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

Arcadis
Mayflower AR Project
(Contract # B0086003.1302)
July 30, 2013 through August 4, 2013
Collection Dates

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

(QC Batch ENV 3081)

September 13, 2013

Technical Report 13-3100

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Introduction

B&B Laboratories received a shipment of two (2) ice chests that were sent by Daniel Mays of Arcadis using FedEx on July 30, 2013 and arrived on July 31, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	6.6°C 2.9°C (Temp Blank)	Nineteen (19) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.
2	4.9°C 3.6°C (Temp Blank)	Nineteen (19) 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 Daniel Mays of Arcadis using FedEx on August 1, 2013 and arrived on August 2, 2013 in College Station, Texas. The ice chest arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	8.1°C 4.6°C (Temp Blank)	Fifteen (15) soils in 8oz or 4oz jars

B&B Laboratories received a shipment of three (3) ice chests that were sent by Daniel Mays of Arcadis using FedEx on August 5, 2013 and arrived on August 6, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	5.0°C 1.6°C (Temp Blank)	Twenty-one (21) soils in 8oz or 4oz jars
2	0.2°C 1.2°C (Temp Blank)	Twenty (20) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.
3	0.0°C 1.1°C (Temp Blank)	Twenty-one (21) sediments in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.

The water and sediment/soil samples were collected between July 29, 2013 and August 3, 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 sediment/soil samples were analyzed for Total Petroleum Hydrocarbons (TPH) and C_9 to C_{40} Aliphatic Hydrocarbons (ALI) by GC/FID, 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 sediment/soil samples are included in this report.

Analytical Methods

The standard operating procedures for TPH, ALI, PAH, hopanes, 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/Soil 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/Soil 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 Hopanes	
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

- d10-Acenaphthene was detected outside of the QC recovery limits of 40 to 120% in ARC1641 (SED-DA-012 (0.5-1.0).
- d12-Perylene was detected outside of the QC% recovery limits of 10 to 120% in fifteen (15) client submitted samples and three (3) internal QC samples (which used client submitted samples; MS, MSD, and Duplicate).

Comment

- It is unknown as to why d10-Acenaphtene was detected outside of the % recovery limits.
- 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

- Perylene was detected outside of the QC %recovery limits of 40% to 120% in ENV3081C MS (SO-DA-015 (0-0.5) MS/MSD)). Perylene was detected outside of the QC %recovery limits of 40% to 120% in ENV3081D MSD (SO-DA-015 (0-0.5) MS/MSD)).
- Phenanthrene, Fluoranthene, Chrysene/Triphenylene, Benzo(b)fluoranthene and Benoz(e)pyrene were detected outside of the laboratory QC recovery limits of 40 to 120% in ENV3081C MS (SO-DA-015 (0-0.5) MS/MSD)) and ENV3081D MSD (SO-DA-015 (0-0.5) MS/MSD)).

Comment

- It is unknown as to why Perylene was detected outside of the laboratory QC recovery limits. Though it is suspected that this is a matrix effect as seen in other samples from this project.
- Phenanthrene, Fluoranthene, Chrysene/Triphenylene, Benzo(b)fluoranthene and Benoz(e)pyrene are invalid spikes due to high native concentrations of PAH in the samples. These peaks are qualified with a "Y".

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 Perylene outside of the calibration range of the GC/MS with an "E" code was made in consultation with Dr. Ted Sauer.

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

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

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Tuning	Prior to every sequence	Tune as specified in laboratory SOP	Resolve before proceeding.
Initial Calibration (All parent PAH and selected alkyl homologue PAH)	Prior to every sequence, or as needed based on continuing calibration/verification check.	6-point calibration curve over two orders of magnitude RPD ≤ 20%	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or 6-9 field samples	RPD ≤ 25%, No more than 2 analytes can be between 25% and 35% RPD.	Perform instrument maintenance. Re-analyze affected samples.
Initial Calibration Verification (Second Source or can be met if CCV is second source)	Per initial calibration	%R target analytes 80-120%	Resolve before proceeding.
SRM 1941b for sediment; SRM 1974c for tissue If available use SRMs for appropriate matrices	One per batch/every 20 field samples	Within ±30% of NIST 95% uncertainty range for analytes within the quantitation range. No more than 2 analytes may exceed this criterion.	Resolve before proceeding.
SRM 2779 Reference Oil	One per batch/every 20 field samples	Peak resolution >70% of 4/9-methylphenanthrene from 1-methylphenanthrene (m/z 192). Within ±20% of NIST 95% uncertainty range for analytes within the quantitation range. No more than 2 analytes may exceed this criterion.	Resolve before proceeding.
Matrix Spike/Matrix Spike Duplicate (Sediments, Soils, Tissues only)	One per batch/every 20 field samples	%R 40% - 120% for target analytes, except biphenyl (40-140%), decalin (25-120%) and perylene (10-120%); RPD ≤30%, average %R 60-120% for valid spikes. No more than 2 analytes may exceed 40-120% recovery or >35% RPD.	Evaluate impact to data, discuss with lab manager to determine if corrective action is needed.
Blank Spike/Blank Spike Duplicate	One per batch/every 20 field samples	See MS/MSD criteria above.	Evaluate impact to data, discuss with lab manager to determine if corrective action is needed.
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 13-3100

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	ARC1600	SED-DA-020 (0.5-1.0)	07/30/13	07/31/13	PAH	Sediment	no wet sample remaining, 44 analytes	13073101	B0086003.1302
2	ARC1601	SED-DA-020 (1.0-1.5)	07/30/13	07/31/13	PAH	Sediment	44 analytes	13073101	B0086003.1302
3	ARC1618	SO-DA-012 (0-0.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
4	ARC1619	SO-DA-012 (0.5-1.0)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
5	ARC1620	SO-DA-012 (1.0-1.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
6	ARC1621	SO-DA-013 (0-0.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
7	ARC1622	SO-DA-013 (0.5-1.0)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
8	ARC1623	SO-DA-013 (1.0-1.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
9	ARC1624	SO-DA-014 (0-0.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
10	ARC1625	SO-DA-014 (0.5-1.0)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
11	ARC1626	SO-DA-014 (1.0-1.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
12	ARC1627	SO-DA-DUP-01-080113	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
13	ARC1628	SO-DA-015 (0-0.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
14	ARC1629	SO-DA-015 (0.5-1.0)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
15	ARC1630	SO-DA-015 (1.0-1.5)	08/01/13	08/02/13	PAH	Soil	44 analytes	13080201	B0086003.1302
16	ARC1631	SO-DA-015 (0-0.5) MS/MSD	08/01/13	08/02/13	PAH	Soil	44 analytes, 1 of 2	13080201	B0086003.1302
17	ARC1641	SED-DA-012 (0.5-1.0)	08/04/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
18	ARC1642	SED-DA-012 (1.0-1.5)	08/04/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
19	ARC1643	SED-DA-013 (0.5-1.0)	08/04/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
20	ARC1644	SED-DA-013 (1.0-1.5)	08/04/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302

Sediment Samples

Polycyclic Aromatic Hydrocarbon Concentration

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1600.D	ARC1601.D	ARC1618.D	ARC1619.D	ARC1620.D
Client Name	SED-DA-020 (0.5-1.0)	SED-DA-020 (1.0-1.5)	SO-DA-012 (0-0.5)	SO-DA-012 (0.5-1.0)	SO-DA-012 (1.0-1.5)
Matrix	Sediment	Sediment	Soil	Soil	Soil
Collection Date	07/30/13	07/30/13	08/01/13	08/01/13	08/01/13
Received Date	07/31/13	07/31/13	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/17/13 15:31	8/17/13 16:40	8/17/13 17:48	8/17/13 20:05	8/17/13 21:14
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.1	15.0	15.0
% Dry	28	60	88	87	82
% Moisture	72	40	12	13	18
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	10.9		5.80		2.35		2.47		4.88	
C1-Naphthalenes	11.2		4.45		1.84		2.07		3.72	
C2-Naphthalenes	28.9		9.31		2.89		3.26		6.24	
C3-Naphthalenes	29.7		9.54		2.23		2.56		8.94	
C4-Naphthalenes	36.3		12.9		4.18		<0.7	U	<0.7	U
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	3.98		0.961		2.16		0.727		1.29	
Acenaphthene	6.17		1.67		0.118		0.179		0.420	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	15.7		9.55		2.75		3.62		5.67	
C1-Fluorenes	11.3		5.44		1.61		1.07		2.52	
C2-Fluorenes	49.8		15.2		<0.4	U	<0.4	U	<0.4	U
C3-Fluorenes	49.0		11.3		<0.4	U	<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	8.77		1.86		3.73		0.876		1.71	
Phenanthrene	46.1		35.5		12.7		12.5		19.1	
C1-Phenanthrenes/Anthracenes	42.2		12.1		6.78		5.26		8.45	
C2-Phenanthrenes/Anthracenes	93.5		14.8		10.3		<0.3	U	7.23	
C3-Phenanthrenes/Anthracenes	129		7.57		11.9		<0.3	U	2.97	
C4-Phenanthrenes/Anthracenes	122		9.19		10.6		<0.3	U	3.60	
Dibenzothiophene	11.8		2.75		1.14		1.27		2.11	
C1-Dibenzothiophenes	26.3		2.86		1.57		1.36		3.41	
C2-Dibenzothiophenes	72.2		5.44		5.22		1.62		3.68	
C3-Dibenzothiophenes	145		7.50		11.1		1.33		3.77	
C4-Dibenzothiophenes	137		5.05		9.29		<0.2	U	<0.2	U
Fluoranthene	33.2		11.6		15.9		6.39		12.3	
Pyrene	22.6		5.83		10.3		3.22		7.75	
C1-Fluoranthenes/Pyrenes	73.5		7.61		10.4		2.10		5.96	
C2-Fluoranthenes/Pyrenes	160		<0.5	U	16.9		3.98		9.15	
C3-Fluoranthenes/Pyrenes	171		<0.5	U	8.81		1.84		3.98	
C4-Fluoranthenes/Pyrenes	189		<0.5	U	16.2		<0.5	U	5.12	
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	8.97		2.14		6.92		1.57		2.61	
Chrysene/Triphenylene	56.2		7.02		17.1		4.63		8.30	
C1-Chrysenes	369		<0.2	U	13.1		2.85		6.25	
C2-Chrysenes	219		<0.2	U	13.2		2.77		4.94	
C3-Chrysenes	164		<0.2	U	10.3		1.95		3.10	
C4-Chrysenes	79.5		<0.2	U	6.29		<0.2	U	<0.2	U
Benzo(b)fluoranthene	43.8		10.2		25.2		6.16		9.28	
Benzo(k,j)fluoranthene	11.8		2.73		11.8		2.18		3.15	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	38.2		4.72		15.3		3.75		5.07	
Benzo(a)pyrene	10.9		1.87		4.64		0.676		1.57	
Perylene	562	E	337		0.951	J	0.228	J	2.76	
Indeno(1,2,3-c,d)pyrene	17.0		3.33		6.88		1.76		2.22	
Dibenzo(a,h)anthracene	7.3		8.77		2.36		0.580		0.740	
Benzo(g,h,i)perylene	33.6		3.08		7.01		1.68		2.12	
Total PAHs	3356		597		324		88.4		186	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1600.D	ARC1601.D	ARC1618.D	ARC1619.D	ARC1620.D
Client Name	SED-DA-020 (0.5-1.0)	SED-DA-020 (1.0-1.5)	SO-DA-012 (0-0.5)	SO-DA-012 (0.5-1.0)	SO-DA-012 (1.0-1.5)
Matrix	Sediment	Sediment	Soil	Soil	Soil
Collection Date	07/30/13	07/30/13	08/01/13	08/01/13	08/01/13
Received Date	07/31/13	07/31/13	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/17/13 15:31	8/17/13 16:40	8/17/13 17:48	8/17/13 20:05	8/17/13 21:14
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.1	15.0	15.0
% Dry	28	60	88	87	82
% Moisture	72	40	12	13	18
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	12.8		4.92		2.07		2.33		4.03	
1-Methylnaphthalene	5.46		2.33		0.927		1.04		2.04	
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	90		83		78		77		82	
Acenaphthene-d10	87		86		71		71		85	
Phenanthrene-d10	93		94		90		86		92	
Chrysene-d12	95		79		83		83		90	
Perylene-d12	71		62		1	L	0	L	4	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1621.D	ARC1622.D	ARC1623.D	ARC1624.D	ARC1625.D
Client Name	SO-DA-013 (0-0.5)	SO-DA-013 (0.5-1.0)	SO-DA-013 (1.0-1.5)	SO-DA-014 (0-0.5)	SO-DA-014 (0.5-1.0)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/01/13	08/01/13	08/01/13	08/01/13	08/01/13
Received Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/17/13 22:22	8/17/13 23:31	8/18/13 0:39	8/18/13 1:48	8/18/13 2:56
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.0	15.1	15.1	15.0
% Dry	83	85	85	82	81
% Moisture	17	15	15	18	19
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	1.19		0.668		1.17		2.85		1.63	
C1-Naphthalenes	1.05		0.413	J	0.953	J	2.15		1.39	
C2-Naphthalenes	1.95		0.965		1.67		4.03		2.92	
C3-Naphthalenes	2.41		1.74		2.85		3.28		2.54	
C4-Naphthalenes	1.59		<0.7	U	<0.7	U	<0.7	U	<0.7	U
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	0.209		0.052		0.099		1.90		0.540	
Acenaphthene	0.054	J	0.069	J	0.049	J	0.318		0.201	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	1.74		0.862		2.72		3.19		5.78	
C1-Fluorenes	0.874		0.258	J	0.674		1.69		2.31	
C2-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	0.228		0.047	J	<0.1	U	2.37		0.668	
Phenanthrene	6.00		2.26		6.90		14.8		19.8	
C1-Phenanthrenes/Anthracenes	4.66		<0.1	U	<0.1	U	7.31		6.44	
C2-Phenanthrenes/Anthracenes	8.28		<0.3	U	<0.3	U	7.38		6.67	
C3-Phenanthrenes/Anthracenes	6.58		<0.3	U	<0.3	U	7.58		6.69	
C4-Phenanthrenes/Anthracenes	5.50		<0.3	U	<0.3	U	7.18		4.95	
Dibenzothiophene	0.681		0.101	J	0.211		1.26		1.10	
C1-Dibenzothiophenes	1.50		0.150		0.187		1.47		0.725	
C2-Dibenzothiophenes	4.44		0.188	J	0.236		1.88		1.03	
C3-Dibenzothiophenes	7.38		0.270		<0.2	U	3.20		2.56	
C4-Dibenzothiophenes	5.69		<0.2	U	<0.2	U	<0.2	U	<0.2	U
Fluoranthene	3.59		0.462		0.903		17.9		6.19	
Pyrene	2.73		0.331		0.367		12.4		2.78	
C1-Fluoranthenes/Pyrenes	2.73		<0.5	U	<0.5	U	7.91		2.61	
C2-Fluoranthenes/Pyrenes	4.32		<0.5	U	<0.5	U	13.0		5.39	
C3-Fluoranthenes/Pyrenes	2.91		<0.5	U	<0.5	U	5.05		2.77	
C4-Fluoranthenes/Pyrenes	4.04		<0.5	U	<0.5	U	11.0		6.43	
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	1.14		0.149	J	0.117	J	6.34		1.68	
Chrysene/Triphenylene	3.16		0.154		0.125		15.8		3.92	
C1-Chrysenes	3.47		<0.2	U	<0.2	U	8.60		3.80	
C2-Chrysenes	4.29		<0.2	U	<0.2	U	8.34		4.38	
C3-Chrysenes	3.47		<0.2	U	<0.2	U	7.71		4.95	
C4-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	<0.2	U
Benzo(b)fluoranthene	3.73		0.280		0.203	J	25.8		5.62	
Benzo(k,j)fluoranthene	1.40		0.083	J	0.061	J	9.78		1.85	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	2.67		0.202		0.147	J	15.36		3.68	
Benzo(a)pyrene	1.10		0.062	J	<0.1	U	3.65		0.833	
Perylene	0.280	J	0.028	J	<1.3	U	0.64	J	0.239	J
Indeno(1,2,3-c,d)pyrene	1.26		0.095		0.063		8.62		1.72	
Dibenzo(a,h)anthracene	0.399		0.030	J	0.021	J	2.70		0.605	
Benzo(g,h,i)perylene	1.62		0.103		0.050	J	8.13		1.85	
Total PAHs	110		10.0		19.8		262		129	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1621.D	ARC1622.D	ARC1623.D	ARC1624.D	ARC1625.D
Client Name	SO-DA-013 (0-0.5)	SO-DA-013 (0.5-1.0)	SO-DA-013 (1.0-1.5)	SO-DA-014 (0-0.5)	SO-DA-014 (0.5-1.0)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/01/13	08/01/13	08/01/13	08/01/13	08/01/13
Received Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/17/13 22:22	8/17/13 23:31	8/18/13 0:39	8/18/13 1:48	8/18/13 2:56
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.0	15.1	15.1	15.0
% Dry	83	85	85	82	81
% Moisture	17	15	15	18	19
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	1.16	J	0.451	J	1.05	J	2.43		1.56	
1-Methylnaphthalene	0.548		0.221	J	0.500	J	1.06		0.691	
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	77		78		78		79		84	
Acenaphthene-d10	79		78		77		77		79	
Phenanthrene-d10	87		81		82		84		85	
Chrysene-d12	87		85		83		87		89	
Perylene-d12	2	L	13		4	L	0	L	0	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1626.D	ARC1627.D	ARC1628.D	ARC1629.D	ARC1630.D
Client Name	SO-DA-014 (1.0-1.5)	SO-DA-DUP-01-080113	SO-DA-015 (0-0.5)	SO-DA-015 (0.5-1.0)	SO-DA-015 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/01/13	08/01/13	08/01/13	08/01/13	08/01/13
Received Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/18/13 4:05	8/18/13 6:22	8/18/13 7:30	8/18/13 8:39	8/18/13 9:47
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.0	15.1	15.1
% Dry	83	80	84	84	82
% Moisture	17	20	16	16	18
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	0.949		2.85		4.31		2.74		2.30	
C1-Naphthalenes	0.592	J	2.36		4.31		2.27		1.55	
C2-Naphthalenes	0.883		3.62		8.43		4.07		2.51	
C3-Naphthalenes	1.093		2.55		7.76		2.57		2.02	
C4-Naphthalenes	<0.7	U	<0.7	U	<0.7	U	<0.7	U	<0.7	U
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	0.091		2.70		1.56		0.530		0.288	
Acenaphthene	0.039	J	0.255		0.482		0.340		0.118	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	1.29		1.63		3.79		4.91		2.18	
C1-Fluorenes	0.408		1.42		2.89		1.82		0.940	
C2-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	0.075	J	3.76		2.42	L	0.590		0.349	
Phenanthrene	3.27		11.2		18.9		17.1		6.92	
C1-Phenanthrenes/Anthracenes	<0.1	U	7.80		9.12		6.34		4.85	
C2-Phenanthrenes/Anthracenes	<0.3	U	9.67		16.5		10.1		7.81	
C3-Phenanthrenes/Anthracenes	<0.3	U	11.5		29.1		19.0		7.05	
C4-Phenanthrenes/Anthracenes	<0.3	U	10.0		37.5		19.7		7.98	
Dibenzothiophene	0.240		1.38		1.87		1.16		0.857	
C1-Dibenzothiophenes	0.178		1.66		4.33		3.15		1.23	
C2-Dibenzothiophenes	0.252		2.63		10.59		<0.2	U	2.79	
C3-Dibenzothiophenes	<0.2	U	7.49		22.0		<0.2	U	6.09	
C4-Dibenzothiophenes	<0.2	U	5.53		21.9		<0.2	U	<0.2	U
Fluoranthene	0.717		24.1		17.7		6.03		3.15	
Pyrene	0.223		21.2		12.5		3.00		1.80	
C1-Fluoranthenes/Pyrenes	<0.5	U	13.2		13.3		6.44		2.62	
C2-Fluoranthenes/Pyrenes	<0.5	U	17.8		26.6		12.4		<0.5	U
C3-Fluoranthenes/Pyrenes	<0.5	U	9.47		15.2		9.05		<0.5	U
C4-Fluoranthenes/Pyrenes	<0.5	U	12.8		36.4		17.5		<0.5	U
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	0.263		12.3		6.73		1.54		0.991	
Chrysene/Triphenylene	0.476		24.4		17.2		6.08		3.35	
C1-Chrysenes	<0.2	U	14.4		22.5		12.5		6.59	
C2-Chrysenes	<0.2	U	11.6		28.6		15.7		6.16	
C3-Chrysenes	<0.2	U	9.96		27.4		12.2		5.28	
C4-Chrysenes	<0.2	U	<0.2	U	14.0		<0.2	U	<0.2	U
Benzo(b)fluoranthene	0.687		45.6		31.5		8.00		3.92	
Benzo(k,j)fluoranthene	0.240		16.2		12.2		2.56		0.909	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	0.364		26.2		22.5		6.75		2.52	
Benzo(a)pyrene	<0.1	U	9.04		3.28	L	1.56		0.392	
Perylene	0.043	J	1.92		1.27	L	0.572	J	0.322	J
Indeno(1,2,3-c,d)pyrene	0.160		15.6		8.80		2.42		1.02	
Dibenzo(a,h)anthracene	0.042	J	4.80		3.59		1.08		0.433	
Benzo(g,h,i)perylene	0.082	J	16.6		10.6	L	3.57		1.23	
Total PAHs	12.7		397		540		225		98.5	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1626.D	ARC1627.D	ARC1628.D	ARC1629.D	ARC1630.D
Client Name	SO-DA-014 (1.0-1.5)	SO-DA-DUP-01-080113	SO-DA-015 (0-0.5)	SO-DA-015 (0.5-1.0)	SO-DA-015 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/01/13	08/01/13	08/01/13	08/01/13	08/01/13
Received Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/18/13 4:05	8/18/13 6:22	8/18/13 7:30	8/18/13 8:39	8/18/13 9:47
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.0	15.1	15.1
% Dry	83	80	84	84	82
% Moisture	17	20	16	16	18
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	0.653	J	2.70		4.79		2.59		1.72	
1-Methylnaphthalene	0.310	J	1.13		2.21		1.10		0.800	
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	79		110		63		77		82	
Acenaphthene-d10	69		83		69		61		71	
Phenanthrene-d10	66		83		74		81		76	
Chrysene-d12	88		88		79		80		91	
Perylene-d12	0	L	1	L	2	L	1	L	0	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1641.D	ARC1642.D	ARC1643.D	ARC1644.D
Client Name	SED-DA-012 (0.5-1.0)	SED-DA-012 (1.0-1.5)	SED-DA-013 (1.0-1.5)	SED-DA-013 (1.0-1.5)
Matrix	Sediment	Sediment	Sediment	Sediment
Collection Date	08/04/13	08/04/13	08/04/13	08/04/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/18/13 10:56	8/18/13 12:04	8/18/13 13:13	8/18/13 14:22
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.1	15.1
% Dry	84	83	84	83
% Moisture	16	17	16	17
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	1.62		1.61		1.17		1.23	
C1-Naphthalenes	1.25		1.83		1.40		1.70	
C2-Naphthalenes	1.22		2.44		3.67		3.39	
C3-Naphthalenes	<0.7	U	1.73		4.47		2.04	
C4-Naphthalenes	<0.7	U	<0.7	U	<0.7	U	<0.7	U
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	<0.04	U	<0.04	U	0.072		0.05	
Acenaphthene	<0.1	U	<0.1	U	0.063	J	0.25	
Dibenzofuran	NA		NA		NA		NA	
Fluorene	2.09		2.58		2.54		5.57	
C1-Fluorenes	0.523		1.01		0.887		1.80	
C2-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA	
Anthracene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Phenanthrene	5.23		7.29		6.42		14.9	
C1-Phenanthrenes/Anthracenes	<0.1	U	4.16		<0.1	U	5.23	
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	<0.3	U
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	<0.3	U
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	<0.3	U
Dibenzothiophene	0.406		0.589		0.469		0.621	
C1-Dibenzothiophenes	0.369		0.575		0.434		0.507	
C2-Dibenzothiophenes	0.322		0.466		0.372		0.595	
C3-Dibenzothiophenes	<0.2	U	0.316		0.342		<0.2	U
C4-Dibenzothiophenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U
Fluoranthene	0.688		0.916		0.868		1.85	
Pyrene	0.052	J	0.076	J	0.152		0.048	J
C1-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U
C2-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U
C3-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U
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	0.082	J	0.089	J	0.103	J	0.063	J
Chrysene/Triphenylene	0.085	J	0.067	J	0.073	J	0.032	J
C1-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U
C2-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U
C3-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U
C4-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U
Benzo(b)fluoranthene	<0.2	U	<0.2	U	<0.2	U	<0.2	U
Benzo(k,j)fluoranthene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Benzo(a)fluoranthene	NA		NA		NA		NA	
Benzo(e)pyrene	<0.2	U	<0.2	U	<0.2	U	<0.2	U
Benzo(a)pyrene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Perylene	0.063	J	<1.3	U	0.235	J	<1.3	U
Indeno(1,2,3-c,d)pyrene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Dibenzo(a,h)anthracene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Benzo(g,h,i)perylene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Total PAHs	14.0		25.7		23.7		39.9	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1641.D	ARC1642.D	ARC1643.D	ARC1644.D
Client Name	SED-DA-012 (0.5-1.0)	SED-DA-012 (1.0-1.5)	SED-DA-013 (1.0-1.5)	SED-DA-013 (1.0-1.5)
Matrix	Sediment	Sediment	Sediment	Sediment
Collection Date	08/04/13	08/04/13	08/04/13	08/04/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/13/13	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/18/13 10:56	8/18/13 12:04	8/18/13 13:13	8/18/13 14:22
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.1	15.1
% Dry	84	83	84	83
% Moisture	16	17	16	17
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	1.49		2.12		1.46		1.93	
1-Methylnaphthalene	0.536	J	0.848		0.828		0.83	
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	79		79		76		80	
Acenaphthene-d10	32	*	43		79		50	
Phenanthrene-d10	73		74		72		73	
Chrysene-d12	88		89		88		88	
Perylene-d12	0	L	0	L	18		0	L

Sample Name	ENV3081A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/13/13
Extraction Batch	ENV 3081
Date Acquired	8/17/13 9:48
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	0.102	J	1.03	0.342
C1-Naphthalenes	<1	U	3.09	1.03
C2-Naphthalenes	<0.7	U	2.05	0.684
C3-Naphthalenes	<0.7	U	2.05	0.684
C4-Naphthalenes	<0.7	U	2.05	0.684
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	<0.04	U	0.122	0.041
Acenaphthene	<0.1	U	0.308	0.103
Dibenzofuran	NA		0.613	0.204
Fluorene	<0.2	U	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	<0.1	U	0.346	0.115
Phenanthrene	0.057	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	<0.1	U	0.348	0.116
C1-Dibenzothiophenes	<0.1	U	0.191	0.064
C2-Dibenzothiophenes	<0.2	U	0.696	0.232
C3-Dibenzothiophenes	<0.2	U	0.696	0.232
C4-Dibenzothiophenes	<0.2	U	0.696	0.232
Fluoranthene	<0.3	U	1.00	0.333
Pyrene	<0.1	U	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	<0.2	U	0.609	0.203
Benzo(k,j)fluoranthene	<0.1	U	0.294	0.098
Benzo(a)fluoranthene	NA		0.294	0.098
Benzo(e)pyrene	<0.2	U	0.530	0.177
Benzo(a)pyrene	<0.1	U	0.304	0.101
Perylene	<1.3	U	3.80	1.27
Indeno(1,2,3-c,d)pyrene	<0.1	U	0.151	0.050
Dibenzo(a,h)anthracene	<0.1	U	0.193	0.064
Benzo(g,h,i)perylene	<0.1	U	0.264	0.088
Total PAHs	0.159			

Sample Name	ENV3081A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/13/13
Extraction Batch	ENV 3081
Date Acquired	8/17/13 9:48
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	<1.3	U	3.89	1.30
1-Methylnaphthalene	<0.5	U	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	85
Acenaphthene-d10	86
Phenanthrene-d10	77
Chrysene-d12	98
Perylene-d12	86

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1628.D	ENV3081C.D	ENV3081D.D
Client Name	SO-DA-015 (0-0.5)	MS (SO-DA-015 (0-0.5) MS/MSD)	MSD (SO-DA-015 (0-0.5) MS/MSD)
Matrix	Soil	Soil	Soil
Collection Date	08/01/13	08/01/13	08/01/13
Received Date	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/18/13 7:30	8/17/13 12:05	8/17/13 13:14
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.0
% Dry	84	80	80
% Moisture	16	20	20
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							
C1-Decalins	NA		NA					NA							
C2-Decalins	NA		NA					NA							
C3-Decalins	NA		NA					NA							
C4-Decalins	NA		NA					NA							
Naphthalene	4.309		8.25		59			7.52		48			9		100
C1-Naphthalenes	4.306		NA					NA							
C2-Naphthalenes	8.427		NA					NA							
C3-Naphthalenes	7.76		NA					NA							
C4-Naphthalenes	<0.7	U	NA					NA							
Benzothiophene	NA		NA					NA							
C1-Benzothiophenes	NA		NA					NA							
C2-Benzothiophenes	NA		NA					NA							
C3-Benzothiophenes	NA		NA					NA							
C4-Benzothiophenes	NA		NA					NA							
Biphenyl	NA		NA					<0.3	U						
Acenaphthylene	1.560		5.68		62			4.92		51			14		99.2
Acenaphthene	0.482		6.67		93			5.83		80			14		100
Dibenzofuran	NA		NA					NA							
Fluorene	3.789		7.59		57			7.30		53			4		100
C1-Fluorenes	2.885		NA					NA							
C2-Fluorenes	<0.4	U	NA					NA							
C3-Fluorenes	<0.4	U	NA					NA							
Carbazole	NA		NA					NA							
Anthracene	2.419	L	6.28	L	58			5.88	L	52			7		100
Phenanthrene	18.88		16.45		-37		Y	16.09		-42		Y	2		99.1
C1-Phenanthrenes/Anthracenes	9.12		NA					NA							
C2-Phenanthrenes/Anthracenes	16.545		NA					NA							
C3-Phenanthrenes/Anthracenes	29.121		NA					NA							
C4-Phenanthrenes/Anthracenes	37.483		NA					NA							
Dibenzothiophene	1.869		8.83		106			8.80		106			0		98.6
C1-Dibenzothiophenes	4.334		NA					NA							
C2-Dibenzothiophenes	10.589		NA					NA							
C3-Dibenzothiophenes	22.021		NA					NA							
C4-Dibenzothiophenes	21.90		NA					NA							
Fluoranthene	17.66		22.28		69		Y	21.96		65		Y	1		100
Pyrene	12.515		19.74		108			19.38		103			2		100
C1-Fluoranthenes/Pyrenes	13.261		NA					NA							
C2-Fluoranthenes/Pyrenes	26.628		NA					NA							
C3-Fluoranthenes/Pyrenes	15.185		NA					NA							
C4-Fluoranthenes/Pyrenes	36.394		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	6.735		11.42		70			11.41		70			0		100
Chrysene/Triphenylene	17.2		63.73		702		Y	58.23		620		Y	9		99.4
C1-Chrysenes	22.52		NA					NA							
C2-Chrysenes	28.63		NA					NA							
C3-Chrysenes	27.44		NA					NA							
C4-Chrysenes	14.02		NA					NA							
Benzo(b)fluoranthene	31.47		39.48		120		Y	34.76		50		Y	13		100
Benzo(k,j)fluoranthene	12.221		18.09		88			16.34		62			10		100
Benzo(a)fluoranthene	NA		NA					NA							
Benzo(e)pyrene	22.486		52.60		454		Y	43.45		316		Y	19		100
Benzo(a)pyrene	3.280	L	8.72	L	82			7.32	L	61			17		100
Perylene	1.269	L	1.08	J,L	-3		*	1.20	J,L	-1		*	10		100
Indeno(1,2,3-c,d)pyrene	8.805		13.53		72			12.94		63			4		98.3
Dibenzo(a,h)anthracene	3.592		8.62		76			9.94		96			14		99.1
Benzo(g,h,i)perylene	10.570	L	15.11	L	69			14.88	L	65			2		99.1
Average % Recovery					116					97					

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1628.D	ENV3081C.D	ENV3081D.D
Client Name	SO-DA-015 (0-0.5)	MS (SO-DA-015 (0-0.5) MS/MSD)	MSD (SO-DA-015 (0-0.5) MS/MSD)
Matrix	Soil	Soil	Soil
Collection Date	08/01/13	08/01/13	08/01/13
Received Date	08/02/13	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081	ENV 3081
Date Acquired	8/18/13 7:30	8/17/13 12:05	8/17/13 13:14
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.0	15.0
% Dry	84	80	80
% Moisture	16	20	20
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	4.792		8.79		60			8.12		50			8		100
1-Methylnaphthalene	2.211		7.13		74			6.62		66			7		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	63		68					102							
Acenaphthene-d10	69		84					81							
Phenanthrene-d10	74		85					91							
Chrysene-d12	79		98					103							
Perylene-d12	2	L	6	L				3	L						

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1626.D	ENV3081E.D
Client Name	SO-DA-014 (1.0-1.5)	Dupl. (SO-DA-014 (1.0-1.5))
Matrix	Soil	Soil
Collection Date	08/01/13	08/01/13
Received Date	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081
Date Acquired	8/18/13 4:05	8/17/13 14:22
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	83	83
% Moisture	17	17
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	0.949		0.804		16	X	1.03	0.342
C1-Naphthalenes	0.592	J	0.533	J	10	X	3.09	1.03
C2-Naphthalenes	0.883		0.917		4	X	2.05	0.684
C3-Naphthalenes	1.093		0.961		13	X	2.05	0.684
C4-Naphthalenes	<0.7	U	<0.7	U			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	0.091		0.089		2	X	0.122	0.041
Acenaphthene	0.039	J	0.037	J	6	X	0.308	0.103
Dibenzofuran	NA		NA				0.613	0.204
Fluorene	1.29		1.11		15		0.55	0.183
C1-Fluorenes	0.408		0.394		3	X	1.10	0.367
C2-Fluorenes	<0.4	U	<0.4	U			1.10	0.367
C3-Fluorenes	<0.4	U	<0.4	U			1.10	0.367
Carbazole	NA		NA				0.449	0.150
Anthracene	0.075	J	0.072	J	5	X	0.346	0.115
Phenanthrene	3.27		2.85		14		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	0.240		0.244		2	X	0.348	0.116
C1-Dibenzothiophenes	0.178		0.182		2	X	0.191	0.064
C2-Dibenzothiophenes	0.252		0.247		2	X	0.696	0.232
C3-Dibenzothiophenes	<0.2	U	<0.2	U			0.696	0.232
C4-Dibenzothiophenes	<0.2	U	<0.2	U			0.696	0.232
Fluoranthene	0.717		0.784		9	X	1.00	0.333
Pyrene	0.223		0.343		42	X	0.408	0.136
C1-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
C2-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
C3-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U			1.41	0.469
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	0.263		0.251		5	X	0.577	0.192
Chrysene/Triphenylene	0.476		0.568		18		0.347	0.116
C1-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
C2-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
C3-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
C4-Chrysenes	<0.2	U	<0.2	U			0.695	0.232
Benzo(b)fluoranthene	0.687		0.696		1		0.609	0.203
Benzo(k,j)fluoranthene	0.240		0.229		5	X	0.294	0.098
Benzo(a)fluoranthene	NA		NA				0.294	0.098
Benzo(e)pyrene	0.364		0.386		6	X	0.530	0.177
Benzo(a)pyrene	<0.1	U	<0.1	U			0.304	0.101
Perylene	0.04	J	0.04	J	7	X	3.800	1.267
Indeno(1,2,3-c,d)pyrene	0.160		0.145		9		0.151	0.050
Dibenzo(a,h)anthracene	0.042	J	0.033	J	23	X	0.193	0.064
Benzo(g,h,i)perylene	0.082	J	0.099		18	X	0.264	0.088
Total PAHs	12.7		12.0		5			

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1626.D	ENV3081E.D
Client Name	SO-DA-014 (1.0-1.5)	Dupl. (SO-DA-014 (1.0-1.5))
Matrix	Soil	Soil
Collection Date	08/01/13	08/01/13
Received Date	08/02/13	08/02/13
Extraction Date	08/13/13	08/13/13
Extraction Batch	ENV 3081	ENV 3081
Date Acquired	8/18/13 4:05	8/17/13 14:22
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	83	83
% Moisture	17	17
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	0.653	J	0.596	J	9	X	3.89	1.30
1-Methylnaphthalene	0.310	J	0.270	J	14	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	79		78					
Acenaphthene-d10	69		73					
Phenanthrene-d10	66		82					
Chrysene-d12	88		88					
Perylene-d12	0	L	1	L				

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

Sample Name	ENV3081B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/13/13
Extraction Batch	ENV 3081
Date Acquired	8/17/13 10:57
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	37.4					
C1-Decalins	15.6					
C2-Decalins	21.7					
C3-Decalins	29.2					
C4-Decalins	42.0					
Naphthalene	769		10	848 ± 95	527	1226
C1-Naphthalenes	219					
C2-Naphthalenes	204					
C3-Naphthalenes	156					
C4-Naphthalenes	89.1					
Benzothiophene	31.0					
C1-Benzothiophenes	29.4					
C2-Benzothiophenes	8.47					
C3-Benzothiophenes	18.6					
C4-Benzothiophenes	17.3					
Biphenyl	65.1					
Acenaphthylene	69.4					
Acenaphthene	30.7					
Dibenzofuran	81.7					
Fluorene	52.2		48	85 ± 15	49.0	130
C1-Fluorenes	53.4					
C2-Fluorenes	128					
C3-Fluorenes	175					
Carbazole	18.4					
Anthracene	178		3	184 ± 18	116	263
Phenanthrene	404		1	406 ± 44	253	585
C1-Phenanthrenes/Anthracenes	261					
C2-Phenanthrenes/Anthracenes	255					
C3-Phenanthrenes/Anthracenes	202					
C4-Phenanthrenes/Anthracenes	131					
Dibenzothiophene	48.4					
C1-Dibenzothiophenes	68.6					
C2-Dibenzothiophenes	106					
C3-Dibenzothiophenes	123					
C4-Dibenzothiophenes	55.5					
Fluoranthene	690		6	651 ± 50	421	911
Pyrene	523		11	581 ± 39	379	806
C1-Fluoranthenes/Pyrenes	402					
C2-Fluoranthenes/Pyrenes	424					
C3-Fluoranthenes/Pyrenes	191					
C4-Fluoranthenes/Pyrenes	171					
Naphthobenzothiophene	151					
C1-Naphthobenzothiophenes	130					
C2-Naphthobenzothiophenes	118					
C3-Naphthobenzothiophenes	86.2					
C4-Naphthobenzothiophenes	36.9					
Benz(a)anthracene	344		3	335 ± 25	217	468
Chrysene/Triphenylene	431		8	399 ± 36	254	566
C1-Chrysenes	299					
C2-Chrysenes	183					
C3-Chrysenes	117					
C4-Chrysenes	69.1					
Benzo(b)fluoranthene	516		13	453 ± 21	302	616
Benzo(k,j)fluoranthene	431		3	442 ± 23	293	605
Benzo(a)fluoranthene	88.5					
Benzo(e)pyrene	359		10	325 ± 25	210	455
Benzo(a)pyrene	274		27	358 ± 17	239	488
Perylene	338		16	397 ± 45	246	575
Indeno(1,2,3-c,d)pyrene	292		16	341 ± 57	199	517
Dibenzo(a,h)anthracene	75.3		35	53 ± 10	30.1	81.9
Benzo(g,h,i)perylene	265		15	307 ± 45	183	458
Total PAHs	11199					

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

Sample Name	ENV3081B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/13/13
Extraction Batch	ENV 3081
Date Acquired	8/17/13 10:57
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	241					
1-Methylnaphthalene	116					
2,6-Dimethylnaphthalene	101					
1,6,7-Trimethylnaphthalene	32.1					
1-Methylfluorene	29.3					
4-Methyldibenzothiophene	43.2					
2/3-Methyldibenzothiophene	28.9					
1-Methyldibenzothiophene	11.9					
3-Methylphenanthrene	104		1	105 ± 13	64.4	153
2-Methylphenanthrene	105					
2-Methylanthracene	66.9					
4/9-Methylphenanthrene	73.8					
1-Methylphenanthrene	71.4		2	73.2 ± 5.9	47.1	103
3,6-Dimethylphenanthrene	24.7					
Retene	23.0					
2-Methylfluoranthene	68.2					
Benzo(b)fluorene	83.0					
C29-Hopane	280					
18a-Oleanane	70.9					
C30-Hopane	373					
C20-TAS	12.6					
C21-TAS	4.56					
C26(20S)-TAS	2.53					
C26(20R)/C27(20S)-TAS	10.2					
C28(20S)-TAS	5.00					
C27(20R)-TAS	9.05					
C28(20R)-TAS	6.54					

Surrogate Recovery	
Naphthalene-d8	73
Acenaphthene-d10	79
Phenanthrene-d10	74
Chrysene-d12	84
Perylene-d12	81

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

Sample Name	MS70057K.D
Client Name	AR-SRM2779-WK4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3081
Date Acquired	8/17/13 8:39
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	696						
C1-Decalins	992						
C2-Decalins	827						
C3-Decalins	719						
C4-Decalins	505						
Naphthalene	693			21	855 ± 46	647	1081
C1-Naphthalenes	1435						
C2-Naphthalenes	1742						
C3-Naphthalenes	1181						
C4-Naphthalenes	604						
Benzothiophene	7.42	J					
C1-Benzothiophenes	28.0						
C2-Benzothiophenes	20.9						
C3-Benzothiophenes	34.4						
C4-Benzothiophenes	24.5						
Biphenyl	150						
Acenaphthylene	8.39	J					
Acenaphthene	17.2						
Dibenzofuran	28.5						
Fluorene	98.4						
C1-Fluorenes	260						
C2-Fluorenes	365						
C3-Fluorenes	254						
Carbazole	2.9	J					
Anthracene	2.7	J		23	3.42 ± 0.59	2.26	4.81
Phenanthrene	215			18	258 ± 27	185	342
C1-Phenanthrenes/Anthracenes	469						
C2-Phenanthrenes/Anthracenes	493						
C3-Phenanthrenes/Anthracenes	371						
C4-Phenanthrenes/Anthracenes	228						
Dibenzothiophene	42.5			20	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	121						
C2-Dibenzothiophenes	154						
C3-Dibenzothiophenes	122						
C4-Dibenzothiophenes	46.0						
Fluoranthene	4.79	J		9	4.36 ± 0.40	3.17	5.71
Pyrene	11.6			24	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	80.7						
C2-Fluoranthenes/Pyrenes	171						
C3-Fluoranthenes/Pyrenes	118						
C4-Fluoranthenes/Pyrenes	125						
Naphthobenzothiophene	28.8						
C1-Naphthobenzothiophenes	48.9						
C2-Naphthobenzothiophenes	67.7						
C3-Naphthobenzothiophenes	44.9						
C4-Naphthobenzothiophenes	18.9						
Benz(a)anthracene	6.08	J		14	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	40.4			16	47.4 ± 1.7	36.6	58.9
C1-Chrysenes	109						
C2-Chrysenes	137						
C3-Chrysenes	96.2						
C4-Chrysenes	49.9						
Benzo(b)fluoranthene	4.34	J		26	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene	1.38	J					
Benzo(a)fluoranthene	<10	U					
Benzo(e)pyrene	8.75	J		21	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	2.04	J					
Perylene	0.960	J					
Indeno(1,2,3-c,d)pyrene	0.637	J					
Dibenzo(a,h)anthracene	0.721	J		23	0.574 ± 0.091	0.386	0.798
Benzo(g,h,i)perylene	1.59	J		28	2.11 ± 0.26	1.48	2.84
Total PAHs	14134						

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

Sample Name	MS70057K.D
Client Name	AR-SRM2779-WK4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3081
Date Acquired	8/17/13 8:39
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds **Individual Alkyl Isomers and Hopanes**	Su. Corrected Conc. (ng/mg)	Q	RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
2-Methylnaphthalene	1411		14	1630 ± 50	1264	2016
1-Methylnaphthalene	937		20	1140 ± 20	896	1392
2,6-Dimethylnaphthalene	826					
1,6,7-Trimethylnaphthalene	242					
1-Methylfluorene	203					
4-Methyldibenzothiophene	84.1					
2/3-Methyldibenzothiophene	39.4					
1-Methyldibenzothiophene	24.6					
3-Methylphenanthrene	184		11	206 ± 32	139	286
2-Methylphenanthrene	194		17	230 ± 14	173	293
2-Methylanthracene	15.1					
4/9-Methylphenanthrene	223		4	232 ± 19	170	301
1-Methylphenanthrene	142		17	169 ± 10	127	215
3,6-Dimethylphenanthrene	65.9					
Retene	11.8					
2-Methylfluoranthene	5.05	J				
Benzo(b)fluorene	14.3					
C29-Hopane	23.2					
18a-Oleanane	<10	U				
C30-Hopane	46.6					
C20-TAS	7.35	J				
C21-TAS	7.63	J				
C26(20S)-TAS	3.46	J				
C26(20R)/C27(20S)-TAS	12.2					
C28(20S)-TAS	8.64	J				
C27(20R)-TAS	7.40	J				
C28(20R)-TAS	0.81	J				

Surrogate Recovery

Naphthalene-d8	87
Acenaphthene-d10	99
Phenanthrene-d10	87
Chrysene-d12	91
Perylene-d12	92

Peak Resolution

4/9-Methylphenanthrene from 1-Methylyphenanthrene (m/z 192)	80%

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

Sample Name	MS70057J.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3081
Date Acquired	8/17/13 7:31
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	253		2.5	247	210	284
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	240		4.0	250	213	288
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	235		5.4	249	211	286
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	232		6.4	248	211	285
Acenaphthylene	221		11.5	248	211	285
Acenaphthene	238		5.2	251	213	288
Dibenzofuran	233		6.6	249	211	286
Fluorene	235		6.5	251	213	288
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	218		12.9	248	211	285
Anthracene	244		2.8	251	213	288
Phenanthrene	249		0.3	248	211	285
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	234		5.1	247	210	283
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	247		1.4	250	213	288
Pyrene	250		0.0	250	213	288
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Naphthobenzothiophene	273		8.0	252	214	289
C1-Naphthobenzothiophenes	NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	259		3.8	250	212	287
Chrysene/Triphenylene	275		10.0	249	211	286
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	233		7.5	251	213	288
Benzo(k,j)fluoranthene	271		8.4	249	212	286
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	249		0.1	249	212	286
Benzo(a)pyrene	268		7.0	250	212	287
Perylene	267		6.3	250	213	288
Indeno(1,2,3-c,d)pyrene	247		0.6	246	209	283
Dibenzo(a,h)anthracene	248		0.1	248	211	285
Benzo(g,h,i)perylene	253		2.0	248	211	285

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

Sample Name	MS70057J.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3081
Date Acquired	8/17/13 7:31
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	234		6.6	250	213	288
1-Methylnaphthalene	238		4.6	250	212	287
2,6-Dimethylnaphthalene	232		7.5	250	213	288
1,6,7-Trimethylnaphthalene	235		6.3	250	213	288
1-Methylfluorene	229		9.3	252	214	290
4-Methyldibenzothiophene	261		3.3	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	258		4.4	247	210	284
3,6-Dimethylphenanthrene	242		3.4	250	213	288
Retene	195		13.8	223	190	257
2-Methylfluoranthene	224		11.6	252	214	289
Benzo(b)fluorene	223		12.4	252	214	290
C29-Hopane	NA					
18a-Oleanane	NA					
C30-Hopane	275		9.6	250	213	288
C20-TAS	NA					
C21-TAS	NA					
C26(20S)-TAS	NA					
C26(20R)/C27(20S)-TAS	251		0.2	250	213	288
C28(20S)-TAS	NA					
C27(20R)-TAS	NA					
C28(20R)-TAS	NA					

Surrogate Recovery	
Naphthalene-d8	95
Acenaphthene-d10	93
Phenanthrene-d10	94
Chrysene-d12	113
Perylene-d12	99

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

Sample Name	MS70057I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3081
Date Acquired	8/17/13 6:22
Method	PAH-2012.M
Sample Volume (mL)	1.0

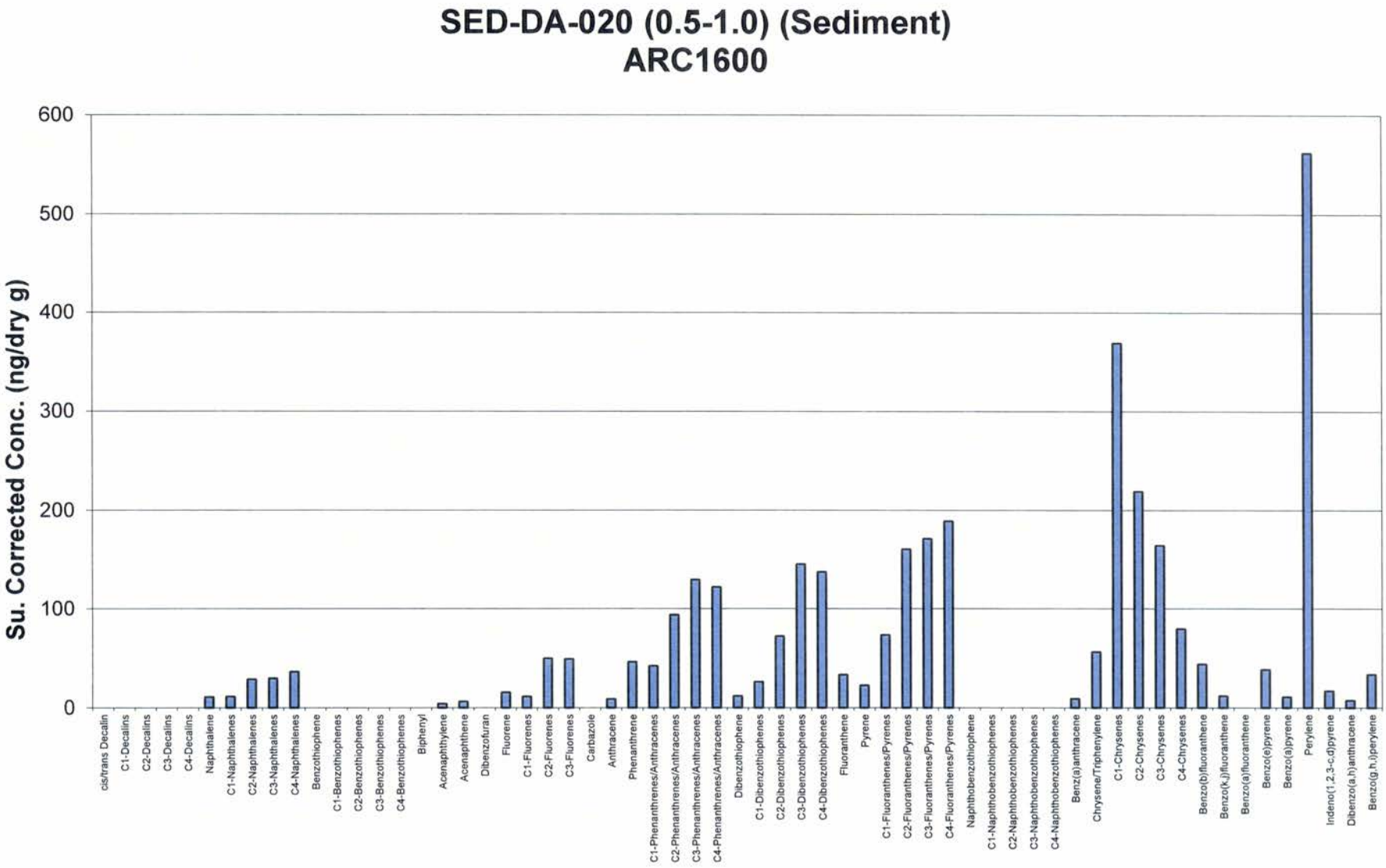
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
cis/trans Decalin	273		8.8	250	200	300
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	277		10.4	250	200	300
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	279		10.8	250	200	300
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	277		9.9	251	201	301
Acenaphthylene	270					
Acenaphthene	286		13.5	250	200	300
Dibenzofuran	280		11.4	250	200	300
Fluorene	282		12.0	250	200	300
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	243		3.0	250	200	300
Anthracene	270		7.8	250	200	300
Phenanthrene	268		6.9	250	200	300
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	257		2.6	250	200	300
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	273		8.9	250	200	300
Pyrene	275		9.5	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	297		17.0	250	200	300
Chrysene/Triphenylene	295		16.4	250	200	300
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	257		2.8	250	200	300
Benzo(k,j)fluoranthene	215		15.3	250	200	300
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	264		5.5	250	200	300
Benzo(a)pyrene	271		8.1	250	200	300
Perylene	284		12.7	251	200	301
Indeno(1,2,3-c,d)pyrene	277		10.2	250	200	300
Dibenzo(a,h)anthracene	284		12.6	250	200	300
Benzo(g,h,i)perylene	273		8.8	250	200	300

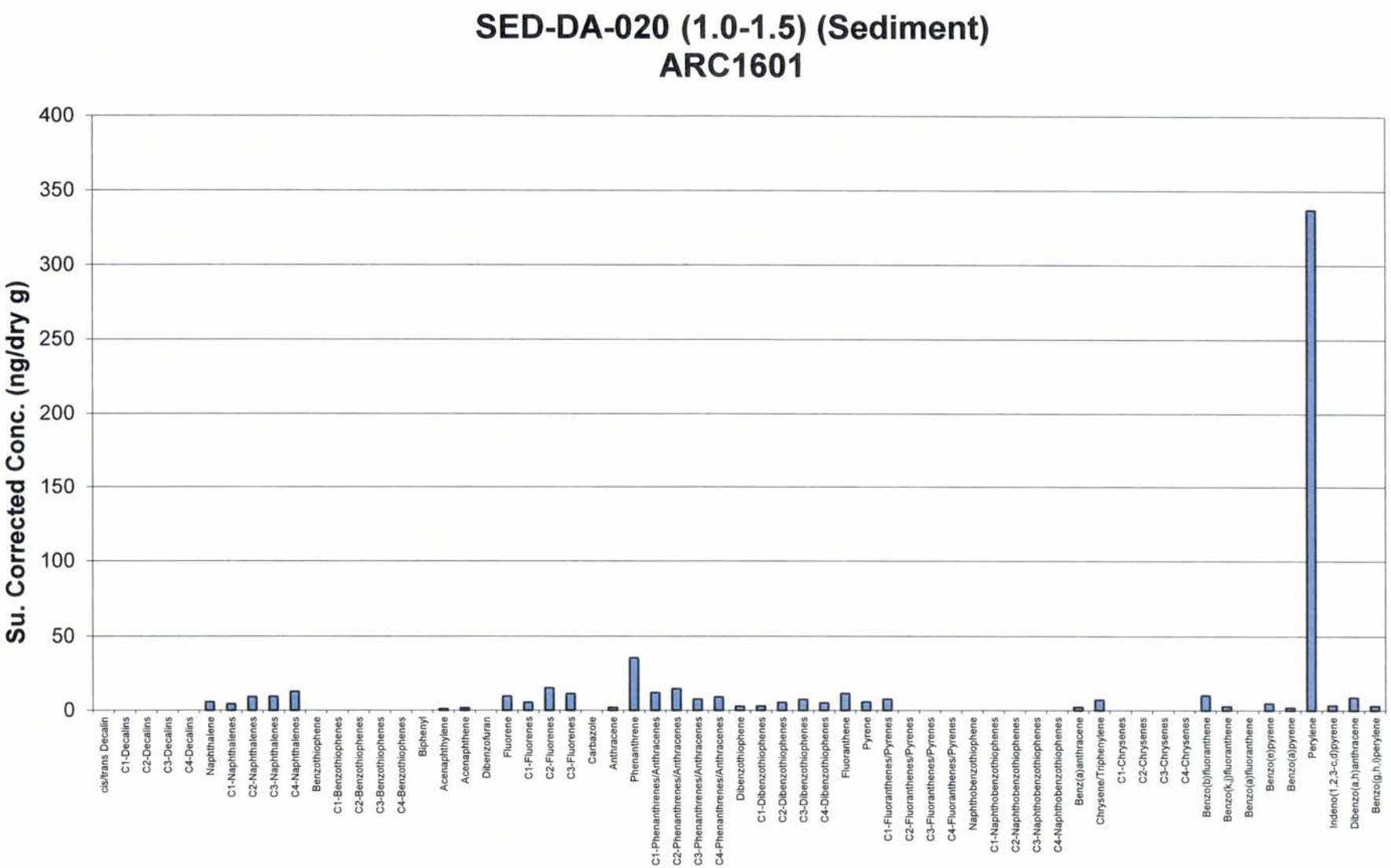
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

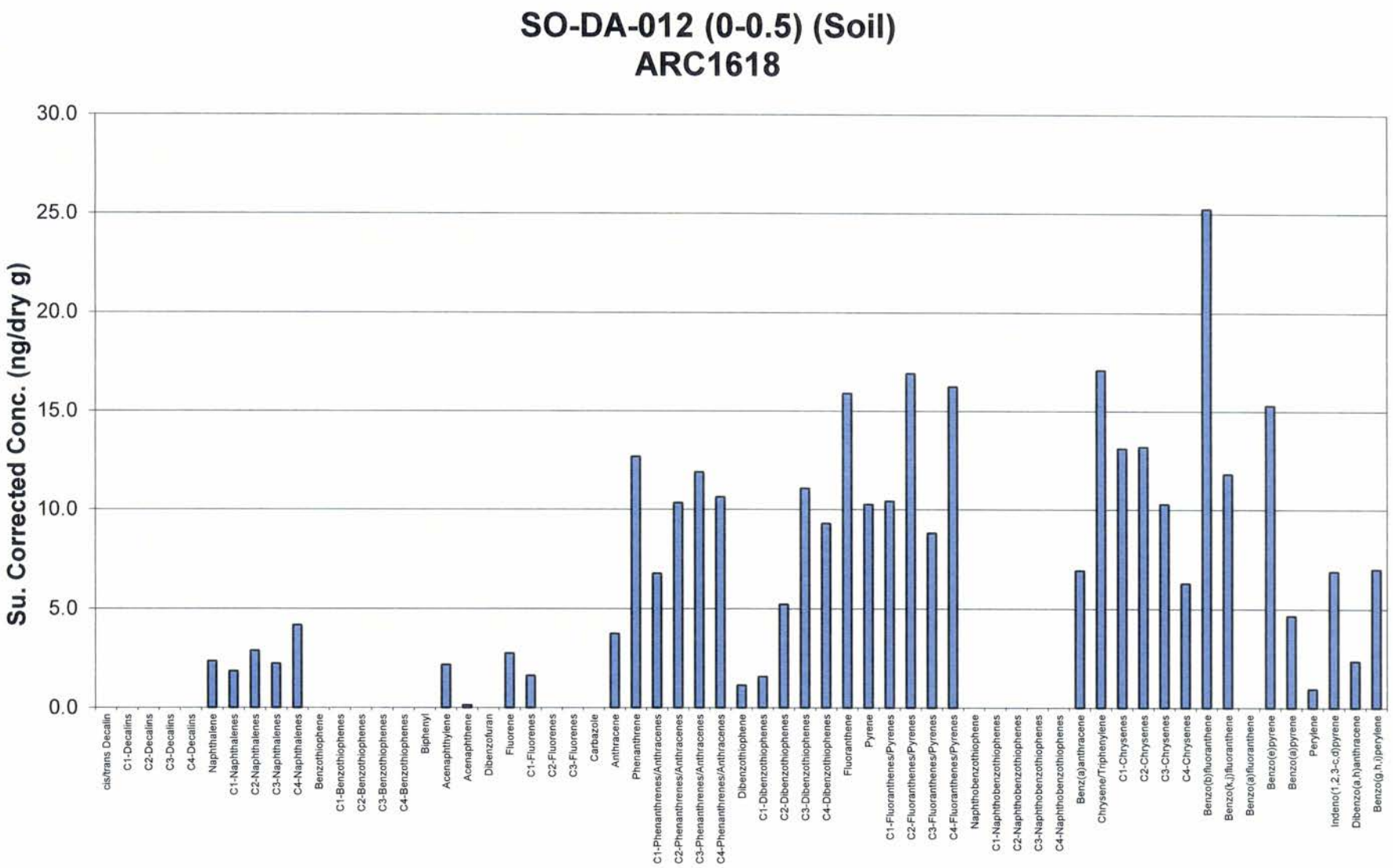
Sample Name	MS70057I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3081
Date Acquired	8/17/13 6:22
Method	PAH-2012.M
Sample Volume (mL)	1.0

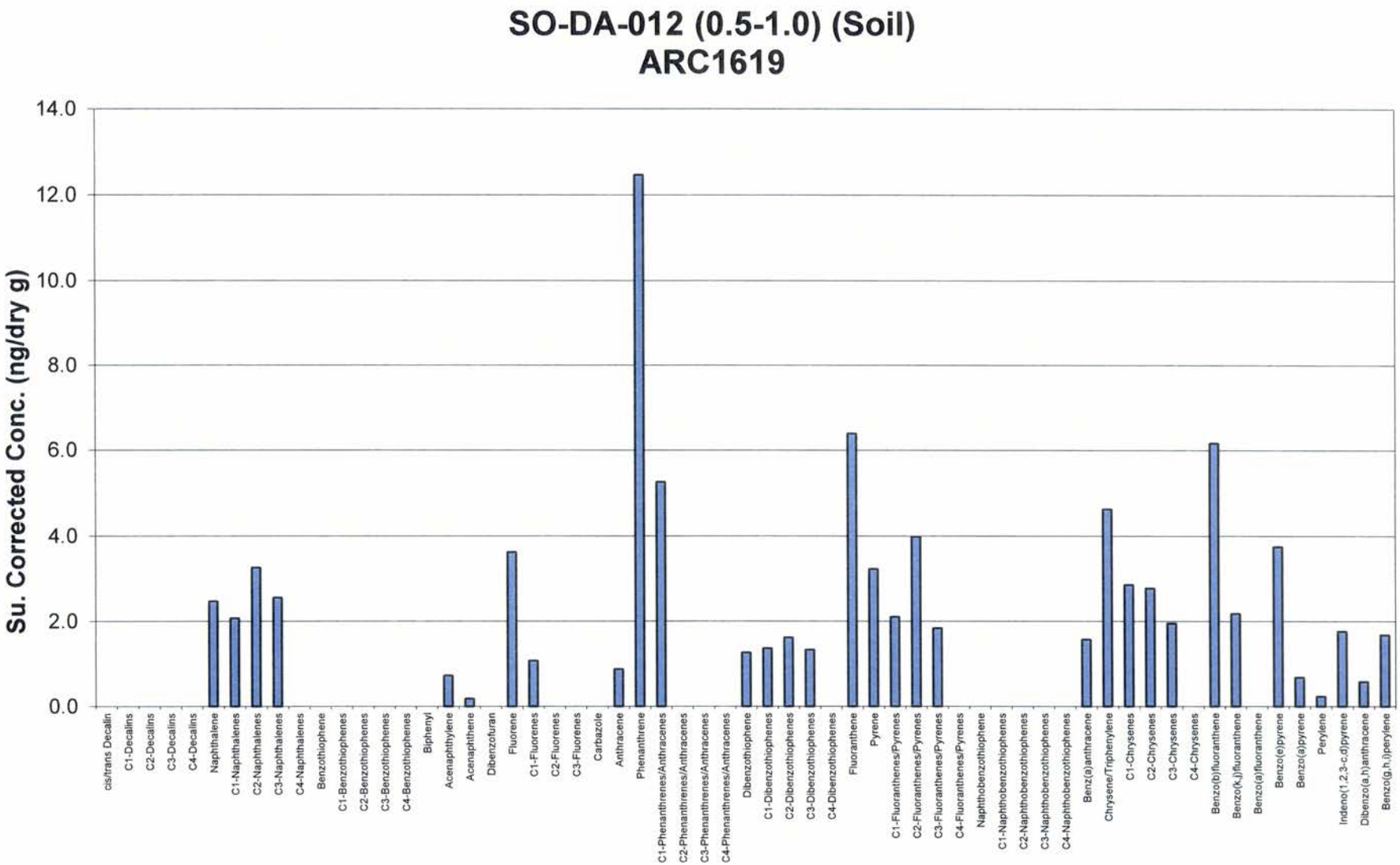
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	286		13.3	250	200	301
1-Methylnaphthalene	285		12.7	251	200	301
2,6-Dimethylnaphthalene	277		10.3	250	200	300
1,6,7-Trimethylnaphthalene	291		15.0	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	284		12.8	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	229		9.0	250	200	300
Acenaphthene-d10	224		10.8	250	200	300
Phenanthrene-d10	207		19.1	250	200	300
Chrysene-d12	252		0.7	250	200	300
Perylene-d12	213		16.2	250	200	300

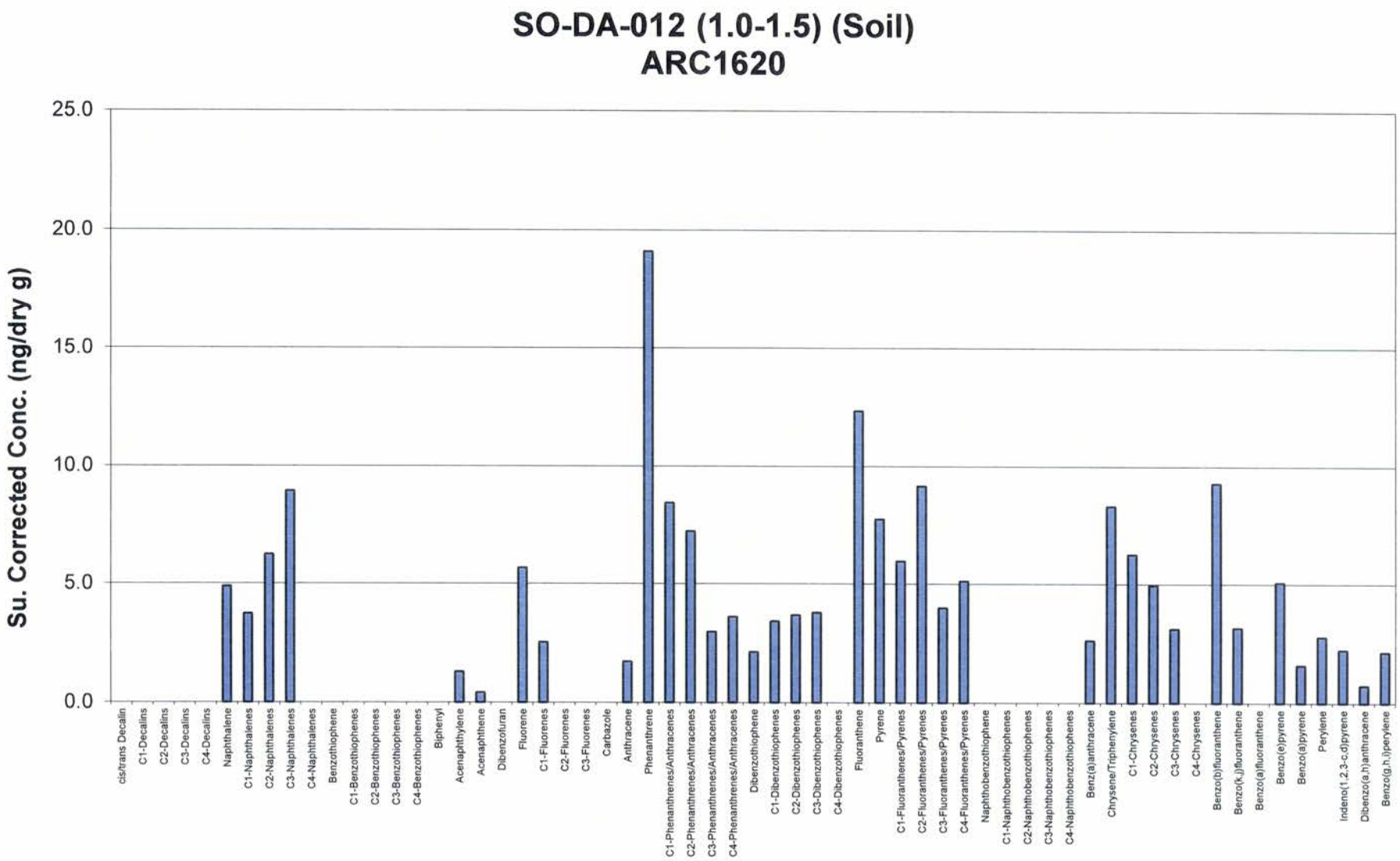
Polycyclic Aromatic Hydrocarbon Histograms

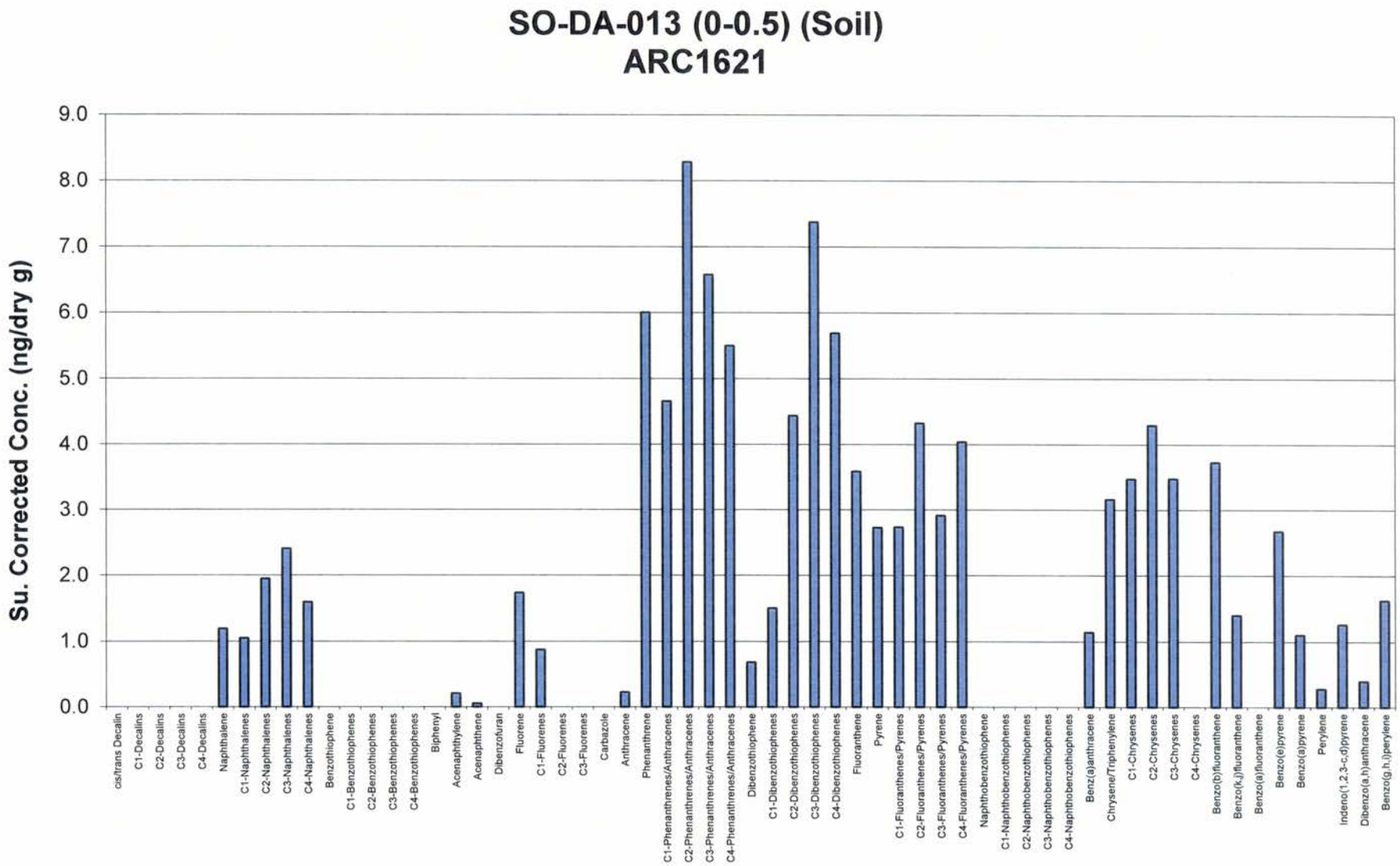

SED-DA-020 (0.5-1.0) (Sediment)
ARC1600
Su. Corrected Conc. (ng/dry g)
600
500
400
300
200
100
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

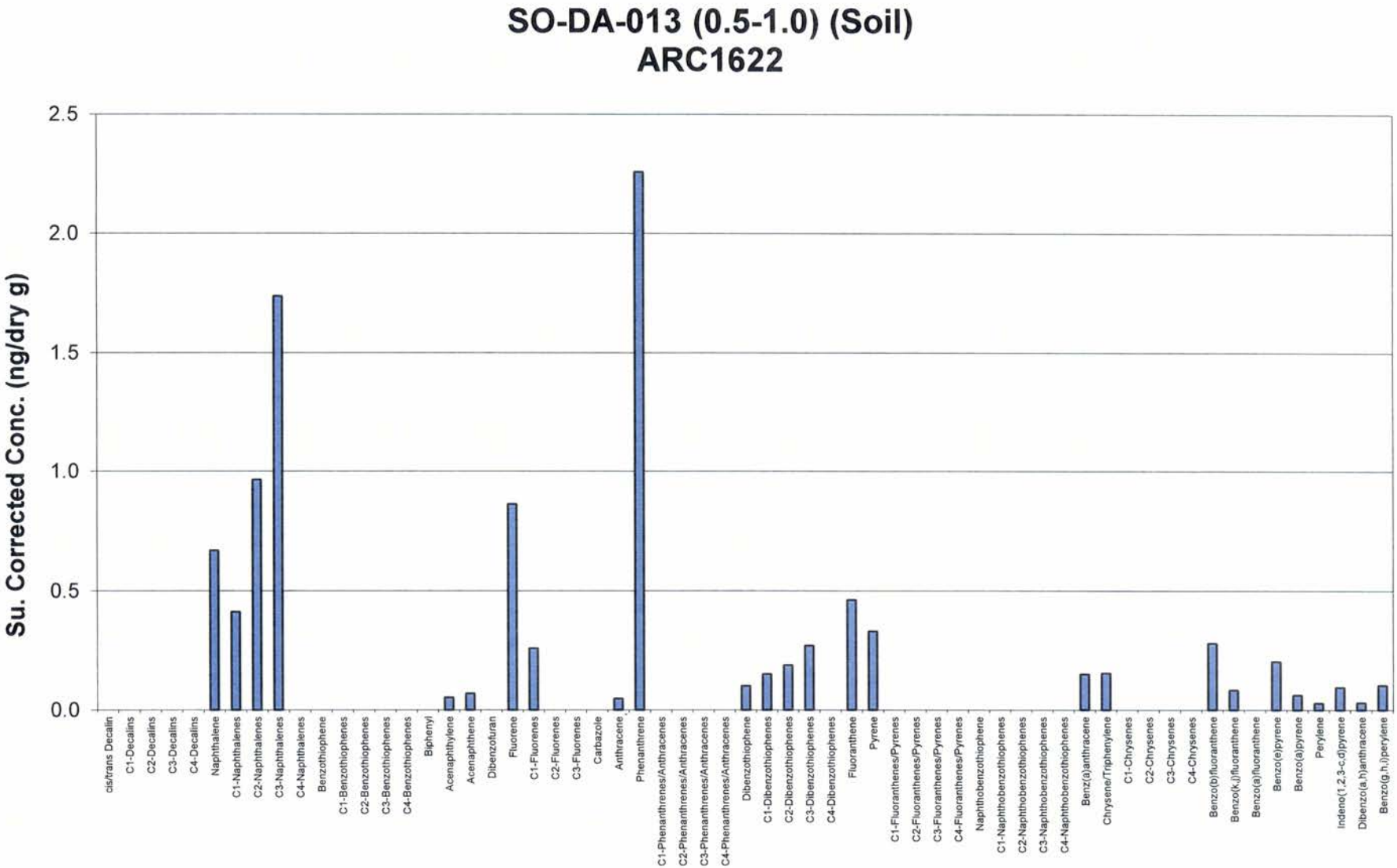

SED-DA-020 (1.0-1.5) (Sediment)
ARC1601
Su. Corrected Conc. (ng/dry g)
400
350
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

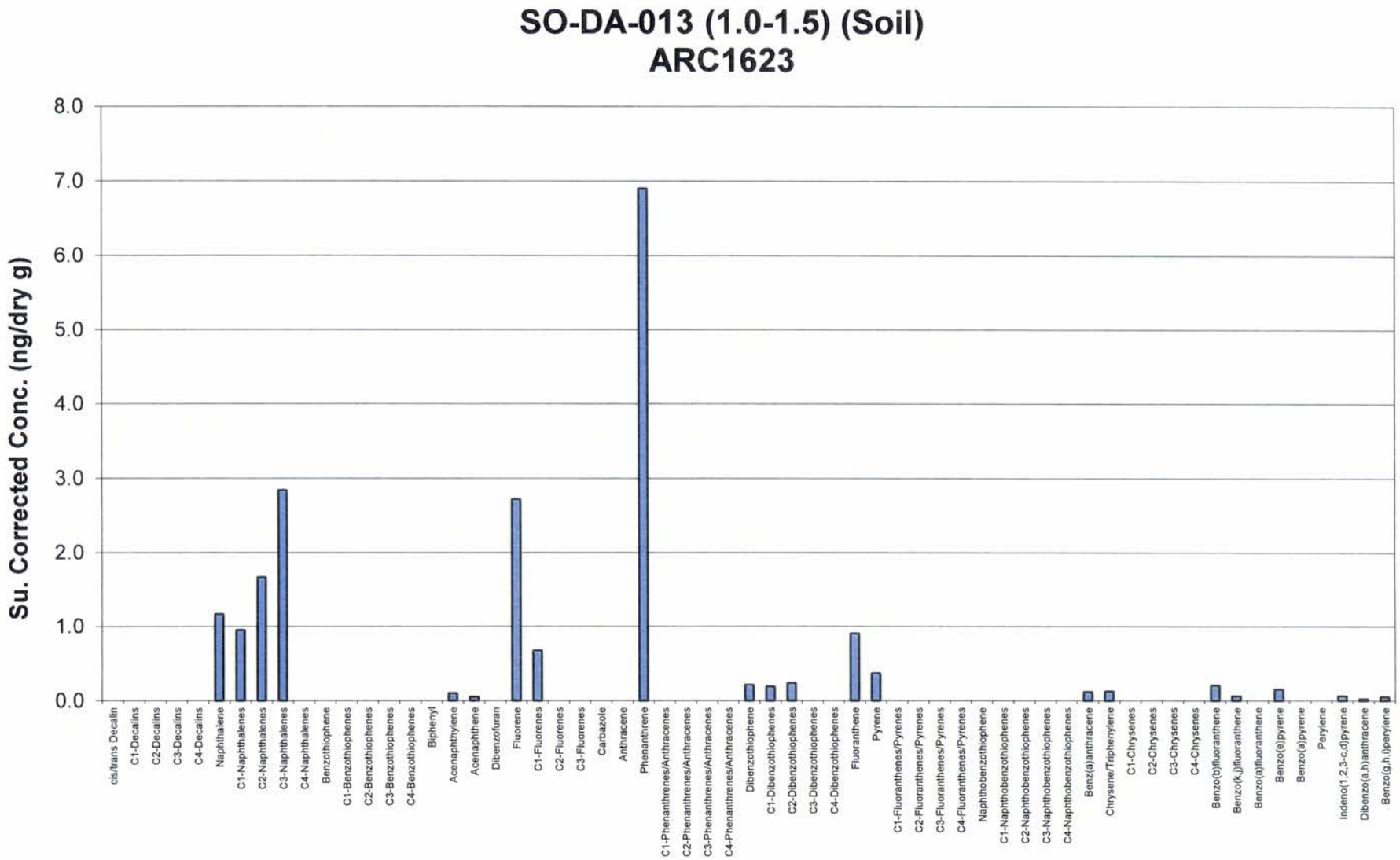

SO-DA-012 (0-0.5) (Soil)
ARC1618
Su. Corrected Conc. (ng/dry g)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

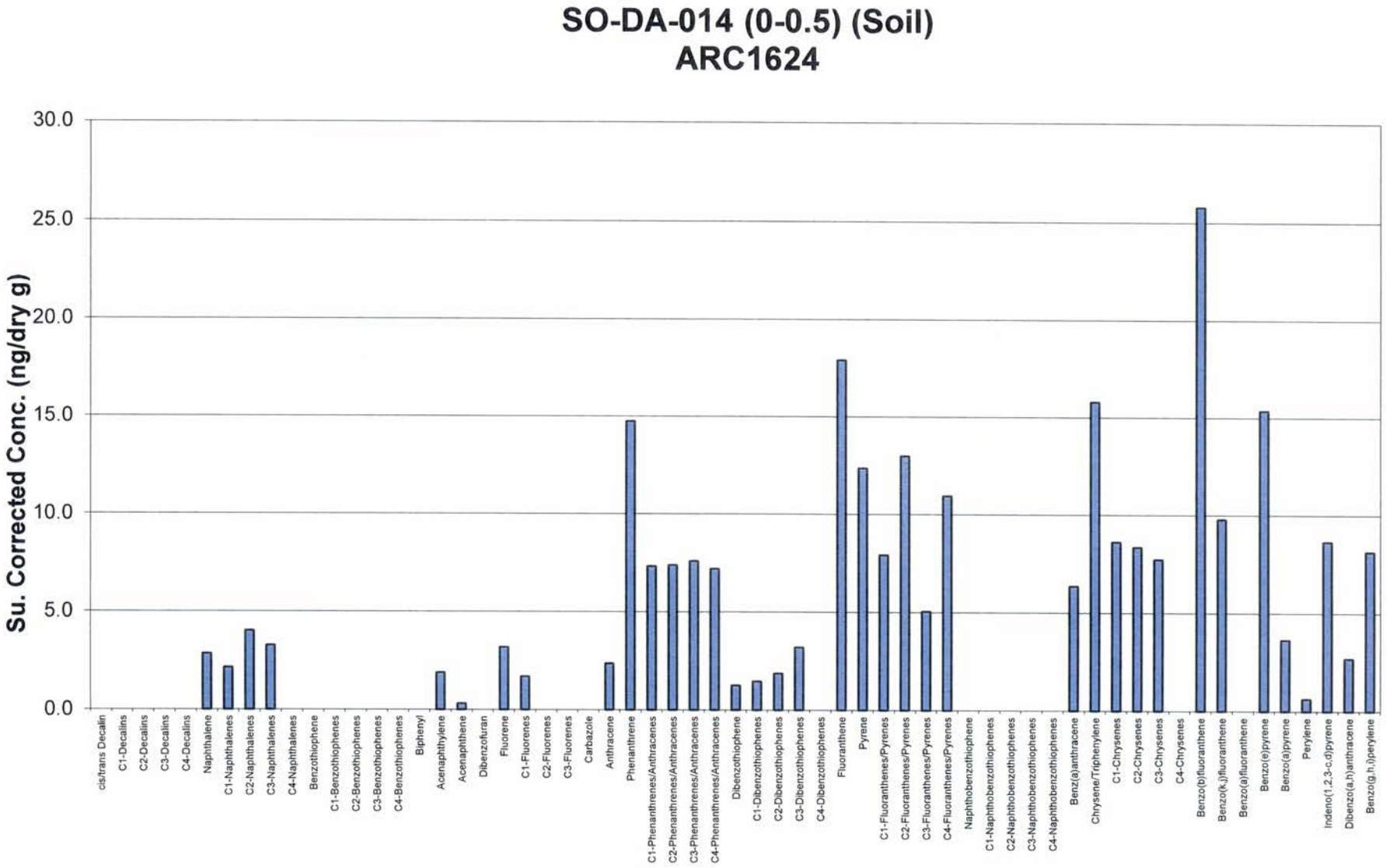

SO-DA-012 (0.5-1.0) (Soil)
ARC1619
Su. Corrected Conc. (ng/dry g)
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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


SO-DA-012 (1.0-1.5) (Soil)
ARC1620
Su. Corrected Conc. (ng/dry g)
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

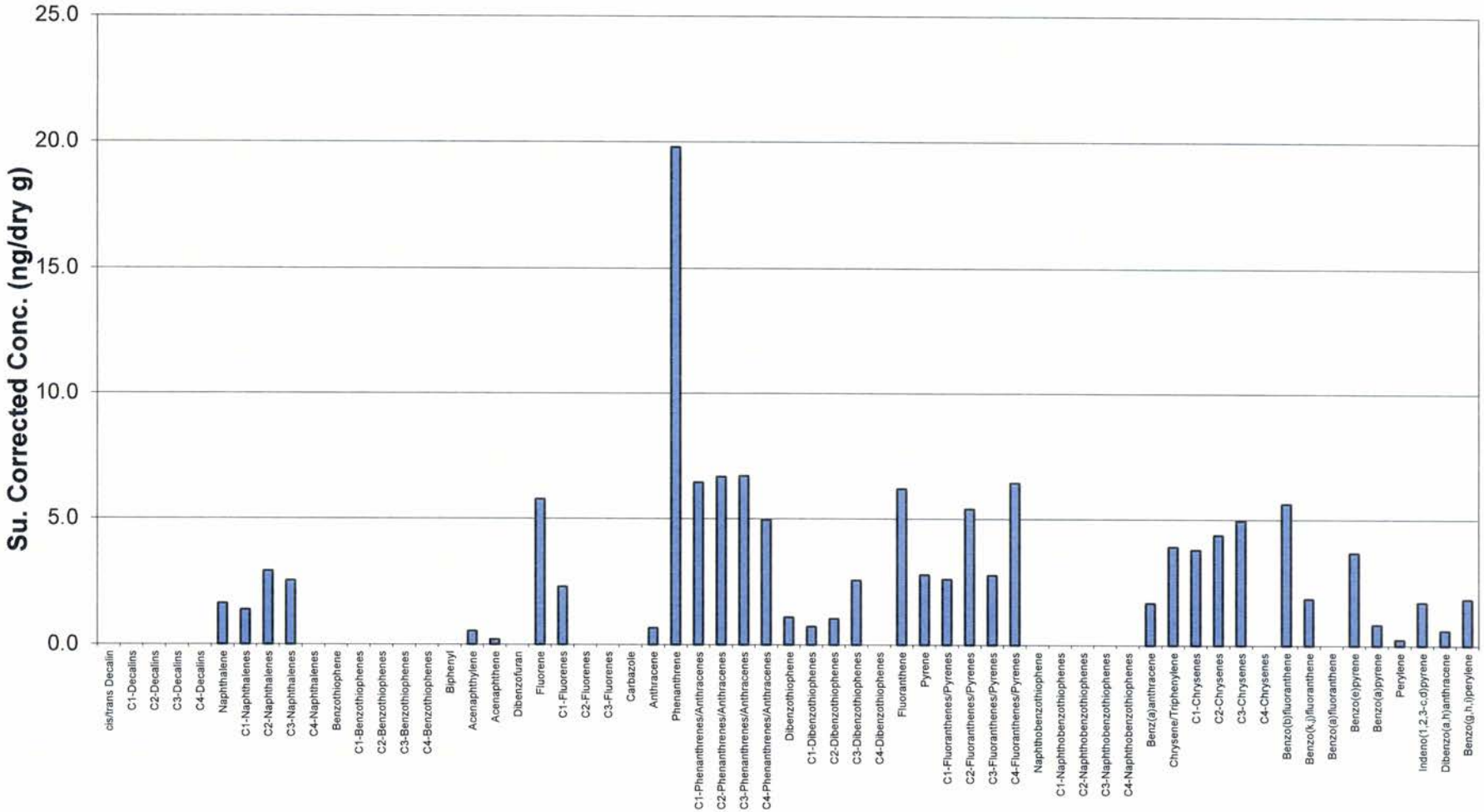

SO-DA-013 (0-0.5) (Soil)
ARC1621
Su. Corrected Conc. (ng/dry g)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

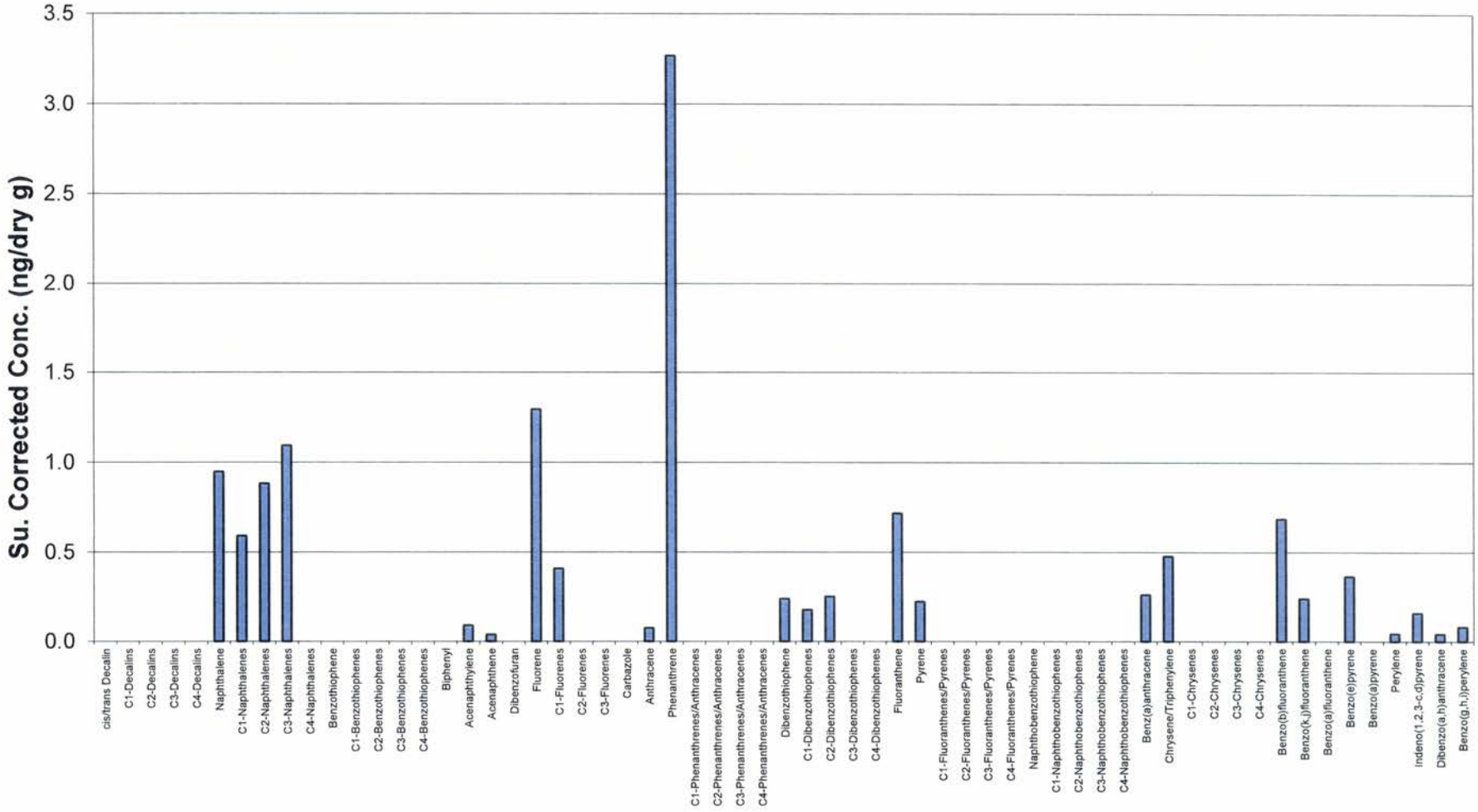

SO-DA-013 (0.5-1.0) (Soil)
ARC1622
Su. Corrected Conc. (ng/dry g)
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

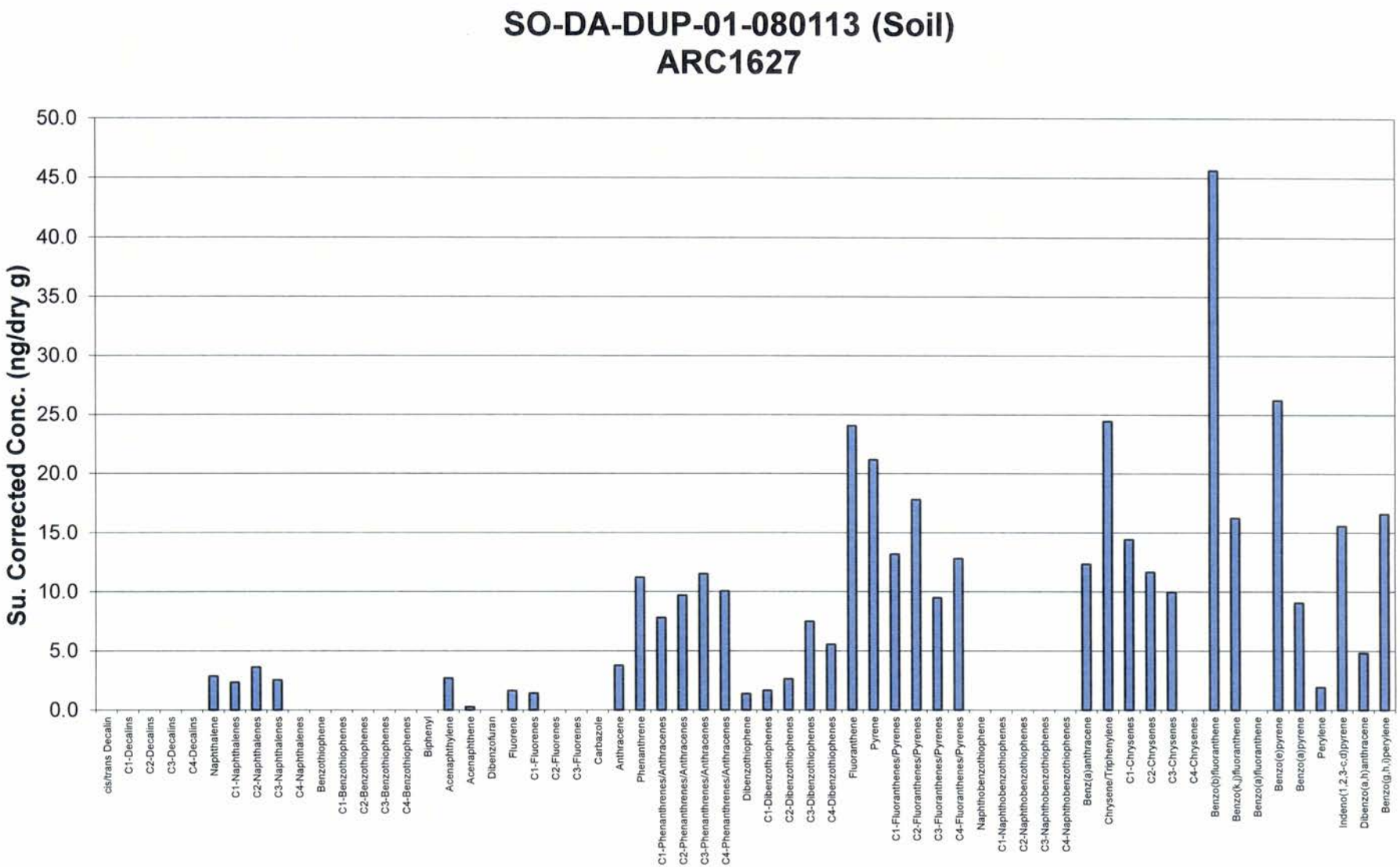

SO-DA-013 (1.0-1.5) (Soil)
ARC1623
Su. Corrected Conc. (ng/dry g)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

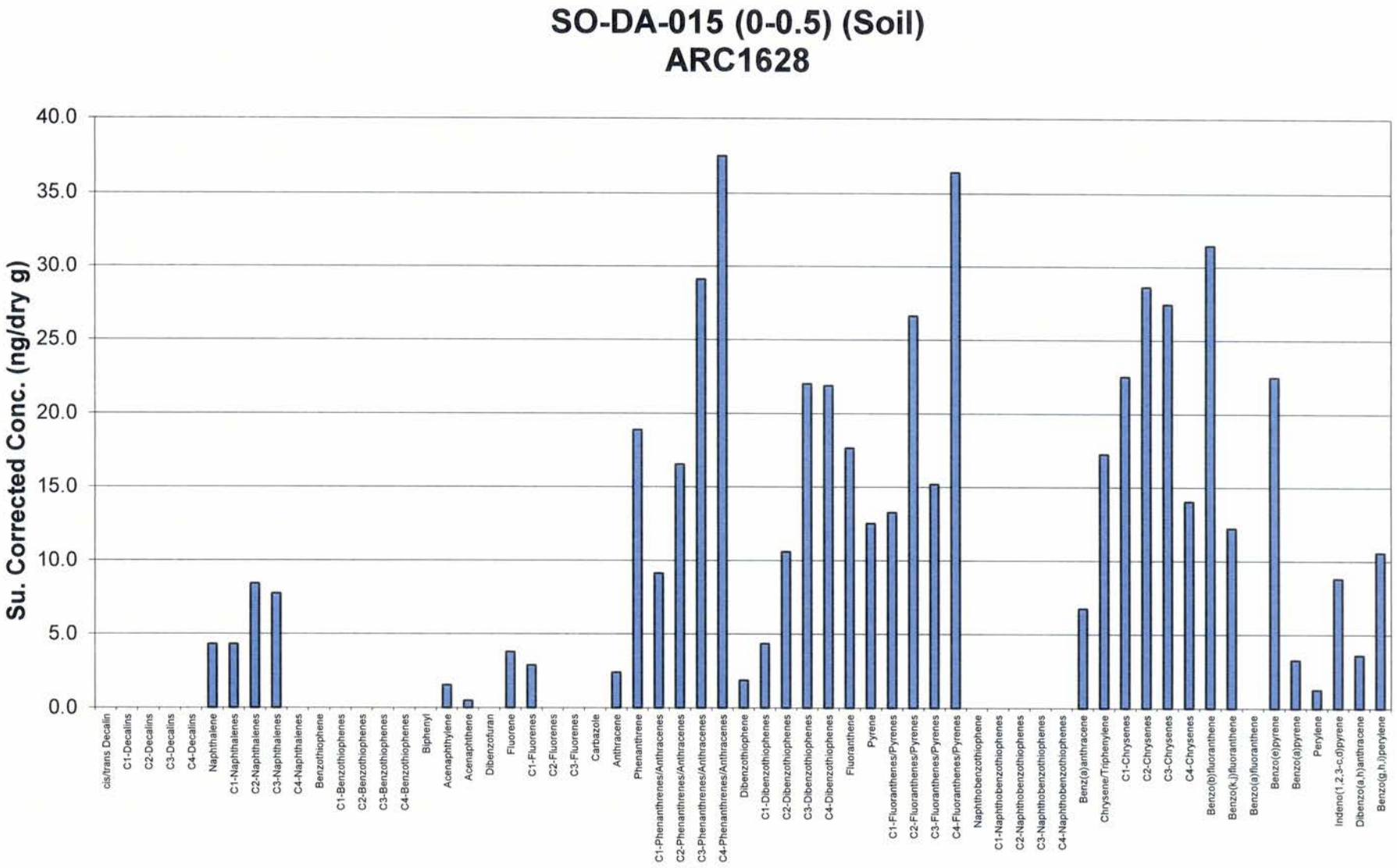

SO-DA-014 (0-0.5) (Soil)
ARC1624
Su. Corrected Conc. (ng/dry g)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

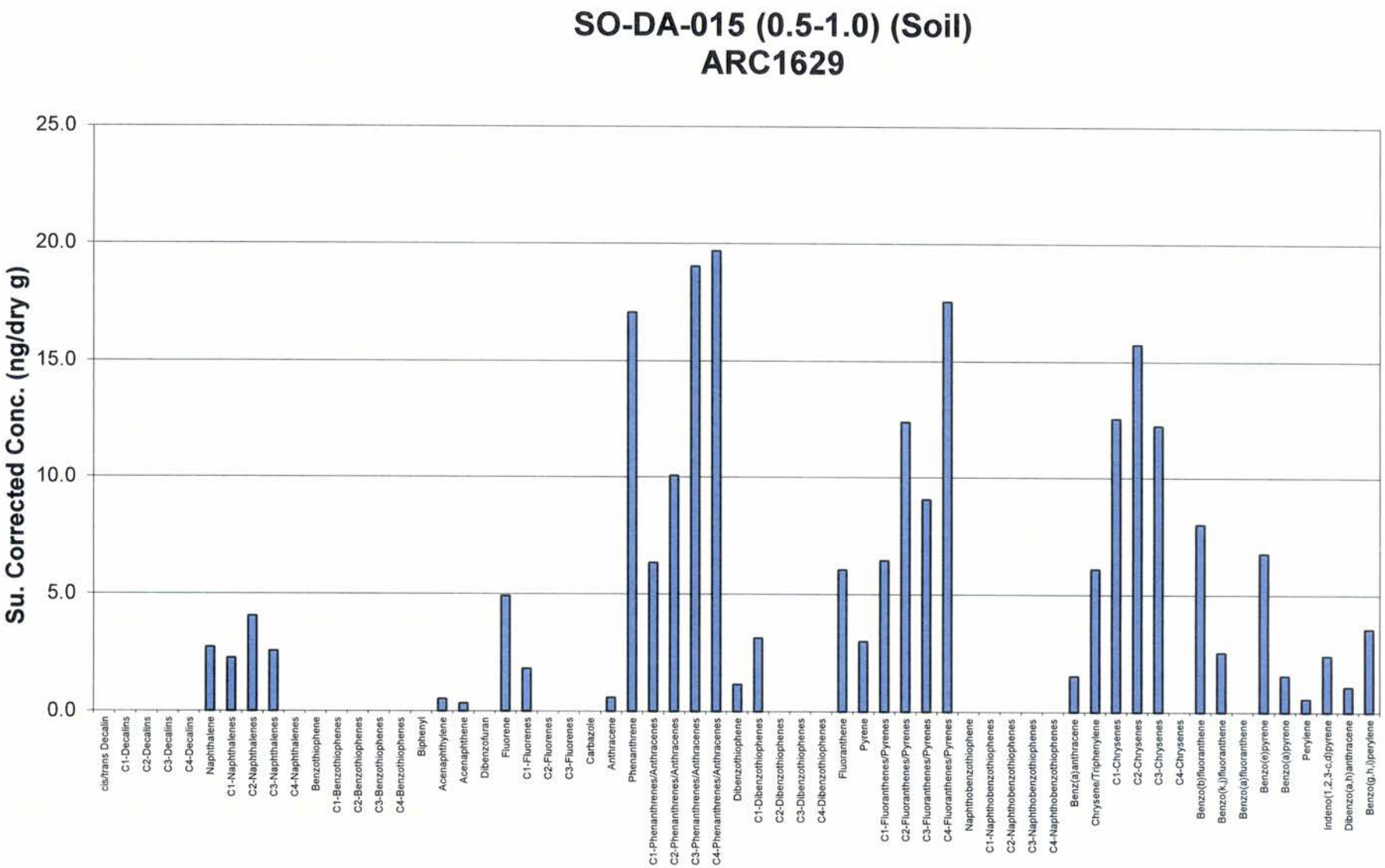
SO-DA-014 (0.5-1.0) (Soil)
ARC1625

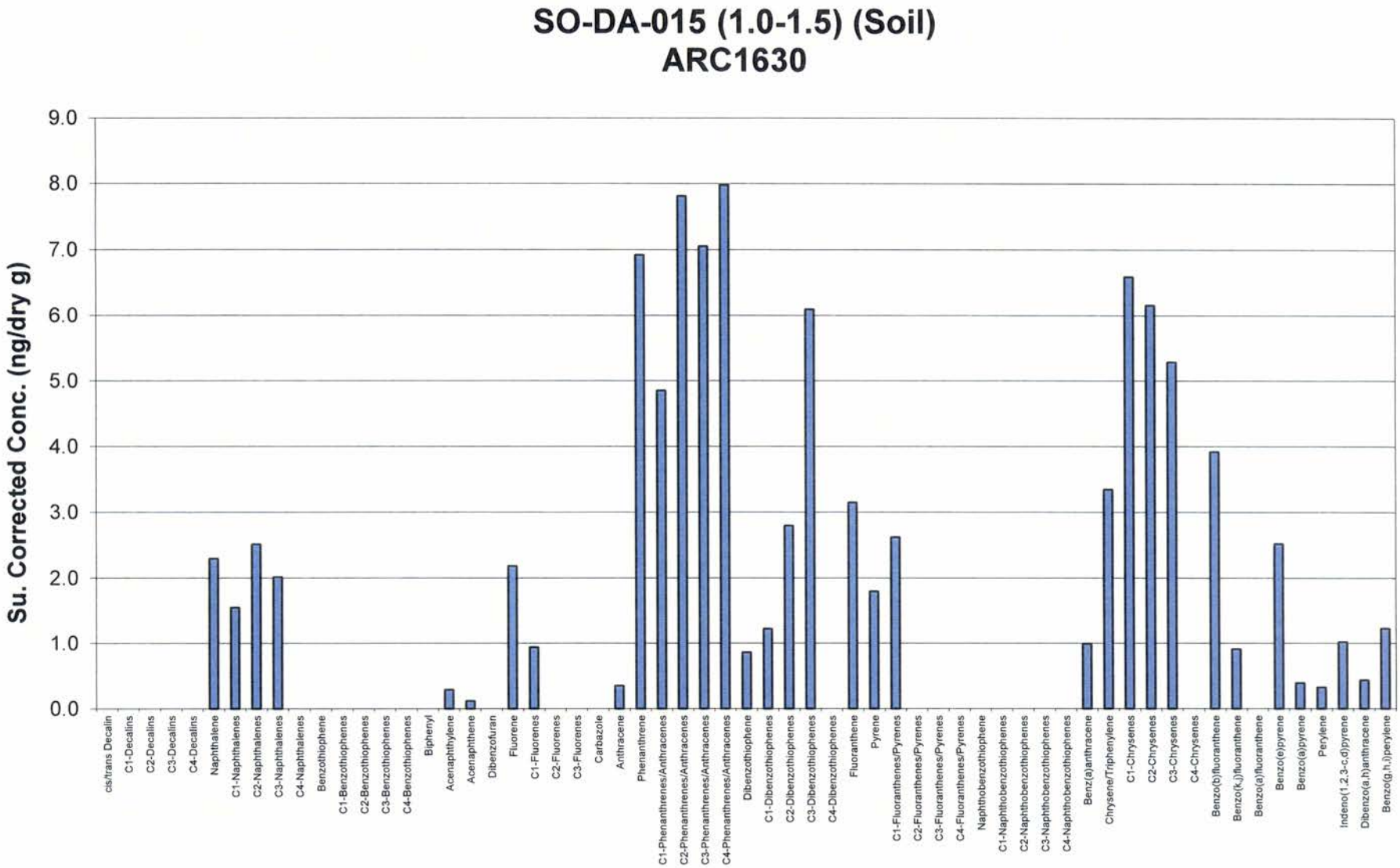



SO-DA-014 (1.0-1.5) (Soil)
ARC1626
Su. Corrected Conc. (ng/dry g)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

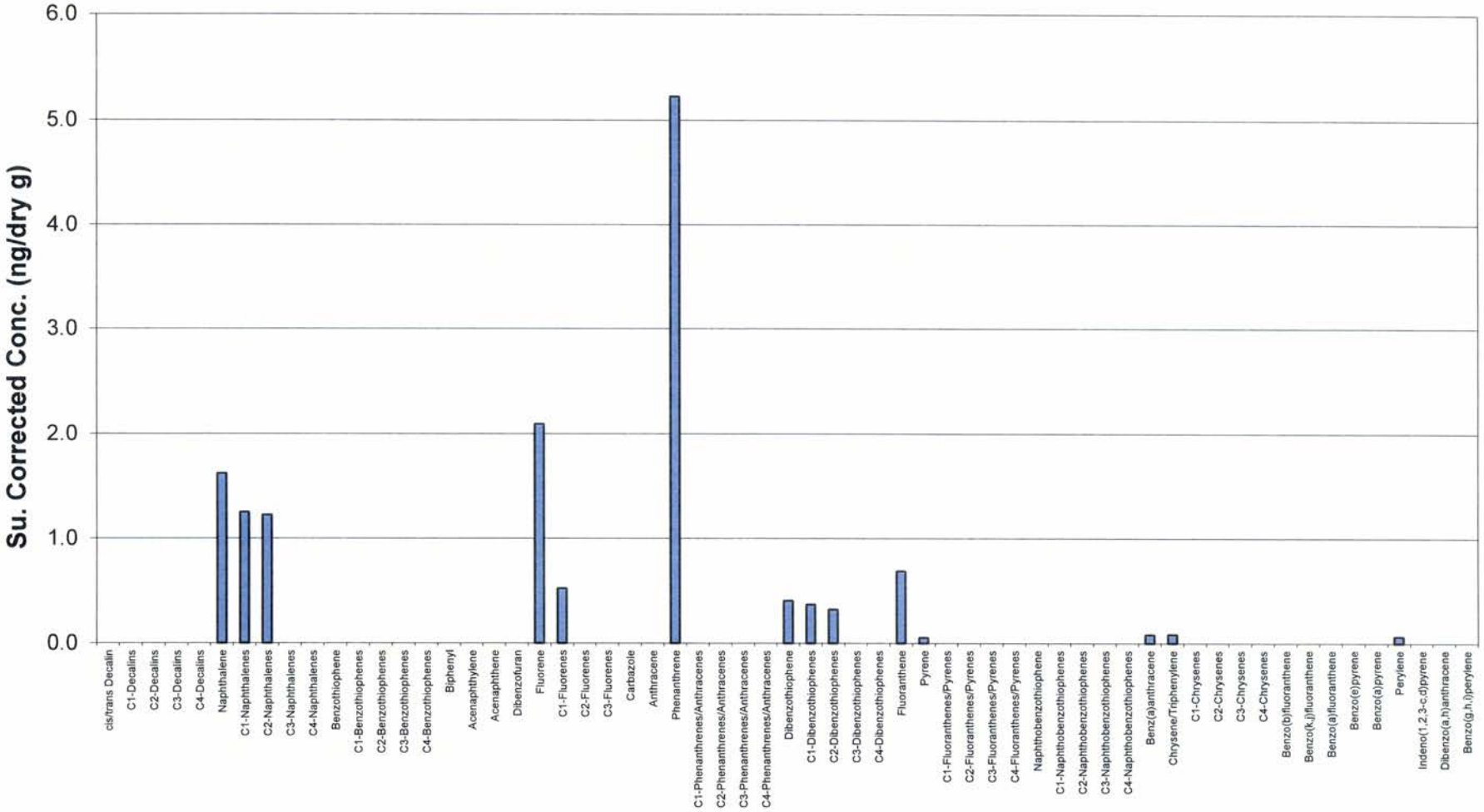

SO-DA-DUP-01-080113 (Soil)
ARC1627
Su. Corrected Conc. (ng/dry g)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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(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

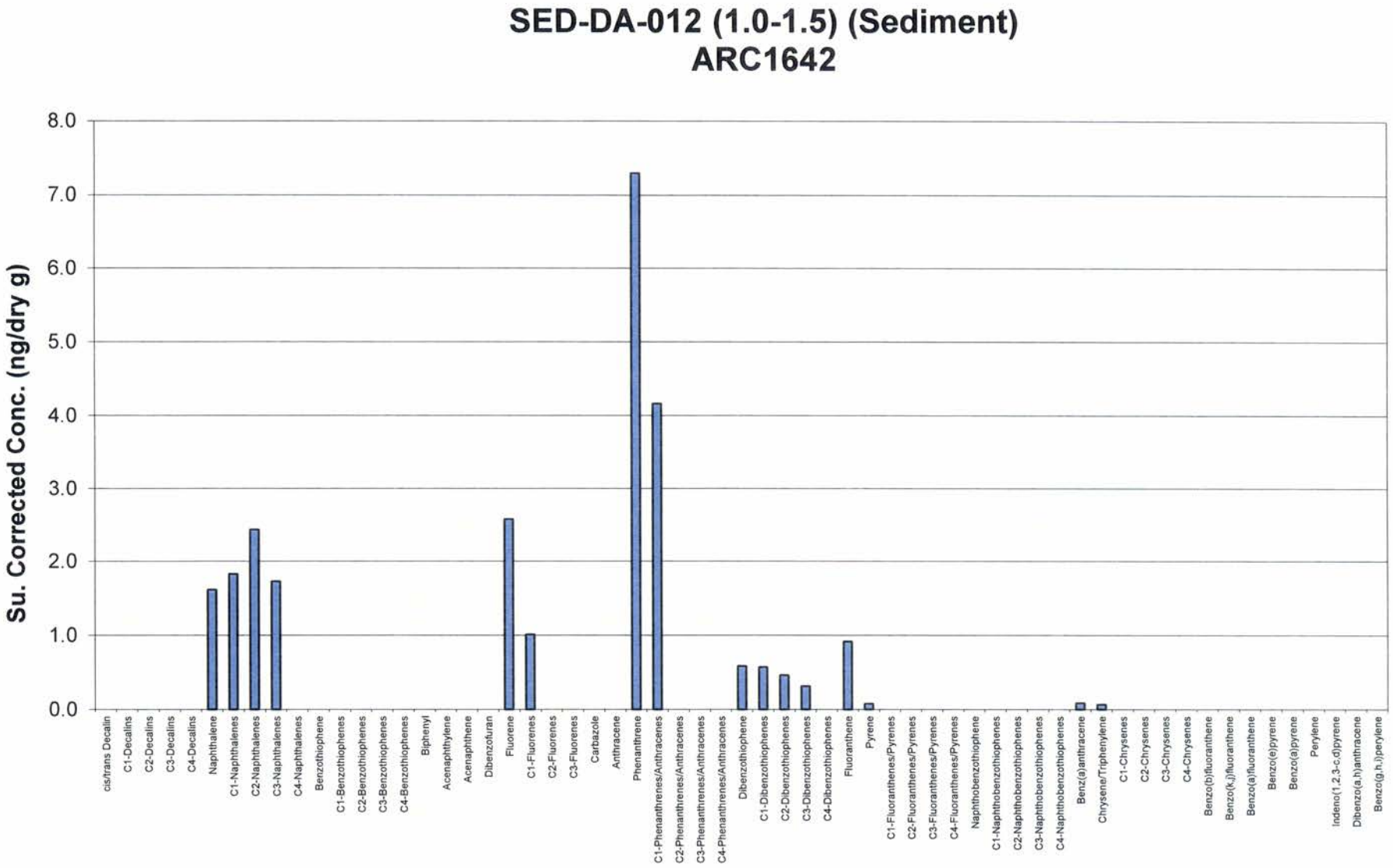

SO-DA-015 (0-0.5) (Soil)
ARC1628
Su. Corrected Conc. (ng/dry g)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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-015 (0.5-1.0) (Soil)
ARC1629
Su. Corrected Conc. (ng/dry g)
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

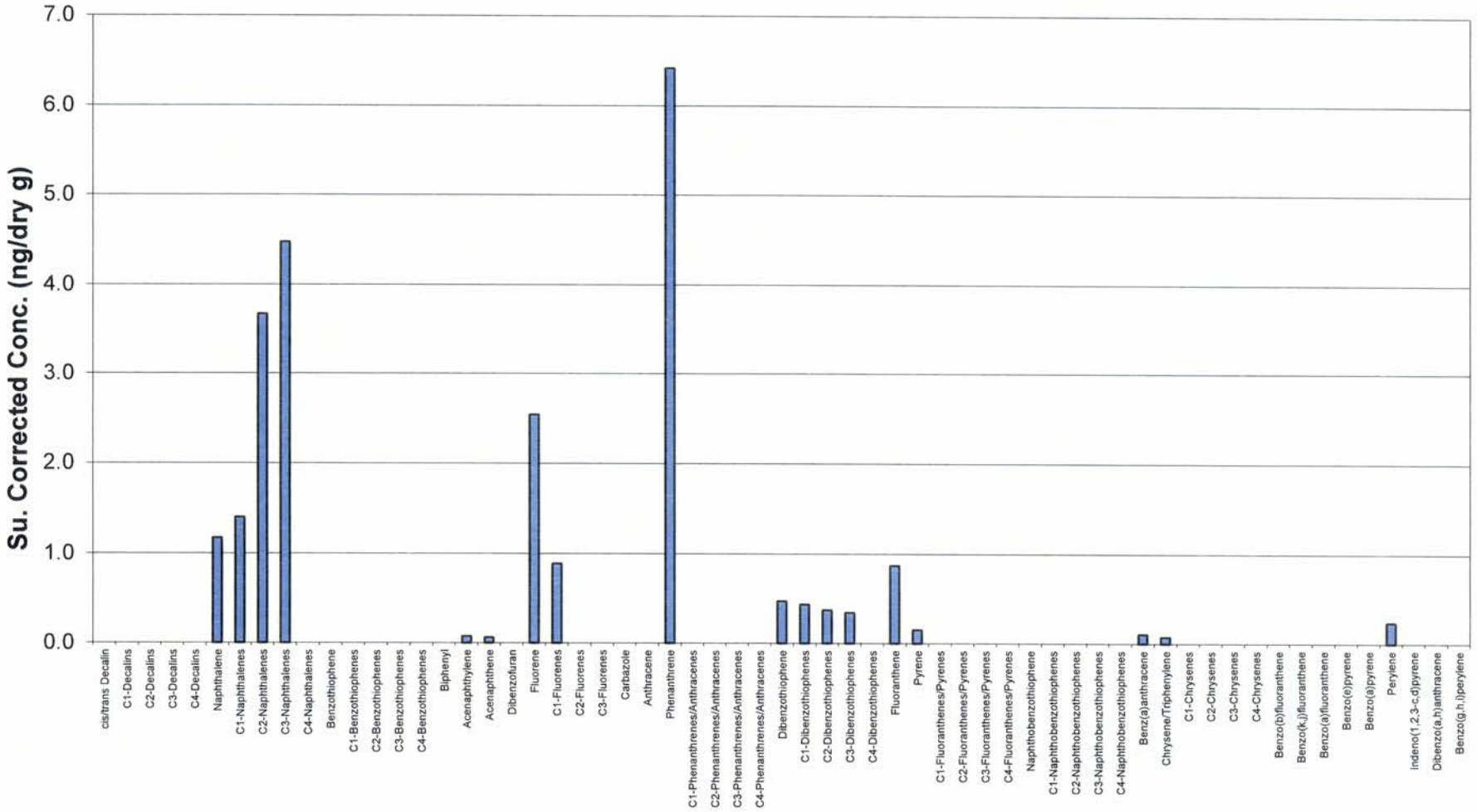

SO-DA-015 (1.0-1.5) (Soil)
ARC1630
Su. Corrected Conc. (ng/dry g)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

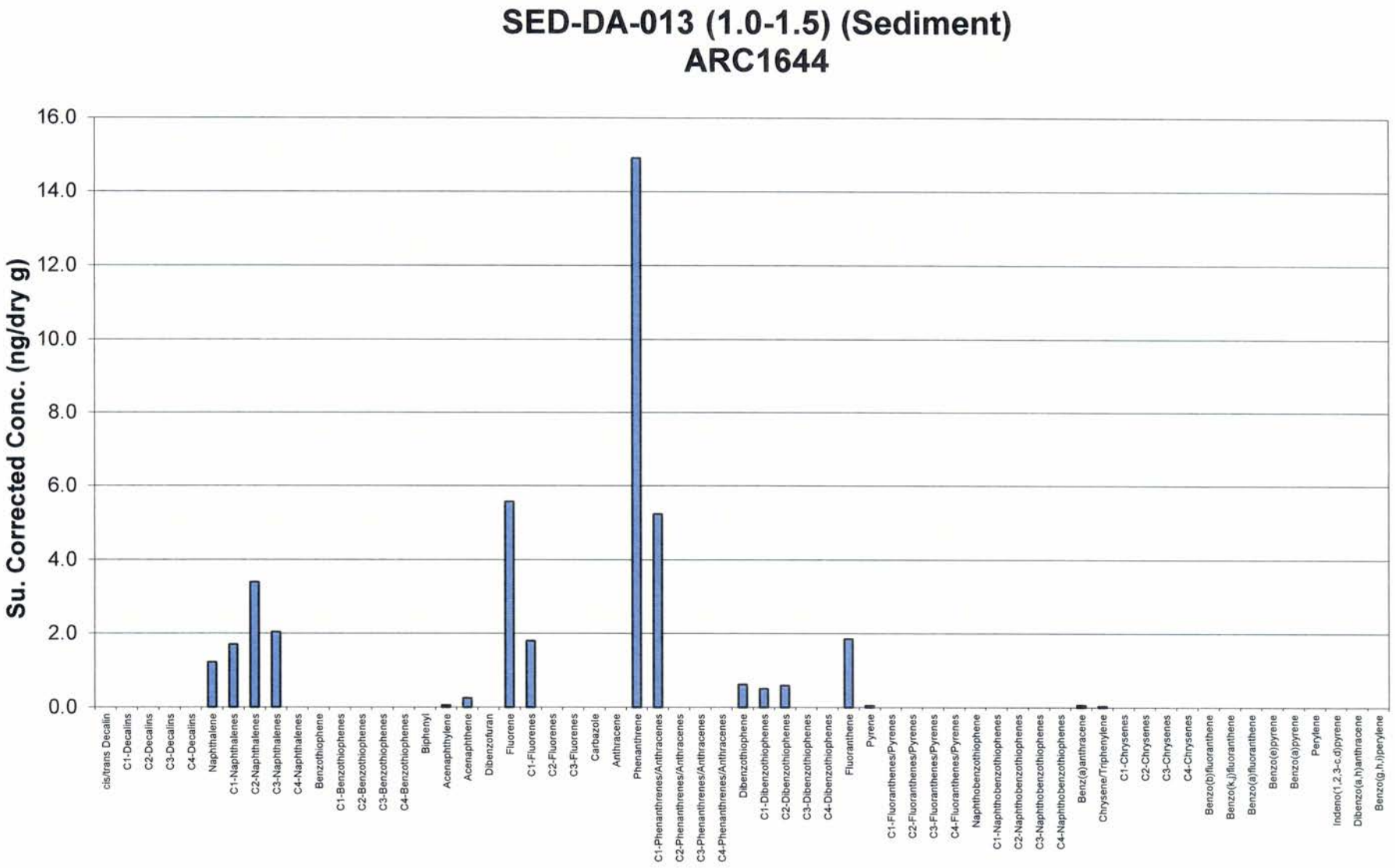
SED-DA-012 (0.5-1.0) (Sediment)
ARC1641




SED-DA-012 (1.0-1.5) (Sediment)
ARC1642
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

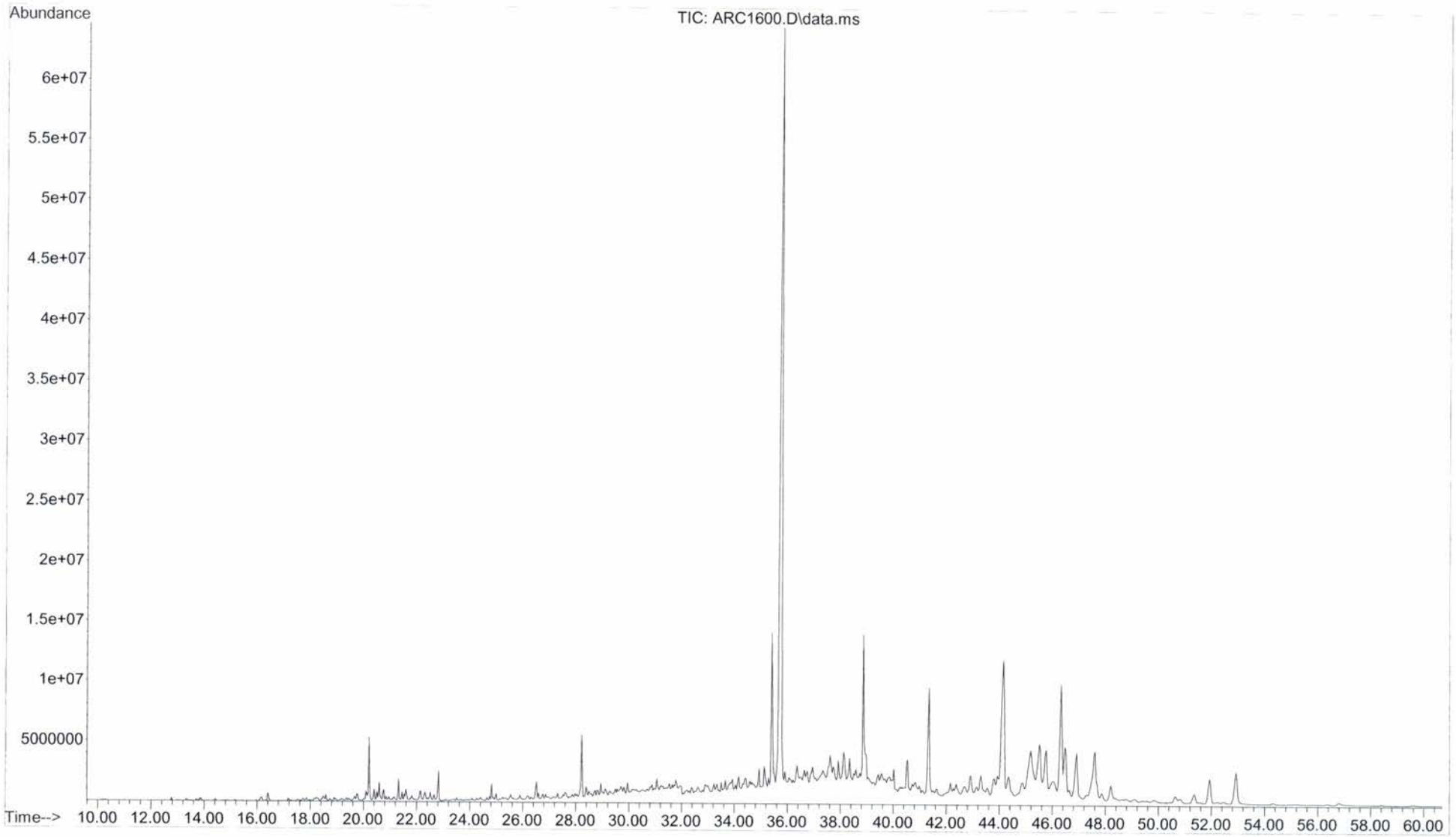
SED-DA-013 (0.5-1.0) (Sediment)
ARC1643



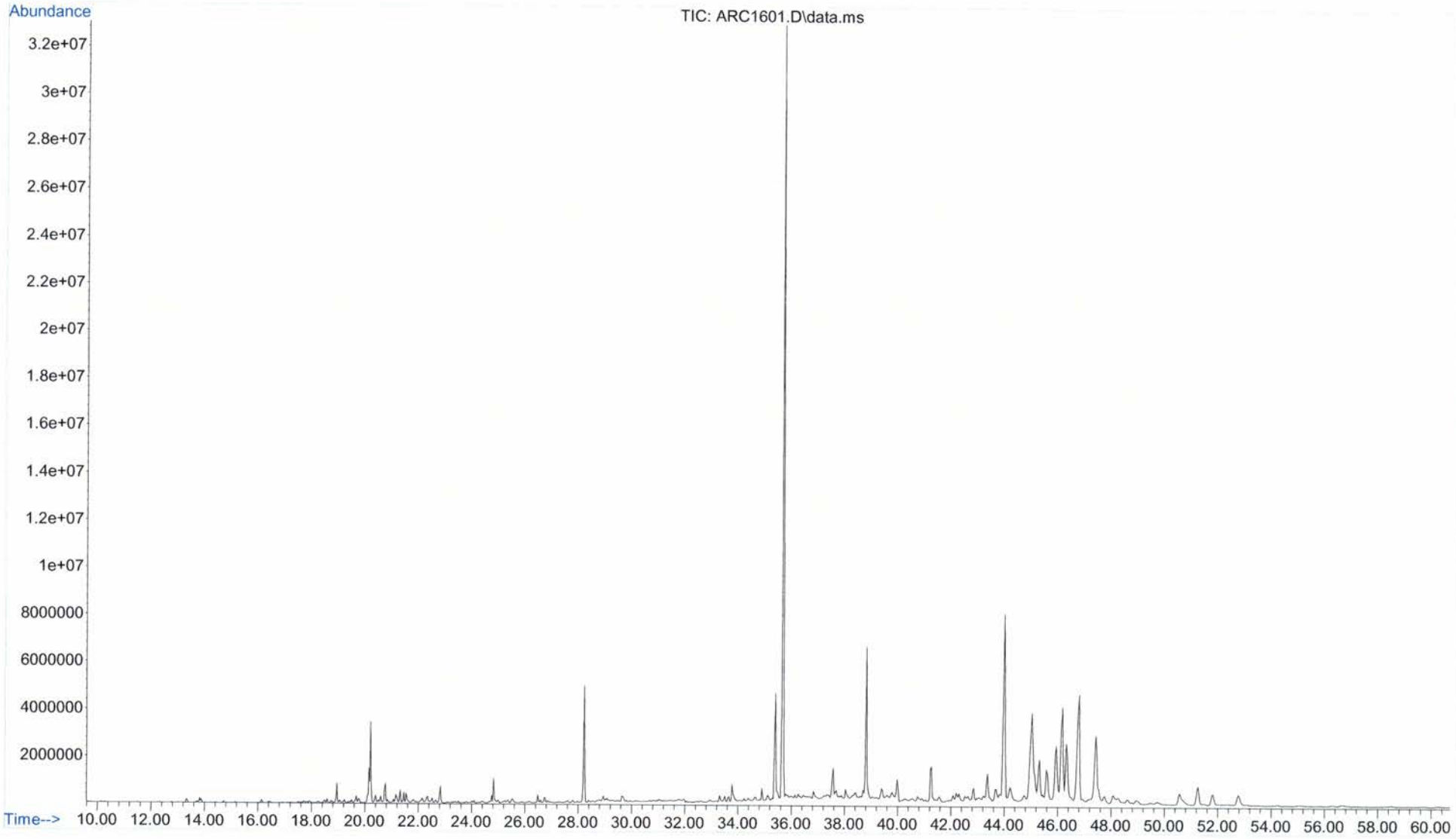

SED-DA-013 (1.0-1.5) (Sediment)
ARC1644
Su. Corrected Conc. (ng/dry g)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

Polycyclic Aromatic Hydrocarbon Total Ion Chromatograms

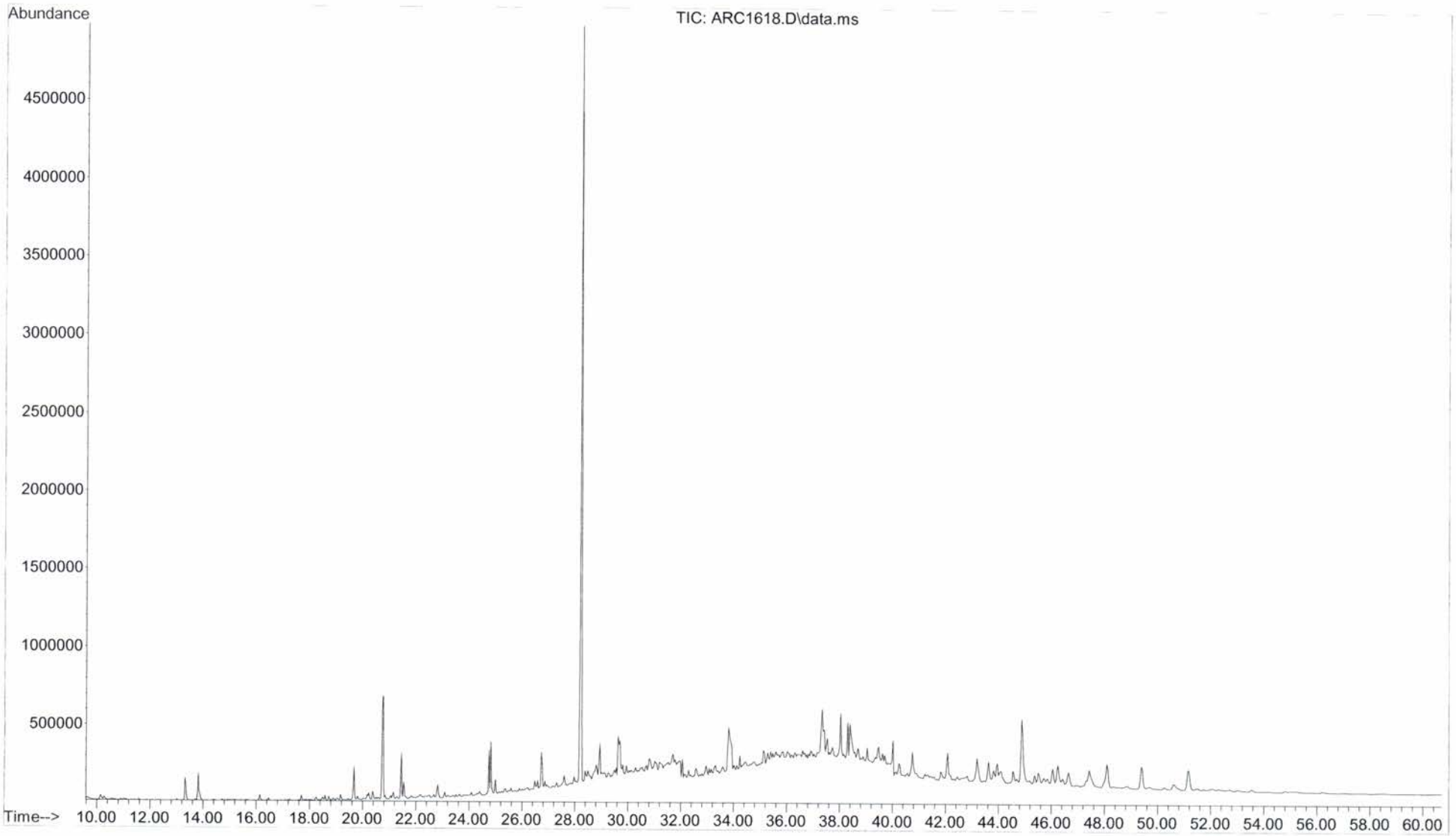
File :C:\GCMS7\MS70057\ARC1600.D
Operator : YM
Acquired : 17 Aug 2013 15:31 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SED-DA-020 (0.5-1.0)
Misc Info :
Vial Number: 17



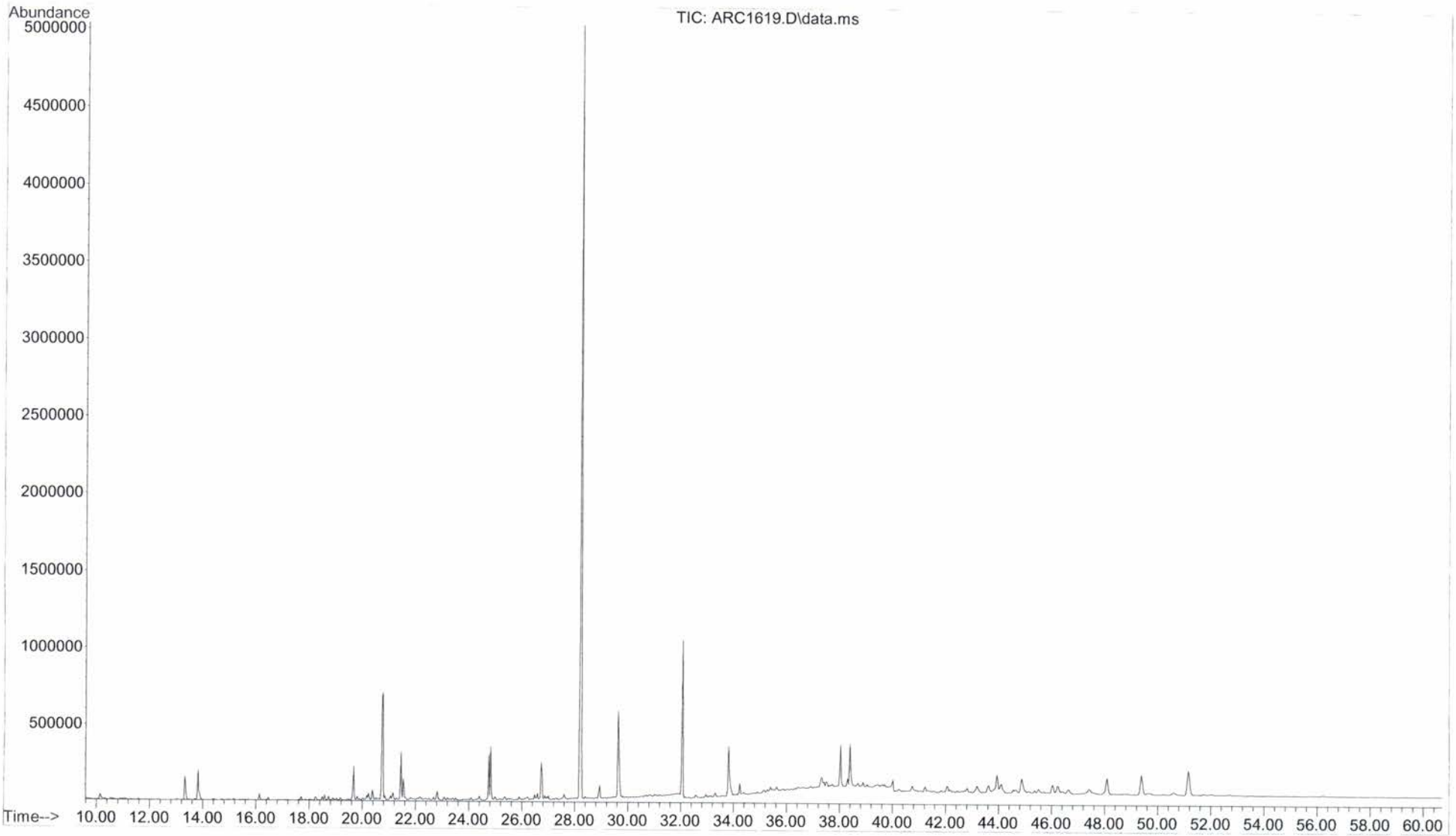
File :C:\GCMS7\MS70057\ARC1601.D
Operator : YM
Acquired : 17 Aug 2013 16:40 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SED-DA-020 (1.0-1.5)
Misc Info :
Vial Number: 18



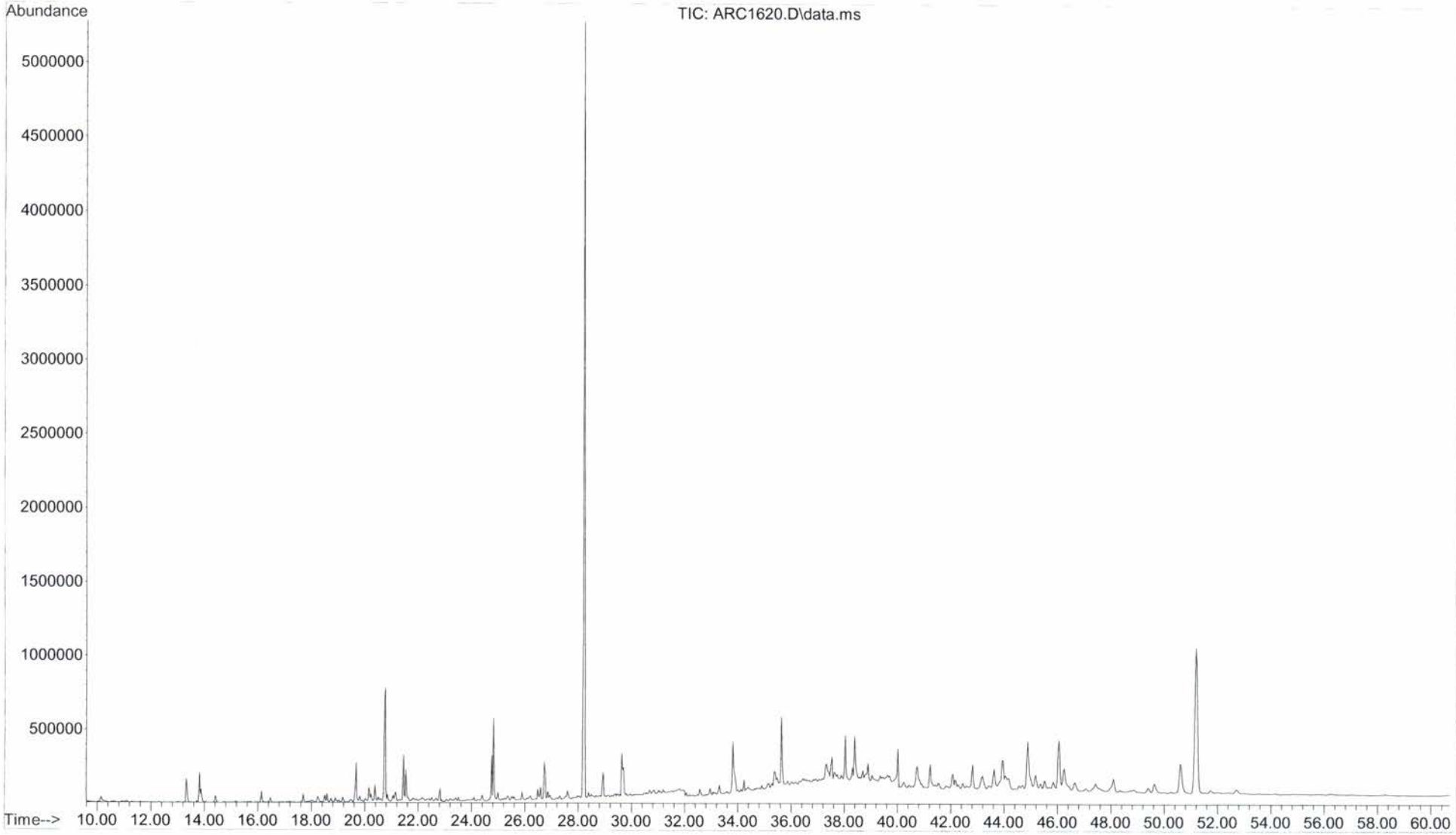
File :C:\GCMS7\MS70057\ARC1618.D
Operator : YM
Acquired : 17 Aug 2013 17:48 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-012 (0-0.5)
Misc Info :
Vial Number: 19



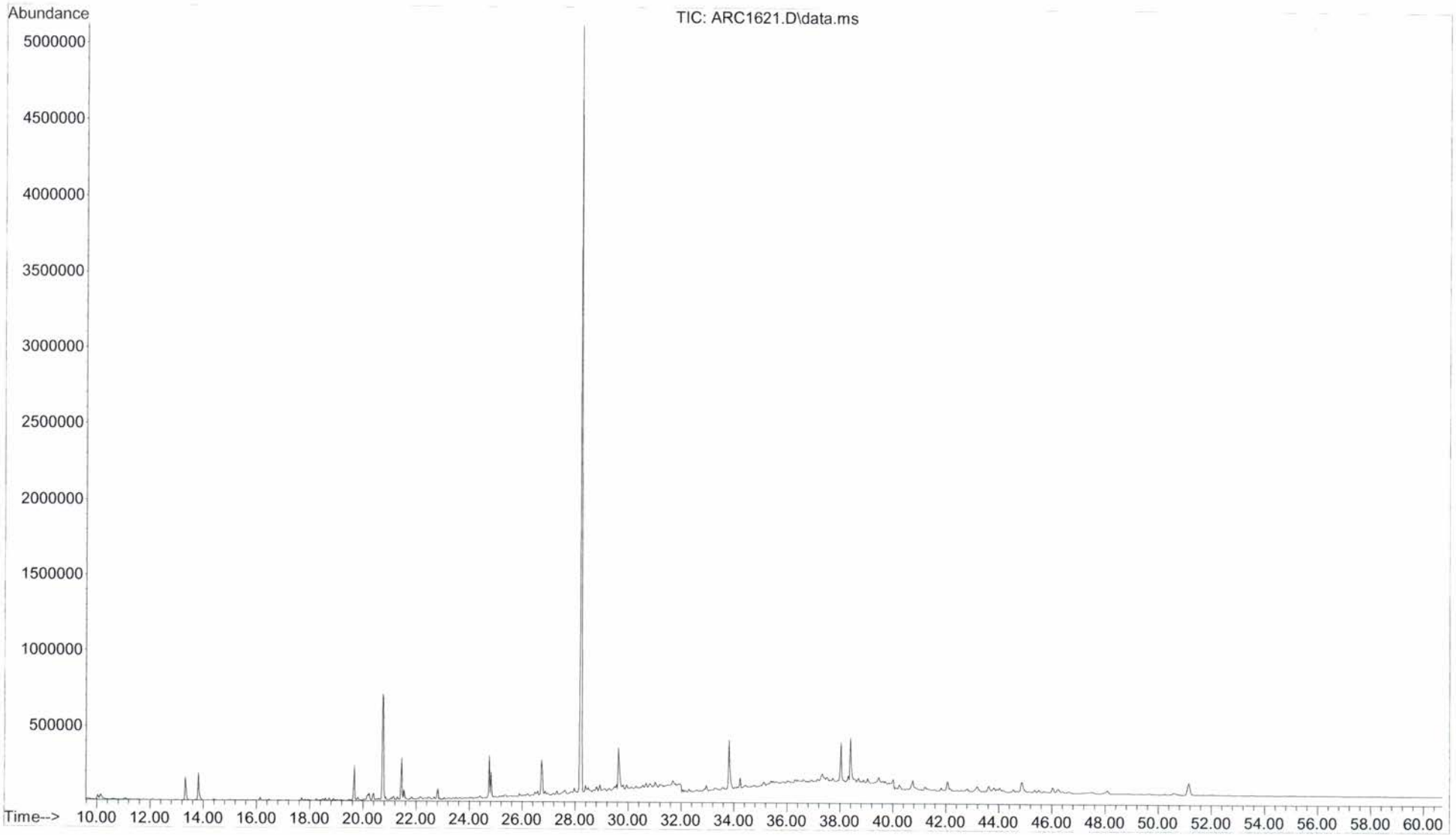
File :C:\GCMS7\MS70057\ARC1619.D
Operator : YM
Acquired : 17 Aug 2013 20:05 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-012 (0.5-1.0)
Misc Info :
Vial Number: 21



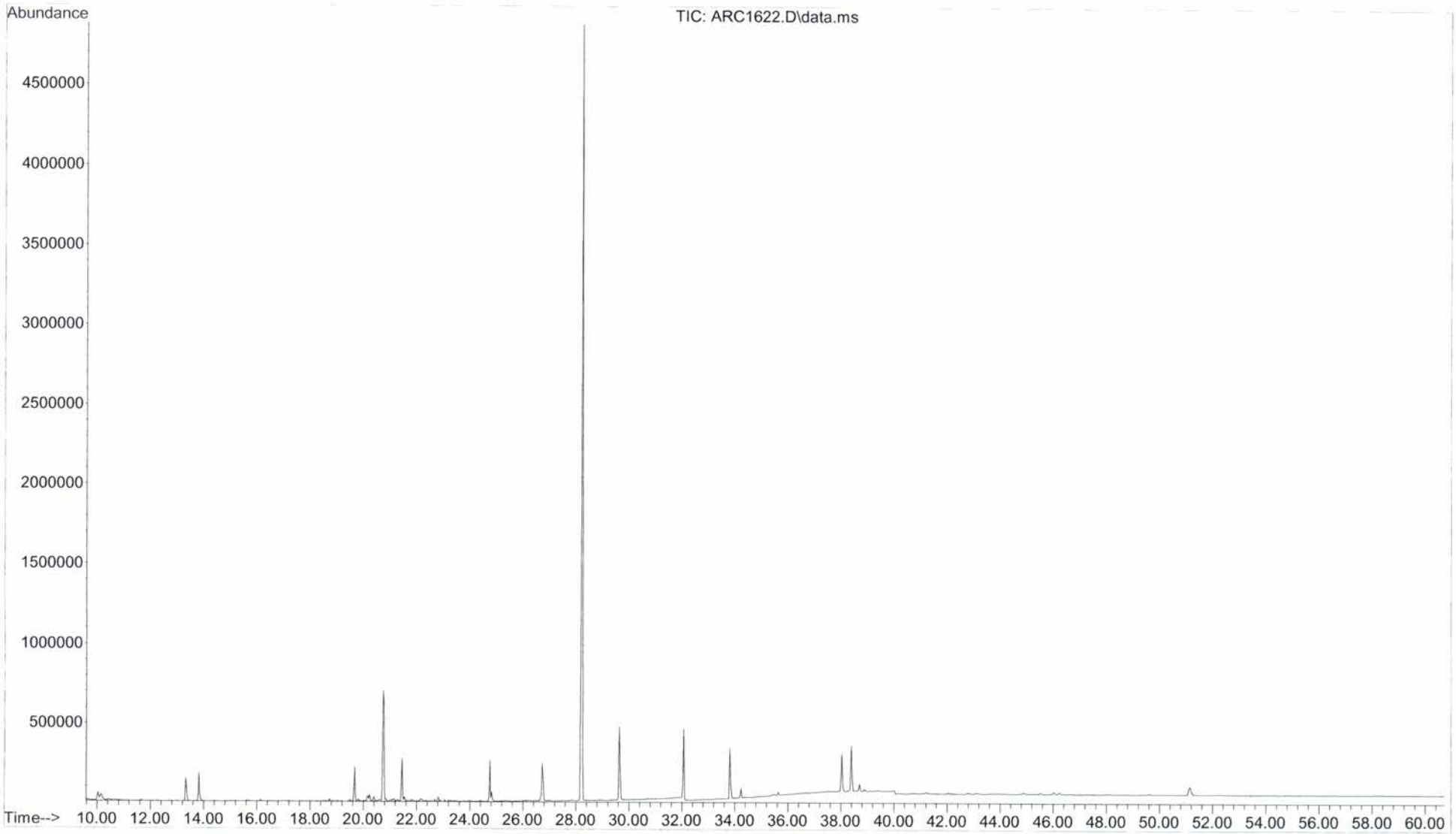
File :C:\GCMS7\MS70057\ARC1620.D
Operator : YM
Acquired : 17 Aug 2013 21:14 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-012 (1.0-1.5)
Misc Info :
Vial Number: 22



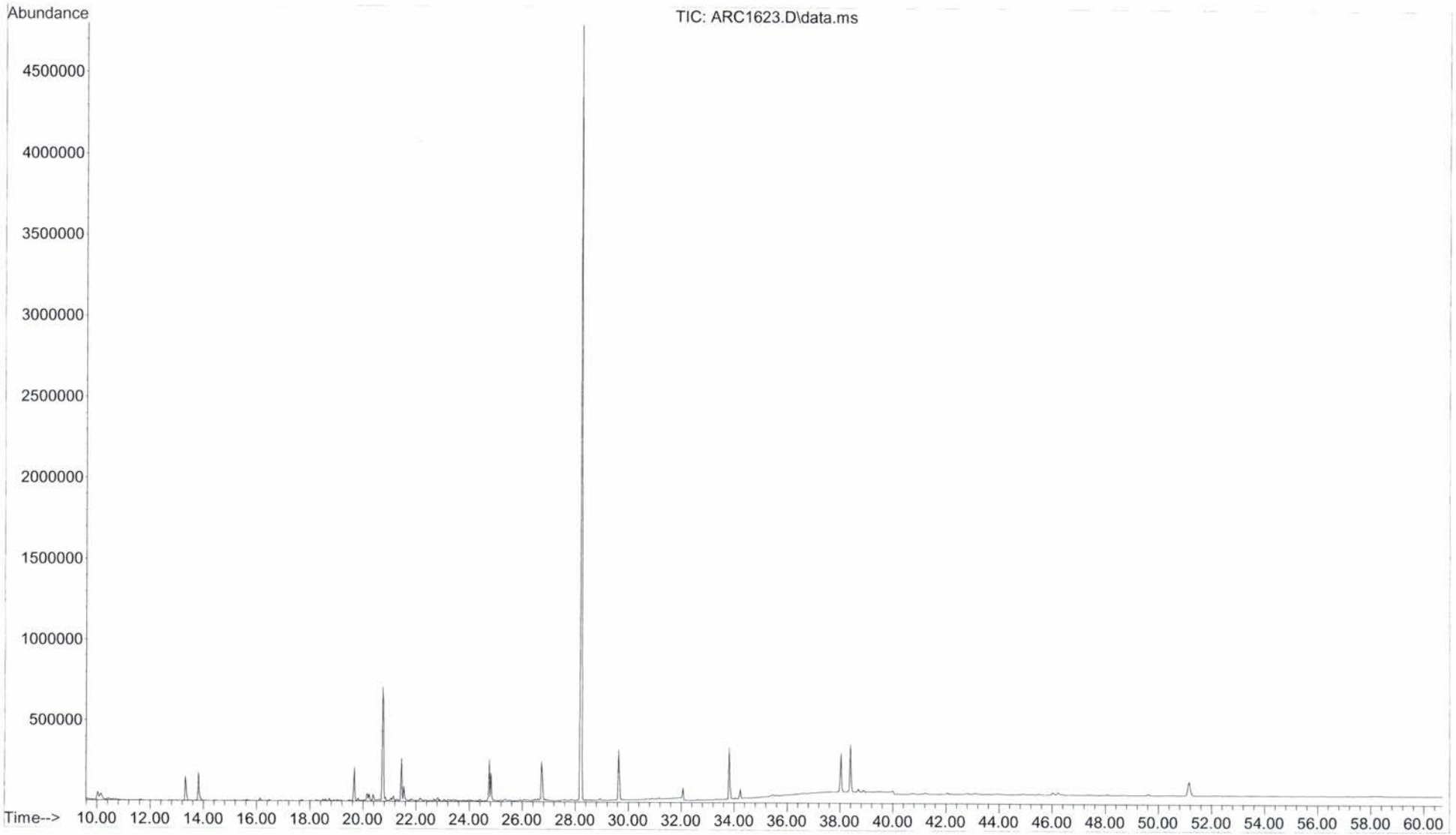
File :C:\GCMS7\MS70057\ARC1621.D
Operator : YM
Acquired : 17 Aug 2013 22:22 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-013 (0-0.5)
Misc Info :
Vial Number: 23



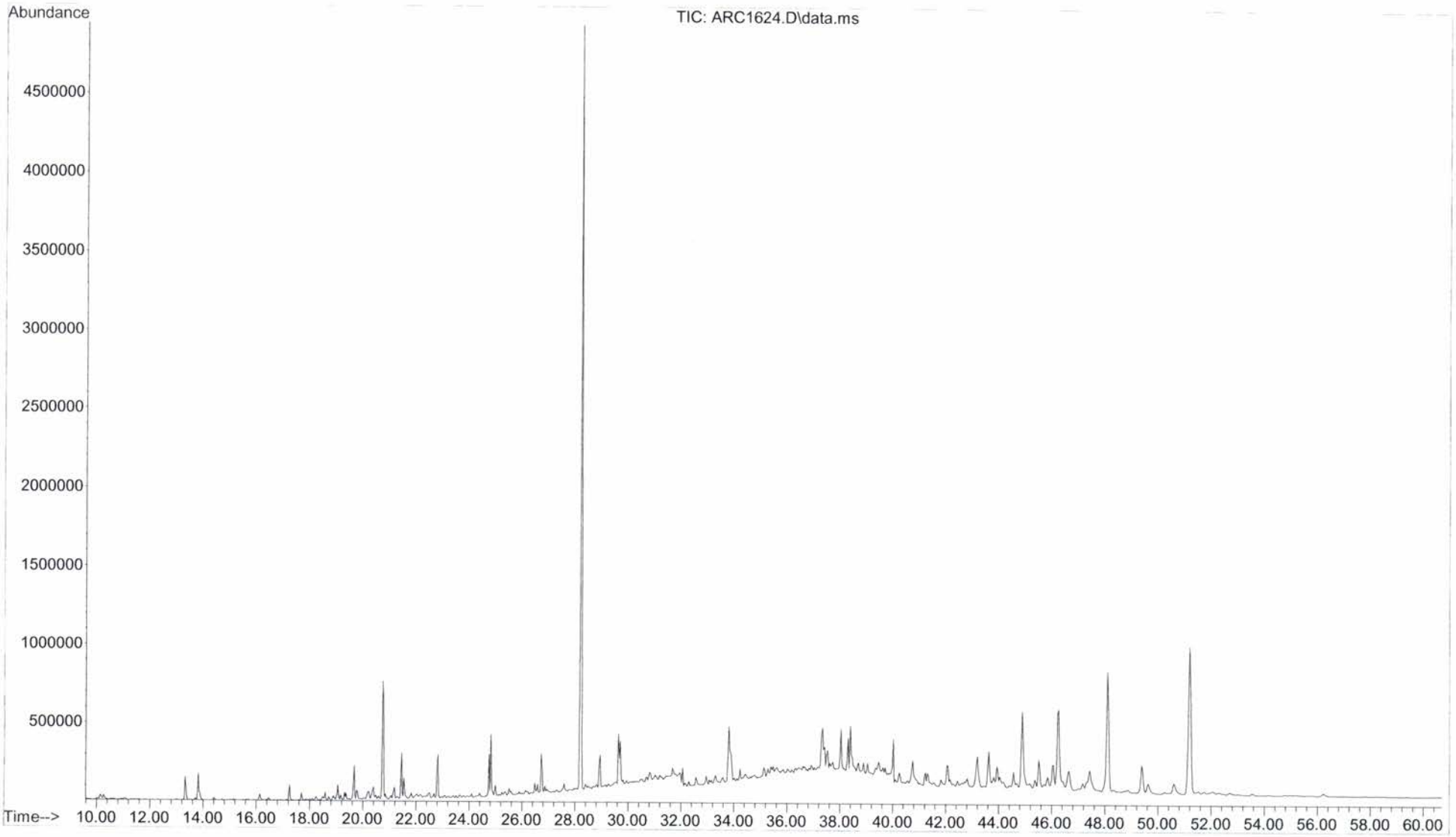
File :C:\GCMS7\MS70057\ARC1622.D
Operator : YM
Acquired : 17 Aug 2013 23:31 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-013 (0.5-1.0)
Misc Info :
Vial Number: 24



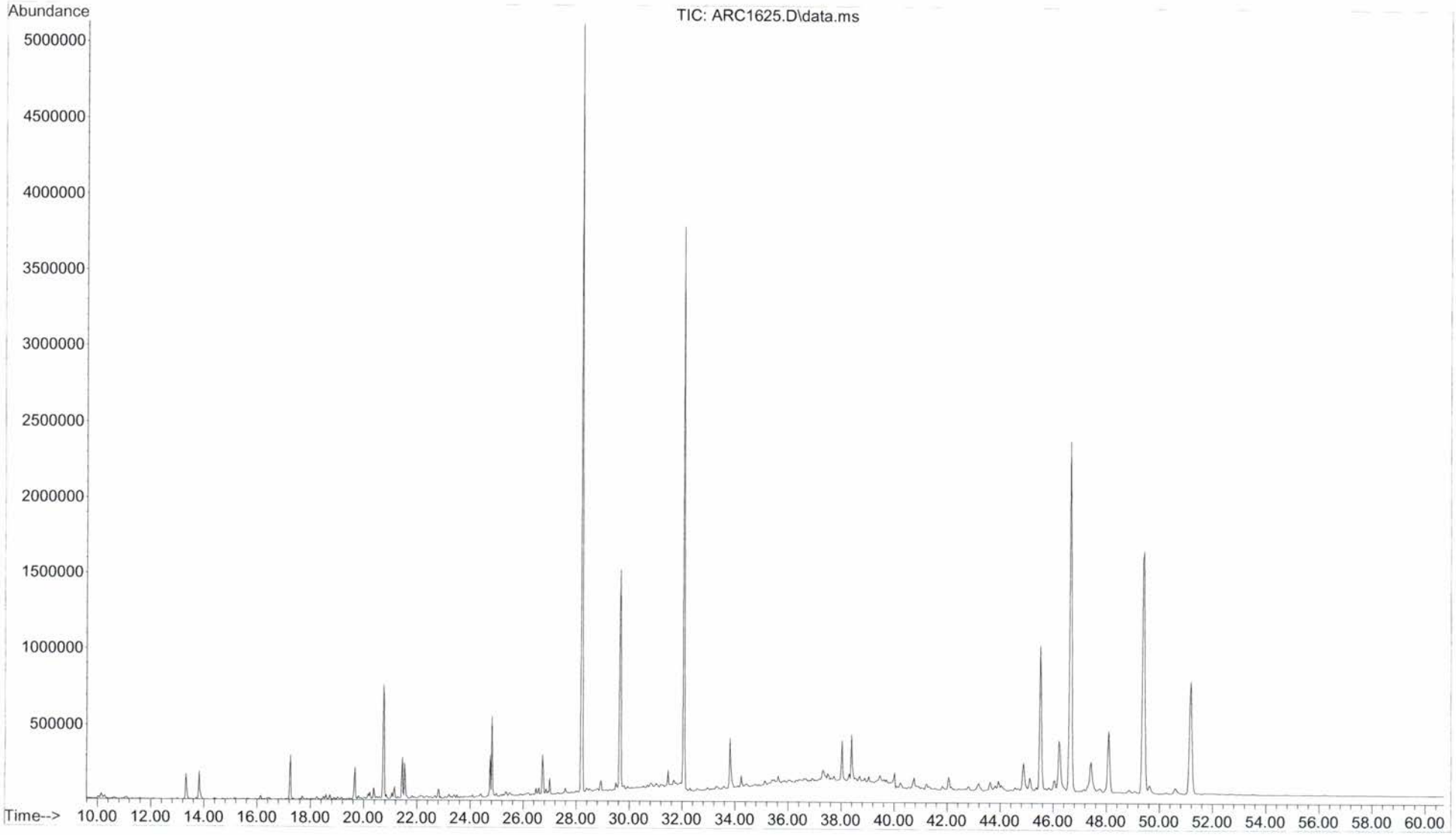
File :C:\GCMS7\MS70057\ARC1623.D
Operator : YM
Acquired : 18 Aug 2013 00:39 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-013 (1.0-1.5)
Misc Info :
Vial Number: 25



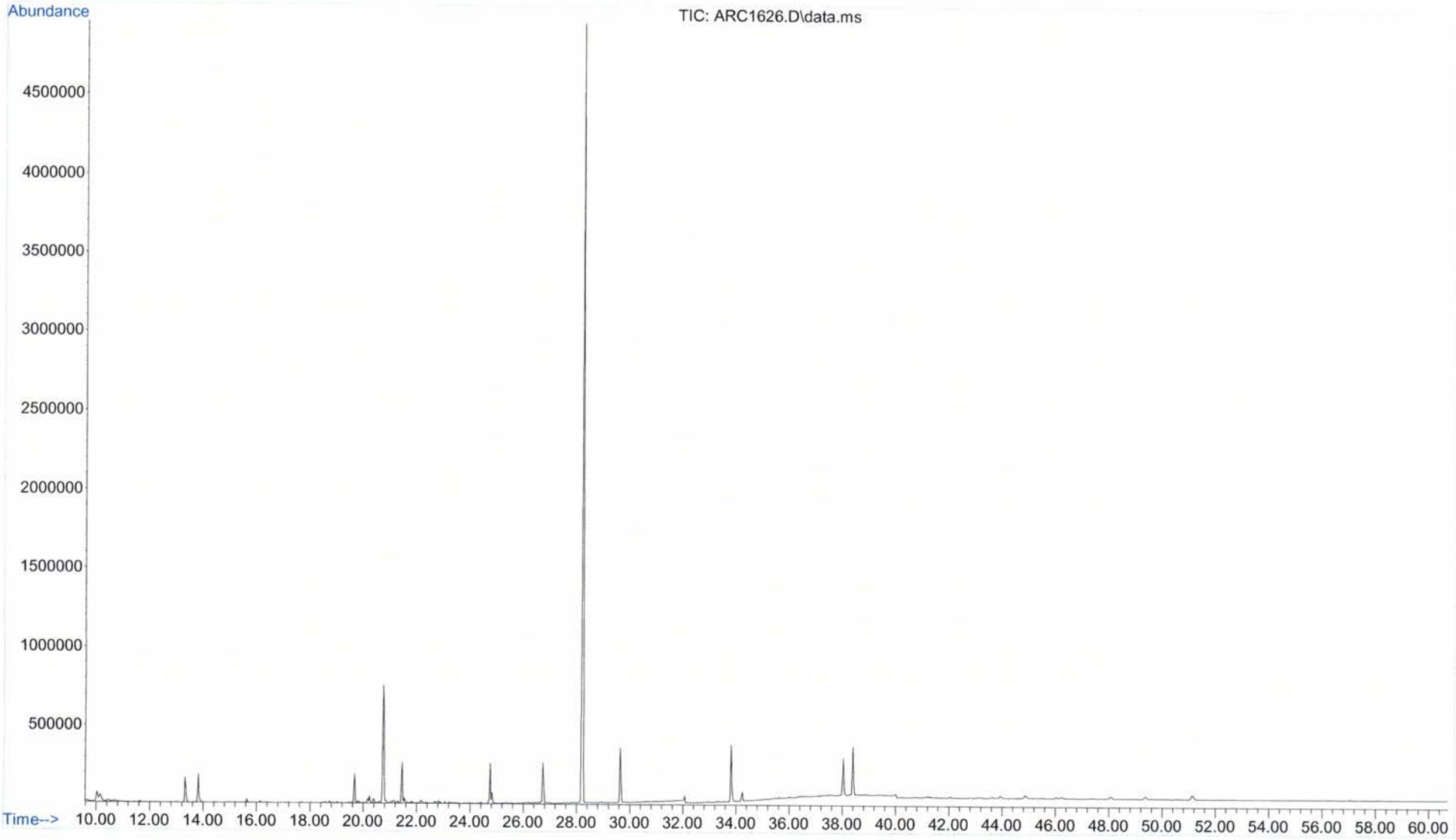
File :C:\GCMS7\MS70057\ARC1624.D
Operator : YM
Acquired : 18 Aug 2013 1:48 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-014 (0-0.5)
Misc Info :
Vial Number: 26



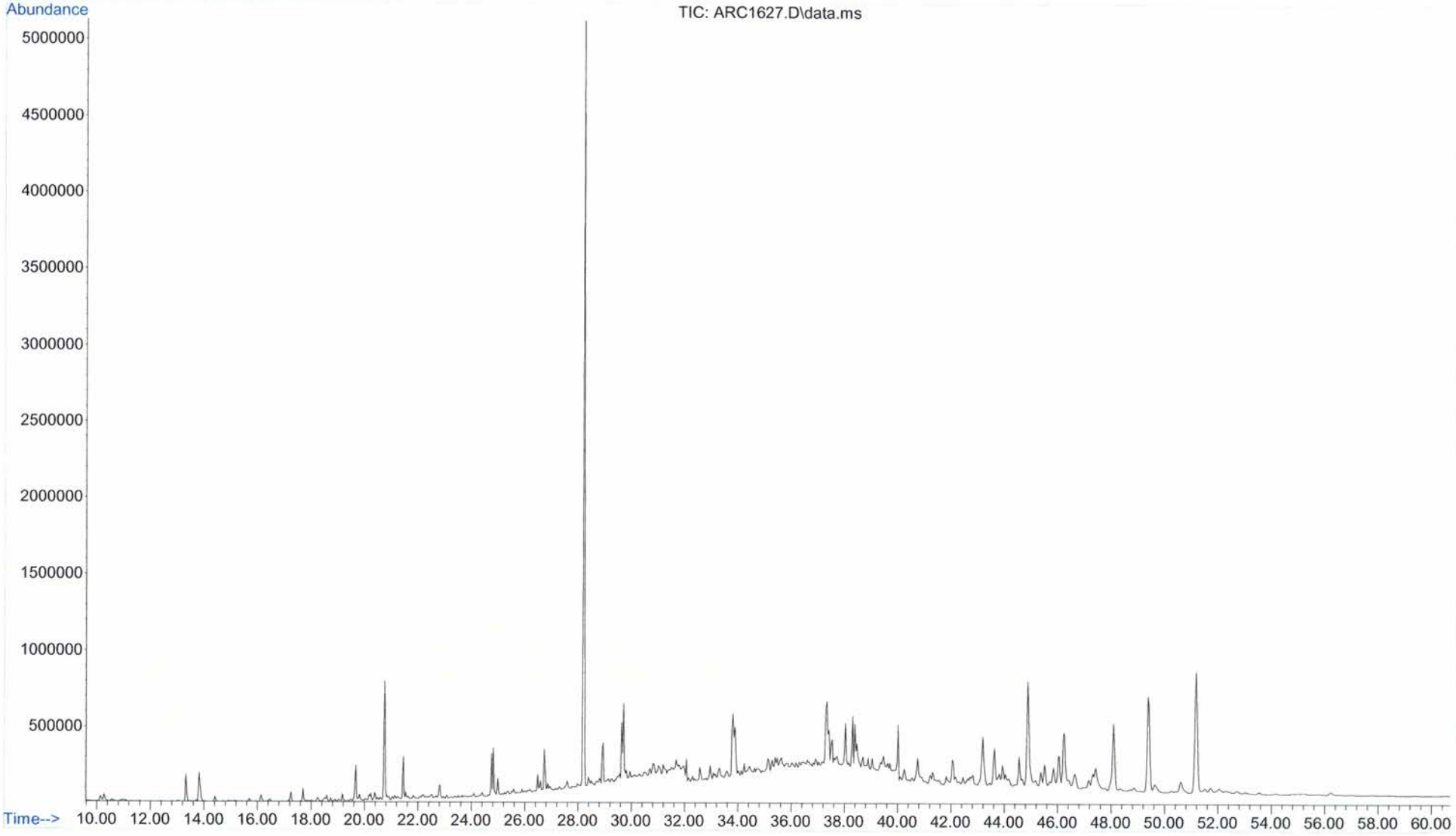
File :C:\GCMS7\MS70057\ARC1625.D
Operator : YM
Acquired : 18 Aug 2013 2:56 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-014 (0.5-1.0)
Misc Info :
Vial Number: 27



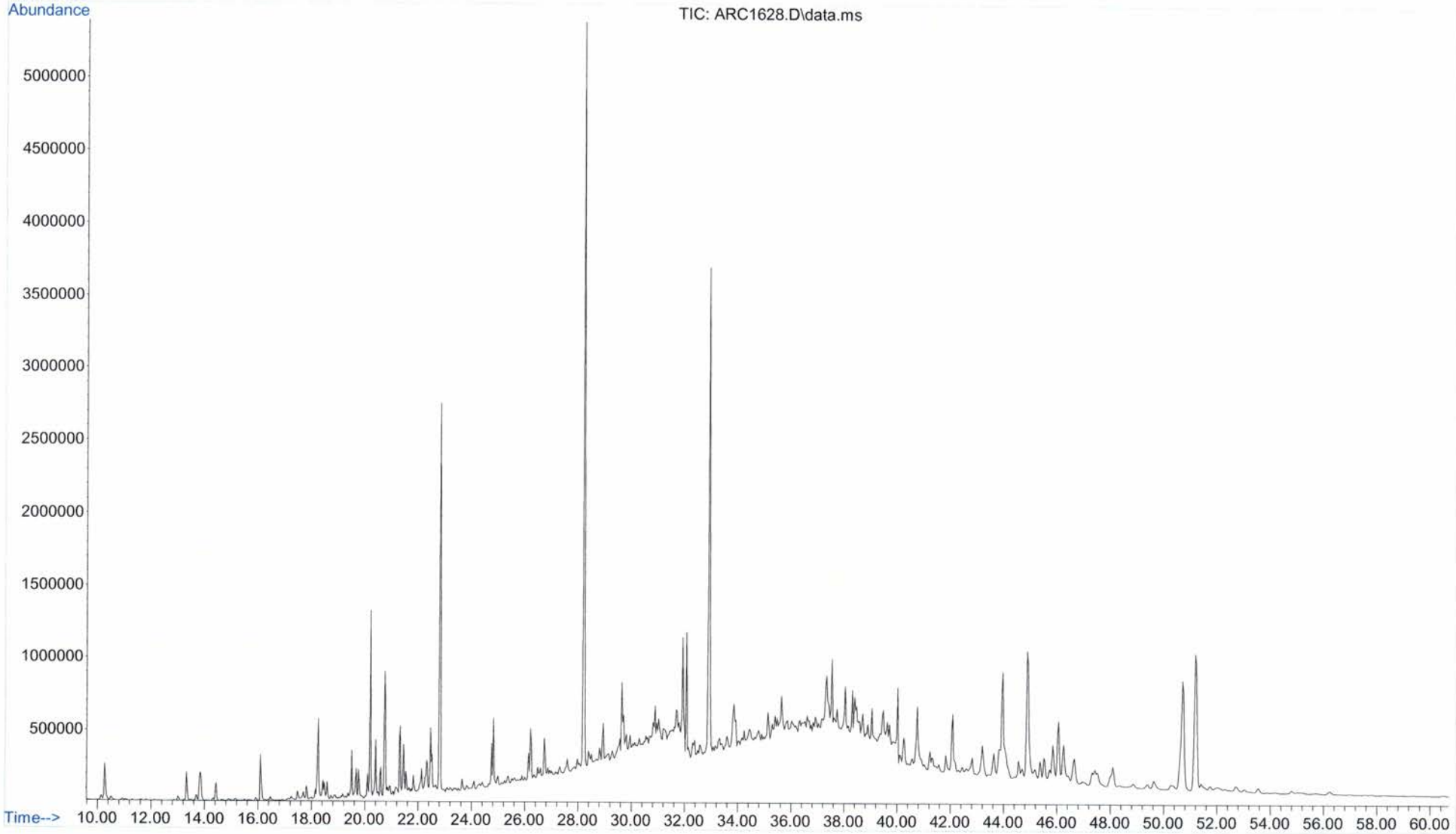
File :C:\GCMS7\MS70057\ARC1626.D
Operator : YM
Acquired : 18 Aug 2013 4:05 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-014 (1.0-1.5)
Misc Info :
Vial Number: 28



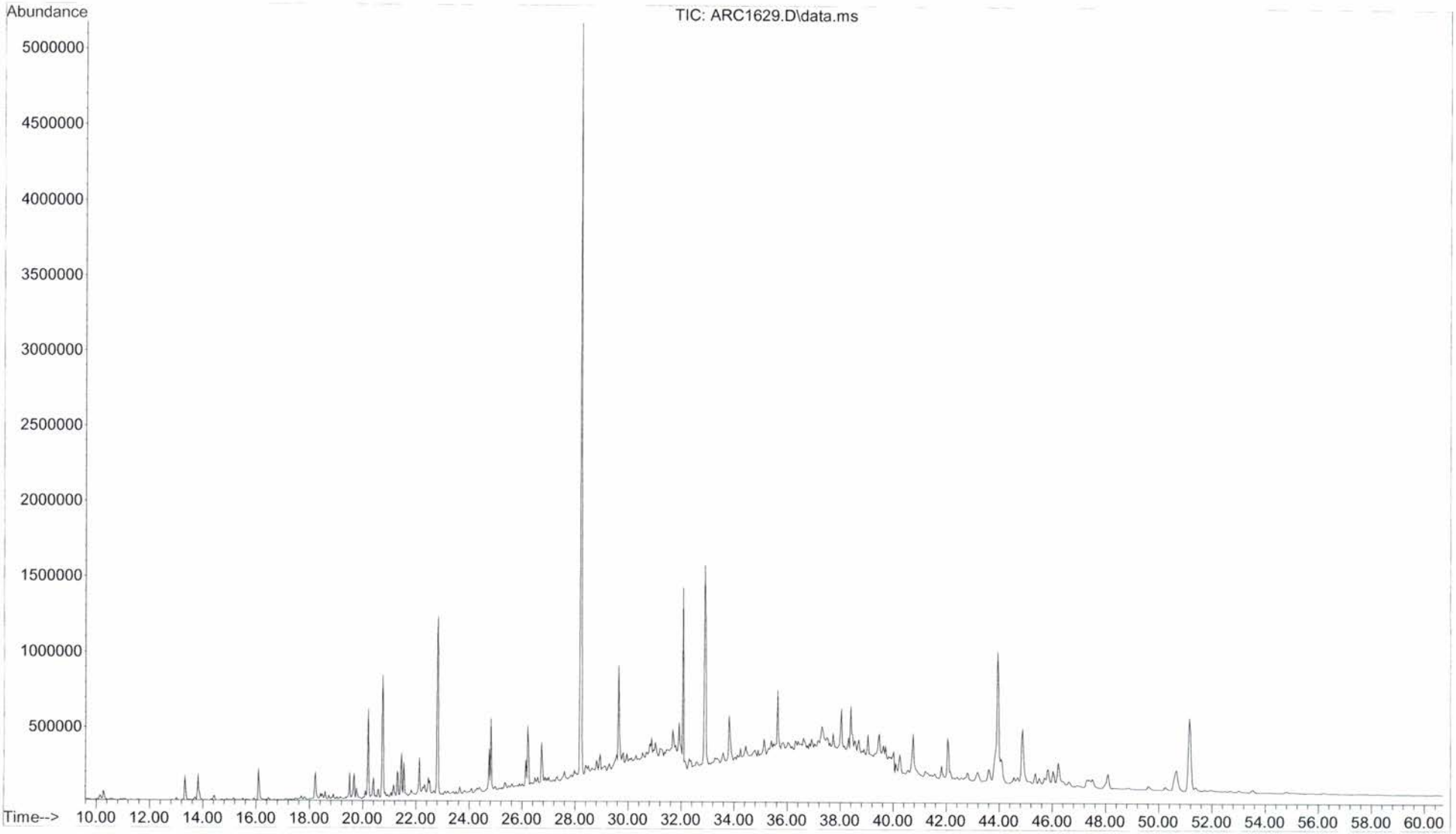
File :C:\GCMS7\MS70057\ARC1627.D
Operator : YM
Acquired : 18 Aug 2013 6:22 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-DUP-01-080113
Misc Info :
Vial Number: 30



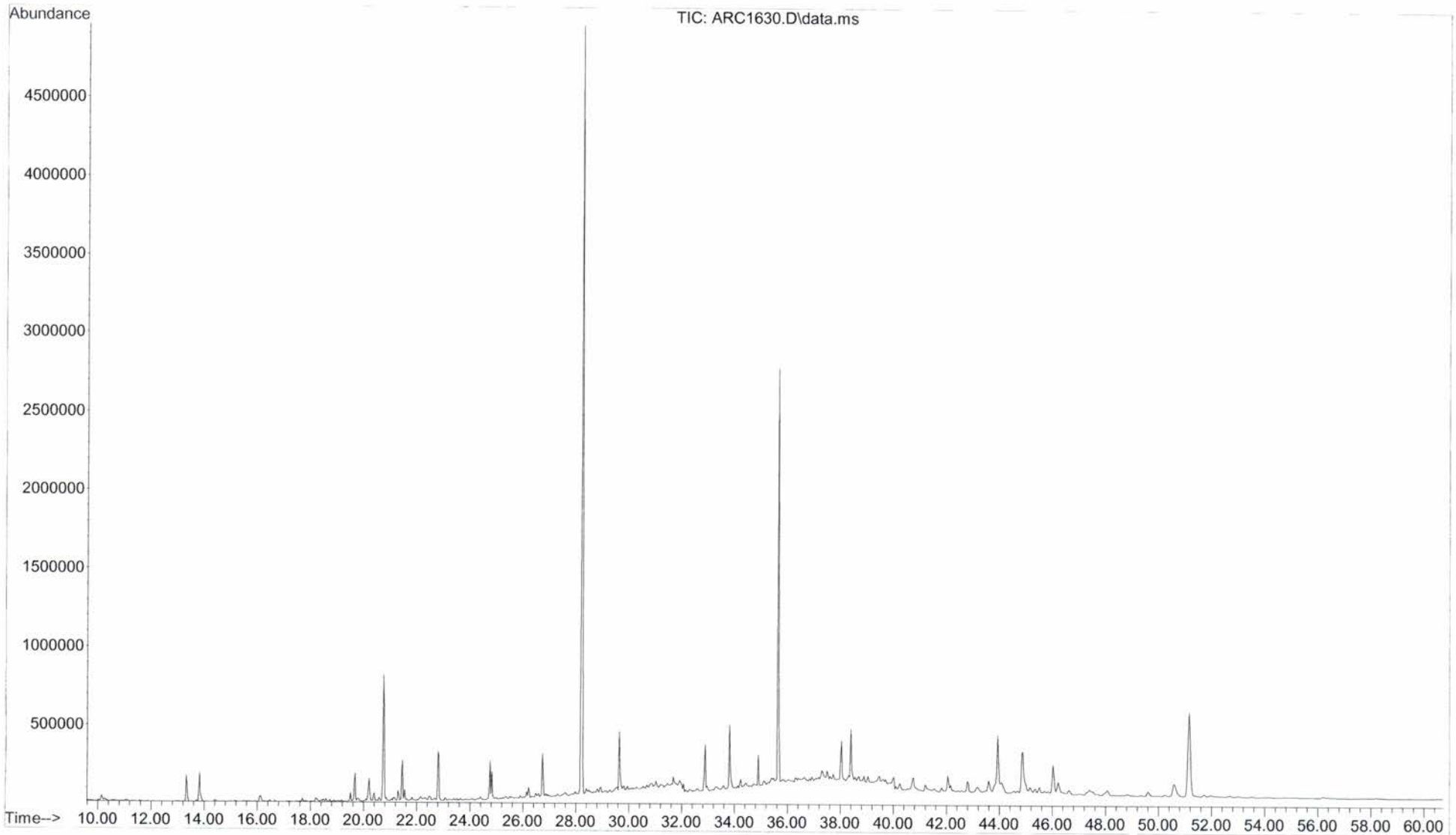
File :C:\GCMS7\MS70057\ARC1628.D
Operator : YM
Acquired : 18 Aug 2013 7:30 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-015 (0-0.5)
Misc Info :
Vial Number: 31



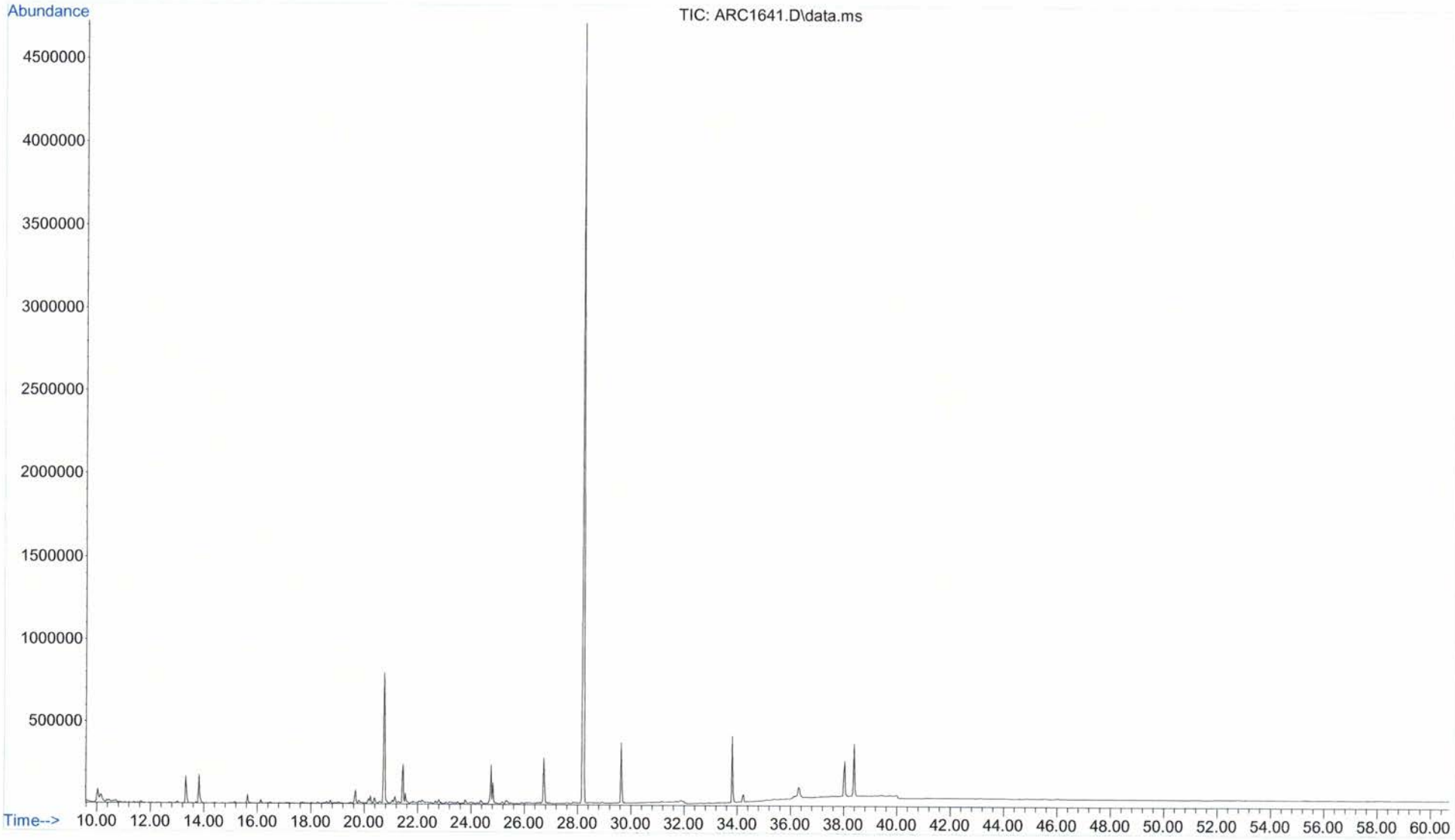
File :C:\GCMS7\MS70057\ARC1629.D
Operator : YM
Acquired : 18 Aug 2013 8:39 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-015 (0.5-1.0)
Misc Info :
Vial Number: 32



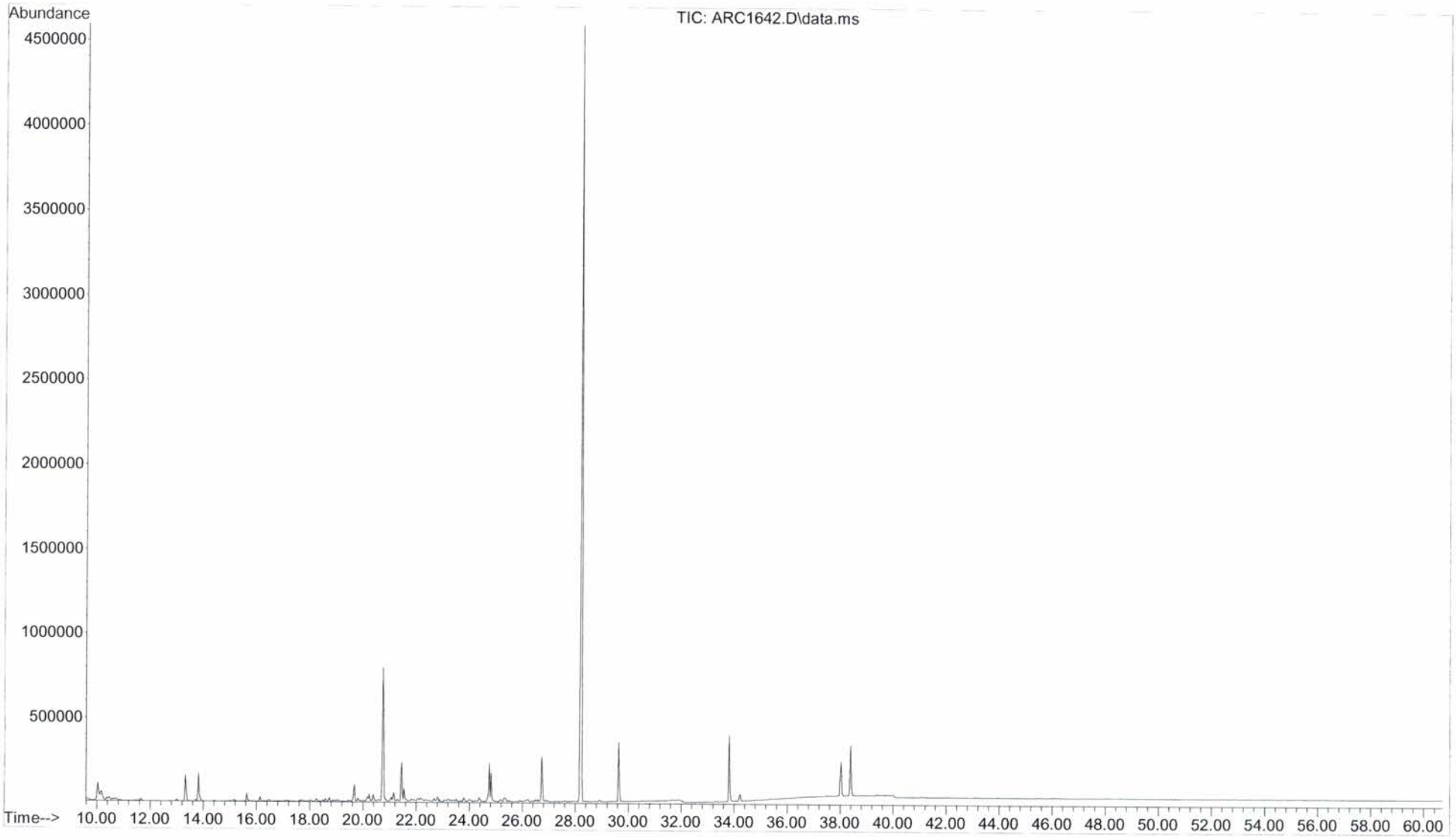
File :C:\GCMS7\MS70057\ARC1630.D
Operator : YM
Acquired : 18 Aug 2013 9:47 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SO-DA-015 (1.0-1.5)
Misc Info :
Vial Number: 33



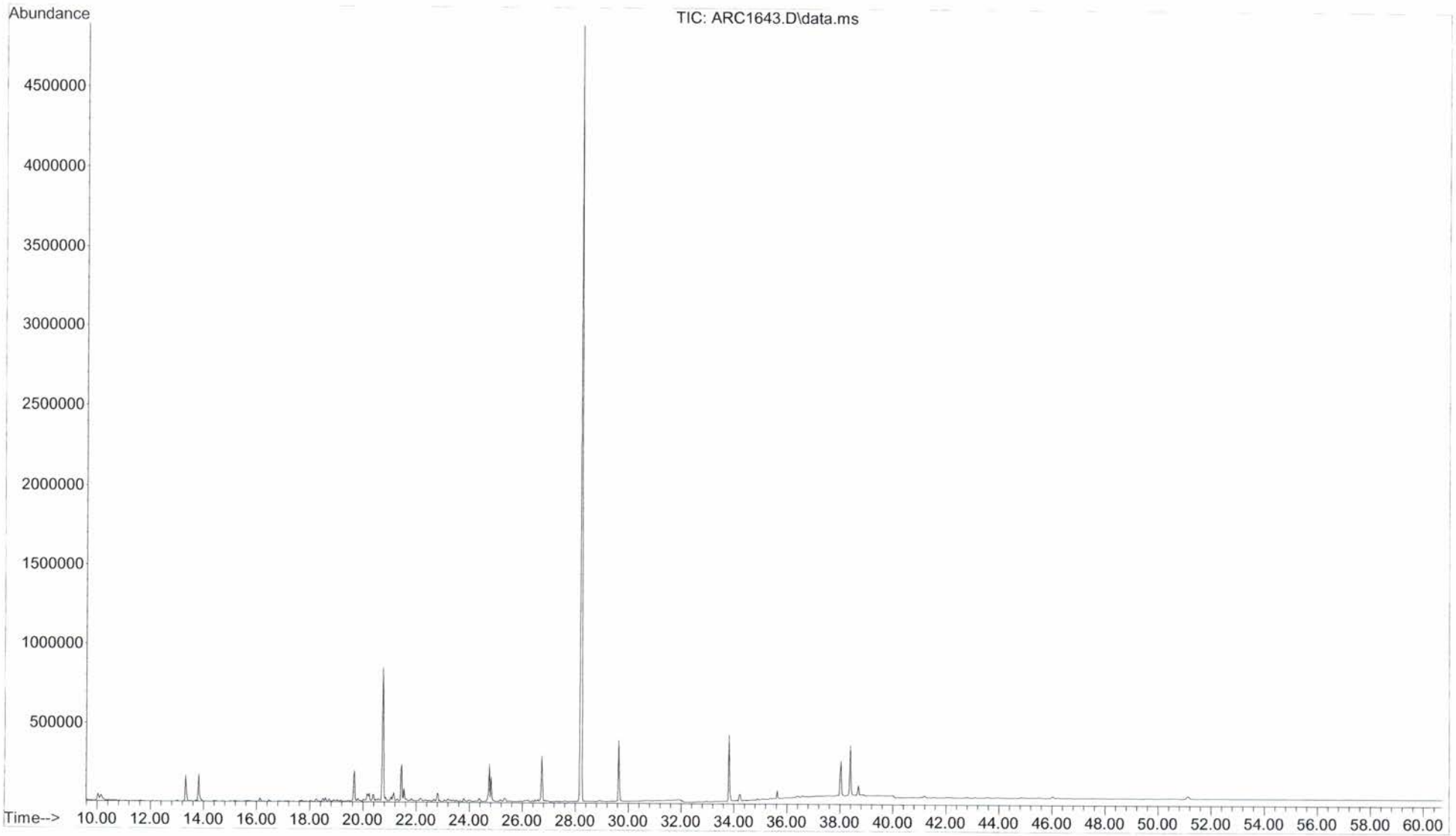
File :C:\GCMS7\MS70057\ARC1641.D
Operator : YM
Acquired : 18 Aug 2013 10:56 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SED-DA-012 (0.5-1.0)
Misc Info :
Vial Number: 34



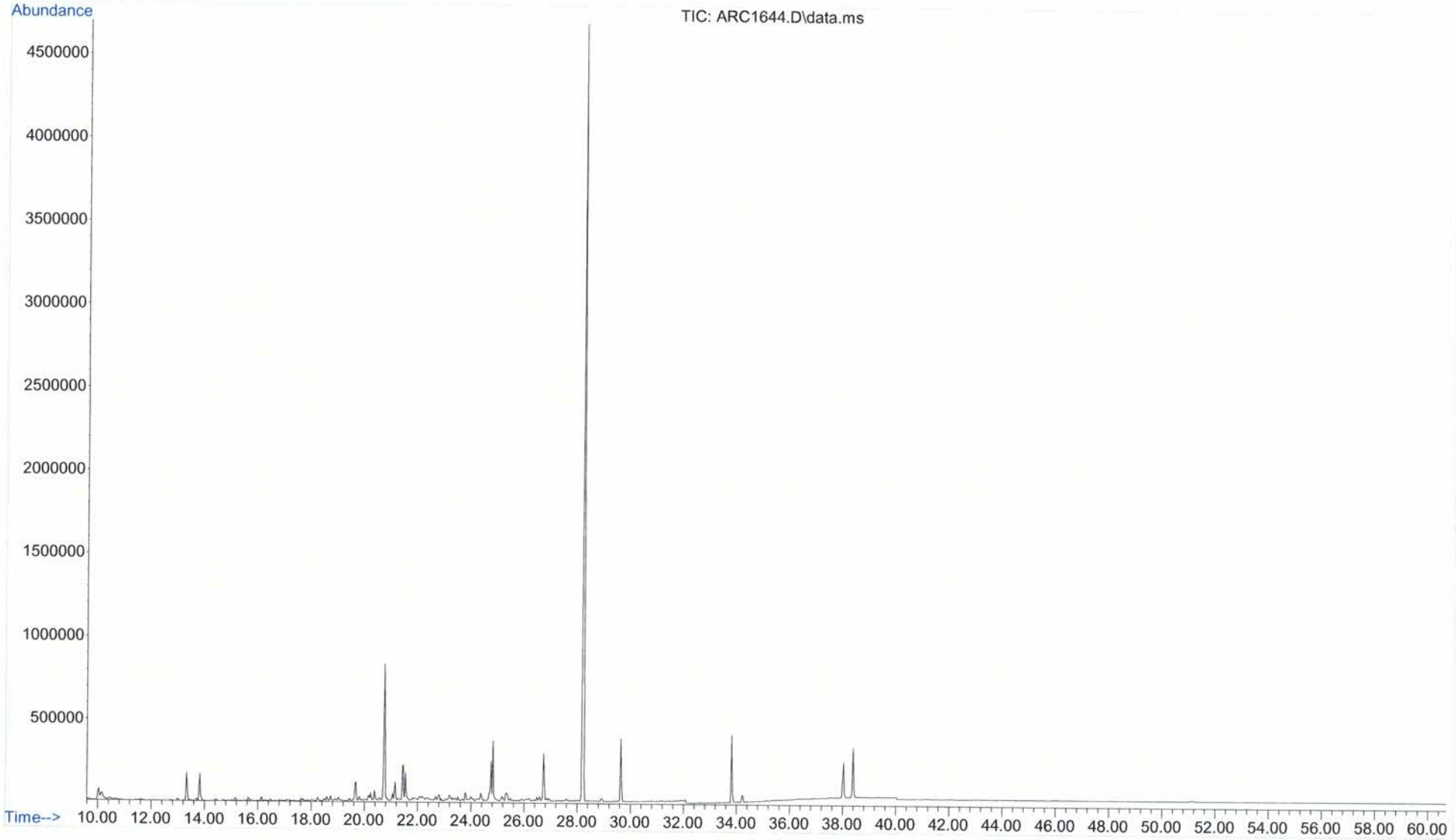
File :C:\GCMS7\MS70057\ARC1642.D
Operator : YM
Acquired : 18 Aug 2013 12:04 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SED-DA-012 (1.0-1.5)
Misc Info :
Vial Number: 35



File :C:\GCMS7\MS70057\ARC1643.D
Operator : YM
Acquired : 18 Aug 2013 13:13 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SED-DA-013 (1.0-1.5)
Misc Info :
Vial Number: 36



File :C:\GCMS7\MS70057\ARC1644.D
Operator : YM
Acquired : 18 Aug 2013 14:22 using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: SED-DA-013 (1.0-1.5)
Misc Info :
Vial Number: 37



Polycyclic Aromatic Hydrocarbon Raw Data

B&B LABORATORIES PAHs QA FORM

Extraction Page: ENV 3081	Analyst: Y. Miao
Client: Aracadis Mayflower	Date: 9/13/2013
Job: #: J13034	Project Quality Manager: W Frank
SDG #: various	Date: 09/13/13

Initial Calibration: No failures	ICV No failures

Surrogate Recoveries:	d12-Perylene was outside of laboratory QC %recovery limits due to matrix effect in fourteen client and three internal QC samples that used client submitted sediments d10-Acenaphthene was outside of the recovey limits in ARC6141
Procedural Blank:	No failures
Blank Spike:	NA
Blank Spike Duplicate:	NA
Laboratory Duplicate:	No failures
Matrix Spike:	Perylene was detected outside of the laboratory QC %recovery limits Five ~~Four~~ other compounds are labelled with Y - invalid spike due to high nat\ive concentrations of PAHs in the sample. W 09/13/13
Matirx Spike Duplicate:	Perylene was detected outside of the laboratory QC %recovery limits Five ~~Four~~ other compounds are labelled with Y - invalid spike due to high nat\ive concentrations of PAHs in the sample. W 09/13/13
SRM/LCS (Solution, Tissue, Sediment):	Sediment (1941b) no failures Solution 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\data\MS70056\MS70057.s
Comment: Arcadis-Mayflower AR-Sediments-PAH (08/16/13)
Operator: YM
Data Path: C:\MSDCHEM\1\DATA\MS70057\
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
( ) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
(X) Barcode Disabled

Line		Sample	Name/Misc Info	
1)	Sample	1	MS70057A	PAH-2012 Solvent rinse
2)	Sample	2	MS70057B	PAH-2012 AR-WKC1-020-030
3)	Sample	3	MS70057C	PAH-2012 AR-WKC2-100-030
4)	Sample	4	MS70057D	PAH-2012 AR-WKC3-250-030
5)	Sample	5	MS70057E	PAH-2012 AR-WKC4-500-030
6)	Sample	6	MS70057F	PAH-2012 AR-WKC5-1000-030
7)	Sample	7	MS70057G	PAH-2012 AR-WKC6-5000-030
8)	Sample	8	MS70057H	PAH-2012 AR-WKISSU-250-002
9)	Sample	9	MS70057I	PAH-2012 AR-WKICV-250-004
10)	Sample	10	MS70057J	PAH-2012 AR-WKCC-250-038
11)	Sample	11	MS70057K	PAH-2012 AR-SRM2779-WK4.0-002
12)	Sample	12	ENV3081A	PAH-2012
13)	Sample	13	ENV3081B	PAH-2012
14)	Sample	14	ENV3081C	PAH-2012
15)	Sample	15	ENV3081D	PAH-2012
16)	Sample	16	ENV3081E	PAH-2012
17)	Sample	17	ARC1600	PAH-2012
18)	Sample	18	ARC1601	PAH-2012
19)	Sample	19	ARC1618	PAH-2012
20)	Sample	20	MS70057L	PAH-2012 AR-WKCC-250-038
21)	Sample	21	ARC1619	PAH-2012
22)	Sample	22	ARC1620	PAH-2012
23)	Sample	23	ARC1621	PAH-2012
24)	Sample	24	ARC1622	PAH-2012
25)	Sample	25	ARC1623	PAH-2012
26)	Sample	26	ARC1624	PAH-2012
27)	Sample	27	ARC1625	PAH-2012
28)	Sample	28	ARC1626	PAH-2012
29)	Sample	29	MS70057M	PAH-2012 AR-WKCC-250-038
30)	Sample	30	ARC1627	PAH-2012
31)	Sample	31	ARC1628	PAH-2012
32)	Sample	32	ARC1629	PAH-2012
33)	Sample	33	ARC1630	PAH-2012
34)	Sample	34	ARC1641	PAH-2012
35)	Sample	35	ARC1642	PAH-2012
36)	Sample	36	ARC1643	PAH-2012
37)	Sample	37	ARC1644	PAH-2012
38)	Sample	38	MS70057N	PAH-2012 AR-WKCC-250-038

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	91	0.00
2	S	Naphthalene-d8	1.692	1.611	4.8	93	0.00
3	T	cis/trans Decalin	0.290	0.297	-2.4	95	0.00
4	un	C1-Decalins	0.290	0.000	100.0#	0#	-12.32#
5	un	C2-Decalins	0.290	0.000	100.0#	0#	-13.52#
6	un	C3-Decalins	0.290	0.000	100.0#	0#	-15.88#
7	un	C4-Decalins	0.290	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.889	1.814	4.0	94	0.00
9	T	2-Methylnaphthalene	1.190	1.115	6.3	92	0.00
10	T	1-Methylnaphthalene	1.099	1.050	4.5	93	0.00
11	T	2,6-Dimethylnaphthalene	1.117	1.036	7.3	91	0.00
12	T	1,6,7-Trimethylnaphthalene	0.989	0.929	6.1	92	0.00
13	un	C2-Naphthalenes	1.889	0.000	100.0#	0#	-18.89#
14	un	C3-Naphthalenes	1.889	0.000	100.0#	0#	-20.37#
15	un	C4-Naphthalenes	1.889	0.000	100.0#	0#	-22.26#
16	T	Benzothiophene	1.541	1.460	5.3	92	0.00
17	un	C1-Benzothiophenes	1.541	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.541	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.541	0.000	100.0#	0#	-20.31#
20	un	C4-Benzothiophenes	1.541	0.000	100.0#	0#	-22.23#
21	S	Acenaphthene-d10	0.973	0.906	6.9	92	0.00
22	T	Biphenyl	1.618	1.517	6.2	92	0.00
23	T	Acenaphthylene	1.844	1.643	10.9	90	0.00
24	T	Acenaphthene	1.052	0.999	5.0	93	-0.03
25	T	Dibenzofuran	1.790	1.676	6.4	91	0.00
26	T	Fluorene	1.414	1.325	6.3	92	0.00
27	T	1-Methylfluorene	0.933	0.850	8.9	89	0.00
28	un	C1-Fluorenes	1.414	0.000	100.0#	0#	-23.51#
29	un	C2-Fluorenes	1.414	0.000	100.0#	0#	-24.79#
30	un	C3-Fluorenes	1.414	0.000	100.0#	0#	-27.59#
31	I	Pyrene-d10	1.000	1.000	0.0	86	0.00
32	S	Phenanthrene-d10	1.010	0.945	6.4	88	0.00
33	T	Carbazole	0.962	0.845	12.2	85	0.00
34	T	Dibenzothiophene	1.044	0.993	4.9	90	0.00
35	T	4-Methyldibenzothiophene	0.851	0.880	-3.4	94	0.00
36	un	2/3-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.21#
37	un	1-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.044	0.000	100.0#	0#	-27.83#
39	un	C3-Dibenzothiophenes	1.044	0.000	100.0#	0#	-28.49#
40	un	C4-Dibenzothiophenes	1.044	0.000	100.0#	0#	-31.09#
41	T	Phenanthrene	1.263	1.267	-0.3	92	0.00
42	T	Anthracene	1.171	1.139	2.7	92	0.00
43	un	3-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
44	un	2-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
45	un	2-Methylanthracene	0.783	0.000	100.0#	0#	-26.73#
46	un	4/9-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	0.783	0.818	-4.5	97	0.00
48	T	3,6-Dimethylphenanthrene	0.673	0.651	3.3	92	-0.03
49	T	Retene	0.371	0.323	12.9	84	0.00
50	un	C2-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-29.43#
52	un	C4-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-32.06#
53	T	Naphthobenzothiophene	1.305	1.414	-8.4	100	0.00
54	un	C1-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.92#
58	T	Fluoranthene	1.139	1.123	1.4	94	-0.03
59	T	Pyrene	1.480	1.480	0.0	91	0.00
60	T	2-Methylfluoranthene	0.942	0.838	11.0	85	0.00
61	T	Benzo(b)fluorene	0.795	0.702	11.7	86	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-35.09#
66	S	Chrysene-d12	1.105	1.253	-13.4	102	-0.04
67	T	Benz(a)anthracene	1.344	1.395	-3.8	95	0.00
68	T	Chrysene/Triphenylene	1.138	1.257	-10.5	102	-0.04
69	un	C1-Chrysenes	1.138	0.000	100.0#	0#	-35.83#
70	un	C2-Chrysenes	1.138	0.000	100.0#	0#	-36.99#
71	un	C3-Chrysenes	1.138	0.000	100.0#	0#	-38.11#
72	un	C4-Chrysenes	1.138	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	81	0.00
74	un	C29-Hopane	0.371	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.371	0.000	100.0#	0#	-42.34#
76	T	C30-Hopane	0.371	0.409	-10.2	94	0.00
77	T	Benzo(b)fluoranthene	1.391	1.291	7.2	82	-0.04
78	T	Benzo(k,j)fluoranthene	1.059	1.152	-8.8	98	0.00
79	un	Benzo(a)fluoranthene	1.059	0.000	100.0#	0#	-37.34#
80	T	Benzo(e)pyrene	1.281	1.283	-0.2	90	-0.04
81	T	Benzo(a)pyrene	1.258	1.350	-7.3	95	-0.04
82	T	Indeno(1,2,3-c,d)pyrene	1.586	1.595	-0.6	90	-0.04
83	T	Dibenzo(a,h)anthracene	1.273	1.274	-0.1	90	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-48.31#
85	un	C2-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-50.30#
86	un	C3-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-51.23#
87	T	Benzo(g,h,i)perylene	1.385	1.414	-2.1	91	-0.04
88	S	Perylene-d12	1.181	1.164	1.4	88	0.00
89	T	Perylene	1.282	1.365	-6.5	94	-0.04
90	S	5(b)H-Cholane	0.198	0.181	8.6	83	0.00
91	un	C20-TAS	1.412	0.000	100.0#	0#	-33.30#
92	un	C21-TAS	1.412	0.000	100.0#	0#	-34.24#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	1.412	0.000	100.0#	0#	-38.70#
94 T	C26(20R)/C27(20S)-TAS	1.412	1.415	-0.2	90	-0.04
95 un	C28(20S)-TAS	1.412	0.000	100.0#	0#	-40.24#
96 un	C27(20R)-TAS	1.412	0.000	100.0#	0#	-41.09#
97 un	C28(20R)-TAS	1.412	0.000	100.0#	0#	-41.42#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	402288m	251.05		0.00
31) Pyrene-d10	29.635	212	711768m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	764621m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	645555m	238.07		0.00
21) Acenaphthene-d10	19.672	164	363198m	232.98		0.00
32) Phenanthrene-d10	24.752	188	671194m	234.06		0.00
66) Chrysene-d12	33.809	240	890011m	283.55		-0.04
88) Perylene-d12	38.697	264	889260m	246.57		0.00
90) 5(b)H-Cholane	34.235	217	138121m	228.02		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	117806m	253.42		
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	13.878	128	726824m	240.15		
9) 2-Methylnaphthalene	16.134	142	446971m	234.37		
10) 1-Methylnaphthalene	16.468	142	420018m	238.41		
11) 2,6-Dimethylnaphthalene	18.223	156	415131m	231.92		
12) 1,6,7-Trimethylnaphtha...	21.065	170	372283m	234.85		
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	14.045	134	581460m	235.47		
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	17.694	154	602369m	232.30		
23) Acenaphthylene	19.171	152	653121m	221.07		
24) Acenaphthene	19.756	154	401045m	237.82		
25) Dibenzofuran	20.368	168	668094m	232.87		
26) Fluorene	21.538	166	531995m	234.81		
27) 1-Methylfluorene	23.506	180	342958m	229.47		
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	25.583	167	594716m	217.76		
34) Dibenzothiophene	24.406	184	694991m	234.35		
35) 4-Methyldibenzothiophene	25.895	198	630277m	260.66		
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	24.821	178	891646m	248.54		
42) Anthracene	24.995	178	811438m	243.90		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	26.934	192	574450m	258.48		
48) 3,6-Dimethylphenanthrene	28.007	206	462522m	241.85		
49) Retene	30.708	234	204816m	194.53		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.955	234	1010084m	272.59		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.908	202	798006m	246.73		
59) Pyrene	29.704	202	1050581m	249.99		
60) 2-Methylfluoranthene	30.466	216	599172m	224.08		
61) Benzo(b)fluorene	31.089	216	502938m	222.72		
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	33.770	228	988437m	259.05		
68) Chrysene/Triphenylene	33.886	228	887194m	274.62		
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	42.783	191	312166m	275.34		
77) Benzo(b)fluoranthene	37.300	252	987749m	232.50		
78) Benzo(k,j)fluoranthene	37.416	252	875941m	270.75		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.270	252	975488m	249.23		
81) Benzo(a)pyrene	38.464	252	1028916m	267.69		
82) Indeno(1,2,3-c,d)pyrene	43.152	276	1197387m	247.15		
83) Dibenzo(a,h)anthracene	43.225	278	964225m	248.04		
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	44.516	276	1069923m	252.83		
89) Perylene	38.774	252	1043382m	266.54		
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	39.395	231	1080511m	250.55		
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:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

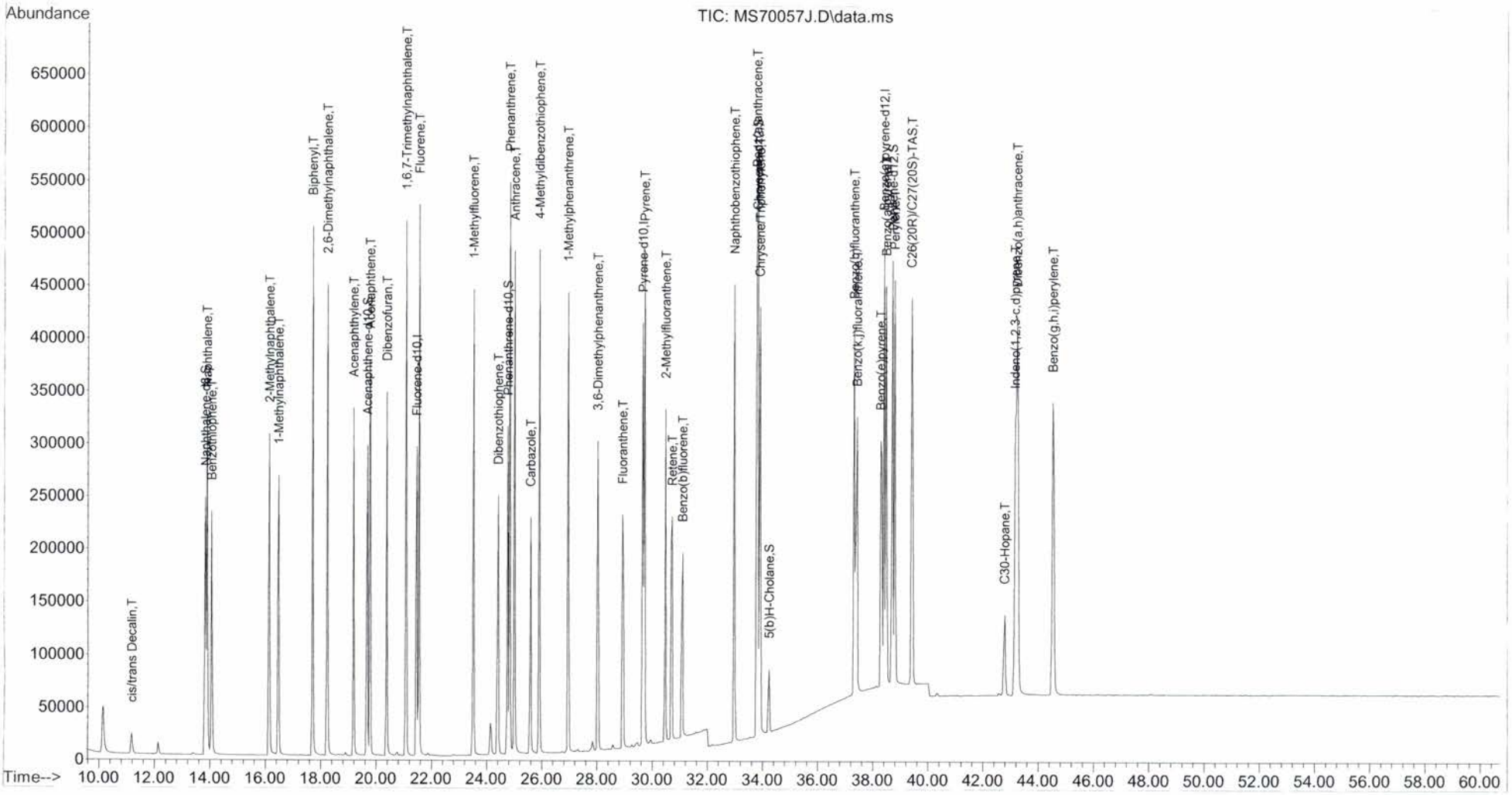
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057J.D
Acq On : 17 Aug 2013 7:31 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 11:34:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



Data Path : C:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 18 20:06:35 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	84	0.00
2	S	Naphthalene-d8	1.692	1.544	8.7	83	0.00
3	T	cis/trans Decalin	0.290	0.294	-1.4	88	0.00
4	un	C1-Decalins	0.290	0.000	100.0#	0#	-12.32#
5	un	C2-Decalins	0.290	0.000	100.0#	0#	-13.52#
6	un	C3-Decalins	0.290	0.000	100.0#	0#	-15.88#
7	un	C4-Decalins	0.290	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.889	1.734	8.2	83	0.00
9	T	2-Methylnaphthalene	1.190	1.093	8.2	84	0.00
10	T	1-Methylnaphthalene	1.099	1.007	8.4	83	0.00
11	T	2,6-Dimethylnaphthalene	1.117	1.033	7.5	84	0.00
12	T	1,6,7-Trimethylnaphthalene	0.989	0.905	8.5	84	0.00
13	un	C2-Naphthalenes	1.889	0.000	100.0#	0#	-18.89#
14	un	C3-Naphthalenes	1.889	0.000	100.0#	0#	-20.37#
15	un	C4-Naphthalenes	1.889	0.000	100.0#	0#	-22.26#
16	T	Benzothiophene	1.541	1.412	8.4	83	0.00
17	un	C1-Benzothiophenes	1.541	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.541	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.541	0.000	100.0#	0#	-20.31#
20	un	C4-Benzothiophenes	1.541	0.000	100.0#	0#	-22.23#
21	S	Acenaphthene-d10	0.973	0.890	8.5	84	0.00
22	T	Biphenyl	1.618	1.479	8.6	83	0.00
23	T	Acenaphthylene	1.844	1.722	6.6	87	0.00
24	T	Acenaphthene	1.052	0.965	8.3	84	0.00
25	T	Dibenzofuran	1.790	1.652	7.7	83	0.00
26	T	Fluorene	1.414	1.310	7.4	85	0.00
27	T	1-Methylfluorene	0.933	0.878	5.9	86	0.00
28	un	C1-Fluorenes	1.414	0.000	100.0#	0#	-23.51#
29	un	C2-Fluorenes	1.414	0.000	100.0#	0#	-24.79#
30	un	C3-Fluorenes	1.414	0.000	100.0#	0#	-27.59#
31	I	Pyrene-d10	1.000	1.000	0.0	85	0.00
32	S	Phenanthrene-d10	1.010	0.935	7.4	86	0.00
33	T	Carbazole	0.962	0.907	5.7	90	0.00
34	T	Dibenzothiophene	1.044	0.968	7.3	87	0.00
35	T	4-Methyldibenzothiophene	0.851	0.782	8.1	83	0.00
36	un	2/3-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.21#
37	un	1-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.044	0.000	100.0#	0#	-27.83#
39	un	C3-Dibenzothiophenes	1.044	0.000	100.0#	0#	-28.49#
40	un	C4-Dibenzothiophenes	1.044	0.000	100.0#	0#	-31.09#
41	T	Phenanthrene	1.263	1.161	8.1	83	0.00
42	T	Anthracene	1.171	1.110	5.2	89	0.00
43	un	3-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
44	un	2-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
45	un	2-Methylanthracene	0.783	0.000	100.0#	0#	-26.73#
46	un	4/9-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 18 20:06:35 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	0.783	0.722	7.8	85	0.00
48	T	3,6-Dimethylphenanthrene	0.673	0.636	5.5	89	0.00
49	T	Retene	0.371	0.358	3.5	92	0.00
50	un	C2-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-29.43#
52	un	C4-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-32.06#
53	T	Naphthobenzothiophene	1.305	1.176	9.9	83	0.00
54	un	C1-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.92#
58	T	Fluoranthene	1.139	1.070	6.1	88	0.00
59	T	Pyrene	1.480	1.391	6.0	85	0.00
60	T	2-Methylfluoranthene	0.942	0.893	5.2	90	0.00
61	T	Benzo(b)fluorene	0.795	0.771	3.0	94	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-35.09#
66	S	Chrysene-d12	1.105	0.994	10.0	81	-0.04
67	T	Benz(a)anthracene	1.344	1.214	9.7	82	0.00
68	T	Chrysene/Triphenylene	1.138	1.016	10.7	81	-0.04
69	un	C1-Chrysenes	1.138	0.000	100.0#	0#	-35.83#
70	un	C2-Chrysenes	1.138	0.000	100.0#	0#	-36.99#
71	un	C3-Chrysenes	1.138	0.000	100.0#	0#	-38.11#
72	un	C4-Chrysenes	1.138	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	70	0.00
74	un	C29-Hopane	0.371	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.371	0.000	100.0#	0#	-42.34#
76	T	C30-Hopane	0.371	0.393	-5.9	79	0.00
77	T	Benzo(b)fluoranthene	1.391	1.374	1.2	76	0.00
78	T	Benzo(k,j)fluoranthene	1.059	1.217	-14.9	90	0.00
79	un	Benzo(a)fluoranthene	1.059	0.000	100.0#	0#	-37.34#
80	T	Benzo(e)pyrene	1.281	1.312	-2.4	80	0.00
81	T	Benzo(a)pyrene	1.258	1.233	2.0	76	-0.04
82	T	Indeno(1,2,3-c,d)pyrene	1.586	1.199	24.4	59	0.00
83	T	Dibenzo(a,h)anthracene	1.273	1.002	21.3	62	0.00
84	un	C1-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-48.31#
85	un	C2-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-50.30#
86	un	C3-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-51.23#
87	T	Benzo(g,h,i)perylene	1.385	0.939	32.2#	53	0.00
88	S	Perylene-d12	1.181	1.170	0.9	77	0.00
89	T	Perylene	1.282	1.220	4.8	73	-0.04
90	S	5(b)H-Cholane	0.198	0.226	-14.1	90	0.00
91	un	C20-TAS	1.412	0.000	100.0#	0#	-33.30#
92	un	C21-TAS	1.412	0.000	100.0#	0#	-34.24#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 18 20:06:35 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	1.412	0.000	100.0#	0#	-38.70#
94 T	C26(20R)/C27(20S)-TAS	1.412	1.520	-7.6	84	0.00
95 un	C28(20S)-TAS	1.412	0.000	100.0#	0#	-40.24#
96 un	C27(20R)-TAS	1.412	0.000	100.0#	0#	-41.09#
97 un	C28(20R)-TAS	1.412	0.000	100.0#	0#	-41.42#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 18 20:06:35 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	373875m	251.05		0.00
31) Pyrene-d10	29.635	212	705293m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	665968m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	575130m	228.21		0.00
21) Acenaphthene-d10	19.672	164	331509m	228.82		0.00
32) Phenanthrene-d10	24.752	188	658445m	231.72		0.00
66) Chrysene-d12	33.809	240	699428m	224.88		-0.04
88) Perylene-d12	38.697	264	778535m	247.85		0.00
90) 5(b)H-Cholane	34.235	217	150112m	284.53		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	108088m	250.19		
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	13.878	128	645657m	229.55		
9) 2-Methylnaphthalene	16.134	142	407272m	229.79		
10) 1-Methylnaphthalene	16.468	142	374470m	228.71		
11) 2,6-Dimethylnaphthalene	18.223	156	384624m	231.21		
12) 1,6,7-Trimethylnaphtha...	21.065	170	336801m	228.61		
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	14.045	134	522726m	227.77		
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	17.694	154	545513m	226.36		
23) Acenaphthylene	19.171	152	635866m	231.59		
24) Acenaphthene	19.783	154	360093m	229.77		
25) Dibenzofuran	20.368	168	612007m	229.53		
26) Fluorene	21.538	166	488712m	232.10		
27) 1-Methylfluorene	23.506	180	329398m	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	25.583	167	632519m	233.73		
34) Dibenzothiophene	24.406	184	671545m	228.53		
35) 4-Methyldibenzothiophene	25.895	198	554479m	231.41		
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	24.822	178	809329m	227.67		
42) Anthracene	24.995	178	783441m	237.65		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 18 20:06:35 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	26.934	192	502375m	228.12		
48) 3,6-Dimethylphenanthrene	28.042	206	448069m	236.44		
49) Retene	30.708	234	225230m	215.89		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.955	234	832156m	226.64		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	753481m	235.10		
59) Pyrene	29.704	202	978403m	234.95		
60) 2-Methylfluoranthene	30.466	216	632521m	238.72		
61) Benzo(b)fluorene	31.089	216	547217m	244.56		
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	33.770	228	852636m	225.51		
68) Chrysene/Triphenylene	33.886	228	710199m	221.85		
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	42.783	191	261208m	264.52		
77) Benzo(b)fluoranthene	37.339	252	915876m	247.52		
78) Benzo(k,j)fluoranthene	37.417	252	805878m	285.99		
79) Benzo(a)fluoranthene	0.000		0	N.D.		
80) Benzo(e)pyrene	38.309	252	869124m	254.95		
81) Benzo(a)pyrene	38.464	252	818719m	244.55		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	783614m	185.71		
83) Dibenzo(a,h)anthracene	43.262	278	660305m	195.02		
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	44.553	276	618626m	167.84		
89) Perylene	38.774	252	812413m	238.28		
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	39.434	231	1010902m	269.13		
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:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 18 20:06:35 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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:\GCMS7\MS70057\
Data File : MS70057L.D
Acq On : 17 Aug 2013 6:57 pm
Operator : YM
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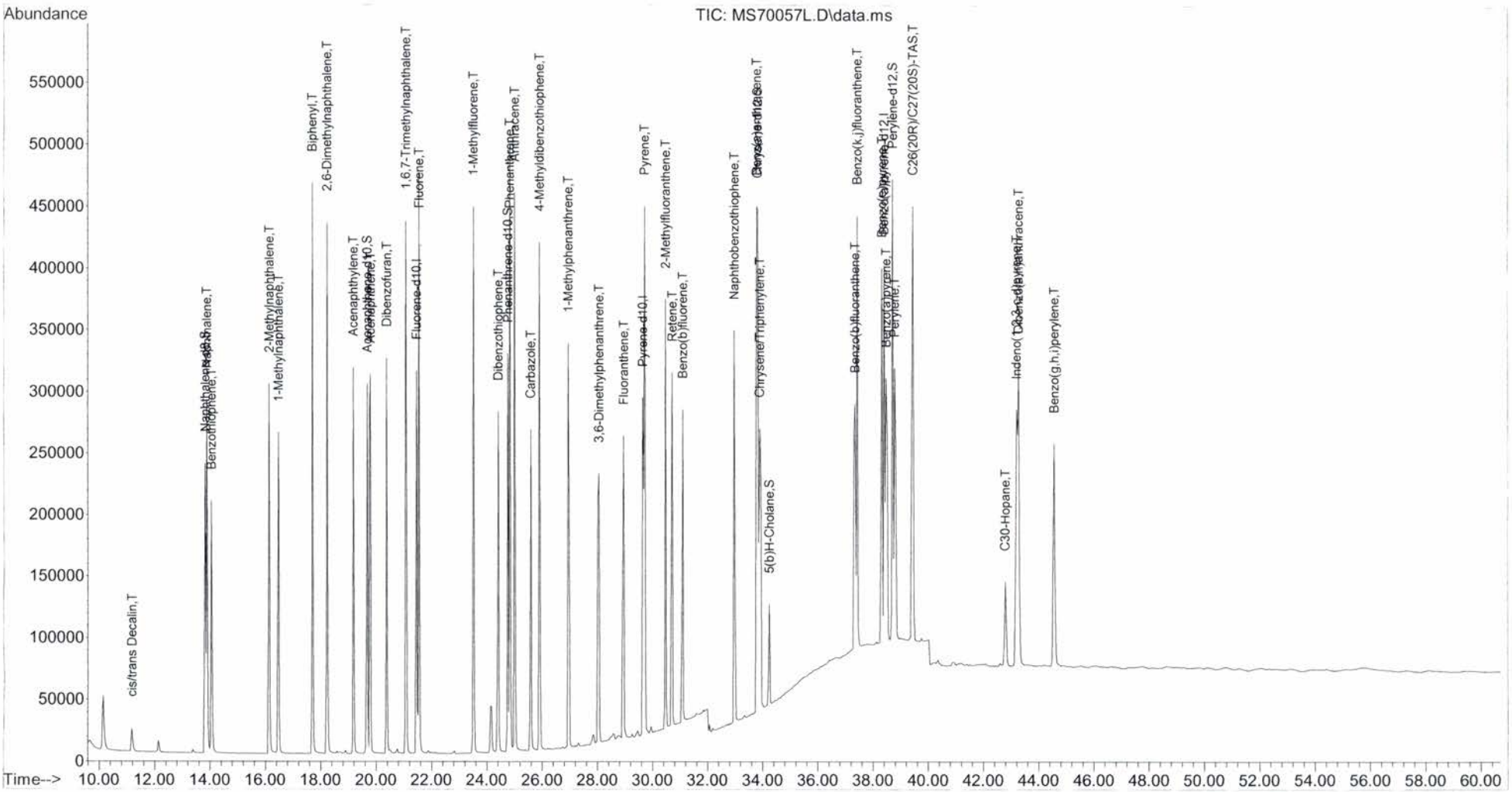
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057M.D
Acq On : 18 Aug 2013 5:13 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 18 20:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	95	0.00
2	S	Naphthalene-d8	1.692	1.584	6.4	96	0.00
3	T	cis/trans Decalin	0.290	0.302	-4.1	102	0.00
4	un	C1-Decalins	0.290	0.000	100.0#	0#	-12.32#
5	un	C2-Decalins	0.290	0.000	100.0#	0#	-13.52#
6	un	C3-Decalins	0.290	0.000	100.0#	0#	-15.88#
7	un	C4-Decalins	0.290	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.889	1.781	5.7	96	0.00
9	T	2-Methylnaphthalene	1.190	1.106	7.1	96	0.00
10	T	1-Methylnaphthalene	1.099	1.034	5.9	96	0.00
11	T	2,6-Dimethylnaphthalene	1.117	1.039	7.0	96	0.00
12	T	1,6,7-Trimethylnaphthalene	0.989	0.957	3.2	100	0.00
13	un	C2-Naphthalenes	1.889	0.000	100.0#	0#	-18.89#
14	un	C3-Naphthalenes	1.889	0.000	100.0#	0#	-20.37#
15	un	C4-Naphthalenes	1.889	0.000	100.0#	0#	-22.26#
16	T	Benzothiophene	1.541	1.458	5.4	97	0.00
17	un	C1-Benzothiophenes	1.541	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.541	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.541	0.000	100.0#	0#	-20.31#
20	un	C4-Benzothiophenes	1.541	0.000	100.0#	0#	-22.23#
21	S	Acenaphthene-d10	0.973	0.897	7.8	96	0.00
22	T	Biphenyl	1.618	1.502	7.2	95	0.00
23	T	Acenaphthylene	1.844	1.732	6.1	99	0.00
24	T	Acenaphthene	1.052	1.002	4.8	98	-0.03
25	T	Dibenzofuran	1.790	1.667	6.9	95	0.00
26	T	Fluorene	1.414	1.335	5.6	97	0.00
27	T	1-Methylfluorene	0.933	0.860	7.8	95	0.00
28	un	C1-Fluorenes	1.414	0.000	100.0#	0#	-23.51#
29	un	C2-Fluorenes	1.414	0.000	100.0#	0#	-24.79#
30	un	C3-Fluorenes	1.414	0.000	100.0#	0#	-27.59#
31	I	Pyrene-d10	1.000	1.000	0.0	103	0.00
32	S	Phenanthrene-d10	1.010	0.809	19.9	90	0.00
33	T	Carbazole	0.962	0.767	20.3	92	0.00
34	T	Dibenzothiophene	1.044	0.868	16.9	94	0.00
35	T	4-Methyldibenzothiophene	0.851	0.779	8.5	100	0.00
36	un	2/3-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.21#
37	un	1-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.044	0.000	100.0#	0#	-27.83#
39	un	C3-Dibenzothiophenes	1.044	0.000	100.0#	0#	-28.49#
40	un	C4-Dibenzothiophenes	1.044	0.000	100.0#	0#	-31.09#
41	T	Phenanthrene	1.263	1.103	12.7	96	0.00
42	T	Anthracene	1.171	1.043	10.9	101	0.00
43	un	3-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
44	un	2-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
45	un	2-Methylanthracene	0.783	0.000	100.0#	0#	-26.73#
46	un	4/9-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#

Data Path : C:\GCMS7\MS70057\
Data File : MS70057M.D
Acq On : 18 Aug 2013 5:13 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 18 20:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	0.783	0.730	6.8	104	0.00
48	T	3,6-Dimethylphenanthrene	0.673	0.582	13.5	99	-0.03
49	T	Retene	0.371	0.292	21.3	91	0.00
50	un	C2-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-29.43#
52	un	C4-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-32.06#
53	T	Naphthobenzothiophene	1.305	1.208	7.4	103	0.00
54	un	C1-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.92#
58	T	Fluoranthene	1.139	0.996	12.6	99	-0.03
59	T	Pyrene	1.480	1.309	11.6	97	0.00
60	T	2-Methylfluoranthene	0.942	0.761	19.2	93	0.00
61	T	Benzo(b)fluorene	0.795	0.642	19.2	94	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-35.09#
66	S	Chrysene-d12	1.105	1.054	4.6	103	-0.04
67	T	Benz(a)anthracene	1.344	1.231	8.4	101	0.00
68	T	Chrysene/Triphenylene	1.138	1.037	8.9	100	-0.04
69	un	C1-Chrysenes	1.138	0.000	100.0#	0#	-35.83#
70	un	C2-Chrysenes	1.138	0.000	100.0#	0#	-36.99#
71	un	C3-Chrysenes	1.138	0.000	100.0#	0#	-38.11#
72	un	C4-Chrysenes	1.138	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	79	0.00
74	un	C29-Hopane	0.371	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.371	0.000	100.0#	0#	-42.34#
76	T	C30-Hopane	0.371	0.394	-6.2	89	0.00
77	T	Benzo(b)fluoranthene	1.391	1.564	-12.4	97	-0.04
78	T	Benzo(k,j)fluoranthene	1.059	0.965	8.9	81	0.00
79	un	Benzo(a)fluoranthene	1.059	0.000	100.0#	0#	-37.34#
80	T	Benzo(e)pyrene	1.281	1.251	2.3	86	0.00
81	T	Benzo(a)pyrene	1.258	1.259	-0.1	87	-0.04
82	T	Indeno(1,2,3-c,d)pyrene	1.586	1.181	25.5#	66	0.00
83	T	Dibenzo(a,h)anthracene	1.273	0.988	22.4	69	0.00
84	un	C1-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-48.31#
85	un	C2-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-50.30#
86	un	C3-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-51.23#
87	T	Benzo(g,h,i)perylene	1.385	0.937	32.3#	59	0.00
88	S	Perylene-d12	1.181	1.142	3.3	85	0.00
89	T	Perylene	1.282	1.266	1.2	86	-0.04
90	S	5(b)H-Cholane	0.198	0.199	-0.5	89	0.00
91	un	C20-TAS	1.412	0.000	100.0#	0#	-33.30#
92	un	C21-TAS	1.412	0.000	100.0#	0#	-34.24#

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057M.D
Acq On : 18 Aug 2013 5:13 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 18 20:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorene-d10	21.455	176	421661m	251.05	0.00
31) Pyrene-d10	29.635	212	852816m	250.63	0.00
73) Benzo(a)pyrene-d12	38.386	264	750512m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.822	136	665277m	234.07	0.00
21) Acenaphthene-d10	19.672	164	376783m	230.59	0.00
32) Phenanthrene-d10	24.752	188	688735m	200.46	0.00
66) Chrysene-d12	33.809	240	896417m	238.36	-0.04
88) Perylene-d12	38.697	264	856217m	241.87	0.00
90) 5(b)H-Cholane	34.235	217	149127m	250.82	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11.176	138	125411m	257.39	
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	13.878	128	747701m	235.70	
9) 2-Methylnaphthalene	16.134	142	464863m	232.55	
10) 1-Methylnaphthalene	16.468	142	433838m	234.94	
11) 2,6-Dimethylnaphthalene	18.223	156	436121m	232.46	
12) 1,6,7-Trimethylnaphtha...	21.065	170	402025m	241.96	
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	14.045	134	608509m	235.10	
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	17.694	154	625002m	229.96	
23) Acenaphthylene	19.171	152	721311m	232.93	
24) Acenaphthene	19.756	154	421438m	238.44	
25) Dibenzofuran	20.368	168	696292m	231.54	
26) Fluorene	21.538	166	561642m	236.51	
27) 1-Methylfluorene	23.506	180	364030m	232.38	
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	25.583	167	646859m	197.68	
34) Dibenzothiophene	24.406	184	728031m	204.89	
35) 4-Methyldibenzothiophene	25.895	198	667982m	230.56	
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	24.821	178	930059m	216.37	
42) Anthracene	24.995	178	890145m	223.31	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057M.D
Acq On : 18 Aug 2013 5:13 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 18 20:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	26.934	192	614195m	230.65		
48) 3,6-Dimethylphenanthrene	28.007	206	495893m	216.41		
49) Retene	30.708	234	222180m	176.12		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.955	234	1033961m	232.89		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.908	202	848364m	218.92		
59) Pyrene	29.704	202	1113739m	221.19		
60) 2-Methylfluoranthene	30.466	216	652046m	203.52		
61) Benzo(b)fluorene	31.089	216	550886m	203.61		
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	33.770	228	1045525m	228.69		
68) Chrysene/Triphenylene	33.886	228	877279m	226.64		
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	42.783	191	295207m	265.28		
77) Benzo(b)fluoranthene	37.300	252	1174410m	281.64		
78) Benzo(k,j)fluoranthene	37.417	252	720662m	226.94		
79) Benzo(a)fluoranthene	0.000		0	N.D.		
80) Benzo(e)pyrene	38.309	252	934133m	243.15		
81) Benzo(a)pyrene	38.464	252	941698m	249.60		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	870288m	183.01		
83) Dibenzo(a,h)anthracene	43.262	278	733996m	192.36		
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	44.553	276	695832m	167.52		
89) Perylene	38.774	252	949873m	247.21		
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	39.434	231	1114791m	263.36		
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:\GCMS7\MS70057\
Data File : MS70057M.D
Acq On : 18 Aug 2013 5:13 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 18 20:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

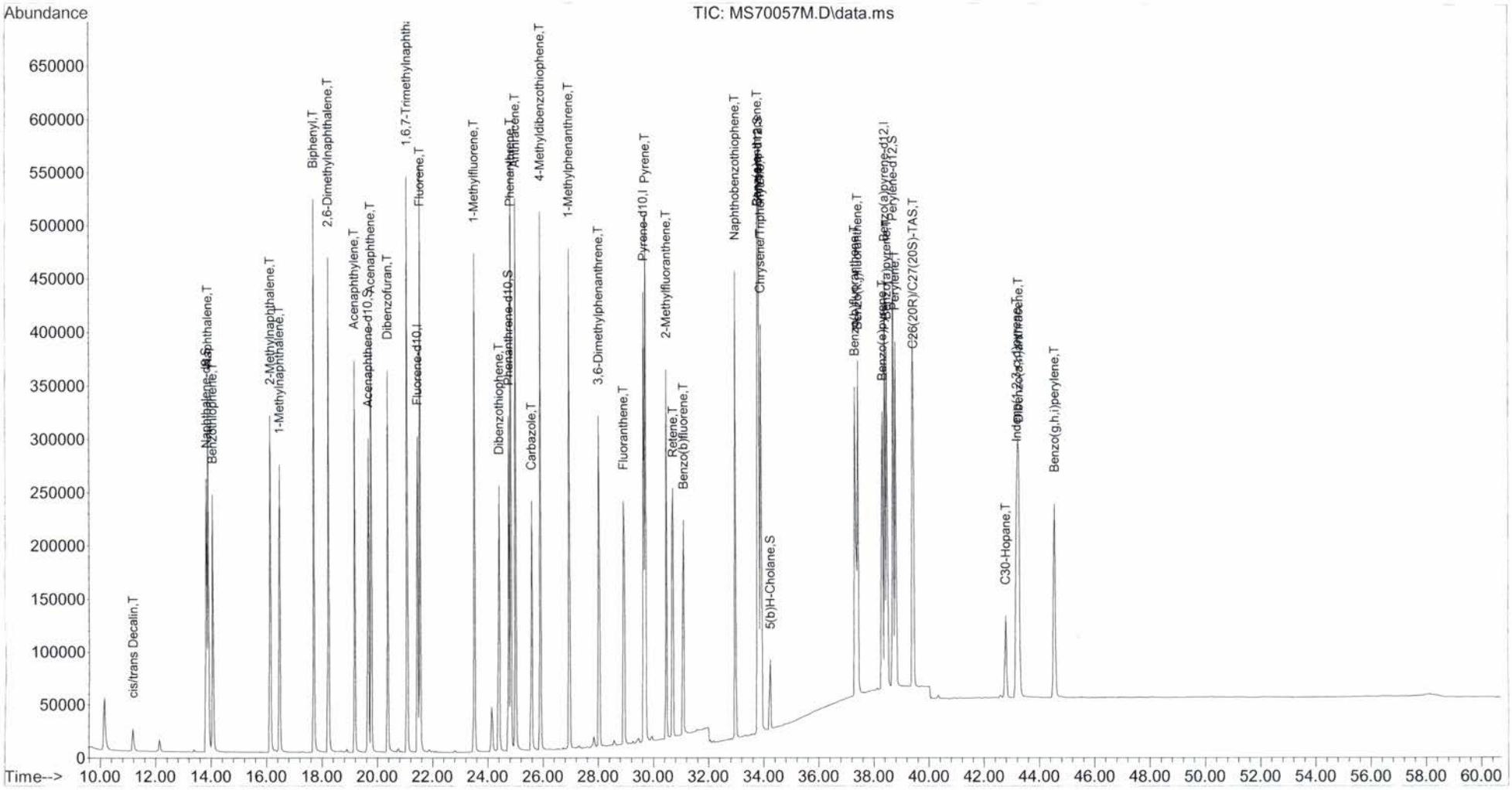
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057M.D
Acq On : 18 Aug 2013 5:13 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 18 20:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	1.692	1.550	8.4	88	0.00
3	T	cis/trans Decalin	0.290	0.288	0.7	91	0.00
4	un	C1-Decalins	0.290	0.000	100.0#	0#	-12.32#
5	un	C2-Decalins	0.290	0.000	100.0#	0#	-13.52#
6	un	C3-Decalins	0.290	0.000	100.0#	0#	-15.88#
7	un	C4-Decalins	0.290	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.889	1.749	7.4	88	0.00
9	T	2-Methylnaphthalene	1.190	1.089	8.5	88	0.00
10	T	1-Methylnaphthalene	1.099	1.021	7.1	89	0.00
11	T	2,6-Dimethylnaphthalene	1.117	0.999	10.6	86	0.00
12	T	1,6,7-Trimethylnaphthalene	0.989	0.953	3.6	93	0.00
13	un	C2-Naphthalenes	1.889	0.000	100.0#	0#	-18.89#
14	un	C3-Naphthalenes	1.889	0.000	100.0#	0#	-20.37#
15	un	C4-Naphthalenes	1.889	0.000	100.0#	0#	-22.26#
16	T	Benzothiophene	1.541	1.419	7.9	88	0.00
17	un	C1-Benzothiophenes	1.541	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.541	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.541	0.000	100.0#	0#	-20.31#
20	un	C4-Benzothiophenes	1.541	0.000	100.0#	0#	-22.23#
21	S	Acenaphthene-d10	0.973	0.890	8.5	89	0.00
22	T	Biphenyl	1.618	1.450	10.4	86	0.00
23	T	Acenaphthylene	1.844	1.652	10.4	88	0.00
24	T	Acenaphthene	1.052	1.003	4.7	92	-0.03
25	T	Dibenzofuran	1.790	1.612	9.9	86	0.00
26	T	Fluorene	1.414	1.284	9.2	87	0.00
27	T	1-Methylfluorene	0.933	0.804	13.8	83	0.00
28	un	C1-Fluorenes	1.414	0.000	100.0#	0#	-23.51#
29	un	C2-Fluorenes	1.414	0.000	100.0#	0#	-24.79#
30	un	C3-Fluorenes	1.414	0.000	100.0#	0#	-27.59#
31	I	Pyrene-d10	1.000	1.000	0.0	95	0.00
32	S	Phenanthrene-d10	1.010	0.783	22.5	80	0.00
33	T	Carbazole	0.962	0.722	24.9	80	0.00
34	T	Dibenzothiophene	1.044	0.861	17.5	86	0.00
35	T	4-Methyldibenzothiophene	0.851	0.774	9.0	91	0.00
36	un	2/3-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.21#
37	un	1-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.044	0.000	100.0#	0#	-27.83#
39	un	C3-Dibenzothiophenes	1.044	0.000	100.0#	0#	-28.49#
40	un	C4-Dibenzothiophenes	1.044	0.000	100.0#	0#	-31.09#
41	T	Phenanthrene	1.263	1.063	15.8	85	0.00
42	T	Anthracene	1.171	0.982	16.1	88	0.00
43	un	3-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
44	un	2-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
45	un	2-Methylanthracene	0.783	0.000	100.0#	0#	-26.73#
46	un	4/9-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	0.783	0.744	5.0	98	0.00
48	T	3,6-Dimethylphenanthrene	0.673	0.582	13.5	91	-0.03
49	T	Retene	0.371	0.270	27.2#	77	0.00
50	un	C2-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-29.43#
52	un	C4-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-32.06#
53	T	Naphthobenzothiophene	1.305	0.000	100.0#	0#	-32.96#
54	un	C1-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.92#
58	T	Fluoranthene	1.139	0.998	12.4	92	-0.03
59	T	Pyrene	1.480	1.272	14.1	87	0.00
60	T	2-Methylfluoranthene	0.942	0.713	24.3	80	0.00
61	T	Benzo(b)fluorene	0.795	0.604	24.0	82	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-35.09#
66	S	Chrysene-d12	1.105	1.091	1.3	98	-0.04
67	T	Benz(a)anthracene	1.344	1.211	9.9	91	0.00
68	T	Chrysene/Triphenylene	1.138	1.098	3.5	98	-0.04
69	un	C1-Chrysenes	1.138	0.000	100.0#	0#	-35.83#
70	un	C2-Chrysenes	1.138	0.000	100.0#	0#	-36.99#
71	un	C3-Chrysenes	1.138	0.000	100.0#	0#	-38.11#
72	un	C4-Chrysenes	1.138	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	71	0.00
74	un	C29-Hopane	0.371	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.371	0.000	100.0#	0#	-42.34#
76	T	C30-Hopane	0.371	0.418	-12.7	84	0.00
77	T	Benzo(b)fluoranthene	1.391	1.310	5.8	73	-0.04
78	T	Benzo(k,j)fluoranthene	1.059	1.242	-17.3	93	0.00
79	un	Benzo(a)fluoranthene	1.059	0.000	100.0#	0#	-37.34#
80	T	Benzo(e)pyrene	1.281	1.264	1.3	78	0.00
81	T	Benzo(a)pyrene	1.258	1.295	-2.9	80	-0.04
82	T	Indeno(1,2,3-c,d)pyrene	1.586	1.173	26.0#	58	0.00
83	T	Dibenzo(a,h)anthracene	1.273	0.979	23.1	61	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-48.31#
85	un	C2-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-50.30#
86	un	C3-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-51.23#
87	T	Benzo(g,h,i)perylene	1.385	0.924	33.3#	52	-0.04
88	S	Perylene-d12	1.181	1.129	4.4	75	0.00
89	T	Perylene	1.282	1.296	-1.1	78	-0.04
90	S	5(b)H-Cholane	0.198	0.194	2.0	78	0.00
91	un	C20-TAS	1.412	0.000	100.0#	0#	-33.30#
92	un	C21-TAS	1.412	0.000	100.0#	0#	-34.24#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	1.412	0.000	100.0#	0#	-38.70#
94 T	C26(20R)/C27(20S)-TAS	1.412	1.489	-5.5	83	-0.04
95 un	C28(20S)-TAS	1.412	0.000	100.0#	0#	-40.24#
96 un	C27(20R)-TAS	1.412	0.000	100.0#	0#	-41.09#
97 un	C28(20R)-TAS	1.412	0.000	100.0#	0#	-41.42#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	393787m	251.05		0.00
31) Pyrene-d10	29.635	212	784238m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	669077m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	608273m	229.16		0.00
21) Acenaphthene-d10	19.672	164	349160m	228.81		0.00
32) Phenanthrene-d10	24.752	188	612989m	194.01		0.00
66) Chrysene-d12	33.809	240	853556m	246.81		-0.04
88) Perylene-d12	38.697	264	754424m	239.06		0.00
90) 5(b)H-Cholane	34.235	217	129847m	244.98		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	111767m	245.62		
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	13.878	128	685797m	231.49		
9) 2-Methylnaphthalene	16.134	142	427542m	229.02		
10) 1-Methylnaphthalene	16.468	142	399884m	231.88		
11) 2,6-Dimethylnaphthalene	18.223	156	391789m	223.61		
12) 1,6,7-Trimethylnaphtha...	21.065	170	373573m	240.75		
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	14.045	134	553128m	228.83		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.694	154	563619m	222.05		
23) Acenaphthylene	19.170	152	642505m	222.17		
24) Acenaphthene	19.755	154	394180m	238.80		
25) Dibenzofuran	20.368	168	629118m	224.01		
26) Fluorene	21.538	166	504405m	227.44		
27) 1-Methylfluorene	23.506	180	317524m	217.04		
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	25.583	167	560007m	186.11		
34) Dibenzothiophene	24.406	184	663814m	203.16		
35) 4-Methyldibenzothiophene	25.895	198	610349m	229.09		
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	24.821	178	823963m	208.45		
42) Anthracene	24.995	178	770673m	210.24		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	26.934	192	575942m	235.20		
48) 3,6-Dimethylphenanthrene	28.007	206	455472m	216.15		
49) Retene	30.708	234	188475m	162.47		
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.		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.907	202	781564m	219.31		
59) Pyrene	29.704	202	994715m	214.83		
60) 2-Methylfluoranthene	30.466	216	561533m	190.60		
61) Benzo(b)fluorene	31.089	216	476821m	191.64		
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	33.770	228	945347m	224.86		
68) Chrysene/Triphenylene	33.886	228	853459m	239.76		
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	42.783	191	279390m	281.62		
77) Benzo(b)fluoranthene	37.300	252	877235m	235.98		
78) Benzo(k,j)fluoranthene	37.416	252	826314m	291.88		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	841242m	245.62		
81) Benzo(a)pyrene	38.464	252	863728m	256.80		
82) Indeno(1,2,3-c,d)pyrene	43.188	276	770605m	181.77		
83) Dibenzo(a,h)anthracene	43.225	278	648268m	190.57		
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	44.516	276	612027m	165.28		
89) Perylene	38.774	252	867182m	253.16		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.395	231	995281m	263.74		
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:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

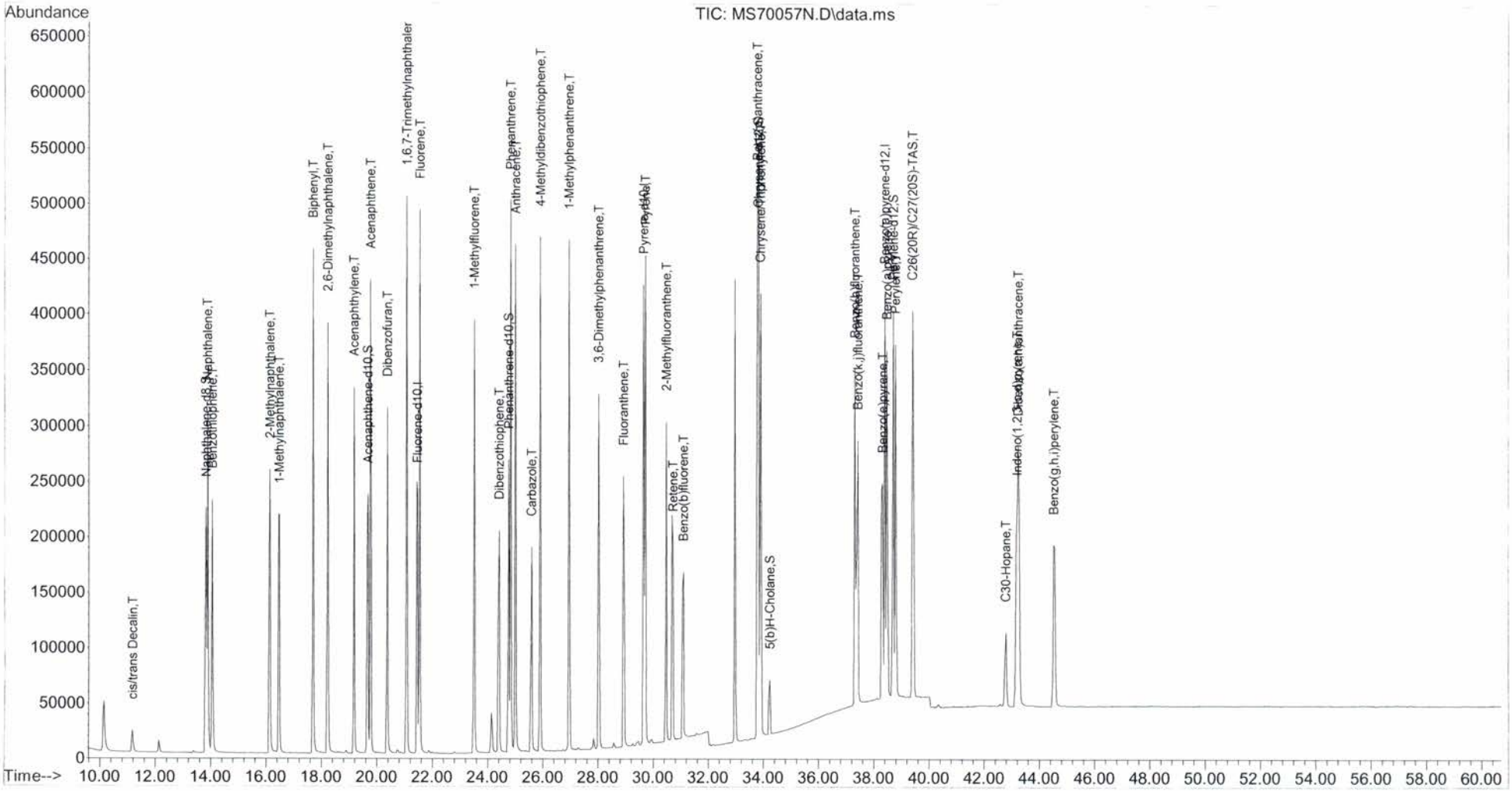
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057N.D
Acq On : 18 Aug 2013 3:30 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 22 11:30:30 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name MS70057H.D
Data File Path C:\GCMS7\MS70057\
Operator YM
Date Acquired 8/17/2013 5:14
Acq. Method File PAH-2012.M
Sample Name AR-WKISSU-250-002
Misc Info 0
Instrument Name GCMSD
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

MS70057H.D
AR-WKISSU-250-002
8/17/2013
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	13.82	654690	233.04	93.17
21)	Acenaphthene-d10	19.67	367053	227.27	90.85
32)	Phenanthrene-d10	24.75	671146	210.43	84.11
66)	Chrysene-d12	33.81	835802	239.41	95.75
88)	Perylene-d12	38.70	908839	229.74	91.88
90)	5(b)H-Cholane	34.24	150836	227.02	90.81
	Internal Standards				
1)	Fluorene-d10	21.46	416777	251.05	
31)	Pyrene-d10	29.63	791643	250.63	
73)	Benzo(a)pyrene-d12	38.39	838710	250.33	

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057H.D
Acq On : 17 Aug 2013 5:14 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 17 22:41:52 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	416777m	251.05		0.00
31) Pyrene-d10	29.635	212	791643m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	838710m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	654690m	233.04		0.00
21) Acenaphthene-d10	19.672	164	367053m	227.27		0.00
32) Phenanthrene-d10	24.752	188	671146m	210.43		0.00
66) Chrysene-d12	33.809	240	835802m	239.41		-0.04
88) Perylene-d12	38.697	264	908839m	229.74		0.00
90) 5(b)H-Cholane	34.236	217	150836m	227.02		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	0.000		0	N.D.	d	
9) 2-Methylnaphthalene	0.000		0	N.D.	d	
10) 1-Methylnaphthalene	0.000		0	N.D.	d	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	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	

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057H.D
Acq On : 17 Aug 2013 5:14 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 17 22:41:52 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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 : C:\msdchem\2\data\MS70057\
Data File : MS70057H.D
Acq On : 17 Aug 2013 5:14 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 17 22:41:52 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

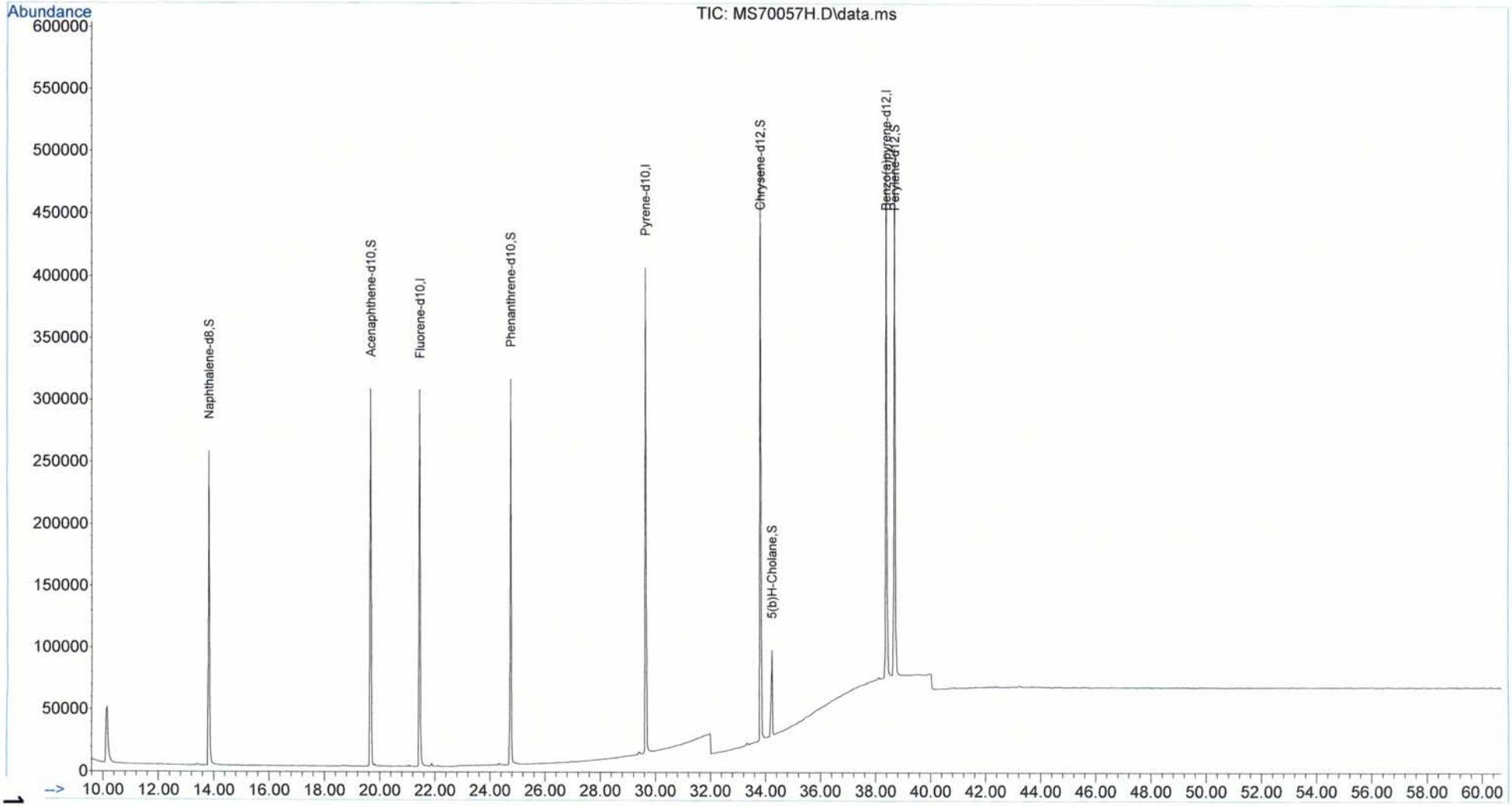
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057H.D
Acq On : 17 Aug 2013 5:14 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 17 22:41:52 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name MS70057K.D
Data File Path C:\GCMS7\MS70057\
Operator YM
Date Acquired 8/17/2013 8:39
Acq. Method File PAH-2012.M
Sample Name AR-SRM2779-WK4.0-002
Misc Info 0
Instrument Name GCMSD
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

MS70057K.D
AR-SRM2779-WK4.0-002
8/17/2013
PAH-2012.M
4.088140305

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.18	1763180	607.0413	695.6610
4)	C1-Decalins	12.68	2514950	865.8705	992.2756
5)	C2-Decalins	13.74	2095520	721.4625	826.7861
6)	C3-Decalins	16.69	1823180	627.7011	719.3368
7)	C4-Decalins	17.72	1278740	440.2540	504.5250
8)	Naphthalene	13.88	11438200	604.8692	693.1717
9)+10)	C1-Naphthalenes	16.30	23672400	1251.8320	1434.5822
13)	C2-Naphthalenes	18.50	28742400	1519.9454	1741.8364
14)	C3-Naphthalenes	20.51	19491000	1030.7132	1181.1831
15)	C4-Naphthalenes	22.82	9969700	527.2128	604.1786
16)	Benzothiophene	14.07	99944	6.4776	7.4233
17)	C1-Benzothiophenes	15.63	377192	24.4468	28.0157
18)	C2-Benzothiophenes	18.25	280829	18.2012	20.8584
19)	C3-Benzothiophenes	20.31	462538	29.9782	34.3546
20)	C4-Benzothiophenes	22.10	329962	21.3857	24.5077
22)	Biphenyl	17.69	2114940	130.5371	149.5937
23)	Acenaphthylene	19.17	135204	7.3244	8.3937
24)	Acenaphthene	19.78	158467	15.0400	17.2356
25)	Dibenzofuran	20.37	446182	24.8900	28.5236
26)	Fluorene	21.54	1216040	85.9014	98.4418
28)	C1-Fluorenes	23.51	3211780	226.8812	260.0027
29)	C2-Fluorenes	25.34	4513390	318.8271	365.3715
30)	C3-Fluorenes	26.83	3134730	221.4383	253.7653
33)	Carbazole	25.58	47724	2.5572	2.9305
42)	Anthracene	24.99	53835	2.3679	2.7136
41)	Phenanthrene	24.82	4591350	187.2803	214.6206
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	10038886	409.4842	469.2632
50)	C2-Phenanthrenes/Anthracenes	28.39	10539300	429.8947	492.6534
51)	C3-Phenanthrenes/Anthracenes	29.95	7933060	323.5872	370.8265
52)	C4-Phenanthrenes/Anthracenes	31.78	4871420	198.7043	227.7124
34)	Dibenzothiophene	24.41	750956	37.0552	42.4648
35)+36)+37)	C1-Dibenzothiophenes	26.21	2134767	105.3381	120.7160
38)	C2-Dibenzothiophenes	27.31	2714820	133.9607	153.5171
39)	C3-Dibenzothiophenes	28.80	2156390	106.4054	121.9391
40)	C4-Dibenzothiophenes	29.81	814304	40.1811	46.0470
58)	Fluoranthene	28.94	92303	4.1761	4.7857
59)	Pyrene	29.70	291827	10.1616	11.6451
62)	C1-Fluoranthenes/Pyrenes	30.85	1557090	70.4477	80.7321
63)	C2-Fluoranthenes/Pyrenes	32.33	3292160	148.9474	170.6917
64)	C3-Fluoranthenes/Pyrenes	34.00	2270330	102.7171	117.7124
65)	C4-Fluoranthenes/Pyrenes	35.17	2403050	108.7216	124.5934
53)	Naphthobenzothiophene	32.96	635864	25.1109	28.7768
54)	C1-Naphthobenzothiophenes	34.12	1081000	42.6896	48.9217
55)	C2-Naphthobenzothiophenes	36.02	1495470	59.0574	67.6790
56)	C3-Naphthobenzothiophenes	37.18	991128	39.1405	44.8545
57)	C4-Naphthobenzothiophenes	38.19	416596	16.4517	18.8535
67)	Benz(a)anthracene	33.77	138412	5.3082	6.0831
68)	Chrysene/Triphenylene	33.89	777990	35.2395	40.3840
69)	C1-Chrysenes	35.13	2101670	95.1961	109.0934
70)	C2-Chrysenes	36.60	2643280	119.7285	137.2072
71)	C3-Chrysenes	38.00	1853290	83.9455	96.2004
72)	C4-Chrysenes	39.43	961100	43.5335	49.8888
77)	Benzo(b)fluoranthene	37.30	112367	3.7907	4.3441
78)	Benzo(k,j)fluoranthene	37.34	27180	1.2041	1.3798
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	208507	7.6350	8.7496
81)	Benzo(a)pyrene	38.46	47640	1.7763	2.0356
89)	Perylene	38.70	22879	0.8376	0.9599
82)	Indeno(1,2,3-c,d)pyrene	43.19	18803	0.5562	0.6374
83)	Dibenzo(a,h)anthracene	43.23	17066	0.6292	0.7210
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	40943	1.3866	1.5890

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	14668500	1230.9998	1410.7088
10)	1-Methylnaphthalene	16.47	9003900	817.9685	937.3806
11)	2,6-Dimethylnaphthalene	18.22	8065010	721.1274	826.4021
12)	1,6,7-Trimethylnaphthalene	21.06	2088010	210.8093	241.5846
27)	1-Methylfluorene	23.51	1650250	176.7156	202.5136
35)	4-Methyldibenzothiophene	25.89	1212250	73.3617	84.0715
36)	2/3-Methyldibenzothiophene	26.21	568408	34.3985	39.4202
37)	1-Methyldibenzothiophene	26.52	354109	21.4297	24.5581
43)	3-Methylphenanthrene	26.48	2439670	160.6356	184.0862
44)	2-Methylphenanthrene	26.59	2566980	169.0184	193.6928
45)	2-Methylanthracene	26.73	200056	13.1723	15.0953
46)	4/9-Methylphenanthrene	26.86	2949410	194.1991	222.5494
47)	1-Methylphenanthrene	26.93	1882770	123.9681	142.0657
48)	3,6-Dimethylphenanthrene	28.04	752055	57.5443	65.9449
49)	Retene	30.74	73801	10.2573	11.7547
60)	2-Methylfluoranthene	30.47	80456	4.4030	5.0458
61)	Benzo(b)fluorene	31.09	192338	12.4640	14.2836
74)	C29-Hopane	40.76	160487	20.2875	23.2492
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.05	321944	40.6977	46.6390
91)	C20-TAS	33.34	192973	6.4131	7.3493
92)	C21-TAS	34.43	200214	6.6537	7.6250
93)	C26(20S)-TAS	38.54	90772	3.0166	3.4570
94)	C26(20R)/C27(20S)-TAS	39.47	320275	10.6437	12.1975
95)	C28(20S)-TAS	40.24	226916	7.5411	8.6420
96)	C27(20R)-TAS	40.68	194237	6.4551	7.3974
97)	C28(20R)-TAS	41.49	21156	0.7031	0.8057
	Surrogate Standards				
2)	Naphthalene-d8	13.82	904559	53.39	87.26
21)	Acenaphthene-d10	19.67	587823	60.35	98.62
32)	Phenanthrene-d10	24.75	1046520	53.40	87.26
66)	Chrysene-d12	33.81	1188150	55.39	90.57
88)	Perylene-d12	38.70	1414500	56.21	91.91
90)	5(b)H-Cholane	34.24	302037	71.46	116.86
	Internal Standards				
1)	Fluorene-d10	21.45	614846	61.41	
31)	Pyrene-d10	29.63	1189790	61.31	
73)	Benzo(a)pyrene-d12	38.39	1305020	61.23	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057K.D
Acq On : 17 Aug 2013 8:39 am
Operator : YM
Sample : AR-SRM2779-WK4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 22 11:50:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	614846m	251.05		0.00
31) Pyrene-d10	29.635	212	1189790m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	1305016m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	904559m	53.39		0.00
21) Acenaphthene-d10	19.672	164	587823m	60.35		0.00
32) Phenanthrene-d10	24.752	188	1046517m	53.40		0.00
66) Chrysene-d12	33.809	240	1188150m	55.39		-0.04
88) Perylene-d12	38.697	264	1414497m	56.21		0.00
90) 5(b)H-Cholane	34.235	217	302037m	71.46		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	1763180m	607.04		
4) C1-Decalins	12.680	152	2514954m	865.87		
5) C2-Decalins	13.738	166	2095516m	721.46		
6) C3-Decalins	16.691	180	1823184m	627.70		
7) C4-Decalins	17.722	194	1278738m	440.25		
8) Naphthalene	13.878	128	11438185m	604.87		
9) 2-Methylnaphthalene	16.134	142	14668514m	1231.00		
10) 1-Methylnaphthalene	16.468	142	9003899m	817.97		
11) 2,6-Dimethylnaphthalene	18.223	156	8065011m	721.13		
12) 1,6,7-Trimethylnaphtha...	21.065	170	2088005m	210.81		
13) C2-Naphthalenes	18.502	156	28742417m	1519.95		
14) C3-Naphthalenes	20.508	170	19490955m	1030.71		
15) C4-Naphthalenes	22.820	184	9969700m	527.21		
16) Benzothiophene	14.073	134	99944m	6.48		
17) C1-Benzothiophenes	15.633	148	377192m	24.45		
18) C2-Benzothiophenes	18.251	162	280829m	18.20		
19) C3-Benzothiophenes	20.313	176	462538m	29.98		
20) C4-Benzothiophenes	22.096	190	329962m	21.39		
22) Biphenyl	17.694	154	2114935m	130.54		
23) Acenaphthylene	19.171	152	135204m	7.32		
24) Acenaphthene	19.783	154	158467m	15.04		
25) Dibenzofuran	20.368	168	446182m	24.89		
26) Fluorene	21.538	166	1216039m	85.90		
27) 1-Methylfluorene	23.506	180	1650245m	176.72		
28) C1-Fluorenes	23.506	180	3211782m	226.88		
29) C2-Fluorenes	25.341	194	4513387m	318.83		
30) C3-Fluorenes	26.830	208	3134733m	221.44		
33) Carbazole	25.583	167	47724m	2.56		
34) Dibenzothiophene	24.406	184	750956m	37.06		
35) 4-Methyldibenzothiophene	25.895	198	1212246m	73.36		
36) 2/3-Methyldibenzothiop...	26.207	198	568408m	34.40		
37) 1-Methyldibenzothiophene	26.518	198	354109m	21.43		
38) C2-Dibenzothiophenes	27.315	212	2714823m	133.96		
39) C3-Dibenzothiophenes	28.804	226	2156393m	106.41		
40) C4-Dibenzothiophenes	29.808	240	814304m	40.18		
41) Phenanthrene	24.821	178	4591346m	187.28		
42) Anthracene	24.995	178	53835m	2.37		
43) 3-Methylphenanthrene	26.484	192	2439665m	160.64		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057K.D
Acq On : 17 Aug 2013 8:39 am
Operator : YM
Sample : AR-SRM2779-WK4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 22 11:50:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.587	192	2566979m	169.02		
45) 2-Methylanthracene	26.726	192	200056m	13.17		
46) 4/9-Methylphenanthrene	26.864	192	2949410m	194.20		
47) 1-Methylphenanthrene	26.934	192	1882772m	123.97		
48) 3,6-Dimethylphenanthrene	28.042	206	752055m	57.54		
49) Retene	30.743	234	73801m	10.26		
50) C2-Phenanthrenes/Anthr...	28.388	206	10539259m	429.89		
51) C3-Phenanthrenes/Anthr...	29.946	220	7933059m	323.59		
52) C4-Phenanthrenes/Anthr...	31.782	234	4871416m	198.70		
53) Naphthobenzothiophene	32.955	234	635864m	25.11		
54) C1-Naphthobenzothiophenes	34.119	248	1081001m	42.69		
55) C2-Naphthobenzothiophenes	36.020	262	1495472m	59.06		
56) C3-Naphthobenzothiophenes	37.184	276	991128m	39.14		
57) C4-Naphthobenzothiophenes	38.192	290	416596m	16.45		
58) Fluoranthene	28.942	202	92303m	4.18		
59) Pyrene	29.704	202	291827m	10.16		
60) 2-Methylfluoranthene	30.466	216	80456m	4.40		
61) Benzo(b)fluorene	31.089	216	192338m	12.46		
62) C1-Fluoranthenes/Pyrenes	30.847	216	1557091m	70.45		
63) C2-Fluoranthenes/Pyrenes	32.334	230	3292157m	148.95		
64) C3-Fluoranthenes/Pyrenes	34.003	244	2270334m	102.72		
65) C4-Fluoranthenes/Pyrenes	35.166	258	2403049m	108.72		
67) Benz(a)anthracene	33.770	228	138412m	5.31		
68) Chrysene/Triphenylene	33.886	228	777990m	35.24		
69) C1-Chrysenes	35.128	242	2101672m	95.20		
70) C2-Chrysenes	36.602	256	2643278m	119.73		
71) C3-Chrysenes	37.998	270	1853289m	83.95		
72) C4-Chrysenes	39.434	284	961100m	43.53		
74) C29-Hopane	40.755	191	160487m	20.29		
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.046	191	321944m	40.70		
77) Benzo(b)fluoranthene	37.300	252	112367m	3.79		
78) Benzo(k,j)fluoranthene	37.339	252	27180m	1.20		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	208507m	7.63		
81) Benzo(a)pyrene	38.464	252	47640m	1.78		
82) Indeno(1,2,3-c,d)pyrene	43.188	276	18803m	0.56		
83) Dibenzo(a,h)anthracene	43.225	278	17066m	0.63		
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	44.553	276	40943m	1.39		
89) Perylene	38.697	252	22879m	0.84		
91) C20-TAS	33.343	231	192973m	6.41		
92) C21-TAS	34.429	231	200214m	6.65		
93) C26(20S)-TAS	38.542	231	90772m	3.02		
94) C26(20R)/C27(20S)-TAS	39.473	231	320275m	10.64		
95) C28(20S)-TAS	40.239	231	226916m	7.54		
96) C27(20R)-TAS	40.681	231	194237m	6.46		
97) C28(20R)-TAS	41.492	231	21156m	0.70		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057K.D
Acq On : 17 Aug 2013 8:39 am
Operator : YM
Sample : AR-SRM2779-WK4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 22 11:50:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

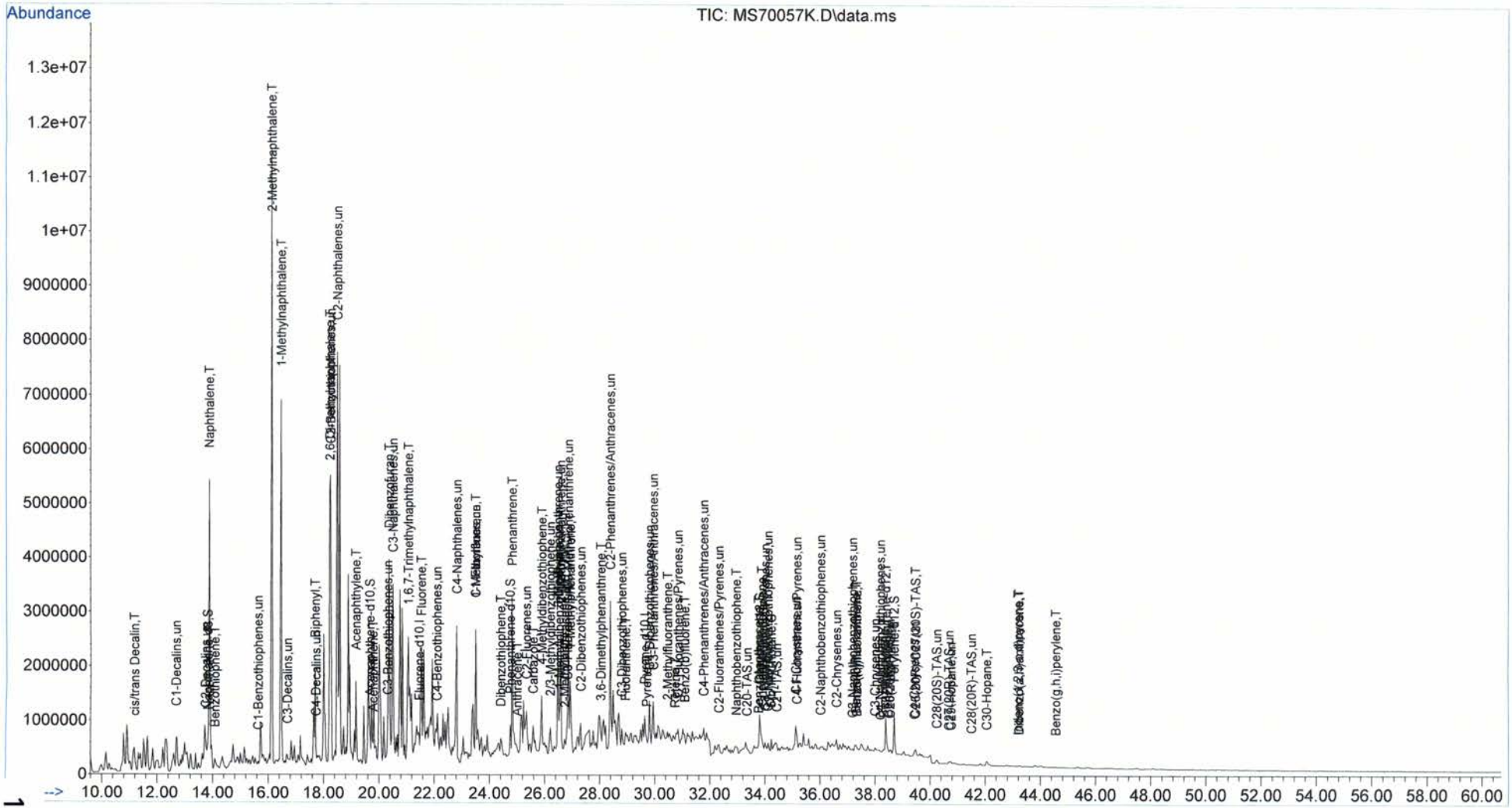
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : MS70057K.D
Acq On : 17 Aug 2013 8:39 am
Operator : YM
Sample : AR-SRM2779-WK4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 22 11:50:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ENV3081A.D
Data File Path C:\GCMS7\MS70057\
Operator YM
Date Acquired 8/17/2013 9:48
Acq. Method File PAH-2012.M
Sample Name Procedural Blank
Misc Info 0
Instrument Name GCMSD
Vial Number 12
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ENV3081A.D
Procedural Blank
8/17/2013
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	3463	0.0783	0.1019
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	17.69	1651	0.0435	0.0567
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	24.82	2672	0.0437	0.0569
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	13.82	564058	14.23	85.32
21)	Acenaphthene-d10	19.67	327906	14.39	86.26
32)	Phenanthrene-d10	24.75	626002	12.81	76.77
66)	Chrysene-d12	33.81	875128	16.36	98.11
88)	Perylene-d12	38.70	892012	14.36	86.12
90)	5(b)H-Cholane	34.24	143864	13.79	82.71
	Internal Standards				
1)	Fluorene-d10	21.45	392122	16.74	
31)	Pyrene-d10	29.63	808915	16.71	
73)	Benzo(a)pyrene-d12	38.39	878300	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081A.D
Acq On : 17 Aug 2013 9:48 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 22 11:54:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	392122m	251.05		0.00
31) Pyrene-d10	29.635	212	808915m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	878300m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	564058m	14.23		0.00
21) Acenaphthene-d10	19.672	164	327906m	14.39		0.00
32) Phenanthrene-d10	24.752	188	626002m	12.81		0.00
66) Chrysene-d12	33.809	240	875128m	16.36		-0.04
88) Perylene-d12	38.697	264	892012m	14.36		0.00
90) 5(b)H-Cholane	34.235	217	143864m	13.78		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.878	128	3463m	0.08		
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	17.694	154	1651m	0.04		
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	24.821	178	2672m	0.04		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081A.D
Acq On : 17 Aug 2013 9:48 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 22 11:54:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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.		
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	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081A.D
Acq On : 17 Aug 2013 9:48 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 22 11:54:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

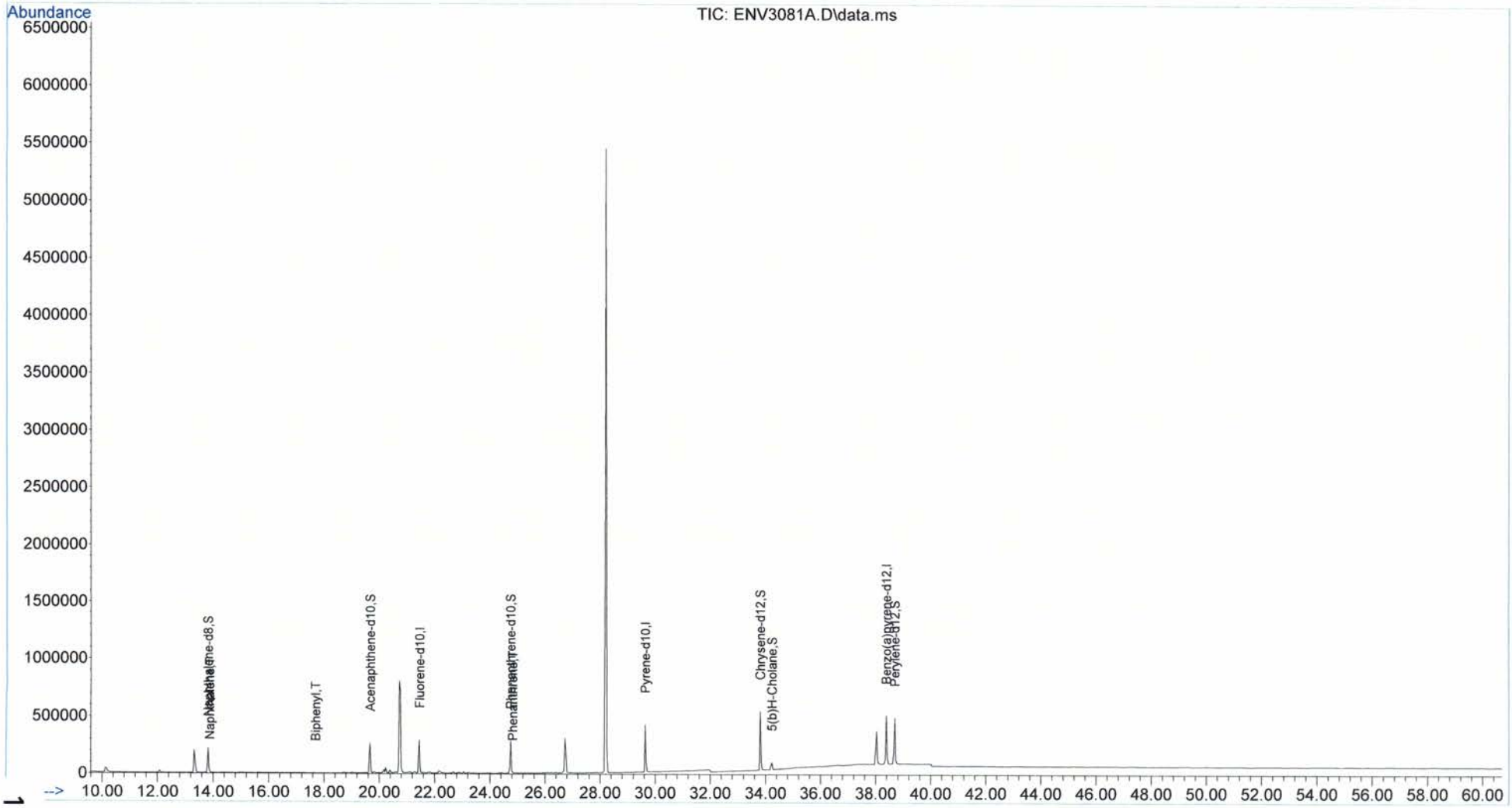
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081A.D
Acq On : 17 Aug 2013 9:48 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 22 11:54:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ENV3081B.D
Data File Path C:\GCMS7\MS70057\
Operator YM
Date Acquired 8/17/2013 10:57
Acq. Method File PAH-2012.M
Sample Name SRM 1941b
Misc Info 0
Instrument Name GCMSD
Vial Number 13
Sample Multiplier 0.25
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

ENV3081B.D
SRM 1941b
8/17/2013
PAH-2012.M
4

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.40	56913	27.7503	37.3526
4)	C1-Decalins	12.35	23717	11.5642	15.5657
5)	C2-Decalins	14.71	33044	16.1119	21.6870
6)	C3-Decalins	17.30	44505	21.7002	29.2090
7)	C4-Decalins	17.58	63938	31.1755	41.9630
8)	Naphthalene	13.88	7628850	571.3400	769.0387
9)+10)	C1-Naphthalenes	16.30	2174076	162.8209	219.1613
13)	C2-Naphthalenes	18.50	2025580	151.7000	204.1922
14)	C3-Naphthalenes	20.84	1550980	116.1565	156.3497
15)	C4-Naphthalenes	22.82	883725	66.1840	89.0854
16)	Benzothiophene	14.05	250550	22.9978	30.9556
17)	C1-Benzothiophenes	16.39	237629	21.8118	29.3592
18)	C2-Benzothiophenes	17.95	68563	6.2933	8.4710
19)	C3-Benzothiophenes	20.31	150590	13.8225	18.6055
20)	C4-Benzothiophenes	21.62	140013	12.8517	17.2987
22)	Biphenyl	17.69	552986	48.3373	65.0632
23)	Acenaphthylene	19.17	671916	51.5500	69.3877
24)	Acenaphthene	19.76	169764	22.8185	30.7142
25)	Dibenzofuran	20.37	767969	60.6723	81.6664
26)	Fluorene	21.54	387697	38.7863	52.2073
28)	C1-Fluorenes	23.51	396257	39.6425	53.3599
29)	C2-Fluorenes	25.38	954245	95.4650	128.4984
30)	C3-Fluorenes	27.59	1299670	130.0218	175.0127
33)	Carbazole	25.58	181884	13.6519	18.3758
42)	Anthracene	24.99	2145260	132.1783	177.9154
41)	Phenanthrene	24.82	5250720	300.0200	403.8348
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	3392271	193.8304	260.9008
50)	C2-Phenanthrenes/Anthracenes	28.39	3313490	189.3283	254.8408
51)	C3-Phenanthrenes/Anthracenes	29.95	2626220	150.0585	201.9827
52)	C4-Phenanthrenes/Anthracenes	31.78	1706340	97.4978	131.2345
34)	Dibenzothiophene	24.41	520630	35.9868	48.4391
35)+36)+37)	C1-Dibenzothiophenes	26.20	736884	50.9346	68.5593
38)	C2-Dibenzothiophenes	27.63	1141870	78.9280	106.2392
39)	C3-Dibenzothiophenes	28.80	1326520	91.6908	123.4182
40)	C4-Dibenzothiophenes	30.67	596660	41.2420	55.5128
58)	Fluoranthene	28.94	8085210	512.4150	689.7241
59)	Pyrene	29.70	7959400	388.2350	522.5746
62)	C1-Fluoranthenes/Pyrenes	30.85	4715230	298.8350	402.2398
63)	C2-Fluoranthenes/Pyrenes	32.57	4972310	315.1300	424.1733
64)	C3-Fluoranthenes/Pyrenes	33.85	2233300	141.5393	190.5156
65)	C4-Fluoranthenes/Pyrenes	35.32	2007730	127.2435	171.2731
53)	Naphthobenzothiophene	32.96	2030660	112.3338	151.2042
54)	C1-Naphthobenzothiophenes	34.12	1742590	96.3983	129.7546
55)	C2-Naphthobenzothiophenes	35.83	1588840	87.8930	118.3063
56)	C3-Naphthobenzothiophenes	36.91	1157440	64.0283	86.1837
57)	C4-Naphthobenzothiophenes	38.19	495006	27.3833	36.8586
67)	Benz(a)anthracene	33.77	4756480	255.5250	343.9434
68)	Chrysene/Triphenylene	33.89	5043310	319.9975	430.7251
69)	C1-Chrysenes	35.17	3497850	221.9388	298.7354
70)	C2-Chrysenes	36.60	2139930	135.7785	182.7614
71)	C3-Chrysenes	37.38	1375370	87.2673	117.4640
72)	C4-Chrysenes	39.43	808852	51.3218	69.0804
77)	Benzo(b)fluoranthene	37.34	7740260	383.3475	515.9958
78)	Benzo(k,j)fluoranthene	37.34	4923690	320.2125	431.0145
79)	Benzo(a)fluoranthene	37.69	1011010	65.7510	88.5026
80)	Benzo(e)pyrene	38.31	4957180	266.4850	358.6958
81)	Benzo(a)pyrene	38.46	3718940	203.5738	274.0156
89)	Perylene	38.77	4672740	251.1550	338.0613
82)	Indeno(1,2,3-c,d)pyrene	43.19	4986650	216.5690	291.5076
83)	Dibenzo(a,h)anthracene	43.23	1033040	55.9123	75.2594
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	3960680	196.9233	265.0639

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	1505610	178.9435	240.8627
10)	1-Methylnaphthalene	16.47	668466	86.0038	115.7633
11)	2,6-Dimethylnaphthalene	18.25	591506	74.9028	100.8211
12)	1,6,7-Trimethylnaphthalene	21.07	166702	23.8359	32.0837
27)	1-Methylfluorene	23.51	143669	21.7882	29.3275
35)	4-Methyldibenzothiophene	25.90	378547	32.0905	43.1947
36)	2/3-Methyldibenzothiophene	26.17	253625	21.5005	28.9402
37)	1-Methyldibenzothiophene	26.52	104712	8.8767	11.9483
43)	3-Methylphenanthrene	26.48	839433	77.4240	104.2147
44)	2-Methylphenanthrene	26.59	844210	77.8645	104.8077
45)	2-Methylanthracene	26.73	539022	49.7160	66.9190
46)	4/9-Methylphenanthrene	26.86	594319	54.8163	73.7841
47)	1-Methylphenanthrene	26.93	575287	53.0608	71.4212
48)	3,6-Dimethylphenanthrene	28.04	171045	18.3333	24.6771
49)	Retene	30.71	87870	17.1076	23.0272
60)	2-Methylfluoranthene	30.47	661000	50.6725	68.2065
61)	Benzo(b)fluorene	31.09	679549	61.6865	83.0317
74)	C29-Hopane	40.76	1119110	207.6888	279.5545
75)	18a-Oleanane	41.82	283648	52.6405	70.8555
76)	C30-Hopane	42.05	1493980	277.2575	373.1959
91)	C20-TAS	33.30	192438	9.3888	12.6376
92)	C21-TAS	34.39	69388	3.3854	4.5568
93)	C26(20S)-TAS	38.54	38472	1.8770	2.5265
94)	C26(20R)/C27(20S)-TAS	39.47	154613	7.5434	10.1536
95)	C28(20S)-TAS	40.24	76113	3.7135	4.9984
96)	C27(20R)-TAS	40.68	137735	6.7199	9.0452
97)	C28(20R)-TAS	41.38	99610	4.8599	6.5415
	Surrogate Standards				
2)	Naphthalene-d8	13.82	544667	45.53	72.81
21)	Acenaphthene-d10	19.67	340862	49.56	79.25
32)	Phenanthrene-d10	24.75	650070	46.47	74.29
66)	Chrysene-d12	33.81	799796	52.23	83.56
88)	Perylene-d12	38.70	863474	50.38	80.59
90)	5(b)H-Cholane	34.24	156442	54.34	86.95
	Internal Standards				
1)	Fluorene-d10	21.46	443711	62.76	
31)	Pyrene-d10	29.63	868078	62.66	
73)	Benzo(a)pyrene-d12	38.39	908512	62.58	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081B.D
Acq On : 17 Aug 2013 10:57 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.25

Quant Time: Aug 22 12:10:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	443711m	251.05		0.00
31) Pyrene-d10	29.635	212	868078m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	908512m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	544667m	45.53		0.00
21) Acenaphthene-d10	19.672	164	340862m	49.56		0.00
32) Phenanthrene-d10	24.752	188	650070m	46.47		0.00
66) Chrysene-d12	33.809	240	799796m	52.23		-0.04
88) Perylene-d12	38.697	264	863474m	50.38		0.00
90) 5(b)H-Cholane	34.236	217	156442m	54.34		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.399	138	56913m	27.75		
4) C1-Decalins	12.346	152	23717m	11.56		
5) C2-Decalins	14.714	166	33044m	16.11		
6) C3-Decalins	17.304	180	44505m	21.70		
7) C4-Decalins	17.583	194	63938m	31.18		
8) Naphthalene	13.878	128	7628845m	571.34		
9) 2-Methylnaphthalene	16.134	142	1505609m	178.94		
10) 1-Methylnaphthalene	16.469	142	668466m	86.00		
11) 2,6-Dimethylnaphthalene	18.251	156	591506m	74.90		
12) 1,6,7-Trimethylnaphtha...	21.065	170	166702m	23.84		
13) C2-Naphthalenes	18.502	156	2025578m	151.70		
14) C3-Naphthalenes	20.842	170	1550983m	116.16		
15) C4-Naphthalenes	22.820	184	883725m	66.18		
16) Benzothiophene	14.045	134	250550m	23.00		
17) C1-Benzothiophenes	16.385	148	237629m	21.81		
18) C2-Benzothiophenes	17.945	162	68563m	6.29		
19) C3-Benzothiophenes	20.313	176	150590m	13.82		
20) C4-Benzothiophenes	21.622	190	140013m	12.85		
22) Biphenyl	17.694	154	552986m	48.34		
23) Acenaphthylene	19.171	152	671916m	51.55		
24) Acenaphthene	19.756	154	169764m	22.82		
25) Dibenzofuran	20.369	168	767969m	60.67		
26) Fluorene	21.539	166	387697m	38.79		
27) 1-Methylfluorene	23.506	180	143669m	21.79		
28) C1-Fluorenes	23.506	180	396257m	39.64		
29) C2-Fluorenes	25.376	194	954245m	95.47		
30) C3-Fluorenes	27.592	208	1299666m	130.02		
33) Carbazole	25.583	167	181884m	13.65		
34) Dibenzothiophene	24.406	184	520630m	35.99		
35) 4-Methyldibenzothiophene	25.895	198	378547m	32.09		
36) 2/3-Methyldibenzothiop...	26.172	198	253625m	21.50		
37) 1-Methyldibenzothiophene	26.518	198	104712m	8.88		
38) C2-Dibenzothiophenes	27.626	212	1141874m	78.93		
39) C3-Dibenzothiophenes	28.804	226	1326517m	91.69		
40) C4-Dibenzothiophenes	30.674	240	596660m	41.24		
41) Phenanthrene	24.822	178	5250723m	300.02		
42) Anthracene	24.995	178	2145261m	132.18		
43) 3-Methylphenanthrene	26.484	192	839433m	77.42		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081B.D
Acq On : 17 Aug 2013 10:57 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.25

Quant Time: Aug 22 12:10:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.588	192	844210m	77.86		
45) 2-Methylanthracene	26.726	192	539022m	49.72		
46) 4/9-Methylphenanthrene	26.865	192	594319m	54.82		
47) 1-Methylphenanthrene	26.934	192	575287m	53.06		
48) 3,6-Dimethylphenanthrene	28.042	206	171045m	18.33		
49) Retene	30.708	234	87870m	17.11		
50) C2-Phenanthrenes/Anthr...	28.388	206	3313494m	189.33		
51) C3-Phenanthrenes/Anthr...	29.947	220	2626218m	150.06		
52) C4-Phenanthrenes/Anthr...	31.782	234	1706338m	97.50		
53) Naphthobenzothiophene	32.955	234	2030655m	112.33		
54) C1-Naphthobenzothiophenes	34.119	248	1742588m	96.40		
55) C2-Naphthobenzothiophenes	35.826	262	1588841m	87.89		
56) C3-Naphthobenzothiophenes	36.912	276	1157436m	64.03		
57) C4-Naphthobenzothiophenes	38.193	290	495006m	27.38		
58) Fluoranthene	28.942	202	8085209m	512.41		
59) Pyrene	29.704	202	7959395m	388.24		
60) 2-Methylfluoranthene	30.466	216	661000m	50.67		
61) Benzo(b)fluorene	31.089	216	679549m	61.69		
62) C1-Fluoranthenes/Pyrenes	30.847	216	4715229m	298.84		
63) C2-Fluoranthenes/Pyrenes	32.567	230	4972311m	315.13		
64) C3-Fluoranthenes/Pyrenes	33.848	244	2233301m	141.54		
65) C4-Fluoranthenes/Pyrenes	35.322	258	2007732m	127.24		
67) Benz(a)anthracene	33.770	228	4756481m	255.53		
68) Chrysene/Triphenylene	33.886	228	5043312m	320.00		
69) C1-Chrysenes	35.167	242	3497850m	221.94		
70) C2-Chrysenes	36.602	256	2139929m	135.78		
71) C3-Chrysenes	37.378	270	1375368m	87.27		
72) C4-Chrysenes	39.434	284	808852m	51.32		
74) C29-Hopane	40.755	191	1119111m	207.69		
75) 18a-Oleanane	41.824	191	283648m	52.64		
76) C30-Hopane	42.046	191	1493981m	277.26		
77) Benzo(b)fluoranthene	37.339	252	7740260m	383.35		
78) Benzo(k,j)fluoranthene	37.339	252	4923694m	320.21		
79) Benzo(a)fluoranthene	37.688	252	1011008m	65.75		
80) Benzo(e)pyrene	38.309	252	4957176m	266.48		
81) Benzo(a)pyrene	38.464	252	3718941m	203.57		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	4986648m	216.57		
83) Dibenzo(a,h)anthracene	43.226	278	1033041m	55.91		
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	44.553	276	3960676m	196.92		
89) Perylene	38.775	252	4672735m	251.15		
91) C20-TAS	33.304	231	192438m	9.39		
92) C21-TAS	34.391	231	69388m	3.39		
93) C26(20S)-TAS	38.542	231	38472m	1.88		
94) C26(20R)/C27(20S)-TAS	39.473	231	154613m	7.54		
95) C28(20S)-TAS	40.239	231	76113m	3.71		
96) C27(20R)-TAS	40.682	231	137735m	6.72		
97) C28(20R)-TAS	41.382	231	99610m	4.86		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081B.D
Acq On : 17 Aug 2013 10:57 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.25

Quant Time: Aug 22 12:10:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

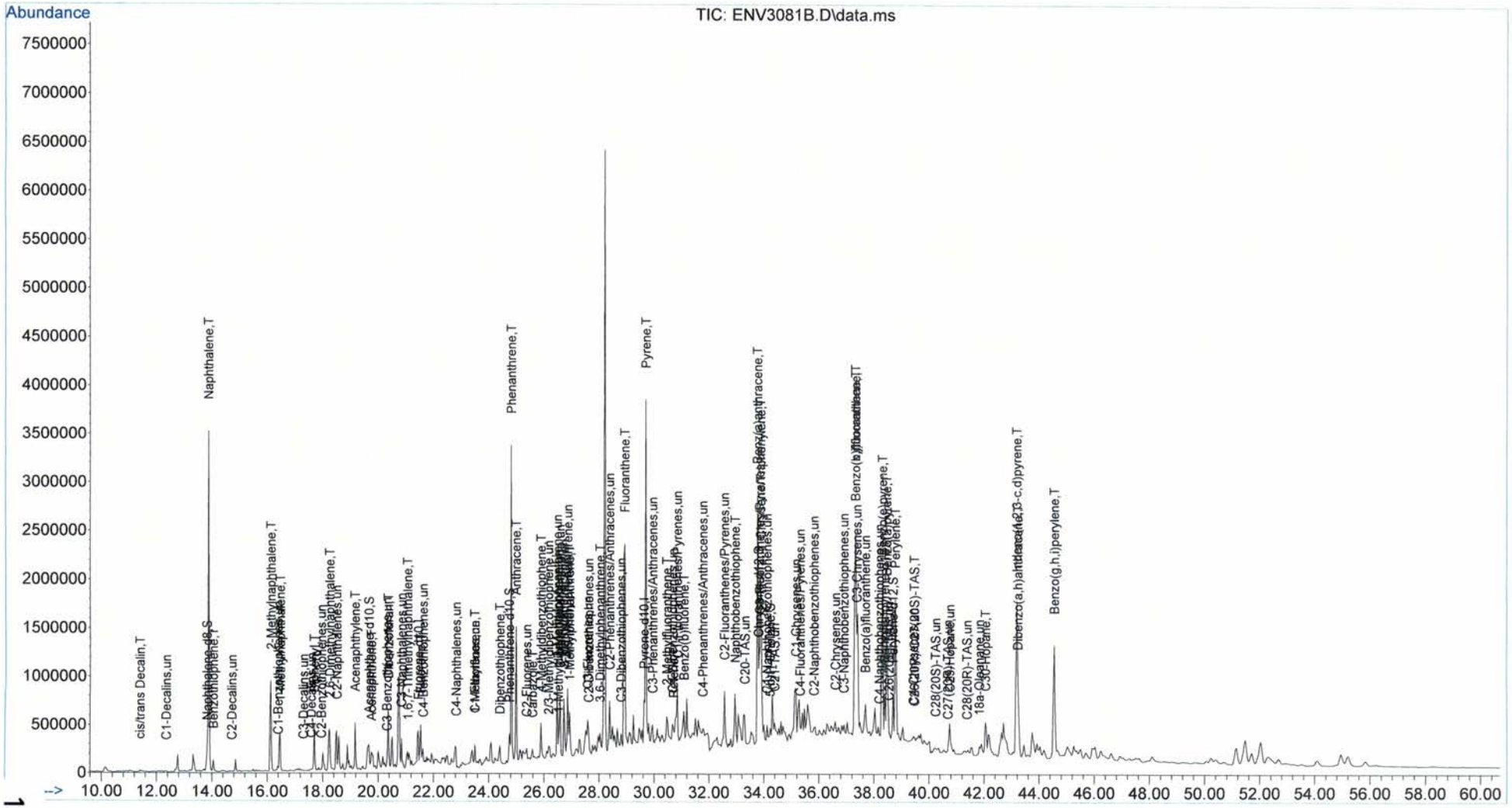
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081B.D
Acq On : 17 Aug 2013 10:57 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.25

Quant Time: Aug 22 12:10:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ENV3081C.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 12:05
Acq. Method File PAH-2012.M
Sample Name MS (SO-DA-015 (0-0.5) MS/MSD)
Misc Info 0
Instrument Name GCMSD
Vial Number 14
Sample Multiplier 0.06662
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

ENV3081C.D
(SO-DA-015 (0-0.5) MS/MSD)
8/17/2013
PAH-2012.M
15.01050736

#	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	13.88	337156	7.0196	8.2530
9)+10)	C1-Naphthalenes	16.30	395850	8.2416	9.6897
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	19.17	226450	4.8299	5.6785
24)	Acenaphthene	19.76	151933	5.6773	6.6748
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	231999	6.4523	7.5860
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	299334	5.3435	6.2824
41)	Phenanthrene	24.82	844965	13.9881	16.4459
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.39	253002	4.1884	4.9243
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	24.41	375228	7.5145	8.8348
35)+36)+37)	C1-Dibenzothiophenes	8.63	266105	5.3291	6.2655
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	1032170	18.9528	22.2828
59)	Pyrene	29.70	1188240	16.7924	19.7428
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	33.81	624127	9.7143	11.4212
68)	Chrysene/Triphenylene	33.89	2948540	54.2040	63.7277
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	37.34	2287040	33.5814	39.4817
78)	Benzo(k,j)fluoranthene	37.42	797943	15.3854	18.0887
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	2807280	44.7417	52.6028
81)	Benzo(a)pyrene	38.50	456753	7.4127	8.7151
89)	Perylene	38.81	57592	0.9177	1.0790
82)	Indeno(1,2,3-c,d)pyrene	43.23	893565	11.5055	13.5270
83)	Dibenzo(a,h)anthracene	43.30	456768	7.3295	8.6173
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	44.63	872037	12.8544	15.1129

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	226226	7.4747	8.7880
10)	1-Methylnaphthalene	16.47	169624	6.0670	7.1329
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	25.89	266105	6.5358	7.6842
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.93	253002	6.7609	7.9488
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	13.82	485801	11.29	67.75
21)	Acenaphthene-d10	19.67	347913	14.06	84.38
32)	Phenanthrene-d10	24.75	684525	14.18	85.06
66)	Chrysene-d12	33.85	860355	16.28	97.73
88)	Perylene-d12	38.74	53356	0.92	5.54
90)	5(b)H-Cholane	34.24	192964	19.87	119.32
	Internal Standards				
1)	Fluorene-d10	21.45	425322	16.72	
31)	Pyrene-d10	29.63	798420	16.70	
73)	Benzo(a)pyrene-d12	38.43	816593	16.68	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081C.D
Acq On : 17 Aug 2013 12:05 pm
Operator : YM
Sample : MS (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.06662

Quant Time: Sep 05 15:40:40 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	425322m	251.05		0.00
31) Pyrene-d10	29.635	212	798420m	250.63		0.00
73) Benzo(a)pyrene-d12	38.425	264	816593m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	485801m	11.29		0.00
21) Acenaphthene-d10	19.672	164	347913m	14.06		0.00
32) Phenanthrene-d10	24.752	188	684525m	14.18		0.00
66) Chrysene-d12	33.847	240	860355m	16.28		0.00
88) Perylene-d12	38.735	264	53356m	0.92		0.04
90) 5(b)H-Cholane	34.235	217	192964m	19.87		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	13.878	128	337156m	7.02		
9) 2-Methylnaphthalene	16.134	142	226226m	7.47		
10) 1-Methylnaphthalene	16.468	142	169624m	6.07		
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	19.170	152	226450m	4.83		
24) Acenaphthene	19.755	154	151933m	5.68		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	231999m	6.45		
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	24.406	184	375228m	7.51		
35) 4-Methyldibenzothiophene	25.895	198	266105m	6.54		
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	24.821	178	844965m	13.99		
42) Anthracene	24.995	178	299334m	5.34		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081C.D
Acq On : 17 Aug 2013 12:05 pm
Operator : YM
Sample : MS (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.06662

Quant Time: Sep 05 15:40:40 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	26.934	192	253002m	6.76		
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.942	202	1032170m	18.95		
59) Pyrene	29.704	202	1188243m	16.79		
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	33.809	228	624127m	9.71		
68) Chrysene/Triphenylene	33.886	228	2948542m	54.20		
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	37.339	252	2287035m	33.58		
78) Benzo(k,j)fluoranthene	37.416	252	797943m	15.39		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.309	252	2807278m	44.74		
81) Benzo(a)pyrene	38.503	252	456753m	7.41		
82) Indeno(1,2,3-c,d)pyrene	43.225	276	893565m	11.51		
83) Dibenzo(a,h)anthracene	43.299	278	456768m	7.33		
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	44.626	276	872037m	12.85		
89) Perylene	38.813	252	57592m	0.92		
91) C20-TAS	0.000		0		N.D.	d
92) C21-TAS	0.000		0		N.D.	d
93) C26(20S)-TAS	0.000		0		N.D.	d
94) C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95) C28(20S)-TAS	0.000		0		N.D.	d
96) C27(20R)-TAS	0.000		0		N.D.	d
97) C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081C.D
Acq On : 17 Aug 2013 12:05 pm
Operator : YM
Sample : MS (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.06662

Quant Time: Sep 05 15:40:40 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

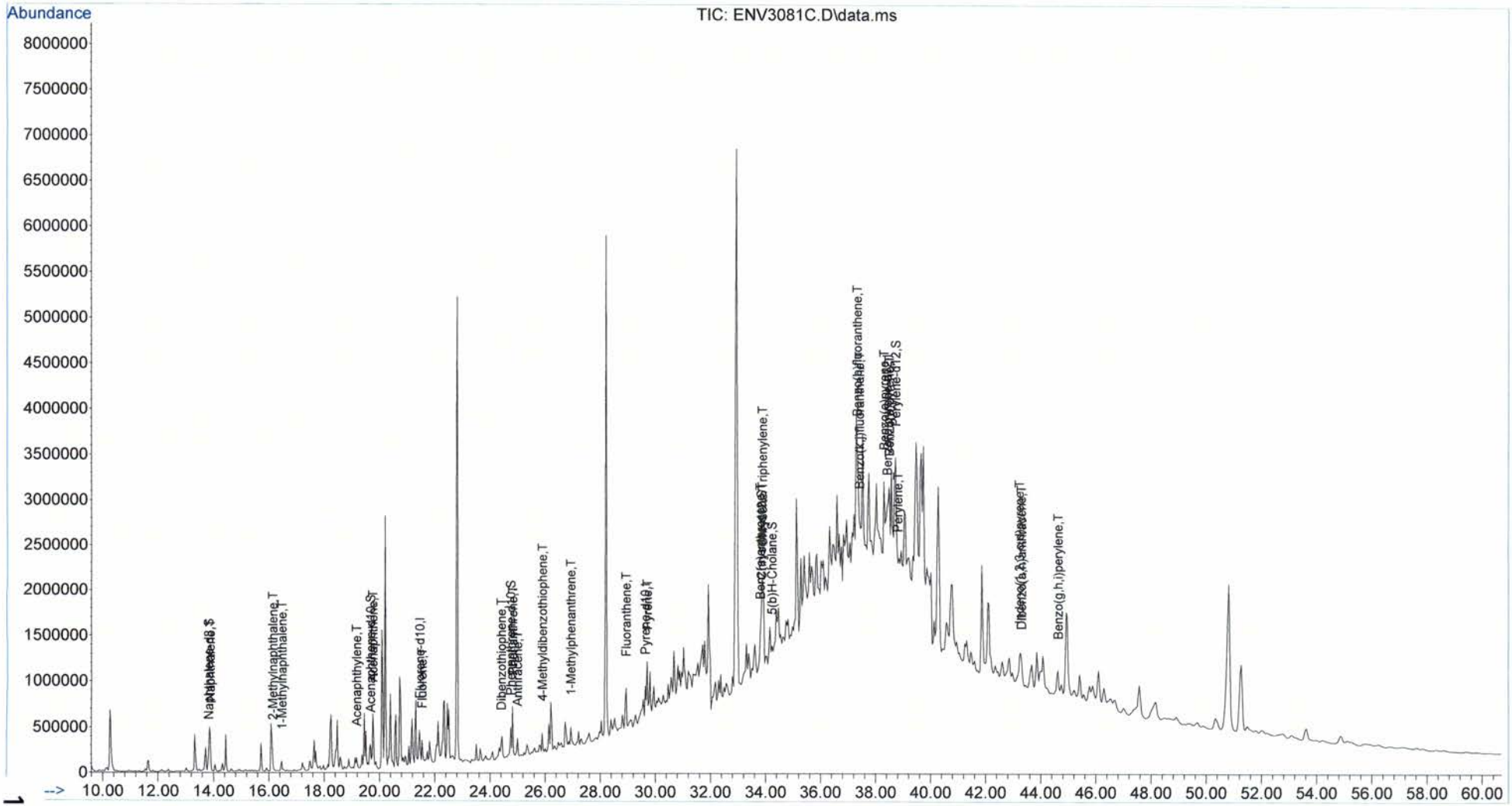
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081C.D
Acq On : 17 Aug 2013 12:05 pm
Operator : YM
Sample : MS (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.06662

Quant Time: Sep 05 15:40:40 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ENV3081D.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 13:14
Acq. Method File PAH-2012.M
Sample Name MSD (SO-DA-015 (0-0.5) MS/MSD)
Misc Info 0
Instrument Name GCMSD
Vial Number 15
Sample Multiplier 0.06658
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ENV3081D.D
) (SO-DA-015 (0-0.5) MS/MSD)
8/17/2013
PAH-2012.M
15.01952538

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	334544	6.8695	7.5173
9)+10)	C1-Naphthalenes	16.30	399186	8.1968	8.9699
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	19.17	213556	4.4922	4.9159
24)	Acenaphthene	19.78	144444	5.3232	5.8253
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	243303	6.6737	7.3031
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	289334	5.3721	5.8787
41)	Phenanthrene	24.82	854008	14.7047	16.0915
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.39	242071	4.1681	4.5612
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	24.41	386262	8.0456	8.8044
35)+36)+37)	C1-Dibenzothiophenes	8.63	273174	5.6900	6.2267
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	1050580	20.0641	21.9565
59)	Pyrene	29.70	1204980	17.7116	19.3821
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	33.81	644218	10.4291	11.4127
68)	Chrysene/Triphenylene	33.93	2783190	53.2155	58.2344
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	37.34	2096710	31.7680	34.7641
78)	Benzo(k,j)fluoranthene	37.42	750535	14.9326	16.3409
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	2414050	39.7008	43.4451
81)	Benzo(a)pyrene	38.50	399642	6.6925	7.3237
89)	Perylene	38.81	66571	1.0946	1.1979
82)	Indeno(1,2,3-c,d)pyrene	43.23	890192	11.8273	12.9428
83)	Dibenzo(a,h)anthracene	43.30	548623	9.0840	9.9408
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	44.63	894022	13.5985	14.8810

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	227655	7.4185	8.1181
10)	1-Methylnaphthalene	16.47	171531	6.0508	6.6215
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	25.90	273174	6.9784	7.6366
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.93	242071	6.7282	7.3627
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	13.85	743172	17.03	102.27
21)	Acenaphthene-d10	19.67	340317	13.57	81.45
32)	Phenanthrene-d10	24.75	706662	15.22	91.38
66)	Chrysene-d12	33.85	871398	17.15	103.01
88)	Perylene-d12	38.74	31121	0.56	3.34
90)	5(b)H-Cholane	34.24	313979	33.37	200.45
	Internal Standards				
1)	Fluorene-d10	21.45	430992	16.71	
31)	Pyrene-d10	29.63	767183	16.69	
73)	Benzo(a)pyrene-d12	38.43	790895	16.67	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081D.D
Acq On : 17 Aug 2013 1:14 pm
Operator : YM
Sample : MSD (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06658

Quant Time: Sep 08 16:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	430992m	251.05		0.00
31) Pyrene-d10	29.635	212	767183m	250.63		0.00
73) Benzo(a)pyrene-d12	38.425	264	790895m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.850	136	743172m	17.03		0.03
21) Acenaphthene-d10	19.672	164	340317m	13.57		0.00
32) Phenanthrene-d10	24.752	188	706662m	15.22		0.00
66) Chrysene-d12	33.847	240	871398m	17.15		0.00
88) Perylene-d12	38.736	264	31121m	0.56		0.04
90) 5(b)H-Cholane	34.235	217	313979m	33.37		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	13.878	128	334544m	6.87		
9) 2-Methylnaphthalene	16.134	142	227655m	7.42		
10) 1-Methylnaphthalene	16.469	142	171531m	6.05		
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	19.171	152	213556m	4.49		
24) Acenaphthene	19.784	154	144444m	5.32		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	243303m	6.67		
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	24.406	184	386262m	8.05		
35) 4-Methyldibenzothiophene	25.895	198	273174m	6.98		
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	24.822	178	854008m	14.70		
42) Anthracene	24.995	178	289334m	5.37		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081D.D
Acq On : 17 Aug 2013 1:14 pm
Operator : YM
Sample : MSD (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06658

Quant Time: Sep 08 16:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	26.934	192	242071m	6.73		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	1050575m	20.06		
59) Pyrene	29.704	202	1204980m	17.71		
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	33.809	228	644218m	10.43		
68) Chrysene/Triphenylene	33.925	228	2783187m	53.22		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.339	252	2096709m	31.77		
78) Benzo(k,j)fluoranthene	37.417	252	750535m	14.93		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	2414053m	39.70		
81) Benzo(a)pyrene	38.503	252	399642m	6.69		
82) Indeno(1,2,3-c,d)pyrene	43.225	276	890192m	11.83		
83) Dibenzo(a,h)anthracene	43.299	278	548623m	9.08		
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	44.627	276	894022m	13.60		
89) Perylene	38.813	252	66571m	1.09		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081D.D
Acq On : 17 Aug 2013 1:14 pm
Operator : YM
Sample : MSD (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06658

Quant Time: Sep 08 16:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

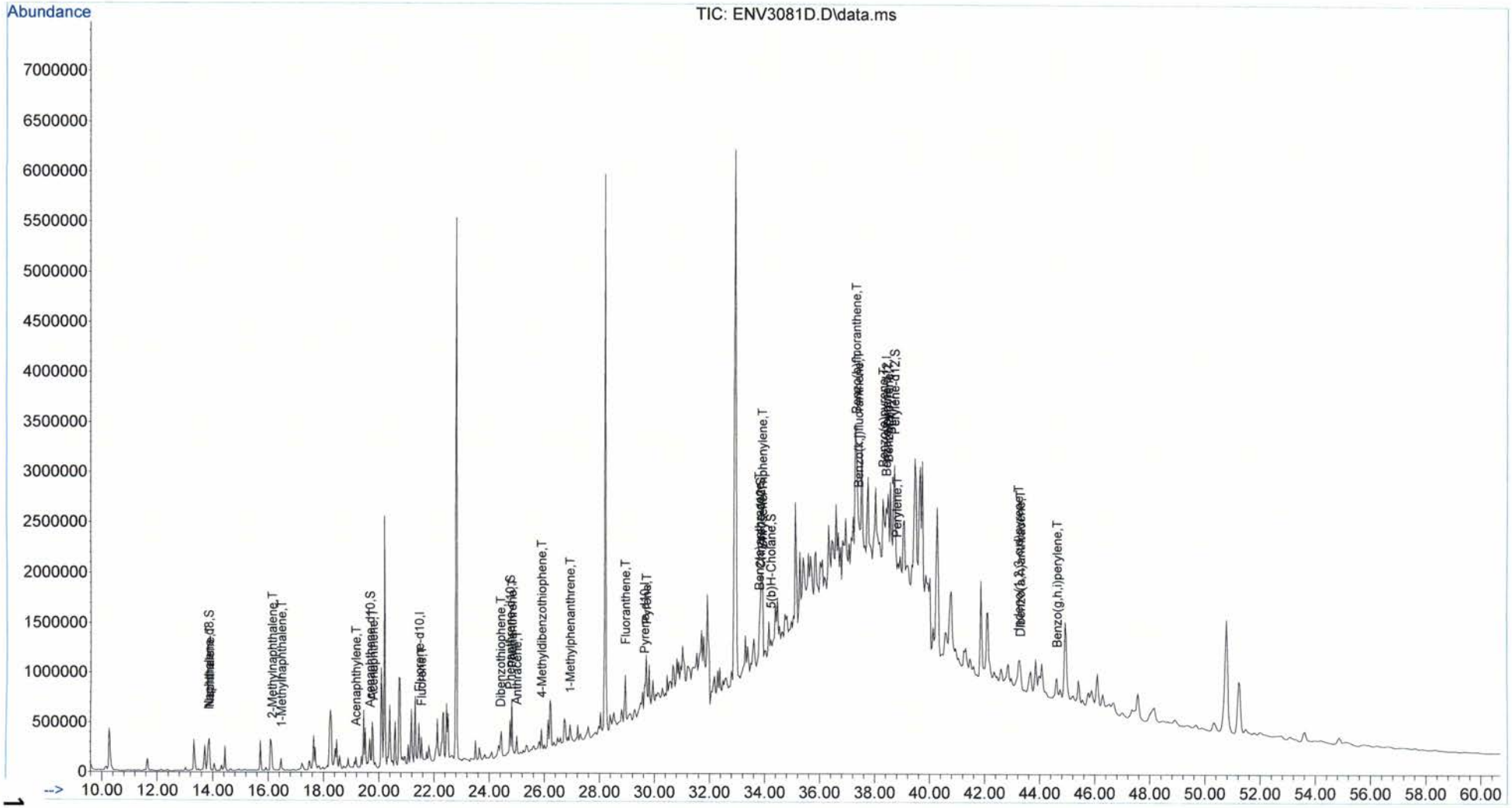
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081D.D
Acq On : 17 Aug 2013 1:14 pm
Operator : YM
Sample : MSD (SO-DA-015 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06658

Quant Time: Sep 08 16:13:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ENV3081E.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 14:22
Acq. Method File PAH-2012.M
Sample Name Dupl. (SO-DA-014 (1.0-1.5))
Misc Info 0
Instrument Name GCMSD
Vial Number 16
Sample Multiplier 0.06631
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

ENV3081E.D
Dupl. (SO-DA-014 (1.0-1.5))
8/17/2013
PAH-2012.M
15.08068165

#	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	13.88	27586	0.6554	0.8042
9)+10)	C1-Naphthalenes	16.30	18286	0.4345	0.5331
13)	C2-Naphthalenes	18.59	31438	0.7470	0.9165
14)	C3-Naphthalenes	20.15	32974	0.7835	0.9613
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	19.17	2973	0.0724	0.0888
24)	Acenaphthene	19.70	710	0.0303	0.0371
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	28578	0.9070	1.1129
28)	C1-Fluorenes	23.51	10112	0.3209	0.3938
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	2994	0.0583	0.0715
41)	Phenanthrene	24.82	128513	2.3189	2.8452
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	24.41	9115	0.1990	0.2441
35)+36)+37)	C1-Dibenzothiophenes	26.21	6789	0.1482	0.1818
38)	C2-Dibenzothiophenes	27.97	9239	0.2017	0.2474
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	31936	0.6392	0.7842
59)	Pyrene	29.70	18164	0.2798	0.3433
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	33.77	12049	0.2044	0.2508
68)	Chrysene/Triphenylene	33.89	23093	0.4627	0.5677
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	37.34	34899	0.5669	0.6956
78)	Benzo(k,j)fluoranthene	37.42	8735	0.1863	0.2286
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	17828	0.3144	0.3857
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	1855	0.0327	0.0401
82)	Indeno(1,2,3-c,d)pyrene	43.19	8318	0.1185	0.1454
83)	Dibenzo(a,h)anthracene	43.26	1518	0.0269	0.0331
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	4928	0.0804	0.0986

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	12887	0.4859	0.5962
10)	1-Methylnaphthalene	16.47	5399	0.2204	0.2704
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	25.90	3272	0.0876	0.1075
36)	2/3-Methyldibenzothiophene	26.21	2206	0.0591	0.0725
37)	1-Methyldibenzothiophene	26.52	1311	0.0351	0.0431
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	13.82	489155	12.97	78.21
21)	Acenaphthene-d10	19.67	263532	12.16	73.28
32)	Phenanthrene-d10	24.75	598976	13.52	81.50
66)	Chrysene-d12	33.81	709091	14.62	88.20
88)	Perylene-d12	38.70	8372	0.16	0.97
90)	5(b)H-Cholane	34.24	137446	15.66	94.46
	Internal Standards				
1)	Fluorene-d10	21.45	370959	16.65	
31)	Pyrene-d10	29.63	729099	16.62	
73)	Benzo(a)pyrene-d12	38.39	734674	16.60	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081E.D
Acq On : 17 Aug 2013 2:22 pm
Operator : YM
Sample : Dupl. (SO-DA-014 (1.0-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06631

Quant Time: Sep 08 15:24:00 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	370959m	251.05		0.00
31) Pyrene-d10	29.635	212	729099m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	734674m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	489155m	12.97		0.00
21) Acenaphthene-d10	19.672	164	263532m	12.16		0.00
32) Phenanthrene-d10	24.752	188	598976m	13.52		0.00
66) Chrysene-d12	33.809	240	709091m	14.62		-0.04
88) Perylene-d12	38.697	264	8372m	0.16		0.00
90) 5(b)H-Cholane	34.235	217	137446m	15.66		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	13.878	128	27586m	0.66		
9) 2-Methylnaphthalene	16.134	142	12887m	0.49		
10) 1-Methylnaphthalene	16.469	142	5399m	0.22		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	31438m	0.75		
14) C3-Naphthalenes	20.146	170	32974m	0.78		
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	19.171	152	2973m	0.07		
24) Acenaphthene	19.700	154	710m	0.03		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	28578m	0.91		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	10112m	0.32		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.406	184	9115m	0.20		
35) 4-Methyldibenzothiophene	25.895	198	3272m	0.09		
36) 2/3-Methyldibenzothiop...	26.207	198	2206m	0.06		
37) 1-Methyldibenzothiophene	26.518	198	1311m	0.04		
38) C2-Dibenzothiophenes	27.973	212	9239m	0.20		
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	128513m	2.32		
42) Anthracene	24.995	178	2994m	0.06		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081E.D
Acq On : 17 Aug 2013 2:22 pm
Operator : YM
Sample : Dupl. (SO-DA-014 (1.0-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06631

Quant Time: Sep 08 15:24:00 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	31936m	0.64		
59) Pyrene	29.704	202	18164m	0.28		
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	33.770	228	12049m	0.20		
68) Chrysene/Triphenylene	33.886	228	23093m	0.46		
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	37.339	252	34899m	0.57		
78) Benzo(k,j)fluoranthene	37.417	252	8735m	0.19		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	17828m	0.31		
81) Benzo(a)pyrene	0.000		0	N.D.	d	
82) Indeno(1,2,3-c,d)pyrene	43.189	276	8318m	0.12		
83) Dibenzo(a,h)anthracene	43.262	278	1518m	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	44.553	276	4928m	0.08		
89) Perylene	38.774	252	1855m	0.03		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081E.D
Acq On : 17 Aug 2013 2:22 pm
Operator : YM
Sample : Dupl. (SO-DA-014 (1.0-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06631

Quant Time: Sep 08 15:24:00 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

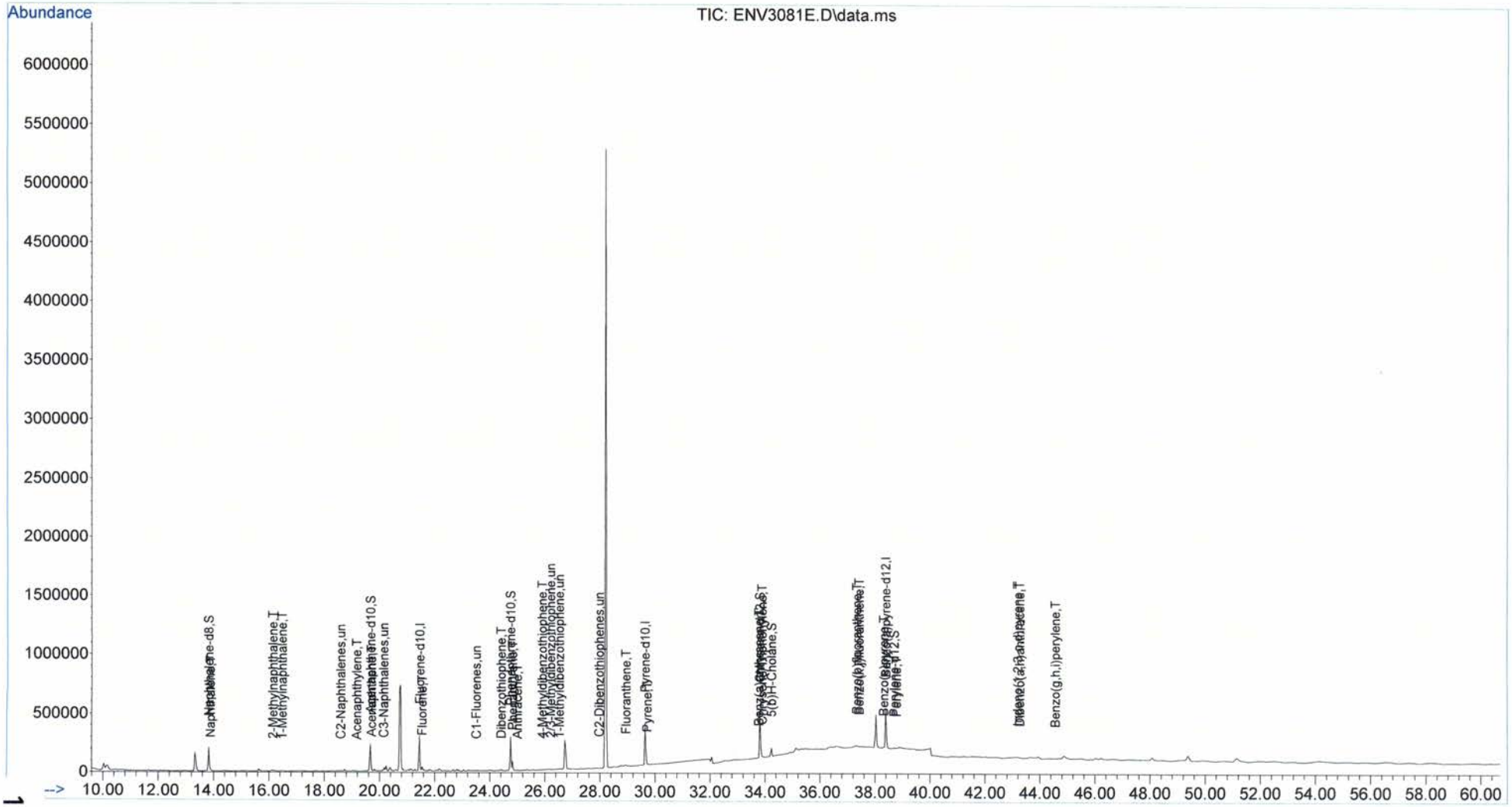
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ENV3081E.D
Acq On : 17 Aug 2013 2:22 pm
Operator : YM
Sample : Dupl. (SO-DA-014 (1.0-1.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06631

Quant Time: Sep 08 15:24:00 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1600.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 15:31
Acq. Method File PAH-2012.M
Sample Name SED-DA-020 (0.5-1.0)
Misc Info 0
Instrument Name GCMSD
Vial Number 17
Sample Multiplier 0.06653
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

ARC1600.D
SED-DA-020 (0.5-1.0)
8/17/2013
PAH-2012.M
15.03081317

#	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	13.88	435302	10.1278	10.8530
9)+10)	C1-Naphthalenes	16.30	450874	10.4901	11.2413
13)	C2-Naphthalenes	18.59	1157740	26.9363	28.8652
14)	C3-Naphthalenes	20.51	1189870	27.6838	29.6662
15)	C4-Naphthalenes	22.82	1456480	33.8867	36.3133
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	19.17	155634	3.7094	3.9751
24)	Acenaphthene	19.78	137825	5.7552	6.1673
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	469989	14.6070	15.6530
28)	C1-Fluorenes	23.51	338018	10.5054	11.2577
29)	C2-Fluorenes	24.99	1494590	46.4512	49.7775
30)	C3-Fluorenes	26.52	1470030	45.6878	48.9595
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	385019	8.1868	8.7731
41)	Phenanthrene	24.82	2183980	43.0658	46.1497
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.73	1996523	39.3693	42.1886
50)	C2-Phenanthrenes/Anthracenes	28.39	4426250	87.2814	93.5315
51)	C3-Phenanthrenes/Anthracenes	29.95	6112870	120.5397	129.1715
52)	C4-Phenanthrenes/Anthracenes	31.78	5771880	113.8155	121.9658
34)	Dibenzothiophene	24.41	460174	10.9772	11.7633
35)+36)+37)	C1-Dibenzothiophenes	26.22	1028875	24.5432	26.3007
38)	C2-Dibenzothiophenes	27.63	2824910	67.3862	72.2117
39)	C3-Dibenzothiophenes	29.12	5665870	135.1557	144.8341
40)	C4-Dibenzothiophenes	30.88	5360670	127.8753	137.0324
58)	Fluoranthene	28.94	1417610	31.0056	33.2259
59)	Pyrene	29.70	1255170	21.1287	22.6417
62)	C1-Fluoranthenes/Pyrenes	31.54	3137440	68.6217	73.5357
63)	C2-Fluoranthenes/Pyrenes	32.61	6827260	149.3246	160.0176
64)	C3-Fluoranthenes/Pyrenes	34.16	7286030	159.3586	170.7702
65)	C4-Fluoranthenes/Pyrenes	35.79	8046630	175.9945	188.5973
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	33.81	451693	8.3743	8.9739
68)	Chrysene/Triphenylene	33.93	2396820	52.4835	56.2418
69)	C1-Chrysenes	35.63	15713800	344.0872	368.7270
70)	C2-Chrysenes	36.33	9332780	204.3609	218.9950
71)	C3-Chrysenes	37.57	6983810	152.9252	163.8761
72)	C4-Chrysenes	39.40	3387890	74.1849	79.4973
77)	Benzo(b)fluoranthene	37.38	2144660	40.8930	43.8213
78)	Benzo(k,j)fluoranthene	37.46	439367	11.0010	11.7888
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.35	1723700	35.6741	38.2287
81)	Benzo(a)pyrene	38.54	482044	10.1589	10.8863
89)	Perylene	38.85	25341100	524.3861	561.9371
82)	Indeno(1,2,3-c,d)pyrene	43.34	948630	15.8614	16.9972
83)	Dibenzo(a,h)anthracene	43.41	324765	6.7673	7.2519
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	44.85	1636630	31.3280	33.5714

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	323333	11.9383	12.7932
10)	1-Methylnaphthalene	16.47	127541	5.0977	5.4628
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	25.89	431984	12.6380	13.5430
36)	2/3-Methyldibenzothiophene	26.21	474420	13.8795	14.8734
37)	1-Methyldibenzothiophene	26.55	122471	3.5830	3.8396
43)	3-Methylphenanthrene	26.48	433299	13.7921	14.7798
44)	2-Methylphenanthrene	26.59	576652	18.3552	19.6696
45)	2-Methylanthracene	26.76	354232	11.2754	12.0829
46)	4/9-Methylphenanthrene	26.86	365960	11.6487	12.4829
47)	1-Methylphenanthrene	26.97	266380	8.4790	9.0862
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	13.82	578063	15.01	90.21
21)	Acenaphthene-d10	19.67	321212	14.51	87.18
32)	Phenanthrene-d10	24.75	629651	15.53	93.32
66)	Chrysene-d12	33.85	704783	15.88	95.49
88)	Perylene-d12	38.77	528511	11.87	71.36
90)	5(b)H-Cholane	34.24	216997	29.02	174.47
	Internal Standards				
1)	Fluorene-d10	21.45	380092	16.70	
31)	Pyrene-d10	29.67	669393	16.67	
73)	Benzo(a)pyrene-d12	38.46	627990	16.65	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1600.D
Acq On : 17 Aug 2013 3:31 pm
Operator : YM
Sample : SED-DA-020 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06653

Quant Time: Sep 05 22:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	380092m	251.05		0.00
31) Pyrene-d10	29.669	212	669393m	250.63		0.03
73) Benzo(a)pyrene-d12	38.464	264	627990m	250.32		0.08
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	578063m	15.01		0.00
21) Acenaphthene-d10	19.672	164	321212m	14.51		0.00
32) Phenanthrene-d10	24.752	188	629651m	15.53		0.00
66) Chrysene-d12	33.847	240	704783m	15.88		0.00
88) Perylene-d12	38.774	264	528511m	11.87		0.08
90) 5(b)H-Cholane	34.235	217	216997m	29.02		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	13.878	128	435302m	10.13		
9) 2-Methylnaphthalene	16.134	142	323333m	11.94		
10) 1-Methylnaphthalene	16.468	142	127541m	5.10		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	1157744m	26.94		
14) C3-Naphthalenes	20.508	170	1189871m	27.68		
15) C4-Naphthalenes	22.820	184	1456478m	33.89		
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	19.171	152	155634m	3.71		
24) Acenaphthene	19.783	154	137825m	5.76		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	469989m	14.61		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	338018m	10.51		
29) C2-Fluorenes	24.995	194	1494594m	46.45		
30) C3-Fluorenes	26.518	208	1470034m	45.69		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.406	184	460174m	10.98		
35) 4-Methyldibenzothiophene	25.895	198	431984m	12.64		
36) 2/3-Methyldibenzothiop...	26.207	198	474420m	13.88		
37) 1-Methyldibenzothiophene	26.553	198	122471m	3.58		
38) C2-Dibenzothiophenes	27.626	212	2824908m	67.39		
39) C3-Dibenzothiophenes	29.115	226	5665866m	135.16		
40) C4-Dibenzothiophenes	30.881	240	5360669m	127.88		
41) Phenanthrene	24.821	178	2183975m	43.07		
42) Anthracene	24.995	178	385019m	8.19		
43) 3-Methylphenanthrene	26.484	192	433299m	13.79		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1600.D
Acq On : 17 Aug 2013 3:31 pm
Operator : YM
Sample : SED-DA-020 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06653

Quant Time: Sep 05 22:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.587	192	576652m	18.36		
45) 2-Methylanthracene	26.761	192	354232m	11.28		
46) 4/9-Methylphenanthrene	26.865	192	365960m	11.65		
47) 1-Methylphenanthrene	26.968	192	266380m	8.48		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.388	206	4426247m	87.28		
51) C3-Phenanthrenes/Anthr...	29.946	220	6112869m	120.54		
52) C4-Phenanthrenes/Anthr...	31.782	234	5771881m	113.82		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	1417607m	31.01		
59) Pyrene	29.704	202	1255172m	21.13		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.539	216	3137442m	68.62		
63) C2-Fluoranthenes/Pyrenes	32.606	230	6827263m	149.32		
64) C3-Fluoranthenes/Pyrenes	34.158	244	7286033m	159.36		
65) C4-Fluoranthenes/Pyrenes	35.787	258	8046626m	175.99		
67) Benz(a)anthracene	33.809	228	451693m	8.37		
68) Chrysene/Triphenylene	33.925	228	2396819m	52.48		
69) C1-Chrysenes	35.632	242	15713803m	344.09		
70) C2-Chrysenes	36.330	256	9332777m	204.36		
71) C3-Chrysenes	37.572	270	6983805m	152.93		
72) C4-Chrysenes	39.395	284	3387893m	74.19		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.378	252	2144656m	40.89		
78) Benzo(k,j)fluoranthene	37.455	252	439367m	11.00		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.348	252	1723698m	35.67		
81) Benzo(a)pyrene	38.542	252	482044m	10.16		
82) Indeno(1,2,3-c,d)pyrene	43.336	276	948630m	15.86		
83) Dibenzo(a,h)anthracene	43.410	278	324765m	6.77		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.848	276	1636630m	31.33		
89) Perylene	38.852	252	25341078m	524.39		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1600.D
Acq On : 17 Aug 2013 3:31 pm
Operator : YM
Sample : SED-DA-020 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06653

Quant Time: Sep 05 22:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

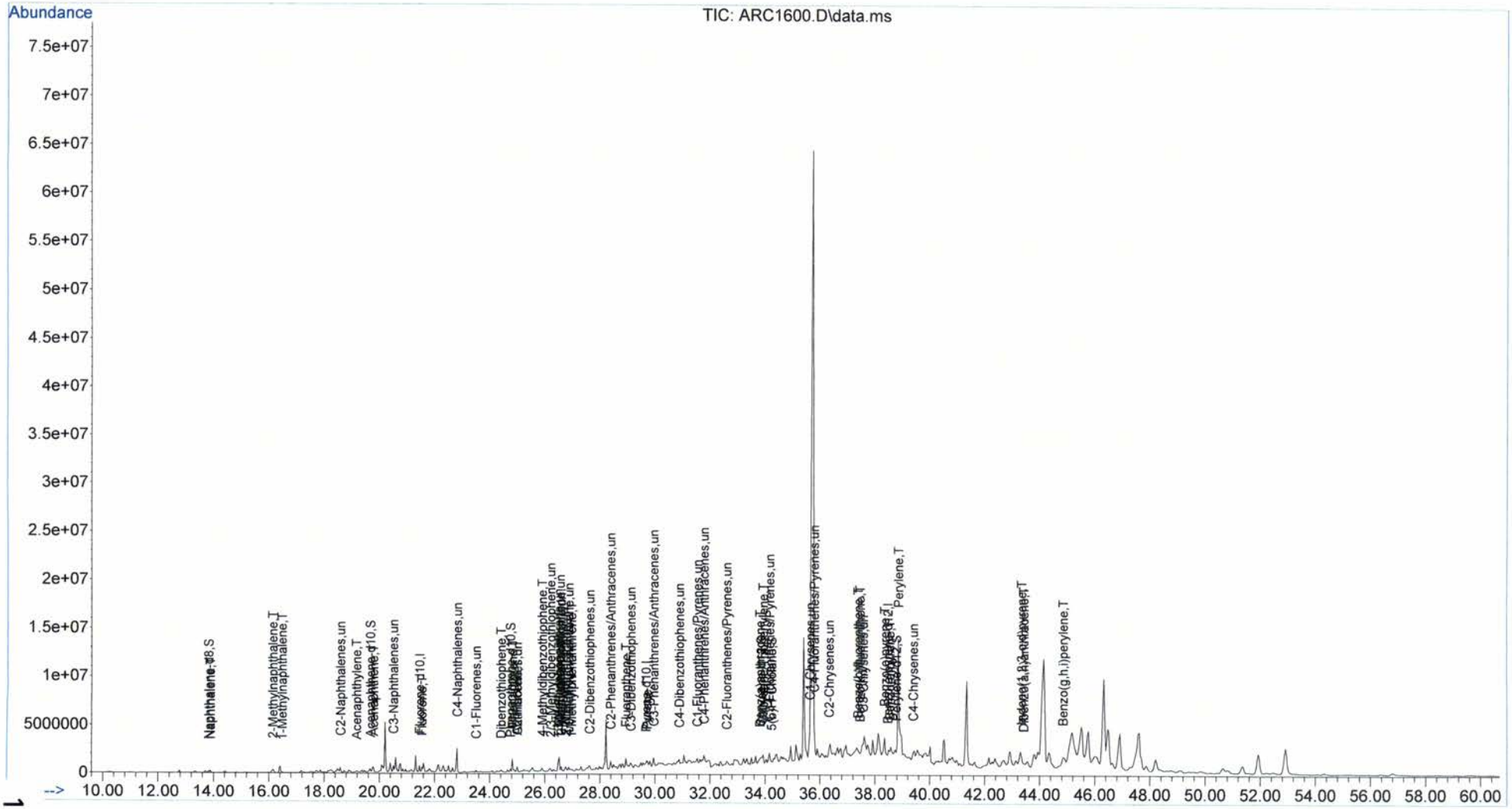
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1600.D
Acq On : 17 Aug 2013 3:31 pm
Operator : YM
Sample : SED-DA-020 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06653

Quant Time: Sep 05 22:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1601.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 16:40
Acq. Method File PAH-2012.M
Sample Name SED-DA-020 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 18
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1601.D
SED-DA-020 (1.0-1.5)
8/17/2013
PAH-2012.M
14.99925004

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	248932	5.4627	5.7994
9)+10)	C1-Naphthalenes	16.30	191093	4.1934	4.4520
13)	C2-Naphthalenes	18.59	399494	8.7667	9.3071
14)	C3-Naphthalenes	20.51	409321	8.9823	9.5360
15)	C4-Naphthalenes	21.57	554447	12.1671	12.9171
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	19.17	40246	0.9047	0.9605
24)	Acenaphthene	19.78	39903	1.5716	1.6685
25)	Dibenzofuran	20.37	269802	6.2457	6.6307
26)	Fluorene	21.54	306970	8.9984	9.5532
28)	C1-Fluorenes	23.51	174842	5.1253	5.4413
29)	C2-Fluorenes	25.55	488934	14.3325	15.2161
30)	C3-Fluorenes	27.59	363238	10.6479	11.3043
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	82842	1.7555	1.8638
41)	Phenanthrene	24.82	1700840	33.4249	35.4854
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.73	578251	11.3638	12.0643
50)	C2-Phenanthrenes/Anthracenes	28.22	707629	13.9063	14.7636
51)	C3-Phenanthrenes/Anthracenes	29.95	362803	7.1298	7.5694
52)	C4-Phenanthrenes/Anthracenes	30.71	440665	8.6600	9.1938
34)	Dibenzothiophene	24.41	108981	2.5908	2.7506
35)+36)+37)	C1-Dibenzothiophenes	26.21	113333	2.6943	2.8604
38)	C2-Dibenzothiophenes	27.63	215510	5.1234	5.4392
39)	C3-Dibenzothiophenes	29.12	297048	7.0618	7.4972
40)	C4-Dibenzothiophenes	30.88	199917	4.7527	5.0457
58)	Fluoranthene	28.94	500127	10.9015	11.5736
59)	Pyrene	29.70	327446	5.4933	5.8319
62)	C1-Fluoranthenes/Pyrenes	30.85	328737	7.1656	7.6074
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	33.77	109104	2.0159	2.1402
68)	Chrysene/Triphenylene	33.93	303113	6.6147	7.0225
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	37.34	529828	9.5882	10.1793
78)	Benzo(k,j)fluoranthene	37.38	108292	2.5734	2.7321
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	226456	4.4482	4.7225
81)	Benzo(a)pyrene	38.50	88108	1.7623	1.8710
89)	Perylene	38.81	16180300	317.7779	337.3678
82)	Indeno(1,2,3-c,d)pyrene	43.23	197753	3.1382	3.3316
83)	Dibenzo(a,h)anthracene	43.37	417701	8.2608	8.7701
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	44.63	159620	2.8999	3.0787

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	132967	4.6306	4.9161
10)	1-Methylnaphthalene	16.47	58126	2.1913	2.3264
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	25.90	43637	1.2723	1.3507
36)	2/3-Methyldibenzothiophene	26.21	51898	1.5132	1.6064
37)	1-Methyldibenzothiophene	26.52	17798	0.5189	0.5509
43)	3-Methylphenanthrene	26.48	130715	4.1466	4.4022
44)	2-Methylphenanthrene	26.59	153375	4.8654	5.1654
45)	2-Methylanthracene	26.76	126490	4.0126	4.2599
46)	4/9-Methylphenanthrene	26.86	100382	3.1844	3.3807
47)	1-Methylphenanthrene	26.97	67289	2.1346	2.2662
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	13.82	563647	13.81	82.79
21)	Acenaphthene-d10	19.67	335371	14.29	85.67
32)	Phenanthrene-d10	24.75	639068	15.71	94.19
66)	Chrysene-d12	33.81	583914	13.12	78.68
88)	Perylene-d12	38.74	482542	10.29	61.71
90)	5(b)H-Cholane	34.24	170394	21.63	129.76
	Internal Standards				
1)	Fluorene-d10	21.45	403833	16.74	
31)	Pyrene-d10	29.67	673089	16.71	
73)	Benzo(a)pyrene-d12	38.43	663062	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1601.D
Acq On : 17 Aug 2013 4:40 pm
Operator : YM
Sample : SED-DA-020 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06667

Quant Time: Sep 05 16:31:02 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	403833m	251.05		0.00
31) Pyrene-d10	29.669	212	673089m	250.63		0.03
73) Benzo(a)pyrene-d12	38.425	264	663062m	250.32		0.04
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	563647m	13.81		0.00
21) Acenaphthene-d10	19.672	164	335371m	14.29		0.00
32) Phenanthrene-d10	24.752	188	639068m	15.71		0.00
66) Chrysene-d12	33.809	240	583914m	13.12		-0.04
88) Perylene-d12	38.736	264	482542m	10.29		0.04
90) 5(b)H-Cholane	34.235	217	170394m	21.63		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.878	128	248932m	5.46		
9) 2-Methylnaphthalene	16.134	142	132967m	4.63		
10) 1-Methylnaphthalene	16.468	142	58126m	2.19		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	399494m	8.77		
14) C3-Naphthalenes	20.508	170	409321m	8.98		
15) C4-Naphthalenes	21.566	184	554447m	12.17		
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	19.171	152	40246m	0.90		
24) Acenaphthene	19.783	154	39903m	1.57		
25) Dibenzofuran	20.368	168	269802m	6.25		
26) Fluorene	21.538	166	306970m	9.00		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	174842m	5.13		
29) C2-Fluorenes	25.549	194	488934m	14.33		
30) C3-Fluorenes	27.592	208	363238m	10.65		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.406	184	108981m	2.59		
35) 4-Methyldibenzothiophene	25.895	198	43637m	1.27		
36) 2/3-Methyldibenzothiop...	26.207	198	51898m	1.51		
37) 1-Methyldibenzothiophene	26.518	198	17798m	0.52		
38) C2-Dibenzothiophenes	27.626	212	215510m	5.12		
39) C3-Dibenzothiophenes	29.115	226	297048m	7.06		
40) C4-Dibenzothiophenes	30.881	240	199917m	4.75		
41) Phenanthrene	24.822	178	1700841m	33.42		
42) Anthracene	24.995	178	82842m	1.76		
43) 3-Methylphenanthrene	26.484	192	130715m	4.15		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1601.D
Acq On : 17 Aug 2013 4:40 pm
Operator : YM
Sample : SED-DA-020 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06667

Quant Time: Sep 05 16:31:02 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.588	192	153375m	4.87		
45)	2-Methylanthracene	26.761	192	126490m	4.01		
46)	4/9-Methylphenanthrene	26.865	192	100382m	3.18		
47)	1-Methylphenanthrene	26.968	192	67289m	2.13		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.215	206	707629m	13.91		
51)	C3-Phenanthrenes/Anthr...	29.946	220	362803m	7.13		
52)	C4-Phenanthrenes/Anthr...	30.708	234	440665m	8.66		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.942	202	500127m	10.90		
59)	Pyrene	29.704	202	327446m	5.49		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.847	216	328737m	7.17		
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	33.770	228	109104m	2.02		
68)	Chrysene/Triphenylene	33.925	228	303113m	6.61		
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	37.339	252	529828m	9.59		
78)	Benzo(k,j)fluoranthene	37.378	252	108292m	2.57		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.309	252	226456m	4.45		
81)	Benzo(a)pyrene	38.503	252	88108m	1.76		
82)	Indeno(1,2,3-c,d)pyrene	43.225	276	197753m	3.14		
83)	Dibenzo(a,h)anthracene	43.373	278	417701m	8.26		
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	44.627	276	159620m	2.90		
89)	Perylene	38.813	252	16180302m	317.78		
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	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1601.D
Acq On : 17 Aug 2013 4:40 pm
Operator : YM
Sample : SED-DA-020 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06667

Quant Time: Sep 05 16:31:02 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

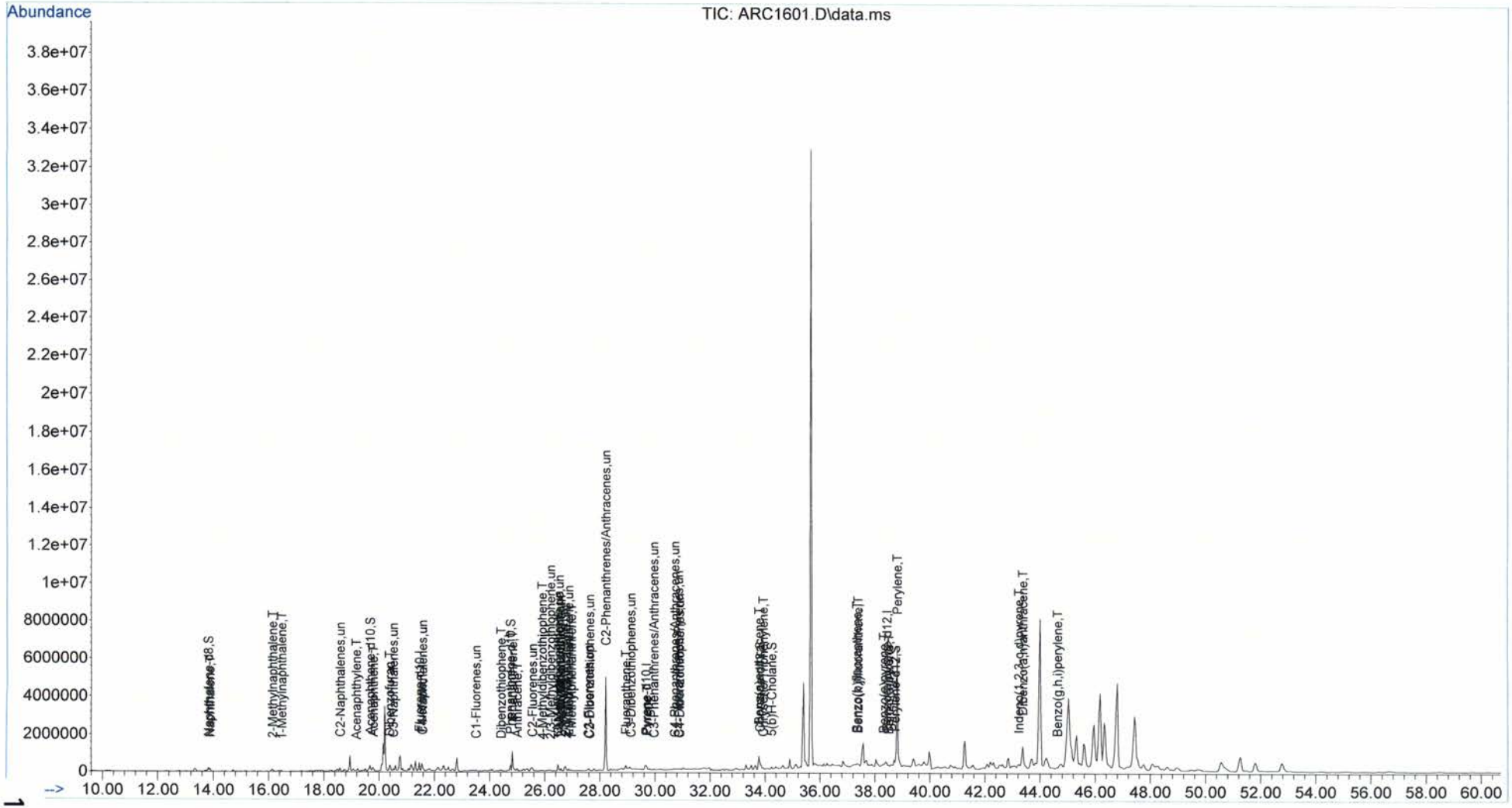
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1601.D
Acq On : 17 Aug 2013 4:40 pm
Operator : YM
Sample : SED-DA-020 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06667

Quant Time: Sep 05 16:31:02 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1618.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 17:48
Acq. Method File PAH-2012.M
Sample Name SO-DA-012 (0-0.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 19
Sample Multiplier 0.06614
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

ARC1618.D
SO-DA-012 (0-0.5)
8/17/2013
PAH-2012.M
15.1194436

#	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	13.88	83762	2.1292	2.3531
9)+10)	C1-Naphthalenes	16.30	65634	1.6684	1.8438
13)	C2-Naphthalenes	18.59	102843	2.6142	2.8891
14)	C3-Naphthalenes	20.51	79238	2.0142	2.2260
15)	C4-Naphthalenes	21.57	148734	3.7807	4.1783
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	19.17	75094	1.9555	2.1611
24)	Acenaphthene	19.78	2342	0.1068	0.1181
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	73251	2.4873	2.7489
28)	C1-Fluorenes	23.51	42940	1.4581	1.6114
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	152324	3.3747	3.7296
41)	Phenanthrene	24.82	558980	11.4845	12.6923
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	298401	6.1308	6.7755
50)	C2-Phenanthrenes/Anthracenes	28.22	455585	9.3602	10.3446
51)	C3-Phenanthrenes/Anthracenes	29.95	524350	10.7729	11.9059
52)	C4-Phenanthrenes/Anthracenes	31.78	468134	9.6180	10.6295
34)	Dibenzothiophene	24.41	41486	1.0311	1.1395
35)+36)+37)	C1-Dibenzothiophenes	26.21	56991	1.4165	1.5654
38)	C2-Dibenzothiophenes	27.97	189995	4.7222	5.2188
39)	C3-Dibenzothiophenes	29.50	403159	10.0201	11.0739
40)	C4-Dibenzothiophenes	31.50	338327	8.4088	9.2931
58)	Fluoranthene	28.94	631499	14.3909	15.9043
59)	Pyrene	29.70	529238	9.2822	10.2584
62)	C1-Fluoranthenes/Pyrenes	30.85	413491	9.4228	10.4138
63)	C2-Fluoranthenes/Pyrenes	32.57	671692	15.3068	16.9165
64)	C3-Fluoranthenes/Pyrenes	34.43	349731	7.9698	8.8080
65)	C4-Fluoranthenes/Pyrenes	35.32	645053	14.6997	16.2457
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	33.77	324179	6.2621	6.9206
68)	Chrysene/Triphenylene	33.89	677775	15.4633	17.0895
69)	C1-Chrysenes	35.13	519913	11.8617	13.1091
70)	C2-Chrysenes	36.60	523455	11.9425	13.1984
71)	C3-Chrysenes	38.00	407645	9.3003	10.2784
72)	C4-Chrysenes	39.43	249607	5.6947	6.2936
77)	Benzo(b)fluoranthene	37.34	1109500	22.8317	25.2328
78)	Benzo(k,j)fluoranthene	37.42	395710	10.6931	11.8176
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	619442	13.8361	15.2912
81)	Benzo(a)pyrene	38.50	184658	4.2000	4.6417
89)	Perylene	38.81	38528	0.8604	0.9509
82)	Indeno(1,2,3-c,d)pyrene	43.19	345193	6.2291	6.8842
83)	Dibenzo(a,h)anthracene	43.26	94782	2.1315	2.3557
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	306836	6.3388	7.0055

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1618.D
Acq On : 17 Aug 2013 5:48 pm
Operator : YM
Sample : SO-DA-012 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06614

Quant Time: Sep 05 22:30:50 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	345855m	251.05		0.00
31) Pyrene-d10	29.635	212	638702m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	578467m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	452418m	12.84		0.00
21) Acenaphthene-d10	19.672	164	237737m	11.73		0.00
32) Phenanthrene-d10	24.752	188	582541m	14.97		0.00
66) Chrysene-d12	33.809	240	582394m	13.68		-0.04
88) Perylene-d12	38.697	264	4067m	0.10		0.00
90) 5(b)H-Cholane	34.235	217	122026m	17.61		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	13.878	128	83762m	2.13		
9) 2-Methylnaphthalene	16.134	142	46428m	1.87		
10) 1-Methylnaphthalene	16.468	142	19206m	0.84		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	102843m	2.61		
14) C3-Naphthalenes	20.508	170	79238m	2.01		
15) C4-Naphthalenes	21.566	184	148734m	3.78		
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	19.171	152	75094m	1.96		
24) Acenaphthene	19.783	154	2342m	0.11		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	73251m	2.49		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	42940m	1.46		
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	24.406	184	41486m	1.03		
35) 4-Methyldibenzothiophene	25.895	198	24199m	0.74		
36) 2/3-Methyldibenzothiop...	26.207	198	20803m	0.63		
37) 1-Methyldibenzothiophene	26.518	198	11989m	0.37		
38) C2-Dibenzothiophenes	27.973	212	189995m	4.72		
39) C3-Dibenzothiophenes	29.496	226	403159m	10.02		
40) C4-Dibenzothiophenes	31.505	240	338327m	8.41		
41) Phenanthrene	24.821	178	558980m	11.48		
42) Anthracene	24.995	178	152324m	3.37		
43) 3-Methylphenanthrene	26.484	192	48609m	1.61		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1618.D
Acq On : 17 Aug 2013 5:48 pm
Operator : YM
Sample : SO-DA-012 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06614

Quant Time: Sep 05 22:30:50 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.587	192	65640m	2.18		
45) 2-Methylanthracene	26.726	192	116995m	3.88		
46) 4/9-Methylphenanthrene	26.865	192	36608m	1.21		
47) 1-Methylphenanthrene	26.934	192	30549m	1.01		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.215	206	455585m	9.36		
51) C3-Phenanthrenes/Anthr...	29.946	220	524350m	10.77		
52) C4-Phenanthrenes/Anthr...	31.782	234	468134m	9.62		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	631499m	14.39		
59) Pyrene	29.704	202	529238m	9.28		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.847	216	413491m	9.42		
63) C2-Fluoranthenes/Pyrenes	32.567	230	671692m	15.31		
64) C3-Fluoranthenes/Pyrenes	34.429	244	349731m	7.97		
65) C4-Fluoranthenes/Pyrenes	35.322	258	645053m	14.70		
67) Benz(a)anthracene	33.770	228	324179m	6.26		
68) Chrysene/Triphenylene	33.886	228	677775m	15.46		
69) C1-Chrysenes	35.128	242	519913m	11.86		
70) C2-Chrysenes	36.602	256	523455m	11.94		
71) C3-Chrysenes	37.998	270	407645m	9.30		
72) C4-Chrysenes	39.434	284	249607m	5.69		
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	37.339	252	1109499m	22.83		
78) Benzo(k,j)fluoranthene	37.417	252	395710m	10.69		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	619442m	13.84		
81) Benzo(a)pyrene	38.503	252	184658m	4.20		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	345193m	6.23		
83) Dibenzo(a,h)anthracene	43.262	278	94782m	2.13		
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	44.553	276	306836m	6.34		
89) Perylene	38.813	252	38528m	0.86		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1618.D
Acq On : 17 Aug 2013 5:48 pm
Operator : YM
Sample : SO-DA-012 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06614

Quant Time: Sep 05 22:30:50 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

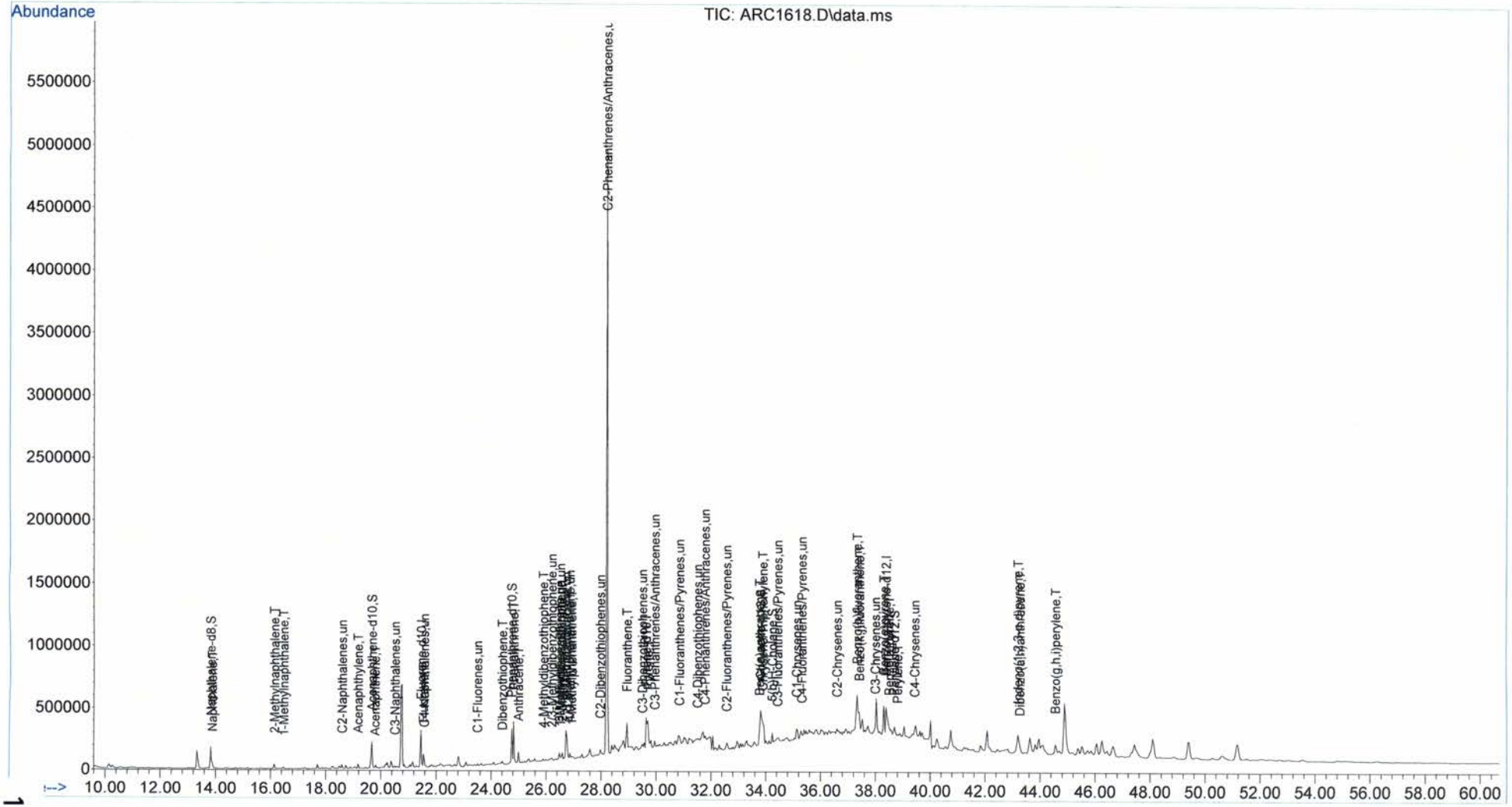
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1618.D
Acq On : 17 Aug 2013 5:48 pm
Operator : YM
Sample : SO-DA-012 (0-0.5)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06614

Quant Time: Sep 05 22:30:50 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1619.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 20:05
Acq. Method File PAH-2012.M
Sample Name SO-DA-012 (0.5-1.0)
Misc Info 0
Instrument Name GCMSD
Vial Number 21
Sample Multiplier 0.06653
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

ARC1619.D
SO-DA-012 (0.5-1.0)
8/17/2013
PAH-2012.M
15.03081317

#	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	13.88	87757	2.1339	2.4706
9)+10)	C1-Naphthalenes	16.30	73671	1.7914	2.0740
13)	C2-Naphthalenes	18.59	115852	2.8171	3.2616
14)	C3-Naphthalenes	20.51	90770	2.2072	2.5554
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	19.17	25208	0.6279	0.7270
24)	Acenaphthene	19.70	3545	0.1547	0.1791
25)	Dibenzofuran	20.37	89731	2.3017	2.6649
26)	Fluorene	21.54	96353	3.1298	3.6235
28)	C1-Fluorenes	23.51	28539	0.9270	1.0733
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	36658	0.7564	0.8758
41)	Phenanthrene	24.82	562259	10.7592	12.4567
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	237389	4.5426	5.2593
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	24.41	47234	1.0934	1.2659
35)+36)+37)	C1-Dibenzothiophenes	26.21	50790	1.1757	1.3612
38)	C2-Dibenzothiophenes	27.63	60271	1.3952	1.6153
39)	C3-Dibenzothiophenes	29.50	49492	1.1457	1.3264
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	259866	5.5156	6.3858
59)	Pyrene	29.70	170502	2.7852	3.2246
62)	C1-Fluoranthenes/Pyrenes	30.85	85639	1.8177	2.1044
63)	C2-Fluoranthenes/Pyrenes	32.57	161947	3.4373	3.9796
64)	C3-Fluoranthenes/Pyrenes	33.61	74761	1.5868	1.8371
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	33.77	75269	1.3542	1.5678
68)	Chrysene/Triphenylene	33.89	188142	3.9979	4.6286
69)	C1-Chrysenes	35.17	115895	2.4627	2.8512
70)	C2-Chrysenes	36.60	112711	2.3950	2.7729
71)	C3-Chrysenes	38.08	79197	1.6829	1.9484
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	274269	5.3232	6.1631
78)	Benzo(k,j)fluoranthene	37.42	73775	1.8803	2.1769
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	153580	3.2354	3.7459
81)	Benzo(a)pyrene	38.46	27219	0.5839	0.6760
89)	Perylene	38.77	9332	0.1966	0.2276
82)	Indeno(1,2,3-c,d)pyrene	43.19	89259	1.5192	1.7588
83)	Dibenzo(a,h)anthracene	43.26	23606	0.5007	0.5797
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	74401	1.4497	1.6784

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	52129	2.0116	2.3290
10)	1-Methylnaphthalene	16.47	21542	0.8999	1.0419
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	25.89	25519	0.7245	0.8388
36)	2/3-Methyldibenzothiophene	26.21	17207	0.4885	0.5656
37)	1-Methyldibenzothiophene	26.52	8064	0.2289	0.2651
43)	3-Methylphenanthrene	26.48	39421	1.2177	1.4098
44)	2-Methylphenanthrene	26.59	46361	1.4320	1.6580
45)	2-Methylanthracene	26.73	108886	3.3634	3.8940
46)	4/9-Methylphenanthrene	26.86	19501	0.6024	0.6974
47)	1-Methylphenanthrene	26.93	23220	0.7172	0.8304
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	13.82	470534	12.77	76.74
21)	Acenaphthene-d10	19.67	249460	11.78	70.76
32)	Phenanthrene-d10	24.75	600557	14.38	86.37
66)	Chrysene-d12	33.81	633779	13.86	83.33
88)	Perylene-d12	38.70	1662	0.04	0.23
90)	5(b)H-Cholane	34.24	136536	18.59	111.74
	Internal Standards				
1)	Fluorene-d10	21.45	363678	16.70	
31)	Pyrene-d10	29.63	689801	16.67	
73)	Benzo(a)pyrene-d12	38.39	616945	16.65	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1619.D
Acq On : 17 Aug 2013 8:05 pm
Operator : YM
Sample : SO-DA-012 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06653

Quant Time: Sep 05 21:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	363678m	251.05		0.00
31) Pyrene-d10	29.635	212	689801m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	616945m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	470534m	12.77		0.00
21) Acenaphthene-d10	19.672	164	249460m	11.78		0.00
32) Phenanthrene-d10	24.752	188	600557m	14.38		0.00
66) Chrysene-d12	33.809	240	633779m	13.86		-0.04
88) Perylene-d12	38.697	264	1662m	0.04		0.00
90) 5(b)H-Cholane	34.235	217	136536m	18.59		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	13.878	128	87757m	2.13		
9) 2-Methylnaphthalene	16.134	142	52129m	2.01		
10) 1-Methylnaphthalene	16.468	142	21542m	0.90		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	115852m	2.82		
14) C3-Naphthalenes	20.508	170	90770m	2.21		
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	19.171	152	25208m	0.63		
24) Acenaphthene	19.700	154	3545m	0.15		
25) Dibenzofuran	20.368	168	89731m	2.30		
26) Fluorene	21.538	166	96353m	3.13		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	28539m	0.93		
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	24.406	184	47234m	1.09		
35) 4-Methyldibenzothiophene	25.895	198	25519m	0.72		
36) 2/3-Methyldibenzothiop...	26.207	198	17207m	0.49		
37) 1-Methyldibenzothiophene	26.518	198	8064m	0.23		
38) C2-Dibenzothiophenes	27.626	212	60271m	1.40		
39) C3-Dibenzothiophenes	29.496	226	49492m	1.15		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.821	178	562259m	10.76		
42) Anthracene	24.995	178	36658m	0.76		
43) 3-Methylphenanthrene	26.484	192	39421m	1.22		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1619.D
Acq On : 17 Aug 2013 8:05 pm
Operator : YM
Sample : SO-DA-012 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06653

Quant Time: Sep 05 21:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.587	192	46361m	1.43		
45)	2-Methylanthracene	26.726	192	108886m	3.36		
46)	4/9-Methylphenanthrene	26.865	192	19501m	0.60		
47)	1-Methylphenanthrene	26.934	192	23220m	0.72		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.942	202	259866m	5.52		
59)	Pyrene	29.704	202	170502m	2.79		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.847	216	85639m	1.82		
63)	C2-Fluoranthenes/Pyrenes	32.567	230	161947m	3.44		
64)	C3-Fluoranthenes/Pyrenes	33.615	244	74761m	1.59		
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.770	228	75269m	1.35		
68)	Chrysene/Triphenylene	33.886	228	188142m	4.00		
69)	C1-Chrysenes	35.166	242	115895m	2.46		
70)	C2-Chrysenes	36.602	256	112711m	2.40		
71)	C3-Chrysenes	38.076	270	79197m	1.68		
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	37.339	252	274269m	5.32		
78)	Benzo(k,j)fluoranthene	37.417	252	73775m	1.88		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.309	252	153580m	3.24		
81)	Benzo(a)pyrene	38.464	252	27219m	0.58		
82)	Indeno(1,2,3-c,d)pyrene	43.189	276	89259m	1.52		
83)	Dibenzo(a,h)anthracene	43.262	278	23606m	0.50		
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	44.553	276	74401m	1.45		
89)	Perylene	38.774	252	9332m	0.20		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1619.D
Acq On : 17 Aug 2013 8:05 pm
Operator : YM
Sample : SO-DA-012 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06653

Quant Time: Sep 05 21:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

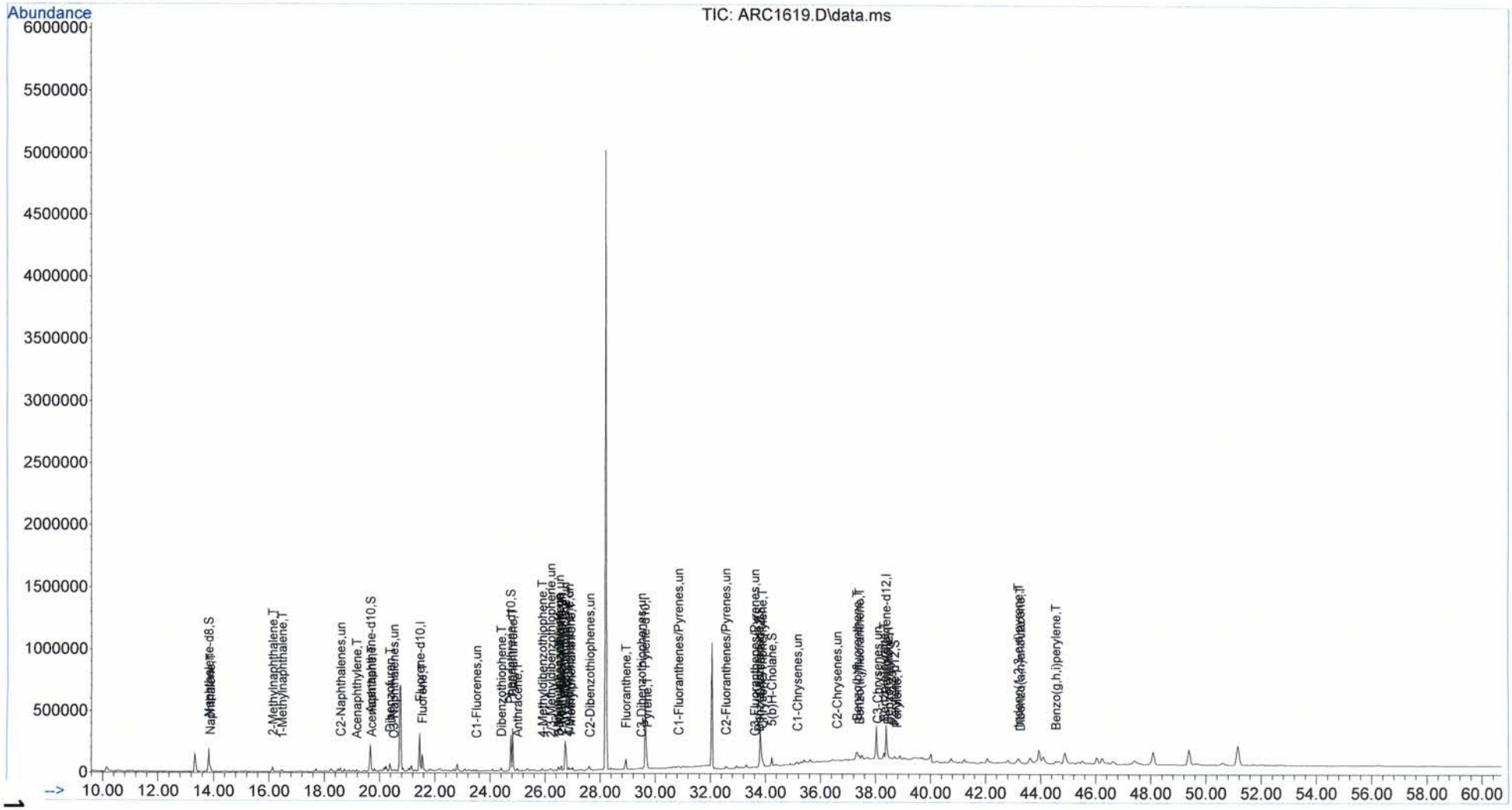
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1619.D
Acq On : 17 Aug 2013 8:05 pm
Operator : YM
Sample : SO-DA-012 (0.5-1.0)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06653

Quant Time: Sep 05 21:32:32 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1620.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 21:14
Acq. Method File PAH-2012.M
Sample Name SO-DA-012 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 22
Sample Multiplier 0.06649
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

ARC1620.D
SO-DA-012 (1.0-1.5)
8/17/2013
PAH-2012.M
15.03985562

#	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	13.88	182213	4.4903	4.8806
9)+10)	C1-Naphthalenes	16.30	139065	3.4270	3.7249
13)	C2-Naphthalenes	18.59	232991	5.7416	6.2407
14)	C3-Naphthalenes	20.15	333815	8.2261	8.9413
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	19.17	46972	1.1858	1.2889
24)	Acenaphthene	19.78	8741	0.3866	0.4202
25)	Dibenzofuran	20.37	157078	4.0834	4.4383
26)	Fluorene	21.54	158506	5.2178	5.6714
28)	C1-Fluorenes	23.51	70532	2.3218	2.5237
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	74464	1.5687	1.7051
41)	Phenanthrene	24.82	899049	17.5641	19.0910
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	397725	7.7701	8.4456
50)	C2-Phenanthrenes/Anthracenes	28.22	340595	6.6539	7.2324
51)	C3-Phenanthrenes/Anthracenes	29.95	139652	2.7283	2.9655
52)	C4-Phenanthrenes/Anthracenes	30.71	169679	3.3149	3.6031
34)	Dibenzothiophene	24.41	82018	1.9384	2.1069
35)+36)+37)	C1-Dibenzothiophenes	26.21	132762	3.1376	3.4104
38)	C2-Dibenzothiophenes	27.63	143127	3.3826	3.6766
39)	C3-Dibenzothiophenes	29.50	146940	3.4727	3.7746
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	523774	11.3497	12.3364
59)	Pyrene	29.70	427468	7.1291	7.7488
62)	C1-Fluoranthenes/Pyrenes	30.85	252884	5.4798	5.9562
63)	C2-Fluoranthenes/Pyrenes	32.57	388519	8.4189	9.1508
64)	C3-Fluoranthenes/Pyrenes	33.61	168864	3.6591	3.9772
65)	C4-Fluoranthenes/Pyrenes	35.32	217398	4.7108	5.1204
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	33.77	130666	2.4001	2.6087
68)	Chrysene/Triphenylene	33.89	352170	7.6400	8.3042
69)	C1-Chrysenes	35.17	264862	5.7460	6.2455
70)	C2-Chrysenes	36.60	209689	4.5490	4.9445
71)	C3-Chrysenes	38.81	131419	2.8510	3.0989
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	464986	8.5333	9.2751
78)	Benzo(k,j)fluoranthene	37.42	120222	2.8971	3.1490
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	234012	4.6614	5.0666
81)	Benzo(a)pyrene	38.46	71186	1.4439	1.5694
89)	Perylene	38.77	127703	2.5434	2.7645
82)	Indeno(1,2,3-c,d)pyrene	43.19	126880	2.0418	2.2193
83)	Dibenzo(a,h)anthracene	43.26	33942	0.6807	0.7399
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	105969	1.9523	2.1220

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	94782	3.7067	4.0289
10)	1-Methylnaphthalene	16.47	44283	1.8747	2.0377
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	25.89	71846	2.0824	2.2635
36)	2/3-Methyldibenzothiophene	26.21	41731	1.2096	1.3147
37)	1-Methyldibenzothiophene	26.52	19185	0.5561	0.6044
43)	3-Methylphenanthrene	26.48	81664	2.5753	2.7992
44)	2-Methylphenanthrene	26.59	96902	3.0559	3.3215
45)	2-Methylanthracene	26.73	120638	3.8044	4.1351
46)	4/9-Methylphenanthrene	26.86	46887	1.4786	1.6072
47)	1-Methylphenanthrene	26.93	51634	1.6283	1.7699
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	13.82	497559	13.68	82.29
21)	Acenaphthene-d10	19.67	294853	14.11	84.81
32)	Phenanthrene-d10	24.75	626201	15.30	92.00
66)	Chrysene-d12	33.81	666816	14.89	89.56
88)	Perylene-d12	38.70	31297	0.68	4.07
90)	5(b)H-Cholane	34.24	145663	18.75	112.79
	Internal Standards				
1)	Fluorene-d10	21.45	358642	16.69	
31)	Pyrene-d10	29.63	675248	16.66	
73)	Benzo(a)pyrene-d12	38.39	652091	16.64	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1620.D
Acq On : 17 Aug 2013 9:14 pm
Operator : YM
Sample : SO-DA-012 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:33:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	358642m	251.05		0.00
31) Pyrene-d10	29.635	212	675248m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	652091m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	497559m	13.68		0.00
21) Acenaphthene-d10	19.672	164	294853m	14.11		0.00
32) Phenanthrene-d10	24.752	188	626201m	15.30		0.00
66) Chrysene-d12	33.809	240	666816m	14.89		-0.04
88) Perylene-d12	38.697	264	31297m	0.68		0.00
90) 5(b)H-Cholane	34.235	217	145663m	18.75		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	13.878	128	182213m	4.49		
9) 2-Methylnaphthalene	16.134	142	94782m	3.71		
10) 1-Methylnaphthalene	16.468	142	44283m	1.87		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	232991m	5.74		
14) C3-Naphthalenes	20.146	170	333815m	8.23		
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	19.171	152	46972m	1.19		
24) Acenaphthene	19.783	154	8741m	0.39		
25) Dibenzofuran	20.368	168	157078m	4.08		
26) Fluorene	21.538	166	158506m	5.22		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	70532m	2.32		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.406	184	82018m	1.94		
35) 4-Methyldibenzothiophene	25.895	198	71846m	2.08		
36) 2/3-Methyldibenzothiop...	26.207	198	41731m	1.21		
37) 1-Methyldibenzothiophene	26.518	198	19185m	0.56		
38) C2-Dibenzothiophenes	27.626	212	143127m	3.38		
39) C3-Dibenzothiophenes	29.496	226	146940m	3.47		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.821	178	899049m	17.56		
42) Anthracene	24.995	178	74464m	1.57		
43) 3-Methylphenanthrene	26.484	192	81664m	2.58		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1620.D
Acq On : 17 Aug 2013 9:14 pm
Operator : YM
Sample : SO-DA-012 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:33:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.587	192	96902m	3.06		
45)	2-Methylanthracene	26.726	192	120638m	3.80		
46)	4/9-Methylphenanthrene	26.865	192	46887m	1.48		
47)	1-Methylphenanthrene	26.934	192	51634m	1.63		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.215	206	340595m	6.65		
51)	C3-Phenanthrenes/Anthr...	29.946	220	139652m	2.73		
52)	C4-Phenanthrenes/Anthr...	30.708	234	169679m	3.31		
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	28.942	202	523774m	11.35		
59)	Pyrene	29.704	202	427468m	7.13		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.847	216	252884m	5.48		
63)	C2-Fluoranthenes/Pyrenes	32.567	230	388519m	8.42		
64)	C3-Fluoranthenes/Pyrenes	33.615	244	168864m	3.66		
65)	C4-Fluoranthenes/Pyrenes	35.322	258	217398m	4.71		
67)	Benz(a)anthracene	33.770	228	130666m	2.40		
68)	Chrysene/Triphenylene	33.886	228	352170m	7.64		
69)	C1-Chrysenes	35.166	242	264862m	5.75		
70)	C2-Chrysenes	36.602	256	209689m	4.55		
71)	C3-Chrysenes	38.813	270	131419m	2.85		
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	37.339	252	464986m	8.53		
78)	Benzo(k,j)fluoranthene	37.417	252	120222m	2.90		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.309	252	234012m	4.66		
81)	Benzo(a)pyrene	38.464	252	71186m	1.44		
82)	Indeno(1,2,3-c,d)pyrene	43.189	276	126880m	2.04		
83)	Dibenzo(a,h)anthracene	43.262	278	33942m	0.68		
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	44.553	276	105969m	1.95		
89)	Perylene	38.774	252	127703m	2.54		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1620.D
Acq On : 17 Aug 2013 9:14 pm
Operator : YM
Sample : SO-DA-012 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:33:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

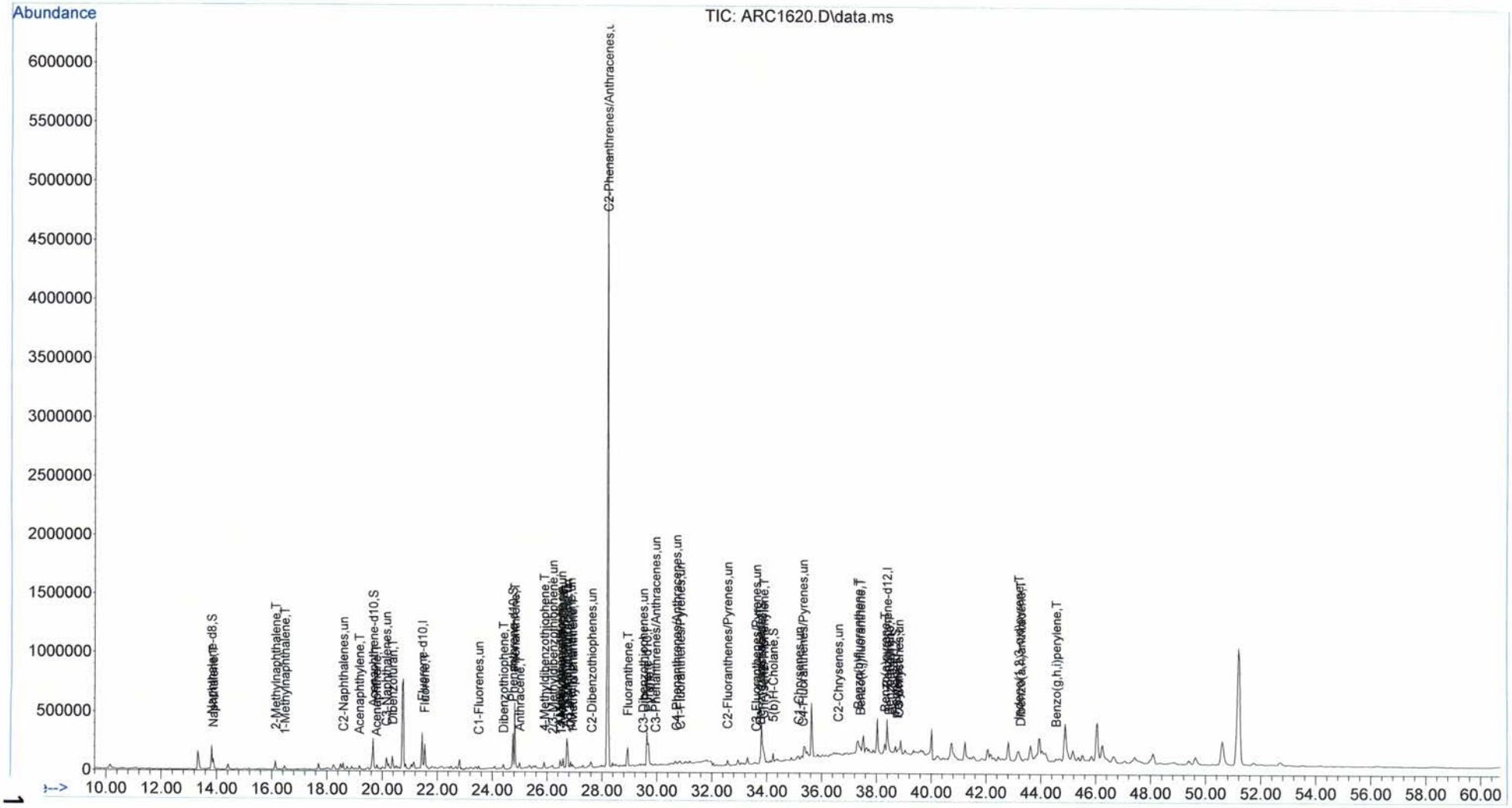
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1620.D
Acq On : 17 Aug 2013 9:14 pm
Operator : YM
Sample : SO-DA-012 (1.0-1.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:33:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1621.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 22:22
Acq. Method File PAH-2012.M
Sample Name SO-DA-013 (0-0.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 23
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1621.D
SO-DA-013 (0-0.5)
8/17/2013
PAH-2012.M
15.04890895

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	40687	1.0342	1.1923
9)+10)	C1-Naphthalenes	16.30	35750	0.9087	1.0476
13)	C2-Naphthalenes	18.59	66474	1.6896	1.9480
14)	C3-Naphthalenes	20.15	82131	2.0876	2.4068
15)	C4-Naphthalenes	22.82	54271	1.3794	1.5904
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	19.17	6972	0.1815	0.2093
24)	Acenaphthene	19.70	1023	0.0467	0.0538
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	44342	1.5056	1.7358
28)	C1-Fluorenes	23.51	22322	0.7579	0.8738
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	9170	0.1981	0.2283
41)	Phenanthrene	24.82	259852	5.2047	6.0005
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	201748	4.0409	4.6588
50)	C2-Phenanthrenes/Anthracenes	28.22	358756	7.1857	8.2844
51)	C3-Phenanthrenes/Anthracenes	29.95	284835	5.7051	6.5775
52)	C4-Phenanthrenes/Anthracenes	31.78	238145	4.7699	5.4993
34)	Dibenzothiophene	24.41	24392	0.5910	0.6814
35)+36)+37)	C1-Dibenzothiophenes	26.21	53869	1.3053	1.5048
38)	C2-Dibenzothiophenes	27.97	158880	3.8497	4.4383
39)	C3-Dibenzothiophenes	29.50	264089	6.3989	7.3773
40)	C4-Dibenzothiophenes	31.50	203643	4.9343	5.6888
58)	Fluoranthene	28.94	140034	3.1110	3.5867
59)	Pyrene	29.70	138326	2.3652	2.7268
62)	C1-Fluoranthenes/Pyrenes	30.85	106701	2.3705	2.7330
63)	C2-Fluoranthenes/Pyrenes	32.57	168803	3.7502	4.3236
64)	C3-Fluoranthenes/Pyrenes	34.16	113758	2.5273	2.9137
65)	C4-Fluoranthenes/Pyrenes	35.32	157695	3.5034	4.0391
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	33.77	52382	0.9864	1.1373
68)	Chrysene/Triphenylene	33.89	123255	2.7414	3.1606
69)	C1-Chrysenes	35.13	135327	3.0099	3.4702
70)	C2-Chrysenes	36.29	167441	3.7242	4.2937
71)	C3-Chrysenes	38.08	135488	3.0135	3.4743
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	178618	3.2318	3.7260
78)	Benzo(k,j)fluoranthene	37.42	50957	1.2107	1.3958
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	118062	2.3186	2.6732
81)	Benzo(a)pyrene	38.46	47701	0.9539	1.0998
89)	Perylene	38.77	12381	0.2431	0.2803
82)	Indeno(1,2,3-c,d)pyrene	43.19	68854	1.0925	1.2595
83)	Dibenzo(a,h)anthracene	43.26	17481	0.3457	0.3985
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	77397	1.4058	1.6208

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	24859	1.0027	1.1561
10)	1-Methylnaphthalene	16.47	10891	0.4756	0.5483
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	25.90	22599	0.6716	0.7742
36)	2/3-Methyldibenzothiophene	26.21	17389	0.5167	0.5958
37)	1-Methyldibenzothiophene	26.52	13881	0.4125	0.4756
43)	3-Methylphenanthrene	26.48	26189	0.8467	0.9762
44)	2-Methylphenanthrene	26.59	33633	1.0874	1.2537
45)	2-Methylanthracene	26.73	104413	3.3759	3.8921
46)	4/9-Methylphenanthrene	26.86	19032	0.6153	0.7094
47)	1-Methylphenanthrene	26.93	18481	0.5975	0.6889
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	13.82	451619	12.81	77.08
21)	Acenaphthene-d10	19.67	267427	13.20	79.39
32)	Phenanthrene-d10	24.75	575485	14.42	86.74
66)	Chrysene-d12	33.81	631077	14.45	86.95
88)	Perylene-d12	38.70	16386	0.35	2.10
90)	5(b)H-Cholane	34.24	132731	16.84	101.39
	Internal Standards				
1)	Fluorene-d10	21.46	347503	16.68	
31)	Pyrene-d10	29.63	658221	16.65	
73)	Benzo(a)pyrene-d12	38.39	660995	16.63	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1621.D
Acq On : 17 Aug 2013 10:22 pm
Operator : YM
Sample : SO-DA-013 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:34:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	347503m	251.05		0.00
31) Pyrene-d10	29.635	212	658221m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	660995m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	451619m	12.81		0.00
21) Acenaphthene-d10	19.672	164	267427m	13.20		0.00
32) Phenanthrene-d10	24.752	188	575485m	14.42		0.00
66) Chrysene-d12	33.809	240	631077m	14.45		-0.04
88) Perylene-d12	38.697	264	16386m	0.35		0.00
90) 5(b)H-Cholane	34.235	217	132731m	16.84		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	13.878	128	40687m	1.03		
9) 2-Methylnaphthalene	16.134	142	24859m	1.00		
10) 1-Methylnaphthalene	16.469	142	10891m	0.48		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	66474m	1.69		
14) C3-Naphthalenes	20.146	170	82131m	2.09		
15) C4-Naphthalenes	22.820	184	54271m	1.38		
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	19.171	152	6972m	0.18		
24) Acenaphthene	19.700	154	1023m	0.05		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	44342m	1.51		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	22322m	0.76		
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	24.406	184	24392m	0.59		
35) 4-Methyldibenzothiophene	25.895	198	22599m	0.67		
36) 2/3-Methyldibenzothiop...	26.207	198	17389m	0.52		
37) 1-Methyldibenzothiophene	26.518	198	13881m	0.41		
38) C2-Dibenzothiophenes	27.973	212	158880m	3.85		
39) C3-Dibenzothiophenes	29.496	226	264089m	6.40		
40) C4-Dibenzothiophenes	31.505	240	203643m	4.93		
41) Phenanthrene	24.822	178	259852m	5.20		
42) Anthracene	24.995	178	9170m	0.20		
43) 3-Methylphenanthrene	26.484	192	26189m	0.85		

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1621.D
Acq On : 17 Aug 2013 10:22 pm
Operator : YM
Sample : SO-DA-013 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:34:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.588	192	33633m	1.09		
45) 2-Methylanthracene	26.726	192	104413m	3.38		
46) 4/9-Methylphenanthrene	26.865	192	19032m	0.62		
47) 1-Methylphenanthrene	26.934	192	18481m	0.60		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.215	206	358756m	7.19		
51) C3-Phenanthrenes/Anthr...	29.947	220	284835m	5.71		
52) C4-Phenanthrenes/Anthr...	31.782	234	238145m	4.77		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	140034m	3.11		
59) Pyrene	29.704	202	138326m	2.37		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.847	216	106701m	2.37		
63) C2-Fluoranthenes/Pyrenes	32.567	230	168803m	3.75		
64) C3-Fluoranthenes/Pyrenes	34.158	244	113758m	2.53		
65) C4-Fluoranthenes/Pyrenes	35.322	258	157695m	3.50		
67) Benz(a)anthracene	33.770	228	52382m	0.99		
68) Chrysene/Triphenylene	33.886	228	123255m	2.74		
69) C1-Chrysenes	35.128	242	135327m	3.01		
70) C2-Chrysenes	36.292	256	167441m	3.72		
71) C3-Chrysenes	38.076	270	135488m	3.01		
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	37.339	252	178618m	3.23		
78) Benzo(k,j)fluoranthene	37.417	252	50957m	1.21		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	118062m	2.32		
81) Benzo(a)pyrene	38.464	252	47701m	0.95		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	68854m	1.09		
83) Dibenzo(a,h)anthracene	43.262	278	17481m	0.35		
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	44.553	276	77397m	1.41		
89) Perylene	38.774	252	12381m	0.24		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1621.D
Acq On : 17 Aug 2013 10:22 pm
Operator : YM
Sample : SO-DA-013 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:34:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

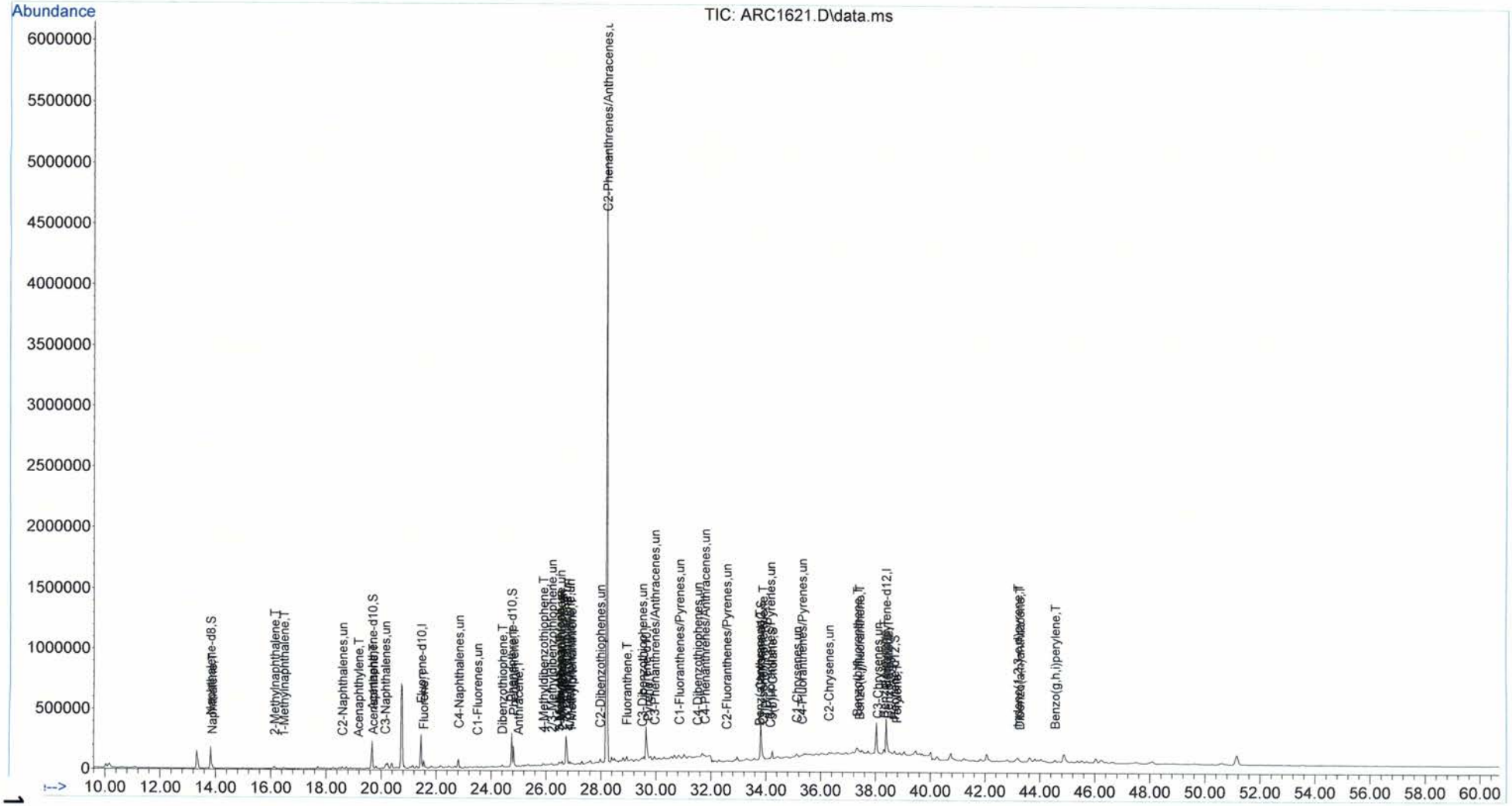
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1621.D
Acq On : 17 Aug 2013 10:22 pm
Operator : YM
Sample : SO-DA-013 (0-0.5)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:34:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1622.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/17/2013 23:31
Acq. Method File PAH-2012.M
Sample Name SO-DA-013 (0.5-1.0)
Misc Info 0
Instrument Name GCMSD
Vial Number 24
Sample Multiplier 0.06662
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

ARC1622.D
SO-DA-013 (0.5-1.0)
8/17/2013
PAH-2012.M
15.01050736

#	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	13.88	20359	0.5423	0.6676
9)+10)	C1-Naphthalenes	16.30	12590	0.3354	0.4128
13)	C2-Naphthalenes	18.59	29425	0.7838	0.9648
14)	C3-Naphthalenes	20.15	52994	1.4116	1.7376
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	19.17	1548	0.0422	0.0520
24)	Acenaphthene	19.78	1177	0.0563	0.0693
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	19680	0.7002	0.8620
28)	C1-Fluorenes	23.51	5888	0.2095	0.2579
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	1750	0.0381	0.0469
41)	Phenanthrene	24.82	90723	1.8328	2.2561
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	24.41	3355	0.0820	0.1009
35)+36)+37)	C1-Dibenzothiophenes	26.21	5000	0.1222	0.1504
38)	C2-Dibenzothiophenes	27.97	6235	0.1524	0.1876
39)	C3-Dibenzothiophenes	29.63	8975	0.2193	0.2700
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	16742	0.3751	0.4618
59)	Pyrene	29.70	15570	0.2685	0.3305
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	33.77	6387	0.1213	0.1493
68)	Chrysene/Triphenylene	33.89	5572	0.1250	0.1539
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	37.34	11561	0.2272	0.2796
78)	Benzo(k,j)fluoranthene	37.42	2623	0.0677	0.0833
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	7695	0.1641	0.2020
81)	Benzo(a)pyrene	38.46	2321	0.0504	0.0621
89)	Perylene	38.77	1082	0.0231	0.0284
82)	Indeno(1,2,3-c,d)pyrene	43.19	4489	0.0773	0.0952
83)	Dibenzo(a,h)anthracene	43.26	1137	0.0244	0.0301
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	4248	0.0838	0.1032

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	8671	0.3665	0.4512
10)	1-Methylnaphthalene	16.47	3919	0.1793	0.2208
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	25.90	1544	0.0463	0.0570
36)	2/3-Methyldibenzothiophene	26.21	1966	0.0589	0.0725
37)	1-Methyldibenzothiophene	26.52	1490	0.0447	0.0550
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	13.82	435683	12.95	77.73
21)	Acenaphthene-d10	19.67	251653	13.01	78.09
32)	Phenanthrene-d10	24.75	535744	13.54	81.24
66)	Chrysene-d12	33.81	610699	14.10	84.65
88)	Perylene-d12	38.70	93385	2.16	12.98
90)	5(b)H-Cholane	34.24	116446	16.05	96.36
	Internal Standards				
1)	Fluorene-d10	21.45	332451	16.72	
31)	Pyrene-d10	29.63	654271	16.70	
73)	Benzo(a)pyrene-d12	38.39	610205	16.68	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1622.D
Acq On : 17 Aug 2013 11:31 pm
Operator : YM
Sample : SO-DA-013 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06662

Quant Time: Sep 05 22:37:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	332451m	251.05		0.00
31) Pyrene-d10	29.635	212	654271m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	610205m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	435683m	12.95		0.00
21) Acenaphthene-d10	19.672	164	251653m	13.01		0.00
32) Phenanthrene-d10	24.752	188	535744m	13.54		0.00
66) Chrysene-d12	33.809	240	610699m	14.10		-0.04
88) Perylene-d12	38.697	264	93385m	2.16		0.00
90) 5(b)H-Cholane	34.235	217	116446m	16.05		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	13.878	128	20359m	0.54		
9) 2-Methylnaphthalene	16.134	142	8671m	0.37		
10) 1-Methylnaphthalene	16.469	142	3919m	0.18		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	29425m	0.78		
14) C3-Naphthalenes	20.146	170	52994m	1.41		
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	19.171	152	1548m	0.04		
24) Acenaphthene	19.783	154	1177m	0.06		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	19680m	0.70		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	5888m	0.21		
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	24.406	184	3355m	0.08		
35) 4-Methyldibenzothiophene	25.895	198	1544m	0.05		
36) 2/3-Methyldibenzothiop...	26.207	198	1966m	0.06		
37) 1-Methyldibenzothiophene	26.518	198	1490m	0.04		
38) C2-Dibenzothiophenes	27.973	212	6235m	0.15		
39) C3-Dibenzothiophenes	29.635	226	8975m	0.22		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	90723m	1.83		
42) Anthracene	24.995	178	1750m	0.04		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1622.D
Acq On : 17 Aug 2013 11:31 pm
Operator : YM
Sample : SO-DA-013 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06662

Quant Time: Sep 05 22:37:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	0.000		0		N.D.	d
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.942	202	16742m	0.38		
59) Pyrene	29.704	202	15570m	0.27		
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	33.770	228	6387m	0.12		
68) Chrysene/Triphenylene	33.886	228	5572m	0.12		
69) C1-Chrysenes	0.000		0		N.D.	d
70) C2-Chrysenes	0.000		0		N.D.	d
71) C3-Chrysenes	0.000		0		N.D.	d
72) C4-Chrysenes	0.000		0		N.D.	d
74) C29-Hopane	0.000		0		N.D.	d
75) 18a-Oleanane	0.000		0		N.D.	d
76) C30-Hopane	0.000		0		N.D.	d
77) Benzo(b)fluoranthene	37.339	252	11561m	0.23		
78) Benzo(k,j)fluoranthene	37.417	252	2623m	0.07		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.309	252	7695m	0.16		
81) Benzo(a)pyrene	38.464	252	2321m	0.05		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	4489m	0.08		
83) Dibenzo(a,h)anthracene	43.262	278	1137m	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	44.553	276	4248m	0.08		
89) Perylene	38.774	252	1082m	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 : C:\msdchem\2\data\MS70057\
Data File : ARC1622.D
Acq On : 17 Aug 2013 11:31 pm
Operator : YM
Sample : SO-DA-013 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06662

Quant Time: Sep 05 22:37:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

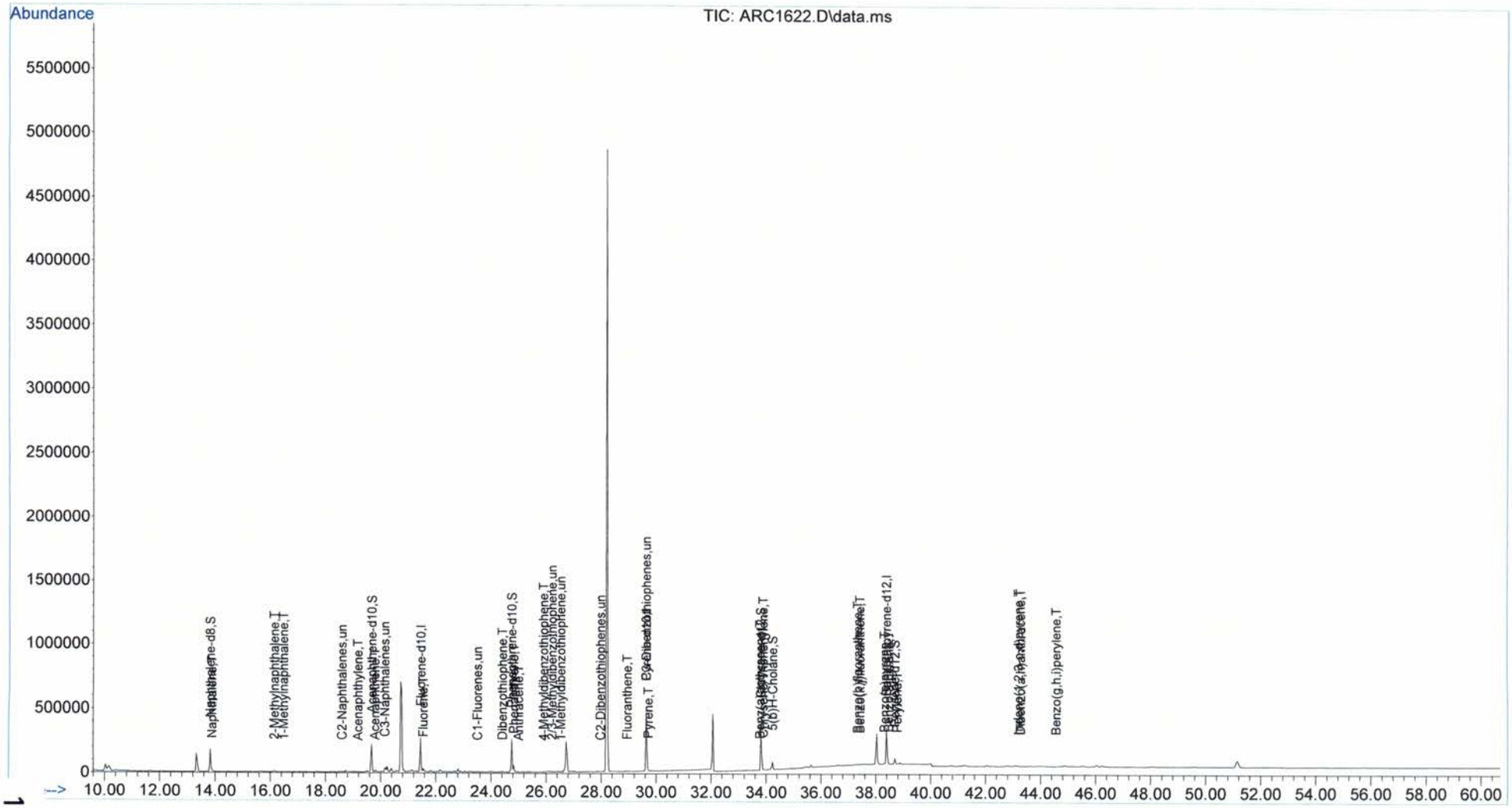
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1622.D
Acq On : 17 Aug 2013 11:31 pm
Operator : YM
Sample : SO-DA-013 (0.5-1.0)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06662

Quant Time: Sep 05 22:37:46 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1623.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 0:39
Acq. Method File PAH-2012.M
Sample Name SO-DA-013 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 25
Sample Multiplier 0.0664
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1623.D
SO-DA-013 (1.0-1.5)
8/18/2013
PAH-2012.M
15.06024096

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	35430	0.9521	1.1682
9)+10)	C1-Naphthalenes	16.30	28905	0.7768	0.9530
13)	C2-Naphthalenes	18.59	50609	1.3600	1.6686
14)	C3-Naphthalenes	20.15	86327	2.3199	2.8463
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	19.17	2937	0.0809	0.0992
24)	Acenaphthene	19.70	831	0.0401	0.0492
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	61812	2.2189	2.7224
28)	C1-Fluorenes	23.51	15302	0.5493	0.6740
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.82	276195	5.6254	6.9018
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	24.41	6985	0.1721	0.2112
35)+36)+37)	C1-Dibenzothiophenes	26.21	6171	0.1520	0.1865
38)	C2-Dibenzothiophenes	27.97	7810	0.1924	0.2361
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	32563	0.7356	0.9026
59)	Pyrene	29.70	17218	0.2994	0.3673
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	33.81	4974	0.0953	0.1169
68)	Chrysene/Triphenylene	33.89	4499	0.1018	0.1248
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	37.34	8689	0.1650	0.2025
78)	Benzo(k,j)fluoranthene	37.42	1988	0.0496	0.0608
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	5803	0.1196	0.1468
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	43.19	3102	0.0517	0.0634
83)	Dibenzo(a,h)anthracene	43.23	836	0.0174	0.0213
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	2141	0.0408	0.0501

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	20082	0.8564	1.0508
10)	1-Methylnaphthalene	16.47	8823	0.4073	0.4997
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	25.90	2527	0.0764	0.0937
36)	2/3-Methyldibenzothiophene	26.21	1724	0.0521	0.0639
37)	1-Methyldibenzothiophene	26.52	1920	0.0580	0.0712
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	13.82	433380	13.00	78.27
21)	Acenaphthene-d10	19.67	243780	12.72	76.57
32)	Phenanthrene-d10	24.75	531400	13.54	81.51
66)	Chrysene-d12	33.81	595321	13.86	83.47
88)	Perylene-d12	38.70	32135	0.72	4.33
90)	5(b)H-Cholane	34.24	114582	15.26	91.94
	Internal Standards				
1)	Fluorene-d10	21.46	328427	16.67	
31)	Pyrene-d10	29.63	646809	16.64	
73)	Benzo(a)pyrene-d12	38.39	629279	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1623.D
Acq On : 18 Aug 2013 12:39 am
Operator : YM
Sample : SO-DA-013 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:35:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	328427m	251.05		0.00
31) Pyrene-d10	29.635	212	646809m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	629279m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	433380m	13.00		0.00
21) Acenaphthene-d10	19.672	164	243780m	12.72		0.00
32) Phenanthrene-d10	24.752	188	531400m	13.54		0.00
66) Chrysene-d12	33.809	240	595321m	13.86		-0.04
88) Perylene-d12	38.697	264	32135m	0.72		0.00
90) 5(b)H-Cholane	34.236	217	114582m	15.26		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	13.878	128	35430m	0.95		
9) 2-Methylnaphthalene	16.134	142	20082m	0.86		
10) 1-Methylnaphthalene	16.469	142	8823m	0.41		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	50609m	1.36		
14) C3-Naphthalenes	20.146	170	86327m	2.32		
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	19.171	152	2937m	0.08		
24) Acenaphthene	19.700	154	831m	0.04		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	61812m	2.22		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	15302m	0.55		
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	24.406	184	6985m	0.17		
35) 4-Methyldibenzothiophene	25.895	198	2527m	0.08		
36) 2/3-Methyldibenzothiop...	26.207	198	1724m	0.05		
37) 1-Methyldibenzothiophene	26.518	198	1920m	0.06		
38) C2-Dibenzothiophenes	27.973	212	7810m	0.19		
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	276195m	5.63		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1623.D
Acq On : 18 Aug 2013 12:39 am
Operator : YM
Sample : SO-DA-013 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:35:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	0.000		0		N.D.	d
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.942	202	32563m	0.74		
59) Pyrene	29.704	202	17218m	0.30		
60) 2-Methylfluoranthene	0.000		0		N.D.	d
61) Benzo(b)fluorene	0.000		0		N.D.	d
62) C1-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
63) C2-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
64) C3-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
65) C4-Fluoranthenes/Pyrenes	0.000		0		N.D.	d
67) Benz(a)anthracene	33.809	228	4974m	0.10		
68) Chrysene/Triphenylene	33.886	228	4499m	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	37.339	252	8689m	0.17		
78) Benzo(k,j)fluoranthene	37.417	252	1988m	0.05		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.309	252	5803m	0.12		
81) Benzo(a)pyrene	0.000		0		N.D.	d
82) Indeno(1,2,3-c,d)pyrene	43.189	276	3102m	0.05		
83) Dibenzo(a,h)anthracene	43.226	278	836m	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	44.553	276	2141m	0.04		
89) Perylene	0.000		0		N.D.	d
91) C20-TAS	0.000		0		N.D.	d
92) C21-TAS	0.000		0		N.D.	d
93) C26(20S)-TAS	0.000		0		N.D.	d
94) C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95) C28(20S)-TAS	0.000		0		N.D.	d
96) C27(20R)-TAS	0.000		0		N.D.	d
97) C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1623.D
Acq On : 18 Aug 2013 12:39 am
Operator : YM
Sample : SO-DA-013 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:35:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

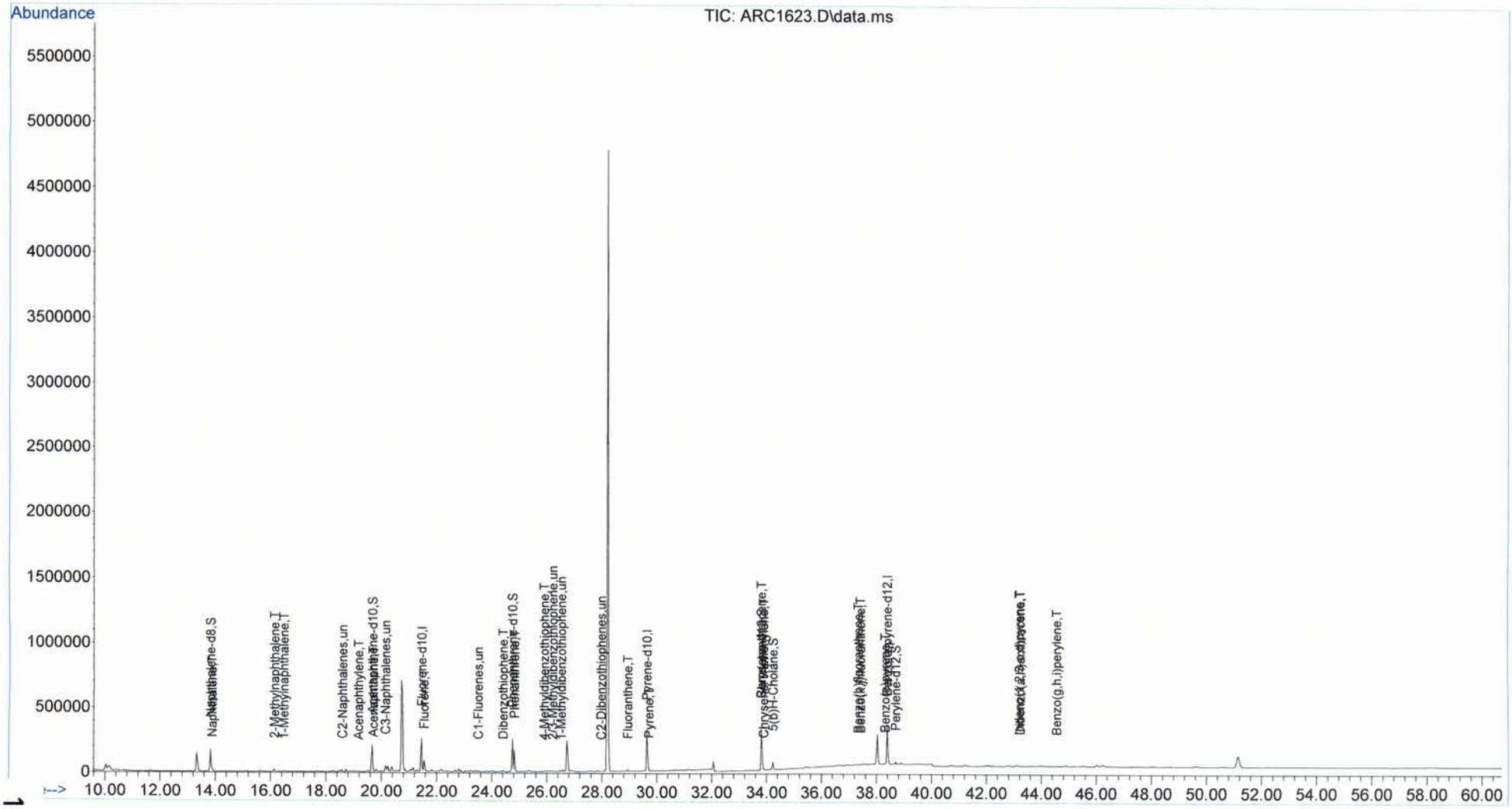
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1623.D
Acq On : 18 Aug 2013 12:39 am
Operator : YM
Sample : SO-DA-013 (1.0-1.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:35:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1624.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 1:48
Acq. Method File PAH-2012.M
Sample Name SO-DA-014 (0-0.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 26
Sample Multiplier 0.06623
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1624.D
SO-DA-014 (0-0.5)
8/18/2013
PAH-2012.M
15.09889778

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	92915	2.3870	2.8495
9)+10)	C1-Naphthalenes	16.30	70085	1.8005	2.1494
13)	C2-Naphthalenes	18.59	131269	3.3724	4.0257
14)	C3-Naphthalenes	20.37	106995	2.7487	3.2813
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.69	52945	1.5875	1.8951
23)	Acenaphthylene	19.17	60376	1.5890	1.8968
24)	Acenaphthene	19.78	5785	0.2667	0.3184
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	77942	2.6748	3.1930
28)	C1-Fluorenes	23.51	41281	1.4167	1.6911
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	93485	1.9850	2.3696
41)	Phenanthrene	24.82	627669	12.3594	14.7540
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	310994	6.1238	7.3102
50)	C2-Phenanthrenes/Anthracenes	28.22	313748	6.1780	7.3750
51)	C3-Phenanthrenes/Anthracenes	29.95	322486	6.3501	7.5804
52)	C4-Phenanthrenes/Anthracenes	30.71	305422	6.0141	7.1793
34)	Dibenzothiophene	24.41	44429	1.0583	1.2634
35)+36)+37)	C1-Dibenzothiophenes	26.21	51693	1.2314	1.4699
38)	C2-Dibenzothiophenes	27.63	66016	1.5725	1.8772
39)	C3-Dibenzothiophenes	28.80	112628	2.6829	3.2026
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	686264	14.9885	17.8925
59)	Pyrene	29.70	616057	10.3556	12.3620
62)	C1-Fluoranthenes/Pyrenes	30.85	303242	6.6230	7.9062
63)	C2-Fluoranthenes/Pyrenes	32.57	498592	10.8896	12.9994
64)	C3-Fluoranthenes/Pyrenes	34.43	193697	4.2305	5.0501
65)	C4-Fluoranthenes/Pyrenes	35.32	420047	9.1741	10.9516
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	33.77	287080	5.3148	6.3446
68)	Chrysene/Triphenylene	33.89	604803	13.2246	15.7868
69)	C1-Chrysenes	35.13	329649	7.2081	8.6046
70)	C2-Chrysenes	36.29	319349	6.9829	8.3358
71)	C3-Chrysenes	38.08	295389	6.4590	7.7104
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	1113300	21.6039	25.7896
78)	Benzo(k,j)fluoranthene	37.42	321635	8.1959	9.7838
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	611016	12.8699	15.3634
81)	Benzo(a)pyrene	38.46	142500	3.0563	3.6485
89)	Perylene	38.77	25271	0.5322	0.6353
82)	Indeno(1,2,3-c,d)pyrene	43.19	424523	7.2240	8.6236
83)	Dibenzo(a,h)anthracene	43.26	106473	2.2580	2.6954
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	349479	6.8082	8.1273

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	50003	2.0386	2.4336
10)	1-Methylnaphthalene	16.47	20082	0.8863	1.0580
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	25.90	23516	0.6870	0.8201
36)	2/3-Methyldibenzothiophene	26.21	20431	0.5969	0.7125
37)	1-Methyldibenzothiophene	26.52	7746	0.2263	0.2701
43)	3-Methylphenanthrene	26.48	57906	1.8406	2.1972
44)	2-Methylphenanthrene	26.59	77871	2.4752	2.9547
45)	2-Methylanthracene	26.73	108909	3.4617	4.1324
46)	4/9-Methylphenanthrene	26.86	33087	1.0517	1.2554
47)	1-Methylphenanthrene	26.93	33221	1.0559	1.2605
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	13.82	455472	13.06	78.84
21)	Acenaphthene-d10	19.67	256585	12.80	77.24
32)	Phenanthrene-d10	24.75	563480	13.88	83.77
66)	Chrysene-d12	33.81	636791	14.33	86.54
88)	Perylene-d12	38.70	2810	0.06	0.39
90)	5(b)H-Cholane	34.24	131034	17.83	107.71
	Internal Standards				
1)	Fluorene-d10	21.46	342674	16.63	
31)	Pyrene-d10	29.63	667323	16.60	
73)	Benzo(a)pyrene-d12	38.39	614271	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1624.D
Acq On : 18 Aug 2013 1:48 am
Operator : YM
Sample : SO-DA-014 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:37:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	342674m	251.05		0.00
31) Pyrene-d10	29.635	212	667323m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	614271m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	455472m	13.06		0.00
21) Acenaphthene-d10	19.672	164	256585m	12.80		0.00
32) Phenanthrene-d10	24.752	188	563480m	13.88		0.00
66) Chrysene-d12	33.809	240	636791m	14.33		-0.04
88) Perylene-d12	38.697	264	2810m	0.06		0.00
90) 5(b)H-Cholane	34.236	217	131034m	17.83		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	13.878	128	92915m	2.39		
9) 2-Methylnaphthalene	16.134	142	50003m	2.04		
10) 1-Methylnaphthalene	16.469	142	20082m	0.89		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	131269m	3.37		
14) C3-Naphthalenes	20.369	170	106995m	2.75		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.694	154	52945m	1.59		
23) Acenaphthylene	19.171	152	60376m	1.59		
24) Acenaphthene	19.784	154	5785m	0.27		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	77942m	2.67		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	41281m	1.42		
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	24.406	184	44429m	1.06		
35) 4-Methyldibenzothiophene	25.895	198	23516m	0.69		
36) 2/3-Methyldibenzothiop...	26.207	198	20431m	0.60		
37) 1-Methyldibenzothiophene	26.518	198	7746m	0.23		
38) C2-Dibenzothiophenes	27.626	212	66016m	1.57		
39) C3-Dibenzothiophenes	28.804	226	112628m	2.68		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	627669m	12.36		
42) Anthracene	24.995	178	93485m	1.98		
43) 3-Methylphenanthrene	26.484	192	57906m	1.84		

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1624.D
Acq On : 18 Aug 2013 1:48 am
Operator : YM
Sample : SO-DA-014 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:37:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.588	192	77871m	2.48		
45) 2-Methylanthracene	26.726	192	108909m	3.46		
46) 4/9-Methylphenanthrene	26.865	192	33087m	1.05		
47) 1-Methylphenanthrene	26.934	192	33221m	1.06		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.215	206	313748m	6.18		
51) C3-Phenanthrenes/Anthr...	29.947	220	322486m	6.35		
52) C4-Phenanthrenes/Anthr...	30.708	234	305422m	6.01		
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	28.942	202	686264m	14.99		
59) Pyrene	29.704	202	616057m	10.36		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.847	216	303242m	6.62		
63) C2-Fluoranthenes/Pyrenes	32.567	230	498592m	10.89		
64) C3-Fluoranthenes/Pyrenes	34.429	244	193697m	4.23		
65) C4-Fluoranthenes/Pyrenes	35.322	258	420047m	9.17		
67) Benz(a)anthracene	33.770	228	287080m	5.31		
68) Chrysene/Triphenylene	33.886	228	604803m	13.22		
69) C1-Chrysenes	35.128	242	329649m	7.21		
70) C2-Chrysenes	36.292	256	319349m	6.98		
71) C3-Chrysenes	38.076	270	295389m	6.46		
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	37.339	252	1113295m	21.60		
78) Benzo(k,j)fluoranthene	37.417	252	321635m	8.20		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	611016m	12.87		
81) Benzo(a)pyrene	38.464	252	142500m	3.06		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	424523m	7.22		
83) Dibenzo(a,h)anthracene	43.262	278	106473m	2.26		
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	44.553	276	349479m	6.81		
89) Perylene	38.774	252	25271m	0.53		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1624.D
Acq On : 18 Aug 2013 1:48 am
Operator : YM
Sample : SO-DA-014 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:37:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

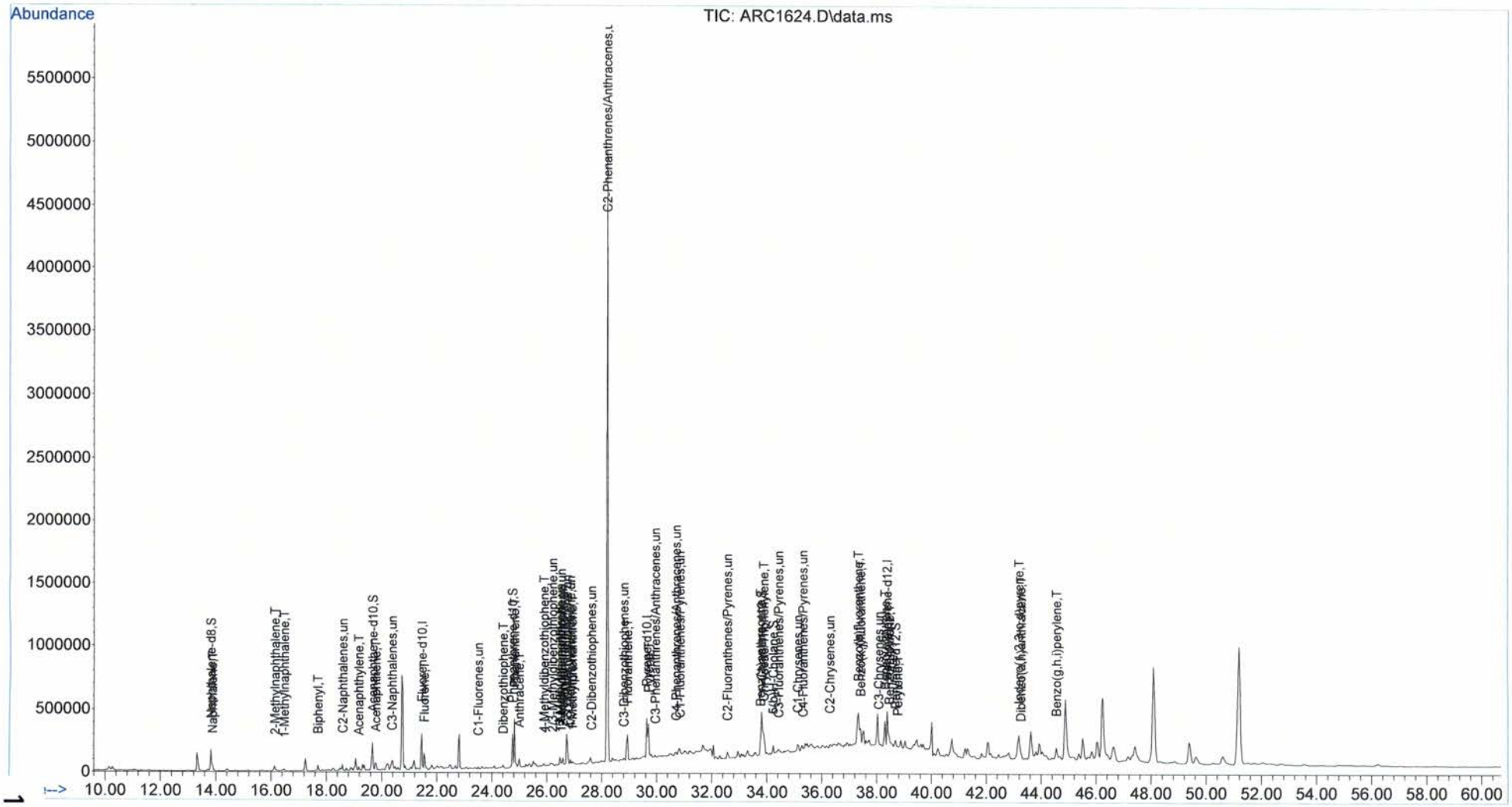
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1624.D
Acq On : 18 Aug 2013 1:48 am
Operator : YM
Sample : SO-DA-014 (0-0.5)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:37:16 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1625.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 2:56
Acq. Method File PAH-2012.M
Sample Name SO-DA-014 (0.5-1.0)
Misc Info 0
Instrument Name GCMSD
Vial Number 27
Sample Multiplier 0.06662
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

ARC1625.D
SO-DA-014 (0.5-1.0)
8/18/2013
PAH-2012.M
15.01050736

#	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	13.88	54148	1.3851	1.6312
9)+10)	C1-Naphthalenes	16.30	46025	1.1773	1.3865
13)	C2-Naphthalenes	18.59	96983	2.4808	2.9217
14)	C3-Naphthalenes	20.51	84260	2.1553	2.5384
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	19.17	17493	0.4584	0.5399
24)	Acenaphthene	19.70	3719	0.1707	0.2011
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	143630	4.9078	5.7800
28)	C1-Fluorenes	23.51	57281	1.9573	2.3051
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	26974	0.5671	0.6678
41)	Phenanthrene	24.82	862090	16.8072	19.7941
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	280590	5.4703	6.4425
50)	C2-Phenanthrenes/Anthracenes	28.22	290320	5.6600	6.6659
51)	C3-Phenanthrenes/Anthracenes	29.67	291357	5.6802	6.6897
52)	C4-Phenanthrenes/Anthracenes	31.78	215485	4.2011	4.9477
34)	Dibenzothiophene	24.41	39601	0.9340	1.0999
35)+36)+37)	C1-Dibenzothiophenes	26.21	26104	0.6156	0.7251
38)	C2-Dibenzothiophenes	27.63	37113	0.8753	1.0308
39)	C3-Dibenzothiophenes	28.80	92283	2.1764	2.5632
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	243128	5.2575	6.1918
59)	Pyrene	29.70	141990	2.3631	2.7831
62)	C1-Fluoranthenes/Pyrenes	30.85	102495	2.2164	2.6103
63)	C2-Fluoranthenes/Pyrenes	32.57	211835	4.5808	5.3949
64)	C3-Fluoranthenes/Pyrenes	34.24	108632	2.3491	2.7666
65)	C4-Fluoranthenes/Pyrenes	35.32	252375	5.4574	6.4273
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	33.77	77762	1.4254	1.6787
68)	Chrysene/Triphenylene	33.89	153566	3.3246	3.9154
69)	C1-Chrysenes	35.13	148978	3.2253	3.7985
70)	C2-Chrysenes	36.29	171950	3.7226	4.3842
71)	C3-Chrysenes	38.08	194138	4.2030	4.9499
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	264516	4.7755	5.6242
78)	Benzo(k,j)fluoranthene	37.42	66397	1.5741	1.8538
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	159529	3.1262	3.6817
81)	Benzo(a)pyrene	38.46	35443	0.7072	0.8329
89)	Perylene	38.77	10356	0.2029	0.2390
82)	Indeno(1,2,3-c,d)pyrene	43.19	92269	1.4608	1.7203
83)	Dibenzo(a,h)anthracene	43.26	26026	0.5135	0.6047
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	86520	1.5681	1.8468

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	32668	1.3261	1.5618
10)	1-Methylnaphthalene	16.47	13357	0.5870	0.6913
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	25.90	11683	0.3379	0.3980
36)	2/3-Methyldibenzothiophene	26.21	9335	0.2700	0.3180
37)	1-Methyldibenzothiophene	26.52	5086	0.1471	0.1733
43)	3-Methylphenanthrene	26.48	48570	1.5285	1.8002
44)	2-Methylphenanthrene	26.59	59162	1.8618	2.1927
45)	2-Methylanthracene	26.73	109873	3.4577	4.0722
46)	4/9-Methylphenanthrene	26.86	27770	0.8739	1.0292
47)	1-Methylphenanthrene	26.93	35215	1.1082	1.3052
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	13.82	487815	13.93	83.58
21)	Acenaphthene-d10	19.67	264990	13.16	78.96
32)	Phenanthrene-d10	24.75	580264	14.15	84.91
66)	Chrysene-d12	33.81	663150	14.78	88.71
88)	Perylene-d12	38.70	2698	0.06	0.34
90)	5(b)H-Cholane	34.24	135573	17.17	103.07
	Internal Standards				
1)	Fluorene-d10	21.46	346184	16.72	
31)	Pyrene-d10	29.63	677971	16.70	
73)	Benzo(a)pyrene-d12	38.39	664144	16.68	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1625.D
Acq On : 18 Aug 2013 2:56 am
Operator : YM
Sample : SO-DA-014 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06662

Quant Time: Sep 05 21:38:18 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	346184m	251.05		0.00
31) Pyrene-d10	29.635	212	677971m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	664144m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	487815m	13.93		0.00
21) Acenaphthene-d10	19.672	164	264990m	13.16		0.00
32) Phenanthrene-d10	24.752	188	580264m	14.15		0.00
66) Chrysene-d12	33.809	240	663150m	14.78		-0.04
88) Perylene-d12	38.697	264	2698m	0.06		0.00
90) 5(b)H-Cholane	34.235	217	135573m	17.17		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	13.878	128	54148m	1.39		
9) 2-Methylnaphthalene	16.134	142	32668m	1.33		
10) 1-Methylnaphthalene	16.469	142	13357m	0.59		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	96983m	2.48		
14) C3-Naphthalenes	20.508	170	84260m	2.16		
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	19.171	152	17493m	0.46		
24) Acenaphthene	19.700	154	3719m	0.17		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	143630m	4.91		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	57281m	1.96		
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	24.406	184	39601m	0.93		
35) 4-Methyldibenzothiophene	25.895	198	11683m	0.34		
36) 2/3-Methyldibenzothiop...	26.207	198	9335m	0.27		
37) 1-Methyldibenzothiophene	26.518	198	5086m	0.15		
38) C2-Dibenzothiophenes	27.626	212	37113m	0.88		
39) C3-Dibenzothiophenes	28.804	226	92283m	2.18		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	862090m	16.81		
42) Anthracene	24.995	178	26974m	0.57		
43) 3-Methylphenanthrene	26.484	192	48570m	1.53		

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1625.D
Acq On : 18 Aug 2013 2:56 am
Operator : YM
Sample : SO-DA-014 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06662

Quant Time: Sep 05 21:38:18 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.588	192	59162m	1.86		
45)	2-Methylanthracene	26.726	192	109873m	3.46		
46)	4/9-Methylphenanthrene	26.865	192	27770m	0.87		
47)	1-Methylphenanthrene	26.934	192	35215m	1.11		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.215	206	290320m	5.66		
51)	C3-Phenanthrenes/Anthr...	29.669	220	291357m	5.68		
52)	C4-Phenanthrenes/Anthr...	31.782	234	215485m	4.20		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.942	202	243128m	5.26		
59)	Pyrene	29.704	202	141990m	2.36		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.847	216	102495m	2.22		
63)	C2-Fluoranthenes/Pyrenes	32.567	230	211835m	4.58		
64)	C3-Fluoranthenes/Pyrenes	34.235	244	108632m	2.35		
65)	C4-Fluoranthenes/Pyrenes	35.322	258	252375m	5.46		
67)	Benz(a)anthracene	33.770	228	77762m	1.43		
68)	Chrysene/Triphenylene	33.886	228	153566m	3.32		
69)	C1-Chrysenes	35.128	242	148978m	3.23		
70)	C2-Chrysenes	36.292	256	171950m	3.72		
71)	C3-Chrysenes	38.076	270	194138m	4.20		
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	37.339	252	264516m	4.78		
78)	Benzo(k,j)fluoranthene	37.417	252	66397m	1.57		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.309	252	159529m	3.13		
81)	Benzo(a)pyrene	38.464	252	35443m	0.71		
82)	Indeno(1,2,3-c,d)pyrene	43.189	276	92269m	1.46		
83)	Dibenzo(a,h)anthracene	43.262	278	26026m	0.51		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.553	276	86520m	1.57		
89)	Perylene	38.774	252	10356m	0.20		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1625.D
Acq On : 18 Aug 2013 2:56 am
Operator : YM
Sample : SO-DA-014 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06662

Quant Time: Sep 05 21:38:18 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

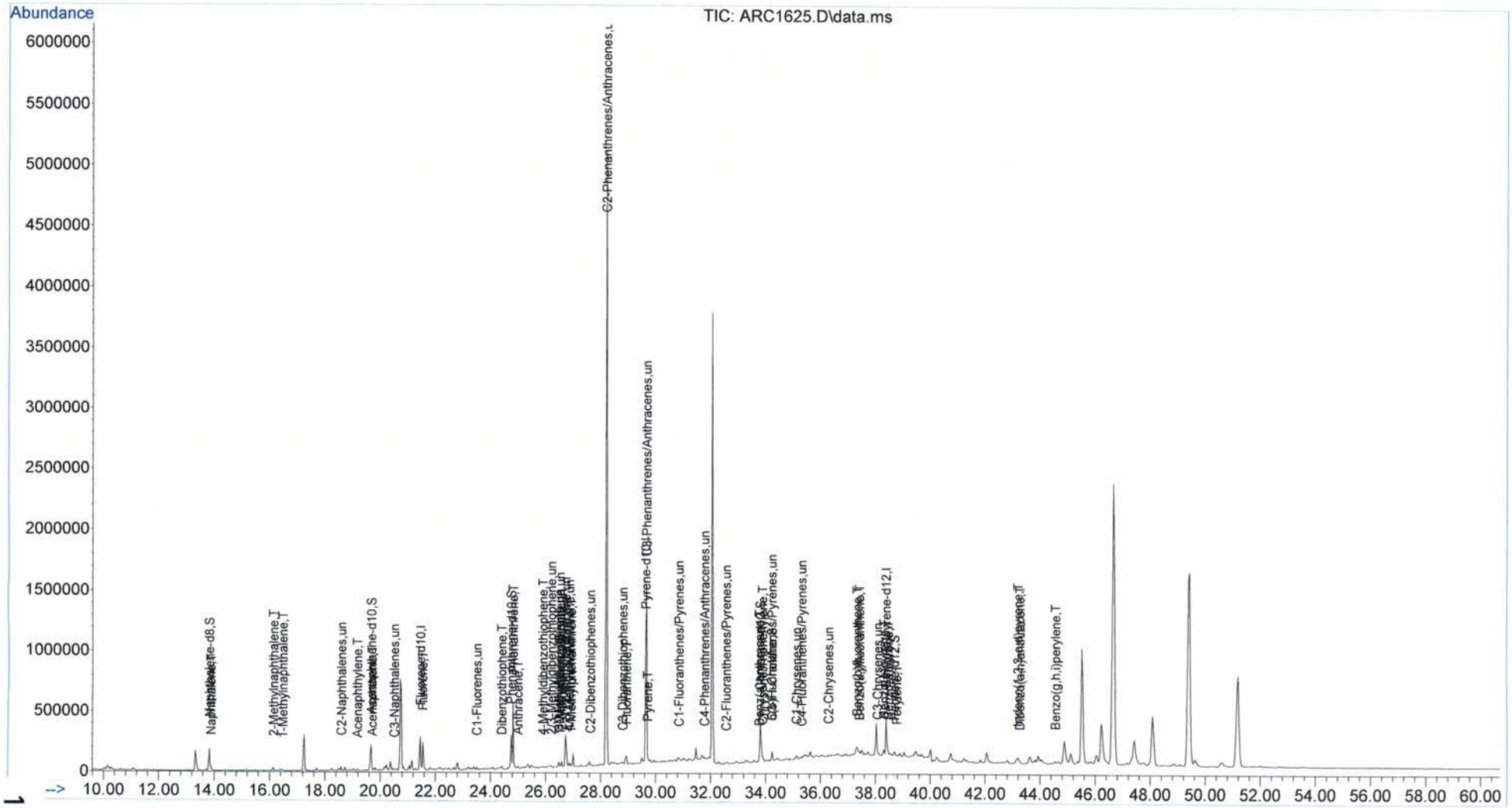
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1625.D
Acq On : 18 Aug 2013 2:56 am
Operator : YM
Sample : SO-DA-014 (0.5-1.0)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06662

Quant Time: Sep 05 21:38:18 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1626.D
Data File Path C:\msdchem\1\data\MS70057\
Operator YM
Date Acquired 8/18/2013 4:05
Acq. Method File PAH-2012.M
Sample Name SO-DA-014 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 28
Sample Multiplier 0.06623
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1626.D
SO-DA-014 (1.0-1.5)
8/18/2013
PAH-2012.M
15.09889778

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	24872	0.6303	0.9486
9)+10)	C1-Naphthalenes	16.30	15519	0.3933	0.5919
13)	C2-Naphthalenes	18.59	23139	0.5863	0.8825
14)	C3-Naphthalenes	20.15	28651	0.7260	1.0927
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	19.17	2317	0.0601	0.0905
24)	Acenaphthene	19.70	575	0.0262	0.0394
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	25403	0.8599	1.2942
28)	C1-Fluorenes	23.51	8003	0.2709	0.4077
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	2429	0.0501	0.0753
41)	Phenanthrene	24.82	113589	2.1707	3.2670
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	24.41	6910	0.1597	0.2404
35)+36)+37)	C1-Dibenzothiophenes	26.21	5111	0.1182	0.1778
38)	C2-Dibenzothiophenes	27.97	7253	0.1677	0.2524
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	22487	0.4766	0.7174
59)	Pyrene	29.70	9095	0.1484	0.2233
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	33.77	9713	0.1745	0.2627
68)	Chrysene/Triphenylene	33.89	14900	0.3162	0.4759
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	37.34	23942	0.4564	0.6869
78)	Benzo(k,j)fluoranthene	37.42	6365	0.1593	0.2398
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	11683	0.2417	0.3638
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	1374	0.0284	0.0428
82)	Indeno(1,2,3-c,d)pyrene	43.19	6353	0.1062	0.1598
83)	Dibenzo(a,h)anthracene	43.23	1332	0.0277	0.0418
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	2852	0.0546	0.0821

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	10792	0.4340	0.6532
10)	1-Methylnaphthalene	16.47	4727	0.2058	0.3097
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	25.90	2375	0.0673	0.1013
36)	2/3-Methyldibenzothiophene	26.21	1753	0.0497	0.0748
37)	1-Methyldibenzothiophene	26.52	983	0.0279	0.0419
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	13.82	464629	13.14	79.32
21)	Acenaphthene-d10	19.67	231820	11.40	68.83
32)	Phenanthrene-d10	24.75	460511	11.01	66.44
66)	Chrysene-d12	33.81	664613	14.52	87.66
88)	Perylene-d12	38.70	1134	0.03	0.15
90)	5(b)H-Cholane	34.24	120091	16.05	96.96
	Internal Standards				
1)	Fluorene-d10	21.46	347411	16.63	
31)	Pyrene-d10	29.63	687610	16.60	
73)	Benzo(a)pyrene-d12	38.39	625351	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1626.D
Acq On : 18 Aug 2013 4:05 am
Operator : YM
Sample : SO-DA-014 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06623

Quant Time: Sep 08 15:31:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	347411m	251.05		0.00
31) Pyrene-d10	29.635	212	687610m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	625351m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	464629m	13.14		0.00
21) Acenaphthene-d10	19.672	164	231820m	11.40		0.00
32) Phenanthrene-d10	24.752	188	460511m	11.01		0.00
66) Chrysene-d12	33.809	240	664613m	14.52		-0.04
88) Perylene-d12	38.697	264	1134m	0.03		0.00
90) 5(b)H-Cholane	34.236	217	120091m	16.05		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	13.878	128	24872m	0.63		
9) 2-Methylnaphthalene	16.134	142	10792m	0.43		
10) 1-Methylnaphthalene	16.469	142	4727m	0.21		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	23139m	0.59		
14) C3-Naphthalenes	20.146	170	28651m	0.73		
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	19.171	152	2317m	0.06		
24) Acenaphthene	19.700	154	575m	0.03		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	25403m	0.86		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	8003m	0.27		
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	24.406	184	6910m	0.16		
35) 4-Methyldibenzothiophene	25.895	198	2375m	0.07		
36) 2/3-Methyldibenzothiop...	26.207	198	1753m	0.05		
37) 1-Methyldibenzothiophene	26.518	198	983m	0.03		
38) C2-Dibenzothiophenes	27.973	212	7253m	0.17		
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	113589m	2.17		
42) Anthracene	24.995	178	2429m	0.05		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1626.D
Acq On : 18 Aug 2013 4:05 am
Operator : YM
Sample : SO-DA-014 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06623

Quant Time: Sep 08 15:31:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	0.000		0		N.D.	d
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.942	202	22487m	0.48		
59) Pyrene	29.704	202	9095m	0.15		
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	33.770	228	9713m	0.17		
68) Chrysene/Triphenylene	33.886	228	14900m	0.32		
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	37.339	252	23942m	0.46		
78) Benzo(k,j)fluoranthene	37.417	252	6365m	0.16		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.309	252	11683m	0.24		
81) Benzo(a)pyrene	0.000		0		N.D.	d
82) Indeno(1,2,3-c,d)pyrene	43.189	276	6353m	0.11		
83) Dibenzo(a,h)anthracene	43.226	278	1332m	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	44.553	276	2852m	0.05		
89) Perylene	38.775	252	1374m	0.03		
91) C20-TAS	0.000		0		N.D.	d
92) C21-TAS	0.000		0		N.D.	d
93) C26(20S)-TAS	0.000		0		N.D.	d
94) C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95) C28(20S)-TAS	0.000		0		N.D.	d
96) C27(20R)-TAS	0.000		0		N.D.	d
97) C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1626.D
Acq On : 18 Aug 2013 4:05 am
Operator : YM
Sample : SO-DA-014 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06623

Quant Time: Sep 08 15:31:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

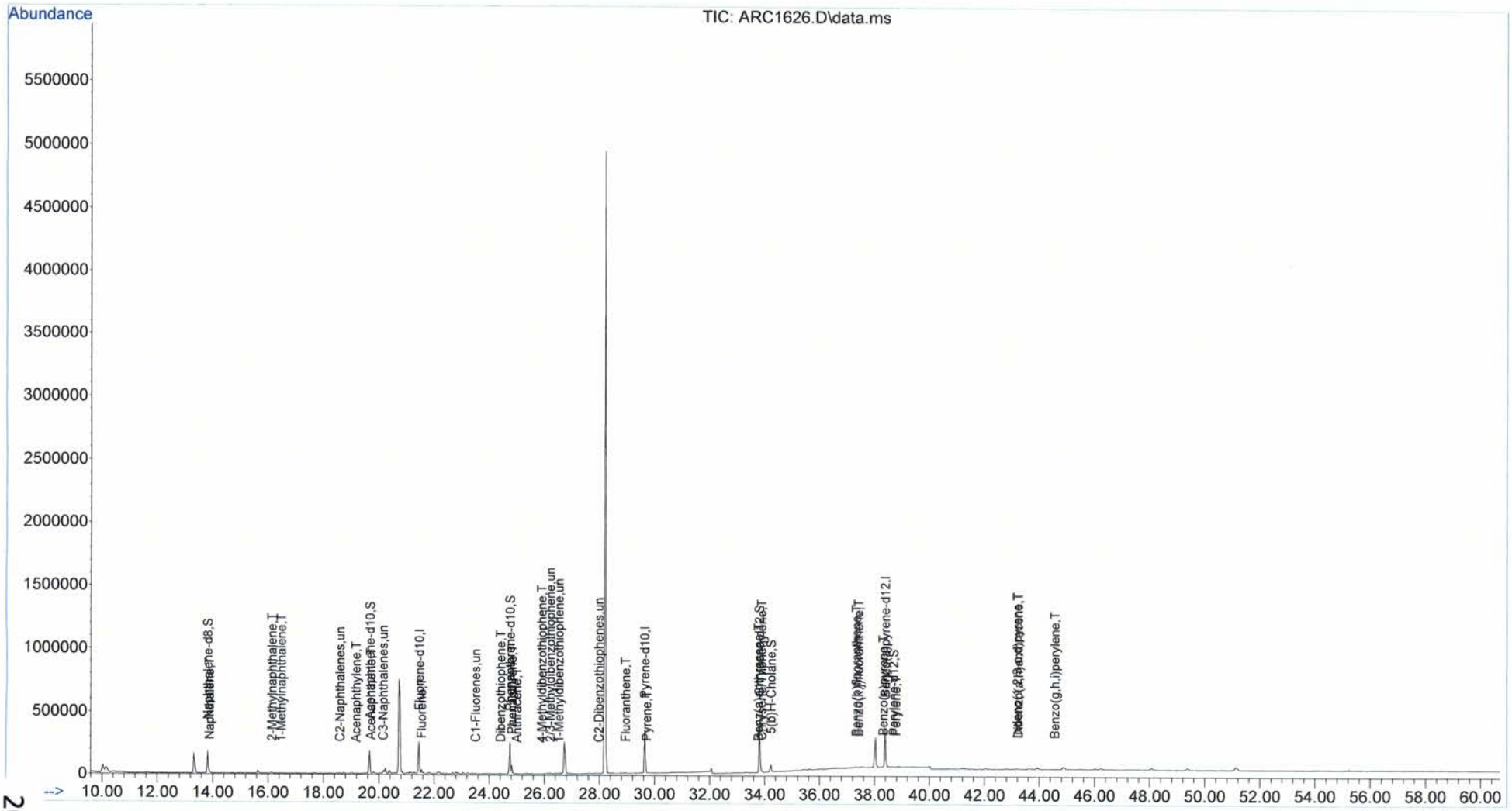
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1626.D
Acq On : 18 Aug 2013 4:05 am
Operator : YM
Sample : SO-DA-014 (1.0-1.5)
Misc :
ALS Vial : 28 Sample Multiplier: 0.06623

Quant Time: Sep 08 15:31:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1627.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 6:22
Acq. Method File PAH-2012.M
Sample Name SO-DA-DUP-01-080113
Misc Info 0
Instrument Name GCMSD
Vial Number 30
Sample Multiplier 0.0664
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1627.D
SO-DA-DUP-01-080113
8/18/2013
PAH-2012.M
15.06024096

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	99177	2.3663	2.8525
9)+10)	C1-Naphthalenes	16.30	81906	1.9542	2.3558
13)	C2-Naphthalenes	18.59	125901	3.0039	3.6211
14)	C3-Naphthalenes	20.37	88554	2.1129	2.5470
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.69	105473	2.9372	3.5407
23)	Acenaphthylene	19.17	91472	2.2358	2.6951
24)	Acenaphthene	19.78	4931	0.2112	0.2545
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	42423	1.3521	1.6299
28)	C1-Fluorenes	23.51	37022	1.1800	1.4224
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	158160	3.1155	3.7557
41)	Phenanthrene	24.82	508982	9.2980	11.2084
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	354152	6.4696	7.7989
50)	C2-Phenanthrenes/Anthracenes	28.21	439291	8.0249	9.6737
51)	C3-Phenanthrenes/Anthracenes	29.95	521760	9.5315	11.4898
52)	C4-Phenanthrenes/Anthracenes	31.78	455429	8.3197	10.0291
34)	Dibenzothiophene	24.41	51923	1.1474	1.3832
35)+36)+37)	C1-Dibenzothiophenes	26.21	62232	1.3753	1.6578
38)	C2-Dibenzothiophenes	27.63	98610	2.1792	2.6269
39)	C3-Dibenzothiophenes	28.80	281027	6.2104	7.4864
40)	C4-Dibenzothiophenes	31.50	207607	4.5879	5.5305
58)	Fluoranthene	28.94	984841	19.9551	24.0551
59)	Pyrene	29.70	1126200	17.5627	21.1712
62)	C1-Fluoranthenes/Pyrenes	30.85	539117	10.9237	13.1682
63)	C2-Fluoranthenes/Pyrenes	32.57	728863	14.7684	17.8028
64)	C3-Fluoranthenes/Pyrenes	34.43	387663	7.8549	9.4688
65)	C4-Fluoranthenes/Pyrenes	35.32	523776	10.6128	12.7934
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	33.77	595137	10.2217	12.3219
68)	Chrysene/Triphenylene	33.89	999517	20.2759	24.4419
69)	C1-Chrysenes	35.13	589115	11.9506	14.4060
70)	C2-Chrysenes	36.29	476233	9.6607	11.6457
71)	C3-Chrysenes	38.00	407155	8.2594	9.9564
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	1897410	37.8491	45.6258
78)	Benzo(k,j)fluoranthene	37.42	514396	13.4743	16.2428
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	1004270	21.7443	26.2120
81)	Benzo(a)pyrene	38.46	339958	7.4953	9.0353
89)	Perylene	38.77	73757	1.5967	1.9248
82)	Indeno(1,2,3-c,d)pyrene	43.19	738875	12.9246	15.5802
83)	Dibenzo(a,h)anthracene	43.26	182814	3.9853	4.8041
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	687767	13.7730	16.6029

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	59061	2.2363	2.6958
10)	1-Methylnaphthalene	16.47	22845	0.9364	1.1288
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	25.89	30209	0.8187	0.9870
36)	2/3-Methyldibenzothiophene	26.21	24217	0.6563	0.7912
37)	1-Methyldibenzothiophene	26.52	7806	0.2116	0.2550
43)	3-Methylphenanthrene	26.48	67614	1.9938	2.4035
44)	2-Methylphenanthrene	26.59	89809	2.6483	3.1924
45)	2-Methylanthracene	26.73	123143	3.6313	4.3773
46)	4/9-Methylphenanthrene	26.86	38692	1.1410	1.3754
47)	1-Methylphenanthrene	26.93	34894	1.0290	1.2404
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	13.82	684225	18.22	109.71
21)	Acenaphthene-d10	19.67	297336	13.77	82.92
32)	Phenanthrene-d10	24.75	603017	13.78	82.96
66)	Chrysene-d12	33.81	701731	14.65	88.25
88)	Perylene-d12	38.70	7308	0.17	1.03
90)	5(b)H-Cholane	34.24	136669	19.12	115.19
	Internal Standards				
1)	Fluorene-d10	21.45	369916	16.67	
31)	Pyrene-d10	29.63	721156	16.64	
73)	Benzo(a)pyrene-d12	38.39	599100	16.62	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1627.D
Acq On : 18 Aug 2013 6:22 am
Operator : YM
Sample : SO-DA-DUP-01-080113
Misc :
ALS Vial : 30 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:40:08 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	369916m	251.05		0.00
31) Pyrene-d10	29.635	212	721156m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	599100m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	684225m	18.22		0.00
21) Acenaphthene-d10	19.672	164	297336m	13.77		0.00
32) Phenanthrene-d10	24.752	188	603017m	13.78		0.00
66) Chrysene-d12	33.809	240	701731m	14.65		-0.04
88) Perylene-d12	38.697	264	7308m	0.17		0.00
90) 5(b)H-Cholane	34.235	217	136669m	19.12		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	13.878	128	99177m	2.37		
9) 2-Methylnaphthalene	16.134	142	59061m	2.24		
10) 1-Methylnaphthalene	16.468	142	22845m	0.94		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	125901m	3.00		
14) C3-Naphthalenes	20.368	170	88554m	2.11		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.694	154	105473m	2.94		
23) Acenaphthylene	19.171	152	91472m	2.24		
24) Acenaphthene	19.783	154	4931m	0.21		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	42423m	1.35		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	37022m	1.18		
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	24.406	184	51923m	1.15		
35) 4-Methyldibenzothiophene	25.895	198	30209m	0.82		
36) 2/3-Methyldibenzothiop...	26.207	198	24217m	0.66		
37) 1-Methyldibenzothiophene	26.518	198	7806m	0.21		
38) C2-Dibenzothiophenes	27.626	212	98610m	2.18		
39) C3-Dibenzothiophenes	28.804	226	281027m	6.21		
40) C4-Dibenzothiophenes	31.505	240	207607m	4.59		
41) Phenanthrene	24.821	178	508982m	9.30		
42) Anthracene	24.995	178	158160m	3.12		
43) 3-Methylphenanthrene	26.484	192	67614m	1.99		

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1627.D
Acq On : 18 Aug 2013 6:22 am
Operator : YM
Sample : SO-DA-DUP-01-080113
Misc :
ALS Vial : 30 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:40:08 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.587	192	89809m	2.65		
45) 2-Methylanthracene	26.726	192	123143m	3.63		
46) 4/9-Methylphenanthrene	26.864	192	38692m	1.14		
47) 1-Methylphenanthrene	26.934	192	34894m	1.03		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.215	206	439291m	8.02		
51) C3-Phenanthrenes/Anthr...	29.946	220	521760m	9.53		
52) C4-Phenanthrenes/Anthr...	31.782	234	455429m	8.32		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	984841m	19.96		
59) Pyrene	29.704	202	1126204m	17.56		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.847	216	539117m	10.92		
63) C2-Fluoranthenes/Pyrenes	32.567	230	728863m	14.77		
64) C3-Fluoranthenes/Pyrenes	34.429	244	387663m	7.85		
65) C4-Fluoranthenes/Pyrenes	35.322	258	523776m	10.61		
67) Benz(a)anthracene	33.770	228	595137m	10.22		
68) Chrysene/Triphenylene	33.886	228	999517m	20.28		
69) C1-Chrysenes	35.128	242	589115m	11.95		
70) C2-Chrysenes	36.291	256	476233m	9.66		
71) C3-Chrysenes	37.998	270	407155m	8.26		
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	37.339	252	1897408m	37.85		
78) Benzo(k,j)fluoranthene	37.416	252	514396m	13.47		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	1004267m	21.74		
81) Benzo(a)pyrene	38.464	252	339958m	7.50		
82) Indeno(1,2,3-c,d)pyrene	43.188	276	738875m	12.92		
83) Dibenzo(a,h)anthracene	43.262	278	182814m	3.99		
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	44.553	276	687767m	13.77		
89) Perylene	38.774	252	73757m	1.60		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1627.D
Acq On : 18 Aug 2013 6:22 am
Operator : YM
Sample : SO-DA-DUP-01-080113
Misc :
ALS Vial : 30 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:40:08 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

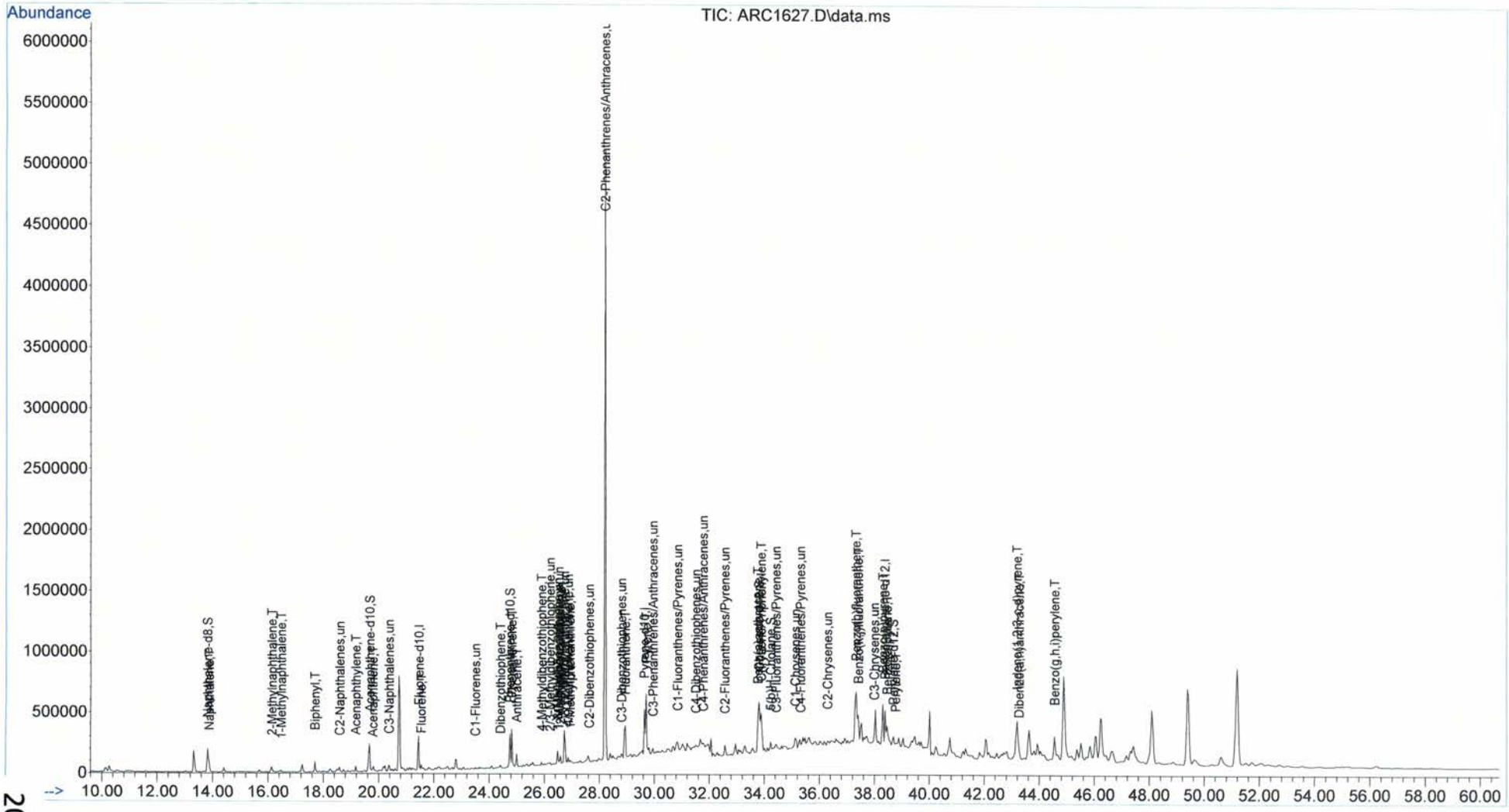
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1627.D
Acq On : 18 Aug 2013 6:22 am
Operator : YM
Sample : SO-DA-DUP-01-080113
Misc :
ALS Vial : 30 Sample Multiplier: 0.0664

Quant Time: Sep 05 21:40:08 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1628.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 7:30
Acq. Method File PAH-2012.M
Sample Name SO-DA-015 (0-0.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 31
Sample Multiplier 0.06662
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

ARC1628.D
SO-DA-015 (0-0.5)
8/18/2013
PAH-2012.M
15.01050736

#	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	13.88	140249	3.1707	4.3092
9)+10)	C1-Naphthalenes	16.30	140156	3.1686	4.3063
13)	C2-Naphthalenes	18.59	274266	6.2005	8.4269
14)	C3-Naphthalenes	21.45	252623	5.7112	7.7619
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	19.17	49555	1.1477	1.5598
24)	Acenaphthene	19.70	8732	0.3543	0.4815
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	92308	2.7877	3.7886
28)	C1-Fluorenes	23.51	70300	2.1230	2.8854
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	88230	1.7797	2.4187
41)	Phenanthrene	24.82	742808	13.8947	18.8839
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	358588	6.7076	9.1161
50)	C2-Phenanthrenes/Anthracenes	28.22	650815	12.1739	16.5452
51)	C3-Phenanthrenes/Anthracenes	29.95	1145470	21.4268	29.1205
52)	C4-Phenanthrenes/Anthracenes	32.37	1474400	27.5797	37.4827
34)	Dibenzothiophene	24.41	60772	1.3752	1.8690
35)+36)+37)	C1-Dibenzothiophenes	26.21	140936	3.1892	4.3343
38)	C2-Dibenzothiophenes	27.97	344305	7.7911	10.5887
39)	C3-Dibenzothiophenes	29.50	716053	16.2032	22.0214
40)	C4-Dibenzothiophenes	31.50	712232	16.1168	21.9038
58)	Fluoranthene	28.94	626244	12.9932	17.6587
59)	Pyrene	29.70	576657	9.2082	12.5146
62)	C1-Fluoranthenes/Pyrenes	31.19	470278	9.7573	13.2609
63)	C2-Fluoranthenes/Pyrenes	32.57	944313	19.5925	26.6276
64)	C3-Fluoranthenes/Pyrenes	34.43	538498	11.1727	15.1845
65)	C4-Fluoranthenes/Pyrenes	35.32	1290670	26.7786	36.3940
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	33.77	281762	4.9554	6.7347
68)	Chrysene/Triphenylene	33.93	610770	12.6868	17.2423
69)	C1-Chrysenes	35.13	797844	16.5727	22.5235
70)	C2-Chrysenes	36.33	1014060	21.0640	28.6274
71)	C3-Chrysenes	38.00	971906	20.1883	27.4374
72)	C4-Chrysenes	39.47	496594	10.3152	14.0190
77)	Benzo(b)fluoranthene	37.34	1162770	23.1532	31.4669
78)	Benzo(k,j)fluoranthene	37.42	343901	8.9922	12.2210
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	765518	16.5453	22.4862
81)	Benzo(a)pyrene	38.50	109649	2.4132	3.2797
89)	Perylene	38.81	43190	0.9333	1.2685
82)	Indeno(1,2,3-c,d)pyrene	43.19	371030	6.4786	8.8048
83)	Dibenzo(a,h)anthracene	43.26	121459	2.6430	3.5921
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	389055	7.7772	10.5697

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	98278	3.5260	4.7920
10)	1-Methylnaphthalene	16.47	41878	1.6265	2.2105
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	25.89	41848	1.1614	1.5784
36)	2/3-Methyldibenzothiophene	26.21	76797	2.1313	2.8966
37)	1-Methyldibenzothiophene	26.52	22291	0.6186	0.8408
43)	3-Methylphenanthrene	26.48	60588	1.8294	2.4863
44)	2-Methylphenanthrene	26.59	85607	2.5849	3.5130
45)	2-Methylanthracene	26.73	119395	3.6051	4.8996
46)	4/9-Methylphenanthrene	26.86	49226	1.4864	2.0201
47)	1-Methylphenanthrene	26.93	43772	1.3217	1.7963
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	13.82	419018	10.57	63.45
21)	Acenaphthene-d10	19.67	262797	11.53	69.21
32)	Phenanthrene-d10	24.75	524074	12.26	73.58
66)	Chrysene-d12	33.85	615834	13.17	79.04
88)	Perylene-d12	38.70	11051	0.26	1.56
90)	5(b)H-Cholane	34.24	145357	20.30	121.88
	Internal Standards				
1)	Fluorene-d10	21.45	391694	16.72	
31)	Pyrene-d10	29.63	706610	16.70	
73)	Benzo(a)pyrene-d12	38.39	602163	16.68	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1628.D
Acq On : 18 Aug 2013 7:30 am
Operator : YM
Sample : SO-DA-015 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06662

Quant Time: Sep 08 16:16:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	391694m	251.05		0.00
31) Pyrene-d10	29.635	212	706610m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	602163m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	419018m	10.57		0.00
21) Acenaphthene-d10	19.672	164	262797m	11.53		0.00
32) Phenanthrene-d10	24.752	188	524074m	12.26		0.00
66) Chrysene-d12	33.847	240	615834m	13.17		0.00
88) Perylene-d12	38.697	264	11051m	0.26		0.00
90) 5(b)H-Cholane	34.235	217	145357m	20.30		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	13.878	128	140249m	3.17		
9) 2-Methylnaphthalene	16.134	142	98278m	3.53		
10) 1-Methylnaphthalene	16.468	142	41878m	1.63		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	274266m	6.20		
14) C3-Naphthalenes	21.455	170	252623m	5.71		
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	19.171	152	49555m	1.15		
24) Acenaphthene	19.700	154	8732m	0.35		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	92308m	2.79		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	70300m	2.12		
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	24.406	184	60772m	1.38		
35) 4-Methyldibenzothiophene	25.895	198	41848m	1.16		
36) 2/3-Methyldibenzothiop...	26.207	198	76797m	2.13		
37) 1-Methyldibenzothiophene	26.518	198	22291m	0.62		
38) C2-Dibenzothiophenes	27.973	212	344305m	7.79		
39) C3-Dibenzothiophenes	29.496	226	716053m	16.20		
40) C4-Dibenzothiophenes	31.505	240	712232m	16.12		
41) Phenanthrene	24.821	178	742808m	13.89		
42) Anthracene	24.995	178	88230m	1.78		
43) 3-Methylphenanthrene	26.484	192	60588m	1.83		

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1628.D
Acq On : 18 Aug 2013 7:30 am
Operator : YM
Sample : SO-DA-015 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06662

Quant Time: Sep 08 16:16:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.587	192	85607m	2.58		
45) 2-Methylanthracene	26.726	192	119395m	3.61		
46) 4/9-Methylphenanthrene	26.864	192	49226m	1.49		
47) 1-Methylphenanthrene	26.934	192	43772m	1.32		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.215	206	650815m	12.17		
51) C3-Phenanthrenes/Anthr...	29.946	220	1145471m	21.43		
52) C4-Phenanthrenes/Anthr...	32.373	234	1474404m	27.58		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	626244m	12.99		
59) Pyrene	29.704	202	576657m	9.21		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.193	216	470278m	9.76		
63) C2-Fluoranthenes/Pyrenes	32.567	230	944313m	19.59		
64) C3-Fluoranthenes/Pyrenes	34.429	244	538498m	11.17		
65) C4-Fluoranthenes/Pyrenes	35.322	258	1290666m	26.78		
67) Benz(a)anthracene	33.770	228	281762m	4.96		
68) Chrysene/Triphenylene	33.925	228	610770m	12.69		
69) C1-Chrysenes	35.128	242	797844m	16.57		
70) C2-Chrysenes	36.330	256	1014063m	21.06		
71) C3-Chrysenes	37.998	270	971906m	20.19		
72) C4-Chrysenes	39.473	284	496594m	10.32		
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	37.339	252	1162772m	23.15		
78) Benzo(k,j)fluoranthene	37.416	252	343901m	8.99		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	765518m	16.55		
81) Benzo(a)pyrene	38.503	252	109649m	2.41		
82) Indeno(1,2,3-c,d)pyrene	43.188	276	371030m	6.48		
83) Dibenzo(a,h)anthracene	43.262	278	121459m	2.64		
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	44.553	276	389055m	7.78		
89) Perylene	38.813	252	43190m	0.93		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1628.D
Acq On : 18 Aug 2013 7:30 am
Operator : YM
Sample : SO-DA-015 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06662

Quant Time: Sep 08 16:16:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

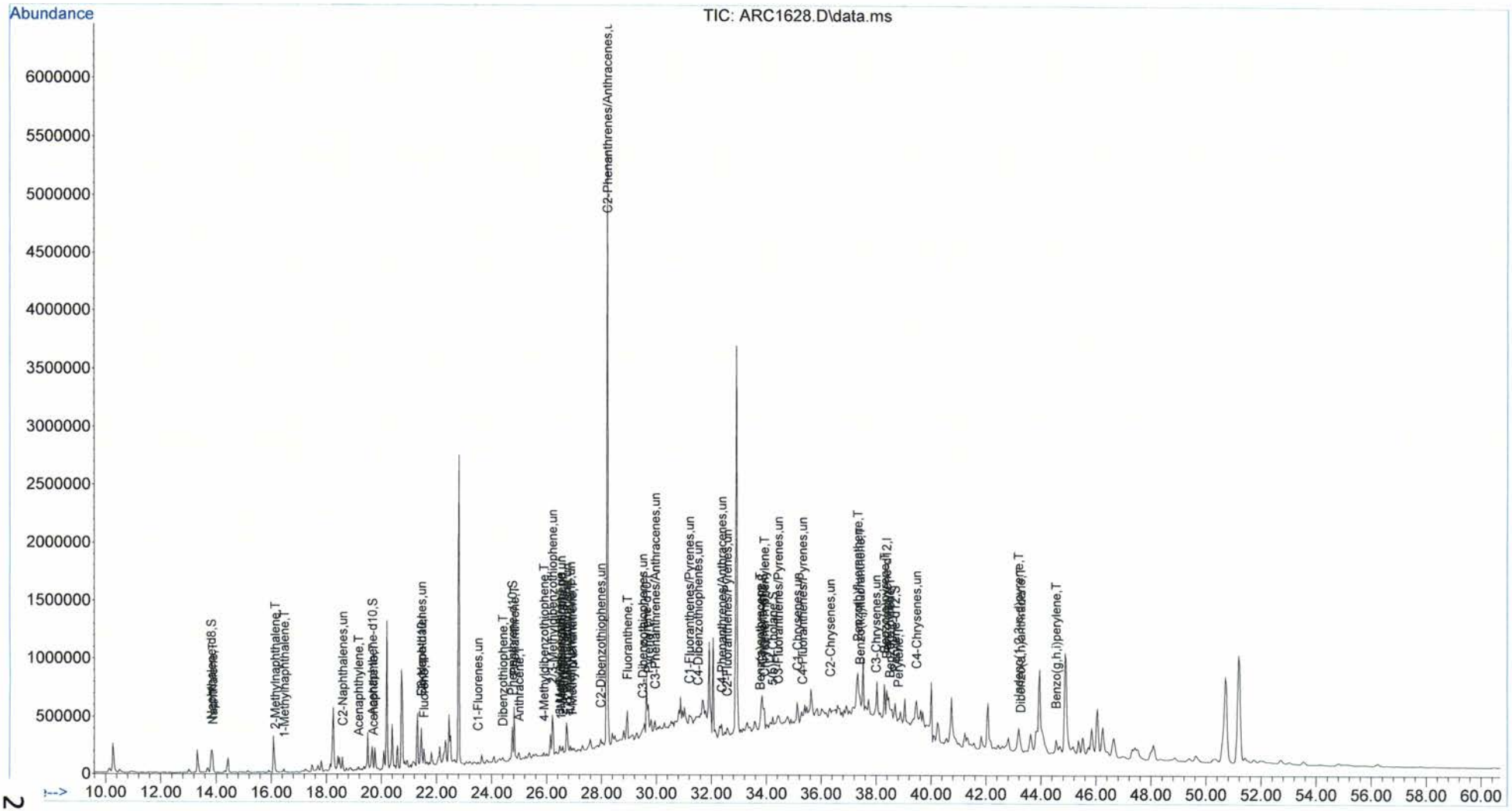
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1628.D
Acq On : 18 Aug 2013 7:30 am
Operator : YM
Sample : SO-DA-015 (0-0.5)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06662

Quant Time: Sep 08 16:16:10 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1629.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 8:39
Acq. Method File PAH-2012.M
Sample Name SO-DA-015 (0.5-1.0)
Misc Info 0
Instrument Name GCMSD
Vial Number 32
Sample Multiplier 0.06623
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1629.D
SO-DA-015 (0.5-1.0)
8/18/2013
PAH-2012.M
15.09889778

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	93283	2.2152	2.7371
9)+10)	C1-Naphthalenes	16.30	77518	1.8409	2.2745
13)	C2-Naphthalenes	18.59	138557	3.2904	4.0655
14)	C3-Naphthalenes	20.84	87637	2.0812	2.5714
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	19.17	17631	0.4289	0.5300
24)	Acenaphthene	19.70	6462	0.2754	0.3403
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	125231	3.9726	4.9085
28)	C1-Fluorenes	23.51	46470	1.4741	1.8214
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	24830	0.4776	0.5901
41)	Phenanthrene	24.82	774217	13.8107	17.0643
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	287424	5.1272	6.3350
50)	C2-Phenanthrenes/Anthracenes	28.22	456794	8.1485	10.0681
51)	C3-Phenanthrenes/Anthracenes	29.95	863541	15.4042	19.0331
52)	C4-Phenanthrenes/Anthracenes	31.78	892928	15.9284	19.6808
34)	Dibenzothiophene	24.41	43523	0.9392	1.1605
35)+36)+37)	C1-Dibenzothiophenes	26.21	118051	2.5475	3.1476
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.94	246837	4.8839	6.0344
59)	Pyrene	29.70	159706	2.4320	3.0049
62)	C1-Fluoranthenes/Pyrenes	31.19	263504	5.2137	6.4419
63)	C2-Fluoranthenes/Pyrenes	32.57	506702	10.0256	12.3874
64)	C3-Fluoranthenes/Pyrenes	34.43	370160	7.3239	9.0493
65)	C4-Fluoranthenes/Pyrenes	35.32	717528	14.1969	17.5415
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	33.77	74331	1.2466	1.5403
68)	Chrysene/Triphenylene	33.89	248562	4.9237	6.0836
69)	C1-Chrysenes	35.13	512634	10.1546	12.5469
70)	C2-Chrysenes	36.29	642287	12.7229	15.7202
71)	C3-Chrysenes	38.08	500052	9.9054	12.2390
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.34	343687	6.4721	7.9968
78)	Benzo(k,j)fluoranthene	37.42	83632	2.0681	2.5553
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	267460	5.4669	6.7548
81)	Benzo(a)pyrene	38.46	60685	1.2631	1.5606
89)	Perylene	38.77	22641	0.4627	0.5717
82)	Indeno(1,2,3-c,d)pyrene	43.19	118572	1.9580	2.4193
83)	Dibenzo(a,h)anthracene	43.26	42567	0.8760	1.0824
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	152894	2.8905	3.5714

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	55686	2.0986	2.5930
10)	1-Methylnaphthalene	16.47	21832	0.8907	1.1005
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	25.90	27209	0.7201	0.8897
36)	2/3-Methyldibenzothiophene	26.21	73622	1.9484	2.4075
37)	1-Methyldibenzothiophene	26.52	17220	0.4557	0.5631
43)	3-Methylphenanthrene	26.48	46600	1.3418	1.6580
44)	2-Methylphenanthrene	26.59	59318	1.7081	2.1104
45)	2-Methylanthracene	26.73	113380	3.2648	4.0339
46)	4/9-Methylphenanthrene	26.86	31084	0.8951	1.1059
47)	1-Methylphenanthrene	26.93	37042	1.0666	1.3179
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	13.82	483701	12.82	77.39
21)	Acenaphthene-d10	19.67	219959	10.14	61.21
32)	Phenanthrene-d10	24.75	600941	13.41	80.93
66)	Chrysene-d12	33.81	652301	13.30	80.31
88)	Perylene-d12	38.70	8290	0.18	1.11
90)	5(b)H-Cholane	34.24	119807	15.82	95.57
	Internal Standards				
1)	Fluorene-d10	21.45	370709	16.63	
31)	Pyrene-d10	29.63	736628	16.60	
73)	Benzo(a)pyrene-d12	38.39	632990	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1629.D
Acq On : 18 Aug 2013 8:39 am
Operator : YM
Sample : SO-DA-015 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:05:42 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	370709m	251.05		0.00
31) Pyrene-d10	29.635	212	736628m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	632990m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	483701m	12.82		0.00
21) Acenaphthene-d10	19.672	164	219959m	10.14		0.00
32) Phenanthrene-d10	24.752	188	600941m	13.41		0.00
66) Chrysene-d12	33.809	240	652301m	13.30		-0.04
88) Perylene-d12	38.697	264	8290m	0.18		0.00
90) 5(b)H-Cholane	34.235	217	119807m	15.82		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	13.878	128	93283m	2.22		
9) 2-Methylnaphthalene	16.134	142	55686m	2.10		
10) 1-Methylnaphthalene	16.469	142	21832m	0.89		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	138557m	3.29		
14) C3-Naphthalenes	20.842	170	87637m	2.08		
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	19.171	152	17631m	0.43		
24) Acenaphthene	19.700	154	6462m	0.28		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	125231m	3.97		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	46470m	1.47		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.406	184	43523m	0.94		
35) 4-Methyldibenzothiophene	25.895	198	27209m	0.72		
36) 2/3-Methyldibenzothiop...	26.207	198	73622m	1.95		
37) 1-Methyldibenzothiophene	26.518	198	17220m	0.46		
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	24.822	178	774217m	13.81		
42) Anthracene	24.995	178	24830m	0.48		
43) 3-Methylphenanthrene	26.484	192	46600m	1.34		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1629.D
Acq On : 18 Aug 2013 8:39 am
Operator : YM
Sample : SO-DA-015 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:05:42 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.588	192	59318m	1.71		
45)	2-Methylanthracene	26.726	192	113380m	3.26		
46)	4/9-Methylphenanthrene	26.865	192	31084m	0.90		
47)	1-Methylphenanthrene	26.934	192	37042m	1.07		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.215	206	456794m	8.15		
51)	C3-Phenanthrenes/Anthr...	29.946	220	863541m	15.40		
52)	C4-Phenanthrenes/Anthr...	31.782	234	892928m	15.93		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.942	202	246837m	4.88		
59)	Pyrene	29.704	202	159706m	2.43		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.193	216	263504m	5.21		
63)	C2-Fluoranthenes/Pyrenes	32.567	230	506702m	10.03		
64)	C3-Fluoranthenes/Pyrenes	34.429	244	370160m	7.32		
65)	C4-Fluoranthenes/Pyrenes	35.322	258	717528m	14.20		
67)	Benz(a)anthracene	33.770	228	74331m	1.25		
68)	Chrysene/Triphenylene	33.886	228	248562m	4.92		
69)	C1-Chrysenes	35.128	242	512634m	10.15		
70)	C2-Chrysenes	36.292	256	642287m	12.72		
71)	C3-Chrysenes	38.076	270	500052m	9.91		
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	37.339	252	343687m	6.47		
78)	Benzo(k,j)fluoranthene	37.417	252	83632m	2.07		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.309	252	267460m	5.47		
81)	Benzo(a)pyrene	38.464	252	60685m	1.26		
82)	Indeno(1,2,3-c,d)pyrene	43.189	276	118572m	1.96		
83)	Dibenzo(a,h)anthracene	43.262	278	42567m	0.88		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.553	276	152894m	2.89		
89)	Perylene	38.774	252	22641m	0.46		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1629.D
Acq On : 18 Aug 2013 8:39 am
Operator : YM
Sample : SO-DA-015 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:05:42 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

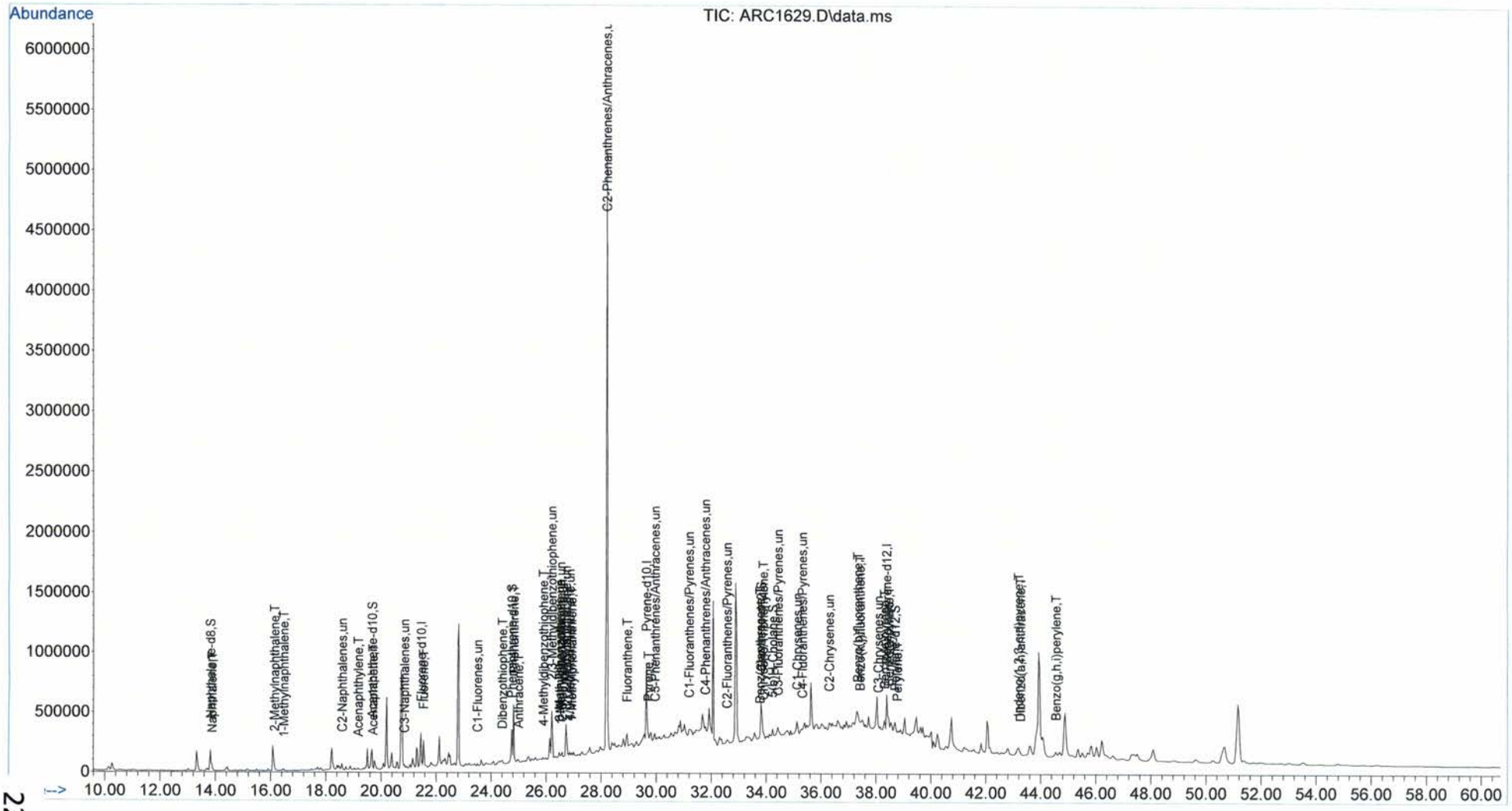
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1629.D
Acq On : 18 Aug 2013 8:39 am
Operator : YM
Sample : SO-DA-015 (0.5-1.0)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06623

Quant Time: Sep 05 21:05:42 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1630.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 9:47
Acq. Method File PAH-2012.M
Sample Name SO-DA-015 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 33
Sample Multiplier 0.06631
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

ARC1630.D
SO-DA-015 (1.0-1.5)
8/18/2013
PAH-2012.M
15.08068165

#	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	13.88	70212	1.7359	2.2956
9)+10)	C1-Naphthalenes	16.30	47478	1.1739	1.5523
13)	C2-Naphthalenes	18.59	76862	1.9004	2.5131
14)	C3-Naphthalenes	20.84	61635	1.5239	2.0152
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	19.17	8597	0.2177	0.2880
24)	Acenaphthene	19.70	2018	0.0895	0.1184
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	49946	1.6496	2.1814
28)	C1-Fluorenes	23.51	21519	0.7107	0.9399
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.99	13477	0.2639	0.3490
41)	Phenanthrene	24.82	288061	5.2309	6.9175
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	202041	3.6689	4.8518
50)	C2-Phenanthrenes/Anthracenes	28.22	325339	5.9079	7.8127
51)	C3-Phenanthrenes/Anthracenes	29.95	293585	5.3313	7.0502
52)	C4-Phenanthrenes/Anthracenes	31.78	332183	6.0322	7.9771
34)	Dibenzothiophene	24.41	29504	0.6481	0.8571
35)+36)+37)	C1-Dibenzothiophenes	26.21	42183	0.9267	1.2254
38)	C2-Dibenzothiophenes	27.97	96174	2.1127	2.7939
39)	C3-Dibenzothiophenes	28.80	209725	4.6071	6.0925
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.91	118237	2.3815	3.1493
59)	Pyrene	29.70	87783	1.3608	1.7995
62)	C1-Fluoranthenes/Pyrenes	31.19	98280	1.9795	2.6178
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	33.77	43897	0.7495	0.9911
68)	Chrysene/Triphenylene	33.89	125510	2.5309	3.3469
69)	C1-Chrysenes	35.13	247082	4.9824	6.5888
70)	C2-Chrysenes	36.29	230869	4.6555	6.1565
71)	C3-Chrysenes	38.08	198181	3.9963	5.2848
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.30	173618	2.9639	3.9195
78)	Benzo(k,j)fluoranthene	37.42	30660	0.6873	0.9089
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.31	102899	1.9067	2.5215
81)	Benzo(a)pyrene	38.46	15700	0.2962	0.3917
89)	Perylene	38.77	13144	0.2435	0.3220
82)	Indeno(1,2,3-c,d)pyrene	43.19	51535	0.7715	1.0202
83)	Dibenzo(a,h)anthracene	43.23	17542	0.3273	0.4328
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.55	54152	0.9281	1.2273

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	33235	1.3040	1.7245
10)	1-Methylnaphthalene	16.47	14243	0.6050	0.8000
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	25.90	18695	0.5037	0.6661
36)	2/3-Methyldibenzothiophene	26.21	14797	0.3987	0.5272
37)	1-Methyldibenzothiophene	26.52	8691	0.2341	0.3096
43)	3-Methylphenanthrene	26.48	26926	0.7893	1.0438
44)	2-Methylphenanthrene	26.59	33298	0.9761	1.2907
45)	2-Methylanthracene	26.73	108282	3.1740	4.1974
46)	4/9-Methylphenanthrene	26.86	16054	0.4706	0.6223
47)	1-Methylphenanthrene	26.93	17481	0.5124	0.6776
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	13.82	491583	13.57	81.79
21)	Acenaphthene-d10	19.67	245605	11.79	71.07
32)	Phenanthrene-d10	24.75	552227	12.55	75.62
66)	Chrysene-d12	33.81	726604	15.08	90.96
88)	Perylene-d12	38.70	1357	0.03	0.16
90)	5(b)H-Cholane	34.24	126045	15.09	91.04
	Internal Standards				
1)	Fluorene-d10	21.46	356494	16.65	
31)	Pyrene-d10	29.63	724489	16.62	
73)	Benzo(a)pyrene-d12	38.39	699093	16.60	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1630.D
Acq On : 18 Aug 2013 9:47 am
Operator : YM
Sample : SO-DA-015 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06631

Quant Time: Sep 05 21:41:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	356494m	251.05		0.00
31) Pyrene-d10	29.635	212	724489m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	699093m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	491583m	13.57		0.00
21) Acenaphthene-d10	19.672	164	245605m	11.79		0.00
32) Phenanthrene-d10	24.752	188	552227m	12.55		0.00
66) Chrysene-d12	33.809	240	726604m	15.08		-0.04
88) Perylene-d12	38.697	264	1357m	0.03		0.00
90) 5(b)H-Cholane	34.235	217	126045m	15.09		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	13.878	128	70212m	1.74		
9) 2-Methylnaphthalene	16.134	142	33235m	1.30		
10) 1-Methylnaphthalene	16.469	142	14243m	0.60		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	76862m	1.90		
14) C3-Naphthalenes	20.842	170	61635m	1.52		
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	19.171	152	8597m	0.22		
24) Acenaphthene	19.700	154	2018m	0.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	49946m	1.65		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	21519m	0.71		
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	24.406	184	29504m	0.65		
35) 4-Methyldibenzothiophene	25.895	198	18695m	0.50		
36) 2/3-Methyldibenzothiop...	26.207	198	14797m	0.40		
37) 1-Methyldibenzothiophene	26.518	198	8691m	0.23		
38) C2-Dibenzothiophenes	27.973	212	96174m	2.11		
39) C3-Dibenzothiophenes	28.804	226	209725m	4.61		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	288061m	5.23		
42) Anthracene	24.995	178	13477m	0.26		
43) 3-Methylphenanthrene	26.484	192	26926m	0.79		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1630.D
Acq On : 18 Aug 2013 9:47 am
Operator : YM
Sample : SO-DA-015 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06631

Quant Time: Sep 05 21:41:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.588	192	33298m	0.98		
45) 2-Methylanthracene	26.726	192	108282m	3.17		
46) 4/9-Methylphenanthrene	26.865	192	16054m	0.47		
47) 1-Methylphenanthrene	26.934	192	17481m	0.51		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.215	206	325339m	5.91		
51) C3-Phenanthrenes/Anthr...	29.947	220	293585m	5.33		
52) C4-Phenanthrenes/Anthr...	31.782	234	332183m	6.03		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.908	202	118237m	2.38		
59) Pyrene	29.704	202	87783m	1.36		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.193	216	98280m	1.98		
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	33.770	228	43897m	0.75		
68) Chrysene/Triphenylene	33.886	228	125510m	2.53		
69) C1-Chrysenes	35.128	242	247082m	4.98		
70) C2-Chrysenes	36.292	256	230869m	4.66		
71) C3-Chrysenes	38.076	270	198181m	4.00		
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	37.300	252	173618m	2.96		
78) Benzo(k,j)fluoranthene	37.417	252	30660m	0.69		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	102899m	1.91		
81) Benzo(a)pyrene	38.464	252	15700m	0.30		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	51535m	0.77		
83) Dibenzo(a,h)anthracene	43.226	278	17542m	0.33		
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	44.553	276	54152m	0.93		
89) Perylene	38.774	252	13144m	0.24		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1630.D
Acq On : 18 Aug 2013 9:47 am
Operator : YM
Sample : SO-DA-015 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06631

Quant Time: Sep 05 21:41:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

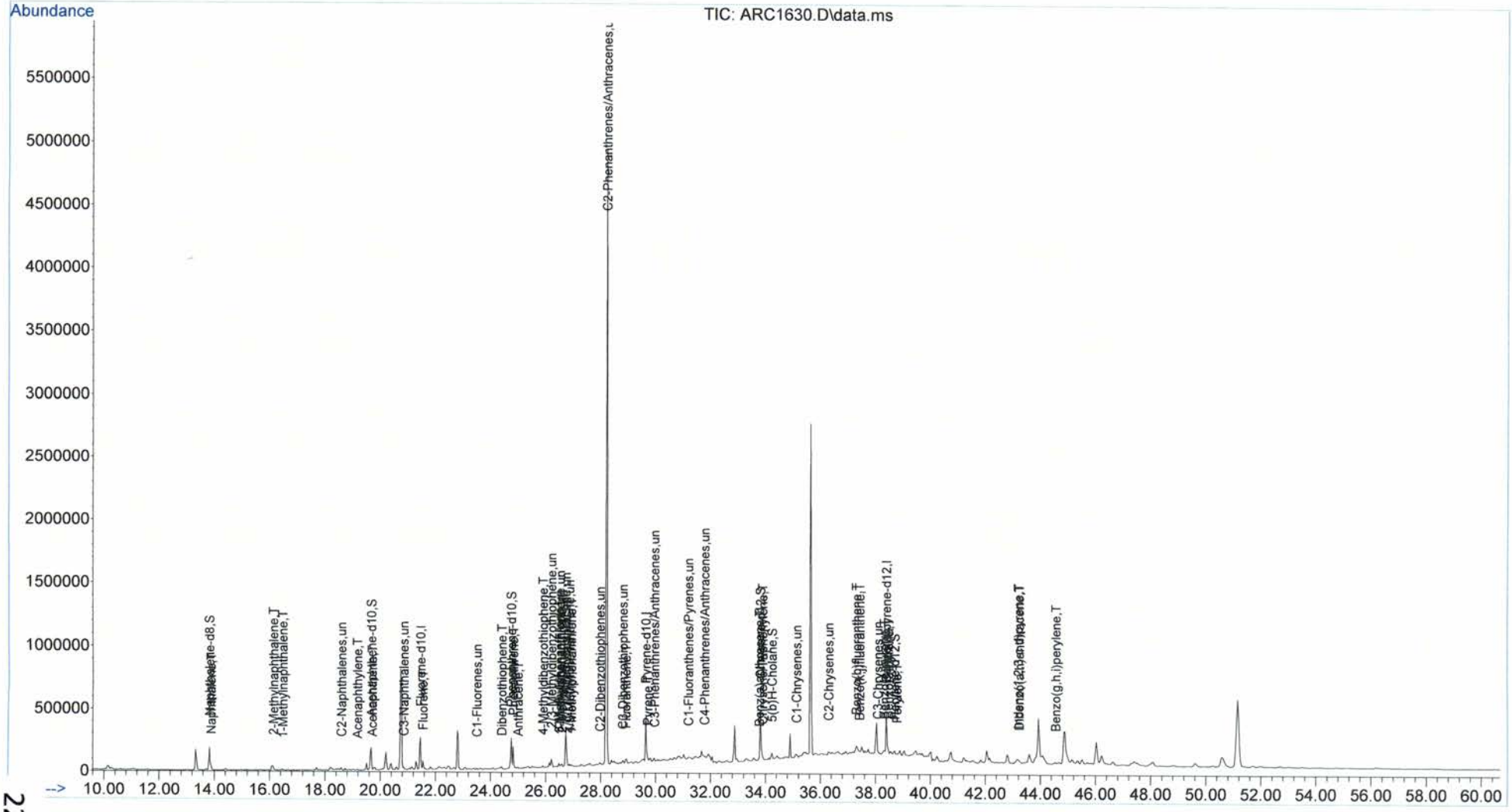
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1630.D
Acq On : 18 Aug 2013 9:47 am
Operator : YM
Sample : SO-DA-015 (1.0-1.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06631

Quant Time: Sep 05 21:41:28 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1641.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 10:56
Acq. Method File PAH-2012.M
Sample Name SED-DA-012 (0.5-1.0)
Misc Info 0
Instrument Name GCMSD
Vial Number 34
Sample Multiplier 0.06649
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

ARC1641.D
SED-DA-012 (0.5-1.0)
8/18/2013
PAH-2012.M
15.03985562

#	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	13.88	45484	1.1819	1.6203
9)+10)	C1-Naphthalenes	16.30	35159	0.9136	1.2525
13)	C2-Naphthalenes	18.25	34339	0.8923	1.2232
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	17.69	10557	0.3202	0.4389
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	43998	1.5272	2.0937
28)	C1-Fluorenes	23.51	10987	0.3814	0.5228
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.82	204845	3.8118	5.2255
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	24.41	13170	0.2965	0.4064
35)+36)+37)	C1-Dibenzothiophenes	26.21	11955	0.2691	0.3689
38)	C2-Dibenzothiophenes	27.97	10444	0.2351	0.3223
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.91	24307	0.5017	0.6878
59)	Pyrene	29.70	2408	0.0383	0.0524
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	33.81	3424	0.0599	0.0821
68)	Chrysene/Triphenylene	33.89	2986	0.0617	0.0846
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	2339	0.0462	0.0634
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	26395	1.0885	1.4922
10)	1-Methylnaphthalene	16.47	8764	0.3912	0.5363
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	25.90	6162	0.1701	0.2332
36)	2/3-Methyldibenzothiophene	26.21	3815	0.1053	0.1444
37)	1-Methyldibenzothiophene	26.52	1978	0.0546	0.0749
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	13.82	454048	13.17	79.18
21)	Acenaphthene-d10	19.67	105938	5.34	32.13
32)	Phenanthrene-d10	24.75	521260	12.13	72.95
66)	Chrysene-d12	33.81	691138	14.70	88.42
88)	Perylene-d12	38.70	584	0.01	0.08
90)	5(b)H-Cholane	34.24	116169	14.84	89.26
	Internal Standards				
1)	Fluorene-d10	21.46	340116	16.69	
31)	Pyrene-d10	29.63	708926	16.66	
73)	Benzo(a)pyrene-d12	38.39	657110	16.64	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1641.D
Acq On : 18 Aug 2013 10:56 am
Operator : YM
Sample : SED-DA-012 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:42:22 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	340116m	251.05		0.00
31) Pyrene-d10	29.635	212	708926m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	657110m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	454048m	13.17		0.00
21) Acenaphthene-d10	19.672	164	105938m	5.34		0.00
32) Phenanthrene-d10	24.752	188	521260m	12.13		0.00
66) Chrysene-d12	33.809	240	691138m	14.70		-0.04
88) Perylene-d12	38.697	264	584m	0.01		0.00
90) 5(b)H-Cholane	34.235	217	116169m	14.84		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	13.878	128	45484m	1.18		
9) 2-Methylnaphthalene	16.134	142	26395m	1.09		
10) 1-Methylnaphthalene	16.469	142	8764m	0.39		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.251	156	34339m	0.89		
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	17.694	154	10557m	0.32		
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.539	166	43998m	1.53		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	10987m	0.38		
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	24.406	184	13170m	0.30		
35) 4-Methyldibenzothiophene	25.895	198	6162m	0.17		
36) 2/3-Methyldibenzothiop...	26.207	198	3815m	0.11		
37) 1-Methyldibenzothiophene	26.518	198	1978m	0.05		
38) C2-Dibenzothiophenes	27.973	212	10444m	0.24		
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	204845m	3.81		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1641.D
Acq On : 18 Aug 2013 10:56 am
Operator : YM
Sample : SED-DA-012 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:42:22 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	0.000		0		N.D.	d
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.908	202	24307m	0.50		
59) Pyrene	29.704	202	2408m	0.04		
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	33.809	228	3424m	0.06		
68) Chrysene/Triphenylene	33.886	228	2986m	0.06		
69) C1-Chrysenes	0.000		0		N.D.	d
70) C2-Chrysenes	0.000		0		N.D.	d
71) C3-Chrysenes	0.000		0		N.D.	d
72) C4-Chrysenes	0.000		0		N.D.	d
74) C29-Hopane	0.000		0		N.D.	d
75) 18a-Oleanane	0.000		0		N.D.	d
76) C30-Hopane	0.000		0		N.D.	d
77) Benzo(b)fluoranthene	0.000		0		N.D.	d
78) Benzo(k,j)fluoranthene	0.000		0		N.D.	d
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	0.000		0		N.D.	d
81) Benzo(a)pyrene	0.000		0		N.D.	d
82) Indeno(1,2,3-c,d)pyrene	0.000		0		N.D.	d
83) Dibenzo(a,h)anthracene	0.000		0		N.D.	d
84) C1-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
85) C2-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
86) C3-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
87) Benzo(g,h,i)perylene	0.000		0		N.D.	d
89) Perylene	38.774	252	2339m	0.05		
91) C20-TAS	0.000		0		N.D.	d
92) C21-TAS	0.000		0		N.D.	d
93) C26(20S)-TAS	0.000		0		N.D.	d
94) C26(20R)/C27(20S)-TAS	0.000		0		N.D.	d
95) C28(20S)-TAS	0.000		0		N.D.	d
96) C27(20R)-TAS	0.000		0		N.D.	d
97) C28(20R)-TAS	0.000		0		N.D.	d

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1641.D
Acq On : 18 Aug 2013 10:56 am
Operator : YM
Sample : SED-DA-012 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:42:22 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

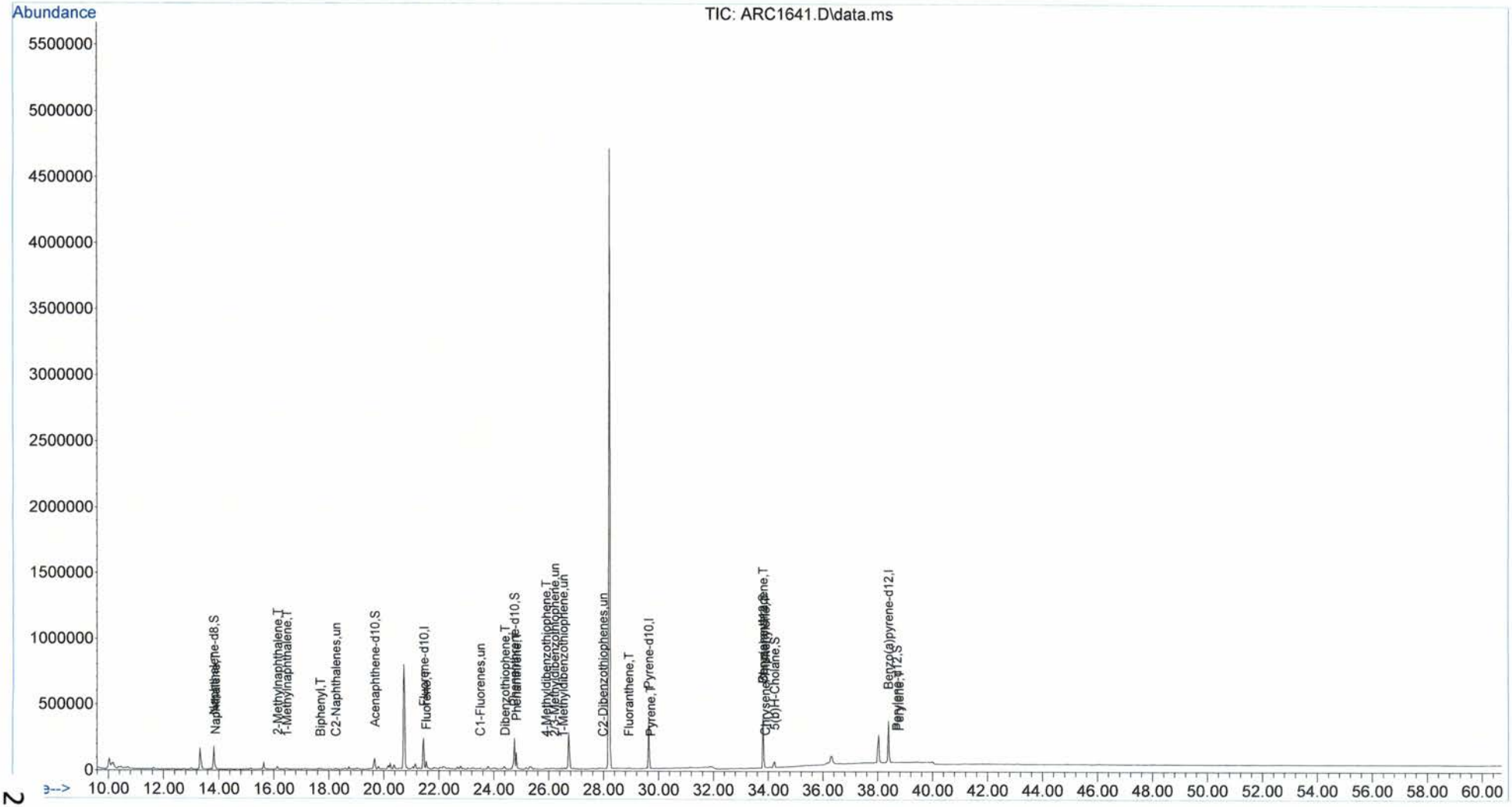
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1641.D
Acq On : 18 Aug 2013 10:56 am
Operator : YM
Sample : SED-DA-012 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.06649

Quant Time: Sep 05 21:42:22 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1642.D
Data File Path C:\GCMS7\MS70057\
Operator YM
Date Acquired 8/18/2013 12:04
Acq. Method File PAH-2012.M
Sample Name SED-DA-012 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 35
Sample Multiplier 0.06658
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1642.D
SED-DA-012 (1.0-1.5)
8/18/2013
PAH-2012.M
15.01952538

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	44292	1.1901	1.6140
9)+10)	C1-Naphthalenes	16.30	50140	1.3472	1.8271
13)	C2-Naphthalenes	18.25	66890	1.7972	2.4375
14)	C3-Naphthalenes	20.15	47363	1.2726	1.7259
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	52965	1.9010	2.5782
28)	C1-Fluorenes	23.51	20731	0.7441	1.0091
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.82	275445	5.3781	7.2939
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	157181	3.0690	4.1622
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	24.41	18387	0.4343	0.5890
35)+36)+37)	C1-Dibenzothiophenes	26.21	17949	0.4240	0.5750
38)	C2-Dibenzothiophenes	27.38	14553	0.3437	0.4662
39)	C3-Dibenzothiophenes	28.49	9857	0.2328	0.3158
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.91	31175	0.6751	0.9157
59)	Pyrene	29.70	3370	0.0562	0.0762
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	33.81	3568	0.0655	0.0888
68)	Chrysene/Triphenylene	33.89	2281	0.0495	0.0671
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	36597	1.5605	2.1164
10)	1-Methylnaphthalene	16.47	13543	0.6251	0.8478
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	25.89	8312	0.2408	0.3266
36)	2/3-Methyldibenzothiophene	26.21	5280	0.1530	0.2074
37)	1-Methyldibenzothiophene	26.52	4357	0.1262	0.1712
43)	3-Methylphenanthrene	26.48	15529	0.4894	0.6638
44)	2-Methylphenanthrene	26.59	18176	0.5729	0.7769
45)	2-Methylanthracene	26.73	100983	3.1827	4.3165
46)	4/9-Methylphenanthrene	26.86	9640	0.3038	0.4121
47)	1-Methylphenanthrene	26.93	12853	0.4051	0.5494
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	13.82	438760	13.16	79.01
21)	Acenaphthene-d10	19.67	136866	7.14	42.86
32)	Phenanthrene-d10	24.75	502830	12.28	73.73
66)	Chrysene-d12	33.81	664004	14.82	89.01
88)	Perylene-d12	38.70	782	0.02	0.11
90)	5(b)H-Cholane	34.24	107745	14.59	87.64
	Internal Standards				
1)	Fluorene-d10	21.45	329379	16.71	
31)	Pyrene-d10	29.63	676551	16.69	
73)	Benzo(a)pyrene-d12	38.39	620743	16.67	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1642.D
Acq On : 18 Aug 2013 12:04 pm
Operator : YM
Sample : SED-DA-012 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06658

Quant Time: Sep 05 21:31:06 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	329379m	251.05		0.00
31) Pyrene-d10	29.635	212	676551m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	620743m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	438760m	13.16		0.00
21) Acenaphthene-d10	19.672	164	136866m	7.14		0.00
32) Phenanthrene-d10	24.752	188	502830m	12.28		0.00
66) Chrysene-d12	33.809	240	664004m	14.82		-0.04
88) Perylene-d12	38.697	264	782m	0.02		0.00
90) 5(b)H-Cholane	34.235	217	107745m	14.59		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	13.878	128	44292m	1.19		
9) 2-Methylnaphthalene	16.134	142	36597m	1.56		
10) 1-Methylnaphthalene	16.468	142	13543m	0.63		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.251	156	66890m	1.80		
14) C3-Naphthalenes	20.145	170	47363m	1.27		
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	52965m	1.90		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	20731m	0.74		
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	24.406	184	18387m	0.43		
35) 4-Methyldibenzothiophene	25.895	198	8312m	0.24		
36) 2/3-Methyldibenzothiop...	26.207	198	5280m	0.15		
37) 1-Methyldibenzothiophene	26.518	198	4357m	0.13		
38) C2-Dibenzothiophenes	27.384	212	14553m	0.34		
39) C3-Dibenzothiophenes	28.492	226	9857m	0.23		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.821	178	275445m	5.38		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.484	192	15529m	0.49		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1642.D
Acq On : 18 Aug 2013 12:04 pm
Operator : YM
Sample : SED-DA-012 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06658

Quant Time: Sep 05 21:31:06 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.587	192	18176m	0.57		
45) 2-Methylanthracene	26.726	192	100983m	3.18		
46) 4/9-Methylphenanthrene	26.864	192	9640m	0.30		
47) 1-Methylphenanthrene	26.934	192	12853m	0.41		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.907	202	31175m	0.68		
59) Pyrene	29.704	202	3370m	0.06		
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	33.809	228	3568m	0.07		
68) Chrysene/Triphenylene	33.886	228	2281m	0.05		
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 : C:\msdchem\2\data\MS70057\
Data File : ARC1642.D
Acq On : 18 Aug 2013 12:04 pm
Operator : YM
Sample : SED-DA-012 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06658

Quant Time: Sep 05 21:31:06 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

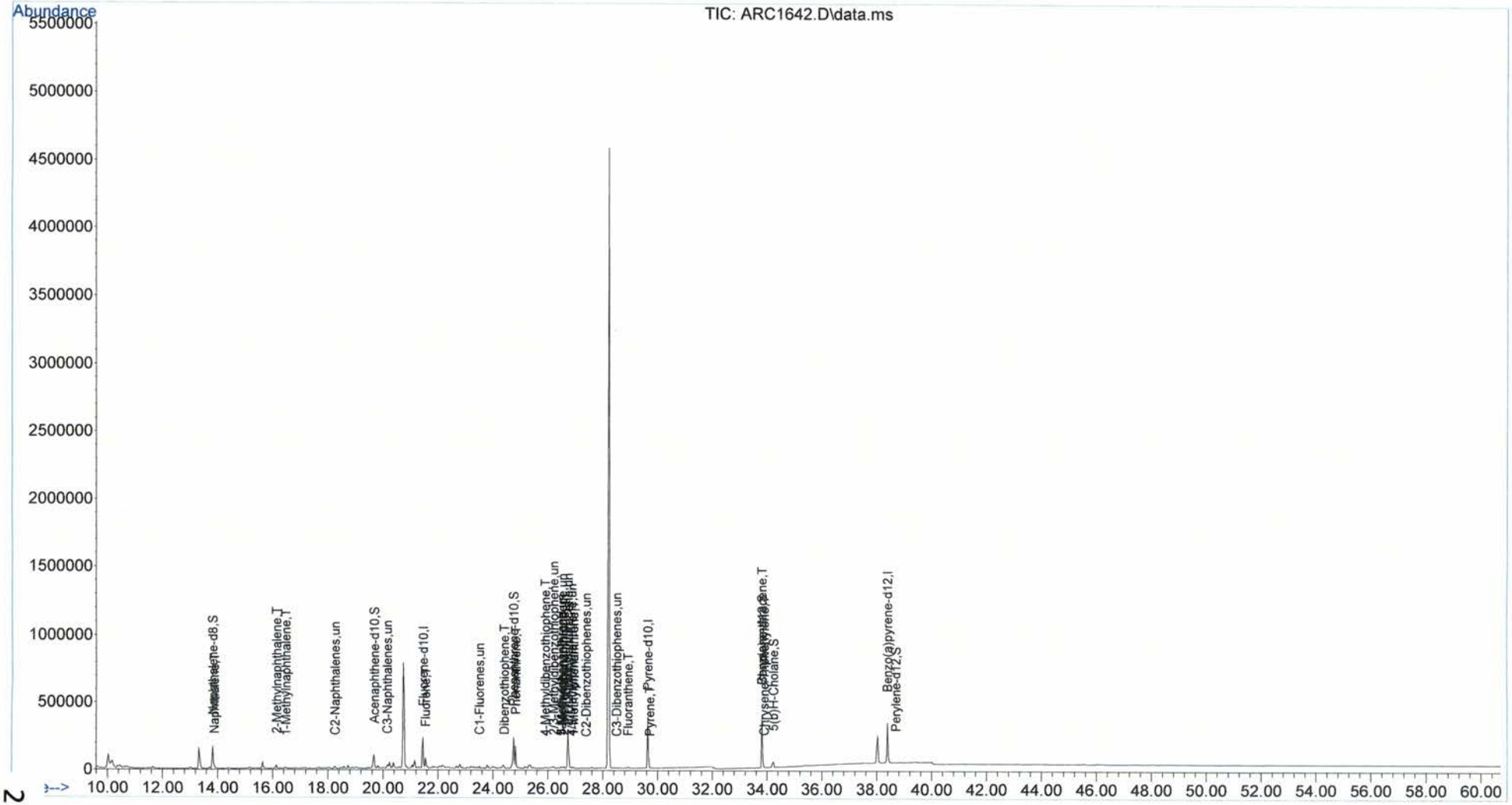
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1642.D
Acq On : 18 Aug 2013 12:04 pm
Operator : YM
Sample : SED-DA-012 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06658

Quant Time: Sep 05 21:31:06 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1643.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 13:13
Acq. Method File PAH-2012.M
Sample Name SED-DA-013 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 36
Sample Multiplier 0.06636
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1643.D
SED-DA-013 (1.0-1.5)
8/18/2013
PAH-2012.M
15.06931887

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	33851	0.8372	1.1702
9)+10)	C1-Naphthalenes	16.30	40506	1.0018	1.4002
13)	C2-Naphthalenes	18.59	106187	2.6261	3.6707
14)	C3-Naphthalenes	20.15	129407	3.2004	4.4733
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	19.17	2044	0.0518	0.0724
24)	Acenaphthene	19.70	1008	0.0447	0.0625
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	54996	1.8169	2.5395
28)	C1-Fluorenes	23.51	19212	0.6347	0.8871
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.82	258279	4.5911	6.4172
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	24.41	15610	0.3357	0.4692
35)+36)+37)	C1-Dibenzothiophenes	26.21	14436	0.3104	0.4339
38)	C2-Dibenzothiophenes	27.97	12391	0.2664	0.3724
39)	C3-Dibenzothiophenes	28.80	11392	0.2450	0.3424
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.91	31506	0.6212	0.8683
59)	Pyrene	29.70	7155	0.1086	0.1518
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	33.81	4399	0.0735	0.1028
68)	Chrysene/Triphenylene	33.89	2654	0.0524	0.0732
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	38.77	8622	0.1684	0.2354
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	26572	1.0429	1.4577
10)	1-Methylnaphthalene	16.47	13934	0.5920	0.8275
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	25.90	6975	0.1839	0.2571
36)	2/3-Methyldibenzothiophene	26.21	4218	0.1112	0.1555
37)	1-Methyldibenzothiophene	26.52	3243	0.0855	0.1195
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	13.82	458147	12.65	76.19
21)	Acenaphthene-d10	19.67	271453	13.03	78.51
32)	Phenanthrene-d10	24.75	534138	11.88	71.54
66)	Chrysene-d12	33.81	717338	14.57	87.83
88)	Perylene-d12	38.70	142992	3.03	18.27
90)	5(b)H-Cholane	34.24	118110	14.91	89.85
	Internal Standards				
1)	Fluorene-d10	21.45	356666	16.66	
31)	Pyrene-d10	29.63	740680	16.63	
73)	Benzo(a)pyrene-d12	38.39	663704	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1643.D
Acq On : 18 Aug 2013 1:13 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06636

Quant Time: Sep 05 21:49:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	356666m	251.05		0.00
31) Pyrene-d10	29.635	212	740680m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	663704m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	458147m	12.65		0.00
21) Acenaphthene-d10	19.672	164	271453m	13.03		0.00
32) Phenanthrene-d10	24.752	188	534138m	11.88		0.00
66) Chrysene-d12	33.809	240	717338m	14.57		-0.04
88) Perylene-d12	38.697	264	142992m	3.03		0.00
90) 5(b)H-Cholane	34.235	217	118110m	14.91		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	13.878	128	33851m	0.84		
9) 2-Methylnaphthalene	16.134	142	26572m	1.04		
10) 1-Methylnaphthalene	16.468	142	13934m	0.59		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.586	156	106187m	2.63		
14) C3-Naphthalenes	20.146	170	129407m	3.20		
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	19.171	152	2044m	0.05		
24) Acenaphthene	19.700	154	1008m	0.04		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	54996m	1.82		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	19212m	0.63		
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	24.406	184	15610m	0.34		
35) 4-Methyldibenzothiophene	25.895	198	6975m	0.18		
36) 2/3-Methyldibenzothiop...	26.207	198	4218m	0.11		
37) 1-Methyldibenzothiophene	26.518	198	3243m	0.09		
38) C2-Dibenzothiophenes	27.973	212	12391m	0.27		
39) C3-Dibenzothiophenes	28.804	226	11392m	0.24		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	258279m	4.59		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1643.D
Acq On : 18 Aug 2013 1:13 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06636

Quant Time: Sep 05 21:49:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0		N.D.	d
45) 2-Methylanthracene	0.000		0		N.D.	d
46) 4/9-Methylphenanthrene	0.000		0		N.D.	d
47) 1-Methylphenanthrene	0.000		0		N.D.	d
48) 3,6-Dimethylphenanthrene	0.000		0		N.D.	d
49) Retene	0.000		0		N.D.	d
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	d
53) Naphthobenzothiophene	0.000		0		N.D.	d
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.908	202	31506m	0.62		
59) Pyrene	29.704	202	7155m	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	33.809	228	4399m	0.07		
68) Chrysene/Triphenylene	33.886	228	2654m	0.05		
69) C1-Chrysenes	0.000		0		N.D.	d
70) C2-Chrysenes	0.000		0		N.D.	d
71) C3-Chrysenes	0.000		0		N.D.	d
72) C4-Chrysenes	0.000		0		N.D.	d
74) C29-Hopane	0.000		0		N.D.	d
75) 18a-Oleanane	0.000		0		N.D.	d
76) C30-Hopane	0.000		0		N.D.	d
77) Benzo(b)fluoranthene	0.000		0		N.D.	d
78) Benzo(k,j)fluoranthene	0.000		0		N.D.	d
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	0.000		0		N.D.	d
81) Benzo(a)pyrene	0.000		0		N.D.	d
82) Indeno(1,2,3-c,d)pyrene	0.000		0		N.D.	d
83) Dibenzo(a,h)anthracene	0.000		0		N.D.	d
84) C1-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
85) C2-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
86) C3-Dibenzo(a,h)anthrac...	0.000		0		N.D.	d
87) Benzo(g,h,i)perylene	0.000		0		N.D.	d
89) Perylene	38.774	252	8622m	0.17		
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

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1643.D
Acq On : 18 Aug 2013 1:13 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06636

Quant Time: Sep 05 21:49:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

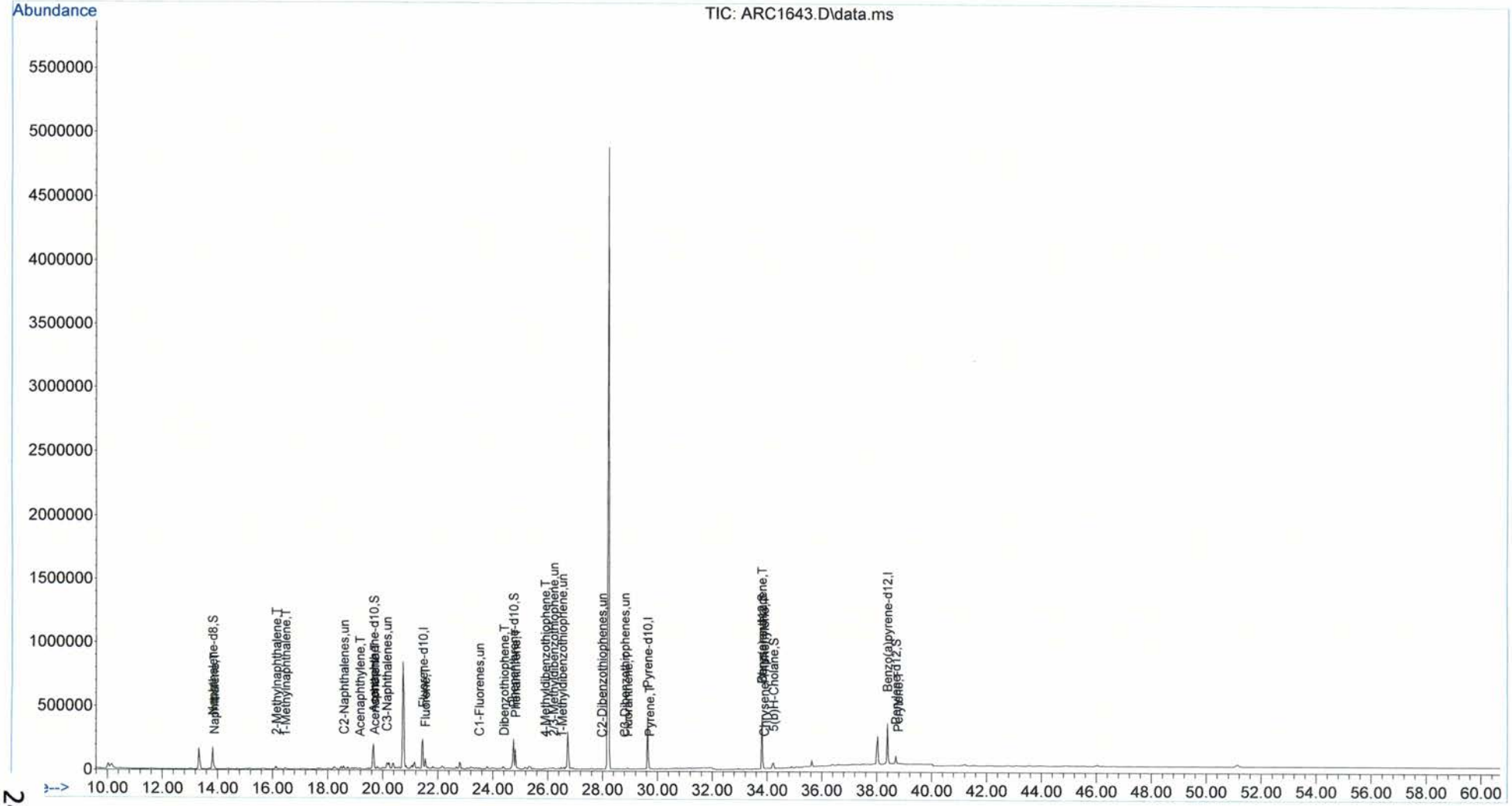
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1643.D
Acq On : 18 Aug 2013 1:13 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06636

Quant Time: Sep 05 21:49:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration



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

Data File Name ARC1644.D
Data File Path C:\msdchem\2\data\MS70057\
Operator YM
Date Acquired 8/18/2013 14:22
Acq. Method File PAH-2012.M
Sample Name SED-DA-013 (1.0-1.5)
Misc Info 0
Instrument Name GCMSD
Vial Number 37
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1644.D
SED-DA-013 (1.0-1.5)
8/18/2013
PAH-2012.M
15.04890895

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.88	34825	0.8928	1.2260
9)+10)	C1-Naphthalenes	16.30	48427	1.2416	1.7049
13)	C2-Naphthalenes	18.25	96319	2.4694	3.3909
14)	C3-Naphthalenes	20.15	57997	1.4869	2.0418
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	19.17	1506	0.0396	0.0543
24)	Acenaphthene	19.70	3897	0.1793	0.2462
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.54	118374	4.0540	5.5669
28)	C1-Fluorenes	23.51	38204	1.3084	1.7966
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.82	588890	10.8540	14.9046
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.72	206599	3.8079	5.2290
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	24.41	20280	0.4522	0.6209
35)+36)+37)	C1-Dibenzothiophenes	26.21	16544	0.3689	0.5065
38)	C2-Dibenzothiophenes	27.38	19440	0.4334	0.5952
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.91	65995	1.3492	1.8527
59)	Pyrene	29.70	2217	0.0349	0.0479
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	33.81	2651	0.0459	0.0631
68)	Chrysene/Triphenylene	33.89	1134	0.0232	0.0319
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.13	34625	1.4087	1.9345
10)	1-Methylnaphthalene	16.47	13802	0.6079	0.8347
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	25.90	9939	0.2718	0.3732
36)	2/3-Methyldibenzothiophene	26.21	4586	0.1254	0.1722
37)	1-Methyldibenzothiophene	26.52	2019	0.0552	0.0758
43)	3-Methylphenanthrene	26.48	30681	0.9128	1.2535
44)	2-Methylphenanthrene	26.59	34817	1.0359	1.4225
45)	2-Methylanthracene	26.73	103206	3.0706	4.2165
46)	4/9-Methylphenanthrene	26.86	18398	0.5474	0.7517
47)	1-Methylphenanthrene	26.93	19497	0.5801	0.7966
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	13.82	465873	13.33	80.20
21)	Acenaphthene-d10	19.67	166852	8.30	49.96
32)	Phenanthrene-d10	24.75	525064	12.11	72.82
66)	Chrysene-d12	33.81	695772	14.66	88.21
88)	Perylene-d12	38.70	733	0.02	0.10
90)	5(b)H-Cholane	34.24	111709	14.94	89.95
	Internal Standards				
1)	Fluorene-d10	21.45	344521	16.68	
31)	Pyrene-d10	29.63	715299	16.65	
73)	Benzo(a)pyrene-d12	38.39	627035	16.63	

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1644.D
Acq On : 18 Aug 2013 2:22 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:57:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	344521m	251.05		0.00
31) Pyrene-d10	29.635	212	715299m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	627035m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	465873m	13.33		0.00
21) Acenaphthene-d10	19.672	164	166852m	8.30		0.00
32) Phenanthrene-d10	24.752	188	525064m	12.11		0.00
66) Chrysene-d12	33.809	240	695772m	14.66		-0.04
88) Perylene-d12	38.697	264	733m	0.02		0.00
90) 5(b)H-Cholane	34.235	217	111709m	14.94		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	13.878	128	34825m	0.89		
9) 2-Methylnaphthalene	16.134	142	34625m	1.41		
10) 1-Methylnaphthalene	16.468	142	13802m	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	18.251	156	96319m	2.47		
14) C3-Naphthalenes	20.146	170	57997m	1.49		
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	19.171	152	1506m	0.04		
24) Acenaphthene	19.700	154	3897m	0.18		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.538	166	118374m	4.05		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.506	180	38204m	1.31		
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	24.406	184	20280m	0.45		
35) 4-Methyldibenzothiophene	25.895	198	9939m	0.27		
36) 2/3-Methyldibenzothiop...	26.207	198	4586m	0.13		
37) 1-Methyldibenzothiophene	26.518	198	2019m	0.06		
38) C2-Dibenzothiophenes	27.384	212	19440m	0.43		
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.822	178	588890m	10.85		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.484	192	30681m	0.91		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
Data File : ARC1644.D
Acq On : 18 Aug 2013 2:22 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:57:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.588	192	34817m	1.04		
45)	2-Methylanthracene	26.726	192	103206m	3.07		
46)	4/9-Methylphenanthrene	26.865	192	18398m	0.55		
47)	1-Methylphenanthrene	26.934	192	19497m	0.58		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.908	202	65995m	1.35		
59)	Pyrene	29.704	202	2217m	0.03		
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	33.809	228	2651m	0.05		
68)	Chrysene/Triphenylene	33.886	228	1134m	0.02		
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 : C:\msdchem\2\data\MS70057\
Data File : ARC1644.D
Acq On : 18 Aug 2013 2:22 pm
Operator : YM
Sample : SED-DA-013 (1.0-1.5)
Misc :
ALS Vial : 37 Sample Multiplier: 0.06645

Quant Time: Sep 05 21:57:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

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

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS70057\
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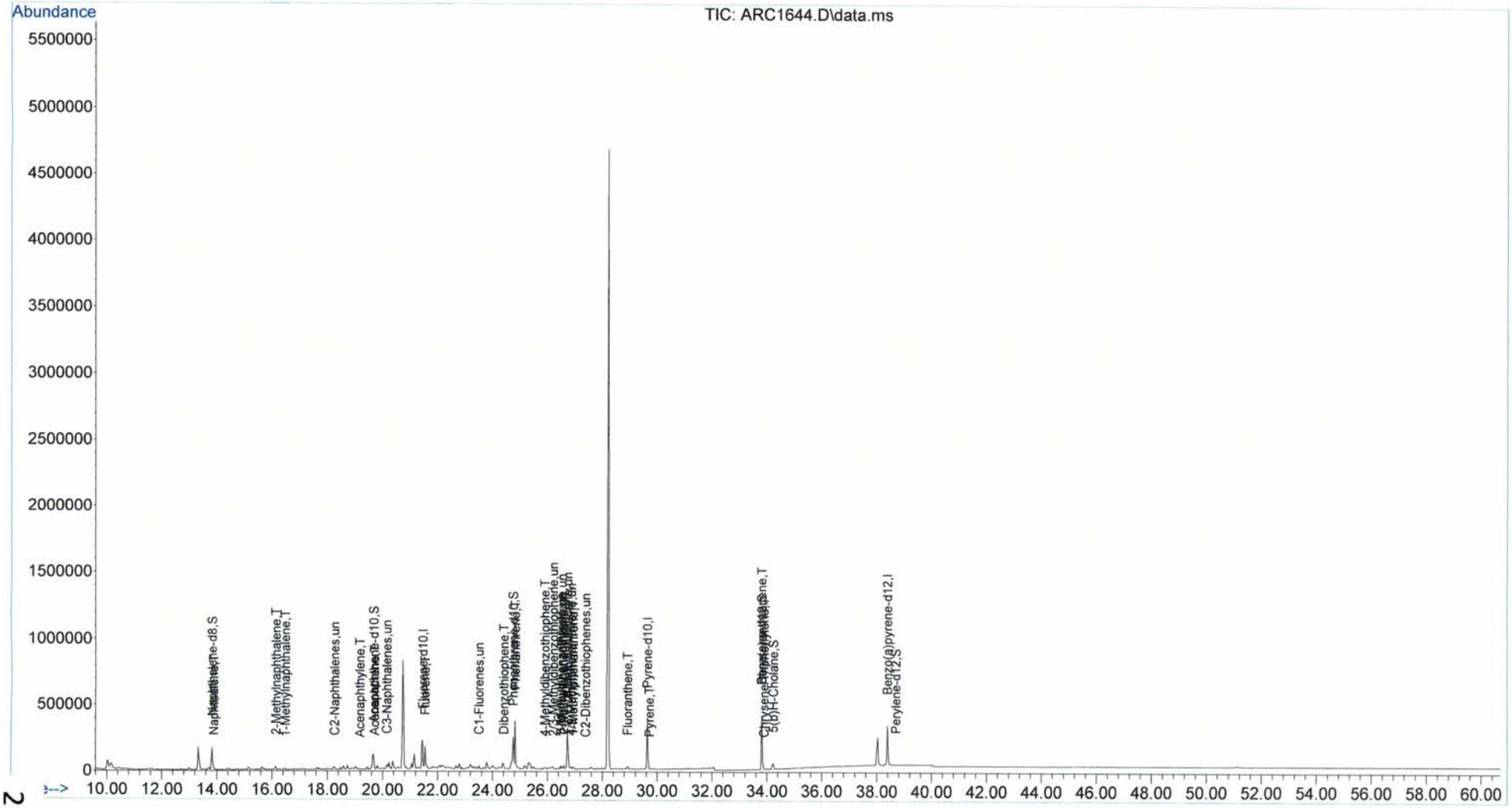


Polycyclic Aromatic Hydrocarbon
Initial Calibration Data
and
Initial Calibration Verification Data

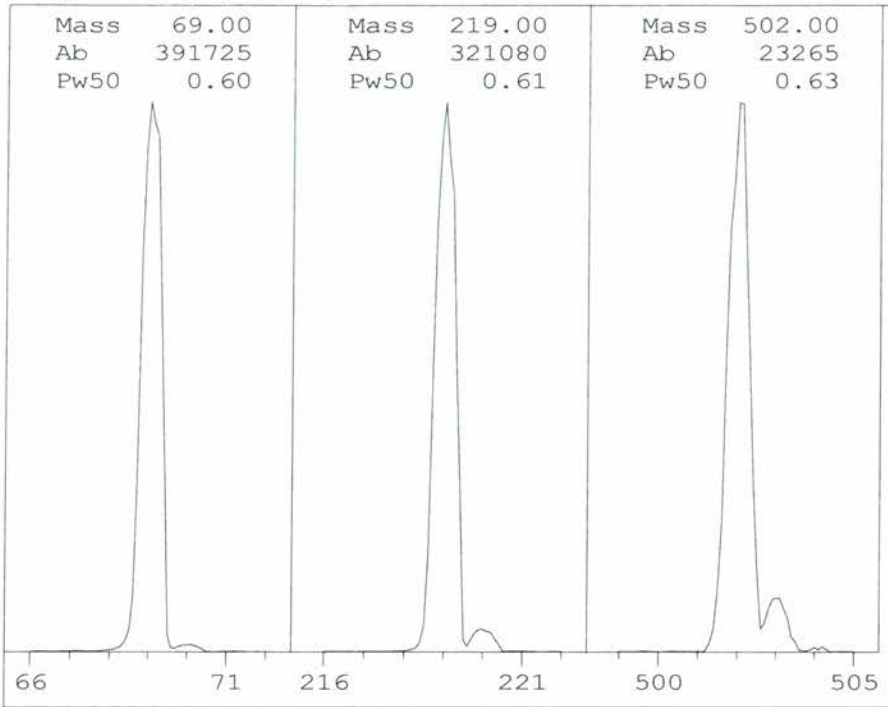
PAH ICAL
AR 70057.M

GC/MS 7
(PAH-2012)

Autotune

Fri Aug 16 17:41:33 2013
C:\MSDCHEM\1\5973N\atune.u

Instrument: GCMSD
US21854533

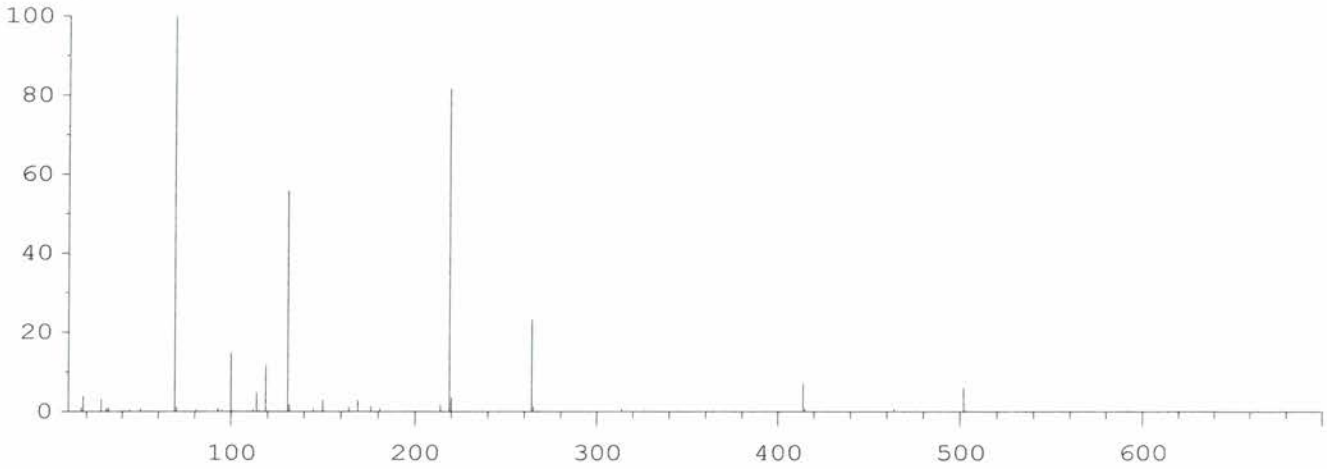


Ion Pol	Pos	MassGain	424
		MassOffs	-9
Emission	34.6	AmuGain	2299
EIEnrgy	69.9	AmuOffs	129
Filament	1	Wid219	-0.017
		DC Pol	Neg
Repeller	29.62		
IonFcus	79.7	HEDEnab	On
EntLens	12.0	EMVolts	2235
EntOffs	17.32		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	290	Turbo Speed	100
MS Quad	180		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
163 peaks Base: 69.00 Abundance: 358592



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	358592	100.00	70.10	3817	1.06
219.00	292864	81.67	220.00	12927	4.41
502.00	22056	6.15	503.10	1759	7.98

Air/Water Check: H20~3.87% N2~3.11% O2~1.06% CO2~0.55% N2/H2O~80.20%

Column(1) Flow: 1.446 Column(2): 0 ml/min. Interface Temp: 290

Ramp Criteria:
Ion Focus Maximum 90 volts using ion 502; EM Gain 277380
Repeller Maximum 35 volts using ion 219; Gain Factor 2.77

MassGain Values(Samples): 422(3) 426(2) 425(1) 425(0) 424(FS)

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	129.0	129.0	129.0	129.0	129.0	129.0	129.0
Entrance Lens Offset:	17.3	17.3	17.3	17.3	17.3	17.3	17.3

MS Foors 254

Method Path : C:\GCMS7\MS70057\
Method File : AR70057.M
Title : PAH Calibration Table-2013A
Last Update : Sat Aug 17 22:39:35 2013
Response Via : Initial Calibration

Calibration Files
1 =MS70057B.D 2 =MS70057C.D 3 =MS70057D.D 4 =MS70057E.D 5 =MS70057F.D
6 =MS70057G.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorene-d10	ISTD							
2)	S	Naphthalene-d8	2.026	1.682	1.564	1.610	1.626	1.645	1.692	9.95
3)	T	cis/trans Decalin	0.304	0.297	0.282	0.285	0.288	0.284	0.290	3.00
4)	un	C1-Decalins	0.304	0.297	0.282	0.285	0.288	0.284	0.290	3.00
5)	un	C2-Decalins	0.304	0.297	0.282	0.285	0.288	0.284	0.290	3.00
6)	un	C3-Decalins	0.304	0.297	0.282	0.285	0.288	0.284	0.290	3.00
7)	un	C4-Decalins	0.304	0.297	0.282	0.285	0.288	0.284	0.290	3.00
8)	T	Naphthalene	2.262	1.877	1.753	1.798	1.814	1.829	1.889	9.91
9)	T	2-Methylnaphth...	1.420	1.181	1.098	1.131	1.149	1.162	1.190	9.76
10)	T	1-Methylnaphth...	1.320	1.092	1.022	1.048	1.055	1.061	1.099	10.03
11)	T	2,6-Dimethylna...	1.320	1.101	1.030	1.069	1.079	1.103	1.117	9.21
12)	T	1,6,7-Trimethy...	1.177	0.962	0.911	0.944	0.969	0.973	0.989	9.58
13)	un	C2-Naphthalenes	2.262	1.877	1.753	1.798	1.814	1.829	1.889	9.91
14)	un	C3-Naphthalenes	2.262	1.877	1.753	1.798	1.814	1.829	1.889	9.91
15)	un	C4-Naphthalenes	2.262	1.877	1.753	1.798	1.814	1.829	1.889	9.91
16)	T	Benzothiophene	1.842	1.529	1.434	1.467	1.483	1.492	1.541	9.77
17)	un	C1-Benzothioph...	1.842	1.529	1.434	1.467	1.483	1.492	1.541	9.77
18)	un	C2-Benzothioph...	1.842	1.529	1.434	1.467	1.483	1.492	1.541	9.77
19)	un	C3-Benzothioph...	1.842	1.529	1.434	1.467	1.483	1.492	1.541	9.77
20)	un	C4-Benzothioph...	1.842	1.529	1.434	1.467	1.483	1.492	1.541	9.77
21)	S	Acenaphthene-d10	1.181	0.965	0.891	0.921	0.929	0.951	0.973	10.79
22)	T	Biphenyl	1.916	1.610	1.500	1.549	1.554	1.580	1.618	9.28
23)	T	Acenaphthylene	2.132	1.768	1.660	1.744	1.814	1.945	1.844	9.18
24)	T	Acenaphthene	1.250	1.032	0.970	1.007	1.026	1.030	1.052	9.46
25)	T	Dibenzofuran	2.087	1.769	1.666	1.716	1.723	1.782	1.790	8.42
26)	T	Fluorene	1.654	1.389	1.304	1.363	1.375	1.399	1.414	8.63
27)	T	1-Methylfluorene	1.085	0.904	0.860	0.896	0.920	0.932	0.933	8.41
28)	un	C1-Fluorenes	1.654	1.389	1.304	1.363	1.375	1.399	1.414	8.63
29)	un	C2-Fluorenes	1.654	1.389	1.304	1.363	1.375	1.399	1.414	8.63
30)	un	C3-Fluorenes	1.654	1.389	1.304	1.363	1.375	1.399	1.414	8.63
31)	I	Pyrene-d10	ISTD							
32)	S	Phenanthrene-d10	1.215	1.023	0.922	0.931	0.944	1.023	1.010	10.93
33)	T	Carbazole	1.163	0.946	0.859	0.867	0.893	1.042	0.962	12.43
34)	T	Dibenzothiophene	1.274	1.050	0.951	0.958	0.973	1.059	1.044	11.67
35)	T	4-Methyldibenz...	0.962	0.836	0.802	0.832	0.853	0.823	0.851	6.66
36)	un	2/3-Methyldibe...	0.962	0.836	0.802	0.832	0.853	0.823	0.851	6.66
37)	un	1-Methyldibenz...	0.962	0.836	0.802	0.832	0.853	0.823	0.851	6.66
38)	un	C2-Dibenzothio...	1.274	1.050	0.951	0.958	0.973	1.059	1.044	11.67
39)	un	C3-Dibenzothio...	1.274	1.050	0.951	0.958	0.973	1.059	1.044	11.67
40)	un	C4-Dibenzothio...	1.274	1.050	0.951	0.958	0.973	1.059	1.044	11.67
41)	T	Phenanthrene	1.452	1.258	1.187	1.223	1.241	1.218	1.263	7.54
42)	T	Anthracene	1.285	1.139	1.063	1.145	1.205	1.192	1.171	6.37
43)	un	3-Methylphenan...	0.881	0.776	0.722	0.766	0.788	0.762	0.783	6.80
44)	un	2-Methylphenan...	0.881	0.776	0.722	0.766	0.788	0.762	0.783	6.80
45)	un	2-Methylanthra...	0.881	0.776	0.722	0.766	0.788	0.762	0.783	6.80
46)	un	4/9-Methylphen...	0.881	0.776	0.722	0.766	0.788	0.762	0.783	6.80
47)	T	1-Methylphenan...	0.881	0.776	0.722	0.766	0.788	0.762	0.783	6.80
48)	T	3,6-Dimethylph...	0.811	0.670	0.607	0.625	0.641	0.687	0.673	10.88
49)	T	Retene	0.443	0.365	0.331	0.343	0.357	0.385	0.371	10.77
50)	un	C2-Phenanthren...	1.452	1.258	1.187	1.223	1.241	1.218	1.263	7.54
51)	un	C3-Phenanthren...	1.452	1.258	1.187	1.223	1.241	1.218	1.263	7.54
52)	un	C4-Phenanthren...	1.452	1.258	1.187	1.223	1.241	1.218	1.263	7.54
53)	T	Naphthobenzoth...	1.535	1.314	1.210	1.283	1.296	1.190	1.305	9.45

Method Path : C:\GCMS7\MS70057\
Method File : AR70057.M
Title : PAH Calibration Table-2013A

54)	un	C1-Naphthobenz...	1.535	1.314	1.210	1.283	1.296	1.190	1.305	9.45
55)	un	C2-Naphthobenz...	1.535	1.314	1.210	1.283	1.296	1.190	1.305	9.45
56)	un	C3-Naphthobenz...	1.535	1.314	1.210	1.283	1.296	1.190	1.305	9.45
57)	un	C4-Naphthobenz...	1.535	1.314	1.210	1.283	1.296	1.190	1.305	9.45
58)	T	Fluoranthene	1.366	1.126	1.032	1.072	1.093	1.144	1.139	10.36
59)	T	Pyrene	1.817	1.528	1.390	1.439	1.469	1.235	1.480	13.02
60)	T	2-Methylfluora...	1.135	0.928	0.845	0.871	0.902	0.969	0.942	11.07
61)	T	Benzo(b)fluorene	0.952	0.776	0.701	0.719	0.750	0.873	0.795	12.27
62)	un	C1-Fluoranthen...	1.366	1.126	1.032	1.072	1.093	1.144	1.139	10.36
63)	un	C2-Fluoranthen...	1.366	1.126	1.032	1.072	1.093	1.144	1.139	10.36
64)	un	C3-Fluoranthen...	1.366	1.126	1.032	1.072	1.093	1.144	1.139	10.36
65)	un	C4-Fluoranthen...	1.366	1.126	1.032	1.072	1.093	1.144	1.139	10.36
66)	S	Chrysene-d12	1.309	1.136	1.052	1.115	1.087	0.932	1.105	11.14
67)	T	Benz(a)anthracene	1.607	1.358	1.261	1.329	1.310	1.197	1.344	10.48
68)	T	Chrysene/Triph...	1.347	1.153	1.064	1.093	1.106	1.062	1.138	9.49
69)	un	C1-Chrysenes	1.347	1.153	1.064	1.093	1.106	1.062	1.138	9.49
70)	un	C2-Chrysenes	1.347	1.153	1.064	1.093	1.106	1.062	1.138	9.49
71)	un	C3-Chrysenes	1.347	1.153	1.064	1.093	1.106	1.062	1.138	9.49
72)	un	C4-Chrysenes	1.347	1.153	1.064	1.093	1.106	1.062	1.138	9.49
73)	I	Benzo(a)pyrene-d12	----------ISTD----------							
74)	un	C29-Hopane	0.358	0.395	0.350	0.378	0.363	0.383	0.371	4.54
75)	un	18a-Oleanane	0.358	0.395	0.350	0.378	0.363	0.383	0.371	4.54
76)	T	C30-Hopane	0.358	0.395	0.350	0.378	0.363	0.383	0.371	4.54
77)	T	Benzo(b)fluora...	1.609	1.441	1.275	1.342	1.351	1.326	1.391	8.61
78)	T	Benzo(k,j)fluo...	1.290	1.044	0.945	0.937	0.974	1.166	1.059	13.35
79)	un	Benzo(a)fluora...	1.290	1.044	0.945	0.937	0.974	1.166	1.059	13.35
80)	T	Benzo(e)pyrene	1.519	1.300	1.147	1.165	1.191	1.366	1.281	11.25
81)	T	Benzo(a)pyrene	1.488	1.284	1.144	1.153	1.198	1.283	1.258	10.15
82)	T	Indeno(1,2,3-c...	1.872	1.628	1.424	1.470	1.507	1.616	1.586	10.19
83)	T	Dibenzo(a,h)an...	1.509	1.288	1.139	1.177	1.216	1.307	1.273	10.40
84)	un	C1-Dibenzo(a,h...	1.509	1.288	1.139	1.177	1.216	1.307	1.273	10.40
85)	un	C2-Dibenzo(a,h...	1.509	1.288	1.139	1.177	1.216	1.307	1.273	10.40
86)	un	C3-Dibenzo(a,h...	1.509	1.288	1.139	1.177	1.216	1.307	1.273	10.40
87)	T	Benzo(g,h,i)pe...	1.675	1.415	1.249	1.284	1.305	1.384	1.385	11.20
88)	S	Perylene-d12	1.482	1.207	1.063	1.094	1.120	1.118	1.181	13.16
89)	T	Perylene	1.503	1.306	1.167	1.179	1.205	1.329	1.282	9.94
90)	S	5(b)H-Cholane	0.251	0.206	0.176	0.178	0.179	0.200	0.198	14.38
91)	un	C20-TAS	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45
92)	un	C21-TAS	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45
93)	un	C26(20S)-TAS	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45
94)	T	C26(20R)/C27(2...	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45
95)	un	C28(20S)-TAS	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45
96)	un	C27(20R)-TAS	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45
97)	un	C28(20R)-TAS	1.703	1.445	1.268	1.286	1.325	1.444	1.412	11.45

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057B.D
Acq On : 16 Aug 2013 10:23 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 17 19:41:36 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:24:04 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	441596m	251.05		0.00
31) Pyrene-d10	29.635	212	832419m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	992147m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	71327m	24.26		0.00
21) Acenaphthene-d10	19.672	164	41558m	24.47		0.00
32) Phenanthrene-d10	24.752	188	80804m	24.22		0.00
66) Chrysene-d12	33.809	240	86976m	23.82		-0.04
88) Perylene-d12	38.697	264	117525m	25.70		0.00
90) 5(b)H-Cholane	34.236	217	19876m	25.69		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	10580m	30.38		
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	13.878	128	79572m	24.01		
9) 2-Methylnaphthalene	16.134	142	50012m	23.97		
10) 1-Methylnaphthalene	16.469	142	46381m	24.19		
11) 2,6-Dimethylnaphthalene	18.224	156	46438m	23.64		
12) 1,6,7-Trimethylnaphtha...	21.093	170	41409m	23.88		
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	14.045	134	64402m	23.90		
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	17.694	154	66784m	23.43		
23) Acenaphthylene	19.171	152	74392m	22.95		
24) Acenaphthene	19.784	154	44060m	23.87		
25) Dibenzofuran	20.369	168	73037m	23.24		
26) Fluorene	21.539	166	58290m	23.50		
27) 1-Methylfluorene	23.506	180	38452m	23.38		
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	25.583	167	76552m	23.90		
34) Dibenzothiophene	24.406	184	83451m	24.09		
35) 4-Methyldibenzothiophene	25.895	198	64431m	22.77		
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	24.822	178	95552m	23.21		
42) Anthracene	24.995	178	85583m	22.31		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057B.D
Acq On : 16 Aug 2013 10:23 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 17 19:41:36 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:24:04 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	26.934	192	57890m	22.32		
48) 3,6-Dimethylphenanthrene	28.042	206	53917m	24.24		
49) Retene	30.708	234	26302m	21.50		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	32.955	234	102608m	23.86		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	90812m	24.09		
59) Pyrene	29.704	202	120692m	24.64		
60) 2-Methylfluoranthene	30.466	216	75926m	24.52		
61) Benzo(b)fluorene	31.089	216	63790m	24.15		
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.		
67) Benz(a)anthracene	33.770	228	106512m	24.46		
68) Chrysene/Triphenylene	33.886	228	88943m	24.44		
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	42.783	191	28355m	17.91		
77) Benzo(b)fluoranthene	37.339	252	127824m	28.60		
78) Benzo(k,j)fluoranthene	37.417	252	101812m	24.59		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	119931m	24.03		
81) Benzo(a)pyrene	38.464	252	117686m	23.82		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	145853m	23.31		
83) Dibenzo(a,h)anthracene	43.262	278	118563m	23.59		
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	44.553	276	131608m	24.11		
89) Perylene	38.775	252	119231m	23.35		
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	39.434	231	134983m	24.13		
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:\GCMS7\MS70057\
Data File : MS70057B.D
Acq On : 16 Aug 2013 10:23 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 17 19:41:36 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:24:04 2013
Response via : Initial Calibration

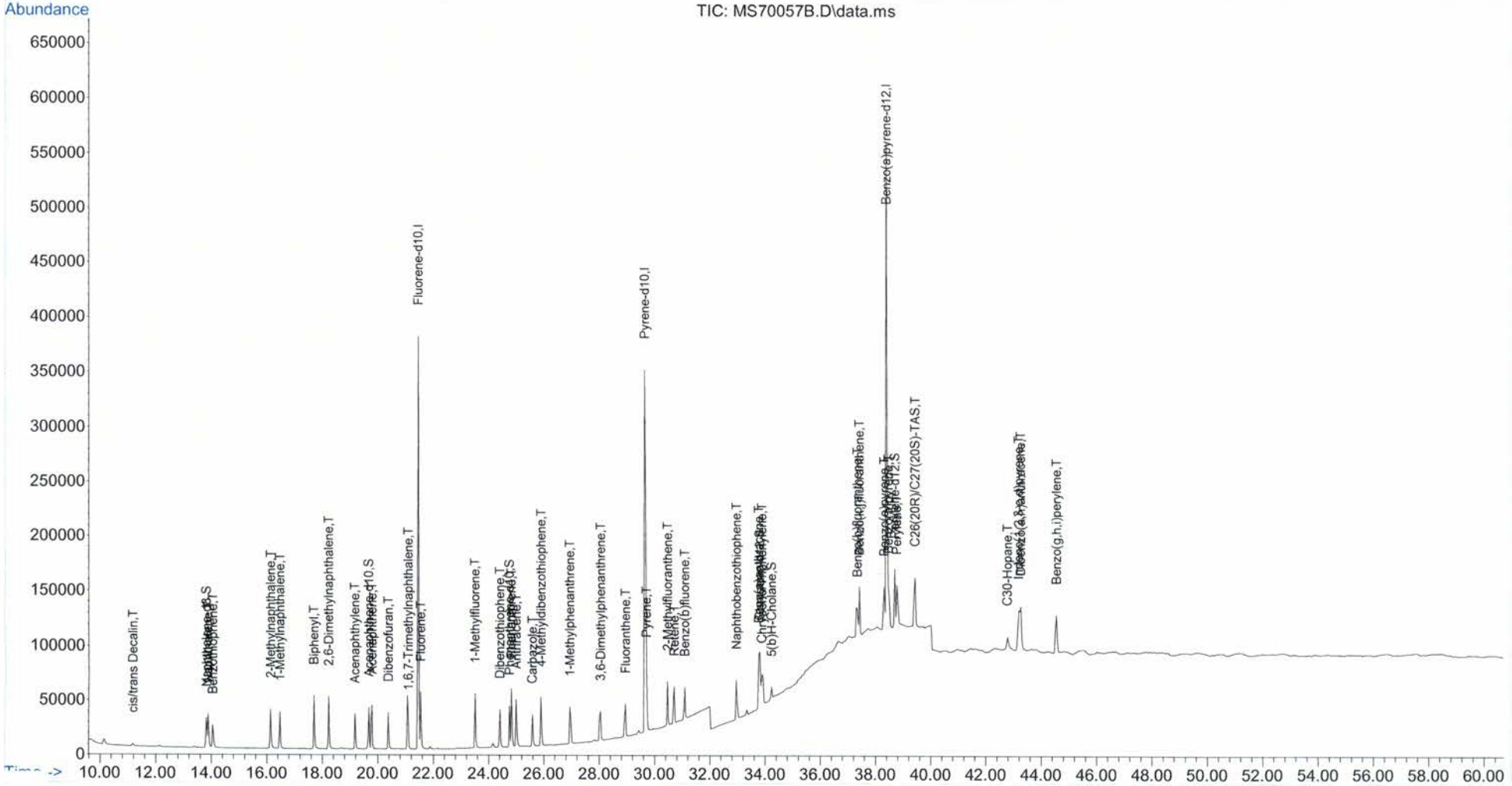
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057B.D
Acq On : 16 Aug 2013 10:23 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 17 19:41:36 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:24:04 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057C.D
Acq On : 16 Aug 2013 11:31 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 17 22:15:53 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:41:44 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	435952m	251.05		0.00
31) Pyrene-d10	29.635	212	806544m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	906619m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	292203m	100.05		0.00
21) Acenaphthene-d10	19.672	164	167752m	99.68		0.00
32) Phenanthrene-d10	24.752	188	329528m	102.07		0.00
66) Chrysene-d12	33.809	240	365778m	103.29		0.00
88) Perylene-d12	38.697	264	437266m	103.09		0.00
90) 5(b)H-Cholane	34.236	217	74495m	105.16		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	51089m	140.79		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.878	128	325887m	99.25		
9) 2-Methylnaphthalene	16.134	142	205300m	99.51		
10) 1-Methylnaphthalene	16.469	142	189364m	99.62		
11) 2,6-Dimethylnaphthalene	18.224	156	191129m	98.39		
12) 1,6,7-Trimethylnaphtha...	21.065	170	166985m	97.18		
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	14.045	134	263985m	98.83		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.694	154	277043m	98.56		
23) Acenaphthylene	19.171	152	304527m	95.01		
24) Acenaphthene	19.784	154	179492m	98.20		
25) Dibenzofuran	20.369	168	305652m	98.54		
26) Fluorene	21.539	166	241683m	98.72		
27) 1-Methylfluorene	23.506	180	158079m	97.31		
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	25.583	167	301630m	97.20		
34) Dibenzothiophene	24.406	184	333254m	99.55		
35) 4-Methyldibenzothiophene	25.895	198	271380m	99.19		
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	24.822	178	401307m	99.99		
42) Anthracene	24.995	178	367787m	98.34		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057C.D
Acq On : 16 Aug 2013 11:31 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 17 22:15:53 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:41:44 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	26.934	192	247123m	98.53		
48) 3,6-Dimethylphenanthrene	28.042	206	215774m	100.05		
49) Retene	30.708	234	104935m	88.53		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	32.955	234	425580m	101.72		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	362788m	99.36		
59) Pyrene	29.704	202	491803m	103.83		
60) 2-Methylfluoranthene	30.466	216	300580m	99.90		
61) Benzo(b)fluorene	31.089	216	252108m	98.76		
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	33.770	228	436249m	102.56		
68) Chrysene/Triphenylene	33.886	228	368831m	103.58		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	42.783	191	142973m	108.38		
77) Benzo(b)fluoranthene	37.300	252	522975m	121.43		
78) Benzo(k,j)fluoranthene	37.417	252	376672m	95.17		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	468972m	102.60		
81) Benzo(a)pyrene	38.464	252	464220m	102.41		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	579669m	101.20		
83) Dibenzo(a,h)anthracene	43.262	278	462250m	100.26		
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	44.553	276	507986m	101.32		
89) Perylene	38.774	252	473547m	101.97		
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	39.434	231	523281m	102.60		
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:\GCMS7\MS70057\
Data File : MS70057C.D
Acq On : 16 Aug 2013 11:31 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 17 22:15:53 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:41:44 2013
Response via : Initial Calibration

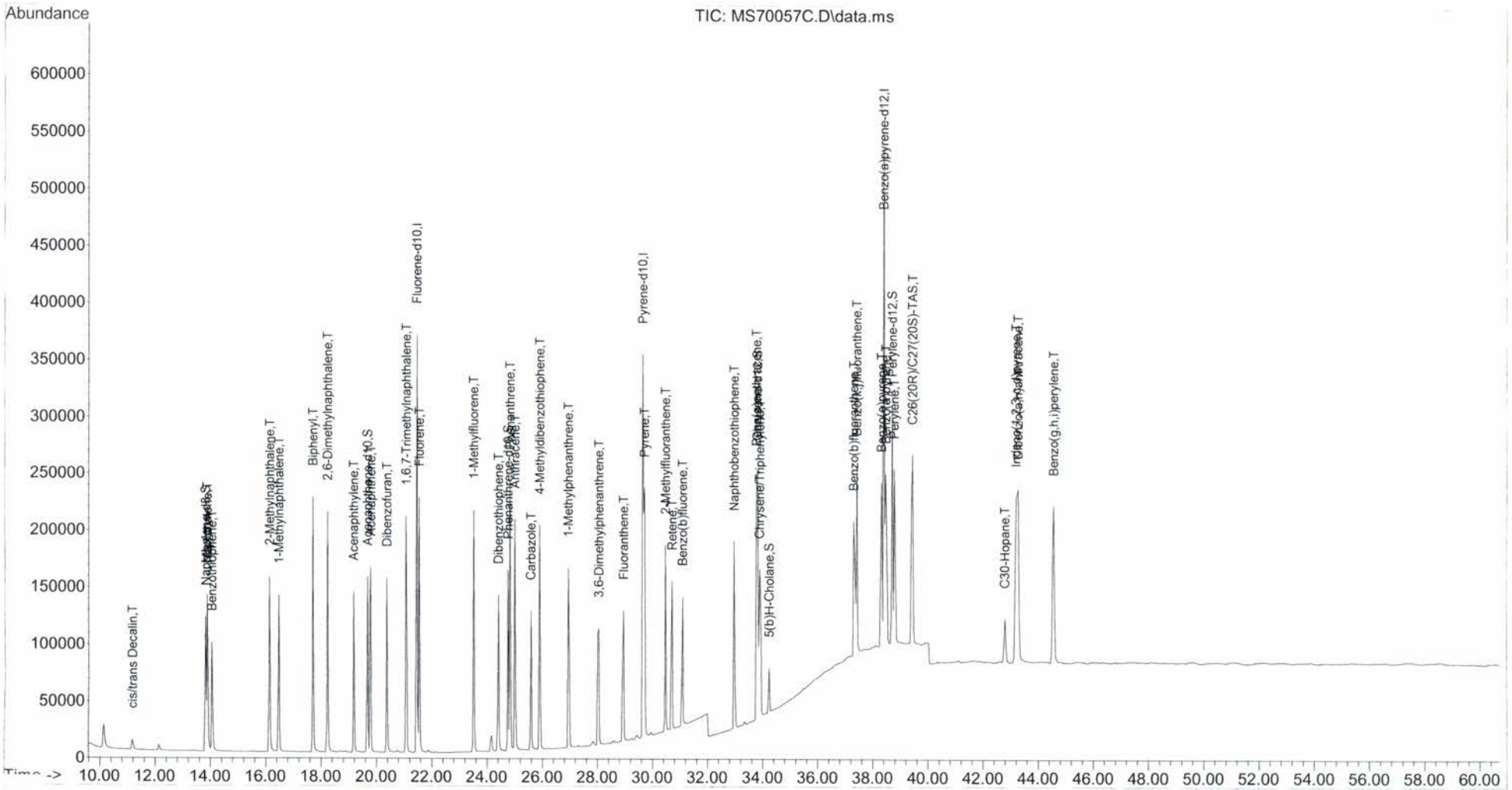
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057C.D
Acq On : 16 Aug 2013 11:31 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 17 22:15:53 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 19:41:44 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057D.D
Acq On : 17 Aug 2013 12:40 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 17 22:21:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:16:03 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	444103m	251.05		0.00
31) Pyrene-d10	29.635	212	828017m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	947909m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	691986m	231.89		0.00
21) Acenaphthene-d10	19.672	164	394173m	229.48		0.00
32) Phenanthrene-d10	24.752	188	762314m	229.78		0.00
66) Chrysene-d12	33.809	240	868723m	238.54		0.00
88) Perylene-d12	38.697	264	1006221m	224.43		0.00
90) 5(b)H-Cholane	34.235	217	166831m	222.48		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	123476m	309.17		
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	13.878	128	775462m	231.70		
9) 2-Methylnaphthalene	16.134	142	486082m	230.85		
10) 1-Methylnaphthalene	16.469	142	451415m	232.57		
11) 2,6-Dimethylnaphthalene	18.224	156	455612m	230.37		
12) 1,6,7-Trimethylnaphtha...	21.065	170	403005m	230.17		
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	14.045	134	630448m	231.37		
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	17.694	154	657225m	229.37		
23) Acenaphthylene	19.171	152	728366m	222.84		
24) Acenaphthene	19.784	154	429631m	230.53		
25) Dibenzofuran	20.369	168	733074m	231.77		
26) Fluorene	21.538	166	577771m	231.36		
27) 1-Methylfluorene	23.506	180	383399m	231.77		
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	25.583	167	703083m	221.04		
34) Dibenzothiophene	24.406	184	774573m	225.15		
35) 4-Methyldibenzothiophene	25.895	198	667905m	237.49		
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	24.822	178	971606m	234.69		
42) Anthracene	24.995	178	880284m	228.15		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057D.D
Acq On : 17 Aug 2013 12:40 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 17 22:21:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:16:03 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	26.934	192	589954m	228.67		
48) 3,6-Dimethylphenanthrene	28.042	206	501768m	226.24		
49) Retene	30.708	234	244582m	200.62		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	32.955	234	1005648m	233.68		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	853132m	227.34		
59) Pyrene	29.704	202	1148274m	235.69		
60) 2-Methylfluoranthene	30.466	216	702745m	226.98		
61) Benzo(b)fluorene	31.089	216	584596m	222.93		
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	33.770	228	1039240m	236.77		
68) Chrysene/Triphenylene	33.886	228	873316m	236.64		
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	42.783	191	331666m	239.71		
77) Benzo(b)fluoranthene	37.300	252	1209668m	253.77		
78) Benzo(k,j)fluoranthene	37.417	252	891357m	214.93		
79) Benzo(a)fluoranthene	0.000		0	N.D.		
80) Benzo(e)pyrene	38.309	252	1081331m	223.63		
81) Benzo(a)pyrene	38.464	252	1080809m	225.83		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	1324764m	219.36		
83) Dibenzo(a,h)anthracene	43.262	278	1068381m	219.96		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.553	276	1171764m	221.99		
89) Perylene	38.774	252	1106264m	226.26		
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	39.434	231	1200488m	223.66		
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:\GCMS7\MS70057\
Data File : MS70057D.D
Acq On : 17 Aug 2013 12:40 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 17 22:21:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:16:03 2013
Response via : Initial Calibration

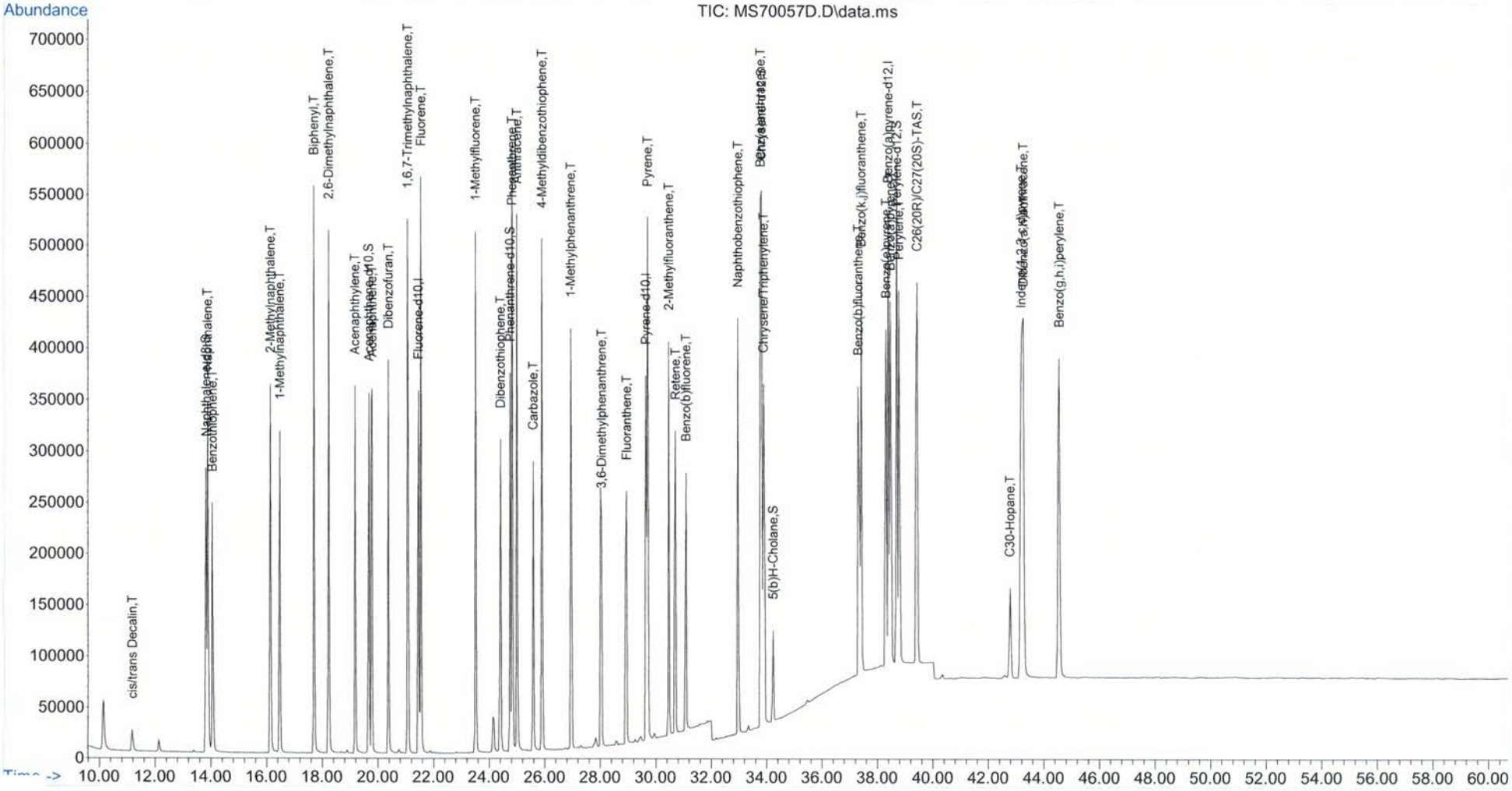
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057D.D
Acq On : 17 Aug 2013 12:40 am
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 17 22:21:56 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:16:03 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057E.D
Acq On : 17 Aug 2013 1:48 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 17 22:26:51 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:22:02 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	445181m	251.05		0.00
31) Pyrene-d10	29.635	212	840082m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	961989m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	1428409m	476.99		0.00
21) Acenaphthene-d10	19.672	164	816760m	474.10		0.00
32) Phenanthrene-d10	24.752	188	1561631m	463.37		0.00
66) Chrysene-d12	33.809	240	1869491m	505.62		0.00
88) Perylene-d12	38.697	264	2102664m	461.72		0.00
90) 5(b)H-Cholane	34.235	217	342368m	449.25		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	249578m	581.16		
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	13.878	128	1593929m	475.27		
9) 2-Methylnaphthalene	16.134	142	1003525m	475.53		
10) 1-Methylnaphthalene	16.468	142	928003m	476.53		
11) 2,6-Dimethylnaphthalene	18.223	156	948197m	478.56		
12) 1,6,7-Trimethylnaphtha...	21.065	170	836678m	476.83		
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	14.045	134	1292460m	472.93		
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	17.694	154	1361466m	474.41		
23) Acenaphthylene	19.171	152	1534136m	468.67		
24) Acenaphthene	19.783	154	894517m	478.82		
25) Dibenzofuran	20.368	168	1513877m	477.22		
26) Fluorene	21.538	166	1210676m	483.23		
27) 1-Methylfluorene	23.506	180	800088m	482.60		
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	25.583	167	1439289m	446.66		
34) Dibenzothiophene	24.406	184	1583741m	453.58		
35) 4-Methyldibenzothiophene	25.895	198	1405986m	492.33		
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	24.821	178	2031585m	482.60		
42) Anthracene	24.995	178	1925184m	492.43		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057E.D
Acq On : 17 Aug 2013 1:48 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 17 22:26:51 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:22:02 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	26.934	192	1268961m	484.42		
48) 3,6-Dimethylphenanthrene	28.042	206	1048987m	465.89		
49) Retene	30.708	234	514040m	414.91		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	32.955	234	2164292m	495.39		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.942	202	1798980m	472.32		
59) Pyrene	29.704	202	2411786m	487.73		
60) 2-Methylfluoranthene	30.466	216	1469335m	467.30		
61) Benzo(b)fluorene	31.089	216	1215389m	456.86		
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	33.770	228	2222154m	497.46		
68) Chrysene/Triphenylene	33.886	228	1821143m	483.68		
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	42.783	191	725847m	515.97		
77) Benzo(b)fluoranthene	37.300	252	2584480m	522.94		
78) Benzo(k,j)fluoranthene	37.416	252	1792350m	427.98		
79) Benzo(a)fluoranthene	0.000		0	N.D.		
80) Benzo(e)pyrene	38.309	252	2229498m	453.08		
81) Benzo(a)pyrene	38.464	252	2211288m	455.01		
82) Indeno(1,2,3-c,d)pyrene	43.188	276	2776352m	453.40		
83) Dibenzo(a,h)anthracene	43.262	278	2241576m	455.42		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.553	276	2444435m	456.70		
89) Perylene	38.774	252	2268257m	457.15		
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	39.434	231	2471898m	453.68		
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:\GCMS7\MS70057\
Data File : MS70057E.D
Acq On : 17 Aug 2013 1:48 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 17 22:26:51 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:22:02 2013
Response via : Initial Calibration

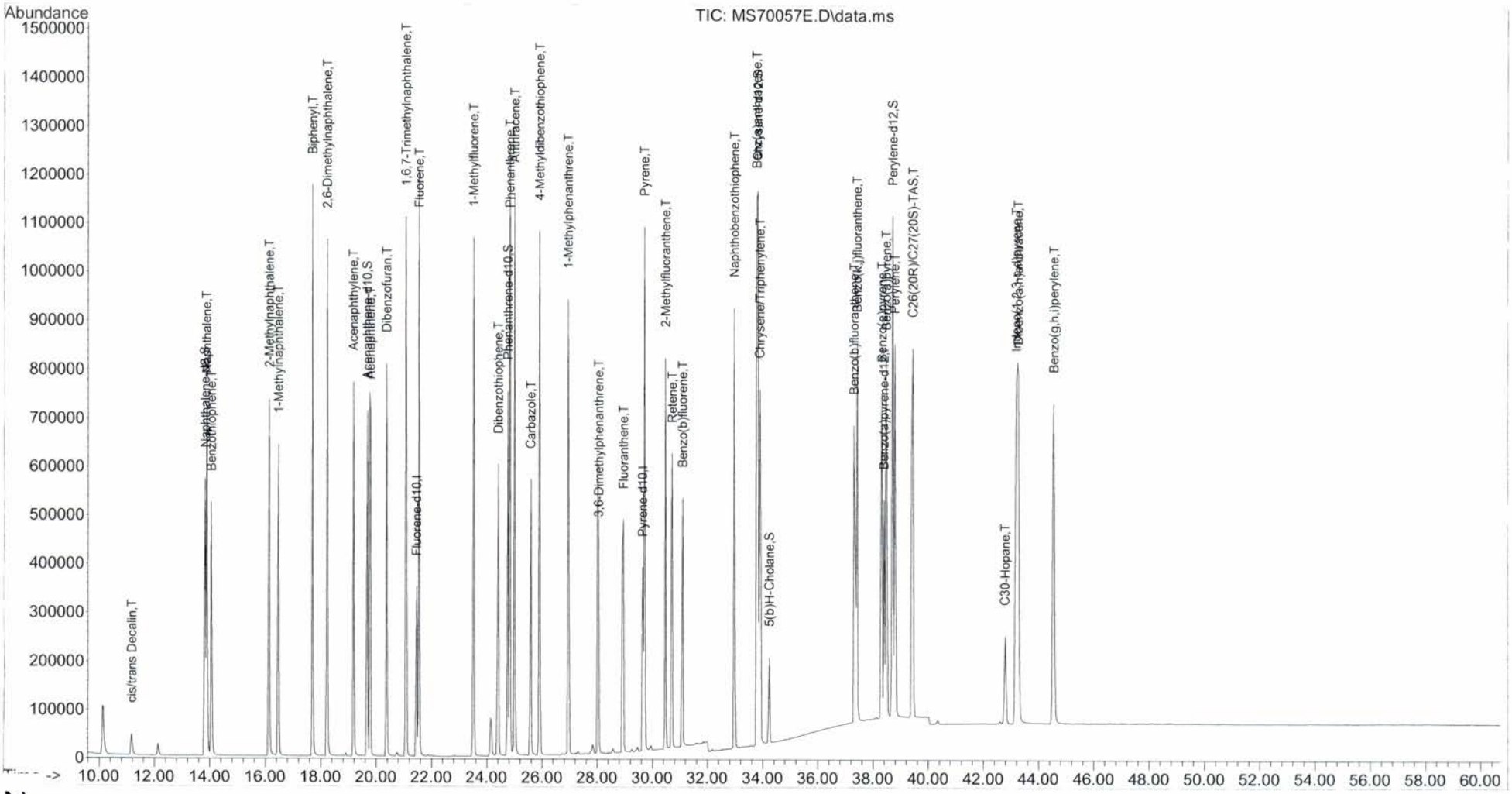
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057E.D
Acq On : 17 Aug 2013 1:48 am
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 17 22:26:51 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:22:02 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057F.D
Acq On : 17 Aug 2013 2:57 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 17 22:32:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:26:58 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	444641m	251.05		0.00
31) Pyrene-d10	29.635	212	837570m	250.63		0.00
73) Benzo(a)pyrene-d12	38.387	264	950583m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	2880666m	961.94		0.00
21) Acenaphthene-d10	19.672	164	1646056m	955.98		0.00
32) Phenanthrene-d10	24.752	188	3156753m	938.19		0.00
66) Chrysene-d12	33.809	240	3631693m	984.68		0.00
88) Perylene-d12	38.697	264	4251926m	945.15		0.00
90) 5(b)H-Cholane	34.235	217	680224m	901.51		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	504142m	1102.72		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.878	128	3212660m	959.90		
9) 2-Methylnaphthalene	16.134	142	2037111m	966.38		
10) 1-Methylnaphthalene	16.469	142	1866053m	958.34		
11) 2,6-Dimethylnaphthalene	18.224	156	1910811m	965.59		
12) 1,6,7-Trimethylnaphtha...	21.065	170	1716509m	979.63		
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	14.045	134	2610019m	956.41		
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	17.694	154	2728094m	951.79		
23) Acenaphthylene	19.171	152	3186375m	975.14		
24) Acenaphthene	19.756	154	1820658m	975.82		
25) Dibenzofuran	20.369	168	3036968m	957.75		
26) Fluorene	21.539	166	2440905m	975.11		
27) 1-Methylfluorene	23.506	180	1641580m	991.18		
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	25.583	167	2959061m	922.28		
34) Dibenzothiophene	24.406	184	3204913m	920.12		
35) 4-Methyldibenzothiophene	25.895	198	2874535m	1009.94		
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	24.822	178	4110232m	977.24		
42) Anthracene	24.995	178	4038223m	1034.77		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057F.D
Acq On : 17 Aug 2013 2:57 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 17 22:32:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:26:58 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	26.934	192	2604624m	996.98		
48) 3,6-Dimethylphenanthrene	28.042	206	2145324m	954.97		
49) Retene	30.708	234	1065614m	861.92		
50) C2-Phenanthrenes/Anthr...	0.000		0		N.D.	d
51) C3-Phenanthrenes/Anthr...	0.000		0		N.D.	d
52) C4-Phenanthrenes/Anthr...	0.000		0		N.D.	
53) Naphthobenzothiophene	32.955	234	4358381m	1000.54		
54) C1-Naphthobenzothiophenes	0.000		0		N.D.	d
55) C2-Naphthobenzothiophenes	0.000		0		N.D.	d
56) C3-Naphthobenzothiophenes	0.000		0		N.D.	d
57) C4-Naphthobenzothiophenes	0.000		0		N.D.	d
58) Fluoranthene	28.942	202	3657812m	962.59		
59) Pyrene	29.704	202	4909881m	995.27		
60) 2-Methylfluoranthene	30.466	216	3034797m	966.99		
61) Benzo(b)fluorene	31.089	216	2528089m	952.87		
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	33.770	228	4368346m	977.88		
68) Chrysene/Triphenylene	33.886	228	3675324m	974.16		
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	42.783	191	1379635m	982.22		
77) Benzo(b)fluoranthene	37.300	252	5139476m	1036.89		
78) Benzo(k,j)fluoranthene	37.417	252	3682951m	910.35		
79) Benzo(a)fluoranthene	0.000		0		N.D.	d
80) Benzo(e)pyrene	38.309	252	4504797m	925.27		
81) Benzo(a)pyrene	38.464	252	4540323m	948.25		
82) Indeno(1,2,3-c,d)pyrene	43.189	276	5624156m	930.25		
83) Dibenzo(a,h)anthracene	43.262	278	4575945m	942.00		
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	44.553	276	4910658m	929.69		
89) Perylene	38.774	252	4580166m	936.90		
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	39.434	231	5030931m	935.04		
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:\GCMS7\MS70057\
Data File : MS70057F.D
Acq On : 17 Aug 2013 2:57 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 17 22:32:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:26:58 2013
Response via : Initial Calibration

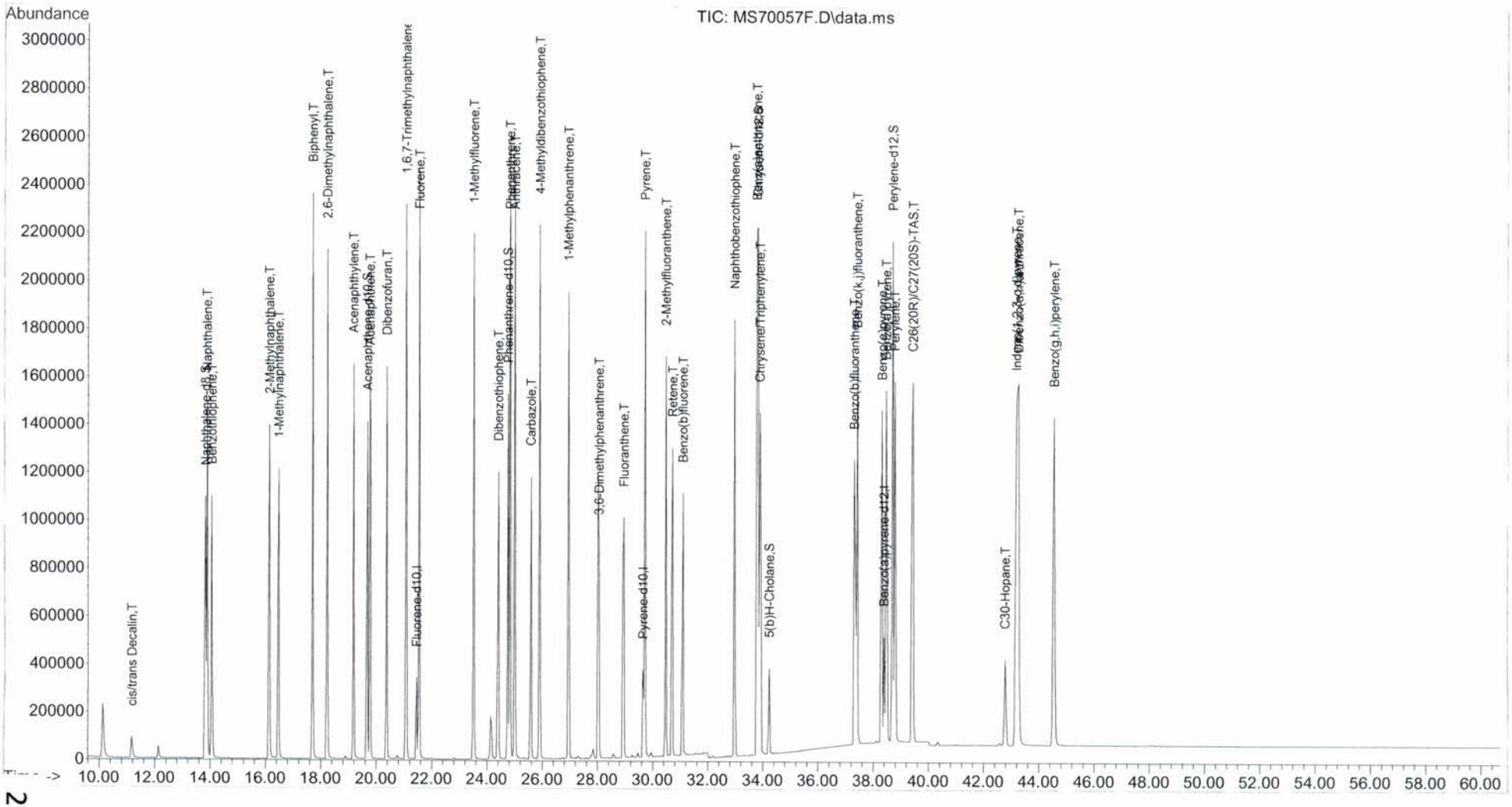
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057F.D
Acq On : 17 Aug 2013 2:57 am
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 17 22:32:14 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:26:58 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057G.D
Acq On : 17 Aug 2013 4:05 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 17 22:39:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:32:22 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	430800m	251.05		0.00
31) Pyrene-d10	29.635	212	809304m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	879759m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	14122463m	4864.94		0.00
21) Acenaphthene-d10	19.672	164	8164923m	4893.36		0.00
32) Phenanthrene-d10	24.752	188	16522806m	5074.75		0.00
66) Chrysene-d12	33.847	240	15055790m	4221.71		0.04
88) Perylene-d12	38.697	264	19651908m	4727.05		0.00
90) 5(b)H-Cholane	34.235	217	3512263m	5032.77		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	2412395m	5125.82		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.878	128	15689203m	4841.78		
9) 2-Methylnaphthalene	16.134	142	9978191m	4886.55		
10) 1-Methylnaphthalene	16.468	142	9095116m	4822.83		
11) 2,6-Dimethylnaphthalene	18.223	156	9463199m	4937.07		
12) 1,6,7-Trimethylnaphtha...	21.065	170	8346515m	4915.23		
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	14.045	134	12723175m	4812.52		
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	17.694	154	13436961m	4839.54		
23) Acenaphthylene	19.171	152	16550514m	5231.98		
24) Acenaphthene	19.783	154	8857387m	4903.29		
25) Dibenzofuran	20.368	168	15210334m	4952.44		
26) Fluorene	21.538	166	12025206m	4958.37		
27) 1-Methylfluorene	23.506	180	8053645m	5020.09		
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	25.583	167	16673669m	5375.45		
34) Dibenzothiophene	24.406	184	16856586m	5005.22		
35) 4-Methyldibenzothiophene	25.895	198	13401991m	4875.75		
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	24.822	178	19490608m	4786.18		
42) Anthracene	24.995	178	19306493m	5104.06		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057G.D
Acq On : 17 Aug 2013 4:05 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 17 22:39:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:32:22 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	26.934	192	12166014m	4817.06		
48)	3,6-Dimethylphenanthrene	28.042	206	11098039m	5108.08		
49)	Retene	30.708	234	5550343m	4641.08		
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	32.955	234	19325231m	4589.56		
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	28.942	202	18484317m	5029.90		
59)	Pyrene	29.704	202	19939288m	4177.39		
60)	2-Methylfluoranthene	30.466	216	15750455m	5187.49		
61)	Benzo(b)fluorene	31.089	216	14217110m	5542.69		
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	33.770	228	19293151m	4457.12		
68)	Chrysene/Triphenylene	33.925	228	17043788m	4654.39		
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.		
76)	C30-Hopane	42.783	191	6732772m	5171.93		
77)	Benzo(b)fluoranthene	37.339	252	23352730m	4871.70		
78)	Benzo(k,j)fluoranthene	37.417	252	20400802m	5475.08		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.309	252	23913134m	5306.34		
81)	Benzo(a)pyrene	38.503	252	22503383m	5085.69		
82)	Indeno(1,2,3-c,d)pyrene	43.189	276	27920333m	4999.03		
83)	Dibenzo(a,h)anthracene	43.262	278	22760394m	5073.80		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.553	276	24106283m	4940.92		
89)	Perylene	38.813	252	23376513m	5182.65		
91)	C20-TAS	0.000		0	N.D.	d	
92)	C21-TAS	0.000		0	N.D.	d	
93)	C26(20S)-TAS	0.000		0	N.D.	d	
94)	C26(20R)/C27(20S)-TAS	39.434	231	25376893m	5104.77		
95)	C28(20S)-TAS	0.000		0	N.D.	d	
96)	C27(20R)-TAS	0.000		0	N.D.	d	
97)	C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057G.D
Acq On : 17 Aug 2013 4:05 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 17 22:39:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:32:22 2013
Response via : Initial Calibration

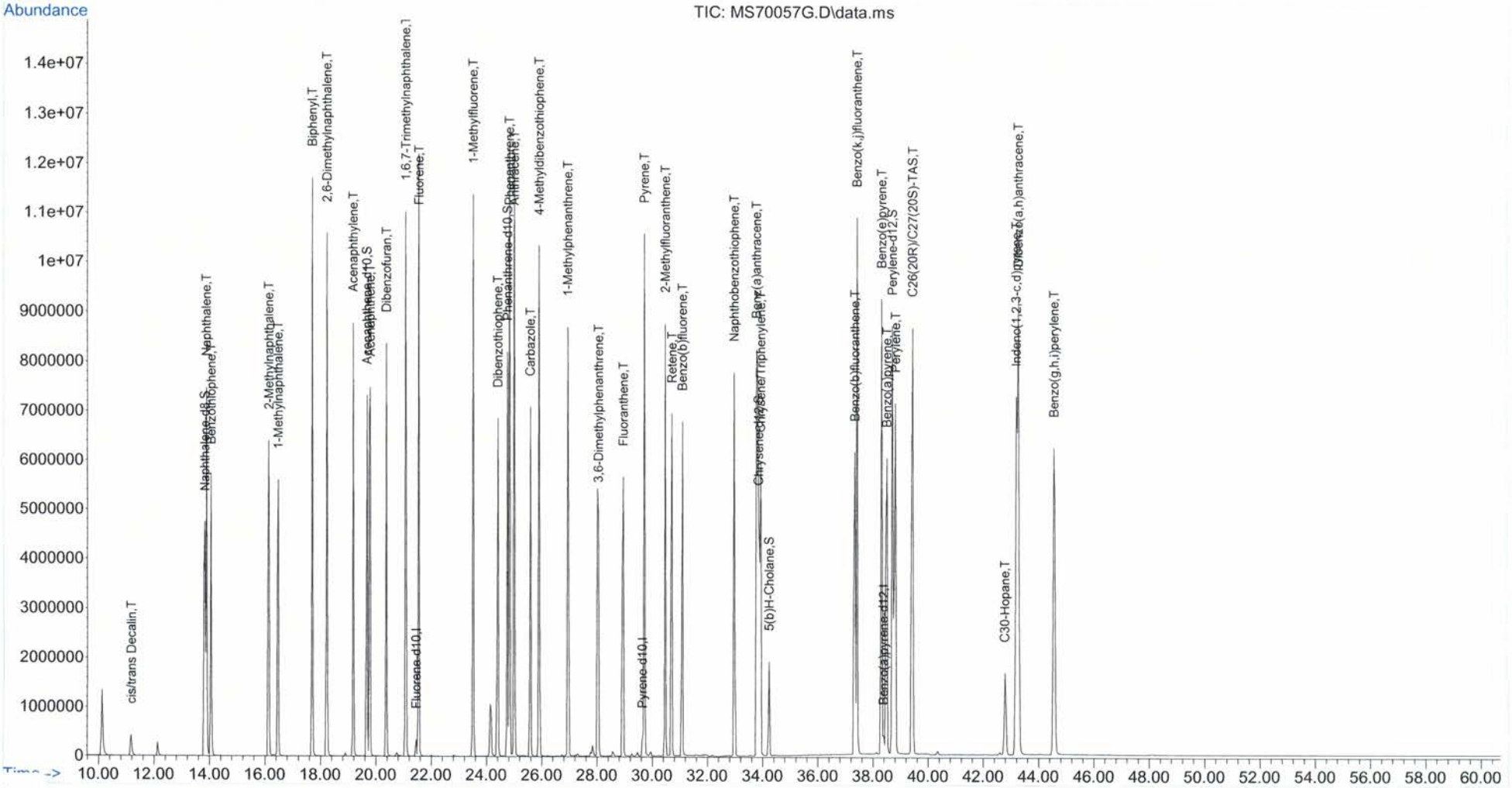
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057G.D
Acq On : 17 Aug 2013 4:05 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 17 22:39:04 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:32:22 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 17 22:48:01 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	109	0.00
2	S	Naphthalene-d8	1.692	1.546	8.6	108	0.00
3	T	cis/trans Decalin	0.290	0.321	-10.7	124	0.00
4	un	C1-Decalins	0.290	0.000	100.0#	0#	-12.32#
5	un	C2-Decalins	0.290	0.000	100.0#	0#	-13.52#
6	un	C3-Decalins	0.290	0.000	100.0#	0#	-15.88#
7	un	C4-Decalins	0.290	0.000	100.0#	0#	-18.33#
8	T	Naphthalene	1.889	2.096	-11.0	131	0.00
9	T	2-Methylnaphthalene	1.190	1.360	-14.3	135	0.00
10	T	1-Methylnaphthalene	1.099	1.252	-13.9	134	0.00
11	T	2,6-Dimethylnaphthalene	1.117	1.240	-11.0	131	0.00
12	T	1,6,7-Trimethylnaphthalene	0.989	1.152	-16.5	138	0.00
13	un	C2-Naphthalenes	1.889	0.000	100.0#	0#	-18.89#
14	un	C3-Naphthalenes	1.889	0.000	100.0#	0#	-20.37#
15	un	C4-Naphthalenes	1.889	0.000	100.0#	0#	-22.26#
16	T	Benzothiophene	1.541	1.729	-12.2	132	0.00
17	un	C1-Benzothiophenes	1.541	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.541	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.541	0.000	100.0#	0#	-20.31#
20	un	C4-Benzothiophenes	1.541	0.000	100.0#	0#	-22.23#
21	S	Acenaphthene-d10	0.973	0.873	10.3	107	0.00
22	T	Biphenyl	1.618	1.808	-11.7	132	0.00
23	T	Acenaphthylene	1.844	2.008	-8.9	132	0.00
24	T	Acenaphthene	1.052	1.203	-14.4	136	-0.03
25	T	Dibenzofuran	1.790	2.018	-12.7	132	0.00
26	T	Fluorene	1.414	1.592	-12.6	133	0.00
27	T	1-Methylfluorene	0.933	0.000	100.0#	0#	-23.51#
28	un	C1-Fluorenes	1.414	0.000	100.0#	0#	-23.51#
29	un	C2-Fluorenes	1.414	0.000	100.0#	0#	-24.79#
30	un	C3-Fluorenes	1.414	0.000	100.0#	0#	-27.59#
31	I	Pyrene-d10	1.000	1.000	0.0	114	0.00
32	S	Phenanthrene-d10	1.010	0.834	17.4	103	0.00
33	T	Carbazole	0.962	0.943	2.0	125	0.00
34	T	Dibenzothiophene	1.044	1.088	-4.2	130	0.00
35	T	4-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-25.89#
36	un	2/3-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.21#
37	un	1-Methyldibenzothiophene	0.851	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.044	0.000	100.0#	0#	-27.83#
39	un	C3-Dibenzothiophenes	1.044	0.000	100.0#	0#	-28.49#
40	un	C4-Dibenzothiophenes	1.044	0.000	100.0#	0#	-31.09#
41	T	Phenanthrene	1.263	1.366	-8.2	131	0.00
42	T	Anthracene	1.171	1.263	-7.9	135	0.00
43	un	3-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
44	un	2-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#
45	un	2-Methylanthracene	0.783	0.000	100.0#	0#	-26.73#
46	un	4/9-Methylphenanthrene	0.783	0.000	100.0#	0#	-26.93#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 17 22:48:01 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	0.783	0.900	-14.9	141	0.00
48	T	3,6-Dimethylphenanthrene	0.673	0.000	100.0#	0#	-28.04#
49	T	Retene	0.371	0.000	100.0#	0#	-30.71#
50	un	C2-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-29.43#
52	un	C4-Phenanthrenes/Anthracene	1.263	0.000	100.0#	0#	-32.06#
53	T	Naphthobenzothiophene	1.305	0.000	100.0#	0#	-32.96#
54	un	C1-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.305	0.000	100.0#	0#	-37.92#
58	T	Fluoranthene	1.139	1.244	-9.2	137	-0.03
59	T	Pyrene	1.480	1.628	-10.0	133	0.00
60	T	2-Methylfluoranthene	0.942	0.000	100.0#	0#	-30.47#
61	T	Benzo(b)fluorene	0.795	0.000	100.0#	0#	-31.09#
62	un	C1-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.139	0.000	100.0#	0#	-35.09#
66	S	Chrysene-d12	1.105	1.114	-0.8	120	-0.04
67	T	Benz(a)anthracene	1.344	1.597	-18.8	144	0.00
68	T	Chrysene/Triphenylene	1.138	1.350	-18.6	144	-0.04
69	un	C1-Chrysenes	1.138	0.000	100.0#	0#	-35.83#
70	un	C2-Chrysenes	1.138	0.000	100.0#	0#	-36.99#
71	un	C3-Chrysenes	1.138	0.000	100.0#	0#	-38.11#
72	un	C4-Chrysenes	1.138	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	110	0.00
74	un	C29-Hopane	0.371	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.371	0.000	100.0#	0#	-42.34#
76	T	C30-Hopane	0.371	0.000	100.0#	0#	-42.78#
77	T	Benzo(b)fluoranthene	1.391	1.428	-2.7	124	-0.04
78	T	Benzo(k,j)fluoranthene	1.059	0.913	13.8	107	0.00
79	un	Benzo(a)fluoranthene	1.059	0.000	100.0#	0#	-37.34#
80	T	Benzo(e)pyrene	1.281	1.360	-6.2	131	0.00
81	T	Benzo(a)pyrene	1.258	1.367	-8.7	132	-0.04
82	T	Indeno(1,2,3-c,d)pyrene	1.586	1.787	-12.7	139	-0.04
83	T	Dibenzo(a,h)anthracene	1.273	1.458	-14.5	141	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-48.31#
85	un	C2-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-50.30#
86	un	C3-Dibenzo(a,h)anthracenes	1.273	0.000	100.0#	0#	-51.23#
87	T	Benzo(g,h,i)perylene	1.385	1.527	-10.3	135	-0.04
88	S	Perylene-d12	1.181	1.004	15.0	104	0.00
89	T	Perylene	1.282	1.456	-13.6	138	-0.04
90	S	5(b)H-Cholane	0.198	0.162	18.2	101	0.00
91	un	C20-TAS	1.412	0.000	100.0#	0#	-33.30#
92	un	C21-TAS	1.412	0.000	100.0#	0#	-34.24#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 17 22:48:01 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	1.412	0.000	100.0#	0# -38.70#
94 T	C26(20R)/C27(20S)-TAS	1.412	0.000	100.0#	0# -39.43#
95 un	C28(20S)-TAS	1.412	0.000	100.0#	0# -40.24#
96 un	C27(20R)-TAS	1.412	0.000	100.0#	0# -41.09#
97 un	C28(20R)-TAS	1.412	0.000	100.0#	0# -41.42#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 17 22:48:01 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.455	176	485044m	251.05		0.00
31) Pyrene-d10	29.635	212	940240m	250.63		0.00
73) Benzo(a)pyrene-d12	38.386	264	1046368m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.822	136	747116m	228.51		0.00
21) Acenaphthene-d10	19.672	164	421897m	224.46		0.00
32) Phenanthrene-d10	24.752	188	782603m	206.60		0.00
66) Chrysene-d12	33.809	240	1044517m	251.91		-0.04
88) Perylene-d12	38.697	264	1049103m	212.57		0.00
90) 5(b)H-Cholane	34.235	217	168981m	203.85		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.176	138	153175m	273.29		
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	13.878	128	1012553m	277.48		
9) 2-Methylnaphthalene	16.134	142	657652m	286.01		
10) 1-Methylnaphthalene	16.469	142	604346m	284.51		
11) 2,6-Dimethylnaphthalene	18.224	156	598729m	277.43		
12) 1,6,7-Trimethylnaphtha...	21.065	170	556422m	291.12		
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	14.045	134	830107m	278.81		
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	17.694	154	865433m	276.81		
23) Acenaphthylene	19.171	152	961956m	270.05		
24) Acenaphthene	19.756	154	582461m	286.47		
25) Dibenzofuran	20.369	168	970029m	280.42		
26) Fluorene	21.539	166	770625m	282.10		
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	25.583	167	876427m	242.94		
34) Dibenzothiophene	24.406	184	1005834m	256.76		
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	24.822	178	1269636m	267.91		
42) Anthracene	24.995	178	1188267m	270.38		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 17 22:48:01 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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	26.934	192	834760m	284.34		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	28.908	202	1168064m	273.39		
59) Pyrene	29.704	202	1527071m	275.08		
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	33.770	228	1495128m	296.62		
68) Chrysene/Triphenylene	33.886	228	1258413m	294.87		
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	37.300	252	1494795m	257.11		
78) Benzo(k,j)fluoranthene	37.417	252	950589m	214.71		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.309	252	1415490m	264.27		
81) Benzo(a)pyrene	38.464	252	1426066m	271.11		
82) Indeno(1,2,3-c,d)pyrene	43.152	276	1835877m	276.91		
83) Dibenzo(a,h)anthracene	43.226	278	1509451m	283.74		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.516	276	1581626m	273.11		
89) Perylene	38.774	252	1523456m	284.38		
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:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 17 22:48:01 2013
Quant Method : C:\GCMS7\MS70057\AR70057.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Sat Aug 17 22:39:35 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:\GCMS7\MS70057\
Data File : MS70057I.D
Acq On : 17 Aug 2013 6:22 am
Operator : YM
Sample : AR-WKICV-250-004
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Quant Title : PAH Calibration Table-2013A
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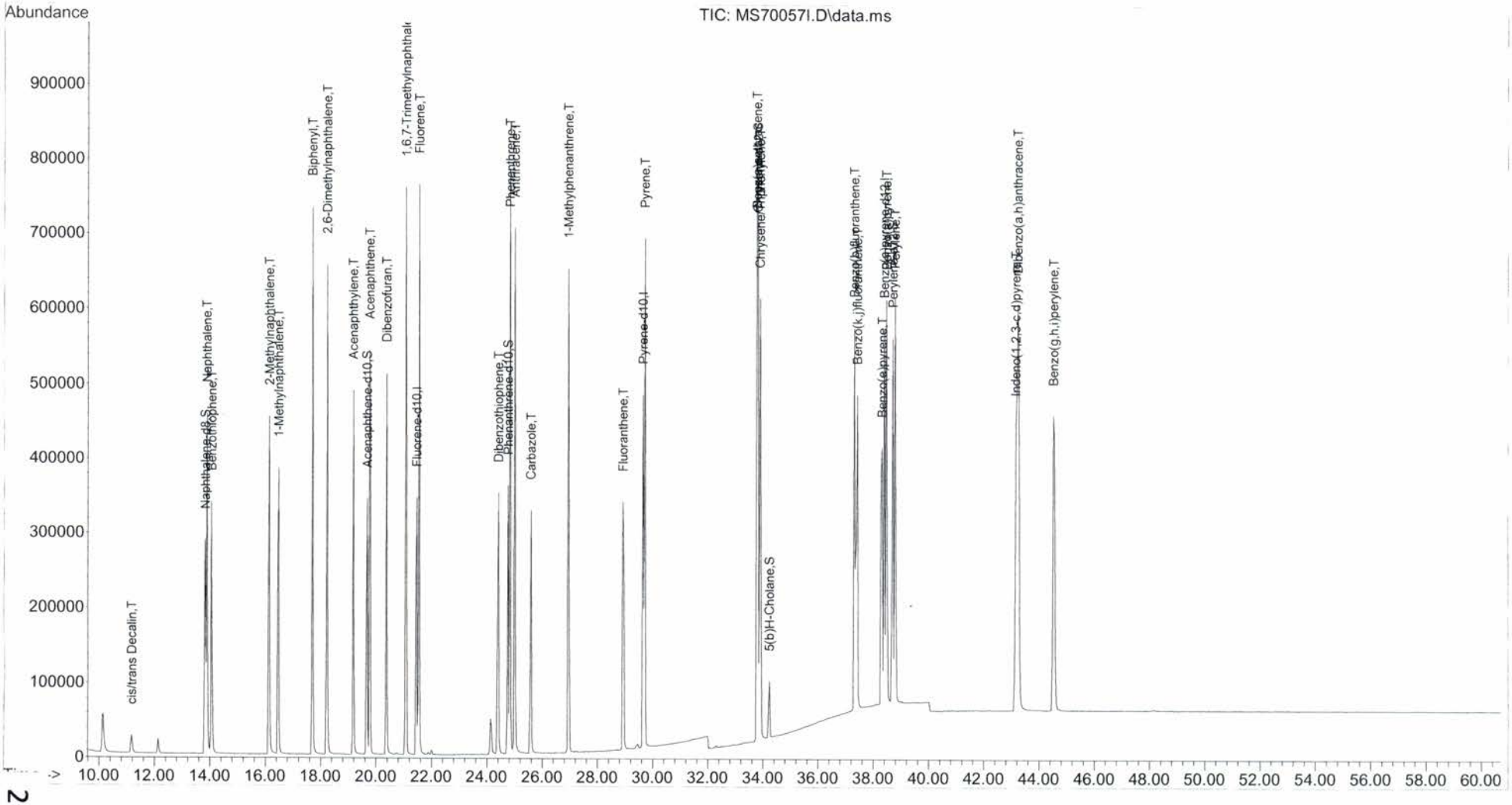


PAH Mass Discrimination Ratio

B&B Laboratories
Project J13034
Report 13-3100

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
MS70057B.D	AR-WKC1-020-030	24.1	23.2	1.04	
MS70057C.D	AR-WKC2-100-030	101	100	1.01	
MS70057D.D	AR-WKC3-250-030	222	235	0.95	
MS70057E.D	AR-WKC4-500-030	457	483	0.95	
MS70057F.D	AR-WKC5-1000-030	930	977	0.95	
MS70057G.D	AR-WKC6-5000-030	4941	4786	1.03	
MS70057I.D	AR-WKICV-250-004	273	268	1.02	
MS70057J.D	AR-WKCC-250-038	253	249	1.02	
MS70057L.D	AR-WKCC-250-038	168	228	0.74	
MS70057M.D	AR-WKCC-250-038	168	216	0.77	
MS70057N.D	AR-WKCC-250-038	165	208	0.79	

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

PAH Internal Standard Area Data

B&B Laboratories
Project J13034
Report 13-3100

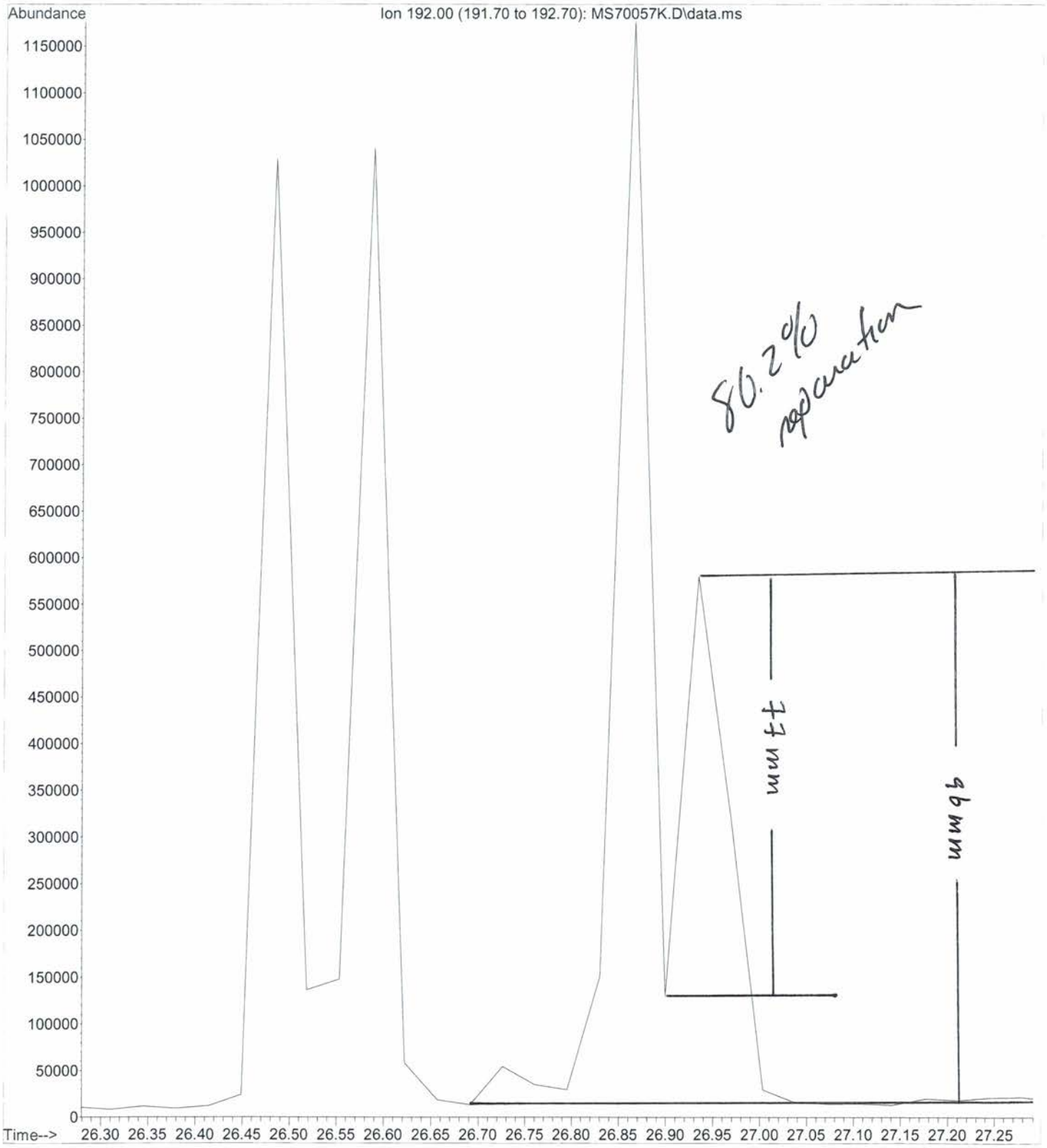
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
The Area of the Internal Standards in the Associated Calibration Standard

Client Project #B0086003.1302

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)
MS70057D.D	**AR-WKC3-250-030**	**444103**	**222052**	**888206**	**828017**	**414009**	**1656034**	**947909**	**473955**	**1895818**
MS70057I.D	**AR-WKICV-250-004**	**485044**			**940240**			**1046370**		
MS70057J.D	**AR-WKCC-250-038**	**402288**	**201144**	**804576**	**711768**	**355884**	**1423536**	**764621**	**382311**	**1529242**
ENV3081A.D	Procedural Blank	392122			808915			878300		
ENV3081B.D	SRM 1941b	443711			868078			908512		
ENV3081C.D	MS (SO-DA-015 (0-0.5) MS/MSD)	425322			798420			816593		
ENV3081D.D	MSD (SO-DA-015 (0-0.5) MS/MSD)	430992			767183			790895		
ENV3081E.D	Dupl. (SO-DA-014 (1.0-1.5))	370959			729099			734674		
ARC1600.D	SED-DA-020 (0.5-1.0)	380092			669393			627990		
ARC1601.D	SED-DA-020 (1.0-1.5)	403833			673089			663062		
ARC1618.D	SO-DA-012 (0-0.5)	345855			638702			578467		
MS70057L.D	**AR-WKCC-250-038**	**373875**	**186938**	**747750**	**705293**	**352647**	**1410586**	**665968**	**332984**	**1331936**
ARC1619.D	SO-DA-012 (0.5-1.0)	363678			689801			616945		
ARC1620.D	SO-DA-012 (1.0-1.5)	358642			675248			652091		
ARC1621.D	SO-DA-013 (0-0.5)	347503			658221			660995		
ARC1622.D	SO-DA-013 (0.5-1.0)	332451			654271			610205		
ARC1623.D	SO-DA-013 (1.0-1.5)	328427			646809			629279		
ARC1624.D	SO-DA-014 (0-0.5)	342674			667323			614271		
ARC1625.D	SO-DA-014 (0.5-1.0)	346184			677971			664144		
ARC1626.D	SO-DA-014 (1.0-1.5)	347411			687610			625351		
MS70057M.D	**AR-WKCC-250-038**	**421661**	**210831**	**843322**	**852816**	**426408**	**1705632**	**750512**	**375256**	**1501024**
ARC1627.D	SO-DA-DUP-01-080113	369916			721156			599100		
ARC1628.D	SO-DA-015 (0-0.5)	391694			706610			602163		
ARC1629.D	SO-DA-015 (0.5-1.0)	370709			736628			632990		
ARC1630.D	SO-DA-015 (1.0-1.5)	356494			724489			699093		
ARC1641.D	SED-DA-012 (0.5-1.0)	340116			708926			657110		
ARC1642.D	SED-DA-012 (1.0-1.5)	329379			676551			620743		
ARC1643.D	SED-DA-013 (1.0-1.5)	356666			740680			663704		
ARC1644.D	SED-DA-013 (1.0-1.5)	344521			715299			627035		
MS70057N.D	**AR-WKCC-250-038**	**393787**	**196894**	**787574**	**784238**	**392119**	**1568476**	**669077**	**334539**	**1338154**

SRM-2779 Reference Oil Aliphatic and PAH Resolution Checks

```
File       :C:\GCMS7\MS70057\MS70057K.D
Operator   : YM
Acquired   : 17 Aug 2013   8:39 am using AcqMethod PAH-2012.M
Instrument :   GCMSD
Sample Name: AR-SRM2779-WK4.0-002
Misc Info  :
Vial Number: 11
```



Supporting Documents

Shipping, Sample Receiving, and Project Initiation Documents

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 7/31/13 SDG#: 13073101

Sender: Arcadis- Mayflower AR

1. Number of Shipping Containers: 2 Arcadis- Daniel Mays

Comments: 1 of 2, large blue cooler

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

Airbill Number: 7958 0334 7496 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: paperwork in cooler 2

5. General Sample Conditions:
Frozen (Cool) Unrefrigerated
Dry Ice Blue Ice (Ice)
Temperature/Comments: 6.6°C / temp blank 2.9°C GTG

6. List of Broken Containers:

None

7. Number of Samples Expected: 2 coders Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 1:
19 seds
2 waters

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 7/31/13

large blue cooler

wet ice
T6
no COC
6.6°C / temp blank 2.9°c

Sdg 13073101
Cooler 1 of 2

eurofins | Lancaster Laboratories

486723

CUSTODY SEAL

DATE: 7-30-13

SIGNATURE: [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: 30JUL13
ACTWGT: 60.0 LB MAN
CAD: /POS1400
DIMS: 24x13x13 IN
BILL SENDER

TO B AND B LABS
B AND B LABS
14391 B SOUTH DOWLING RD

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

FedEx Express

2 of 2
MPS# 0681 7958 0334 7496
Mstr# 8769 3820 1029

WED - 31 JUL 10:30A
PRIORITY OVERNIGHT

0200

XH CLLA

77845
TX-US IAH

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 7/31/13 SDG#: 13073101

Sender: Arcadis- Mayflower AR

1. Number of Shipping Containers: 2 Arcadis- Daniel Mays

Comments: 2 of 2, large blue cooler

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

Airbill Number: 8769 3820 1029

Comments: PO/N

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

Comments: on top of duct tape

4. Chain of Custody Records?
No (Yes)

Comments: no relinquished signature

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

Temperature/Comments: 4.9°C / temp blank 3.6°C (T6)

6. List of Broken Containers:

None

7. Number of Samples Expected: 2 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 2:
19 seds
2 waters

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 7/31/13

large blue cooler

sdg 13073101
Cooler 2of2

4.9°C / temp blank 3.6°C

eurofins | Lancaster Laboratories

486724
CUSTODY SEAL
2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE: 7-30-15
SIGNATURE:

FedEx Express NEW Package US Airbill

8769 3820 1029

0200

FedEx Retrieval Copy

1 From
Date 7-30-2015 Sender's FedEx Account Number 1985922496
Sender's Name Carol Mays Phone 919 [illegible] 1917
Company ARCADIS
Address 801 Corporate Center Dr Ste 306
City Raleigh State NC ZIP 27607

2 Your Internal Billing Reference J13034

3 To
Recipient's Name B+B Laboratories Inc Phone 979 693-3446
Company B+B Labs
Address 14391 B Sam Rayburn Rd
Address
City College Station State TX ZIP 77845

HOLD Weekday 01
HOLD Saturday 31

4 Express Package Service
NOTE: Service order has changed. Please select carefully.
Packages up to 150 lbs.

Next Business Day
06 FedEx First Overnight
01 X FedEx Priority Overnight
05 FedEx Standard Overnight

2 or 3 Business Days
49 NEW FedEx 2Day A.M.
03 FedEx 2Day
20 FedEx Express Saver

5 Packaging
06 FedEx Envelope* 02 FedEx Pak* 03 FedEx Box 04 FedEx Tube 01 X Other

6 Special Handling and Delivery Signature Options
03 SATURDAY DELIVERY
X No Signature Required 10 Direct Signature 34 Indirect Signature

Does this shipment contain dangerous goods?
One box must be checked
X No 04 Yes Yes 06 Dry Ice
Cargo Aircraft Only

7 Payment Bill to
1 X Sender 2 Recipient 3 Third Party 4 Credit Card 5 Cash/Check
Total Packages 2 Total Weight Credit Card Auth

612

Rev. Date [illegible] Part [illegible] FedEx PRINTED IN U.S.A. SRY

8769 3820 1029

Pg. 1/4

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: B0086003.1301 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, mod. 8270 SIM	Analyses: TEH, mod. 8015	Analyses	Analyses	Analyses	Analyses	Other Instructions / Comments
SED-DA-029(0-0.5)	7-29-13	1030	Sed	None	8 oz jar	1	X	X			1		Full PAH List
SED-DA-029(0.5-1.0)	7-29-13	1035	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-029(1.0-1.5)	7-29-13	1040	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-029(1.5-2.0)	7-29-13	1045	Sed	None	4 oz jar	1	X				1		44 PAH List, extract + hold
SED-DA-029(2.0-3.0)	7-29-13	1050	Sed	None	4 oz jar	1	X				1		44 PAH List, extract + hold
SED-DA-EB-02-072913	7-29-13	1110	water	None	1L Amber	2	X	X			1		Full PAH List
SED-DA-030(0-0.5)	7-29-13	1120	Sed	None	8 oz jar	1	X	X			1		Full PAH List
SED-DA-030(0.5-1.0)	7-29-13	1125	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-030(1.0-1.5)	7-29-13	1130	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-028(0-0.5)	7-29-13	1300	Sed	None	8 oz jar	1	X	X			1		Full PAH List
					Total # of Containers	11							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	7-30-13	1700	Printed Name: Fedex		7-30-13	1700
Signature:				Signature:			
Printed Name				Printed Name: Amanda Brewster	B&B labs	7/31/13	13:00
Signature:				Signature: Amanda Brewster			

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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SDG 13073101
Cooler 2 of 2 (2)

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: B0086063.1301 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 mod 8270SIM	TEH, mod. 8015			Cooler #		Comments
SED-DA-028(0-0.5) MS/MSD	7-29-13	1300	Sed	None	8 oz jar	2	X	X			1,1		Full PAH List
SED-DA-028(0.5-1.0)	7-29-13	1305	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-028(1.0-1.5)	7-29-13	1310	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-027(0-0.5)	7-29-13	1400	Sed	None	8 oz jar	1	X	X			1		Full PAH List
SED-DA-027(0.5-1.0)	7-29-13	1405	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-027(1.0-1.5)	7-29-13	1410	Sed	None	4 oz jar	1	X				1		44 PAH List
SED-DA-027(1.5-2.0)	7-29-13	1415	Sed	None	4 oz jar	1	X				1		44 PAH List, extract+hold
SED-DA-027(2.0-3.0)	7-29-13	1420	Sed	None	4 oz jar	1	X				1		44 PAH List, extract+hold
SED-DA-027(3.0-3.6)	7-29-13	1425	Sed	None	4 oz jar	1	X				1		44 PAH List, extract+hold
SED-DA-EB-03-073013	7-30-13	900	Water	None	1L amber	2	X	X			2,2		Full PAH List
					Total # of Containers	12							

Other Instructions

Analyses

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays Daniel Mays	ARCADIS	7-30-13	1700	Printed Name: Fedex		7-31-13	1700
Signature:				Signature:			
Printed Name:				Printed Name: Amanda Brewster B&B Labs		7/31/13	1300
Signature:				Signature: Amanda Brewster			

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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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: B0086003.B01 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.	PAHs mod. 8270 SIM	TEH mod. 8015			Analyses		Other Instructions / Comments
SED-DA-026(0-0.5)	7-30-13	830	Sed	None	8 oz jar	1	X	X			2		Full PAH List
SED-DA-026(0.5-1.0)	7-30-13	835	Sed	None	4 oz jar	1	X				2		44 PAH List
SED-DA-026(1.0-1.5)	7-30-13	840	Sed	None	4 oz jar	1	X				2		44 PAH List
SED-DA-026(1.5-2.0)	7-30-13	845	Sed	None	4 oz jar	1	X				2		44 PAH List, extract + hold
SED-DA-026(2.0-3.0	7-30-13	850	Sed	None	4 oz jar	1	X				2		44 PAH List, extract + hold
SED-DA-026(3.0-3.4)	7-30-13	855	Sed	None	4 oz jar	1	X				2		44 PAH List, extract + hold
SED-DA-025(0-0.5)	7-30-13	945	Sed	None	8 oz jar	1	X	X			2		Full PAH List
SED-DA-025(0.5-1.0)	7-30-13	950	Sed	None	4 oz jar	1	X				2		44 PAH List
SED-DA-025(1.0-1.5)	7-30-13	955	Sed	None	4 oz jar	1	X				2		44 PAH List
SED-DA-024(0-0.5)	7-30-13	1015	Sed	None	8 oz jar	1	X	X			2		Full PAH List
					Total # of Containers	10							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	7-30-13	1700	Printed Name: Fedex		7-30-13	1700
Signature:				Signature:			
Printed Name:				Printed Name: Amanda Brewster	B&B Labs	7/31/13	18:00
Signature:				Signature: Amanda Brewster			

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

Pg. 4/4

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: B0086003.B01 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, mod. 8270SIM	Analyses: TEH, mod. 8015	Analyses: #	Other Instructions / Comments
SED-DA-024(0.5-1.0)	7-30-13	1020	Sed	None	4 oz jar	1	X		2	44 PAH List
SED-DA-024(1.0-1.5)	7-30-13	1025	Sed	None	4 oz jar	1	X		2	44 PAH List
SED-DA-024(1.5-2.0)	7-30-13	1030	Sed	None	4 oz jar	1	X		2	44 PAH List, extract + hold
SED-DA-024(2.0-3.0)	7-30-13	1035	Sed	None	4 oz jar	1	X		2	44 PAH List, extract + hold
SED-DA-020(0-0.5)	7-30-13	1100	Sed	None	8 oz jar	1	X	X	2	Full PAH List
SED-DA-020(0.5-1.0)	7-30-13	1105	Sed	None	4 oz jar	1	X		2	44 PAH List
SED-DA-020(1.0-1.5)	7-30-13	1110	Sed	None	4 oz jar	1	X		2	44 PAH List
SED-DA-BG-007(0-0.5)	7-30-13	1345	Sed	None	8 oz jar	1	X		2	Full PAH List
SED-DA-DUP-020(0-0.5)	7-30-13		Sed	None	8 oz jar	1	X		2	Full PAH List

Total # of Containers: 9

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	7-30-13	1700	Printed Name: Fedex		7-30-13	1700
Signature:				Signature:			
Printed Name				Printed Name: Amanda Brewster	B&B Labs	7/31/13	13:00
Signature:				Signature: Amanda Brewster			

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

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64251	J13034	Arcadis - Mayflower AR	ARC1566	SED-DA-029 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64252	J13034	Arcadis - Mayflower AR	ARC1567	SED-DA-029 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64253	J13034	Arcadis - Mayflower AR	ARC1568	SED-DA-029 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64254	J13034	Arcadis - Mayflower AR	ARC1569	SED-DA-029 (1.5-2.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64255	J13034	Arcadis - Mayflower AR	ARC1570	SED-DA-029 (2.0-3.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64256	J13034	Arcadis - Mayflower AR	ARC1571	SED-DA-030 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64257	J13034	Arcadis - Mayflower AR	ARC1572	SED-DA-030 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64258	J13034	Arcadis - Mayflower AR	ARC1573	SED-DA-030 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64259	J13034	Arcadis - Mayflower AR	ARC1574	SED-DA-028 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64260	J13034	Arcadis - Mayflower AR	ARC1575	SED-DA-028 (0-0.5) MS/MSD	07/29/13	07/31/13	PAH, TPH, ALI	SED	1 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64261	J13034	Arcadis - Mayflower AR	ARC1576	SED-DA-028 (0-0.5) MS/MSD	07/29/13	07/31/13	HOLD	SED	2 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64262	J13034	Arcadis - Mayflower AR	ARC1577	SED-DA-028 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64263	J13034	Arcadis - Mayflower AR	ARC1578	SED-DA-028 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64264	J13034	Arcadis - Mayflower AR	ARC1579	SED-DA-027 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64265	J13034	Arcadis - Mayflower AR	ARC1580	SED-DA-027 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64266	J13034	Arcadis - Mayflower AR	ARC1581	SED-DA-027 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64267	J13034	Arcadis - Mayflower AR	ARC1582	SED-DA-027 (1.5-2.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64268	J13034	Arcadis - Mayflower AR	ARC1583	SED-DA-027 (2.0-3.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64269	J13034	Arcadis - Mayflower AR	ARC1584	SED-DA-027 (3.0-3.6)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64270	J13034	Arcadis - Mayflower AR	ARC1585	SED-DA-026 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64271	J13034	Arcadis - Mayflower AR	ARC1586	SED-DA-026 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64272	J13034	Arcadis - Mayflower AR	ARC1587	SED-DA-026 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64273	J13034	Arcadis - Mayflower AR	ARC1588	SED-DA-026 (1.5-2.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64274	J13034	Arcadis - Mayflower AR	ARC1589	SED-DA-026 (2.0-3.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64275	J13034	Arcadis - Mayflower AR	ARC1590	SED-DA-026 (3.0-3.4)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64276	J13034	Arcadis - Mayflower AR	ARC1591	SED-DA-025 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64277	J13034	Arcadis - Mayflower AR	ARC1592	SED-DA-025 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64278	J13034	Arcadis - Mayflower AR	ARC1593	SED-DA-025 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64279	J13034	Arcadis - Mayflower AR	ARC1594	SED-DA-024 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64280	J13034	Arcadis - Mayflower AR	ARC1595	SED-DA-024 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64281	J13034	Arcadis - Mayflower AR	ARC1596	SED-DA-024 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64282	J13034	Arcadis - Mayflower AR	ARC1597	SED-DA-024 (1.5-2.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64283	J13034	Arcadis - Mayflower AR	ARC1598	SED-DA-024 (2.0-3.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64284	J13034	Arcadis - Mayflower AR	ARC1599	SED-DA-020 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64285	J13034	Arcadis - Mayflower AR	ARC1600	SED-DA-020 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64286	J13034	Arcadis - Mayflower AR	ARC1601	SED-DA-020 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64287	J13034	Arcadis - Mayflower AR	ARC1602	SED-DA-BG-007 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64288	J13034	Arcadis - Mayflower AR	ARC1603	SED-DA-DUP-02-073013	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64289	J13034	Arcadis - Mayflower AR	ARC1604	SED-DA-EB-02-072913	07/29/13	07/31/13	PAH, TPH, ALI	WATER	1 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302
64290	J13034	Arcadis - Mayflower AR	ARC1605	SED-DA-EB-02-072913	07/29/13	07/31/13	HOLD	WATER	2 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302
64291	J13034	Arcadis - Mayflower AR	ARC1606	SED-DA-EB-03-073013	07/30/13	07/31/13	PAH, TPH, ALI	WATER	1 of 2	13073101	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302
64292	J13034	Arcadis - Mayflower AR	ARC1607	SED-DA-EB-03-073013	07/30/13	07/31/13	HOLD	WATER	2 of 2	13073101	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13073101
Client: Arcadis - Mayflower AR
Initiation Date: 7/31/13

Number of Samples: 16
Matrix: sediments
Due Date: ~~7/31/13~~ 45 days: 10/14/13
Comments: PAH: 44 analytes
received 7/31/13

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 mix 1	☐	Blank Spike
☐ Blank Spike Duplicate		☐	Matrix Spike ____
☐ Matrix Spike Duplicate ____		☐	Duplicate ____

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

Comments:
Analyze PAHs short list only

Sample Custodian Signature: Amanda Brewster — Date: 7/31/13
Laboratory Manager Signature: ____ — Date: 7/31/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64252	J13034	Arcadis - Mayflower AR	ARC1567	SED-DA-029 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64253	J13034	Arcadis - Mayflower AR	ARC1568	SED-DA-029 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64257	J13034	Arcadis - Mayflower AR	ARC1572	SED-DA-030 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64258	J13034	Arcadis - Mayflower AR	ARC1573	SED-DA-030 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64262	J13034	Arcadis - Mayflower AR	ARC1577	SED-DA-028 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64263	J13034	Arcadis - Mayflower AR	ARC1578	SED-DA-028 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64265	J13034	Arcadis - Mayflower AR	ARC1580	SED-DA-027 (0.5-1.0)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64266	J13034	Arcadis - Mayflower AR	ARC1581	SED-DA-027 (1.0-1.5)	07/29/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64271	J13034	Arcadis - Mayflower AR	ARC1586	SED-DA-026 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64272	J13034	Arcadis - Mayflower AR	ARC1587	SED-DA-026 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64277	J13034	Arcadis - Mayflower AR	ARC1592	SED-DA-025 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64278	J13034	Arcadis - Mayflower AR	ARC1593	SED-DA-025 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64280	J13034	Arcadis - Mayflower AR	ARC1595	SED-DA-024 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64281	J13034	Arcadis - Mayflower AR	ARC1596	SED-DA-024 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64285	J13034	Arcadis - Mayflower AR	ARC1600	SED-DA-020 (0.5-1.0)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64286	J13034	Arcadis - Mayflower AR	ARC1601	SED-DA-020 (1.0-1.5)	07/30/13	07/31/13	PAH	SED	44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034

SDG: 13073101

Client: Arcadis - Mayflower AR

Initiation Date: 7/31/13

Number of Samples: 2

Matrix: water

Due Date: 45 days: 10/14/13

Comments: collected 7/29-7/30
extract by 8/04-8/05
received 7/31/13

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): 1 mL

Spike Standard(s): PAH, ALI Volume(s): 1 mL

Internal Standard(s): PAH, ALI Volume(s): 1 mL

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

Comments:

Sample Custodian Signature: Amanda Brewster Date: 7/31/13

Laboratory Manager Signature: _____ Date: 7/31/13

cc: COC Book
Extraction Lab

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64289	J13034	Arcadis - Mayflower AR	ARC1604	SED-DA-EB-02-072913	07/29/13	07/31/13	PAH, TPH, ALI	WATER	1 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64291	J13034	Arcadis - Mayflower AR	ARC1606	SED-DA-EB-03-073013	07/30/13	07/31/13	PAH, TPH, ALI	WATER	1 of 2	13073101	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 1307-3101
Client: Arcadis - Mayflower AR
Initiation Date: 7/31/13

Number of Samples: 11
Matrix: sediments
Due Date: 45 days: 10/14/13
Comments: PAH, TPH, ALI
received 7/31/13

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

Comments:
use ARC 1575 as MS/MSD

Sample Custodian Signature: amanda Brewster Date: 7/31/13
Laboratory Manager Signature: ____ Date: 7/31/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64251	J13034	Arcadis - Mayflower AR	ARC1566	SED-DA-029 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64256	J13034	Arcadis - Mayflower AR	ARC1571	SED-DA-030 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64259	J13034	Arcadis - Mayflower AR	ARC1574	SED-DA-028 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64260	J13034	Arcadis - Mayflower AR	ARC1575	SED-DA-028 (0-0.5) MS/MSD	07/29/13	07/31/13	PAH, TPH, ALI	SED	1 of 2	13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64264	J13034	Arcadis - Mayflower AR	ARC1579	SED-DA-027 (0-0.5)	07/29/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64270	J13034	Arcadis - Mayflower AR	ARC1585	SED-DA-026 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64276	J13034	Arcadis - Mayflower AR	ARC1591	SED-DA-025 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64279	J13034	Arcadis - Mayflower AR	ARC1594	SED-DA-024 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64284	J13034	Arcadis - Mayflower AR	ARC1599	SED-DA-020 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64287	J13034	Arcadis - Mayflower AR	ARC1602	SED-DA-BG-007 (0-0.5)	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64288	J13034	Arcadis - Mayflower AR	ARC1603	SED-DA-DUP-02-073013	07/30/13	07/31/13	PAH, TPH, ALI	SED		13073101	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13073101
Client: Arcadis - Mayflower AR
Initiation Date: 7/31/13

Number of Samples: 10
Matrix: sediments
Due Date: 45 days: 10/14/13
Comments: EXTRACT & HOLD
PAH: 44 analytes
received 7/31/13

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, 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:

extract & hold

Sample Custodian Signature: Amanda Brewster Date: 7/31/13

Laboratory Manager Signature: [signature] Date: 7/31/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64254	J13034	Arcadis - Mayflower AR	ARC1569	SED-DA-029 (1.5-2.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64255	J13034	Arcadis - Mayflower AR	ARC1570	SED-DA-029 (2.0-3.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64267	J13034	Arcadis - Mayflower AR	ARC1582	SED-DA-027 (1.5-2.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64268	J13034	Arcadis - Mayflower AR	ARC1583	SED-DA-027 (2.0-3.0)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64269	J13034	Arcadis - Mayflower AR	ARC1584	SED-DA-027 (3.0-3.6)	07/29/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64273	J13034	Arcadis - Mayflower AR	ARC1588	SED-DA-026 (1.5-2.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64274	J13034	Arcadis - Mayflower AR	ARC1589	SED-DA-026 (2.0-3.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64275	J13034	Arcadis - Mayflower AR	ARC1590	SED-DA-026 (3.0-3.4)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64282	J13034	Arcadis - Mayflower AR	ARC1597	SED-DA-024 (1.5-2.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64283	J13034	Arcadis - Mayflower AR	ARC1598	SED-DA-024 (2.0-3.0)	07/30/13	07/31/13	PAH	SED	extract & hold, 44 analytes	13073101	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

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amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Wednesday, July 31, 2013 4:39 PM
To: '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: RE: B+B Shipment 7-30-2013
Attachments: COC 7-31-13.pdf

Hi Daniel,

We received your samples today in good condition.
The internal temperature of Cooler 1 was 6.6ºC and the temperature blank was 2.9ºC.
The internal temperature of Cooler 2 was 4.9ºC and the temperature blank was 3.6ºC.
A PDF of the COC is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Tuesday, July 30, 2013 5:11 PM
To: amandabrewster@TDI-BI.com
Subject: B+B Shipment 7-30-2013

Good evening Amanda,

2 coolers were shipped to B+B today, tracking number 876938201029 and 795803347496.

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.

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/02/13 SDG#: 13080201

Sender: Arcadis- Mayflower AR

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

Comments: large blue cooler - arrived leaking water

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

Airbill Number: 8022 2781 5950

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: no relinquished signature

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

Temperature/Comments: 8.1°C/temp blank 4.6°C (T6

6. List of Broken Containers:

None

7. Number of Samples Expected: 1 cooler Number of Samples Received: 15 seds

8. Problems/Discrepancies:

None

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/02/13

large blue cooler

Sdg 13080201

Cooler 1 of 1

thermometer 6

wet ice

eurofins | Lancaster Laboratories

486714

CUSTODY SEAL

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

DATE: 4-1-2013

SIGNATURE:

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 5950

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 5950

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 HS 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. For residential deliveries only. 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, not restricted. ☐ 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.

☐ Sender Acct. No. in Section 1 will be billed ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight Credit Card Auth.

lbs.

644

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fedex.com 1.800.GO FEDEX 1.800.463.3339

Pg. 1/2

SDG 130RC201
Cooler 1 of 1

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: B0086003.1301 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 mod. 8270SIM	Other Instructions / Comments
SO-DA-012(0-0.5)	8-1-13	950	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-012(0.5-1.0)	8-1-13	955	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-012(1.0-1.5)	8-1-13	1000	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-013(0-0.5)	8-1-13	1100	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-013(0.5-1.0)	8-1-13	1105	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-013(1.0-1.5)	8-1-13	1110	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-014(0-0.5)	8-1-13	1200	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-014(0.5-1.0)	8-1-13	1205	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-014(1.0-1.5)	8-1-13	1210	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-DUP-01-080113	8-1-13		Soil	None	4 oz jar	1	X	44 PAH List
					Total # of Containers	10		

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-1-13	1700	Printed Name: Fedex		8-1-13	1700
Signature:				Signature:			
Printed Name:				Printed Name: Priscilla Preuss	B&B Labs	8/2/13	11:00
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

Pg. 2/2

Sdg 130201
Cooler 1 of 1

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: B0086003.1301 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.	Analyses: PAHs mod 8270 SIM	Other Instructions / Comments
SO-DA-015(0-05)	8-1-13	1400	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-015(0.5-1.0)	8-1-13	1405	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-015(1.0-1.5)	8-1-13	1410	Soil	None	4 oz jar	1	X	44 PAH List
SO-DA-015(0-0.5) MS/MSD	8-1-13	1400	Soil	None	4 oz jar	2	X	44 PAH List
				Total # of Containers		5		

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Daniel Mays	ARCADIS	8-1-13	1700	Printed Name: Fedex		8-1-13	1700
Signature				Signature:			
Printed Name				Printed Name: Amanda Preuss B&B Labs		8/2/13	11 am
Signature				Signature: Amanda Preuss			

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 SAMPLE INITIATION FORM-ENV

Job #: J13034	Number of Samples: 14
SDG: 13080201	Matrix: Soils
Client: Arcadis-MayflowerAR	Due Date: 45 days: 10/16/13
Initiation Date: 8/02/13	Comments: PAH: 44 analytes received 8/02/13

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, A-1 Volume(s): [illegible]

Spike Standard(s): PAH, A-1 Volume(s): [illegible]

Internal Standard(s): PAH, A-1 Volume(s): [illegible]

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

Comments:

Used SP-DA-015 (0-0.5) as MS/MSD
ARC1631 as MS/MSD
Short PAH List

Sample Custodian Signature: Amanda Brewster Date: 8/02/13

Laboratory Manager Signature: [signature] Date: 8/2/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64303	J13034	Arcadis - Mayflower AR	ARC1618	SO-DA-012 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64304	J13034	Arcadis - Mayflower AR	ARC1619	SO-DA-012 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64305	J13034	Arcadis - Mayflower AR	ARC1620	SO-DA-012 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64306	J13034	Arcadis - Mayflower AR	ARC1621	SO-DA-013 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64307	J13034	Arcadis - Mayflower AR	ARC1622	SO-DA-013 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64308	J13034	Arcadis - Mayflower AR	ARC1623	SO-DA-013 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64309	J13034	Arcadis - Mayflower AR	ARC1624	SO-DA-014 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64310	J13034	Arcadis - Mayflower AR	ARC1625	SO-DA-014 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64311	J13034	Arcadis - Mayflower AR	ARC1626	SO-DA-014 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64312	J13034	Arcadis - Mayflower AR	ARC1627	SO-DA-DUP-01-080113	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64313	J13034	Arcadis - Mayflower AR	ARC1628	SO-DA-015 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64314	J13034	Arcadis - Mayflower AR	ARC1629	SO-DA-015 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64315	J13034	Arcadis - Mayflower AR	ARC1630	SO-DA-015 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64316	J13034	Arcadis - Mayflower AR	ARC1631	SP-DA-015 (0-0.5) MS/MSD	08/01/13	08/02/13	PAH	SOIL	44 analytes, 1 of 2	13080201	Cooler 1	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	Project #
64303	J13034	Arcadis - Mayflower AR	ARC1618	SO-DA-012 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64304	J13034	Arcadis - Mayflower AR	ARC1619	SO-DA-012 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64305	J13034	Arcadis - Mayflower AR	ARC1620	SO-DA-012 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64306	J13034	Arcadis - Mayflower AR	ARC1621	SO-DA-013 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64307	J13034	Arcadis - Mayflower AR	ARC1622	SO-DA-013 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64308	J13034	Arcadis - Mayflower AR	ARC1623	SO-DA-013 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64309	J13034	Arcadis - Mayflower AR	ARC1624	SO-DA-014 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64310	J13034	Arcadis - Mayflower AR	ARC1625	SO-DA-014 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64311	J13034	Arcadis - Mayflower AR	ARC1626	SO-DA-014 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64312	J13034	Arcadis - Mayflower AR	ARC1627	SO-DA-DUP-01-080113	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64313	J13034	Arcadis - Mayflower AR	ARC1628	SO-DA-015 (0-0.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64314	J13034	Arcadis - Mayflower AR	ARC1629	SO-DA-015 (0.5-1.0)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64315	J13034	Arcadis - Mayflower AR	ARC1630	SO-DA-015 (1.0-1.5)	08/01/13	08/02/13	PAH	SOIL	44 analytes	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64316	J13034	Arcadis - Mayflower AR	ARC1631	SP-DA-015 (0-0.5) MS/MSD	08/01/13	08/02/13	PAH	SOIL	44 analytes, 1 of 2	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64317	J13034	Arcadis - Mayflower AR	ARC1632	SP-DA-015 (0-0.5) MS/MSD	08/01/13	08/02/13	HOLD	SOIL	44 analytes, 2 of 2	13080201	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Friday, August 02, 2013 11:46 AM
To: '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 8/02/13
Attachments: COC 8-02-13.pdf

Hi Daniel,

We received your cooler this morning in good condition.
The internal temperature of the cooler was 8.1ºC and the temperature blank was 4.6ºC.
A PDF of the COC is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Thursday, August 01, 2013 9:17 PM
To: amanda brewster
Subject: B+B Cooler Shipment 8-1-2013

Good Evening Amanda,

Sent one cooler to B & B Thursday, 8-1-2013. Tracking # 802227815950.

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.
Please consider the environment before printing this email.

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/06/13 SDG#: 13080601

Sender: Arcadis - Mayflower AR

1. Number of Shipping Containers: 3 Arcadis: Daniel Mays

Comments: 1 of 3, large blue cooler

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

Airbill Number: 7958 0588 0377

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 2

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

Temperature/Comments: 5.0°c / temp blank 1.6°c CT4

6. List of Broken Containers:

None

7. Number of Samples Expected: 3 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

Cooler 1:
21 seds

received sample: 8oz jar
SED-OA-DUP-04-080313
for PAH, TPH, TEH : not on COC

9. Resolutions:

notified Lyndi Mott/Daniel Mays via email 8/06/13

10. Checked in by: Amanda Brewster Date: 8/06/13

large blue cooler

Sdg 13080601
Cooler 1 of 3

Ice type:
Cooler temp:
Temp blank: yes 5.0/1.6
Thermometer: 4
Custody seal:

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

SHIP DATE: 05AUG13
ACTWGT: 66.0 LB MAN
CAD: /POS1400
DIMS: 24x13x13 IN
BILL SENDER

TO
B AND B LABS
14391 S DOWLING RD
B
COLLEGE STATION TX 77845
(979) 693-3446
INV:
PO:
REF:
DEPT:

RT 819 2

FedEx Express

3 of 3
MPS# 0681 7958 0588 0377
Mstr# 8022 2781 6876
0200

TUE - 06 AUG 10:30A
PRIORITY OVERNIGHT

XH CLLA

77845
TX-US IAH

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/06/13 SDG#: 13080601

Sender: Arcadis - Mayflower AR

1. Number of Shipping Containers: 3 Arcadis - Daniel Mays

Comments: 2 of 3, large blue cooler

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

Airbill Number: 8022 2781 6876

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 2

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

Temperature/Comments: 0.2°C / temp blank 1.2°C (T4

6. List of Broken Containers:

None

7. Number of Samples Expected: 3 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

None

Cooler 2:
20 seds
2 waters

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/06/13

large blue cooler

Ice type:
Cooler temp
Temp blank: yes 1,2
Thermometer: 4
Custody Seal:

Sdg 13080601
Cooler 2 of 3

eurofins | Lancaster Laboratories

486705

CUSTODY SEAL

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

DATE: 8-5-13

SIGNATURE:

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 6876

0200

1 From

Date 8-5-2013

Sender's Name Daniel Mays Phone 919 812-1417

Company ARCADIS

Address 801 Corporate Center Dr Ste 300 Dept./Floor/Suite/Room

City Raleigh State NC ZIP 27607

2 Your Internal Billing Reference

3 To

Recipient's Name B+B Laboratories Inc Phone 979-693-3496

Company B+B Labs

Address 14391B South Dowling Rd 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 College Station State TX ZIP 77845

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

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

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.
- [X] 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.

2nd 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
- [X] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- [X] 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?

- [X] 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.

- [ ] Sender — Acct. No. in Section 1 will be billed
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages: 3 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.

fedex.com 1.800.GoFedEx 1.800.463.3339

8022 2781 6876

64

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/06/13 SDG#: 13080601

Sender: Arcadis- Mayflower AR

1. Number of Shipping Containers: 3 Arcadis: Daniel Mays

Comments: 3 of 3, large blue cooler

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

Airbill Number: 7958 0588 0366

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: 0.0°c / temp blank 1.1°c CT4

6. List of Broken Containers:

None

7. Number of Samples Expected: 3 coolers Number of Samples Received: _____

8. Problems/Discrepancies:

SED-DA-009 (0.5-1.0) is this for PAH 44 analytes? not indicated

Cooler 3: 21 seds 2 waters

9. Resolutions: on COC

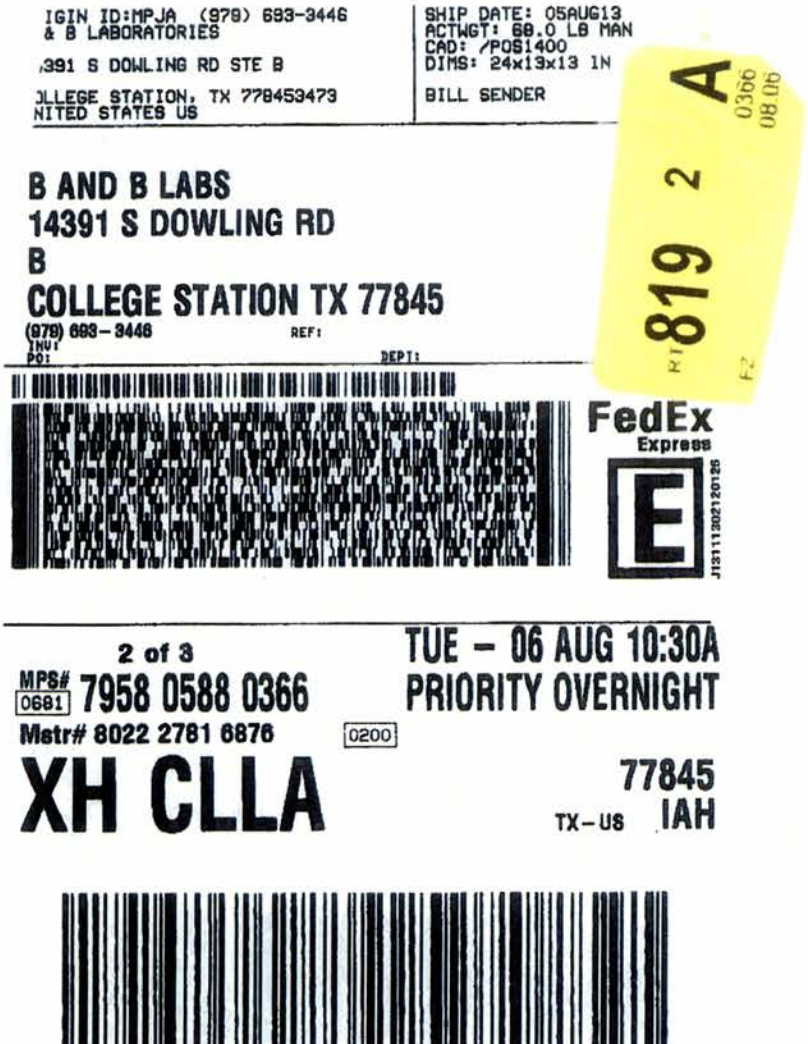
asked Lyndi/Daniel for clarification via email 8/06/13

10. Checked in by: amanda Bumpus Date: 8/06/13

large blue cooler

Ice type: Wet Ice
Cooler temp: 0.0
Temp blank: yes 1.1
Thermometer: 4
Custody seal:

Sdg 13080601
Cooler 3 of 3



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: B0086003.B01 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 exp. 8270SIM	Cooler #	Other Instructions / Comments
SO-DA-011(0-0.5)	8-2-13	810	Soil	None	4 oz jar	1	X	3	Sdg 13080601 Cooler 2 of 3 (1) / 44 PAH List
SO-DA-011(0.5-1.0)	8-2-13	815	Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-011(1.0-1.5)	8-2-13	820	Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-011(0-0.5)MS/MSD	8-2-13	810	Soil	None	4 oz jar	2	X	3,3	44 PAH List
SO-DA-010(0-0.5)	8-2-13	920	Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-010(0.5-1.0)	8-2-13	925	Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-010(1.0-1.5)	8-2-13	930	Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-DUP-02-080213	8-2-13		Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-009(0-0.5)	8-2-13	1000	Soil	None	4 oz jar	1	X	3	44 PAH List
SO-DA-009(0.5-1.0)	8-2-13	1005	Soil	None	4 oz jar	1	X	3	44 PAH List
					Total # of Containers	11			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flonefelt	ARCADIS	8/5/13	16:15	Printed Name: Amanda Brewster	B&B Labs	8/06/13	15:00
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

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TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 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.	PAHs and 8270 SIM	TPH mod. 8015			Cooler #		Other Instructions / Comments
							Analyses						
SO-DA-009(1.0-1.5)	8-2-13	1010	Soil	None	4 oz jar	1	X				3		44 PAH List; sdg 13080601
SO-DA-008(0-0.5)	8-2-13	1030	Soil	None	4 oz jar	1	X				3		44 PAH List; Cooler 2 of 3 (2)
SO-DA-008(05-1.0)	8-2-13	1035	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-008(1.0-1.5)	8-2-13	1040	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-007(0-0.5)	8-2-13	1100	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-007(0.5-1.0)	8-2-13	1105	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-007(1.0-1.5)	8-2-13	1110	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-EB-01-080213	8-2-13	1300	Water	None	1L Amber	2	X				3.3		44 PAH List
SED-DA-009(0-0.5)	8-2-13	1415	Sed	None	8 oz jar	1	X	X			1		Full PAH List
SED-DA-009(0.5-1.0)	8-2-13	1420	Sed	None	4 oz jar	1	X				3		
					Total # of Containers	11							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerdew	ARCADIS	8/5/13	1615	Printed Name: Amanda Brewster	B&B Labs	8/06/13	15:00
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: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: BATS mod. 8270SIM	Analyses: TEH mod. 8015	Analyses: Cooler #	Other Instructions / Comments
SED-DA-009(1.0-1.5)	8-2-13	1425	Sed	None	4oz	1	X		3	44PAH List
SED-DA-008(0-0.5)	8-3-13	745			8oz	1		X	1	Full List
SED-DA-008 (0.5-1.0)		750			4oz				2	
SED-DA-008 (1.0-1.5)		755			4oz				2	
SED-DA-008(0-0.5)MS/MSD		745			8oz	2		X	1	Full List
SED-DA-007(0.0-0.5)		900			8oz			X	1	Full List
SED-DA-007 (0.5-1.0)		905			4oz				2	
SED-DA-007 (1.0-1.5)		910			4oz				2	
SED-DA-006 (0.0-0.5)		1030			8oz			X	1	Full List
SED-DA-006 (0.5-1.0)		1035			4oz				2	
					Total # of Containers	10				

Cooler 1 of 3 (3)

Sdg 13080601

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flemetelt	ARCADIS	8/5/13	16:15	Printed Name: Amanda Brewster	B&B Labs	8/06/13	15:00
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

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TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 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 + 5270 SIM	Analyses: TEH modified SCG	Analyses:	Analyses:	Analyses: cooler #	Analyses:	Other Instructions / Comments
													Sdg 130801601 Cooler 2 of 3 (4)
SED-DA-006 (1.0-1.5)	8/3/13	1040	Sed	None	4oz jar	1	X				2		4/4 PAH List
SED-DA-005 (0-0.5)		1130			8oz			X			1		Full List
SED-DA-005 (0.5-1.0)		1135			4oz						2		4/4 PAH List
SED-DA-005 (1.0-1.5)		1140			4oz						2		4/4 PAH List
SED-DA-010 (0-0.5)		1410			8oz			X			1		Full List
SED-DA-010 (0.5-1.0)		1415			4oz						2		4/4 PAH List
SED-DA-010 (1.0-1.5)		1420			4oz						2		4/4 PAH List
SED-DA-011 (0-0.5)		1500			8oz			X			3		Full List
SED-DA-011 (0.5-1.0)		1505			4oz						2		4/4 PAH List
SED-DA-011 (1.0-1.5)		1510			4oz						2		↓
					Total # of Containers	10							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flemerfelt	ARCADIS	8/5/13	1615	Printed Name: Amanda Brewster	B&B Labs	8/06/13	15:00
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: BOE 86003.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: David Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 S.C.	TEH by P.J. 8015			Cooler #		Comments
SED-DA-EB-05-080313	8/3/13	1630	W	None	2 LAG	2	X	X			2,2		Full List
~~SED-DA-TB-05-080413~~	~~8/3/13~~	~~1640~~	~~W~~	~~HCl~~	~~VOA~~	~~2~~	~~X~~	~~X~~					~~Full List~~
SED-DA-012 (0-0.5)	8/4/13	930	SED	None	8 oz	1	X	X			2		↓
SED-DA-012 (0-0.5) MS/MSD		930			8 oz	2	X	X			2,2		↓
SED-DA-012 (0.5-1.0)		935			4 oz	1	X				1		4/4 PAHs List
SED-DA-012 (1.0-1.5)		940			4 oz	1	X				1		4/4 PAHs List
SED-DA-013 (0-0.5)		1015			8 oz	1	X	X			2		Full List
SED-DA-013 (0.5-1.0)		1020			4 oz	1	X				1		4/4 PAH List
SED-DA-013 (1.0-1.5)		1025			4 oz	1	X				1		4/4 PAH List
SED-DA-DG-004(0-0.5)		950			8 oz	1					1		Full List
					Total # of Containers	11							

Analyses

Other Instructions: sdg 13080601 Cooler 2 of 3 (5)

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flanagan	ARCADIS	8/5/13	1615	Printed Name: Amanda Brewster	B.B Labs	8/06/13	15:00
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

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TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 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	Analyses	Analyses	Cooler #	Analyses	Comments
SED-DA-BG-005(0-0.5)	8/4/13	955	Sed	none	8oz	1	X	X			1		Full List
SED-DA-BG-006(0-0.5)	8/4/13	930	Sed	X	8oz	1	X	X			1		Full List
SED DA-014 (0-0.5)	8/5/13	945	X		8oz		X	X			2		Full List
SED-DA-014 (0.5-1.0)		950			4oz		X				1		PAHs 44 List
SED-DA-015 (0-0.5)		1130			8oz		X	X			2		Full List
SED-DA-015 (0.5-1.0)		1135			4oz		X				1		44 PAH List
SED-DA-015 (1.0-1.5)		1140			4oz		X				1		44 PAH List
SED DA-016 (0-0.5)	016	1230			8oz		X	X			2		Full List
SED-DA-016 (0.5-1.0)		1235			4oz		X				1		44 PAH List

Total # of Containers: 9

Other Instructions: SDG 13080601 Cooler 2 of 3 (6)

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flemenfelt	ARCADIS	8/5/13	1615	Printed Name: Amanda Brewster	B&B Labs	8/06/13	15:00
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: B0056003.1301 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	Analyses	Analyses	Cooler #	Analyses	Comments
SED-DA-017 (0-0.5)	8/5/13	1245	Sed	none	8oz	1	X	X			2		Full List
SED-DA-017 (0.5-1.0)	8/5/13	1250	Sed	↓	4oz	1	X				1		4H PAH List

Other Instructions: sdg 13080601 Cooler 2 of 3 (7)

Total # of Containers: 2

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flamstell	ARCADIS	8/5/13	1115	Printed Name: Amanda Brewster	B:B Labs	8/06/13	15:00
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

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

received 8/06/13

Job #: J13034

SDG: 13080601

Client: Arcadis- Mayflower AR

Initiation Date: 8/06/13

Number of Samples: 2

Matrix: waters

Due Date: 45 days: 9/19/13

Comments: PAH, TPH, ALI
collected 8/02-8/03
extract by 8/08/13

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): 100µl

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

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

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

Comments:

Sample Custodian Signature: Amanda Brewster Date: 8/06/13

Laboratory Manager Signature: [signature] Date: 8/6/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64380	J13034	Arcadis - Mayflower AR	ARC1695	SED-DA-EB-05-080313	08/03/13	08/06/13	PAH, TPH, ALI	WATER	1 of 2	13080601	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64382	J13034	Arcadis - Mayflower AR	ARC1697	SO-DA-EB-01-080213	08/02/13	08/06/13	PAH, TPH, ALI	WATER	1 of 2	13080601	Cooler 3	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080601
Client: Arcadis- Mayflower AR
Initiation Date: 8/06/13

Number of Samples: 40
Matrix: soil/sediment
Due Date: 45 days: 9/19/13
Comments: PAH: 44 analytes
received 8/06/13

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 1944b	☐ Blank Spike
☐	Blank Spike Duplicate	☑	Matrix Spike ____
☑	Matrix Spike Duplicate ____	☑	Duplicate ____

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

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

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

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

Comments:

PAH short list

Sample Custodian Signature: Amanda Brewster Date: 8/06/13

Laboratory Manager Signature: _____ Date: 8/6/13

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 #
64326	J13034	Arcadis - Mayflower AR	ARC1641	SED-DA-012 (0.5-1.0)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64327	J13034	Arcadis - Mayflower AR	ARC1642	SED-DA-012 (1.0-1.5)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64328	J13034	Arcadis - Mayflower AR	ARC1643	SED-DA-013 (0.5-1.0)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64329	J13034	Arcadis - Mayflower AR	ARC1644	SED-DA-013 (1.0-1.5)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64333	J13034	Arcadis - Mayflower AR	ARC1648	SED-DA-014 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64334	J13034	Arcadis - Mayflower AR	ARC1649	SED-DA-015 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64335	J13034	Arcadis - Mayflower AR	ARC1650	SED-DA-015 (1.0-1.5)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64336	J13034	Arcadis - Mayflower AR	ARC1651	SED-DA-016 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64337	J13034	Arcadis - Mayflower AR	ARC1652	SED-DA-017 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64339	J13034	Arcadis - Mayflower AR	ARC1654	SED-DA-008 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64340	J13034	Arcadis - Mayflower AR	ARC1655	SED-DA-008 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64341	J13034	Arcadis - Mayflower AR	ARC1656	SED-DA-007 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64342	J13034	Arcadis - Mayflower AR	ARC1657	SED-DA-007 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64343	J13034	Arcadis - Mayflower AR	ARC1658	SED-DA-006 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64344	J13034	Arcadis - Mayflower AR	ARC1659	SED-DA-006 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64345	J13034	Arcadis - Mayflower AR	ARC1660	SED-DA-005 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64346	J13034	Arcadis - Mayflower AR	ARC1661	SED-DA-005 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64347	J13034	Arcadis - Mayflower AR	ARC1662	SED-DA-010 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64348	J13034	Arcadis - Mayflower AR	ARC1663	SED-DA-010 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64349	J13034	Arcadis - Mayflower AR	ARC1664	SED-DA-011 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64350	J13034	Arcadis - Mayflower AR	ARC1665	SED-DA-011 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64359	J13034	Arcadis - Mayflower AR	ARC1674	SO-DA-011 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64360	J13034	Arcadis - Mayflower AR	ARC1675	SO-DA-011 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64361	J13034	Arcadis - Mayflower AR	ARC1676	SO-DA-011 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64362	J13034	Arcadis - Mayflower AR	ARC1677	SO-DA-011 (0-0.5) MS/MSD	08/02/13	08/06/13	PAH	SOIL	44 analytes, 1 of 2	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64364	J13034	Arcadis - Mayflower AR	ARC1679	SO-DA-010 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64365	J13034	Arcadis - Mayflower AR	ARC1680	SO-DA-010 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64366	J13034	Arcadis - Mayflower AR	ARC1681	SO-DA-010 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64367	J13034	Arcadis - Mayflower AR	ARC1682	SO-DA-DUP-02-080213	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64368	J13034	Arcadis - Mayflower AR	ARC1683	SO-DA-009 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64369	J13034	Arcadis - Mayflower AR	ARC1684	SO-DA-009 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64370	J13034	Arcadis - Mayflower AR	ARC1685	SO-DA-009 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64371	J13034	Arcadis - Mayflower AR	ARC1686	SO-DA-008 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64372	J13034	Arcadis - Mayflower AR	ARC1687	SO-DA-008 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64373	J13034	Arcadis - Mayflower AR	ARC1688	SO-DA-008 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64374	J13034	Arcadis - Mayflower AR	ARC1689	SO-DA-007 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64375	J13034	Arcadis - Mayflower AR	ARC1690	SO-DA-007 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64376	J13034	Arcadis - Mayflower AR	ARC1691	SO-DA-007 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64377	J13034	Arcadis - Mayflower AR	ARC1692	SED-DA-009 (0.5-1.0)	08/02/13	08/06/13	PAH	SED	44 analytes? not indicated on COC	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64378	J13034	Arcadis - Mayflower AR	ARC1693	SED-DA-009 (1.0-1.5)	08/02/13	08/06/13	PAH	SED	44 analytes	13080601	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: 13080601
Client: Arcadis-Mayflower AR
Initiation Date: 8/06/13

Number of Samples: 19
Matrix: sediments
Due Date: 45 days: 9/19/13
Comments: PAH, TPH, ALI
received 8/06/13

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 SS41b	☐ 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:

Use ARC1635 as MSD/LS
ARC1667

Sample Custodian Signature: Amanda Brewster Date: 8/06/13

Laboratory Manager Signature: _____ Date: 8/06/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64318	J13034	Arcadis - Mayflower AR	ARC1633	SED-DA-009 (0-0.5)	08/02/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64319	J13034	Arcadis - Mayflower AR	ARC1634	SED-DA-008 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64320	J13034	Arcadis - Mayflower AR	ARC1635	SED-DA-008 (0-0.5) MS/MSD	08/03/13	08/06/13	PAH, TPH, ALI	SED	1 of 2	13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64322	J13034	Arcadis - Mayflower AR	ARC1637	SED-DA-007 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64323	J13034	Arcadis - Mayflower AR	ARC1638	SED-DA-006 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64324	J13034	Arcadis - Mayflower AR	ARC1639	SED-DA-005 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64325	J13034	Arcadis - Mayflower AR	ARC1640	SED-DA-010 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64330	J13034	Arcadis - Mayflower AR	ARC1645	SED-DA-BG-004 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64331	J13034	Arcadis - Mayflower AR	ARC1646	SED-DA-BG-005 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64332	J13034	Arcadis - Mayflower AR	ARC1647	SED-DA-BG-006 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64338	J13034	Arcadis - Mayflower AR	ARC1653	SED-DA-DUP-04-080313	08/03/13	08/06/13	PAH, TPH, ALI	SED	not listed on COC	13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64351	J13034	Arcadis - Mayflower AR	ARC1666	SED-DA-012 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64352	J13034	Arcadis - Mayflower AR	ARC1667	SED-DA-012 (0-0.5) MS/MSD	08/04/13	08/06/13	PAH, TPH, ALI	SED	1 of 2	13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64354	J13034	Arcadis - Mayflower AR	ARC1669	SED-DA-013 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64355	J13034	Arcadis - Mayflower AR	ARC1670	SED-DA-014 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64356	J13034	Arcadis - Mayflower AR	ARC1671	SED-DA-015 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64357	J13034	Arcadis - Mayflower AR	ARC1672	SED-DA-016 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64358	J13034	Arcadis - Mayflower AR	ARC1673	SED-DA-017 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64379	J13034	Arcadis - Mayflower AR	ARC1694	SED-DA-011 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302

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Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64318	J13034	Arcadis - Mayflower AR	ARC1633	SED-DA-009 (0-0.5)	08/02/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64319	J13034	Arcadis - Mayflower AR	ARC1634	SED-DA-008 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64320	J13034	Arcadis - Mayflower AR	ARC1635	SED-DA-008 (0-0.5) MS/MSD	08/03/13	08/06/13	PAH, TPH, ALI	SED	1 of 2	13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64321	J13034	Arcadis - Mayflower AR	ARC1636	SED-DA-008 (0-0.5) MS/MSD	08/03/13	08/06/13	HOLD	SED	2 of 2	13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64322	J13034	Arcadis - Mayflower AR	ARC1637	SED-DA-007 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64323	J13034	Arcadis - Mayflower AR	ARC1638	SED-DA-006 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64324	J13034	Arcadis - Mayflower AR	ARC1639	SED-DA-005 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64325	J13034	Arcadis - Mayflower AR	ARC1640	SED-DA-010 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64326	J13034	Arcadis - Mayflower AR	ARC1641	SED-DA-012 (0.5-1.0)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64327	J13034	Arcadis - Mayflower AR	ARC1642	SED-DA-012 (1.0-1.5)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64328	J13034	Arcadis - Mayflower AR	ARC1643	SED-DA-013 (0.5-1.0)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64329	J13034	Arcadis - Mayflower AR	ARC1644	SED-DA-013 (1.0-1.5)	08/04/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64330	J13034	Arcadis - Mayflower AR	ARC1645	SED-DA-BG-004 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64331	J13034	Arcadis - Mayflower AR	ARC1646	SED-DA-BG-005 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64332	J13034	Arcadis - Mayflower AR	ARC1647	SED-DA-BG-006 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64333	J13034	Arcadis - Mayflower AR	ARC1648	SED-DA-014 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64334	J13034	Arcadis - Mayflower AR	ARC1649	SED-DA-015 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64335	J13034	Arcadis - Mayflower AR	ARC1650	SED-DA-015 (1.0-1.5)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64336	J13034	Arcadis - Mayflower AR	ARC1651	SED-DA-016 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64337	J13034	Arcadis - Mayflower AR	ARC1652	SED-DA-017 (0.5-1.0)	08/05/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64338	J13034	Arcadis - Mayflower AR	ARC1653	SED-DA-DUP-04-080313	08/03/13	08/06/13	PAH, TPH, ALI	SED	not listed on COC	13080601	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64339	J13034	Arcadis - Mayflower AR	ARC1654	SED-DA-008 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64340	J13034	Arcadis - Mayflower AR	ARC1655	SED-DA-008 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64341	J13034	Arcadis - Mayflower AR	ARC1656	SED-DA-007 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64342	J13034	Arcadis - Mayflower AR	ARC1657	SED-DA-007 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64343	J13034	Arcadis - Mayflower AR	ARC1658	SED-DA-006 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64344	J13034	Arcadis - Mayflower AR	ARC1659	SED-DA-006 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64345	J13034	Arcadis - Mayflower AR	ARC1660	SED-DA-005 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64346	J13034	Arcadis - Mayflower AR	ARC1661	SED-DA-005 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64347	J13034	Arcadis - Mayflower AR	ARC1662	SED-DA-010 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64348	J13034	Arcadis - Mayflower AR	ARC1663	SED-DA-010 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64349	J13034	Arcadis - Mayflower AR	ARC1664	SED-DA-011 (0.5-1.0)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64350	J13034	Arcadis - Mayflower AR	ARC1665	SED-DA-011 (1.0-1.5)	08/03/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64351	J13034	Arcadis - Mayflower AR	ARC1666	SED-DA-012 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64352	J13034	Arcadis - Mayflower AR	ARC1667	SED-DA-012 (0-0.5) MS/MSD	08/04/13	08/06/13	PAH, TPH, ALI	SED	1 of 2	13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64353	J13034	Arcadis - Mayflower AR	ARC1668	SED-DA-012 (0-0.5) MS/MSD	08/04/13	08/06/13	HOLD	SED	2 of 2	13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64354	J13034	Arcadis - Mayflower AR	ARC1669	SED-DA-013 (0-0.5)	08/04/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64355	J13034	Arcadis - Mayflower AR	ARC1670	SED-DA-014 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64356	J13034	Arcadis - Mayflower AR	ARC1671	SED-DA-015 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64357	J13034	Arcadis - Mayflower AR	ARC1672	SED-DA-016 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64358	J13034	Arcadis - Mayflower AR	ARC1673	SED-DA-017 (0-0.5)	08/05/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 2	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64359	J13034	Arcadis - Mayflower AR	ARC1674	SO-DA-011 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64360	J13034	Arcadis - Mayflower AR	ARC1675	SO-DA-011 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64361	J13034	Arcadis - Mayflower AR	ARC1676	SO-DA-011 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64362	J13034	Arcadis - Mayflower AR	ARC1677	SO-DA-011 (0-0.5) MS/MSD	08/02/13	08/06/13	PAH	SOIL	44 analytes, 1 of 2	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64363	J13034	Arcadis - Mayflower AR	ARC1678	SO-DA-011 (0-0.5) MS/MSD	08/02/13	08/06/13	HOLD	SOIL	2 of 2	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64364	J13034	Arcadis - Mayflower AR	ARC1679	SO-DA-010 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64365	J13034	Arcadis - Mayflower AR	ARC1680	SO-DA-010 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64366	J13034	Arcadis - Mayflower AR	ARC1681	SO-DA-010 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64367	J13034	Arcadis - Mayflower AR	ARC1682	SO-DA-DUP-02-080213	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64368	J13034	Arcadis - Mayflower AR	ARC1683	SO-DA-009 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64369	J13034	Arcadis - Mayflower AR	ARC1684	SO-DA-009 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64370	J13034	Arcadis - Mayflower AR	ARC1685	SO-DA-009 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64371	J13034	Arcadis - Mayflower AR	ARC1686	SO-DA-008 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64372	J13034	Arcadis - Mayflower AR	ARC1687	SO-DA-008 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64373	J13034	Arcadis - Mayflower AR	ARC1688	SO-DA-008 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64374	J13034	Arcadis - Mayflower AR	ARC1689	SO-DA-007 (0-0.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64375	J13034	Arcadis - Mayflower AR	ARC1690	SO-DA-007 (0.5-1.0)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64376	J13034	Arcadis - Mayflower AR	ARC1691	SO-DA-007 (1.0-1.5)	08/02/13	08/06/13	PAH	SOIL	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64377	J13034	Arcadis - Mayflower AR	ARC1692	SED-DA-009 (0.5-1.0)	08/02/13	08/06/13	PAH	SED	44 analytes? not indicated on COC	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64378	J13034	Arcadis - Mayflower AR	ARC1693	SED-DA-009 (1.0-1.5)	08/02/13	08/06/13	PAH	SED	44 analytes	13080601	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64379	J13034	Arcadis - Mayflower AR	ARC1694	SED-DA-011 (0-0.5)	08/03/13	08/06/13	PAH, TPH, ALI	SED		13080601	Cooler 3	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64380	J13034	Arcadis - Mayflower AR	ARC1695	SED-DA-EB-05-080313	08/03/13	08/06/13	PAH, TPH, ALI	WATER	1 of 2	13080601	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64381	J13034	Arcadis - Mayflower AR	ARC1696	SED-DA-EB-05-080313	08/03/13	08/06/13	HOLD	WATER	2 of 2	13080601	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64382	J13034	Arcadis - Mayflower AR	ARC1697	SO-DA-EB-01-080213	08/02/13	08/06/13	PAH, TPH, ALI	WATER	1 of 2	13080601	Cooler 3	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64383	J13034	Arcadis - Mayflower AR	ARC1698	SO-DA-EB-01-080213	08/02/13	08/06/13	HOLD	WATER	2 of 2	13080601	Cooler 3	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Tuesday, August 06, 2013 3:21 PM
To: '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 8/06/13 - a few questions
Attachments: COC 8-06-13.pdf

Hi Daniel,

We received your samples this morning in good condition.

Cooler 1 arrived at an internal temperature of 5.0ºC and the temperature blank was 1.6ºC.
Cooler 2 arrived at an internal temperature of 0.2ºC and the temperature blank was 1.2ºC.
Cooler 3 arrived at an internal temperature of 0.0ºC and the temperature blank was 1.1ºC.
A PDF of the COCs are attached for your records.

There were a few discrepancies I was hoping you could help clarify:

We received an 8oz jar of sediment labeled: SED-DA-DUP-04-080313 for PAH, TPH (TEH), but this sample was not listed on the COC. Is this sample intended for analysis by our laboratory?

The COC lists sediment sample: SED-DA-009 (0.5-1.0), 4oz jar but does not indicate what analysis you would like for the sample. Should this be for the "44 PAH list" like the rest of the 4oz jars?

Please let me know how you would like to proceed.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Tuesday, August 06, 2013 4:56 AM
To: amanda brewster
Subject: XOM-Mayflower Cooler Tracking #'s

Good Morning Amanda,

The tracking number for 3 coolers shipped from Mayflower yesterday 8-5-2013 was 8022 2781 6876.

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.

Laboratory Bench Sheet Logs

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

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

Job #: J13034 SDG #: 13073101, 13080201, 13080601

Client: Arcadis - Mayflower AR

Analysis: ☒ PAH ☐ PESTS ☐ PCB ~~☒ ALI~~ CK

Other: ~~TPH~~ CK 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-2500-002
Pest/PCB: —
Aliphatic: AR-WKSU-200-001
Other: —

Spike: 100 µL
PAH: AR-WKSK-1000-026
Pest/PCB: —
Aliphatic: AL-WKSK-100-020
Other: —

GC Int Std: 100 µL
PAH: AR-WKIS-2500-002
Pest/PCB: —
Aliphatic: AL-WKIS-~~250~~ 500-001
Other: —

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

General Comments:

Report 13-3100
PAH analysis only - add both PAH/ALI standard (short list)

	Added	Witness
Surrogate:	8/13/13 CK	8/13/13 HA
Spike:	8/13/13 CK	8/13/13 HA
Internal:	8/15/13 CK	8/15/13 HA

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments	Internal Chain of Custody	
1	ENV3081A	Procedural Blank	—	—	—		Extraction Prep	
2	ENV3081B	SRM 1941b	4.10	97.61	4.00		Date: 8/13/13	Date: 8/13/13
3	ENV3081C	Matrix Spike (ARC1631)	18.72	80.17	15.01		Initials: CK	Initials: CK
4	ENV3081D	Matrix Spike Dup (ARC1631)	18.74	80.17	15.02		Extraction	
5	ENV3081E	Duplicate (ARC1626)	18.06	83.48	15.08		Date: 8/13/13	Date: 8-14-13
6	ARC1600	SED-DA-020 (0.5-1.0)	54.39	27.63	15.03		Initials: CK	Initials: [illegible]
7	ARC1601	SED-DA-020 (1.0-1.5)	24.83	60.42	15.00		Concentration	
8	ARC1618	SD-DA-012 (0-0.5)	17.09	88.49	15.12		Date: 8-14-13	Date: 8-14-13
9	ARC1619	SD-DA-012 (0.5-1.0)	17.24	87.16	15.03		Initials: [illegible]	Initials: [illegible]
10	ARC1620	SD-DA-012 (1.0-1.5)	18.33	82.04	15.04		Short Columns	
11	ARC1621	SD-DA-013 (0-0.5)	18.17	82.81	15.05		Date: 8-14-13	Date: 8-14-13
12	ARC1622	SD-DA-013 (0.5-1.0)	17.67	84.93	15.01		Initials: [illegible]	Initials: [illegible]

ENV 3081

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
13	ARC1623	SO-DA-013 (1.0-1.5)	17.66	85.26	15.06	
14	ARC1624	SO-DA-014 (0-0.5)	18.50	81.62	15.10	
15	ARC1625	SO-DA-014 (0.5-1.0)	18.50	81.15	15.01	
16	ARC1626	SO-DA-014 (1.0-1.5)	18.09	83.48	15.10	
17	ARC1627	SO-DA-DUP-01-080113	18.72	80.45	15.06	
18	ARC1628	SO-DA-015 (0-0.5)	17.82	84.25	15.01	original for MS/MSD
19	ARC1629	SO-DA-015 (0.5-1.0)	17.90	84.38	15.10	
20	ARC1630	SO-DA-015 (1.0-1.5)	18.34	82.20	15.08	
21	ARC1641	SED-DA-012 (0.5-1.0)	17.89	84.07	15.04	
22	ARC1642	SED-DA-012 (1.0-1.5)	18.02	83.33	15.02	
23	ARC1643	SED-DA-013 (0.5-1.0)	17.86	84.38	15.07	
24	ARC1644	SED-DA-013 (1.0-1.5)	18.17	82.83	15.05	

Internal Chain of Custody

	Date	Initials
Concentration Short Columns	8-15-13	EM
	8-15-13	EM
Columns SA1		
Concentration SA1		
Columns SA2		
Concentration SA2		
Transfer for HPLC		
HPLC		
Post-HPLC Concentration		
Final Extract Transfer	8/15/13	CK

Dry Weight Page

DRY 1353, 1355, 1357

Lipid/EOM Page

EOM 1021

Clean-up/Separation/Other Columns

—

Lot Numbers

DCM: 52314
Hexane: —
Hydromatrix: —
Water: DI045-B
Silica: BCBH 19613V
Alumina: TG14BZEMS
Sodium Sulfate:
Pentane: —
Copper: 115050-AV
Hydrochloric Acid: —
SPE Columns: —
Other: —

Sample Storage Box #

J13034-2

HPLC Storage Box #

—

QC Review

Date	Initials
8/15/13	

Copied to Folders

8/15/13 CK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE Type

Job #: J13034 SDG #: 13073101

Client: Arcadis - Mayflower AR

General comments:

Lab Mananger		Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date:	Init:		Date/Init:	Date/Init:	
8/6/13		8/2/13 CK	8/5/13 HA ☑ Bal. Cal.	8/6/13 HA ☑ Bal. Cal.	8/6/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1567	SED-DA-029 (0.5-1.0)	1.30	3.10	2.34	2.34	57.78	
2	ARC1568	SED-DA-029 (1.0-1.5)	1.30	3.36	2.80	2.78	71.84	
3	ARC1572	SED-DA-030 (0.5-1.0)	1.30	2.75	2.35	2.35	72.41	
4	ARC1573	SED-DA-030 (1.0-1.5)	1.29	3.24	2.83	2.82	78.46	
5	ARC1577	SED-DA-028 (0.5-1.0)	1.34	3.02	2.27	2.27	55.36	
6	ARC1578	SED-DA-028 (1.0-1.5)	1.34	2.45	2.09	2.08	66.67	
7	ARC1580	SED-DA-027 (0.5-1.0)	1.31	2.36	1.59	1.58	25.71	
8	ARC1581	SED-DA-027 (1.0-1.5)	1.30	2.88	2.17	2.17	55.06	
9	ARC1586	SED-DA-026 (0.5-1.0)	1.30	2.87	1.79	1.78	30.57	
10	ARC1587	SED-DA-026 (1.0-1.5)	1.28	2.89	1.82	1.82	33.54	
11	ARC1592	SED-DA-025 (0.5-1.0)	1.30	2.89	2.09	2.09	49.69	
12	ARC1593	SED-DA-025 (1.0-1.5)	1.28	3.34	2.76	2.75	71.36	
13	ARC1595	SED-DA-024 (0.5-1.0)	1.34	3.51	2.84	2.83	68.66	
14	ARC1596	SED-DA-024 (1.0-1.5)	1.30	2.33	1.52	1.52	21.36	
15	ARC1600	SED-DA-020 (0.5-1.0)	1.32	2.84	1.74	1.74	27.63	
16	ARC1601	SED-DA-020 (1.0-1.5)	1.30	2.74	2.18	2.17	60.42	

DRY 1353

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/5/15 HA ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/6/13 HA ☑ Bal. Cal.	Date/Init: 8/6/13 CK	
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC1601 Dup	Duplicate	1.29	2.80	2.17	2.17	58.28	
18								
19								
20								
21								
22								
23								
24								

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

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

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

Date / Init.	RPD
8/6/13 CK	3.603%
Sample # ARC1601	
Duplicate # ARC1601 Dup	

DRY 1353

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE
  Type: _____

Job #: J13034 SDG #: 13080201

Client: Arcadis- Mayflower AR

General comments:

Lab Mananger		Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date:	Init:		Date/Init: ☒ Bal. Cal.	Date/Init: ☑ Bal. Cal.	
8/12/13	[illegible]	8/6/13 CK	8-7-13 [illegible]	8/8/13 CK	8/12/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1618	SO-DA-012 (0-0.5)	1.32	2.71	2.55	2.55	88.49	
2	ARC1619	SO-DA-012 (0.5-1.0)	1.31	2.40	2.27	2.26	87.16	
3	ARC1620	SO-DA-012 (1.0-1.5)	1.33	3.00	2.70	2.70	82.04	
4	ARC1621	SO-DA-013 (0-0.5)	1.32	2.60	2.38	2.38	82.81	
5	ARC1622	SO-DA-013 (0.5-1.0)	1.32	2.78	2.56	2.56	84.93	
6	ARC1623	SO-DA-013 (1.0-1.5)	1.33	2.89	2.66	2.66	85.26	
7	ARC1624	SO-DA-014 (0-0.5)	1.30	2.66	2.41	2.41	81.62	
8	ARC1625	SO-DA-014 (0.5-1.0)	1.31	2.53	2.30	2.30	81.15	
9	ARC1626	SO-DA-014 (1.0-1.5)	1.29	2.44	2.25	2.25	83.48	
10	ARC1627	SO-DA-DUP-01-080113	1.28	2.61	2.34	2.35	80.45	
11	ARC1628	SO-DA-015 (0-0.5)	1.30	2.57	2.38	2.37	84.25	
12	ARC1629	SO-DA-015 (0.5-1.0)	1.30	2.90	2.64	2.65	84.38	
13	ARC1630	SO-DA-015 (1.0-1.5)	1.33	2.51	2.31	2.30	82.20	
14	ARC1631	SP-DA-015 ~~0.5~~ CK (0-0.5)	1.31	2.52	2.30	2.28	80.17	
15	ARC1631 Dup	Duplicate	1.33	2.49	2.30	2.28	81.90	
16								

DRY 1355

B&B LABORATORIES % DRY WEIGHT LOGBOOK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	Beaker + Dry Smpl (g) 1 Date/Init: ☐ Bal. Cal.	Beaker + Dry Smpl (g) 2 Date/Init: ☐ Bal. Cal.	Date/Init: (%) Dry Weight	Comments
17								
18								
19								
20								
21								
22								
23								
24								

8/12/13 CK

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

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

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

Date / Init.	RPD
8/12/13 CK	2.137
Sample # ARC1631	
Duplicate # ARC1631 Dup	

DRY 1355

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE
  Type: _____

Job #: J13034 SDG #: 130806O1

Client: Arcadis - Mayflower AR

General comments:

Lab Mananger		Date/Init: ☒ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date:	Init:		Date/Init:	Date/Init:	
8/14/13		8/8/13 CSS	8/9/13 CK ☑ Bal. Cal.	8/12/13 CK ☑ Bal. Cal.	8/13/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1641	SED-DA-012 (0.5-1.0)	1.21	2.44	2.26	2.26	84.07	
2	ARC1642	SED-DA-012 (1.0-1.5)	1.31	2.45	2.25	2.26	83.33	
3	ARC1643	SED-DA-013 (0.5-1.0)	1.30	2.58	2.40	2.38	84.38	
4	ARC1644	SED-DA-013 (1.0-1.5)	1.32	3.30	2.98	2.96	82.83	
5	ARC1648	SED-DA-014 (0.5-1.0)	1.30	2.74	2.50	2.50	83.33	
6	ARC1649	SED-DA-015 (0.5-1.0)	1.28	2.96	2.39	2.40	66.67	
7	ARC1650	SED-DA-015 (1.0-1.5)	1.30	3.78	3.04	3.04	70.16	
8	ARC1651	SED-DA-016 (0.5-1.0)	1.30	2.63	2.14	2.16	64.66	
9	ARC1652	SED-DA-017 (0.5-1.0)	1.30	2.72	2.37	2.37	75.35	
10	ARC1654	SED-DA-008 (0.5-1.0)	1.30	2.52	2.35	2.35	86.07	
11	ARC1655	SED-DA-008 (1.0-1.5)	1.30	2.89	2.65	2.66	85.53	
12	ARC1656	SED-DA-007 (0.5-1.0)	1.30	~~CSS 2.76~~	2.44	2.45	77.70	2.78g
13	ARC1657	SED-DA-007 (1.0-1.5)	1.32	3.33	2.95	2.95	81.09	
14	ARC1658	SED-DA-006 (0.5-1.0)	1.30	2.77	2.57	2.57	86.39	
15	ARC1659	SED-DA-006 (1.0-1.5)	1.30	2.44	2.27	2.27	85.09	
16	ARC1660	SED-DA-005 (0.5-1.0)	1.31	3.81	3.40	3.39	83.20	

B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/9/13 CK ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/12/13 CK ☑ Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC11661	SED-DA-005 (1.0-1.5)	1.28	2.73	2.49	2.48	82.76	
18	ARC11662	SED-DA-010 (0.5-1.0)	1.31	2.91	2.57	2.57	78.75	
19	ARC11663	SED-DA-010 (1.0-1.5)	1.31	2.67	2.39	2.37	77.94	
20	ARC11664	SED-DA-011 (0.5-1.0)	1.30	2.51	2.31	2.29	81.82	
21	ARC 11664 Dup	Duplicate	1.31	2.86	2.60	2.59	82.58	
22								
23								
24								

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

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

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

Date / Init.	RPD
8/13/13 CK	0.928%
Sample # ARC11664	
Duplicate # ARC11664 Dup	

DRY 1357

13080601

MATRIX: OTHER / (SEDIMENT) / WATER

Job #: J13034 SDG #: 13073101, 13080201,

Client: Arcadis - Mayflower APR

General comments:

Lab Manager Date/Int: 8/14/13 GL

Transferred by Date/Int: 8/14/13 CK From ENV Pg: ENV3081 From DRY Pg: DRY 1353, 1355, 1357

Date/Int: 8-14-13 EN Bal. Cal. ✓

Date/Int: 8/14/13 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	ENV3081A	Procedural Blank	—	—	3	24.351	24.351	0.000	—	—	
2	ENV3081B	SRM 1941b	4.00	97.61	3	22.554	22.694	0.140	1025	1050	
3	ENV3081C	Matrix Spike (ARC1631)	15.01	80.17	3	24.229	25.898	~~1.669~~ 8/14 CK	2674	3336	1.669
4	ENV3081D	Matrix Spike Dup (ARC1631)	15.02	80.17	3	22.813	24.315	1.502	2405	3000	
5	ENV3081E	Duplicate (ARC1626)	15.08	83.48	3	24.063	24.074	0.011	18	22	
6	ARC1600	SED-DA-020 (0.5-1.0)	15.03	27.63	3	24.147	25.953	1.806	996	3605	
7	ARC1601	SED-DA-020 (1.0-1.5)	15.00	60.42	3	23.028	23.501	0.473	572	946	
8	ARC1618	SO-DA-012 (0-0.5)	15.12	88.49	3	22.914	23.044	0.130	228	258	
9	ARC1619	SO-DA-012 (0.5-1.0)	15.03	87.16	3	22.826	22.890	0.064	111	128	
10	ARC1620	SO-DA-012 (1.0-1.5)	15.04	82.04	3	24.097	24.203	0.106	173	211	
11	ARC1621	SO-DA-013 (0-0.5)	15.05	82.81	3	24.214	24.246	0.032	53	64	
12	ARC1622	SO-DA-013 (0.5-1.0)	15.01	84.93	3	23.990	24.002	0.012	20	24	

EOM 1021

	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	ARC1623	SO-DA-013 (1.0-1.5)	15.06	85.26	3	24.390	24.402	0.012	20	24	
14	ARC1624	SO-DA-014 (0-0.5)	15.10	81.62	3	23.294	23.421	0.127	206	252	
15	ARC1625	SO-DA-014 (0.5-1.0)	15.01	81.15	3	24.248	24.311	0.063	102	126	
16	ARC1626	SO-DA-014 (1.0-1.5)	15.10	~~84.38~~ 8/14 CR	3	24.404	24.416	0.012	20	24	83.48
17	ARC1627	SO-DA-DUP-01-080113	15.06	80.45	3	22.712	22.882	0.170	272	339	
18	ARC1628	SO-DA-015 (0-0.5)	15.01	84.25	3	23.164	23.379	0.215	362	430	
19	ARC1629	SO-DA-015 (0.5-1.0)	15.10	84.38	3	24.898	25.019	0.121	203	240	
20	ARC1630	SO-DA-015 (1.0-1.5)	15.08	82.20	3	22.710	22.763	0.053	87	105	
21	ARC1641	SED-DA-012 (0.5-1.0)	15.04	84.07	3	22.731	22.739	0.008	13	16	
22	ARC1642	SED-DA-012 (1.0-1.5)	15.02	83.33	3	23.260	23.266	0.006	10	12	
23	ARC1643	SED-DA-013 (0.5-1.0)	15.07	84.38	3	22.121	22.132	0.011	18	22	
24	ARC1644	SED-DA-013 (1.0-1.5)	15.05	82.83	3	22.985	23.990	1.005	1659	2003	

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

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

	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl Lipid Wt. (mg)
Solvent Blank	24.478	24.478	0.000
EOM Standard	23.693	33.717	10.024

EOM-WKLC-10-004

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

Date/Int:	RPD
8/14/13 CR	8.563
Sample: ARC1626	
Duplicate: EN3081E	

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