10	0.06
90) 5(b)H-Cholane	34.166	217	129346m	18.63	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	101413m	4.23	
9) 2-Methylnaphthalene	16.071	142	46941m	3.17	
10) 1-Methylnaphthalene	16.384	142	25927m	1.80	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.507	156	76349m	3.18	
14) C3-Naphthalenes	20.967	170	80901m	3.37	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.636	154	25082m	1.38	
23) Acenaphthylene	0.000		0	N.D. d	
24) Acenaphthene	0.000		0	N.D. d	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	14738m	0.95	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	5029m	0.32	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	2010m	0.08	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	39731m	1.47	
42) Anthracene	24.964	178	2114m	0.09	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2010.D
Acq On : 5 Dec 2013 4:58 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (1-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Dec 09 13:37:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	24391m	0.87	
59) Pyrene	29.653	202	11663m	0.38	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.612	276	2725m	0.10	
89) Perylene	38.770	252	67886m	2.20	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2010.D
Acq On : 5 Dec 2013 4:58 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (1-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Dec 09 13:37:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

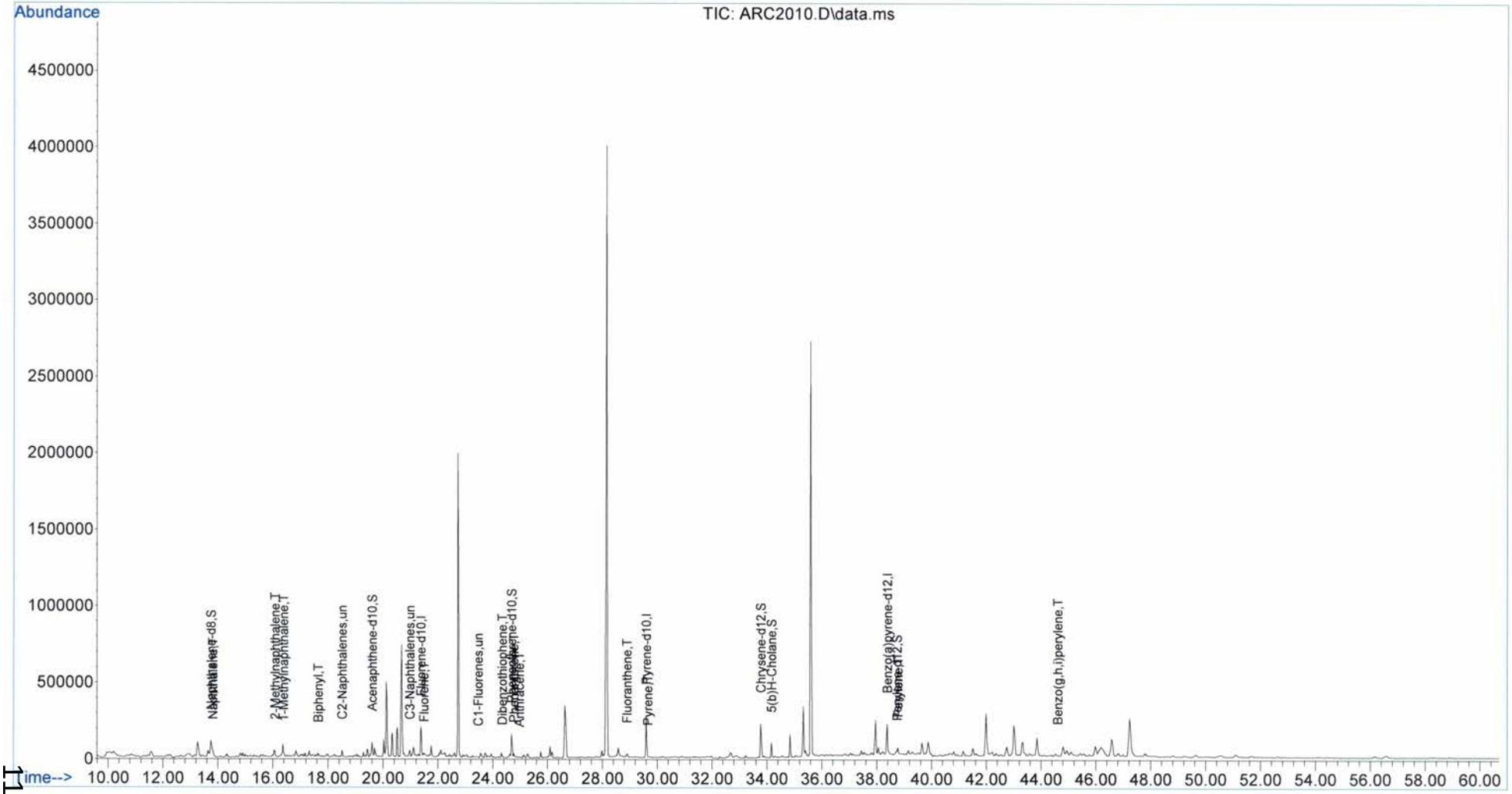
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2010.D
Acq On : 5 Dec 2013 4:58 am
Operator : ECM(YMIAO)
Sample : SED-DA-036R (1-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Dec 09 13:37:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2013.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 6:04
Acq. Method File PAH-2012.M
Sample Name SED-DA-037R (0.5-1)
Misc Info 0
Instrument Name GCMS5
Vial Number 19
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2013.D
SED-DA-037R (0.5-1)
12/5/2013 6:04
PAH-2012.M
15.04890895

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	402005	14.3991	15.8421
9)+10)	C1-Naphthalenes	16.23	255378	9.1472	10.0639
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	42594	1.7193	1.8916
24)	Acenaphthene	19.69	15910	1.0515	1.1569
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	134074	7.4385	8.1840
28)	C1-Fluorenes	23.47	114994	6.3800	7.0194
29)	C2-Fluorenes	25.47	139628	7.7467	8.5230
30)	C3-Fluorenes	26.69	146072	8.1042	8.9164
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.77	368829	10.6701	11.7394
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.66	303780	8.7882	9.6690
50)	C2-Phenanthrenes/Anthracenes	28.16	344641	9.9704	10.9696
51)	C3-Phenanthrenes/Anthracenes	29.88	298035	8.6221	9.4862
52)	C4-Phenanthrenes/Anthracenes	32.48	255842	7.4014	8.1432
34)	Dibenzothiophene	24.34	124019	3.9884	4.3882
35)+36)+37)	C1-Dibenzothiophenes	26.16	53488	1.7202	1.8926
38)	C2-Dibenzothiophenes	27.25	112877	3.6301	3.9939
39)	C3-Dibenzothiophenes	28.78	149993	4.8238	5.3072
40)	C4-Dibenzothiophenes	30.81	85624	2.7537	3.0296
58)	Fluoranthene	28.89	368713	10.2328	11.2583
59)	Pyrene	29.65	267193	6.8090	7.4914
62)	C1-Fluoranthenes/Pyrenes	30.81	321059	8.9102	9.8032
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	118790	3.3584	3.6950
68)	Chrysene/Triphenylene	33.87	455311	11.5798	12.7403
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.31	610644	26.5324	29.1915
78)	Benzo(k,j)fluoranthene	37.41	78925	3.3491	3.6848
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	198283	7.9034	8.6954
81)	Benzo(a)pyrene	38.48	53269	2.3329	2.5667
89)	Perylene	38.80	9856850	404.7981	445.3662
82)	Indeno(1,2,3-c,d)pyrene	43.37	783313	29.8527	32.8445
83)	Dibenzo(a,h)anthracene	43.37	580021	27.7339	30.5133
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	415389	18.3975	20.2413

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	168612	9.7717	10.7510
10)	1-Methylnaphthalene	16.38	86766	5.1822	5.7016
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	28668	1.2776	1.4057
36)	2/3-Methyldibenzothiophene	26.15	19371	0.8633	0.9498
37)	1-Methyldibenzothiophene	26.49	5449	0.2428	0.2672
43)	3-Methylphenanthrene	26.43	61156	2.6196	2.8821
44)	2-Methylphenanthrene	26.52	66939	2.8673	3.1547
45)	2-Methylanthracene	26.69	106138	4.5464	5.0020
46)	4/9-Methylphenanthrene	26.80	34768	1.4893	1.6385
47)	1-Methylphenanthrene	26.88	34779	1.4897	1.6390
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	360856	13.63	82.03
21)	Acenaphthene-d10	19.60	135724	9.38	56.43
32)	Phenanthrene-d10	24.68	427012	15.11	90.89
66)	Chrysene-d12	33.81	551237	17.36	104.49
88)	Perylene-d12	38.64	4260	0.19	1.15
90)	5(b)H-Cholane	34.17	177368	32.31	194.52
	Internal Standards				
1)	Fluorene-d10	21.37	255568	16.68	
31)	Pyrene-d10	29.60	584107	16.65	
73)	Benzo(a)pyrene-d12	38.41	341553	16.63	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2013.D
Acq On : 5 Dec 2013 6:04 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (0.5-1)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Dec 10 08:21:52 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	255568m	251.05	0.00
31) Pyrene-d10	29.597	212	584107m	250.63	0.00
73) Benzo(a)pyrene-d12	38.414	264	341553m	250.32	0.03
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	360856m	13.63	0.00
21) Acenaphthene-d10	19.603	164	135724m	9.38	0.00
32) Phenanthrene-d10	24.681	188	427012m	15.11	0.00
66) Chrysene-d12	33.810	240	551237m	17.36	0.00
88) Perylene-d12	38.640	264	4260m	0.19	-0.03
90) 5(b)H-Cholane	34.166	217	177368m	32.31	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	402005m	14.40	
9) 2-Methylnaphthalene	16.071	142	168612m	9.77	
10) 1-Methylnaphthalene	16.384	142	86766m	5.18	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	42594m	1.72	
24) Acenaphthene	19.692	154	15910m	1.05	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	134074m	7.44	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	114994m	6.38	
29) C2-Fluorenes	25.472	194	139628m	7.75	
30) C3-Fluorenes	26.687	208	146072m	8.10	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	124019m	3.99	
35) 4-Methyldibenzothiophene	25.840	198	28668m	1.28	
36) 2/3-Methyldibenzothiop...	26.150	198	19371m	0.86	
37) 1-Methyldibenzothiophene	26.489	198	5449m	0.24	
38) C2-Dibenzothiophenes	27.252	212	112877m	3.63	
39) C3-Dibenzothiophenes	28.778	226	149993m	4.82	
40) C4-Dibenzothiophenes	30.812	240	85624m	2.75	
41) Phenanthrene	24.766	178	368829m	10.67	
42) Anthracene	0.000		0	N.D. d	
43) 3-Methylphenanthrene	26.433	192	61156m	2.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2013.D
Acq On : 5 Dec 2013 6:04 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (0.5-1)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Dec 10 08:21:52 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	26.518	192	66939m	2.87	
45) 2-Methylanthracene	26.687	192	106138m	4.55	
46) 4/9-Methylphenanthrene	26.800	192	34768m	1.49	
47) 1-Methylphenanthrene	26.885	192	34779m	1.49	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	28.156	206	344641m	9.97	
51) C3-Phenanthrenes/Anthr...	29.880	220	298035m	8.62	
52) C4-Phenanthrenes/Anthr...	32.481	234	255842m	7.40	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	368713m	10.23	
59) Pyrene	29.654	202	267193m	6.81	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	30.812	216	321059m	8.91	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	118790m	3.36	
68) Chrysene/Triphenylene	33.875	228	455311m	11.58	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	610644m	26.53	
78) Benzo(k,j)fluoranthene	37.409	252	78925m	3.35	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	198283m	7.90	
81) Benzo(a)pyrene	38.478	252	53269m	2.33	
82) Indeno(1,2,3-c,d)pyrene	43.370	276	783313m	29.85	
83) Dibenzo(a,h)anthracene	43.370	278	580021m	27.73	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.547	276	415389m	18.40	
89) Perylene	38.803	252	9856854m	404.80	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2013.D
Acq On : 5 Dec 2013 6:04 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (0.5-1)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Dec 10 08:21:52 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

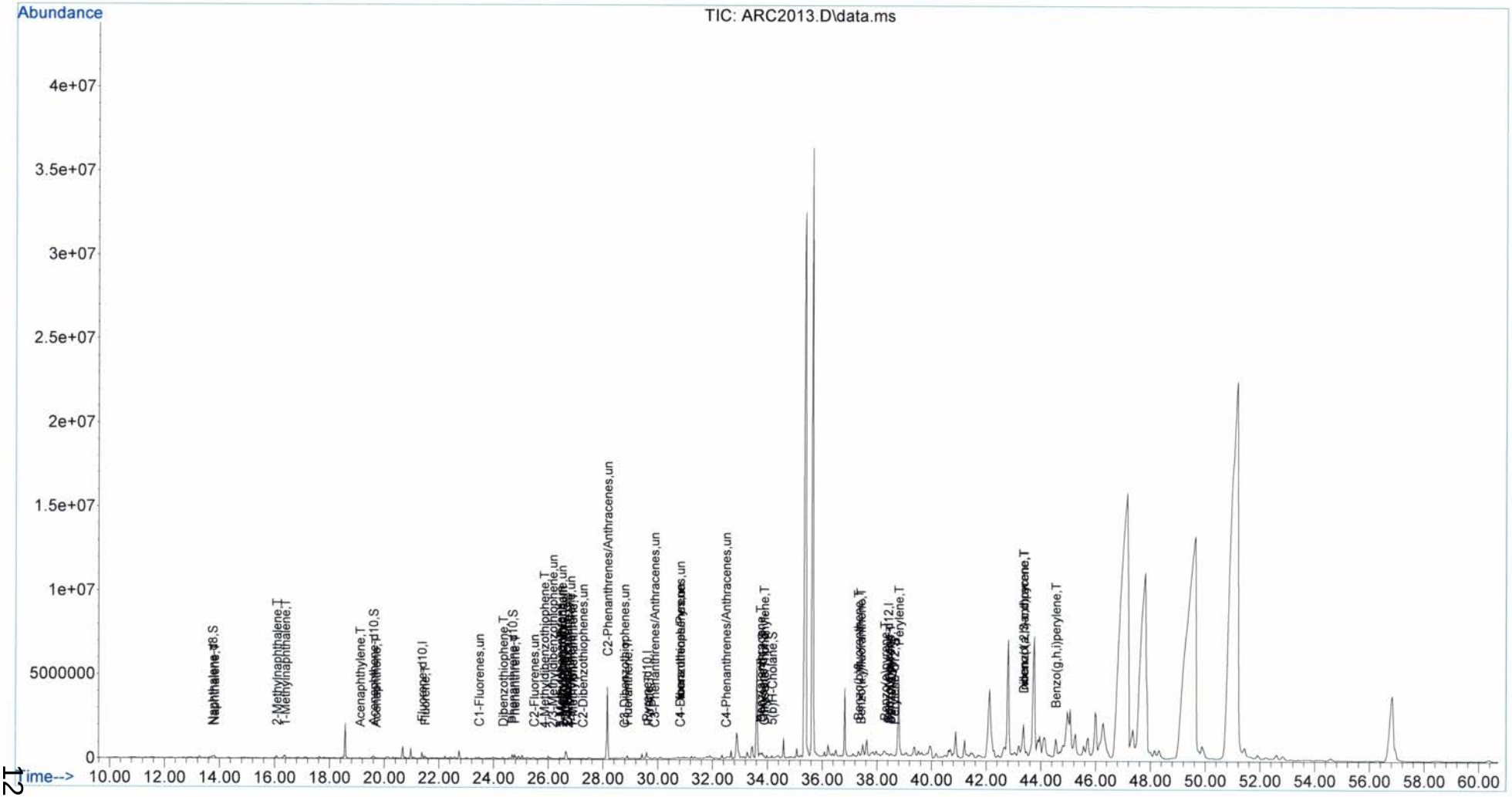
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2013.D
Acq On : 5 Dec 2013 6:04 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (0.5-1)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Dec 10 08:21:52 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2014.D
Data File Path C:\GCMS5\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 8:17
Acq. Method File PAH-2012.M
Sample Name SED-DA-037R (1-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 21
Sample Multiplier 0.06623
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2014.D
SED-DA-037R (1-1.5)
12/5/2013 8:17
PAH-2012.M
15.09889778

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	99372	4.2030	4.6103
9)+10)	C1-Naphthalenes	16.23	64188	2.7148	2.9780
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	24809	1.6253	1.7828
28)	C1-Fluorenes	23.47	24973	1.6361	1.7946
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	4261	0.1858	0.2038
41)	Phenanthrene	24.77	62513	2.3067	2.5302
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	9211	0.3778	0.4144
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	60108	2.1277	2.3339
59)	Pyrene	29.65	22827	0.7419	0.8139
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.74	7381	0.2662	0.2919
68)	Chrysene/Triphenylene	33.84	25596	0.8303	0.9108
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.31	39378	1.3359	1.4654
78)	Benzo(k,j)fluoranthene	37.34	10389	0.3442	0.3776
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	1675790	53.7356	58.9433
82)	Indeno(1,2,3-c,d)pyrene	43.27	112187	3.3384	3.6619
83)	Dibenzo(a,h)anthracene	43.30	95861	3.5789	3.9258
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	15588	0.5391	0.5913

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	40426	2.7665	3.0346
10)	1-Methylnaphthalene	16.38	23762	1.6759	1.8383
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	303305	13.53	81.69
21)	Acenaphthene-d10	19.60	93632	7.64	46.12
32)	Phenanthrene-d10	24.68	334688	15.11	91.16
66)	Chrysene-d12	33.78	408681	16.42	99.14
88)	Perylene-d12	38.67	5068	0.18	1.07
90)	5(b)H-Cholane	34.17	126543	18.00	108.72
	Internal Standards				
1)	Fluorene-d10	21.37	215713	16.63	
31)	Pyrene-d10	29.60	456441	16.60	
73)	Benzo(a)pyrene-d12	38.38	435988	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2014.D
Acq On : 5 Dec 2013 8:17 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (1-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06623

Quant Time: Dec 09 09:04:44 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	215713m	251.05	0.00
31) Pyrene-d10	29.597	212	456441m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	435988m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	303305m	13.53	0.00
21) Acenaphthene-d10	19.603	164	93632m	7.64	0.00
32) Phenanthrene-d10	24.681	188	334688m	15.11	0.00
66) Chrysene-d12	33.777	240	408681m	16.42	-0.03
88) Perylene-d12	38.673	264	5068m	0.18	0.00
90) 5(b)H-Cholane	34.166	217	126543m	18.00	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	99372m	4.20	
9) 2-Methylnaphthalene	16.071	142	40426m	2.77	
10) 1-Methylnaphthalene	16.384	142	23762m	1.68	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	0.000		0	N.D. d	
24) Acenaphthene	0.000		0	N.D. d	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	24809m	1.63	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	24973m	1.64	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	9211m	0.38	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	62513m	2.31	
42) Anthracene	24.964	178	4261m	0.19	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2014.D
Acq On : 5 Dec 2013 8:17 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (1-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06623

Quant Time: Dec 09 09:04:44 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	60108m	2.13	
59) Pyrene	29.653	202	22827m	0.74	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	7381m	0.27	
68) Chrysene/Triphenylene	33.842	228	25596m	0.83	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	39378m	1.34	
78) Benzo(k,j)fluoranthene	37.343	252	10389m	0.34	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	43.271	276	112187m	3.34	
83) Dibenzo(a,h)anthracene	43.304	278	95861m	3.58	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.612	276	15588m	0.54	
89) Perylene	38.770	252	1675786m	53.74	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2014.D
Acq On : 5 Dec 2013 8:17 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (1-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06623

Quant Time: Dec 09 09:04:44 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

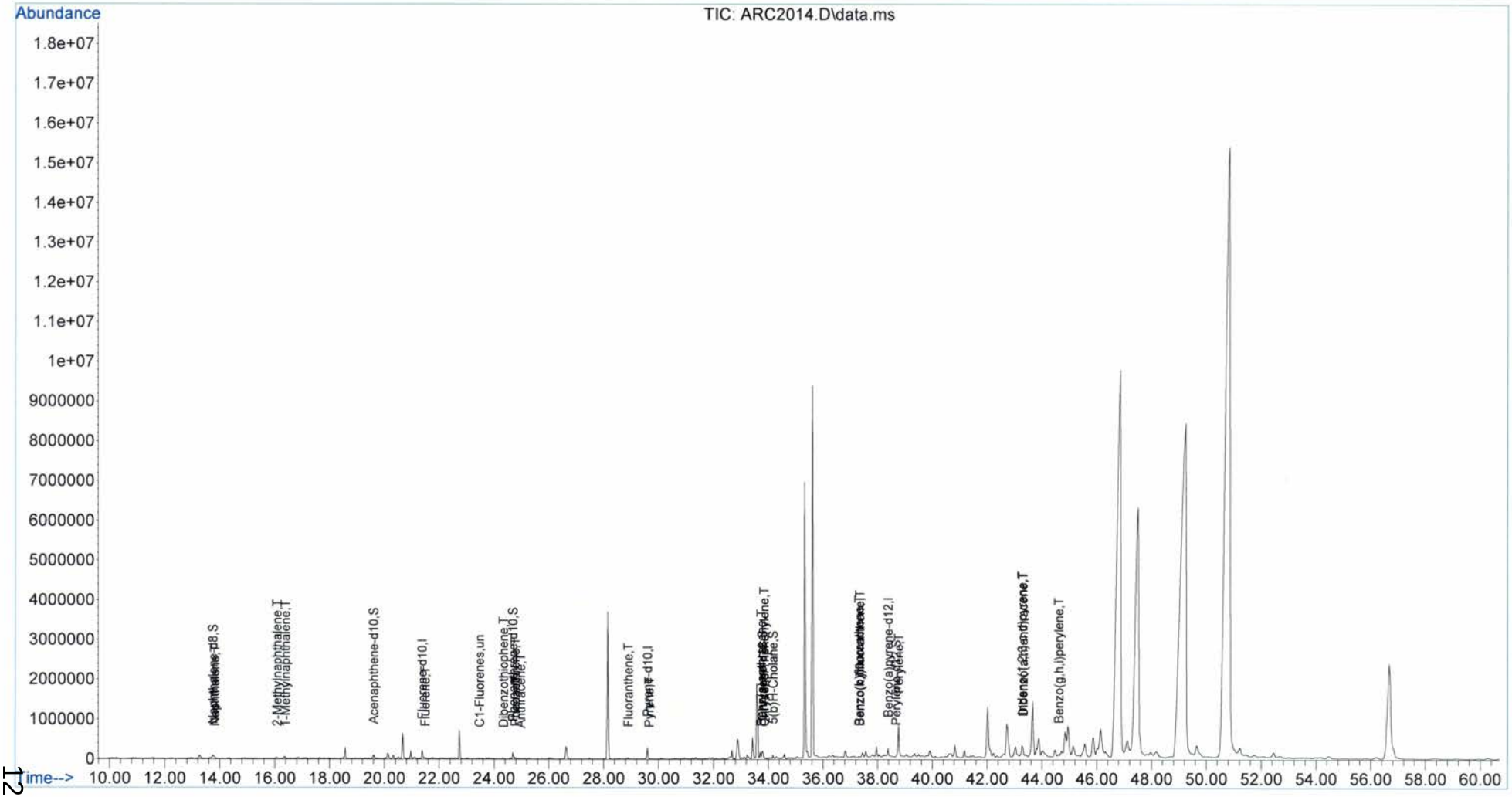
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2014.D
Acq On : 5 Dec 2013 8:17 am
Operator : ECM(YMIAO)
Sample : SED-DA-037R (1-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06623

Quant Time: Dec 09 09:04:44 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2016.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 9:23
Acq. Method File PAH-2012.M
Sample Name SED-DA-038R (0.5-1)
Misc Info 0
Instrument Name GCMS5
Vial Number 22
Sample Multiplier 0.06618
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2016.D
SED-DA-038R (0.5-1)
12/5/2013 9:23
PAH-2012.M
15.11030523

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	677479	26.7978	28.7808
9)+10)	C1-Naphthalenes	16.22	470470	18.6095	19.9866
13)	C2-Naphthalenes	18.51	490899	19.4176	20.8545
14)	C3-Naphthalenes	21.06	337162	13.3365	14.3233
15)	C4-Naphthalenes	22.76	203722	8.0583	8.6546
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	94601	4.2171	4.5291
24)	Acenaphthene	19.69	27493	2.0067	2.1552
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	190675	11.6826	12.5470
28)	C1-Fluorenes	23.44	106979	6.5546	7.0396
29)	C2-Fluorenes	25.47	353708	21.6715	23.2751
30)	C3-Fluorenes	27.56	263037	16.1162	17.3087
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.94	159733	6.1979	6.6565
41)	Phenanthrene	24.77	575154	18.8861	20.2836
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.68	462185	15.1766	16.2996
50)	C2-Phenanthrenes/Anthracenes	28.16	661814	21.7317	23.3398
51)	C3-Phenanthrenes/Anthracenes	29.88	1105390	36.2973	38.9832
52)	C4-Phenanthrenes/Anthracenes	30.64	1220210	40.0676	43.0325
34)	Dibenzothiophene	24.34	104492	3.8143	4.0965
35)+36)+37)	C1-Dibenzothiophenes	26.16	120073	4.3830	4.7074
38)	C2-Dibenzothiophenes	27.25	309935	11.3136	12.1508
39)	C3-Dibenzothiophenes	28.78	573433	20.9321	22.4810
40)	C4-Dibenzothiophenes	30.19	493224	18.0043	19.3365
58)	Fluoranthene	28.89	655655	20.6535	22.1818
59)	Pyrene	29.65	625463	18.0914	19.4301
62)	C1-Fluoranthenes/Pyrenes	30.81	806383	25.4015	27.2812
63)	C2-Fluoranthenes/Pyrenes	32.55	905669	28.5291	30.6402
64)	C3-Fluoranthenes/Pyrenes	34.56	649809	20.4694	21.9841
65)	C4-Fluoranthenes/Pyrenes	35.37	558694	17.5992	18.9015
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	303937	9.7533	10.4750
68)	Chrysene/Triphenylene	33.87	877545	25.3324	27.2069
69)	C1-Chrysenes	35.63	1418910	40.9600	43.9909
70)	C2-Chrysenes	36.31	854618	24.6705	26.4961
71)	C3-Chrysenes	38.80	733627	21.1778	22.7449
72)	C4-Chrysenes	39.32	491865	14.1988	15.2495
77)	Benzo(b)fluoranthene	37.31	1432030	48.5612	52.1546
78)	Benzo(k,j)fluoranthene	37.41	207538	6.8733	7.3819
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.32	579557	18.0290	19.3630
81)	Benzo(a)pyrene	38.48	179803	6.1457	6.6005
89)	Perylene	38.80	7082360	227.0000	243.7973
82)	Indeno(1,2,3-c,d)pyrene	43.27	555909	16.5349	17.7584
83)	Dibenzo(a,h)anthracene	43.34	207492	7.7431	8.3161
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.71	455137	15.7324	16.8966

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.05	312036	19.9703	21.4481
10)	1-Methylnaphthalene	16.38	158434	10.4500	11.2233
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	59093	2.9892	3.2104
36)	2/3-Methyldibenzothiophene	26.15	47033	2.3791	2.5552
37)	1-Methyldibenzothiophene	26.49	13947	0.7055	0.7577
43)	3-Methylphenanthrene	26.43	97625	4.7465	5.0977
44)	2-Methylphenanthrene	26.55	106723	5.1888	5.5728
45)	2-Methylanthracene	26.69	123830	6.0206	6.4661
46)	4/9-Methylphenanthrene	26.83	72536	3.5267	3.7876
47)	1-Methylphenanthrene	26.91	61471	2.9887	3.2098
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	349689	14.59	88.14
21)	Acenaphthene-d10	19.60	166794	12.73	76.90
32)	Phenanthrene-d10	24.68	383825	15.42	93.11
66)	Chrysene-d12	33.81	457874	16.37	98.92
88)	Perylene-d12	38.71	11881	0.42	2.52
90)	5(b)H-Cholane	34.17	148363	21.10	127.50
	Internal Standards				
1)	Fluorene-d10	21.37	230482	16.61	
31)	Pyrene-d10	29.60	512518	16.59	
73)	Benzo(a)pyrene-d12	38.41	435855	16.57	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2016.D
Acq On : 5 Dec 2013 9:23 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (0.5-1)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:34:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	230482m	251.05	0.00
31) Pyrene-d10	29.597	212	512518m	250.63	0.00
73) Benzo(a)pyrene-d12	38.414	264	435855m	250.32	0.03
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	349689m	14.59	0.00
21) Acenaphthene-d10	19.603	164	166794m	12.73	0.00
32) Phenanthrene-d10	24.681	188	383825m	15.42	0.00
66) Chrysene-d12	33.810	240	457874m	16.37	0.00
88) Perylene-d12	38.705	264	11881m	0.42	0.03
90) 5(b)H-Cholane	34.167	217	148363m	21.10	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	677479m	26.80	
9) 2-Methylnaphthalene	16.048	142	312036m	19.97	
10) 1-Methylnaphthalene	16.384	142	158434m	10.45	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.508	156	490899m	19.42	
14) C3-Naphthalenes	21.056	170	337162m	13.34	
15) C4-Naphthalenes	22.755	184	203722m	8.06	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	94601m	4.22	
24) Acenaphthene	19.692	154	27493m	2.01	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	190675m	11.68	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.438	180	106979m	6.55	
29) C2-Fluorenes	25.472	194	353708m	21.67	
30) C3-Fluorenes	27.563	208	263037m	16.12	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	104492m	3.81	
35) 4-Methyldibenzothiophene	25.840	198	59093m	2.99	
36) 2/3-Methyldibenzothiop...	26.150	198	47033m	2.38	
37) 1-Methyldibenzothiophene	26.489	198	13947m	0.71	
38) C2-Dibenzothiophenes	27.252	212	309935m	11.31	
39) C3-Dibenzothiophenes	28.778	226	573433m	20.93	
40) C4-Dibenzothiophenes	30.190	240	493224m	18.00	
41) Phenanthrene	24.766	178	575154m	18.89	
42) Anthracene	24.935	178	159733m	6.20	
43) 3-Methylphenanthrene	26.433	192	97625m	4.75	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2016.D
Acq On : 5 Dec 2013 9:23 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (0.5-1)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:34:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	26.546	192	106723m	5.19	
45) 2-Methylanthracene	26.687	192	123830m	6.02	
46) 4/9-Methylphenanthrene	26.828	192	72536m	3.53	
47) 1-Methylphenanthrene	26.913	192	61471m	2.99	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	28.156	206	661814m	21.73	
51) C3-Phenanthrenes/Anthr...	29.880	220	1105391m	36.30	
52) C4-Phenanthrenes/Anthr...	30.642	234	1220210m	40.07	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	655655m	20.65	
59) Pyrene	29.654	202	625463m	18.09	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	30.812	216	806383m	25.40	
63) C2-Fluoranthenes/Pyrenes	32.546	230	905669m	28.53	
64) C3-Fluoranthenes/Pyrenes	34.556	244	649809m	20.47	
65) C4-Fluoranthenes/Pyrenes	35.366	258	558694m	17.60	
67) Benz(a)anthracene	33.745	228	303937m	9.75	
68) Chrysene/Triphenylene	33.875	228	877545m	25.33	
69) C1-Chrysenes	35.625	242	1418906m	40.96	
70) C2-Chrysenes	36.306	256	854618m	24.67	
71) C3-Chrysenes	38.803	270	733627m	21.18	
72) C4-Chrysenes	39.321	284	491865m	14.20	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	1432033m	48.56	
78) Benzo(k,j)fluoranthene	37.409	252	207538m	6.87	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.316	252	579557m	18.03	
81) Benzo(a)pyrene	38.478	252	179803m	6.15	
82) Indeno(1,2,3-c,d)pyrene	43.272	276	555909m	16.53	
83) Dibenzo(a,h)anthracene	43.337	278	207492m	7.74	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.710	276	455137m	15.73	
89) Perylene	38.803	252	7082360m	227.00	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2016.D
Acq On : 5 Dec 2013 9:23 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (0.5-1)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:34:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

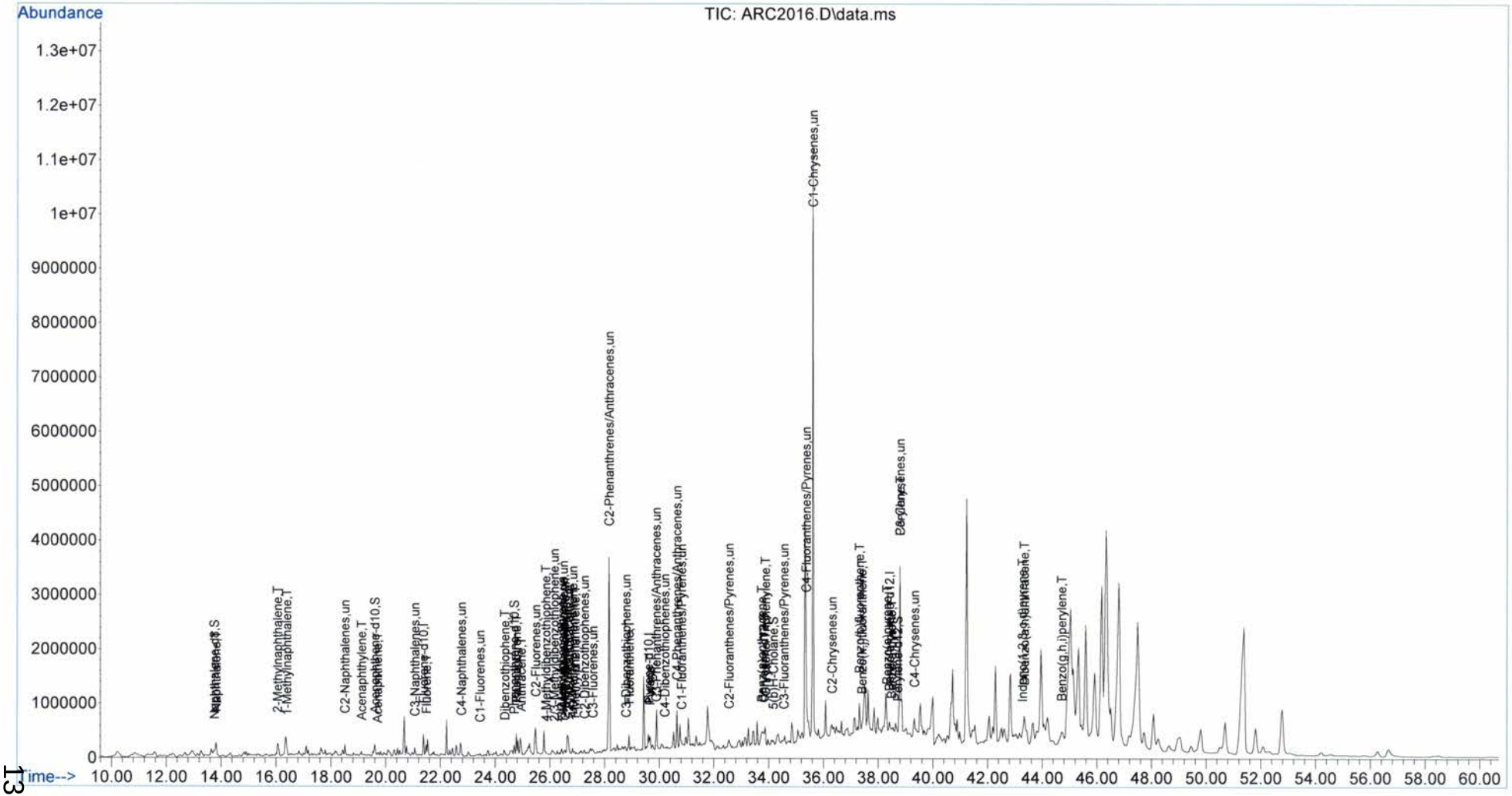
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2016.D
Acq On : 5 Dec 2013 9:23 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (0.5-1)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:34:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



AR50183.M Wed Dec 18 07:54:23 2013

Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2017.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 10:29
Acq. Method File PAH-2012.M
Sample Name SED-DA-038R (1-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 23
Sample Multiplier 0.0664
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2017.D
SED-DA-038R (1-1.5)
12/5/2013 10:29
PAH-2012.M
15.06024096

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	196185	9.1105	9.6770
9)+10)	C1-Naphthalenes	16.23	127552	5.9233	6.2916
13)	C2-Naphthalenes	18.51	86431	4.0137	4.2633
14)	C3-Naphthalenes	20.97	75185	3.4915	3.7086
15)	C4-Naphthalenes	22.76	35949	1.6694	1.7732
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	4847	0.2537	0.2694
24)	Acenaphthene	19.71	2326	0.1993	0.2117
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	33853	2.4351	2.5865
28)	C1-Fluorenes	23.47	12068	0.8681	0.9220
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	6199	0.3166	0.3363
41)	Phenanthrene	24.77	125848	5.4395	5.7778
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.67	115145	4.9769	5.2864
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	15253	0.7329	0.7785
35)+36)+37)	C1-Dibenzothiophenes	26.16	12580	0.6045	0.6420
38)	C2-Dibenzothiophenes	27.25	9940	0.4776	0.5073
39)	C3-Dibenzothiophenes	28.47	11380	0.5468	0.5808
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	72204	2.9939	3.1801
59)	Pyrene	29.65	37123	1.4134	1.5013
62)	C1-Fluoranthenes/Pyrenes	30.81	73092	3.0307	3.2192
63)	C2-Fluoranthenes/Pyrenes	32.58	57575	2.3873	2.5358
64)	C3-Fluoranthenes/Pyrenes	34.56	25245	1.0468	1.1119
65)	C4-Fluoranthenes/Pyrenes	35.63	76531	3.1733	3.3706
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.74	13173	0.5564	0.5910
68)	Chrysene/Triphenylene	33.87	98818	3.7549	3.9884
69)	C1-Chrysenes	35.63	216332	8.2202	8.7314
70)	C2-Chrysenes	37.05	77433	2.9423	3.1253
71)	C3-Chrysenes	38.09	60015	2.2804	2.4223
72)	C4-Chrysenes	39.29	37051	1.4079	1.4954
77)	Benzo(b)fluoranthene	37.31	140669	5.5896	5.9372
78)	Benzo(k,j)fluoranthene	37.34	13103	0.5085	0.5401
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	41350	1.5073	1.6010
81)	Benzo(a)pyrene	38.48	8864	0.3550	0.3771
89)	Perylene	38.77	1027750	38.5992	40.9996
82)	Indeno(1,2,3-c,d)pyrene	43.24	40782	1.4214	1.5098
83)	Dibenzo(a,h)anthracene	43.27	14964	0.6543	0.6950
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	27652	1.1200	1.1897

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	81554	6.1277	6.5088
10)	1-Methylnaphthalene	16.38	45998	3.5619	3.7834
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	7066	0.4705	0.4997
36)	2/3-Methyldibenzothiophene	26.15	4850	0.3229	0.3430
37)	1-Methyldibenzothiophene	26.49	664	0.0442	0.0470
43)	3-Methylphenanthrene	26.43	15080	0.9651	1.0251
44)	2-Methylphenanthrene	26.55	20657	1.3220	1.4042
45)	2-Methylanthracene	26.66	65637	4.2006	4.4619
46)	4/9-Methylphenanthrene	26.80	5435	0.3478	0.3695
47)	1-Methylphenanthrene	26.91	8336	0.5335	0.5667
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	282376	13.83	83.29
21)	Acenaphthene-d10	19.60	119188	10.68	64.30
32)	Phenanthrene-d10	24.68	295816	15.64	94.15
66)	Chrysene-d12	33.78	342189	16.10	96.99
88)	Perylene-d12	38.67	1834	0.08	0.45
90)	5(b)H-Cholane	34.17	108796	18.13	109.20
	Internal Standards				
1)	Fluorene-d10	21.37	196973	16.67	
31)	Pyrene-d10	29.60	390657	16.64	
73)	Benzo(a)pyrene-d12	38.38	373197	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2017.D
Acq On : 5 Dec 2013 10:29 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (1-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0664

Quant Time: Dec 10 07:41:34 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	196973m	251.05	0.00
31) Pyrene-d10	29.597	212	390657m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	373197m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	282376m	13.83	0.00
21) Acenaphthene-d10	19.603	164	119188m	10.68	0.00
32) Phenanthrene-d10	24.681	188	295816m	15.64	0.00
66) Chrysene-d12	33.777	240	342189m	16.10	-0.03
88) Perylene-d12	38.673	264	1834m	0.08	0.00
90) 5(b)H-Cholane	34.166	217	108796m	18.13	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	196185m	9.11	
9) 2-Methylnaphthalene	16.071	142	81554m	6.13	
10) 1-Methylnaphthalene	16.384	142	45998m	3.56	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.507	156	86431m	4.01	
14) C3-Naphthalenes	20.967	170	75185m	3.49	
15) C4-Naphthalenes	22.755	184	35949m	1.67	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	4847m	0.25	
24) Acenaphthene	19.715	154	2326m	0.20	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	33853m	2.44	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	12068m	0.87	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	15253m	0.73	
35) 4-Methyldibenzothiophene	25.839	198	7066m	0.47	
36) 2/3-Methyldibenzothiop...	26.150	198	4850m	0.32	
37) 1-Methyldibenzothiophene	26.489	198	664m	0.04	
38) C2-Dibenzothiophenes	27.252	212	9940m	0.48	
39) C3-Dibenzothiophenes	28.467	226	11380m	0.55	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	125848m	5.44	
42) Anthracene	24.964	178	6199m	0.32	
43) 3-Methylphenanthrene	26.433	192	15080m	0.97	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2017.D
Acq On : 5 Dec 2013 10:29 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (1-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0664

Quant Time: Dec 10 07:41:34 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	26.546	192	20657m	1.32	
45) 2-Methylanthracene	26.659	192	65637m	4.20	
46) 4/9-Methylphenanthrene	26.800	192	5435m	0.35	
47) 1-Methylphenanthrene	26.913	192	8336m	0.53	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	72204m	2.99	
59) Pyrene	29.653	202	37123m	1.41	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	30.812	216	73092m	3.03	
63) C2-Fluoranthenes/Pyrenes	32.578	230	57575m	2.39	
64) C3-Fluoranthenes/Pyrenes	34.555	244	25245m	1.05	
65) C4-Fluoranthenes/Pyrenes	35.625	258	76531m	3.17	
67) Benz(a)anthracene	33.745	228	13173m	0.56	
68) Chrysene/Triphenylene	33.875	228	98818m	3.75	
69) C1-Chrysenes	35.625	242	216332m	8.22	
70) C2-Chrysenes	37.052	256	77433m	2.94	
71) C3-Chrysenes	38.089	270	60015m	2.28	
72) C4-Chrysenes	39.289	284	37051m	1.41	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	140669m	5.59	
78) Benzo(k,j)fluoranthene	37.344	252	13103m	0.51	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	41350m	1.51	
81) Benzo(a)pyrene	38.478	252	8864m	0.36	
82) Indeno(1,2,3-c,d)pyrene	43.239	276	40782m	1.42	
83) Dibenzo(a,h)anthracene	43.272	278	14964m	0.65	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.612	276	27652m	1.12	
89) Perylene	38.770	252	1027746m	38.60	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2017.D
Acq On : 5 Dec 2013 10:29 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (1-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0664

Quant Time: Dec 10 07:41:34 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

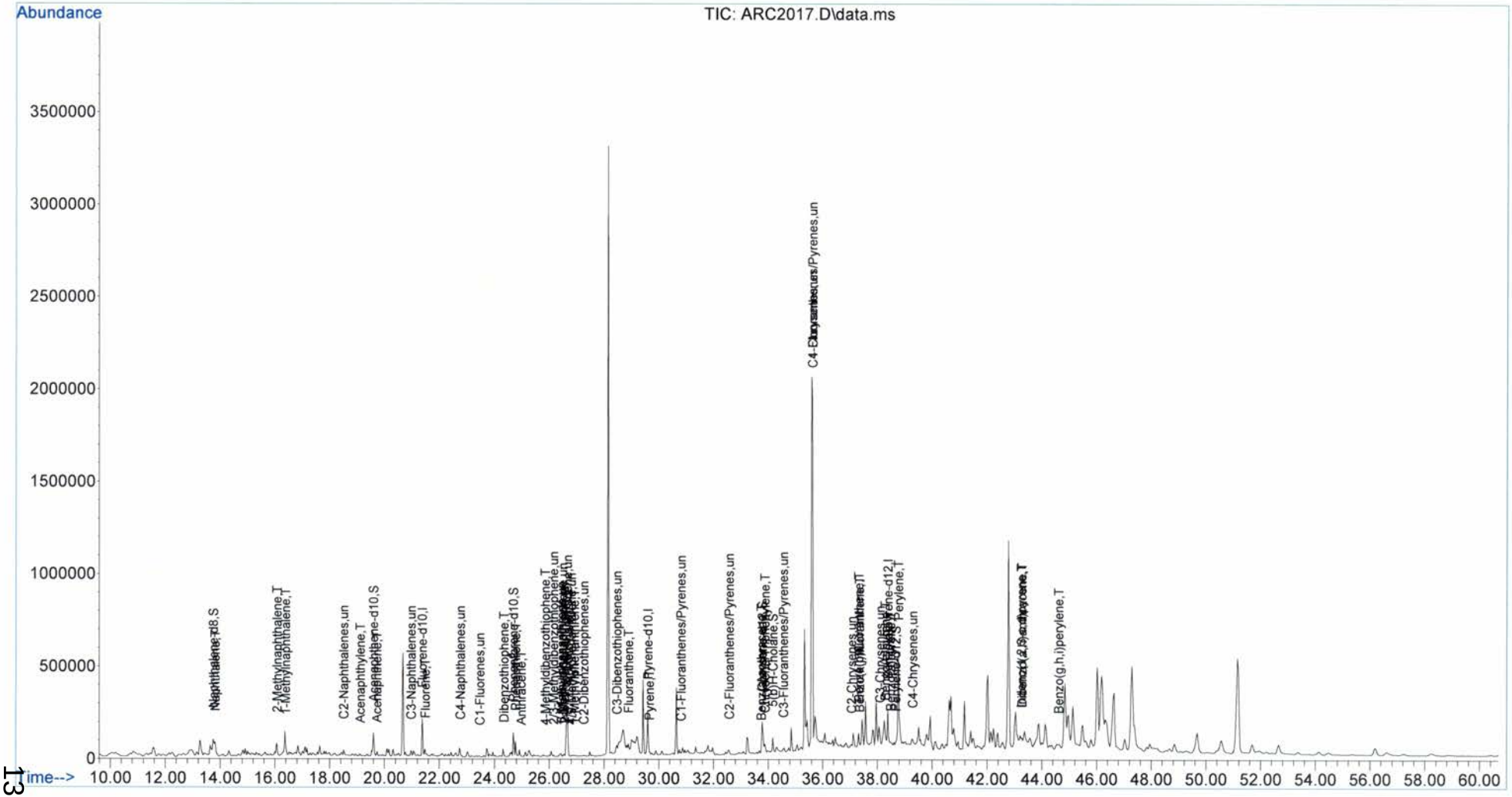
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2017.D
Acq On : 5 Dec 2013 10:29 am
Operator : ECM(YMIAO)
Sample : SED-DA-038R (1-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0664

Quant Time: Dec 10 07:41:34 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2019.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 11:35
Acq. Method File PAH-2012.M
Sample Name SED-DA-033R (0.5-1)
Misc Info 0
Instrument Name GCMS5
Vial Number 24
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2019.D
SED-DA-033R (0.5-1)
12/5/2013 11:35
PAH-2012.M
15.04890895

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	61699	2.6470	2.8430
9)+10)	C1-Naphthalenes	16.23	35660	1.5299	1.6432
13)	C2-Naphthalenes	18.51	44783	1.9213	2.0636
14)	C3-Naphthalenes	20.97	77135	3.3093	3.5543
15)	C4-Naphthalenes	22.76	90977	3.9031	4.1921
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	2183	0.1055	0.1134
24)	Acenaphthene	19.71	2087	0.1652	0.1775
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	15838	1.0525	1.1304
28)	C1-Fluorenes	23.47	10069	0.6691	0.7187
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.77	49870	2.0118	2.1607
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	5944	0.2666	0.2863
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	26091	1.0097	1.0845
59)	Pyrene	29.65	15296	0.5435	0.5838
62)	C1-Fluoranthenes/Pyrenes	30.81	14480	0.5604	0.6019
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	886531	30.6123	32.8791
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	22851	1.5862	1.7037
10)	1-Methylnaphthalene	16.38	12809	0.9164	0.9842
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	314390	14.23	85.60
21)	Acenaphthene-d10	19.60	106386	8.81	52.98
32)	Phenanthrene-d10	24.68	313692	15.48	93.11
66)	Chrysene-d12	33.78	367061	16.12	97.02
88)	Perylene-d12	38.67	1105	0.04	0.25
90)	5(b)H-Cholane	34.17	122574	18.78	113.03
	Internal Standards				
1)	Fluorene-d10	21.37	213367	16.68	
31)	Pyrene-d10	29.60	418889	16.65	
73)	Benzo(a)pyrene-d12	38.38	406215	16.63	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2019.D
Acq On : 5 Dec 2013 11:35 am
Operator : ECM(YMIAO)
Sample : SED-DA-033R (0.5-1)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06645

Quant Time: Dec 10 07:50:17 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	213367m	251.05	0.00
31) Pyrene-d10	29.597	212	418889m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	406215m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	314390m	14.23	0.00
21) Acenaphthene-d10	19.603	164	106386m	8.81	0.00
32) Phenanthrene-d10	24.681	188	313692m	15.48	0.00
66) Chrysene-d12	33.777	240	367061m	16.12	-0.03
88) Perylene-d12	38.673	264	1105m	0.04	0.00
90) 5(b)H-Cholane	34.166	217	122574m	18.78	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	61699m	2.65	
9) 2-Methylnaphthalene	16.071	142	22851m	1.59	
10) 1-Methylnaphthalene	16.384	142	12809m	0.92	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.508	156	44783m	1.92	
14) C3-Naphthalenes	20.967	170	77135m	3.31	
15) C4-Naphthalenes	22.755	184	90977m	3.90	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	2183m	0.11	
24) Acenaphthene	19.715	154	2087m	0.17	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	15838m	1.05	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	10069m	0.67	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	5944m	0.27	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	49870m	2.01	
42) Anthracene	0.000		0	N.D. d	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2019.D
Acq On : 5 Dec 2013 11:35 am
Operator : ECM(YMIAO)
Sample : SED-DA-033R (0.5-1)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06645

Quant Time: Dec 10 07:50:17 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	26091m	1.01	
59) Pyrene	29.654	202	15296m	0.54	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	30.812	216	14480m	0.56	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	38.770	252	886531m	30.61	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2019.D
Acq On : 5 Dec 2013 11:35 am
Operator : ECM(YMIAO)
Sample : SED-DA-033R (0.5-1)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06645

Quant Time: Dec 10 07:50:17 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

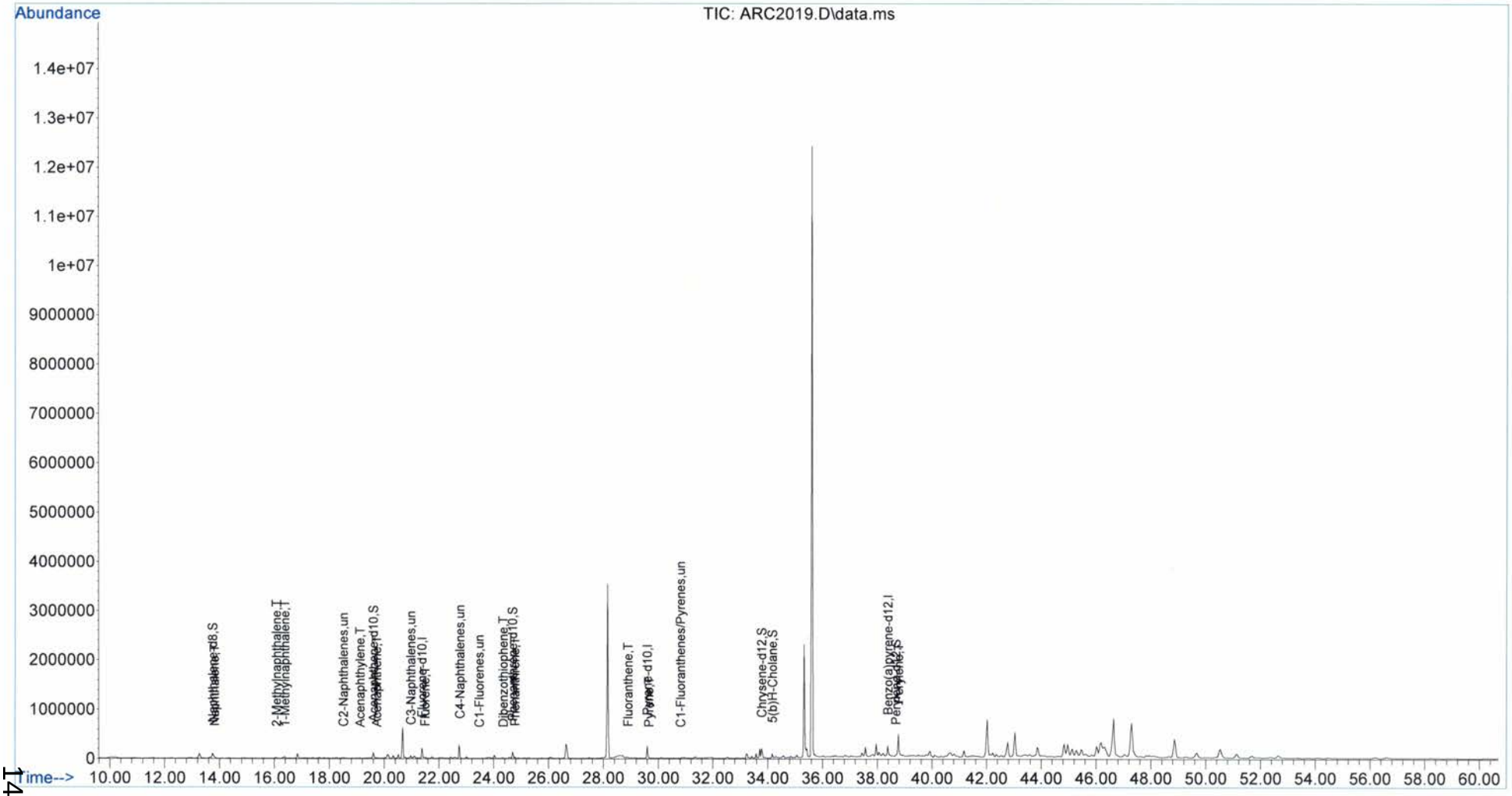
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2019.D
Acq On : 5 Dec 2013 11:35 am
Operator : ECM(YMIAO)
Sample : SED-DA-033R (0.5-1)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06645

Quant Time: Dec 10 07:50:17 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2020.D
Data File Path C:\GCMS5\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 12:41
Acq. Method File PAH-2012.M
Sample Name SED-DA-033R (1-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 25
Sample Multiplier 0.06658
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2020.D
SED-DA-033R (1-1.5)
12/5/2013 12:41
PAH-2012.M
15.01952538

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	86669	4.1230	4.3746
9)+10)	C1-Naphthalenes	16.23	64636	3.0748	3.2625
13)	C2-Naphthalenes	0.00	0	0.0000	0.0000
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	18230	1.3433	1.4253
28)	C1-Fluorenes	23.47	6431	0.4739	0.5028
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	1164	0.0583	0.0619
41)	Phenanthrene	24.77	41873	1.7754	1.8837
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	1777	0.0838	0.0889
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	12214	0.4968	0.5271
59)	Pyrene	29.65	7997	0.2987	0.3169
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	118522	4.3251	4.5891
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	41624	3.2038	3.3993
10)	1-Methylnaphthalene	16.38	23012	1.8254	1.9368
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	312357	15.67	94.12
21)	Acenaphthene-d10	19.60	73015	6.70	40.24
32)	Phenanthrene-d10	24.68	302714	15.70	94.25
66)	Chrysene-d12	33.78	338896	15.64	93.97
88)	Perylene-d12	38.67	1257	0.05	0.30
90)	5(b)H-Cholane	34.17	114267	18.50	111.14
	Internal Standards				
1)	Fluorene-d10	21.39	192802	16.71	
31)	Pyrene-d10	29.60	399331	16.69	
73)	Benzo(a)pyrene-d12	38.38	385130	16.67	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2020.D
Acq On : 5 Dec 2013 12:41 pm
Operator : ECM(YMIAO)
Sample : SED-DA-033R (1-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:33:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	192802m	251.05	0.02
31) Pyrene-d10	29.597	212	399331m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	385130m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	312357m	15.67	0.00
21) Acenaphthene-d10	19.603	164	73015m	6.70	0.00
32) Phenanthrene-d10	24.681	188	302714m	15.70	0.00
66) Chrysene-d12	33.777	240	338896m	15.64	-0.03
88) Perylene-d12	38.673	264	1257m	0.05	0.00
90) 5(b)H-Cholane	34.166	217	114267m	18.50	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	86669m	4.12	
9) 2-Methylnaphthalene	16.071	142	41624m	3.20	
10) 1-Methylnaphthalene	16.384	142	23012m	1.83	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	0.000		0	N.D. d	
24) Acenaphthene	0.000		0	N.D. d	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	18230m	1.34	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	6431m	0.47	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	1777m	0.08	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	41873m	1.78	
42) Anthracene	24.964	178	1164m	0.06	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2020.D
Acq On : 5 Dec 2013 12:41 pm
Operator : ECM(YMIAO)
Sample : SED-DA-033R (1-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:33:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	12214m	0.50	
59) Pyrene	29.653	202	7997m	0.30	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	38.770	252	118522m	4.33	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2020.D
Acq On : 5 Dec 2013 12:41 pm
Operator : ECM(YMIAO)
Sample : SED-DA-033R (1-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:33:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

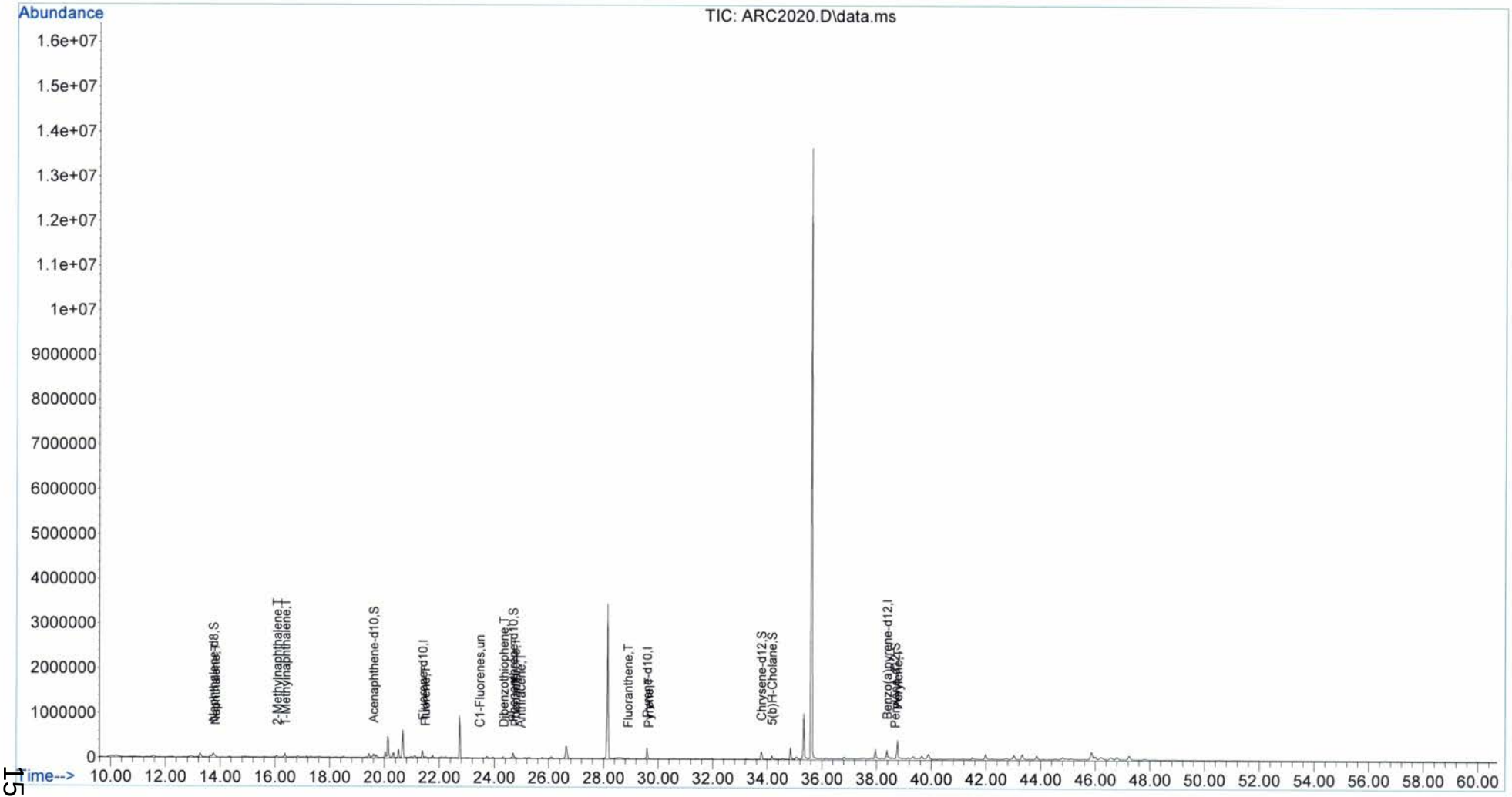
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2020.D
Acq On : 5 Dec 2013 12:41 pm
Operator : ECM(YMIAO)
Sample : SED-DA-033R (1-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.06658

Quant Time: Dec 09 09:33:42 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2022.D
Data File Path C:\GCMS5\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 13:48
Acq. Method File PAH-2012.M
Sample Name SED-DA-034R (0.5-1)
Misc Info 0
Instrument Name GCMS5
Vial Number 26
Sample Multiplier 0.06618
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2022.D
SED-DA-034R (0.5-1)
12/5/2013 13:48
PAH-2012.M
15.11030523

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	135947	6.0065	6.4205
9)+10)	C1-Naphthalenes	16.23	75168	3.3211	3.5500
13)	C2-Naphthalenes	18.51	66409	2.9341	3.1364
14)	C3-Naphthalenes	20.97	87195	3.8525	4.1181
15)	C4-Naphthalenes	22.76	45494	2.0101	2.1486
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	9471	0.4716	0.5041
24)	Acenaphthene	19.71	6056	0.4937	0.5278
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	28174	1.9282	2.0611
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	11702	0.5551	0.5934
41)	Phenanthrene	24.77	109018	4.3767	4.6783
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.67	121297	4.8696	5.2053
50)	C2-Phenanthrenes/Anthracenes	28.16	115750	4.6469	4.9672
51)	C3-Phenanthrenes/Anthracenes	29.91	45818	1.8394	1.9662
52)	C4-Phenanthrenes/Anthracenes	30.64	33369	1.3396	1.4320
34)	Dibenzothiophene	24.34	11757	0.5247	0.5609
35)+36)+37)	C1-Dibenzothiophenes	26.16	13897	0.6202	0.6630
38)	C2-Dibenzothiophenes	27.25	21077	0.9406	1.0055
39)	C3-Dibenzothiophenes	28.78	22954	1.0244	1.0950
40)	C4-Dibenzothiophenes	30.61	15326	0.6840	0.7311
58)	Fluoranthene	28.89	95951	3.6954	3.9501
59)	Pyrene	29.65	69295	2.4505	2.6194
62)	C1-Fluoranthenes/Pyrenes	30.81	58177	2.2406	2.3950
63)	C2-Fluoranthenes/Pyrenes	32.68	84209	3.2431	3.4667
64)	C3-Fluoranthenes/Pyrenes	34.56	83487	3.2153	3.4369
65)	C4-Fluoranthenes/Pyrenes	35.63	96172	3.7039	3.9591
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	23587	0.9254	0.9892
68)	Chrysene/Triphenylene	33.87	79389	2.8019	2.9950
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.31	118479	4.7718	5.1007
78)	Benzo(k,j)fluoranthene	37.34	18215	0.7165	0.7659
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	51930	1.9187	2.0509
81)	Benzo(a)pyrene	38.48	11439	0.4644	0.4964
89)	Perylene	38.77	5469080	208.1924	222.5414
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	44594	1.8308	1.9569

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	48060	3.4357	3.6725
10)	1-Methylnaphthalene	16.38	27108	1.9972	2.1348
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	6946	0.4296	0.4592
36)	2/3-Methyldibenzothiophene	26.15	5792	0.3582	0.3829
37)	1-Methyldibenzothiophene	26.49	1159	0.0717	0.0766
43)	3-Methylphenanthrene	26.43	14896	0.8855	0.9465
44)	2-Methylphenanthrene	26.55	17005	1.0108	1.0805
45)	2-Methylanthracene	26.66	73622	4.3763	4.6779
46)	4/9-Methylphenanthrene	26.80	9155	0.5442	0.5817
47)	1-Methylphenanthrene	26.91	6619	0.3935	0.4206
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	305941	14.26	86.14
21)	Acenaphthene-d10	19.60	117800	10.04	60.66
32)	Phenanthrene-d10	24.68	315430	15.49	93.55
66)	Chrysene-d12	33.78	371586	16.24	98.15
88)	Perylene-d12	38.67	5459	0.23	1.37
90)	5(b)H-Cholane	34.17	121831	20.57	124.35
	Internal Standards				
1)	Fluorene-d10	21.39	206341	16.61	
31)	Pyrene-d10	29.60	419200	16.59	
73)	Benzo(a)pyrene-d12	38.38	366977	16.57	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2022.D
Acq On : 5 Dec 2013 1:48 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (0.5-1)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:58:51 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.392	176	206341m	251.05	0.02
31) Pyrene-d10	29.597	212	419200m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	366977m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	305941m	14.26	0.00
21) Acenaphthene-d10	19.603	164	117800m	10.04	0.00
32) Phenanthrene-d10	24.681	188	315430m	15.49	0.00
66) Chrysene-d12	33.777	240	371586m	16.24	-0.03
88) Perylene-d12	38.673	264	5459m	0.23	0.00
90) 5(b)H-Cholane	34.166	217	121831m	20.57	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	135947m	6.01	
9) 2-Methylnaphthalene	16.071	142	48060m	3.44	
10) 1-Methylnaphthalene	16.384	142	27108m	2.00	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.508	156	66409m	2.93	
14) C3-Naphthalenes	20.967	170	87195m	3.85	
15) C4-Naphthalenes	22.755	184	45494m	2.01	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	9471m	0.47	
24) Acenaphthene	19.715	154	6056m	0.49	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	28174m	1.93	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	11757m	0.52	
35) 4-Methyldibenzothiophene	25.839	198	6946m	0.43	
36) 2/3-Methyldibenzothiop...	26.150	198	5792m	0.36	
37) 1-Methyldibenzothiophene	26.489	198	1159m	0.07	
38) C2-Dibenzothiophenes	27.252	212	21077m	0.94	
39) C3-Dibenzothiophenes	28.778	226	22954m	1.02	
40) C4-Dibenzothiophenes	30.614	240	15326m	0.68	
41) Phenanthrene	24.766	178	109018m	4.38	
42) Anthracene	24.964	178	11702m	0.56	
43) 3-Methylphenanthrene	26.433	192	14896m	0.89	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2022.D
Acq On : 5 Dec 2013 1:48 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (0.5-1)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:58:51 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44)	2-Methylphenanthrene	26.546	192	17005m	1.01	
45)	2-Methylanthracene	26.659	192	73622m	4.38	
46)	4/9-Methylphenanthrene	26.800	192	9155m	0.54	
47)	1-Methylphenanthrene	26.913	192	6619m	0.39	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49)	Retene	0.000		0	N.D. d	
50)	C2-Phenanthrenes/Anthr...	28.156	206	115750m	4.65	
51)	C3-Phenanthrenes/Anthr...	29.908	220	45818m	1.84	
52)	C4-Phenanthrenes/Anthr...	30.642	234	33369m	1.34	
53)	Naphthobenzothiophene	0.000		0	N.D. d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58)	Fluoranthene	28.891	202	95951m	3.70	
59)	Pyrene	29.654	202	69295m	2.45	
60)	2-Methylfluoranthene	0.000		0	N.D. d	
61)	Benzo(b)fluorene	0.000		0	N.D. d	
62)	C1-Fluoranthenes/Pyrenes	30.812	216	58177m	2.24	
63)	C2-Fluoranthenes/Pyrenes	32.675	230	84209m	3.24	
64)	C3-Fluoranthenes/Pyrenes	34.555	244	83487m	3.22	
65)	C4-Fluoranthenes/Pyrenes	35.625	258	96172m	3.70	
67)	Benz(a)anthracene	33.745	228	23587m	0.93	
68)	Chrysene/Triphenylene	33.875	228	79389m	2.80	
69)	C1-Chrysenes	0.000		0	N.D. d	
70)	C2-Chrysenes	0.000		0	N.D. d	
71)	C3-Chrysenes	0.000		0	N.D. d	
72)	C4-Chrysenes	0.000		0	N.D. d	
74)	C29-Hopane	0.000		0	N.D. d	
75)	18a-Oleanane	0.000		0	N.D. d	
76)	C30-Hopane	0.000		0	N.D. d	
77)	Benzo(b)fluoranthene	37.311	252	118479m	4.77	
78)	Benzo(k,j)fluoranthene	37.344	252	18215m	0.72	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.284	252	51930m	1.92	
81)	Benzo(a)pyrene	38.478	252	11439m	0.46	
82)	Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83)	Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87)	Benzo(g,h,i)perylene	44.612	276	44594m	1.83	
89)	Perylene	38.770	252	5469078m	208.19	
91)	C20-TAS	0.000		0	N.D. d	
92)	C21-TAS	0.000		0	N.D. d	
93)	C26(20S)-TAS	0.000		0	N.D. d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95)	C28(20S)-TAS	0.000		0	N.D. d	
96)	C27(20R)-TAS	0.000		0	N.D. d	
97)	C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2022.D
Acq On : 5 Dec 2013 1:48 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (0.5-1)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:58:51 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

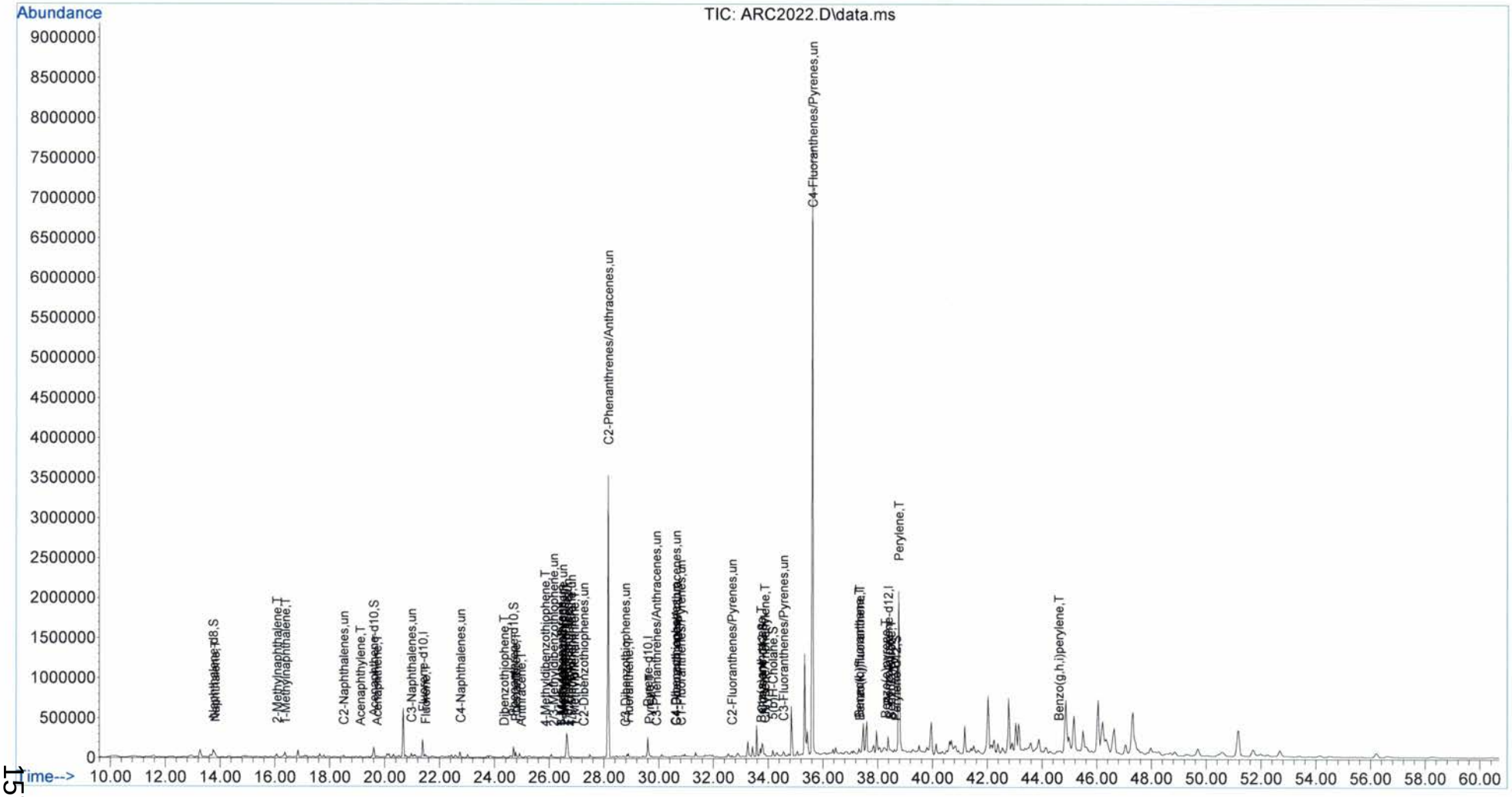
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2022.D
Acq On : 5 Dec 2013 1:48 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (0.5-1)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Dec 10 07:58:51 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2023.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 14:54
Acq. Method File PAH-2012.M
Sample Name SED-DA-034R (1-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 27
Sample Multiplier 0.06601
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2023.D
SED-DA-034R (1-1.5)
12/5/2013 14:54
PAH-2012.M
15.14921982

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	47232	2.2322	2.4502
9)+10)	C1-Naphthalenes	16.23	29075	1.3741	1.5083
13)	C2-Naphthalenes	18.53	25696	1.2144	1.3330
14)	C3-Naphthalenes	20.97	28031	1.3248	1.4541
15)	C4-Naphthalenes	22.76	19732	0.9325	1.0236
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	1231	0.0656	0.0720
24)	Acenaphthene	19.71	1209	0.1054	0.1157
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	10817	0.7919	0.8692
28)	C1-Fluorenes	23.47	4580	0.3353	0.3680
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	1563	0.0836	0.0918
41)	Phenanthrene	24.77	33188	1.5031	1.6499
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	0.00	0	0.0000	0.0000
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	20991	0.9120	1.0011
59)	Pyrene	29.65	12867	0.5133	0.5635
62)	C1-Fluoranthenes/Pyrenes	31.49	9915	0.4308	0.4729
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	579846	22.8717	25.1054
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	18017	1.3777	1.5123
10)	1-Methylnaphthalene	16.38	11058	0.8715	0.9566
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	284508	14.18	85.90
21)	Acenaphthene-d10	19.60	82543	7.53	45.58
32)	Phenanthrene-d10	24.68	271585	15.05	91.10
66)	Chrysene-d12	33.78	304671	15.02	91.02
88)	Perylene-d12	38.67	2488	0.11	0.65
90)	5(b)H-Cholane	34.17	104775	18.33	111.10
	Internal Standards				
1)	Fluorene-d10	21.39	192408	16.57	
31)	Pyrene-d10	29.60	370636	16.54	
73)	Benzo(a)pyrene-d12	38.38	353254	16.52	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2023.D
Acq On : 5 Dec 2013 2:54 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (1-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06601

Quant Time: Dec 10 08:03:23 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.392	176	192408m	251.05	0.02
31) Pyrene-d10	29.597	212	370636m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	353254m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	284508m	14.18	0.00
21) Acenaphthene-d10	19.603	164	82543m	7.53	0.00
32) Phenanthrene-d10	24.681	188	271585m	15.05	0.00
66) Chrysene-d12	33.777	240	304671m	15.02	-0.03
88) Perylene-d12	38.673	264	2488m	0.11	0.00
90) 5(b)H-Cholane	34.166	217	104775m	18.33	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	47232m	2.23	
9) 2-Methylnaphthalene	16.071	142	18017m	1.38	
10) 1-Methylnaphthalene	16.384	142	11058m	0.87	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.530	156	25696m	1.21	
14) C3-Naphthalenes	20.967	170	28031m	1.32	
15) C4-Naphthalenes	22.755	184	19732m	0.93	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	1231m	0.07	
24) Acenaphthene	19.715	154	1209m	0.11	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	10817m	0.79	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	4580m	0.34	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	0.000		0	N.D. d	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	33188m	1.50	
42) Anthracene	24.964	178	1563m	0.08	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2023.D
Acq On : 5 Dec 2013 2:54 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (1-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06601

Quant Time: Dec 10 08:03:23 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	20991m	0.91	
59) Pyrene	29.654	202	12867m	0.51	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	31.490	216	9915m	0.43	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	0.000		0	N.D. d	
68) Chrysene/Triphenylene	0.000		0	N.D. d	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	0.000		0	N.D. d	
78) Benzo(k,j)fluoranthene	0.000		0	N.D. d	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	0.000		0	N.D. d	
81) Benzo(a)pyrene	0.000		0	N.D. d	
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	0.000		0	N.D. d	
89) Perylene	38.770	252	579846m	22.87	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2023.D
Acq On : 5 Dec 2013 2:54 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (1-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06601

Quant Time: Dec 10 08:03:23 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

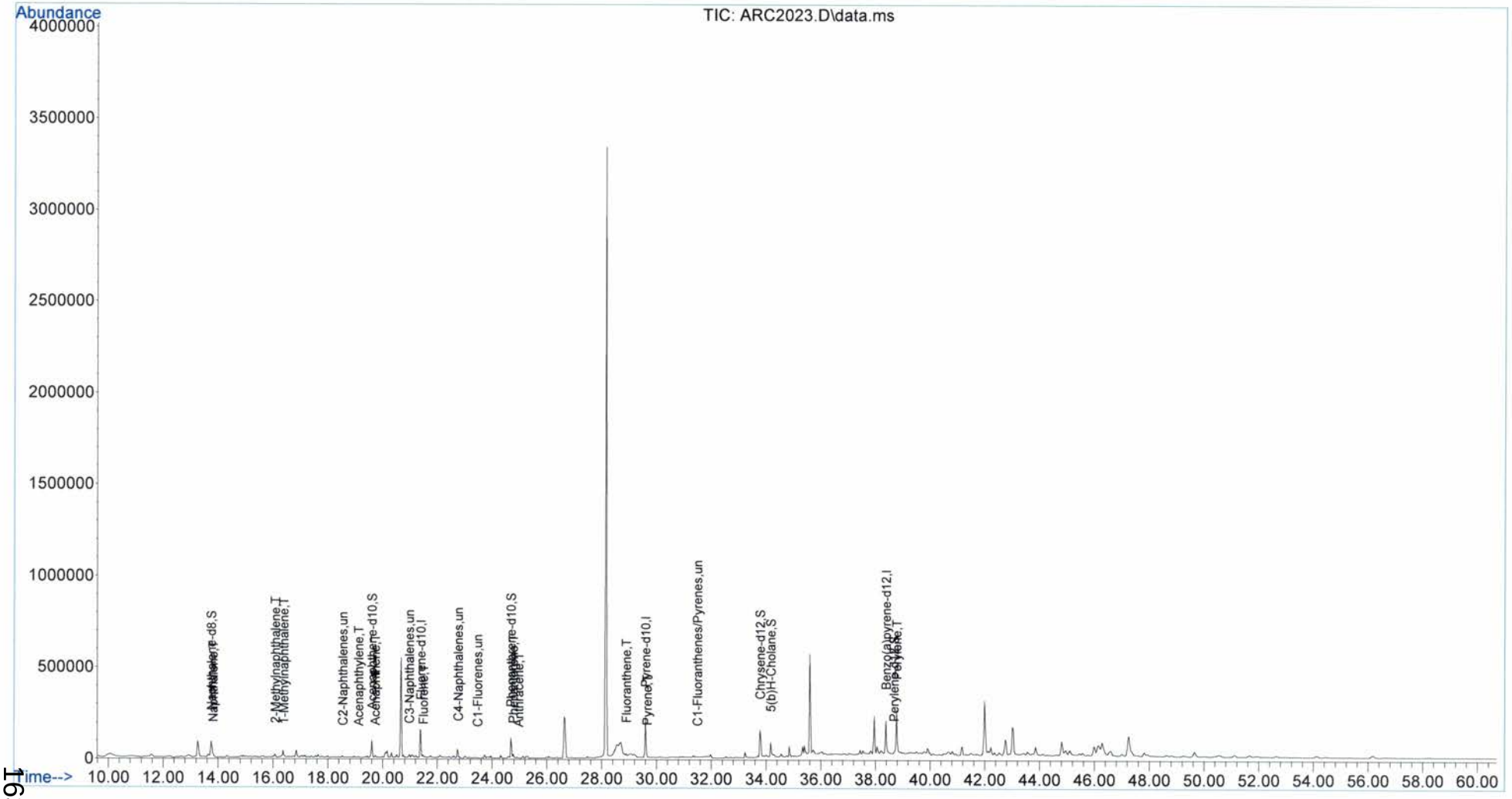
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2023.D
Acq On : 5 Dec 2013 2:54 pm
Operator : ECM(YMIAO)
Sample : SED-DA-034R (1-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06601

Quant Time: Dec 10 08:03:23 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2025.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 16:00
Acq. Method File PAH-2012.M
Sample Name SED-DA-035R (0.5-1)
Misc Info 0
Instrument Name GCMS5
Vial Number 28
Sample Multiplier 0.06636
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2025.D
SED-DA-035R (0.5-1)
12/5/2013 16:00
PAH-2012.M
15.06931887

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	344229	15.3140	16.7035
9)+10)	C1-Naphthalenes	16.22	233496	10.3877	11.3302
13)	C2-Naphthalenes	18.51	169532	7.5421	8.2265
14)	C3-Naphthalenes	21.06	112167	4.9901	5.4428
15)	C4-Naphthalenes	22.76	58681	2.6106	2.8474
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	27289	1.3682	1.4923
24)	Acenaphthene	19.69	12896	1.0586	1.1547
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	77484	5.3394	5.8239
28)	C1-Fluorenes	23.44	25975	1.7899	1.9523
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.94	43916	2.0733	2.2614
41)	Phenanthrene	24.77	237646	9.4946	10.3560
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.68	191390	7.6465	8.3403
50)	C2-Phenanthrenes/Anthracenes	28.16	223176	8.9165	9.7255
51)	C3-Phenanthrenes/Anthracenes	29.91	178653	7.1377	7.7853
52)	C4-Phenanthrenes/Anthracenes	30.64	168180	6.7192	7.3289
34)	Dibenzothiophene	24.34	35202	1.5635	1.7053
35)+36)+37)	C1-Dibenzothiophenes	26.16	37711	1.6749	1.8269
38)	C2-Dibenzothiophenes	27.25	68316	3.0342	3.3095
39)	C3-Dibenzothiophenes	28.78	106476	4.7290	5.1581
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	206327	7.9079	8.6254
59)	Pyrene	29.65	196517	6.9160	7.5435
62)	C1-Fluoranthenes/Pyrenes	30.81	187166	7.1735	7.8244
63)	C2-Fluoranthenes/Pyrenes	32.68	251672	9.6459	10.5211
64)	C3-Fluoranthenes/Pyrenes	34.56	123531	4.7346	5.1642
65)	C4-Fluoranthenes/Pyrenes	35.63	129201	4.9519	5.4012
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.75	71661	2.7979	3.0518
68)	Chrysene/Triphenylene	33.87	217481	7.6386	8.3317
69)	C1-Chrysenes	35.07	278300	9.7748	10.6616
70)	C2-Chrysenes	36.83	226335	7.9496	8.6709
71)	C3-Chrysenes	38.77	204847	7.1949	7.8477
72)	C4-Chrysenes	39.29	90852	3.1910	3.4805
77)	Benzo(b)fluoranthene	37.31	395337	15.6488	17.0686
78)	Benzo(k,j)fluoranthene	37.34	25923	1.0021	1.0931
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	154935	5.6260	6.1365
81)	Benzo(a)pyrene	38.48	49299	1.9669	2.1454
89)	Perylene	38.80	17753900	664.2304	724.4965
82)	Indeno(1,2,3-c,d)pyrene	43.24	109026	3.7853	4.1288
83)	Dibenzo(a,h)anthracene	43.27	26779	1.1665	1.2723
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.64	157629	6.3601	6.9372

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.05	152889	11.0051	12.0036
10)	1-Methylnaphthalene	16.38	80607	5.9797	6.5222
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.84	19417	1.1951	1.3035
36)	2/3-Methyldibenzothiophene	26.15	14512	0.8932	0.9742
37)	1-Methyldibenzothiophene	26.49	3782	0.2328	0.2539
43)	3-Methylphenanthrene	26.43	33961	2.0090	2.1913
44)	2-Methylphenanthrene	26.55	36994	2.1884	2.3870
45)	2-Methylanthracene	26.69	79830	4.7224	5.1509
46)	4/9-Methylphenanthrene	26.80	23886	1.4130	1.5412
47)	1-Methylphenanthrene	26.91	16719	0.9890	1.0788
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	293922	13.79	83.10
21)	Acenaphthene-d10	19.60	131601	11.30	68.05
32)	Phenanthrene-d10	24.68	311466	15.22	91.68
66)	Chrysene-d12	33.78	364485	15.85	95.55
88)	Perylene-d12	38.71	25326	1.04	6.25
90)	5(b)H-Cholane	34.17	120271	19.96	120.33
	Internal Standards				
1)	Fluorene-d10	21.37	205484	16.66	
31)	Pyrene-d10	29.60	422378	16.63	
73)	Benzo(a)pyrene-d12	38.38	374407	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2025.D
Acq On : 5 Dec 2013 4:00 pm
Operator : ECM(YMIAO)
Sample : SED-DA-035R (0.5-1)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06636

Quant Time: Dec 10 08:11:32 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	205484m	251.05	0.00
31) Pyrene-d10	29.597	212	422378m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	374407m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	293922m	13.79	0.00
21) Acenaphthene-d10	19.603	164	131601m	11.30	0.00
32) Phenanthrene-d10	24.681	188	311466m	15.22	0.00
66) Chrysene-d12	33.777	240	364485m	15.85	-0.03
88) Perylene-d12	38.705	264	25326m	1.04	0.03
90) 5(b)H-Cholane	34.166	217	120271m	19.96	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	344229m	15.31	
9) 2-Methylnaphthalene	16.048	142	152889m	11.01	
10) 1-Methylnaphthalene	16.384	142	80607m	5.98	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.508	156	169532m	7.54	
14) C3-Naphthalenes	21.056	170	112167m	4.99	
15) C4-Naphthalenes	22.755	184	58681m	2.61	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	27289m	1.37	
24) Acenaphthene	19.692	154	12896m	1.06	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	77484m	5.34	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.438	180	25975m	1.79	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	35202m	1.56	
35) 4-Methyldibenzothiophene	25.840	198	19417m	1.20	
36) 2/3-Methyldibenzothiop...	26.150	198	14512m	0.89	
37) 1-Methyldibenzothiophene	26.489	198	3782m	0.23	
38) C2-Dibenzothiophenes	27.252	212	68316m	3.03	
39) C3-Dibenzothiophenes	28.778	226	106476m	4.73	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	237646m	9.49	
42) Anthracene	24.935	178	43916m	2.07	
43) 3-Methylphenanthrene	26.433	192	33961m	2.01	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2025.D
Acq On : 5 Dec 2013 4:00 pm
Operator : ECM(YMIAO)
Sample : SED-DA-035R (0.5-1)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06636

Quant Time: Dec 10 08:11:32 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	26.546	192	36994m	2.19	
45) 2-Methylanthracene	26.687	192	79830m	4.72	
46) 4/9-Methylphenanthrene	26.800	192	23886m	1.41	
47) 1-Methylphenanthrene	26.913	192	16719m	0.99	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	28.156	206	223176m	8.92	
51) C3-Phenanthrenes/Anthr...	29.908	220	178653m	7.14	
52) C4-Phenanthrenes/Anthr...	30.642	234	168180m	6.72	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	206327m	7.91	
59) Pyrene	29.654	202	196517m	6.92	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	30.812	216	187166m	7.17	
63) C2-Fluoranthenes/Pyrenes	32.675	230	251672m	9.65	
64) C3-Fluoranthenes/Pyrenes	34.556	244	123531m	4.73	
65) C4-Fluoranthenes/Pyrenes	35.625	258	129201m	4.95	
67) Benz(a)anthracene	33.745	228	71661m	2.80	
68) Chrysene/Triphenylene	33.875	228	217481m	7.64	
69) C1-Chrysenes	35.074	242	278300m	9.77	
70) C2-Chrysenes	36.825	256	226335m	7.95	
71) C3-Chrysenes	38.770	270	204847m	7.19	
72) C4-Chrysenes	39.289	284	90852m	3.19	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	395337m	15.65	
78) Benzo(k,j)fluoranthene	37.344	252	25923m	1.00	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	154935m	5.63	
81) Benzo(a)pyrene	38.478	252	49299m	1.97	
82) Indeno(1,2,3-c,d)pyrene	43.239	276	109026m	3.79	
83) Dibenzo(a,h)anthracene	43.272	278	26779m	1.17	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.645	276	157629m	6.36	
89) Perylene	38.803	252	17753918m	664.23	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2025.D
Acq On : 5 Dec 2013 4:00 pm
Operator : ECM(YMIAO)
Sample : SED-DA-035R (0.5-1)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06636

Quant Time: Dec 10 08:11:32 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

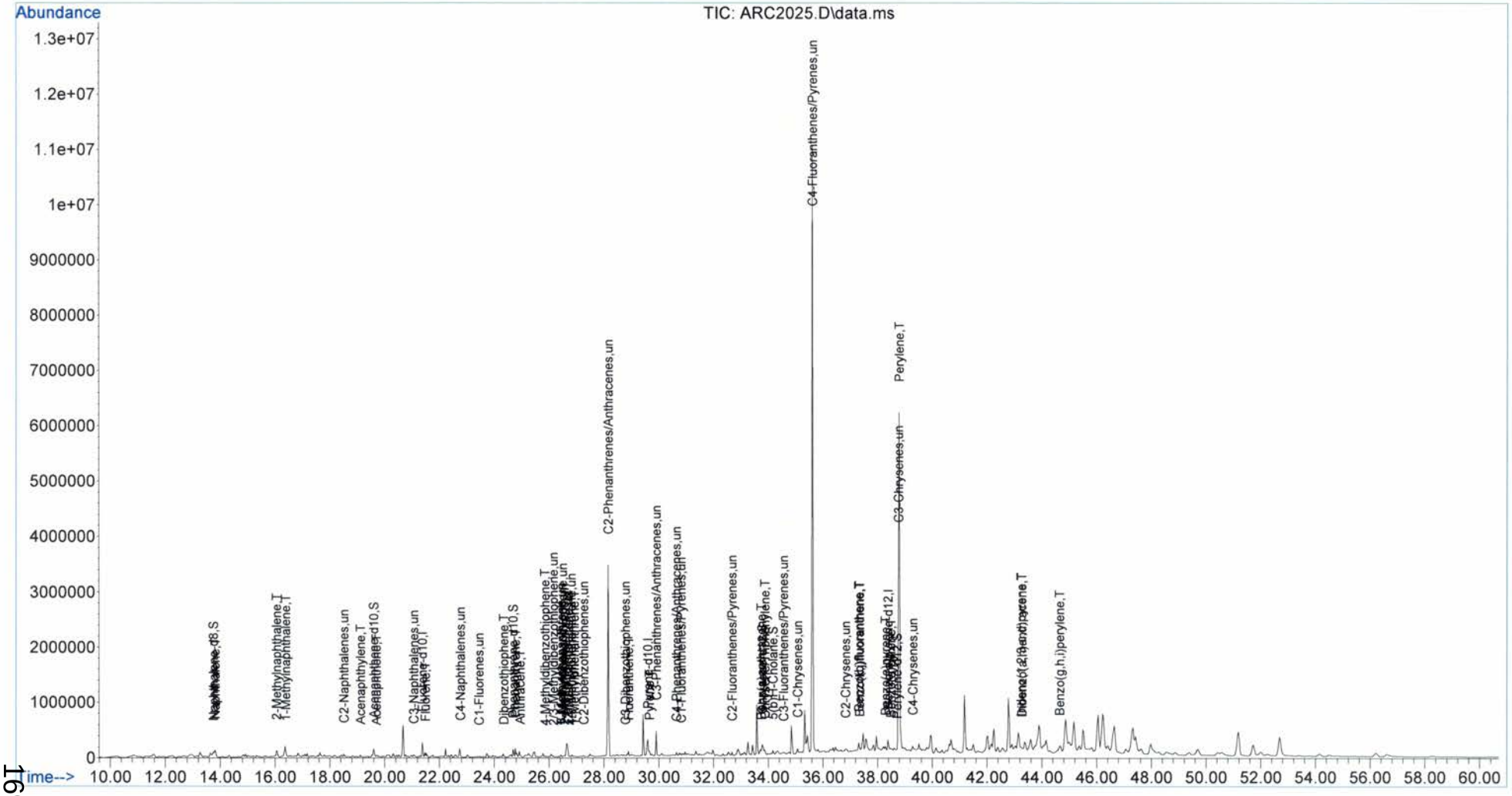
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2025.D
Acq On : 5 Dec 2013 4:00 pm
Operator : ECM(YMIAO)
Sample : SED-DA-035R (0.5-1)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06636

Quant Time: Dec 10 08:11:32 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name ARC2026.D
Data File Path C:\msdchem\2\data\MS50183\
Operator ECM(YMIAO)
Date Acquired 12/5/2013 17:06
Acq. Method File PAH-2012.M
Sample Name SED-DA-035R (1-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 29
Sample Multiplier 0.06658
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

AR-WKSU-2500-001:	**(ng/mL)**
Naphthalene-d8	250.125
Acenaphthene-d10	250.163
Phenanthrene-d10	250.194
Chrysene-d12	250.038
Perylene-d12	250.031
5(b)H-Cholane	250.000

Copy data below to Spread Sheet

ARC2026.D
SED-DA-035R (1-1.5)
12/5/2013 17:06
PAH-2012.M
15.01952538

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.81	183606	7.6939	8.1512
9)+10)	C1-Naphthalenes	16.23	134303	5.6279	5.9624
13)	C2-Naphthalenes	18.51	79547	3.3334	3.5315
14)	C3-Naphthalenes	20.97	53886	2.2581	2.3923
15)	C4-Naphthalenes	22.76	17924	0.7511	0.7957
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.11	2945	0.1391	0.1473
24)	Acenaphthene	19.71	3123	0.2415	0.2558
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.48	35197	2.2846	2.4204
28)	C1-Fluorenes	23.47	9075	0.5890	0.6241
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	2814	0.1345	0.1425
41)	Phenanthrene	24.77	102022	4.1277	4.3730
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.34	3478	0.1564	0.1657
35)+36)+37)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.89	42082	1.6333	1.7304
59)	Pyrene	29.65	26137	0.9315	0.9869
62)	C1-Fluoranthenes/Pyrenes	31.49	18338	0.7117	0.7541
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.74	5291	0.2092	0.2216
68)	Chrysene/Triphenylene	33.87	7203	0.2562	0.2714
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.31	18338	0.6775	0.7178
78)	Benzo(k,j)fluoranthene	37.44	7532	0.2718	0.2879
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.28	5901	0.2000	0.2119
81)	Benzo(a)pyrene	38.48	2217	0.0826	0.0875
89)	Perylene	38.77	416656	14.5493	15.4141
82)	Indeno(1,2,3-c,d)pyrene	43.24	7351	0.2382	0.2524
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.61	6862	0.2584	0.2738

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.07	84579	5.7345	6.0754
10)	1-Methylnaphthalene	16.38	49724	3.4745	3.6810
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	0.00	0	0.0000	0.0000
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.75	300340	13.28	79.72
21)	Acenaphthene-d10	19.60	90385	7.31	43.88
32)	Phenanthrene-d10	24.68	317705	15.72	94.39
66)	Chrysene-d12	33.78	370946	16.34	98.15
88)	Perylene-d12	38.67	3017	0.12	0.69
90)	5(b)H-Cholane	34.17	120914	18.73	112.53
	Internal Standards				
1)	Fluorene-d10	21.39	218876	16.71	
31)	Pyrene-d10	29.60	418478	16.69	
73)	Benzo(a)pyrene-d12	38.38	402478	16.67	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2026.D
Acq On : 5 Dec 2013 5:06 pm
Operator : ECM(YMIAO)
Sample : SED-DA-035R (1-1.5)
Misc :
ALS Vial : 29 Sample Multiplier: 0.06658

Quant Time: Dec 10 08:18:07 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	218876m	251.05	0.02
31) Pyrene-d10	29.597	212	418478m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	402478m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	300340m	13.28	0.00
21) Acenaphthene-d10	19.603	164	90385m	7.31	0.00
32) Phenanthrene-d10	24.681	188	317705m	15.72	0.00
66) Chrysene-d12	33.777	240	370946m	16.34	-0.03
88) Perylene-d12	38.673	264	3017m	0.12	0.00
90) 5(b)H-Cholane	34.166	217	120914m	18.73	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D. d	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.812	128	183606m	7.69	
9) 2-Methylnaphthalene	16.070	142	84579m	5.73	
10) 1-Methylnaphthalene	16.383	142	49724m	3.47	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D. d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D. d	
13) C2-Naphthalenes	18.507	156	79547m	3.33	
14) C3-Naphthalenes	20.967	170	53886m	2.26	
15) C4-Naphthalenes	22.755	184	17924m	0.75	
16) Benzothiophene	0.000		0	N.D. d	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	0.000		0	N.D. d	
23) Acenaphthylene	19.111	152	2945m	0.14	
24) Acenaphthene	19.715	154	3123m	0.24	
25) Dibenzofuran	0.000		0	N.D. d	
26) Fluorene	21.481	166	35197m	2.28	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	23.466	180	9075m	0.59	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	0.000		0	N.D. d	
34) Dibenzothiophene	24.342	184	3478m	0.16	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	102022m	4.13	
42) Anthracene	24.963	178	2814m	0.13	
43) 3-Methylphenanthrene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
Data File : ARC2026.D
Acq On : 5 Dec 2013 5:06 pm
Operator : ECM(YMIAO)
Sample : SED-DA-035R (1-1.5)
Misc :
ALS Vial : 29 Sample Multiplier: 0.06658

Quant Time: Dec 10 08:18:07 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	0.000		0	N.D. d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49) Retene	0.000		0	N.D. d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	0.000		0	N.D. d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	42082m	1.63	
59) Pyrene	29.653	202	26137m	0.93	
60) 2-Methylfluoranthene	0.000		0	N.D. d	
61) Benzo(b)fluorene	0.000		0	N.D. d	
62) C1-Fluoranthenes/Pyrenes	31.490	216	18338m	0.71	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	5291m	0.21	
68) Chrysene/Triphenylene	33.874	228	7203m	0.26	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	0.000		0	N.D. d	
77) Benzo(b)fluoranthene	37.311	252	18338m	0.68	
78) Benzo(k,j)fluoranthene	37.441	252	7532m	0.27	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	5901m	0.20	
81) Benzo(a)pyrene	38.478	252	2217m	0.08	
82) Indeno(1,2,3-c,d)pyrene	43.239	276	7351m	0.24	
83) Dibenzo(a,h)anthracene	0.000		0	N.D. d	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	
87) Benzo(g,h,i)perylene	44.612	276	6862m	0.26	
89) Perylene	38.770	252	416656m	14.55	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

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Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50183\
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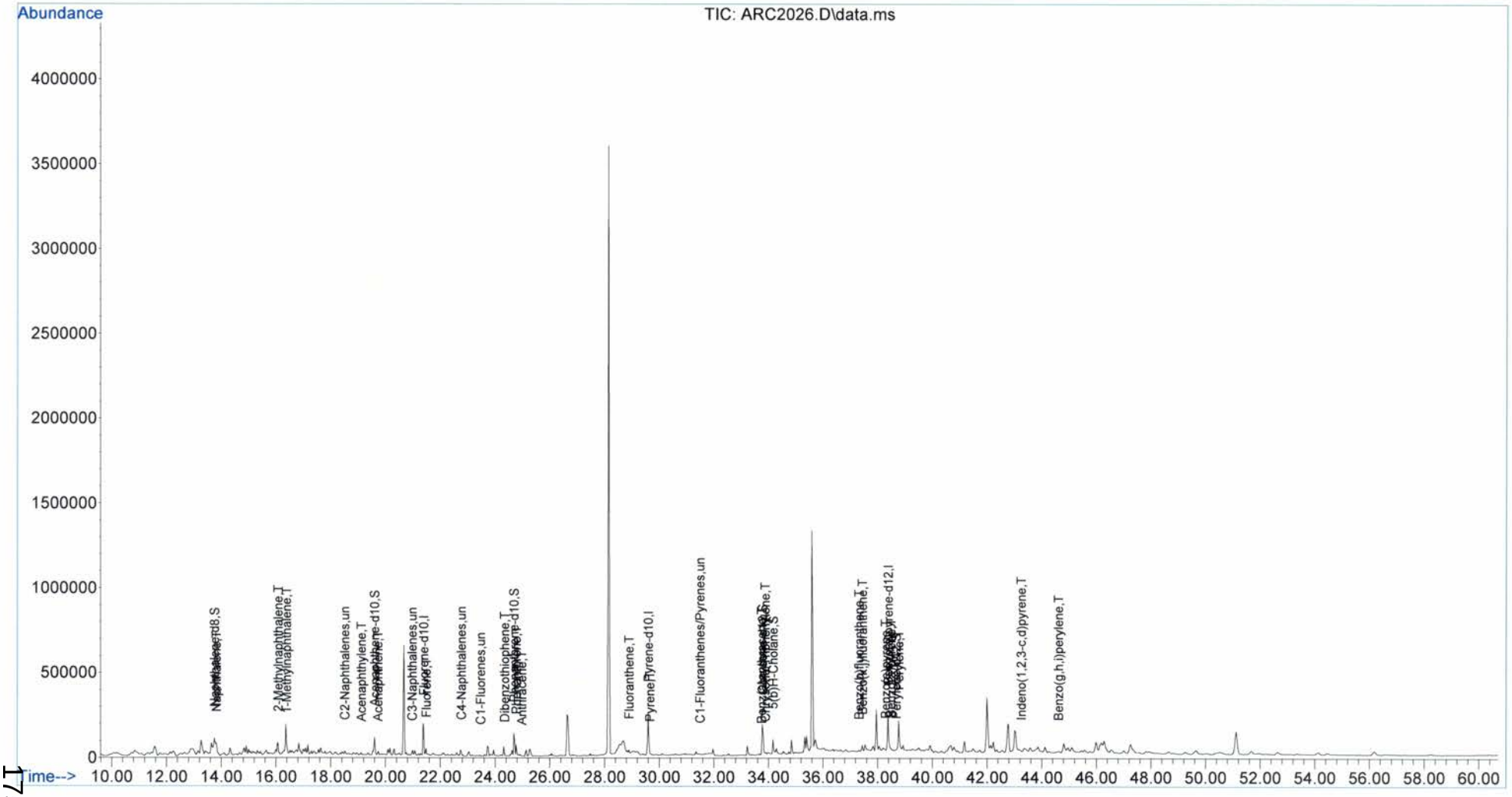


Polycyclic Aromatic Hydrocarbon Initial Calibration Data and Initial Calibration Verification Data

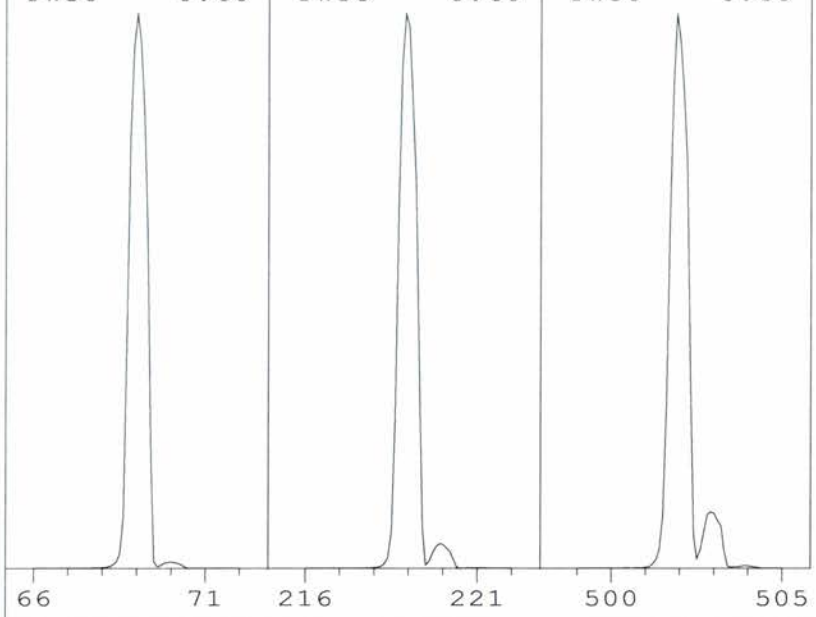
PAH ICAL
AR 50183.M

GC/MS 5
(PAH-2012)

Autotune

Wed Dec 04 06:42:26 2013 Instrument: GCMS5
C:\MSDCHEM\1\5975\atune.u US83141113

Mass	69.00	Mass	218.90	Mass	501.90
Ab	433179	Ab	288340	Ab	14703
Pw50	0.60	Pw50	0.60	Pw50	0.60

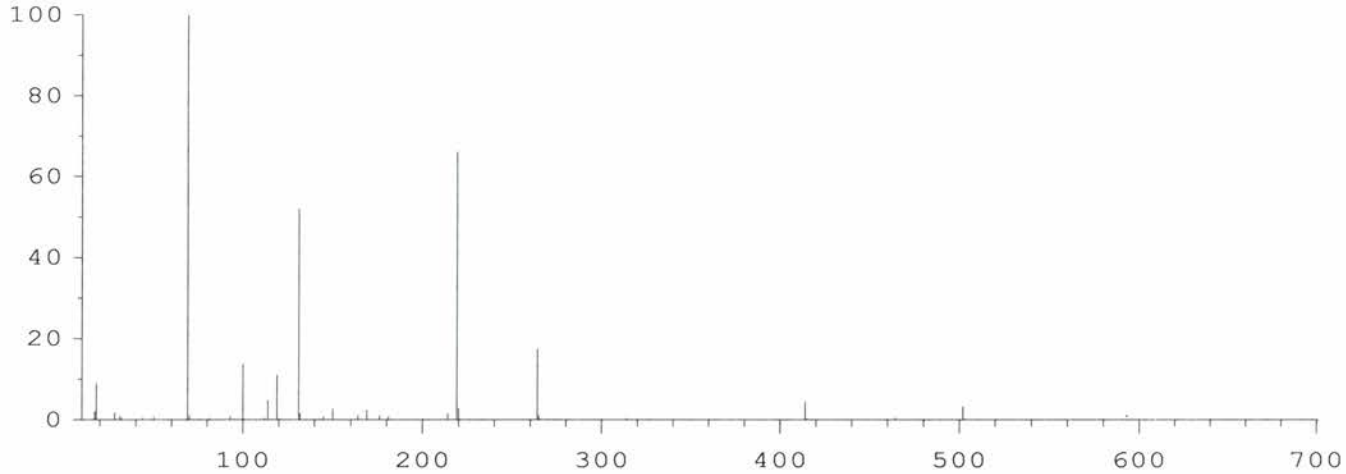


Ion Pol	Pos	MassGain	-607
		MassOffs	-38
Emission	34.6	AmuGain	1988
EIEnrgy	69.9	AmuOffs	121.81
Filament	1	Wid219	-0.012
		DC Pol	Neg
Repeller	25.77		
IonFcus	90.2	HEDEnab	On
EntLens	28.5	EMVolts	1529
EntOffs	18.57		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	290	Turbo Speed	100
MS Quad	180	HiVac	1.35e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
107 peaks Base: 69.00 Abundance: 412544



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	412544	100.00	70.00	4524	1.10
219.00	273152	66.21	220.00	11691	4.28
502.00	13635	3.31	503.00	1423	10.44

Air/Water Check: H2O~8.98% N2~1.86% O2~0.55% CO2~0.58% N2/H2O~20.72%

Column(1) Flow: 1.24 Column(2): 0 ml/min. Interface Temp: 290

Ramp Criteria:

Ion Focus Maximum	90	volts using ion	502;	EM Gain	27449
Repeller Maximum	35	volts using ion	219;	Gain Factor	0.27

MassGain Values(Samples): -594(3) -586(2) -577(1) -544(0) -465(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	121.8	121.8	121.8	121.8	121.8	121.8	121.8
Entrance Lens Offset:	18.6	18.6	18.6	18.6	18.6	18.6	18.6

MS5018 178

Response Factor Report GCMS5

Method Path : C:\GCMS5\MS50183\
Method File : AR50183.M
Title : PAH Calibration Table-2013A
Last Update : Fri Dec 06 15:25:34 2013
Response Via : Initial Calibration

Calibration Files
1 =MS50183B.D 2 =MS50183C.D 3 =MS50183D.D 4 =MS50183E.D
5 =MS50183F.D 6 =MS50183G.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorene-d10	----------ISTD----------							
2)	S	Naphthalene-d8	1.708	1.707	1.725	1.763	1.764	1.699	1.728	1.69
3)	T	cis/trans Decalin	0.363	0.383	0.348	0.338	0.330	0.307	0.345	7.62
4)	un	C1-Decalins	0.363	0.383	0.348	0.338	0.330	0.307	0.345	7.62
5)	un	C2-Decalins	0.363	0.383	0.348	0.338	0.330	0.307	0.345	7.62
6)	un	C3-Decalins	0.363	0.383	0.348	0.338	0.330	0.307	0.345	7.62
7)	un	C4-Decalins	0.363	0.383	0.348	0.338	0.330	0.307	0.345	7.62
8)	T	Naphthalene	1.800	1.831	1.818	1.859	1.850	1.776	1.822	1.72
9)	T	2-Methylnaphth...	1.101	1.095	1.110	1.154	1.155	1.143	1.126	2.43
10)	T	1-Methylnaphth...	1.087	1.083	1.093	1.119	1.110	1.065	1.093	1.76
11)	T	2,6-Dimethylna...	0.956	0.971	0.986	1.024	1.029	1.024	0.998	3.15
12)	T	1,6,7-Trimethy...	0.936	0.907	0.916	0.937	0.954	0.959	0.935	2.18
13)	un	C2-Naphthalenes	1.800	1.831	1.818	1.859	1.850	1.776	1.822	1.72
14)	un	C3-Naphthalenes	1.800	1.831	1.818	1.859	1.850	1.776	1.822	1.72
15)	un	C4-Naphthalenes	1.800	1.831	1.818	1.859	1.850	1.776	1.822	1.72
16)	T	Benzothiophene	1.379	1.408	1.411	1.437	1.435	1.378	1.408	1.84
17)	un	C1-Benzothioph...	1.379	1.408	1.411	1.437	1.435	1.378	1.408	1.84
18)	un	C2-Benzothioph...	1.379	1.408	1.411	1.437	1.435	1.378	1.408	1.84
19)	un	C3-Benzothioph...	1.379	1.408	1.411	1.437	1.435	1.378	1.408	1.84
20)	un	C4-Benzothioph...	1.379	1.408	1.411	1.437	1.435	1.378	1.408	1.84
21)	S	Acenaphthene-d10	0.971	0.923	0.928	0.951	0.955	0.939	0.944	1.89
22)	T	Biphenyl	1.321	1.337	1.365	1.419	1.441	1.413	1.383	3.52
23)	T	Acenaphthylene	1.632	1.565	1.585	1.610	1.636	1.674	1.617	2.41
24)	T	Acenaphthene	0.963	0.968	0.978	1.002	1.016	1.000	0.988	2.15
25)	T	Dibenzofuran	1.316	1.377	1.390	1.458	1.486	1.461	1.415	4.56
26)	T	Fluorene	1.206	1.151	1.142	1.176	1.191	1.192	1.177	2.12
27)	T	1-Methylfluorene	0.692	0.643	0.652	0.668	0.694	0.711	0.677	3.92
28)	un	C1-Fluorenes	1.206	1.151	1.142	1.176	1.191	1.192	1.177	2.12
29)	un	C2-Fluorenes	1.206	1.151	1.142	1.176	1.191	1.192	1.177	2.12
30)	un	C3-Fluorenes	1.206	1.151	1.142	1.176	1.191	1.192	1.177	2.12
31)	I	Pyrene-d10	----------ISTD----------							
32)	S	Phenanthrene-d10	0.776	0.766	0.785	0.829	0.854	0.824	0.806	4.33
33)	T	Carbazole	0.610	0.627	0.682	0.714	0.741	0.790	0.694	9.88
34)	T	Dibenzothiophene	0.804	0.850	0.893	0.922	0.927	0.923	0.887	5.63
35)	T	4-Methyldibenz...	0.597	0.600	0.630	0.664	0.687	0.660	0.640	5.75
36)	un	2/3-Methyldibe...	0.597	0.600	0.630	0.664	0.687	0.660	0.640	5.75
37)	un	1-Methyldibenz...	0.597	0.600	0.630	0.664	0.687	0.660	0.640	5.75
38)	un	C2-Dibenzothio...	0.804	0.850	0.893	0.922	0.927	0.923	0.887	5.63
39)	un	C3-Dibenzothio...	0.804	0.850	0.893	0.922	0.927	0.923	0.887	5.63
40)	un	C4-Dibenzothio...	0.804	0.850	0.893	0.922	0.927	0.923	0.887	5.63
41)	T	Phenanthrene	0.947	0.929	0.988	1.022	1.042	0.986	0.986	4.35
42)	T	Anthracene	0.751	0.768	0.812	0.852	0.910	0.911	0.834	8.25
43)	un	3-Methylphenan...	0.650	0.624	0.636	0.674	0.703	0.706	0.666	5.20
44)	un	2-Methylphenan...	0.650	0.624	0.636	0.674	0.703	0.706	0.666	5.20
45)	un	2-Methylanthra...	0.650	0.624	0.636	0.674	0.703	0.706	0.666	5.20
46)	un	4/9-Methylphen...	0.650	0.624	0.636	0.674	0.703	0.706	0.666	5.20
47)	T	1-Methylphenan...	0.650	0.624	0.636	0.674	0.703	0.706	0.666	5.20
48)	T	3,6-Dimethylph...	0.618	0.593	0.595	0.614	0.641	0.686	0.625	5.60
49)	T	Retene	0.303	0.284	0.290	0.303	0.324	0.325	0.305	5.59
50)	un	C2-Phenanthren...	0.947	0.929	0.988	1.022	1.042	0.986	0.986	4.35
51)	un	C3-Phenanthren...	0.947	0.929	0.988	1.022	1.042	0.986	0.986	4.35
52)	un	C4-Phenanthren...	0.947	0.929	0.988	1.022	1.042	0.986	0.986	4.35
53)	T	Naphthobenzoth...	0.990	0.965	1.014	1.065	1.100	1.159	1.049	6.98
54)	un	C1-Naphthobenz...	0.990	0.965	1.014	1.065	1.100	1.159	1.049	6.98
55)	un	C2-Naphthobenz...	0.990	0.965	1.014	1.065	1.100	1.159	1.049	6.98
56)	un	C3-Naphthobenz...	0.990	0.965	1.014	1.065	1.100	1.159	1.049	6.98

Method Path : C:\GCMS5\MS50183\
Method File : AR50183.M
Title : PAH Calibration Table-2013A

57)	un	C4-Naphthobenz...	0.990	0.965	1.014	1.065	1.100	1.159	1.049	6.98
58)	T	Fluoranthene	1.013	0.979	1.001	1.028	1.047	1.096	1.027	3.99
59)	T	Pyrene	1.085	1.096	1.102	1.135	1.165	1.130	1.119	2.65
60)	T	2-Methylfluora...	0.687	0.680	0.696	0.715	0.762	0.756	0.716	4.92
61)	T	Benzo(b)fluorene	0.644	0.613	0.647	0.680	0.722	0.781	0.681	9.01
62)	un	C1-Fluoranthen...	1.013	0.979	1.001	1.028	1.047	1.096	1.027	3.99
63)	un	C2-Fluoranthen...	1.013	0.979	1.001	1.028	1.047	1.096	1.027	3.99
64)	un	C3-Fluoranthen...	1.013	0.979	1.001	1.028	1.047	1.096	1.027	3.99
65)	un	C4-Fluoranthen...	1.013	0.979	1.001	1.028	1.047	1.096	1.027	3.99
66)	S	Chrysene-d12	0.861	0.840	0.877	0.934	0.982	0.937	0.905	6.00
67)	T	Benz(a)anthracene	0.907	0.921	0.989	1.038	1.109	1.086	1.008	8.34
68)	T	Chrysene/Triph...	0.993	1.055	1.090	1.171	1.189	1.228	1.121	8.01
69)	un	C1-Chrysenes	0.993	1.055	1.090	1.171	1.189	1.228	1.121	8.01
70)	un	C2-Chrysenes	0.993	1.055	1.090	1.171	1.189	1.228	1.121	8.01
71)	un	C3-Chrysenes	0.993	1.055	1.090	1.171	1.189	1.228	1.121	8.01
72)	un	C4-Chrysenes	0.993	1.055	1.090	1.171	1.189	1.228	1.121	8.01
73)	I	Benzo(a)pyrene-d12	----------ISTD----------							
74)	un	C29-Hopane	0.545	0.530	0.509	0.530	0.528	0.506	0.525	2.77
75)	un	18a-Oleanane	0.545	0.530	0.509	0.530	0.528	0.506	0.525	2.77
76)	T	C30-Hopane	0.545	0.530	0.509	0.530	0.528	0.506	0.525	2.77
77)	T	Benzo(b)fluora...	1.089	1.062	1.083	1.127	1.150	1.214	1.121	4.96
78)	T	Benzo(k,j)fluo...	1.095	1.098	1.108	1.157	1.226	1.202	1.148	4.93
79)	un	Benzo(a)fluora...	1.095	1.098	1.108	1.157	1.226	1.202	1.148	4.93
80)	T	Benzo(e)pyrene	1.240	1.182	1.188	1.225	1.227	1.269	1.222	2.69
81)	T	Benzo(a)pyrene	1.081	1.055	1.077	1.105	1.144	1.210	1.112	5.09
82)	T	Indeno(1,2,3-c...	1.251	1.195	1.224	1.294	1.325	1.377	1.278	5.29
83)	T	Dibenzo(a,h)an...	0.976	0.947	0.976	1.031	1.068	1.113	1.019	6.25
84)	un	C1-Dibenzo(a,h...	0.976	0.947	0.976	1.031	1.068	1.113	1.019	6.25
85)	un	C2-Dibenzo(a,h...	0.976	0.947	0.976	1.031	1.068	1.113	1.019	6.25
86)	un	C3-Dibenzo(a,h...	0.976	0.947	0.976	1.031	1.068	1.113	1.019	6.25
87)	T	Benzo(g,h,i)pe...	1.093	1.077	1.070	1.105	1.121	1.132	1.100	2.23
88)	S	Perylene-d12	1.159	1.041	1.037	1.081	1.097	1.085	1.083	4.09
89)	T	Perylene	1.154	1.135	1.170	1.225	1.229	1.202	1.186	3.28
90)	S	5(b)H-Cholane	0.280	0.265	0.263	0.265	0.271	0.260	0.267	2.66
91)	un	C20-TAS	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09
92)	un	C21-TAS	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09
93)	un	C26(20S)-TAS	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09
94)	T	C26(20R)/C27(2...	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09
95)	un	C28(20S)-TAS	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09
96)	un	C27(20R)-TAS	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09
97)	un	C28(20R)-TAS	1.783	1.631	1.594	1.621	1.623	1.641	1.649	4.09

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183B.D
Acq On : 4 Dec 2013 11:18 am
Operator : ECM(YMIAO)
Sample : AR-WKC1-020-031
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 06 14:42:18 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:34:24 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.392	176	286579m	251.05	0.02
31) Pyrene-d10	29.597	212	526767m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	519603m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.768	136	39014m	20.26	0.02
21) Acenaphthene-d10	19.603	164	22175m	20.78	0.00
32) Phenanthrene-d10	24.709	188	32642m	19.21	0.03
66) Chrysene-d12	33.810	240	36183m	18.97	0.00
88) Perylene-d12	38.673	264	48108m	22.08	0.00
90) 5(b)H-Cholane	34.166	217	11610m	20.73	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.108	138	8201m	32.43	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.835	128	41098m	19.77	
9) 2-Methylnaphthalene	16.071	142	25159m	19.79	
10) 1-Methylnaphthalene	16.406	142	24798m	20.20	
11) 2,6-Dimethylnaphthalene	18.172	156	21826m	19.16	
12) 1,6,7-Trimethylnaphtha...	21.011	170	21369m	20.16	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D. d	
16) Benzothiophene	13.992	134	31299m	19.62	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.636	154	29893m	18.82	
23) Acenaphthylene	19.111	152	36952m	20.08	
24) Acenaphthene	19.715	154	22019m	19.63	
25) Dibenzofuran	20.318	168	29901m	18.30	
26) Fluorene	21.481	166	27586m	20.74	
27) 1-Methylfluorene	23.466	180	15909m	20.61	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.557	167	25403m	17.07	
34) Dibenzothiophene	24.342	184	33325m	17.88	
35) 4-Methyldibenzothiophene	25.868	198	25287m	18.77	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	39443m	19.67	
42) Anthracene	24.964	178	31656m	18.58	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183B.D
Acq On : 4 Dec 2013 11:18 am
Operator : ECM(YMIAO)
Sample : AR-WKC1-020-031
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 06 14:42:18 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:34:24 2013
Response via : Initial Calibration

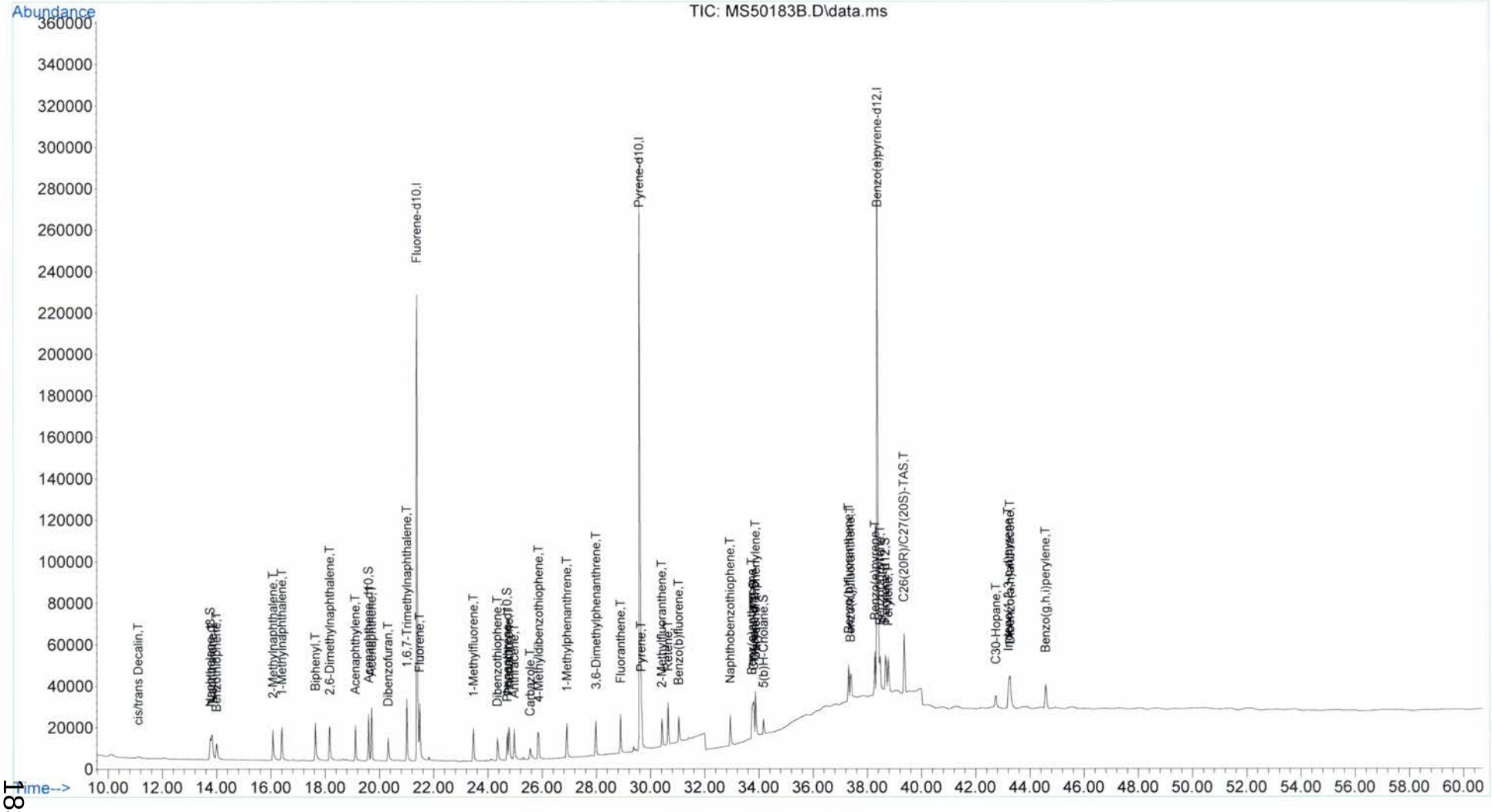
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	26.913	192	27016m	19.17	
48) 3,6-Dimethylphenanthrene	27.987	206	26020m	22.17	
49) Retene	30.642	234	11399m	17.73	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53) Naphthobenzothiophene	32.935	234	41885m	19.00	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	42611m	19.73	
59) Pyrene	29.654	202	45616m	19.24	
60) 2-Methylfluoranthene	30.416	216	29070m	19.51	
61) Benzo(b)fluorene	31.038	216	27330m	19.03	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	38066m	18.89	
68) Chrysene/Triphenylene	33.875	228	41490m	18.79	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	42.748	191	22637m	20.37	
77) Benzo(b)fluoranthene	37.311	252	45318m	21.27	
78) Benzo(k,j)fluoranthene	37.376	252	45278m	21.49	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	51279m	20.69	
81) Benzo(a)pyrene	38.478	252	44782m	19.67	
82) Indeno(1,2,3-c,d)pyrene	43.206	276	51064m	19.08	
83) Dibenzo(a,h)anthracene	43.272	278	40134m	18.71	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.579	276	44958m	19.61	
89) Perylene	38.770	252	47936m	19.68	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	39.354	231	74003m	21.53	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183B.D
Acq On : 4 Dec 2013 11:18 am
Operator : ECM(YMIAO)
Sample : AR-WKC1-020-031
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 06 14:42:18 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:34:24 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183C.D
Acq On : 4 Dec 2013 12:24 pm
Operator : ECM(YMIAO)
Sample : AR-WKC2-100-031
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 06 14:52:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:42:25 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.392	176	273044m	251.05	0.00
31) Pyrene-d10	29.597	212	495884m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	484247m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.768	136	185719m	100.18	0.00
21) Acenaphthene-d10	19.603	164	100482m	98.17	0.00
32) Phenanthrene-d10	24.709	188	151751m	94.85	0.00
66) Chrysene-d12	33.777	240	166309m	92.52	-0.03
88) Perylene-d12	38.673	264	201418m	96.59	0.00
90) 5(b)H-Cholane	34.166	217	51207m	98.48	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.108	138	41163m	155.72	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	199166m	100.93	
9) 2-Methylnaphthalene	16.071	142	119216m	97.65	
10) 1-Methylnaphthalene	16.406	142	117669m	100.17	
11) 2,6-Dimethylnaphthalene	18.150	156	105621m	97.02	
12) 1,6,7-Trimethylnaphtha...	21.012	170	98595m	97.55	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.992	134	152210m	99.94	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.636	154	144110m	95.26	
23) Acenaphthylene	19.111	152	168881m	95.92	
24) Acenaphthene	19.715	154	105497m	98.65	
25) Dibenzofuran	20.318	168	148966m	96.08	
26) Fluorene	21.481	166	125464m	98.12	
27) 1-Methylfluorene	23.466	180	70451m	95.34	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.529	167	122929m	87.90	
34) Dibenzothiophene	24.342	184	165796m	94.38	
35) 4-Methyldibenzothiophene	25.839	198	119724m	94.38	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	182150m	94.75	
42) Anthracene	24.964	178	152508m	94.18	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183C.D
Acq On : 4 Dec 2013 12:24 pm
Operator : ECM(YMIAO)
Sample : AR-WKC2-100-031
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 06 14:52:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:42:25 2013
Response via : Initial Calibration

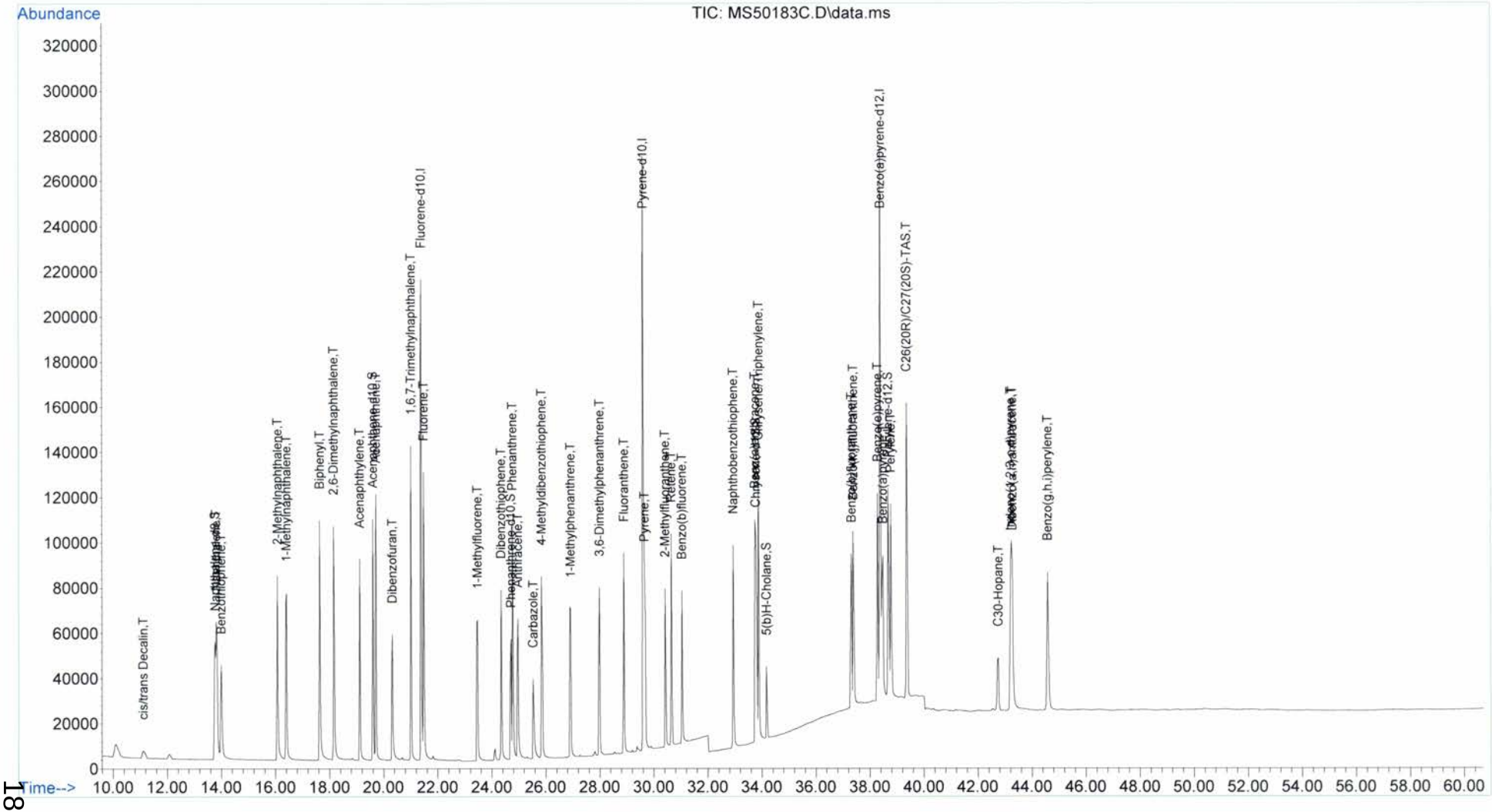
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	26.913	192	122192m	92.19	
48) 3,6-Dimethylphenanthrene	27.987	206	117389m	89.72	
49) Retene	30.642	234	50152m	82.62	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53) Naphthobenzothiophene	32.935	234	192127m	91.90	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	193921m	95.22	
59) Pyrene	29.654	202	216887m	98.18	
60) 2-Methylfluoranthene	30.416	216	135531m	96.36	
61) Benzo(b)fluorene	31.038	216	122382m	90.46	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	181894m	94.28	
68) Chrysene/Triphenylene	33.875	228	207409m	98.34	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	42.748	191	102441m	100.04	
77) Benzo(b)fluoranthene	37.311	252	205920m	100.92	
78) Benzo(k,j)fluoranthene	37.376	252	211541m	103.68	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	227719m	97.36	
81) Benzo(a)pyrene	38.478	252	203712m	95.24	
82) Indeno(1,2,3-c,d)pyrene	43.206	276	227263m	90.81	
83) Dibenzo(a,h)anthracene	43.272	278	181617m	90.42	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.580	276	206372m	96.16	
89) Perylene	38.770	252	219796m	96.55	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	39.354	231	315498m	98.08	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183C.D
Acq On : 4 Dec 2013 12:24 pm
Operator : ECM(YMIAO)
Sample : AR-WKC2-100-031
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 06 14:52:10 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:42:25 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183D.D
Acq On : 4 Dec 2013 1:30 pm
Operator : ECM(YMIAO)
Sample : AR-WKC3-250-031
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 06 15:02:07 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:52:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.392	176	277438m	251.05	0.00
31) Pyrene-d10	29.597	212	499216m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	489043m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	476909m	252.17	-0.02
21) Acenaphthene-d10	19.603	164	256498m	246.74	0.00
32) Phenanthrene-d10	24.681	188	391228m	243.64	-0.03
66) Chrysene-d12	33.777	240	437003m	241.98	0.00
88) Perylene-d12	38.673	264	506508m	238.81	0.00
90) 5(b)H-Cholane	34.166	217	128363m	244.16	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.108	138	95099m	319.82	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	502328m	250.12	
9) 2-Methylnaphthalene	16.071	142	307065m	246.96	
10) 1-Methylnaphthalene	16.384	142	301615m	252.03	
11) 2,6-Dimethylnaphthalene	18.150	156	272421m	246.73	
12) 1,6,7-Trimethylnaphtha...	21.012	170	253152m	246.40	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D. d	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.992	134	387531m	249.73	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.636	154	373601m	243.74	
23) Acenaphthylene	19.111	152	434388m	242.88	
24) Acenaphthene	19.715	154	270669m	249.02	
25) Dibenzofuran	20.296	168	382137m	242.79	
26) Fluorene	21.481	166	316262m	243.07	
27) 1-Methylfluorene	23.466	180	181571m	242.42	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.529	167	336567m	240.59	
34) Dibenzothiophene	24.342	184	438558m	248.46	
35) 4-Methyldibenzothiophene	25.839	198	316565m	248.63	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	487618m	250.69	
42) Anthracene	24.935	178	405576m	246.74	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183D.D
Acq On : 4 Dec 2013 1:30 pm
Operator : ECM(YMIAO)
Sample : AR-WKC3-250-031
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 06 15:02:07 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:52:19 2013
Response via : Initial Calibration

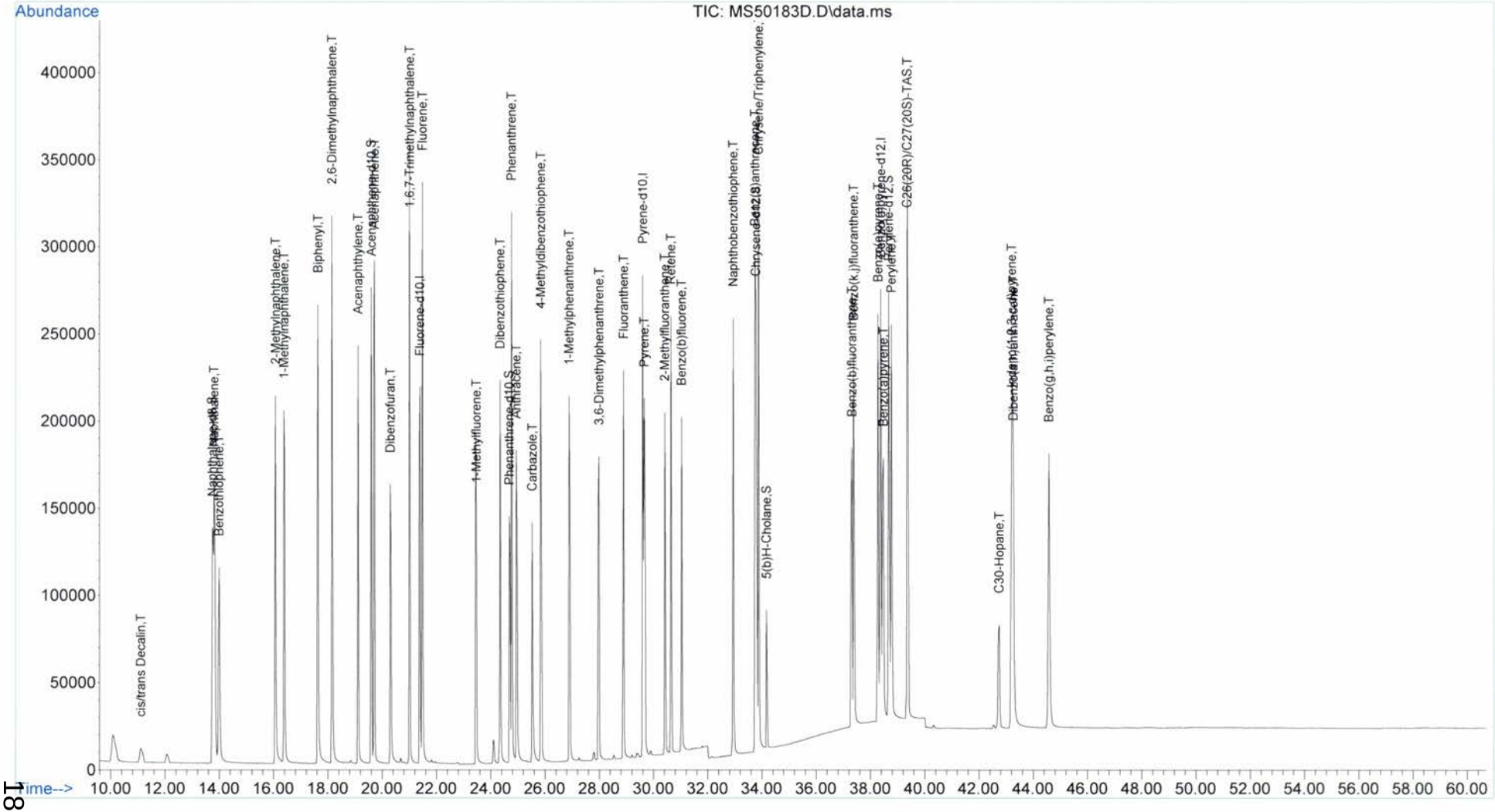
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d
47)	1-Methylphenanthrene	26.885	192	313038m	235.14	
48)	3,6-Dimethylphenanthrene	27.987	206	296803m	225.87	
49)	Retene	30.642	234	129171m	211.62	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53)	Naphthobenzothiophene	32.935	234	507828m	242.29	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d
58)	Fluoranthene	28.891	202	499016m	243.83	
59)	Pyrene	29.654	202	549009m	247.03	
60)	2-Methylfluoranthene	30.416	216	349060m	245.87	
61)	Benzo(b)fluorene	31.038	216	325184m	239.27	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d
67)	Benz(a)anthracene	33.745	228	491487m	250.86	
68)	Chrysene/Triphenylene	33.875	228	539735m	250.53	
69)	C1-Chrysenes	0.000		0	N.D.	d
70)	C2-Chrysenes	0.000		0	N.D.	d
71)	C3-Chrysenes	0.000		0	N.D.	d
72)	C4-Chrysenes	0.000		0	N.D.	d
74)	C29-Hopane	0.000		0	N.D.	d
75)	18a-Oleanane	0.000		0	N.D.	d
76)	C30-Hopane	42.748	191	248825m	240.04	
77)	Benzo(b)fluoranthene	37.311	252	529851m	252.80	
78)	Benzo(k,j)fluoranthene	37.376	252	539060m	255.85	
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d
80)	Benzo(e)pyrene	38.284	252	577675m	243.31	
81)	Benzo(a)pyrene	38.478	252	525155m	242.21	
82)	Indeno(1,2,3-c,d)pyrene	43.206	276	587709m	233.10	
83)	Dibenzo(a,h)anthracene	43.272	278	472469m	233.80	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d
87)	Benzo(g,h,i)perylene	44.580	276	517846m	238.72	
89)	Perylene	38.770	252	572079m	248.37	
91)	C20-TAS	0.000		0	N.D.	d
92)	C21-TAS	0.000		0	N.D.	d
93)	C26(20S)-TAS	0.000		0	N.D.	d
94)	C26(20R)/C27(20S)-TAS	39.354	231	778534m	239.57	
95)	C28(20S)-TAS	0.000		0	N.D.	d
96)	C27(20R)-TAS	0.000		0	N.D.	d
97)	C28(20R)-TAS	0.000		0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183D.D
Acq On : 4 Dec 2013 1:30 pm
Operator : ECM(YMIAO)
Sample : AR-WKC3-250-031
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 06 15:02:07 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 14:52:19 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183E.D
Acq On : 4 Dec 2013 2:37 pm
Operator : ECM(YMIAO)
Sample : AR-WKC4-500-031
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 06 15:10:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:02:14 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.392	176	278070m	251.05	0.00
31) Pyrene-d10	29.597	212	496082m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	481975m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.746	136	977088m	513.82	0.00
21) Acenaphthene-d10	19.603	164	527136m	505.91	0.00
32) Phenanthrene-d10	24.681	188	820709m	516.04	0.00
66) Chrysene-d12	33.777	240	924106m	515.19	0.00
88) Perylene-d12	38.673	264	1040629m	496.82	0.00
90) 5(b)H-Cholane	34.166	217	255171m	492.87	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.108	138	185276m	576.18	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.813	128	1029589m	511.39	
9) 2-Methylnaphthalene	16.071	142	639742m	513.19	
10) 1-Methylnaphthalene	16.384	142	619254m	514.77	
11) 2,6-Dimethylnaphthalene	18.150	156	567096m	512.93	
12) 1,6,7-Trimethylnaphtha...	21.011	170	518946m	503.42	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.992	134	791316m	508.27	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.636	154	778860m	508.17	
23) Acenaphthylene	19.111	152	884755m	493.44	
24) Acenaphthene	19.715	154	555992m	510.15	
25) Dibenzofuran	20.296	168	803395m	511.70	
26) Fluorene	21.481	166	652771m	501.08	
27) 1-Methylfluorene	23.438	180	372658m	497.30	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.529	167	700386m	505.92	
34) Dibenzothiophene	24.342	184	899688m	512.99	
35) 4-Methyldibenzothiophene	25.839	198	662542m	523.81	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	1002198m	516.44	
42) Anthracene	24.935	178	846042m	515.80	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183E.D
Acq On : 4 Dec 2013 2:37 pm
Operator : ECM(YMIAO)
Sample : AR-WKC4-500-031
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 06 15:10:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:02:14 2013
Response via : Initial Calibration

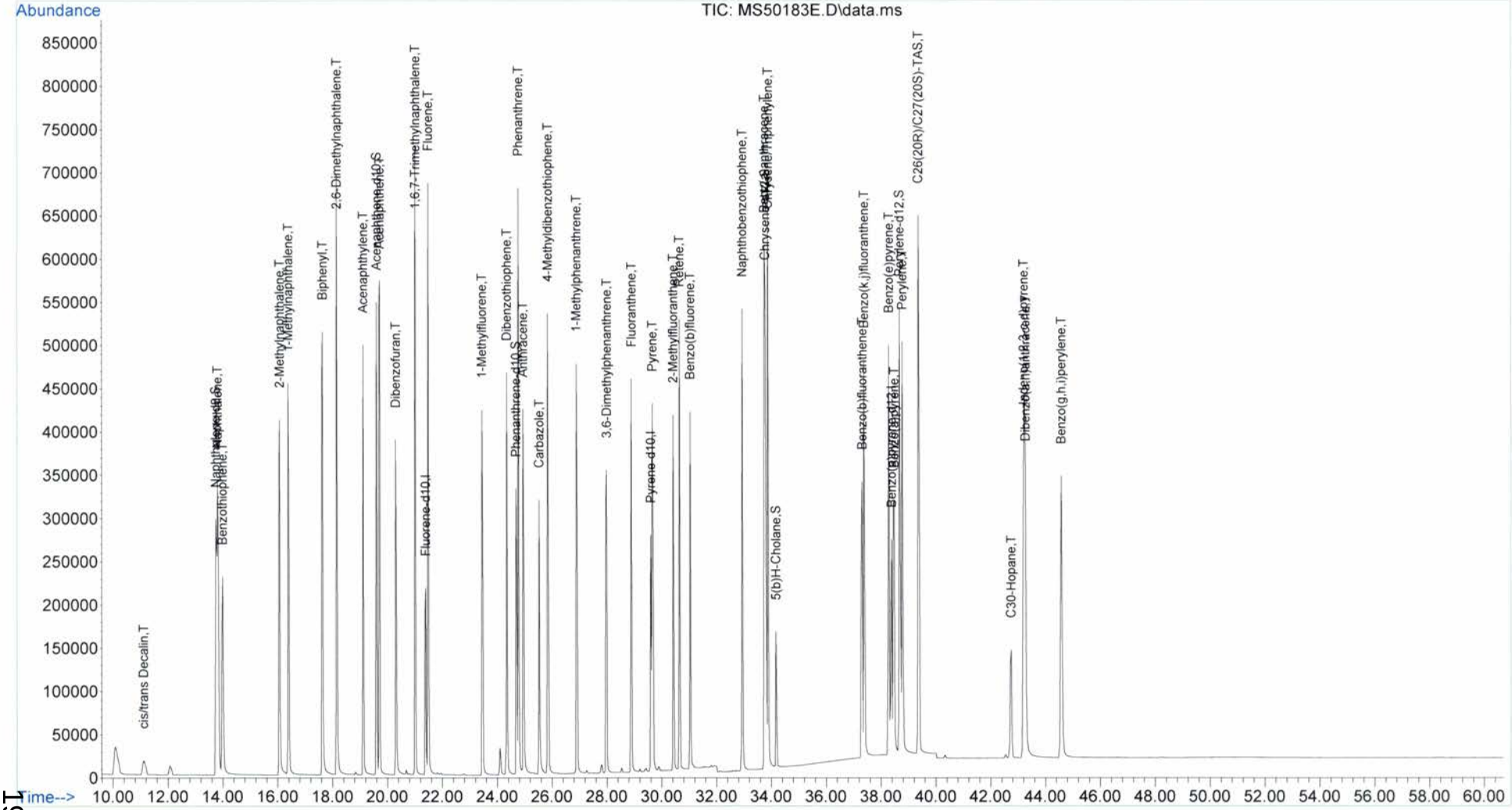
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46)	4/9-Methylphenanthrene	0.000		0	N.D. d	
47)	1-Methylphenanthrene	26.885	192	660006m	500.88	
48)	3,6-Dimethylphenanthrene	27.987	206	607913m	469.50	
49)	Retene	30.642	234	267624m	442.42	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53)	Naphthobenzothiophene	32.935	234	1060268m	509.85	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58)	Fluoranthene	28.891	202	1018325m	500.53	
59)	Pyrene	29.654	202	1123051m	508.55	
60)	2-Methylfluoranthene	30.416	216	712328m	503.95	
61)	Benzo(b)fluorene	31.038	216	678702m	502.79	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67)	Benz(a)anthracene	33.745	228	1025016m	522.37	
68)	Chrysene/Triphenylene	33.875	228	1152424m	533.11	
69)	C1-Chrysenes	0.000		0	N.D. d	
70)	C2-Chrysenes	0.000		0	N.D. d	
71)	C3-Chrysenes	0.000		0	N.D. d	
72)	C4-Chrysenes	0.000		0	N.D. d	
74)	C29-Hopane	0.000		0	N.D. d	
75)	18a-Oleanane	0.000		0	N.D. d	
76)	C30-Hopane	42.748	191	510425m	501.57	
77)	Benzo(b)fluoranthene	37.311	252	1086712m	519.32	
78)	Benzo(k,j)fluoranthene	37.376	252	1109115m	525.65	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.284	252	1174272m	500.53	
81)	Benzo(a)pyrene	38.478	252	1061260m	495.50	
82)	Indeno(1,2,3-c,d)pyrene	43.206	276	1225014m	494.02	
83)	Dibenzo(a,h)anthracene	43.272	278	983800m	495.74	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87)	Benzo(g,h,i)perylene	44.579	276	1054503m	493.99	
89)	Perylene	38.770	252	1180443m	518.10	
91)	C20-TAS	0.000		0	N.D. d	
92)	C21-TAS	0.000		0	N.D. d	
93)	C26(20S)-TAS	0.000		0	N.D. d	
94)	C26(20R)/C27(20S)-TAS	39.354	231	1560072m	487.74	
95)	C28(20S)-TAS	0.000		0	N.D. d	
96)	C27(20R)-TAS	0.000		0	N.D. d	
97)	C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183E.D
Acq On : 4 Dec 2013 2:37 pm
Operator : ECM(YMIAO)
Sample : AR-WKC4-500-031
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 06 15:10:36 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:02:14 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183F.D
Acq On : 4 Dec 2013 3:43 pm
Operator : ECM(YMIAO)
Sample : AR-WKC5-1000-031
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 06 15:17:40 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:10:45 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.391	176	283598m	251.05		0.00
31) Pyrene-d10	29.597	212	505458m	250.63		0.00
73) Benzo(a)pyrene-d12	38.381	264	500158m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.745	136	1993538m	1025.17		0.00
21) Acenaphthene-d10	19.603	164	1079009m	1013.38		0.00
32) Phenanthrene-d10	24.681	188	1724664m	1062.60		0.00
66) Chrysene-d12	33.777	240	1981659m	1084.41		0.00
88) Perylene-d12	38.673	264	2192020m	1006.62		0.00
90) 5(b)H-Cholane	34.166	217	542383m	1008.78		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.107	138	368997m	1055.54		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.813	128	2090186m	1016.67		
9) 2-Methylnaphthalene	16.048	142	1305873m	1025.86		
10) 1-Methylnaphthalene	16.384	142	1252200m	1016.76		
11) 2,6-Dimethylnaphthalene	18.150	156	1162472m	1030.02		
12) 1,6,7-Trimethylnaphtha...	21.011	170	1077315m	1022.46		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.		
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	13.991	134	1611527m	1014.00		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.613	154	1613125m	1032.71		
23) Acenaphthylene	19.111	152	1833211m	1002.31		
24) Acenaphthene	19.715	154	1149633m	1033.32		
25) Dibenzofuran	20.296	168	1669930m	1043.85		
26) Fluorene	21.481	166	1348265m	1013.83		
27) 1-Methylfluorene	23.438	180	789438m	1033.43		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.529	167	1481365m	1055.14		
34) Dibenzothiophene	24.342	184	1844210m	1031.60		
35) 4-Methyldibenzothiophene	25.839	198	1397285m	1083.87		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.		
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.766	178	2082301m	1049.55		
42) Anthracene	24.935	178	1840697m	1098.06		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183F.D
Acq On : 4 Dec 2013 3:43 pm
Operator : ECM(YMIAO)
Sample : AR-WKC5-1000-031
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 06 15:17:40 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:10:45 2013
Response via : Initial Calibration

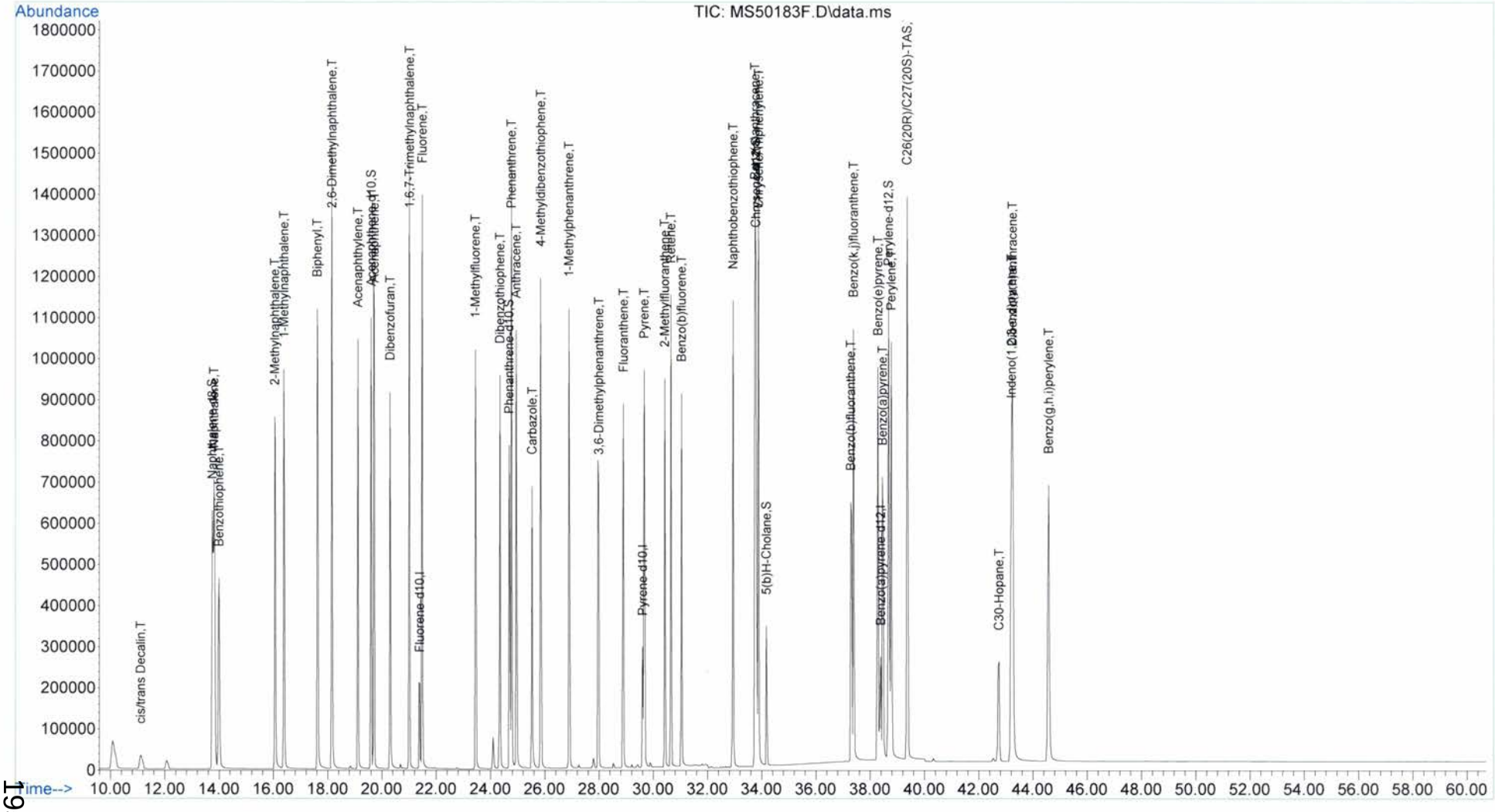
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	26.885	192	1402369m	1045.02	
48) 3,6-Dimethylphenanthrene	27.987	206	1294901m	996.04	
49) Retene	30.642	234	584059m	948.15	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53) Naphthobenzothiophene	32.934	234	2232741m	1054.59	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	2113519m	1020.41	
59) Pyrene	29.653	202	2348776m	1042.96	
60) 2-Methylfluoranthene	30.416	216	1547489m	1072.98	
61) Benzo(b)fluorene	31.038	216	1469040m	1068.90	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	2232886m	1109.18	
68) Chrysene/Triphenylene	33.875	228	2383731m	1069.47	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	42.748	191	1053998m	997.89	
77) Benzo(b)fluoranthene	37.279	252	2302189m	1045.61	
78) Benzo(k,j)fluoranthene	37.376	252	2440752m	1097.55	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	2442386m	999.25	
81) Benzo(a)pyrene	38.446	252	2281920m	1025.74	
82) Indeno(1,2,3-c,d)pyrene	43.206	276	2602257m	1011.34	
83) Dibenzo(a,h)anthracene	43.239	278	2114360m	1028.07	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.579	276	2220524m	1002.97	
89) Perylene	38.770	252	2458272m	1035.27	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	39.354	231	3243364m	977.07	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183F.D
Acq On : 4 Dec 2013 3:43 pm
Operator : ECM(YMIAO)
Sample : AR-WKC5-1000-031
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 06 15:17:40 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:10:45 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183G.D
Acq On : 4 Dec 2013 4:49 pm
Operator : ECM(YMIAO)
Sample : AR-WKC6-5000-031
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 06 15:25:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:17:47 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.369	176	308882m	251.05	-0.02
31) Pyrene-d10	29.597	212	566794m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	568603m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	10454674m	4926.18	0.00
21) Acenaphthene-d10	19.603	164	5781585m	4980.97	0.00
32) Phenanthrene-d10	24.681	188	9322497m	5120.51	0.00
66) Chrysene-d12	33.810	240	10598041m	5173.86	0.03
88) Perylene-d12	38.673	264	12321424m	4989.48	0.00
90) 5(b)H-Cholane	34.166	217	2954874m	4848.14	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.107	138	1868699m	4631.09	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.812	128	10922693m	4874.94	
9) 2-Methylnaphthalene	16.048	142	7038114m	5081.33	
10) 1-Methylnaphthalene	16.383	142	6548100m	4871.01	
11) 2,6-Dimethylnaphthalene	18.150	156	6299464m	5129.92	
12) 1,6,7-Trimethylnaphtha...	21.011	170	5897959m	5133.51	
13) C2-Naphthalenes	0.000		0	N.D. d	
14) C3-Naphthalenes	0.000		0	N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.969	134	8425293m	4864.64	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.613	154	8613078m	5063.92	
23) Acenaphthylene	19.111	152	10217919m	5134.95	
24) Acenaphthene	19.715	154	6163153m	5078.81	
25) Dibenzofuran	20.296	168	8943429m	5138.33	
26) Fluorene	21.481	166	7348489m	5073.43	
27) 1-Methylfluorene	23.438	180	4408852m	5297.68	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D.	
33) Carbazole	25.529	167	8848361m	5635.57	
34) Dibenzothiophene	24.342	184	10290298m	5133.14	
35) 4-Methyldibenzothiophene	25.839	198	7529324m	5205.07	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	11046391m	4958.07	
42) Anthracene	24.935	178	10329221m	5483.18	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183G.D
Acq On : 4 Dec 2013 4:49 pm
Operator : ECM(YMIAO)
Sample : AR-WKC6-5000-031
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 06 15:25:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:17:47 2013
Response via : Initial Calibration

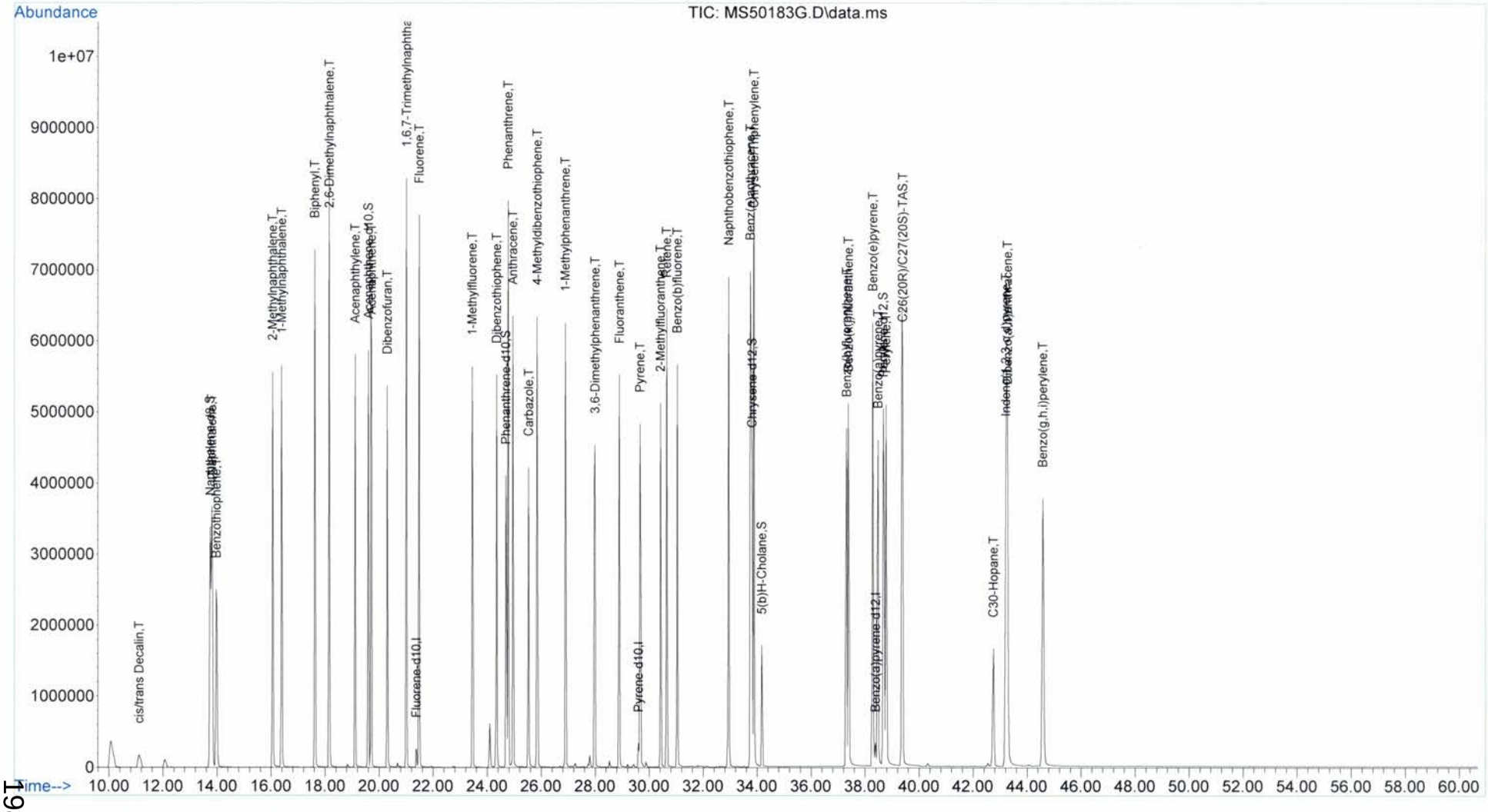
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46) 4/9-Methylphenanthrene	0.000		0	N.D. d	
47) 1-Methylphenanthrene	26.885	192	7900919m	5249.10	
48) 3,6-Dimethylphenanthrene	27.986	206	7768227m	5424.17	
49) Retene	30.642	234	3285897m	4755.14	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	
53) Naphthobenzothiophene	32.934	234	13188896m	5557.43	
54) C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58) Fluoranthene	28.891	202	12410830m	5342.08	
59) Pyrene	29.653	202	12776419m	5053.34	
60) 2-Methylfluoranthene	30.416	216	8603074m	5315.85	
61) Benzo(b)fluorene	31.038	216	8913884m	5786.11	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67) Benz(a)anthracene	33.745	228	12259646m	5399.25	
68) Chrysene/Triphenylene	33.874	228	13802042m	5479.74	
69) C1-Chrysenes	0.000		0	N.D. d	
70) C2-Chrysenes	0.000		0	N.D. d	
71) C3-Chrysenes	0.000		0	N.D. d	
72) C4-Chrysenes	0.000		0	N.D. d	
74) C29-Hopane	0.000		0	N.D. d	
75) 18a-Oleanane	0.000		0	N.D. d	
76) C30-Hopane	42.748	191	5749127m	4793.84	
77) Benzo(b)fluoranthene	37.311	252	13817539m	5462.76	
78) Benzo(k,j)fluoranthene	37.376	252	13594814m	5283.82	
79) Benzo(a)fluoranthene	0.000		0	N.D. d	
80) Benzo(e)pyrene	38.284	252	14360201m	5166.62	
81) Benzo(a)pyrene	38.478	252	13711818m	5423.52	
82) Indeno(1,2,3-c,d)pyrene	43.206	276	15376988m	5274.56	
83) Dibenzo(a,h)anthracene	43.271	278	12527976m	5383.62	
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87) Benzo(g,h,i)perylene	44.579	276	12736975m	5075.72	
89) Perylene	38.770	252	13670401m	5063.49	
91) C20-TAS	0.000		0	N.D. d	
92) C21-TAS	0.000		0	N.D. d	
93) C26(20S)-TAS	0.000		0	N.D. d	
94) C26(20R)/C27(20S)-TAS	39.386	231	18634090m	4953.97	
95) C28(20S)-TAS	0.000		0	N.D. d	
96) C27(20R)-TAS	0.000		0	N.D. d	
97) C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183G.D
Acq On : 4 Dec 2013 4:49 pm
Operator : ECM(YMIAO)
Sample : AR-WKC6-5000-031
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 06 15:25:27 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:17:47 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183I.D
Acq On : 4 Dec 2013 7:02 pm
Operator : ECM(YMIAO)
Sample : AR-WKICV-250-005
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 06 15:46:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	83	0.02
2	S	Naphthalene-d8	1.728	1.894	-9.6	91	0.00
3	T	cis/trans Decalin	0.345	0.368	-6.7	88	0.00
4	un	C1-Decalins	0.345	0.000	100.0#	0#	-12.63#
5	un	C2-Decalins	0.345	0.000	100.0#	0#	-13.41#
6	un	C3-Decalins	0.345	0.000	100.0#	0#	-16.12#
7	un	C4-Decalins	0.345	0.000	100.0#	0#	-18.78#
8	T	Naphthalene	1.822	1.998	-9.7	91	0.00
9	T	2-Methylnaphthalene	1.126	1.251	-11.1	93	0.02
10	T	1-Methylnaphthalene	1.093	1.225	-12.1	93	0.00
11	T	2,6-Dimethylnaphthalene	0.998	1.061	-6.3	89	0.00
12	T	1,6,7-Trimethylnaphthalene	0.935	1.005	-7.5	91	0.00
13	un	C2-Naphthalenes	1.822	0.000	100.0#	0#	-18.82#
14	un	C3-Naphthalenes	1.822	0.000	100.0#	0#	-19.98#
15	un	C4-Naphthalenes	1.822	0.000	100.0#	0#	-22.33#
16	T	Benzothiophene	1.408	1.564	-11.1	92	0.02
17	un	C1-Benzothiophenes	1.408	0.000	100.0#	0#	-15.42#
18	un	C2-Benzothiophenes	1.408	0.000	100.0#	0#	-18.33#
19	un	C3-Benzothiophenes	1.408	0.000	100.0#	0#	-20.25#
20	un	C4-Benzothiophenes	1.408	0.000	100.0#	0#	-21.95#
21	S	Acenaphthene-d10	0.944	0.998	-5.7	89	0.00
22	T	Biphenyl	1.383	1.461	-5.6	89	0.02
23	T	Acenaphthylene	1.617	1.607	0.6	84	0.00
24	T	Acenaphthene	0.988	1.066	-7.9	90	0.00
25	T	Dibenzofuran	1.415	1.522	-7.6	91	0.00
26	T	Fluorene	1.177	1.206	-2.5	87	0.00
27	T	1-Methylfluorene	0.677	0.000	100.0#	0#	-23.44#
28	un	C1-Fluorenes	1.177	0.000	100.0#	0#	-23.44#
29	un	C2-Fluorenes	1.177	0.000	100.0#	0#	-25.84#
30	un	C3-Fluorenes	1.177	0.000	100.0#	0#	-26.97#
31	I	Pyrene-d10	1.000	1.000	0.0	80	0.00
32	S	Phenanthrene-d10	0.806	0.854	-6.0	87	0.00
33	T	Carbazole	0.694	0.666	4.0	78	0.00
34	T	Dibenzothiophene	0.887	0.953	-7.4	86	0.00
35	T	4-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-25.84#
36	un	2/3-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.18#
37	un	1-Methyldibenzothiophene	0.640	0.000	100.0#	0#	-26.49#
38	un	C2-Dibenzothiophenes	0.887	0.000	100.0#	0#	-27.79#
39	un	C3-Dibenzothiophenes	0.887	0.000	100.0#	0#	-28.41#
40	un	C4-Dibenzothiophenes	0.887	0.000	100.0#	0#	-30.42#
41	T	Phenanthrene	0.986	1.064	-7.9	86	0.00
42	T	Anthracene	0.834	0.837	-0.4	83	0.00
43	un	3-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
44	un	2-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
45	un	2-Methylanthracene	0.666	0.000	100.0#	0#	-26.88#
46	un	4/9-Methylphenanthrene	0.666	0.000	100.0#	0#	-26.88#
47	T	1-Methylphenanthrene	0.666	0.670	-0.6	84	0.00
48	T	3,6-Dimethylphenanthrene	0.625	0.000	100.0#	0#	-27.99#
49	T	Retene	0.305	0.000	100.0#	0#	-30.64#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183I.D
Acq On : 4 Dec 2013 7:02 pm
Operator : ECM(YMIAO)
Sample : AR-WKICV-250-005
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 06 15:46:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
50	un	C2-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-28.52#
51	un	C3-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-29.37#
52	un	C4-Phenanthrenes/Anthracene	0.986	0.000	100.0#	0#	-32.12#
53	T	Naphthobenzothiophene	1.049	0.000	100.0#	0#	-32.93#
54	un	C1-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-34.20#
55	un	C2-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.02#
56	un	C3-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.41#
57	un	C4-Naphthobenzothiophenes	1.049	0.000	100.0#	0#	-37.15#
58	T	Fluoranthene	1.027	1.041	-1.4	83	0.00
59	T	Pyrene	1.119	1.197	-7.0	87	0.00
60	T	2-Methylfluoranthene	0.716	0.000	100.0#	0#	-30.42#
61	T	Benzo(b)fluorene	0.681	0.000	100.0#	0#	-31.04#
62	un	C1-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-31.49#
63	un	C2-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-32.16#
64	un	C3-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-34.20#
65	un	C4-Fluoranthenes/Pyrenes	1.027	0.000	100.0#	0#	-35.82#
66	S	Chrysene-d12	0.905	0.957	-5.7	87	-0.03
67	T	Benz(a)anthracene	1.008	1.027	-1.9	83	0.00
68	T	Chrysene/Triphenylene	1.121	1.164	-3.8	86	0.00
69	un	C1-Chrysenes	1.121	0.000	100.0#	0#	-35.40#
70	un	C2-Chrysenes	1.121	0.000	100.0#	0#	-36.66#
71	un	C3-Chrysenes	1.121	0.000	100.0#	0#	-38.09#
72	un	C4-Chrysenes	1.121	0.000	100.0#	0#	-39.39#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	78	0.00
74	un	C29-Hopane	0.525	0.000	100.0#	0#	-40.66#
75	un	18a-Oleanane	0.525	0.000	100.0#	0#	-42.00#
76	T	C30-Hopane	0.525	0.000	100.0#	0#	-42.75#
77	T	Benzo(b)fluoranthene	1.121	1.226	-9.4	88	0.00
78	T	Benzo(k,j)fluoranthene	1.148	1.225	-6.7	86	0.00
79	un	Benzo(a)fluoranthene	1.148	0.000	100.0#	0#	-37.31#
80	T	Benzo(e)pyrene	1.222	1.295	-6.0	85	0.00
81	T	Benzo(a)pyrene	1.112	1.121	-0.8	81	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.278	1.383	-8.2	88	0.00
83	T	Dibenzo(a,h)anthracene	1.019	1.130	-10.9	90	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.63#
85	un	C2-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-49.45#
86	un	C3-Dibenzo(a,h)anthracenes	1.019	0.000	100.0#	0#	-48.80#
87	T	Benzo(g,h,i)perylene	1.100	1.201	-9.2	87	0.00
88	S	Perylene-d12	1.083	1.120	-3.4	84	0.00
89	T	Perylene	1.186	1.226	-3.4	81	0.00
90	S	5(b)H-Cholane	0.267	0.276	-3.4	81	0.00
91	un	C20-TAS	1.649	0.000	100.0#	0#	-33.81#
92	un	C21-TAS	1.649	0.000	100.0#	0#	-34.20#
93	un	C26(20S)-TAS	1.649	0.000	100.0#	0#	-38.67#
94	T	C26(20R)/C27(20S)-TAS	1.649	0.000	100.0#	0#	-39.39#
95	un	C28(20S)-TAS	1.649	0.000	100.0#	0#	-40.62#
96	un	C27(20R)-TAS	1.649	0.000	100.0#	0#	-40.62#
97	un	C28(20R)-TAS	1.649	0.000	100.0#	0#	-41.77#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50183\
Data File : MS50183I.D
Acq On : 4 Dec 2013 7:02 pm
Operator : ECM(YMIAO)
Sample : AR-WKICV-250-005
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 06 15:46:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183I.D
Acq On : 4 Dec 2013 7:02 pm
Operator : ECM(YMIAO)
Sample : AR-WKICV-250-005
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 06 15:46:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.391	176	229657m	251.05	0.02
31) Pyrene-d10	29.597	212	399915m	250.63	0.00
73) Benzo(a)pyrene-d12	38.381	264	379230m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.745	136	433341m	274.19	0.00
21) Acenaphthene-d10	19.603	164	228313m	264.26	0.00
32) Phenanthrene-d10	24.681	188	341047m	265.27	0.00
66) Chrysene-d12	33.777	240	381926m	264.40	-0.03
88) Perylene-d12	38.673	264	424335m	258.59	0.00
90) 5(b)H-Cholane	34.166	217	104410m	257.82	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.107	138	83285m	263.94	
4) C1-Decalins	0.000		0	N.D. d	
5) C2-Decalins	0.000		0	N.D. d	
6) C3-Decalins	0.000		0	N.D. d	
7) C4-Decalins	0.000		0	N.D. d	
8) Naphthalene	13.812	128	456833m	274.03	
9) 2-Methylnaphthalene	16.070	142	286466m	278.03	
10) 1-Methylnaphthalene	16.384	142	279849m	279.91	
11) 2,6-Dimethylnaphthalene	18.150	156	242761m	265.81	
12) 1,6,7-Trimethylnaphtha...	21.011	170	229770m	268.72	
13) C2-Naphthalenes	0.000		0	N.D.	
14) C3-Naphthalenes	0.000		0	N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	13.991	134	355577m	276.04	
17) C1-Benzothiophenes	0.000		0	N.D. d	
18) C2-Benzothiophenes	0.000		0	N.D. d	
19) C3-Benzothiophenes	0.000		0	N.D. d	
20) C4-Benzothiophenes	0.000		0	N.D. d	
22) Biphenyl	17.635	154	331161m	261.83	
23) Acenaphthylene	19.111	152	364574m	246.45	
24) Acenaphthene	19.715	154	244327m	270.43	
25) Dibenzofuran	20.296	168	346239m	267.56	
26) Fluorene	21.481	166	276402m	256.81	
27) 1-Methylfluorene	0.000		0	N.D. d	
28) C1-Fluorenes	0.000		0	N.D. d	
29) C2-Fluorenes	0.000		0	N.D. d	
30) C3-Fluorenes	0.000		0	N.D. d	
33) Carbazole	25.529	167	263318m	237.80	
34) Dibenzothiophene	24.342	184	375039m	265.11	
35) 4-Methyldibenzothiophene	0.000		0	N.D. d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D. d	
37) 1-Methyldibenzothiophene	0.000		0	N.D. d	
38) C2-Dibenzothiophenes	0.000		0	N.D. d	
39) C3-Dibenzothiophenes	0.000		0	N.D. d	
40) C4-Dibenzothiophenes	0.000		0	N.D. d	
41) Phenanthrene	24.766	178	420752m	267.55	
42) Anthracene	24.935	178	334738m	251.52	
43) 3-Methylphenanthrene	0.000		0	N.D. d	
44) 2-Methylphenanthrene	0.000		0	N.D. d	
45) 2-Methylanthracene	0.000		0	N.D. d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183I.D
Acq On : 4 Dec 2013 7:02 pm
Operator : ECM(YMIAO)
Sample : AR-WKICV-250-005
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 06 15:46:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration

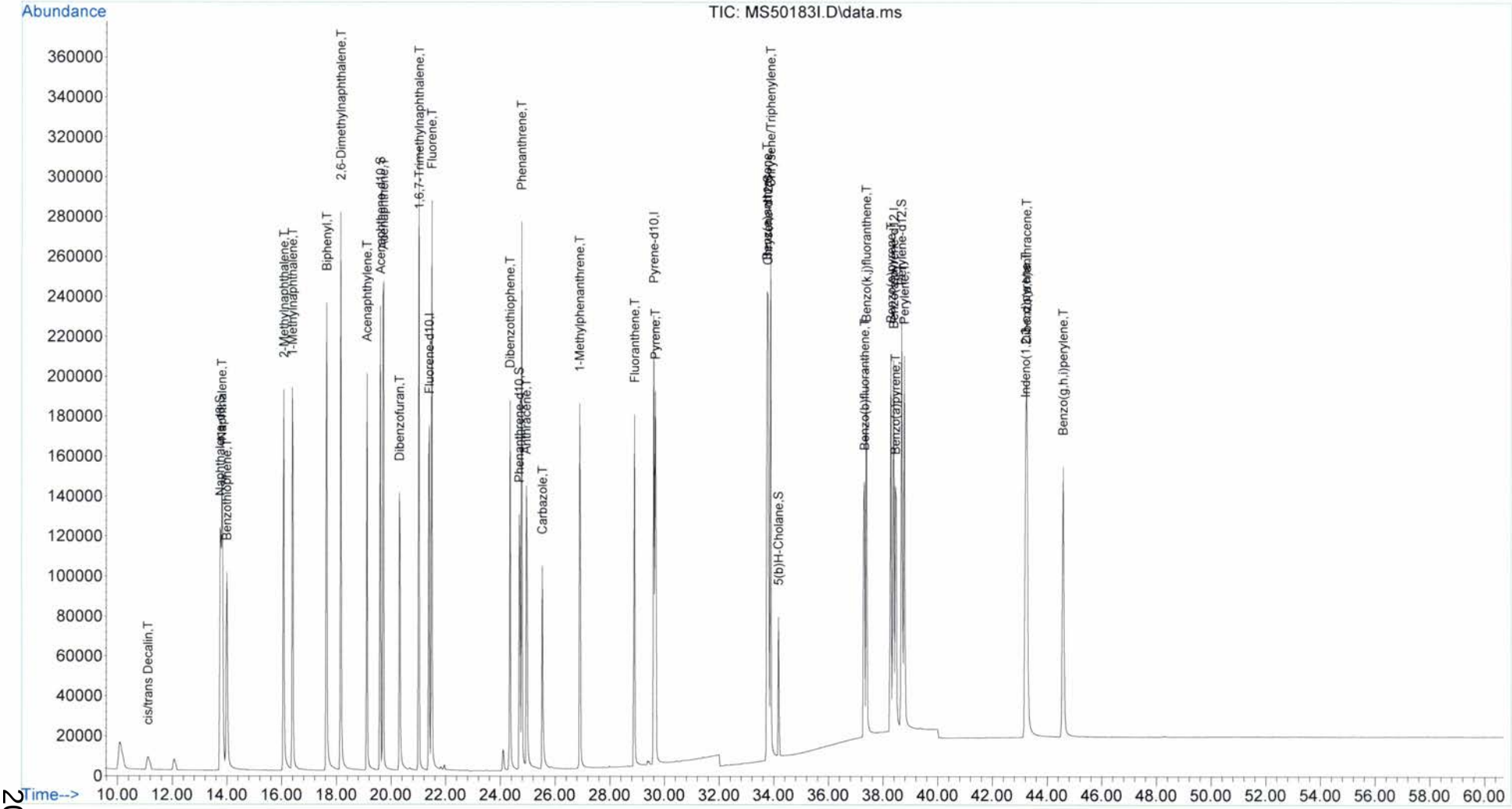
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
46)	4/9-Methylphenanthrene	0.000		0	N.D. d	
47)	1-Methylphenanthrene	26.885	192	264349m	248.89	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D. d	
49)	Retene	0.000		0	N.D. d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D. d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D. d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D. d	
53)	Naphthobenzothiophene	0.000		0	N.D. d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D. d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D. d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d	
58)	Fluoranthene	28.891	202	415528m	253.47	
59)	Pyrene	29.653	202	477586m	267.51	
60)	2-Methylfluoranthene	0.000		0	N.D. d	
61)	Benzo(b)fluorene	0.000		0	N.D. d	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d	
67)	Benz(a)anthracene	33.745	228	408720m	253.99	
68)	Chrysene/Triphenylene	33.874	228	461738m	258.12	
69)	C1-Chrysenes	0.000		0	N.D. d	
70)	C2-Chrysenes	0.000		0	N.D. d	
71)	C3-Chrysenes	0.000		0	N.D. d	
72)	C4-Chrysenes	0.000		0	N.D. d	
74)	C29-Hopane	0.000		0	N.D. d	
75)	18a-Oleanane	0.000		0	N.D. d	
76)	C30-Hopane	0.000		0	N.D. d	
77)	Benzo(b)fluoranthene	37.311	252	465355m	274.05	
78)	Benzo(k,j)fluoranthene	37.376	252	462149m	265.80	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.284	252	488386m	263.85	
81)	Benzo(a)pyrene	38.446	252	423720m	251.52	
82)	Indeno(1,2,3-c,d)pyrene	43.206	276	514923m	265.98	
83)	Dibenzo(a,h)anthracene	43.239	278	424110m	274.86	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D. d	
87)	Benzo(g,h,i)perylene	44.579	276	450739m	270.58	
89)	Perylene	38.770	252	464885m	258.77	
91)	C20-TAS	0.000		0	N.D. d	
92)	C21-TAS	0.000		0	N.D. d	
93)	C26(20S)-TAS	0.000		0	N.D. d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D. d	
95)	C28(20S)-TAS	0.000		0	N.D. d	
96)	C27(20R)-TAS	0.000		0	N.D. d	
97)	C28(20R)-TAS	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50183\
Data File : MS50183I.D
Acq On : 4 Dec 2013 7:02 pm
Operator : ECM(YMIAO)
Sample : AR-WKICV-250-005
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 06 15:46:26 2013
Quant Method : C:\GCMS5\MS50183\AR50183.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Fri Dec 06 15:25:34 2013
Response via : Initial Calibration



PAH Mass Discrimination Ratio

B&B Laboratories
Project J13034
Report 13-3164

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Mass Discrimination Sheet

Client Project #B0086022.1301

File Name	Sample Name	Benzo(g,h,i)perylene Concentration (ng/mL)	Phenanthrene Concentration (ng/mL)	Benzo(g,h,i)perylene/ Phenanthrene ratio	Q
MS50183B.D	AR-WKC1-020-031	19.6	19.7	1.00	
MS50183C.D	AR-WKC2-100-031	96.2	94.7	1.01	
MS50183D.D	AR-WKC3-250-031	239	251	0.95	
MS50183E.D	AR-WKC4-500-031	494	516	0.96	
MS50183F.D	AR-WKC5-1000-031	1003	1050	0.96	
MS50183G.D	AR-WKC6-5000-031	5076	4958	1.02	
MS50183I.D	AR-WKICV-250-005	271	268	1.01	
MS50183J.D	AR-WKCC-250-039	256	255	1.01	
MS50183L.D	AR-WKCC-250-039	235	225	1.04	
MS50183M.D	AR-WKCC-250-039	218	235	0.92	

Qualifiers (Q): Ratio of Benzo(g,h,i)perylene to Phenanthrene needs to be ≥ 0.70

PAH Internal Standard Area Data

B&B Laboratories
Project J13034
Report 13-3164

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
The Area of the Internal Standards in the Associated Calibration Standard

Client Project #B0086022.1301

File Name	Sample Name	Internal Standard 1 Fluorene-d10			Internal Standard 2 Pyrene-d10			Internal Standard 3 Benzo(a)pyrene-d12		
		Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)
MS50183D.D	**AR-WKC3-250-031**	**277438**	**138719**	**554876**	**499216**	**249608**	**998432**	**489043**	**244522**	**978086**
MS50183I.D	**AR-WKICV-250-005**	**229657**			**399915**			**379230**		
MS50183J.D	**AR-WKCC-250-039**	**248316**	**124158**	**496632**	**438565**	**219283**	**877130**	**404734**	**202367**	**809468**
ENV3167A.D	Method Blank	232444			448306			423455		
ENV3167B.D	SRM 1941b	272032			532976			541985		
ENV3167C.D	MS (SED-DA-037R (1-1.5))	258201			534337			456970		
ENV3167D.D	MSD (SED-DA-037R (1-1.5))	243410			502529			446483		
ENV3167E.D	Dupl. (SED-DA-033R (1-1.5))	228929			440212			419840		
ARC2009.D	SED-DA-036R (0.5-1)	246591			489567			474456		
ARC2010.D	SED-DA-036R (1-1.5)	218458			453984			429652		
ARC2013.D	SED-DA-037R (0.5-1)	255568			584107			341553		
MS50183L.D	**AR-WKCC-250-039**	**203240**	**101620**	**406480**	**415268**	**207634**	**830536**	**399768**	**199884**	**799536**
ARC2014.D	SED-DA-037R (1-1.5)	215713			456441			435988		
ARC2016.D	SED-DA-038R (0.5-1)	230482			512518			435855		
ARC2017.D	SED-DA-038R (1-1.5)	196973			390657			373197		
ARC2019.D	SED-DA-033R (0.5-1)	213367			418889			406215		
ARC2020.D	SED-DA-033R (1-1.5)	192802			399331			385130		
ARC2022.D	SED-DA-034R (0.5-1)	206341			419200			366977		
ARC2023.D	SED-DA-034R (1-1.5)	192408			370636			353254		
ARC2025.D	SED-DA-035R (0.5-1)	205484			422378			374407		
ARC2026.D	SED-DA-035R (1-1.5)	218876			418478			402478		
MS50183M.D	**AR-WKCC-250-039**	**189317**	**94659**	**378634**	**376578**	**188289**	**753156**	**389124**	**194562**	**778248**

SRM-2779 Reference Oil
PAH
Resolution Check

```
File        :C:\GCMS5\MS50183\MS50183K.D
Operator    : ECM(YMIAO)
Acquired    :  4 Dec 2013   9:14 pm using AcqMethod PAH-2012.M
Instrument  :   GCMS5
Sample Name: AR-SRM2779-WK-4.0-003
Misc Info   :
Vial Number: 11
```

Supporting Documents

Shipping, Sample Receiving, and Project Initiation Documents

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 11/21/13 SDG#: 13112101

Sender: Arcadis- Mayflower AR
Arcadis: Jessica geurts

1. Number of Shipping Containers: 1

Comments: large blue cooler

2. Airbill Present? Yes/No Shipping Company: Fed Ex

Airbill Number: 8041 7032 6726

Comments: PON

3. Custody Seals on Container?
No Yes Intact Not Intact

Comments: on top of duct tape

4. Chain of Custody Records?
No Yes

Comments: project # B0086022.1301

5. General Sample Conditions:
Frozen Cool Unrefrigerated
Dry Ice Blue Ice Ice

Temperature/Comments: 1.2°C/temp blank 0.6°C (T2

6. List of Broken Containers:

None

7. Number of Samples Expected: 1 cooler Number of Samples Received: 2 waters
20 seds

8. Problems/Discrepancies:

None

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 11/21/13

large blue cooler

Sdg 13112101
Cooler 1of1

Ice type: wet ice
Temp blank: 1.2°C
Thermometer: 2
Cooler temp: 0.6°C
Custody seal: intact

eurofins | Lancaster Laboratories

487444
CUSTODY SEAL
2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 56-2300

DATE: 11-20-13
SIGNATURE:

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8041 7032 6726

1 From

Date 11-20-13

Sender's Name Brian Lovgren Phone 919 604-4552

Company Arcadis-US

Address 801 Corporate Center Drive

Dept./Floor/Suite/Room

City Raleigh State ZIP

2 Your Internal Billing Reference B0086022.1301.60602

3 To

Recipient's Name Sample Administration Phone 979 693-3446

Company B&B Labs

Address 14391B South Dowling Road

We cannot deliver to P.O. boxes or P.O. ZIP codes

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City College Station State TX ZIP 77845

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

8041 7032 6726

Form 10 No. 021

4 Express Pack

NOTE: Service order

Next Business D

FedEx First Overn

FedEx Priority Ove

FedEx Standard

5 Packaging

FedEx Envelope*

6 Special Hand

SATURDAY Deli

No Signature Re

Does this shipmen

No Yes

7 Payment Bil

Sender

Total Packages T

1

*Our liability is limited to US$100

Rev. Date 1/12 • Part #150201

FedEx

TRK# 0200 8041 7032 6726

THU – 21 NOV 10:

PRIORITY OVERNI

XH CLLA

778

TX – US

#959773 11/20 S1AG1/D5E6/1A9E

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: [signature]

Other Instructions: Sdg 13112101 Cooler 1 of 1 (1)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs by 8270SIM	TEH by 8015					Comments
SED-DA-036R(0-0.5)	11-19-13	1015	SED	None	8oz jar	1	X	X					Full PAH List
SED-DA-036R(0.5-1)	11-19-13	1020				1	X						44 PAH List
SED-DA-036R(1-1.5)	11-19-13	1025				1	X						44 PAH List
SED-DA-037R(0-0.5)		1100				1	X	X					Full PAH List
SED-DA-037R(0-0.5)MS/MSD		1100				1	X	X					Full PAH List
SED-DA-037R(0.5-1)		1105				1	X						44 PAH List
SED-DA-037R(1-1.5)		1110				1	X						44 PAH List
SED-DA-038R(0-0.5)		1350				1	X	X					Full PAH List
SED-DA-038R(0.5-1)		1355				1	X						44 PAH List
SED-DA-038R(1-1.5)		1400				1	X						44 PAH List
					Total # of Containers	10							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jessica Geurts	ARCADIS	11/20/13	1230	Printed Name: Amanda Brewster	B&B Labs	11/21/13	10:00
Signature: [signature]				Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

1/3

CHAIN OF CUSTODY RECORD

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TDI Brooks

Client: ARCADIS

Project ID: B0080063.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature:

Other Instructions: sdg 1311 2101 cooler 1 of 1 (2)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs by 8270SIM	TEH by 8015						Comments
SED-DA-033R(0-0.5)	11-20-13	845	SED	None	8oz jar	1	X	X						Full PAH List
SED-DA-033R(0.5-1)		850				1	X							44 PAH List
SED-DA-033R(1-1.5)		855				1	X							↓
SED-DA-034R(0-0.5)		910				1	X	X						Full PAH List
SED-DA-034R(0.5-1)		915				1	X							44 PAH List
SED-DA-034R(1-1.5)		920				1	X							↓
SED-DA-035R(0-0.5)		945				1	X	X						Full PAH List
SED-DA-035R(0.5-1)		950				1	X							44 PAH List
SED-DA-035R(1-1.5)		955				1	X							↓
SED-DA-DUP-10-112013	↓	—	↓	↓	↓	1	X	X						Full PAH List
					Total # of Containers	10								

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jessica Geurts	ARCADIS	11-20-13	1230	Printed Name: Amanda Brewster	B&B Labs	11/21/13	10:00
Signature:				Signature: amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:
T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material
G=Glass C=Core
P=Plastic B=Bag

2/3

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.tdi-bi.com

TDI Brooks

Client: ARCADIS

Project ID: [redacted] 3.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: [signature]

Analyses: PAHs by 8270SIM; TEH by 8015

Other Instructions: Sdg 13112101 Coder 1of1 (3)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs by 8270SIM	TEH by 8015					Comments
SED-DA-EB-11-112013	11-20-13	1145	W	None	1L Amber	2	X	X					
		11:40 outlabel											

Total # of Containers 2

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jessica Gertz	ARCADIS	11-20-13	1230	Printed Name: Amanda Brewster	B&B Labs	11/21/13	10:00
Signature: [signature]				Signature: amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

T=Tissue G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

G=Glass C=Core
P=Plastic B=Bag

3/3

Report 13-3157

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13112101
Client: Arcadis-Mayflower AR
Initiation Date: 11/21/13

Number of Samples: 1
Matrix: water
Due Date: 30 days: 12/21/13
Comments: collected 11/20/13 extract by 11/26/13

Analyses

☑	PAHs	☐	OCs/PCBs	☑	Aliphatics/TPH	☑	EOM
☐	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	____
☑	Short Columns	☐	Long Columns	☐	____	☐	____

Requested QA/QC (per batch of _____ Client Samples)

☑	Blank	☐	SRM/LCS ____	☑	Blank Spike
☑	Blank Spike Duplicate			☐	Matrix Spike ____
☐	Matrix Spike Duplicate ____			☐	Duplicate ____

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ALI — Volume(s): 100 µl

Spike Standard(s): PAH, ALI — Volume(s): 100 µl

Internal Standard(s): PAH, ALI — Volume(s): 100 µl

Final Extract Volume (ml): 1.0 — Final Solvent: DCM

Comments:

Sample Custodian Signature: amanda Brewster — Date: 11/21/13

Laboratory Manager Signature: [signature] — Date: 11/21/13

Sample Initiaiton - general Rev 1.doc
Rev 1

cc: COC Book
Extraction Lab

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
65246	J13034	Arcadis - Mayflower AR	ARC2006	SED-DA-EB-11-112013	11/20/13	11/21/13	PAH, TPH, ALI	WATER	1 of 2	13112101	Cooler 1	Arcadis: Jessica Geurts	1L amber BR glass bottle	B0086022.1301
65247	J13034	Arcadis - Mayflower AR	ARC2007	SED-DA-EB-11-112013	11/20/13	11/21/13	HOLD	WATER	2 of 2	13112101	Cooler 1	Arcadis: Jessica Geurts	1L amber BR glass bottle	B0086022.1301

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Report 13-3157

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 131121 01
Client: Arcadis-Mayflower AR
Initiation Date: 11/21/13

Number of Samples: 12
Matrix: sediments
Due Date: 30 days: 12/21/13
Comments: 44 analytes

Analyses

☒	PAHs	☐	OCs/PCBs	☒	Aliphatics/TPH	☒	EOM
☒	Dry Wt.	☐	%Lipid	☐	TOC/TIC	☐	
☒	Short Columns	☐	Long Columns	☐		☐	

Requested QA/QC (per batch of _____ Client Samples)

☒ Blank	☒ SRM/LCS 1946	☐ Blank Spike	
☐ Blank Spike Duplicate		☒ Matrix Spike	
☒ Matrix Spike Duplicate		☒ Duplicate	

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, All — Volume(s): 100ml
Spike Standard(s): PAH, All — Volume(s): 100ml
Internal Standard(s): PAH, All — Volume(s): 100ml
Final Extract Volume (ml): ~~[illegible]~~ 1.0 — Final Solvent: DCM

Comments: report only 44 PAHs.

Sample Custodian Signature: Amanda Brewster — Date: 11/21/13
Laboratory Manager Signature: [signature] — Date: 11/22/13

Sample Initiaiton - general Rev 1.doc
Rev 1

cc: COC Book
Extraction Lab

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
65249	J13034	Arcadis - Mayflower AR	ARC2009	SED-DA-036R (0.5-1)	11/19/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65250	J13034	Arcadis - Mayflower AR	ARC2010	SED-DA-036R (1-1.5)	11/19/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65253	J13034	Arcadis - Mayflower AR	ARC2013	SED-DA-037R (0.5-1)	11/19/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65254	J13034	Arcadis - Mayflower AR	ARC2014	SED-DA-037R (1-1.5)	11/19/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65256	J13034	Arcadis - Mayflower AR	ARC2016	SED-DA-038R (0.5-1)	11/19/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65257	J13034	Arcadis - Mayflower AR	ARC2017	SED-DA-038R (1-1.5)	11/19/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65259	J13034	Arcadis - Mayflower AR	ARC2019	SED-DA-033R (0.5-1)	11/20/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65260	J13034	Arcadis - Mayflower AR	ARC2020	SED-DA-033R (1-1.5)	11/20/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65262	J13034	Arcadis - Mayflower AR	ARC2022	SED-DA-034R (0.5-1)	11/20/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65263	J13034	Arcadis - Mayflower AR	ARC2023	SED-DA-034R (1-1.5)	11/20/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65265	J13034	Arcadis - Mayflower AR	ARC2025	SED-DA-035R (0.5-1)	11/20/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65266	J13034	Arcadis - Mayflower AR	ARC2026	SED-DA-035R (1-1.5)	11/20/13	11/21/13	PAH	SED	44 analytes	13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301

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Report 13-3157

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13112101
Client: Arcadis-Mayflower AR
Initiation Date: 11/21/13

Number of Samples: 8
Matrix: sediments
Due Date: 30 days: 12/21/13
Comments: PAH, TPH, ALI

Analyses

- [x] PAHs
- [ ] OCs/PCBs
- [x] Aliphatics/TPH
- [x] EOM
- [x] Dry Wt.
- [ ] %Lipid
- [ ] TOC/TIC
- [ ] ____
- [x] Short Columns
- [ ] Long Columns
- [ ] ____
- [ ] ____

Requested QA/QC (per batch of ____ Client Samples)

- [x] Blank
- [x] SRM/LCS 1941b
- [ ] Blank Spike
- [ ] Blank Spike Duplicate
- [x] Matrix Spike ARC2012
- [x] Matrix Spike Duplicate ARC2012
- [x] Duplicate ____

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ALI — Volume(s): 100ml
Spike Standard(s): PAH, ALI — Volume(s): 100ml
Internal Standard(s): PAH, ALI — Volume(s): 100ml
Final Extract Volume (ml): 1.0 — Final Solvent: DCM

Comments: USE ARC2012 as MS/MSD — ARC2011 is the original.

Sample Custodian Signature: Amanda Brewster — Date: 11/21/13
Laboratory Manager Signature: ____ — Date: 11/22/13

Sample Initiaiton - general Rev 1.doc
Rev 1

cc: COC Book
Extraction Lab

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
65248	J13034	Arcadis - Mayflower AR	ARC2008	SED-DA-036R (0-0.5)	11/19/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65251	J13034	Arcadis - Mayflower AR	ARC2011	SED-DA-037R (0-0.5)	11/19/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65252	J13034	Arcadis - Mayflower AR	ARC2012	SED-DA-037R (0-0.5) MS/MSD	11/19/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65255	J13034	Arcadis - Mayflower AR	ARC2015	SED-DA-038R (0-0.5)	11/19/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65258	J13034	Arcadis - Mayflower AR	ARC2018	SED-DA-033R (0-0.5)	11/20/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65261	J13034	Arcadis - Mayflower AR	ARC2021	SED-DA-034R (0-0.5)	11/20/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65264	J13034	Arcadis - Mayflower AR	ARC2024	SED-DA-035R (0-0.5)	11/20/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301
65267	J13034	Arcadis - Mayflower AR	ARC2027	SED-DA-DUP-10-112013	11/20/13	11/21/13	PAH, TPH, ALI	SED		13112101	Cooler 1	Arcadis: Jessica Geurts	8oz clear glass jar	B0086022.1301

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J13034 Arcadis- Mayflower coming 11/21/13

Amanda Brewster B0086022.1301

From: Parmelee, Rhiannon <Rhiannon.Parmelee@arcadis-us.com>
Sent: Tuesday, November 19, 2013 1:02 PM
To: 'Amanda J. Brewster' (amandabrewster@tdi-bi.com)
Cc: Juan Ramirez (juanramirez@tdi-bi.com); Donell Frank (donellfrank@tdi-bi.com); tommcdonald@tdi-bi.com; Mott, Lyndi; Geurts, Jessica; Mays, Daniel; Lipka, Shelby; Patil, Sonal
Subject: Reminder of Mayflower Pipeline Incident Project - Sediment Samples this week

Amanda –

As a reminder, we are collecting sediment samples this week that will be shipped to you on Wednesday night for Thursday delivery. Danny Mays or Jessica Geurts will be sending you the COCs Wednesday night. The scope of work previously discussed with Juan included the following samples:

Scope of Work for Additional Lake Conway Sediment Sampling:

1. Analyze six surface sediment samples (0-0.5 foot), one duplicate and one MS/MSD for full list PAHs (87 analytes; Method – B&B PAH2012.M) and TEHs (TPH/ALI; Method – B&B ALI2012.M).
2. Analyze twelve subsurface sediment samples (0.5-1.0 foot, 1.0-1.5 feet) for 44 PAHs (Method – B B&B PAH2012.M).
3. Analyze two equipment blanks (water) for full list PAHs (87 analytes; Method – B&B PAH2012.M) and TEHs (TPH/ALI; Method – B&B ALI2012.M).
4. Samples will be shipped to the laboratory on or about November 20, 2013 for overnight delivery. Please send sample received confirmation to:
    a. Rhiannon Parmelee (rhiannon.parmelee@arcadis-us.com)
    b. Lyndi Mott (lyndi.mott@arcadis-us.com)
    c. Sonal Patil (sonal.patil@arcadis-us.com)
    d. Jessica Geurts (jessica.geurts@arcadis-us.com)
5. Due date for reporting analytical results – December 23 for preliminary data and January 10 for final data packages (30 calendar days and 45 calendar days excluding holiday breaks).
6. Send the analytical results to:
    a. Rhiannon Parmelee (rhiannon.parmelee@arcadis-us.com)
    b. Lyndi Mott (lyndi.mott@arcadis-us.com)
    c. CC: Dak Patel, Dak.Patel@arcadis-us.com
    d. CC: Albert Zumbuhl, Albert.Zumbuhl@arcadis-us.com
    e. CC: Stephen Barrick, Stephen.Barrick@arcadis-us.com
    f. CC: Lisa Tomlinson, Lisa.Tomlinson@arcadis-us.com
    g. CC: Jennifer Chandler, Jennifer.Chandler@arcadis-us.com

Please let me know if you have any questions.

Also, as we just discussed. We are not expecting additional sheen sampling this week, but it may be early next week. I will let you know when it gets scheduled; thanks for your flexibility.

Thanks,
Rhiannon

Rhiannon Parmelee, P.E. | Project Environmental Engineer, Sediments and Waterfront | rhiannon.parmelee@arcadis-us.com

ARCADIS U.S., Inc. | 630 Plaza Drive, Suite 100 | Highlands Ranch, CO 80129
T: 303 471 3904 | M: 206 914 9625
www.arcadis-us.com

Amanda Brewster

From:	Amanda Brewster <amandabrewster@tdi-bi.com>
Sent:	Thursday, November 21, 2013 2:39 PM
To:	Parmelee, Rhiannon (Rhiannon.Parmelee@arcadis-us.com); Mott, Lyndi (Lyndi.Mott@arcadis-us.com); Patil, Sonal (Sonal.Patil@arcadis-us.com); Geurts, Jessica (Jessica.Geurts@arcadis-us.com)
Cc:	Juan Ramirez (juanramirez@tdi-bi.com); 'Donell Frank'; 'tommcdonald@tdi-bi.com' (tommcdonald@tdi-bi.com)
Subject:	Samples Received 11/21/13
Attachments:	COC 11-21-13.pdf

Hi Rhiannon,

We received your samples today in good condition.
The internal temperature of the cooler was 1.2ºC and the temperature blank was 0.6ºC.
A PDF of the COC is attached for your records.

Regards,
Amanda

Amanda Brewster
Sample Custodian

Please note our new address!
B&B Laboratories
14391B South Dowling Road
College Station, Texas 77845
Phone: (979) 693-3446
Email: amandabrewster@tdi-bi.com

Please consider the environment before printing this email!

Laboratory Bench Sheet Logs

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

MATRIX
- ☐ OTHER
- ☐ WATER
- ☒ SEDIMENT
- ☐ TISSUE

Job #: J13034 SDG #: 131210 1

Client: Arcadis - Mayflower AR

Analysis: ☒ PAH ☐ PESTS ☐ PCB ~~☒ ALI CK~~ 11/26/13

Other:

Extraction Solvent: DCM

Final Solvent: DCM Final Volume: 1.0 mL

Lipids Y (N)
Dry Wt. (Y) N
Copper (Y) N
EOM (Y) N
Columns (Y) N
Long / (Short)

Surrogate: 100 µL
PAH: AR-WKSU-2500-004 Bottle 2 of 3
Pest/PCB: — Bottle ___ of ___
Aliphatic: AL-WKSU-200-002 Bottle 4 of 7
Other: — Bottle ___ of ___

Spike: 100 µL
PAH: AR-WKSK-1000-027 Bottle 1 of 1
Pest/PCB: — Bottle ___ of ___
Aliphatic: AL-WKSK-100-021 Bottle 1 of 1
Other: — Bottle ___ of ___

General Comments:

Report 13 ~~3157~~ 3164 12/10/13 ~~SA~~

Report only 44 PAH, add ALI STD

	Added	Witness
Surrogate:	11/27/13 HA	11/27/13 CSA
Spike:	11/27/13 HA	11/27/13 CSA
Internal:	12/03/13 HA	12/3/13 SA

GC Int Std: 100 µL
PAH: AR-WKIS-2500-004 Bottle 2 of 3
Pest/PCB: — Bottle ___ of ___
Aliphatic: AL-WKIS-500-002 Bottle 3 of 7
Other: — Bottle ___ of ___

Turbo Vap
Bath T (C):
Pressure (>20psi):
Check Water Level:
Turbo Vap Date:

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments	Internal Chain of Custody	
1	ENV3167A	Method Blank	—	—	—		Extraction Prep	
2	ENV3167B	SRM 19416	4.11	97.61	4.01		Date: 11/27/13	Date: 11/27/13
3	ENV3167C	Matrix Spike (ARC 2014)	20.83	72.31	15.06		Initials: HA	Initials: HA
4	ENV3167D	Matrix Spike Dup (ARC 2014)	20.87	72.31	15.09		Extraction	
5	ENV3167E	Duplicate (ARC 2020)	18.96	79.23	15.02		Date: 11/27/13	Date: 11/27/13
6	ARC2009	SED-DA-036R (0.5-1)	19.56	76.69	15.00		Initials: HA	Initials: HA
7	ARC2010	SED-DA-036R (1-1.5)	19.33	78.26	15.13		Concentration	
8	ARC2013	SED-DA-037R (0.5-1)	26.96	55.81	15.05		Date: 12-2-13	Date: 12-2-13
9	ARC2014	SED-DA-037R (1-1.5)	20.88	72.31	15.10		Initials: EW	Initials: EW
10	ARC2016	SED-DA-038R (0.5-1)	38.15	39.61	15.11		Short Columns	
11	ARC2017	SED-DA-038R (1-1.5)	21.85	68.94	15.06		Date: 12-2-13	Date: 12-2-13
12	ARC2019	SED-DA-033R (0.5-1)	20.19	74.53	15.05		Initials: EW	Initials: EW

ENV 3167

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
13	ARC2020	SED-DA-033R (1-1.5)	18.96	79.23	15.02	
14	ARC2022	SED-DA-034R (0.5-1)	21.39	70.63	15.11	
15	ARC2023	SED-DA-034R (1-1.5)	19.99	75.80	15.15	
16	ARC2025	SED-DA-035R (0.5-1)	25.32	59.52	15.07	
17	ARC2026	SED-DA-035R (1-1.5)	20.23	74.24	15.02	
18						
19						
20						
21						
22						
23						
24						

Internal Chain of Custody

Concentration Short Columns		
	Date: 12-2-13	Date: 12/03/13
	Initials: EN	Initials: HA
Columns SA1		
	Date:	Date:
	Initials:	Initials:
Concentration SA1		
	Date:	Date:
	Initials:	Initials:
Columns SA2		
	Date:	Date:
	Initials:	Initials:
Concentration SA2		
	Date:	Date:
	Initials:	Initials:
Transfer for HPLC		
	Date:	Date:
	Initials:	Initials:
HPLC		
	Date:	Date:
	Initials:	Initials:
Post-HPLC Concentration		
	Date:	Date:
	Initials:	Initials:
Final Extract Transfer		
	Date: 12/03/13	Initials: HA

Dry Weight Page: DRY 1390

Lipid/EOM Page: EOM 1067

Clean-up/Separation/Other Columns: —

Lot Numbers

DCM: 52314
Hexane: —
Hydromatrix: —
Water: DJ063-C
Silica: BCBK2257V
Alumina: VA26EZEMS
Sodium Sulfate: VI11H
Pentane: —
Copper: 212201-AW
Hydrochloric Acid: —
SPE Columns: —
Other: —

Sample Storage Box #: ~~#430~~ 12/4/13 CK J13034-6

HPLC Storage Box #: —

QC Review

Date	Initials
12/3/13	SA

Equipment Used

- ☐ ASE1
- ☐ ASE2
- ☒ ASE3
- ☐ PLE
- ☐ HPLC1
- ☐ HPLC2

Copied to Folders: 12/3/13 SA

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B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- [ ] OTHER
- [x] SEDIMENT
- [ ] TISSUE

Type: _____

Job #: J13034 SDG #: 13112101

Client: Arcadis · May Flower AR

General comments:

Lab Mananger Date:	Lab Mananger Init:	Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: ☑ Bal. Cal.	Date/Init:
11/27/13	[illegible]	EN 11-22-13	11/25/13 CK	11/26/13 CK	11/26/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC2008	SED-DA-036R (0-0.5)	1.32	2.88	1.87	1.87	35.26	
2	ARC2009	SED-DA-036R (0.5-1)	1.30	2.63	~~2.31~~ 11/25 2.40	2.32	76.69	
3	ARC2010	SED-DA-036R (1-1.5)	1.32	2.70		2.40	78.26	
4	ARC2011	SED-DA-037R (0-0.5)	1.31	2.70	1.73	1.74	30.94	
5	ARC2012	SED-DA-037R (0-0.5) MS/MSD	1.32	2.35	1.62	1.63	30.10	
6	ARC2013	SED-DA-037R (0.5-1)	1.32	2.61	2.03	2.04	55.81	
7	ARC2014	SED-DA-037R (1-1.5)	1.32	2.62	2.25	2.26	72.31	
8	ARC2015	SED-DA-038R (0-0.5)	1.32	2.66	1.67	1.67	26.12	
9	ARC2016	SED-DA-038R (0.5-1)	1.31	2.85	1.92	1.92	39.61	
10	ARC2017	SED-DA-038R (1-1.5)	1.30	2.62	2.21	2.21	68.94	
11	ARC2018	SED-DA-033R (0-0.5)	1.31	2.81	2.16	2.16	56.67	
12	ARC2019	SED-DA-033R (0.5-1)	1.33	2.94	2.54	2.53	74.53	
13	ARC2020	SED-DA-033R (1-1.5)	1.33	2.63	2.36	2.36	79.23	
14	ARC2021	SED-DA-034R (0-0.5)	1.33	2.88	1.98	1.97	41.29	
15	ARC2022	SED-DA-034R (0.5-1)	1.32	2.75	2.35	2.33	70.63	
16	ARC2023	SED-DA-034R (1-1.5)	1.31	2.88	2.48	2.50	75.80	

DRY 1390

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 11/25/13 CK ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 11/26/13 CK ☑ Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC2024	SED-DA-035R (0-0.5)	1.33	2.67	1.91	1.90	42.54	
18	ARC 2025	SED-DA-035R (0.5-1)	1.31	2.57	2.06	2.06	59.52	
19	ARC 2026	SED-DA-035R (1-1.5)	1.32	2.64	2.32	2.30	74.24	
20	ARC 2027	SED-DA-DUP-10-112013	1.32	2.91	2.23	2.24	57.86	
21	ARC2008 DUP	Duplicate	1.32	2.54	1.75	1.76	36.07	
22								
23								
24								

$$\% \text{ Dry Weight} = \frac{[\text{Beaker + Dry SMPL (g)}] - [\text{Beaker Weight (g)}]}{[\text{Beaker + Wet SMPL (g)}] - [\text{Beaker Weight (g)}]} \times 100$$

$$\text{RPD} = \frac{[\text{Original \% Dry Weight Value} - \text{Duplicate \% Dry Weight Value}]}{[\text{Original \% Dry Weight Value} + \text{Duplicate \% Dry Weight Value}] \times 0.5} \times 100$$

The Relative Percent Difference (RPD) between duplicates must be ≤ 25%.

Date / Init.	RPD
11/26/13 CK	2.269%

Sample # ARC2008

Duplicate # ARC2008Dup

DRY 1390

B&B LABORATORIES EOM LOGBOOK

MATRIX: OTHER / SEDIMENT / WATER

Job #: J13034 SDG #: 13112101

Client: Arcadis - Mayflower AR

General comments:

Lab Manager Date/Int: 12/3/13 SA

Transferred by Date/Int: 12/2/13 CK From ENV Pg: ENV3167 From DRY Pg: DRY1390

Date/Int: 12-2-13 EN

Bal. Cal. ✓

Date/Int: 12/3/13 CK

	Sample Name	Client ID	Smpl Wt./Vol (g/L) Wet Wt. / Dry Wt.	Dry Wt. (%)	Final Extract Vol (mL)	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl EOM Wt. (mg)	EOM µg/g (Wet Wt. Basis)	EOM µg/g (Dry Wt. Basis)	Comments
1	ENV3167A	Method Blank	—	—	3	30.062	30.062	0.000	—	—	
2	ENV3167B	SRM 1941b	4.01	97.61	3	29.765	29.941	0.176	1285	1317	
3	ENV3167C	Matrix Spike (ARC2014)	15.06	72.31	3	30.704	30.844	0.140	202	279	
4	ENV3167D	Matrix Spike Dup (ARC2014)	15.09	72.31	3	29.889	30.021	0.132	190	262	
5	ENV3167E	Duplicate (ARC2020)	15.02	79.23	3	30.033	30.061	0.028	44	56	
6	ARC2009	SED-DA-036R (0.5-1)	15.00	76.69	3	30.508	30.572	0.064	98	128	
7	ARC2010	SED-DA-036R (1-1.5)	15.13	78.26	3	29.964	29.983	0.019	29	38	
8	ARC2013	SED-DA-037R (0.5-1)	15.05	55.81	3	30.405	31.106	0.701	780	1397	
9	ARC2014	SED-DA-037R (1-1.5) CK 12/2	15.10	72.31	3	29.864	29.980	0.116	167	230	
10	ARC2016	SED-DA-038R (0.5-1)	15.11	39.61	3	29.590	30.154	0.564	444	1120	
11	ARC2017	SED-DA-038R (1-1.5)	15.06	68.94	3	29.629	29.739	0.110	151	219	
12	ARC2019	SED-DA-033R (0.5-1)	15.05	74.53	3	29.614	29.673	0.059	88	118	

EOM 1067

B&B LABORATORIES EOM LOGBOOK

	Sample Name	Client ID	Smpl Wt./Vol (g/L) Wet Wt. Dry Wt.	Dry Wt. (%)	Final Extract Vol (mL)	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl EOM Wt. (mg)	EOM µg/g (Wet Wt. Basis)	EOM µg/g (Dry Wt. Basis)	Comments
13	ARC2020	SED-DA-033R (1-1.5)	15.02	79.23	3	29.749	29.771	0.022	35	44	
14	ARC2022	SED-DA-034R (0.5-1)	15.11	70.63	3	29.434	29.565	0.131	184	260	
15	ARC2023	SED-DA-034R (1-1.5)	15.15	75.80	3	29.462	29.491	0.029	44	57	
16	ARC2025	SED-DA-035R (0.5-1)	15.07	59.52	3	29.567	29.787	0.220	261	438	
17	ARC2026	SED-DA-035R (1-1.5)	15.02	74.24	3	29.895	29.926	0.031	46	62	
18											
19											
20											
21											
22											
23											
24											

$$EOM = \frac{(\text{EOM Wt. (mg)})\ (\text{Final Extract Vol. (ml)})}{(\text{Smpl Wt/Vol. (g/L)})\ (0.10\ \text{ml})} \times 1000$$

$$\%RPD = \frac{(EOM_1 - EOM_2)}{(EOM_1 + EOM_2) \times 0.5} \times 100\%$$

	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl Lipid Wt. (mg)
Solvent Blank	29.833	29.833	0.000
EOM Standard: EOM-WKCL-10-004	29.332	39.526	10.194

The Relative Percent Difference (RPD) between duplicates must be ≤ 25%.

Date/Int:	RPD
12/3/13 CK	24%
Sample: ARC2020	
Duplicate: D ENV3167E	

EOM 1067

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Last Page