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

Arcadis
Mayflower AR Project
(Contract # B0086003.1302)
August 12, 2013 through August 14, 2013
Collection Dates

Determination of:
Polycyclic Aromatic Hydrocarbons
(PAHs) in Sediment/Soil Samples

(QC Batch ENV 3096)

September 24, 2013

Technical Report 13-3117

Arcadis
Mayflower AR Project
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September 24, 2013

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Introduction

B&B Laboratories received a shipment of four (4) ice chests that were sent by Daniel Mays of Arcadis using FedEx on August 12, 2013 and arrived on August 13, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	5.1°C 1.2°C (Temp Blank)	Eleven (11) soils in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.
2	1.5°C 2.3°C (Temp Blank)	Eleven (11) soils in 8oz or 4oz jars Four (4) 1L water samples in B/R amber bottles.
3	2.1°C 1.9°C (Temp Blank)	Twenty-one (21) sediments in 8oz or 4oz jars
4	6.1°C 0.9°C (Temp Blank)	Seventeen (17) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.

B&B Laboratories received a shipment of one (1) ice chest that was sent by Ryan Lewis of Arcadis using FedEx on August 13, 2013 and arrived on August 14, 2013 in College Station, Texas. The ice chest arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	0.9°C 0.9°C (Temp Blank)	Twenty-one (21) soils in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.

B&B Laboratories received a shipment of one (1) ice chest that was sent by Ryan Lewis of Arcadis using FedEx on August 14, 2013 and arrived on August 15, 2013 in College Station, Texas. The ice chest arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	4.6°C 2.4°C (Temp Blank)	Twenty-two (22) sediments in 8oz or 4oz jars

The water and sediment/soil samples were collected August 12, 2013 through August 14, 2013 in support of the Mayflower AR, Project (Arcadis-US Contract # B0086003.1302). 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, and selected biological markers by GC/MS-SIM.

The analytical results for PAH, selected hopane's, and TAS compounds in the soil 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/Soil	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/Soil	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
cis/trans Decalin	0.132
C1-Decalins	0.263
C2-Decalins	0.263
C3-Decalins	0.263
C4-Decalins	0.263
Naphthalene	0.342
C1-Naphthalenes	1.03
C2-Naphthalenes	0.684
C3-Naphthalenes	0.684
C4-Naphthalenes	0.684
Benzothiophene	0.090
C1-Benzothiophenes	0.180
C2-Benzothiophenes	0.180
C3-Benzothiophenes	0.180
C4-Benzothiophenes	0.180
Biphenyl	0.294
Acenaphthylene	0.041
Acenaphthene	0.103
Dibenzofuran	0.204
Fluorene	0.183
C1-Fluorenes	0.367
C2-Fluorenes	0.367
C3-Fluorenes	0.367
Carbazole	0.150
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
Naphthobenzothiophene	0.128
C1-Naphthobenzothiophenes	0.256
C2-Naphthobenzothiophenes	0.256
C3-Naphthobenzothiophenes	0.256
C4-Naphthobenzothiophenes	0.256
Benz(a)anthracene	0.192
Chrysene/Triphenylene	0.116
C1-Chrysenes	0.232

PAH (continued) Sample size Unit of measure	Sediment MDLs 15.0 g, 1ml final extract volume ng/g
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	1.27
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, TAS, and Hopane's	
2-Methylnaphthalene	1.30
1-Methylnaphthalene	0.546
2,6-Dimethylnaphthalene	0.261
1,6,7-Trimethylnaphthalene	0.127
1-Methylfluorene	0.191
4-Methyldibenzothiophene	0.091
2/3-Methyldibenzothiophene	0.091
1-Methyldibenzothiophene	0.091
3-Methylphenanthrene	0.097
2/4-Methylphenanthrene	0.097
2-Methylanthracene	0.097
9-Methylphenanthrene	0.097
1-Methylphenanthrene	0.097
3,6-Dimethylphenanthrene	0.110
Retene	0.231
2-Methylfluoranthene	0.223
Benzo(b)fluorene	0.125
C29-Hopane	0.575
18a-Oleanane	0.575
C30-Hopane	0.575
C20-TAS	0.575
C21-TAS	0.575
C26(20S)-TAS	0.575
C26(20R)/C27(20S)-TAS	0.575
C28(20S)-TAS	0.575
C27(20R)-TAS	0.575
C28(20R)-TAS	0.575

Quality Assurance/Quality Control – Sediment/Soil

Polycyclic Aromatic Hydrocarbons (PAH)

The quality assurance/quality control procedure for this program included the analyses of a procedural 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. Procedural 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/Soil

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 four (4) client submitted samples and two (2) internal QC samples (which used client submitted samples; MS and 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.

Procedural Blank

Observation

- No variances were observed.

Matrix Spike/Matrix Spike Duplicate

Observation

- No variances were observed.

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.

- Labeling of the four compounds (Anthracene, Benzo(a)pyrene, Perylene, and Benzo(g,h,i)perylene) in the matrix spike sample (MS (SO-DA-002 (0-0.5) MS))) and the matrix spike duplicate sample (MSD (SO-DA-002 (0-0.5) MSD)) internal QC samples are labeled with the "L" qualifier to indicate a loss or possible 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.
Procedural 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 13-3117

Arcadis - Mayflower AR
Sample Inventory

Client Project #B0086003.1302

#	File Number	Client Identification	Collection Date	Received Date	Analysis	Matrix	Comments	B&B SDG	Client Project #
1	ARC1809	SED-DA-047 (1.0-1.5)	08/12/13	08/13/13	PAH	Sediment	44 analytes	13081301	B0086003.1302
2	ARC1813	SED-DA-048 (0.5-1.0)	08/12/13	08/13/13	PAH	Sediment	44 analytes	13081301	B0086003.1302
3	ARC1836	SO-DA-002 (0-0.5)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
4	ARC1837	SO-DA-002 (0-0.5) MS	08/13/13	08/14/13	PAH	Soil	44 analytes, MS	13081401	B0086003.1302
5	ARC1838	SO-DA-002 (0-0.5) MSD	08/13/13	08/14/13	PAH	Soil	44 analytes, MSD	13081401	B0086003.1302
6	ARC1847	SO-DA-005 (0-0.5)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
7	ARC1848	SO-DA-005 (0.5-1.0)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
8	ARC1849	SO-DA-005 (1.0-1.5)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
9	ARC1850	SO-DA-006 (0-0.5)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
10	ARC1851	SO-DA-006 (0.5-1.0)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
11	ARC1852	SO-DA-006 (1.0-1.5)	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
12	ARC1853	SO-DA-DUP-06-081313	08/13/13	08/14/13	PAH	Soil	44 analytes	13081401	B0086003.1302
13	ARC1857	SED-DA-050 (0.5-1.0)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
14	ARC1858	SED-DA-050 (1.0-1.5)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
15	ARC1862	SED-DA-051 (0.5-1.0)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
16	ARC1863	SED-DA-051 (1.0-1.5)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
17	ARC1869	SED-DA-041 (0.5-1.0)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
18	ARC1870	SED-DA-041 (1.0-1.5)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
19	ARC1872	SED-DA-053 (0.5-1.0)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
20	ARC1873	SED-DA-053 (1.0-1.5)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302
21	ARC1874	SED-DA-045 (1.0-1.5)	08/14/13	08/15/13	PAH	Sediment	44 analytes	13081501	B0086003.1302

Sediment/Soil Samples

Polycyclic Aromatic Hydrocarbon Concentration

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1809.D	ARC1813.D	ARC1836.D	ARC1847.D	ARC1848.D
Client Name	SED-DA-047 (1.0-1.5)	SED-DA-048 (0.5-1.0)	SO-DA-002 (0-0.5)	SO-DA-005 (0-0.5)	SO-DA-005 (0.5-1.0)
Matrix	Sediment	Sediment	Soil	Soil	Soil
Collection Date	08/12/13	08/12/13	08/13/13	08/13/13	08/13/13
Received Date	08/13/13	08/13/13	08/14/13	08/14/13	08/14/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 10:04	9/5/13 11:10	9/5/13 8:58	9/5/13 13:23	9/5/13 14:29
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.1
% Dry	75	69	79	83	85
% Moisture	25	31	21	17	15
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
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	3.46		13.1		6.95		8.30		8.38	
C1-Naphthalenes	2.82		13.3		5.57		11.0		8.80	
C2-Naphthalenes	3.94		20.5		8.26		20.8		12.9	
C3-Naphthalenes	5.77		26.0		8.78		53.5		7.59	
C4-Naphthalenes	1.68		10.5		7.18		70.7		6.53	
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	0.093		0.96		0.504		2.47		25.4	
Acenaphthene	0.111		1.36		0.482		0.420		0.22	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	2.22		7.65		3.82		4.49		12.9	
C1-Fluorenes	0.913		4.17		1.63		13.0		4.68	
C2-Fluorenes	1.61		14.5		2.20		77.3		7.71	
C3-Fluorenes	0.962		21.4		3.36		277		11.2	
Carbazole	NA		NA		NA		NA		NA	
Anthracene	0.140		1.48		0.674		3.09		53.8	
Phenanthrene	4.50		21.9		10.7		21.6		27.5	
C1-Phenanthrenes/Anthracenes	<0.1	U	20.5		8.44		115		18.6	
C2-Phenanthrenes/Anthracenes	<0.3	U	26.7		7.36		306		13.23	
C3-Phenanthrenes/Anthracenes	<0.3	U	18.0		3.50		444		6.44	
C4-Phenanthrenes/Anthracenes	<0.3	U	8.80		2.99		359		4.42	
Dibenzothiophene	0.427		3.05		0.802		7.70		1.34	
C1-Dibenzothiophenes	0.547		7.70		0.773		84.2		1.75	
C2-Dibenzothiophenes	0.752		15.6		1.25		368		2.36	
C3-Dibenzothiophenes	0.631		14.1		1.41		501		2.73	
C4-Dibenzothiophenes	0.502		10.3		2.20		365		2.10	
Fluoranthene	0.663		7.17		4.21		22.0		61.1	
Pyrene	0.399		5.24		3.56		45.5		45.6	
C1-Fluoranthenes/Pyrenes	0.580		8.62		3.32		111		21.9	
C2-Fluoranthenes/Pyrenes	0.436	J	11.5		3.55		166		34.9	
C3-Fluoranthenes/Pyrenes	0.388	J	10.7		2.93		199		21.0	
C4-Fluoranthenes/Pyrenes	0.356	J	7.37		2.40		237		17.4	
Naphthobenzothiophene	NA		NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
Benz(a)anthracene	0.119	J	2.71		1.57		15.2		66.4	
Chrysene/Triphenylene	0.319		9.21		4.20		78.8		99.4	
C1-Chrysenes	15.9		33.1		4.12		184		37.2	
C2-Chrysenes	2.59		15.8		3.40		244		15.5	
C3-Chrysenes	0.811		12.2		2.76		138		5.51	
C4-Chrysenes	0.722		8.00		2.43		48.7		3.19	
Benzo(b)fluoranthene	0.324		7.55		4.59		37.6		153	
Benzo(k,j)fluoranthene	0.079	J	1.64		1.20		13.4		54.5	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	0.178		3.34		2.60		34.6		60.1	
Benzo(a)pyrene	0.051	J	1.59		0.849		15.9		13.7	
Perylene	7.01		<1.3	U	0.430	J	7.14		2.45	
Indeno(1,2,3-c,d)pyrene	0.367		3.09		2.69		11.2		33.2	
Dibenzo(a,h)anthracene	0.985		1.26		0.789		6.62		13.4	
Benzo(g,h,i)perylene	0.147		3.14		2.43		27.5		23.8	
Total PAHs	63.5		435		143		4757		1024	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1809.D	ARC1813.D	ARC1836.D	ARC1847.D	ARC1848.D
Client Name	SED-DA-047 (1.0-1.5)	SED-DA-048 (0.5-1.0)	SO-DA-002 (0-0.5)	SO-DA-005 (0-0.5)	SO-DA-005 (0.5-1.0)
Matrix	Sediment	Sediment	Soil	Soil	Soil
Collection Date	08/12/13	08/12/13	08/13/13	08/13/13	08/13/13
Received Date	08/13/13	08/13/13	08/14/13	08/14/13	08/14/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 10:04	9/5/13 11:10	9/5/13 8:58	9/5/13 13:23	9/5/13 14:29
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.1
% Dry	75	69	79	83	85
% Moisture	25	31	21	17	15
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
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	2.91		12.7		5.77		11.5		9.28	
1-Methylnaphthalene	1.48		7.87		2.87		5.55		4.39	
2,6-Dimethylnaphthalene	NA		NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA		NA	
Retene	NA		NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA		NA	
Surrogate Recovery										
Naphthalene-d8	72		68		74		80		63	
Acenaphthene-d10	77		76		78		63		66	
Phenanthrene-d10	82		81		80		78		74	
Chrysene-d12	89		109		92		105		95	
Perylene-d12	33		36		11		13		2	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1849.D	ARC1850.D	ARC1851.D	ARC1852.D	ARC1853.D
Client Name	SO-DA-005 (1.0-1.5)	SO-DA-006 (0-0.5)	SO-DA-006 (0.5-1.0)	SO-DA-006 (1.0-1.5)	SO-DA-DUP-06-081313
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Received Date	08/14/13	08/14/13	08/14/13	08/14/13	08/14/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 15:35	9/5/13 16:41	9/5/13 17:48	9/5/13 18:54	9/5/13 20:00
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.2	15.2	15.1
% Dry	79	74	79	85	78
% Moisture	21	26	21	15	22
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
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	8.59		8.74		4.19		3.26		12.9	
C1-Naphthalenes	8.79		9.70		3.76		3.02		15.3	
C2-Naphthalenes	13.5		17.9		5.72		4.95		34.1	
C3-Naphthalenes	8.95		12.3		6.31		5.80		101	
C4-Naphthalenes	7.34		10.3		4.34		4.31		110	
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	1.18		2.86		0.236		0.123		2.80	
Acenaphthene	0.194		0.402		0.128		0.209		0.930	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	14.6		12.3		3.92		4.50		6.10	
C1-Fluorenes	4.92		4.85		1.44		1.60		22.8	
C2-Fluorenes	7.12		8.30		2.71		2.26		74.8	
C3-Fluorenes	5.45		12.2		1.31		1.52		226	
Carbazole	NA		NA		NA		NA		NA	
Anthracene	1.48		6.10		0.100	J	0.039	J	4.80	
Phenanthrene	32.4		30.2		7.56		7.24		32.4	
C1-Phenanthrenes/Anthracenes	12.2		14.9		<0.1	U	<0.1	U	112	
C2-Phenanthrenes/Anthracenes	7.84		14.3		<0.3	U	<0.3	U	369	
C3-Phenanthrenes/Anthracenes	2.82		15.0		<0.3	U	<0.3	U	658	
C4-Phenanthrenes/Anthracenes	1.57		11.9		<0.3	U	<0.3	U	400	
Dibenzothiophene	1.36		1.92		0.554		0.713		15.3	
C1-Dibenzothiophenes	2.05		2.33		0.382		0.455		106	
C2-Dibenzothiophenes	2.13		4.71		0.570		0.594		375	
C3-Dibenzothiophenes	1.70		9.05		0.299		0.230	J	523	
C4-Dibenzothiophenes	1.24		10.7		0.137	J	0.162	J	648	
Fluoranthene	7.14		10.2		0.928		0.740		24.0	
Pyrene	2.65		8.91		0.322		0.256		61.5	
C1-Fluoranthenes/Pyrenes	1.83		8.59		0.325	J	0.167	J	154	
C2-Fluoranthenes/Pyrenes	2.62		11.7		0.198	J	0.117	J	271	
C3-Fluoranthenes/Pyrenes	1.86		10.3		0.138	J	<0.5	U	304	
C4-Fluoranthenes/Pyrenes	1.57		8.81		0.114	J	<0.5	U	265	
Naphthobenzothiophene	NA		NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
Benz(a)anthracene	1.53		5.91		0.115	J	0.090	J	10.9	
Chrysene/Triphenylene	5.08		13.8		0.208		0.110	J	90.3	
C1-Chrysenes	2.85		13.0		0.211	J	0.111	J	210	
C2-Chrysenes	2.62		11.8		0.158	J	0.092	J	253	
C3-Chrysenes	1.99		9.12		<0.2	U	0.071	J	157	
C4-Chrysenes	1.05		5.68		<0.2	U	<0.2	U	49.9	
Benzo(b)fluoranthene	5.84		20.3		0.240		0.127	J	42.4	
Benzo(k,j)fluoranthene	1.69		6.87		0.081	J	0.042	J	12.3	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	2.66		10.7		0.101	J	0.058	J	57.3	
Benzo(a)pyrene	0.541		5.28		0.028	J	0.018	J	23.9	
Perylene	0.102	J	1.50		0.026	J	0.028	J	14.8	
Indeno(1,2,3-c,d)pyrene	1.49		6.12		0.386		0.172		14.0	
Dibenzo(a,h)anthracene	0.540		2.21		<0.1	U	0.020	J	7.64	
Benzo(g,h,i)perylene	1.38		6.39		0.10		0.040	J	40.0	
Total PAHs	194		398		47.4		43.2		5913	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1849.D	ARC1850.D	ARC1851.D	ARC1852.D	ARC1853.D
Client Name	SO-DA-005 (1.0-1.5)	SO-DA-006 (0-0.5)	SO-DA-006 (0.5-1.0)	SO-DA-006 (1.0-1.5)	SO-DA-DUP-06-081313
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Received Date	08/14/13	08/14/13	08/14/13	08/14/13	08/14/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 15:35	9/5/13 16:41	9/5/13 17:48	9/5/13 18:54	9/5/13 20:00
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.2	15.2	15.1
% Dry	79	74	79	85	78
% Moisture	21	26	21	15	22
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
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	9.34		9.96		3.92		3.18		23.7	
1-Methylnaphthalene	4.31		5.12		1.91		1.52		<0.5	U
2,6-Dimethylnaphthalene	NA		NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA		NA	
Retene	NA		NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA		NA	
Surrogate Recovery										
Naphthalene-d8	64		62		71		65		61	
Acenaphthene-d10	68		69		74		71		64	
Phenanthrene-d10	77		75		80		76		84	
Chrysene-d12	89		92		86		83		104	
Perylene-d12	1	L	4	L	5	L	25		55	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1857.D	ARC1858.D	ARC1862.D	ARC1863.D	ARC1869.D
Client Name	SED-DA-050 (0.5-1.0)	SED-DA-050 (1.0-1.5)	SED-DA-051 (0.5-1.0)	SED-DA-051 (1.0-1.5)	SED-DA-041 (0.5-1.0)
Matrix	Sediment	Sediment	Sediment	Sediment	Sediment
Collection Date	08/14/13	08/14/13	08/14/13	08/14/13	08/14/13
Received Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 21:07	9/5/13 23:19	9/6/13 0:25	9/6/13 1:31	9/6/13 2:38
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.0
% Dry	78	80	60	71	25
% Moisture	22	20	40	29	75
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
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	1.02		0.600		6.00		2.06		9.78	
C1-Naphthalenes	0.766	J	0.340	J	7.62		1.42		8.29	
C2-Naphthalenes	1.48		0.723		13.7		2.49		18.9	
C3-Naphthalenes	3.94		0.740		13.4		6.07		18.8	
C4-Naphthalenes	2.07		1.30		4.63		1.03		13.4	
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	0.106		0.035	J	1.44		0.235		6.30	
Acenaphthene	0.165		0.065	J	1.21		0.451		2.46	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	1.55		1.81		6.46		2.72		12.2	
C1-Fluorenes	0.644		0.704		3.60		1.22		3.50	
C2-Fluorenes	1.03		2.044		11.4		1.73		13.6	
C3-Fluorenes	0.675		0.913		9.34		0.921		9.80	
Carbazole	NA		NA		NA		NA		NA	
Anthracene	0.214		0.085	J	2.37		0.351		13.6	
Phenanthrene	3.19		4.70		12.9		5.16		24.4	
C1-Phenanthrenes/Anthracenes	<0.1	U	<0.1	U	13.9		<0.1	U	26.4	
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	14.6		<0.3	U	26.0	
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	14.2		<0.3	U	26.8	
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	9.63		<0.3	U	17.3	
Dibenzothiophene	0.276		0.165		3.08		0.627		5.38	
C1-Dibenzothiophenes	0.259		0.139		4.91		0.536		7.52	
C2-Dibenzothiophenes	0.458		0.181	J	9.40		0.410		14.4	
C3-Dibenzothiophenes	0.480		0.185	J	13.9		0.330		21.5	
C4-Dibenzothiophenes	0.370		0.130	J	14.8		0.264		25.0	
Fluoranthene	1.14		0.631		8.81		1.99		24.0	
Pyrene	0.688		0.314		6.17		1.52		19.8	
C1-Fluoranthenes/Pyrenes	0.533		0.161	J	7.09		2.92		18.8	
C2-Fluoranthenes/Pyrenes	0.343	J	0.216	J	10.7		1.25		30.6	
C3-Fluoranthenes/Pyrenes	0.319	J	0.087	J	8.49		1.05		19.9	
C4-Fluoranthenes/Pyrenes	0.203	J	<0.5	U	9.83		<0.5	U	16.3	
Naphthobenzothiophene	NA		NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA		NA	
Benz(a)anthracene	0.228		0.079	J	3.63		0.652		10.5	
Chrysene/Triphenylene	0.494		0.121		10.4		2.03		22.8	
C1-Chrysenes	0.181	J	0.094	J	35.6		11.5		42.0	
C2-Chrysenes	0.663		0.283		17.2		2.23		36.7	
C3-Chrysenes	0.499		0.850		7.63		1.56		19.5	
C4-Chrysenes	<0.2	U	<0.2	U	5.87		1.12		13.8	
Benzo(b)fluoranthene	0.747		0.158	J	14.0		2.52		41.5	
Benzo(k,j)fluoranthene	0.190		0.042	J	3.78		0.448		11.8	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	0.282		0.067	J	5.45		0.847		16.0	
Benzo(a)pyrene	0.120		0.033	J	2.62		0.453		9.81	
Perylene	61.7		5.27		378		348		397	
Indeno(1,2,3-c,d)pyrene	0.260		0.062		4.91		0.621		<0.1	U
Dibenzo(a,h)anthracene	0.057	J	0.047	J	2.60		0.229		6.89	
Benzo(g,h,i)perylene	0.172		0.054	J	3.74		0.402		<0.1	U
Total PAHs	87.6		23.4		739		409		1083	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1857.D	ARC1858.D	ARC1862.D	ARC1863.D	ARC1869.D
Client Name	SED-DA-050 (0.5-1.0)	SED-DA-050 (1.0-1.5)	SED-DA-051 (0.5-1.0)	SED-DA-051 (1.0-1.5)	SED-DA-041 (0.5-1.0)
Matrix	Sediment	Sediment	Sediment	Sediment	Sediment
Collection Date	08/14/13	08/14/13	08/14/13	08/14/13	08/14/13
Received Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 21:07	9/5/13 23:19	9/6/13 0:25	9/6/13 1:31	9/6/13 2:38
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.0
% Dry	78	80	60	71	25
% Moisture	22	20	40	29	75
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
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	0.799	J	0.341	J	7.50		1.45		9.03	
1-Methylnaphthalene	0.391	J	0.188	J	4.34		0.758		3.85	
2,6-Dimethylnaphthalene	NA		NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA		NA	
Retene	NA		NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA		NA	
Surrogate Recovery										
Naphthalene-d8	68		66		64		63		67	
Acenaphthene-d10	75		72		70		71		70	
Phenanthrene-d10	82		82		79		81		85	
Chrysene-d12	92		87		92		91		78	
Perylene-d12	64		59		46		53		75	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1870.D	ARC1872.D	ARC1873.D	ARC1874.D
Client Name	SED-DA-041 (1.0-1.5)	SED-DA-053 (0.5-1.0)	SED-DA-053 (1.0-1.5)	SED-DA-045 (1.0-1.5)
Matrix	Sediment	Sediment	Sediment	Sediment
Collection Date	08/14/13	08/14/13	08/14/13	08/14/13
Received Date	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/6/13 3:44	9/6/13 4:50	9/6/13 5:56	9/6/13 7:04
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.2	15.1	15.1	15.1
% Dry	44	62	75	74
% Moisture	56	38	25	26
Dilution	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
cis/trans Decalin	NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA	
Naphthalene	5.65		6.41		1.79		1.33	
C1-Naphthalenes	5.02		5.33		1.38		1.38	
C2-Naphthalenes	13.2		9.66		2.97		2.99	
C3-Naphthalenes	11.9		12.3		8.53		4.87	
C4-Naphthalenes	6.88		10.3		4.29		2.77	
Benzothiophene	NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA	
Acenaphthylene	2.66		0.939		0.079		0.080	
Acenaphthene	1.08		1.01		0.275		0.130	
Dibenzofuran	NA		NA		NA		NA	
Fluorene	7.45		8.06		3.36		1.91	
C1-Fluorenes	2.47		4.56		<0.4	U	0.722	
C2-Fluorenes	8.74		7.44		<0.4	U	1.92	
C3-Fluorenes	6.80		4.09		<0.4	U	1.05	
Carbazole	NA		NA		NA		NA	
Anthracene	5.00		1.40		0.072	J	4.25	
Phenanthrene	14.1		17.4		6.56		3.49	
C1-Phenanthrenes/Anthracenes	16.8		11.8		<0.1	U	<0.1	U
C2-Phenanthrenes/Anthracenes	23.9		8.19		<0.3	U	<0.3	U
C3-Phenanthrenes/Anthracenes	18.4		4.14		<0.3	U	<0.3	U
C4-Phenanthrenes/Anthracenes	16.2		<0.3	U	<0.3	U	<0.3	U
Dibenzothiophene	3.03		1.98		0.313		0.435	
C1-Dibenzothiophenes	4.82		2.30		0.231		1.03	
C2-Dibenzothiophenes	10.0		3.13		0.315		1.79	
C3-Dibenzothiophenes	15.7		3.29		0.179	J	1.89	
C4-Dibenzothiophenes	17.0		3.57		<0.2	U	1.84	
Fluoranthene	12.0		8.46		0.787		0.642	
Pyrene	9.74		4.63		0.392		0.612	
C1-Fluoranthenes/Pyrenes	12.6		5.26		<0.5	U	0.593	
C2-Fluoranthenes/Pyrenes	21.2		4.39		<0.5	U	0.612	
C3-Fluoranthenes/Pyrenes	15.4		2.70		<0.5	U	0.557	
C4-Fluoranthenes/Pyrenes	14.0		1.20		<0.5	U	0.369	J
Naphthobenzothiophene	NA		NA		NA		NA	
C1-Naphthobenzothiophenes	NA		NA		NA		NA	
C2-Naphthobenzothiophenes	NA		NA		NA		NA	
C3-Naphthobenzothiophenes	NA		NA		NA		NA	
C4-Naphthobenzothiophenes	NA		NA		NA		NA	
Benz(a)anthracene	5.47		2.49		0.136	J	0.133	J
Chrysene/Triphenylene	14.1		8.94		0.119		0.253	
C1-Chrysenes	49.7		2.73		<0.2	U	0.559	
C2-Chrysenes	28.1		6.79		<0.2	U	0.568	
C3-Chrysenes	18.9		2.81		<0.2	U	0.429	
C4-Chrysenes	13.8		2.22		<0.2	U	<0.2	U
Benzo(b)fluoranthene	25.2		11.3		0.175	J	0.241	
Benzo(k,j)fluoranthene	6.01		1.53		0.034	J	0.084	J
Benzo(a)fluoranthene	NA		NA		NA		NA	
Benzo(e)pyrene	10.1		3.33		0.160	J	0.139	J
Benzo(a)pyrene	4.58		1.49		0.036	J	0.071	J
Perylene	324		310		15.8		1.23	J
Indeno(1,2,3-c,d)pyrene	8.25		3.14		0.102		0.134	
Dibenzo(a,h)anthracene	3.58		1.46		0.037	J	0.036	J
Benzo(g,h,i)perylene	7.77		2.30		0.042	J	0.080	J
Total PAHs	821		514		48.2		41	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1870.D	ARC1872.D	ARC1873.D	ARC1874.D
Client Name	SED-DA-041 (1.0-1.5)	SED-DA-053 (0.5-1.0)	SED-DA-053 (1.0-1.5)	SED-DA-045 (1.0-1.5)
Matrix	Sediment	Sediment	Sediment	Sediment
Collection Date	08/14/13	08/14/13	08/14/13	08/14/13
Received Date	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Date	08/26/13	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/6/13 3:44	9/6/13 4:50	9/6/13 5:56	9/6/13 7:04
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.2	15.1	15.1	15.1
% Dry	44	62	75	74
% Moisture	56	38	25	26
Dilution	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
Individual Alkyl Isomers and Hopanes								
2-Methylnaphthalene	5.35		5.49		1.45		1.41	
1-Methylnaphthalene	2.44		2.78		0.692		0.73	
2,6-Dimethylnaphthalene	NA		NA		NA		NA	
1,6,7-Trimethylnaphthalene	NA		NA		NA		NA	
1-Methylfluorene	NA		NA		NA		NA	
4-Methyldibenzothiophene	NA		NA		NA		NA	
2/3-Methyldibenzothiophene	NA		NA		NA		NA	
1-Methyldibenzothiophene	NA		NA		NA		NA	
3-Methylphenanthrene	NA		NA		NA		NA	
2-Methylphenanthrene	NA		NA		NA		NA	
2-Methylanthracene	NA		NA		NA		NA	
4/9-Methylphenanthrene	NA		NA		NA		NA	
1-Methylphenanthrene	NA		NA		NA		NA	
3,6-Dimethylphenanthrene	NA		NA		NA		NA	
Retene	NA		NA		NA		NA	
2-Methylfluoranthene	NA		NA		NA		NA	
Benzo(b)fluorene	NA		NA		NA		NA	
C29-Hopane	NA		NA		NA		NA	
18a-Oleanane	NA		NA		NA		NA	
C30-Hopane	NA		NA		NA		NA	
C20-TAS	NA		NA		NA		NA	
C21-TAS	NA		NA		NA		NA	
C26(20S)-TAS	NA		NA		NA		NA	
C26(20R)/C27(20S)-TAS	NA		NA		NA		NA	
C28(20S)-TAS	NA		NA		NA		NA	
C27(20R)-TAS	NA		NA		NA		NA	
C28(20R)-TAS	NA		NA		NA		NA	
Surrogate Recovery								
Naphthalene-d8	66		76		62		67	
Acenaphthene-d10	71		72		69		73	
Phenanthrene-d10	82		84		82		88	
Chrysene-d12	82		90		87		89	
Perylene-d12	80		59		45		27	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Procedural Blank Report

Sample Name	ENV3096A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/26/13
Extraction Batch	ENV 3096
Date Acquired	9/5/13 3:26
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
cis/trans Decalin	NA		0.395	0.132
C1-Decalins	NA		0.790	0.263
C2-Decalins	NA		0.790	0.263
C3-Decalins	NA		0.790	0.263
C4-Decalins	NA		0.790	0.263
Naphthalene	0.257	J	1.03	0.342
C1-Naphthalenes	0.082	J	3.09	1.03
C2-Naphthalenes	0.138	J	2.05	0.684
C3-Naphthalenes	0.495	J	2.05	0.684
C4-Naphthalenes	0.078	J	2.05	0.684
Benzothiophene	NA		0.270	0.090
C1-Benzothiophenes	NA		0.540	0.180
C2-Benzothiophenes	NA		0.540	0.180
C3-Benzothiophenes	NA		0.540	0.180
C4-Benzothiophenes	NA		0.540	0.180
Biphenyl	NA		0.881	0.294
Acenaphthylene	0.012	J	0.122	0.041
Acenaphthene	0.022	J	0.308	0.103
Dibenzofuran	NA		0.613	0.204
Fluorene	0.031	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
Carbazole	NA		0.449	0.150
Anthracene	0.021	J	0.346	0.115
Phenanthrene	0.134	J	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	0.0	J	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	<0.3	U	1.00	0.333
Pyrene	0.1	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
Naphthobenzothiophene	NA		0.383	0.128
C1-Naphthobenzothiophenes	NA		0.767	0.256
C2-Naphthobenzothiophenes	NA		0.767	0.256
C3-Naphthobenzothiophenes	NA		0.767	0.256
C4-Naphthobenzothiophenes	NA		0.767	0.256
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	0.1	J	0.609	0.203
Benzo(k,j)fluoranthene	0.0	J	0.294	0.098
Benzo(a)fluoranthene	NA		0.294	0.098
Benzo(e)pyrene	0.0	J	0.530	0.177
Benzo(a)pyrene	0.0	J	0.304	0.101
Perylene	0.0	J	3.80	1.27
Indeno(1,2,3-c,d)pyrene	0.1		0.151	0.050
Dibenzo(a,h)anthracene	0.1		0.193	0.064
Benzo(g,h,i)perylene	0.1	J	0.264	0.088
Total PAHs	1.753			

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Procedural Blank Report

Sample Name	ENV3096A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/26/13
Extraction Batch	ENV 3096
Date Acquired	9/5/13 3:26
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
Individual Alkyl Isomers and Hopanes				
2-Methylnaphthalene	0.080	J	3.89	1.30
1-Methylnaphthalene	0.047	J	1.64	0.546
2,6-Dimethylnaphthalene	NA		0.782	0.261
1,6,7-Trimethylnaphthalene	NA		0.382	0.127
1-Methylfluorene	NA		0.574	0.191
4-Methyldibenzothiophene	NA		0.274	0.091
2/3-Methyldibenzothiophene	NA		0.274	0.091
1-Methyldibenzothiophene	NA		0.274	0.091
3-Methylphenanthrene	NA		0.291	0.097
2-Methylphenanthrene	NA		0.291	0.097
2-Methylanthracene	NA		0.291	0.097
4/9-Methylphenanthrene	NA		0.291	0.097
1-Methylphenanthrene	NA		0.291	0.097
3,6-Dimethylphenanthrene	NA		0.329	0.110
Retene	NA		0.694	0.231
2-Methylfluoranthene	NA		0.668	0.223
Benzo(b)fluorene	NA		0.374	0.125
C29-Hopane	NA		1.72	0.575
18a-Oleanane	NA		1.72	0.575
C30-Hopane	NA		1.72	0.575
C20-TAS	NA		1.72	0.575
C21-TAS	NA		1.72	0.575
C26(20S)-TAS	NA		1.72	0.575
C26(20R)/C27(20S)-TAS	NA		1.72	0.575
C28(20S)-TAS	NA		1.72	0.575
C27(20R)-TAS	NA		1.72	0.575
C28(20R)-TAS	NA		1.72	0.575

Surrogate Recovery	
Naphthalene-d8	80
Acenaphthene-d10	83
Phenanthrene-d10	85
Chrysene-d12	79
Perylene-d12	86

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1836.D	ENV3096C.D	ENV3096D.D
Client Name	SO-DA-002 (0-0.5)	MS (SO-DA-002 (0-0.5))	MSD (SO-DA-002 (0-0.5))
Matrix	Soil	Soil	Soil
Collection Date	08/13/13	08/13/13	08/13/13
Received Date	08/14/13	08/14/13	08/14/13
Extraction Date	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 8:58	9/5/13 5:39	9/5/13 6:45
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	79	77	79
% Moisture	21	23	21
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)
cis/trans Decalin	NA		NA					NA							99
C1-Decalins	NA		NA					NA							
C2-Decalins	NA		NA					NA							
C3-Decalins	NA		NA					NA							
C4-Decalins	NA		NA					NA							
Naphthalene	6.95		12.2		79			12.2		80			1		100
C1-Naphthalenes	5.57		NA					NA							
C2-Naphthalenes	8.26		NA					NA							
C3-Naphthalenes	8.78		NA					NA							
C4-Naphthalenes	7.18		NA					NA							
Benzothiophene	NA		NA					NA							99
C1-Benzothiophenes	NA		NA					NA							
C2-Benzothiophenes	NA		NA					NA							
C3-Benzothiophenes	NA		NA					NA							
C4-Benzothiophenes	NA		NA					NA							
Biphenyl	NA		NA					NA							99
Acenaphthylene	0.504		6.33		89			6.55		92			3		99.2
Acenaphthene	0.482		6.70		94			7.01		98			4		100
Dibenzofuran	NA		NA					NA							100
Fluorene	3.82		9.79		90			11.2		111			13		100
C1-Fluorenes	1.63		NA					NA							
C2-Fluorenes	2.20		NA					NA							
C3-Fluorenes	3.36		NA					NA							
Carbazole	NA		NA					NA							99
Anthracene	0.674		5.82	L	78			6.98	L	95			18		100
Phenanthrene	10.7		15.3		71			18.4		118			19		99.1
C1-Phenanthrenes/Anthracenes	8.44		NA					NA							
C2-Phenanthrenes/Anthracenes	7.36		NA					NA							
C3-Phenanthrenes/Anthracenes	3.50		NA					NA							
C4-Phenanthrenes/Anthracenes	2.99		NA					NA							
Dibenzothiophene	0.802		7.89		109			8.04		111			2		98.6
C1-Dibenzothiophenes	0.773		NA					NA							
C2-Dibenzothiophenes	1.25		NA					NA							
C3-Dibenzothiophenes	1.41		NA					NA							
C4-Dibenzothiophenes	2.20		NA					NA							
Fluoranthene	4.21		11.7		114			10.7		97			10		100
Pyrene	3.56		9.84		95			9.9		95			0		100
C1-Fluoranthenes/Pyrenes	3.32		NA					NA							
C2-Fluoranthenes/Pyrenes	3.55		NA					NA							
C3-Fluoranthenes/Pyrenes	2.93		NA					NA							
C4-Fluoranthenes/Pyrenes	2.40		NA					NA							
Naphthobenzothiophene	NA		NA					NA							
C1-Naphthobenzothiophenes	NA		NA					NA							
C2-Naphthobenzothiophenes	NA		NA					NA							
C3-Naphthobenzothiophenes	NA		NA					NA							
C4-Naphthobenzothiophenes	NA		NA					NA							
Benz(a)anthracene	1.57		8.56		106			8.51		105			1		100
Chrysene/Triphenylene	4.20		10.6		98			10.7		99			1		99.4
C1-Chrysenes	4.12		NA					NA							
C2-Chrysenes	3.40		NA					NA							
C3-Chrysenes	2.76		NA					NA							
C4-Chrysenes	2.43		NA					NA							
Benzo(b)fluoranthene	4.59		12.3		117			10.8		93			13		100
Benzo(k,j)fluoranthene	1.20		8.54		112			7.78		100			9		100
Benzo(a)fluoranthene	NA		NA					NA							
Benzo(e)pyrene	2.60		9.31		102			7.81		79			18		100
Benzo(a)pyrene	0.849		3.49	L	40			4.04	L	48			15		100
Perylene	0.430	J	2.39	L	30			2.07	L	25			14		100
Indeno(1,2,3-c,d)pyrene	2.69		8.96		97			7.95		81			12		98.3
Dibenzo(a,h)anthracene	0.789		7.44		102			6.46		86			14		99.1
Benzo(g,h,i)perylene	2.43		8.18	L	88			6.81	L	67			18		99.1
Average % Recovery					89					88					

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1836.D	ENV3096C.D	ENV3096D.D
Client Name	SO-DA-002 (0-0.5)	MS (SO-DA-002 (0-0.5))	MSD (SO-DA-002 (0-0.5))
Matrix	Soil	Soil	Soil
Collection Date	08/13/13	08/13/13	08/13/13
Received Date	08/14/13	08/14/13	08/14/13
Extraction Date	08/26/13	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096	ENV 3096
Date Acquired	9/5/13 8:58	9/5/13 5:39	9/5/13 6:45
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	79	77	79
% Moisture	21	23	21
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)
Individual Alkyl Isomers and Hopanes															
2-Methylnaphthalene	5.77		11.2		82			11.3		83			1		100
1-Methylnaphthalene	2.87		8.48		85			8.34		83			2		100
2,6-Dimethylnaphthalene	NA		NA					NA							
1,6,7-Trimethylnaphthalene	NA		NA					NA							
1-Methylfluorene	NA		NA					NA							
4-Methyldibenzothiophene	NA		NA					NA							
2/3-Methyldibenzothiophene	NA		NA					NA							
1-Methyldibenzothiophene	NA		NA					NA							
3-Methylphenanthrene	NA		NA					NA							
2-Methylphenanthrene	NA		NA					NA							
2-Methylanthracene	NA		NA					NA							
4/9-Methylphenanthrene	NA		NA					NA							
1-Methylphenanthrene	NA		NA					NA							
3,6-Dimethylphenanthrene	NA		NA					NA							
Retene	NA		NA					NA							
2-Methylfluoranthene	NA		NA					NA							
Benzo(b)fluorene	NA		NA					NA							
C29-Hopane	NA		NA					NA							
18a-Oleanane	NA		NA					NA							
C30-Hopane	NA		NA					NA							
C20-TAS	NA		NA					NA							
C21-TAS	NA		NA					NA							
C26(20S)-TAS	NA		NA					NA							
C26(20R)/C27(20S)-TAS	NA		NA					NA							
C28(20S)-TAS	NA		NA					NA							
C27(20R)-TAS	NA		NA					NA							
C28(20R)-TAS	NA		NA					NA							
Surrogate Recovery															
Naphthalene-d8	74		77					70							
Acenaphthene-d10	78		79					74							
Phenanthrene-d10	80		80					79							
Chrysene-d12	92		86					86							
Perylene-d12	11		5		L			6		L					

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1857.D	ENV3096E.D
Client Name	SED-DA-050 (0.5-1.0)	Dupl (SED-DA-050 (0.5-1.0))
Matrix	Sediment	Sediment
Collection Date	08/14/13	08/14/13
Received Date	08/15/13	08/15/13
Extraction Date	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096
Date Acquired	9/5/13 21:07	9/5/13 7:52
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	78	78
% Moisture	22	22
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
cis/trans Decalin	NA		NA				0.395	0.132
C1-Decalins	NA		NA				0.790	0.263
C2-Decalins	NA		NA				0.790	0.263
C3-Decalins	NA		NA				0.790	0.263
C4-Decalins	NA		NA				0.790	0.263
Naphthalene	1.02		1.16		13		1.03	0.342
C1-Naphthalenes	0.766	J	0.812	J	6	X	3.09	1.03
C2-Naphthalenes	1.48		1.54		4	X	2.05	0.684
C3-Naphthalenes	3.94		4.10		4		2.05	0.684
C4-Naphthalenes	2.07		2.17		4		2.05	0.684
Benzothiophene	NA		NA				0.270	0.090
C1-Benzothiophenes	NA		NA				0.540	0.180
C2-Benzothiophenes	NA		NA				0.540	0.180
C3-Benzothiophenes	NA		NA				0.540	0.180
C4-Benzothiophenes	NA		NA				0.540	0.180
Biphenyl	NA		NA				0.881	0.294
Acenaphthylene	0.106		0.109		3	X	0.122	0.041
Acenaphthene	0.165		0.174		5	X	0.308	0.103
Dibenzofuran	NA		NA				0.613	0.204
Fluorene	1.55		1.54		1		0.55	0.183
C1-Fluorenes	0.644		0.623		3	X	1.10	0.367
C2-Fluorenes	1.03		1.006		3	X	1.10	0.367
C3-Fluorenes	0.675		0.641		5	X	1.10	0.367
Carbazole	NA		NA				0.449	0.150
Anthracene	0.214		0.198		8	X	0.346	0.115
Phenanthrene	3.19		3.42		7		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	0.276		0.267		3	X	0.348	0.116
C1-Dibenzothiophenes	0.259		0.252		3		0.191	0.064
C2-Dibenzothiophenes	0.458		0.399		14	X	0.696	0.232
C3-Dibenzothiophenes	0.480		0.537		11	X	0.696	0.232
C4-Dibenzothiophenes	0.370		0.336		10	X	0.696	0.232
Fluoranthene	1.14		1.15		2		1.00	0.333
Pyrene	0.688		0.682		1		0.408	0.136
C1-Fluoranthenes/Pyrenes	0.533		0.583		9	X	1.41	0.469
C2-Fluoranthenes/Pyrenes	0.343	J	0.322	J	6	X	1.41	0.469
C3-Fluoranthenes/Pyrenes	0.319	J	0.371	J	15	X	1.41	0.469
C4-Fluoranthenes/Pyrenes	0.203	J	0.187	J	8	X	1.41	0.469
Naphthobenzothiophene	NA		NA				0.383	0.128
C1-Naphthobenzothiophenes	NA		NA				0.767	0.256
C2-Naphthobenzothiophenes	NA		NA				0.767	0.256
C3-Naphthobenzothiophenes	NA		NA				0.767	0.256
C4-Naphthobenzothiophenes	NA		NA				0.767	0.256
Benz(a)anthracene	0.228		0.197		15	X	0.577	0.192
Chrysene/Triphenylene	0.494		0.499		1		0.347	0.116
C1-Chrysenes	0.181	J	0.216	J	18	X	0.695	0.232
C2-Chrysenes	0.663		0.666		0	X	0.695	0.232
C3-Chrysenes	0.499		0.467		6	X	0.695	0.232
C4-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
Benzo(b)fluoranthene	0.747		0.672		10		0.609	0.203
Benzo(k,j)fluoranthene	0.190		0.166		14	X	0.294	0.098
Benzo(a)fluoranthene	NA		NA				0.294	0.098
Benzo(e)pyrene	0.282		0.288		2	X	0.5302	0.1767
Benzo(a)pyrene	0.120		0.122		1	X	0.3039	0.1013
Perylene	61.7		65.6		6		3.8003	1.2668
Indeno(1,2,3-c,d)pyrene	0.260		0.209		22		0.1507	0.0502
Dibenzo(a,h)anthracene	0.057	J	0.059	J	3	X	0.193	0.064
Benzo(g,h,i)perylene	0.172		0.146		17	X	0.264	0.088
Total PAHs	87.6		91.9		5			

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1857.D	ENV3096E.D
Client Name	SED-DA-050 (0.5-1.0)	Dupl (SED-DA-050 (0.5-1.0))
Matrix	Sediment	Sediment
Collection Date	08/14/13	08/14/13
Received Date	08/15/13	08/15/13
Extraction Date	08/26/13	08/26/13
Extraction Batch	ENV 3096	ENV 3096
Date Acquired	9/5/13 21:07	9/5/13 7:52
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	78	78
% Moisture	22	22
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
Individual Alkyl Isomers and Hopanes								
2-Methylnaphthalene	0.799	J	0.845	J	6	X	3.89	1.30
1-Methylnaphthalene	0.391	J	0.416	J	6	X	1.64	0.546
2,6-Dimethylnaphthalene	NA		NA				0.782	0.261
1,6,7-Trimethylnaphthalene	NA		NA				0.382	0.127
1-Methylfluorene	NA		NA				0.574	0.191
4-Methyldibenzothiophene	NA		NA				0.274	0.091
2/3-Methyldibenzothiophene	NA		NA				0.274	0.091
1-Methyldibenzothiophene	NA		NA				0.274	0.091
3-Methylphenanthrene	NA		NA				0.291	0.097
2-Methylphenanthrene	NA		NA				0.291	0.097
2-Methylanthracene	NA		NA				0.291	0.097
4/9-Methylphenanthrene	NA		NA				0.291	0.097
1-Methylphenanthrene	NA		NA				0.291	0.097
3,6-Dimethylphenanthrene	NA		NA				0.329	0.110
Retene	NA		NA				0.694	0.231
2-Methylfluoranthene	NA		NA				0.668	0.223
Benzo(b)fluorene	NA		NA				0.374	0.125
C29-Hopane	NA		NA				1.72	0.575
18a-Oleanane	NA		NA				1.72	0.575
C30-Hopane	NA		NA				1.72	0.575
C20-TAS	NA		NA				1.72	0.575
C21-TAS	NA		NA				1.72	0.575
C26(20S)-TAS	NA		NA				1.72	0.575
C26(20R)/C27(20S)-TAS	NA		NA				1.72	0.575
C28(20S)-TAS	NA		NA				1.72	0.575
C27(20R)-TAS	NA		NA				1.72	0.575
C28(20R)-TAS	NA		NA				1.72	0.575
Surrogate Recovery								
Naphthalene-d8	68		73					
Acenaphthene-d10	75		78					
Phenanthrene-d10	82		79					
Chrysene-d12	92		89					
Perylene-d12	64		74					

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

Sample Name	ENV3096B.D
Client Name	SRM1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/26/13
Extraction Batch	ENV 3096
Date Acquired	9/5/13 4:33
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)
cis/trans Decalin	65.7					
C1-Decalins	9.09					
C2-Decalins	15.2					
C3-Decalins	30.3					
C4-Decalins	45.3					
Naphthalene	830		2	848 ± 95	527	1226
C1-Naphthalenes	252					
C2-Naphthalenes	236					
C3-Naphthalenes	183					
C4-Naphthalenes	115					
Benzothiophene	33.5					
C1-Benzothiophenes	31.1					
C2-Benzothiophenes	18.6					
C3-Benzothiophenes	16.1					
C4-Benzothiophenes	25.1					
Biphenyl	73.8					
Acenaphthylene	72.5					
Acenaphthene	31.9					
Dibenzofuran	94.5					
Fluorene	61.0		33	85 ± 15	49.0	130
C1-Fluorenes	55.8					
C2-Fluorenes	123					
C3-Fluorenes	216					
Carbazole	20.5					
Anthracene	217		17	184 ± 18	116	263
Phenanthrene	445		9	406 ± 44	253	585
C1-Phenanthrenes/Anthracenes	335					
C2-Phenanthrenes/Anthracenes	337					
C3-Phenanthrenes/Anthracenes	258					
C4-Phenanthrenes/Anthracenes	132					
Dibenzothiophene	56.6					
C1-Dibenzothiophenes	69.5					
C2-Dibenzothiophenes	98.3					
C3-Dibenzothiophenes	118					
C4-Dibenzothiophenes	92.2					
Fluoranthene	793		20	651 ± 50	421	911
Pyrene	568		2	581 ± 39	379	806
C1-Fluoranthenes/Pyrenes	398					
C2-Fluoranthenes/Pyrenes	337					
C3-Fluoranthenes/Pyrenes	187					
C4-Fluoranthenes/Pyrenes	163					
Naphthobenzothiophene	169					
C1-Naphthobenzothiophenes	192					
C2-Naphthobenzothiophenes	220					
C3-Naphthobenzothiophenes	155					
C4-Naphthobenzothiophenes	75.6					
Benz(a)anthracene	353		5	335 ± 25	217	468
Chrysene/Triphenylene	436		9	399 ± 36	254	566
C1-Chrysenes	434					
C2-Chrysenes	240					
C3-Chrysenes	89.0					
C4-Chrysenes	29.8					
Benzo(b)fluoranthene	542		18	453 ± 21	302	616
Benzo(k,j)fluoranthene	502		13	442 ± 23	293	605
Benzo(a)fluoranthene	65.0					
Benzo(e)pyrene	334		3	325 ± 25	210	455
Benzo(a)pyrene	290		21	358 ± 17	239	488
Perylene	353		12	397 ± 45	246	575
Indeno(1,2,3-c,d)pyrene	313		9	341 ± 57	199	517
Dibenzo(a,h)anthracene	37.9		33	53 ± 10	30.1	81.9
Benzo(g,h,i)perylene	279		10	307 ± 45	183	458
Total PAHs	12369					

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

Sample Name	ENV3096B.D
Client Name	SRM1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/26/13
Extraction Batch	ENV 3096
Date Acquired	9/5/13 4:33
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)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	267					
1-Methylnaphthalene	125					
2,6-Dimethylnaphthalene	67.2					
1,6,7-Trimethylnaphthalene	21.6					
1-Methylfluorene	35.2					
4-Methyldibenzothiophene	46.1					
2/3-Methyldibenzothiophene	31.9					
1-Methyldibenzothiophene	14.4					
3-Methylphenanthrene	99.4		5	105 ± 13	64.4	153
2-Methylphenanthrene	116					
2-Methylanthracene	65.7					
4/9-Methylphenanthrene	76.2					
1-Methylphenanthrene	73.3		0	73.2 ± 5.9	47.1	103
3,6-Dimethylphenanthrene	30.1					
Retene	39.3					
2-Methylfluoranthene	81.6					
Benzo(b)fluorene	103					
C29-Hopane	7.34					
18a-Oleanane	35.0					
C30-Hopane	282					
C20-TAS	0.58	J				
C21-TAS	4.57					
C26(20S)-TAS	2.14					
C26(20R)/C27(20S)-TAS	8.19					
C28(20S)-TAS	6.11					
C27(20R)-TAS	6.11					
C28(20R)-TAS	5.86					

Surrogate Recovery	
Naphthalene-d8	71
Acenaphthene-d10	79
Phenanthrene-d10	75
Chrysene-d12	87
Perylene-d12	66

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

Sample Name	MS50164K.D
Client Name	AR-SRM2779-WK-4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3096
Date Acquired	9/5/13 2:20
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)
cis/trans Decalin	1012						
C1-Decalins	1338						
C2-Decalins	1149						
C3-Decalins	1214						
C4-Decalins	648						
Naphthalene	985			14	855 ± 46	647	1081
C1-Naphthalenes	2099						
C2-Naphthalenes	2693						
C3-Naphthalenes	1830						
C4-Naphthalenes	1013						
Benzothiophene	12.7						
C1-Benzothiophenes	52.5						
C2-Benzothiophenes	37.2						
C3-Benzothiophenes	45.5						
C4-Benzothiophenes	43.1						
Biphenyl	236						
Acenaphthylene	13.3						
Acenaphthene	15.2						
Dibenzofuran	46.8						
Fluorene	167						
C1-Fluorenes	410						
C2-Fluorenes	562						
C3-Fluorenes	486						
Carbazole	6.4	J					
Anthracene	3.5	J		3	3.42 ± 0.59	2.26	4.81
Phenanthrene	267			3	258 ± 27	185	342
C1-Phenanthrenes/Anthracenes	671						
C2-Phenanthrenes/Anthracenes	762						
C3-Phenanthrenes/Anthracenes	563						
C4-Phenanthrenes/Anthracenes	313						
Dibenzothiophene	52.2			1	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	140						
C2-Dibenzothiophenes	197						
C3-Dibenzothiophenes	146						
C4-Dibenzothiophenes	77.1						
Fluoranthene	5.55	J		24	4.36 ± 0.40	3.17	5.71
Pyrene	12.0			21	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	74.1						
C2-Fluoranthenes/Pyrenes	155						
C3-Fluoranthenes/Pyrenes	179						
C4-Fluoranthenes/Pyrenes	127						
Naphthobenzothiophene	35.2						
C1-Naphthobenzothiophenes	66.7						
C2-Naphthobenzothiophenes	109.0						
C3-Naphthobenzothiophenes	73.1						
C4-Naphthobenzothiophenes	34.3						
Benz(a)anthracene	6.94	J		1	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	39.0			19	47.4 ± 1.7	36.6	58.9
C1-Chrysenes	153						
C2-Chrysenes	203						
C3-Chrysenes	134.7						
C4-Chrysenes	84.7						
Benzo(b)fluoranthene	6.15	J		9	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene	1.218	J					
Benzo(a)fluoranthene	0.826	J					
Benzo(e)pyrene	10.86			1	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	2.35	J					
Perylene	0.667	J					
Indeno(1,2,3-c,d)pyrene	0.441	J					
Dibenzo(a,h)anthracene	0.581	J		1	0.574 ± 0.091	0.386	0.798
Benzo(g,h,i)perylene	2.20	J		4	2.11 ± 0.26	1.48	2.84
Total PAHs	20825						

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

Sample Name	MS50164K.D
Client Name	AR-SRM2779-WK-4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3096
Date Acquired	9/5/13 2:20
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)	Q	RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	1943		18	1630 ± 50	1264	2016
1-Methylnaphthalene	1321		15	1140 ± 20	896	1392
2,6-Dimethylnaphthalene	1229					
1,6,7-Trimethylnaphthalene	364					
1-Methylfluorene	322					
4-Methyldibenzothiophene	104					
2/3-Methyldibenzothiophene	46.7					
1-Methyldibenzothiophene	35.9					
3-Methylphenanthrene	188		9	206 ± 32	139	286
2-Methylphenanthrene	217		6	230 ± 14	173	293
2-Methylanthracene	15.7					
4/9-Methylphenanthrene	264		13	232 ± 19	170	301
1-Methylphenanthrene	178		5	169 ± 10	127	215
3,6-Dimethylphenanthrene	40.9					
Retene	11.0					
2-Methylfluoranthene	6.38	J				
Benzo(b)fluorene	19.6					
C29-Hopane	2.0	J				
18a-Oleanane	<10	U				
C30-Hopane	49.0					
C20-TAS	6.30	J				
C21-TAS	3.28	J				
C26(20S)-TAS	4.10	J				
C26(20R)/C27(20S)-TAS	8.50	J				
C28(20S)-TAS	8.58	J				
C27(20R)-TAS	8.55	J				
C28(20R)-TAS	8.29	J				

Surrogate Recovery	
Naphthalene-d8	100
Acenaphthene-d10	100
Phenanthrene-d10	69
Chrysene-d12	92
Perylene-d12	87

Peak Resolution	
4/9-Methylphenanthrene from 1-Methylyphenanthrene (m/z 192)	91%

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

Sample Name	MS50164L.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3096
Date Acquired	9/5/13 12:17
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)
cis/trans Decalin	214		14.3	247	210	284
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	222		12.0	250	213	288
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	219		12.6	249	211	286
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	226		9.0	248	211	285
Acenaphthylene	232		6.6	248	211	285
Acenaphthene	226		10.5	251	213	288
Dibenzofuran	232		7.0	249	211	286
Fluorene	240		4.4	251	213	288
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	240		3.3	248	211	285
Anthracene	233		7.4	251	213	288
Phenanthrene	227		8.7	248	211	285
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	220		11.3	247	210	283
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	232		7.7	250	213	288
Pyrene	218		13.9	250	213	288
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Naphthobenzothiophene	250		0.8	252	214	289
C1-Naphthobenzothiophenes	NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	250		0.4	250	212	287
Chrysene/Triphenylene	243		2.1	249	211	286
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	274		9.0	251	213	288
Benzo(k,j)fluoranthene	267		7.2	249	212	286
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	245		1.6	249	212	286
Benzo(a)pyrene	247		1.0	250	212	287
Perylene	254		1.4	250	213	288
Indeno(1,2,3-c,d)pyrene	232		5.6	246	209	283
Dibenzo(a,h)anthracene	244		1.7	248	211	285
Benzo(g,h,i)perylene	225		9.7	248	211	285

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

Sample Name	MS50164L.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3096
Date Acquired	9/5/13 12:17
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)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	227		9.6	250	213	288
1-Methylnaphthalene	222		11.9	250	212	287
2,6-Dimethylnaphthalene	232		7.4	250	213	288
1,6,7-Trimethylnaphthalene	231		8.0	250	213	288
1-Methylfluorene	237		6.2	252	214	290
4-Methyldibenzothiophene	219		14.1	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	219		11.9	247	210	284
3,6-Dimethylphenanthrene	223		11.4	250	213	288
Retene	206		7.9	223	190	257
2-Methylfluoranthene	240		4.6	252	214	289
Benzo(b)fluorene	289		13.5	252	214	290
C29-Hopane	NA					
18a-Oleanane	NA					
C30-Hopane	230		8.3	250	213	288
C20-TAS	NA					
C21-TAS	NA					
C26(20S)-TAS	NA					
C26(20R)/C27(20S)-TAS	258		3.2	250	213	288
C28(20S)-TAS	NA					
C27(20R)-TAS	NA					
C28(20R)-TAS	NA					

Surrogate Recovery	
Naphthalene-d8	85
Acenaphthene-d10	87
Phenanthrene-d10	85
Chrysene-d12	99
Perylene-d12	100

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

Sample Name	MS50164I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3096
Date Acquired	9/5/13 0:08
Method	PAH-2012.M
Sample Volume (mL)	1.0

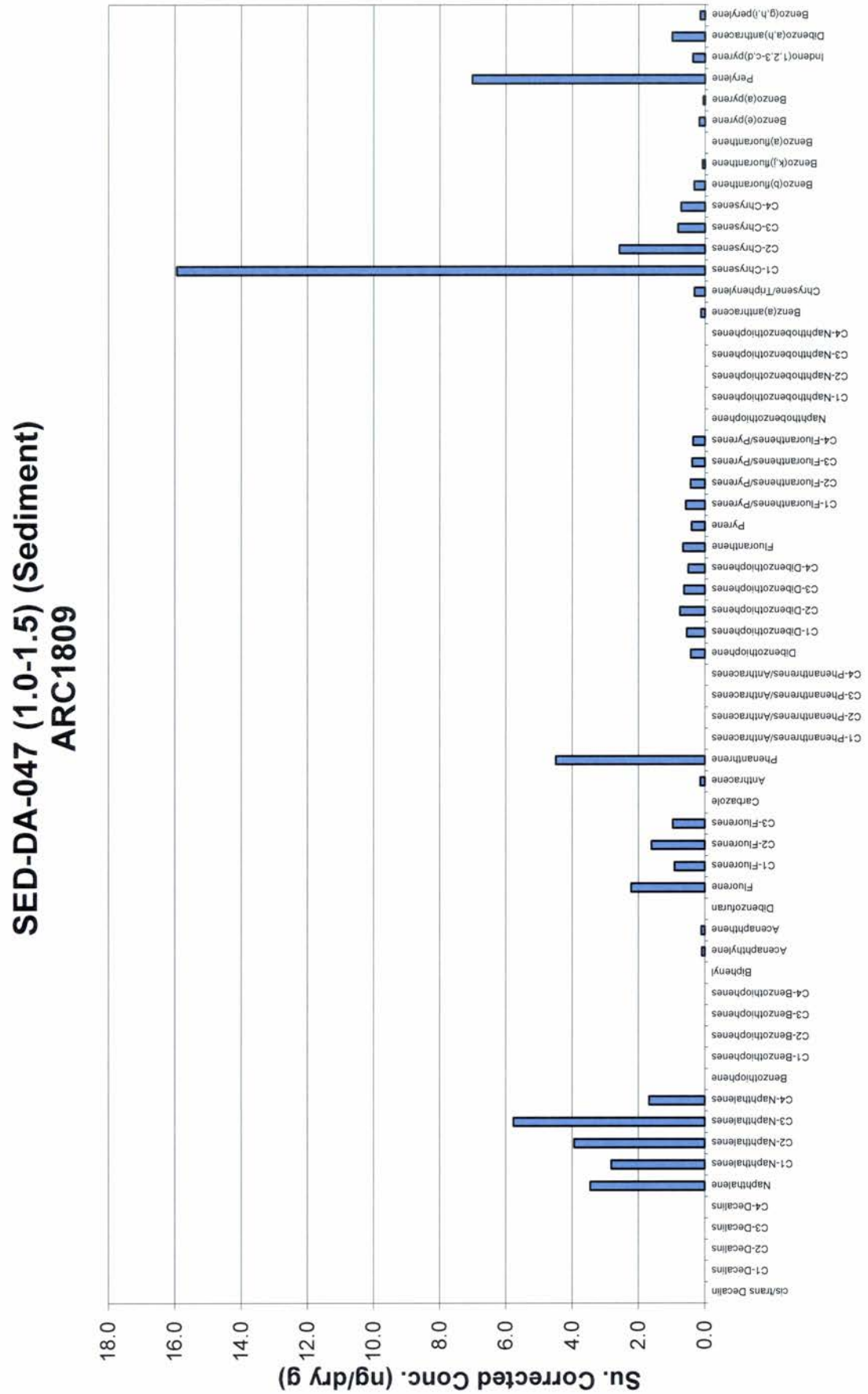
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
cis/trans Decalin	281		11.4	250	200	300
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	292		15.6	250	200	300
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	294		16.2	250	200	300
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	286		13.2	251	201	301
Acenaphthylene	273					
Acenaphthene	284		12.8	250	200	300
Dibenzofuran	291		15.2	250	200	300
Fluorene	277		10.3	250	200	300
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	253		1.1	250	200	300
Anthracene	273		8.9	250	200	300
Phenanthrene	266		6.2	250	200	300
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	289		14.4	250	200	300
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	286		13.5	250	200	300
Pyrene	281		11.7	250	200	300
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Naphthobenzothiophene	NA					
C1-Naphthobenzothiophenes	NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	231		8.2	250	200	300
Chrysene/Triphenylene	250		0.3	250	200	300
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	290		14.6	250	200	300
Benzo(k,j)fluoranthene	273		8.7	250	200	300
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	287		13.6	250	200	300
Benzo(a)pyrene	270		7.5	250	200	300
Perylene	269		7.1	251	200	301
Indeno(1,2,3-c,d)pyrene	268		6.9	250	200	300
Dibenzo(a,h)anthracene	289		14.5	250	200	300
Benzo(g,h,i)perylene	286		13.5	250	200	300

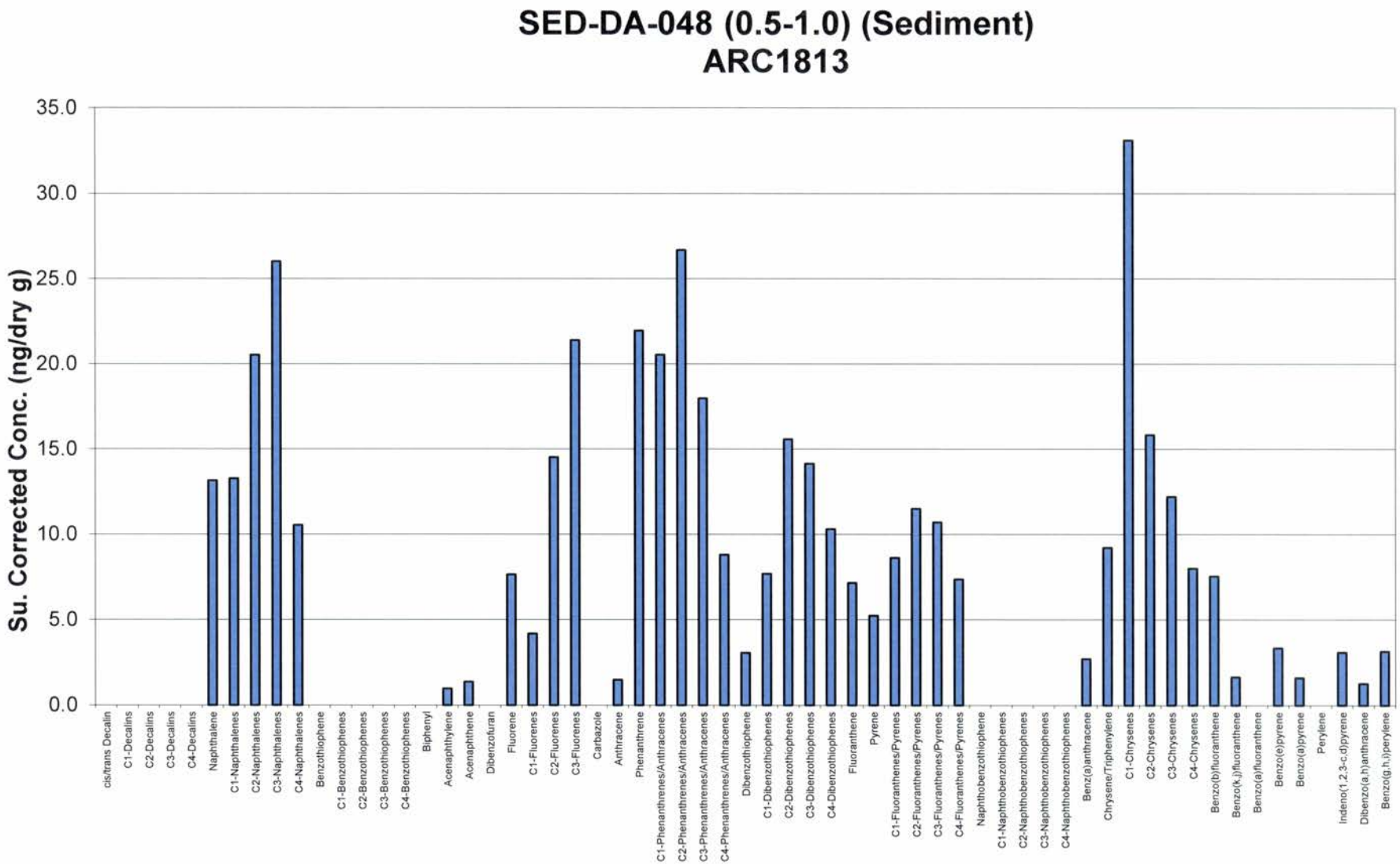
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

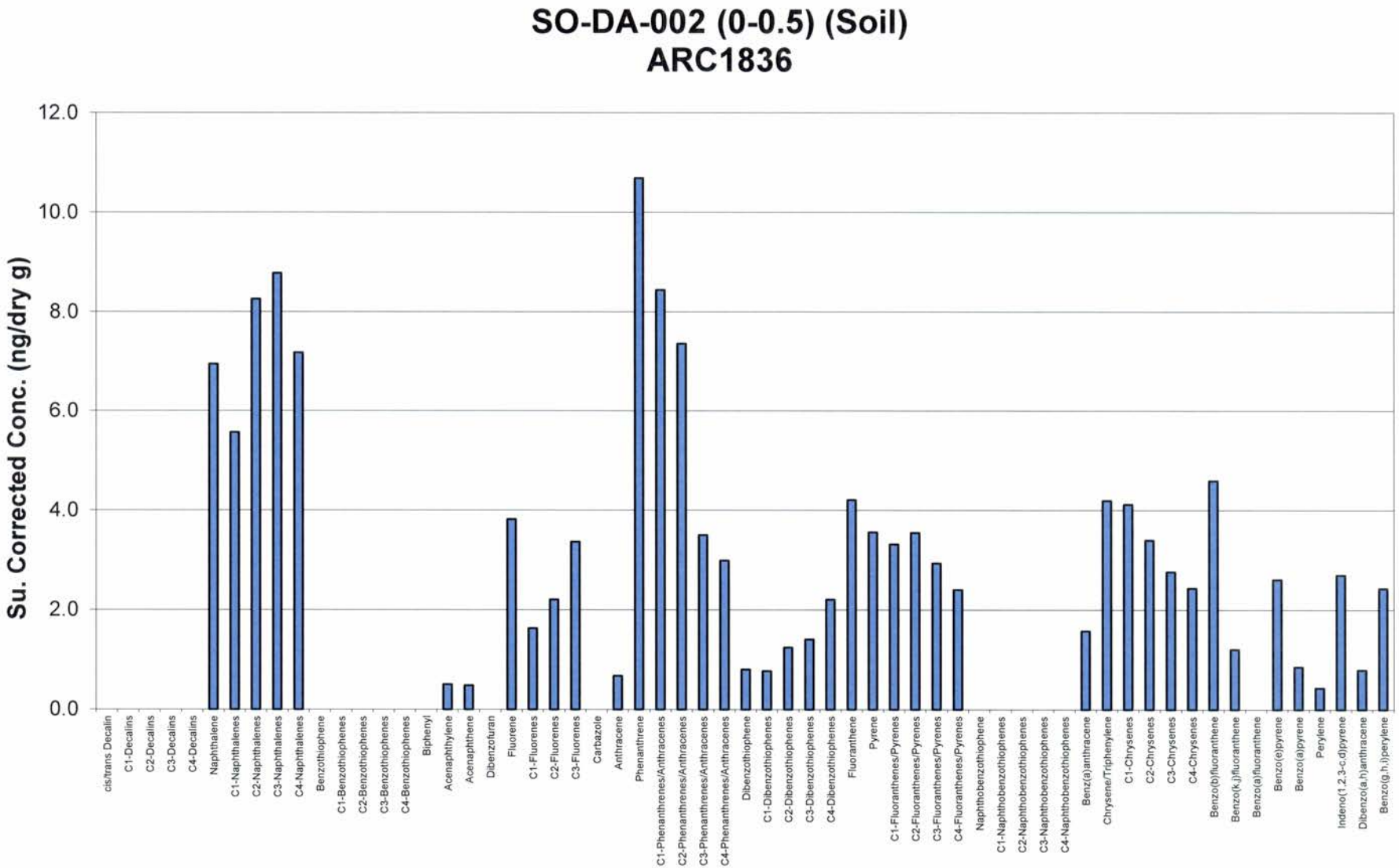
Sample Name	MS50164I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3096
Date Acquired	9/5/13 0:08
Method	PAH-2012.M
Sample Volume (mL)	1.0

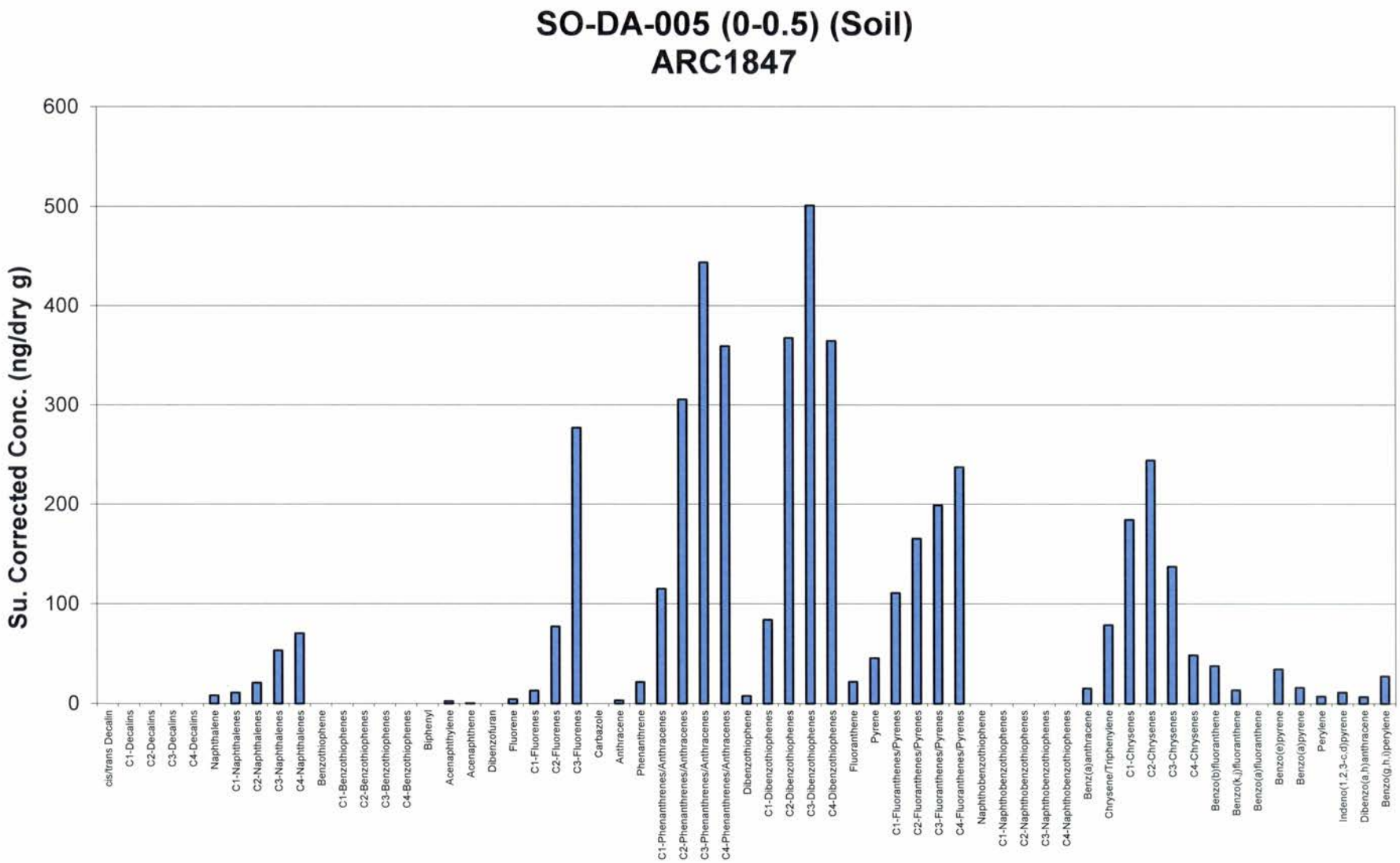
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	297		17.0	250	200	301
1-Methylnaphthalene	297		17.0	251	200	301
2,6-Dimethylnaphthalene	288		14.2	250	200	300
1,6,7-Trimethylnaphthalene	293		15.5	250	200	301
1-Methylfluorene	NA					
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	269		7.2	250	200	300
3,6-Dimethylphenanthrene	NA					
Retene	NA					
2-Methylfluoranthene	NA					
Benzo(b)fluorene	NA					
C29-Hopane	NA					
18a-Oleanane	NA					
C30-Hopane	NA					
C20-TAS	NA					
C21-TAS	NA					
C26(20S)-TAS	NA					
C26(20R)/C27(20S)-TAS	NA					
C28(20S)-TAS	NA					
C27(20R)-TAS	NA					
C28(20R)-TAS	NA					
Surrogate Recovery						
Naphthalene-d8	242		3.2	250	200	300
Acenaphthene-d10	233		6.9	250	200	300
Phenanthrene-d10	233		7.3	250	200	300
Chrysene-d12	207		18.7	250	200	300
Perylene-d12	211		17.0	250	200	300

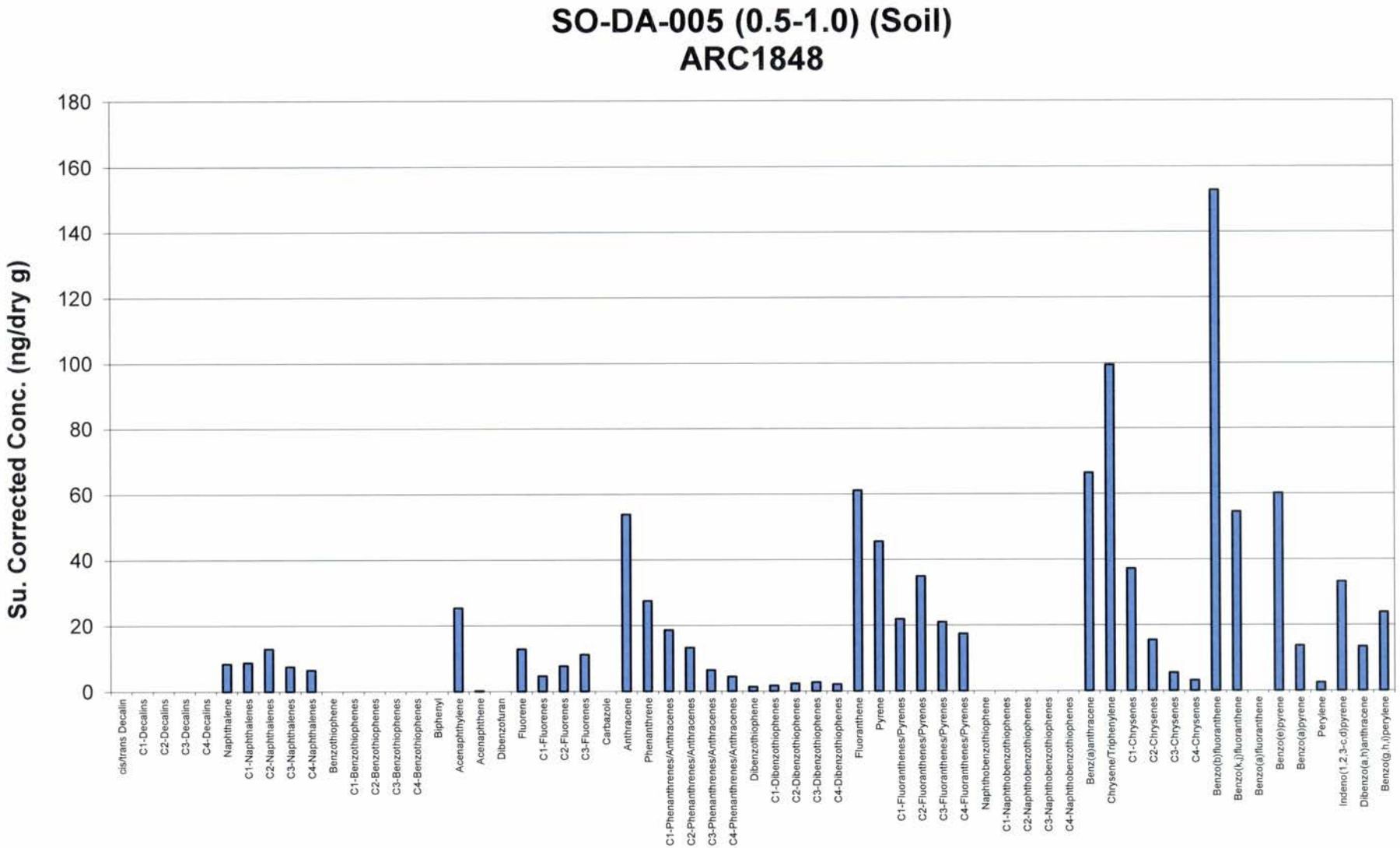
Polycyclic Aromatic Hydrocarbon Histograms

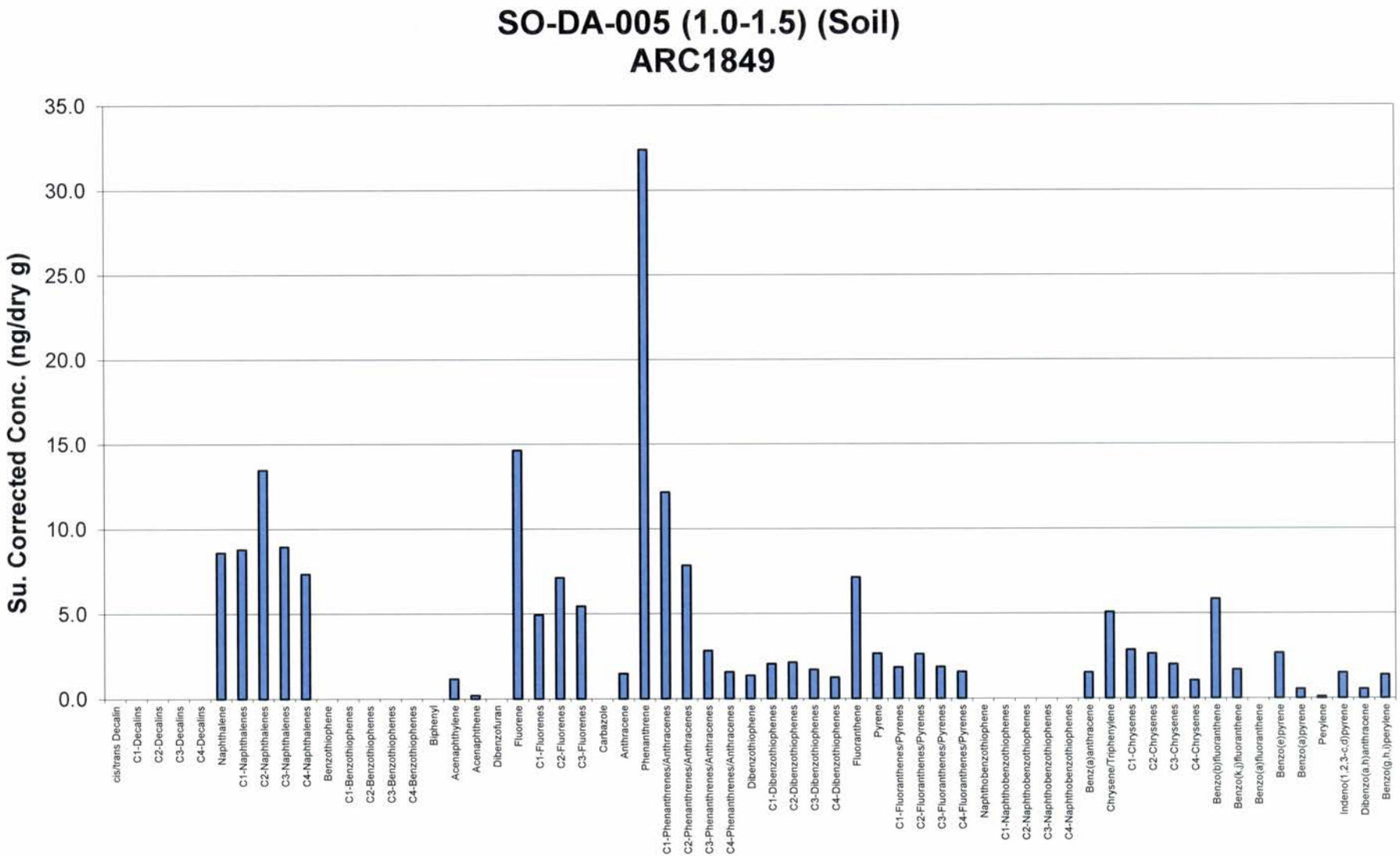

SED-DA-047 (1.0-1.5) (Sediment)
ARC1809
Su. Corrected Conc. (ng/dry g)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

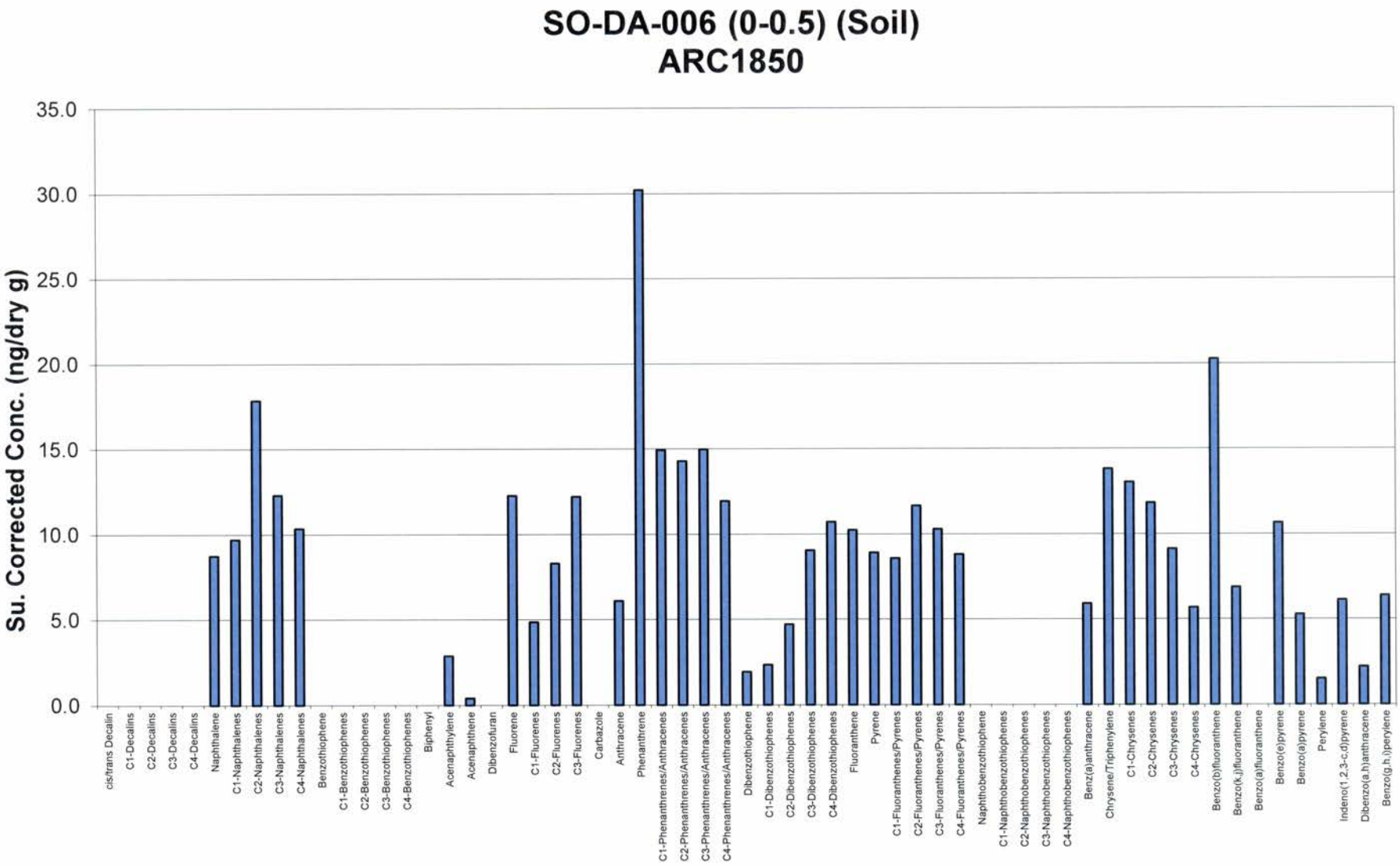

SED-DA-048 (0.5-1.0) (Sediment)
ARC1813
Su. Corrected Conc. (ng/dry g)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

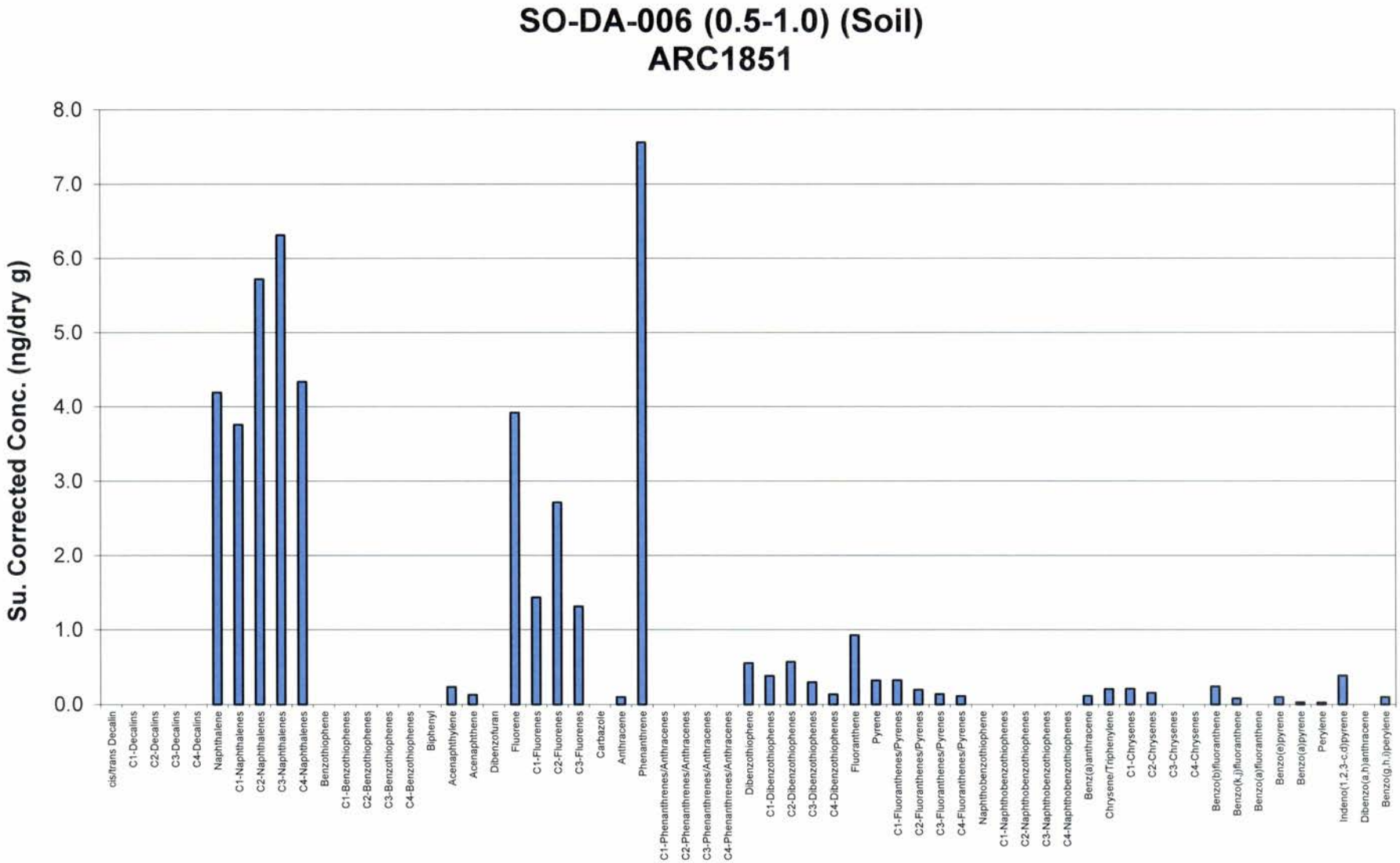

SO-DA-002 (0-0.5) (Soil)
ARC1836
Su. Corrected Conc. (ng/dry g)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

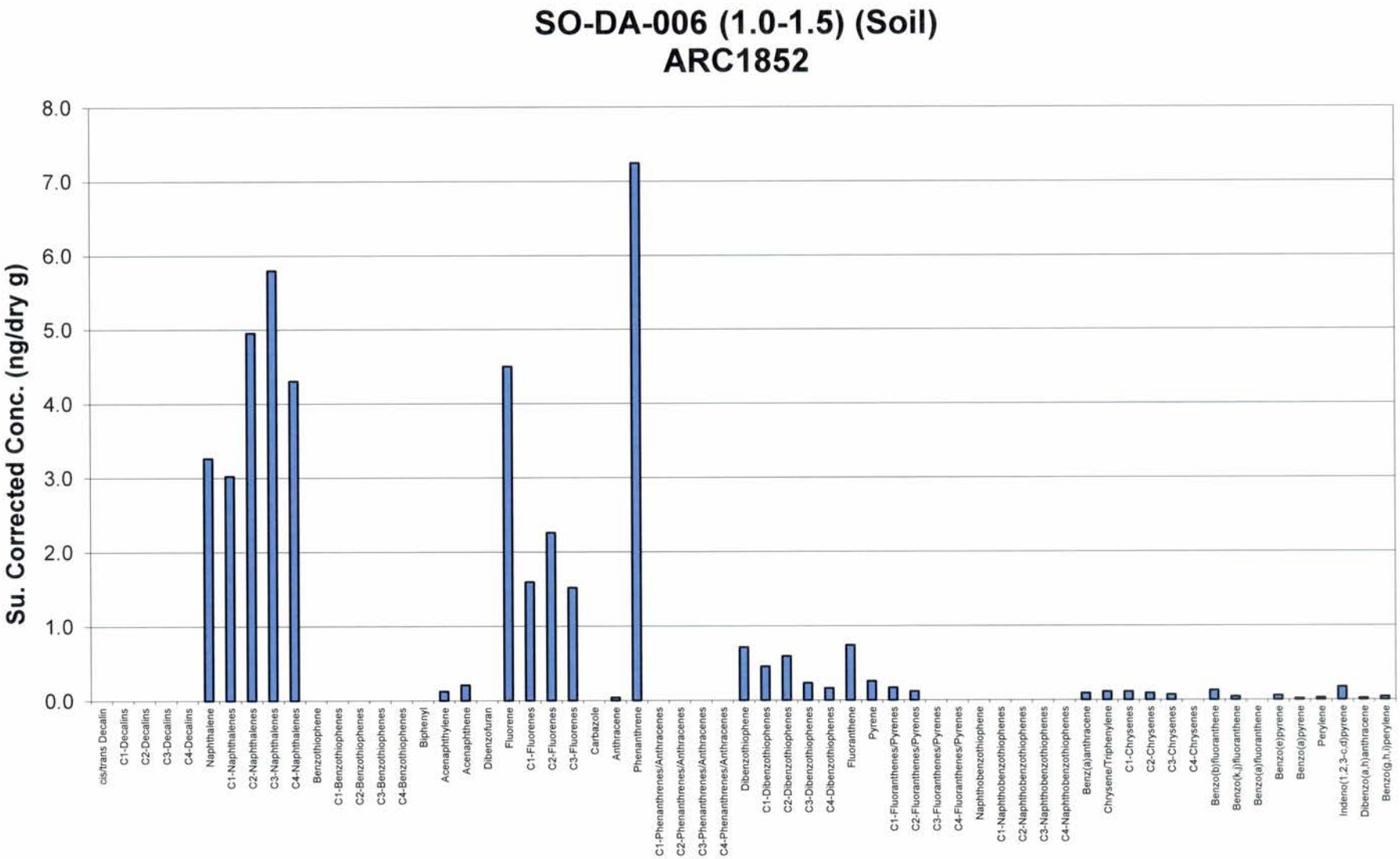

SO-DA-005 (0-0.5) (Soil)
ARC1847
Su. Corrected Conc. (ng/dry g)
600
500
400
300
200
100
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

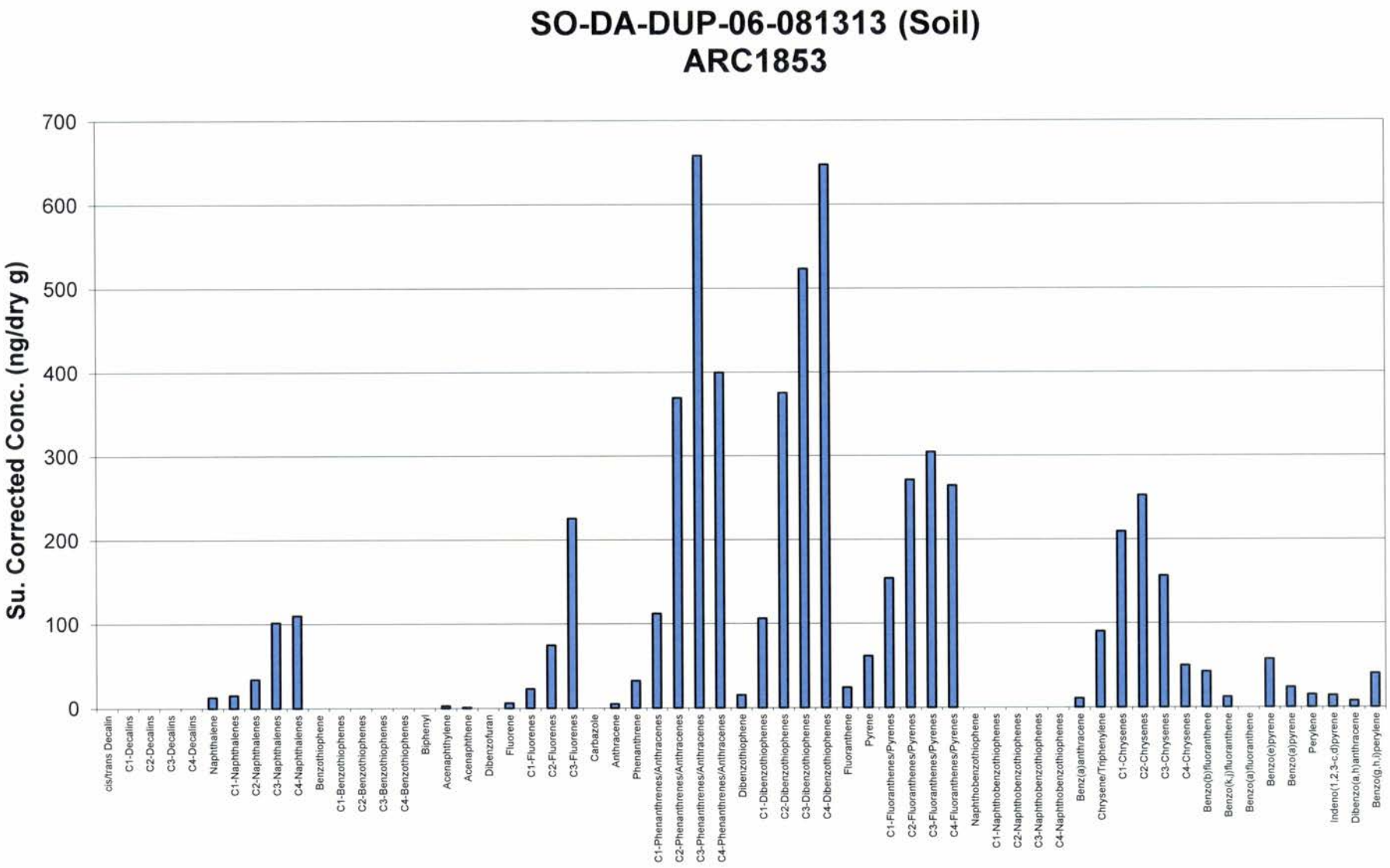

SO-DA-005 (0.5-1.0) (Soil)
ARC1848
Su. Corrected Conc. (ng/dry g)
180
160
140
120
100
80
60
40
20
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

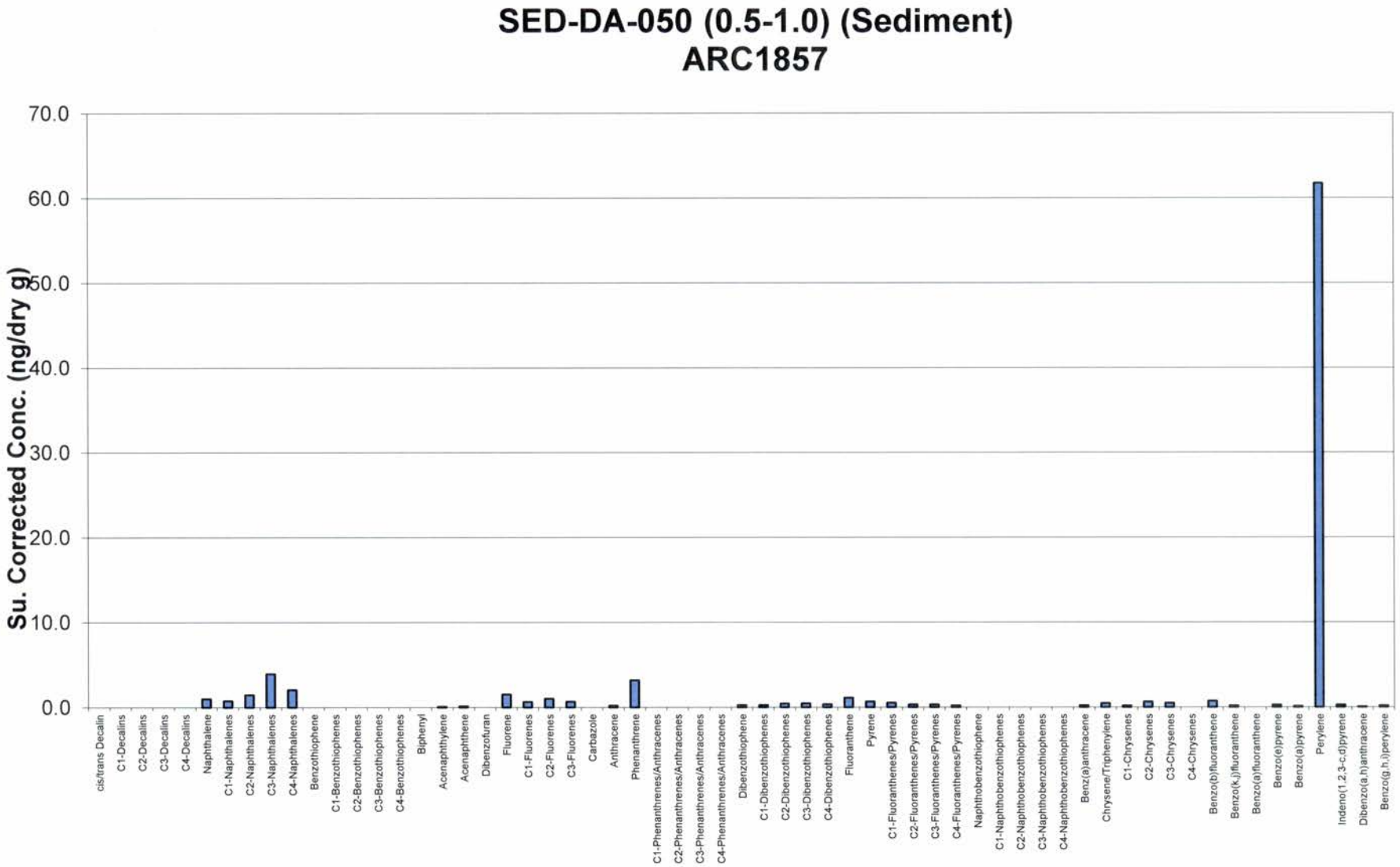

SO-DA-005 (1.0-1.5) (Soil)
ARC1849
Su. Corrected Conc. (ng/dry g)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

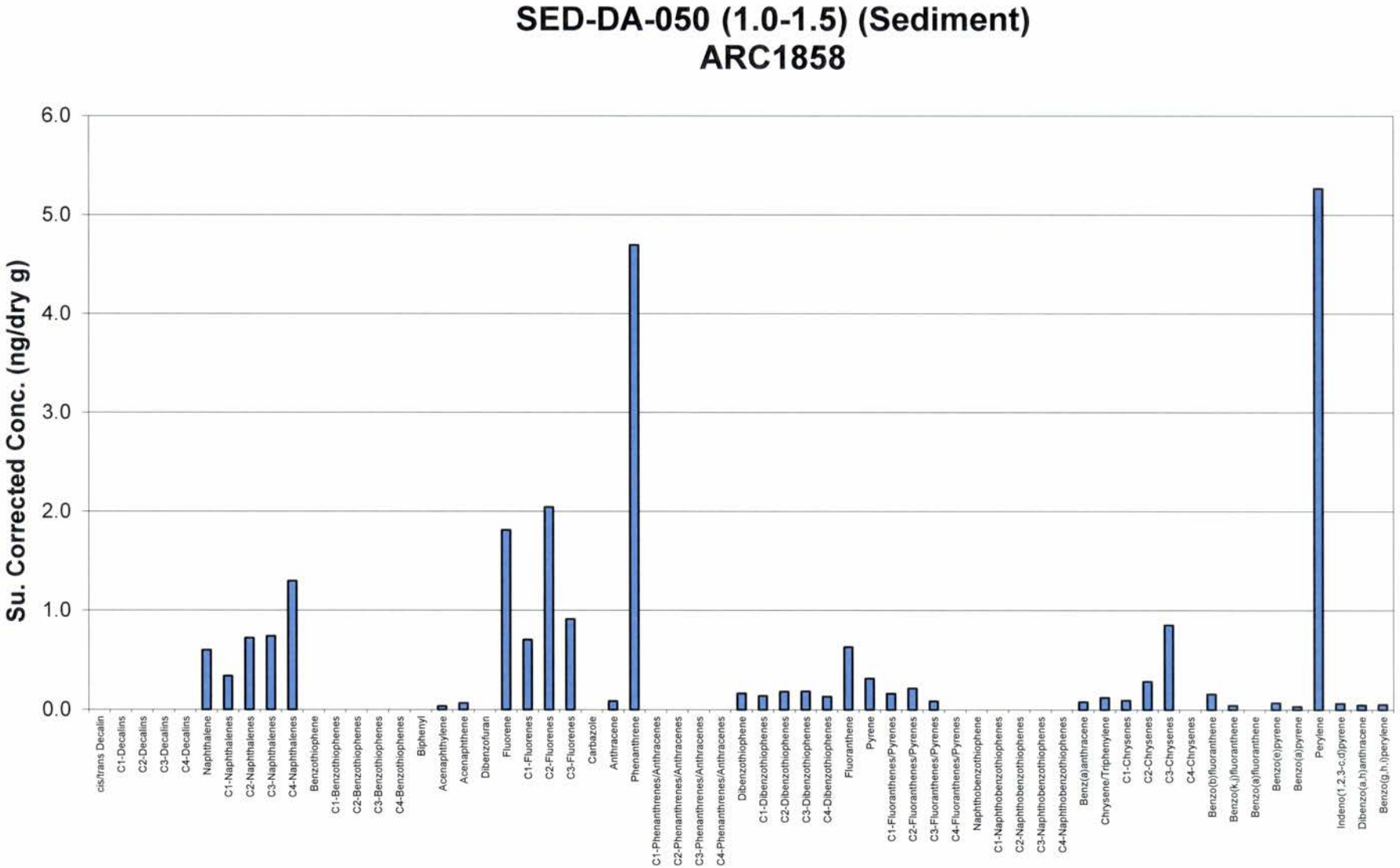

SO-DA-006 (0-0.5) (Soil)
ARC1850
Su. Corrected Conc. (ng/dry g)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

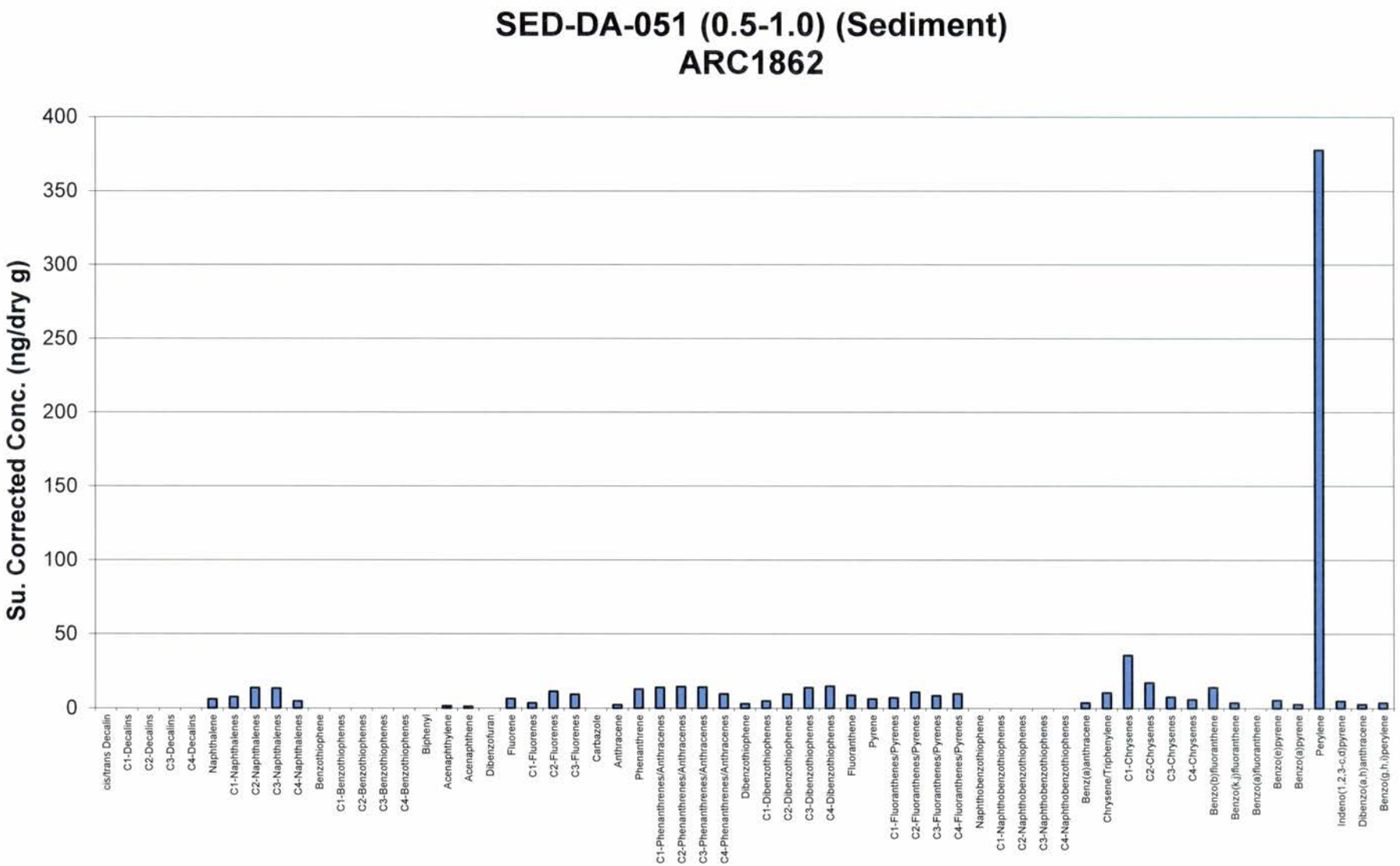

SO-DA-006 (0.5-1.0) (Soil)
ARC1851
Su. Corrected Conc. (ng/dry g)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

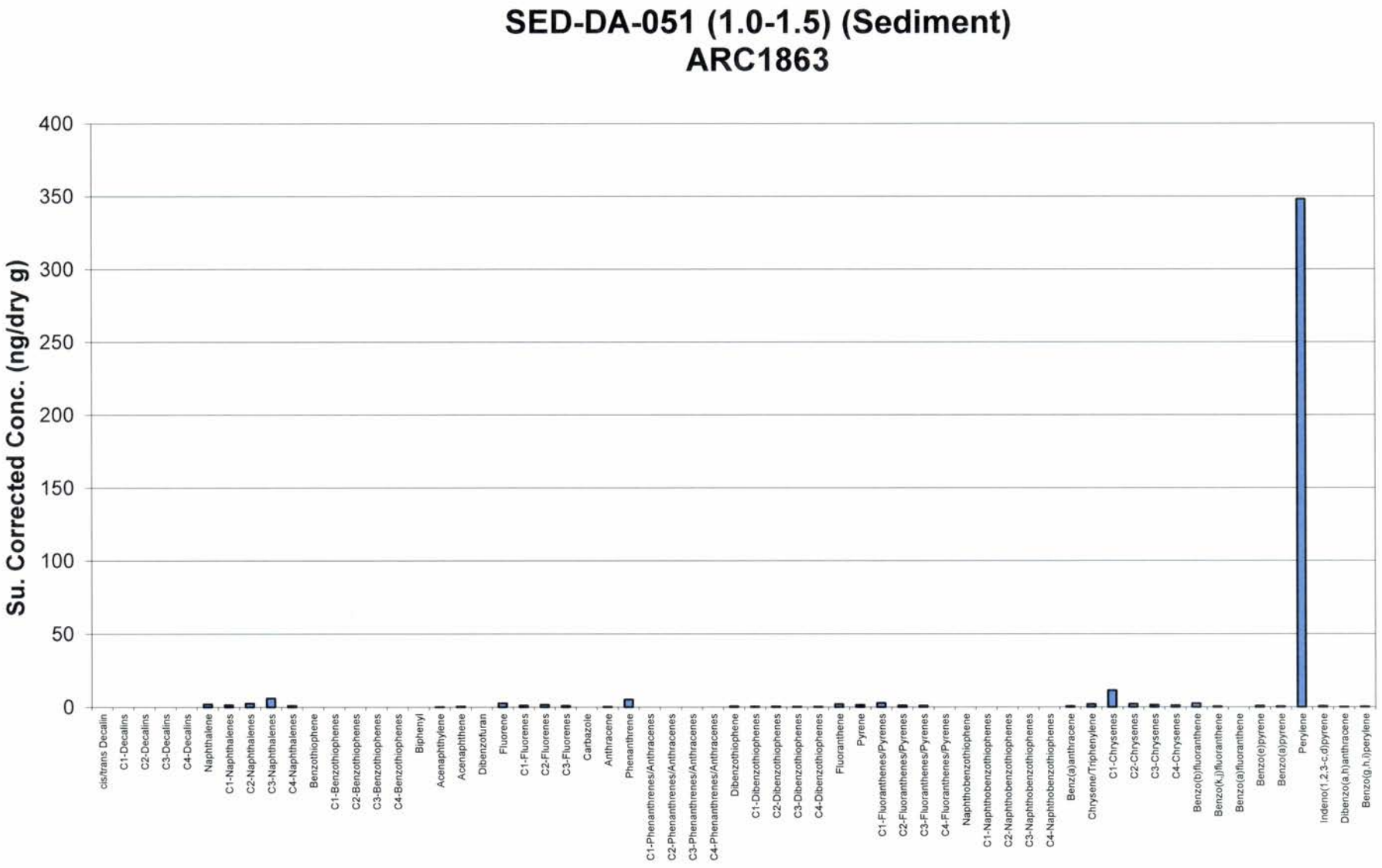

SO-DA-006 (1.0-1.5) (Soil)
ARC1852
Su. Corrected Conc. (ng/dry g)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene


SO-DA-DUP-06-081313 (Soil)
ARC1853
Su. Corrected Conc. (ng/dry g)
700
600
500
400
300
200
100
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

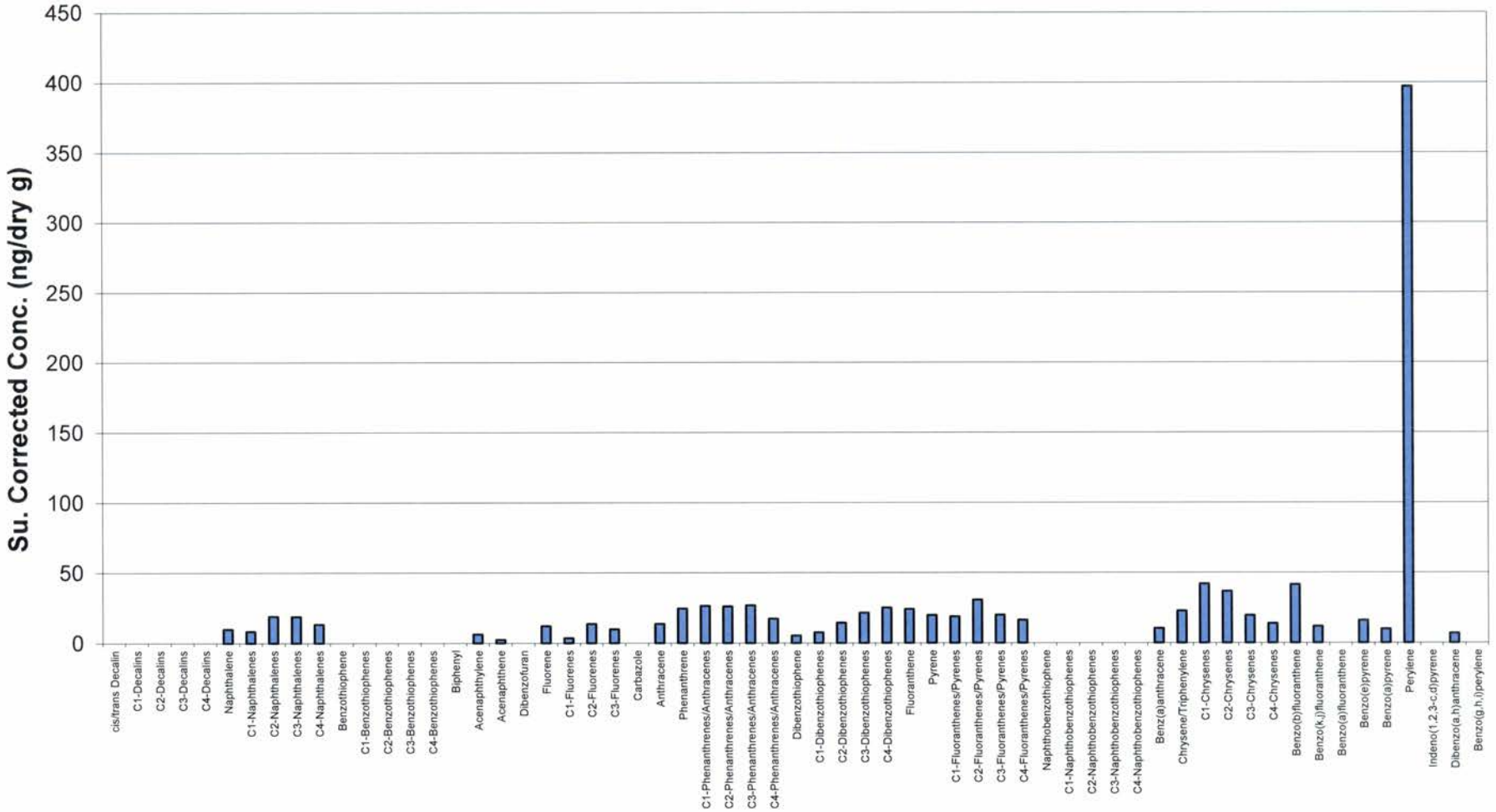

SED-DA-050 (0.5-1.0) (Sediment)
ARC1857
Su. Corrected Conc. (ng/dry g)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(e)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

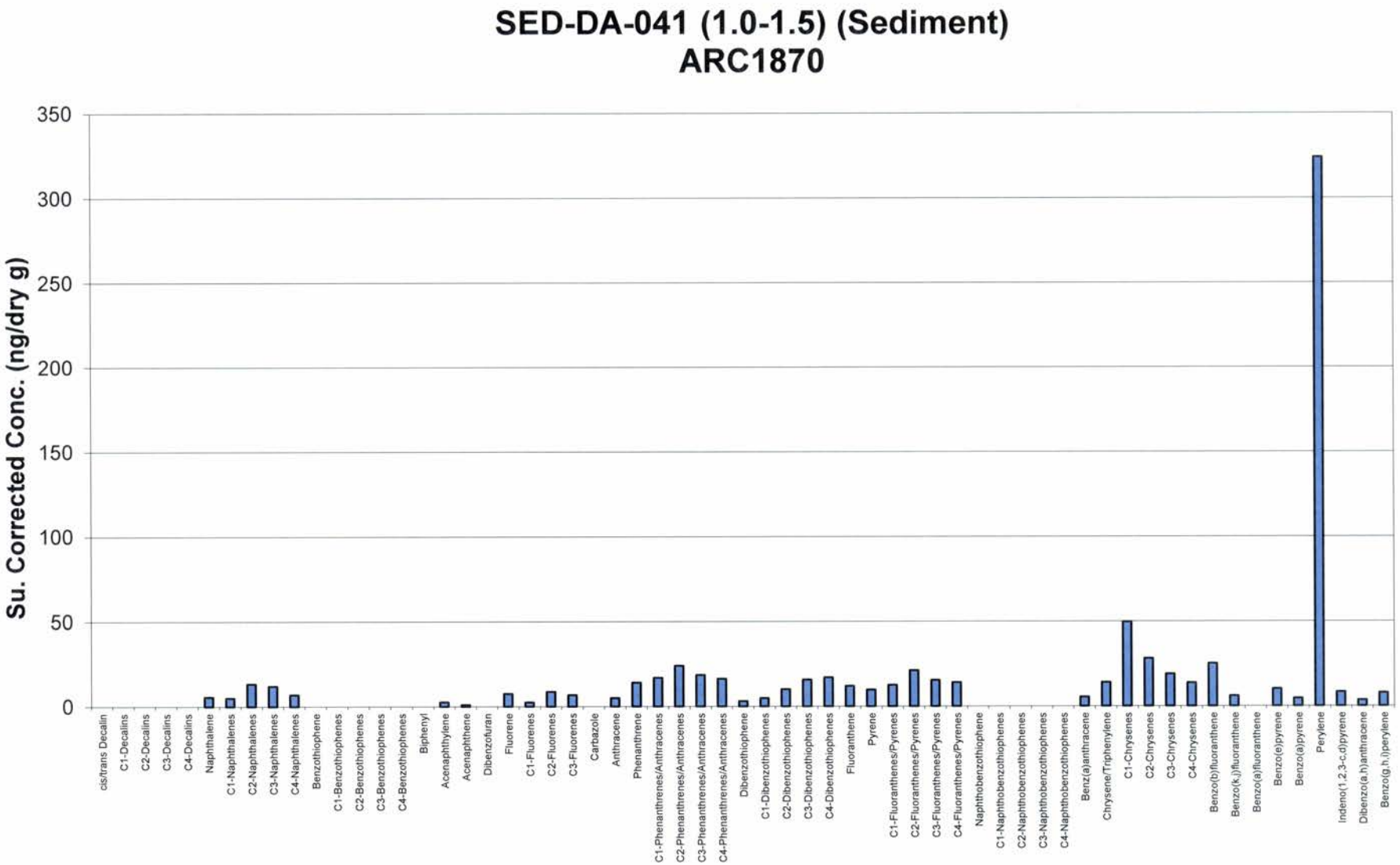

SED-DA-050 (1.0-1.5) (Sediment)
ARC1858
Su. Corrected Conc. (ng/dry g)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)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-051 (0.5-1.0) (Sediment)
ARC1862
Su. Corrected Conc. (ng/dry g)
400
350
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(e)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

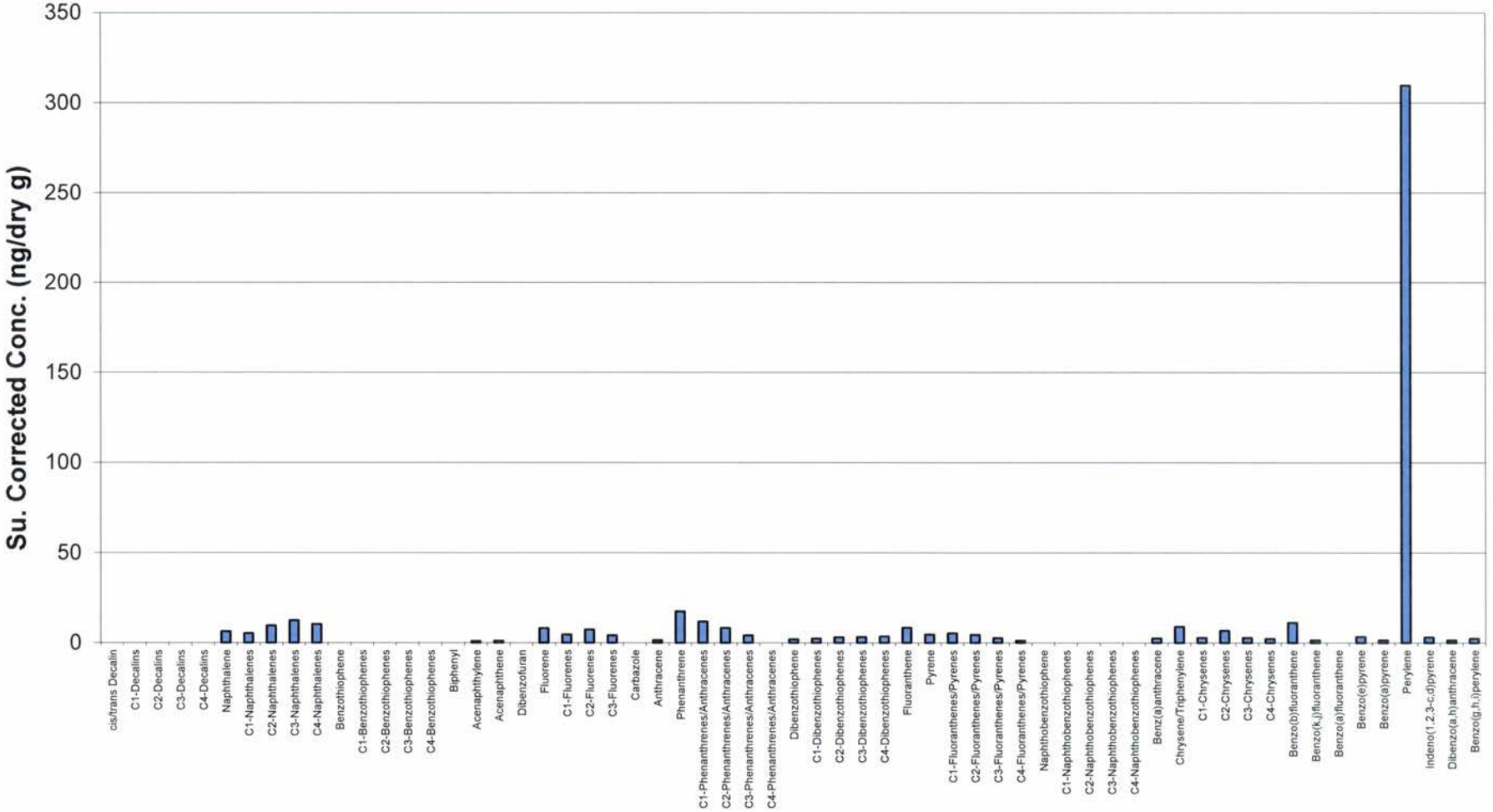

SED-DA-051 (1.0-1.5) (Sediment)
ARC1863
Su. Corrected Conc. (ng/dry g)
400
350
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

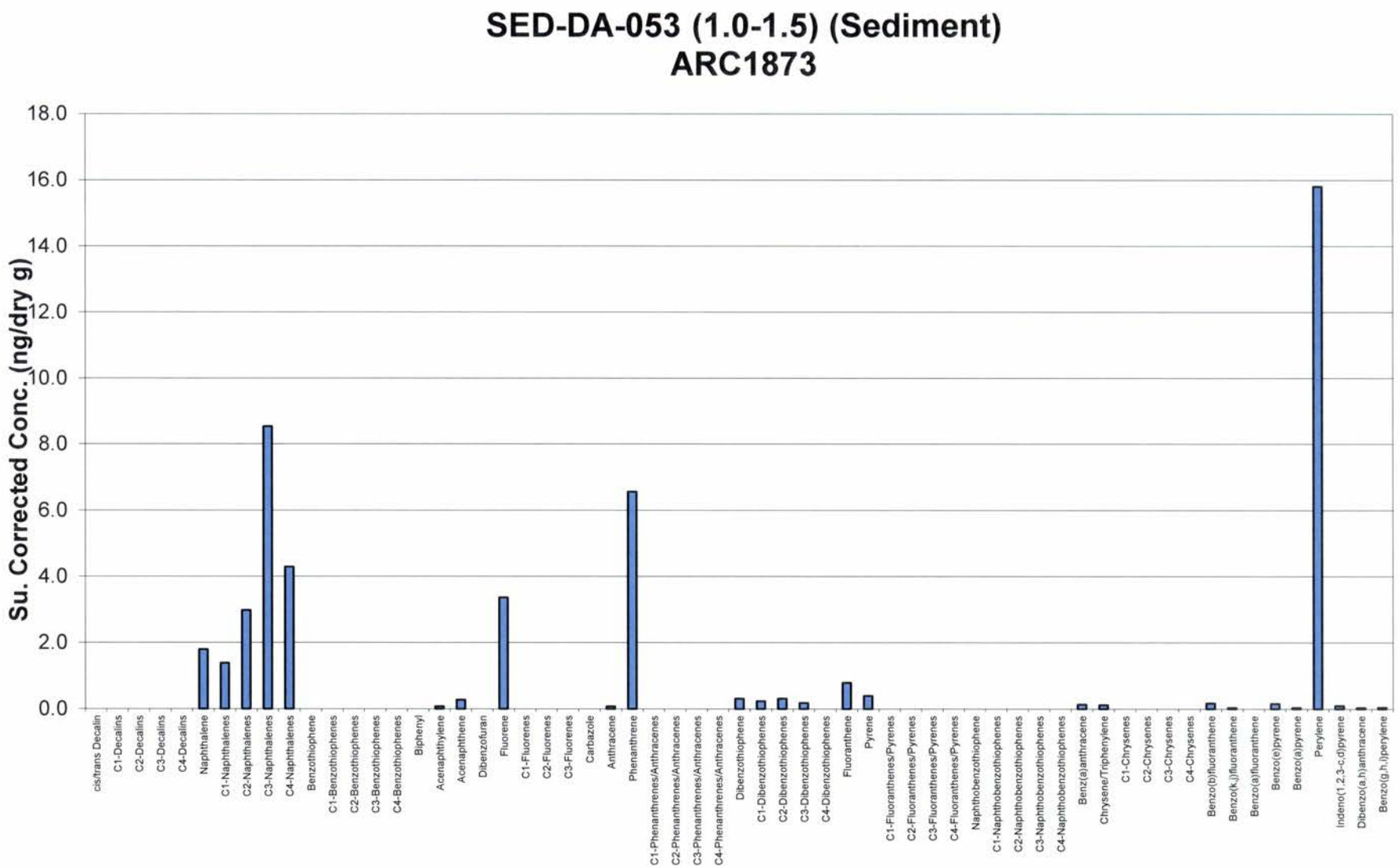
SED-DA-041 (0.5-1.0) (Sediment)
ARC1869

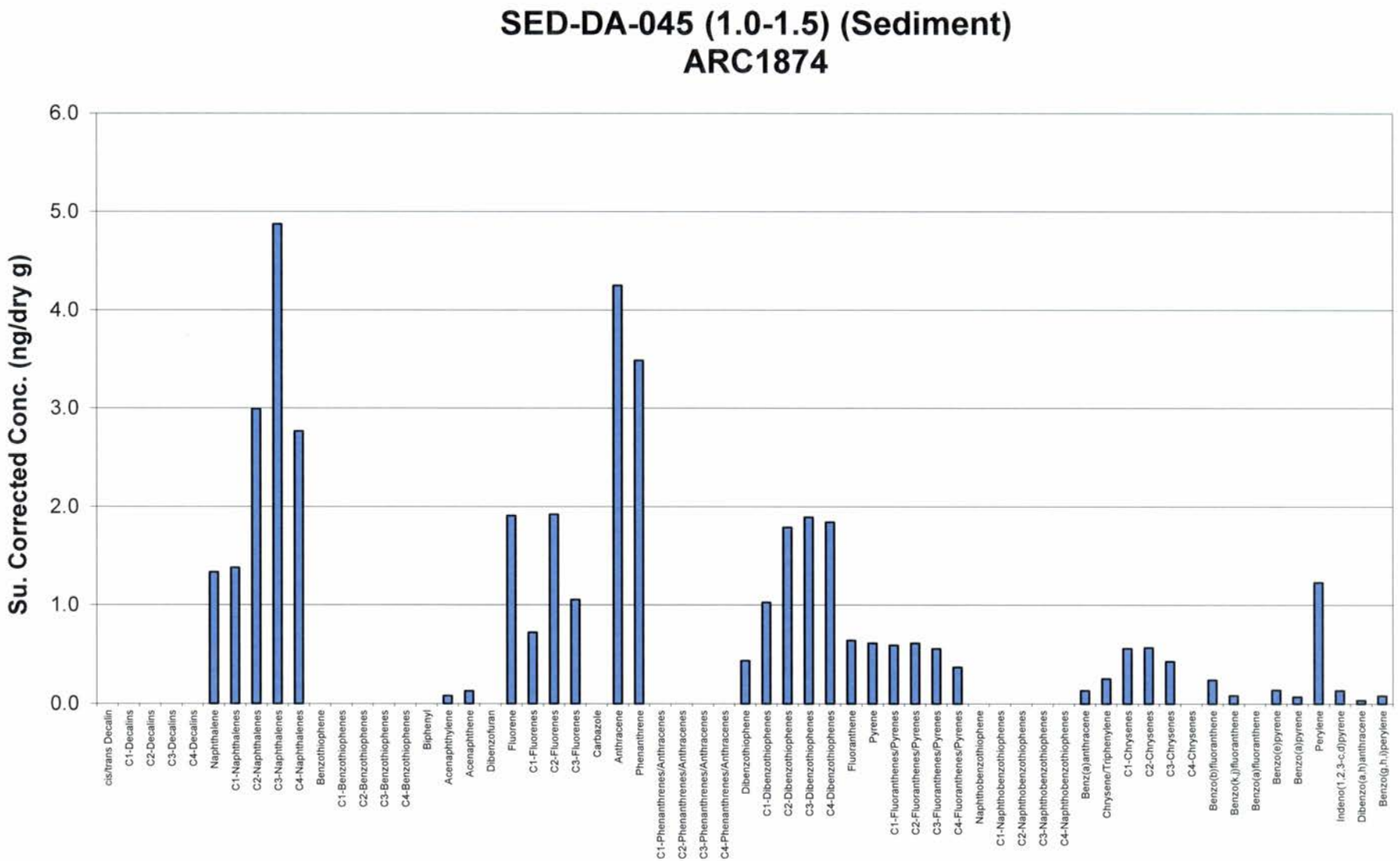



SED-DA-041 (1.0-1.5) (Sediment)
ARC1870
Su. Corrected Conc. (ng/dry g)
350
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)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-053 (0.5-1.0) (Sediment)
ARC1872

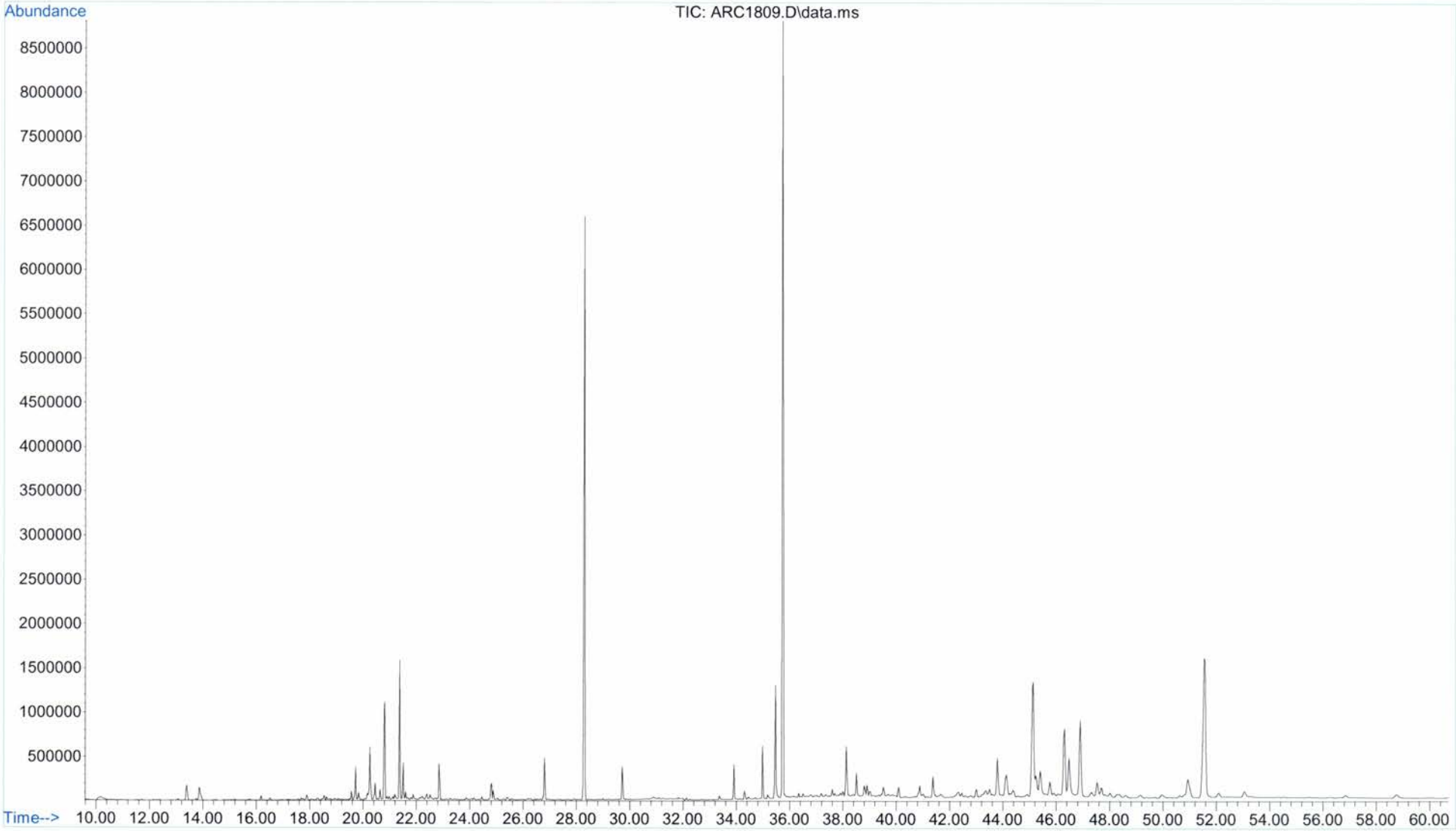



SED-DA-053 (1.0-1.5) (Sediment)
ARC1873
Su. Corrected Conc. (ng/dry g)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)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-045 (1.0-1.5) (Sediment)
ARC1874
Su. Corrected Conc. (ng/dry g)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
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
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)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\MS50164\ARC1809.D
Operator : YM
Acquired : 5 Sep 2013 10:04 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-047 (1.0-1.5)
Misc Info :
Vial Number: 18



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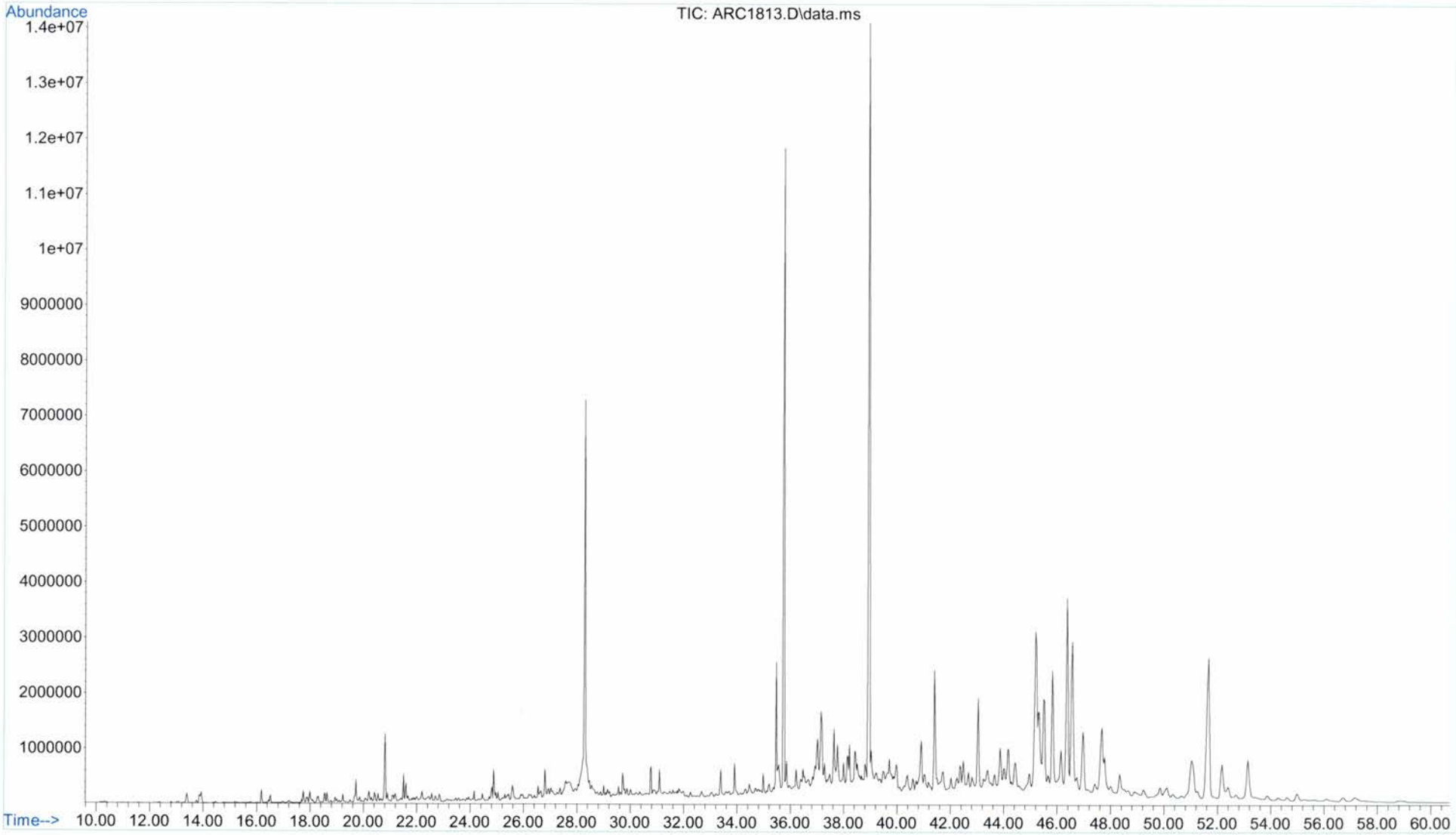
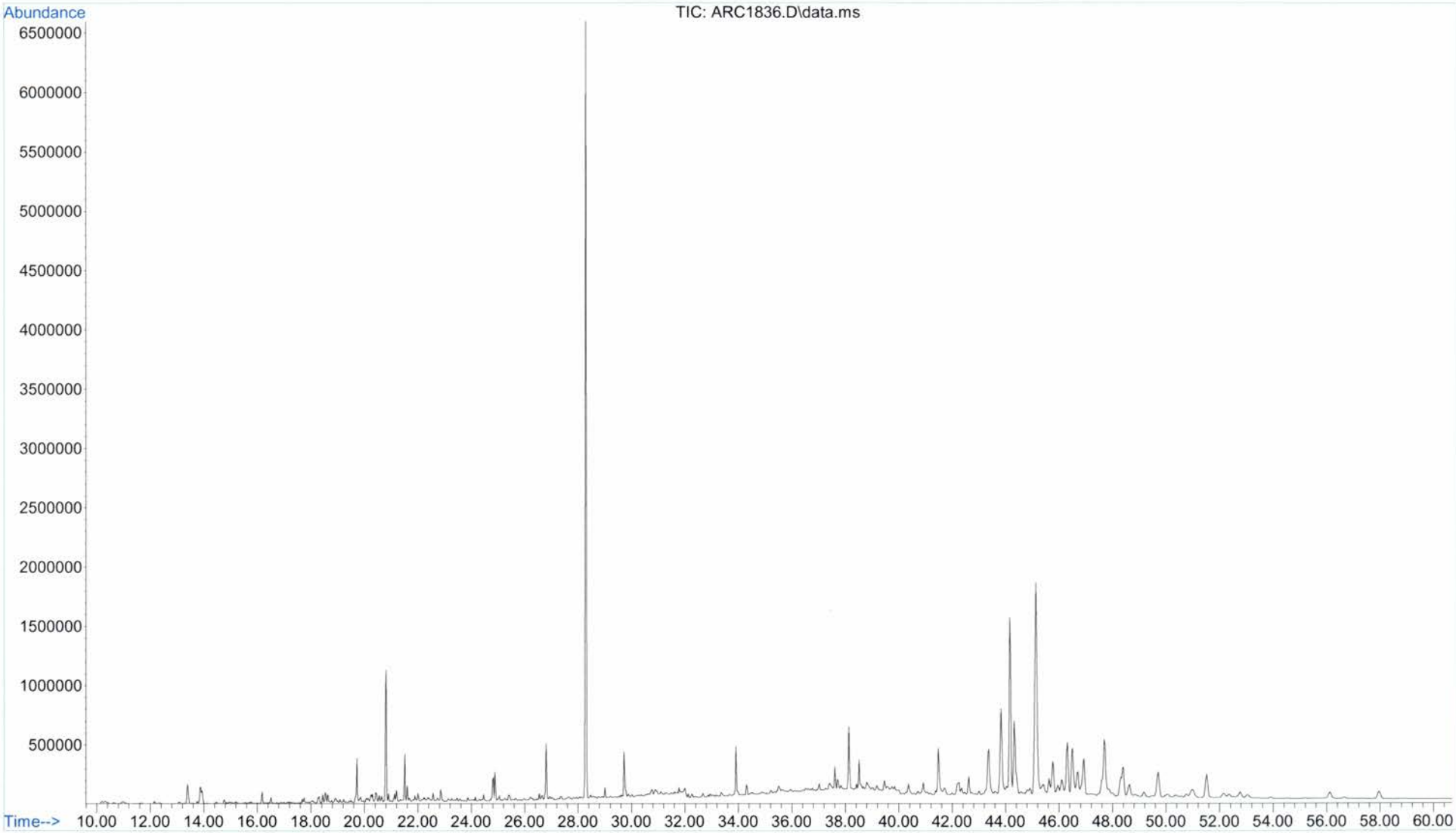
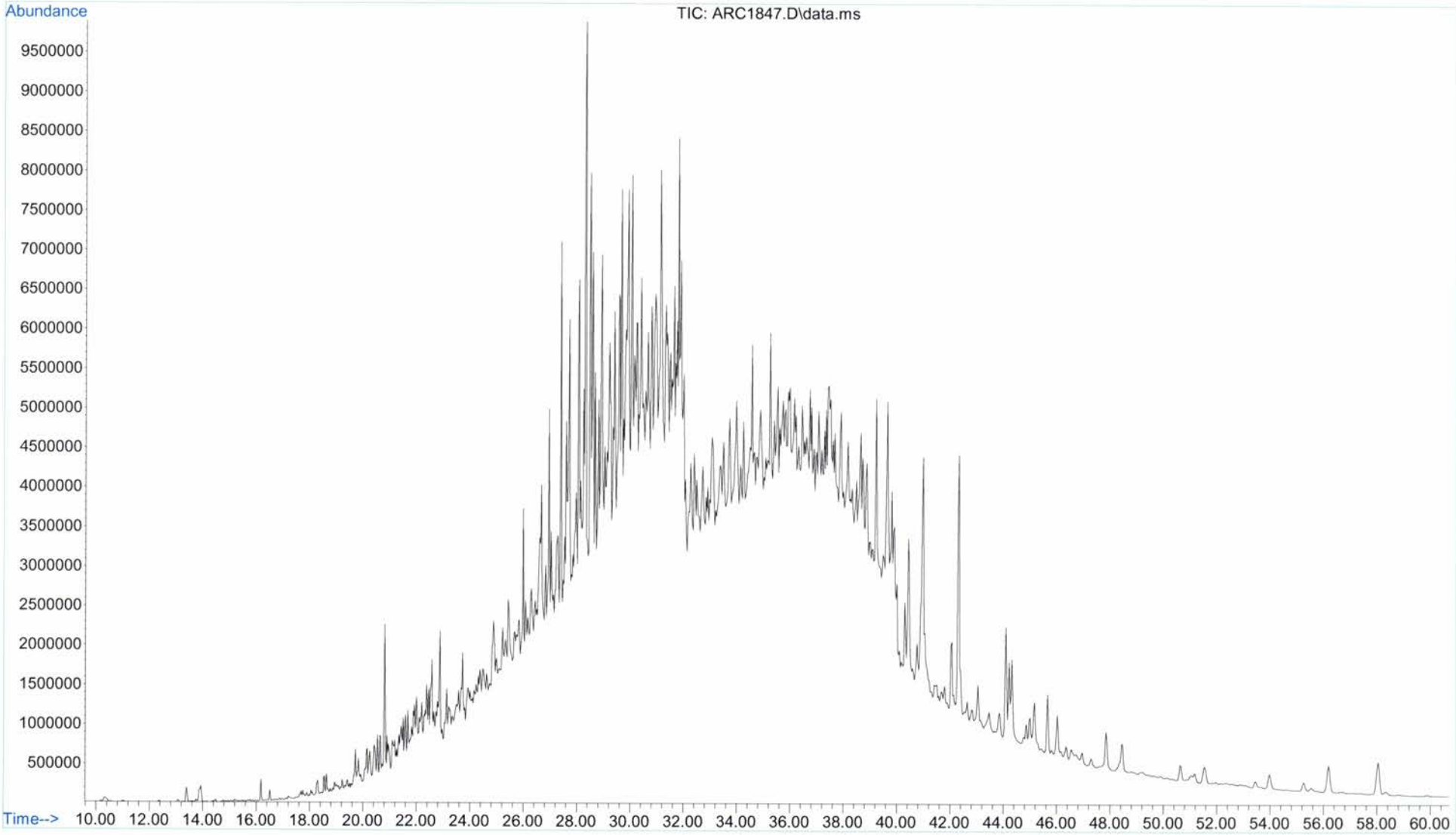
File       :C:\GCMS5\MS50164\ARC1813.D
Operator   : YM
Acquired   :  5 Sep 2013  11:10     using AcqMethod PAH-2012.M
Instrument :   GCMS5
Sample Name: SED-DA-048 (0.5-1.0)
Misc Info  :
Vial Number: 19
```



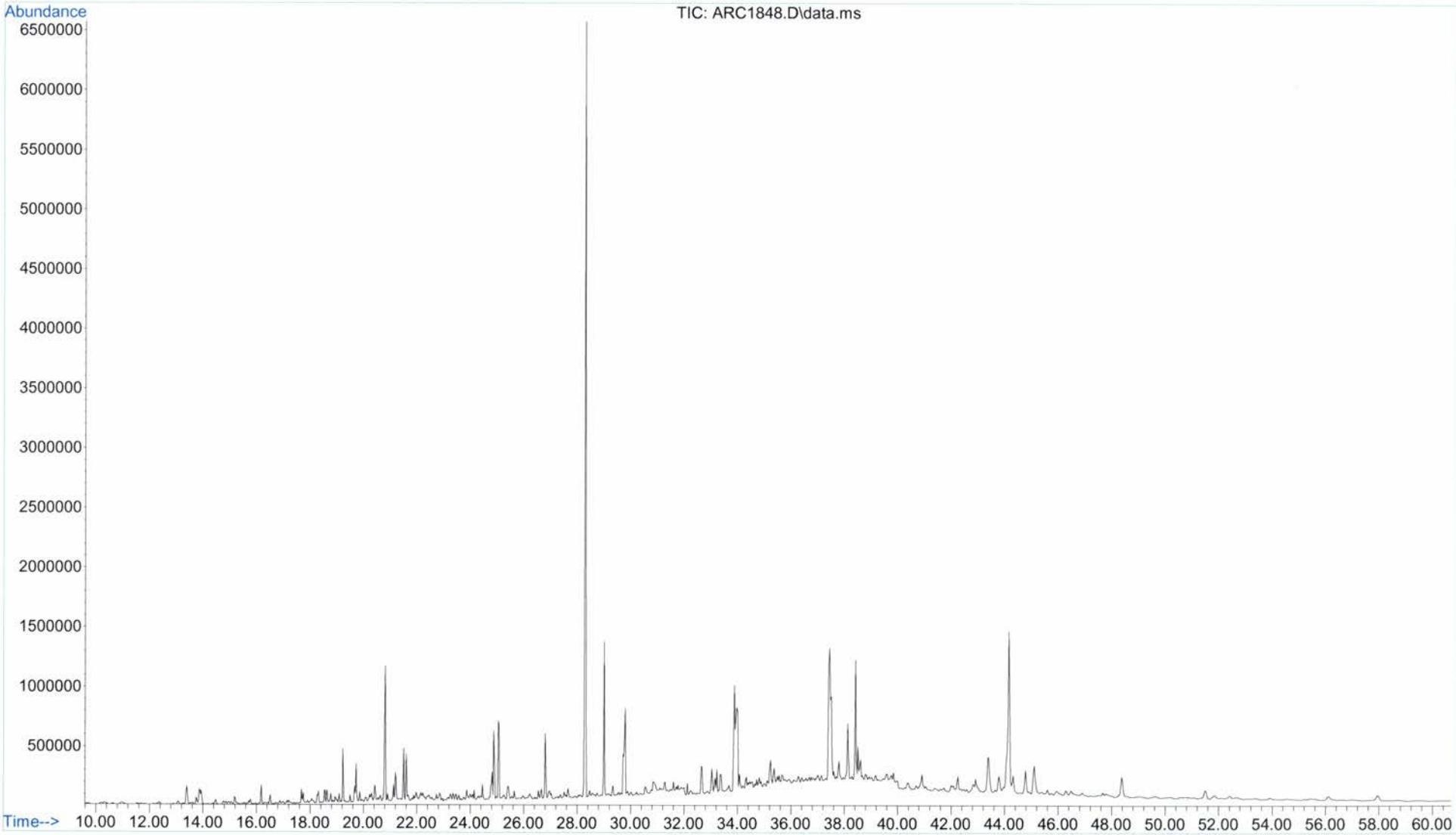
File :C:\GCMS5\MS50164\ARC1836.D
Operator : YM
Acquired : 5 Sep 2013 8:58 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-002 (0-0.5)
Misc Info :
Vial Number: 17



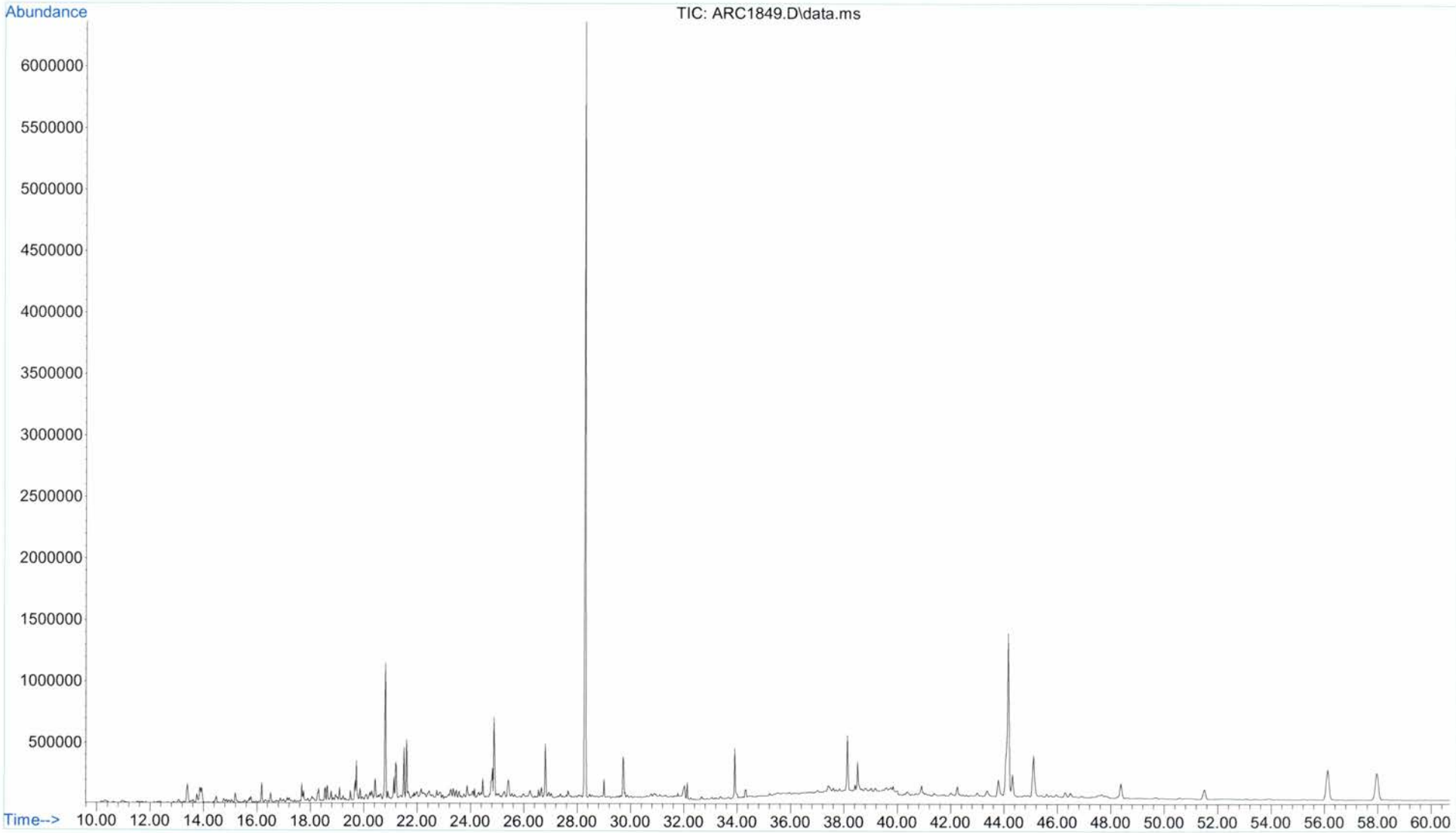
File :C:\GCMS5\MS50164\ARC1847.D
Operator : YM
Acquired : 5 Sep 2013 13:23 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-005 (0-0.5)
Misc Info :
Vial Number: 21



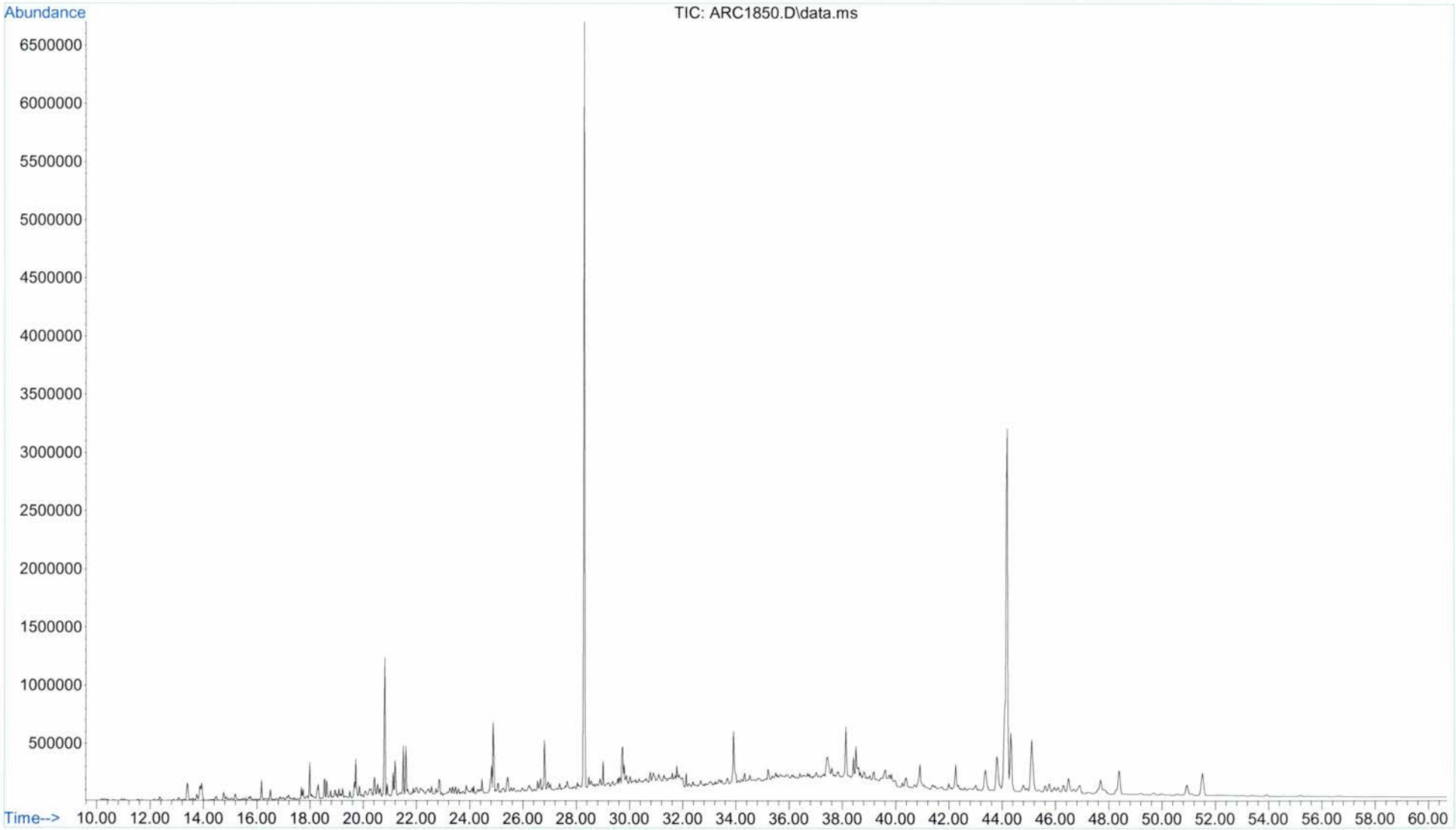
File :C:\GCMS5\MS50164\ARC1848.D
Operator : YM
Acquired : 5 Sep 2013 14:29 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-005 (0.5-1.0)
Misc Info :
Vial Number: 22



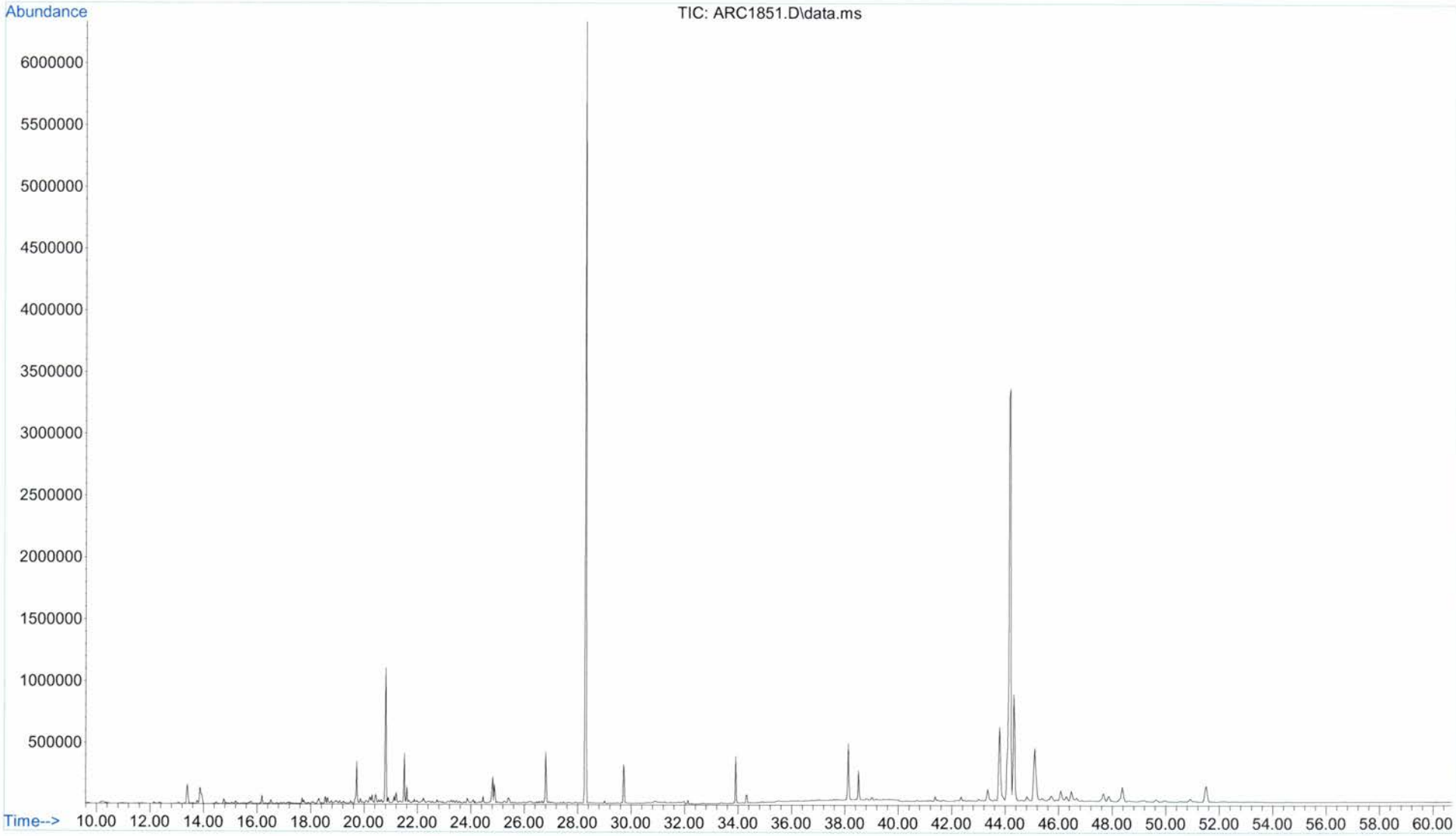
File :C:\GCMS5\MS50164\ARC1849.D
Operator : YM
Acquired : 5 Sep 2013 15:35 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-005 (1.0-1.5)
Misc Info :
Vial Number: 23



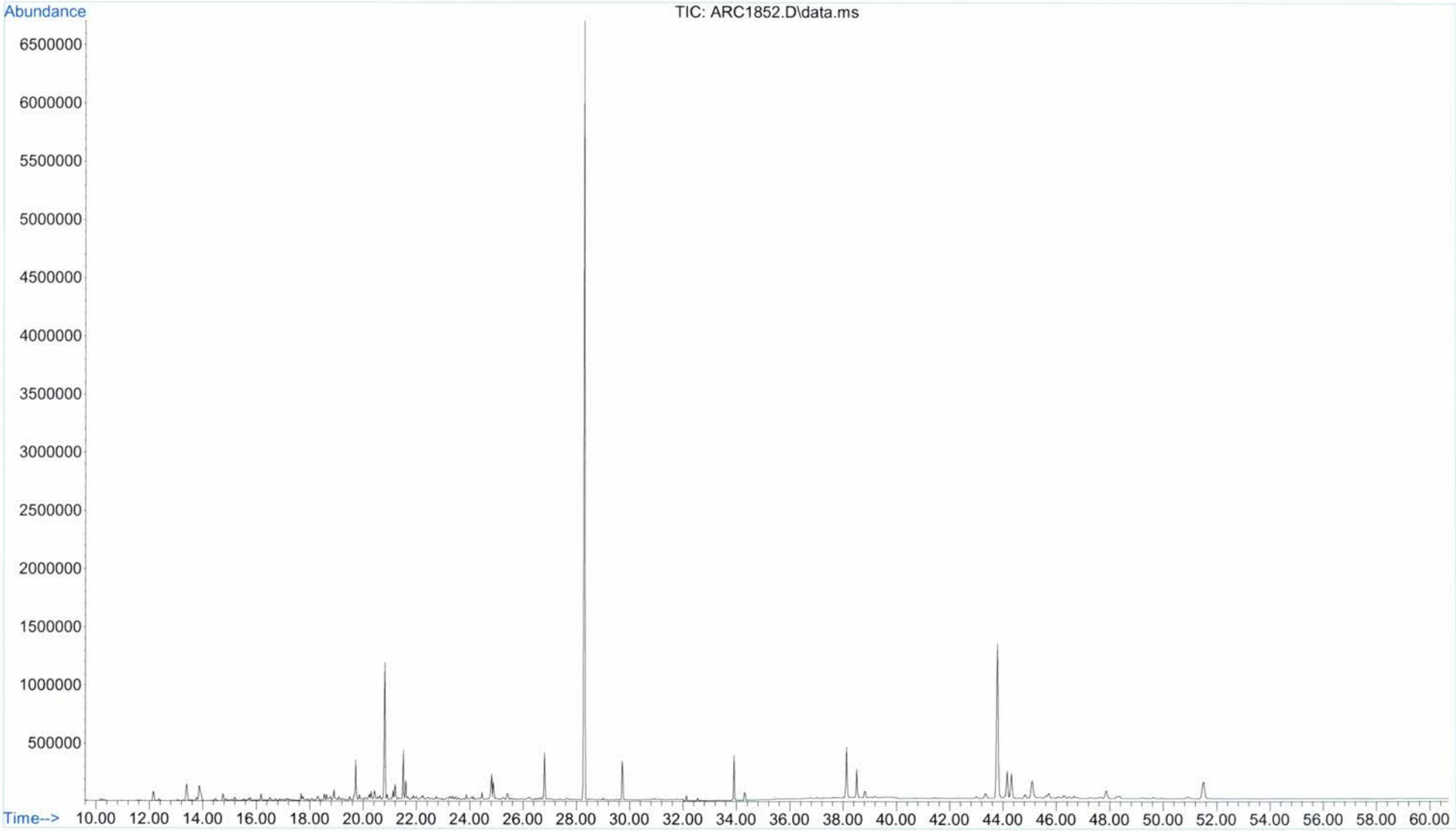
File :C:\GCMS5\MS50164\ARC1850.D
Operator : YM
Acquired : 5 Sep 2013 16:41 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-006 (0-0.5)
Misc Info :
Vial Number: 24



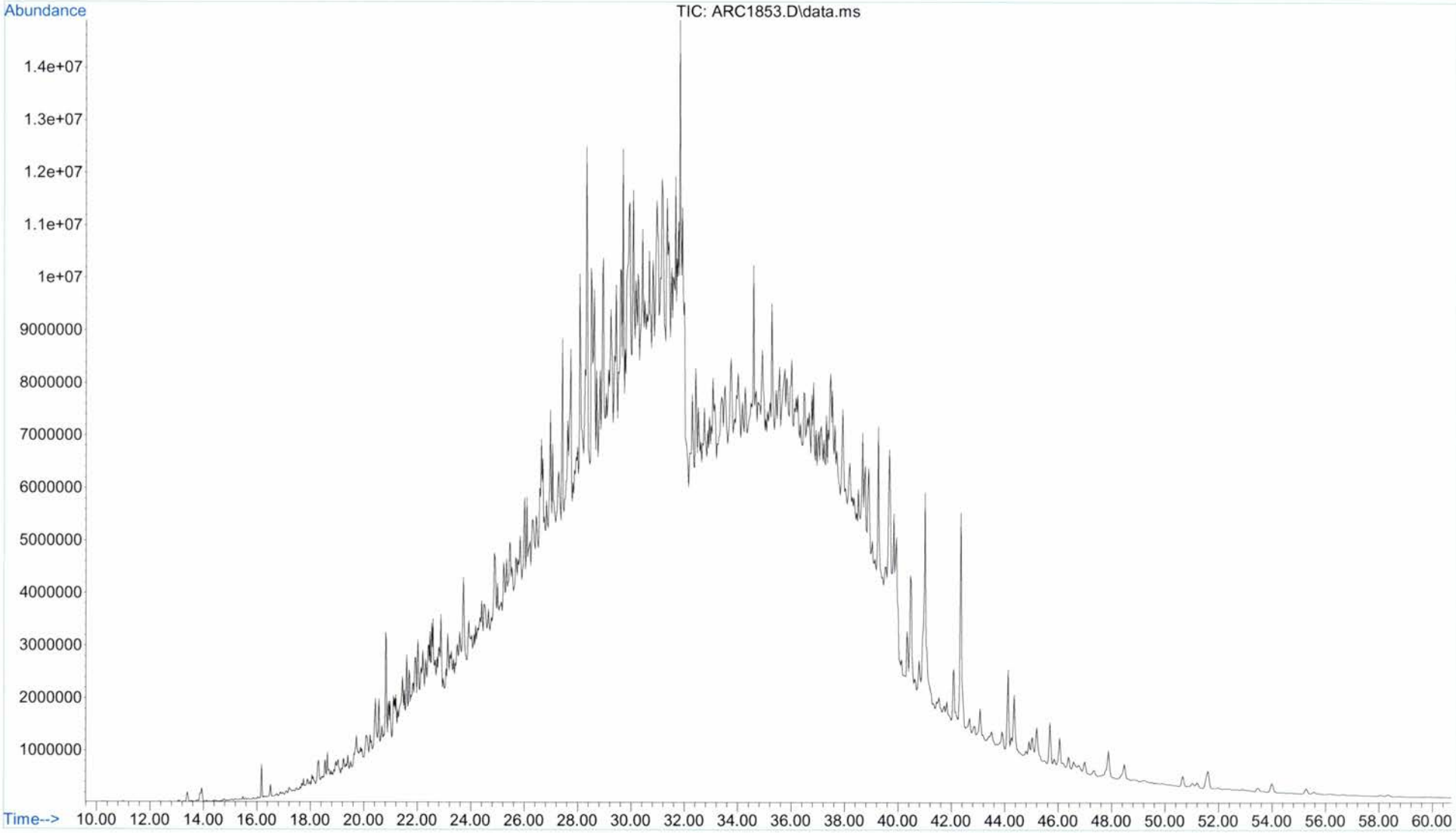
File :C:\GCMS5\MS50164\ARC1851.D
Operator : YM
Acquired : 5 Sep 2013 17:48 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-006 (0.5-1.0)
Misc Info :
Vial Number: 25



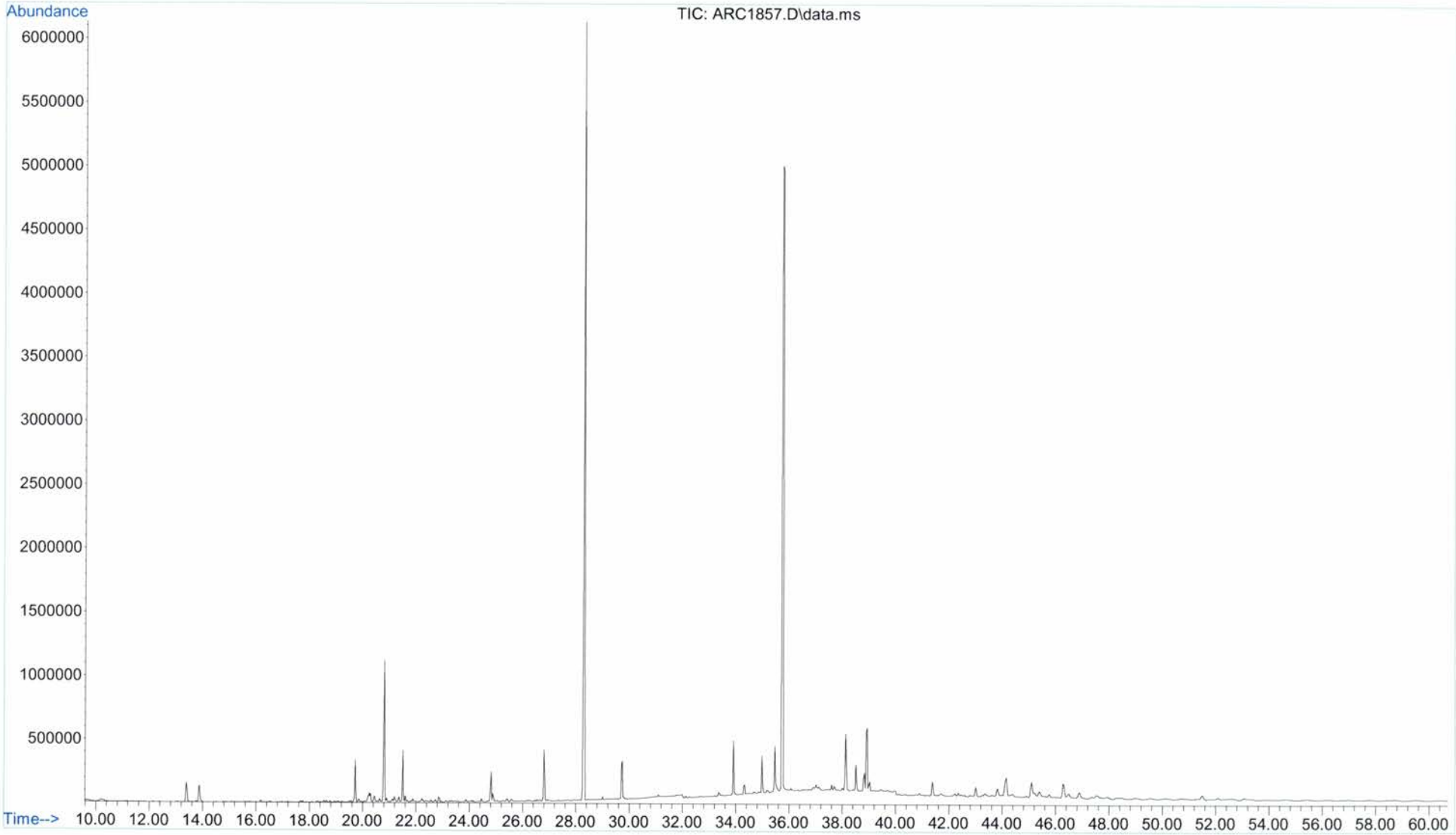
File :C:\GCMS5\MS50164\ARC1852.D
Operator : YM
Acquired : 5 Sep 2013 18:54 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-006 (1.0-1.5)
Misc Info :
Vial Number: 26



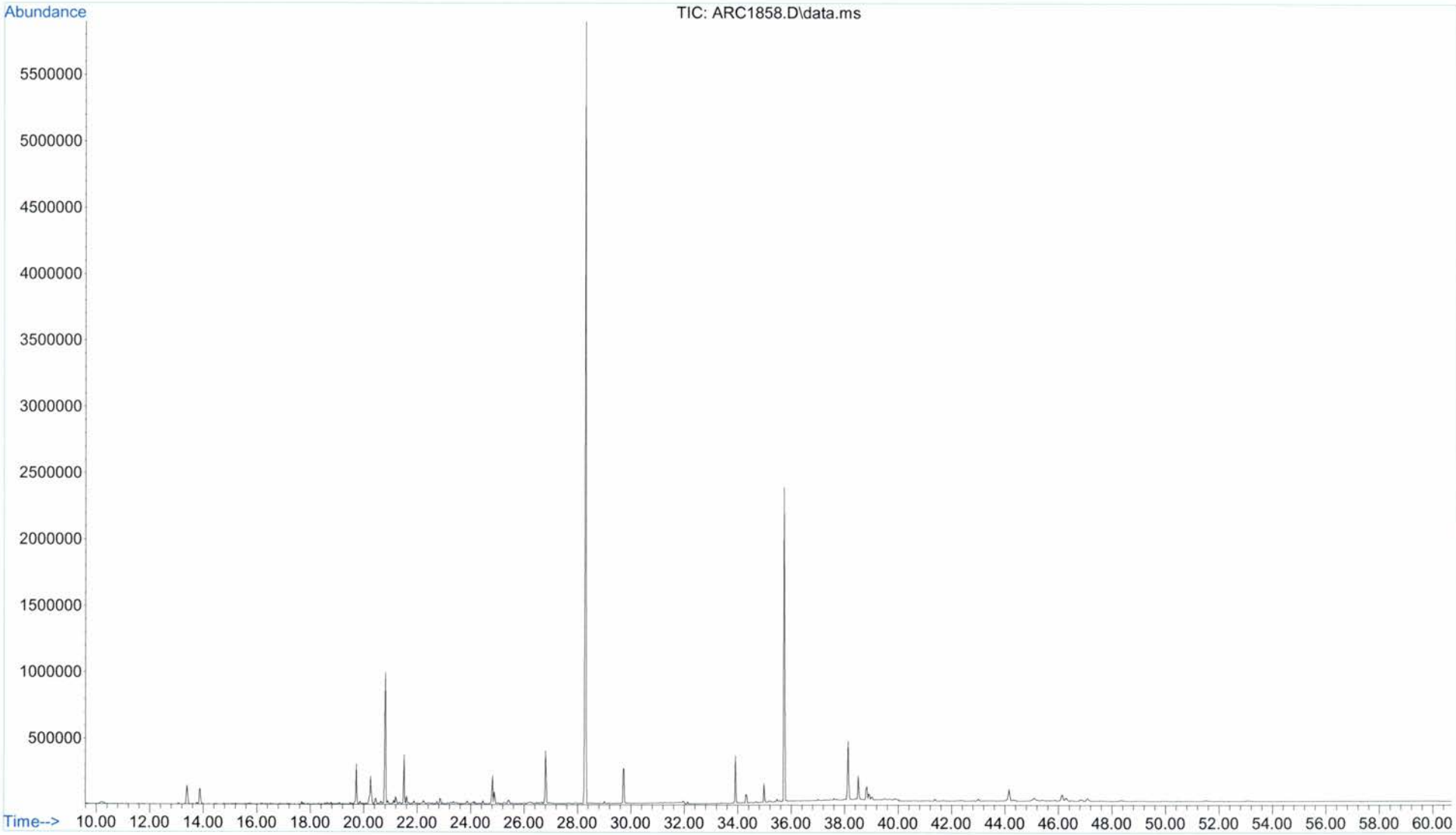
File :C:\GCMS5\MS50164\ARC1853.D
Operator : YM
Acquired : 5 Sep 2013 20:00 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-DUP-06-081313
Misc Info :
Vial Number: 27



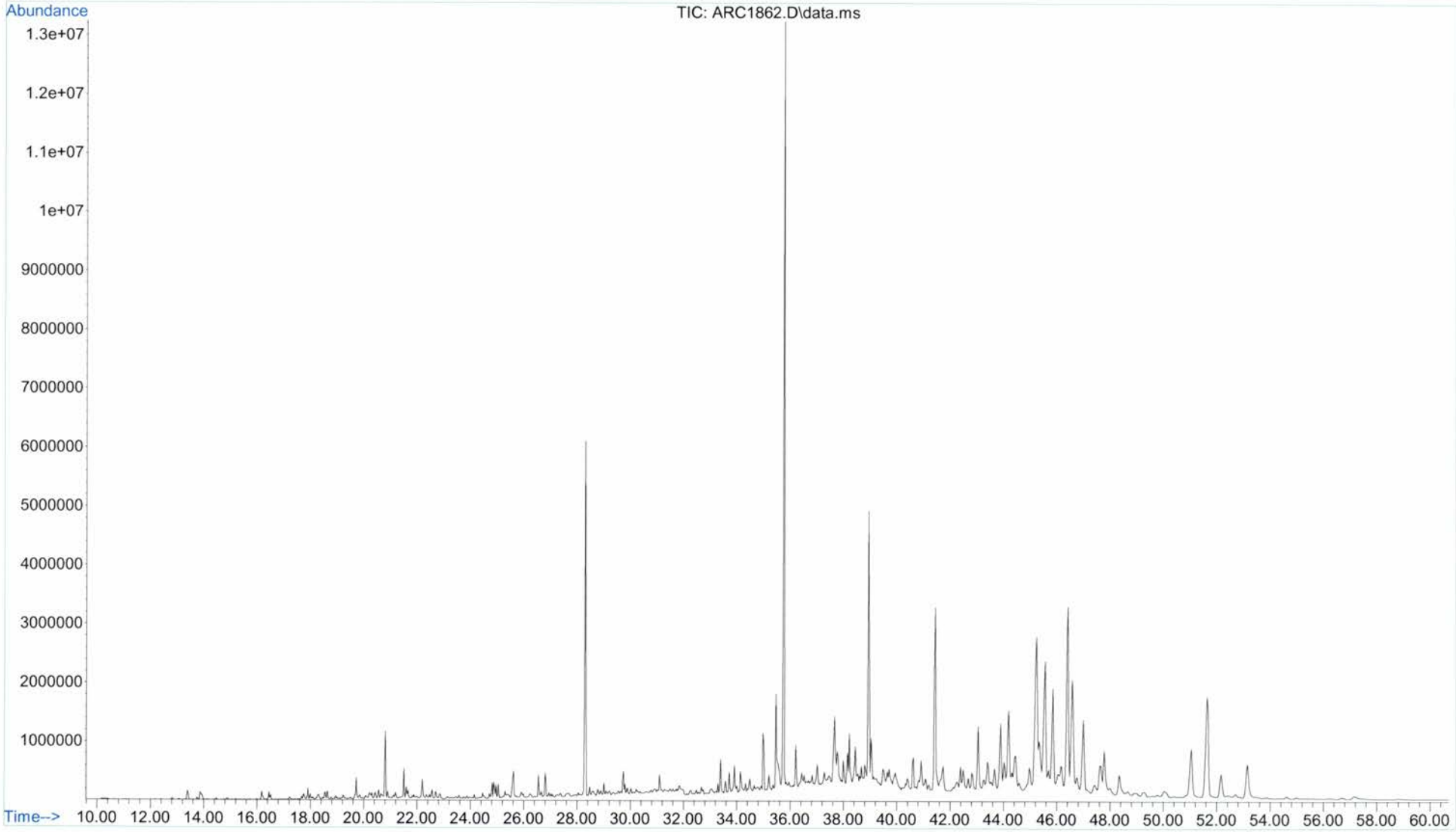
File :C:\GCMS5\MS50164\ARC1857.D
Operator : YM
Acquired : 5 Sep 2013 21:07 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-050 (0.5-1.0)
Misc Info :
Vial Number: 28



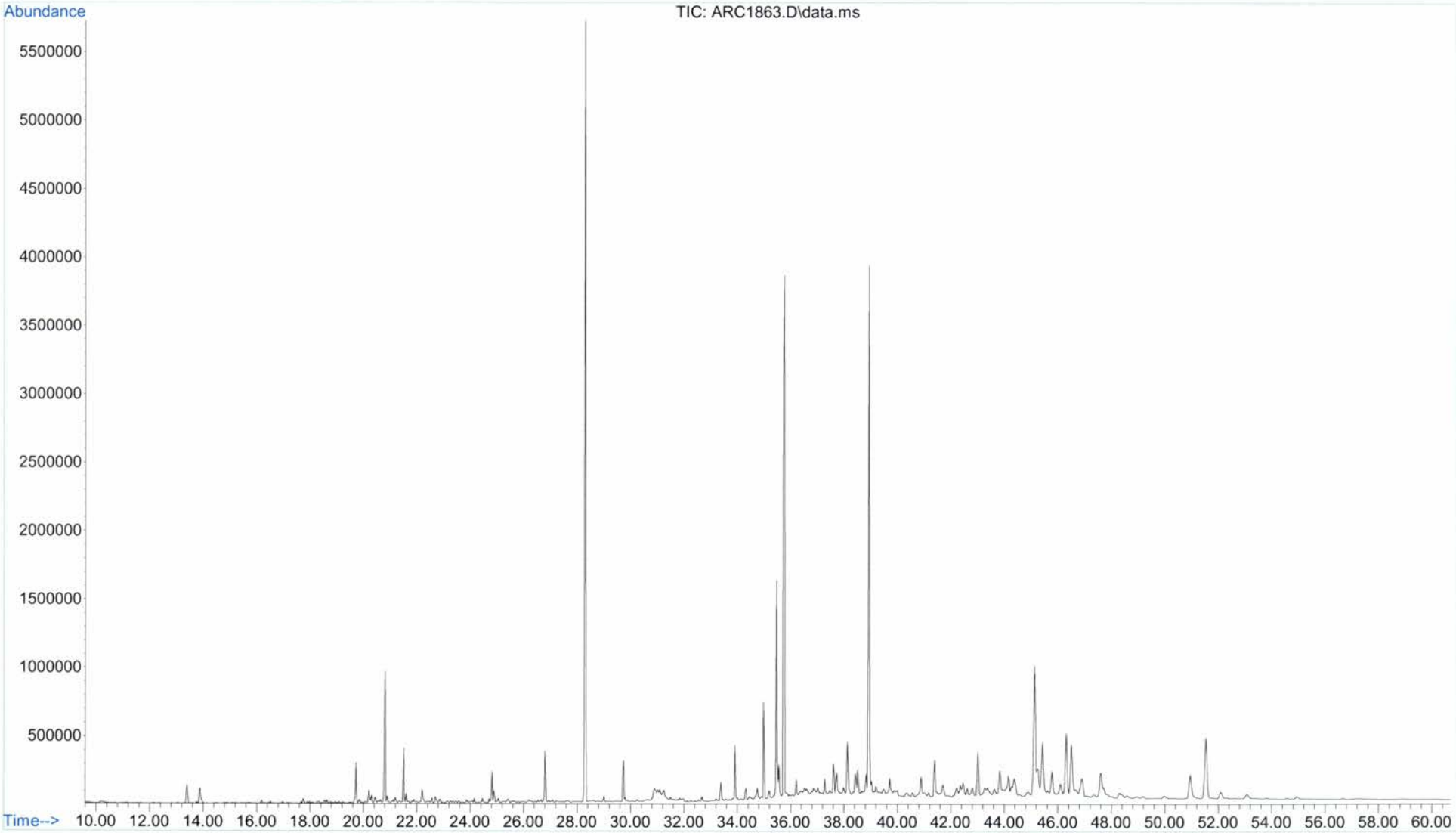
```
File       :C:\GCMS5\MS50164\ARC1858.D
Operator   : YM
Acquired   :  5 Sep 2013  23:19     using AcqMethod PAH-2012.M
Instrument :   GCMS5
Sample Name: SED-DA-050 (1.0-1.5)
Misc Info  :
Vial Number: 30
```



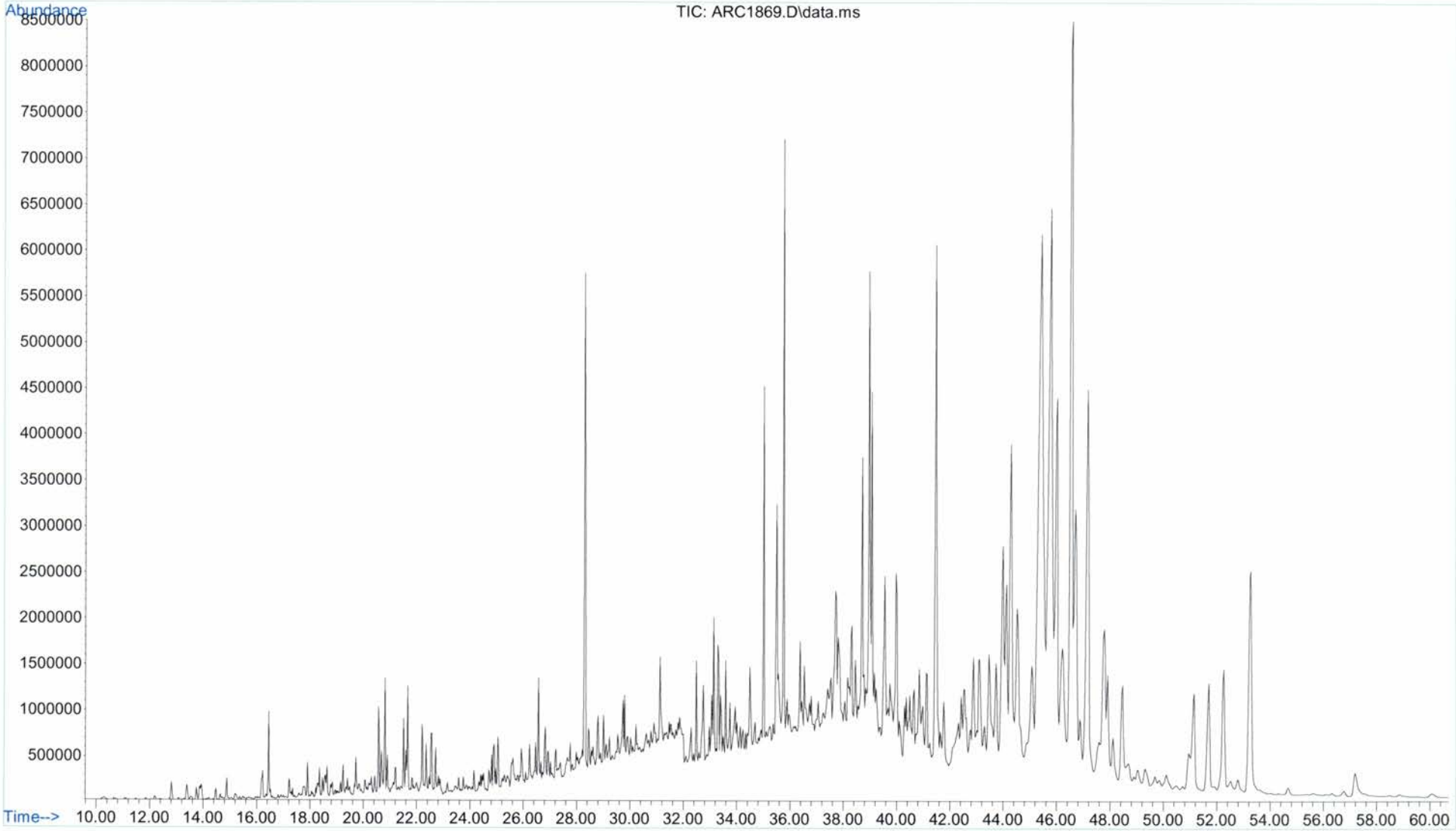
File :C:\GCMS5\MS50164\ARC1862.D
Operator : YM
Acquired : 6 Sep 2013 00:25 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-051 (0.5-1.0)
Misc Info :
Vial Number: 31



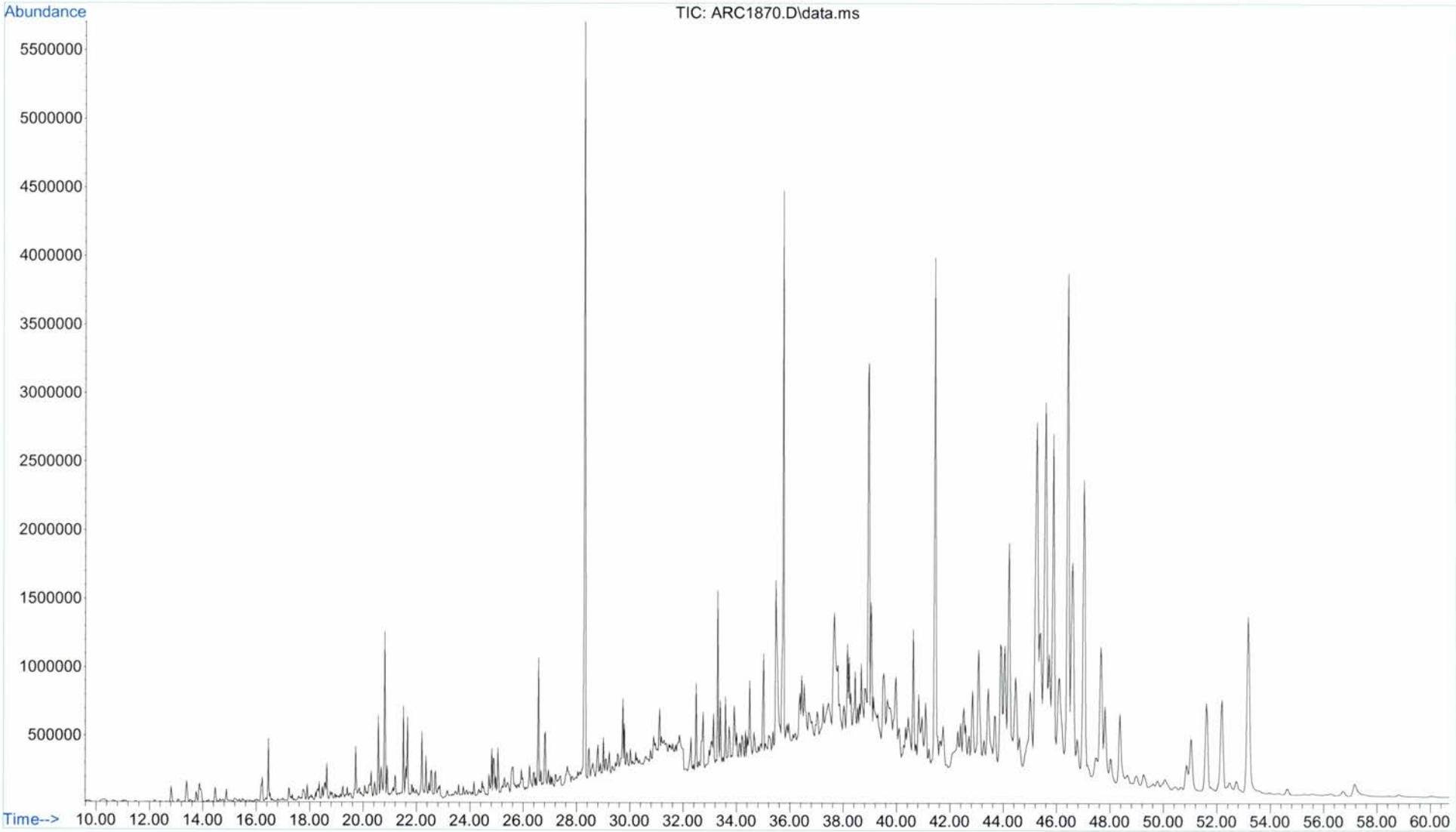
File :C:\GCMS5\MS50164\ARC1863.D
Operator : YM
Acquired : 6 Sep 2013 1:31 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-051 (1.0-1.5)
Misc Info :
Vial Number: 32



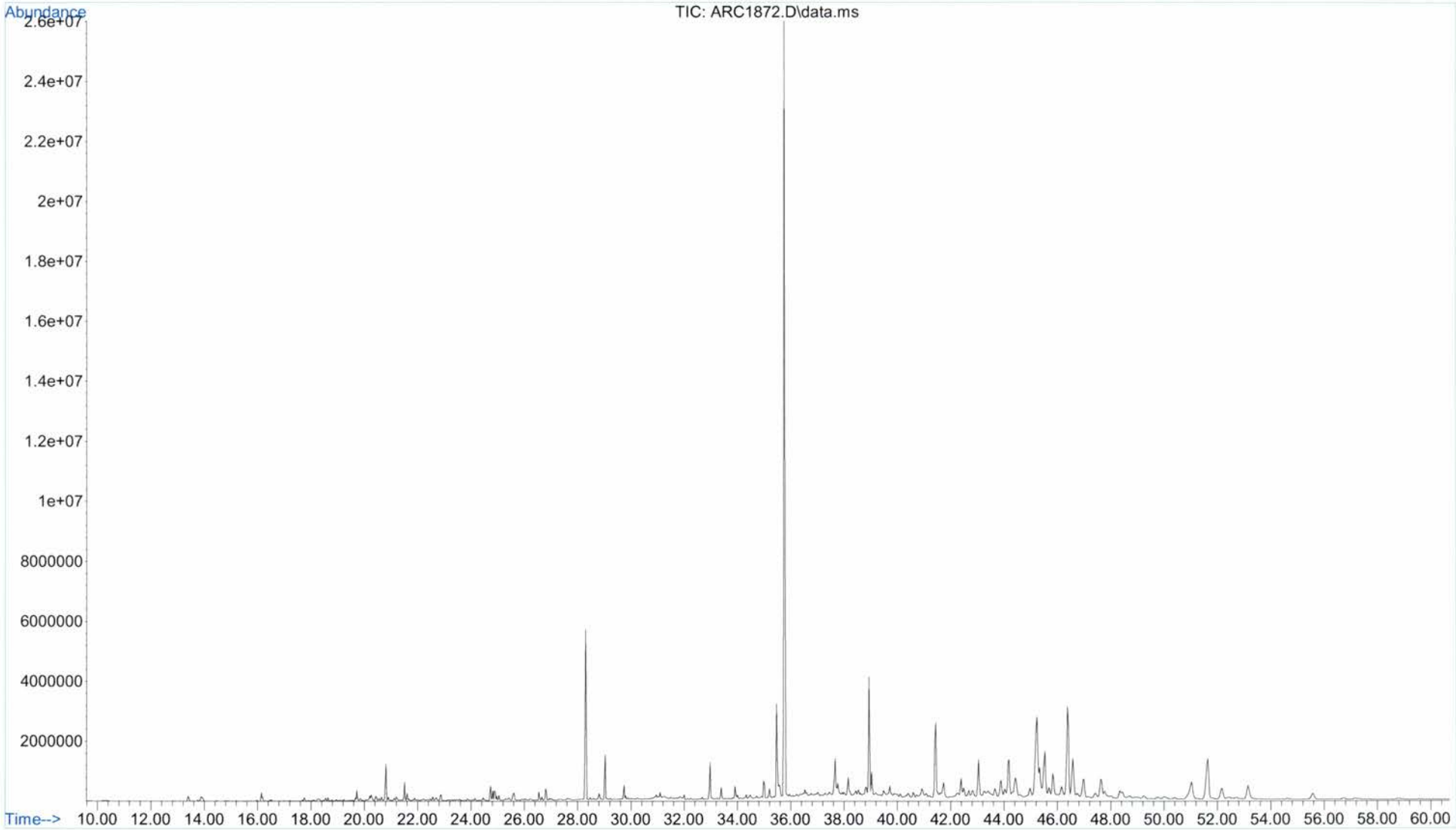
File :C:\GCMS5\MS50164\ARC1869.D
Operator : YM
Acquired : 6 Sep 2013 2:38 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-041 (0.5-1.0)
Misc Info :
Vial Number: 33



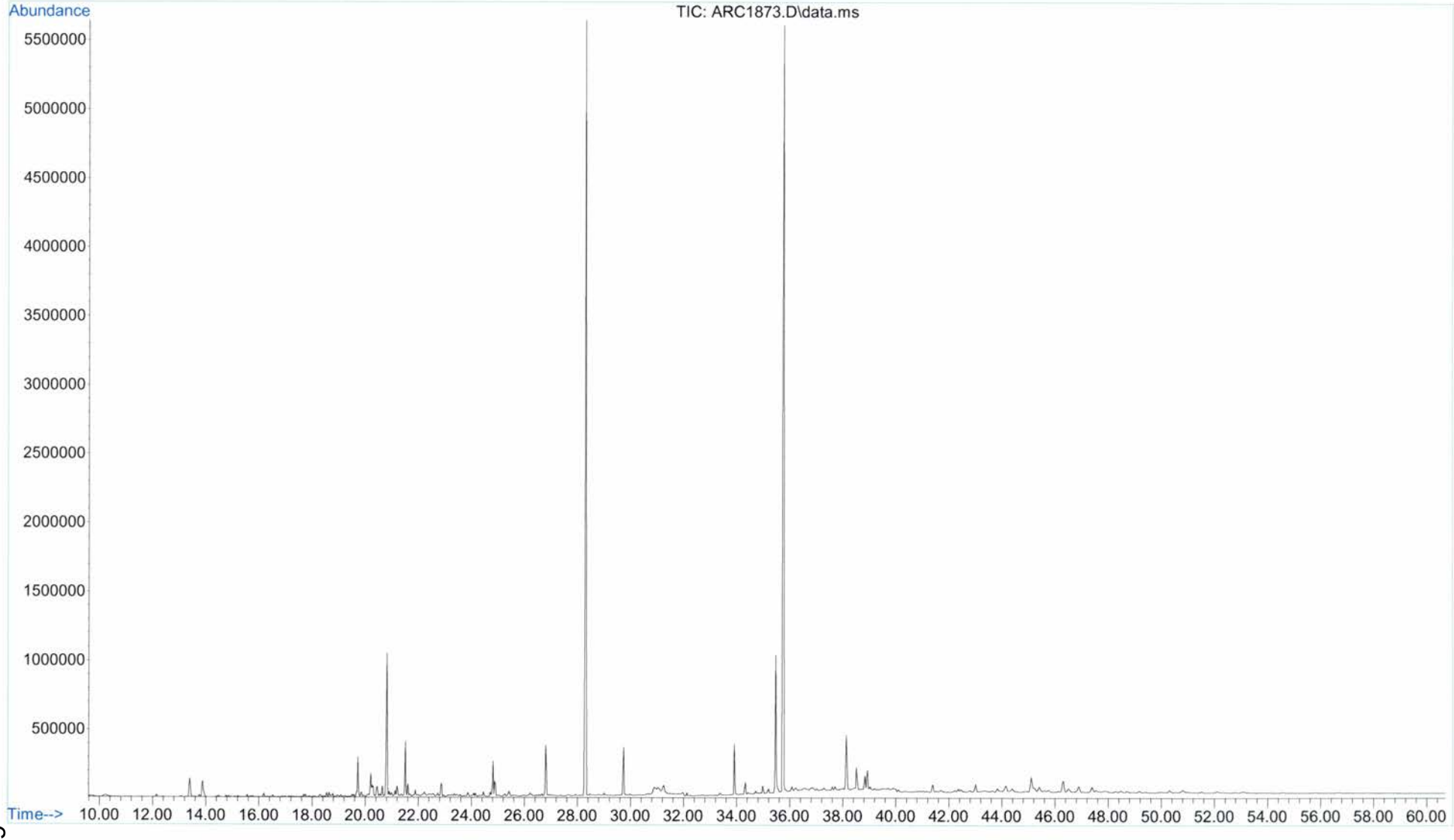
File :C:\GCMS5\MS50164\ARC1870.D
Operator : YM
Acquired : 6 Sep 2013 3:44 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-041 (1.0-1.5)
Misc Info :
Vial Number: 34



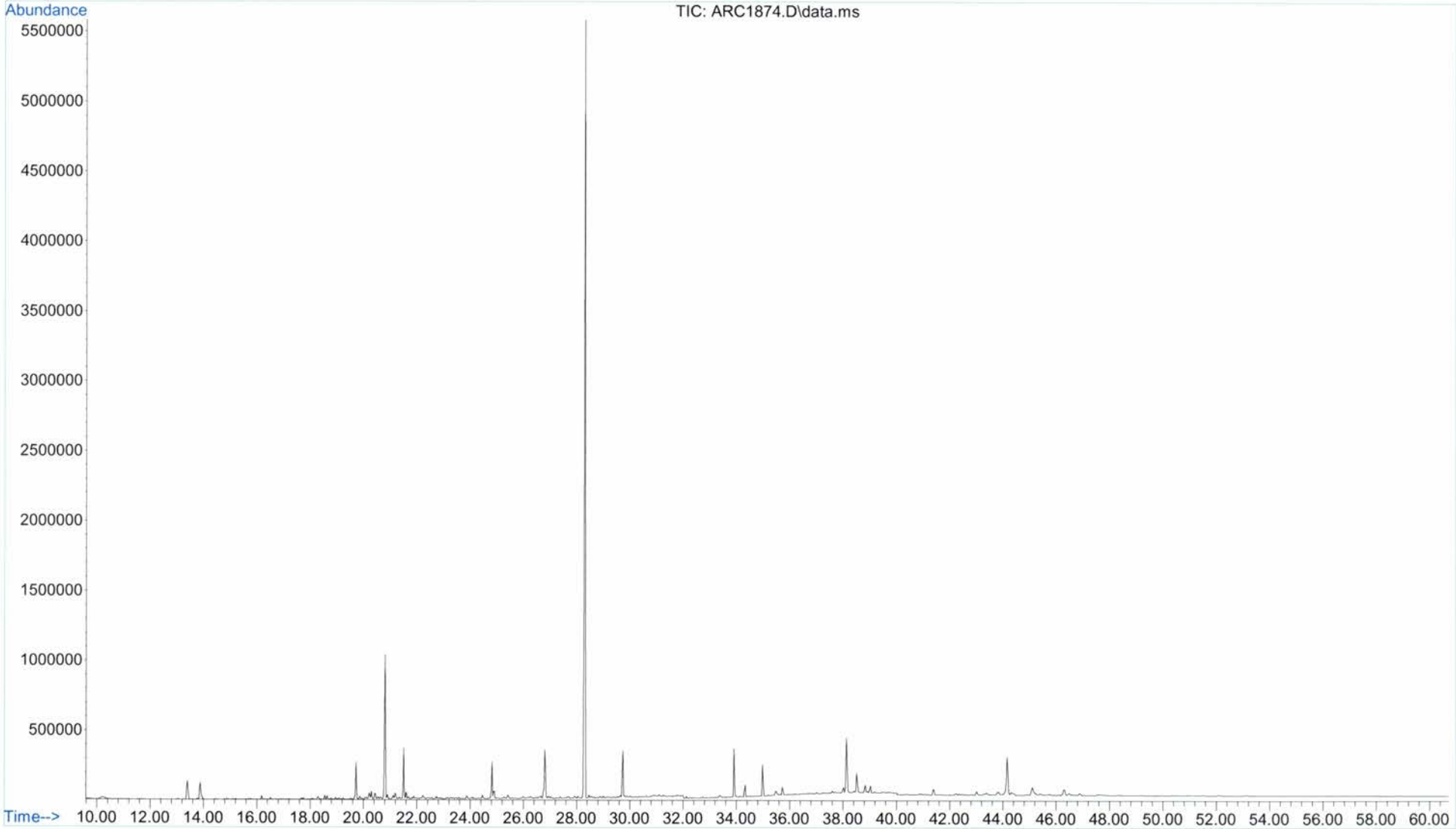
File :C:\GCMS5\MS50164\ARC1872.D
Operator : YM
Acquired : 6 Sep 2013 4:50 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-053 (0.5-1.0)
Misc Info :
Vial Number: 35



```
File       :C:\GCMS5\MS50164\ARC1873.D
Operator   : YM
Acquired   :  6 Sep 2013    5:56      using AcqMethod PAH-2012.M
Instrument :   GCMS5
Sample Name: SED-DA-053 (1.0-1.5)
Misc Info  :
Vial Number: 36
```



File :C:\GCMS5\MS50164\ARC1874.D
Operator : YM
Acquired : 6 Sep 2013 7:04 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-045 (1.0-1.5)
Misc Info :
Vial Number: 37



Polycyclic Aromatic Hydrocarbon Raw Data

B&B LABORATORIES PAHs QA FORM

Extraction Page: ENV 3096	Analyst: Y. Miao
Client: Arcadis Mayflower Project	Date: September 24, 2013
Job: #: J13034	Project Quality Manager: W Farand
SDG #: 13081301,13081401, and 13081501	Date: 09/25/13

Initial Calibration: No failures	ICV (Second source) No failures
Surrogate Recoveries: d12-Perylene was outside of the laboratory %recovery limits in 4 client submitted samples and two Internal QC samples (that used client submitted samples). Recovery is qualifed with an "L"	
Procedural Blank:	No failures
Blank Spike:	NA
Blank Spike Duplicate:	NA
Laboratory Duplicate:	No failures
Matrix Spike:	Benzo(a)pyrene and Perylene (both display low percent recoveries), and Anthracene and Benzo(g,h,i)perylene (may reflect low %recovery) due to a matrix effect. These compounds are qualified with the "L" qualifier.
Matirx Spike Duplicate:	Benzo(a)pyrene and Perylene (both display low percent recoveries), and Anthracene and Benzo(g,h,i)perylene (may reflect low %recovery) due to a matrix effect. These compounds are qualified with the "L" qualifier.
SRM/LCS (Solution, Tissue, Sediment):	Solution no failures Sediment (1941b) 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\MS50164.s
Comment: Arcadis-Mayflower AR-Sediments-PAH (09/04/13)
Operator: YM
Data Path: C:\MSDCHEM\1\DATA\MS50164\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line		Sample Name/Misc Info		
1)	Sample 1	MS50164A	PAH-2012	Solvent
2)	Sample 2	MS50164B	PAH-2012	AR-WKC1-020-030
3)	Sample 3	MS50164C	PAH-2012	AR-WKC2-100-030
4)	Sample 4	MS50164D	PAH-2012	AR-WKC3-250-030
5)	Sample 5	MS50164E	PAH-2012	AR-WKC4-500-030
6)	Sample 6	MS50164F	PAH-2012	AR-WKC5-1000-030
7)	Sample 7	MS50164G	PAH-2012	AR-WKC6-5000-030
8)	Sample 8	MS50164H	PAH-2012	AR-WKISSU-250-002
9)	Sample 9	MS50164I	PAH-2012	AR-WKICV-250-004
10)	Sample 10	MS50164J	PAH-2012	AR-WKCC-250-038
11)	Sample 11	MS50164K	PAH-2012	AR-SRM2779-WK-4.0-002
12)	Sample 12	ENV3096A	PAH-2012	
13)	Sample 13	ENV3096B	PAH-2012	
14)	Sample 14	ENV3096C	PAH-2012	
15)	Sample 15	ENV3096D	PAH-2012	
16)	Sample 16	ENV3096E	PAH-2012	
17)	Sample 17	ARC1836	PAH-2012	
18)	Sample 18	ARC1809	PAH-2012	
19)	Sample 19	ARC1813	PAH-2012	
20)	Sample 20	MS50164L	PAH-2012	AR-WKCC-250-038
21)	Sample 21	ARC1847	PAH-2012	
22)	Sample 22	ARC1848	PAH-2012	
23)	Sample 23	ARC1849	PAH-2012	
24)	Sample 24	ARC1850	PAH-2012	
25)	Sample 25	ARC1851	PAH-2012	
26)	Sample 26	ARC1852	PAH-2012	
27)	Sample 27	ARC1853	PAH-2012	
28)	Sample 28	ARC1857	PAH-2012	
29)	Sample 29	MS50164M	PAH-2012	AR-WKCC-250-038
30)	Sample 30	ARC1858	PAH-2012	
31)	Sample 31	ARC1862	PAH-2012	
32)	Sample 32	ARC1863	PAH-2012	
33)	Sample 33	ARC1869	PAH-2012	
34)	Sample 34	ARC1870	PAH-2012	
35)	Sample 35	ARC1872	PAH-2012	
36)	Sample 36	ARC1873	PAH-2012	
37)	Sample 37	ARC1874	PAH-2012	
38)	Sample 38	MS50164N	PAH-2012	AR-WKCC-250-038

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 12 18:51:45 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	82	0.00
2	S	Naphthalene-d8	1.716	1.753	-2.2	85	-0.02
3	T	cis/trans Decalin	0.337	0.347	-3.0	86	0.02
4	un	C1-Decalins	0.337	0.000	100.0#	0#	-12.40#
5	un	C2-Decalins	0.337	0.000	100.0#	0#	-13.54#
6	un	C3-Decalins	0.337	0.000	100.0#	0#	-16.23#
7	un	C4-Decalins	0.337	0.000	100.0#	0#	-18.71#
8	T	Naphthalene	1.817	1.851	-1.9	86	-0.02
9	T	2-Methylnaphthalene	1.174	1.165	0.8	85	0.00
10	T	1-Methylnaphthalene	1.160	1.157	0.3	84	0.00
11	T	2,6-Dimethylnaphthalene	1.072	1.030	3.9	82	-0.02
12	T	1,6,7-Trimethylnaphthalene	1.094	1.032	5.7	81	-0.02
13	un	C2-Naphthalenes	1.817	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.817	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.817	0.000	100.0#	0#	-21.95#
16	T	Benzothiophene	1.460	1.482	-1.5	85	0.00
17	un	C1-Benzothiophenes	1.460	0.000	100.0#	0#	-15.56#
18	un	C2-Benzothiophenes	1.460	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.460	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.460	0.000	100.0#	0#	-21.82#
21	S	Acenaphthene-d10	1.076	1.044	3.0	82	-0.02
22	T	Biphenyl	1.480	1.458	1.5	83	0.00
23	T	Acenaphthylene	1.783	1.614	9.5	78	-0.02
24	T	Acenaphthene	1.115	1.055	5.4	81	0.00
25	T	Dibenzofuran	1.544	1.495	3.2	82	0.00
26	T	Fluorene	1.274	1.165	8.6	79	-0.02
27	T	1-Methylfluorene	0.807	0.693	14.1	75	0.00
28	un	C1-Fluorenes	1.274	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.274	0.000	100.0#	0#	-25.70#
30	un	C3-Fluorenes	1.274	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	73	-0.03
32	S	Phenanthrene-d10	0.896	0.897	-0.1	78	0.00
33	T	Carbazole	0.635	0.530	16.5	68	0.00
34	T	Dibenzothiophene	0.980	1.043	-6.4	80	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.727	1.4	77	-0.03
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.29#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.58#
40	un	C4-Dibenzothiophenes	0.980	0.000	100.0#	0#	-30.98#
41	T	Phenanthrene	0.997	1.042	-4.5	84	-0.03
42	T	Anthracene	0.828	0.796	3.9	76	-0.03
43	un	3-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.57#
44	un	2-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#
45	un	2-Methylanthracene	0.775	0.000	100.0#	0#	-27.03#
46	un	4/9-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 12 18:51:45 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
47	T	1-Methylphenanthrene	0.775	0.717	7.5	73	0.00
48	T	3,6-Dimethylphenanthrene	0.816	0.740	9.3	71	0.00
49	T	Retene	0.396	0.329	16.9	67	0.00
50	un	C2-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	0.788	0.653	17.1	69	0.00
54	un	C1-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-36.37#
56	un	C3-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-37.57#
57	un	C4-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-38.02#
58	T	Fluoranthene	1.178	1.116	5.3	72	-0.03
59	T	Pyrene	1.273	1.202	5.6	73	-0.03
60	T	2-Methylfluoranthene	0.818	0.722	11.7	71	-0.03
61	T	Benzo(b)fluorene	0.594	0.461	22.4	66	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-31.69#
63	un	C2-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-32.29#
64	un	C3-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-33.94#
65	un	C4-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-35.75#
66	S	Chrysene-d12	0.892	0.750	15.9	69	-0.03
67	T	Benz(a)anthracene	0.739	0.556	24.8	66	0.00
68	T	Chrysene/Triphenylene	0.791	0.642	18.8	68	-0.03
69	un	C1-Chrysenes	0.791	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	0.791	0.000	100.0#	0#	-36.70#
71	un	C3-Chrysenes	0.791	0.000	100.0#	0#	-38.48#
72	un	C4-Chrysenes	0.791	0.000	100.0#	0#	-39.61#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	52	-0.03
74	un	C29-Hopane	0.852	0.000	100.0#	0#	-40.69#
75	un	18a-Oleanane	0.852	0.000	100.0#	0#	-42.09#
76	T	C30-Hopane	0.852	1.015	-19.1	66	-0.03
77	T	Benzo(b)fluoranthene	1.369	1.494	-9.1	66	-0.03
78	T	Benzo(k,j)fluoranthene	1.291	1.350	-4.6	60	-0.03
79	un	Benzo(a)fluoranthene	1.291	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.672	1.948	-16.5	67	-0.03
81	T	Benzo(a)pyrene	1.269	1.399	-10.2	67	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.228	1.370	-11.6	68	-0.03
83	T	Dibenzo(a,h)anthracene	0.902	0.988	-9.5	66	-0.07
84	un	C1-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-49.12#
85	un	C2-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.86#
86	un	C3-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.60#
87	T	Benzo(g,h,i)perylene	1.157	1.366	-18.1	69	-0.03
88	S	Perylene-d12	1.313	1.391	-5.9	64	-0.03
89	T	Perylene	1.408	1.543	-9.6	67	-0.03
90	S	5(b)H-Cholane	0.468	0.594	-26.9#	72	-0.03
91	un	C20-TAS	2.644	0.000	100.0#	0#	-33.74#
92	un	C21-TAS	2.644	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 12 18:51:45 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
93 un	C26(20S)-TAS	2.644	0.000	100.0#	0#	-38.87#
94 T	C26(20R)/C27(20S)-TAS	2.644	2.914	-10.2	60	-0.03
95 un	C28(20S)-TAS	2.644	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	2.644	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	2.644	0.000	100.0#	0#	-41.64#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 12 18:51:45 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	351736m	251.05		0.00
31) Pyrene-d10	29.710	212	558053m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	253581m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	614278m	255.43		-0.02
21) Acenaphthene-d10	19.715	164	365903m	242.65		-0.02
32) Phenanthrene-d10	24.822	188	499811m	250.51		0.00
66) Chrysene-d12	33.907	240	417612m	210.20		-0.03
88) Perylene-d12	38.802	264	352285m	264.80		-0.03
90) 5(b)H-Cholane	34.296	217	150554m	317.31		-0.03
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	120114m	254.19		
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	13.924	128	648210m	254.69		
9) 2-Methylnaphthalene	16.182	142	408634m	248.48		
10) 1-Methylnaphthalene	16.518	142	404854m	249.02		
11) 2,6-Dimethylnaphthalene	18.262	156	360664m	240.04		
12) 1,6,7-Trimethylnaphtha...	21.123	170	361474m	235.84		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	516021m	252.35		
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	17.747	154	506024m	244.07		
23) Acenaphthylene	19.223	152	560913m	224.48		
24) Acenaphthene	19.826	154	370332m	237.07		
25) Dibenzofuran	20.430	168	521161m	240.88		
26) Fluorene	21.593	166	409031m	229.24		
27) 1-Methylfluorene	23.579	180	244669m	216.28		
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	25.642	167	292274m	206.62		
34) Dibenzothiophene	24.455	184	572730m	262.36		
35) 4-Methyldibenzothiophene	25.952	198	408324m	248.81		
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	24.879	178	574722m	258.86		
42) Anthracene	25.048	178	444198m	240.95		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

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Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.		
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	27.026	192	394732m	228.67		
48) 3,6-Dimethylphenanthrene	28.100	206	412227m	226.83		
49) Retene	30.784	234	163529m	185.48		
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	33.064	234	365959m	208.66		
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	29.004	202	621912m	237.17		
59) Pyrene	29.766	202	669261m	236.09		
60) 2-Methylfluoranthene	30.529	216	404782m	222.18		
61) Benzo(b)fluorene	31.151	216	258827m	195.80		
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	33.875	228	308719m	187.49		
68) Chrysene/Triphenylene	33.972	228	355325m	201.78		
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	42.977	191	256977m	297.63		
77) Benzo(b)fluoranthene	37.408	252	379188	273.51		100
78) Benzo(k,j)fluoranthene	37.506	252	340496	260.29		100
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	491341m	290.16		
81) Benzo(a)pyrene	38.608	252	353503m	274.99		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	340933m	274.05		
83) Dibenzo(a,h)anthracene	43.435	278	248082m	271.57		
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	44.776	276	342751m	292.34		
89) Perylene	38.900	252	391199m	274.23		
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	39.548	231	737991m	275.48		
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:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 12 18:51:45 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

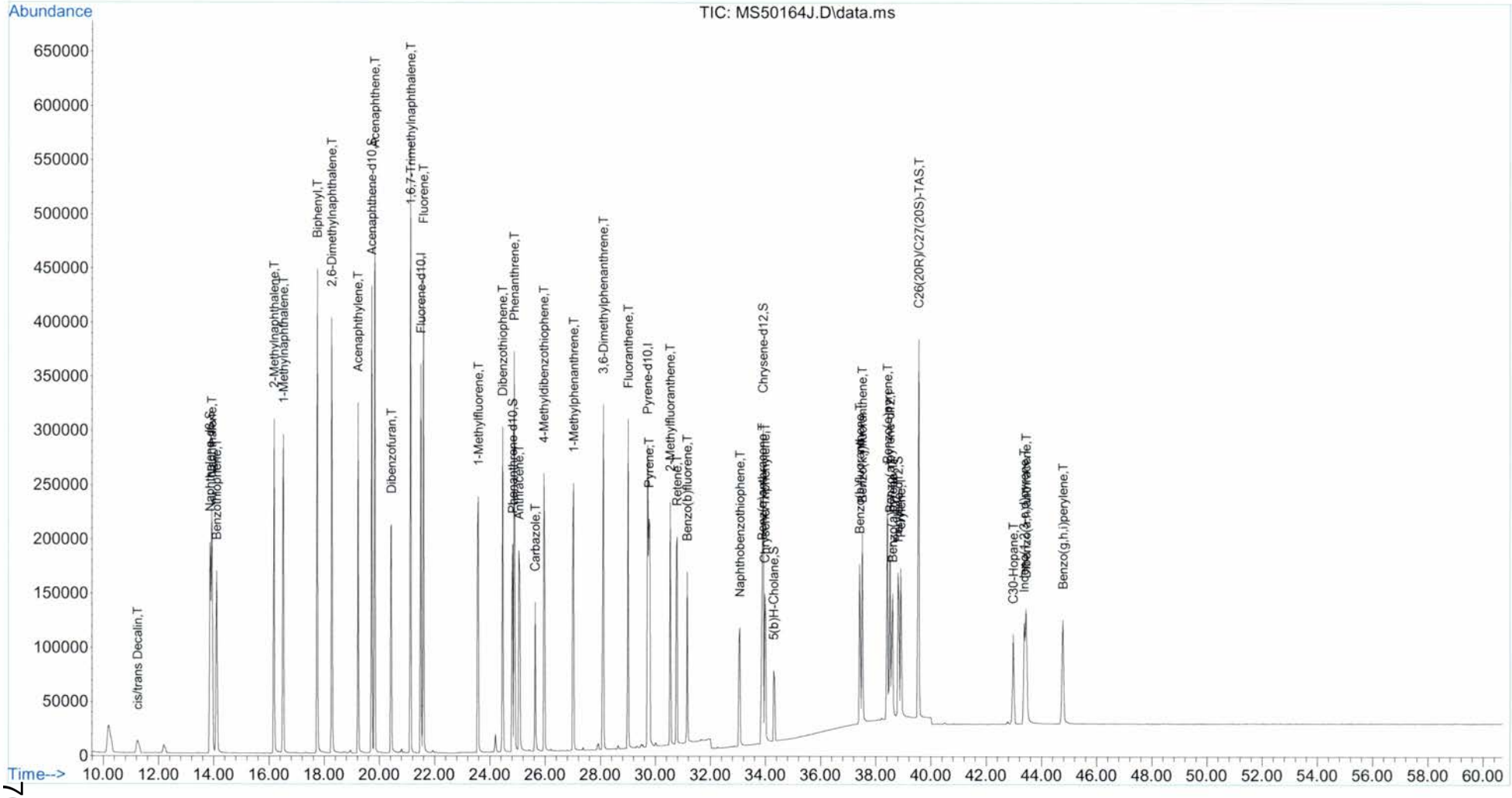
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164J.D
Acq On : 5 Sep 2013 1:14 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 12 18:51:45 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	96	0.00
2	S	Naphthalene-d8	1.716	1.525	11.1	86	-0.02
3	T	cis/trans Decalin	0.337	0.292	13.4	85	0.00
4	un	C1-Decalins	0.337	0.000	100.0#	0#	-12.40#
5	un	C2-Decalins	0.337	0.000	100.0#	0#	-13.54#
6	un	C3-Decalins	0.337	0.000	100.0#	0#	-16.23#
7	un	C4-Decalins	0.337	0.000	100.0#	0#	-18.71#
8	T	Naphthalene	1.817	1.610	11.4	88	-0.02
9	T	2-Methylnaphthalene	1.174	1.066	9.2	91	0.00
10	T	1-Methylnaphthalene	1.160	1.030	11.2	87	0.00
11	T	2,6-Dimethylnaphthalene	1.072	0.996	7.1	93	-0.02
12	T	1,6,7-Trimethylnaphthalene	1.094	1.009	7.8	93	-0.02
13	un	C2-Naphthalenes	1.817	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.817	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.817	0.000	100.0#	0#	-21.95#
16	T	Benzothiophene	1.460	1.287	11.8	86	0.00
17	un	C1-Benzothiophenes	1.460	0.000	100.0#	0#	-15.56#
18	un	C2-Benzothiophenes	1.460	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.460	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.460	0.000	100.0#	0#	-21.82#
21	S	Acenaphthene-d10	1.076	0.958	11.0	88	-0.02
22	T	Biphenyl	1.480	1.352	8.6	90	0.00
23	T	Acenaphthylene	1.783	1.669	6.4	94	-0.02
24	T	Acenaphthene	1.115	1.004	10.0	90	0.00
25	T	Dibenzofuran	1.544	1.440	6.7	93	-0.02
26	T	Fluorene	1.274	1.218	4.4	96	-0.02
27	T	1-Methylfluorene	0.807	0.759	5.9	97	0.00
28	un	C1-Fluorenes	1.274	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.274	0.000	100.0#	0#	-25.70#
30	un	C3-Fluorenes	1.274	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	108	-0.03
32	S	Phenanthrene-d10	0.896	0.764	14.7	98	0.00
33	T	Carbazole	0.635	0.614	3.3	117	0.00
34	T	Dibenzothiophene	0.980	0.876	10.6	99	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.640	13.2	100	-0.03
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.29#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.58#
40	un	C4-Dibenzothiophenes	0.980	0.000	100.0#	0#	-30.98#
41	T	Phenanthrene	0.997	0.914	8.3	109	-0.03
42	T	Anthracene	0.828	0.769	7.1	109	-0.03
43	un	3-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.57#
44	un	2-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#
45	un	2-Methylanthracene	0.775	0.000	100.0#	0#	-27.03#
46	un	4/9-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
47	T	1-Methylphenanthrene	0.775	0.688	11.2	104	0.00
48	T	3,6-Dimethylphenanthrene	0.816	0.728	10.8	104	0.00
49	T	Retene	0.396	0.366	7.6	111	0.00
50	un	C2-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	0.788	0.781	0.9	123	-0.03
54	un	C1-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-36.37#
56	un	C3-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-37.57#
57	un	C4-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-38.02#
58	T	Fluoranthene	1.178	1.090	7.5	104	-0.03
59	T	Pyrene	1.273	1.108	13.0	100	-0.03
60	T	2-Methylfluoranthene	0.818	0.782	4.4	114	-0.03
61	T	Benzo(b)fluorene	0.594	0.680	-14.5	144	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-31.69#
63	un	C2-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-32.29#
64	un	C3-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-33.94#
65	un	C4-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-35.75#
66	S	Chrysene-d12	0.892	0.884	0.9	120	-0.03
67	T	Benz(a)anthracene	0.739	0.742	-0.4	130	0.00
68	T	Chrysene/Triphenylene	0.791	0.775	2.0	122	-0.03
69	un	C1-Chrysenes	0.791	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	0.791	0.000	100.0#	0#	-36.70#
71	un	C3-Chrysenes	0.791	0.000	100.0#	0#	-38.48#
72	un	C4-Chrysenes	0.791	0.000	100.0#	0#	-39.61#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	103	-0.03
74	un	C29-Hopane	0.852	0.000	100.0#	0#	-40.69#
75	un	18a-Oleanane	0.852	0.000	100.0#	0#	-42.09#
76	T	C30-Hopane	0.852	0.784	8.0	100	-0.03
77	T	Benzo(b)fluoranthene	1.369	1.497	-9.3	131	-0.03
78	T	Benzo(k,j)fluoranthene	1.291	1.387	-7.4	123	-0.03
79	un	Benzo(a)fluoranthene	1.291	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.672	1.645	1.6	112	-0.03
81	T	Benzo(a)pyrene	1.269	1.257	0.9	119	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.228	1.161	5.5	114	-0.03
83	T	Dibenzo(a,h)anthracene	0.902	0.886	1.8	117	-0.07
84	un	C1-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-49.12#
85	un	C2-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.86#
86	un	C3-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.60#
87	T	Benzo(g,h,i)perylene	1.157	1.050	9.2	104	-0.03
88	S	Perylene-d12	1.313	1.315	-0.2	120	-0.03
89	T	Perylene	1.408	1.428	-1.4	123	-0.03
90	S	5(b)H-Cholane	0.468	0.428	8.5	103	-0.03
91	un	C20-TAS	2.644	0.000	100.0#	0#	-33.74#
92	un	C21-TAS	2.644	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
93 un	C26(20S)-TAS	2.644	0.000	100.0#	0#	-38.87#
94 T	C26(20R)/C27(20S)-TAS	2.644	2.731	-3.3	111	-0.03
95 un	C28(20S)-TAS	2.644	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	2.644	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	2.644	0.000	100.0#	0#	-41.64#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	411533m	251.05		0.00
31) Pyrene-d10	29.710	212	826099m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	500415m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	625223m	222.21		-0.02
21) Acenaphthene-d10	19.715	164	392986m	222.74		-0.02
32) Phenanthrene-d10	24.822	188	630094m	213.33		0.00
66) Chrysene-d12	33.907	240	728578m	247.73		-0.03
88) Perylene-d12	38.802	264	657108m	250.29		-0.03
90) 5(b)H-Cholane	34.296	217	214080m	228.64		-0.03
Target Compounds						Qvalue
3) cis/trans Decalin	11.219	138	118489m	214.31		
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	13.924	128	659952m	221.62		
9) 2-Methylnaphthalene	16.182	142	437204m	227.23		
10) 1-Methylnaphthalene	16.518	142	421740m	221.71		
11) 2,6-Dimethylnaphthalene	18.262	156	408071m	232.13		
12) 1,6,7-Trimethylnaphtha...	21.123	170	413678m	230.68		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	524234m	219.11		
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	17.747	154	549228m	226.41		
23) Acenaphthylene	19.223	152	678477m	232.08		
24) Acenaphthene	19.826	154	412185m	225.53		
25) Dibenzofuran	20.408	168	587249m	231.99		
26) Fluorene	21.593	166	500309m	239.65		
27) 1-Methylfluorene	23.579	180	313192m	236.63		
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	25.642	167	501718m	239.60		
34) Dibenzothiophene	24.455	184	711605m	220.21		
35) 4-Methyldibenzothiophene	25.952	198	531745m	218.88		
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	24.879	178	746361m	227.09		
42) Anthracene	25.048	178	635719m	232.95		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
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	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	560851m	219.48		
48) 3,6-Dimethylphenanthrene	28.100	206	600575m	223.24		
49) Retene	30.784	234	269507m	206.49		
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	33.032	234	647807m	249.51		
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	29.004	202	899121m	231.63		
59) Pyrene	29.766	202	913041m	217.58		
60) 2-Methylfluoranthene	30.529	216	648574m	240.48		
61) Benzo(b)fluorene	31.151	216	565278m	288.87		
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	33.875	228	610473m	250.45		
68) Chrysene/Triphenylene	33.972	228	634539m	243.42		
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	42.977	191	391947m	230.04		
77) Benzo(b)fluoranthene	37.408	252	749710m	274.03		
78) Benzo(k,j)fluoranthene	37.506	252	690475m	267.48		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	818867m	245.05		
81) Benzo(a)pyrene	38.608	252	626771m	247.07		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	570176m	232.25		
83) Dibenzo(a,h)anthracene	43.435	278	439050m	243.55		
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	44.776	276	520223m	224.85		
89) Perylene	38.900	252	714240m	253.71		
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	39.548	231	1364715m	258.15		
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:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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:\GCMS5\MS50164\
Data File : MS50164L.D
Acq On : 5 Sep 2013 12:17 pm
Operator : YM
Sample : AR-WKCC-250-038
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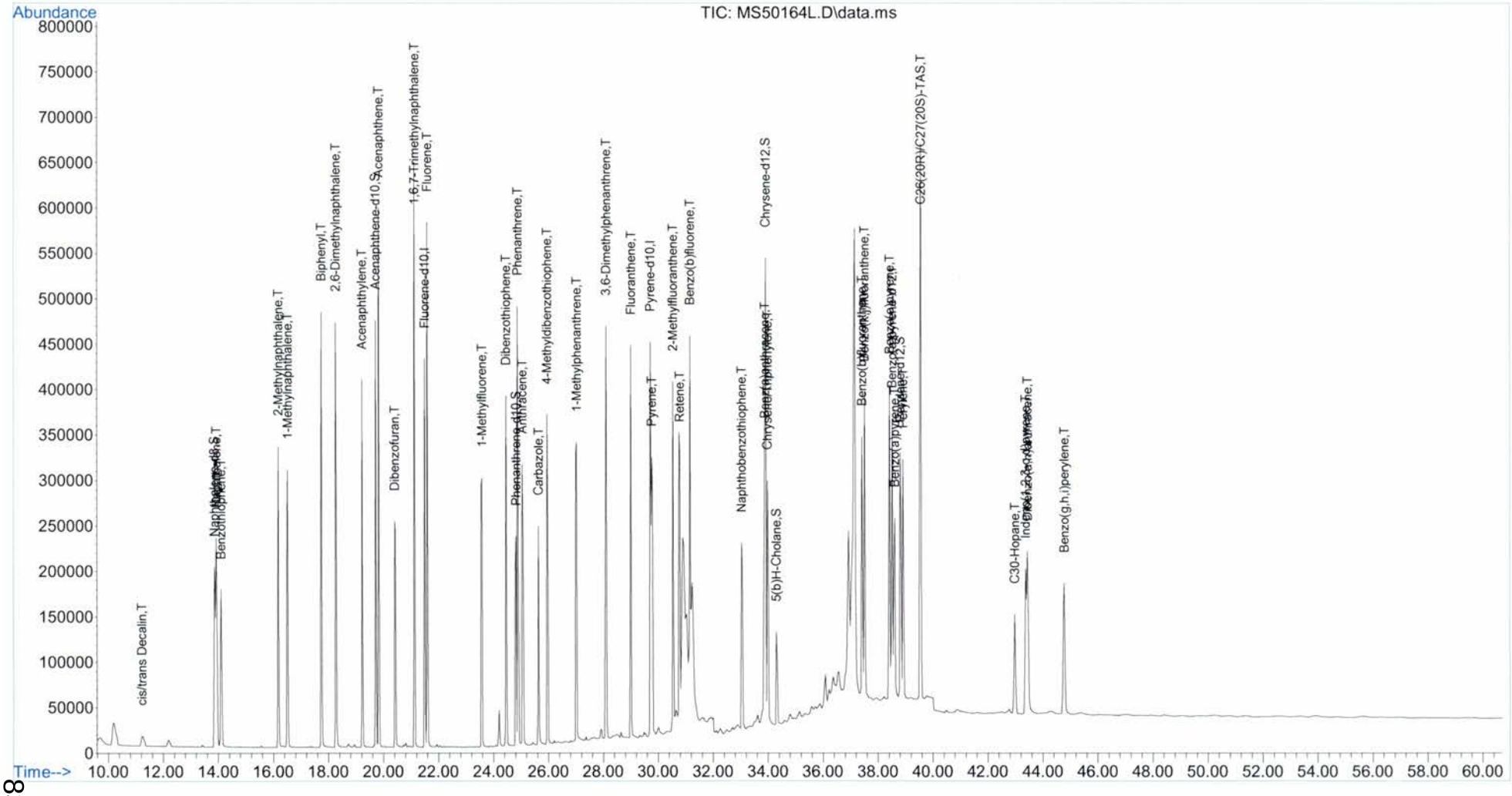
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 12 19:01:17 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	89	0.00
2	S	Naphthalene-d8	1.716	1.376	19.8	72	0.00
3	T	cis/trans Decalin	0.337	0.261	22.6	70	0.02
4	un	C1-Decalins	0.337	0.000	100.0#	0#	-12.40#
5	un	C2-Decalins	0.337	0.000	100.0#	0#	-13.54#
6	un	C3-Decalins	0.337	0.000	100.0#	0#	-16.23#
7	un	C4-Decalins	0.337	0.000	100.0#	0#	-18.71#
8	T	Naphthalene	1.817	1.458	19.8	73	-0.02
9	T	2-Methylnaphthalene	1.174	0.986	16.0	78	0.00
10	T	1-Methylnaphthalene	1.160	0.940	19.0	74	0.00
11	T	2,6-Dimethylnaphthalene	1.072	0.928	13.4	80	0.00
12	T	1,6,7-Trimethylnaphthalene	1.094	0.952	13.0	81	-0.02
13	un	C2-Naphthalenes	1.817	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.817	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.817	0.000	100.0#	0#	-21.95#
16	T	Benzothiophene	1.460	1.186	18.8	74	0.00
17	un	C1-Benzothiophenes	1.460	0.000	100.0#	0#	-15.56#
18	un	C2-Benzothiophenes	1.460	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.460	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.460	0.000	100.0#	0#	-21.82#
21	S	Acenaphthene-d10	1.076	0.909	15.5	78	-0.02
22	T	Biphenyl	1.480	1.264	14.6	78	0.00
23	T	Acenaphthylene	1.783	1.570	11.9	82	-0.02
24	T	Acenaphthene	1.115	0.959	14.0	79	0.00
25	T	Dibenzofuran	1.544	1.389	10.0	83	0.00
26	T	Fluorene	1.274	1.189	6.7	87	-0.02
27	T	1-Methylfluorene	0.807	0.777	3.7	92	0.00
28	un	C1-Fluorenes	1.274	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.274	0.000	100.0#	0#	-25.70#
30	un	C3-Fluorenes	1.274	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	99	-0.03
32	S	Phenanthrene-d10	0.896	0.776	13.4	91	0.00
33	T	Carbazole	0.635	0.623	1.9	109	0.00
34	T	Dibenzothiophene	0.980	0.867	11.5	90	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.646	12.3	93	0.00
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.29#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.58#
40	un	C4-Dibenzothiophenes	0.980	0.000	100.0#	0#	-30.98#
41	T	Phenanthrene	0.997	0.910	8.7	99	-0.03
42	T	Anthracene	0.828	0.773	6.6	101	0.00
43	un	3-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.57#
44	un	2-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#
45	un	2-Methylanthracene	0.775	0.000	100.0#	0#	-27.03#
46	un	4/9-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
47	T	1-Methylphenanthrene	0.775	0.698	9.9	97	0.00
48	T	3,6-Dimethylphenanthrene	0.816	0.742	9.1	97	0.00
49	T	Retene	0.396	0.371	6.3	103	0.00
50	un	C2-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	0.788	0.811	-2.9	117	0.00
54	un	C1-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-36.37#
56	un	C3-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-37.57#
57	un	C4-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-38.02#
58	T	Fluoranthene	1.178	1.135	3.7	100	-0.03
59	T	Pyrene	1.273	1.158	9.0	96	0.00
60	T	2-Methylfluoranthene	0.818	0.767	6.2	103	-0.03
61	T	Benzo(b)fluorene	0.594	0.662	-11.4	129	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-31.69#
63	un	C2-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-32.29#
64	un	C3-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-33.94#
65	un	C4-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-35.75#
66	S	Chrysene-d12	0.892	0.891	0.1	111	-0.03
67	T	Benz(a)anthracene	0.739	0.772	-4.5	124	0.00
68	T	Chrysene/Triphenylene	0.791	0.763	3.5	110	0.00
69	un	C1-Chrysenes	0.791	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	0.791	0.000	100.0#	0#	-36.70#
71	un	C3-Chrysenes	0.791	0.000	100.0#	0#	-38.48#
72	un	C4-Chrysenes	0.791	0.000	100.0#	0#	-39.61#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	73	-0.03
74	un	C29-Hopane	0.852	0.000	100.0#	0#	-40.69#
75	un	18a-Oleanane	0.852	0.000	100.0#	0#	-42.09#
76	T	C30-Hopane	0.852	0.791	7.2	71	-0.03
77	T	Benzo(b)fluoranthene	1.369	1.626	-18.8	100	-0.03
78	T	Benzo(k,j)fluoranthene	1.291	1.547	-19.8	96	-0.03
79	un	Benzo(a)fluoranthene	1.291	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.672	1.730	-3.5	83	-0.03
81	T	Benzo(a)pyrene	1.269	1.303	-2.7	87	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.228	0.942	23.3	65	-0.03
83	T	Dibenzo(a,h)anthracene	0.902	0.717	20.5	67	-0.07
84	un	C1-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-49.12#
85	un	C2-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.86#
86	un	C3-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.60#
87	T	Benzo(g,h,i)perylene	1.157	0.771	33.4#	54	-0.03
88	S	Perylene-d12	1.313	1.327	-1.1	85	0.00
89	T	Perylene	1.408	1.390	1.3	84	-0.03
90	S	5(b)H-Cholane	0.468	0.529	-13.0	89	-0.03
91	un	C20-TAS	2.644	0.000	100.0#	0#	-33.74#
92	un	C21-TAS	2.644	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
93 un	C26(20S)-TAS	2.644	0.000	100.0#	0#	-38.87#
94 T	C26(20R)/C27(20S)-TAS	2.644	3.150	-19.1	90	-0.03
95 un	C28(20S)-TAS	2.644	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	2.644	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	2.644	0.000	100.0#	0#	-41.64#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	381494m	251.05		0.00
31) Pyrene-d10	29.710	212	758772m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	352645m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	523102m	200.55		0.00
21) Acenaphthene-d10	19.715	164	345489m	211.24		-0.02
32) Phenanthrene-d10	24.822	188	587635m	216.61		0.00
66) Chrysene-d12	33.907	240	674582m	249.73		-0.03
88) Perylene-d12	38.835	264	467577m	252.73		0.00
90) 5(b)H-Cholane	34.296	217	186243m	282.26		-0.03
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	98133m	191.47		
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	13.924	128	553816m	200.63		
9) 2-Methylnaphthalene	16.182	142	375074m	210.29		
10) 1-Methylnaphthalene	16.518	142	356754m	202.31		
11) 2,6-Dimethylnaphthalene	18.284	156	352358m	216.22		
12) 1,6,7-Trimethylnaphtha...	21.123	170	361499m	217.46		
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	14.103	134	447894m	201.94		
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	17.747	154	475826m	211.60		
23) Acenaphthylene	19.223	152	591561m	218.28		
24) Acenaphthene	19.827	154	364944m	215.40		
25) Dibenzofuran	20.430	168	524953m	223.71		
26) Fluorene	21.593	166	452437m	233.78		
27) 1-Methylfluorene	23.579	180	297378m	242.37		
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	25.642	167	467384m	243.01		
34) Dibenzothiophene	24.455	184	647357m	218.10		
35) 4-Methyldibenzothiophene	25.981	198	493198m	221.03		
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	24.879	178	682571m	226.11		
42) Anthracene	25.077	178	586712m	234.07		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.		
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	27.026	192	522747m	222.72		
48) 3,6-Dimethylphenanthrene	28.100	206	561943m	227.42		
49) Retene	30.784	234	251116m	209.47		
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	33.064	234	617658m	259.01		
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	29.004	202	859723m	241.14		
59) Pyrene	29.795	202	876678m	227.45		
60) 2-Methylfluoranthene	30.529	216	584234m	235.85		
61) Benzo(b)fluorene	31.151	216	505847m	281.44		
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	33.875	228	583474m	260.62		
68) Chrysene/Triphenylene	34.004	228	573665m	239.59		
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	42.977	191	278720m	232.13		
77) Benzo(b)fluoranthene	37.408	252	573917m	297.68		
78) Benzo(k,j)fluoranthene	37.506	252	542480m	298.21		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	606914m	257.73		
81) Benzo(a)pyrene	38.608	252	457994m	256.19		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	326070m	188.47		
83) Dibenzo(a,h)anthracene	43.435	278	250387m	197.10		
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	44.776	276	269077m	165.03		
89) Perylene	38.900	252	489974m	246.98		
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	39.548	231	1109215m	297.74		
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	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

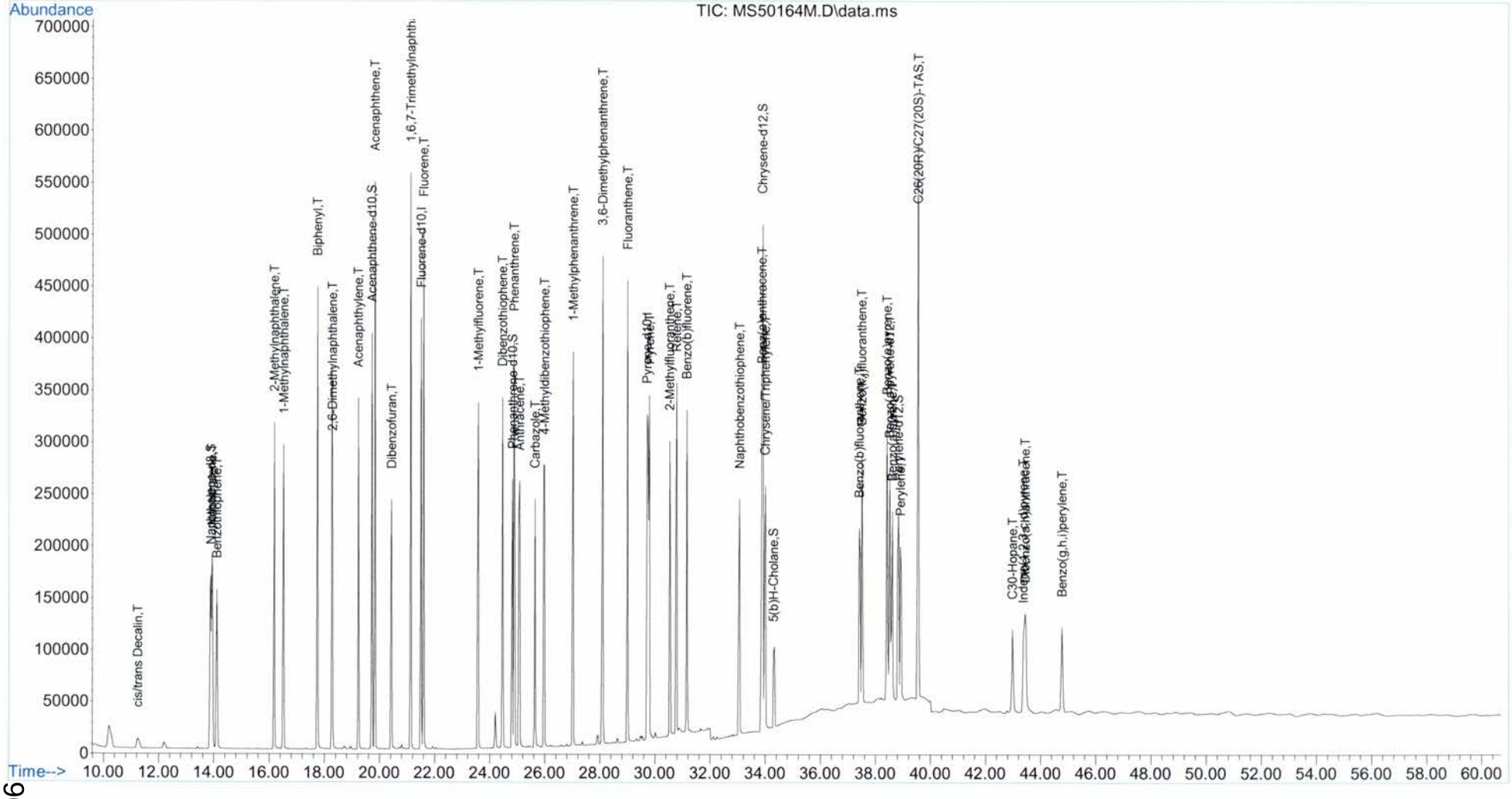
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164M.D
Acq On : 5 Sep 2013 10:13 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Sep 12 18:57:32 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	72	0.00
2	S	Naphthalene-d8	1.716	1.703	0.8	72	0.00
3	T	cis/trans Decalin	0.337	0.324	3.9	71	0.02
4	un	C1-Decalins	0.337	0.000	100.0#	0#	-12.40#
5	un	C2-Decalins	0.337	0.000	100.0#	0#	-13.54#
6	un	C3-Decalins	0.337	0.000	100.0#	0#	-16.23#
7	un	C4-Decalins	0.337	0.000	100.0#	0#	-18.71#
8	T	Naphthalene	1.817	1.797	1.1	73	-0.02
9	T	2-Methylnaphthalene	1.174	1.208	-2.9	77	0.00
10	T	1-Methylnaphthalene	1.160	1.174	-1.2	75	0.00
11	T	2,6-Dimethylnaphthalene	1.072	1.143	-6.6	80	0.00
12	T	1,6,7-Trimethylnaphthalene	1.094	1.161	-6.1	80	-0.02
13	un	C2-Naphthalenes	1.817	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.817	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.817	0.000	100.0#	0#	-21.95#
16	T	Benzothiophene	1.460	1.448	0.8	73	0.00
17	un	C1-Benzothiophenes	1.460	0.000	100.0#	0#	-15.56#
18	un	C2-Benzothiophenes	1.460	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.460	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.460	0.000	100.0#	0#	-21.82#
21	S	Acenaphthene-d10	1.076	1.110	-3.2	77	-0.02
22	T	Biphenyl	1.480	1.583	-7.0	79	0.00
23	T	Acenaphthylene	1.783	1.932	-8.4	82	-0.02
24	T	Acenaphthene	1.115	1.174	-5.3	79	0.00
25	T	Dibenzofuran	1.544	1.705	-10.4	82	0.00
26	T	Fluorene	1.274	1.460	-14.6	86	-0.02
27	T	1-Methylfluorene	0.807	0.731	9.4	70	0.00
28	un	C1-Fluorenes	1.274	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.274	0.000	100.0#	0#	-25.70#
30	un	C3-Fluorenes	1.274	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	95	0.00
32	S	Phenanthrene-d10	0.896	0.808	9.8	92	0.00
33	T	Carbazole	0.635	0.641	-0.9	108	0.00
34	T	Dibenzothiophene	0.980	0.879	10.3	88	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.663	10.0	92	0.00
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.29#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.58#
40	un	C4-Dibenzothiophenes	0.980	0.000	100.0#	0#	-30.98#
41	T	Phenanthrene	0.997	0.916	8.1	96	-0.03
42	T	Anthracene	0.828	0.801	3.3	100	0.00
43	un	3-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.57#
44	un	2-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#
45	un	2-Methylanthracene	0.775	0.000	100.0#	0#	-27.03#
46	un	4/9-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
47	T	1-Methylphenanthrene	0.775	0.725	6.5	97	0.00
48	T	3,6-Dimethylphenanthrene	0.816	0.754	7.6	95	0.00
49	T	Retene	0.396	0.371	6.3	99	0.00
50	un	C2-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	0.788	0.809	-2.7	113	0.00
54	un	C1-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-36.37#
56	un	C3-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-37.57#
57	un	C4-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-38.02#
58	T	Fluoranthene	1.178	1.147	2.6	97	-0.03
59	T	Pyrene	1.273	1.172	7.9	94	0.00
60	T	2-Methylfluoranthene	0.818	0.741	9.4	96	-0.03
61	T	Benzo(b)fluorene	0.594	0.640	-7.7	120	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-31.69#
63	un	C2-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-32.29#
64	un	C3-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-33.94#
65	un	C4-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-35.75#
66	S	Chrysene-d12	0.892	0.877	1.7	105	-0.03
67	T	Benz(a)anthracene	0.739	0.790	-6.9	122	0.00
68	T	Chrysene/Triphenylene	0.791	0.750	5.2	104	0.00
69	un	C1-Chrysenes	0.791	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	0.791	0.000	100.0#	0#	-36.70#
71	un	C3-Chrysenes	0.791	0.000	100.0#	0#	-38.48#
72	un	C4-Chrysenes	0.791	0.000	100.0#	0#	-39.61#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	62	-0.03
74	un	C29-Hopane	0.852	0.000	100.0#	0#	-40.69#
75	un	18a-Oleanane	0.852	0.000	100.0#	0#	-42.09#
76	T	C30-Hopane	0.852	0.883	-3.6	68	-0.03
77	T	Benzo(b)fluoranthene	1.369	1.662	-21.4	87	0.00
78	T	Benzo(k,j)fluoranthene	1.291	1.582	-22.5	84	-0.03
79	un	Benzo(a)fluoranthene	1.291	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.672	1.813	-8.4	74	-0.03
81	T	Benzo(a)pyrene	1.269	1.392	-9.7	79	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.228	0.945	23.0	56	0.00
83	T	Dibenzo(a,h)anthracene	0.902	0.755	16.3	60	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-49.12#
85	un	C2-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.86#
86	un	C3-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.60#
87	T	Benzo(g,h,i)perylene	1.157	0.772	33.3#	46#	-0.03
88	S	Perylene-d12	1.313	1.403	-6.9	77	0.00
89	T	Perylene	1.408	1.459	-3.6	75	0.00
90	S	5(b)H-Cholane	0.468	0.592	-26.5#	85	0.00
91	un	C20-TAS	2.644	0.000	100.0#	0#	-33.74#
92	un	C21-TAS	2.644	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
93 un	C26(20S)-TAS	2.644	0.000	100.0#	0#	-38.87#
94 T	C26(20R)/C27(20S)-TAS	2.644	3.012	-13.9	74	-0.03
95 un	C28(20S)-TAS	2.644	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	2.644	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	2.644	0.000	100.0#	0#	-41.64#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	308552m	251.05		0.00
31) Pyrene-d10	29.738	212	730923m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	300534m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	523447m	248.12		0.00
21) Acenaphthene-d10	19.715	164	341310m	258.02		-0.02
32) Phenanthrene-d10	24.822	188	589549m	225.60		0.00
66) Chrysene-d12	33.907	240	639580m	245.79		-0.03
88) Perylene-d12	38.835	264	421091m	267.07		0.00
90) 5(b)H-Cholane	34.328	217	177754m	316.11		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	98420m	237.43		
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	13.924	128	552250m	247.35		
9) 2-Methylnaphthalene	16.182	142	371555m	257.56		
10) 1-Methylnaphthalene	16.518	142	360496m	252.77		
11) 2,6-Dimethylnaphthalene	18.284	156	351290m	266.52		
12) 1,6,7-Trimethylnaphtha...	21.123	170	356848m	265.41		
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	14.103	134	442333m	246.58		
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	17.747	154	482001m	265.02		
23) Acenaphthylene	19.223	152	589031m	268.73		
24) Acenaphthene	19.826	154	361356m	263.70		
25) Dibenzofuran	20.430	168	521209m	274.62		
26) Fluorene	21.593	166	449405m	287.11		
27) 1-Methylfluorene	23.579	180	226222m	227.96		
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	25.642	167	463503m	250.18		
34) Dibenzothiophene	24.455	184	631786m	220.96		
35) 4-Methyldibenzothiophene	25.981	198	487701m	226.90		
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	24.879	178	661635m	227.52		
42) Anthracene	25.077	178	585560m	242.51		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
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	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	523069m	231.35		
48) 3,6-Dimethylphenanthrene	28.100	206	550000m	231.06		
49) Retene	30.784	234	241717m	209.32		
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	33.064	234	593377m	258.31		
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	29.004	202	836845m	243.66		
59) Pyrene	29.795	202	854158m	230.06		
60) 2-Methylfluoranthene	30.529	216	544187m	228.05		
61) Benzo(b)fluorene	31.151	216	470824m	271.93		
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	33.875	228	575146	266.69		100
68) Chrysene/Triphenylene	34.004	228	543299m	235.55		
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	42.977	191	264962m	258.93		
77) Benzo(b)fluoranthene	37.441	252	499706	304.13		100
78) Benzo(k,j)fluoranthene	37.506	252	472912m	305.04		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	541882m	270.01		
81) Benzo(a)pyrene	38.608	252	416826m	273.59		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	278710m	189.03		
83) Dibenzo(a,h)anthracene	43.468	278	224703m	207.55		
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	44.776	276	229483m	165.15		
89) Perylene	38.932	252	438489m	259.35		
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	39.548	231	904033m	284.74		
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	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

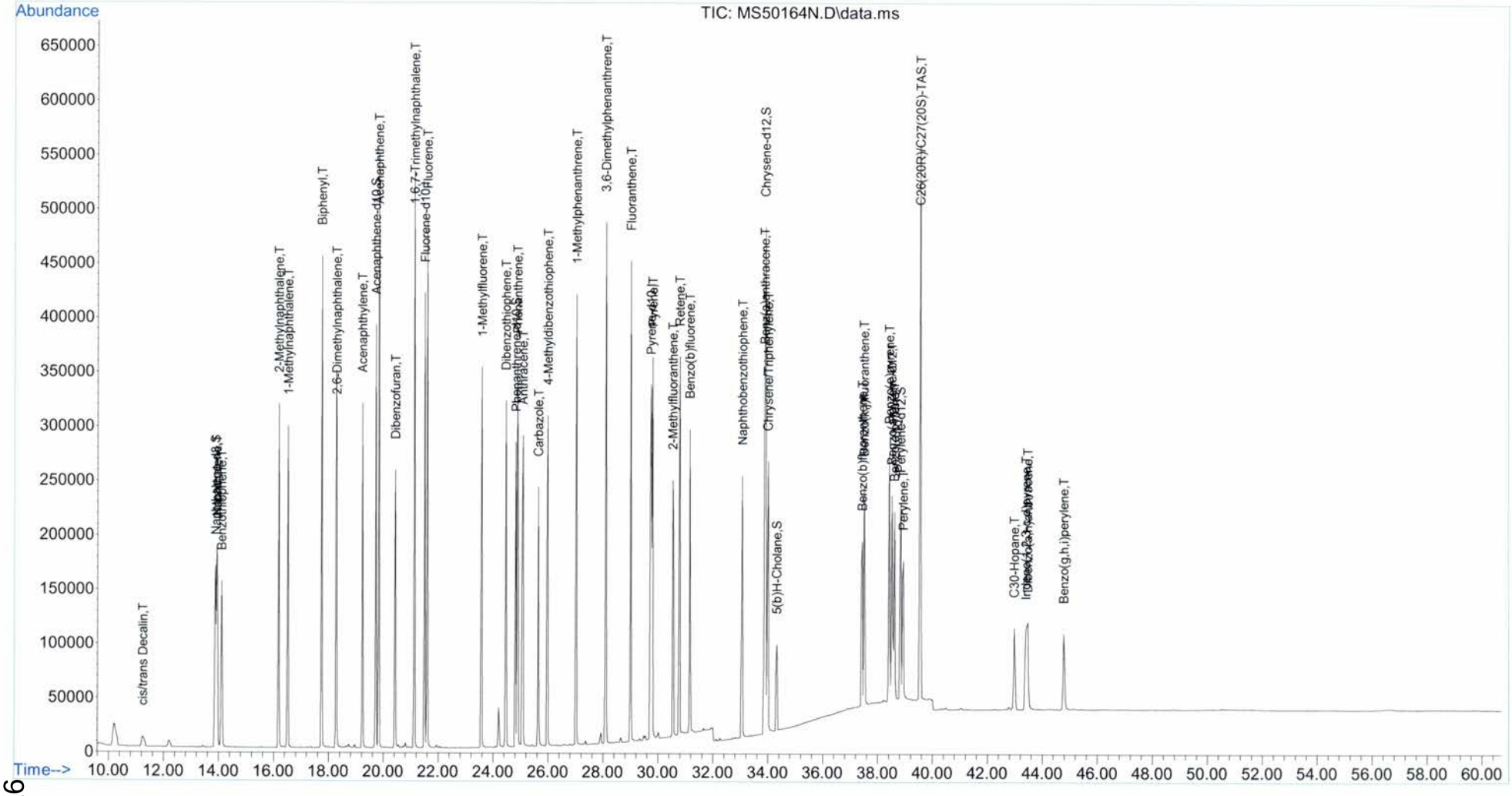
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164N.D
Acq On : 6 Sep 2013 8:10 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 12 18:56:07 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name MS50164H.D
Data File Path C:\GCMS5\MS50164\
Operator YM
Date Acquired 9/4/2013 23:02
Acq. Method File PAH-2012.M
Sample Name AR-WKISSU-250-002
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

MS50164H.D
AR-WKISSU-250-002
9/4/2013
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	13.86	651715	247.84	99.09
21)	Acenaphthene-d10	19.71	391594	237.50	94.94
32)	Phenanthrene-d10	24.82	529538	244.26	97.63
66)	Chrysene-d12	33.91	398959	184.82	73.91
88)	Perylene-d12	38.80	368646	219.57	87.82
90)	5(b)H-Cholane	34.30	177121	295.81	118.32
	Internal Standards				
1)	Fluorene-d10	21.50	384597	251.05	
31)	Pyrene-d10	29.71	606360	250.63	
73)	Benzo(a)pyrene-d12	38.51	320019	250.33	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164H.D
Acq On : 4 Sep 2013 11:02 pm
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 10 11:53:34 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	384597m	251.05		0.00
31) Pyrene-d10	29.710	212	606360m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	320019m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	651715m	247.84		-0.02
21) Acenaphthene-d10	19.715	164	391594m	237.50		-0.02
32) Phenanthrene-d10	24.822	188	529538m	244.26		0.00
66) Chrysene-d12	33.907	240	398959m	184.82		-0.03
88) Perylene-d12	38.803	264	368646m	219.57		-0.03
90) 5(b)H-Cholane	34.296	217	177121m	295.81		-0.03
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.	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.	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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164H.D
Acq On : 4 Sep 2013 11:02 pm
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 10 11:53:34 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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.	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	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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164H.D
Acq On : 4 Sep 2013 11:02 pm
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 10 11:53:34 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

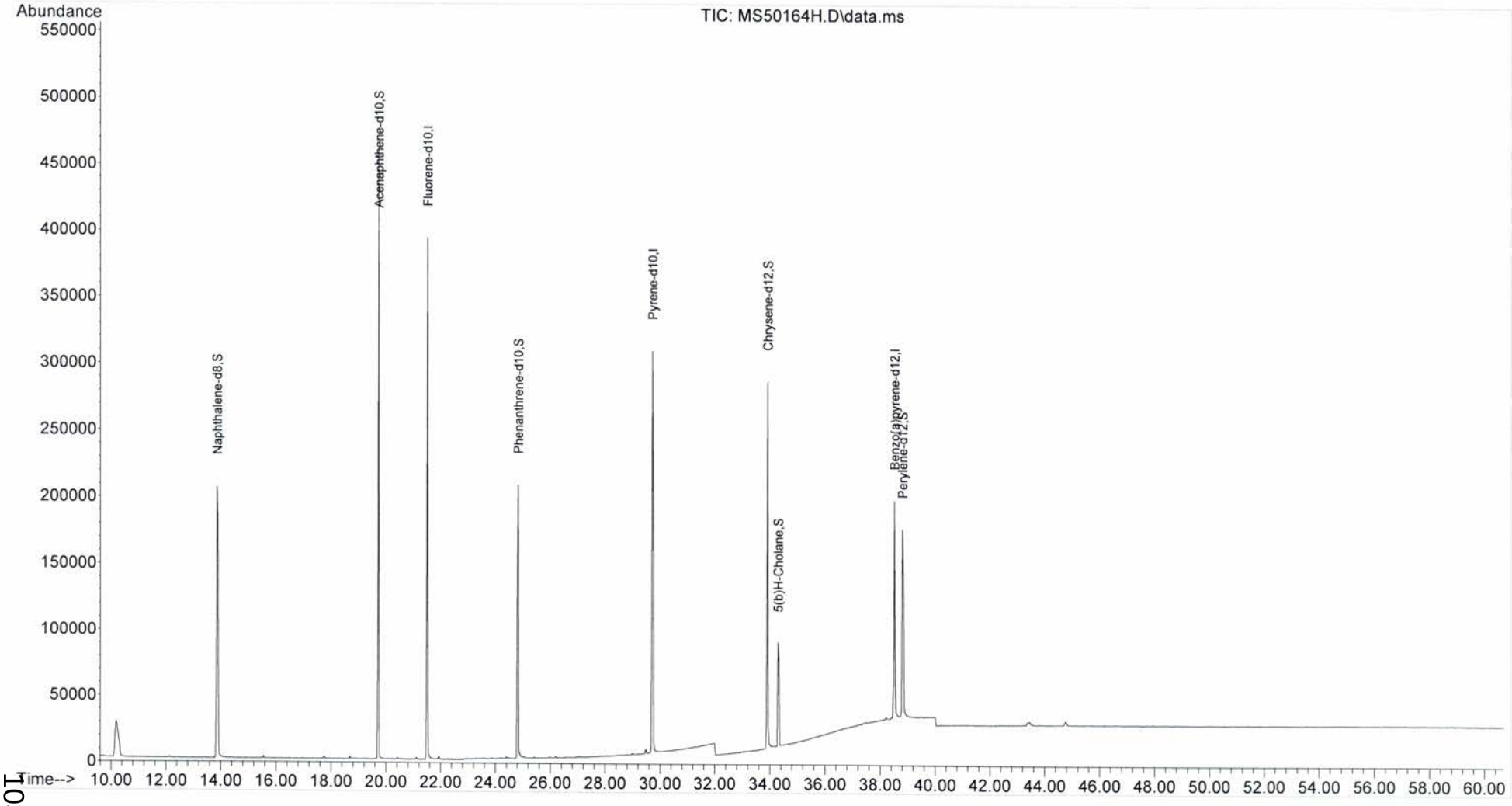
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164H.D
Acq On : 4 Sep 2013 11:02 pm
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 10 11:53:34 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	MS50164K.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 2:20
Acq. Method File	PAH-2012.M
Sample Name	AR-SRM2779-WK-4.0-002
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

MS50164K.D
.R-SRM2779-WK-4.0-002
9/5/2013
PAH-2012.M
4.088140305

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.24	2167800	697.4222	1012.1691
4)	C1-Decalins	12.40	2865150	921.7712	1337.7668
5)	C2-Decalins	14.77	2460680	791.6460	1148.9160
6)	C3-Decalins	16.74	2600140	836.5148	1214.0342
7)	C4-Decalins	17.77	1387580	446.4108	647.8761
8)	Naphthalene	13.92	11357100	678.3891	984.5463
9)+10)	C1-Naphthalenes	16.35	24215260	1446.4405	2099.2194
13)	C2-Naphthalenes	18.55	31064100	1855.5430	2692.9499
14)	C3-Naphthalenes	20.56	21108200	1260.8496	1829.8713
15)	C4-Naphthalenes	22.87	11680600	697.7109	1012.5880
16)	Benzothiophene	14.15	117917	8.7665	12.7228
17)	C1-Benzothiophenes	15.69	486270	36.1514	52.4665
18)	C2-Benzothiophenes	18.69	344338	25.5997	37.1528
19)	C3-Benzothiophenes	20.39	421786	31.3573	45.5088
20)	C4-Benzothiophenes	22.15	399042	29.6665	43.0551
22)	Biphenyl	17.75	2218130	162.6456	236.0476
23)	Acenaphthylene	19.22	150374	9.1491	13.2782
24)	Acenaphthene	19.83	107339	10.4464	15.1609
25)	Dibenzofuran	20.43	458568	32.2220	46.7638
26)	Fluorene	21.59	1352940	115.2717	167.2939
28)	C1-Fluorenes	23.58	3314740	282.4194	409.8753
29)	C2-Fluorenes	25.42	4543580	387.1173	561.8235
30)	C3-Fluorenes	26.97	3934280	335.2062	486.4848
33)	Carbazole	25.64	60566	4.4146	6.4069
42)	Anthracene	25.02	43372	2.4257	3.5204
41)	Phenanthrene	24.88	3957020	183.7576	266.6875
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	9953851	462.2408	670.8502
50)	C2-Phenanthrenes/Anthracenes	28.47	11313400	525.3734	762.4745
51)	C3-Phenanthrenes/Anthracenes	30.02	8346430	387.5943	562.5157
52)	C4-Phenanthrenes/Anthracenes	31.86	4647690	215.8309	313.2354
34)	Dibenzothiophene	24.45	761158	35.9496	52.1737
35)+36)+37)	C1-Dibenzothiophenes	26.28	2049122	96.7803	140.4573
38)	C2-Dibenzothiophenes	28.04	2872090	135.6492	196.8677
39)	C3-Dibenzothiophenes	28.89	2134140	100.7957	146.2848
40)	C4-Dibenzothiophenes	29.88	1124190	53.0955	77.0576
58)	Fluoranthene	29.03	97339	3.8273	5.5546
59)	Pyrene	29.79	227303	8.2674	11.9985
62)	C1-Fluoranthenes/Pyrenes	30.92	1298300	51.0489	74.0873
63)	C2-Fluoranthenes/Pyrenes	32.42	2723200	107.0758	155.3992
64)	C3-Fluoranthenes/Pyrenes	34.10	3141240	123.5129	179.2543
65)	C4-Fluoranthenes/Pyrenes	35.24	2223860	87.4420	126.9045
53)	Naphthobenzothiophene	33.06	412298	24.2376	35.1761
54)	C1-Naphthobenzothiophenes	34.81	781919	45.9664	66.7110
55)	C2-Naphthobenzothiophenes	35.88	1277550	75.1031	108.9971
56)	C3-Naphthobenzothiophenes	37.31	856606	50.3571	73.0833
57)	C4-Naphthobenzothiophenes	38.32	402593	23.6671	34.3481
67)	Benz(a)anthracene	33.87	76353	4.7810	6.9386
68)	Chrysene/Triphenylene	33.94	459503	26.9034	39.0450
69)	C1-Chrysenes	35.20	1804020	105.6238	153.2919
70)	C2-Chrysenes	36.40	2387680	139.7966	202.8868
71)	C3-Chrysenes	38.12	1585740	92.8437	134.7441
72)	C4-Chrysenes	39.55	996982	58.3725	84.7160
77)	Benzo(b)fluoranthene	37.44	93271	4.2389	6.1519
78)	Benzo(k,j)fluoranthene	37.51	17425	0.8393	1.2181
79)	Benzo(a)fluoranthene	37.51	11818	0.5692	0.8261
80)	Benzo(e)pyrene	38.41	201092	7.4822	10.8589
81)	Benzo(a)pyrene	38.61	33076	1.6211	2.3528
89)	Perylene	38.93	10399	0.4593	0.6666
82)	Indeno(1,2,3-c,d)pyrene	43.27	5999	0.3038	0.4409
83)	Dibenzo(a,h)anthracene	43.27	5799	0.4000	0.5805
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	44.78	28181	1.5144	2.1979

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	14480900	1338.6845	1942.8331
10)	1-Methylnaphthalene	16.52	9734360	910.2427	1321.0355
11)	2,6-Dimethylnaphthalene	18.31	8368960	846.7762	1228.9265
12)	1,6,7-Trimethylnaphthalene	21.12	2525880	250.5369	363.6043
27)	1-Methylfluorene	23.58	1650320	221.7842	321.8755
35)	4-Methyldibenzothiophene	25.98	1143790	71.8598	104.2902
36)	2/3-Methyldibenzothiophene	26.26	511771	32.1528	46.6633
37)	1-Methyldibenzothiophene	26.60	393561	24.7259	35.8847
43)	3-Methylphenanthrene	26.55	2171060	129.6717	188.1925
44)	2-Methylphenanthrene	26.66	2503520	149.5286	217.0109
45)	2-Methylanthracene	26.80	180751	10.7958	15.6679
46)	4/9-Methylphenanthrene	26.94	3050060	182.1723	264.3867
47)	1-Methylphenanthrene	27.03	2048460	122.3493	177.5655
48)	3,6-Dimethylphenanthrene	28.10	496869	28.1891	40.9108
49)	Retene	30.73	64996	7.6006	11.0308
60)	2-Methylfluoranthene	30.56	77709	4.3977	6.3824
61)	Benzo(b)fluorene	31.15	172912	13.4865	19.5730
74)	C29-Hopane	40.69	18854	1.3758	1.9968
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.26	462412	33.7437	48.9722
91)	C20-TAS	33.45	184608	4.3419	6.3014
92)	C21-TAS	35.50	96114	2.2606	3.2808
93)	C26(20S)-TAS	38.67	120212	2.8273	4.1033
94)	C26(20R)/C27(20S)-TAS	39.61	249108	5.8589	8.5031
95)	C28(20S)-TAS	40.85	251229	5.9088	8.5755
96)	C27(20R)-TAS	40.85	250596	5.8939	8.5539
97)	C28(20R)-TAS	42.00	242770	5.7099	8.2867
	Surrogate Standards				
2)	Naphthalene-d8	13.86	963639	60.92	99.57
21)	Acenaphthene-d10	19.71	606859	61.18	99.98
32)	Phenanthrene-d10	24.82	816036	42.17	68.90
66)	Chrysene-d12	33.91	1086160	56.37	92.16
88)	Perylene-d12	38.83	1123560	53.21	87.00
90)	5(b)H-Cholane	34.33	435177	57.79	94.50
	Internal Standards				
1)	Fluorene-d10	21.50	565941	61.41	
31)	Pyrene-d10	29.74	1323970	61.31	
73)	Benzo(a)pyrene-d12	38.51	984481	61.23	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164K.D
Acq On : 5 Sep 2013 2:20 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 15 16:51:11 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	565941m	251.05		0.00
31) Pyrene-d10	29.738	212	1323966m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	984481m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	963639m	60.92		-0.02
21) Acenaphthene-d10	19.715	164	606859m	61.18		-0.02
32) Phenanthrene-d10	24.822	188	816036m	42.17		0.00
66) Chrysene-d12	33.907	240	1086157m	56.37		-0.03
88) Perylene-d12	38.835	264	1123558m	53.21		0.00
90) 5(b)H-Cholane	34.328	217	435177m	57.79		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	2167800m	697.42		
4) C1-Decalins	12.404	152	2865147m	921.77		
5) C2-Decalins	14.774	166	2460677m	791.65		
6) C3-Decalins	16.741	180	2600142m	836.52		
7) C4-Decalins	17.770	194	1387580m	446.41		
8) Naphthalene	13.924	128	11357080m	678.39		
9) 2-Methylnaphthalene	16.182	142	14480897m	1338.68		
10) 1-Methylnaphthalene	16.518	142	9734355m	910.24		
11) 2,6-Dimethylnaphthalene	18.306	156	8368963m	846.78		
12) 1,6,7-Trimethylnaphtha...	21.123	170	2525884m	250.54		
13) C2-Naphthalenes	18.552	156	31064067m	1855.54		
14) C3-Naphthalenes	20.564	170	21108162m	1260.85		
15) C4-Naphthalenes	22.873	184	11680556m	697.71		
16) Benzothiophene	14.148	134	117917m	8.77		
17) C1-Benzothiophenes	15.690	148	486270m	36.15		
18) C2-Benzothiophenes	18.686	162	344338m	25.60		
19) C3-Benzothiophenes	20.385	176	421786m	31.36		
20) C4-Benzothiophenes	22.151	190	399042m	29.67		
22) Biphenyl	17.747	154	2218128m	162.65		
23) Acenaphthylene	19.223	152	150374m	9.15		
24) Acenaphthene	19.826	154	107339m	10.45		
25) Dibenzofuran	20.430	168	458568m	32.22		
26) Fluorene	21.593	166	1352935m	115.27		
27) 1-Methylfluorene	23.579	180	1650319m	221.78		
28) C1-Fluorenes	23.579	180	3314743m	282.42		
29) C2-Fluorenes	25.415	194	4543579m	387.12		
30) C3-Fluorenes	26.969	208	3934276m	335.20		
33) Carbazole	25.642	167	60566m	4.41		
34) Dibenzothiophene	24.455	184	761158m	35.95		
35) 4-Methyldibenzothiophene	25.981	198	1143785m	71.86		
36) 2/3-Methyldibenzothiop...	26.263	198	511771m	32.15		
37) 1-Methyldibenzothiophene	26.602	198	393561m	24.73		
38) C2-Dibenzothiophenes	28.043	212	2872091m	135.65		
39) C3-Dibenzothiophenes	28.891	226	2134143m	100.80		
40) C4-Dibenzothiophenes	29.879	240	1124188m	53.10		
41) Phenanthrene	24.879	178	3957022m	183.76		
42) Anthracene	25.020	178	43372m	2.43		
43) 3-Methylphenanthrene	26.546	192	2171059m	129.67		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164K.D
Acq On : 5 Sep 2013 2:20 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 15 16:51:11 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	2503517m	149.53		
45) 2-Methylanthracene	26.800	192	180751m	10.80		
46) 4/9-Methylphenanthrene	26.941	192	3050061m	182.17		
47) 1-Methylphenanthrene	27.026	192	2048459m	122.35		
48) 3,6-Dimethylphenanthrene	28.099	206	496869m	28.19		
49) Retene	30.727	234	64996m	7.60		
50) C2-Phenanthrenes/Anthr...	28.467	206	11313375m	525.37		
51) C3-Phenanthrenes/Anthr...	30.021	220	8346431m	387.59		
52) C4-Phenanthrenes/Anthr...	31.857	234	4647689m	215.83		
53) Naphthobenzothiophene	33.064	234	412298m	24.24		
54) C1-Naphthobenzothiophenes	34.815	248	781919m	45.97		
55) C2-Naphthobenzothiophenes	35.885	262	1277552m	75.10		
56) C3-Naphthobenzothiophenes	37.311	276	856606m	50.36		
57) C4-Naphthobenzothiophenes	38.316	290	402593m	23.67		
58) Fluoranthene	29.032	202	97339m	3.83		
59) Pyrene	29.795	202	227303m	8.27		
60) 2-Methylfluoranthene	30.557	216	77709m	4.40		
61) Benzo(b)fluorene	31.151	216	172912m	13.49		
62) C1-Fluoranthenes/Pyrenes	30.925	216	1298302m	51.05		
63) C2-Fluoranthenes/Pyrenes	32.416	230	2723202m	107.08		
64) C3-Fluoranthenes/Pyrenes	34.101	244	3141236m	123.51		
65) C4-Fluoranthenes/Pyrenes	35.236	258	2223864m	87.44		
67) Benz(a)anthracene	33.874	228	76353m	4.78		
68) Chrysene/Triphenylene	33.939	228	459503m	26.90		
69) C1-Chrysenes	35.204	242	1804015m	105.62		
70) C2-Chrysenes	36.403	256	2387675m	139.80		
71) C3-Chrysenes	38.121	270	1585738m	92.84		
72) C4-Chrysenes	39.548	284	996982m	58.37		
74) C29-Hopane	40.688	191	18854m	1.38		
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.258	191	462412m	33.74		
77) Benzo(b)fluoranthene	37.441	252	93271m	4.24		
78) Benzo(k,j)fluoranthene	37.506	252	17425m	0.84		
79) Benzo(a)fluoranthene	37.506	252	11818m	0.57		
80) Benzo(e)pyrene	38.413	252	201092m	7.48		
81) Benzo(a)pyrene	38.608	252	33076m	1.62		
82) Indeno(1,2,3-c,d)pyrene	43.271	276	5999m	0.30		
83) Dibenzo(a,h)anthracene	43.271	278	5799m	0.40		
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	44.775	276	28181m	1.51		
89) Perylene	38.932	252	10399	0.46		100
91) C20-TAS	33.453	231	184608m	4.34		
92) C21-TAS	35.495	231	96114m	2.26		
93) C26(20S)-TAS	38.673	231	120212m	2.83		
94) C26(20R)/C27(20S)-TAS	39.613	231	249108m	5.86		
95) C28(20S)-TAS	40.852	231	251229m	5.91		
96) C27(20R)-TAS	40.852	231	250596m	5.89		
97) C28(20R)-TAS	41.996	231	242770m	5.71		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164K.D
Acq On : 5 Sep 2013 2:20 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 15 16:51:11 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

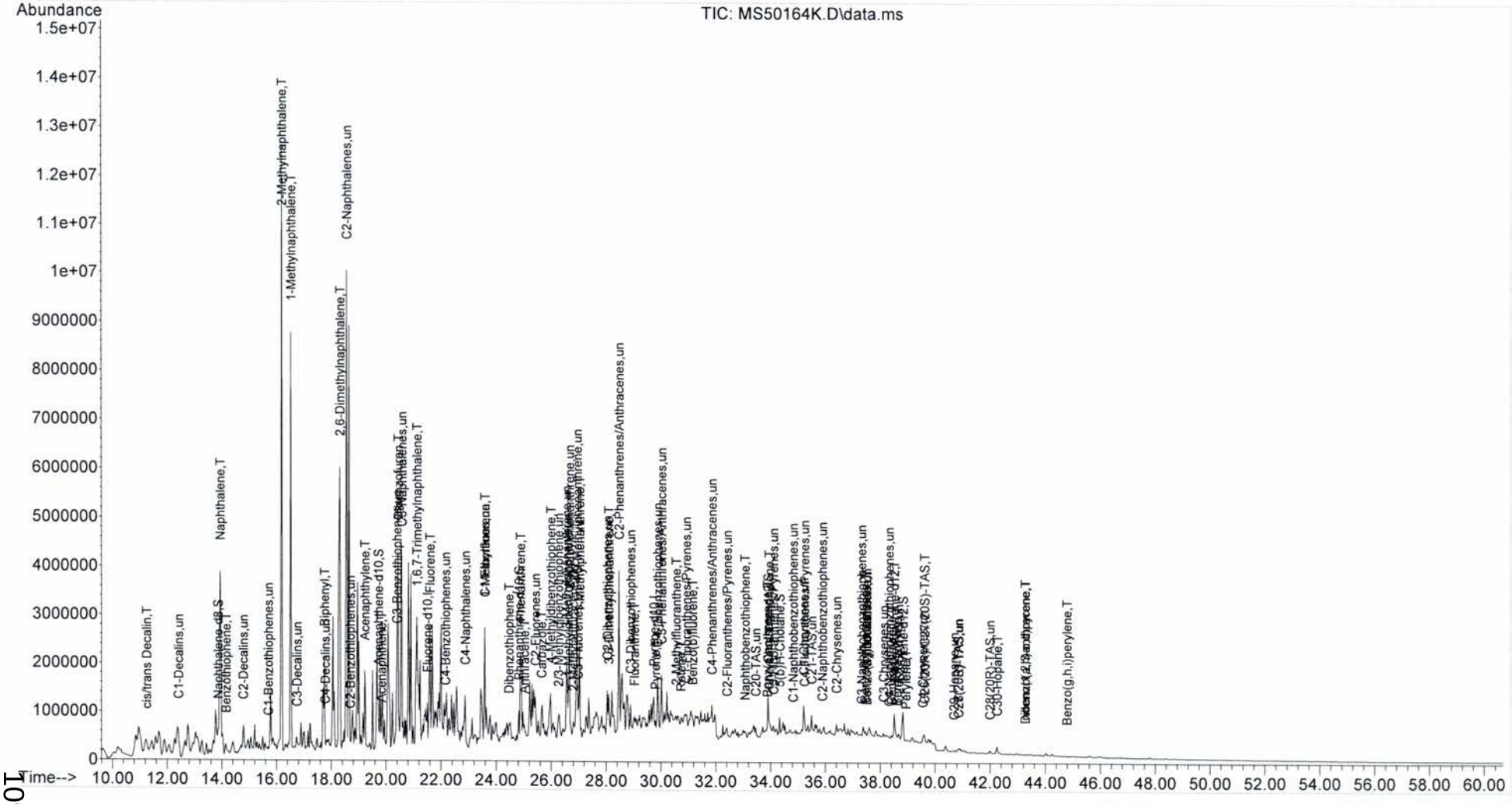
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : MS50164K.D
Acq On : 5 Sep 2013 2:20 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Sep 15 16:51:11 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ENV3096A.D
Data File Path	C:\GCMS5\MS50164\
Operator	YM
Date Acquired	9/5/2013 3:26
Acq. Method File	PAH-2012.M
Sample Name	Procedural Blank
Misc Info	0
Instrument Name	GCMS5
Vial Number	12
Sample Multiplier	0.0666667
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

ENV3096A.D
Procedural Blank
9/5/2013
PAH-2012.M
14.9999925

#	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	13.92	7803	0.2188	0.2569
9)+10)	C1-Naphthalenes	16.35	2475	0.0694	0.0815
13)	C2-Naphthalenes	18.64	4177	0.1171	0.1375
14)	C3-Naphthalenes	20.68	15033	0.4216	0.4950
15)	C4-Naphthalenes	21.55	2369	0.0664	0.0780
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	19.22	359	0.0103	0.0120
24)	Acenaphthene	19.83	410	0.0187	0.0220
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	667	0.0267	0.0313
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	25.08	521	0.0181	0.0213
41)	Phenanthrene	24.88	3960	0.1144	0.1343
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	24.48	395	0.0116	0.0136
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	29.79	4678	0.1058	0.1243
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	37.44	1265	0.0441	0.0518
78)	Benzo(k,j)fluoranthene	37.51	699	0.0258	0.0303
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	584	0.0167	0.0196
81)	Benzo(a)pyrene	38.61	350	0.0132	0.0154
89)	Perylene	38.90	845	0.0286	0.0336
82)	Indeno(1,2,3-c,d)pyrene	43.40	1465	0.0569	0.0668
83)	Dibenzo(a,h)anthracene	43.47	1077	0.0570	0.0669
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	44.78	1267	0.0522	0.0613

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	1560	0.0677	0.0795
10)	1-Methylnaphthalene	16.52	915	0.0402	0.0472
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	13.86	451243	13.39	80.31
21)	Acenaphthene-d10	19.71	291781	13.81	82.81
32)	Phenanthrene-d10	24.82	441953	14.21	85.17
66)	Chrysene-d12	33.91	409987	13.23	79.39
88)	Perylene-d12	38.80	394560	14.33	85.97
90)	5(b)H-Cholane	34.30	177814	18.11	108.65
	Internal Standards				
1)	Fluorene-d10	21.50	328540	16.74	
31)	Pyrene-d10	29.71	580123	16.71	
73)	Benzo(a)pyrene-d12	38.51	349863	16.69	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096A.D
Acq On : 5 Sep 2013 3:26 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.0666667

Quant Time: Sep 11 15:18:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	328540m	251.05		0.00
31) Pyrene-d10	29.710	212	580123	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	349863	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	451243	13.39		-0.02
21) Acenaphthene-d10	19.715	164	291781m	13.81		-0.02
32) Phenanthrene-d10	24.822	188	441953	14.21		0.00
66) Chrysene-d12	33.907	240	409987	13.23		-0.03
88) Perylene-d12	38.802	264	394560m	14.33		-0.03
90) 5(b)H-Cholane	34.296	217	177814m	18.11		-0.03
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	13.924	128	7803	0.22		95
9) 2-Methylnaphthalene	16.182	142	1560m	0.07		
10) 1-Methylnaphthalene	16.518	142	915m	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	18.642	156	4177m	0.12		
14) C3-Naphthalenes	20.676	170	15033m	0.42		
15) C4-Naphthalenes	21.548	184	2369m	0.07		
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	19.223	152	359m	0.01		
24) Acenaphthene	19.826	154	410m	0.02		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	667m	0.03		
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	24.483	184	395m	0.01		
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	24.879	178	3960m	0.11		
42) Anthracene	25.077	178	521m	0.02		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096A.D
Acq On : 5 Sep 2013 3:26 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.0666667

Quant Time: Sep 11 15:18:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.795	202	4678m	0.11		
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	37.441	252	1265m	0.04		
78)	Benzo(k,j)fluoranthene	37.506	252	699m	0.03		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	584m	0.02		
81)	Benzo(a)pyrene	38.608	252	350m	0.01		
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	1465	0.06		99
83)	Dibenzo(a,h)anthracene	43.468	278	1077	0.06		84
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	44.776	276	1267m	0.05		
89)	Perylene	38.900	252	845	0.03		100
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096A.D
Acq On : 5 Sep 2013 3:26 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.0666667

Quant Time: Sep 11 15:18:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

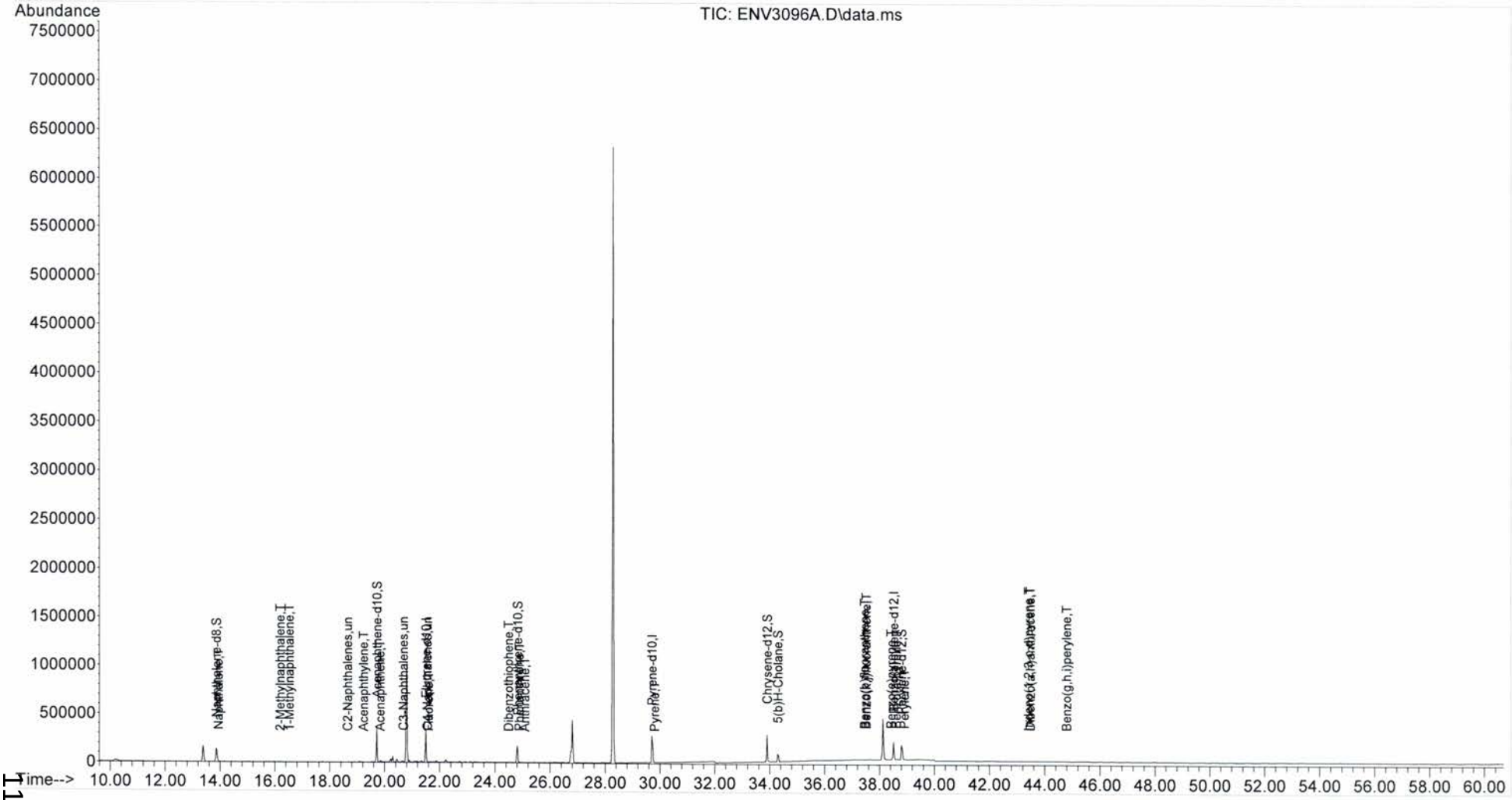
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096A.D
Acq On : 5 Sep 2013 3:26 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.0666667

Quant Time: Sep 11 15:18:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ENV3096B.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 4:33
Acq. Method File	PAH-2012.M
Sample Name	SRM1941b
Misc Info	0
Instrument Name	GCMS5
Vial Number	13
Sample Multiplier	0.247525
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

ENV3096B.D
SRM1941b
9/5/2013
PAH-2012.M
4.03999596

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.47	99486	49.1617	65.6533
4)	C1-Decalins	12.40	13781	6.8100	9.0944
5)	C2-Decalins	14.77	22986	11.3587	15.1690
6)	C3-Decalins	17.37	45944	22.7035	30.3196
7)	C4-Decalins	17.66	68643	33.9203	45.2992
8)	Naphthalene	13.92	6770920	621.2234	829.6176
9)+10)	C1-Naphthalenes	16.35	2060707	189.0673	252.4914
13)	C2-Naphthalenes	18.55	1923470	176.4759	235.6761
14)	C3-Naphthalenes	20.90	1491900	136.8796	182.7969
15)	C4-Naphthalenes	23.95	935504	85.8313	114.6240
16)	Benzothiophene	14.10	219862	25.1065	33.5286
17)	C1-Benzothiophenes	16.45	204259	23.3248	31.1492
18)	C2-Benzothiophenes	18.31	122049	13.9370	18.6123
19)	C3-Benzothiophenes	20.09	105793	12.0807	16.1333
20)	C4-Benzothiophenes	21.68	164464	18.7805	25.0805
22)	Biphenyl	17.75	490958	55.2954	73.8446
23)	Acenaphthylene	19.22	580585	54.2577	72.4589
24)	Acenaphthene	19.83	159652	23.8656	31.8716
25)	Dibenzofuran	20.43	655497	70.7469	94.4794
26)	Fluorene	21.59	348913	45.6614	60.9789
28)	C1-Fluorenes	23.58	319263	41.7812	55.7971
29)	C2-Fluorenes	25.44	705715	92.3555	123.3369
30)	C3-Fluorenes	27.68	1237490	161.9477	216.2743
33)	Carbazole	25.64	119024	15.3365	20.4813
42)	Anthracene	25.05	1645430	162.6789	217.2508
41)	Phenanthrene	24.88	4057020	333.0548	444.7806
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	3055124	250.8057	334.9404
50)	C2-Phenanthrenes/Anthracenes	28.47	3070600	252.0770	336.6382
51)	C3-Phenanthrenes/Anthracenes	30.02	2349050	192.8413	257.5314
52)	C4-Phenanthrenes/Anthracenes	31.86	1203410	98.7919	131.9324
34)	Dibenzothiophene	24.46	507524	42.3748	56.5897
35)+36)+37)	C1-Dibenzothiophenes	26.28	622942	52.0114	69.4590
38)	C2-Dibenzothiophenes	27.70	881690	73.6149	98.3096
39)	C3-Dibenzothiophenes	28.89	1059710	88.4788	118.1597
40)	C4-Dibenzothiophenes	30.30	827337	69.0768	92.2491
58)	Fluoranthene	29.00	8544830	593.9461	793.1900
59)	Pyrene	29.79	6613430	425.2281	567.8742
62)	C1-Fluoranthenes/Pyrenes	30.92	4292000	298.3345	398.4131
63)	C2-Fluoranthenes/Pyrenes	32.68	3634330	252.6191	337.3621
64)	C3-Fluoranthenes/Pyrenes	34.07	2013290	139.9425	186.8872
65)	C4-Fluoranthenes/Pyrenes	35.40	1752470	121.8130	162.6761
53)	Naphthobenzothiophene	33.06	1216400	126.4113	168.8169
54)	C1-Naphthobenzothiophenes	34.46	1384040	143.8328	192.0826
55)	C2-Naphthobenzothiophenes	35.88	1581660	164.3702	219.5095
56)	C3-Naphthobenzothiophenes	37.31	1119350	116.3261	155.3486
57)	C4-Naphthobenzothiophenes	38.15	544493	56.5852	75.5671
67)	Benz(a)anthracene	33.87	2387220	264.2503	352.8951
68)	Chrysene/Triphenylene	34.00	3156340	326.6909	436.2819
69)	C1-Chrysenes	35.24	3141780	325.1835	434.2688
70)	C2-Chrysenes	36.70	1734350	179.5101	239.7281
71)	C3-Chrysenes	38.12	643985	66.6543	89.0140
72)	C4-Chrysenes	39.55	215646	22.3200	29.8074
77)	Benzo(b)fluoranthene	37.44	5799190	405.8247	541.9617
78)	Benzo(k,j)fluoranthene	37.44	5072500	376.2033	502.4037
79)	Benzo(a)fluoranthene	37.80	656711	48.7050	65.0435
80)	Benzo(e)pyrene	38.41	4364590	250.0597	333.9441
81)	Benzo(a)pyrene	38.61	2881400	217.4586	290.4068
89)	Perylene	38.93	3888090	264.4211	353.1231
82)	Indeno(1,2,3-c,d)pyrene	43.40	3003990	234.2609	312.8455
83)	Dibenzo(a,h)anthracene	43.44	266985	28.3542	37.8659
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	44.78	2523470	208.8113	278.8587

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	1406590	199.7282	266.7285
10)	1-Methylnaphthalene	16.52	654117	93.9491	125.4651
11)	2,6-Dimethylnaphthalene	18.28	323847	50.3298	67.2133
12)	1,6,7-Trimethylnaphthalene	21.12	106266	16.1898	21.6208
27)	1-Methylfluorene	23.58	127576	26.3342	35.1682
35)	4-Methyldibenzothiophene	25.98	310861	34.5255	46.1074
36)	2/3-Methyldibenzothiophene	26.26	214912	23.8690	31.8761
37)	1-Methyldibenzothiophene	26.60	97169	10.7920	14.4122
43)	3-Methylphenanthrene	26.55	704908	74.4283	99.3958
44)	2-Methylphenanthrene	26.66	824155	87.0191	116.2104
45)	2-Methylanthracene	26.80	466020	49.2050	65.7112
46)	4/9-Methylphenanthrene	26.94	540152	57.0325	76.1645
47)	1-Methylphenanthrene	27.03	519889	54.8929	73.3071
48)	3,6-Dimethylphenanthrene	28.10	224591	22.5250	30.0811
49)	Retene	30.78	142511	29.4607	39.3435
60)	2-Methylfluoranthene	30.56	610473	61.0736	81.5612
61)	Benzo(b)fluorene	31.15	557250	76.8347	102.6095
74)	C29-Hopane	40.69	48934	5.4984	7.3429
75)	18a-Oleanane	42.03	233461	26.2327	35.0327
76)	C30-Hopane	42.26	1877400	210.9527	281.7184
91)	C20-TAS	33.71	12093	0.4380	0.5849
92)	C21-TAS	34.39	94554	3.4243	4.5730
93)	C26(20S)-TAS	38.67	44260	1.6029	2.1406
94)	C26(20R)/C27(20S)-TAS	39.61	169299	6.1312	8.1880
95)	C28(20S)-TAS	40.85	126314	4.5745	6.1091
96)	C27(20R)-TAS	40.85	126314	4.5745	6.1091
97)	C28(20R)-TAS	41.57	121126	4.3866	5.8582
	Surrogate Standards				
2)	Naphthalene-d8	13.86	451469	43.84	70.81
21)	Acenaphthene-d10	19.71	314866	48.76	78.74
32)	Phenanthrene-d10	24.82	507632	46.37	74.88
66)	Chrysene-d12	33.91	585226	53.69	86.75
88)	Perylene-d12	38.83	557779	40.68	65.72
90)	5(b)H-Cholane	34.33	181212	37.05	59.88
	Internal Standards				
1)	Fluorene-d10	21.50	372845	62.14	
31)	Pyrene-d10	29.74	757862	62.04	
73)	Benzo(a)pyrene-d12	38.51	646977	61.96	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096B.D
Acq On : 5 Sep 2013 4:33 am
Operator : YM
Sample : SRM1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.247525

Quant Time: Sep 12 20:30:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	372845m	251.05		0.00
31) Pyrene-d10	29.738	212	757862m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	646977m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	451469	43.84		-0.02
21) Acenaphthene-d10	19.715	164	314866m	48.76		-0.02
32) Phenanthrene-d10	24.822	188	507632	46.37		0.00
66) Chrysene-d12	33.907	240	585226	53.69		-0.03
88) Perylene-d12	38.835	264	557779	40.68		0.00
90) 5(b)H-Cholane	34.328	217	181212	37.05		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.465	138	99486m	49.16		
4) C1-Decalins	12.404	152	13781m	6.81		
5) C2-Decalins	14.774	166	22986m	11.36		
6) C3-Decalins	17.367	180	45944m	22.70		
7) C4-Decalins	17.658	194	68643m	33.92		
8) Naphthalene	13.924	128	6770918	621.22		99
9) 2-Methylnaphthalene	16.182	142	1406594	199.73		96
10) 1-Methylnaphthalene	16.518	142	654117	93.95		99
11) 2,6-Dimethylnaphthalene	18.284	156	323847m	50.33		
12) 1,6,7-Trimethylnaphtha...	21.123	170	106266m	16.19		
13) C2-Naphthalenes	18.552	156	1923469m	176.48		
14) C3-Naphthalenes	20.900	170	1491895m	136.88		
15) C4-Naphthalenes	23.947	184	935504m	85.83		
16) Benzothiophene	14.103	134	219862m	25.11		
17) C1-Benzothiophenes	16.451	148	204259m	23.32		
18) C2-Benzothiophenes	18.306	162	122049m	13.94		
19) C3-Benzothiophenes	20.095	176	105793m	12.08		
20) C4-Benzothiophenes	21.682	190	164464m	18.78		
22) Biphenyl	17.747	154	490958m	55.30		
23) Acenaphthylene	19.223	152	580585m	54.26		
24) Acenaphthene	19.827	154	159652m	23.87		
25) Dibenzofuran	20.430	168	655497m	70.75		
26) Fluorene	21.593	166	348913m	45.66		
27) 1-Methylfluorene	23.579	180	127576m	26.33		
28) C1-Fluorenes	23.579	180	319263m	41.78		
29) C2-Fluorenes	25.444	194	705715m	92.36		
30) C3-Fluorenes	27.676	208	1237490m	161.95		
33) Carbazole	25.642	167	119024m	15.34		
34) Dibenzothiophene	24.455	184	507524	42.37		99
35) 4-Methyldibenzothiophene	25.981	198	310861m	34.53		
36) 2/3-Methyldibenzothiop...	26.263	198	214912m	23.87		
37) 1-Methyldibenzothiophene	26.602	198	97169m	10.79		
38) C2-Dibenzothiophenes	27.704	212	881690m	73.61		
39) C3-Dibenzothiophenes	28.891	226	1059714m	88.48		
40) C4-Dibenzothiophenes	30.303	240	827337m	69.08		
41) Phenanthrene	24.879	178	4057015m	333.05		
42) Anthracene	25.048	178	1645429m	162.68		
43) 3-Methylphenanthrene	26.546	192	704908m	74.43		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096B.D
Acq On : 5 Sep 2013 4:33 am
Operator : YM
Sample : SRM1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.247525

Quant Time: Sep 12 20:30:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	824155m	87.02		
45)	2-Methylanthracene	26.800	192	466020m	49.21		
46)	4/9-Methylphenanthrene	26.941	192	540152m	57.03		
47)	1-Methylphenanthrene	27.026	192	519889m	54.89		
48)	3,6-Dimethylphenanthrene	28.100	206	224591m	22.52		
49)	Retene	30.784	234	142511m	29.46		
50)	C2-Phenanthrenes/Anthr...	28.467	206	3070603m	252.08		
51)	C3-Phenanthrenes/Anthr...	30.021	220	2349048m	192.84		
52)	C4-Phenanthrenes/Anthr...	31.857	234	1203409m	98.79		
53)	Naphthobenzothiophene	33.064	234	1216395m	126.41		
54)	C1-Naphthobenzothiophenes	34.458	248	1384035m	143.83		
55)	C2-Naphthobenzothiophenes	35.885	262	1581658m	164.37		
56)	C3-Naphthobenzothiophenes	37.311	276	1119352m	116.33		
57)	C4-Naphthobenzothiophenes	38.154	290	544493m	56.59		
58)	Fluoranthene	29.004	202	8544834m	593.95		
59)	Pyrene	29.795	202	6613429m	425.23		
60)	2-Methylfluoranthene	30.558	216	610473m	61.07		
61)	Benzo(b)fluorene	31.151	216	557250	76.83		100
62)	C1-Fluoranthenes/Pyrenes	30.925	216	4292002m	298.33		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	3634333m	252.62		
64)	C3-Fluoranthenes/Pyrenes	34.069	244	2013290m	139.94		
65)	C4-Fluoranthenes/Pyrenes	35.398	258	1752470m	121.81		
67)	Benz(a)anthracene	33.875	228	2387222m	264.25		
68)	Chrysene/Triphenylene	34.004	228	3156340m	326.69		
69)	C1-Chrysenes	35.236	242	3141782m	325.18		
70)	C2-Chrysenes	36.695	256	1734348m	179.51		
71)	C3-Chrysenes	38.122	270	643985m	66.65		
72)	C4-Chrysenes	39.548	284	215646m	22.32		
74)	C29-Hopane	40.688	191	48934	5.50		100
75)	18a-Oleanane	42.029	191	233461	26.23		100
76)	C30-Hopane	42.258	191	1877403m	210.95		
77)	Benzo(b)fluoranthene	37.441	252	5799189m	405.83		
78)	Benzo(k,j)fluoranthene	37.441	252	5072496m	376.20		
79)	Benzo(a)fluoranthene	37.797	252	656711m	48.71		
80)	Benzo(e)pyrene	38.413	252	4364590	250.06		100
81)	Benzo(a)pyrene	38.608	252	2881404m	217.46		
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	3003990	234.26		96
83)	Dibenzo(a,h)anthracene	43.435	278	266985m	28.35		
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	44.776	276	2523470	208.81		95
89)	Perylene	38.932	252	3888089	264.42		100
91)	C20-TAS	33.713	231	12093m	0.44		
92)	C21-TAS	34.393	231	94554m	3.42		
93)	C26(20S)-TAS	38.673	231	44260m	1.60		
94)	C26(20R)/C27(20S)-TAS	39.613	231	169299m	6.13		
95)	C28(20S)-TAS	40.852	231	126314	4.57		100
96)	C27(20R)-TAS	40.852	231	126314	4.57		100
97)	C28(20R)-TAS	41.571	231	121126m	4.39		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096B.D
Acq On : 5 Sep 2013 4:33 am
Operator : YM
Sample : SRM1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.247525

Quant Time: Sep 12 20:30:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

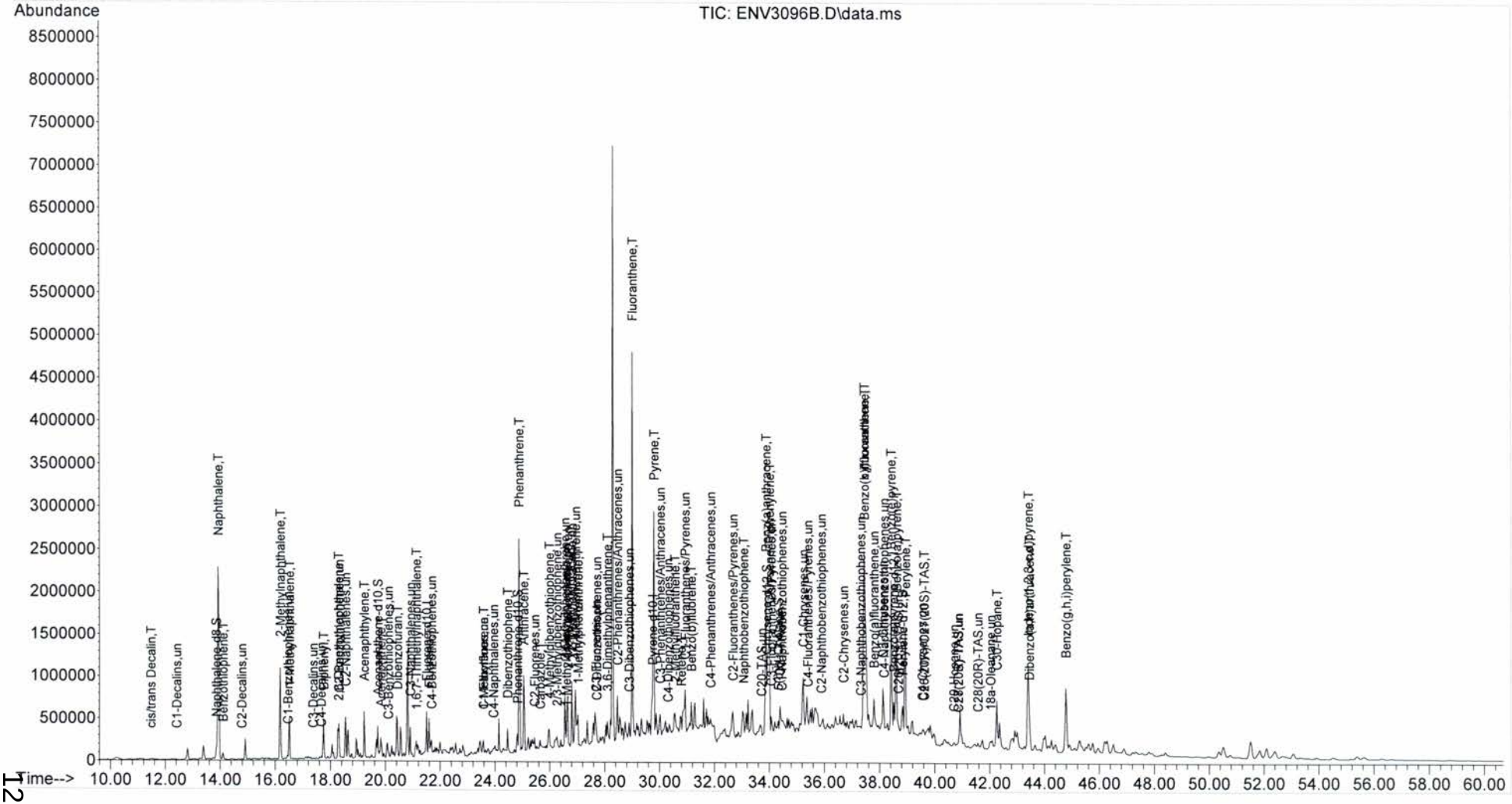
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096B.D
Acq On : 5 Sep 2013 4:33 am
Operator : YM
Sample : SRM1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.247525

Quant Time: Sep 12 20:30:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ENV3096C.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 5:39
Acq. Method File	PAH-2012.M
Sample Name	MS (SO-DA-002 (0-0.5))
Misc Info	0
Instrument Name	GCMS5
Vial Number	14
Sample Multiplier	0.0660939
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

ENV3096C.D
MS (SO-DA-002 (0-0.5))
9/5/2013
PAH-2012.M
15.1299893

#	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	13.92	413767	9.7117	12.1599
9)+10)	C1-Naphthalenes	16.35	430491	10.1042	12.6514
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	19.22	211539	5.0574	6.3323
24)	Acenaphthene	19.83	140016	5.3545	6.7043
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	233526	7.8182	9.7891
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	25.08	175424	4.6473	5.8189
41)	Phenanthrene	24.88	555228	12.2136	15.2924
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.41	209161	4.6010	5.7608
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	24.46	281641	6.3010	7.8894
35)+36)+37)	C1-Dibenzothiophenes	8.65	186593	4.1745	5.2269
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	29.00	503699	9.3816	11.7465
59)	Pyrene	29.79	456344	7.8623	9.8443
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	33.06	228214	6.3550	7.9570
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	33.87	230358	6.8327	8.5551
68)	Chrysene/Triphenylene	33.97	304893	8.4560	10.5876
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	37.41	385688	9.8192	12.2945
78)	Benzo(k,j)fluoranthene	37.51	252755	6.8198	8.5389
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	356746	7.4358	9.3102
81)	Benzo(a)pyrene	38.61	101626	2.7903	3.4937
89)	Perylene	38.80	77040	1.9061	2.3866
82)	Indeno(1,2,3-c,d)pyrene	43.40	252299	7.1579	8.9623
83)	Dibenzo(a,h)anthracene	43.47	153797	5.9422	7.4402
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	44.78	216929	6.5304	8.1767

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	246198	8.9432	11.1977
10)	1-Methylnaphthalene	16.52	184293	6.7715	8.4785
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	25.95	186593	5.5530	6.9529
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	27.03	209161	5.9176	7.4094
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	41.57	28419	0.3744	0.4688
	Surrogate Standards				
2)	Naphthalene-d8	13.86	514634	12.78	77.33
21)	Acenaphthene-d10	19.71	328408	13.01	78.68
32)	Phenanthrene-d10	24.82	539542	13.21	79.87
66)	Chrysene-d12	33.91	580356	14.27	86.33
88)	Perylene-d12	38.83	32801	0.87	5.27
90)	5(b)H-Cholane	34.30	188545	14.03	84.88
	Internal Standards				
1)	Fluorene-d10	21.50	389162	16.59	
31)	Pyrene-d10	29.71	755214	16.56	
73)	Benzo(a)pyrene-d12	38.51	474856	16.54	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096C.D
Acq On : 5 Sep 2013 5:39 am
Operator : YM
Sample : MS (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0660939

Quant Time: Sep 12 20:44:38 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	389162	251.05		0.00
31) Pyrene-d10	29.710	212	755214	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	474856	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	514634	12.78		-0.02
21) Acenaphthene-d10	19.715	164	328408	13.01		-0.02
32) Phenanthrene-d10	24.822	188	539542	13.21		0.00
66) Chrysene-d12	33.907	240	580356m	14.27		-0.03
88) Perylene-d12	38.835	264	32801m	0.87		0.00
90) 5(b)H-Cholane	34.296	217	188545	14.03		-0.03
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	13.924	128	413767m	9.71		
9) 2-Methylnaphthalene	16.182	142	246198	8.94		97
10) 1-Methylnaphthalene	16.518	142	184293	6.77		100
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	19.223	152	211539	5.06		98
24) Acenaphthene	19.826	154	140016m	5.35		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	233526m	7.82		
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	24.455	184	281641m	6.30		
35) 4-Methyldibenzothiophene	25.952	198	186593m	5.55		
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	24.879	178	555228	12.21		98
42) Anthracene	25.077	178	175424	4.65		94
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096C.D
Acq On : 5 Sep 2013 5:39 am
Operator : YM
Sample : MS (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0660939

Quant Time: Sep 12 20:44:38 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	27.026	192	209161m	5.92		
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	33.064	234	228214	6.35		100
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	29.004	202	503699m	9.38		
59)	Pyrene	29.795	202	456344m	7.86		
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	33.875	228	230358m	6.83		
68)	Chrysene/Triphenylene	33.972	228	304893m	8.46		
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	37.408	252	385688m	9.82		
78)	Benzo(k,j)fluoranthene	37.506	252	252755m	6.82		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	356746	7.44		100
81)	Benzo(a)pyrene	38.608	252	101626m	2.79		
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	252299	7.16		95
83)	Dibenzo(a,h)anthracene	43.468	278	153797	5.94		100
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	44.776	276	216929	6.53		96
89)	Perylene	38.802	252	77040m	1.91		
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	41.571	231	28419m	0.37		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096C.D
Acq On : 5 Sep 2013 5:39 am
Operator : YM
Sample : MS (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0660939

Quant Time: Sep 12 20:44:38 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

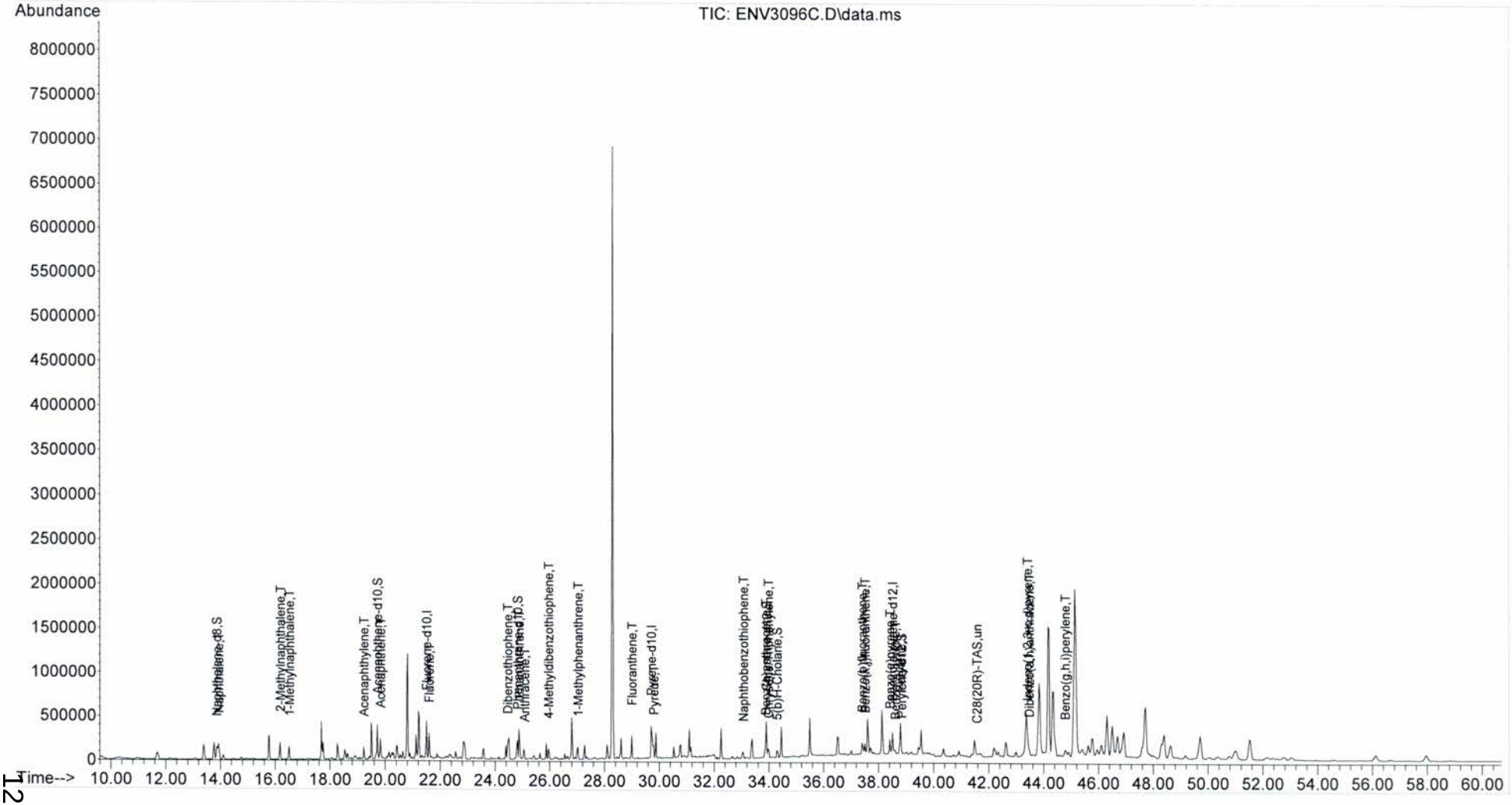
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096C.D
Acq On : 5 Sep 2013 5:39 am
Operator : YM
Sample : MS (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 14 Sample Multiplier: 0.0660939

Quant Time: Sep 12 20:44:38 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ENV3096D.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 6:45
Acq. Method File	PAH-2012.M
Sample Name	MSD (SO-DA-002 (0-0.5))
Misc Info	0
Instrument Name	GCMS5
Vial Number	15
Sample Multiplier	0.0663123
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

ENV3096D.D
MSD (SO-DA-002 (0-0.5))
9/5/2013
PAH-2012.M
15.08015858

#	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	13.92	416433	9.6059	12.2241
9)+10)	C1-Naphthalenes	16.35	429933	9.9173	12.6203
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	19.22	219084	5.1476	6.5505
24)	Acenaphthene	19.83	146608	5.5100	7.0118
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	267297	8.7947	11.1918
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	25.05	209317	5.4870	6.9825
41)	Phenanthrene	24.88	665746	14.4910	18.4405
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.41	220453	4.7985	6.1063
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	24.46	285543	6.3212	8.0441
35)+36)+37)	C1-Dibenzothiophenes	8.65	185577	4.1082	5.2279
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	29.00	454443	8.3754	10.6581
59)	Pyrene	29.79	455573	7.7666	9.8834
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	33.87	227863	6.6877	8.5105
68)	Chrysene/Triphenylene	33.97	306118	8.4008	10.6905
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	37.41	385842	8.4769	10.7873
78)	Benzo(k,j)fluoranthene	37.51	262435	6.1105	7.7759
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	341217	6.1374	7.8102
81)	Benzo(a)pyrene	38.61	134094	3.1771	4.0431
89)	Perylene	38.80	76215	1.6273	2.0708
82)	Indeno(1,2,3-c,d)pyrene	43.40	255047	6.2442	7.9461
83)	Dibenzo(a,h)anthracene	43.47	152194	5.0744	6.4574
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	44.78	205867	5.3481	6.8057

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	248390	8.8675	11.2843
10)	1-Methylnaphthalene	16.52	181543	6.5556	8.3423
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	25.95	185577	5.4648	6.9543
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	27.03	220453	6.1717	7.8538
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	39.55	540207	6.1420	7.8160
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	13.86	473434	11.56	69.68
21)	Acenaphthene-d10	19.71	316278	12.31	74.23
32)	Phenanthrene-d10	24.82	538268	13.04	78.58
66)	Chrysene-d12	33.91	587817	14.30	86.24
88)	Perylene-d12	38.83	44844	1.03	6.19
90)	5(b)H-Cholane	34.30	176869	11.35	68.49
	Internal Standards				
1)	Fluorene-d10	21.50	397291	16.65	
31)	Pyrene-d10	29.71	765746	16.62	
73)	Benzo(a)pyrene-d12	38.51	552088	16.60	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096D.D
Acq On : 5 Sep 2013 6:45 am
Operator : YM
Sample : MSD (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.0663123

Quant Time: Sep 15 16:39:05 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	397291	251.05		0.00
31) Pyrene-d10	29.710	212	765746m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	552088	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	473434	11.56		-0.02
21) Acenaphthene-d10	19.715	164	316278	12.31		-0.02
32) Phenanthrene-d10	24.822	188	538268m	13.04		0.00
66) Chrysene-d12	33.907	240	587817	14.30		-0.03
88) Perylene-d12	38.835	264	44844m	1.03		0.00
90) 5(b)H-Cholane	34.296	217	176869	11.35		-0.03
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	13.924	128	416433m	9.61		
9) 2-Methylnaphthalene	16.182	142	248390m	8.87		
10) 1-Methylnaphthalene	16.518	142	181543m	6.56		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	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	19.223	152	219084	5.15		99
24) Acenaphthene	19.827	154	146608	5.51		98
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	267297m	8.79		
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	24.455	184	285543m	6.32		
35) 4-Methyldibenzothiophene	25.952	198	185577m	5.46		
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	24.879	178	665746m	14.49		
42) Anthracene	25.048	178	209317m	5.49		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096D.D
Acq On : 5 Sep 2013 6:45 am
Operator : YM
Sample : MSD (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.0663123

Quant Time: Sep 15 16:39:05 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	27.026	192	220453m	6.17	
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	29.004	202	454443m	8.38	
59)	Pyrene	29.795	202	455573m	7.77	
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	33.875	228	227863m	6.69	
68)	Chrysene/Triphenylene	33.972	228	306118m	8.40	
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	37.408	252	385842m	8.48	
78)	Benzo(k,j)fluoranthene	37.506	252	262435m	6.11	
79)	Benzo(a)fluoranthene	0.000		0	N.D. d	
80)	Benzo(e)pyrene	38.413	252	341217	6.14	100
81)	Benzo(a)pyrene	38.608	252	134094	3.18	100
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	255047	6.24	95
83)	Dibenzo(a,h)anthracene	43.468	278	152194	5.07	100
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	44.776	276	205867	5.35	95
89)	Perylene	38.802	252	76215m	1.63	
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	39.548	231	540207m	6.14	
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096D.D
Acq On : 5 Sep 2013 6:45 am
Operator : YM
Sample : MSD (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.0663123

Quant Time: Sep 15 16:39:05 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

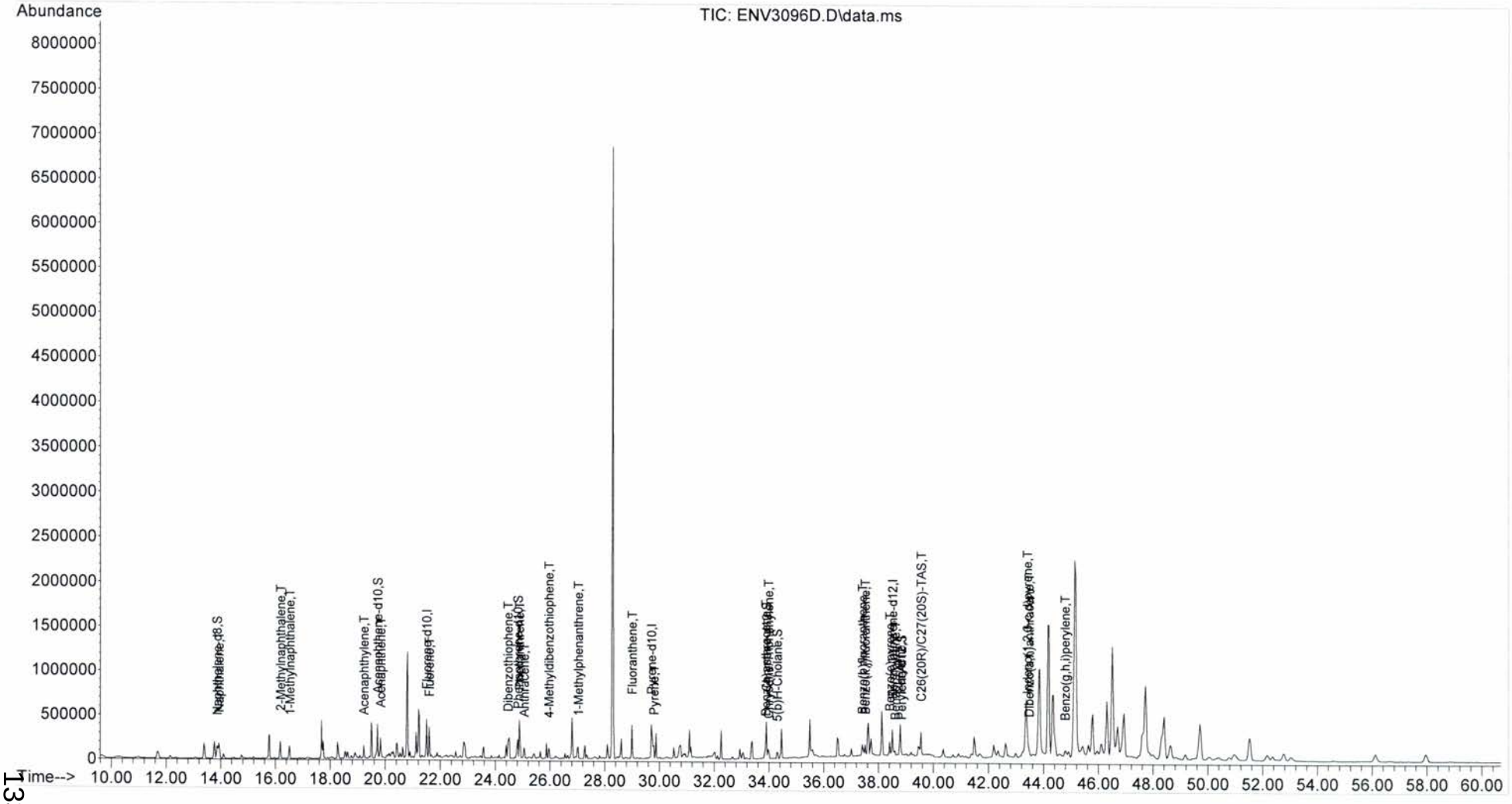
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096D.D
Acq On : 5 Sep 2013 6:45 am
Operator : YM
Sample : MSD (SO-DA-002 (0-0.5))
Misc :
ALS Vial : 15 Sample Multiplier: 0.0663123

Quant Time: Sep 15 16:39:05 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



133

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

Data File Name	ENV3096E.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 7:52
Acq. Method File	PAH-2012.M
Sample Name	Dupl (SED-DA-050 (0.5-1.0))
Misc Info	0
Instrument Name	GCMS5
Vial Number	16
Sample Multiplier	0.0662252
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

ENV3096E.D
ıpl (SED-DA-050 (0.5-1.0))
9/5/2013
PAH-2012.M
15.09999215

#	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	13.92	39493	0.9227	1.1612
9)+10)	C1-Naphthalenes	16.35	27608	0.6450	0.8117
13)	C2-Naphthalenes	18.55	52382	1.2238	1.5401
14)	C3-Naphthalenes	21.50	139380	3.2563	4.0981
15)	C4-Naphthalenes	22.84	73656	1.7208	2.1656
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	19.22	3646	0.0868	0.1092
24)	Acenaphthene	19.83	3628	0.1381	0.1738
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	36622	1.2204	1.5359
28)	C1-Fluorenes	23.58	14851	0.4949	0.6228
29)	C2-Fluorenes	25.44	23985	0.7993	1.0059
30)	C3-Fluorenes	27.68	15272	0.5089	0.6405
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	5912	0.1574	0.1980
41)	Phenanthrene	24.88	122872	2.7156	3.4175
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	24.46	9442	0.2122	0.2671
35)+36)+37)	C1-Dibenzothiophenes	26.28	8922	0.2005	0.2524
38)	C2-Dibenzothiophenes	27.37	14115	0.3173	0.3993
39)	C3-Dibenzothiophenes	28.89	18974	0.4265	0.5367
40)	C4-Dibenzothiophenes	31.09	11864	0.2667	0.3356
58)	Fluoranthene	29.00	49008	0.9171	1.1541
59)	Pyrene	29.79	31320	0.5421	0.6823
62)	C1-Fluoranthenes/Pyrenes	30.92	24758	0.4633	0.5831
63)	C2-Fluoranthenes/Pyrenes	32.68	13651	0.2554	0.3215
64)	C3-Fluoranthenes/Pyrenes	34.98	15743	0.2946	0.3707
65)	C4-Fluoranthenes/Pyrenes	35.85	7930	0.1484	0.1868
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	33.87	5244	0.1563	0.1967
68)	Chrysene/Triphenylene	33.94	14236	0.3967	0.4992
69)	C1-Chrysenes	36.34	6167	0.1718	0.2163
70)	C2-Chrysenes	36.92	18988	0.5291	0.6659
71)	C3-Chrysenes	38.15	13329	0.3714	0.4674
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.41	23676	0.5341	0.6721
78)	Benzo(k,j)fluoranthene	37.51	5514	0.1318	0.1659
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	12374	0.2285	0.2876
81)	Benzo(a)pyrene	38.61	3978	0.0968	0.1218
89)	Perylene	38.90	2377880	52.1288	65.6038
82)	Indeno(1,2,3-c,d)pyrene	43.37	6601	0.1659	0.2088
83)	Dibenzo(a,h)anthracene	43.50	1368	0.0468	0.0589
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	44.78	4336	0.1157	0.1456

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	18569	0.6714	0.8450
10)	1-Methylnaphthalene	16.52	9039	0.3306	0.4160
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	25.98	3653	0.1092	0.1375
36)	2/3-Methyldibenzothiophene	26.26	3172	0.0948	0.1194
37)	1-Methyldibenzothiophene	26.60	2097	0.0627	0.0789
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	13.86	491047	12.14	73.30
21)	Acenaphthene-d10	19.71	327591	12.92	77.97
32)	Phenanthrene-d10	24.82	535343	13.17	79.46
66)	Chrysene-d12	33.91	597208	14.75	89.08
88)	Perylene-d12	38.80	519455	12.21	73.74
90)	5(b)H-Cholane	34.30	193764	12.77	77.14
	Internal Standards				
1)	Fluorene-d10	21.50	391746	16.63	
31)	Pyrene-d10	29.71	753175	16.60	
73)	Benzo(a)pyrene-d12	38.51	536987	16.58	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096E.D
Acq On : 5 Sep 2013 7:52 am
Operator : YM
Sample : Dupl (SED-DA-050 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.0662252

Quant Time: Sep 15 17:05:28 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.503	176	391746m	251.05			0.00
31) Pyrene-d10	29.710	212	753175m	250.63			-0.03
73) Benzo(a)pyrene-d12	38.511	264	536987m	250.32			-0.03
System Monitoring Compounds							
2) Naphthalene-d8	13.857	136	491047m	12.14			-0.02
21) Acenaphthene-d10	19.715	164	327591m	12.92			-0.02
32) Phenanthrene-d10	24.822	188	535343m	13.17			0.00
66) Chrysene-d12	33.907	240	597208	14.75			-0.03
88) Perylene-d12	38.802	264	519455	12.21			-0.03
90) 5(b)H-Cholane	34.296	217	193764	12.77			-0.03
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	13.924	128	39493	0.92			99
9) 2-Methylnaphthalene	16.182	142	18569m	0.67			
10) 1-Methylnaphthalene	16.518	142	9039m	0.33			
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d		
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d		
13) C2-Naphthalenes	18.552	156	52382m	1.22			
14) C3-Naphthalenes	21.503	170	139380m	3.26			
15) C4-Naphthalenes	22.845	184	73656m	1.72			
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	19.223	152	3646m	0.09			
24) Acenaphthene	19.827	154	3628m	0.14			
25) Dibenzofuran	0.000		0	N.D.	d		
26) Fluorene	21.593	166	36622m	1.22			
27) 1-Methylfluorene	0.000		0	N.D.	d		
28) C1-Fluorenes	23.579	180	14851m	0.49			
29) C2-Fluorenes	25.444	194	23985m	0.80			
30) C3-Fluorenes	27.676	208	15272m	0.51			
33) Carbazole	0.000		0	N.D.	d		
34) Dibenzothiophene	24.455	184	9442	0.21		#	87
35) 4-Methyldibenzothiophene	25.981	198	3653m	0.11			
36) 2/3-Methyldibenzothiop...	26.263	198	3172m	0.09			
37) 1-Methyldibenzothiophene	26.602	198	2097m	0.06			
38) C2-Dibenzothiophenes	27.365	212	14115m	0.32			
39) C3-Dibenzothiophenes	28.891	226	18974m	0.43			
40) C4-Dibenzothiophenes	31.094	240	11864m	0.27			
41) Phenanthrene	24.879	178	122872m	2.72			
42) Anthracene	25.077	178	5912m	0.16			
43) 3-Methylphenanthrene	0.000		0	N.D.	d		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096E.D
Acq On : 5 Sep 2013 7:52 am
Operator : YM
Sample : Dupl (SED-DA-050 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.0662252

Quant Time: Sep 15 17:05:28 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	49008	0.92		100
59)	Pyrene	29.795	202	31320m	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	30.925	216	24758m	0.46		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	13651m	0.26		
64)	C3-Fluoranthenes/Pyrenes	34.977	244	15743m	0.29		
65)	C4-Fluoranthenes/Pyrenes	35.852	258	7930m	0.15		
67)	Benz(a)anthracene	33.875	228	5244m	0.16		
68)	Chrysene/Triphenylene	33.939	228	14236m	0.40		
69)	C1-Chrysenes	36.339	242	6167m	0.17		
70)	C2-Chrysenes	36.922	256	18988m	0.53		
71)	C3-Chrysenes	38.154	270	13329m	0.37		
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	37.408	252	23676m	0.53		
78)	Benzo(k,j)fluoranthene	37.506	252	5514m	0.13		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	12374m	0.23		
81)	Benzo(a)pyrene	38.608	252	3978m	0.10		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	6601m	0.17		
83)	Dibenzo(a,h)anthracene	43.500	278	1368m	0.05		
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	44.776	276	4336m	0.12		
89)	Perylene	38.900	252	2377877m	52.13		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096E.D
Acq On : 5 Sep 2013 7:52 am
Operator : YM
Sample : Dupl (SED-DA-050 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.0662252

Quant Time: Sep 15 17:05:28 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

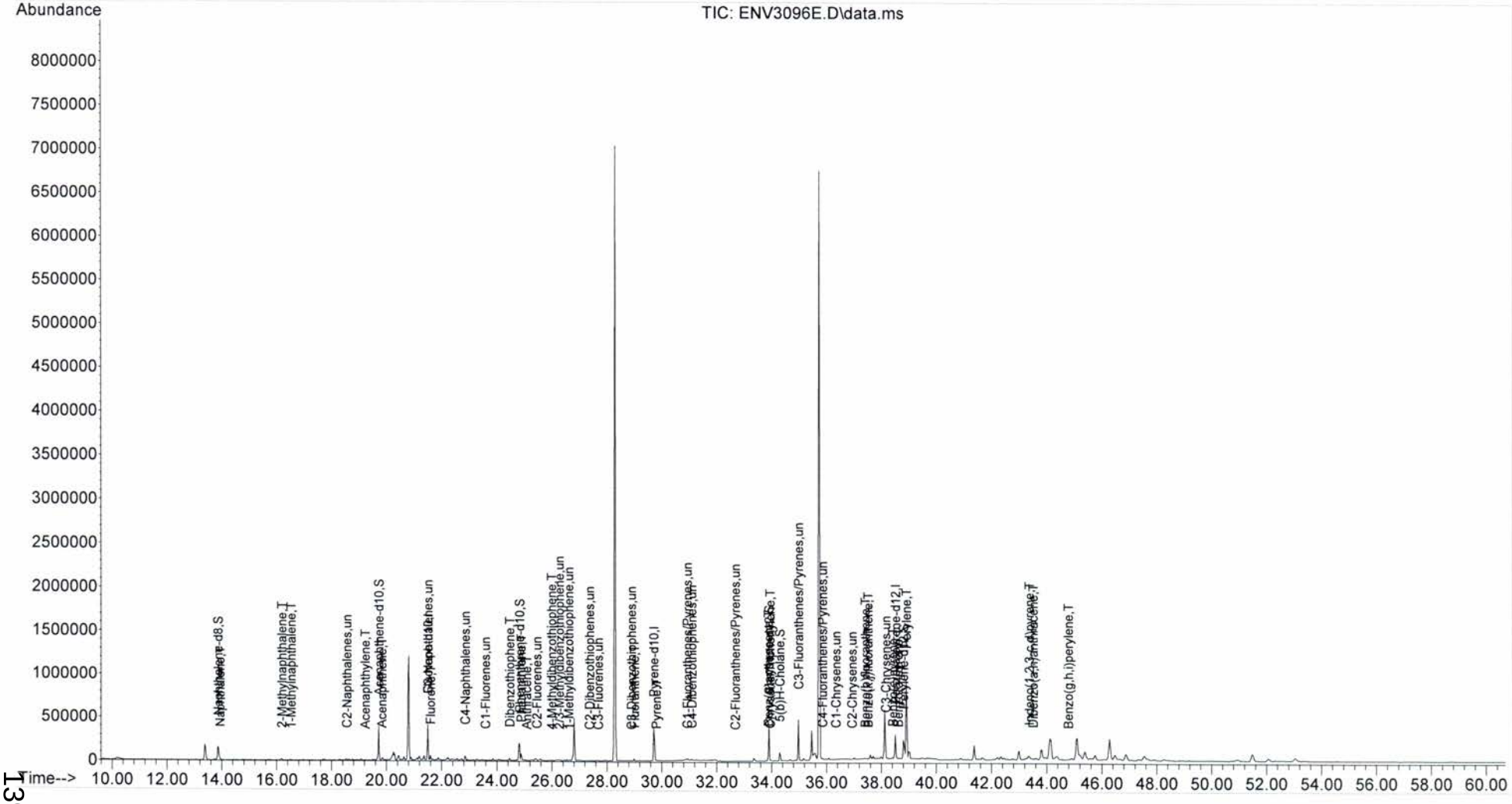
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ENV3096E.D
Acq On : 5 Sep 2013 7:52 am
Operator : YM
Sample : Dupl (SED-DA-050 (0.5-1.0))
Misc :
ALS Vial : 16 Sample Multiplier: 0.0662252

Quant Time: Sep 15 17:05:28 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1836.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 8:58
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-002 (0-0.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	17
Sample Multiplier	0.0664011
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

ARC1836.D
SO-DA-002 (0-0.5)
9/5/2013
PAH-2012.M
15.05999148

#	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	13.92	225359	5.5385	6.9476
9)+10)	C1-Naphthalenes	16.35	180516	4.4364	5.5651
13)	C2-Naphthalenes	18.55	267927	6.5846	8.2599
14)	C3-Naphthalenes	21.50	284784	6.9989	8.7796
15)	C4-Naphthalenes	21.62	232849	5.7225	7.1785
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	19.22	16048	0.4017	0.5039
24)	Acenaphthene	19.83	9596	0.3842	0.4820
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	86829	3.0438	3.8182
28)	C1-Fluorenes	23.58	36992	1.2967	1.6267
29)	C2-Fluorenes	25.44	50091	1.7559	2.2027
30)	C3-Fluorenes	27.68	76491	2.6814	3.3636
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	19559	0.5370	0.6736
41)	Phenanthrene	24.88	373881	8.5234	10.6920
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	295179	6.7293	8.4414
50)	C2-Phenanthrenes/Anthracenes	28.30	257307	5.8659	7.3583
51)	C3-Phenanthrenes/Anthracenes	30.02	122523	2.7932	3.5038
52)	C4-Phenanthrenes/Anthracenes	30.78	104453	2.3812	2.9871
34)	Dibenzothiophene	24.46	27563	0.6391	0.8017
35)+36)+37)	C1-Dibenzothiophenes	26.27	26563	0.6159	0.7726
38)	C2-Dibenzothiophenes	27.37	42863	0.9938	1.2467
39)	C3-Dibenzothiophenes	28.89	48430	1.1229	1.4086
40)	C4-Dibenzothiophenes	30.73	75769	1.7568	2.2037
58)	Fluoranthene	29.00	173884	3.3564	4.2104
59)	Pyrene	29.77	158804	2.8355	3.5569
62)	C1-Fluoranthenes/Pyrenes	31.60	136997	2.6444	3.3172
63)	C2-Fluoranthenes/Pyrenes	32.68	146583	2.8294	3.5493
64)	C3-Fluoranthenes/Pyrenes	34.20	121117	2.3379	2.9327
65)	C4-Fluoranthenes/Pyrenes	35.40	99233	1.9155	2.4028
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	33.87	40814	1.2546	1.5738
68)	Chrysene/Triphenylene	33.97	116347	3.3441	4.1950
69)	C1-Chrysenes	35.20	114193	3.2822	4.1173
70)	C2-Chrysenes	36.40	94189	2.7072	3.3960
71)	C3-Chrysenes	38.12	76506	2.1990	2.7585
72)	C4-Chrysenes	41.51	67447	1.9386	2.4318
77)	Benzo(b)fluoranthene	37.41	141676	3.6626	4.5945
78)	Benzo(k,j)fluoranthene	37.51	34998	0.9589	1.2029
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	98010	2.0744	2.6022
81)	Benzo(a)pyrene	38.61	24280	0.6769	0.8492
89)	Perylene	38.90	13638	0.3426	0.4298
82)	Indeno(1,2,3-c,d)pyrene	43.37	74529	2.1471	2.6934
83)	Dibenzo(a,h)anthracene	43.44	16034	0.6291	0.7891
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	44.78	63301	1.9350	2.4274

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	121024	4.6032	5.7743
10)	1-Methylnaphthalene	16.52	59492	2.2888	2.8711
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	25.95	12251	0.3778	0.4740
36)	2/3-Methyldibenzothiophene	26.26	10030	0.3093	0.3881
37)	1-Methyldibenzothiophene	26.60	4282	0.1321	0.1657
43)	3-Methylphenanthrene	26.55	37009	1.0851	1.3612
44)	2-Methylphenanthrene	26.66	46928	1.3760	1.7261
45)	2-Methylanthracene	26.80	153194	4.4918	5.6346
46)	4/9-Methylphenanthrene	26.91	31708	0.9297	1.1663
47)	1-Methylphenanthrene	27.03	26340	0.7723	0.9688
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	13.86	472830	12.30	74.05
21)	Acenaphthene-d10	19.71	311242	12.91	77.72
32)	Phenanthrene-d10	24.82	522054	13.24	79.72
66)	Chrysene-d12	33.91	596856	15.21	91.59
88)	Perylene-d12	38.83	64885	1.75	10.53
90)	5(b)H-Cholane	34.30	187277	14.15	85.22
	Internal Standards				
1)	Fluorene-d10	21.50	373397	16.67	
31)	Pyrene-d10	29.71	732103	16.64	
73)	Benzo(a)pyrene-d12	38.51	469809	16.62	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1836.D
Acq On : 5 Sep 2013 8:58 am
Operator : YM
Sample : SO-DA-002 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.0664011

Quant Time: Sep 15 16:42:19 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	373397m	251.05		0.00
31) Pyrene-d10	29.710	212	732103m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	469809	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	472830	12.30		-0.02
21) Acenaphthene-d10	19.715	164	311242m	12.91		-0.02
32) Phenanthrene-d10	24.822	188	522054m	13.24		0.00
66) Chrysene-d12	33.907	240	596856m	15.21		-0.03
88) Perylene-d12	38.835	264	64885m	1.75		0.00
90) 5(b)H-Cholane	34.296	217	187277	14.15		-0.03
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	13.924	128	225359m	5.54		
9) 2-Methylnaphthalene	16.182	142	121024m	4.60		
10) 1-Methylnaphthalene	16.518	142	59492m	2.29		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	267927m	6.58		
14) C3-Naphthalenes	21.503	170	284784m	7.00		
15) C4-Naphthalenes	21.615	184	232849m	5.72		
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	19.223	152	16048m	0.40		
24) Acenaphthene	19.827	154	9596m	0.38		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	86829m	3.04		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	36992m	1.30		
29) C2-Fluorenes	25.444	194	50091m	1.76		
30) C3-Fluorenes	27.676	208	76491m	2.68		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	27563m	0.64		
35) 4-Methyldibenzothiophene	25.952	198	12251	0.38		100
36) 2/3-Methyldibenzothiop...	26.263	198	10030	0.31		100
37) 1-Methyldibenzothiophene	26.602	198	4282m	0.13		
38) C2-Dibenzothiophenes	27.365	212	42863m	0.99		
39) C3-Dibenzothiophenes	28.891	226	48430m	1.12		
40) C4-Dibenzothiophenes	30.727	240	75769m	1.76		
41) Phenanthrene	24.879	178	373881m	8.52		
42) Anthracene	25.077	178	19559m	0.54		
43) 3-Methylphenanthrene	26.546	192	37009m	1.09		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1836.D
Acq On : 5 Sep 2013 8:58 am
Operator : YM
Sample : SO-DA-002 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.0664011

Quant Time: Sep 15 16:42:19 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
44)	2-Methylphenanthrene	26.659	192	46928m	1.38			
45)	2-Methylanthracene	26.800	192	153194m	4.49			
46)	4/9-Methylphenanthrene	26.913	192	31708m	0.93			
47)	1-Methylphenanthrene	27.026	192	26340m	0.77			
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d		
49)	Retene	0.000		0	N.D.	d		
50)	C2-Phenanthrenes/Anthr...	28.297	206	257307m	5.87			
51)	C3-Phenanthrenes/Anthr...	30.021	220	122523m	2.79			
52)	C4-Phenanthrenes/Anthr...	30.784	234	104453m	2.38			
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	29.004	202	173884	3.36			100
59)	Pyrene	29.767	202	158804m	2.84			
60)	2-Methylfluoranthene	0.000		0	N.D.	d		
61)	Benzo(b)fluorene	0.000		0	N.D.	d		
62)	C1-Fluoranthenes/Pyrenes	31.603	216	136997m	2.64			
63)	C2-Fluoranthenes/Pyrenes	32.675	230	146583m	2.83			
64)	C3-Fluoranthenes/Pyrenes	34.199	244	121117m	2.34			
65)	C4-Fluoranthenes/Pyrenes	35.398	258	99233m	1.92			
67)	Benz(a)anthracene	33.875	228	40814m	1.25			
68)	Chrysene/Triphenylene	33.972	228	116347m	3.34			
69)	C1-Chrysenes	35.204	242	114193m	3.28			
70)	C2-Chrysenes	36.403	256	94189m	2.71			
71)	C3-Chrysenes	38.122	270	76506m	2.20			
72)	C4-Chrysenes	41.506	284	67447m	1.94			
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	37.408	252	141676m	3.66			
78)	Benzo(k,j)fluoranthene	37.506	252	34998m	0.96			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.413	252	98010	2.07			100
81)	Benzo(a)pyrene	38.608	252	24280m	0.68			
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	74529	2.15			91
83)	Dibenzo(a,h)anthracene	43.435	278	16034	0.63		#	75
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	44.776	276	63301	1.94			96
89)	Perylene	38.900	252	13638m	0.34			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1836.D
Acq On : 5 Sep 2013 8:58 am
Operator : YM
Sample : SO-DA-002 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.0664011

Quant Time: Sep 15 16:42:19 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

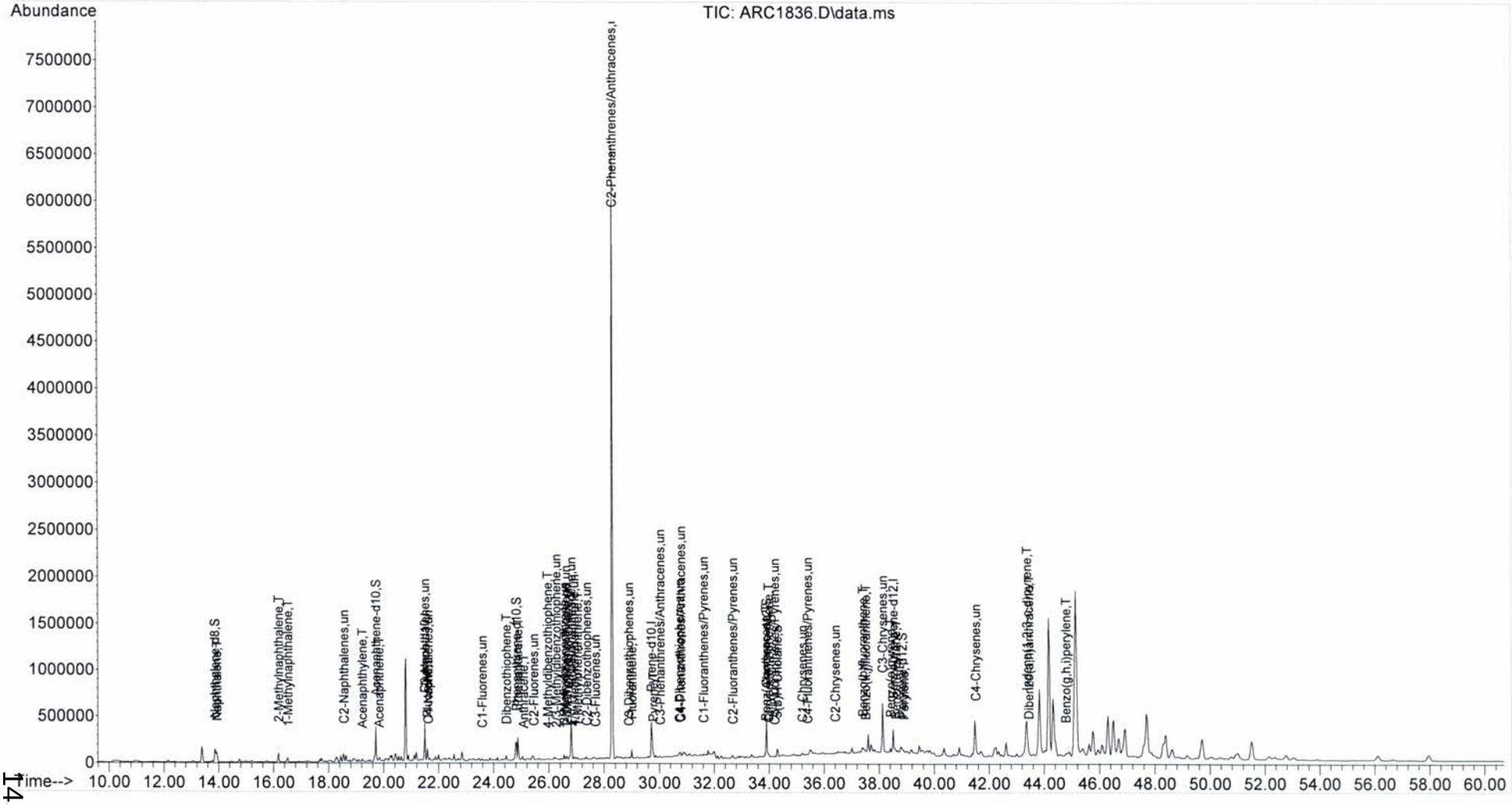
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1836.D
Acq On : 5 Sep 2013 8:58 am
Operator : YM
Sample : SO-DA-002 (0-0.5)
Misc :
ALS Vial : 17 Sample Multiplier: 0.0664011

Quant Time: Sep 15 16:42:19 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1809.D	**Surrogate/Internal Multiplier Factor:**	1.00		
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\	**AR-WKSU-2500-001:**	**(ng/mL)**		
Operator	YM	Naphthalene-d8	250.125		
Date Acquired	9/5/2013 10:04	Acenaphthene-d10	250.163	***Copy data below***	
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	***to Spread Sheet***	
Sample Name	SED-DA-047 (1.0-1.5)	Chrysene-d12	250.038		
Misc Info	0	Perylene-d12	250.031	ARC1809.D	
Instrument Name	GCMS5	5(b)H-Cholane	250.000	SED-DA-047 (1.0-1.5)	
Vial Number	18			9/5/2013	
Sample Multiplier	0.0662691			PAH-2012.M	
Sample Amount	0			15.08998915	

#	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	13.92	115803	2.8303	3.4555
9)+10)	C1-Naphthalenes	16.35	94512	2.3099	2.8202
13)	C2-Naphthalenes	18.64	132150	3.2298	3.9432
14)	C3-Naphthalenes	21.50	193326	4.7250	5.7687
15)	C4-Naphthalenes	21.62	56249	1.3747	1.6784
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	19.22	3044	0.0758	0.0925
24)	Acenaphthene	19.83	2286	0.0910	0.1111
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	52105	1.8164	2.2177
28)	C1-Fluorenes	23.47	21447	0.7477	0.9128
29)	C2-Fluorenes	25.05	37785	1.3172	1.6082
30)	C3-Fluorenes	27.93	22607	0.7881	0.9622
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	4100	0.1144	0.1397
41)	Phenanthrene	24.88	158898	3.6829	4.4965
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	24.46	14824	0.3494	0.4266
35)+36)+37)	C1-Dibenzothiophenes	26.27	19005	0.4480	0.5470
38)	C2-Dibenzothiophenes	27.37	26119	0.6157	0.7517
39)	C3-Dibenzothiophenes	28.89	21928	0.5169	0.6311
40)	C4-Dibenzothiophenes	30.30	17439	0.4111	0.5019
58)	Fluoranthene	29.00	27673	0.5431	0.6630
59)	Pyrene	29.79	18014	0.3270	0.3993
62)	C1-Fluoranthenes/Pyrenes	30.92	24186	0.4746	0.5795
63)	C2-Fluoranthenes/Pyrenes	33.91	18209	0.3574	0.4363
64)	C3-Fluoranthenes/Pyrenes	34.98	16196	0.3178	0.3881
65)	C4-Fluoranthenes/Pyrenes	36.34	14848	0.2914	0.3558
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	33.87	3126	0.0977	0.1193
68)	Chrysene/Triphenylene	33.94	8926	0.2608	0.3185
69)	C1-Chrysenes	35.76	446686	13.0533	15.9367
70)	C2-Chrysenes	36.34	72468	2.1177	2.5855
71)	C3-Chrysenes	38.15	22716	0.6638	0.8105
72)	C4-Chrysenes	40.10	20234	0.5913	0.7219
77)	Benzo(b)fluoranthene	37.41	11260	0.2653	0.3239
78)	Benzo(k,j)fluoranthene	37.51	2600	0.0649	0.0793
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	7563	0.1459	0.1781
81)	Benzo(a)pyrene	38.61	1648	0.0419	0.0511
89)	Perylene	38.90	250851	5.7431	7.0117
82)	Indeno(1,2,3-c,d)pyrene	43.37	11439	0.3003	0.3666
83)	Dibenzo(a,h)anthracene	43.50	22562	0.8066	0.9848
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	44.78	4312	0.1201	0.1466

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	62906	2.3794	2.9050
10)	1-Methylnaphthalene	16.52	31606	1.2092	1.4764
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	25.95	9402	0.2948	0.3599
36)	2/3-Methyldibenzothiophene	26.26	6543	0.2052	0.2505
37)	1-Methyldibenzothiophene	26.60	3060	0.0960	0.1171
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	13.86	462331	11.96	72.15
21)	Acenaphthene-d10	19.71	310053	12.79	77.15
32)	Phenanthrene-d10	24.82	526536	13.58	81.91
66)	Chrysene-d12	33.91	571402	14.80	89.32
88)	Perylene-d12	38.80	224519	5.51	33.26
90)	5(b)H-Cholane	34.30	184397	12.69	76.62
	Internal Standards				
1)	Fluorene-d10	21.50	374725	16.64	
31)	Pyrene-d10	29.71	718648	16.61	
73)	Benzo(a)pyrene-d12	38.51	514531	16.59	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1809.D
Acq On : 5 Sep 2013 10:04 am
Operator : YM
Sample : SED-DA-047 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.0662691

Quant Time: Sep 13 13:34:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	374725	251.05		0.00
31) Pyrene-d10	29.710	212	718648m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	514531	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	462331	11.96		-0.02
21) Acenaphthene-d10	19.715	164	310053m	12.79		-0.02
32) Phenanthrene-d10	24.822	188	526536	13.58		0.00
66) Chrysene-d12	33.907	240	571402	14.80		-0.03
88) Perylene-d12	38.802	264	224519	5.51		-0.03
90) 5(b)H-Cholane	34.296	217	184397	12.69		-0.03
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	13.924	128	115803m	2.83		
9) 2-Methylnaphthalene	16.182	142	62906m	2.38		
10) 1-Methylnaphthalene	16.518	142	31606m	1.21		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	132150m	3.23		
14) C3-Naphthalenes	21.503	170	193326m	4.72		
15) C4-Naphthalenes	21.615	184	56249m	1.37		
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	19.223	152	3044m	0.08		
24) Acenaphthene	19.827	154	2286m	0.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	52105m	1.82		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.466	180	21447m	0.75		
29) C2-Fluorenes	25.048	194	37785m	1.32		
30) C3-Fluorenes	27.930	208	22607m	0.79		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	14824m	0.35		
35) 4-Methyldibenzothiophene	25.952	198	9402m	0.29		
36) 2/3-Methyldibenzothiop...	26.263	198	6543m	0.21		
37) 1-Methyldibenzothiophene	26.602	198	3060m	0.10		
38) C2-Dibenzothiophenes	27.365	212	26119m	0.62		
39) C3-Dibenzothiophenes	28.891	226	21928m	0.52		
40) C4-Dibenzothiophenes	30.303	240	17439m	0.41		
41) Phenanthrene	24.879	178	158898m	3.68		
42) Anthracene	25.077	178	4100m	0.11		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1809.D
Acq On : 5 Sep 2013 10:04 am
Operator : YM
Sample : SED-DA-047 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.0662691

Quant Time: Sep 13 13:34:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	27673	0.54			100
59)	Pyrene	29.795	202	18014m	0.33			
60)	2-Methylfluoranthene	0.000		0	N.D.	d		
61)	Benzo(b)fluorene	0.000		0	N.D.	d		
62)	C1-Fluoranthenes/Pyrenes	30.925	216	24186m	0.47			
63)	C2-Fluoranthenes/Pyrenes	33.907	230	18209m	0.36			
64)	C3-Fluoranthenes/Pyrenes	34.977	244	16196m	0.32			
65)	C4-Fluoranthenes/Pyrenes	36.339	258	14848m	0.29			
67)	Benz(a)anthracene	33.875	228	3126m	0.10			
68)	Chrysene/Triphenylene	33.939	228	8926m	0.26			
69)	C1-Chrysenes	35.755	242	446686m	13.05			
70)	C2-Chrysenes	36.339	256	72468m	2.12			
71)	C3-Chrysenes	38.154	270	22716m	0.66			
72)	C4-Chrysenes	40.100	284	20234m	0.59			
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	37.408	252	11260m	0.27			
78)	Benzo(k,j)fluoranthene	37.506	252	2600m	0.06			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.413	252	7563m	0.15			
81)	Benzo(a)pyrene	38.608	252	1648	0.04			100
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	11439m	0.30			
83)	Dibenzo(a,h)anthracene	43.500	278	22562	0.81		#	1
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	44.776	276	4312m	0.12			
89)	Perylene	38.900	252	250851m	5.74			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1809.D
Acq On : 5 Sep 2013 10:04 am
Operator : YM
Sample : SED-DA-047 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.0662691

Quant Time: Sep 13 13:34:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

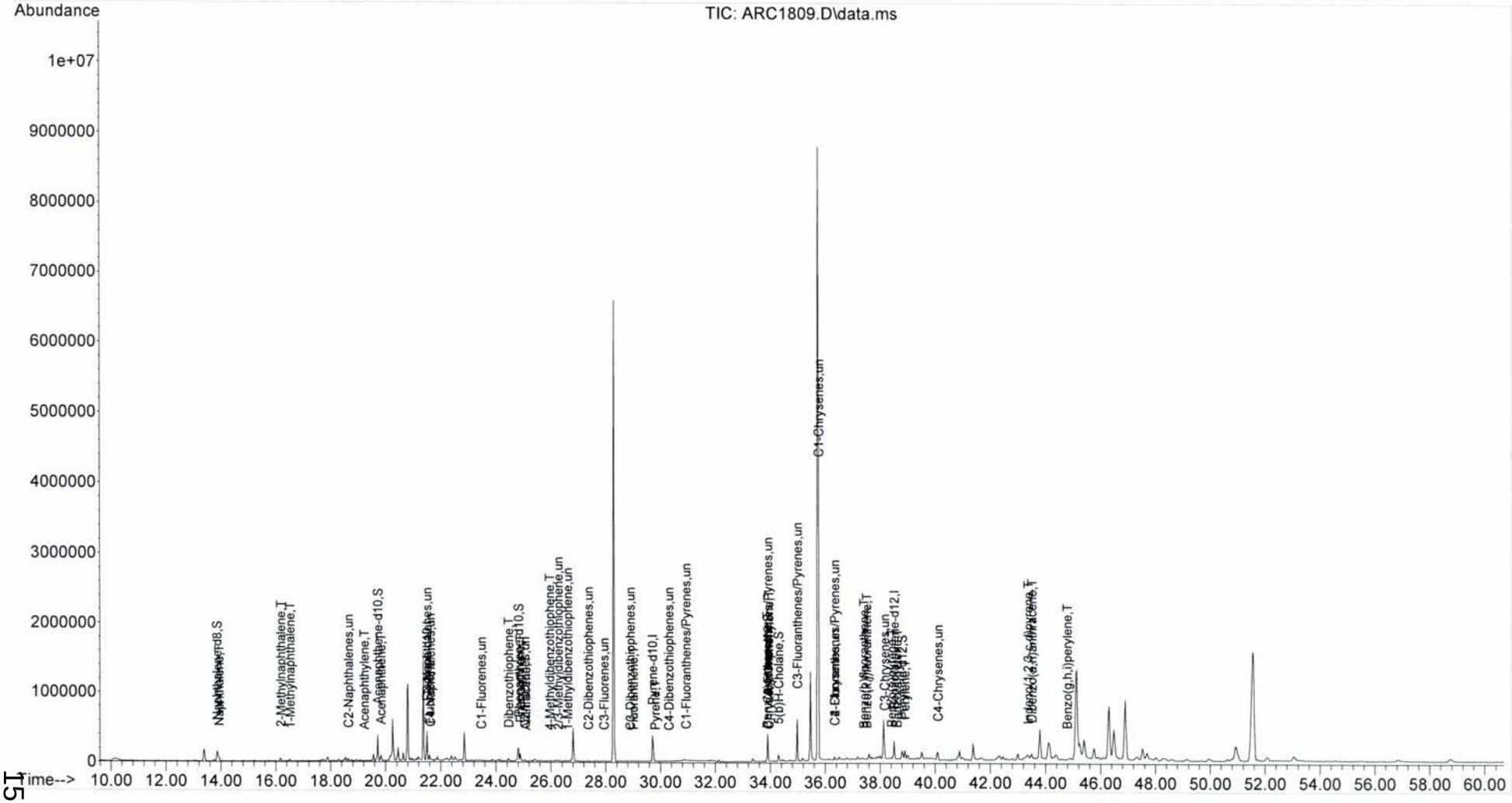
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1809.D
Acq On : 5 Sep 2013 10:04 am
Operator : YM
Sample : SED-DA-047 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.0662691

Quant Time: Sep 13 13:34:04 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1813.D
Data File Path	C:\GCMS5\MS50164\
Operator	YM
Date Acquired	9/5/2013 11:10
Acq. Method File	PAH-2012.M
Sample Name	SED-DA-048 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS5
Vial Number	19
Sample Multiplier	0.0664452
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

ARC1813.D
SED-DA-048 (0.5-1.0)
9/5/2013
PAH-2012.M
15.04999609

#	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	13.92	474476	10.5980	13.1489
9)+10)	C1-Naphthalenes	16.35	478677	10.6918	13.2653
13)	C2-Naphthalenes	18.64	740382	16.5373	20.5178
14)	C3-Naphthalenes	20.21	939016	20.9741	26.0225
15)	C4-Naphthalenes	21.62	380376	8.4962	10.5412
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	19.22	34006	0.7737	0.9599
24)	Acenaphthene	19.83	30023	1.0926	1.3556
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	193620	6.1687	7.6535
28)	C1-Fluorenes	23.58	105504	3.3613	4.1704
29)	C2-Fluorenes	25.44	367293	11.7019	14.5185
30)	C3-Fluorenes	26.80	541052	17.2378	21.3869
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.05	48062	1.1955	1.4833
41)	Phenanthrene	24.88	856314	17.6870	21.9443
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	801655	16.5581	20.5436
50)	C2-Phenanthrenes/Anthracenes	28.30	1041070	21.5031	26.6788
51)	C3-Phenanthrenes/Anthracenes	30.02	701348	14.4862	17.9730
52)	C4-Phenanthrenes/Anthracenes	31.86	343551	7.0960	8.8040
34)	Dibenzothiophene	24.46	117210	2.4622	3.0549
35)+36)+37)	C1-Dibenzothiophenes	26.27	295356	6.2046	7.6980
38)	C2-Dibenzothiophenes	28.04	597535	12.5524	15.5738
39)	C3-Dibenzothiophenes	28.89	542243	11.3909	14.1327
40)	C4-Dibenzothiophenes	29.88	395128	8.3005	10.2984
58)	Fluoranthene	29.00	330507	5.7801	7.1714
59)	Pyrene	29.79	260907	4.2208	5.2367
62)	C1-Fluoranthenes/Pyrenes	31.60	397497	6.9517	8.6249
63)	C2-Fluoranthenes/Pyrenes	32.68	529600	9.2620	11.4913
64)	C3-Fluoranthenes/Pyrenes	34.69	493432	8.6294	10.7065
65)	C4-Fluoranthenes/Pyrenes	35.76	339656	5.9401	7.3699
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	33.87	78333	2.1816	2.7067
68)	Chrysene/Triphenylene	33.94	284927	7.4199	9.2059
69)	C1-Chrysenes	35.76	1024510	26.6797	33.1014
70)	C2-Chrysenes	37.02	489998	12.7603	15.8316
71)	C3-Chrysenes	38.93	377582	9.8328	12.1996
72)	C4-Chrysenes	39.48	247633	6.4487	8.0009
77)	Benzo(b)fluoranthene	37.44	372112	6.0853	7.5500
78)	Benzo(k,j)fluoranthene	37.47	76467	1.3253	1.6443
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	200832	2.6888	3.3360
81)	Benzo(a)pyrene	38.61	72872	1.2852	1.5945
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.44	136753	2.4921	3.0920
83)	Dibenzo(a,h)anthracene	43.50	40840	1.0136	1.2575
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	44.84	131015	2.5334	3.1432

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	297212	10.2742	12.7471
10)	1-Methylnaphthalene	16.52	181465	6.3451	7.8724
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	25.95	120715	3.3733	4.1852
36)	2/3-Methyldibenzothiophene	26.26	103161	2.8827	3.5766
37)	1-Methyldibenzothiophene	26.60	71480	1.9974	2.4782
43)	3-Methylphenanthrene	26.55	133705	3.5519	4.4069
44)	2-Methylphenanthrene	26.66	161303	4.2851	5.3165
45)	2-Methylanthracene	26.80	185623	4.9312	6.1181
46)	4/9-Methylphenanthrene	26.91	157372	4.1807	5.1870
47)	1-Methylphenanthrene	27.03	163652	4.3475	5.3939
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	13.86	480239	11.35	68.31
21)	Acenaphthene-d10	19.71	333390	12.57	75.61
32)	Phenanthrene-d10	24.82	582966	13.40	80.60
66)	Chrysene-d12	33.91	783599	18.09	108.87
88)	Perylene-d12	38.83	347507	5.92	35.65
90)	5(b)H-Cholane	34.33	211238	10.09	60.76
	Internal Standards				
1)	Fluorene-d10	21.50	411114	16.68	
31)	Pyrene-d10	29.71	808576	16.65	
73)	Benzo(a)pyrene-d12	38.51	743189	16.63	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1813.D
Acq On : 5 Sep 2013 11:10 am
Operator : YM
Sample : SED-DA-048 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.0664452

Quant Time: Sep 13 08:58:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	411114	251.05		0.00
31) Pyrene-d10	29.710	212	808576m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	743189m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	480239	11.35		-0.02
21) Acenaphthene-d10	19.715	164	333390	12.57		-0.02
32) Phenanthrene-d10	24.822	188	582966	13.40		0.00
66) Chrysene-d12	33.907	240	783599m	18.09		-0.03
88) Perylene-d12	38.835	264	347507	5.92		0.00
90) 5(b)H-Cholane	34.328	217	211238	10.09		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	13.924	128	474476	10.60		100
9) 2-Methylnaphthalene	16.182	142	297212m	10.27		
10) 1-Methylnaphthalene	16.518	142	181465m	6.35		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	740382m	16.54		
14) C3-Naphthalenes	20.207	170	939016m	20.97		
15) C4-Naphthalenes	21.615	184	380376m	8.50		
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	19.223	152	34006m	0.77		
24) Acenaphthene	19.826	154	30023m	1.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	193620m	6.17		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	105504m	3.36		
29) C2-Fluorenes	25.444	194	367293m	11.70		
30) C3-Fluorenes	26.800	208	541052m	17.24		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	117210m	2.46		
35) 4-Methyldibenzothiophene	25.952	198	120715m	3.37		
36) 2/3-Methyldibenzothiop...	26.263	198	103161m	2.88		
37) 1-Methyldibenzothiophene	26.602	198	71480m	2.00		
38) C2-Dibenzothiophenes	28.043	212	597535m	12.55		
39) C3-Dibenzothiophenes	28.891	226	542243m	11.39		
40) C4-Dibenzothiophenes	29.879	240	395128m	8.30		
41) Phenanthrene	24.879	178	856314	17.69		98
42) Anthracene	25.048	178	48062m	1.20		
43) 3-Methylphenanthrene	26.546	192	133705m	3.55		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1813.D
Acq On : 5 Sep 2013 11:10 am
Operator : YM
Sample : SED-DA-048 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.0664452

Quant Time: Sep 13 08:58:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
44)	2-Methylphenanthrene	26.659	192	161303m	4.29			
45)	2-Methylanthracene	26.800	192	185623m	4.93			
46)	4/9-Methylphenanthrene	26.913	192	157372m	4.18			
47)	1-Methylphenanthrene	27.026	192	163652m	4.35			
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d		
49)	Retene	0.000		0	N.D.	d		
50)	C2-Phenanthrenes/Anthr...	28.297	206	1041067m	21.50			
51)	C3-Phenanthrenes/Anthr...	30.021	220	701348m	14.49			
52)	C4-Phenanthrenes/Anthr...	31.857	234	343551m	7.10			
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	29.004	202	330507	5.78			100
59)	Pyrene	29.795	202	260907	4.22			100
60)	2-Methylfluoranthene	0.000		0	N.D.	d		
61)	Benzo(b)fluorene	0.000		0	N.D.	d		
62)	C1-Fluoranthenes/Pyrenes	31.603	216	397497m	6.95			
63)	C2-Fluoranthenes/Pyrenes	32.675	230	529600m	9.26			
64)	C3-Fluoranthenes/Pyrenes	34.685	244	493432m	8.63			
65)	C4-Fluoranthenes/Pyrenes	35.755	258	339656m	5.94			
67)	Benz(a)anthracene	33.875	228	78333m	2.18			
68)	Chrysene/Triphenylene	33.939	228	284927m	7.42			
69)	C1-Chrysenes	35.755	242	1024505m	26.68			
70)	C2-Chrysenes	37.019	256	489998m	12.76			
71)	C3-Chrysenes	38.932	270	377582m	9.83			
72)	C4-Chrysenes	39.483	284	247633m	6.45			
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	37.441	252	372112m	6.09			
78)	Benzo(k,j)fluoranthene	37.473	252	76467m	1.33			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.413	252	200832m	2.69			
81)	Benzo(a)pyrene	38.608	252	72872	1.29			100
82)	Indeno(1,2,3-c,d)pyrene	43.435	276	136753m	2.49			
83)	Dibenzo(a,h)anthracene	43.500	278	40840	1.01		#	1
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	44.841	276	131015m	2.53			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1813.D
Acq On : 5 Sep 2013 11:10 am
Operator : YM
Sample : SED-DA-048 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.0664452

Quant Time: Sep 13 08:58:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

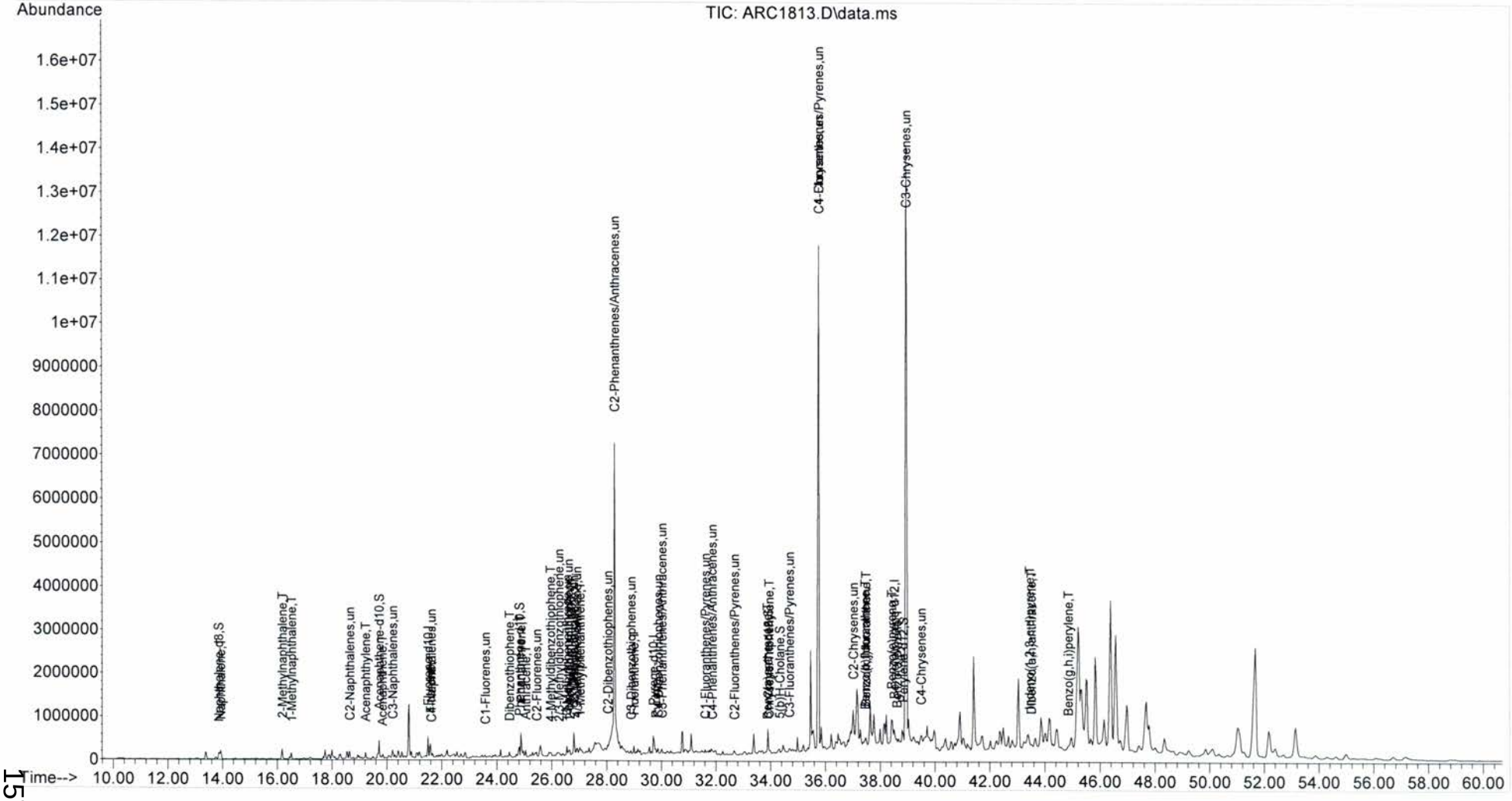
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1813.D
Acq On : 5 Sep 2013 11:10 am
Operator : YM
Sample : SED-DA-048 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.0664452

Quant Time: Sep 13 08:58:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1847.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 13:23
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-005 (0-0.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	21
Sample Multiplier	0.0662691
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

ARC1847.D
SO-DA-005 (0-0.5)
9/5/2013
PAH-2012.M
15.08998915

#	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	13.92	367404	6.4846	8.3003
9)+10)	C1-Naphthalenes	16.35	485697	8.5724	10.9728
13)	C2-Naphthalenes	18.64	921633	16.2666	20.8214
14)	C3-Naphthalenes	20.56	2367780	41.7908	53.4925
15)	C4-Naphthalenes	22.46	3128110	55.2103	70.6696
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	19.22	107363	1.9301	2.4706
24)	Acenaphthene	19.83	11401	0.3279	0.4197
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	139398	3.5094	4.4920
28)	C1-Fluorenes	23.58	404774	10.1903	13.0436
29)	C2-Fluorenes	25.42	2399920	60.4184	77.3360
30)	C3-Fluorenes	27.39	8595200	216.3852	276.9745
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	122062	2.4131	3.0888
41)	Phenanthrene	24.91	1026920	16.8572	21.5773
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	5490971	90.1359	115.3746
50)	C2-Phenanthrenes/Anthracenes	28.50	14545700	238.7715	305.6292
51)	C3-Phenanthrenes/Anthracenes	30.05	21122500	346.7325	443.8200
52)	C4-Phenanthrenes/Anthracenes	31.89	17101000	280.7186	359.3217
34)	Dibenzothiophene	24.45	360108	6.0121	7.6955
35)+36)+37)	C1-Dibenzothiophenes	26.28	3942378	65.8188	84.2486
38)	C2-Dibenzothiophenes	27.70	17208000	287.2911	367.7346
39)	C3-Dibenzothiophenes	28.92	23439900	391.3349	500.9114
40)	C4-Dibenzothiophenes	30.33	17068400	284.9598	364.7505
58)	Fluoranthene	29.03	1234460	17.1578	21.9621
59)	Pyrene	29.79	2765250	35.5526	45.5075
62)	C1-Fluoranthenes/Pyrenes	31.63	6242300	86.7622	111.0562
63)	C2-Fluoranthenes/Pyrenes	33.03	9304070	129.3175	165.5273
64)	C3-Fluoranthenes/Pyrenes	34.56	11187700	155.4978	199.0383
65)	C4-Fluoranthenes/Pyrenes	35.50	13344900	185.4812	237.4173
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	33.91	537282	11.8923	15.2223
68)	Chrysene/Triphenylene	33.97	2975390	61.5798	78.8226
69)	C1-Chrysenes	35.24	6958030	144.0061	184.3288
70)	C2-Chrysenes	36.73	9221150	190.8444	244.2822
71)	C3-Chrysenes	38.15	5193400	107.4845	137.5809
72)	C4-Chrysenes	39.61	1836590	38.0107	48.6540
77)	Benzo(b)fluoranthene	37.47	1666430	29.4112	37.6465
78)	Benzo(k,j)fluoranthene	37.51	561172	10.4966	13.4358
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.48	1868540	26.9994	34.5594
81)	Benzo(a)pyrene	38.64	653838	12.4451	15.9298
89)	Perylene	38.96	325207	5.5779	7.1398
82)	Indeno(1,2,3-c,d)pyrene	43.47	444583	8.7439	11.1923
83)	Dibenzo(a,h)anthracene	43.50	192968	5.1686	6.6158
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	44.87	1028190	21.4577	27.4660

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	328779	8.9808	11.4955
10)	1-Methylnaphthalene	16.52	156918	4.3356	5.5496
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	25.98	1891280	42.0021	53.7630
36)	2/3-Methyldibenzothiophene	26.26	904368	20.0844	25.7082
37)	1-Methyldibenzothiophene	26.60	1146730	25.4668	32.5977
43)	3-Methylphenanthrene	26.57	788487	16.6472	21.3085
44)	2-Methylphenanthrene	26.66	885276	18.6907	23.9242
45)	2-Methylanthracene	26.83	270088	5.7023	7.2990
46)	4/9-Methylphenanthrene	26.94	2538490	53.5947	68.6016
47)	1-Methylphenanthrene	27.03	1008630	21.2950	27.2578
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	13.88	709459	13.25	79.95
21)	Acenaphthene-d10	19.71	350189	10.43	62.93
32)	Phenanthrene-d10	24.82	709116	12.95	78.12
66)	Chrysene-d12	33.94	952860	17.48	105.49
88)	Perylene-d12	38.87	113001	2.08	12.54
90)	5(b)H-Cholane	34.33	313745	16.18	97.66
	Internal Standards				
1)	Fluorene-d10	21.50	518898	16.64	
31)	Pyrene-d10	29.74	1014710	16.61	
73)	Benzo(a)pyrene-d12	38.58	686795	16.59	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1847.D
Acq On : 5 Sep 2013 1:23 pm
Operator : YM
Sample : SO-DA-005 (0-0.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:01:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	518898	251.05		0.00
31) Pyrene-d10	29.738	212	1014707m	250.63		0.00
73) Benzo(a)pyrene-d12	38.575	264	686795m	250.32		0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	709459	13.25		0.00
21) Acenaphthene-d10	19.715	164	350189m	10.43		-0.02
32) Phenanthrene-d10	24.822	188	709116m	12.95		0.00
66) Chrysene-d12	33.939	240	952860	17.48		0.00
88) Perylene-d12	38.867	264	113001	2.08		0.03
90) 5(b)H-Cholane	34.328	217	313745m	16.18		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	13.924	128	367404m	6.48		
9) 2-Methylnaphthalene	16.182	142	328779m	8.98		
10) 1-Methylnaphthalene	16.518	142	156918m	4.34		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.641	156	921633m	16.27		
14) C3-Naphthalenes	20.564	170	2367781m	41.79		
15) C4-Naphthalenes	22.464	184	3128109m	55.21		
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	19.223	152	107363m	1.93		
24) Acenaphthene	19.826	154	11401m	0.33		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	139398m	3.51		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	404774m	10.19		
29) C2-Fluorenes	25.415	194	2399924m	60.42		
30) C3-Fluorenes	27.393	208	8595204m	216.39		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	360108	6.01		98
35) 4-Methyldibenzothiophene	25.981	198	1891281m	42.00		
36) 2/3-Methyldibenzothiop...	26.263	198	904368m	20.08		
37) 1-Methyldibenzothiophene	26.602	198	1146725m	25.47		
38) C2-Dibenzothiophenes	27.704	212	17207985m	287.29		
39) C3-Dibenzothiophenes	28.919	226	23439944m	391.33		
40) C4-Dibenzothiophenes	30.331	240	17068379m	284.96		
41) Phenanthrene	24.907	178	1026917m	16.86		
42) Anthracene	25.076	178	122062m	2.41		
43) 3-Methylphenanthrene	26.574	192	788487m	16.65		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1847.D
Acq On : 5 Sep 2013 1:23 pm
Operator : YM
Sample : SO-DA-005 (0-0.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:01:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	885276m	18.69		
45)	2-Methylanthracene	26.828	192	270088m	5.70		
46)	4/9-Methylphenanthrene	26.941	192	2538486m	53.59		
47)	1-Methylphenanthrene	27.026	192	1008628m	21.30		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.495	206	14545651m	238.77		
51)	C3-Phenanthrenes/Anthr...	30.049	220	21122483m	346.73		
52)	C4-Phenanthrenes/Anthr...	31.885	234	17100986m	280.72		
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	29.032	202	1234458	17.16		100
59)	Pyrene	29.795	202	2765250m	35.55		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.631	216	6242303m	86.76		
63)	C2-Fluoranthenes/Pyrenes	33.032	230	9304066m	129.32		
64)	C3-Fluoranthenes/Pyrenes	34.555	244	11187664m	155.50		
65)	C4-Fluoranthenes/Pyrenes	35.495	258	13344895m	185.48		
67)	Benz(a)anthracene	33.907	228	537282m	11.89		
68)	Chrysene/Triphenylene	33.972	228	2975392m	61.58		
69)	C1-Chrysenes	35.236	242	6958032m	144.01		
70)	C2-Chrysenes	36.727	256	9221151m	190.84		
71)	C3-Chrysenes	38.154	270	5193399m	107.48		
72)	C4-Chrysenes	39.613	284	1836587m	38.01		
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	37.473	252	1666427m	29.41		
78)	Benzo(k,j)fluoranthene	37.505	252	561172m	10.50		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.478	252	1868535	27.00		100
81)	Benzo(a)pyrene	38.640	252	653838m	12.45		
82)	Indeno(1,2,3-c,d)pyrene	43.468	276	444583m	8.74		
83)	Dibenzo(a,h)anthracene	43.500	278	192968	5.17		91
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	44.874	276	1028189	21.46		95
89)	Perylene	38.964	252	325207m	5.58		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1847.D
Acq On : 5 Sep 2013 1:23 pm
Operator : YM
Sample : SO-DA-005 (0-0.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:01:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

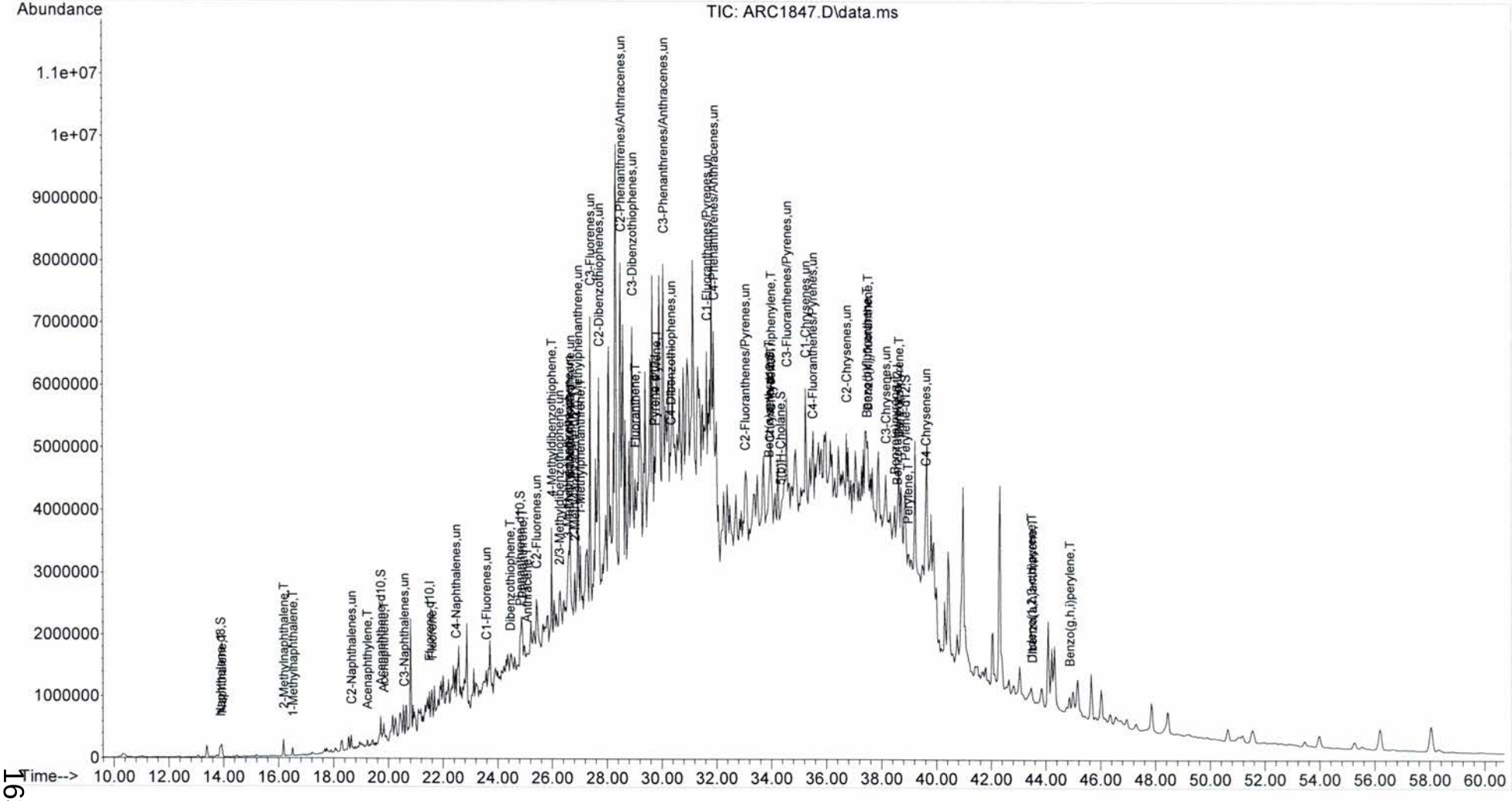
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1847.D
Acq On : 5 Sep 2013 1:23 pm
Operator : YM
Sample : SO-DA-005 (0-0.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:01:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1848.D
Data File Path	C:\GCMS5\MS50164\
Operator	YM
Date Acquired	9/5/2013 14:29
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-005 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS5
Vial Number	22
Sample Multiplier	0.0661376
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

ARC1848.D
SO-DA-005 (0.5-1.0)
9/5/2013
PAH-2012.M
15.11999226

#	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	13.92	259517	6.2309	8.3842
9)+10)	C1-Naphthalenes	16.35	272402	6.5403	8.8005
13)	C2-Naphthalenes	18.31	399502	9.5919	12.9067
14)	C3-Naphthalenes	21.50	235039	5.6432	7.5934
15)	C4-Naphthalenes	24.46	202235	4.8556	6.5336
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	19.22	770555	18.8445	25.3568
24)	Acenaphthene	19.83	4155	0.1625	0.2187
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	278901	9.5514	12.8522
28)	C1-Fluorenes	23.58	101593	3.4792	4.6816
29)	C2-Fluorenes	25.44	167264	5.7282	7.7078
30)	C3-Fluorenes	26.80	243663	8.3446	11.2284
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.05	1532000	40.0056	53.8309
41)	Phenanthrene	24.88	941277	20.4096	27.4628
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.80	637049	13.8131	18.5866
50)	C2-Phenanthrenes/Anthracenes	28.30	453524	9.8337	13.2321
51)	C3-Phenanthrenes/Anthracenes	30.02	220687	4.7851	6.4388
52)	C4-Phenanthrenes/Anthracenes	30.78	151344	3.2816	4.4156
34)	Dibenzothiophene	24.46	45253	0.9979	1.3428
35)+36)+37)	C1-Dibenzothiophenes	26.28	58963	1.3003	1.7496
38)	C2-Dibenzothiophenes	28.04	79466	1.7524	2.3580
39)	C3-Dibenzothiophenes	28.89	91884	2.0263	2.7265
40)	C4-Dibenzothiophenes	30.73	70925	1.5641	2.1046
58)	Fluoranthene	29.00	2474100	45.4224	61.1197
59)	Pyrene	29.79	1994170	33.8662	45.5699
62)	C1-Fluoranthenes/Pyrenes	31.60	884731	16.2429	21.8562
63)	C2-Fluoranthenes/Pyrenes	32.68	1412750	25.9369	34.9003
64)	C3-Fluoranthenes/Pyrenes	34.07	849356	15.5935	20.9823
65)	C4-Fluoranthenes/Pyrenes	35.40	705093	12.9449	17.4185
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	33.87	1687580	49.3396	66.3906
68)	Chrysene/Triphenylene	34.00	2703170	73.8982	99.4363
69)	C1-Chrysenes	35.24	1010180	27.6161	37.1598
70)	C2-Chrysenes	36.57	420616	11.4987	15.4725
71)	C3-Chrysenes	38.38	149898	4.0979	5.5140
72)	C4-Chrysenes	39.03	86695	2.3700	3.1891
77)	Benzo(b)fluoranthene	37.44	4731690	113.5999	152.8583
78)	Benzo(k,j)fluoranthene	37.51	1591710	40.4999	54.4960
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	2274020	44.6974	60.1441
81)	Benzo(a)pyrene	38.61	392792	10.1701	13.6847
89)	Perylene	38.90	77985	1.8195	2.4483
82)	Indeno(1,2,3-c,d)pyrene	43.37	921364	24.6503	33.1690
83)	Dibenzo(a,h)anthracene	43.44	273495	9.9648	13.4085
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	44.78	624249	17.7216	23.8460

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	185530	6.8940	9.2764
10)	1-Methylnaphthalene	16.52	86872	3.2651	4.3935
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	25.98	39800	1.1675	1.5710
36)	2/3-Methyldibenzothiophene	26.26	12958	0.3801	0.5115
37)	1-Methyldibenzothiophene	26.60	6205	0.1820	0.2449
43)	3-Methylphenanthrene	26.55	75788	2.1136	2.8440
44)	2-Methylphenanthrene	26.66	102754	2.8656	3.8559
45)	2-Methylanthracene	26.80	281300	7.8448	10.5559
46)	4/9-Methylphenanthrene	26.97	135708	3.7846	5.0925
47)	1-Methylphenanthrene	27.03	41499	1.1573	1.5573
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	13.86	410384	10.43	63.04
21)	Acenaphthene-d10	19.71	268140	10.87	65.67
32)	Phenanthrene-d10	24.82	509670	12.30	74.32
66)	Chrysene-d12	33.91	650610	15.77	95.33
88)	Perylene-d12	38.80	15084	0.38	2.28
90)	5(b)H-Cholane	34.30	163993	11.50	69.58
	Internal Standards				
1)	Fluorene-d10	21.50	380692	16.60	
31)	Pyrene-d10	29.71	766673	16.58	
73)	Benzo(a)pyrene-d12	38.51	503882	16.56	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1848.D
Acq On : 5 Sep 2013 2:29 pm
Operator : YM
Sample : SO-DA-005 (0.5-1.0)
Misc :
ALS Vial : 22 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:14:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	380692	251.05		0.00
31) Pyrene-d10	29.710	212	766673m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	503882	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	410384	10.43		-0.02
21) Acenaphthene-d10	19.715	164	268140m	10.87		-0.02
32) Phenanthrene-d10	24.822	188	509670m	12.30		0.00
66) Chrysene-d12	33.907	240	650610m	15.77		-0.03
88) Perylene-d12	38.803	264	15084m	0.38		-0.03
90) 5(b)H-Cholane	34.296	217	163993m	11.50		-0.03
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	13.924	128	259517	6.23		100
9) 2-Methylnaphthalene	16.182	142	185530m	6.89		
10) 1-Methylnaphthalene	16.518	142	86872m	3.27		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.306	156	399502m	9.59		
14) C3-Naphthalenes	21.503	170	235039m	5.64		
15) C4-Naphthalenes	24.455	184	202235m	4.86		
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	19.223	152	770555	18.84		97
24) Acenaphthene	19.827	154	4155m	0.16		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	278901m	9.55		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	101593m	3.48		
29) C2-Fluorenes	25.444	194	167264m	5.73		
30) C3-Fluorenes	26.800	208	243663m	8.34		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	45253m	1.00		
35) 4-Methyldibenzothiophene	25.981	198	39800m	1.17		
36) 2/3-Methyldibenzothiop...	26.263	198	12958m	0.38		
37) 1-Methyldibenzothiophene	26.602	198	6205m	0.18		
38) C2-Dibenzothiophenes	28.043	212	79466m	1.75		
39) C3-Dibenzothiophenes	28.891	226	91884m	2.03		
40) C4-Dibenzothiophenes	30.727	240	70925m	1.56		
41) Phenanthrene	24.879	178	941277	20.41		98
42) Anthracene	25.048	178	1532001	40.01		100
43) 3-Methylphenanthrene	26.546	192	75788m	2.11		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1848.D
Acq On : 5 Sep 2013 2:29 pm
Operator : YM
Sample : SO-DA-005 (0.5-1.0)
Misc :
ALS Vial : 22 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:14:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	102754m	2.87		
45)	2-Methylanthracene	26.800	192	281300m	7.84		
46)	4/9-Methylphenanthrene	26.970	192	135708m	3.78		
47)	1-Methylphenanthrene	27.026	192	41499m	1.16		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.297	206	453524m	9.83		
51)	C3-Phenanthrenes/Anthr...	30.021	220	220687m	4.79		
52)	C4-Phenanthrenes/Anthr...	30.784	234	151344m	3.28		
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	29.004	202	2474100	45.42		100
59)	Pyrene	29.795	202	1994171m	33.87		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.603	216	884731m	16.24		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	1412752m	25.94		
64)	C3-Fluoranthenes/Pyrenes	34.069	244	849356m	15.59		
65)	C4-Fluoranthenes/Pyrenes	35.398	258	705093m	12.94		
67)	Benz(a)anthracene	33.875	228	1687577m	49.34		
68)	Chrysene/Triphenylene	34.004	228	2703171m	73.90		
69)	C1-Chrysenes	35.236	242	1010183m	27.62		
70)	C2-Chrysenes	36.566	256	420616m	11.50		
71)	C3-Chrysenes	38.381	270	149898m	4.10		
72)	C4-Chrysenes	39.029	284	86695m	2.37		
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	37.441	252	4731692m	113.60		
78)	Benzo(k,j)fluoranthene	37.506	252	1591712m	40.50		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	2274018	44.70		100
81)	Benzo(a)pyrene	38.608	252	392792	10.17		100
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	921364	24.65		91
83)	Dibenzo(a,h)anthracene	43.435	278	273495	9.96		89
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	44.776	276	624249m	17.72		
89)	Perylene	38.900	252	77985m	1.82		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1848.D
Acq On : 5 Sep 2013 2:29 pm
Operator : YM
Sample : SO-DA-005 (0.5-1.0)
Misc :
ALS Vial : 22 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:14:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

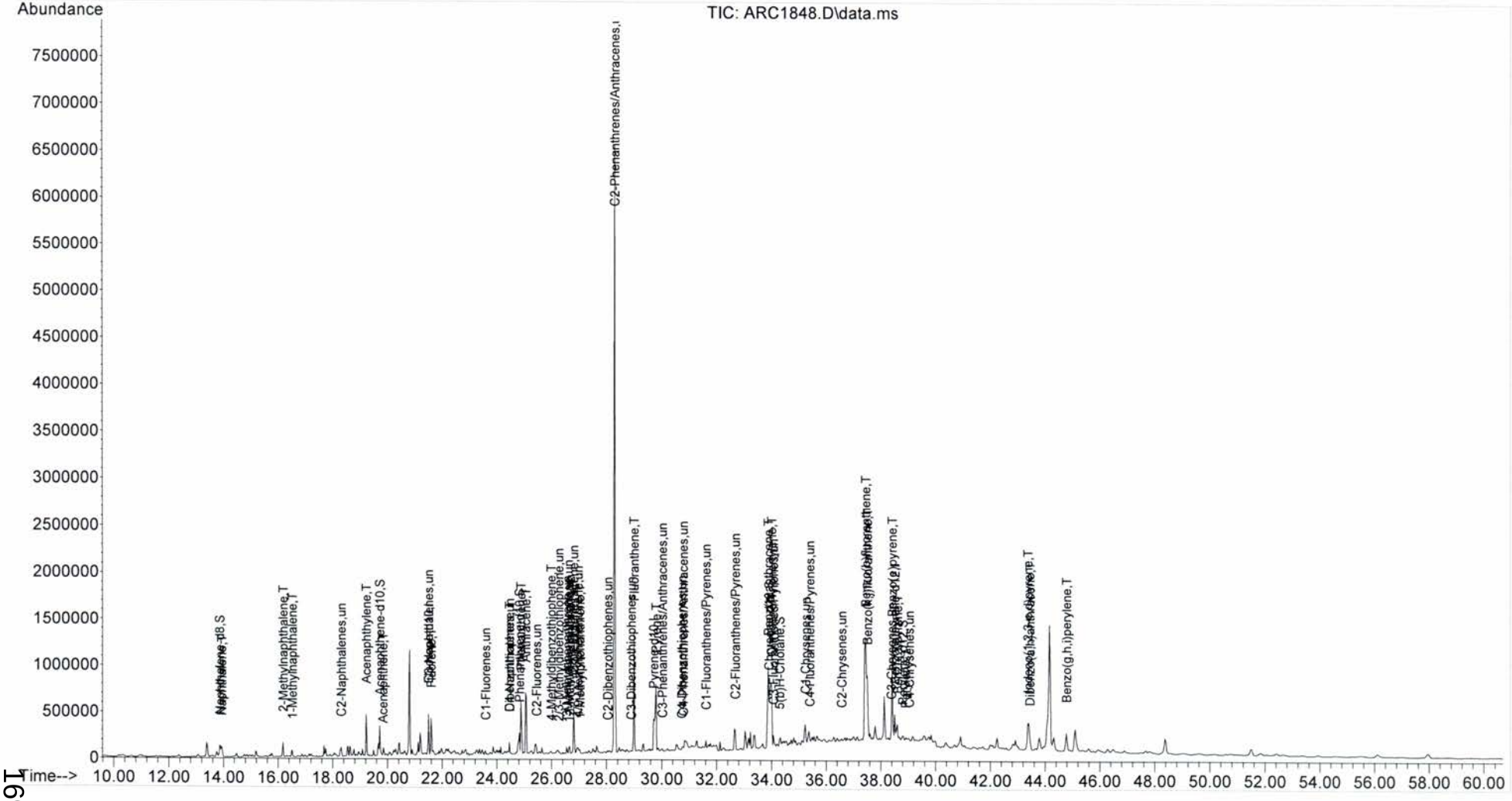
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1848.D
Acq On : 5 Sep 2013 2:29 pm
Operator : YM
Sample : SO-DA-005 (0.5-1.0)
Misc :
ALS Vial : 22 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:14:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1849.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 15:35
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-005 (1.0-1.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	23
Sample Multiplier	0.0661813
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

ARC1849.D
SO-DA-005 (1.0-1.5)
9/5/2013
PAH-2012.M
15.11000842

#	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	13.92	267370	6.6127	8.5884
9)+10)	C1-Naphthalenes	16.35	273656	6.7682	8.7903
13)	C2-Naphthalenes	18.31	419285	10.3699	13.4681
14)	C3-Naphthalenes	21.50	278665	6.8921	8.9512
15)	C4-Naphthalenes	24.46	228514	5.6517	7.3402
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	19.22	35955	0.9058	1.1764
24)	Acenaphthene	19.85	3704	0.1493	0.1939
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	319501	11.2712	14.6387
28)	C1-Fluorenes	23.58	107440	3.7902	4.9226
29)	C2-Fluorenes	25.44	155342	5.4801	7.1174
30)	C3-Fluorenes	27.68	118848	4.1927	5.4453
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	41340	1.1427	1.4841
41)	Phenanthrene	24.88	1086550	24.9389	32.3899
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	407774	9.3594	12.1557
50)	C2-Phenanthrenes/Anthracenes	28.30	263002	6.0365	7.8401
51)	C3-Phenanthrenes/Anthracenes	30.02	94682	2.1732	2.8225
52)	C4-Phenanthrenes/Anthracenes	33.06	52662	1.2087	1.5699
34)	Dibenzothiophene	24.46	44840	1.0467	1.3595
35)+36)+37)	C1-Dibenzothiophenes	26.28	67475	1.5751	2.0457
38)	C2-Dibenzothiophenes	28.04	70114	1.6367	2.1257
39)	C3-Dibenzothiophenes	28.89	56038	1.3081	1.6990
40)	C4-Dibenzothiophenes	30.73	41004	0.9572	1.2432
58)	Fluoranthene	29.00	282757	5.4951	7.1369
59)	Pyrene	29.79	113309	2.0369	2.6455
62)	C1-Fluoranthenes/Pyrenes	31.60	72429	1.4076	1.8281
63)	C2-Fluoranthenes/Pyrenes	32.68	103749	2.0163	2.6187
64)	C3-Fluoranthenes/Pyrenes	33.68	73552	1.4294	1.8565
65)	C4-Fluoranthenes/Pyrenes	35.40	62356	1.2118	1.5739
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	33.87	38005	1.1762	1.5276
68)	Chrysene/Triphenylene	34.00	135047	3.9080	5.0756
69)	C1-Chrysenes	35.20	75824	2.1942	2.8498
70)	C2-Chrysenes	36.40	69791	2.0196	2.6230
71)	C3-Chrysenes	38.19	52931	1.5317	1.9894
72)	C4-Chrysenes	41.60	28019	0.8108	1.0531
77)	Benzo(b)fluoranthene	37.41	166858	4.4967	5.8401
78)	Benzo(k,j)fluoranthene	37.51	45517	1.3000	1.6884
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	92862	2.0488	2.6610
81)	Benzo(a)pyrene	38.61	14329	0.4164	0.5409
89)	Perylene	38.93	3009	0.0788	0.1023
82)	Indeno(1,2,3-c,d)pyrene	43.37	38318	1.1507	1.4945
83)	Dibenzo(a,h)anthracene	43.43	10164	0.4157	0.5399
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	44.78	33410	1.0646	1.3827

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	187901	7.1923	9.3411
10)	1-Methylnaphthalene	16.52	85755	3.3202	4.3122
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	25.98	45487	1.4125	1.8345
36)	2/3-Methyldibenzothiophene	26.26	15957	0.4955	0.6435
37)	1-Methyldibenzothiophene	26.60	6031	0.1873	0.2432
43)	3-Methylphenanthrene	26.55	68520	2.0228	2.6271
44)	2-Methylphenanthrene	26.66	93094	2.7482	3.5693
45)	2-Methylanthracene	26.80	143574	4.2384	5.5047
46)	4/9-Methylphenanthrene	26.94	55728	1.6451	2.1366
47)	1-Methylphenanthrene	27.03	46858	1.3833	1.7966
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	13.86	407327	10.66	64.41
21)	Acenaphthene-d10	19.71	271533	11.33	68.46
32)	Phenanthrene-d10	24.82	499164	12.75	77.00
66)	Chrysene-d12	33.91	571582	14.66	88.60
88)	Perylene-d12	38.83	4571	0.13	0.78
90)	5(b)H-Cholane	34.30	158917	12.51	75.63
	Internal Standards				
1)	Fluorene-d10	21.50	369811	16.61	
31)	Pyrene-d10	29.71	724747	16.59	
73)	Benzo(a)pyrene-d12	38.51	449193	16.57	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1849.D
Acq On : 5 Sep 2013 3:35 pm
Operator : YM
Sample : SO-DA-005 (1.0-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0661813

Quant Time: Sep 13 09:07:22 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	369811	251.05		0.00
31) Pyrene-d10	29.710	212	724747m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	449193	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	407327	10.66		-0.02
21) Acenaphthene-d10	19.715	164	271533	11.33		-0.02
32) Phenanthrene-d10	24.822	188	499164m	12.75		0.00
66) Chrysene-d12	33.907	240	571582	14.66		-0.03
88) Perylene-d12	38.835	264	4571m	0.13		0.00
90) 5(b)H-Cholane	34.296	217	158917	12.51		-0.03
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	13.924	128	267370m	6.61		
9) 2-Methylnaphthalene	16.182	142	187901m	7.19		
10) 1-Methylnaphthalene	16.518	142	85755m	3.32		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.306	156	419285m	10.37		
14) C3-Naphthalenes	21.503	170	278665m	6.89		
15) C4-Naphthalenes	24.455	184	228514m	5.65		
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	19.223	152	35955m	0.91		
24) Acenaphthene	19.849	154	3704m	0.15		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	319501m	11.27		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	107440m	3.79		
29) C2-Fluorenes	25.444	194	155342m	5.48		
30) C3-Fluorenes	27.676	208	118848m	4.19		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	44840m	1.05		
35) 4-Methyldibenzothiophene	25.981	198	45487m	1.41		
36) 2/3-Methyldibenzothiop...	26.263	198	15957m	0.50		
37) 1-Methyldibenzothiophene	26.602	198	6031m	0.19		
38) C2-Dibenzothiophenes	28.043	212	70114m	1.64		
39) C3-Dibenzothiophenes	28.891	226	56038m	1.31		
40) C4-Dibenzothiophenes	30.727	240	41004m	0.96		
41) Phenanthrene	24.879	178	1086548	24.94		97
42) Anthracene	25.077	178	41340m	1.14		
43) 3-Methylphenanthrene	26.546	192	68520m	2.02		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1849.D
Acq On : 5 Sep 2013 3:35 pm
Operator : YM
Sample : SO-DA-005 (1.0-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0661813

Quant Time: Sep 13 09:07:22 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	93094m	2.75		
45)	2-Methylanthracene	26.800	192	143574m	4.24		
46)	4/9-Methylphenanthrene	26.941	192	55728m	1.65		
47)	1-Methylphenanthrene	27.026	192	46858m	1.38		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.297	206	263002m	6.04		
51)	C3-Phenanthrenes/Anthr...	30.021	220	94682m	2.17		
52)	C4-Phenanthrenes/Anthr...	33.064	234	52662m	1.21		
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	29.004	202	282757	5.50		100
59)	Pyrene	29.795	202	113309m	2.04		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.603	216	72429m	1.41		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	103749m	2.02		
64)	C3-Fluoranthenes/Pyrenes	33.680	244	73552m	1.43		
65)	C4-Fluoranthenes/Pyrenes	35.398	258	62356m	1.21		
67)	Benz(a)anthracene	33.875	228	38005m	1.18		
68)	Chrysene/Triphenylene	34.004	228	135047m	3.91		
69)	C1-Chrysenes	35.204	242	75824m	2.19		
70)	C2-Chrysenes	36.403	256	69791m	2.02		
71)	C3-Chrysenes	38.186	270	52931m	1.53		
72)	C4-Chrysenes	41.604	284	28019m	0.81		
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	37.408	252	166858m	4.50		
78)	Benzo(k,j)fluoranthene	37.506	252	45517m	1.30		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	92862m	2.05		
81)	Benzo(a)pyrene	38.608	252	14329m	0.42		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	38318	1.15		90
83)	Dibenzo(a,h)anthracene	43.435	278	10164	0.42		87
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	44.776	276	33410	1.06		96
89)	Perylene	38.932	252	3009m	0.08		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1849.D
Acq On : 5 Sep 2013 3:35 pm
Operator : YM
Sample : SO-DA-005 (1.0-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0661813

Quant Time: Sep 13 09:07:22 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

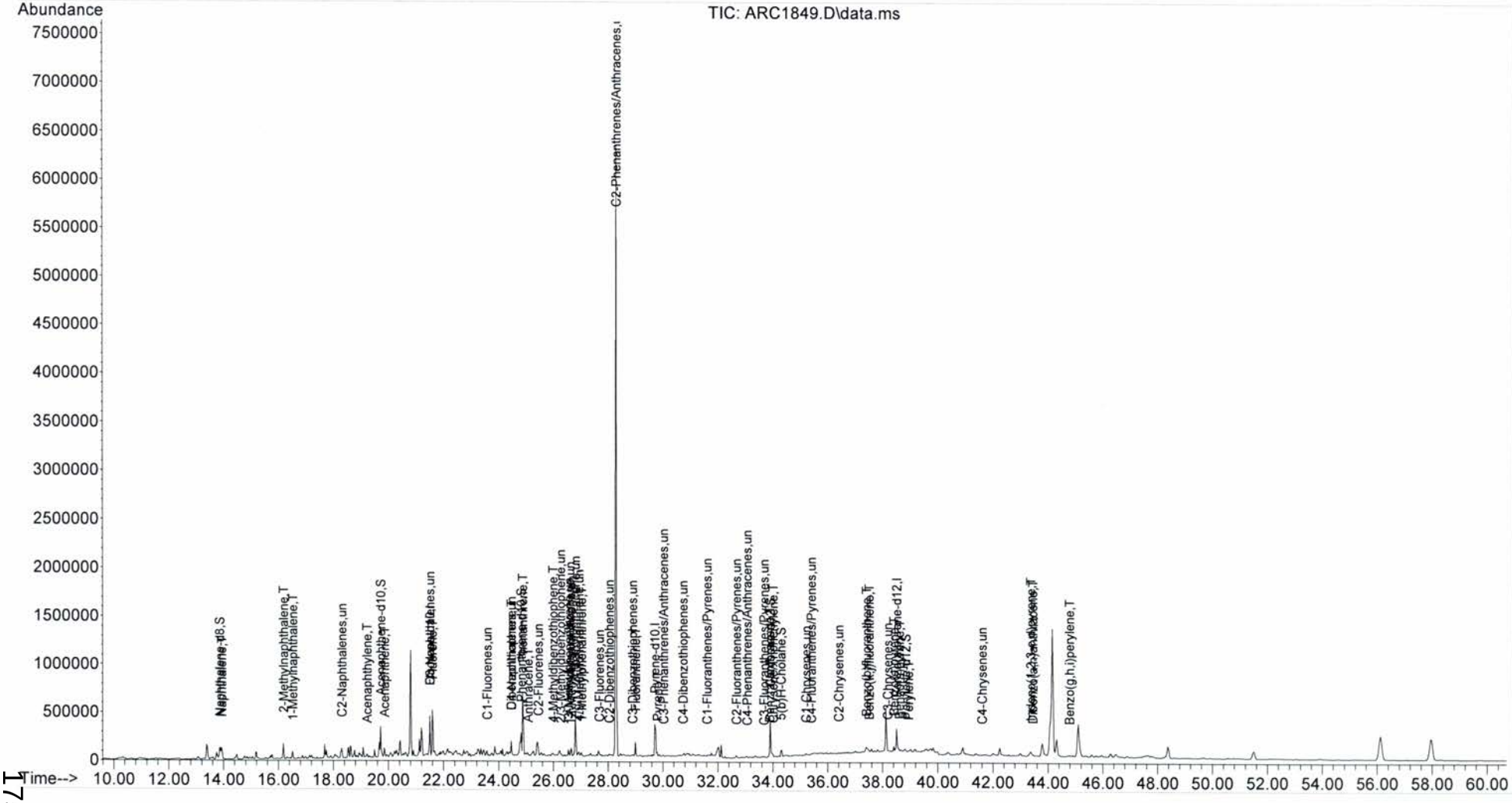
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1849.D
Acq On : 5 Sep 2013 3:35 pm
Operator : YM
Sample : SO-DA-005 (1.0-1.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.0661813

Quant Time: Sep 13 09:07:22 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1850.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 16:41
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-006 (0-0.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	24
Sample Multiplier	0.0662252
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

ARC1850.D
SO-DA-006 (0-0.5)
9/5/2013
PAH-2012.M
15.09999215

#	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	13.92	273150	6.5946	8.7366
9)+10)	C1-Naphthalenes	16.35	303353	7.3238	9.7026
13)	C2-Naphthalenes	18.55	558146	13.4753	17.8521
14)	C3-Naphthalenes	20.90	384329	9.2788	12.2926
15)	C4-Naphthalenes	21.61	323548	7.8114	10.3485
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	19.22	87730	2.1574	2.8582
24)	Acenaphthene	19.83	7710	0.3033	0.4018
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	268705	9.2534	12.2589
28)	C1-Fluorenes	23.58	106296	3.6605	4.8494
29)	C2-Fluorenes	25.44	182017	6.2681	8.3040
30)	C3-Fluorenes	26.83	267582	9.2147	12.2077
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	173332	4.6018	6.0965
41)	Phenanthrene	24.88	1034310	22.8013	30.2071
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	511047	11.2660	14.9252
50)	C2-Phenanthrenes/Anthracenes	28.30	488977	10.7795	14.2807
51)	C3-Phenanthrenes/Anthracenes	30.02	512591	11.3000	14.9703
52)	C4-Phenanthrenes/Anthracenes	30.78	408604	9.0076	11.9333
34)	Dibenzothiophene	24.45	64783	1.4525	1.9243
35)+36)+37)	C1-Dibenzothiophenes	26.28	78538	1.7609	2.3328
38)	C2-Dibenzothiophenes	28.04	158410	3.5517	4.7053
39)	C3-Dibenzothiophenes	28.89	304846	6.8349	9.0549
40)	C4-Dibenzothiophenes	29.71	360942	8.0926	10.7211
58)	Fluoranthene	29.00	414263	7.7325	10.2441
59)	Pyrene	29.79	389637	6.7276	8.9127
62)	C1-Fluoranthenes/Pyrenes	31.60	347180	6.4803	8.5852
63)	C2-Fluoranthenes/Pyrenes	32.67	471668	8.8040	11.6635
64)	C3-Fluoranthenes/Pyrenes	34.52	415795	7.7611	10.2819
65)	C4-Fluoranthenes/Pyrenes	35.40	356331	6.6511	8.8114
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	33.87	150148	4.4632	5.9128
68)	Chrysene/Triphenylene	33.94	374992	10.4226	13.8079
69)	C1-Chrysenes	35.20	353828	9.8343	13.0285
70)	C2-Chrysenes	36.40	320829	8.9172	11.8135
71)	C3-Chrysenes	38.12	247797	6.8873	9.1243
72)	C4-Chrysenes	39.55	154197	4.2858	5.6778
77)	Benzo(b)fluoranthene	37.44	658229	15.2973	20.2659
78)	Benzo(k,j)fluoranthene	37.51	210449	5.1834	6.8669
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	422742	8.0434	10.6559
81)	Benzo(a)pyrene	38.61	159128	3.9883	5.2837
89)	Perylene	38.93	50283	1.1356	1.5045
82)	Indeno(1,2,3-c,d)pyrene	43.40	178356	4.6191	6.1193
83)	Dibenzo(a,h)anthracene	43.43	47243	1.6662	2.2074
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	44.78	175462	4.8218	6.3879

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	201165	7.5164	9.9578
10)	1-Methylnaphthalene	16.52	102188	3.8621	5.1166
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	25.98	38843	1.1585	1.5348
36)	2/3-Methyldibenzothiophene	26.26	25961	0.7743	1.0258
37)	1-Methyldibenzothiophene	26.60	13734	0.4096	0.5427
43)	3-Methylphenanthrene	26.55	92140	2.6125	3.4610
44)	2-Methylphenanthrene	26.66	124821	3.5391	4.6886
45)	2-Methylanthracene	26.80	157468	4.4648	5.9149
46)	4/9-Methylphenanthrene	26.94	77029	2.1840	2.8934
47)	1-Methylphenanthrene	27.03	59589	1.6896	2.2383
48)	3,6-Dimethylphenanthrene	28.10	25700	0.6922	0.9170
49)	Retene	30.78	65314	3.6258	4.8035
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	13.88	400265	10.23	61.74
21)	Acenaphthene-d10	19.71	282079	11.49	69.38
32)	Phenanthrene-d10	24.82	509837	12.51	75.48
66)	Chrysene-d12	33.91	617090	15.20	91.81
88)	Perylene-d12	38.83	30214	0.73	4.42
90)	5(b)H-Cholane	34.33	167152	11.35	68.56
	Internal Standards				
1)	Fluorene-d10	21.50	379090	16.63	
31)	Pyrene-d10	29.74	755082	16.60	
73)	Benzo(a)pyrene-d12	38.51	521228	16.58	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1850.D
Acq On : 5 Sep 2013 4:41 pm
Operator : YM
Sample : SO-DA-006 (0-0.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.0662252

Quant Time: Sep 13 09:08:40 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	379090	251.05		0.00
31) Pyrene-d10	29.738	212	755082m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	521228	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	400265	10.23		0.00
21) Acenaphthene-d10	19.715	164	282079	11.49		-0.02
32) Phenanthrene-d10	24.822	188	509837m	12.51		0.00
66) Chrysene-d12	33.907	240	617090	15.20		-0.03
88) Perylene-d12	38.835	264	30214	0.73		0.00
90) 5(b)H-Cholane	34.328	217	167152	11.35		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	13.924	128	273150	6.59		99
9) 2-Methylnaphthalene	16.182	142	201165	7.52		97
10) 1-Methylnaphthalene	16.518	142	102188m	3.86		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	558146m	13.48		
14) C3-Naphthalenes	20.899	170	384329m	9.28		
15) C4-Naphthalenes	21.615	184	323548m	7.81		
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	19.223	152	87730m	2.16		
24) Acenaphthene	19.826	154	7710m	0.30		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	268705m	9.25		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	106296m	3.66		
29) C2-Fluorenes	25.444	194	182017m	6.27		
30) C3-Fluorenes	26.828	208	267582m	9.21		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	64783m	1.45		
35) 4-Methyldibenzothiophene	25.981	198	38843m	1.16		
36) 2/3-Methyldibenzothiop...	26.263	198	25961m	0.77		
37) 1-Methyldibenzothiophene	26.602	198	13734m	0.41		
38) C2-Dibenzothiophenes	28.043	212	158410m	3.55		
39) C3-Dibenzothiophenes	28.890	226	304846m	6.83		
40) C4-Dibenzothiophenes	29.710	240	360942m	8.09		
41) Phenanthrene	24.879	178	1034308	22.80		97
42) Anthracene	25.076	178	173332	4.60		94
43) 3-Methylphenanthrene	26.546	192	92140m	2.61		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1850.D
Acq On : 5 Sep 2013 4:41 pm
Operator : YM
Sample : SO-DA-006 (0-0.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.0662252

Quant Time: Sep 13 09:08:40 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	124821m	3.54		
45)	2-Methylanthracene	26.800	192	157468m	4.46		
46)	4/9-Methylphenanthrene	26.941	192	77029m	2.18		
47)	1-Methylphenanthrene	27.026	192	59589m	1.69		
48)	3,6-Dimethylphenanthrene	28.099	206	25700m	0.69		
49)	Retene	30.783	234	65314m	3.63		
50)	C2-Phenanthrenes/Anthr...	28.297	206	488977m	10.78		
51)	C3-Phenanthrenes/Anthr...	30.021	220	512591m	11.30		
52)	C4-Phenanthrenes/Anthr...	30.783	234	408604m	9.01		
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	29.004	202	414263	7.73		100
59)	Pyrene	29.795	202	389637	6.73		100
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.603	216	347180m	6.48		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	471668m	8.80		
64)	C3-Fluoranthenes/Pyrenes	34.523	244	415795m	7.76		
65)	C4-Fluoranthenes/Pyrenes	35.398	258	356331m	6.65		
67)	Benz(a)anthracene	33.874	228	150148m	4.46		
68)	Chrysene/Triphenylene	33.939	228	374992m	10.42		
69)	C1-Chrysenes	35.204	242	353828m	9.83		
70)	C2-Chrysenes	36.403	256	320829m	8.92		
71)	C3-Chrysenes	38.121	270	247797m	6.89		
72)	C4-Chrysenes	39.548	284	154197m	4.29		
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	37.441	252	658229m	15.30		
78)	Benzo(k,j)fluoranthene	37.505	252	210449m	5.18		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	422742	8.04		100
81)	Benzo(a)pyrene	38.608	252	159128	3.99		100
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	178356m	4.62		
83)	Dibenzo(a,h)anthracene	43.435	278	47243	1.67		95
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	44.775	276	175462	4.82		95
89)	Perylene	38.932	252	50283m	1.14		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1850.D
Acq On : 5 Sep 2013 4:41 pm
Operator : YM
Sample : SO-DA-006 (0-0.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.0662252

Quant Time: Sep 13 09:08:40 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

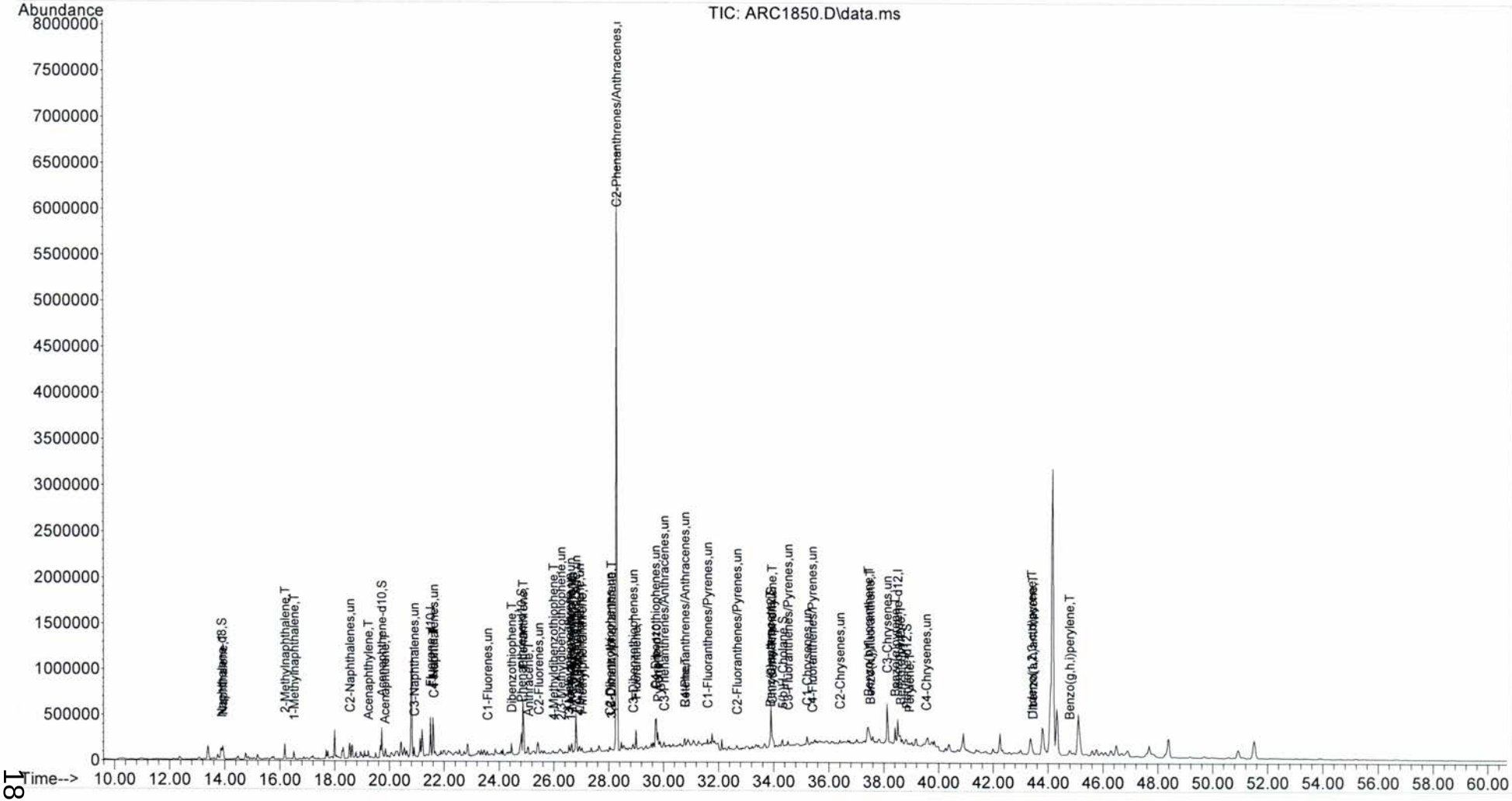
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1850.D
Acq On : 5 Sep 2013 4:41 pm
Operator : YM
Sample : SO-DA-006 (0-0.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.0662252

Quant Time: Sep 13 09:08:40 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1851.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/5/2013 17:48
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-006 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS5
Vial Number	25
Sample Multiplier	0.0659631
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

ARC1851.D
SO-DA-006 (0.5-1.0)
9/5/2013
PAH-2012.M
15.15999096

#	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	13.92	133364	3.3454	4.1922
9)+10)	C1-Naphthalenes	16.35	119528	2.9983	3.7573
13)	C2-Naphthalenes	18.55	182014	4.5658	5.7215
14)	C3-Naphthalenes	21.50	200850	5.0383	6.3136
15)	C4-Naphthalenes	21.62	137973	3.4610	4.3371
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	19.22	7358	0.1880	0.2356
24)	Acenaphthene	19.83	2500	0.1022	0.1280
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	87413	3.1276	3.9194
28)	C1-Fluorenes	23.58	32011	1.1454	1.4353
29)	C2-Fluorenes	26.18	60546	2.1663	2.7147
30)	C3-Fluorenes	27.68	29326	1.0493	1.3149
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	2806	0.0794	0.0995
41)	Phenanthrene	24.88	256873	6.0351	7.5628
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	24.46	18499	0.4420	0.5539
35)+36)+37)	C1-Dibenzothiophenes	26.28	12760	0.3049	0.3821
38)	C2-Dibenzothiophenes	27.37	19023	0.4546	0.5696
39)	C3-Dibenzothiophenes	28.89	10000	0.2390	0.2994
40)	C4-Dibenzothiophenes	30.53	4569	0.1092	0.1368
58)	Fluoranthene	29.00	37237	0.7408	0.9283
59)	Pyrene	29.79	13974	0.2571	0.3222
62)	C1-Fluoranthenes/Pyrenes	30.92	13032	0.2592	0.3249
63)	C2-Fluoranthenes/Pyrenes	32.68	7956	0.1583	0.1983
64)	C3-Fluoranthenes/Pyrenes	34.33	5548	0.1104	0.1383
65)	C4-Fluoranthenes/Pyrenes	36.79	4575	0.0910	0.1140
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	33.87	2883	0.0913	0.1145
68)	Chrysene/Triphenylene	34.00	5615	0.1663	0.2084
69)	C1-Chrysenes	35.20	5678	0.1682	0.2108
70)	C2-Chrysenes	37.02	4250	0.1259	0.1578
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	7099	0.1916	0.2400
78)	Benzo(k,j)fluoranthene	37.51	2257	0.0645	0.0809
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	3632	0.0802	0.1005
81)	Benzo(a)pyrene	38.61	776	0.0226	0.0283
89)	Perylene	38.90	798	0.0209	0.0262
82)	Indeno(1,2,3-c,d)pyrene	43.37	10234	0.3077	0.3856
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	44.78	2459	0.0785	0.0983

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	80650	3.1310	3.9236
10)	1-Methylnaphthalene	16.52	38878	1.5267	1.9131
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	25.98	7117	0.2262	0.2835
36)	2/3-Methyldibenzothiophene	26.26	4126	0.1311	0.1643
37)	1-Methyldibenzothiophene	26.60	1517	0.0482	0.0604
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	13.88	441547	11.72	71.05
21)	Acenaphthene-d10	19.71	286665	12.14	73.55
32)	Phenanthrene-d10	24.82	503737	13.17	79.80
66)	Chrysene-d12	33.91	540577	14.19	86.06
88)	Perylene-d12	38.83	26943	0.76	4.59
90)	5(b)H-Cholane	34.30	161326	12.72	77.13
	Internal Standards				
1)	Fluorene-d10	21.50	363414	16.56	
31)	Pyrene-d10	29.71	705685	16.53	
73)	Benzo(a)pyrene-d12	38.51	447149	16.51	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1851.D
Acq On : 5 Sep 2013 5:48 pm
Operator : YM
Sample : SO-DA-006 (0.5-1.0)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0659631

Quant Time: Sep 13 09:10:06 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.503	176	363414m	251.05			0.00
31) Pyrene-d10	29.710	212	705685m	250.63			-0.03
73) Benzo(a)pyrene-d12	38.511	264	447149	250.32			-0.03
System Monitoring Compounds							
2) Naphthalene-d8	13.880	136	441547m	11.72			0.00
21) Acenaphthene-d10	19.715	164	286665	12.14			-0.02
32) Phenanthrene-d10	24.822	188	503737	13.17			0.00
66) Chrysene-d12	33.907	240	540577	14.19			-0.03
88) Perylene-d12	38.835	264	26943	0.76			0.00
90) 5(b)H-Cholane	34.296	217	161326	12.72			-0.03
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	13.924	128	133364	3.35			100
9) 2-Methylnaphthalene	16.182	142	80650	3.13			97
10) 1-Methylnaphthalene	16.518	142	38878	1.53			99
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d		
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d		
13) C2-Naphthalenes	18.552	156	182014m	4.57			
14) C3-Naphthalenes	21.503	170	200850m	5.04			
15) C4-Naphthalenes	21.615	184	137973m	3.46			
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	19.223	152	7358m	0.19			
24) Acenaphthene	19.827	154	2500m	0.10			
25) Dibenzofuran	0.000		0	N.D.	d		
26) Fluorene	21.593	166	87413m	3.13			
27) 1-Methylfluorene	0.000		0	N.D.	d		
28) C1-Fluorenes	23.579	180	32011m	1.15			
29) C2-Fluorenes	26.179	194	60546m	2.17			
30) C3-Fluorenes	27.676	208	29326m	1.05			
33) Carbazole	0.000		0	N.D.	d		
34) Dibenzothiophene	24.455	184	18499	0.44		#	75
35) 4-Methyldibenzothiophene	25.981	198	7117m	0.23			
36) 2/3-Methyldibenzothiop...	26.263	198	4126m	0.13			
37) 1-Methyldibenzothiophene	26.602	198	1517m	0.05			
38) C2-Dibenzothiophenes	27.365	212	19023m	0.45			
39) C3-Dibenzothiophenes	28.891	226	10000m	0.24			
40) C4-Dibenzothiophenes	30.529	240	4569m	0.11			
41) Phenanthrene	24.879	178	256873	6.04			98
42) Anthracene	25.077	178	2806m	0.08			
43) 3-Methylphenanthrene	0.000		0	N.D.	d		

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1851.D
Acq On : 5 Sep 2013 5:48 pm
Operator : YM
Sample : SO-DA-006 (0.5-1.0)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0659631

Quant Time: Sep 13 09:10:06 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	37237	0.74		100
59)	Pyrene	29.795	202	13974m	0.26		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.925	216	13032m	0.26		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	7956m	0.16		
64)	C3-Fluoranthenes/Pyrenes	34.329	244	5548m	0.11		
65)	C4-Fluoranthenes/Pyrenes	36.792	258	4575m	0.09		
67)	Benz(a)anthracene	33.875	228	2883m	0.09		
68)	Chrysene/Triphenylene	34.004	228	5615m	0.17		
69)	C1-Chrysenes	35.204	242	5678m	0.17		
70)	C2-Chrysenes	37.019	256	4250m	0.13		
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	37.441	252	7099m	0.19		
78)	Benzo(k,j)fluoranthene	37.506	252	2257m	0.06		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	3632	0.08		100
81)	Benzo(a)pyrene	38.608	252	776m	0.02		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	10234	0.31		97
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	44.776	276	2459m	0.08		
89)	Perylene	38.900	252	798m	0.02		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1851.D
Acq On : 5 Sep 2013 5:48 pm
Operator : YM
Sample : SO-DA-006 (0.5-1.0)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0659631

Quant Time: Sep 13 09:10:06 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

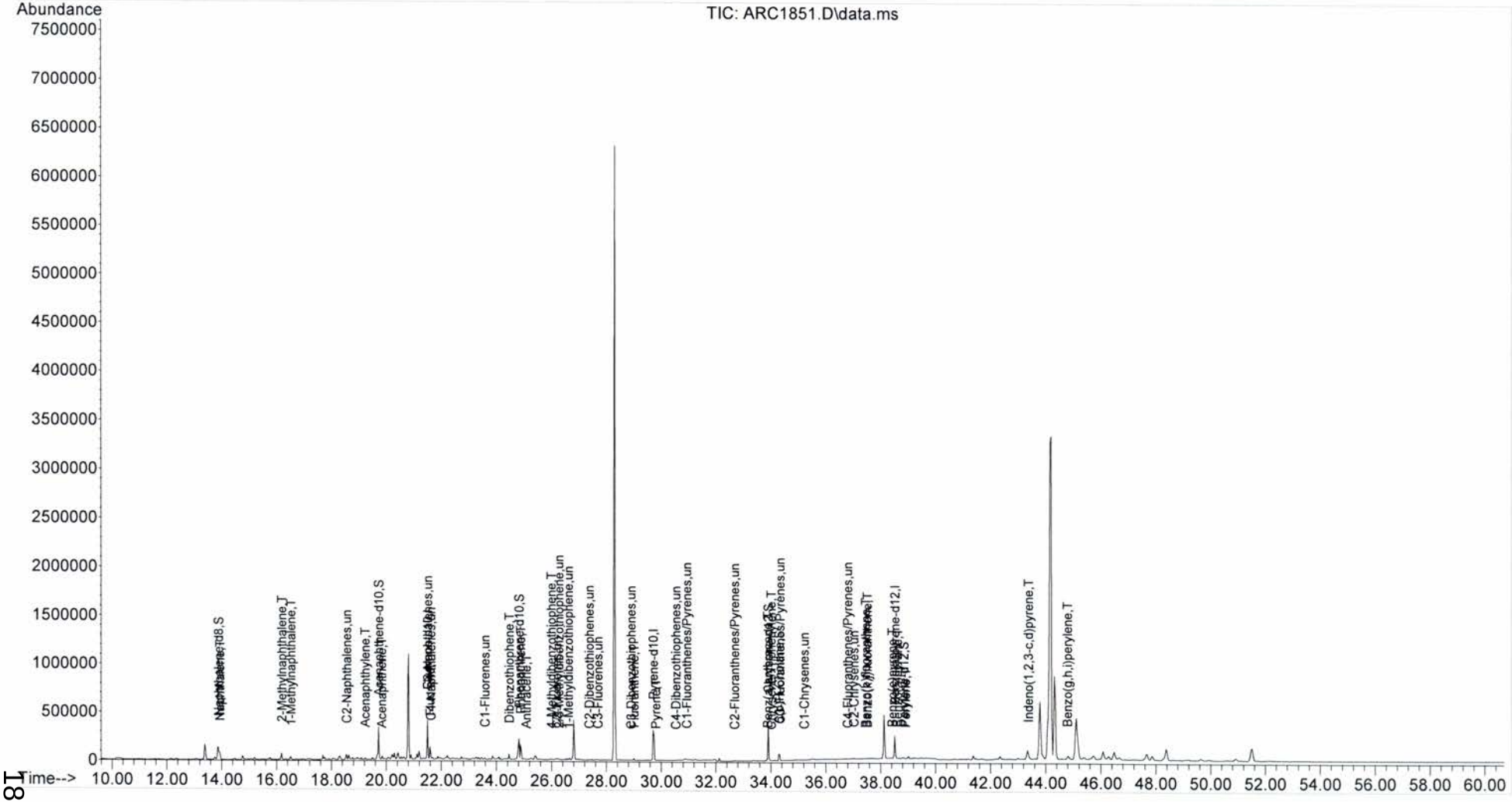
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1851.D
Acq On : 5 Sep 2013 5:48 pm
Operator : YM
Sample : SO-DA-006 (0.5-1.0)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0659631

Quant Time: Sep 13 09:10:06 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1852.D	**Surrogate/Internal Multiplier Factor:**	1.00		
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\	**AR-WKSU-2500-001:**	**(ng/mL)**		
Operator	YM	Naphthalene-d8	250.125		
Date Acquired	9/5/2013 18:54	Acenaphthene-d10	250.163	***Copy data below***	
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	***to Spread Sheet***	
Sample Name	SO-DA-006 (1.0-1.5)	Chrysene-d12	250.038		
Misc Info	0	Perylene-d12	250.031	ARC1852.D	
Instrument Name	GCMS5	5(b)H-Cholane	250.000	SO-DA-006 (1.0-1.5)	
Vial Number	26			9/5/2013	
Sample Multiplier	0.0660066			PAH-2012.M	
Sample Amount	0			15.15000015	

#	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	13.92	103702	2.4755	3.2616
9)+10)	C1-Naphthalenes	16.35	96154	2.2953	3.0242
13)	C2-Naphthalenes	18.55	157502	3.7598	4.9536
14)	C3-Naphthalenes	21.50	184447	4.4030	5.8011
15)	C4-Naphthalenes	21.61	136988	3.2701	4.3085
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	19.22	3827	0.0931	0.1226
24)	Acenaphthene	19.83	4077	0.1586	0.2089
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	100359	3.4171	4.5022
28)	C1-Fluorenes	23.47	35578	1.2114	1.5961
29)	C2-Fluorenes	25.44	50359	1.7147	2.2592
30)	C3-Fluorenes	27.68	33850	1.1526	1.5186
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	1088	0.0293	0.0386
41)	Phenanthrene	24.88	246001	5.4979	7.2438
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	24.45	23814	0.5413	0.7132
35)+36)+37)	C1-Dibenzothiophenes	26.28	15195	0.3454	0.4551
38)	C2-Dibenzothiophenes	27.36	19820	0.4505	0.5936
39)	C3-Dibenzothiophenes	28.89	7679	0.1745	0.2300
40)	C4-Dibenzothiophenes	29.88	5399	0.1227	0.1617
58)	Fluoranthene	29.00	29681	0.5617	0.7400
59)	Pyrene	29.79	11104	0.1944	0.2561
62)	C1-Fluoranthenes/Pyrenes	30.92	6682	0.1264	0.1666
63)	C2-Fluoranthenes/Pyrenes	33.91	4674	0.0884	0.1165
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	33.91	2269	0.0684	0.0901
68)	Chrysene/Triphenylene	33.94	2959	0.0834	0.1099
69)	C1-Chrysenes	35.20	2994	0.0844	0.1112
70)	C2-Chrysenes	37.02	2465	0.0695	0.0915
71)	C3-Chrysenes	38.19	1920	0.0541	0.0713
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.41	3729	0.0960	0.1265
78)	Benzo(k,j)fluoranthene	37.51	1162	0.0317	0.0418
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	2068	0.0436	0.0575
81)	Benzo(a)pyrene	38.61	477	0.0132	0.0175
89)	Perylene	38.93	835	0.0209	0.0275
82)	Indeno(1,2,3-c,d)pyrene	43.34	4550	0.1306	0.1721
83)	Dibenzo(a,h)anthracene	43.43	388	0.0152	0.0200
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	44.78	992	0.0302	0.0398

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	65259	2.4109	3.1765
10)	1-Methylnaphthalene	16.52	30895	1.1545	1.5211
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	25.98	8061	0.2437	0.3211
36)	2/3-Methyldibenzothiophene	26.26	5053	0.1528	0.2013
37)	1-Methyldibenzothiophene	26.60	2081	0.0629	0.0829
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	13.86	425096	10.74	65.05
21)	Acenaphthene-d10	19.71	292176	11.77	71.29
32)	Phenanthrene-d10	24.82	503995	12.53	75.90
66)	Chrysene-d12	33.91	549036	13.71	83.09
88)	Perylene-d12	38.83	152804	4.10	24.85
90)	5(b)H-Cholane	34.30	153613	11.56	70.06
	Internal Standards				
1)	Fluorene-d10	21.50	382141	16.57	
31)	Pyrene-d10	29.71	742340	16.54	
73)	Benzo(a)pyrene-d12	38.51	468769	16.52	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1852.D
Acq On : 5 Sep 2013 6:54 pm
Operator : YM
Sample : SO-DA-006 (1.0-1.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:11:24 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	382141	251.05		0.00
31) Pyrene-d10	29.710	212	742340m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	468769	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	425096	10.74		-0.02
21) Acenaphthene-d10	19.715	164	292176	11.77		-0.02
32) Phenanthrene-d10	24.822	188	503995m	12.53		0.00
66) Chrysene-d12	33.907	240	549036	13.71		-0.03
88) Perylene-d12	38.835	264	152804	4.10		0.00
90) 5(b)H-Cholane	34.296	217	153613	11.56		-0.03
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	13.924	128	103702	2.48		98
9) 2-Methylnaphthalene	16.182	142	65259m	2.41		
10) 1-Methylnaphthalene	16.518	142	30895m	1.15		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	157502m	3.76		
14) C3-Naphthalenes	21.503	170	184447m	4.40		
15) C4-Naphthalenes	21.615	184	136988m	3.27		
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	19.223	152	3827m	0.09		
24) Acenaphthene	19.826	154	4077m	0.16		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	100359m	3.42		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.466	180	35578m	1.21		
29) C2-Fluorenes	25.444	194	50359m	1.71		
30) C3-Fluorenes	27.676	208	33850m	1.15		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	23814m	0.54		
35) 4-Methyldibenzothiophene	25.981	198	8061m	0.24		
36) 2/3-Methyldibenzothiop...	26.263	198	5053m	0.15		
37) 1-Methyldibenzothiophene	26.602	198	2081m	0.06		
38) C2-Dibenzothiophenes	27.365	212	19820m	0.45		
39) C3-Dibenzothiophenes	28.891	226	7679m	0.17		
40) C4-Dibenzothiophenes	29.879	240	5399m	0.12		
41) Phenanthrene	24.879	178	246001m	5.50		
42) Anthracene	25.076	178	1088m	0.03		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1852.D
Acq On : 5 Sep 2013 6:54 pm
Operator : YM
Sample : SO-DA-006 (1.0-1.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:11:24 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	29681	0.56		100
59)	Pyrene	29.795	202	11104m	0.19		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.925	216	6682m	0.13		
63)	C2-Fluoranthenes/Pyrenes	33.907	230	4674m	0.09		
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.907	228	2269m	0.07		
68)	Chrysene/Triphenylene	33.939	228	2959m	0.08		
69)	C1-Chrysenes	35.204	242	2994m	0.08		
70)	C2-Chrysenes	37.019	256	2465m	0.07		
71)	C3-Chrysenes	38.186	270	1920m	0.05		
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	37.408	252	3729m	0.10		
78)	Benzo(k,j)fluoranthene	37.506	252	1162m	0.03		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	2068m	0.04		
81)	Benzo(a)pyrene	38.608	252	477m	0.01		
82)	Indeno(1,2,3-c,d)pyrene	43.337	276	4550	0.13		97
83)	Dibenzo(a,h)anthracene	43.435	278	388m	0.02		
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	44.776	276	992m	0.03		
89)	Perylene	38.932	252	835m	0.02		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1852.D
Acq On : 5 Sep 2013 6:54 pm
Operator : YM
Sample : SO-DA-006 (1.0-1.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:11:24 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

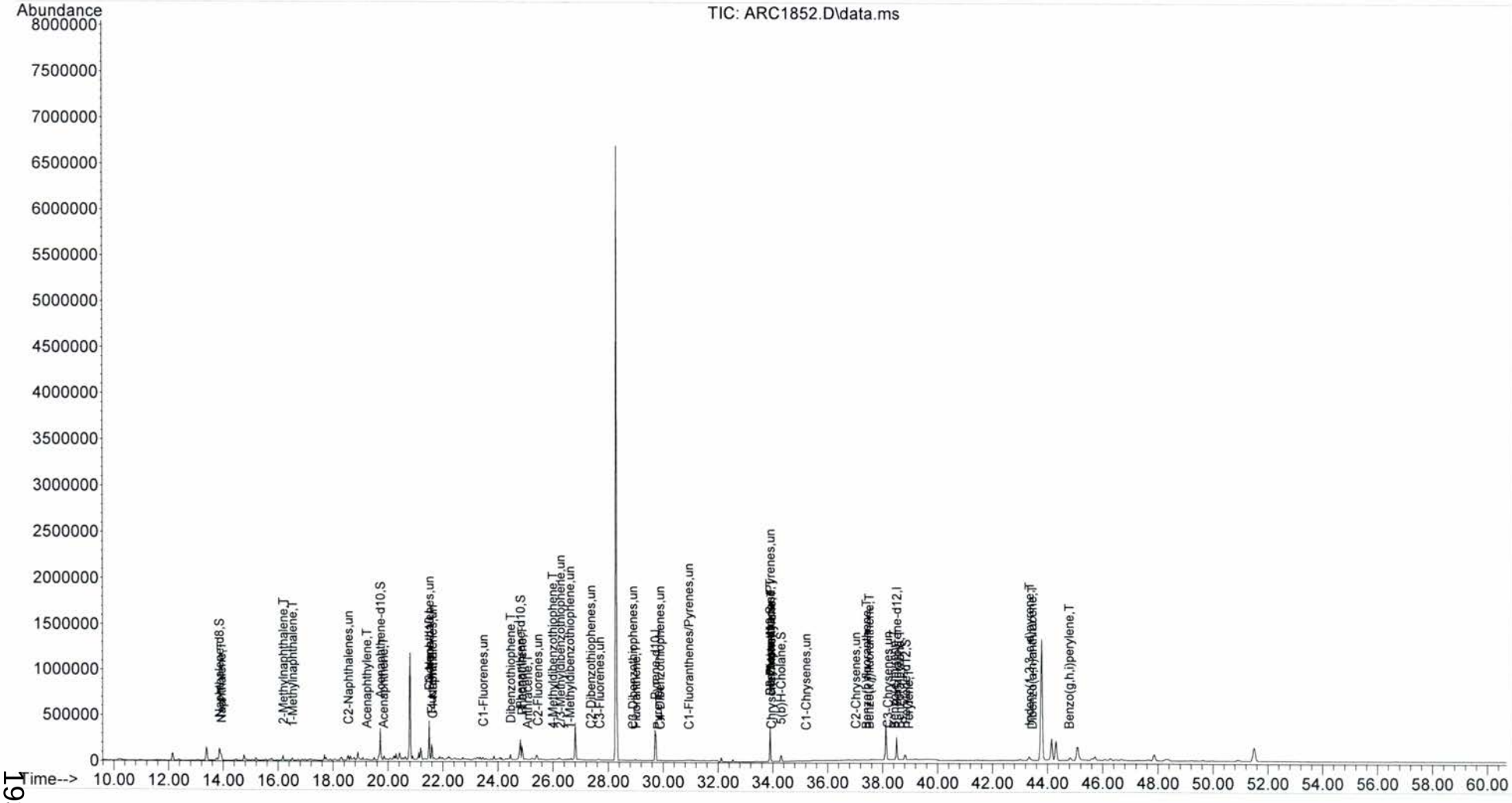
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1852.D
Acq On : 5 Sep 2013 6:54 pm
Operator : YM
Sample : SO-DA-006 (1.0-1.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:11:24 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1853.D	**Surrogate/Internal Multiplier Factor:**	1.00		
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\	**AR-WKSU-2500-001:**	**(ng/mL)**		
Operator	YM	Naphthalene-d8	250.125		
Date Acquired	9/5/2013 20:00	Acenaphthene-d10	250.163	***Copy data below***	
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	***to Spread Sheet***	
Sample Name	SO-DA-DUP-06-081313	Chrysene-d12	250.038		
Misc Info	0	Perylene-d12	250.031	ARC1853.D	
Instrument Name	GCMS5	5(b)H-Cholane	250.000	SO-DA-DUP-06-081313	
Vial Number	27			9/5/2013	
Sample Multiplier	0.066357			PAH-2012.M	
Sample Amount	0			15.07000015	

#	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	13.92	644803	10.9037	12.9266
9)+10)	C1-Naphthalenes	8.09	765451	12.9439	15.3453
13)	C2-Naphthalenes	18.64	1701080	28.7656	34.1022
14)	C3-Naphthalenes	20.56	5060940	85.5813	101.4586
15)	C4-Naphthalenes	22.02	5479030	92.6510	109.8399
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	19.22	137158	2.3625	2.8008
24)	Acenaphthene	19.83	28483	0.7848	0.9303
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	213175	5.1418	6.0958
28)	C1-Fluorenes	23.58	796473	19.2111	22.7752
29)	C2-Fluorenes	25.47	2614440	63.0609	74.7602
30)	C3-Fluorenes	27.42	7890800	190.3278	225.6380
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	189489	4.0503	4.8017
41)	Phenanthrene	24.91	1541010	27.3505	32.4246
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.83	5329818	94.5959	112.1456
50)	C2-Phenanthrenes/Anthracenes	28.52	17551600	311.5129	369.3058
51)	C3-Phenanthrenes/Anthracenes	30.08	31290000	555.3477	658.3776
52)	C4-Phenanthrenes/Anthracenes	31.91	18989000	337.0245	399.5504
34)	Dibenzothiophene	24.48	713941	12.8873	15.2782
35)+36)+37)	C1-Dibenzothiophenes	26.31	4961900	89.5671	106.1839
38)	C2-Dibenzothiophenes	27.73	17530700	316.4459	375.1540
39)	C3-Dibenzothiophenes	29.43	24456500	441.4632	523.3648
40)	C4-Dibenzothiophenes	29.94	30262400	546.2654	647.6103
58)	Fluoranthene	29.06	1349870	20.2855	24.0489
59)	Pyrene	29.82	3729950	51.8500	61.4694
62)	C1-Fluoranthenes/Pyrenes	31.66	8633570	129.7432	153.8136
63)	C2-Fluoranthenes/Pyrenes	33.06	15226600	228.8215	271.2732
64)	C3-Fluoranthenes/Pyrenes	34.59	17083400	256.7246	304.3530
65)	C4-Fluoranthenes/Pyrenes	35.75	14848800	223.1433	264.5416
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	33.94	384318	9.1973	10.9037
68)	Chrysene/Triphenylene	34.00	3405050	76.1951	90.3310
69)	C1-Chrysenes	35.27	7902720	176.8394	209.6472
70)	C2-Chrysenes	36.47	9520450	213.0398	252.5636
71)	C3-Chrysenes	37.70	5899390	132.0113	156.5024
72)	C4-Chrysenes	39.65	1880700	42.0845	49.8921
77)	Benzo(b)fluoranthene	37.51	1358690	35.7946	42.4353
78)	Benzo(k,j)fluoranthene	37.60	370871	10.3549	12.2760
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.51	2240720	48.3295	57.2957
81)	Benzo(a)pyrene	38.71	709651	20.1624	23.9030
89)	Perylene	39.03	489008	12.5199	14.8426
82)	Indeno(1,2,3-c,d)pyrene	43.50	401325	11.7821	13.9680
83)	Dibenzo(a,h)anthracene	43.57	161137	6.4425	7.6377
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	44.91	1081910	33.7033	39.9561

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	765451	20.0325	23.7490
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	26.01	2122920	50.9752	60.4323
36)	2/3-Methyldibenzothiophene	26.29	1215610	29.1890	34.6042
37)	1-Methyldibenzothiophene	26.63	1623370	38.9800	46.2117
43)	3-Methylphenanthrene	26.60	957536	21.8581	25.9132
44)	2-Methylphenanthrene	26.69	1109000	25.3156	30.0122
45)	2-Methylanthracene	26.86	282658	6.4523	7.6494
46)	4/9-Methylphenanthrene	26.97	1990190	45.4307	53.8592
47)	1-Methylphenanthrene	27.05	990434	22.6090	26.8035
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	13.88	562125	10.06	60.61
21)	Acenaphthene-d10	19.71	374826	10.70	64.44
32)	Phenanthrene-d10	24.82	709065	14.00	84.35
66)	Chrysene-d12	33.97	873815	17.33	104.46
88)	Perylene-d12	38.93	330200	9.07	54.64
90)	5(b)H-Cholane	34.36	256086	19.71	118.83
	Internal Standards				
1)	Fluorene-d10	21.50	542311	16.66	
31)	Pyrene-d10	29.77	939739	16.63	
73)	Benzo(a)pyrene-d12	38.61	460713	16.61	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1853.D
Acq On : 5 Sep 2013 8:00 pm
Operator : YM
Sample : SO-DA-DUP-06-081313
Misc :
ALS Vial : 27 Sample Multiplier: 0.066357

Quant Time: Sep 13 09:13:12 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	542311m	251.05		0.00
31) Pyrene-d10	29.766	212	939739m	250.63		0.03
73) Benzo(a)pyrene-d12	38.608	264	460713m	250.32		0.06
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	562125	10.06		0.00
21) Acenaphthene-d10	19.715	164	374826m	10.70		-0.02
32) Phenanthrene-d10	24.822	188	709065	14.00		0.00
66) Chrysene-d12	33.972	240	873815	17.33		0.03
88) Perylene-d12	38.932	264	330200	9.07		0.10
90) 5(b)H-Cholane	34.361	217	256086m	19.71		0.03
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	13.924	128	644803	10.90		97
9) 2-Methylnaphthalene	16.182	142	765451	20.03		98
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	18.642	156	1701081m	28.77		
14) C3-Naphthalenes	20.564	170	5060938m	85.58		
15) C4-Naphthalenes	22.017	184	5479029m	92.65		
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	19.223	152	137158m	2.36		
24) Acenaphthene	19.826	154	28483	0.78		85
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	213175	5.14		79
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	796473m	19.21		
29) C2-Fluorenes	25.472	194	2614444m	63.06		
30) C3-Fluorenes	27.422	208	7890797m	190.33		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.483	184	713941m	12.89		
35) 4-Methyldibenzothiophene	26.009	198	2122924m	50.98		
36) 2/3-Methyldibenzothiop...	26.291	198	1215613m	29.19		
37) 1-Methyldibenzothiophene	26.630	198	1623371m	38.98		
38) C2-Dibenzothiophenes	27.732	212	17530667m	316.45		
39) C3-Dibenzothiophenes	29.427	226	24456473m	441.46		
40) C4-Dibenzothiophenes	29.936	240	30262363m	546.27		
41) Phenanthrene	24.907	178	1541013m	27.35		
42) Anthracene	25.077	178	189489m	4.05		
43) 3-Methylphenanthrene	26.602	192	957536m	21.86		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1853.D
Acq On : 5 Sep 2013 8:00 pm
Operator : YM
Sample : SO-DA-DUP-06-081313
Misc :
ALS Vial : 27 Sample Multiplier: 0.066357

Quant Time: Sep 13 09:13:12 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
44)	2-Methylphenanthrene	26.687	192	1109003m	25.32			
45)	2-Methylanthracene	26.856	192	282658m	6.45			
46)	4/9-Methylphenanthrene	26.969	192	1990186m	45.43			
47)	1-Methylphenanthrene	27.054	192	990434m	22.61			
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d		
49)	Retene	0.000		0	N.D.	d		
50)	C2-Phenanthrenes/Anthr...	28.523	206	17551620m	311.51			
51)	C3-Phenanthrenes/Anthr...	30.077	220	31290020m	555.35			
52)	C4-Phenanthrenes/Anthr...	31.914	234	18989032m	337.02			
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	29.060	202	1349867m	20.29			
59)	Pyrene	29.823	202	3729950m	51.85			
60)	2-Methylfluoranthene	0.000		0	N.D.	d		
61)	Benzo(b)fluorene	0.000		0	N.D.	d		
62)	C1-Fluoranthenes/Pyrenes	31.659	216	8633566m	129.74			
63)	C2-Fluoranthenes/Pyrenes	33.064	230	15226599m	228.82			
64)	C3-Fluoranthenes/Pyrenes	34.588	244	17083369m	256.72			
65)	C4-Fluoranthenes/Pyrenes	35.755	258	14848772m	223.14			
67)	Benz(a)anthracene	33.939	228	384318m	9.20			
68)	Chrysene/Triphenylene	34.004	228	3405049m	76.20			
69)	C1-Chrysenes	35.269	242	7902716m	176.84			
70)	C2-Chrysenes	36.468	256	9520449m	213.04			
71)	C3-Chrysenes	37.700	270	5899392m	132.01			
72)	C4-Chrysenes	39.645	284	1880696m	42.08			
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	37.506	252	1358686m	35.79			
78)	Benzo(k,j)fluoranthene	37.603	252	370871m	10.35			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.511	252	2240720	48.33			100
81)	Benzo(a)pyrene	38.705	252	709651m	20.16			
82)	Indeno(1,2,3-c,d)pyrene	43.500	276	401325m	11.78			
83)	Dibenzo(a,h)anthracene	43.566	278	161137	6.44		#	83
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	44.906	276	1081908m	33.70			
89)	Perylene	39.029	252	489008	12.52			100
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1853.D
Acq On : 5 Sep 2013 8:00 pm
Operator : YM
Sample : SO-DA-DUP-06-081313
Misc :
ALS Vial : 27 Sample Multiplier: 0.066357

Quant Time: Sep 13 09:13:12 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

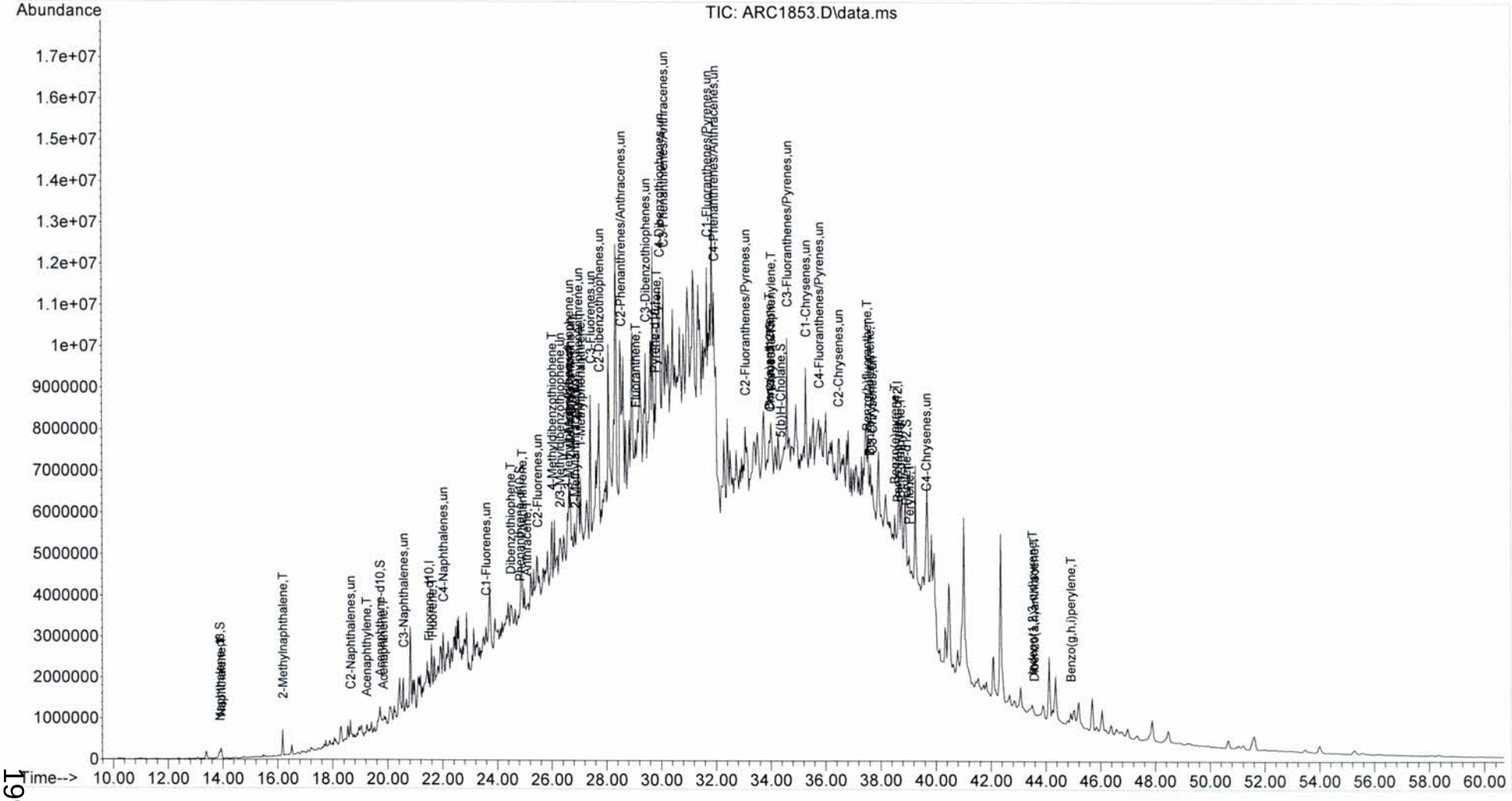
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1853.D
Acq On : 5 Sep 2013 8:00 pm
Operator : YM
Sample : SO-DA-DUP-06-081313
Misc :
ALS Vial : 27 Sample Multiplier: 0.066357

Quant Time: Sep 13 09:13:12 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name ARC1857.D
Data File Path C:\msdchem\2\data\MS50164\
Operator YM
Date Acquired 9/5/2013 21:07
Acq. Method File PAH-2012.M
Sample Name SED-DA-050 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 28
Sample Multiplier 0.066313
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

ARC1857.D
SED-DA-050 (0.5-1.0)
9/5/2013
PAH-2012.M
15.0799994

#	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	13.95	32603	0.8372	1.0242
9)+10)	C1-Naphthalenes	16.35	24383	0.6261	0.7660
13)	C2-Naphthalenes	18.64	47249	1.2133	1.4843
14)	C3-Naphthalenes	21.50	125516	3.2231	3.9430
15)	C4-Naphthalenes	21.62	65924	1.6928	2.0710
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	19.22	3313	0.0867	0.1060
24)	Acenaphthene	19.83	3217	0.1346	0.1647
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	34615	1.2678	1.5511
28)	C1-Fluorenes	23.58	14368	0.5263	0.6438
29)	C2-Fluorenes	25.44	23068	0.8449	1.0336
30)	C3-Fluorenes	27.68	15059	0.5516	0.6748
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	6297	0.1752	0.2143
41)	Phenanthrene	24.88	112983	2.6096	3.1926
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	24.46	9589	0.2253	0.2756
35)+36)+37)	C1-Dibenzothiophenes	26.28	9024	0.2120	0.2593
38)	C2-Dibenzothiophenes	28.04	15941	0.3745	0.4581
39)	C3-Dibenzothiophenes	28.89	16694	0.3922	0.4798
40)	C4-Dibenzothiophenes	31.35	12876	0.3025	0.3700
58)	Fluoranthene	29.00	47441	0.9278	1.1351
59)	Pyrene	29.79	31104	0.5627	0.6884
62)	C1-Fluoranthenes/Pyrenes	31.60	22264	0.4354	0.5327
63)	C2-Fluoranthenes/Pyrenes	32.68	14326	0.2802	0.3428
64)	C3-Fluoranthenes/Pyrenes	35.01	13349	0.2611	0.3194
65)	C4-Fluoranthenes/Pyrenes	37.02	8497	0.1662	0.2033
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	33.87	5994	0.1867	0.2284
68)	Chrysene/Triphenylene	34.00	13854	0.4034	0.4936
69)	C1-Chrysenes	36.34	5067	0.1476	0.1805
70)	C2-Chrysenes	36.95	18618	0.5422	0.6633
71)	C3-Chrysenes	38.93	14000	0.4077	0.4988
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	20296	0.6102	0.7465
78)	Benzo(k,j)fluoranthene	37.47	4878	0.1554	0.1901
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	9353	0.2302	0.2816
81)	Benzo(a)pyrene	38.61	3033	0.0983	0.1203
89)	Perylene	38.93	1727520	50.4720	61.7463
82)	Indeno(1,2,3-c,d)pyrene	43.40	6332	0.2121	0.2595
83)	Dibenzo(a,h)anthracene	43.50	1019	0.0465	0.0569
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	44.78	3953	0.1405	0.1719

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	16436	0.6532	0.7991
10)	1-Methylnaphthalene	16.52	7947	0.3195	0.3908
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	25.98	3892	0.1216	0.1488
36)	2/3-Methyldibenzothiophene	26.26	2890	0.0903	0.1105
37)	1-Methyldibenzothiophene	26.60	2242	0.0701	0.0857
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	13.88	412281	11.20	67.55
21)	Acenaphthene-d10	19.71	286217	12.40	74.78
32)	Phenanthrene-d10	24.82	527640	13.56	81.74
66)	Chrysene-d12	33.91	593589	15.32	92.41
88)	Perylene-d12	38.83	336361	10.54	63.55
90)	5(b)H-Cholane	34.30	173644	15.25	92.01
	Internal Standards				
1)	Fluorene-d10	21.50	356895	16.65	
31)	Pyrene-d10	29.74	721621	16.62	
73)	Benzo(a)pyrene-d12	38.51	403459	16.60	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1857.D
Acq On : 5 Sep 2013 9:07 pm
Operator : YM
Sample : SED-DA-050 (0.5-1.0)
Misc :
ALS Vial : 28 Sample Multiplier: 0.066313

Quant Time: Sep 15 17:01:39 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.503	176	356895m	251.05			0.00
31) Pyrene-d10	29.738	212	721621m	250.63			0.00
73) Benzo(a)pyrene-d12	38.511	264	403459	250.32			-0.03
System Monitoring Compounds							
2) Naphthalene-d8	13.880	136	412281m	11.20			0.00
21) Acenaphthene-d10	19.715	164	286217	12.40			-0.02
32) Phenanthrene-d10	24.822	188	527640	13.56			0.00
66) Chrysene-d12	33.907	240	593589m	15.32			-0.03
88) Perylene-d12	38.835	264	336361	10.54			0.00
90) 5(b)H-Cholane	34.296	217	173644m	15.25			-0.03
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	13.947	128	32603m	0.84			
9) 2-Methylnaphthalene	16.182	142	16436	0.65			99
10) 1-Methylnaphthalene	16.518	142	7947m	0.32			
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d		
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d		
13) C2-Naphthalenes	18.642	156	47249m	1.21			
14) C3-Naphthalenes	21.503	170	125516m	3.22			
15) C4-Naphthalenes	21.615	184	65924m	1.69			
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	19.223	152	3313m	0.09			
24) Acenaphthene	19.827	154	3217m	0.13			
25) Dibenzofuran	0.000		0	N.D.	d		
26) Fluorene	21.593	166	34615m	1.27			
27) 1-Methylfluorene	0.000		0	N.D.	d		
28) C1-Fluorenes	23.579	180	14368m	0.53			
29) C2-Fluorenes	25.444	194	23068m	0.84			
30) C3-Fluorenes	27.676	208	15059m	0.55			
33) Carbazole	0.000		0	N.D.	d		
34) Dibenzothiophene	24.455	184	9589	0.23		#	82
35) 4-Methyldibenzothiophene	25.981	198	3892m	0.12			
36) 2/3-Methyldibenzothiop...	26.263	198	2890m	0.09			
37) 1-Methyldibenzothiophene	26.602	198	2242m	0.07			
38) C2-Dibenzothiophenes	28.043	212	15941m	0.37			
39) C3-Dibenzothiophenes	28.891	226	16694m	0.39			
40) C4-Dibenzothiophenes	31.349	240	12876m	0.30			
41) Phenanthrene	24.879	178	112983m	2.61			
42) Anthracene	25.077	178	6297	0.18			92
43) 3-Methylphenanthrene	0.000		0	N.D.	d		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1857.D
Acq On : 5 Sep 2013 9:07 pm
Operator : YM
Sample : SED-DA-050 (0.5-1.0)
Misc :
ALS Vial : 28 Sample Multiplier: 0.066313

Quant Time: Sep 15 17:01:39 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	47441	0.93		100
59) Pyrene	29.795	202	31104m	0.56		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.603	216	22264m	0.44		
63) C2-Fluoranthenes/Pyrenes	32.675	230	14326m	0.28		
64) C3-Fluoranthenes/Pyrenes	35.009	244	13349m	0.26		
65) C4-Fluoranthenes/Pyrenes	37.019	258	8497m	0.17		
67) Benz(a)anthracene	33.875	228	5994m	0.19		
68) Chrysene/Triphenylene	34.004	228	13854m	0.40		
69) C1-Chrysenes	36.339	242	5067m	0.15		
70) C2-Chrysenes	36.955	256	18618m	0.54		
71) C3-Chrysenes	38.932	270	14000m	0.41		
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	37.441	252	20296m	0.61		
78) Benzo(k,j)fluoranthene	37.473	252	4878m	0.16		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	9353m	0.23		
81) Benzo(a)pyrene	38.608	252	3033	0.10		100
82) Indeno(1,2,3-c,d)pyrene	43.402	276	6332m	0.21		
83) Dibenzo(a,h)anthracene	43.500	278	1019m	0.05		
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	44.776	276	3953m	0.14		
89) Perylene	38.932	252	1727517m	50.47		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1857.D
Acq On : 5 Sep 2013 9:07 pm
Operator : YM
Sample : SED-DA-050 (0.5-1.0)
Misc :
ALS Vial : 28 Sample Multiplier: 0.066313

Quant Time: Sep 15 17:01:39 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

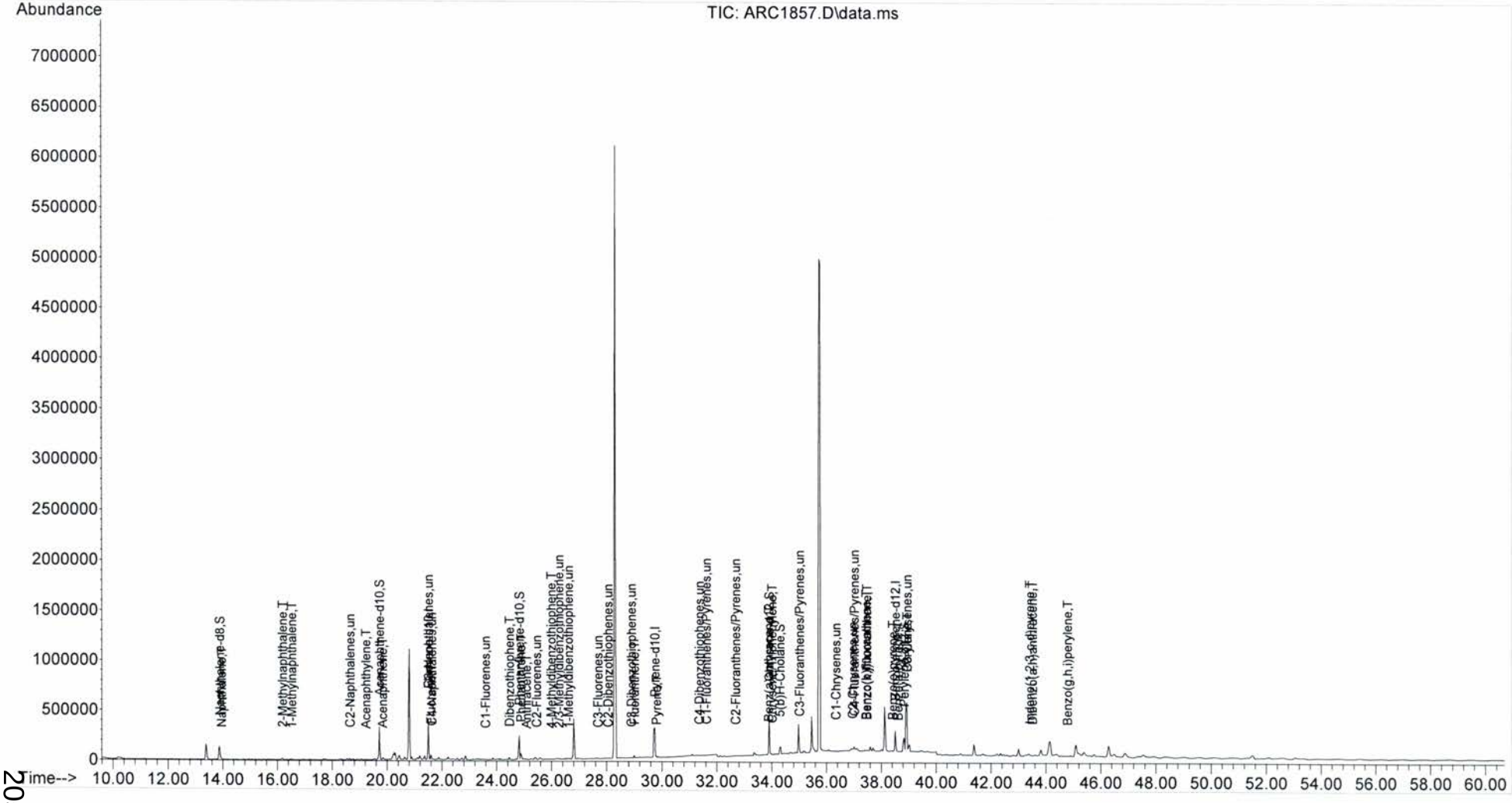
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1857.D
Acq On : 5 Sep 2013 9:07 pm
Operator : YM
Sample : SED-DA-050 (0.5-1.0)
Misc :
ALS Vial : 28 Sample Multiplier: 0.066313

Quant Time: Sep 15 17:01:39 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1858.D	**Surrogate/Internal Multiplier Factor:**	1.00		
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\	**AR-WKSU-2500-001:**	**(ng/mL)**		
Operator	YM	Naphthalene-d8	250.125		
Date Acquired	9/5/2013 23:19	Acenaphthene-d10	250.163	***Copy data below***	
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	***to Spread Sheet***	
Sample Name	SED-DA-050 (1.0-1.5)	Chrysene-d12	250.038		
Misc Info	0	Perylene-d12	250.031	ARC1858.D	
Instrument Name	GCMS5	5(b)H-Cholane	250.000	SED-DA-050 (1.0-1.5)	
Vial Number	30			9/5/2013	
Sample Multiplier	0.0662691			PAH-2012.M	
Sample Amount	0			15.08998915	

#	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	13.92	18163	0.4933	0.6002
9)+10)	C1-Naphthalenes	16.35	10291	0.2795	0.3401
13)	C2-Naphthalenes	18.64	21882	0.5943	0.7231
14)	C3-Naphthalenes	20.90	22377	0.6078	0.7395
15)	C4-Naphthalenes	21.61	39293	1.0672	1.2985
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	19.22	1031	0.0285	0.0347
24)	Acenaphthene	19.83	1210	0.0535	0.0652
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	38427	1.4887	1.8114
28)	C1-Fluorenes	23.58	14929	0.5784	0.7037
29)	C2-Fluorenes	26.18	43358	1.6797	2.0438
30)	C3-Fluorenes	27.68	19376	0.7506	0.9133
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	2287	0.0701	0.0853
41)	Phenanthrene	24.88	151710	3.8607	4.6974
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	24.45	5253	0.1360	0.1654
35)+36)+37)	C1-Dibenzothiophenes	26.29	4411	0.1142	0.1389
38)	C2-Dibenzothiophenes	28.04	5747	0.1487	0.1810
39)	C3-Dibenzothiophenes	29.37	5888	0.1524	0.1854
40)	C4-Dibenzothiophenes	29.88	4138	0.1071	0.1303
58)	Fluoranthene	29.00	24083	0.5189	0.6314
59)	Pyrene	29.79	12957	0.2582	0.3142
62)	C1-Fluoranthenes/Pyrenes	30.92	6146	0.1324	0.1611
63)	C2-Fluoranthenes/Pyrenes	33.91	8237	0.1775	0.2159
64)	C3-Fluoranthenes/Pyrenes	34.33	3309	0.0713	0.0868
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	33.91	1895	0.0650	0.0791
68)	Chrysene/Triphenylene	34.00	3106	0.0997	0.1213
69)	C1-Chrysenes	36.14	2419	0.0776	0.0944
70)	C2-Chrysenes	36.95	7251	0.2326	0.2831
71)	C3-Chrysenes	38.93	21777	0.6987	0.8501
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	3681	0.1299	0.1580
78)	Benzo(k,j)fluoranthene	37.47	928	0.0347	0.0422
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	1914	0.0553	0.0673
81)	Benzo(a)pyrene	38.61	702	0.0267	0.0325
89)	Perylene	38.90	126247	4.3294	5.2678
82)	Indeno(1,2,3-c,d)pyrene	43.40	1300	0.0511	0.0622
83)	Dibenzo(a,h)anthracene	43.47	728	0.0390	0.0474
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	44.78	1056	0.0441	0.0536

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	6665	0.2802	0.3409
10)	1-Methylnaphthalene	16.52	3626	0.1542	0.1876
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	25.98	2057	0.0708	0.0862
36)	2/3-Methyldibenzothiophene	26.29	1032	0.0355	0.0432
37)	1-Methyldibenzothiophene	26.60	1322	0.0455	0.0554
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	13.88	380058	10.92	65.91
21)	Acenaphthene-d10	19.71	260378	11.94	72.00
32)	Phenanthrene-d10	24.82	481208	13.63	82.19
66)	Chrysene-d12	33.91	507025	14.42	87.02
88)	Perylene-d12	38.83	267961	9.85	59.47
90)	5(b)H-Cholane	34.30	155813	16.07	96.97
	Internal Standards				
1)	Fluorene-d10	21.50	337194	16.64	
31)	Pyrene-d10	29.71	654551	16.61	
73)	Benzo(a)pyrene-d12	38.51	343503	16.59	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1858.D
Acq On : 5 Sep 2013 11:19 pm
Operator : YM
Sample : SED-DA-050 (1.0-1.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:15:30 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.503	176	337194m	251.05			0.00
31) Pyrene-d10	29.710	212	654551m	250.63			-0.03
73) Benzo(a)pyrene-d12	38.511	264	343503	250.32			-0.03
System Monitoring Compounds							
2) Naphthalene-d8	13.880	136	380058m	10.92			0.00
21) Acenaphthene-d10	19.715	164	260378	11.94			-0.02
32) Phenanthrene-d10	24.822	188	481208	13.63			0.00
66) Chrysene-d12	33.907	240	507025	14.42			-0.03
88) Perylene-d12	38.835	264	267961m	9.85			0.00
90) 5(b)H-Cholane	34.296	217	155813	16.07			-0.03
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	13.924	128	18163m	0.49			
9) 2-Methylnaphthalene	16.182	142	6665m	0.28			
10) 1-Methylnaphthalene	16.518	142	3626m	0.15			
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d		
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d		
13) C2-Naphthalenes	18.641	156	21882m	0.59			
14) C3-Naphthalenes	20.900	170	22377m	0.61			
15) C4-Naphthalenes	21.615	184	39293m	1.07			
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	19.223	152	1031m	0.03			
24) Acenaphthene	19.826	154	1210m	0.05			
25) Dibenzofuran	0.000		0	N.D.	d		
26) Fluorene	21.593	166	38427m	1.49			
27) 1-Methylfluorene	0.000		0	N.D.	d		
28) C1-Fluorenes	23.579	180	14929m	0.58			
29) C2-Fluorenes	26.178	194	43358m	1.68			
30) C3-Fluorenes	27.676	208	19376m	0.75			
33) Carbazole	0.000		0	N.D.	d		
34) Dibenzothiophene	24.455	184	5253	0.14		#	73
35) 4-Methyldibenzothiophene	25.981	198	2057m	0.07			
36) 2/3-Methyldibenzothiop...	26.291	198	1032m	0.04			
37) 1-Methyldibenzothiophene	26.602	198	1322m	0.05			
38) C2-Dibenzothiophenes	28.043	212	5747m	0.15			
39) C3-Dibenzothiophenes	29.371	226	5888m	0.15			
40) C4-Dibenzothiophenes	29.879	240	4138m	0.11			
41) Phenanthrene	24.879	178	151710	3.86			98
42) Anthracene	25.076	178	2287m	0.07			
43) 3-Methylphenanthrene	0.000		0	N.D.	d		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1858.D
Acq On : 5 Sep 2013 11:19 pm
Operator : YM
Sample : SED-DA-050 (1.0-1.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:15:30 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	24083	0.52		100
59)	Pyrene	29.795	202	12957m	0.26		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.925	216	6146m	0.13		
63)	C2-Fluoranthenes/Pyrenes	33.907	230	8237m	0.18		
64)	C3-Fluoranthenes/Pyrenes	34.328	244	3309m	0.07		
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.907	228	1895m	0.07		
68)	Chrysene/Triphenylene	34.004	228	3106m	0.10		
69)	C1-Chrysenes	36.144	242	2419m	0.08		
70)	C2-Chrysenes	36.954	256	7251m	0.23		
71)	C3-Chrysenes	38.932	270	21777m	0.70		
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	37.441	252	3681m	0.13		
78)	Benzo(k,j)fluoranthene	37.473	252	928m	0.03		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	1914m	0.06		
81)	Benzo(a)pyrene	38.608	252	702m	0.03		
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	1300m	0.05		
83)	Dibenzo(a,h)anthracene	43.468	278	728m	0.04		
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	44.775	276	1056	0.04		93
89)	Perylene	38.900	252	126247m	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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1858.D
Acq On : 5 Sep 2013 11:19 pm
Operator : YM
Sample : SED-DA-050 (1.0-1.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:15:30 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

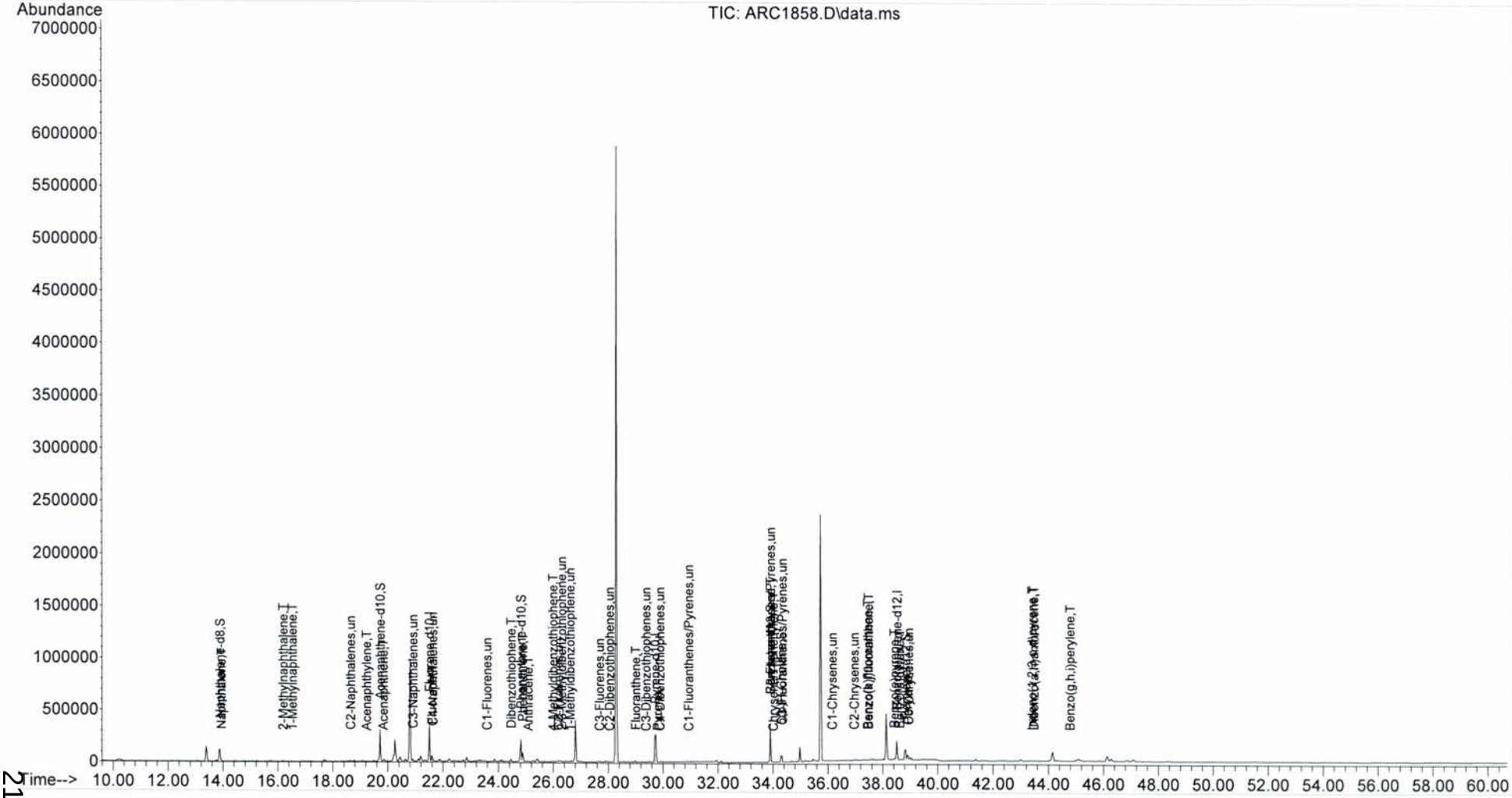
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1858.D
Acq On : 5 Sep 2013 11:19 pm
Operator : YM
Sample : SED-DA-050 (1.0-1.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.0662691

Quant Time: Sep 13 09:15:30 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1862.D
Data File Path	C:\GCMS5\MS50164\
Operator	YM
Date Acquired	9/6/2013 0:25
Acq. Method File	PAH-2012.M
Sample Name	SED-DA-051 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS5
Vial Number	31
Sample Multiplier	0.066357
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

ARC1862.D
SED-DA-051 (0.5-1.0)
9/6/2013
PAH-2012.M
15.07000015

#	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	13.92	202511	4.7347	6.0005
9)+10)	C1-Naphthalenes	16.35	257218	6.0137	7.6215
13)	C2-Naphthalenes	18.64	462590	10.8153	13.7067
14)	C3-Naphthalenes	21.50	452036	10.5685	13.3940
15)	C4-Naphthalenes	21.62	156378	3.6561	4.6335
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	19.22	47825	1.1389	1.4434
24)	Acenaphthene	19.83	24994	0.9521	1.2066
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	152830	5.0966	6.4592
28)	C1-Fluorenes	23.58	85188	2.8409	3.6004
29)	C2-Fluorenes	25.61	268852	8.9658	11.3628
30)	C3-Fluorenes	26.83	220892	7.3664	9.3358
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	71580	1.8722	2.3727
41)	Phenanthrene	24.88	467405	10.1511	12.8650
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.79	506658	11.0036	13.9454
50)	C2-Phenanthrenes/Anthracenes	28.30	529819	11.5066	14.5829
51)	C3-Phenanthrenes/Anthracenes	30.02	517253	11.2337	14.2370
52)	C4-Phenanthrenes/Anthracenes	31.86	349896	7.5991	9.6307
34)	Dibenzothiophene	24.46	110133	2.4326	3.0830
35)+36)+37)	C1-Dibenzothiophenes	26.28	175517	3.8769	4.9133
38)	C2-Dibenzothiophenes	27.70	335777	7.4167	9.3996
39)	C3-Dibenzothiophenes	28.89	496189	10.9599	13.8901
40)	C4-Dibenzothiophenes	30.95	528150	11.6659	14.7848
58)	Fluoranthene	29.00	378197	6.9546	8.8139
59)	Pyrene	29.79	286080	4.8663	6.1672
62)	C1-Fluoranthenes/Pyrenes	31.60	304066	5.5914	7.0863
63)	C2-Fluoranthenes/Pyrenes	32.68	460424	8.4667	10.7303
64)	C3-Fluoranthenes/Pyrenes	34.26	364121	6.6958	8.4859
65)	C4-Fluoranthenes/Pyrenes	35.76	421750	7.7555	9.8289
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	33.87	97792	2.8638	3.6294
68)	Chrysene/Triphenylene	34.00	300856	8.2380	10.4405
69)	C1-Chrysenes	35.76	1025290	28.0743	35.5800
70)	C2-Chrysenes	36.70	495029	13.5549	17.1788
71)	C3-Chrysenes	38.12	219955	6.0228	7.6330
72)	C4-Chrysenes	39.61	169237	4.6340	5.8729
77)	Benzo(b)fluoranthene	37.44	402483	11.0415	13.9935
78)	Benzo(k,j)fluoranthene	37.47	102601	2.9831	3.7806
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	191529	4.3017	5.4518
81)	Benzo(a)pyrene	38.61	69999	2.0710	2.6247
89)	Perylene	38.93	11176800	297.9794	377.6444
82)	Indeno(1,2,3-c,d)pyrene	43.44	126718	3.8739	4.9096
83)	Dibenzo(a,h)anthracene	43.53	49326	2.0536	2.6026
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	44.87	90859	2.9474	3.7353

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	163607	5.9199	7.5025
10)	1-Methylnaphthalene	16.52	93611	3.4261	4.3421
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	25.98	79022	2.3218	2.9426
36)	2/3-Methyldibenzothiophene	26.26	59964	1.7619	2.2329
37)	1-Methyldibenzothiophene	26.60	36531	1.0734	1.3603
43)	3-Methylphenanthrene	26.55	86367	2.4125	3.0575
44)	2-Methylphenanthrene	26.66	111741	3.1213	3.9557
45)	2-Methylanthracene	26.80	180878	5.0525	6.4032
46)	4/9-Methylphenanthrene	26.94	74724	2.0873	2.6453
47)	1-Methylphenanthrene	27.03	52948	1.4790	1.8744
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	13.88	426469	10.55	63.58
21)	Acenaphthene-d10	19.71	292939	11.56	69.63
32)	Phenanthrene-d10	24.82	542050	13.10	78.90
66)	Chrysene-d12	33.91	629851	15.29	92.14
88)	Perylene-d12	38.83	264233	7.55	45.53
90)	5(b)H-Cholane	34.33	202616	16.24	97.90
	Internal Standards				
1)	Fluorene-d10	21.50	392244	16.66	
31)	Pyrene-d10	29.74	767974	16.63	
73)	Benzo(a)pyrene-d12	38.54	442432	16.61	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1862.D
Acq On : 6 Sep 2013 12:25 am
Operator : YM
Sample : SED-DA-051 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.066357

Quant Time: Sep 13 11:11:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	392244	251.05		0.00
31) Pyrene-d10	29.738	212	767974m	250.63		0.00
73) Benzo(a)pyrene-d12	38.543	264	442432	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	426469	10.55		0.00
21) Acenaphthene-d10	19.715	164	292939	11.56		-0.02
32) Phenanthrene-d10	24.822	188	542050	13.10		0.00
66) Chrysene-d12	33.907	240	629851m	15.29		-0.03
88) Perylene-d12	38.835	264	264233	7.55		0.00
90) 5(b)H-Cholane	34.329	217	202616m	16.24		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	13.924	128	202511	4.73		100
9) 2-Methylnaphthalene	16.182	142	163607	5.92		97
10) 1-Methylnaphthalene	16.518	142	93611m	3.43		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	462590m	10.82		
14) C3-Naphthalenes	21.503	170	452036m	10.57		
15) C4-Naphthalenes	21.615	184	156378m	3.66		
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	19.223	152	47825m	1.14		
24) Acenaphthene	19.827	154	24994m	0.95		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	152830m	5.10		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	85188m	2.84		
29) C2-Fluorenes	25.613	194	268852m	8.97		
30) C3-Fluorenes	26.828	208	220892m	7.37		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	110133m	2.43		
35) 4-Methyldibenzothiophene	25.981	198	79022m	2.32		
36) 2/3-Methyldibenzothiop...	26.263	198	59964m	1.76		
37) 1-Methyldibenzothiophene	26.602	198	36531m	1.07		
38) C2-Dibenzothiophenes	27.704	212	335777m	7.42		
39) C3-Dibenzothiophenes	28.891	226	496189m	10.96		
40) C4-Dibenzothiophenes	30.953	240	528150m	11.67		
41) Phenanthrene	24.879	178	467405m	10.15		
42) Anthracene	25.077	178	71580	1.87		98
43) 3-Methylphenanthrene	26.546	192	86367m	2.41		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1862.D
Acq On : 6 Sep 2013 12:25 am
Operator : YM
Sample : SED-DA-051 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.066357

Quant Time: Sep 13 11:11:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	111741m	3.12		
45)	2-Methylanthracene	26.800	192	180878m	5.05		
46)	4/9-Methylphenanthrene	26.941	192	74724m	2.09		
47)	1-Methylphenanthrene	27.026	192	52948m	1.48		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.297	206	529819m	11.51		
51)	C3-Phenanthrenes/Anthr...	30.021	220	517253m	11.23		
52)	C4-Phenanthrenes/Anthr...	31.857	234	349896m	7.60		
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	29.004	202	378197m	6.95		
59)	Pyrene	29.795	202	286080	4.87		100
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.603	216	304066m	5.59		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	460424m	8.47		
64)	C3-Fluoranthenes/Pyrenes	34.264	244	364121m	6.70		
65)	C4-Fluoranthenes/Pyrenes	35.755	258	421750m	7.76		
67)	Benz(a)anthracene	33.875	228	97792m	2.86		
68)	Chrysene/Triphenylene	34.004	228	300856m	8.24		
69)	C1-Chrysenes	35.755	242	1025287m	28.07		
70)	C2-Chrysenes	36.695	256	495029m	13.55		
71)	C3-Chrysenes	38.122	270	219955m	6.02		
72)	C4-Chrysenes	39.613	284	169237m	4.63		
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	37.441	252	402483m	11.04		
78)	Benzo(k,j)fluoranthene	37.473	252	102601m	2.98		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.446	252	191529	4.30		100
81)	Benzo(a)pyrene	38.608	252	69999	2.07		100
82)	Indeno(1,2,3-c,d)pyrene	43.435	276	126718m	3.87		
83)	Dibenzo(a,h)anthracene	43.533	278	49326m	2.05		
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	44.874	276	90859m	2.95		
89)	Perylene	38.932	252	11176782m	297.98		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1862.D
Acq On : 6 Sep 2013 12:25 am
Operator : YM
Sample : SED-DA-051 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.066357

Quant Time: Sep 13 11:11:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

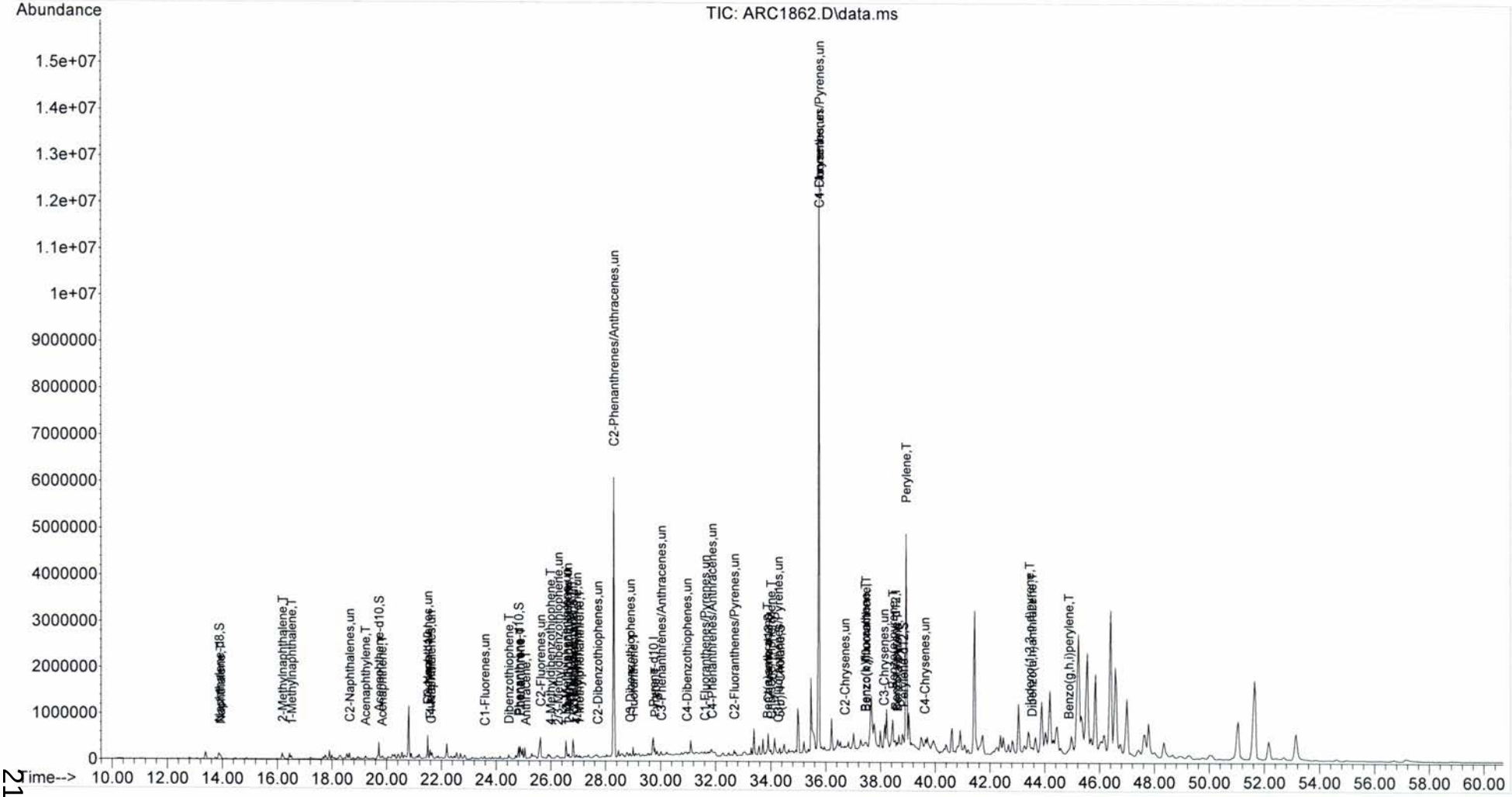
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1862.D
Acq On : 6 Sep 2013 12:25 am
Operator : YM
Sample : SED-DA-051 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.066357

Quant Time: Sep 13 11:11:26 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1863.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/6/2013 1:31
Acq. Method File	PAH-2012.M
Sample Name	SED-DA-051 (1.0-1.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	32
Sample Multiplier	0.0664452
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

ARC1863.D
SED-DA-051 (1.0-1.5)
9/6/2013
PAH-2012.M
15.04999609

#	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	13.95	60853	1.6593	2.0553
9)+10)	C1-Naphthalenes	16.35	42141	1.1491	1.4233
13)	C2-Naphthalenes	18.64	73719	2.0102	2.4899
14)	C3-Naphthalenes	20.21	179595	4.8972	6.0659
15)	C4-Naphthalenes	21.61	30454	0.8304	1.0286
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	19.22	6831	0.1897	0.2350
24)	Acenaphthene	19.83	8203	0.3644	0.4514
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	56555	2.1997	2.7246
28)	C1-Fluorenes	23.58	25351	0.9860	1.2213
29)	C2-Fluorenes	25.05	35926	1.3973	1.7308
30)	C3-Fluorenes	27.68	19123	0.7438	0.9213
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	9479	0.2836	0.3512
41)	Phenanthrene	24.88	167849	4.1692	5.1641
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	24.45	20046	0.5064	0.6273
35)+36)+37)	C1-Dibenzothiophenes	26.28	17139	0.4330	0.5363
38)	C2-Dibenzothiophenes	27.70	13102	0.3310	0.4100
39)	C3-Dibenzothiophenes	28.89	10543	0.2663	0.3299
40)	C4-Dibenzothiophenes	31.09	8438	0.2132	0.2640
58)	Fluoranthene	29.00	76500	1.6089	1.9928
59)	Pyrene	29.79	63110	1.2278	1.5208
62)	C1-Fluoranthenes/Pyrenes	30.92	112006	2.3556	2.9178
63)	C2-Fluoranthenes/Pyrenes	32.67	47973	1.0089	1.2497
64)	C3-Fluoranthenes/Pyrenes	34.69	40275	0.8470	1.0492
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	33.87	15708	0.5261	0.6516
68)	Chrysene/Triphenylene	34.00	52209	1.6350	2.0252
69)	C1-Chrysenes	35.75	295846	9.2649	11.4759
70)	C2-Chrysenes	36.95	57442	1.7989	2.2282
71)	C3-Chrysenes	38.93	40136	1.2569	1.5569
72)	C4-Chrysenes	39.74	28763	0.9008	1.1157
77)	Benzo(b)fluoranthene	37.44	66486	2.0349	2.5205
78)	Benzo(k,j)fluoranthene	37.47	11160	0.3620	0.4484
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	27299	0.6840	0.8473
81)	Benzo(a)pyrene	38.61	11078	0.3656	0.4529
89)	Perylene	38.93	9447430	280.9981	348.0570
82)	Indeno(1,2,3-c,d)pyrene	43.40	14697	0.5013	0.6209
83)	Dibenzo(a,h)anthracene	43.47	3988	0.1852	0.2294
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	44.81	8975	0.3248	0.4023

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	27810	1.1736	1.4537
10)	1-Methylnaphthalene	16.52	14331	0.6117	0.7577
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	25.98	7804	0.2622	0.3248
36)	2/3-Methyldibenzothiophene	26.26	5821	0.1956	0.2423
37)	1-Methyldibenzothiophene	26.60	3514	0.1181	0.1463
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	13.88	360369	10.40	62.57
21)	Acenaphthene-d10	19.71	257313	11.84	71.24
32)	Phenanthrene-d10	24.82	485574	13.42	80.73
66)	Chrysene-d12	33.91	547286	15.19	91.44
88)	Perylene-d12	38.83	273494	8.72	52.50
90)	5(b)H-Cholane	34.33	165140	14.77	88.90
	Internal Standards				
1)	Fluorene-d10	21.50	336757	16.68	
31)	Pyrene-d10	29.74	672378	16.65	
73)	Benzo(a)pyrene-d12	38.51	397103	16.63	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1863.D
Acq On : 6 Sep 2013 1:31 am
Operator : YM
Sample : SED-DA-051 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.0664452

Quant Time: Sep 13 09:17:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	336757	251.05		0.00
31) Pyrene-d10	29.738	212	672378m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	397103	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	360369	10.40		0.00
21) Acenaphthene-d10	19.715	164	257313	11.84		-0.02
32) Phenanthrene-d10	24.822	188	485574m	13.42		0.00
66) Chrysene-d12	33.907	240	547286m	15.19		-0.03
88) Perylene-d12	38.835	264	273494m	8.72		0.00
90) 5(b)H-Cholane	34.328	217	165140	14.77		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	13.947	128	60853	1.66		99
9) 2-Methylnaphthalene	16.182	142	27810	1.17		99
10) 1-Methylnaphthalene	16.518	142	14331m	0.61		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.641	156	73719m	2.01		
14) C3-Naphthalenes	20.206	170	179595m	4.90		
15) C4-Naphthalenes	21.615	184	30454m	0.83		
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	19.223	152	6831m	0.19		
24) Acenaphthene	19.826	154	8203m	0.36		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	56555m	2.20		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	25351m	0.99		
29) C2-Fluorenes	25.048	194	35926m	1.40		
30) C3-Fluorenes	27.676	208	19123m	0.74		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	20046m	0.51		
35) 4-Methyldibenzothiophene	25.981	198	7804m	0.26		
36) 2/3-Methyldibenzothiop...	26.263	198	5821m	0.20		
37) 1-Methyldibenzothiophene	26.602	198	3514m	0.12		
38) C2-Dibenzothiophenes	27.704	212	13102m	0.33		
39) C3-Dibenzothiophenes	28.891	226	10543m	0.27		
40) C4-Dibenzothiophenes	31.094	240	8438m	0.21		
41) Phenanthrene	24.879	178	167849m	4.17		
42) Anthracene	25.076	178	9479m	0.28		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1863.D
Acq On : 6 Sep 2013 1:31 am
Operator : YM
Sample : SED-DA-051 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.0664452

Quant Time: Sep 13 09:17:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	76500	1.61			100
59)	Pyrene	29.795	202	63110m	1.23			
60)	2-Methylfluoranthene	0.000		0	N.D.	d		
61)	Benzo(b)fluorene	0.000		0	N.D.	d		
62)	C1-Fluoranthenes/Pyrenes	30.925	216	112006m	2.36			
63)	C2-Fluoranthenes/Pyrenes	32.675	230	47973m	1.01			
64)	C3-Fluoranthenes/Pyrenes	34.685	244	40275m	0.85			
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d		
67)	Benz(a)anthracene	33.874	228	15708m	0.53			
68)	Chrysene/Triphenylene	34.004	228	52209m	1.64			
69)	C1-Chrysenes	35.755	242	295846m	9.26			
70)	C2-Chrysenes	36.954	256	57442m	1.80			
71)	C3-Chrysenes	38.932	270	40136m	1.26			
72)	C4-Chrysenes	39.743	284	28763m	0.90			
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	37.441	252	66486m	2.03			
78)	Benzo(k,j)fluoranthene	37.473	252	11160m	0.36			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.413	252	27299m	0.68			
81)	Benzo(a)pyrene	38.608	252	11078	0.37			100
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	14697m	0.50			
83)	Dibenzo(a,h)anthracene	43.468	278	3988	0.19		#	1
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	44.808	276	8975m	0.32			
89)	Perylene	38.932	252	9447430m	281.00			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1863.D
Acq On : 6 Sep 2013 1:31 am
Operator : YM
Sample : SED-DA-051 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.0664452

Quant Time: Sep 13 09:17:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

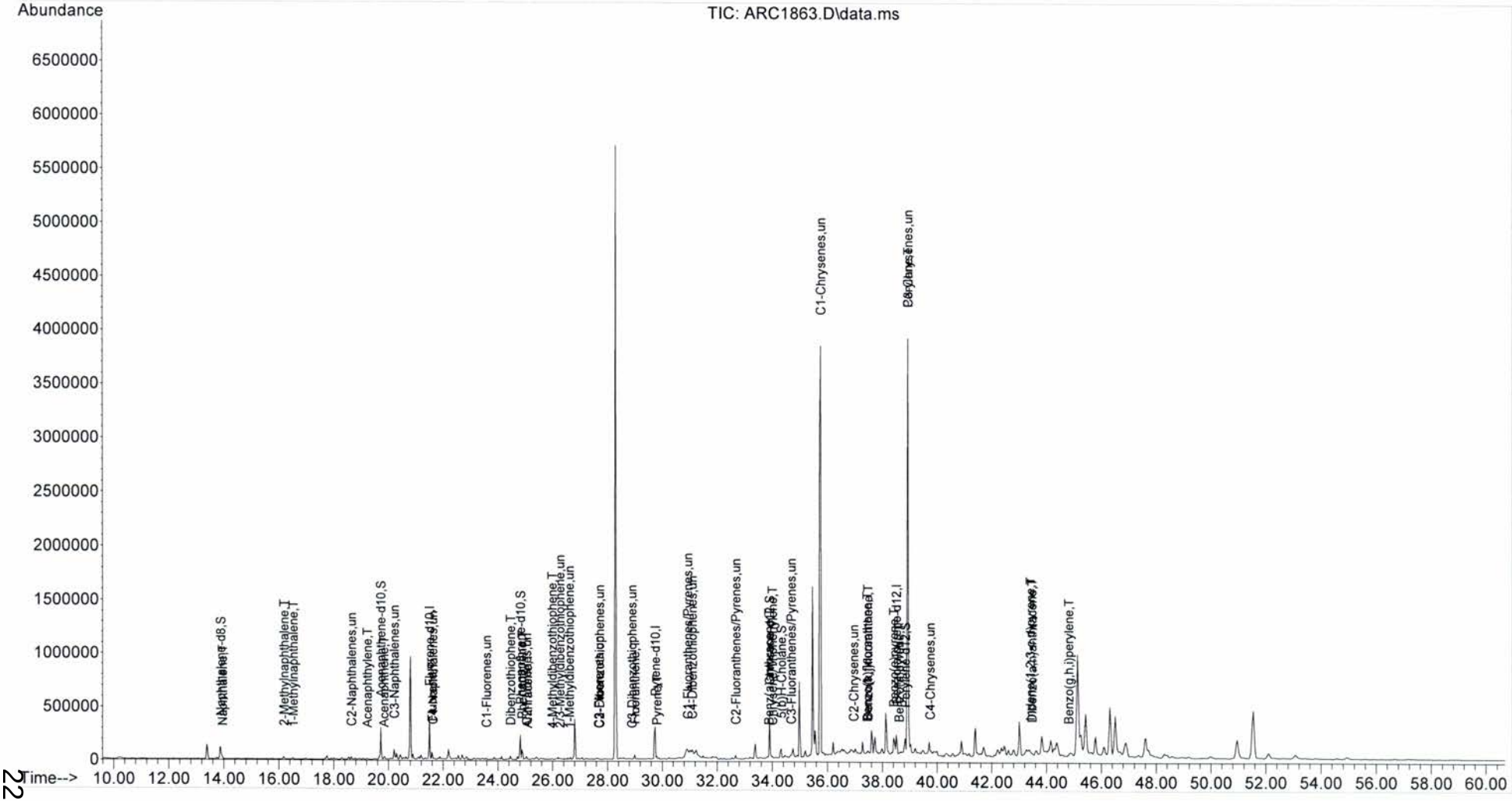
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1863.D
Acq On : 6 Sep 2013 1:31 am
Operator : YM
Sample : SED-DA-051 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.0664452

Quant Time: Sep 13 09:17:56 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name ARC1869.D
Data File Path C:\GCMS5\MS50164\
Operator YM
Date Acquired 9/6/2013 2:38
Acq. Method File PAH-2012.M
Sample Name SED-DA-041 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 33
Sample Multiplier 0.0664894
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

ARC1869.D
SED-DA-041 (0.5-1.0)
9/6/2013
PAH-2012.M
15.03999134

#	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	13.92	378139	8.2652	9.7802
9)+10)	C1-Naphthalenes	16.35	320515	7.0056	8.2898
13)	C2-Naphthalenes	18.64	730746	15.9723	18.9000
14)	C3-Naphthalenes	20.56	728052	15.9134	18.8304
15)	C4-Naphthalenes	22.87	516842	11.2969	13.3676
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	19.22	238977	5.3205	6.2958
24)	Acenaphthene	19.83	58429	2.0808	2.4622
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	331503	10.3352	12.2297
28)	C1-Fluorenes	23.58	94790	2.9553	3.4970
29)	C2-Fluorenes	25.61	369414	11.5172	13.6284
30)	C3-Fluorenes	26.83	265629	8.2815	9.7995
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	459755	11.5119	13.6221
41)	Phenanthrene	24.91	992533	20.6358	24.4184
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	1072215	22.2925	26.3787
50)	C2-Phenanthrenes/Anthracenes	28.47	1057390	21.9843	26.0141
51)	C3-Phenanthrenes/Anthracenes	30.02	1090020	22.6626	26.8168
52)	C4-Phenanthrenes/Anthracenes	31.89	702309	14.6017	17.2783
34)	Dibenzothiophene	24.46	215095	4.5483	5.3820
35)+36)+37)	C1-Dibenzothiophenes	26.28	300717	6.3588	7.5244
38)	C2-Dibenzothiophenes	27.70	574928	12.1571	14.3856
39)	C3-Dibenzothiophenes	28.89	857748	18.1375	21.4622
40)	C4-Dibenzothiophenes	31.15	998646	21.1169	24.9877
58)	Fluoranthene	29.00	1153750	20.3105	24.0335
59)	Pyrene	29.79	1027970	16.7396	19.8080
62)	C1-Fluoranthenes/Pyrenes	31.18	901775	15.8748	18.7847
63)	C2-Fluoranthenes/Pyrenes	32.29	1470210	25.8816	30.6258
64)	C3-Fluoranthenes/Pyrenes	34.23	956892	16.8451	19.9328
65)	C4-Fluoranthenes/Pyrenes	35.88	781218	13.7525	16.2734
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	33.87	315101	8.8336	10.4529
68)	Chrysene/Triphenylene	34.00	734731	19.2597	22.7900
69)	C1-Chrysenes	35.50	1353640	35.4832	41.9874
70)	C2-Chrysenes	36.37	1183860	31.0327	36.7210
71)	C3-Chrysenes	38.15	628740	16.4813	19.5024
72)	C4-Chrysenes	40.75	444546	11.6530	13.7890
77)	Benzo(b)fluoranthene	37.44	1073920	35.0636	41.4908
78)	Benzo(k,j)fluoranthene	37.54	288861	9.9954	11.8276
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	505865	13.5221	16.0008
81)	Benzo(a)pyrene	38.64	235396	8.2886	9.8080
89)	Perylene	38.96	10577600	335.6272	397.1486
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	43.60	117455	5.8199	6.8867
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	16.18	225514	7.6286	9.0269
10)	1-Methylnaphthalene	16.52	95001	3.2506	3.8465
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	25.98	136956	3.8523	4.5585
36)	2/3-Methyldibenzothiophene	26.26	108362	3.0480	3.6067
37)	1-Methyldibenzothiophene	26.60	55399	1.5583	1.8439
43)	3-Methylphenanthrene	26.57	150563	4.0262	4.7642
44)	2-Methylphenanthrene	26.66	220871	5.9063	6.9889
45)	2-Methylanthracene	26.83	363434	9.7185	11.4999
46)	4/9-Methylphenanthrene	26.94	210058	5.6171	6.6467
47)	1-Methylphenanthrene	27.03	127289	3.4038	4.0277
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	13.88	482416	11.16	67.10
21)	Acenaphthene-d10	19.71	313771	11.58	69.59
32)	Phenanthrene-d10	24.82	607644	14.06	84.51
66)	Chrysene-d12	33.94	560406	13.02	78.32
88)	Perylene-d12	38.87	365614	12.44	74.83
90)	5(b)H-Cholane	34.33	227528	21.71	130.59
	Internal Standards				
1)	Fluorene-d10	21.50	420398	16.69	
31)	Pyrene-d10	29.74	803814	16.66	
73)	Benzo(a)pyrene-d12	38.54	372486	16.64	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1869.D
Acq On : 6 Sep 2013 2:38 am
Operator : YM
Sample : SED-DA-041 (0.5-1.0)
Misc :
ALS Vial : 33 Sample Multiplier: 0.0664894

Quant Time: Sep 13 11:36:48 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	420398	251.05		0.00
31) Pyrene-d10	29.738	212	803814	250.63		0.00
73) Benzo(a)pyrene-d12	38.543	264	372486m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	482416	11.16		0.00
21) Acenaphthene-d10	19.715	164	313771m	11.58		-0.02
32) Phenanthrene-d10	24.822	188	607644m	14.06		0.00
66) Chrysene-d12	33.939	240	560406	13.02		0.00
88) Perylene-d12	38.867	264	365614	12.44		0.03
90) 5(b)H-Cholane	34.328	217	227528m	21.71		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	13.924	128	378139	8.27		99
9) 2-Methylnaphthalene	16.182	142	225514	7.63		97
10) 1-Methylnaphthalene	16.518	142	95001	3.25		99
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	730746m	15.97		
14) C3-Naphthalenes	20.564	170	728052m	15.91		
15) C4-Naphthalenes	22.873	184	516842m	11.30		
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	19.223	152	238977m	5.32		
24) Acenaphthene	19.826	154	58429m	2.08		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	331503m	10.34		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	94790m	2.96		
29) C2-Fluorenes	25.613	194	369414m	11.52		
30) C3-Fluorenes	26.828	208	265629m	8.28		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	215095m	4.55		
35) 4-Methyldibenzothiophene	25.981	198	136956m	3.85		
36) 2/3-Methyldibenzothiop...	26.263	198	108362m	3.05		
37) 1-Methyldibenzothiophene	26.602	198	55399m	1.56		
38) C2-Dibenzothiophenes	27.704	212	574928m	12.16		
39) C3-Dibenzothiophenes	28.891	226	857748m	18.14		
40) C4-Dibenzothiophenes	31.151	240	998646m	21.12		
41) Phenanthrene	24.907	178	992533m	20.64		
42) Anthracene	25.077	178	459755	11.51		96
43) 3-Methylphenanthrene	26.574	192	150563m	4.03		

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1869.D
Acq On : 6 Sep 2013 2:38 am
Operator : YM
Sample : SED-DA-041 (0.5-1.0)
Misc :
ALS Vial : 33 Sample Multiplier: 0.0664894

Quant Time: Sep 13 11:36:48 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	220871m	5.91		
45)	2-Methylanthracene	26.828	192	363434m	9.72		
46)	4/9-Methylphenanthrene	26.941	192	210058m	5.62		
47)	1-Methylphenanthrene	27.026	192	127289m	3.40		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.467	206	1057393m	21.98		
51)	C3-Phenanthrenes/Anthr...	30.021	220	1090020m	22.66		
52)	C4-Phenanthrenes/Anthr...	31.885	234	702309m	14.60		
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	29.004	202	1153746m	20.31		
59)	Pyrene	29.795	202	1027973m	16.74		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.179	216	901775m	15.87		
63)	C2-Fluoranthenes/Pyrenes	32.286	230	1470211m	25.88		
64)	C3-Fluoranthenes/Pyrenes	34.231	244	956892m	16.85		
65)	C4-Fluoranthenes/Pyrenes	35.885	258	781218m	13.75		
67)	Benz(a)anthracene	33.875	228	315101m	8.83		
68)	Chrysene/Triphenylene	34.004	228	734731m	19.26		
69)	C1-Chrysenes	35.496	242	1353637m	35.48		
70)	C2-Chrysenes	36.371	256	1183855m	31.03		
71)	C3-Chrysenes	38.154	270	628740m	16.48		
72)	C4-Chrysenes	40.754	284	444546m	11.65		
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	37.441	252	1073920m	35.06		
78)	Benzo(k,j)fluoranthene	37.538	252	288861m	10.00		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.446	252	505865m	13.52		
81)	Benzo(a)pyrene	38.640	252	235396	8.29		100
82)	Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83)	Dibenzo(a,h)anthracene	43.598	278	117455m	5.82		
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.		
89)	Perylene	38.965	252	10577569m	335.63		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1869.D
Acq On : 6 Sep 2013 2:38 am
Operator : YM
Sample : SED-DA-041 (0.5-1.0)
Misc :
ALS Vial : 33 Sample Multiplier: 0.0664894

Quant Time: Sep 13 11:36:48 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

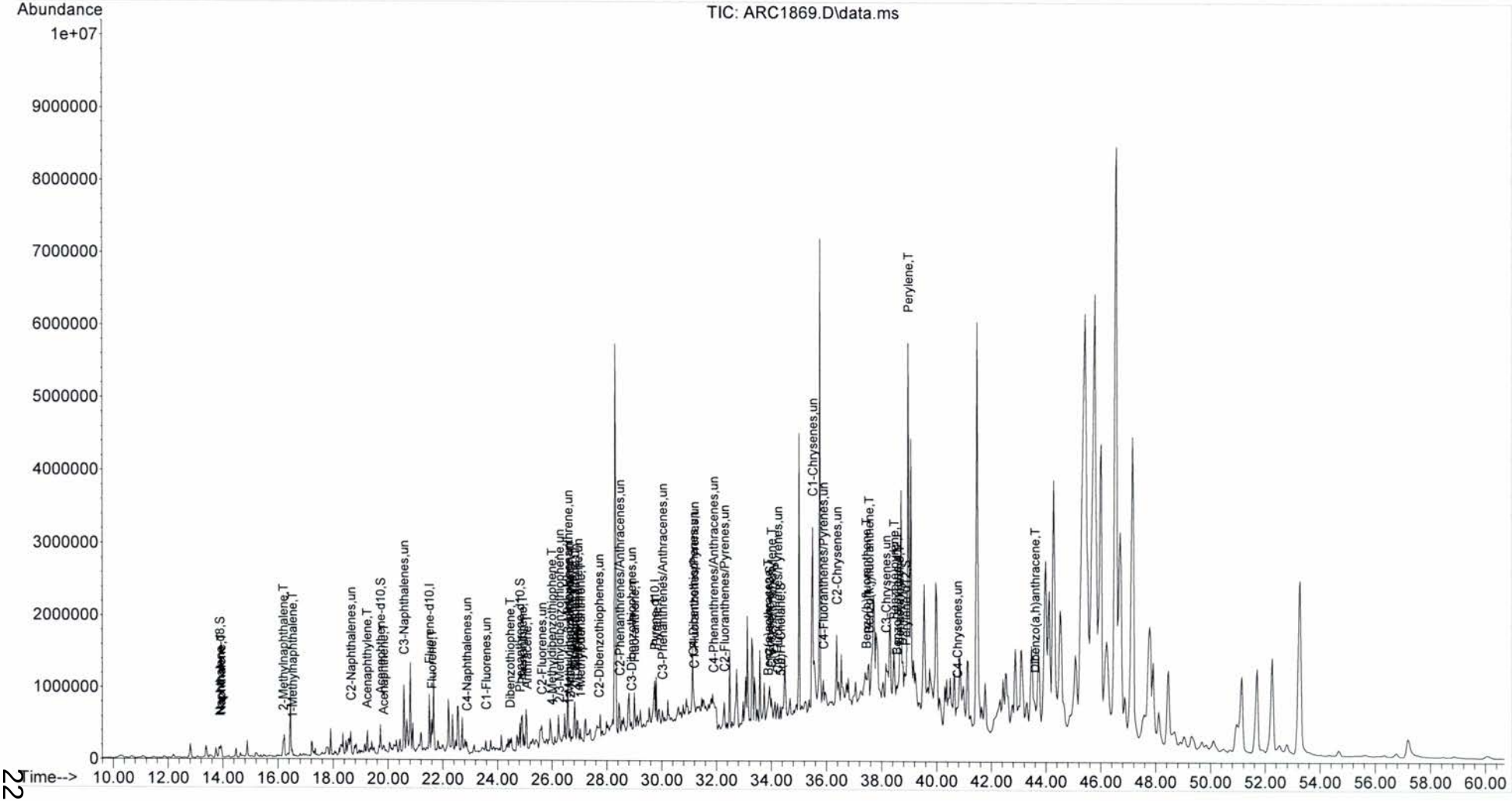
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1869.D
Acq On : 6 Sep 2013 2:38 am
Operator : YM
Sample : SED-DA-041 (0.5-1.0)
Misc :
ALS Vial : 33 Sample Multiplier: 0.0664894

Quant Time: Sep 13 11:36:48 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name ARC1870.D
Data File Path P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator YM
Date Acquired 9/6/2013 3:44
Acq. Method File PAH-2012.M
Sample Name SED-DA-041 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 34
Sample Multiplier 0.0660066
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

ARC1870.D
SED-DA-041 (1.0-1.5)
9/6/2013
PAH-2012.M
15.15000015

#	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	13.95	200430	4.6384	5.6532
9)+10)	C1-Naphthalenes	16.35	177824	4.1153	5.0156
13)	C2-Naphthalenes	18.64	468963	10.8529	13.2274
14)	C3-Naphthalenes	20.56	423336	9.7970	11.9404
15)	C4-Naphthalenes	22.87	243907	5.6446	6.8795
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	19.22	92503	2.1805	2.6576
24)	Acenaphthene	19.83	23445	0.8840	1.0774
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	185207	6.1136	7.4512
28)	C1-Fluorenes	23.58	61489	2.0297	2.4738
29)	C2-Fluorenes	25.61	217300	7.1730	8.7423
30)	C3-Fluorenes	27.68	169084	5.5814	6.8025
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	164096	4.1018	4.9992
41)	Phenanthrene	24.91	556887	11.5584	14.0872
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	663568	13.7726	16.7858
50)	C2-Phenanthrenes/Anthracenes	28.30	944583	19.6052	23.8945
51)	C3-Phenanthrenes/Anthracenes	30.02	729080	15.1323	18.4430
52)	C4-Phenanthrenes/Anthracenes	31.86	641081	13.3059	16.2170
34)	Dibenzothiophene	24.46	117576	2.4819	3.0250
35)+36)+37)	C1-Dibenzothiophenes	26.28	187536	3.9588	4.8249
38)	C2-Dibenzothiophenes	27.70	389677	8.2258	10.0255
39)	C3-Dibenzothiophenes	28.89	609387	12.8637	15.6780
40)	C4-Dibenzothiophenes	30.95	660197	13.9363	16.9853
58)	Fluoranthene	29.00	559133	9.8261	11.9758
59)	Pyrene	29.79	491487	7.9897	9.7377
62)	C1-Fluoranthenes/Pyrenes	31.60	588044	10.3342	12.5951
63)	C2-Fluoranthenes/Pyrenes	32.29	989634	17.3916	21.1966
64)	C3-Fluoranthenes/Pyrenes	34.26	720558	12.6630	15.4334
65)	C4-Fluoranthenes/Pyrenes	35.88	653190	11.4790	13.9904
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	33.87	160266	4.4853	5.4665
68)	Chrysene/Triphenylene	34.00	442080	11.5685	14.0995
69)	C1-Chrysenes	35.69	1557360	40.7534	49.6695
70)	C2-Chrysenes	36.37	881746	23.0738	28.1219
71)	C3-Chrysenes	37.64	593353	15.5271	18.9241
72)	C4-Chrysenes	39.48	431553	11.2930	13.7637
77)	Benzo(b)fluoranthene	37.44	617562	20.6534	25.1720
78)	Benzo(k,j)fluoranthene	37.54	139204	4.9339	6.0134
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	303551	8.3113	10.1296
81)	Benzo(a)pyrene	38.64	104162	3.7568	4.5788
89)	Perylene	38.93	8179680	265.8482	324.0110
82)	Indeno(1,2,3-c,d)pyrene	43.47	181597	6.7679	8.2485
83)	Dibenzo(a,h)anthracene	43.53	57923	2.9398	3.5830
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	44.91	161292	6.3783	7.7738

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	122623	4.3919	5.3528
10)	1-Methylnaphthalene	16.52	55201	1.9998	2.4374
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	25.98	87430	2.4550	2.9921
36)	2/3-Methyldibenzothiophene	26.26	70036	1.9666	2.3969
37)	1-Methyldibenzothiophene	26.60	30070	0.8444	1.0291
43)	3-Methylphenanthrene	26.57	108483	2.8959	3.5295
44)	2-Methylphenanthrene	26.66	139697	3.7292	4.5451
45)	2-Methylanthracene	26.83	239064	6.3818	7.7780
46)	4/9-Methylphenanthrene	26.94	109897	2.9337	3.5755
47)	1-Methylphenanthrene	27.03	66427	1.7733	2.1612
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	13.88	441692	10.82	65.52
21)	Acenaphthene-d10	19.71	301420	11.77	71.30
32)	Phenanthrene-d10	24.82	586675	13.55	82.05
66)	Chrysene-d12	33.91	583278	13.53	81.97
88)	Perylene-d12	38.84	379066	13.21	80.05
90)	5(b)H-Cholane	34.33	231063	22.58	136.83
	Internal Standards				
1)	Fluorene-d10	21.50	394174	16.57	
31)	Pyrene-d10	29.74	799347	16.54	
73)	Benzo(a)pyrene-d12	38.54	361009	16.52	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1870.D
Acq On : 6 Sep 2013 3:44 am
Operator : YM
Sample : SED-DA-041 (1.0-1.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:20:42 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.503	176	394174m	251.05			0.00
31) Pyrene-d10	29.738	212	799347m	250.63			0.00
73) Benzo(a)pyrene-d12	38.543	264	361009m	250.32			0.00
System Monitoring Compounds							
2) Naphthalene-d8	13.880	136	441692	10.82			0.00
21) Acenaphthene-d10	19.715	164	301420	11.77			-0.02
32) Phenanthrene-d10	24.822	188	586675m	13.55			0.00
66) Chrysene-d12	33.907	240	583278	13.53			-0.03
88) Perylene-d12	38.835	264	379066	13.21			0.00
90) 5(b)H-Cholane	34.329	217	231063m	22.58			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	13.947	128	200430	4.64			98
9) 2-Methylnaphthalene	16.183	142	122623	4.39			99
10) 1-Methylnaphthalene	16.518	142	55201m	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	18.642	156	468963m	10.85			
14) C3-Naphthalenes	20.564	170	423336m	9.80			
15) C4-Naphthalenes	22.873	184	243907m	5.64			
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	19.223	152	92503	2.18			98
24) Acenaphthene	19.827	154	23445m	0.88			
25) Dibenzofuran	0.000		0	N.D.	d		
26) Fluorene	21.593	166	185207m	6.11			
27) 1-Methylfluorene	0.000		0	N.D.	d		
28) C1-Fluorenes	23.579	180	61489m	2.03			
29) C2-Fluorenes	25.613	194	217300m	7.17			
30) C3-Fluorenes	27.676	208	169084m	5.58			
33) Carbazole	0.000		0	N.D.	d		
34) Dibenzothiophene	24.455	184	117576	2.48		#	91
35) 4-Methyldibenzothiophene	25.981	198	87430m	2.46			
36) 2/3-Methyldibenzothiop...	26.263	198	70036m	1.97			
37) 1-Methyldibenzothiophene	26.602	198	30070m	0.84			
38) C2-Dibenzothiophenes	27.704	212	389677m	8.23			
39) C3-Dibenzothiophenes	28.891	226	609387m	12.86			
40) C4-Dibenzothiophenes	30.953	240	660197m	13.94			
41) Phenanthrene	24.907	178	556887m	11.56			
42) Anthracene	25.077	178	164096	4.10			98
43) 3-Methylphenanthrene	26.574	192	108483m	2.90			

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1870.D
Acq On : 6 Sep 2013 3:44 am
Operator : YM
Sample : SED-DA-041 (1.0-1.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:20:42 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	139697m	3.73		
45)	2-Methylanthracene	26.828	192	239064m	6.38		
46)	4/9-Methylphenanthrene	26.941	192	109897m	2.93		
47)	1-Methylphenanthrene	27.026	192	66427m	1.77		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.297	206	944583m	19.61		
51)	C3-Phenanthrenes/Anthr...	30.021	220	729080m	15.13		
52)	C4-Phenanthrenes/Anthr...	31.857	234	641081m	13.31		
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	29.004	202	559133m	9.83		
59)	Pyrene	29.795	202	491487m	7.99		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.603	216	588044m	10.33		
63)	C2-Fluoranthenes/Pyrenes	32.286	230	989634m	17.39		
64)	C3-Fluoranthenes/Pyrenes	34.264	244	720558m	12.66		
65)	C4-Fluoranthenes/Pyrenes	35.885	258	653190m	11.48		
67)	Benz(a)anthracene	33.875	228	160266m	4.49		
68)	Chrysene/Triphenylene	34.004	228	442080m	11.57		
69)	C1-Chrysenes	35.690	242	1557357m	40.75		
70)	C2-Chrysenes	36.371	256	881746m	23.07		
71)	C3-Chrysenes	37.635	270	593353m	15.53		
72)	C4-Chrysenes	39.483	284	431553m	11.29		
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	37.441	252	617562m	20.65		
78)	Benzo(k,j)fluoranthene	37.538	252	139204m	4.93		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.446	252	303551	8.31		100
81)	Benzo(a)pyrene	38.640	252	104162	3.76		100
82)	Indeno(1,2,3-c,d)pyrene	43.468	276	181597m	6.77		
83)	Dibenzo(a,h)anthracene	43.533	278	57923m	2.94		
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	44.907	276	161292m	6.38		
89)	Perylene	38.932	252	8179675m	265.85		
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1870.D
Acq On : 6 Sep 2013 3:44 am
Operator : YM
Sample : SED-DA-041 (1.0-1.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:20:42 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

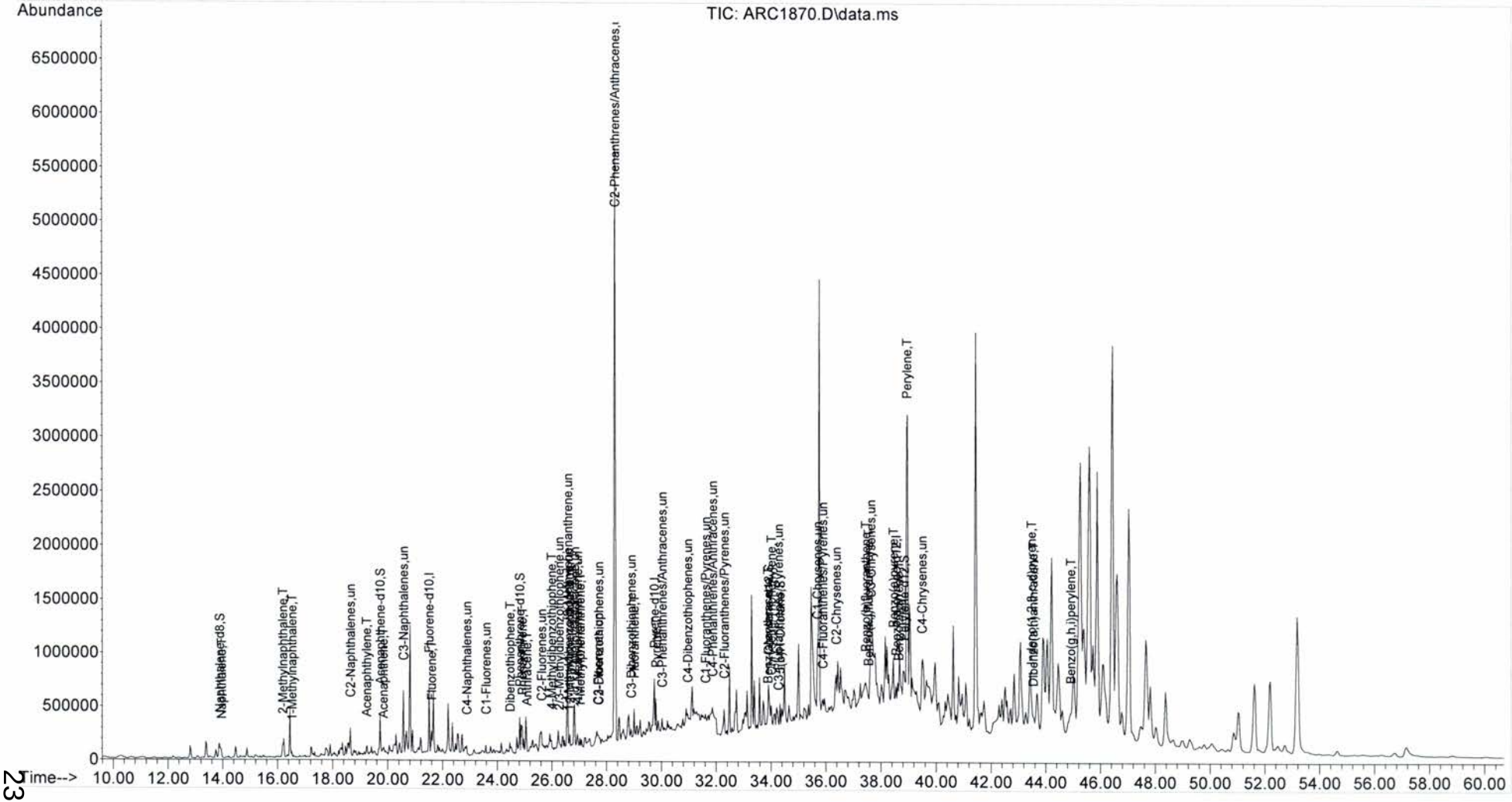
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1870.D
Acq On : 6 Sep 2013 3:44 am
Operator : YM
Sample : SED-DA-041 (1.0-1.5)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0660066

Quant Time: Sep 13 09:20:42 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name ARC1872.D
Data File Path P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator YM
Date Acquired 9/6/2013 4:50
Acq. Method File PAH-2012.M
Sample Name SED-DA-053 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 35
Sample Multiplier 0.0662691
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

ARC1872.D
SED-DA-053 (0.5-1.0)
9/6/2013
PAH-2012.M
15.08998915

#	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	13.95	232906	5.3927	6.4078
9)+10)	C1-Naphthalenes	16.35	193595	4.4825	5.3263
13)	C2-Naphthalenes	18.64	351023	8.1276	9.6575
14)	C3-Naphthalenes	20.21	448318	10.3805	12.3343
15)	C4-Naphthalenes	24.46	373244	8.6422	10.2688
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	19.22	33504	0.7902	0.9389
24)	Acenaphthene	19.83	22425	0.8460	1.0052
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	205279	6.7797	8.0558
28)	C1-Fluorenes	23.58	116083	3.8338	4.5554
29)	C2-Fluorenes	25.61	189588	6.2614	7.4400
30)	C3-Fluorenes	27.68	104134	3.4392	4.0865
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	47334	1.1809	1.4032
41)	Phenanthrene	24.91	708917	14.6854	17.4495
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.80	477413	9.8897	11.7512
50)	C2-Phenanthrenes/Anthracenes	28.30	332886	6.8958	8.1937
51)	C3-Phenanthrenes/Anthracenes	30.02	168141	3.4831	4.1387
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	78935	1.6630	1.9761
35)+36)+37)	C1-Dibenzothiophenes	26.28	91913	1.9365	2.3009
38)	C2-Dibenzothiophenes	27.70	124857	2.6305	3.1257
39)	C3-Dibenzothiophenes	28.89	131502	2.7705	3.2920
40)	C4-Dibenzothiophenes	29.71	142580	3.0039	3.5693
58)	Fluoranthene	29.00	405855	7.1186	8.4585
59)	Pyrene	29.79	240060	3.8949	4.6280
62)	C1-Fluoranthenes/Pyrenes	30.92	252451	4.4279	5.2614
63)	C2-Fluoranthenes/Pyrenes	32.68	210747	3.6965	4.3922
64)	C3-Fluoranthenes/Pyrenes	33.71	129360	2.2689	2.6960
65)	C4-Fluoranthenes/Pyrenes	36.18	57702	1.0121	1.2026
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	33.87	75079	2.0971	2.4918
68)	Chrysene/Triphenylene	34.00	288019	7.5223	8.9382
69)	C1-Chrysenes	36.14	87976	2.2977	2.7302
70)	C2-Chrysenes	36.95	218647	5.7105	6.7854
71)	C3-Chrysenes	37.64	90665	2.3679	2.8137
72)	C4-Chrysenes	39.48	71481	1.8669	2.2183
77)	Benzo(b)fluoranthene	37.44	361887	9.4971	11.2847
78)	Benzo(k,j)fluoranthene	37.54	46429	1.2913	1.5344
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	130268	2.7989	3.3257
81)	Benzo(a)pyrene	38.61	44373	1.2558	1.4922
89)	Perylene	38.93	10213500	260.4826	309.5122
82)	Indeno(1,2,3-c,d)pyrene	43.44	90406	2.6439	3.1415
83)	Dibenzo(a,h)anthracene	43.53	30931	1.2319	1.4638
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	44.84	62441	1.9376	2.3023

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	129022	4.6234	5.4937
10)	1-Methylnaphthalene	16.52	64573	2.3405	2.7811
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	25.98	41210	1.1549	1.3723
36)	2/3-Methyldibenzothiophene	26.26	35024	0.9816	1.1663
37)	1-Methyldibenzothiophene	26.60	15679	0.4394	0.5221
43)	3-Methylphenanthrene	26.57	72133	1.9219	2.2836
44)	2-Methylphenanthrene	26.66	108063	2.8791	3.4211
45)	2-Methylanthracene	26.80	165363	4.4058	5.2351
46)	4/9-Methylphenanthrene	26.94	60339	1.6076	1.9102
47)	1-Methylphenanthrene	27.03	71515	1.9054	2.2640
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	13.88	517362	12.68	76.48
21)	Acenaphthene-d10	19.71	307136	12.00	72.40
32)	Phenanthrene-d10	24.82	605331	13.95	84.16
66)	Chrysene-d12	33.91	641162	14.84	89.58
88)	Perylene-d12	38.83	356446	9.75	58.83
90)	5(b)H-Cholane	34.33	212932	16.33	98.55
	Internal Standards				
1)	Fluorene-d10	21.50	395541	16.64	
31)	Pyrene-d10	29.74	804085	16.61	
73)	Benzo(a)pyrene-d12	38.54	461886	16.59	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1872.D
Acq On : 6 Sep 2013 4:50 am
Operator : YM
Sample : SED-DA-053 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.0662691

Quant Time: Sep 13 11:12:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Fluorene-d10	21.503	176	395541	251.05			0.00
31) Pyrene-d10	29.738	212	804085	250.63			0.00
73) Benzo(a)pyrene-d12	38.543	264	461886	250.32			0.00
System Monitoring Compounds							
2) Naphthalene-d8	13.880	136	517362	12.68			0.00
21) Acenaphthene-d10	19.715	164	307136	12.00			-0.02
32) Phenanthrene-d10	24.822	188	605331	13.95			0.00
66) Chrysene-d12	33.907	240	641162	14.84			-0.03
88) Perylene-d12	38.835	264	356446	9.75			0.00
90) 5(b)H-Cholane	34.329	217	212932	16.33			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	13.947	128	232906	5.39			99
9) 2-Methylnaphthalene	16.182	142	129022	4.62			99
10) 1-Methylnaphthalene	16.518	142	64573	2.34			99
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d		
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d		
13) C2-Naphthalenes	18.642	156	351023m	8.13			
14) C3-Naphthalenes	20.207	170	448318m	10.38			
15) C4-Naphthalenes	24.455	184	373244m	8.64			
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	19.223	152	33504m	0.79			
24) Acenaphthene	19.827	154	22425m	0.85			
25) Dibenzofuran	0.000		0	N.D.	d		
26) Fluorene	21.593	166	205279m	6.78			
27) 1-Methylfluorene	0.000		0	N.D.	d		
28) C1-Fluorenes	23.579	180	116083m	3.83			
29) C2-Fluorenes	25.613	194	189588m	6.26			
30) C3-Fluorenes	27.676	208	104134m	3.44			
33) Carbazole	0.000		0	N.D.	d		
34) Dibenzothiophene	24.455	184	78935	1.66		#	84
35) 4-Methyldibenzothiophene	25.981	198	41210m	1.15			
36) 2/3-Methyldibenzothiop...	26.263	198	35024m	0.98			
37) 1-Methyldibenzothiophene	26.602	198	15679m	0.44			
38) C2-Dibenzothiophenes	27.704	212	124857m	2.63			
39) C3-Dibenzothiophenes	28.891	226	131502m	2.77			
40) C4-Dibenzothiophenes	29.710	240	142580m	3.00			
41) Phenanthrene	24.907	178	708917	14.69			97
42) Anthracene	25.077	178	47334	1.18			98
43) 3-Methylphenanthrene	26.574	192	72133m	1.92			

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1872.D
Acq On : 6 Sep 2013 4:50 am
Operator : YM
Sample : SED-DA-053 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.0662691

Quant Time: Sep 13 11:12:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
44)	2-Methylphenanthrene	26.659	192	108063m	2.88			
45)	2-Methylanthracene	26.800	192	165363m	4.41			
46)	4/9-Methylphenanthrene	26.941	192	60339m	1.61			
47)	1-Methylphenanthrene	27.026	192	71515m	1.91			
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d		
49)	Retene	0.000		0	N.D.	d		
50)	C2-Phenanthrenes/Anthr...	28.297	206	332886m	6.90			
51)	C3-Phenanthrenes/Anthr...	30.021	220	168141m	3.48			
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	29.004	202	405855	7.12			100
59)	Pyrene	29.795	202	240060	3.89			100
60)	2-Methylfluoranthene	0.000		0	N.D.	d		
61)	Benzo(b)fluorene	0.000		0	N.D.	d		
62)	C1-Fluoranthenes/Pyrenes	30.925	216	252451m	4.43			
63)	C2-Fluoranthenes/Pyrenes	32.675	230	210747m	3.70			
64)	C3-Fluoranthenes/Pyrenes	33.713	244	129360m	2.27			
65)	C4-Fluoranthenes/Pyrenes	36.177	258	57702m	1.01			
67)	Benz(a)anthracene	33.875	228	75079m	2.10			
68)	Chrysene/Triphenylene	34.004	228	288019m	7.52			
69)	C1-Chrysenes	36.144	242	87976m	2.30			
70)	C2-Chrysenes	36.955	256	218647m	5.71			
71)	C3-Chrysenes	37.635	270	90665m	2.37			
72)	C4-Chrysenes	39.483	284	71481m	1.87			
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	37.441	252	361887m	9.50			
78)	Benzo(k,j)fluoranthene	37.538	252	46429m	1.29			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.446	252	130268m	2.80			
81)	Benzo(a)pyrene	38.608	252	44373	1.26			100
82)	Indeno(1,2,3-c,d)pyrene	43.435	276	90406m	2.64			
83)	Dibenzo(a,h)anthracene	43.533	278	30931	1.23		#	1
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	44.841	276	62441m	1.94			
89)	Perylene	38.932	252	10213474m	260.48			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1872.D
Acq On : 6 Sep 2013 4:50 am
Operator : YM
Sample : SED-DA-053 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.0662691

Quant Time: Sep 13 11:12:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

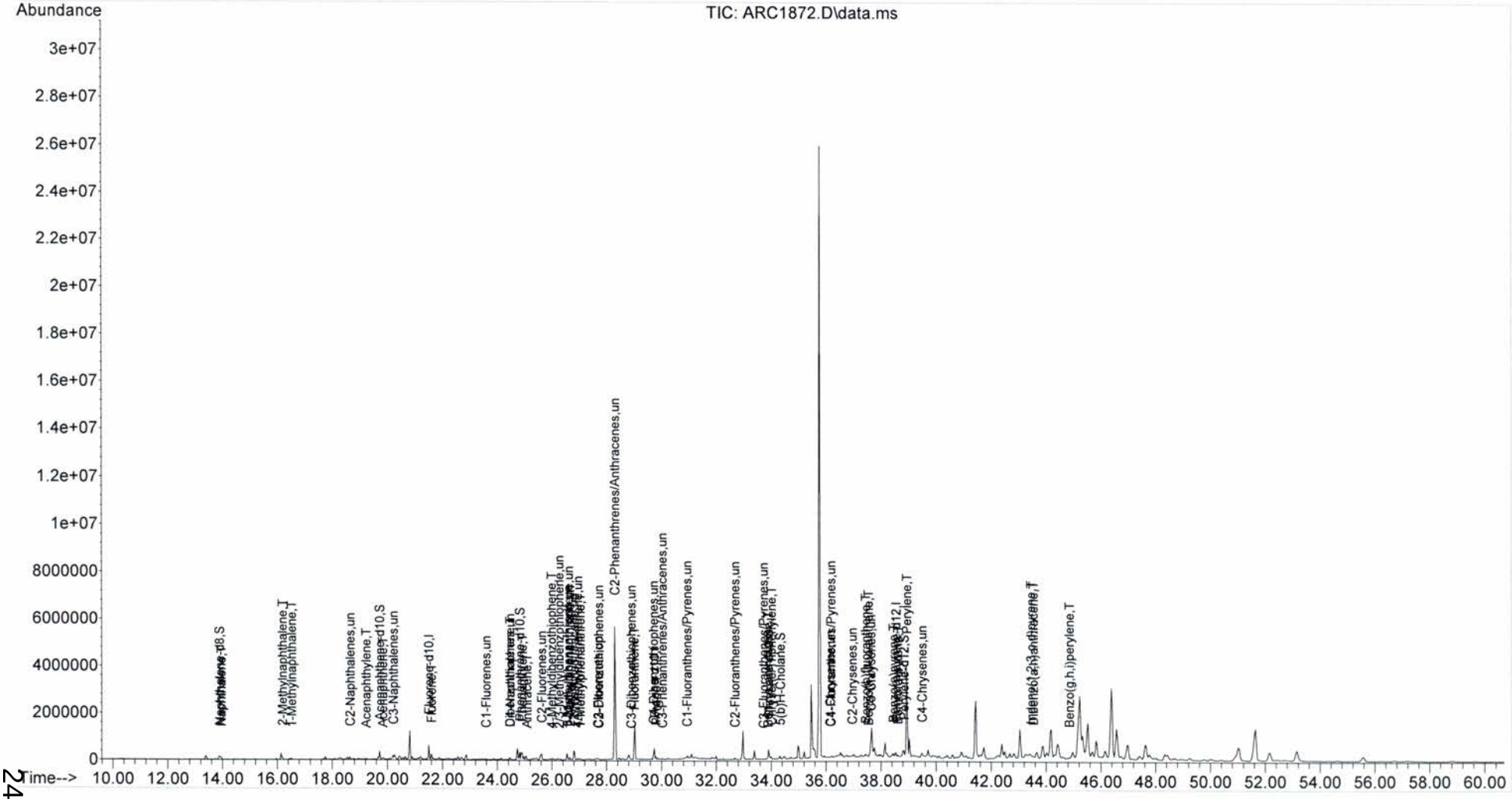
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1872.D
Acq On : 6 Sep 2013 4:50 am
Operator : YM
Sample : SED-DA-053 (0.5-1.0)
Misc :
ALS Vial : 35 Sample Multiplier: 0.0662691

Quant Time: Sep 13 11:12:34 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1873.D	**Surrogate/Internal Multiplier Factor:**	1.00		
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\	**AR-WKSU-2500-001:**	**(ng/mL)**		
Operator	YM	Naphthalene-d8	250.125		
Date Acquired	9/6/2013 5:56	Acenaphthene-d10	250.163	***Copy data below***	
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	***to Spread Sheet***	
Sample Name	SED-DA-053 (1.0-1.5)	Chrysene-d12	250.038		
Misc Info	0	Perylene-d12	250.031	ARC1873.D	
Instrument Name	GCMS5	5(b)H-Cholane	250.000	SED-DA-053 (1.0-1.5)	
Vial Number	36			9/6/2013	
Sample Multiplier	0.0661376			PAH-2012.M	
Sample Amount	0			15.11999226	

#	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	13.95	55369	1.4731	1.7899
9)+10)	C1-Naphthalenes	16.35	42725	1.1367	1.3811
13)	C2-Naphthalenes	18.64	91934	2.4460	2.9719
14)	C3-Naphthalenes	20.21	263803	7.0187	8.5277
15)	C4-Naphthalenes	21.62	132560	3.5269	4.2851
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	19.22	2394	0.0649	0.0788
24)	Acenaphthene	19.83	5222	0.2264	0.2750
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	72827	2.7638	3.3580
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	25.08	2005	0.0592	0.0720
41)	Phenanthrene	24.88	220168	5.4015	6.5628
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	24.46	10329	0.2577	0.3131
35)+36)+37)	C1-Dibenzothiophenes	26.28	7625	0.1903	0.2312
38)	C2-Dibenzothiophenes	27.70	10374	0.2588	0.3145
39)	C3-Dibenzothiophenes	28.89	5909	0.1474	0.1791
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	31172	0.6475	0.7867
59)	Pyrene	29.79	16786	0.3225	0.3919
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	33.91	3394	0.1123	0.1364
68)	Chrysene/Triphenylene	34.00	3168	0.0980	0.1191
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	37.44	4142	0.1438	0.1748
78)	Benzo(k,j)fluoranthene	37.47	751	0.0276	0.0336
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.51	4628	0.1316	0.1599
81)	Benzo(a)pyrene	38.61	785	0.0294	0.0357
89)	Perylene	38.93	385520	13.0104	15.8075
82)	Indeno(1,2,3-c,d)pyrene	43.40	2164	0.0837	0.1017
83)	Dibenzo(a,h)anthracene	43.47	571	0.0301	0.0366
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	44.81	838	0.0344	0.0418

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	29056	1.1964	1.4536
10)	1-Methylnaphthalene	16.52	13669	0.5693	0.6917
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	25.98	3104	0.1030	0.1252
36)	2/3-Methyldibenzothiophene	26.26	2151	0.0714	0.0867
37)	1-Methyldibenzothiophene	26.60	2370	0.0787	0.0956
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	13.88	366802	10.33	62.43
21)	Acenaphthene-d10	19.71	252692	11.35	68.58
32)	Phenanthrene-d10	24.82	498867	13.62	82.30
66)	Chrysene-d12	33.91	525288	14.40	87.09
88)	Perylene-d12	38.83	207197	7.50	45.34
90)	5(b)H-Cholane	34.33	163226	16.56	100.17
	Internal Standards				
1)	Fluorene-d10	21.50	343542	16.60	
31)	Pyrene-d10	29.74	677593	16.58	
73)	Benzo(a)pyrene-d12	38.51	348365	16.56	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1873.D
Acq On : 6 Sep 2013 5:56 am
Operator : YM
Sample : SED-DA-053 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:12:44 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	343542	251.05		0.00
31) Pyrene-d10	29.738	212	677593	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	348365	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	366802	10.33		0.00
21) Acenaphthene-d10	19.715	164	252692	11.35		-0.02
32) Phenanthrene-d10	24.822	188	498867	13.62		0.00
66) Chrysene-d12	33.907	240	525288m	14.40		-0.03
88) Perylene-d12	38.835	264	207197	7.50		0.00
90) 5(b)H-Cholane	34.329	217	163226	16.56		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	13.947	128	55369	1.47		97
9) 2-Methylnaphthalene	16.182	142	29056	1.20		98
10) 1-Methylnaphthalene	16.518	142	13669m	0.57		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	91934m	2.45		
14) C3-Naphthalenes	20.207	170	263803m	7.02		
15) C4-Naphthalenes	21.615	184	132560m	3.53		
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	19.223	152	2394m	0.06		
24) Acenaphthene	19.827	154	5222m	0.23		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	72827m	2.76		
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	24.455	184	10329m	0.26		
35) 4-Methyldibenzothiophene	25.981	198	3104m	0.10		
36) 2/3-Methyldibenzothiop...	26.263	198	2151m	0.07		
37) 1-Methyldibenzothiophene	26.602	198	2370m	0.08		
38) C2-Dibenzothiophenes	27.704	212	10374m	0.26		
39) C3-Dibenzothiophenes	28.891	226	5909m	0.15		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	220168	5.40		96
42) Anthracene	25.077	178	2005	0.06		100
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1873.D
Acq On : 6 Sep 2013 5:56 am
Operator : YM
Sample : SED-DA-053 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:12:44 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	31172	0.65			100
59)	Pyrene	29.795	202	16786m	0.32			
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	33.907	228	3394m	0.11			
68)	Chrysene/Triphenylene	34.004	228	3168m	0.10			
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	37.441	252	4142m	0.14			
78)	Benzo(k,j)fluoranthene	37.473	252	751m	0.03			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.511	252	4628m	0.13			
81)	Benzo(a)pyrene	38.608	252	785	0.03			100
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	2164m	0.08			
83)	Dibenzo(a,h)anthracene	43.468	278	571	0.03		#	1
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	44.808	276	838m	0.03			
89)	Perylene	38.932	252	385520m	13.01			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1873.D
Acq On : 6 Sep 2013 5:56 am
Operator : YM
Sample : SED-DA-053 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:12:44 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

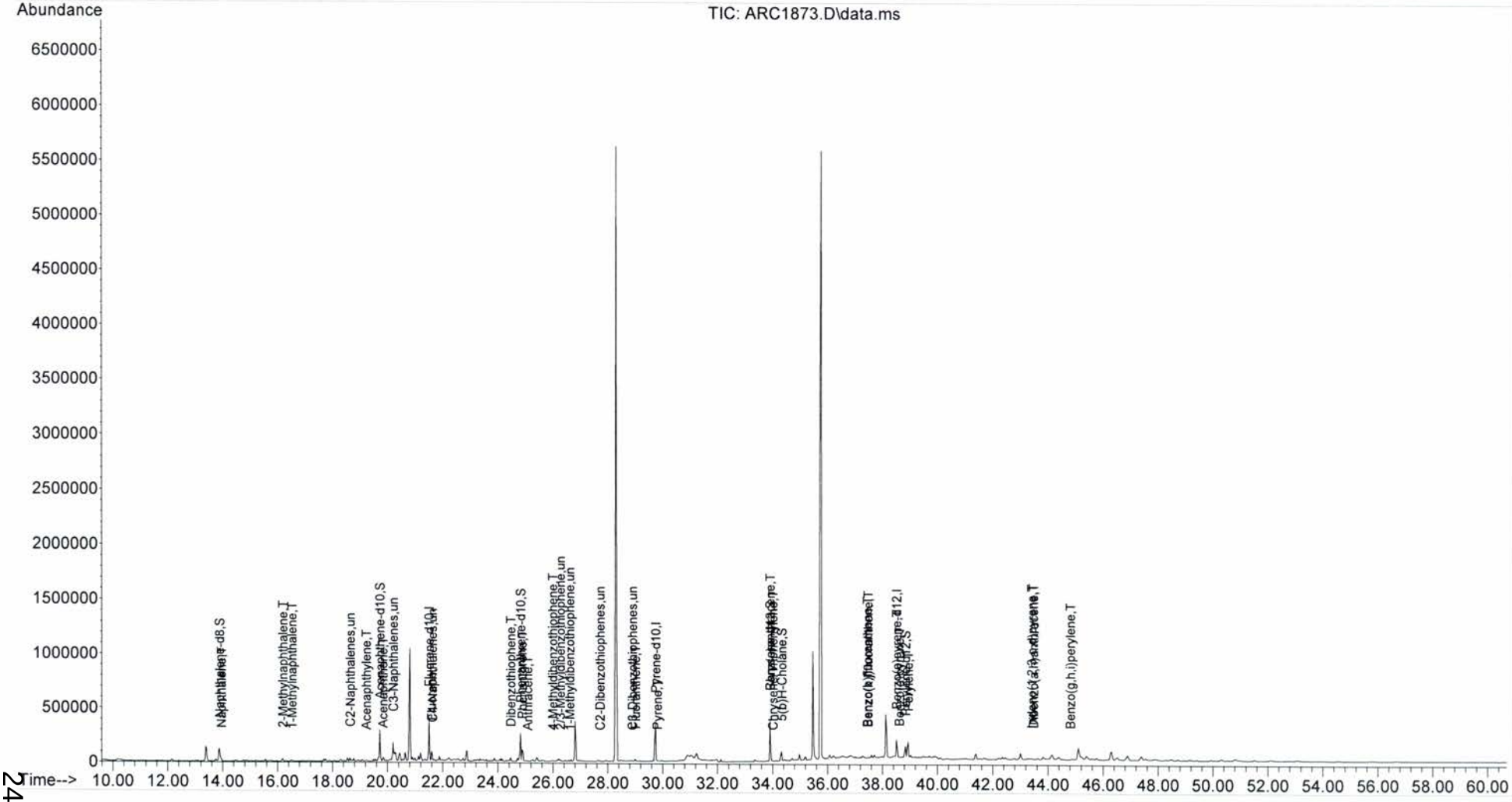
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1873.D
Acq On : 6 Sep 2013 5:56 am
Operator : YM
Sample : SED-DA-053 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.0661376

Quant Time: Sep 13 11:12:44 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



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

Data File Name	ARC1874.D
Data File Path	P:\2013\J13034\PAH\MSDCHEMSTATION\MS50164\
Operator	YM
Date Acquired	9/6/2013 7:04
Acq. Method File	PAH-2012.M
Sample Name	SED-DA-045 (1.0-1.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	37
Sample Multiplier	0.0660502
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

ARC1874.D
SED-DA-045 (1.0-1.5)
9/6/2013
PAH-2012.M
15.13999958

#	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	13.95	41403	1.1674	1.3340
9)+10)	C1-Naphthalenes	16.35	42765	1.2058	1.3778
13)	C2-Naphthalenes	18.55	92879	2.6189	2.9925
14)	C3-Naphthalenes	21.50	151277	4.2656	4.8740
15)	C4-Naphthalenes	21.62	85909	2.4224	2.7679
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	19.22	2450	0.0704	0.0804
24)	Acenaphthene	19.83	2480	0.1139	0.1302
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	41544	1.6709	1.9092
28)	C1-Fluorenes	23.58	15717	0.6321	0.7223
29)	C2-Fluorenes	26.18	41816	1.6818	1.9217
30)	C3-Fluorenes	27.93	22927	0.9221	1.0536
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.91	117302	3.7200	4.2506
41)	Phenanthrene	24.91	115908	3.0521	3.4875
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	24.46	14223	0.3809	0.4352
35)+36)+37)	C1-Dibenzothiophenes	26.28	33510	0.8974	1.0254
38)	C2-Dibenzothiophenes	28.04	58445	1.5652	1.7885
39)	C3-Dibenzothiophenes	28.89	61865	1.6568	1.8932
40)	C4-Dibenzothiophenes	29.71	60186	1.6119	1.8418
58)	Fluoranthene	29.00	25208	0.5620	0.6422
59)	Pyrene	29.79	25983	0.5359	0.6123
62)	C1-Fluoranthenes/Pyrenes	31.60	23259	0.5186	0.5925
63)	C2-Fluoranthenes/Pyrenes	33.91	24026	0.5357	0.6121
64)	C3-Fluoranthenes/Pyrenes	34.10	21849	0.4871	0.5566
65)	C4-Fluoranthenes/Pyrenes	35.24	14497	0.3232	0.3693
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	33.87	3281	0.1165	0.1331
68)	Chrysene/Triphenylene	34.00	6657	0.2210	0.2525
69)	C1-Chrysenes	35.20	14747	0.4896	0.5594
70)	C2-Chrysenes	36.70	14970	0.4970	0.5679
71)	C3-Chrysenes	38.15	11313	0.3756	0.4292
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	5384	0.2105	0.2405
78)	Benzo(k,j)fluoranthene	37.47	1772	0.0734	0.0839
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	3799	0.1216	0.1389
81)	Benzo(a)pyrene	38.61	1463	0.0617	0.0705
89)	Perylene	38.93	28327	1.0761	1.2296
82)	Indeno(1,2,3-c,d)pyrene	43.40	2686	0.1170	0.1337
83)	Dibenzo(a,h)anthracene	43.47	524	0.0311	0.0355
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	44.78	1517	0.0701	0.0801

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	28323	1.2360	1.4123
10)	1-Methylnaphthalene	16.52	14442	0.6375	0.7284
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	25.98	14233	0.5071	0.5794
36)	2/3-Methyldibenzothiophene	26.26	10802	0.3848	0.4397
37)	1-Methyldibenzothiophene	26.60	8475	0.3019	0.3450
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	13.88	370978	11.07	67.01
21)	Acenaphthene-d10	19.71	252372	12.01	72.69
32)	Phenanthrene-d10	24.82	493565	14.46	87.52
66)	Chrysene-d12	33.91	498994	14.68	88.91
88)	Perylene-d12	38.83	110293	4.49	27.20
90)	5(b)H-Cholane	34.33	157703	18.01	109.08
	Internal Standards				
1)	Fluorene-d10	21.50	323727	16.58	
31)	Pyrene-d10	29.74	630466	16.55	
73)	Benzo(a)pyrene-d12	38.51	309069	16.53	

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1874.D
Acq On : 6 Sep 2013 7:04 am
Operator : YM
Sample : SED-DA-045 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.0660502

Quant Time: Sep 13 09:24:20 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	323727	251.05		0.00
31) Pyrene-d10	29.738	212	630466m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	309069	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	370978	11.07		0.00
21) Acenaphthene-d10	19.715	164	252372	12.01		-0.02
32) Phenanthrene-d10	24.822	188	493565	14.46		0.00
66) Chrysene-d12	33.907	240	498994	14.68		-0.03
88) Perylene-d12	38.835	264	110293	4.49		0.00
90) 5(b)H-Cholane	34.328	217	157703	18.01		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	13.947	128	41403	1.17		99
9) 2-Methylnaphthalene	16.182	142	28323	1.24		98
10) 1-Methylnaphthalene	16.518	142	14442m	0.64		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	92879m	2.62		
14) C3-Naphthalenes	21.503	170	151277m	4.27		
15) C4-Naphthalenes	21.615	184	85909m	2.42		
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	19.223	152	2450m	0.07		
24) Acenaphthene	19.826	154	2480	0.11		80
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	41544	1.67		91
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	15717m	0.63		
29) C2-Fluorenes	26.178	194	41816m	1.68		
30) C3-Fluorenes	27.930	208	22927m	0.92		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	14223m	0.38		
35) 4-Methyldibenzothiophene	25.981	198	14233m	0.51		
36) 2/3-Methyldibenzothiop...	26.263	198	10802m	0.38		
37) 1-Methyldibenzothiophene	26.602	198	8475m	0.30		
38) C2-Dibenzothiophenes	28.043	212	58445m	1.57		
39) C3-Dibenzothiophenes	28.891	226	61865m	1.66		
40) C4-Dibenzothiophenes	29.710	240	60186m	1.61		
41) Phenanthrene	24.907	178	115908m	3.05		
42) Anthracene	24.907	178	117302	3.72		94
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1874.D
Acq On : 6 Sep 2013 7:04 am
Operator : YM
Sample : SED-DA-045 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.0660502

Quant Time: Sep 13 09:24:20 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	29.004	202	25208	0.56			100
59)	Pyrene	29.795	202	25983m	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	31.603	216	23259m	0.52			
63)	C2-Fluoranthenes/Pyrenes	33.907	230	24026m	0.54			
64)	C3-Fluoranthenes/Pyrenes	34.101	244	21849m	0.49			
65)	C4-Fluoranthenes/Pyrenes	35.236	258	14497m	0.32			
67)	Benz(a)anthracene	33.875	228	3281m	0.12			
68)	Chrysene/Triphenylene	34.004	228	6657m	0.22			
69)	C1-Chrysenes	35.204	242	14747m	0.49			
70)	C2-Chrysenes	36.695	256	14970m	0.50			
71)	C3-Chrysenes	38.154	270	11313m	0.38			
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	37.441	252	5384m	0.21			
78)	Benzo(k,j)fluoranthene	37.473	252	1772m	0.07			
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d		
80)	Benzo(e)pyrene	38.413	252	3799m	0.12			
81)	Benzo(a)pyrene	38.608	252	1463m	0.06			
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	2686	0.12		#	80
83)	Dibenzo(a,h)anthracene	43.468	278	524m	0.03			
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	44.776	276	1517m	0.07			
89)	Perylene	38.932	252	28327m	1.08			
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 : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1874.D
Acq On : 6 Sep 2013 7:04 am
Operator : YM
Sample : SED-DA-045 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.0660502

Quant Time: Sep 13 09:24:20 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

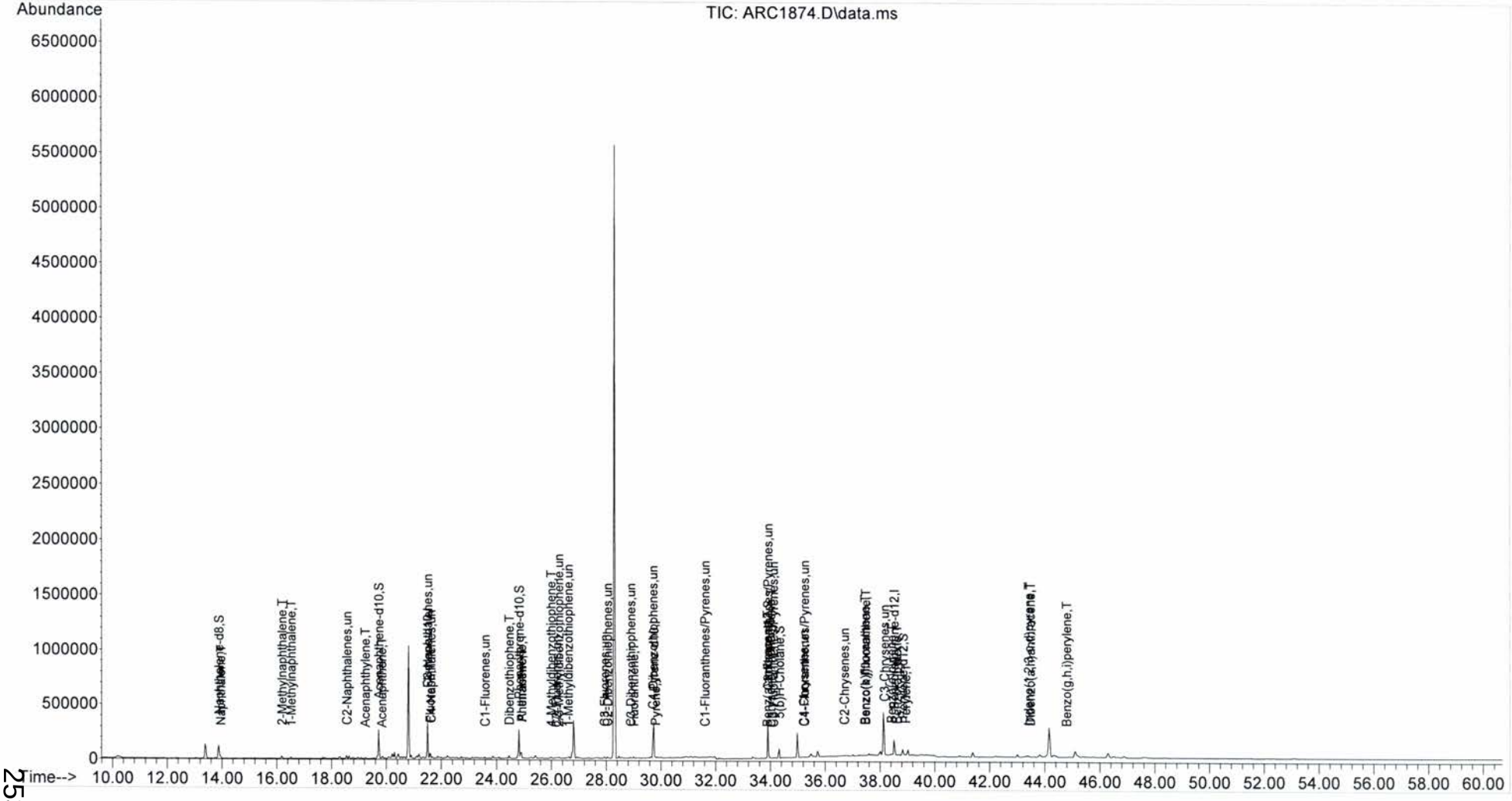
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : P:\2013\J13034\PAH\MSDChemstation\MS50164\
Data File : ARC1874.D
Acq On : 6 Sep 2013 7:04 am
Operator : YM
Sample : SED-DA-045 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.0660502

Quant Time: Sep 13 09:24:20 2013
Quant Method : C:\msdchem\2\data\MS5\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



Polycyclic Aromatic Hydrocarbon
Initial Calibration Data
and
Initial Calibration Verification Data

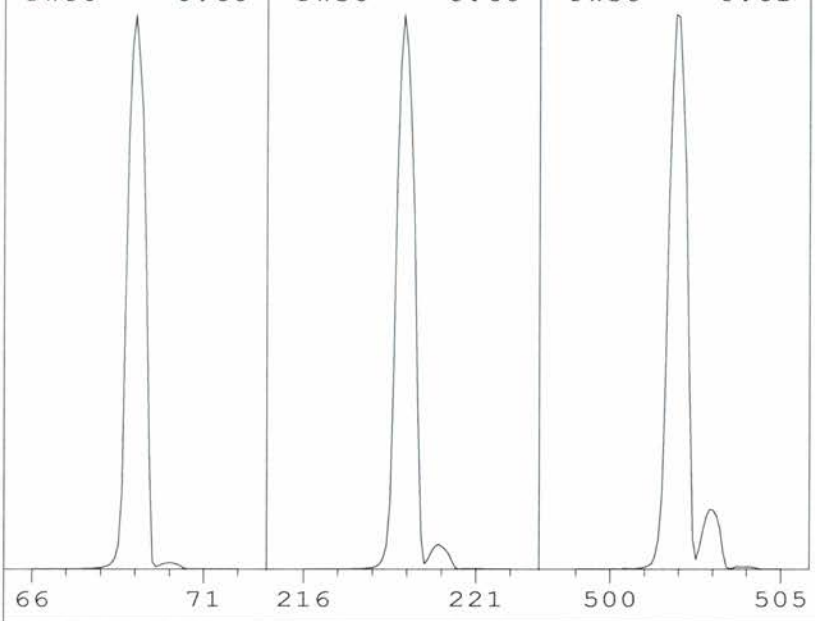
PAH ICAL
AR 50164.M

GC/MS 5
(PAH-2012)

Autotune

Wed Sep 04 11:47:18 2013 Instrument: GCMS5
C:\MSDCHEM\1\5975\atune.u US83141113

Mass	69.00	Mass	218.90	Mass	501.90
Ab	435113	Ab	385296	Ab	21768
Pw50	0.60	Pw50	0.60	Pw50	0.61

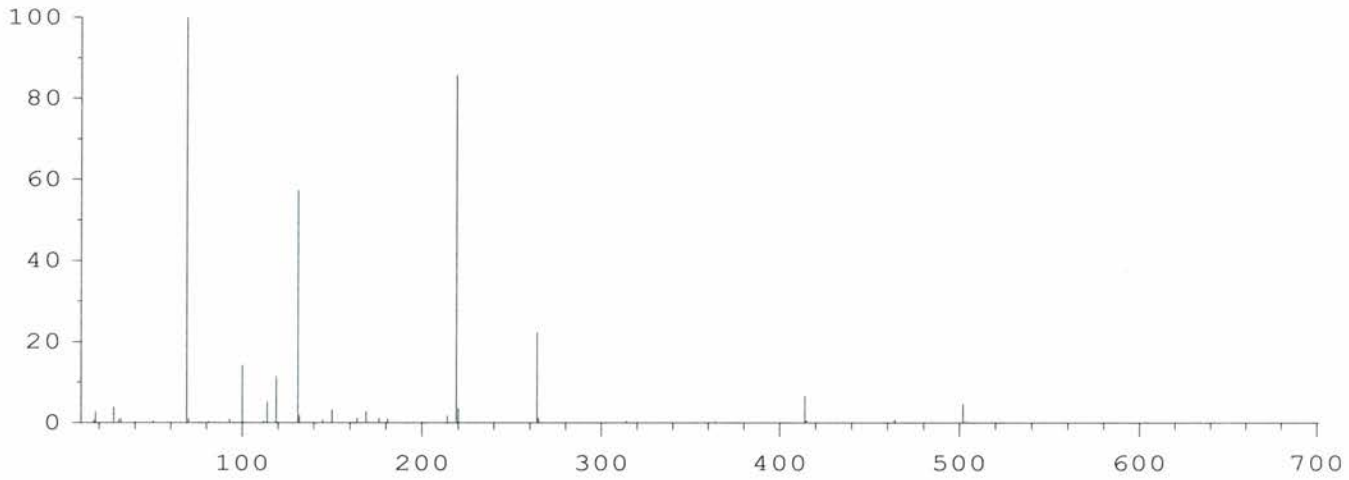


Ion Pol	Pos	MassGain	-611
		MassOffs	-39
Emission	34.6	AmuGain	1992
EIEnrgy	69.9	AmuOffs	122.38
Filament	1	Wid219	-0.005
		DC Pol	Neg
Repeller	27.11		
IonFcus	90.2	HEDEnab	On
EntLens	25.5	EMVolts	1471
EntOffs	18.82		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	290	Turbo Speed	100
MS Quad	180	HiVac	1.36e-05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
107 peaks Base: 69.00 Abundance: 417664



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	417664	100.00	70.00	4579	1.10
219.00	358720	85.89	220.00	15334	4.27
502.00	20016	4.79	503.10	2158	10.78

Air/Water Check: H20~2.83% N2~4.08% O2~1.19% CO2~0.36% N2/H2O~144.14%

Column(1) Flow: 1.29 Column(2): 0 ml/min. Interface Temp: 290

Ramp Criteria:

Ion Focus Maximum	90	volts using ion	502;	EM Gain	50642
Repeller Maximum	35	volts using ion	219;	Gain Factor	0.51

MassGain Values(Samples): -599(3) -591(2) -583(1) -560(0) -473(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	122.4	122.4	122.4	122.4	122.4	122.4	122.4
Entrance Lens Offset:	18.8	18.8	18.8	18.8	18.8	18.8	18.8

MS50256

Method Path : C:\GCMS5\MS50164\
Method File : AR50164.M
Title : PAH Calibration Table-2013A
Last Update : Tue Sep 10 11:36:07 2013
Response Via : Initial Calibration

Calibration Files
1 =MS50164B.D 2 =MS50164C.D 3 =MS50164D.D 4 =MS50164E.D 5 =MS50164F.D
6 =MS50164G.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorene-d10	ISTD							
2)	S	Naphthalene-d8	1.997	1.662	1.688	1.672	1.713	1.565	1.716	8.54
3)	T	cis/trans Decalin	0.411	0.331	0.329	0.326	0.328	0.298	0.337	11.39
4)	un	C1-Decalins	0.411	0.331	0.329	0.326	0.328	0.298	0.337	11.39
5)	un	C2-Decalins	0.411	0.331	0.329	0.326	0.328	0.298	0.337	11.39
6)	un	C3-Decalins	0.411	0.331	0.329	0.326	0.328	0.298	0.337	11.39
7)	un	C4-Decalins	0.411	0.331	0.329	0.326	0.328	0.298	0.337	11.39
8)	T	Naphthalene	2.155	1.791	1.758	1.738	1.799	1.658	1.817	9.55
9)	T	2-Methylnaphth...	1.346	1.161	1.118	1.136	1.172	1.109	1.174	7.49
10)	T	1-Methylnaphth...	1.364	1.132	1.126	1.120	1.152	1.067	1.160	8.92
11)	T	2,6-Dimethylna...	1.223	1.045	1.026	1.035	1.077	1.030	1.072	7.09
12)	T	1,6,7-Trimethy...	1.283	1.060	1.037	1.055	1.098	1.032	1.094	8.73
13)	un	C2-Naphthalenes	2.155	1.791	1.758	1.738	1.799	1.658	1.817	9.55
14)	un	C3-Naphthalenes	2.155	1.791	1.758	1.738	1.799	1.658	1.817	9.55
15)	un	C4-Naphthalenes	2.155	1.791	1.758	1.738	1.799	1.658	1.817	9.55
16)	T	Benzothiophene	1.689	1.440	1.427	1.409	1.450	1.342	1.460	8.15
17)	un	C1-Benzothioph...	1.689	1.440	1.427	1.409	1.450	1.342	1.460	8.15
18)	un	C2-Benzothioph...	1.689	1.440	1.427	1.409	1.450	1.342	1.460	8.15
19)	un	C3-Benzothioph...	1.689	1.440	1.427	1.409	1.450	1.342	1.460	8.15
20)	un	C4-Benzothioph...	1.689	1.440	1.427	1.409	1.450	1.342	1.460	8.15
21)	S	Acenaphthene-d10	1.256	1.059	1.037	1.040	1.072	0.994	1.076	8.55
22)	T	Biphenyl	1.699	1.449	1.438	1.427	1.471	1.395	1.480	7.45
23)	T	Acenaphthylene	2.062	1.720	1.689	1.711	1.797	1.722	1.783	7.92
24)	T	Acenaphthene	1.297	1.089	1.069	1.078	1.117	1.039	1.115	8.33
25)	T	Dibenzofuran	1.760	1.501	1.484	1.482	1.552	1.487	1.544	7.06
26)	T	Fluorene	1.481	1.246	1.211	1.210	1.265	1.228	1.274	8.14
27)	T	1-Methylfluorene	0.929	0.762	0.751	0.758	0.802	0.843	0.807	8.55
28)	un	C1-Fluorenes	1.481	1.246	1.211	1.210	1.265	1.228	1.274	8.14
29)	un	C2-Fluorenes	1.481	1.246	1.211	1.210	1.265	1.228	1.274	8.14
30)	un	C3-Fluorenes	1.481	1.246	1.211	1.210	1.265	1.228	1.274	8.14
31)	I	Pyrene-d10	ISTD							
32)	S	Phenanthrene-d10	1.011	0.870	0.839	0.876	0.887	0.893	0.896	6.63
33)	T	Carbazole	0.699	0.591	0.564	0.605	0.647	0.706	0.635	9.19
34)	T	Dibenzothiophene	1.079	0.970	0.948	0.971	0.999	0.915	0.980	5.71
35)	T	4-Methyldibenz...	0.829	0.713	0.690	0.718	0.732	0.740	0.737	6.54
36)	un	2/3-Methyldibe...	0.829	0.713	0.690	0.718	0.732	0.740	0.737	6.54
37)	un	1-Methyldibenz...	0.829	0.713	0.690	0.718	0.732	0.740	0.737	6.54
38)	un	C2-Dibenzothio...	1.079	0.970	0.948	0.971	0.999	0.915	0.980	5.71
39)	un	C3-Dibenzothio...	1.079	0.970	0.948	0.971	0.999	0.915	0.980	5.71
40)	un	C4-Dibenzothio...	1.079	0.970	0.948	0.971	0.999	0.915	0.980	5.71
41)	T	Phenanthrene	1.138	0.969	0.906	1.003	1.015	0.952	0.997	7.95
42)	T	Anthracene	0.894	0.791	0.759	0.818	0.837	0.869	0.828	5.97
43)	un	3-Methylphenan...	0.854	0.743	0.714	0.758	0.769	0.815	0.775	6.56
44)	un	2-Methylphenan...	0.854	0.743	0.714	0.758	0.769	0.815	0.775	6.56
45)	un	2-Methylanthra...	0.854	0.743	0.714	0.758	0.769	0.815	0.775	6.56
46)	un	4/9-Methylphen...	0.854	0.743	0.714	0.758	0.769	0.815	0.775	6.56
47)	T	1-Methylphenan...	0.854	0.743	0.714	0.758	0.769	0.815	0.775	6.56
48)	T	3,6-Dimethylph...	0.907	0.781	0.756	0.810	0.824	0.819	0.816	6.32
49)	T	Retene	0.451	0.367	0.356	0.384	0.393	0.424	0.396	9.09
50)	un	C2-Phenanthren...	1.138	0.969	0.906	1.003	1.015	0.952	0.997	7.95
51)	un	C3-Phenanthren...	1.138	0.969	0.906	1.003	1.015	0.952	0.997	7.95
52)	un	C4-Phenanthren...	1.138	0.969	0.906	1.003	1.015	0.952	0.997	7.95
53)	T	Naphthobenzoth...	0.837	0.700	0.684	0.740	0.787	0.977	0.788	13.78

Method Path : C:\GCMS5\MS50164\
Method File : AR50164.M
Title : PAH Calibration Table-2013A

54)	un	C1-Naphthobenz...	0.837	0.700	0.684	0.740	0.787	0.977	0.788	13.78
55)	un	C2-Naphthobenz...	0.837	0.700	0.684	0.740	0.787	0.977	0.788	13.78
56)	un	C3-Naphthobenz...	0.837	0.700	0.684	0.740	0.787	0.977	0.788	13.78
57)	un	C4-Naphthobenz...	0.837	0.700	0.684	0.740	0.787	0.977	0.788	13.78
58)	T	Fluoranthene	1.378	1.168	1.127	1.198	1.249	0.945	1.178	12.16
59)	T	Pyrene	1.498	1.254	1.190	1.252	1.279	1.167	1.273	9.27
60)	T	2-Methylfluora...	0.935	0.764	0.737	0.798	0.830	0.845	0.818	8.58
61)	T	Benzo(b)fluorene	0.644	0.526	0.509	0.578	0.622	0.683	0.594	11.52
62)	un	C1-Fluoranthen...	1.378	1.168	1.127	1.198	1.249	0.945	1.178	12.16
63)	un	C2-Fluoranthen...	1.378	1.168	1.127	1.198	1.249	0.945	1.178	12.16
64)	un	C3-Fluoranthen...	1.378	1.168	1.127	1.198	1.249	0.945	1.178	12.16
65)	un	C4-Fluoranthen...	1.378	1.168	1.127	1.198	1.249	0.945	1.178	12.16
66)	S	Chrysene-d12	0.930	0.800	0.795	0.893	0.965	0.971	0.892	8.81
67)	T	Benz(a)anthracene	0.815	0.632	0.614	0.671	0.745	0.959	0.739	17.70
68)	T	Chrysene/Triph...	0.808	0.690	0.684	0.755	0.806	1.002	0.791	14.72
69)	un	C1-Chrysenes	0.808	0.690	0.684	0.755	0.806	1.002	0.791	14.72
70)	un	C2-Chrysenes	0.808	0.690	0.684	0.755	0.806	1.002	0.791	14.72
71)	un	C3-Chrysenes	0.808	0.690	0.684	0.755	0.806	1.002	0.791	14.72
72)	un	C4-Chrysenes	0.808	0.690	0.684	0.755	0.806	1.002	0.791	14.72
73)	I	Benzo(a)pyrene-d12	----------ISTD----------							
74)	un	C29-Hopane	1.043	0.943	0.807	0.846	0.803	0.671	0.852	15.02
75)	un	18a-Oleanane	1.043	0.943	0.807	0.846	0.803	0.671	0.852	15.02
76)	T	C30-Hopane	1.043	0.943	0.807	0.846	0.803	0.671	0.852	15.02
77)	T	Benzo(b)fluora...	1.567	1.380	1.178	1.316	1.327	1.443	1.369	9.59
78)	T	Benzo(k,j)fluo...	1.454	1.298	1.166	1.243	1.266	1.320	1.291	7.43
79)	un	Benzo(a)fluora...	1.454	1.298	1.166	1.243	1.266	1.320	1.291	7.43
80)	T	Benzo(e)pyrene	1.899	1.756	1.512	1.662	1.649	1.553	1.672	8.41
81)	T	Benzo(a)pyrene	1.388	1.276	1.093	1.215	1.248	1.393	1.269	8.91
82)	T	Indeno(1,2,3-c...	1.359	1.273	1.046	1.144	1.215	1.331	1.228	9.63
83)	T	Dibenzo(a,h)an...	0.977	0.891	0.783	0.859	0.916	0.985	0.902	8.40
84)	un	C1-Dibenzo(a,h...	0.977	0.891	0.783	0.859	0.916	0.985	0.902	8.40
85)	un	C2-Dibenzo(a,h...	0.977	0.891	0.783	0.859	0.916	0.985	0.902	8.40
86)	un	C3-Dibenzo(a,h...	0.977	0.891	0.783	0.859	0.916	0.985	0.902	8.40
87)	T	Benzo(g,h,i)pe...	1.271	1.222	1.037	1.112	1.117	1.185	1.157	7.33
88)	S	Perylene-d12	1.477	1.313	1.132	1.265	1.288	1.404	1.313	9.06
89)	T	Perylene	1.529	1.420	1.198	1.379	1.395	1.528	1.408	8.66
90)	S	5(b)H-Cholane	0.592	0.522	0.430	0.456	0.431	0.380	0.468	16.24
91)	un	C20-TAS	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66
92)	un	C21-TAS	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66
93)	un	C26(20S)-TAS	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66
94)	T	C26(20R)/C27(2...	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66
95)	un	C28(20S)-TAS	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66
96)	un	C27(20R)-TAS	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66
97)	un	C28(20R)-TAS	3.209	3.146	2.530	2.645	2.565	1.771	2.644	19.66

(#) = Out of Range

Data Path : C:\GCMS5\MS50164\
Data File : MS50164B.D
Acq On : 4 Sep 2013 4:24 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 10 11:36:00 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:20:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	491720m	251.05		0.00
31) Pyrene-d10	29.710	212	884532m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	555664m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	78286m	23.57		0.00
21) Acenaphthene-d10	19.715	164	49238m	23.69		-0.02
32) Phenanthrene-d10	24.822	188	71437m	22.86		0.00
66) Chrysene-d12	33.907	240	65679m	21.00		-0.03
88) Perylene-d12	38.835	264	65582m	23.56		0.00
90) 5(b)H-Cholane	34.328	217	26283m	26.33		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	15939m	37.23		
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	13.947	128	84424m	24.03		
9) 2-Methylnaphthalene	16.182	142	52796m	23.24		
10) 1-Methylnaphthalene	16.518	142	53363m	23.88		
11) 2,6-Dimethylnaphthalene	18.284	156	47912m	23.15		
12) 1,6,7-Trimethylnaphtha...	21.123	170	50257m	37.25		
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	14.103	134	65777m	23.27		
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	17.747	154	65949m	22.74		
23) Acenaphthylene	19.223	152	80124m	23.16		
24) Acenaphthene	19.826	154	50922m	23.65		
25) Dibenzofuran	20.430	168	68608m	22.83		
26) Fluorene	21.593	166	58126m	23.49		
27) 1-Methylfluorene	23.579	180	36655m	23.39		
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	25.642	167	48861m	21.85		
34) Dibenzothiophene	24.455	184	75127m	21.73		
35) 4-Methyldibenzothiophene	25.981	198	59001m	22.90		
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	24.879	178	79609m	22.54		
42) Anthracene	25.076	178	63262m	22.15		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164B.D
Acq On : 4 Sep 2013 4:24 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 10 11:36:00 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:20:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
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	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	59606m	21.95		
48) 3,6-Dimethylphenanthrene	28.099	206	64112m	22.55		
49) Retene	30.783	234	28470m	20.71		
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	33.064	234	59435m	21.50		
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	29.004	202	97375m	23.72		
59) Pyrene	29.795	202	105717m	23.84		
60) 2-Methylfluoranthene	30.529	216	66488m	23.37		
61) Benzo(b)fluorene	31.151	216	45870m	22.07		
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	33.874	228	57391m	22.26		
68) Chrysene/Triphenylene	34.004	228	56720m	21.13		
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	42.977	191	46311m	24.30		
77) Benzo(b)fluoranthene	37.408	252	69721m	24.37		
78) Benzo(k,j)fluoranthene	37.506	252	64314m	24.30		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	83949m	23.82		
81) Benzo(a)pyrene	38.608	252	61505m	22.91		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	59318m	22.10		
83) Dibenzo(a,h)anthracene	43.468	278	42968m	21.18		
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	44.776	276	55933m	22.50		
89) Perylene	38.900	252	67969m	22.47		
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	39.548	231	142472m	24.39		
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:\GCMS5\MS50164\
Data File : MS50164B.D
Acq On : 4 Sep 2013 4:24 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 10 11:36:00 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:20:07 2013
Response via : Initial Calibration

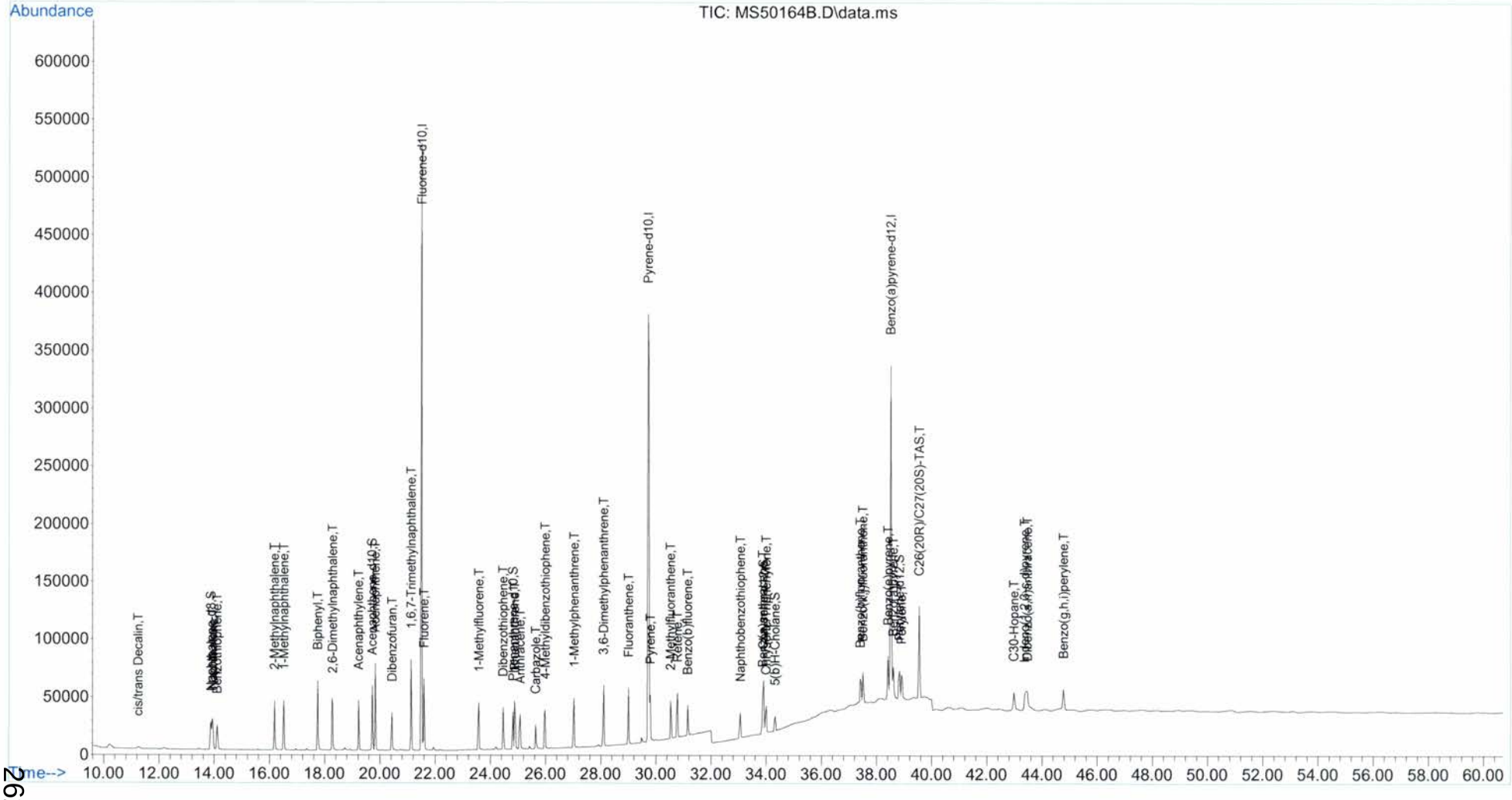
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164B.D
Acq On : 4 Sep 2013 4:24 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 10 11:36:00 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:20:07 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164C.D
Acq On : 4 Sep 2013 5:30 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 10 10:26:58 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:43:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	470488m	251.05		0.00
31) Pyrene-d10	29.710	212	821465m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	456747m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	311708m	97.88		-0.02
21) Acenaphthene-d10	19.715	164	198514m	99.84		-0.02
32) Phenanthrene-d10	24.822	188	285456m	98.71		0.00
66) Chrysene-d12	33.907	240	262132m	90.40		-0.03
88) Perylene-d12	38.835	264	239622m	103.91		0.00
90) 5(b)H-Cholane	34.329	217	95171m	116.24		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	61324m	134.35		
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	13.924	128	335727m	99.55		
9) 2-Methylnaphthalene	16.183	142	217791m	100.16		
10) 1-Methylnaphthalene	16.518	142	211971m	99.05		
11) 2,6-Dimethylnaphthalene	18.284	156	195764m	98.79		
12) 1,6,7-Trimethylnaphtha...	21.123	170	198586m	117.49		
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	14.103	134	268260m	99.20		
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	17.747	154	269201m	97.57		
23) Acenaphthylene	19.223	152	319737m	96.69		
24) Acenaphthene	19.827	154	204565m	99.29		
25) Dibenzofuran	20.430	168	279833m	97.44		
26) Fluorene	21.593	166	234015m	99.20		
27) 1-Methylfluorene	23.579	180	143870m	96.14		
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	25.642	167	191992m	92.75		
34) Dibenzothiophene	24.455	184	313461m	98.33		
35) 4-Methyldibenzothiophene	25.981	198	235751m	98.60		
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	24.879	178	314692m	95.78		
42) Anthracene	25.077	178	260016m	97.56		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164C.D
Acq On : 4 Sep 2013 5:30 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 10 10:26:58 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:43:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
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	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	240702m	95.81		
48) 3,6-Dimethylphenanthrene	28.100	206	256127m	97.13		
49) Retene	30.784	234	107338m	84.04		
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	33.064	234	230841m	90.25		
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	29.004	202	383216m	100.56		
59) Pyrene	29.795	202	410881m	100.08		
60) 2-Methylfluoranthene	30.529	216	252023m	95.27		
61) Benzo(b)fluorene	31.151	216	173960m	90.32		
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	33.875	228	206842m	85.65		
68) Chrysene/Triphenylene	34.004	228	224925m	89.54		
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	42.977	191	172030m	110.34		
77) Benzo(b)fluoranthene	37.409	252	252362	105.90		100
78) Benzo(k,j)fluoranthene	37.506	252	235831m	106.50		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.414	252	319069m	110.12		
81) Benzo(a)pyrene	38.608	252	232383m	105.21		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	228292m	104.33		
83) Dibenzo(a,h)anthracene	43.435	278	161106m	98.23		
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	44.776	276	220877m	109.07		
89) Perylene	38.900	252	259397m	104.63		
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	39.548	231	573933m	119.88		
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:\GCMS5\MS50164\
Data File : MS50164C.D
Acq On : 4 Sep 2013 5:30 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 10 10:26:58 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:43:08 2013
Response via : Initial Calibration

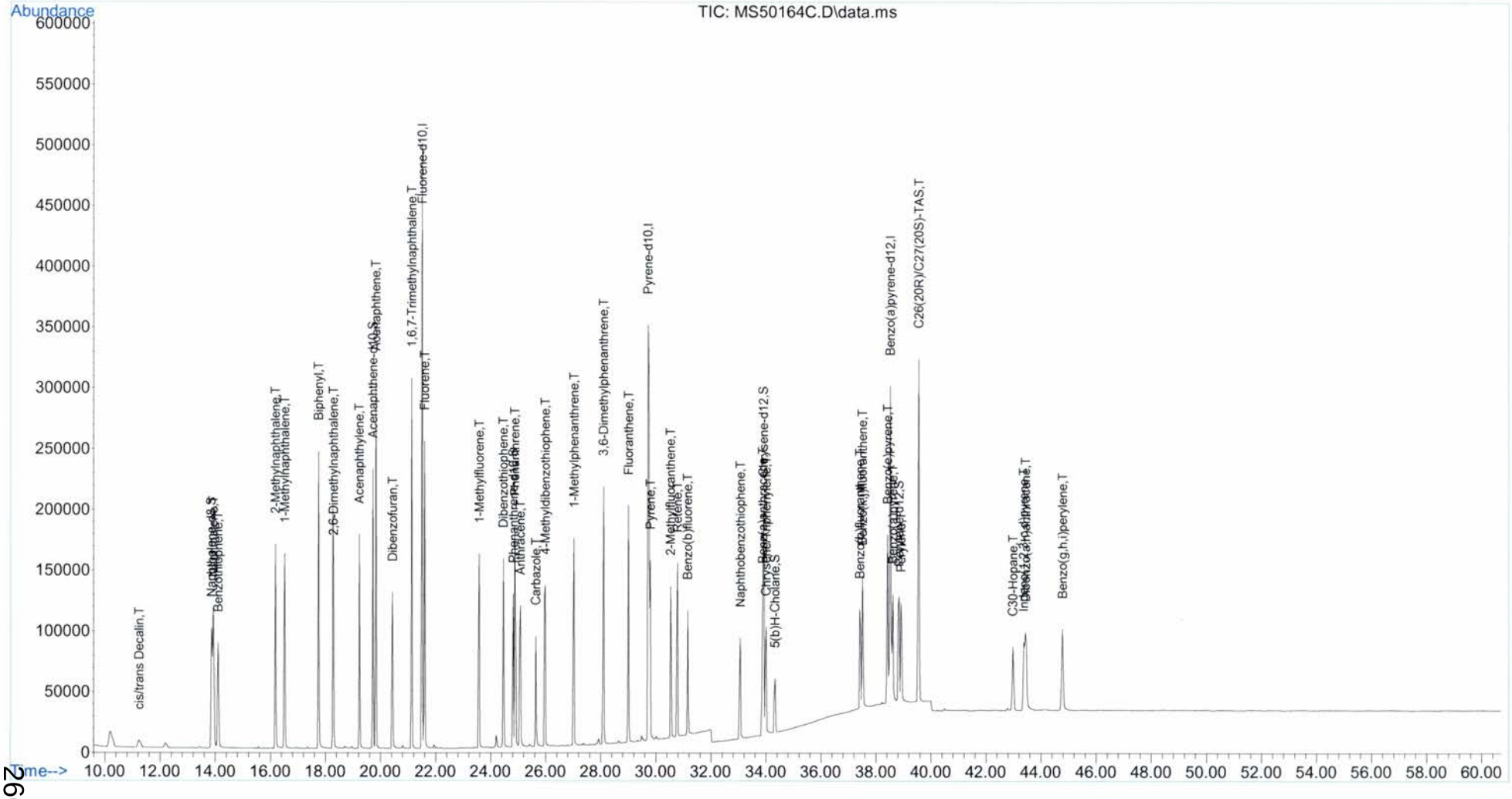
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164C.D
Acq On : 4 Sep 2013 5:30 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 10 10:26:58 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 09:43:08 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164D.D
Acq On : 4 Sep 2013 6:37 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 10 10:24:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:00:03 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	430469m	251.05		0.00
31) Pyrene-d10	29.710	212	767694m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	485289m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	723928m	249.41		-0.02
21) Acenaphthene-d10	19.715	164	445020m	244.65		-0.02
32) Phenanthrene-d10	24.822	188	643049m	237.78		0.00
66) Chrysene-d12	33.907	240	609007m	224.97		-0.03
88) Perylene-d12	38.835	264	548804m	221.13		0.00
90) 5(b)H-Cholane	34.328	217	208331m	235.42		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	139480m	310.13		
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	13.924	128	753560m	244.54		
9) 2-Methylnaphthalene	16.182	142	479836m	241.17		
10) 1-Methylnaphthalene	16.518	142	482407m	246.52		
11) 2,6-Dimethylnaphthalene	18.261	156	439638m	242.62		
12) 1,6,7-Trimethylnaphtha...	21.123	170	444650m	240.53		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	608068m	246.03		
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	17.747	154	610998m	242.96		
23) Acenaphthylene	19.223	152	718167m	237.70		
24) Acenaphthene	19.826	154	459063m	243.48		
25) Dibenzofuran	20.430	168	632903m	241.45		
26) Fluorene	21.593	166	520265m	241.33		
27) 1-Methylfluorene	23.579	180	324156m	237.14		
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	25.642	167	428323m	222.20		
34) Dibenzothiophene	24.455	184	715841m	240.47		
35) 4-Methyldibenzothiophene	25.981	198	532744m	238.67		
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	24.879	178	687411m	223.62		
42) Anthracene	25.076	178	583172m	233.38		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164D.D
Acq On : 4 Sep 2013 6:37 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 10 10:24:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:00:03 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
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	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	540612m	230.50		
48) 3,6-Dimethylphenanthrene	28.099	206	579443m	235.13		
49) Retene	30.783	234	243821m	204.26		
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	33.064	234	527371m	221.01		
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	29.004	202	863792m	242.70		
59) Pyrene	29.795	202	911047m	237.32		
60) 2-Methylfluoranthene	30.529	216	568069m	229.82		
61) Benzo(b)fluorene	31.151	216	393228m	218.68		
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	33.874	228	469542m	208.35		
68) Chrysene/Triphenylene	34.004	228	520599m	220.45		
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	42.977	191	391333m	234.88		
77) Benzo(b)fluoranthene	37.408	252	571992	222.36		100
78) Benzo(k,j)fluoranthene	37.506	252	563088m	234.53		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	729710m	232.96		
81) Benzo(a)pyrene	38.608	252	528754m	221.77		
82) Indeno(1,2,3-c,d)pyrene	43.369	276	498570m	211.38		
83) Dibenzo(a,h)anthracene	43.435	278	376212m	215.58		
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	44.776	276	498104m	229.17		
89) Perylene	38.900	252	581178m	217.78		
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	39.548	231	1226309m	237.31		
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:\GCMS5\MS50164\
Data File : MS50164D.D
Acq On : 4 Sep 2013 6:37 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 10 10:24:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:00:03 2013
Response via : Initial Calibration

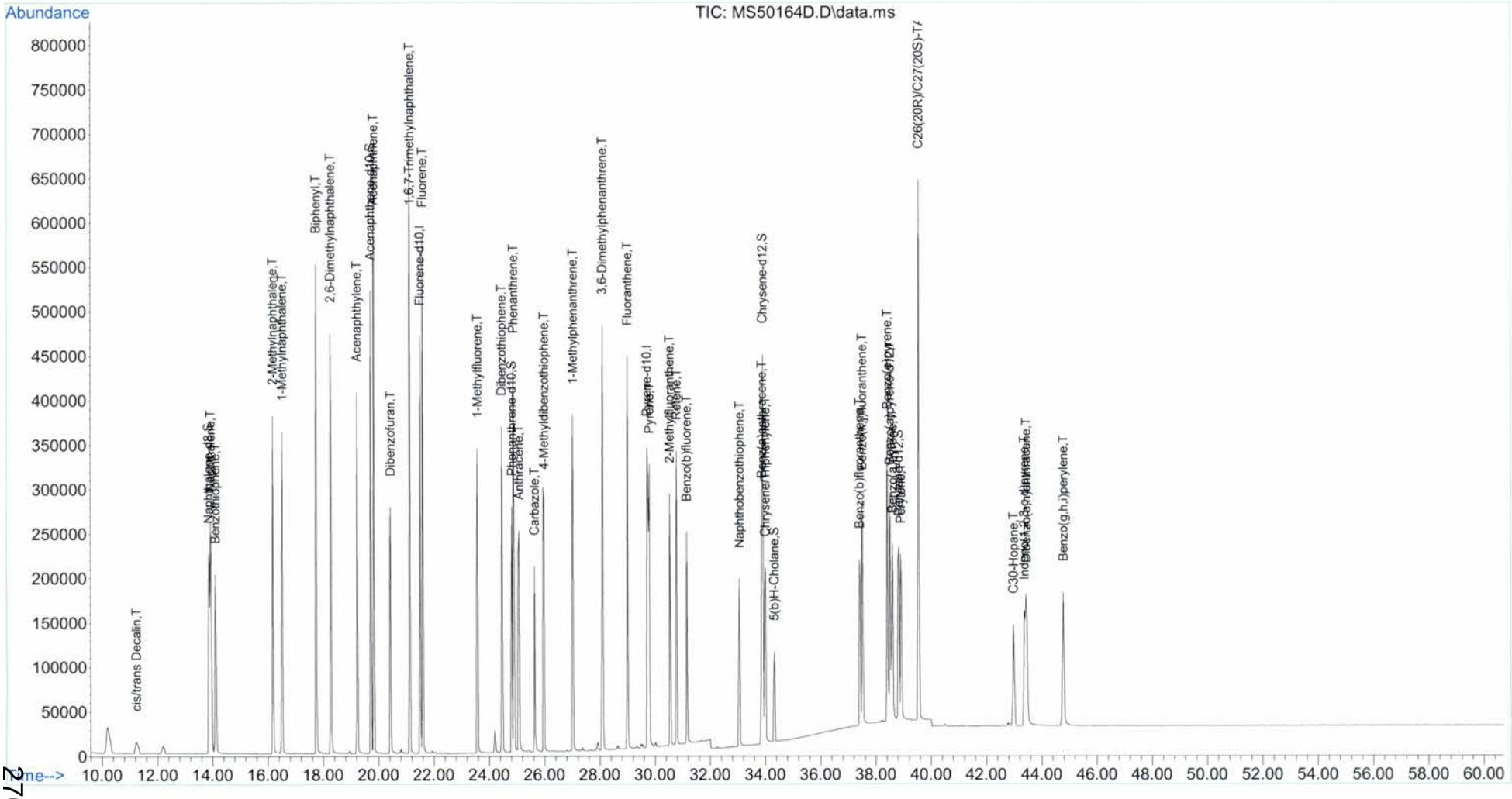
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164D.D
Acq On : 4 Sep 2013 6:37 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 10 10:24:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:00:03 2013
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164E.D
Acq On : 4 Sep 2013 7:43 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 10 10:44:14 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:27:54 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	485156m	251.05		0.00
31) Pyrene-d10	29.710	212	839322m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	526479m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	1616702m	490.79		-0.02
21) Acenaphthene-d10	19.715	164	1005807m	487.56		-0.02
32) Phenanthrene-d10	24.822	188	1468272m	494.56		0.00
66) Chrysene-d12	33.907	240	1495103m	503.83		-0.03
88) Perylene-d12	38.835	264	1330328m	493.67		0.00
90) 5(b)H-Cholane	34.329	217	479094m	498.24		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	311747m	571.23		
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	13.924	128	1679669m	481.18		
9) 2-Methylnaphthalene	16.182	142	1098453m	488.00		
10) 1-Methylnaphthalene	16.518	142	1081494m	486.78		
11) 2,6-Dimethylnaphthalene	18.262	156	999844m	486.48		
12) 1,6,7-Trimethylnaphtha...	21.123	170	1019123m	486.15		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	1353463m	482.88		
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	17.747	154	1366193m	479.59		
23) Acenaphthylene	19.223	152	1640479m	479.11		
24) Acenaphthene	19.827	154	1043405m	487.92		
25) Dibenzofuran	20.408	168	1424472m	479.77		
26) Fluorene	21.593	166	1171602m	479.38		
27) 1-Methylfluorene	23.579	180	737503m	475.97		
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	25.642	167	1003398m	474.93		
34) Dibenzothiophene	24.455	184	1603631m	490.99		
35) 4-Methyldibenzothiophene	25.981	198	1212276m	495.07		
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	24.879	178	1665145m	501.94		
42) Anthracene	25.048	178	1374431m	501.27		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164E.D
Acq On : 4 Sep 2013 7:43 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 10 10:44:14 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:27:54 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.		
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	27.026	192	1254581m	487.84		
48)	3,6-Dimethylphenanthrene	28.100	206	1357831m	502.17		
49)	Retene	30.784	234	574352m	438.48		
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	33.064	234	1247382m	477.17		
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	29.004	202	2008636m	514.66		
59)	Pyrene	29.795	202	2095971m	497.66		
60)	2-Methylfluoranthene	30.529	216	1345618m	496.41		
61)	Benzo(b)fluorene	31.151	216	976396m	495.80		
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	33.875	228	1121954m	454.38		
68)	Chrysene/Triphenylene	34.004	228	1256120m	482.42		
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	42.977	191	889986m	493.37		
77)	Benzo(b)fluoranthene	37.408	252	1387045	496.14		100
78)	Benzo(k,j)fluoranthene	37.506	252	1302097	494.61		100
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	1740691m	510.42		
81)	Benzo(a)pyrene	38.608	252	1275580m	492.27		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	1182442m	464.49		
83)	Dibenzo(a,h)anthracene	43.435	278	895159m	475.87		
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	44.776	276	1159204m	488.19		
89)	Perylene	38.900	252	1451670m	502.37		
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	39.548	231	2781790m	495.98		
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:\GCMS5\MS50164\
Data File : MS50164E.D
Acq On : 4 Sep 2013 7:43 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 10 10:44:14 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:27:54 2013
Response via : Initial Calibration

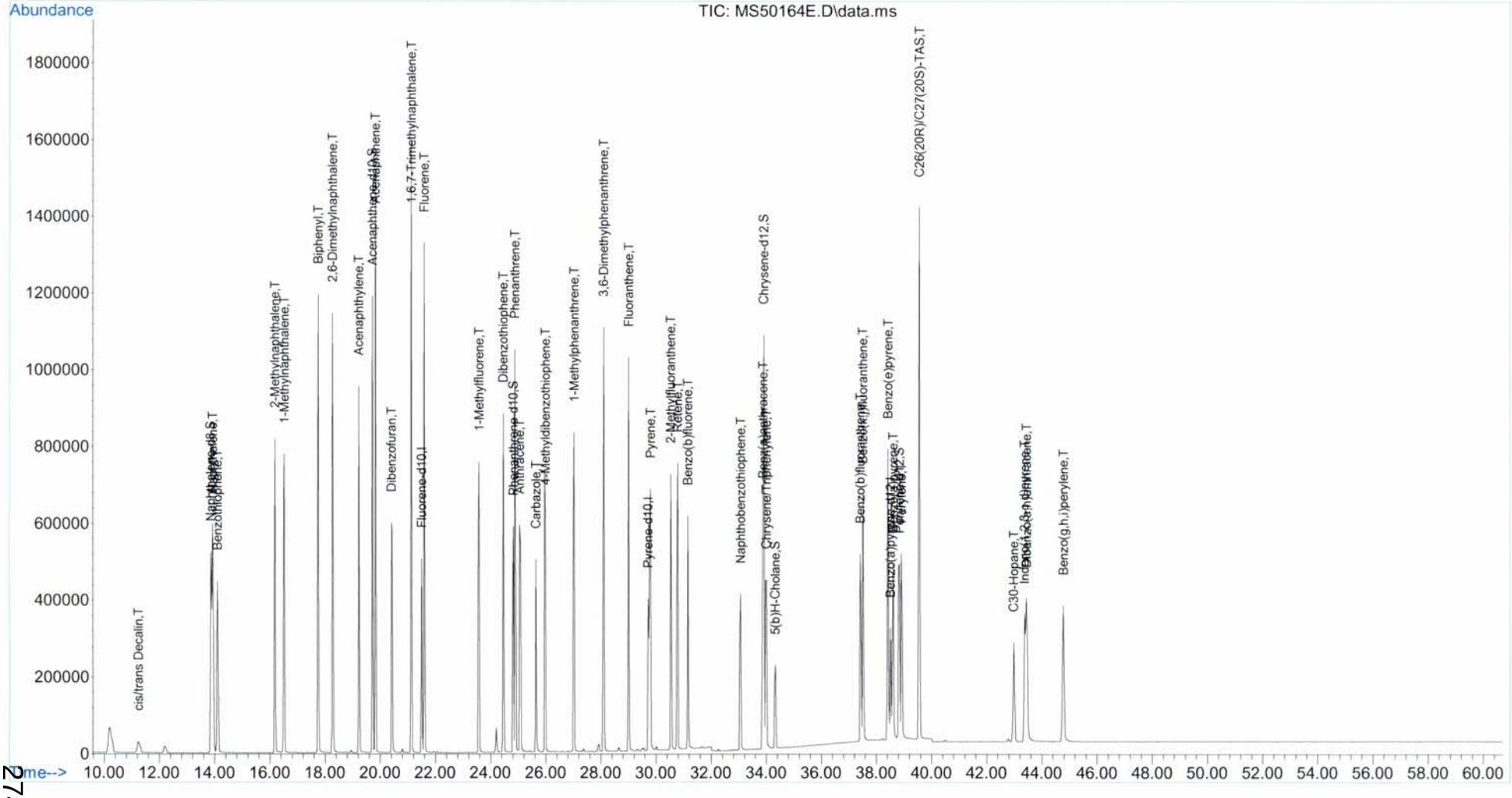
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164E.D
Acq On : 4 Sep 2013 7:43 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 10 10:44:14 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:27:54 2013
Response via : Initial Calibration



Data Path : C:\GCMS5\MS50164\
Data File : MS50164F.D
Acq On : 4 Sep 2013 8:49 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 10 11:13:26 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:44:53 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	442586m	251.05		0.00
31) Pyrene-d10	29.710	212	802828m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	532565m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	3022001m	1004.59		-0.02
21) Acenaphthene-d10	19.715	164	1890638m	1003.18		-0.02
32) Phenanthrene-d10	24.822	188	2843129m	996.24		0.00
66) Chrysene-d12	33.907	240	3091844m	1084.68		-0.03
88) Perylene-d12	38.835	264	2741359m	998.37		0.00
90) 5(b)H-Cholane	34.328	217	916659m	935.16		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	572745m	1078.66		
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	13.924	128	3171055m	996.76		
9) 2-Methylnaphthalene	16.182	142	2068492m	1006.14		
10) 1-Methylnaphthalene	16.518	142	2029577m	999.38		
11) 2,6-Dimethylnaphthalene	18.262	156	1897984m	1010.95		
12) 1,6,7-Trimethylnaphtha...	21.123	170	1935061m	1010.18		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	2540878m	993.96		
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	17.747	154	2569535m	989.31		
23) Acenaphthylene	19.223	152	3142616m	1005.56		
24) Acenaphthene	19.827	154	1973412m	1010.17		
25) Dibenzofuran	20.408	168	2722574m	1005.82		
26) Fluorene	21.593	166	2233877m	1001.35		
27) 1-Methylfluorene	23.579	180	1425270m	1007.71		
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	25.642	167	2053558m	1014.51		
34) Dibenzothiophene	24.455	184	3154911m	1010.69		
35) 4-Methyldibenzothiophene	25.981	198	2364184m	1006.82		
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	24.879	178	3221297m	1012.93		
42) Anthracene	25.048	178	2689080m	1020.47		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164F.D
Acq On : 4 Sep 2013 8:49 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 10 11:13:26 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:44:53 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.		
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	27.026	192	2436918m	986.01		
48)	3,6-Dimethylphenanthrene	28.100	206	2643245m	1016.23		
49)	Retene	30.784	234	1125490m	893.26		
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	33.064	234	2537975m	1011.10		
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	29.004	202	4006133m	1068.37		
59)	Pyrene	29.795	202	4097712m	1011.77		
60)	2-Methylfluoranthene	30.529	216	2677380m	1028.09		
61)	Benzo(b)fluorene	31.151	216	2009389m	1062.16		
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	33.875	228	2381711m	1005.77		
68)	Chrysene/Triphenylene	34.004	228	2567036m	1023.37		
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	42.977	191	1708451m	928.85		
77)	Benzo(b)fluoranthene	37.408	252	2827805	991.77		100
78)	Benzo(k,j)fluoranthene	37.506	252	2683222	999.33		100
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	3494743m	1002.79		
81)	Benzo(a)pyrene	38.608	252	2649032m	1002.38		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	2541602m	988.37		
83)	Dibenzo(a,h)anthracene	43.435	278	1931278m	1018.35		
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	44.776	276	2355634m	974.64		
89)	Perylene	38.900	252	2970206m	1008.95		
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	39.548	231	5457732m	955.58		
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:\GCMS5\MS50164\
Data File : MS50164F.D
Acq On : 4 Sep 2013 8:49 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 10 11:13:26 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:44:53 2013
Response via : Initial Calibration

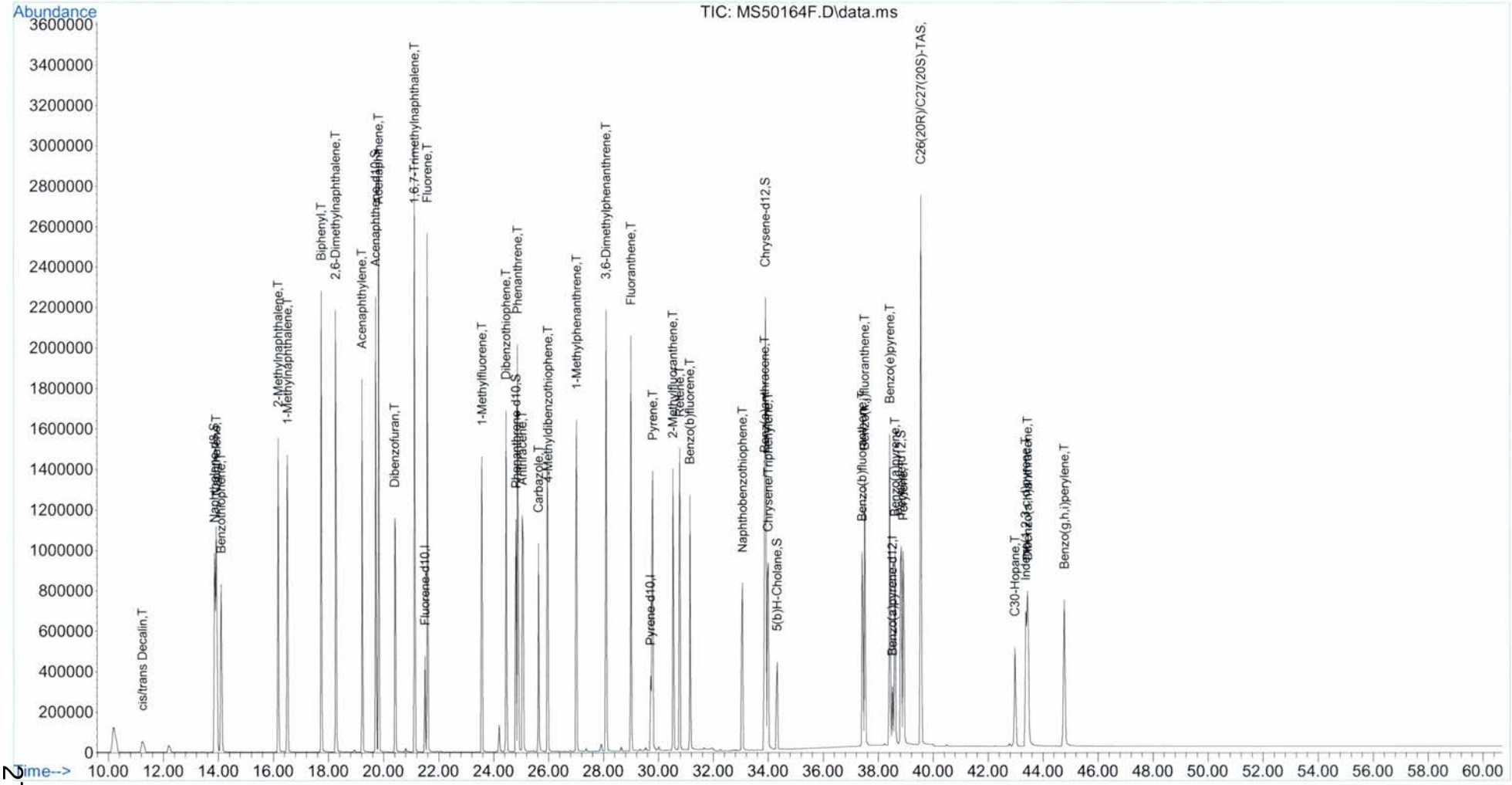
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164F.D
Acq On : 4 Sep 2013 8:49 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 10 11:13:26 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 10:44:53 2013
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164G.D
Acq On : 4 Sep 2013 9:55 pm
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 10 11:33:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:14:13 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	494073m	251.05		0.00
31) Pyrene-d10	29.710	212	926253m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	688581m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	15410880m	4563.74		-0.02
21) Acenaphthene-d10	19.715	164	9783501m	4624.42		-0.02
32) Phenanthrene-d10	24.822	188	16509509m	4994.26		0.00
66) Chrysene-d12	33.907	240	17936852m	5430.62		-0.03
88) Perylene-d12	38.835	264	19316542m	5417.85		0.00
90) 5(b)H-Cholane	34.329	217	5230803m	4105.07		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.219	138	2896911m	4590.96		
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	13.924	128	16313352m	4568.73		
9) 2-Methylnaphthalene	16.182	142	10924873m	4735.20		
10) 1-Methylnaphthalene	16.518	142	10493087m	4601.25		
11) 2,6-Dimethylnaphthalene	18.262	156	10134447m	4808.40		
12) 1,6,7-Trimethylnaphtha...	21.123	170	10150757m	4719.35		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	13122921m	4573.48		
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	17.747	154	13601390m	4675.19		
23) Acenaphthylene	19.223	152	16804429m	4792.70		
24) Acenaphthene	19.827	154	10247711m	4673.31		
25) Dibenzofuran	20.430	168	14558730m	4795.72		
26) Fluorene	21.593	166	12110894	4839.84		96
27) 1-Methylfluorene	23.579	180	8359676m	5267.21		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.		
30) C3-Fluorenes	0.000		0	N.D.		
33) Carbazole	25.642	167	12930045m	5517.50		
34) Dibenzothiophene	24.455	184	16667484m	4608.06		
35) 4-Methyldibenzothiophene	25.981	198	13784793m	5070.29		
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	24.879	178	17429017m	4734.72		
42) Anthracene	25.077	178	16098808m	5269.83		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164G.D
Acq On : 4 Sep 2013 9:55 pm
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 10 11:33:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:14:13 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.		
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	27.026	192	14887015m	5203.67		
48)	3,6-Dimethylphenanthrene	28.100	206	15151971m	5029.88		
49)	Retene	30.784	234	7007076m	4798.08		
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	33.064	234	18166168m	6250.09		
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	29.004	202	17480733m	4021.92		
59)	Pyrene	29.795	202	21557324m	4590.84		
60)	2-Methylfluoranthene	30.558	216	15726535m	5210.22		
61)	Benzo(b)fluorene	31.151	216	12743057m	5816.54		
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	33.875	228	17688173m	6440.88		
68)	Chrysene/Triphenylene	34.004	228	18396459m	6306.14		
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	42.977	191	9231430m	3858.21		
77)	Benzo(b)fluoranthene	37.441	252	19885731	5361.41		100
78)	Benzo(k,j)fluoranthene	37.506	252	18079630m	5175.87		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	21268360m	4685.75		
81)	Benzo(a)pyrene	38.608	252	19126803m	5560.91		
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	17993143m	5390.02		
83)	Dibenzo(a,h)anthracene	43.468	278	13422941m	5461.57		
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	44.776	276	16148079m	5143.06		
89)	Perylene	38.932	252	21036556m	5503.60		
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	39.548	231	24362434m	3283.91		
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:\GCMS5\MS50164\
Data File : MS50164G.D
Acq On : 4 Sep 2013 9:55 pm
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 10 11:33:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:14:13 2013
Response via : Initial Calibration

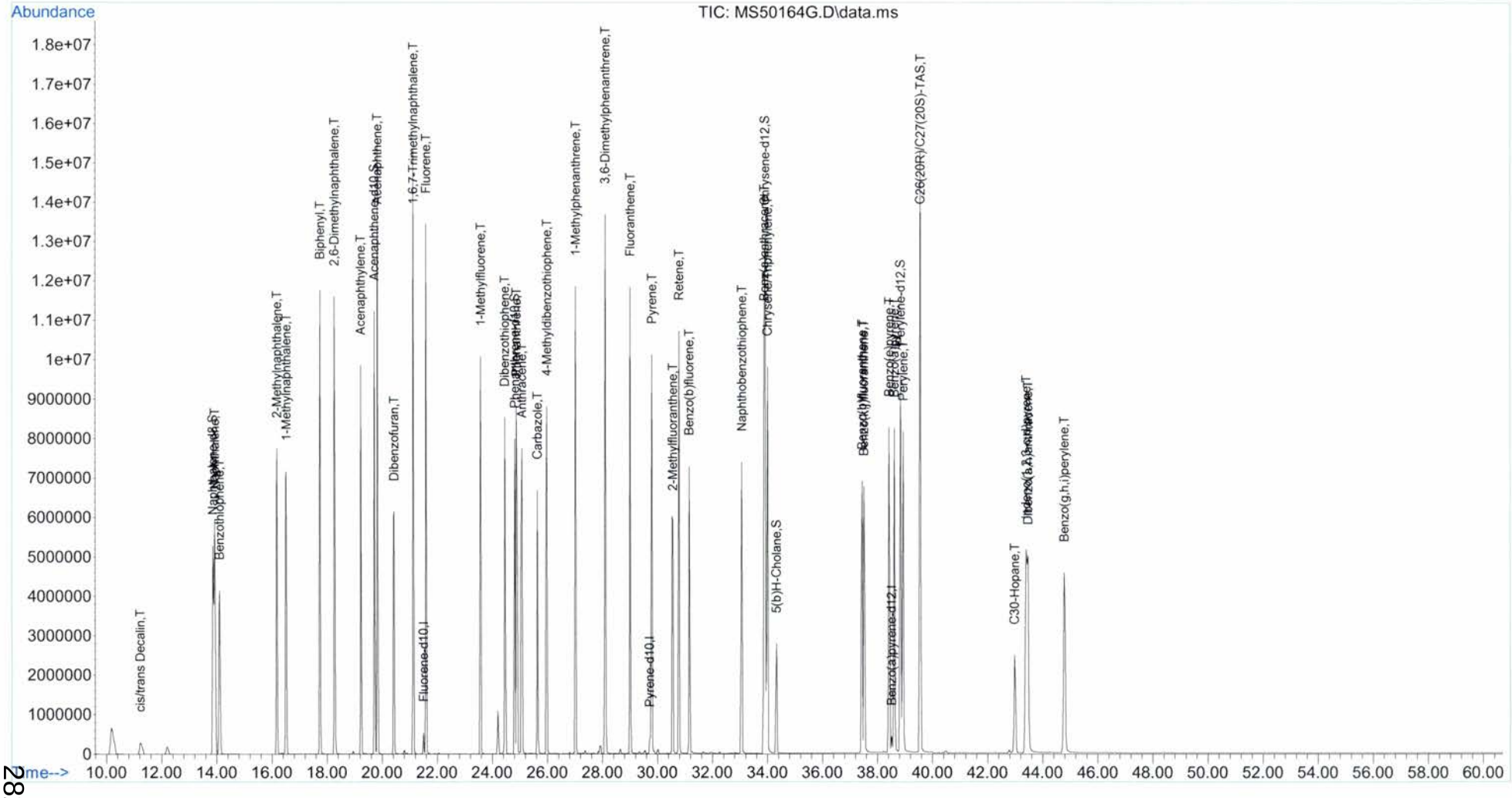
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164G.D
Acq On : 4 Sep 2013 9:55 pm
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 10 11:33:24 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:14:13 2013
Response via : Initial Calibration



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Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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	110	0.00
2	S	Naphthalene-d8	1.716	1.662	3.1	108	-0.02
3	T	cis/trans Decalin	0.337	0.383	-13.6	128	0.02
4	un	C1-Decalins	0.337	0.000	100.0#	0#	-12.40#
5	un	C2-Decalins	0.337	0.000	100.0#	0#	-13.54#
6	un	C3-Decalins	0.337	0.000	100.0#	0#	-16.23#
7	un	C4-Decalins	0.337	0.000	100.0#	0#	-18.71#
8	T	Naphthalene	1.817	2.124	-16.9	133	-0.02
9	T	2-Methylnaphthalene	1.174	1.393	-18.7	137	0.00
10	T	1-Methylnaphthalene	1.160	1.380	-19.0	135	0.00
11	T	2,6-Dimethylnaphthalene	1.072	1.237	-15.4	133	-0.02
12	T	1,6,7-Trimethylnaphthalene	1.094	1.280	-17.0	136	-0.02
13	un	C2-Naphthalenes	1.817	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.817	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.817	0.000	100.0#	0#	-21.95#
16	T	Benzothiophene	1.460	1.729	-18.4	133	0.00
17	un	C1-Benzothiophenes	1.460	0.000	100.0#	0#	-15.56#
18	un	C2-Benzothiophenes	1.460	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.460	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.460	0.000	100.0#	0#	-21.82#
21	S	Acenaphthene-d10	1.076	1.004	6.7	107	-0.02
22	T	Biphenyl	1.480	1.710	-15.5	131	0.00
23	T	Acenaphthylene	1.783	1.962	-10.0	128	-0.02
24	T	Acenaphthene	1.115	1.266	-13.5	130	0.00
25	T	Dibenzofuran	1.544	1.809	-17.2	134	-0.02
26	T	Fluorene	1.274	1.410	-10.7	128	-0.02
27	T	1-Methylfluorene	0.807	0.000	100.0#	0#	-23.58#
28	un	C1-Fluorenes	1.274	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.274	0.000	100.0#	0#	-25.70#
30	un	C3-Fluorenes	1.274	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	105	-0.03
32	S	Phenanthrene-d10	0.896	0.833	7.0	104	0.00
33	T	Carbazole	0.635	0.648	-2.0	121	0.00
34	T	Dibenzothiophene	0.980	1.150	-17.3	128	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-25.98#
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.29#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.980	0.000	100.0#	0#	-28.58#
40	un	C4-Dibenzothiophenes	0.980	0.000	100.0#	0#	-30.98#
41	T	Phenanthrene	0.997	1.071	-7.4	124	-0.03
42	T	Anthracene	0.828	0.902	-8.9	125	-0.03
43	un	3-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.57#
44	un	2-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#
45	un	2-Methylanthracene	0.775	0.000	100.0#	0#	-27.03#
46	un	4/9-Methylphenanthrene	0.775	0.000	100.0#	0#	-26.83#

Data Path : C:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
47	T	1-Methylphenanthrene	0.775	0.843	-8.8	124	0.00
48	T	3,6-Dimethylphenanthrene	0.816	0.000	100.0#	0#	-28.10#
49	T	Retene	0.396	0.000	100.0#	0#	-30.78#
50	un	C2-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.997	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	0.788	0.000	100.0#	0#	-33.06#
54	un	C1-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-36.37#
56	un	C3-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-37.57#
57	un	C4-Naphthobenzothiophenes	0.788	0.000	100.0#	0#	-38.02#
58	T	Fluoranthene	1.178	1.347	-14.3	126	-0.03
59	T	Pyrene	1.273	1.432	-12.5	127	-0.03
60	T	2-Methylfluoranthene	0.818	0.000	100.0#	0#	-30.56#
61	T	Benzo(b)fluorene	0.594	0.000	100.0#	0#	-31.18#
62	un	C1-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-31.69#
63	un	C2-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-32.29#
64	un	C3-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-33.94#
65	un	C4-Fluoranthenes/Pyrenes	1.178	0.000	100.0#	0#	-35.75#
66	S	Chrysene-d12	0.892	0.740	17.0	98	-0.03
67	T	Benz(a)anthracene	0.739	0.683	7.6	117	0.00
68	T	Chrysene/Triphenylene	0.791	0.794	-0.4	122	-0.03
69	un	C1-Chrysenes	0.791	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	0.791	0.000	100.0#	0#	-36.70#
71	un	C3-Chrysenes	0.791	0.000	100.0#	0#	-38.48#
72	un	C4-Chrysenes	0.791	0.000	100.0#	0#	-39.61#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	94	-0.03
74	un	C29-Hopane	0.852	0.000	100.0#	0#	-40.69#
75	un	18a-Oleanane	0.852	0.000	100.0#	0#	-42.09#
76	T	C30-Hopane	0.852	0.000	100.0#	0#	-43.01#
77	T	Benzo(b)fluoranthene	1.369	1.582	-15.6	126	-0.03
78	T	Benzo(k,j)fluoranthene	1.291	1.415	-9.6	114	-0.03
79	un	Benzo(a)fluoranthene	1.291	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.672	1.924	-15.1	119	-0.03
81	T	Benzo(a)pyrene	1.269	1.372	-8.1	117	-0.03
82	T	Indeno(1,2,3-c,d)pyrene	1.228	1.340	-9.1	120	-0.03
83	T	Dibenzo(a,h)anthracene	0.902	1.053	-16.7	126	-0.07
84	un	C1-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-49.12#
85	un	C2-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.86#
86	un	C3-Dibenzo(a,h)anthracenes	0.902	0.000	100.0#	0#	-50.60#
87	T	Benzo(g,h,i)perylene	1.157	1.338	-15.6	121	-0.03
88	S	Perylene-d12	1.313	1.108	15.6	92	-0.03
89	T	Perylene	1.408	1.514	-7.5	118	-0.03
90	S	5(b)H-Cholane	0.468	0.471	-0.6	103	-0.03
91	un	C20-TAS	2.644	0.000	100.0#	0#	-33.74#
92	un	C21-TAS	2.644	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 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)
93 un	C26(20S)-TAS	2.644	0.000	100.0#	0#	-38.87#
94 T	C26(20R)/C27(20S)-TAS	2.644	0.000	100.0#	0#	-39.58#
95 un	C28(20S)-TAS	2.644	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	2.644	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	2.644	0.000	100.0#	0#	-41.64#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	473917m	251.05		0.00
31) Pyrene-d10	29.710	212	807566m	250.63		-0.03
73) Benzo(a)pyrene-d12	38.511	264	454218m	250.32		-0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.857	136	784857m	242.22		-0.02
21) Acenaphthene-d10	19.715	164	474171m	233.38		-0.02
32) Phenanthrene-d10	24.822	188	671307m	232.50		0.00
66) Chrysene-d12	33.907	240	595857m	207.25		-0.03
88) Perylene-d12	38.803	264	502696m	210.95		-0.03
90) 5(b)H-Cholane	34.296	217	213758m	251.52		-0.03
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	178611m	280.53		
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	13.925	128	1002498m	292.34		
9) 2-Methylnaphthalene	16.183	142	658065m	296.99		
10) 1-Methylnaphthalene	16.518	142	650745m	297.07		
11) 2,6-Dimethylnaphthalene	18.262	156	583862m	288.40		
12) 1,6,7-Trimethylnaphtha...	21.123	170	604180m	292.56		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	810937m	294.33		
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	17.747	154	799633m	286.25		
23) Acenaphthylene	19.223	152	918336m	272.78		
24) Acenaphthene	19.827	154	598766m	284.49		
25) Dibenzofuran	20.408	168	849233m	291.32		
26) Fluorene	21.593	166	666579m	277.26		
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	25.642	167	517629m	252.87		
34) Dibenzothiophene	24.455	184	913425m	289.15		
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	24.879	178	854847m	266.07		
42) Anthracene	25.048	178	729097m	273.29		

Data Path : C:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.		
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	27.026	192	671673m	268.88		
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	29.004	202	1086487m	286.33		
59) Pyrene	29.767	202	1153936m	281.30		
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	33.875	228	549368m	230.56		
68) Chrysene/Triphenylene	33.972	228	635869m	249.52		
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	37.409	252	719153	289.60		100
78) Benzo(k,j)fluoranthene	37.506	252	639397	272.88		100
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.414	252	869499m	286.66		
81) Benzo(a)pyrene	38.608	252	620918m	269.66		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	597533m	268.14		
83) Dibenzo(a,h)anthracene	43.435	278	473351m	289.28		
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	44.776	276	601385m	286.36		
89) Perylene	38.900	252	687515m	269.06		
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:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration

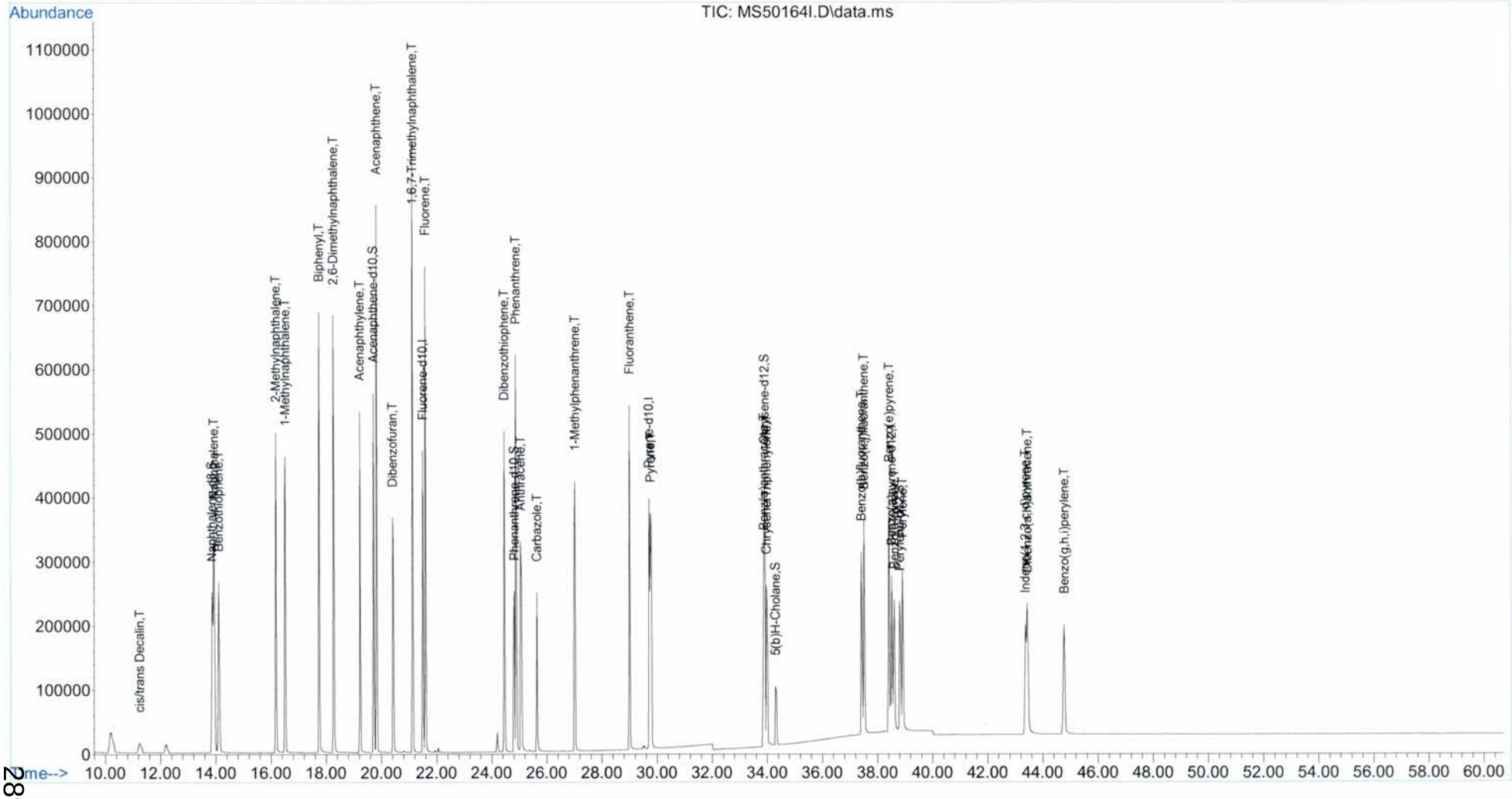
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50164\
Data File : MS50164I.D
Acq On : 5 Sep 2013 12:08 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 12 18:48:03 2013
Quant Method : E:\MS50164\AR50164.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Sep 10 11:36:07 2013
Response via : Initial Calibration



2894

PAH Mass Discrimination Ratio

B&B Laboratories
Project J13034
Report 13-3117

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Mass Discrimination Sheet

Client Project #B0086003.1302

File Name	Sample Name	Benzo(g,h,i)perylene Concentration (ng/mL)	Phenanthrene Concentration (ng/mL)	Benzo(g,h,i)perylene/ Phenanthrene ratio	Q
MS50164B.D	AR-WKC1-020-030	22.5	22.5	1.00	
MS50164C.D	AR-WKC2-100-030	109	95.8	1.14	
MS50164D.D	AR-WKC3-250-030	229	224	1.02	
MS50164E.D	AR-WKC4-500-030	488	502	0.97	
MS50164F.D	AR-WKC5-1000-030	975	1013	0.96	
MS50164G.D	AR-WKC6-5000-030	5143	4735	1.09	
MS50164I.D	AR-WKICV-250-004	286	266	1.08	
MS50164J.D	AR-WKCC-250-038	292	219	1.33	
MS50164L.D	AR-WKCC-250-038	225	227	0.99	
MS50164M.D	AR-WKCC-250-038	165	226	0.73	
MS50164N.D	AR-WKCC-250-038	165	228	0.73	

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

PAH Internal Standard Area Data

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

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)
MS50164D.D	AR-WKC3-250-030	430469	215235	860938	767694	383847	1535388	485289	242645	970578
MS50164I.D	AR-WKICV-250-004	473917			807566			454218		
MS50164J.D	**AR-WKCC-250-038**	**356769**	**178385**	**713538**	**557636**	**278818**	**1115272**	**253581**	**126791**	**507162**
ENV3096A.D	Procedural Blank	328540			580123			349863		
ENV3096B.D	SRM1941b	372845			757862			646977		
ENV3096C.D	MS (SO-DA-002 (0-0.5))	389162			755214			474856		
ENV3096D.D	MSD (SO-DA-002 (0-0.5))	397291			760987			552088		
ENV3096E.D	Dupl (SED-DA-050 (0.5-1.0))	391746			753175			529253		
ARC1836.D	SO-DA-002 (0-0.5)	373397			742395			469809		
ARC1809.D	SED-DA-047 (1.0-1.5)	374725			718648			514531		
ARC1813.D	SED-DA-048 (0.5-1.0)	411114			808576			743189		
MS50164L.D	**AR-WKCC-250-038**	**411533**	**205767**	**823066**	**826099**	**413050**	**1652198**	**500415**	**250208**	**1000830**
ARC1847.D	SO-DA-005 (0-0.5)	518898			1014710			686795		
ARC1848.D	SO-DA-005 (0.5-1.0)	380692			766673			503882		
ARC1849.D	SO-DA-005 (1.0-1.5)	369811			724747			449193		
ARC1850.D	SO-DA-006 (0-0.5)	379090			755082			521228		
ARC1851.D	SO-DA-006 (0.5-1.0)	363414			705685			447149		
ARC1852.D	SO-DA-006 (1.0-1.5)	382141			742340			468769		
ARC1853.D	SO-DA-DUP-06-081313	542311			939739			460713		
ARC1857.D	SED-DA-050 (0.5-1.0)	356895			721621			403459		
MS50164M.D	**AR-WKCC-250-038**	**381494**	**190747**	**762988**	**758772**	**379386**	**1517544**	**352645**	**176323**	**705290**
ARC1858.D	SED-DA-050 (1.0-1.5)	337194			654551			343503		
ARC1862.D	SED-DA-051 (0.5-1.0)	392244			767974			442432		
ARC1863.D	SED-DA-051 (1.0-1.5)	336757			672378			397103		
ARC1869.D	SED-DA-041 (0.5-1.0)	420398			803814			372486		
ARC1870.D	SED-DA-041 (1.0-1.5)	394174			799347			361009		
ARC1872.D	SED-DA-053 (0.5-1.0)	395541			804085			461886		
ARC1873.D	SED-DA-053 (1.0-1.5)	343542			677593			348365		
ARC1874.D	SED-DA-045 (1.0-1.5)	323727			630466			309069		
MS50164N.D	**AR-WKCC-250-038**	**308552**	**154276**	**617104**	**730923**	**365462**	**1461846**	**300534**	**150267**	**601068**

SRM-2779 Reference Oil
PAH
Resolution Check

```
File       :C:\msdchem\2\data\MS5\MS50164\MS50164K.D
Operator   : YM
Acquired   :  5 Sep 2013   2:20 am using AcqMethod PAH-2012.M
Instrument :   GCMS5
Sample Name: AR-SRM2779-WK-4.0-002
Misc Info  :
Vial Number: 11
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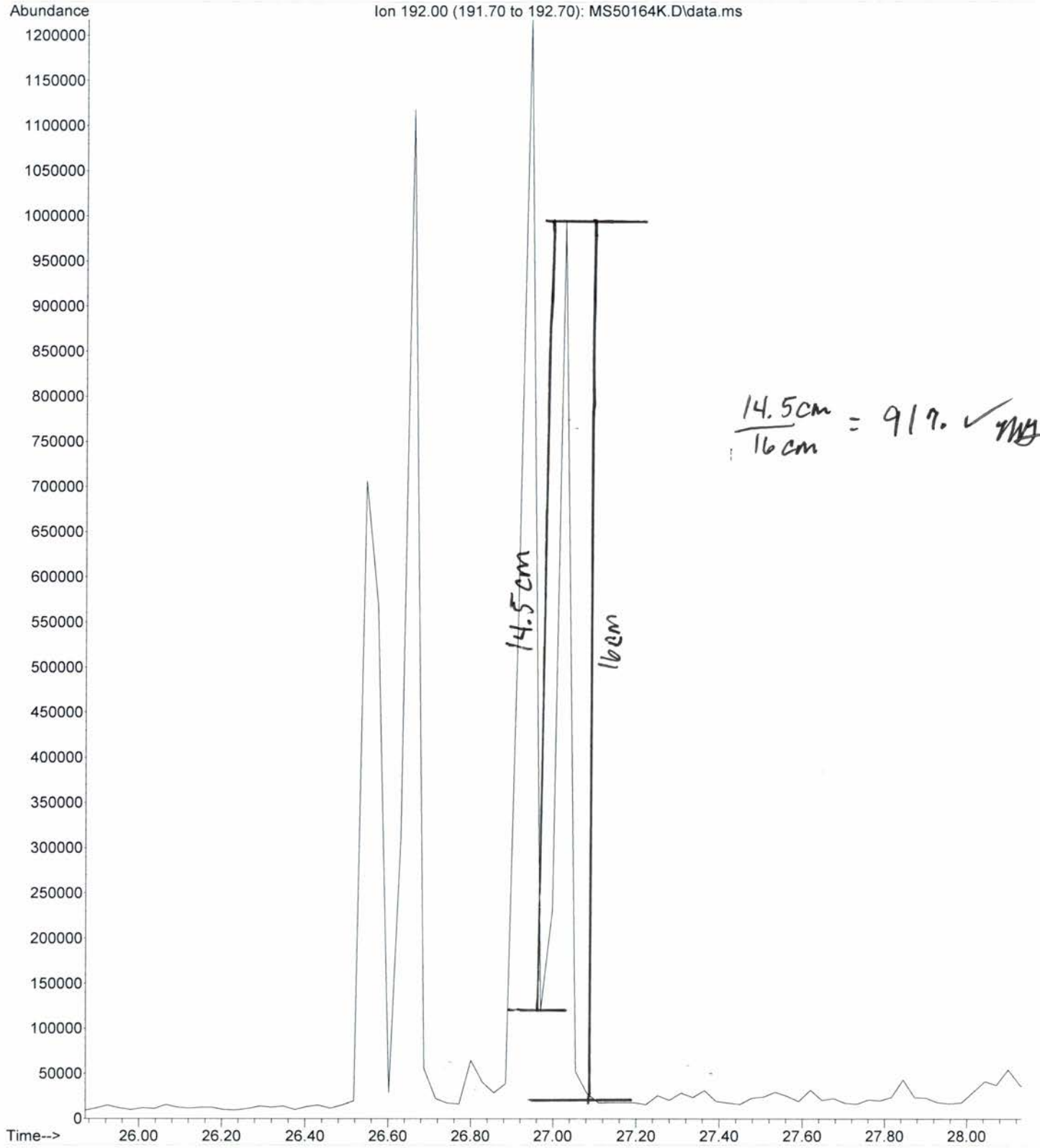

Supporting Documents

Shipping, Sample Receiving, and Project Initiation Documents

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/13/13 SDG#: 13081301

Sender: Arcadis- mayflower, AR

1. Number of Shipping Containers: 4 Arcadis: Daniel Mays

Comments: 1 of 4, large blue cooler

2. Airbill Present? (Yes) No Shipping Company: Fed EX

Airbill Number: 7958 1083 5888 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 In cooler 3

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

Temperature/Comments: 5.1°C / temp blank 1.2°C (T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 4 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 1:
11 soils
2 waters

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/13/13

large blue cooler

Ice type: wet Ice
Cooler temp: 5.1
Temp blank: 1.2
Thermometer: 6
Custody seal:

Sdg 13081301
Cooler 1 of 4

eurofins | Lancaster Laboratories

480555
CUSTODY SEAL

DATE: 8/12/13
SIGNATURE:

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

ORIGIN ID:MPJA (979) 693-3446
B & B LABORATORIES
14391 S DOWLING RD STE B
COLLEGE STATION, TX 778453473
UNITED STATES US

SHIP DATE: 12AUG13
ACTWGT: 56.7 LB
CAD: /POS1400
DIMS: 24x13x13 IN
BILL SENDER

TO B & B LABORATORIES
B & B LABS
14391B S DOWLING RD

COLLEGE STATION TX 77845
(979) 693-3446
INV:
PO:
REF:
DEPT:

FedEx Express

2 of 4
MPS# 0681 7958 1083 5888
Trk# 8022 2781 5939
0200

TUE - 13 AUG 10:30A
PRIORITY OVERNIGHT

XH CLLA

77845
TX-US IAH

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/13/13 SDG#: 13081301

Sender: Arcadis- Mayflower AR

1. Number of Shipping Containers: 4 Arcadis: Daniel Mays

Comments: 2 of 4, large blue cooler

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

Airbill Number: 7958 1083 5899 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: in cooler 3

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice) Temperature/Comments: 1.5°c / temp blank 2.3°c / T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 4 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 2:
11 seds
4 waters

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/13/13

large blue cooler

Ice type: wet ice
Cooler temp: 1.5
Temp blank: 2.3
Thermometer: 6
Custody seal:

Sdg 1308130
Cooler 2 of 4

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/13/13 SDG#: 13081301

Sender: Arcadis - Mayflower AR

1. Number of Shipping Containers: 4 Arcadis: Daniel Mays

Comments: 3 of 4, large blue cooler

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

Airbill Number: 8022 2781 5939 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: all COCs in Cooler 3

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice) Temperature/Comments: 2.1°C / temp blank 1.9°C (T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 4 Coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 3:
21 seds

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/13/13

large blue cooler

Ice type: wet Ice
Cooler temp: 2.1
Temp blank: 1.9
Thermometer: 6
Custody seal:

Sdg 13081301
Cooler 3 of 4

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480556
CUSTODY SEAL

DATE: 5/12/13
SIGNATURE:

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 5939

Form ID No. 0200

1 From
Date
Sender's Name
Phone
Company
Address
Dept./Floor/Suite/Room
City
State
ZIP

2 Your Internal Billing Reference

3 To
Recipient's Name
Phone
Company
Address
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
State
ZIP

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.

8022 2781 5939

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.
Packages up to 1
For packages over 150 lbs., use FedEx Express Freight

Next Business Day
- FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available

2 or 3 Business Days
- FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available

5 Packaging * Declared value limit $500.
- FedEx Envelope*
- FedEx Pak*
- FedEx Box
- FedEx Tube

6 Special Handling and Delivery Signature Options
- SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- No Signature Required — Package may be left without obtaining a signature for delivery.
- Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- Indirect Signature — If no one is available at recipient address, someone at a neighbor address may sign for delivery. Fee applies.

Does this shipment contain dangerous goods?
- No
- Yes — As per attached Shipper's Declaration
- Yes — Shipper's Declaration not required
- Dry Ice — Dry Ice, 9, UN 1845 ____ x ____

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

- Cargo Aircraft Only

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
- Sender — Acct. No. in Section 1 will be billed
- Recipient
- Third Party
- Credit Card
- Cash

Total Packages
Total Weight
lbs.
Credit Card Auth.

Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/13/13 SDG#: 13081301

Sender: Arcadis- May flower AR

1. Number of Shipping Containers: 4 Arcadis: Daniel Mays

Comments: 4 of 4, large blue cooler

2. Airbill Present? (Yes)/No Shipping Company: Fed EX

Airbill Number: 8022 2781 5939 Comments: PON

3. Custody Seals on Container?
No (Yes) (Intact) Not Intact Comments:

4. Chain of Custody Records?
No (Yes) AB 8/13/13 Comments: In Cooler 3

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

Temperature/Comments: 6.1°C / temp blank 0.9°C CTG

6. List of Broken Containers:

None

7. Number of Samples Expected: 4 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

~~COC~~ AB 8/13/13

Cooler 4:
17 seds
2 waters

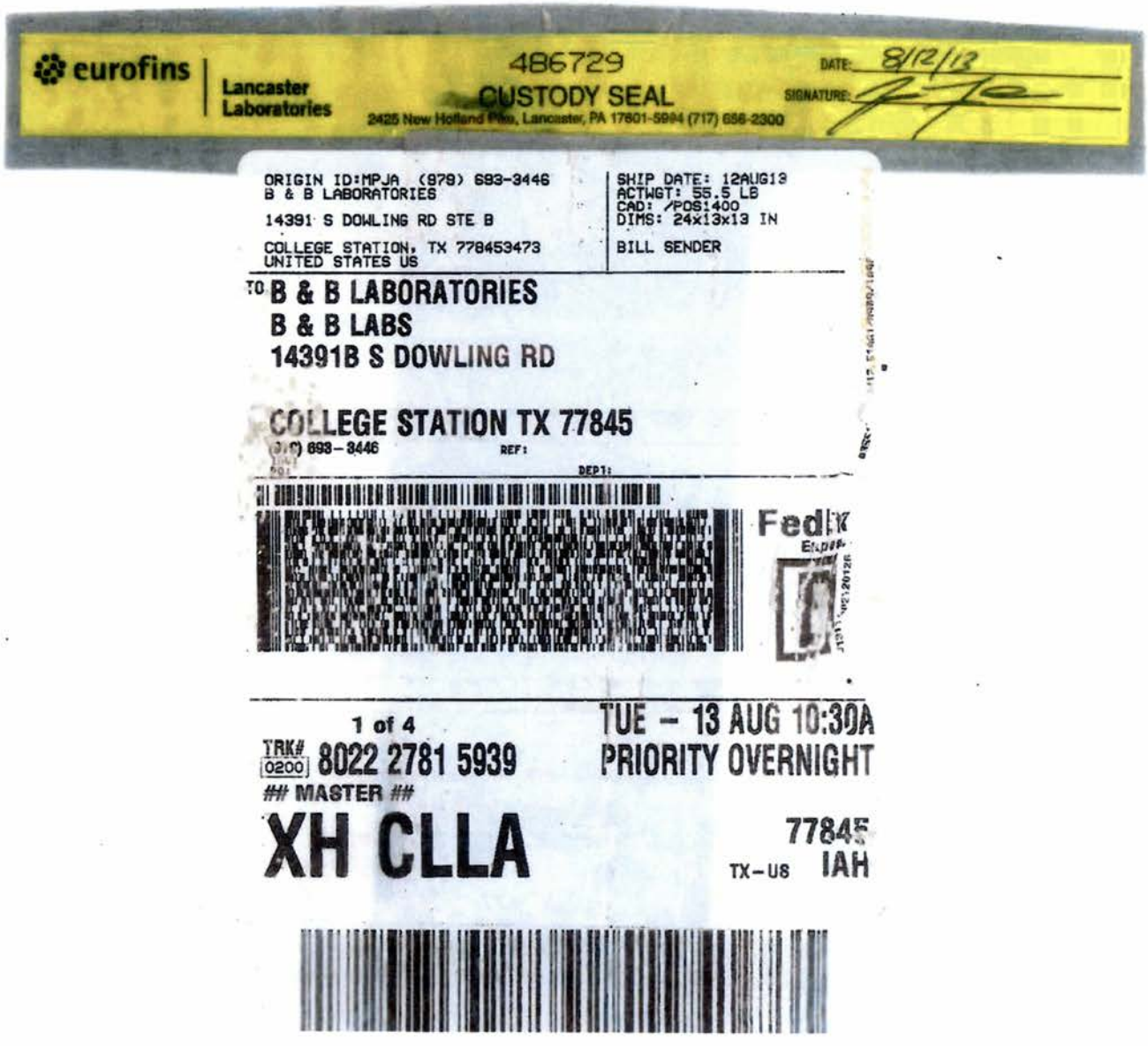
9. Resolutions:

10. Checked in by: Amanda Brewster Date: 8/13/13

large blue cooler

Ice type: wet ice
Cooler temp: 6.1
Temp blank: 0.9
Thermometer: 6
Custody seal:

Sdg 13081301
Cooler 4 of 4



CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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: Mayflower Pipeline Incident B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH by mod 8015	Analyses:	Cooler #	Other Instructions: Sdg 13081301 Cooler 3 of 4 (1) / Comments
SED-DA-021 (0-0.5)	8/9/13	1235	Sed	none	8oz	1	X	X		2	Full List
SED-DA-021 (0.5-1.0)		1240			4oz					2	44 PAH List
SED-DA-021 (1.0-1.5)		1245								2	Extract + Hold
SED-DA-021 (1.5-2.0)		1250								2	Extract + Hold
SED-DA-021 (2.0-3.0)		1255								2	Extract + Hold
SED-DA-021 (3.0-3.3)		1300								2	
SED-DA-042 (0-0.5)		1400			8oz			X		2	Full List
SED-DA-042 (0-0.5)ms		1400			8oz			X		2	Full List
SED-DA-042 (0-0.5)msD		1400			8oz			X		2	Full List
SED-DA-042 (0.5-1.0)		1405			4oz					2	44 PAHs List
					Total # of Containers	10					

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-12-13	1700	Printed Name: Amanda Brewster	B&B Labs	8/13/13	11:30
Signature:				Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

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TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 SIM	TEH by 8015			Cooler #	Comments
SED-DA-042 (1.0-1.5)	8/9/13	1410	Sed	none	4oz	1	X				2	44 PAHs List
SED-DA-EB-07-080913	8/9/13	1015	Water	none	LAG	2	X	X			2,2	Full List
SED-DA-DI-Water	8/9/13	1020	Water	none	LAG	2	X	X			2,2	Full List
SED-DA-EB-08-081013	8/10/13	825	Water	none	LAG	2	X	X			4,4	Full List
SED-DA-045 (0-0.5)		900	Sed		8oz	1	X	X			4	Full List
SED-DA-045 (0.5-1.0)		905			4oz	1					4	44 PAH List
SED-DA-052 (0-0.5)		930			8oz	1		X			4	Full List
SED-DA-052 (0.5-1.0)		935			4oz	1					4	44 PAH List
SED-DA-052 (1.0-1.5)		940			4oz	1					4	44 PAH List
SED-DA-Dup-06-081013					8oz	1	X	X			4	Full List
					Total # of Containers	13						

Analyses

Other Instructions: sdg 13081301 Cooler 3 of 4 (2)

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-12-13	1700	Printed Name: Amanda Brewster	B&B Labs	8/13/13	11:30
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

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TDI Brooks

Client: ARCADIS

Project ID: May Ranger Pipeline Incident B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH by mod 8015	Cooler #	Other Instructions: sdg 13081301 Cooler 3 of 4 (3)	Comments
SED-DA-018 (0-0.5)	8/10/13	1040	Sed	none	8oz	1	X	X	4		Full List
SED-DA-018 (0.5-1.0)		1045			4oz		X		4		44 PAH List
SED-DA-018 (1.0-1.5)		1050			4oz		X		4		↓
SED-DA-018 (1.5-2.0)		1055			4oz		X		4		
SED-DA-019 (0-0.5)		1115			8oz		X	X	4		Full List
SED-DA-019 (0-0.5) MS		1115			8oz		X	X	4		label: MS/MSD
SED-DA-019 (0-0.5) MSD		1115			8oz		X	X	4		label: ↓ MS/MSD
SED-DA-019 (0.5-1.0)		1120			4oz		X		4		44 PAH List
SED-DA-019 (1.0-1.5)		1125			4oz		X		4		44 PAH List
SED-DA-019 (1.5-2.0)		1130			4oz		X		4		Extract + Hold
					Total # of Containers	10					

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-12-13	1700	Printed Name: Amanda Brewster	B&B Labs	8/13/13	11:30
Signature: ↓	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

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TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH by mod 8015	Cooler #	Other Instructions / Comments
SED-DA-019 (2.0-2.5)	8/10/13	1135	Sed	none	4oz	1	X		4	Sdg 13081301 Cooler 3 of 4 (4)
So-DA-026 (0-0.5)	8/11/13	830			4oz	1	X		1	Extract + Hold
So-DA-026 (0-0.5) MS		830				1	X		1	4/4 PAHs List
So-DA-026 (0-0.5) MSD		830				1	X		1	
So-DA-028 (0.5-1.0)		835				1	X		1	
So-DA-026 (1.0-1.5)		840				1	X		1	
So-DA-028 (0-0.5)		1000				1	X		1	
So-DA-028 (0.5-1.0)		1005				1	X		1	
So-DA-028 (1.0-1.5)		1010				1	X		1	
VV So-DA-EB-04-081113		1000	Water		VOA	(2)	X		1,1	
					Total # of Containers	10				

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-12-13	1706	Printed Name: Amanda Brewster	B&B Labs	8/13/13	11:30
Signature:				Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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: Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 SIM	TEH by mod 8015			Cooler #		Other Instructions / Comments
													Sdg 13081301 Cooler 3 of 4 (5)
SO-DA-029 (0-0.5)	8/11/13	1030	Sed	none	4oz	1	X				1		44 PAHs List
SO-DA-029 (0.5-1.0)	↓	1035	↓		↓	1	X				1		↓
SO-DA-029 (1.0-1.5)		1040				1	X				1		
SED-DA-046 (0-0.5)	8/12/13	835			8oz	1		X			3		Full List
SED-DA-046 (0.5-1.0)		840			4oz	1					3		44 PAH List
SED-DA-046 (1.0-1.5)		845			4oz	1					3		44 PAH List
SED-DA-049 (0-0.5)		905			8oz	1		X			3		Full List
SED-DA-049 (0.5-1.0)		910			4oz	1					3		44 PAH List
SED-DA-049 (1.0-1.5)		915			4oz	1					3		44 PAH List
SED-DA-043 (0-0.5)	↓	950	↓	↓	8oz	1	↓	X			3		Full List
					Total # of Containers								

Analyses

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name Daniel Mays	ARCADIS	8-12-13	1700	Printed Name Amanda Brewster	B&B Labs	8/13/13	11:30
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: Volmaterial

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

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TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 Sim	Analyses: TEH by Mod 8015	Cooler #	Comments
SED-DA-043 (0.5-1.0)	8/12/13	955	Sed	none	4oz	1	X		3	44 PAH List
SED-DA-043 (1.0-1.5)		1000			4oz				3	44 PAH List
SED-DA-044 (0-0.5)		1010			8oz			X	3	Full List
SED-DA-044 (0.5-1.0)		1015			4oz				3	44 PAH List
SED-DA-044 (1.0-1.5)		1020			4oz				3	44 PA List
SED-DA-047 (0-0.5)		1030			8oz			X	3	Full List
SED-DA-047 (0.5-1.0)		1035			4oz				3	44 PAH List
SED-DA-047 (1.0-1.5)		1040			4oz				3	44 PA List
SED-DA-048 (0-0.5)		1245			8oz			X	3	Full List
SED-DA-048 (0-0.5) MS		1245			8oz		X	X	3	Full List
					Total # of Containers					

Other Instructions: SDG 13081301 Cooler 3 of 4 (6)

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-12-13	1700	Printed Name: Amanda Brewster	B&B Labs	8/13/13	11:30
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

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: Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Analyses

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 Sim	TEH by mod 8015			Cooler #		Other Instructions / Comments
													SDG 13081301 Cooler 3 of 4 (7)
SED-DA-048 (0-0.5) MSD	8/12/13	1245	Sed	none	8 oz	1	X	X			3		Full List
SED-DA-048 (0.5-1.0)	↓	1250	↓	↓	4 oz	1	X				3		44 PAHs List
SED-DA-048 (1.0-1.5)	↓	1255	↓	↓	4 oz	1	X				3		44 PAHs List
SED-DA-Dup-07-081213	↓		↓	↓	8 oz	1	X	X			3		Full List

Total # of Containers

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-12-13	1706	Printed Name: Amanda Brewster	B&B Labs	8/13/13	11:30
Signature: ↓	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Volmaterial

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

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64453	J13034	Arcadis - Mayflower AR	ARC1765	SED-DA-EB-07-080913	08/09/13	08/13/13	PAH, TPH, ALI	WATER	1 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64454	J13034	Arcadis - Mayflower AR	ARC1766	SED-DA-EB-07-080913	08/09/13	08/13/13	HOLD	WATER	2 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64455	J13034	Arcadis - Mayflower AR	ARC1767	SED-DA-DI-Water	08/09/13	08/13/13	PAH, TPH, ALI	WATER	1 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64456	J13034	Arcadis - Mayflower AR	ARC1768	SED-DA-DI-Water	08/09/13	08/13/13	HOLD	WATER	2 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64457	J13034	Arcadis - Mayflower AR	ARC1769	SED-DA-EB-08-081013	08/10/13	08/13/13	PAH, TPH, ALI	WATER	1 of 2	13081301	Cooler 4	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64458	J13034	Arcadis - Mayflower AR	ARC1770	SED-DA-EB-08-081013	08/10/13	08/13/13	HOLD	WATER	2 of 2	13081301	Cooler 4	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64459	J13034	Arcadis - Mayflower AR	ARC1771	SO-DA-EB-04-081113	08/11/13	08/13/13	PAH	WATER	44 analytes, 1 of 2	13081301	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64460	J13034	Arcadis - Mayflower AR	ARC1772	SO-DA-EB-04-081113	08/11/13	08/13/13	HOLD	WATER	2 of 2	13081301	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64461	J13034	Arcadis - Mayflower AR	ARC1773	SO-DA-026 (0-0.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64462	J13034	Arcadis - Mayflower AR	ARC1774	SO-DA-026 (0-0.5) MS	08/11/13	08/13/13	PAH	SOIL	44 analytes, MS	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64463	J13034	Arcadis - Mayflower AR	ARC1775	SO-DA-026 (0-0.5) MSD	08/11/13	08/13/13	PAH	SOIL	44 analytes, MSD	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64464	J13034	Arcadis - Mayflower AR	ARC1776	SO-DA-026 (0.5-1.0)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64465	J13034	Arcadis - Mayflower AR	ARC1777	SO-DA-026 (1.0-1.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64466	J13034	Arcadis - Mayflower AR	ARC1778	SO-DA-028 (0-0.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64467	J13034	Arcadis - Mayflower AR	ARC1779	SO-DA-028 (0.5-1.0)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64468	J13034	Arcadis - Mayflower AR	ARC1780	SO-DA-028 (1.0-1.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64469	J13034	Arcadis - Mayflower AR	ARC1781	SO-DA-029 (0-0.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64470	J13034	Arcadis - Mayflower AR	ARC1782	SO-DA-029 (0.5-1.0)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64471	J13034	Arcadis - Mayflower AR	ARC1783	SO-DA-029 (1.0-1.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64472	J13034	Arcadis - Mayflower AR	ARC1784	SED-DA-021 (0-0.5)	08/09/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64473	J13034	Arcadis - Mayflower AR	ARC1785	SED-DA-021 (0.5-1.0)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64474	J13034	Arcadis - Mayflower AR	ARC1786	SED-DA-021 (1.0-1.5)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64475	J13034	Arcadis - Mayflower AR	ARC1787	SED-DA-021 (1.5-2.0)	08/09/13	08/13/13	extract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64476	J13034	Arcadis - Mayflower AR	ARC1788	SED-DA-021 (2.0-3.0)	08/09/13	08/13/13	extract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64477	J13034	Arcadis - Mayflower AR	ARC1789	SED-DA-021 (3.0-3.3)	08/09/13	08/13/13	extract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64478	J13034	Arcadis - Mayflower AR	ARC1790	SED-DA-042 (0-0.5)	08/09/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64479	J13034	Arcadis - Mayflower AR	ARC1791	SED-DA-042 (0-0.5) MS	08/09/13	08/13/13	PAH, TPH, ALI	SED	MS	13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64480	J13034	Arcadis - Mayflower AR	ARC1792	SED-DA-042 (0-0.5) MSD	08/09/13	08/13/13	PAH, TPH, ALI	SED	MSD	13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64481	J13034	Arcadis - Mayflower AR	ARC1793	SED-DA-042 (0.5-1.0)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64482	J13034	Arcadis - Mayflower AR	ARC1794	SED-DA-042 (1.0-1.5)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64483	J13034	Arcadis - Mayflower AR	ARC1795	SED-DA-046 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64484	J13034	Arcadis - Mayflower AR	ARC1796	SED-DA-046 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64485	J13034	Arcadis - Mayflower AR	ARC1797	SED-DA-046 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64486	J13034	Arcadis - Mayflower AR	ARC1798	SED-DA-049 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64487	J13034	Arcadis - Mayflower AR	ARC1799	SED-DA-049 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64488	J13034	Arcadis - Mayflower AR	ARC1800	SED-DA-049 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64489	J13034	Arcadis - Mayflower AR	ARC1801	SED-DA-043 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64490	J13034	Arcadis - Mayflower AR	ARC1802	SED-DA-043 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64491	J13034	Arcadis - Mayflower AR	ARC1803	SED-DA-043 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64492	J13034	Arcadis - Mayflower AR	ARC1804	SED-DA-044 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64493	J13034	Arcadis - Mayflower AR	ARC1805	SED-DA-044 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64494	J13034	Arcadis - Mayflower AR	ARC1806	SED-DA-044 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64495	J13034	Arcadis - Mayflower AR	ARC1807	SED-DA-047 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64496	J13034	Arcadis - Mayflower AR	ARC1808	SED-DA-047 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64497	J13034	Arcadis - Mayflower AR	ARC1809	SED-DA-047 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64498	J13034	Arcadis - Mayflower AR	ARC1810	SED-DA-048 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64499	J13034	Arcadis - Mayflower AR	ARC1811	SED-DA-048 (0-0.5) MS	08/12/13	08/13/13	PAH, TPH, ALI	SED	MS	13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64500	J13034	Arcadis - Mayflower AR	ARC1812	SED-DA-048 (0-0.5) MSD	08/12/13	08/13/13	PAH, TPH, ALI	SED	MSD	13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64501	J13034	Arcadis - Mayflower AR	ARC1813	SED-DA-048 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64502	J13034	Arcadis - Mayflower AR	ARC1814	SED-DA-048 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64503	J13034	Arcadis - Mayflower AR	ARC1815	SED-DA-DUP-07-081213	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64504	J13034	Arcadis - Mayflower AR	ARC1816	SED-DA-045 (0-0.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64505	J13034	Arcadis - Mayflower AR	ARC1817	SED-DA-045 (0.5-1.0)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64506	J13034	Arcadis - Mayflower AR	ARC1818	SED-DA-052 (0-0.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64507	J13034	Arcadis - Mayflower AR	ARC1819	SED-DA-052 (0.5-1.0)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64508	J13034	Arcadis - Mayflower AR	ARC1820	SED-DA-052 (1.0-1.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64509	J13034	Arcadis - Mayflower AR	ARC1821	SED-DA-DUP-06-081013	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64510	J13034	Arcadis - Mayflower AR	ARC1822	SED-DA-018 (0-0.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64511	J13034	Arcadis - Mayflower AR	ARC1823	SED-DA-018 (0.5-1.0)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64512	J13034	Arcadis - Mayflower AR	ARC1824	SED-DA-018 (1.0-1.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64513	J13034	Arcadis - Mayflower AR	ARC1825	SED-DA-018 (1.5-2.0)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64514	J13034	Arcadis - Mayflower AR	ARC1826	SED-DA-019 (0-0.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64515	J13034	Arcadis - Mayflower AR	ARC1827	SED-DA-019 (0-0.5) MS	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64516	J13034	Arcadis - Mayflower AR	ARC1828	SED-DA-019 (0-0.5) MSD	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64517	J13034	Arcadis - Mayflower AR	ARC1829	SED-DA-019 (0.5-1.0)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64518	J13034	Arcadis - Mayflower AR	ARC1830	SED-DA-019 (1.0-1.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64519	J13034	Arcadis - Mayflower AR	ARC1831	SED-DA-019 (1.5-2.0)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64520	J13034	Arcadis - Mayflower AR	ARC1832	SED-DA-019 (2.0-2.5)	08/10/13	08/13/13	HOLD	SED	on HOLD per Lyndi Mott 8/13/13	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis - Mayflower AR
Initiation Date: 8/13/13

Number of Samples: 4
Matrix: Water
Due Date: 45 days : 9/27/13
Comments: 3 waters: PAH, TPH, ALI
1 water: PAH 44 analytes
received 8/13/13

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): ali / PAH Volume(s): 100 µl

Spike Standard(s): ali / PAH Volume(s): 100 µl

Internal Standard(s): ali / PAH Volume(s): 100 µl

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

Comments:

~~PAH's only~~ 8/13/13

Sample Custodian Signature: amanda Brewster Date: 8/13/13

Laboratory Manager Signature: _____ Date: 8/13/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64453	J13034	Arcadis - Mayflower AR	ARC1765	SED-DA-EB-07-080913	08/09/13	08/13/13	PAH, TPH, ALI	WATER	1 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302
64455	J13034	Arcadis - Mayflower AR	ARC1767	SED-DA-DI-Water	08/09/13	08/13/13	PAH, TPH, ALI	WATER	1 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302
64457	J13034	Arcadis - Mayflower AR	ARC1769	SED-DA-EB-08-081013	08/10/13	08/13/13	PAH, TPH, ALI	WATER	1 of 2	13081301	Cooler 4	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302
64459	J13034	Arcadis - Mayflower AR	ARC1771	SO-DA-EB-04-081113	08/11/13	08/13/13	PAH	WATER	44 analytes, 1 of 2	13081301	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis - Mayflower AR
Initiation Date: 8/13/13

Number of Samples: 13
Matrix: sediments
Due Date: 45 days: 9/27/13
Comments: PAH, TPH, ALI
received 8/13/13

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 1941b	☐ 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: 8/13/13
Laboratory Manager Signature: _____ — Date: 8/15/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64472	J13034	Arcadis - Mayflower AR	ARC1784	SED-DA-021 (0-0.5)	08/09/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64478	J13034	Arcadis - Mayflower AR	ARC1790	SED-DA-042 (0-0.5)	08/09/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64479	J13034	Arcadis - Mayflower AR	ARC1791	SED-DA-042 (0-0.5) MS	08/09/13	08/13/13	PAH, TPH, ALI	SED	MS	13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64480	J13034	Arcadis - Mayflower AR	ARC1792	SED-DA-042 (0-0.5) MSD	08/09/13	08/13/13	PAH, TPH, ALI	SED	MSD	13081301	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64483	J13034	Arcadis - Mayflower AR	ARC1795	SED-DA-046 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64486	J13034	Arcadis - Mayflower AR	ARC1798	SED-DA-049 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64489	J13034	Arcadis - Mayflower AR	ARC1801	SED-DA-043 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64492	J13034	Arcadis - Mayflower AR	ARC1804	SED-DA-044 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64495	J13034	Arcadis - Mayflower AR	ARC1807	SED-DA-047 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64498	J13034	Arcadis - Mayflower AR	ARC1810	SED-DA-048 (0-0.5)	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64499	J13034	Arcadis - Mayflower AR	ARC1811	SED-DA-048 (0-0.5) MS	08/12/13	08/13/13	PAH, TPH, ALI	SED	MS	13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64500	J13034	Arcadis - Mayflower AR	ARC1812	SED-DA-048 (0-0.5) MSD	08/12/13	08/13/13	PAH, TPH, ALI	SED	MSD	13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64503	J13034	Arcadis - Mayflower AR	ARC1815	SED-DA-DUP-07-081213	08/12/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302

T3

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis - MayflowerAK
Initiation Date: 8/13/13

Number of Samples: 27
Matrix: soil/sediment
Due Date: 45 days: 9/27/13
Comments: PAH: 44 analytes
received 8/13/13

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 1944/6	☐ Blank Spike
☐	Blank Spike Duplicate	☑	Matrix Spike _____
☑	Matrix Spike Duplicate _____	☑	Duplicate _____

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ACI Volume(s): 100µl

Spike Standard(s): PAH, ACI Volume(s): 100µl

Internal Standard(s): PAH, ACI Volume(s): 100µl

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

Comments:

PAH, 44 list

Sample Custodian Signature: Amanda Brewster Date: 8/13/13

Laboratory Manager Signature: _____ Date: _____

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64461	J13034	Arcadis - Mayflower AR	ARC1773	SO-DA-026 (0-0.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64462	J13034	Arcadis - Mayflower AR	ARC1774	SO-DA-026 (0-0.5) MS	08/11/13	08/13/13	PAH	SOIL	44 analytes, MS	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64463	J13034	Arcadis - Mayflower AR	ARC1775	SO-DA-026 (0-0.5) MSD	08/11/13	08/13/13	PAH	SOIL	44 analytes, MSD	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64464	J13034	Arcadis - Mayflower AR	ARC1776	SO-DA-026 (0.5-1.0)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64465	J13034	Arcadis - Mayflower AR	ARC1777	SO-DA-026 (1.0-1.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64466	J13034	Arcadis - Mayflower AR	ARC1778	SO-DA-028 (0-0.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64467	J13034	Arcadis - Mayflower AR	ARC1779	SO-DA-028 (0.5-1.0)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64468	J13034	Arcadis - Mayflower AR	ARC1780	SO-DA-028 (1.0-1.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64469	J13034	Arcadis - Mayflower AR	ARC1781	SO-DA-029 (0-0.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64470	J13034	Arcadis - Mayflower AR	ARC1782	SO-DA-029 (0.5-1.0)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64471	J13034	Arcadis - Mayflower AR	ARC1783	SO-DA-029 (1.0-1.5)	08/11/13	08/13/13	PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64473	J13034	Arcadis - Mayflower AR	ARC1785	SED-DA-021 (0.5-1.0)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64474	J13034	Arcadis - Mayflower AR	ARC1786	SED-DA-021 (1.0-1.5)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64481	J13034	Arcadis - Mayflower AR	ARC1793	SED-DA-042 (0.5-1.0)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64482	J13034	Arcadis - Mayflower AR	ARC1794	SED-DA-042 (1.0-1.5)	08/09/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64484	J13034	Arcadis - Mayflower AR	ARC1796	SED-DA-046 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64485	J13034	Arcadis - Mayflower AR	ARC1797	SED-DA-046 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64487	J13034	Arcadis - Mayflower AR	ARC1799	SED-DA-049 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64488	J13034	Arcadis - Mayflower AR	ARC1800	SED-DA-049 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64490	J13034	Arcadis - Mayflower AR	ARC1802	SED-DA-043 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64491	J13034	Arcadis - Mayflower AR	ARC1803	SED-DA-043 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64493	J13034	Arcadis - Mayflower AR	ARC1805	SED-DA-044 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64494	J13034	Arcadis - Mayflower AR	ARC1806	SED-DA-044 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64496	J13034	Arcadis - Mayflower AR	ARC1808	SED-DA-047 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64497	J13034	Arcadis - Mayflower AR	ARC1809	SED-DA-047 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64501	J13034	Arcadis - Mayflower AR	ARC1813	SED-DA-048 (0.5-1.0)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64502	J13034	Arcadis - Mayflower AR	ARC1814	SED-DA-048 (1.0-1.5)	08/12/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis-Mayflower AR
Initiation Date: 8/13/13

Number of Samples: 3
Matrix: sediments
Due Date: 45 days: 9/27/13
Comments: extract: hold
received 8/13/13

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 1941b	☐ Blank Spike	
☐ Blank Spike Duplicate		☐ Matrix Spike	
☐ Matrix Spike Duplicate		☐ Duplicate	

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

Comments:

Sample Custodian Signature: Amanda Brewster — Date: 8/13/13
Laboratory Manager Signature: _____ — Date: 8/13/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64475	J13034	Arcadis - Mayflower AR	ARC1787	SED-DA-021 (1.5-2.0)	08/09/13	08/13/13	extract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64476	J13034	Arcadis - Mayflower AR	ARC1788	SED-DA-021 (2.0-3.0)	08/09/13	08/13/13	extract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64477	J13034	Arcadis - Mayflower AR	ARC1789	SED-DA-021 (3.0-3.3)	08/09/13	08/13/13	extract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

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From: Parmelee, Rhiannon
Sent: Monday, August 12, 2013 5:34 PM
To: Mott, Lyndi
Cc: Tomlinson, Lisa; Skwarski, Alison
Subject: RE: DARSP on hold?

Here are the samples I want all of the labs to hold and not analyze yet (ALS/B&B will be shipped today):

SED-DA-045(0.0-0.5)
SED-DA-045(0.5-1.0)

SED-DA-052(0.0-0.5)
SED-DA-052(0.5-1.0)
SED-DA-052(1.0-1.5)

SED-DA-018(0.0-0.5)
SED-DA-018(0.5-1.0)
SED-DA-018(1.0-1.5)
SED-DA-018(1.5-2.0)

SED-DA-019(0.0-0.5)
SED-DA-019(0.0-0.5) MS/MSD
SED-DA-019(0.5-1.0)
SED-DA-019(1.0-1.5)
SED-DA-019(1.5-2.0)
SED-DA-019(2.0-2.5)

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amanda brewster

From: juanramirez@tdi-bi.com
Sent: Tuesday, August 13, 2013 9:55 AM
To: 'Amanda J. Brewster'
Subject: FW: DARSP on hold

Juan Ramirez
Environmental Lab Manager
TDI-BI/B&B Labs
14391B South Dowling Rd.
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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com]
Sent: Monday, August 12, 2013 8:14 PM
To: Juan Ramirez
Cc: Tomlinson, Lisa; Capria, Dennis; Chandler, Jennifer
Subject: RE: DARSP on hold

Juan,

There is also a field duplicate with these samples that should also be placed on hold.
SED-DA-DUP-06

Thank you,
Lyndi Mott

From: Mott, Lyndi
Sent: Monday, August 12, 2013 5:43 PM
To: Juan Ramirez
Cc: Tomlinson, Lisa; Capria, Dennis; Chandler, Jennifer
Subject: FW: DARSP on hold?

Juan,

The following samples from the Downstream Area (DARSP) that were collected over the weekend and are being shipped today are to be placed on hold. We should be able to give direction on how to proceed by the end of the week.

Thank you,

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Tuesday, August 13, 2013 3:32 PM
To: 'Mays, Daniel'; 'Lewis, Ryan'; Parmelee, Rhiannon (Rhiannon.Parmelee@arcadis-us.com); 'Jennifer.Chandler@arcadis-us.com'; 'Dennis.Capria@arcadis-us.com'; Mott, Lyndi (Lyndi.Mott@arcadis-us.com)
Cc: Juan Ramirez (juanramirez@tdi-bi.com); Donell Frank; 'tommcdonald@tdi-bi.com' (tommcdonald@tdi-bi.com)
Subject: Samples Received 8/13/13
Attachments: COC 8-13-13.pdf

Hi Daniel/Ryan,

We received your coolers today in good condition.
The internal temperature of Cooler 1 was 5.1ºC and the temperature blank was 1.2ºC
The internal temperature of Cooler 2 was 1.5ºC and the temperature blank was 2.3ºC
The internal temperature of Cooler 3 was 2.1ºC and the temperature blank was 1.9ºC
The internal temperature of Cooler 4 was 6.1ºC and the temperature blank was 0.9ºC

A PDF of the COCs is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Monday, August 12, 2013 6:46 PM
To: amanda brewster
Cc: Lewis, Ryan
Subject: Coolers Shipped 8-12-13

Good Evening Amanda,

The coolers shipped today from the XOM-Mayflower Site are under tracking #8022 2781 5939.

Additionally Ryan Lewis will be sending this e-mails in the future as I will be offsite.

Regards,
Danny Mays | Environmental Specialist, E.I. | daniel.mays@arcadis-us.com
ARCADIS U.S., Inc. | 801 Corporate Center Drive, Suite 300 | Raleigh, North Carolina 27607
T: 919-415-2281 | M: 919-812-1417 | F: 919-854-5448
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amanda brewster

From: juanramirez@tdi-bi.com
Sent: Wednesday, August 14, 2013 11:05 AM
To: 'Mott, Lyndi'
Cc: 'Parmelee, Rhiannon'; 'Tomlinson, Lisa'; 'Skwarski, Alison'; 'Chandler, Jennifer'; 'Amanda J. Brewster'; Donell Frank; 'Tom Mc Donald'
Subject: RE: DARSP samples taken off hold

Hello Lyndi,

Will update our records and will send you an updated inventory of samples received as of today with requested analysis.

Juan

Juan Ramirez
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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com]
Sent: Wednesday, August 14, 2013 10:29 AM
To: Juan Ramirez
Cc: Parmelee, Rhiannon; Tomlinson, Lisa; Skwarski, Alison; Chandler, Jennifer
Subject: DARSP samples taken off hold
Importance: High

Juan,

We are good to go with processing all of these samples EXCEPT SED-DA-019(2.0-2.5). We want to archive SED-DA-019(2.0-2.5). The team was able to collect the 2.0-3.0 interval for this location, which was the intended target.

As a reminder, we can analyze the following that were collected on Saturday:

SED-DA-045(0.0-0.5)
SED-DA-045(0.5-1.0)

SED-DA-052(0.0-0.5)
SED-DA-052(0.5-1.0)
SED-DA-052(1.0-1.5)

SED-DA-018(0.0-0.5)
SED-DA-018(0.5-1.0)
SED-DA-018(1.0-1.5)
SED-DA-018(1.5-2.0)

SED-DA-019(0.0-0.5)
SED-DA-019(0.0-0.5) MS/MSD
SED-DA-019(0.5-1.0)
SED-DA-019(1.0-1.5)
SED-DA-019(1.5-2.0)

SED-DA-DUP-06

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis-Mayflower AR
Initiation Date: 8/14/13

Number of Samples: 8
Matrix: sediments
Due Date: 45 days: 9/28/13
Comments: PAH: 44 analytes
received 8/13/13

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 1944	☑ Blank Spike
☐	Blank Spike Duplicate	☑	Matrix Spike
☑	Matrix Spike Duplicate	☑	Duplicate

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, AL Volume(s): 100ml
Spike Standard(s): PAH, AL Volume(s): 100ml
Internal Standard(s): PAH, A-L Volume(s): 100ml
Final Extract Volume (ml): 1.0 Final Solvent: DCM

Comments:

Sample Custodian Signature: amanda Brewster Date: 8/14/13
Laboratory Manager Signature: Date: 8/14/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64505	J13034	Arcadis - Mayflower AR	ARC1817	SED-DA-045 (0.5-1.0)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64507	J13034	Arcadis - Mayflower AR	ARC1819	SED-DA-052 (0.5-1.0)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64508	J13034	Arcadis - Mayflower AR	ARC1820	SED-DA-052 (1.0-1.5)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64511	J13034	Arcadis - Mayflower AR	ARC1823	SED-DA-018 (0.5-1.0)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64512	J13034	Arcadis - Mayflower AR	ARC1824	SED-DA-018 (1.0-1.5)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64513	J13034	Arcadis - Mayflower AR	ARC1825	SED-DA-018 (1.5-2.0)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64517	J13034	Arcadis - Mayflower AR	ARC1829	SED-DA-019 (0.5-1.0)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64518	J13034	Arcadis - Mayflower AR	ARC1830	SED-DA-019 (1.0-1.5)	08/10/13	08/13/13	PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis-Mayflower AR
Initiation Date: 8/14/13

Number of Samples: 1
Matrix: sed
Due Date: N/A
Comments: extract: HOLD
received 8/13/13

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 1541b	☐ Blank Spike
☐	Blank Spike Duplicate	☑	Matrix Spike
☑	Matrix Spike Duplicate	☐	Duplicate

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): 1,4-DCB Volume(s): 100ul
Spike Standard(s): PAH Mix A Volume(s): 100ul
Internal Standard(s): PAH Mix A Volume(s): 100ul
Final Extract Volume (ml): 1.0 Final Solvent: DCM

Comments:

Sample Custodian Signature: amanda Brewster Date: 8/14/13
Laboratory Manager Signature: Date: 8/14/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64519	J13034	Arcadis - Mayflower AR	ARC1831	SED-DA-019 (1.5-2.0)	08/10/13	08/13/13	extract & HOLD	SED		13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis - Mayflower AR
Initiation Date: 8/14/13

Number of Samples: 7
Matrix: sediments
Due Date: 45 days: 9/28/13
Comments: PAH, TPH, ALI
received 8/13/13

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 SV1/2	☐ 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: 8/14/13
Laboratory Manager Signature: _____ — Date: 8/14/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64504	J13034	Arcadis - Mayflower AR	ARC1816	SED-DA-045 (0-0.5)	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64506	J13034	Arcadis - Mayflower AR	ARC1818	SED-DA-052 (0-0.5)	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64509	J13034	Arcadis - Mayflower AR	ARC1821	SED-DA-DUP-06-081013	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64510	J13034	Arcadis - Mayflower AR	ARC1822	SED-DA-018 (0-0.5)	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64514	J13034	Arcadis - Mayflower AR	ARC1826	SED-DA-019 (0-0.5)	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64515	J13034	Arcadis - Mayflower AR	ARC1827	SED-DA-019 (0-0.5) MS	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64516	J13034	Arcadis - Mayflower AR	ARC1828	SED-DA-019 (0-0.5) MSD	08/10/13	08/13/13	PAH, TPH, ALI	SED		13081301	Cooler 4	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302

amanda brewster

From: juanramirez@tdi-bi.com
Sent: Thursday, August 15, 2013 9:04 AM
To: 'Mott, Lyndi'; 'amanda brewster'; 'Donell Frank'
Cc: 'Chandler, Jennifer'; 'Capria, Dennis'; 'Tom Mc Donald'
Subject: RE: Samples Received 8/13/13

We will extract the duplicate bottle with the next set of waters.

Juan

Juan Ramirez
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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com]
Sent: Thursday, August 15, 2013 8:59 AM
To: juanramirez@tdi-bi.com; 'amanda brewster'; 'Donell Frank'
Cc: Chandler, Jennifer; Capria, Dennis; 'Tom Mc Donald'
Subject: RE: Samples Received 8/13/13

Juan,

If you have other water matrices to extract by 8/16, can you include the 2nd liter of DI water. That way we would have a duplicate analysis of the DI water. I apologize that I didn't let you know sooner. I didn't realize they had already shipped the DI water.

Thank you,
Lyndi Mott

From: juanramirez@tdi-bi.com [mailto:juanramirez@tdi-bi.com]
Sent: Thursday, August 15, 2013 8:50 AM
To: Mott, Lyndi; 'amanda brewster'; 'Donell Frank'
Cc: Chandler, Jennifer; Capria, Dennis; 'Tom Mc Donald'
Subject: RE: Samples Received 8/13/13

Lyndi,

We have extracted 1 liter bottle for ARC1767 (SED-DA-DI-Water). Do we also need to extract the 2nd 1 liter bottle? Extraction Holding time for the sample is due 8/16/2013.

Juan

Juan Ramirez
Environmental Lab Manager
TDI-BI/B&B Labs
14391B South Dowling Rd.
College Station, TX 77845
Office - (979) 693-3446
Fax - (979) 693-6389
Cell – (979) 777-0793

Web Site: http://tdi-bi.com/

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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com]
Sent: Thursday, August 15, 2013 8:05 AM
To: amanda brewster; Juan Ramirez; Donell Frank
Cc: Chandler, Jennifer; Capria, Dennis
Subject: RE: Samples Received 8/13/13

All,

On this coc is a sample labeled as DI water; SED-DA-DI water. We sent 2 liters just in case we need to reanalyze. This is unopened DI water that we received from Lancaster. We want to see what is in the DI water since we are seeing hits in the equipment blanks. We are trying to determine if the source is from the field or the DI water since your method has much lower detection limits than Lancaster. Please analyze the DI water in the same manner as the equipment blanks. Thank you,

Lyndi Mott | Project Chemistry/Data Quality Specialist | lyndi.mott@arcadis-us.com

ARCADIS U.S., Inc. | 2929 Briarpark Drive | Suite 300 | Houston, TX 77042
T. 713.953.4829 I T. 832.534.8140 I M. 315.569.9448
www.arcadis-us.com

ARCADIS, Imagine the result

Please consider the environment before printing this email.

From: amanda brewster [mailto:amandabrewster@tdi-bi.com]
Sent: Tuesday, August 13, 2013 3:32 PM
To: Mays, Daniel; Lewis, Ryan; Parmelee, Rhiannon; Chandler, Jennifer; Capria, Dennis; Mott, Lyndi
Cc: Juan Ramirez; Donell Frank; tommcdonald@tdi-bi.com
Subject: Samples Received 8/13/13

Hi Daniel/Ryan,

We received your coolers today in good condition.
The internal temperature of Cooler 1 was 5.1ºC and the temperature blank was 1.2ºC
The internal temperature of Cooler 2 was 1.5ºC and the temperature blank was 2.3ºC
The internal temperature of Cooler 3 was 2.1ºC and the temperature blank was 1.9ºC
The internal temperature of Cooler 4 was 6.1ºC and the temperature blank was 0.9ºC

A PDF of the COCs is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Monday, August 12, 2013 6:46 PM
To: amanda brewster
Cc: Lewis, Ryan
Subject: Coolers Shipped 8-12-13

Good Evening Amanda,

The coolers shipped today from the XOM-Mayflower Site are under tracking #8022 2781 5939.

Additionally Ryan Lewis will be sending this e-mails in the future as I will be offsite.

Regards,
Danny Mays | Environmental Specialist, E.I. | daniel.mays@arcadis-us.com
ARCADIS U.S., Inc. | 801 Corporate Center Drive, Suite 300 | Raleigh, North Carolina 27607
T: 919-415-2281 | M: 919-812-1417 | F: 919-854-5448
Professional Affiliate/ARCADIS G&M of North Carolina, Inc.
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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081301
Client: Arcadis-Mayflower AR
Initiation Date: 8/15/13
received 8/13/13

Number of Samples: 1
Matrix: water
Due Date: 45 days: 9/29/13
Comments: PAH, TPH, ALI
collected 8/09/13
extract by 8/15/13

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

Comments:

Sample Custodian Signature: Amanda Brewster — Date: 8/15/13
Laboratory Manager Signature: _____ — Date: 8/15/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64456	J13034	Arcadis - Mayflower AR	ARC1768	SED-DA-DI-Water	08/09/13	08/13/13	PAH, TPH, ALI	WATER	2 of 2	13081301	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/14/13 SDG#: 13081401

Sender: Arcadis- Mayflower, AR

1. Number of Shipping Containers: 1 Arcadis: Ryan Lewis

Comments: large blue cooler

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

Airbill Number: 8022 2781 5847 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

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

Temperature/Comments: 0.9°c / temp blank 0.9°c (T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 1 cooler Number of Samples Received: 21 soil
2 water

8. Problems/Discrepancies:

None

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/14/13

large blue cooler

Ice type: wet ice
Cooler temp: 0.9
Temp blank: 0.9
Thermometer: 6
Custody seal:

Sdg 13081401
Cooler 1 of 1

eurofins | Lancaster Laboratories

480554
CUSTODY SEAL

DATE: 9/13/13
SIGNATURE:

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

FedEx NEW Package

8022 2781 5847

0200

Recipient's Copy

1 From
Date 9-13-201
Sender's Name Ryan Lewis Phone 907 [redacted]
Company ARCADIS
Address [redacted] Dept./Floor/Suite/Room
City [redacted] State [redacted] ZIP

2 Your Internal Billing Reference

3 To
Recipient's Name [redacted] Phone
Company
Address
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 State ZIP

HOLD Weekday
HOLD Saturday

4 Express Package Service * To most locations.
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs.

Next Business Day
- FedEx First Overnight
- FedEx Priority Overnight
- FedEx Standard Overnight

2 or 3 Business Days
- FedEx 2Day A.M.
- FedEx 2Day
- FedEx Express Saver

5 Packaging * Declared value limit $500.
FedEx Envelope* FedEx Pak* FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options
SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
No Signature Required
Direct Signature
Indirect Signature
Does this shipment contain dangerous goods?
No Yes Yes Dry Ice

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
Sender Recipient Third Party Credit Card Cash/Check
Total Packages Total Weight Credit Card Auth.
lbs.

644

8022 2781 5847

341

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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: B006003.1301 Mayflower Pipeline

B&B Contact: Juan Ramirez

Sampler Signature:

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Other Instructions / Comments
SO-DA-001 (0-0.5)	8/13/13	1030	Sed	none	4oz	1	X	SDG 13081401 Cooler 1 of 1 (1)
SO-DA-001 (0.5-1.0)		1035				1		44 PAHs List
SO-DA-001 (1.0-1.5)		1040				1		
SO-DA-002 (0-0.5)		1100				1		
SO-DA-002 (0-0.5)MS		1100				1		
SO-DA-002 (0-0.5)MSD		1100				1		
SO-DA-002 (0.5-1.0)		1105				1		
SO-DA-002 (1.0-1.5)		1110				1		
SO-DA-003 (0-0.5)		1215				1		
SO-DA-003 (0.5-1.0)		1220				1		
					Total # of Containers	10		

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flamenfelt	ARCADIS	8/13/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/14/13	11:00
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

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TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature:

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Other Instructions	Comments
SO-DA-003 (1-1.5)	8/13/13	1225	Sed	none	4oz	1	X	sdg 13081401 Cooler 1 of 1 (2)	4/4 PAHs List
SO-DA-004 (0-0.5)		1330				1			
SO-DA-004 (0.5-1.0)		1335				1			
SO-DA-004 (1.0-1.5)		1340				1			
SO-DA-005 (0-0.5)		1400				1			
SO-DA-005 (0.5-1.0)		1405				1			
SO-DA-005 (1.0-1.5)		1410				1			
SO-DA-006 (0-0.5)		1430				1			
SO-DA-006 (0.5-1.0)		1435				1			
SO-DA-006 (1.0-1.5)		1440				1			
					Total # of Containers	10			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerdew	ARCADIS	8/12/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/14/13	11:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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: B008600.3.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature:

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 S.I.M.	Other Instructions	Comments
SO-DA-Grab-06-081313	8/13/13		Soil	none	4oz	1		Sdg 1308 1401 cooler 1 of 1 (3)	44 PAHs List
SO-DA-EB-05-081313	↓	1610	water	↓	LAG	2			↓

Total # of Containers: 3

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flamer Felt	ARCADIS	8/13/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/14/13	11:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64522	J13034	Arcadis - Mayflower AR	ARC1833	SO-DA-001 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64523	J13034	Arcadis - Mayflower AR	ARC1834	SO-DA-001 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64524	J13034	Arcadis - Mayflower AR	ARC1835	SO-DA-001 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64525	J13034	Arcadis - Mayflower AR	ARC1836	SO-DA-002 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64526	J13034	Arcadis - Mayflower AR	ARC1837	SO-DA-002 (0-0.5) MS	08/13/13	08/14/13	PAH	SOIL	44 analytes, MS	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64527	J13034	Arcadis - Mayflower AR	ARC1838	SO-DA-002 (0-0.5) MSD	08/13/13	08/14/13	PAH	SOIL	44 analytes, MSD	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64528	J13034	Arcadis - Mayflower AR	ARC1839	SO-DA-002 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64529	J13034	Arcadis - Mayflower AR	ARC1840	SO-DA-002 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64530	J13034	Arcadis - Mayflower AR	ARC1841	SO-DA-003 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64531	J13034	Arcadis - Mayflower AR	ARC1842	SO-DA-003 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64532	J13034	Arcadis - Mayflower AR	ARC1843	SO-DA-003 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64533	J13034	Arcadis - Mayflower AR	ARC1844	SO-DA-004 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64534	J13034	Arcadis - Mayflower AR	ARC1845	SO-DA-004 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64535	J13034	Arcadis - Mayflower AR	ARC1846	SO-DA-004 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64536	J13034	Arcadis - Mayflower AR	ARC1847	SO-DA-005 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64537	J13034	Arcadis - Mayflower AR	ARC1848	SO-DA-005 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64538	J13034	Arcadis - Mayflower AR	ARC1849	SO-DA-005 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64539	J13034	Arcadis - Mayflower AR	ARC1850	SO-DA-006 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64540	J13034	Arcadis - Mayflower AR	ARC1851	SO-DA-006 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64541	J13034	Arcadis - Mayflower AR	ARC1852	SO-DA-006 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64542	J13034	Arcadis - Mayflower AR	ARC1853	SO-DA-DUP-06-081313	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64543	J13034	Arcadis - Mayflower AR	ARC1854	SO-DA-EB-05-081313	08/13/13	08/14/13	PAH	WATER	44 analytes, 1 of 2	13081401	Cooler 1	Arcadis: Ryan Lewis	1L amber glass BR bottle	B0086003.1302
64544	J13034	Arcadis - Mayflower AR	ARC1855	SO-DA-EB-05-081313	08/13/13	08/14/13	HOLD	WATER	44 analytes, 2 of 2	13081401	Cooler 1	Arcadis: Ryan Lewis	1L amber glass BR bottle	B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081401
Client: Arcadis- Mayflower AR
Initiation Date: 8/14/13

Number of Samples: 21
Matrix: Soil
Due Date: 45 days: 9/28/13
Comments: PAH: 44 analytes
received 8/14/13

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 1941b	☐ Blank Spike	
☐ Blank Spike Duplicate		☑ Matrix Spike	
☑ Matrix Spike Duplicate		☑ Duplicate	

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

Comments:

Sample Custodian Signature: Amanda Brewster Date: 8/14/13
Laboratory Manager Signature: _____ Date: 8/14/13

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	a	Project #
64522	J13034	Arcadis - Mayflower AR	ARC1833	SO-DA-001 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64523	J13034	Arcadis - Mayflower AR	ARC1834	SO-DA-001 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64524	J13034	Arcadis - Mayflower AR	ARC1835	SO-DA-001 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64525	J13034	Arcadis - Mayflower AR	ARC1836	SO-DA-002 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64526	J13034	Arcadis - Mayflower AR	ARC1837	SO-DA-002 (0-0.5) MS	08/13/13	08/14/13	PAH	SOIL	44 analytes, MS	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64527	J13034	Arcadis - Mayflower AR	ARC1838	SO-DA-002 (0-0.5) MSD	08/13/13	08/14/13	PAH	SOIL	44 analytes, MSD	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64528	J13034	Arcadis - Mayflower AR	ARC1839	SO-DA-002 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64529	J13034	Arcadis - Mayflower AR	ARC1840	SO-DA-002 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64530	J13034	Arcadis - Mayflower AR	ARC1841	SO-DA-003 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64531	J13034	Arcadis - Mayflower AR	ARC1842	SO-DA-003 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64532	J13034	Arcadis - Mayflower AR	ARC1843	SO-DA-003 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64533	J13034	Arcadis - Mayflower AR	ARC1844	SO-DA-004 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64534	J13034	Arcadis - Mayflower AR	ARC1845	SO-DA-004 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64535	J13034	Arcadis - Mayflower AR	ARC1846	SO-DA-004 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64536	J13034	Arcadis - Mayflower AR	ARC1847	SO-DA-005 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64537	J13034	Arcadis - Mayflower AR	ARC1848	SO-DA-005 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64538	J13034	Arcadis - Mayflower AR	ARC1849	SO-DA-005 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64539	J13034	Arcadis - Mayflower AR	ARC1850	SO-DA-006 (0-0.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64540	J13034	Arcadis - Mayflower AR	ARC1851	SO-DA-006 (0.5-1.0)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64541	J13034	Arcadis - Mayflower AR	ARC1852	SO-DA-006 (1.0-1.5)	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64542	J13034	Arcadis - Mayflower AR	ARC1853	SO-DA-DUP-06-081313	08/13/13	08/14/13	PAH	SOIL	44 analytes	13081401	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081401
Client: Arcadis-Mayflower, AR
Initiation Date: 8/14/13

Number of Samples: 1
Matrix: water
Due Date: 45 days: 9/28/13
Comments: collected 8/13/13
extract by 8/19/13
received 8/14/13

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: 8/14/13 8/13 AB 8/14/13
Laboratory Manager Signature: ____ — Date: 8/14/13

Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
J13034	Arcadis - Mayflower AR	ARC1854	SO-DA-EB-05-081313	08/13/13	08/14/13	PAH	WATER	44 analytes, 1 of 2	13081401	Cooler 1	Arcadis: Ryan Lewis	1L amber glass BR bottle		B0086003.1302

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Wednesday, August 14, 2013 10:52 AM
To: 'Lewis, Ryan'; 'Mays, Daniel'; Parmelee, Rhiannon (Rhiannon.Parmelee@arcadis-us.com); 'Jennifer.Chandler@arcadis-us.com'; 'Dennis.Capria@arcadis-us.com'; Mott, Lyndi (Lyndi.Mott@arcadis-us.com)
Cc: Juan Ramirez (juanramirez@tdi-bi.com); Donell Frank; 'tommcdonald@tdi-bi.com' (tommcdonald@tdi-bi.com)
Subject: Samples Received 8/14/13
Attachments: COC 8-14-13.pdf

Hi Ryan,

We received your cooler this morning in good condition.
The internal temperature of the cooler was 0.9ºC and the temperature blank was 0.9ºC.
A PDF of the COC is attached for your records.

Regards,
Amanda

From: Lewis, Ryan [mailto:Ryan.Lewis@arcadis-us.com]
Sent: Tuesday, August 13, 2013 7:18 PM
To: amandabrewster@tdi-bi.com
Cc: Mays, Daniel
Subject: One Cooler Shipped 8-13-2013

Good Evening Amanda,

One cooler shipped today from the XOM-Mayflower Site are under tracking #8022 2781 5847.

Regards,

Ryan B Lewis | Geologist 1 | ryan.lewis@arcadis-us.com

ARCADIS U.S., Inc. | 111 SW Columbia Street, Suite 670 | Portland, OR 97201
T: 503 220 8201 ext. 1101 | M: 503 863 9060
www.arcadis-us.com

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B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/15/13 SDG#: 13081501

Sender: Arcadis- Mayflower, AR

1. Number of Shipping Containers: 1 Arcadis: Ryan Lewis

Comments: large blue cooler

2. Airbill Present? (Yes)/No Shipping Company: FedEx

Airbill Number: 8022 2781 5836 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

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice) Temperature/Comments: 4.6°C/ temp blank 2.4°C (T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 1 Cooler Number of Samples Received: ~~21 seds~~ 22 seds AB 9/24/13

8. Problems/Discrepancies:

9. Resolutions:

10. Checked in by: Amanda Brewster Date: 8/15/13

large blue cooler

Ice type: wet ice
Cooler temp: 4.6
Temp blank: 2.4
Thermometer: 6
Custody seal:

SDG 13081501
Cooler 1 of 1

eurofins | Lancaster Laboratories

474023
CUSTODY SEAL

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE: 8-14-2013

SIGNATURE:

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 5836

Form # 0200 Recipient's Copy

1 From

Date 8-14-2013

Sender's Name Phone

Company

Address Dept./Floor/Suite/Room

City State ZIP

2 Your Internal Billing Reference

3 To

Recipient's Name Phone

Company

Address Dept./Floor/Suite/Room

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

Address

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

City State ZIP

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

8022 2781 5836

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.
☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery for residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

☐ No ☐ Yes — As per attached Shipper's Declaration. ☐ Yes — Shipper's Declaration not required. ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. ☐ Obtain new Acct. No.

☐ Sender Acct. No. in Section 1 will be billed ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight lbs. Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

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CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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: B0056003.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature:

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH	Other Instructions / Comments
SED-DA-050 (0-0.5)	8/14/13	~~845~~	Sed	none	8oz	1	X	X	sdg 13081501 Cooler 1 of 1 (1) Full List
SED-DA-050 (0.5-1.0)		750			4oz				44 PAHs List
SED-DA-050 (1.0-1.5)		755			4oz				↓
SED-DA-051 (0-0.5)		830			8oz			X	Full List
SED-DA-051 (0-0.5)MS		830			8oz			X	↓
SED-DA-051 (0-0.5)MSD		830			8oz			X	↓
SED-DA-051 (0.5-1.0)		835			4oz				44 PAHs List
SED-DA-051 (1.0-1.5)		840							↓
SED-DA-014 (2.0-3.0)		1000							↓
SED-DA-014 (3.0-3.3)	↓	1005	↓	↓	↓	↓	↓	↓	Extract + Hold ↓
					Total # of Containers	10			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerfelt	ARCADIS	8/14/13	1630	Printed Name: Amanda Brewster	B:B Labs	8/15/13	12:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.
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: B008603.301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature:

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH by Mod 8015	Other Instructions / Comments
SED-DA-018 (2.0-3.0)	8/14/13	1030	Sed	none	4oz	1	X		sdg 13081501 Cooler 1 of 1 (2)
SED-DA-018 (3.0-3.2)		1035			4oz	1	X		Extract + Hold
SED-DA-041 (0-0.5)		1230			8oz	1	X	X	Full List
SED-DA-041 (0.5-1.0)		1235			4oz	1	X		44 PAHs List
SED-DA-041 (1.0-1.5)		1240			4oz	1	X		Full List
SED-DA-053 (0-0.5)		1300			8oz	1	X	X	44 PAHs List
SED-DA-053 (0.5-1.0)		1305			4oz	1	X		44 PAHs List
SED-DA-053 (1.0-1.5)		1310			4oz	1	X		Extract + Hold
SED-DA-045 (1.0-1.5)		1340			4oz	1	X		
SED-DA-052 (1.5-2.0)		1420			4oz	1	X		
					Total # of Containers	10			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerlift	ARCADIS	8/14/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/15/13	12:00
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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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: B005600.1301 Mayflower Pipeline Incident

B&B Contact: Juan Rangel

Sampler Signature:

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH by mod 8015	Other Instructions / Comments
SED-DA-052 (2.0-2.6)	8/14/13	1425	Sed	none	4oz	1	X		Extract + Hold
SED-DA-DUP-08-081413 (on label)	8/14/13	—	sed	none	(4oz) 8oz	1	X	X	Full List
					Total # of Containers				

Other Instructions: sdg 13081501 Cooler 1 of 1 (3)

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flamenbelt	ARCADIS	8/14/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/15/13	12:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Volmaterial

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

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64545	J13034	Arcadis - Mayflower AR	ARC1856	SED-DA-050 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64546	J13034	Arcadis - Mayflower AR	ARC1857	SED-DA-050 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64547	J13034	Arcadis - Mayflower AR	ARC1858	SED-DA-050 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64548	J13034	Arcadis - Mayflower AR	ARC1859	SED-DA-051 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64549	J13034	Arcadis - Mayflower AR	ARC1860	SED-DA-051 (0-0.5) MS	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64550	J13034	Arcadis - Mayflower AR	ARC1861	SED-DA-051 (0-0.5) MSD	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64551	J13034	Arcadis - Mayflower AR	ARC1862	SED-DA-051 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64552	J13034	Arcadis - Mayflower AR	ARC1863	SED-DA-051 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64553	J13034	Arcadis - Mayflower AR	ARC1864	SED-DA-019 (2.0-3.0)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64554	J13034	Arcadis - Mayflower AR	ARC1865	SED-DA-019 (3.0-3.3)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64555	J13034	Arcadis - Mayflower AR	ARC1866	SED-DA-018 (2.0-3.0)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64556	J13034	Arcadis - Mayflower AR	ARC1867	SED-DA-018 (3.0-3.2)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64557	J13034	Arcadis - Mayflower AR	ARC1868	SED-DA-041 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64558	J13034	Arcadis - Mayflower AR	ARC1869	SED-DA-041 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64559	J13034	Arcadis - Mayflower AR	ARC1870	SED-DA-041 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64560	J13034	Arcadis - Mayflower AR	ARC1871	SED-DA-053 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64561	J13034	Arcadis - Mayflower AR	ARC1872	SED-DA-053 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64562	J13034	Arcadis - Mayflower AR	ARC1873	SED-DA-053 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64563	J13034	Arcadis - Mayflower AR	ARC1874	SED-DA-045 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64564	J13034	Arcadis - Mayflower AR	ARC1875	SED-DA-052 (1.5-2.0)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64565	J13034	Arcadis - Mayflower AR	ARC1876	SED-DA-052 (2.0-2.6)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64566	J13034	Arcadis - Mayflower AR	ARC1877	SED-DA-DUP-08-081413	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081501
Client: Arcadis-Mayflower AK
Initiation Date: 8/15/13
received 8/15/13

Number of Samples: 6
Matrix: Sediments
Due Date: N/A
Comments: extract: HOLD

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 1941b	☐ Blank Spike
☐	Blank Spike Duplicate	☐	Matrix Spike _____
☑	Matrix Spike Duplicate _____	☐	Duplicate _____

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

Comments:

Sample Custodian Signature: Amanda Brewster — Date: 8/15/13
Laboratory Manager Signature: _____ — Date: 8/15/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64553	J13034	Arcadis - Mayflower AR	ARC1864	SED-DA-019 (2.0-3.0)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64554	J13034	Arcadis - Mayflower AR	ARC1865	SED-DA-019 (3.0-3.3)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64555	J13034	Arcadis - Mayflower AR	ARC1866	SED-DA-018 (2.0-3.0)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64556	J13034	Arcadis - Mayflower AR	ARC1867	SED-DA-018 (3.0-3.2)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64564	J13034	Arcadis - Mayflower AR	ARC1875	SED-DA-052 (1.5-2.0)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302
64565	J13034	Arcadis - Mayflower AR	ARC1876	SED-DA-052 (2.0-2.6)	08/14/13	08/15/13	extract & HOLD	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar		B0086003.1302

6

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081501
Client: Arcadis-Mayflower AR
Initiation Date: 8/15/13
received 8/15/13

Number of Samples: 9
Matrix: sediments
Due Date: 45 days: 9/29/13
Comments: PAH: 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 1941b	☐ Blank Spike	
☐ Blank Spike Duplicate		☑ Matrix Spike	
☑ Matrix Spike Duplicate		☑ Duplicate	

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

Comments:

Sample Custodian Signature: Amanda Brewster Date: 8/15/13
Laboratory Manager Signature: _____ Date: 8/15/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64546	J13034	Arcadis - Mayflower AR	ARC1857	SED-DA-050 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64547	J13034	Arcadis - Mayflower AR	ARC1858	SED-DA-050 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64551	J13034	Arcadis - Mayflower AR	ARC1862	SED-DA-051 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64552	J13034	Arcadis - Mayflower AR	ARC1863	SED-DA-051 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64558	J13034	Arcadis - Mayflower AR	ARC1869	SED-DA-041 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64559	J13034	Arcadis - Mayflower AR	ARC1870	SED-DA-041 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64561	J13034	Arcadis - Mayflower AR	ARC1872	SED-DA-053 (0.5-1.0)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64562	J13034	Arcadis - Mayflower AR	ARC1873	SED-DA-053 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302
64563	J13034	Arcadis - Mayflower AR	ARC1874	SED-DA-045 (1.0-1.5)	08/14/13	08/15/13	PAH	SED	44 analytes	13081501	Cooler 1	Arcadis: Ryan Lewis	4oz clear glass jar	B0086003.1302

9

360

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13081501
Client: Arcadis- Mayflower
Initiation Date: 8/15/13 AR
received 8/15/13

Number of Samples: 7
Matrix: sediments
Due Date: 45 days: 9/29/13
Comments: PAH, TPH, ALI

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 1941b	☐ Blank Spike
☐	Blank Spike Duplicate	☒	Matrix Spike _____
☒	Matrix Spike Duplicate _____	☒	Duplicate _____

SEE BACK FOR SPECIFIC STANDARDS TO USE

Surrogate(s): PAH, ALI Volume(s): 100ul

Spike Standard(s): PAH, ALI Volume(s): 100ul

Internal Standard(s): PAH, ALI Volume(s): 100ul

Final Extract Volume (ml): _____ Final Solvent: DCM

Comments:

Sample Custodian Signature: Amanda Brandt Date: 8/15/13

Laboratory Manager Signature: _____ Date: 8/15/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64545	J13034	Arcadis - Mayflower AR	ARC1856	SED-DA-050 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64548	J13034	Arcadis - Mayflower AR	ARC1859	SED-DA-051 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64549	J13034	Arcadis - Mayflower AR	ARC1860	SED-DA-051 (0-0.5) MS	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64550	J13034	Arcadis - Mayflower AR	ARC1861	SED-DA-051 (0-0.5) MSD	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64557	J13034	Arcadis - Mayflower AR	ARC1868	SED-DA-041 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64560	J13034	Arcadis - Mayflower AR	ARC1871	SED-DA-053 (0-0.5)	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302
64566	J13034	Arcadis - Mayflower AR	ARC1877	SED-DA-DUP-08-081413	08/14/13	08/15/13	PAH, TPH, ALI	SED		13081501	Cooler 1	Arcadis: Ryan Lewis	8oz clear glass jar		B0086003.1302

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Tuesday, August 20, 2013 6:25 PM
To: Lewis, Ryan (Ryan.Lewis@arcadis-us.com); Mays, Daniel (Daniel.Mays@arcadis-us.com); Parmelee, Rhiannon (Rhiannon.Parmelee@arcadis-us.com); Chandler, Jennifer (Jennifer.Chandler@arcadis-us.com); Capria, Dennis (Dennis.Capria@arcadis-us.com); Mott, Lyndi (Lyndi.Mott@arcadis-us.com)
Cc: Juan Ramirez (juanramirez@tdi-bi.com); Donell Frank; 'tommcdonald@tdi-bi.com' (tommcdonald@tdi-bi.com)
Subject: Samples Received 8/15/13

COC 8-15-13.pdf

Hi Ryan,

I have been having some problems with my email the past week, so I wanted to make sure you received this notice. Please disregard if you have already received!

We received your samples 8/15/13 in good condition.
The internal temperature of the cooler was 4.6ºC and the temperature blank was 2.4ºC.
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, TX 77845

Phone: (979) 693-3446
Fax: (979) 693-6389
Email: amandabrewster@tdi-bi.com

Please consider the environment before printing this email

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Laboratory Bench Sheet Logs

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

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

Job #: J13034 SDG #: 1308130, 1308140, 1308150

Client: Arcadis - Mayflower AR

Analysis: ☒ PAH ☐ PESTS ☐ PCB ☐ ALI

Other: 44 analytes

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-2500-003
Pest/PCB: —
Aliphatic: AL-WKSU-200-002
Other: —

Spike: 100 µL
PAH: AR-WKSK-1000-026
Pest/PCB: —
Aliphatic: AL-WKSK-100-020
Other: —

GC Int Std: 100 µL
PAH: AR-~~WKSU~~ WKIS-2500-002
Pest/PCB: —
Aliphatic: AL-WKIS-500-001
Other: —

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

General Comments:

Report 13-3117 ASE 2

Add PAH + ALI standards, PAH short list only for analysis - CK

	Added	Witness
Surrogate:	8/26/13 CK	8/26/13 HA
Spike:	8/26/13 CK	8/26/13 HA
Internal:	8/29/13 CK	8-29-13

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
1	ENV3096A	Procedural Blank	—	—	—	
2	ENV3096B	SRM 1941b	4.14	97.61	4.04	
3	ENV3096C	Matrix Spike (ARC1837)	19.65	76.98	15.13	
4	ENV3096D	Matrix Spike Dup (ARC1838)	19.13	78.82	15.08	
5	ENV3096E	Duplicate (ARC 1857)	19.33	78.13	15.10	
6	ARC1836	SO-DA-002 (0-0.5)	19.14	78.68	15.06	Original for MS/MSD
7	ARC1809	SED-DA-047 (1.0-1.5)	20.08	75.16	15.09	
8	ARC1813	SED-DA-048 (0.5-1.0)	21.93	68.61	15.05	
9	ARC1847	SO-DA-005 (0-0.5)	18.13	83.25	15.09	
10	ARC1848	SO-DA-005 (0.5-1.0)	17.88	84.55	15.12	
11	ARC1849	SO-DA-005 (1.0-1.5)	19.22	78.62	15.11	
12	ARC1850	SO-DA-006 (0-0.5)	20.36	74.17	15.10	

Internal Chain of Custody

Extraction Prep	
Date: 8/26/13	Date: 8/26/13
Initials: HA	Initials: HA
Extraction	
Date: 8/26/13	Date: 8/26/13
Initials: CK	Initials: HA
Concentration	
Date: 8-27-13	Date: 8-27-13
Initials: EN	Initials: EN
Short Columns	
Date: 8-28-13	Date: 8-28-13
Initials: EN	Initials: EN

ENV 3096

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
13	ARC1851	SO-DA-006 (0.5-1.0)	19.08	79.44	15.16	
14	ARC1852	SO-DA-006 (1.0-1.5)	17.73	85.43	15.15	
15	ARC1853	SO-DA-DUP-06-081313	19.26	78.23	15.07	
16	ARC1857	SED-DA-050 (0.5-1.0)	19.30	78.13	15.08	
17	ARC1858	SED-DA-050 (1.0-1.5)	18.76	80.43	15.09	
18	ARC1862	SED-DA-051 (0.5-1.0)	25.24	59.71	15.07	
19	ARC1863	SED-DA-051 (1.0-1.5)	21.22	70.92	15.05	
20	ARC1869	SED-DA-041 (0.5-1.0)	61.27	24.55	15.04	
21	ARC1870	SED-DA-041 (1.0-1.5)	34.53	43.87	15.15	
22	ARC1872	SED-DA-053 (0.5-1.0)	24.29	62.13	15.09	
23	ARC1873	SED-DA-053 (1.0-1.5)	20.27	74.61	15.12	
24	ARC1874	SED-DA-045 (1.0-1.5)	20.35	74.39	15.14	

Internal Chain of Custody

Concentration Short Columns — Date: 8-29-13 / 8-29-13 — Initials: CR / CR

Columns SA1 — Date: — Initials:

Concentration SA1 — Date: — Initials:

Columns SA2 — Date: — Initials:

Concentration SA2 — Date: — Initials:

Transfer for HPLC — Date: — Initials:

HPLC — Date: — Initials:

Post-HPLC Concentration — Date: — Initials:

Final Extract Transfer — Date: 8/29/13 — Initials: CK

Dry Weight Page

DRY 1363, 1364, 1366

Lipid/EOM Page

EOM1034

Clean-up/Separation/Other Columns

—

Lot Numbers

DCM: 52314
Hexane: —
Hydromatrix: —
Water: DI984-B
Silica: BCBJ9493V
Alumina: TG14BZEMS
Sodium Sulfate: 2092C525
Pentane: —
Copper: 115050-AV
Hydrochloric Acid: —
SPE Columns: —
Other: —

Sample Storage Box #

J13034-4

HPLC Storage Box #

—

QC Review

Date	Initials
8/30/13	[illegible]

Copied to Folders

8/30/13 CK

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
☐ OTHER
☒ SEDIMENT
☐ TISSUE
Type

Job #: 513034 SDG #: 13081301

Client: Arcadis - May Flower AR

General comments:

Lab Mananger		Date/Init: ☒ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date:	Init:		Date/Init:	Date/Init:	
8/21/13		8/14/13 CSD	8/14/13 CSD ☒ Bal. Cal.	8/16/13 HA ☑ Bal. Cal.	8/19/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC 1784	SED-DA-021 (0-0.5)	1.31	2.36	1.64	1.63	30.48	
2	ARC 1787	SED-DA-021 (1.5-2.0)	1.31	3.67	3.14	3.14	77.54	
3	ARC 1788	SED-DA-021 (2.0-3.0)	1.30	3.39	2.99	2.99	80.86	
4	ARC 1789	SED-DA-021 (3.0-3.3)	1.31	2.86	2.56	2.56	80.65	
5	ARC 1790	SED-DA-042 (0-0.5)	1.31	2.49	1.92	1.92	51.69	
6	ARC 1791	SED-DA-042 (0-0.5) MS	1.31	2.43	1.72	1.72	36.61	
7	ARC 1792	SED-DA-042 (0-0.5) MSD	1.33	2.60	1.90	1.90	44.88	
8	ARC 1795	SED-DA-046 (0-0.5)	1.32	2.87	2.27	2.27	61.29	
9	ARC 1798	SED-DA-049 (0-0.5)	1.32	2.95	1.95	1.95	38.65	
10	ARC 1801	SED-DA-043 (0-0.5)	1.31	2.79	2.20	2.20	60.14	
11	ARC 1804	SED-DA-044 (0-0.5)	1.31	2.96	2.17	2.16	51.52	
12	ARC 1806	SED-DA-044 (1.0-1.5)	1.31	3.14	2.74	2.74	77.30	
13	ARC 1807	SED-DA-047 (0-0.5)	1.30	2.97	2.31	2.31	60.48	
14	ARC 1808	SED-DA-047 (0.5-1.0)	1.31	2.92	2.42	2.42	68.94	
15	ARC 1809	SED-DA-047 (1.0-1.5)	1.31	2.88	2.49	2.49	75.16	
16	ARC 1810	SED-DA-048 (0-0.5)	1.29	3.35	2.25	2.24	46.12	

DRY 1363

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/16/13 CSS ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/16/13 HA ☑ Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC 1811	SED-DA-048(0-0.5)MS	1.31	2.86	2.05	2.03	46.45	
18	ARC 1812	SED-DA-048(0-0.5)MSD	1.32	3.14	2.24	2.24	50.55	
19	ARC 1813	SED-DA-048(0.5-1.0)	1.31	2.68	2.25	2.25	68.61	
20	ARC 1814	SED-DA-048(1.0-1.5)	1.30	3.33	2.82	2.82	74.88	
21	ARC 1815	SED-DA-DUP-07-081213	1.33	~~2.33~~	2.00	2.00	63.81	2.38g
22	ARC 1787 DUP	Duplicate	1.30	3.08	2.68	2.68	77.53	
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
8/19/13 CK	0.018%
Sample # ARC1787	
Duplicate # ARC1787 Dup	

DRY 1363

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE Type

Job #: J13034 SDG #: 13081401

Client: Arcadis - Mayflower AR

General comments:

Lab Mananger — Date: 8/21/13 Init: [illegible]

Date/Init: ☒ Bal. Cal. 8/15/13 [illegible]

Beaker + Dry Smpl (g) — Date/Init: 8/16/13 HA ☑ Bal. Cal.; Date/Init: 8/19/13 ☑ Bal. Cal.

Date/Init: 8/21/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1833	SO-DA-001 (0-0.5)	1.32	2.74	2.50	2.49	82.39	
2	ARC1834	SO-DA-001 (0.5-1.0)	1.30	2.63	2.39	2.39	81.95	
3	ARC1835	SO-DA-001 (1.0-1.5)	1.31	2.50	2.38	2.38	89.92	
4	ARC1836	SO-DA-002 (0-0.5)	1.30	2.66	2.38	2.37	78.68	
5	ARC1837	SO-DA-002 (0-0.5) MS	1.31	2.57	2.28	2.28	76.98	
6	ARC1838	SO-DA-002 (0-0.5) MSD	1.29	3.32	2.89	2.89	78.82	
7	ARC1839	SO-DA-002 (0.5-1.0)	1.32	2.62	2.38	2.37	80.77	
8	ARC1840	SO-DA-002 (1.0-1.5)	1.31	2.95	2.59	2.59	78.05	
9	ARC1841	SO-DA-003 (0-0.5)	1.31	2.40	2.16	2.15	77.06	
10	ARC1842	SO-DA-003 (0.5-1.0)	1.29	2.91	2.63	2.63	82.72	
11	ARC1843	SO-DA-003 (1.0-1.5)	1.30	2.71	2.49	2.49	84.40	
12	ARC1844	SO-DA-004 (0-0.5)	1.29	2.45	2.16	2.16	75.00	
13	ARC1845	SO-DA-004 (0.5-1.0)	1.32	2.59	2.40	2.40	85.04	
14	ARC1846	SO-DA-004 (1.0-1.5)	1.32	3.09	2.74	2.72	79.10	
15	ARC1847	SO-DA-005 (0-0.5)	1.32	3.35	3.02	3.01	83.25	
16	ARC1848	SO-DA-005 (0.5-1.0)	1.32	2.55	2.36	2.36	84.55	

DRY 1364

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/16/13 HA [X] Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/19/13 HA [✓] Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC1849	SO-DA-005 (1.0-1.5)	1.33	2.92	2.58	2.58	78.62	
18	ARC1850	SO-DA-006 (0-0.5)	1.33	2.53	2.22	2.22	74.17	
19	ARC1851	SO-DA-006 (0.5-1.0)	1.31	3.11	2.74	2.74	79.44	
20	ARC1852	SO-DA-006 (1.0-1.5)	1.32	2.83	2.62	2.61	85.43	
21	ARC1853	SO-DA-DUP-06-081313	1.30	2.77	2.45	2.45	78.23	
22	ARC1853 Dup	Duplicate	1.31	2.95	2.67	2.67	82.93	
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
8/21/13 CK	5.827%
Sample # ARC1853	
Duplicate # ARC1853 Dup	

DRY 1364

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE
  Type: _____

Job #: J13034 SDG #: 13081501

Client: Arcadis-Mayflower AR

General comments:

Lab Mananger		Date/Init: ☒ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date:	Init:		Date/Init:	Date/Init:	
8/21/13		8/19/13 CSS	8/20/13 CSS ☒ Bal. Cal.	8/21/13 CK ☑ Bal. Cal.	8/21/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1856	SED-DA-050 (0-0.5)	1.31	2.85	~~2.04~~ CSS 8/21/13	2.04	47.40	2.06g
2	ARC1857	SED-DA-050 (0.5-1.0)	1.30	2.58	2.29	2.30	78.13	
3	ARC1858	SED-DA-050 (1.0-1.5)	1.31	3.15	2.76	2.79	80.43	
4	ARC1859	SED-DA-051 (0-0.5)	1.31	2.94	1.83	1.81	30.67	
5	ARC1860	SED-DA-051 (0-0.5)MS	~~1.29~~ 8/21/13 CSS	~~2.36~~ 8/19/13 CSS	1.58	1.58	25.93	1.30g / 2.38g
6	ARC1861	SED-DA-051 (0-0.5)MSD	~~1.30~~ 8/19/13 CSS	~~2.64~~ 8/19/13 CSS	1.59	1.59	28.04	1.29g / 2.36g
7	ARC1862	SED-DA-051 (0.5-1.0)	~~1.28~~ 8/19/13 CSS	~~2.69~~ 8/19/13 CSS	2.12	2.13	59.71	1.30g / 2.69g
8	ARC1863	SED-DA-051 (1.0-1.5)	~~1.30~~ 8/19/13 CSS	~~3.44~~ 8/19/13 CSS	2.27	2.28	70.92	1.28g / 2.69g
9	ARC1864	SED-DA-019 (2.0-3.0)	1.30	3.11	2.73	2.72	78.45	
10	ARC1865	SED-DA-019 (3.0-3.3)	1.32	2.59	2.36	2.36	81.89	
11	ARC1866	SED-DA-018 (2.0-3.0)	1.29	3.93	3.31	3.31	76.52	
12	ARC1867	SED-DA-018 (3.0-3.2)	1.31	2.41	2.20	2.20	80.91	
13	ARC1868	SED-DA-041 (0-0.5)	1.31	2.76	1.62	1.62	21.38	
14	ARC1869	SED-DA-041 (0.5-1.0)	1.30	2.40	1.57	1.57	24.55	
15	ARC1870	SED-DA-041 (1.0-1.5)	1.30	2.85	1.99	1.98	43.87	
16	ARC1871	SED-DA-053 (0-0.5)	1.30	3.18	2.30	2.28	52.13	

DRY 1366

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/20/13 DLS ☒ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/21/13 CK ☑ Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC1872	SED-DA-053 (0.5-1.0)	1.31	3.66	2.98	2.77	62.13	
18	ARC1873	SED-DA-053 (1.0-1.5)	1.30	3.23	2.75	2.74	74.61	
19	ARC1874	SED-DA-045 (1.0-1.5)	1.31	5.02	4.08	4.07	74.39	
20	ARC1875	SED-DA-052 (1.5-2.0)	1.32	3.57	3.05	3.04	76.44	
21	ARC1876	SED-DA-052 (2.0-2.6)	1.31	3.50	3.00	3.01	77.63	
22	ARC1877	SED-DA-DUP-08-081413	1.31	4.27	3.04	3.05	58.78	
23	ARC 1876 Dup	Duplicate	1.31	2.72	2.41	2.40	77.30	
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
8/21/13 CK	0.414 %
Sample # ARC1876	
Duplicate # ARC1876 Dup	

DRY 1366

B&B LABORATORIES EOM LOGBOOK

MATRIX: OTHER / (SEDIMENT) / WATER

Job #: J13034 SDG #: 13081301, 13081401, 13081501

Client: Arcadis - Mayflower AR

General comments:

Lab Manager Date/Int: 8/30/13

Transferred by Date/Int: 8/29/13 CK
From ENV Pg: ENV3096
From DRY Pg: DRY 1363, 1364, 1366

Date/Int: 8-28-13 Bal. Cal. ✓

Date/Int: 8/29/13 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	ENV3096A	Procedural Blank	—	—	3	30.202	30.202	0.000	—	—	
2	ENV3096B	SRM 1941b	4.04	97.61	3	30.158	30.336	0.178	1290	1322	
3	ENV3096C	Matrix Spike (ARC1837)	15.13	76.98	3	30.889	31.008	0.119	182	236	
4	ENV3096D	Matrix Spike Dup (ARC1838)	15.08	78.82	3	30.166	30.311	0.145	227	288	
5	ENV3096E	Duplicate (ARC1857)	15.10	78.13	3	29.761	29.780	0.019	29	38	
6	ARC1836	SO-DA-002 (0-0.5)	15.06	78.68	3	30.085	30.203	0.118	185	235	
7	ARC1809	SED-DA-047 (1.0-1.5)	15.09	75.16	3	29.962	30.005	0.043	64	85	
8	ARC1813	SED-DA-048 (0.5-1.0)	15.05	68.61	3	29.828	30.255	0.427	584	851	30.255 Ew
9	ARC1847	SO-DA-005 (0-0.5)	15.09	83.25	3	29.442	30.385	0.943	1561	1875	
10	ARC1848	SO-DA-005 (0.5-1.0)	15.12	84.55	3	30.300	30.402	0.102	171	202	
11	ARC1849	SO-DA-005 (1.0-1.5)	15.11	78.62	3	29.929	30.003	0.074	116	147	
12	ARC1850	SO-DA-006 (0-0.5)	15.10	74.17	3	29.945	30.021	0.076	112	151	

EOM 1034

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	ARC1851	SO-DA-006 (0.5-1.0)	15.16	79.44	3	29.842	29.870	0.028	44	55	
14	ARC1852	SO-DA-006 (1.0-1.5)	15.15	85.43	3	30.467	30.484	0.017	29	34	
15	ARC1853	SO-DA-DUP-06-081313	15.07	78.23	3	30.521	32.710	2.189	3409	4358	
16	ARC1857	SED-DA-050 (0.5-1.0)	15.08	78.13	3	30.590	30.611	0.021	33	42	
17	ARC1858	SED-DA-050 (1.0-1.5)	15.09	80.43	3	29.813	29.821	0.008	13	16	
18	ARC1862	SED-DA-051 (0.5-1.0)	15.07	59.71	3	29.765	30.212	0.447	531	890	
19	ARC1863	SED-DA-051 (1.0-1.5)	15.05	70.92	3	30.546	30.658	0.112	158	223	
20	ARC1869	SED-DA-041 (0.5-1.0)	15.04	24.55	3	30.453	31.879	1.426	698	2844	
21	ARC1870	SED-DA-041 (1.0-1.5)	15.15	43.87	3	30.391	30.983	0.592	514	1172	
22	ARC1872	SED-DA-053 (0.5-1.0)	15.09	62.13	3	30.622	30.999	0.377	466	750	
23	ARC1873	SED-DA-053 (1.0-1.5)	15.12	74.61	3	30.229	30.250	0.021	31	42	
24	ARC1874	SED-DA-045 (1.0-1.5)	15.14	74.39	3	29.848	29.863	0.015	22	30	

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

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

	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl Lipid Wt. (mg)
Solvent Blank	30.221	30.221	0.000
EOM Standard	30.521	40.781	10.26

EOM-WKLC-10-004

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

Date/Int:	RPD
8/29/13 CK	10.1322
Sample: ARC1857	
Duplicate: EN3096E	

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