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

Arcadis
Mayflower AR Project
(Contract # B0086003.1302)
August 2, 2013 through August 6, 2013
Collection Dates

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

(QC Batch ENV 3083)

September 17, 2013

Technical Report 13-3102

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Introduction

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.

B&B Laboratories received a shipment of one (1) ice chest that was sent by Daniel Mays of Arcadis using FedEx on August 6, 2013 and arrived on August 7, 2013 in College Station, Texas. The ice chest arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received
1	0.6°C 0.3°C (Temp Blank)	Twenty-one (21) sediments or soils in 8oz or 4oz jars Two (2) 1L water samples in B/R amber bottles.

The water and sediment/soil samples were collected between August 2, 2013 and August 6, 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 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 me ng/g
C2-Chrysenes	0.232
C3-Chrysenes	0.232
C4-Chrysenes	0.232
Benzo(b)fluoranthene	0.203
Benzo(k,j)fluoranthene	0.098
Benzo(a)fluoranthene	0.098
Benzo(e)pyrene	0.177
Benzo(a)pyrene	0.101
Perylene	1.27
Indeno(1,2,3-c,d)pyrene	0.050
Dibenzo(a,h)anthracene	0.064
Benzo(g,h,i)perylene	0.088
Individual Alkyl Isomers, TAS, and Hopane's	
2-Methylnaphthalene	1.30
1-Methylnaphthalene	0.546
2,6-Dimethylnaphthalene	0.261
1,6,7-Trimethylnaphthalene	0.127
1-Methylfluorene	0.191
4-Methyldibenzothiophene	0.091
2/3-Methyldibenzothiophene	0.091
1-Methyldibenzothiophene	0.091
3-Methylphenanthrene	0.097
2/4-Methylphenanthrene	0.097
2-Methylanthracene	0.097
9-Methylphenanthrene	0.097
1-Methylphenanthrene	0.097
3,6-Dimethylphenanthrene	0.110
Retene	0.231
2-Methylfluoranthene	0.223
Benzo(b)fluorene	0.125
C29-Hopane	0.575
18a-Oleanane	0.575
C30-Hopane	0.575
C20-TAS	0.575
C21-TAS	0.575
C26(20S)-TAS	0.575
C26(20R)/C27(20S)-TAS	0.575
C28(20S)-TAS	0.575
C27(20R)-TAS	0.575
C28(20R)-TAS	0.575

Quality Assurance/Quality Control – Sediment/soil

Polycyclic Aromatic Hydrocarbons (PAH)

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

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

Quality Assurance/Quality Control Variances – Sediment/Soil

Polycyclic Aromatic Hydrocarbons (PAH)

Initial Calibration (Six Point)

Observation

- No variances were observed.

Initial Calibration Verification

Observation

- No variances were observed.

Mass Discrimination Ratio

Observation

- No variances were observed.

Internal Standard Area Response

Observation

- No variances were observed.

Continuing Calibration Checks

Observation

- No variances were observed.

Surrogate Recoveries

Observation

- d10-Acenaphthene was detected outside of the QC% recovery limits of 40 to 120% in ARC1687 (SO-DA-008 (0.5-1.0)).
- d12-Perylene was detected outside of the QC% recovery limits of 10 to 120% in thirteen (13) 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-Acenaphthene was detected outside of the laboratory QC recovery limits in this sample.
- 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

- Benz(a)anthracene was detected outside of the QC %recovery limits of 40% to 120% in ENV3083C MS (SO-DA-011 (0-0.5) MS/MSD)). Benz(a)anthracene was detected outside of the QC %recovery limits of 40% to 120% in ENV3083D MSD (SO-DA-011 (0-0.5) MS/MSD)).
- Phenanthrene, Fluoranthene, Pyrene, Chrysene/Triphenylene, Benzo(b)fluoranthene, Benzo(e)pyrene, Indeno(1,2,3-c,d)pyrene, and Benzo(g,h,i)perylene were detected outside of the laboratory QC recovery limits of 40 to 120% in ENV3083C MS (SO-DA-011 (0-0.5) MS/MSD)) and ENV3083D MSD (SO-DA-011 (0-0.5) MS/MSD)).

Comment

- It is unknown as to why Benz(a)anthracene was detected outside of the laboratory QC recovery limits in the MS and MSD internal QC samples.
- Phenanthrene, Fluoranthene, Pyrene, Chrysene/Triphenylene, Benzo(b)fluoranthene, Benzo(e)pyrene, Indeno(1,2,3-c,d)pyrene, and Benzo(g,h,i)perylene 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 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 13-3102

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	ARC1662	SED-DA-010 (0.5-1.0)	08/03/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
2	ARC1663	SED-DA-010 (1.0-1.5)	08/03/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
3	ARC1664	SED-DA-011 (0.5-1.0)	08/03/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
4	ARC1665	SED-DA-011 (1.0-1.5)	08/03/13	08/06/13	PAH	Sediment	44 analytes	13080601	B0086003.1302
5	ARC1674	SO-DA-011 (0-0.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
6	ARC1675	SO-DA-011 (0.5-1.0)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
7	ARC1676	SO-DA-011 (1.0-1.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
8	ARC1677	SO-DA-011 (0-0.5) MS/MSD	08/02/13	08/06/13	PAH	Soil	44 analytes, 1 of 2	13080601	B0086003.1302
9	ARC1679	SO-DA-010 (0-0.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
10	ARC1680	SO-DA-010 (0.5-1.0)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
11	ARC1681	SO-DA-010 (1.0-1.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
12	ARC1682	SO-DA-DUP-02-080213	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
13	ARC1683	SO-DA-009 (0-0.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
14	ARC1684	SO-DA-009 (0.5-1.0)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
15	ARC1685	SO-DA-009 (1.0-1.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
16	ARC1686	SO-DA-008 (0-0.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
17	ARC1687	SO-DA-008 (0.5-1.0)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
18	ARC1688	SO-DA-008 (1.0-1.5)	08/02/13	08/06/13	PAH	Soil	44 analytes	13080601	B0086003.1302
19	ARC1719	SO-DA-018 (1.0-1.5)	08/06/13	08/07/13	PAH	Soil	44 analytes	13080701	B0086003.1302
20	ARC1720	SO-DA-DUP-03-080613	08/06/13	08/07/13	PAH	Soil	44 analytes	13080701	B0086003.1302

Sediment Samples

Polycyclic Aromatic Hydrocarbon Concentration

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1662.D	ARC1663.D	ARC1664.D	ARC1665.D	ARC1674.D
Client Name	SED-DA-010 (0.5-1.0)	SED-DA-010 (1.0-1.5)	SED-DA-011 (0.5-1.0)	SED-DA-011 (1.0-1.5)	SO-DA-011 (0-0.5)
Matrix	Sediment	Sediment	Sediment	Sediment	Soil
Collection Date	08/03/13	08/03/13	08/03/13	08/03/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 11:57	8/20/13 13:03	8/20/13 14:08	8/20/13 16:19	8/20/13 17:25
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.1
% Dry	79	78	82	85	85
% Moisture	21	22	18	15	15
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
cis/trans Decalin	NA		NA		NA		NA		NA	
C1-Decalins	NA		NA		NA		NA		NA	
C2-Decalins	NA		NA		NA		NA		NA	
C3-Decalins	NA		NA		NA		NA		NA	
C4-Decalins	NA		NA		NA		NA		NA	
Naphthalene	1.70		1.84		0.769		0.808		3.78	
C1-Naphthalenes	1.99		2.11		0.841	J	0.688	J	3.89	
C2-Naphthalenes	3.67		3.15		2.03		1.35		6.86	
C3-Naphthalenes	4.30		1.99		4.36		3.84		4.26	
C4-Naphthalenes	2.47		1.48		1.74		<0.7	U	4.55	
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	0.151		0.124		0.067		<0.04	U	0.698	
Acenaphthene	0.108		0.115		0.107		0.082	J	0.237	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	2.06		2.04		1.41		1.29		3.82	
C1-Fluorenes	0.719		0.772		0.510		0.467		1.58	
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	0.144		<0.1	U	0.081	J	0.045	J	0.958	L
Phenanthrene	4.40		4.76		3.35		3.33		14.6	
C1-Phenanthrenes/Anthracenes	<0.1	U	<0.1	U	<0.1	U	<0.1	U	8.71	
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	<0.3	U	8.97	
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	<0.3	U	5.92	
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	<0.3	U	7.00	
Dibenzothiophene	0.501		0.479		0.182		0.157		1.41	
C1-Dibenzothiophenes	0.358		0.351		0.111		0.091		1.33	
C2-Dibenzothiophenes	0.490		0.413		0.148	J	0.126	J	2.35	
C3-Dibenzothiophenes	0.593		0.325		0.156	J	0.092	J	3.77	
C4-Dibenzothiophenes	0.588		0.154	J	<0.2	U	<0.2	U	4.42	
Fluoranthene	1.00		0.690		0.624		0.486		20.8	
Pyrene	0.732		0.260		0.523		0.267		13.4	
C1-Fluoranthenes/Pyrenes	0.664		0.256	J	0.243	J	0.086	J	7.20	
C2-Fluoranthenes/Pyrenes	0.662		<0.5	U	<0.5	U	<0.5	U	10.0	
C3-Fluoranthenes/Pyrenes	0.286	J	<0.5	U	<0.5	U	<0.5	U	5.01	
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	<0.5	U	7.89	
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	0.209		0.077	J	0.157	J	0.065	J	7.40	
Chrysene/Triphenylene	0.450		0.162		0.165		0.034	J	16.1	
C1-Chrysenes	0.380		<0.2	U	<0.2	U	<0.2	U	7.53	
C2-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	6.37	
C3-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	5.66	
C4-Chrysenes	<0.2	U	<0.2	U	<0.2	U	<0.2	U	2.66	
Benzo(b)fluoranthene	0.659		0.268		0.273		<0.2	U	25.7	
Benzo(k,j)fluoranthene	0.186		0.052	J	0.098	J	<0.1	U	9.38	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	0.352		0.123	J	0.170	J	<0.2	U	14.9	
Benzo(a)pyrene	0.189		0.023	J	0.116		<0.1	U	6.55	L
Perylene	0.066	J	0.090	J	0.273	J	0.158	J	1.42	L
Indeno(1,2,3-c,d)pyrene	0.302		0.098		0.111		0.041	J	14.2	
Dibenzo(a,h)anthracene	0.101		0.037	J	0.040	J	0.041	J	4.05	
Benzo(g,h,i)perylene	0.344		0.097		0.140		0.059	J	16.2	L
Total PAHs	30.8		22.3		18.8		13.6		292	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1662.D	ARC1663.D	ARC1664.D	ARC1665.D	ARC1674.D
Client Name	SED-DA-010 (0.5-1.0)	SED-DA-010 (1.0-1.5)	SED-DA-011 (0.5-1.0)	SED-DA-011 (1.0-1.5)	SO-DA-011 (0-0.5)
Matrix	Sediment	Sediment	Sediment	Sediment	Soil
Collection Date	08/03/13	08/03/13	08/03/13	08/03/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 11:57	8/20/13 13:03	8/20/13 14:08	8/20/13 16:19	8/20/13 17:25
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.1
% Dry	79	78	82	85	85
% Moisture	21	22	18	15	15
Dilution	1X	1X	1X	1X	1X

Target Compounds	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q	Su. Corrected Conc. (ng/dry g)	Q
Individual Alkyl Isomers and Hopanes										
2-Methylnaphthalene	2.00		2.18		0.844	J	0.706	J	4.03	
1-Methylnaphthalene	1.12		1.11		0.470	J	0.368	J	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	78		76		80		74		100	
Acenaphthene-d10	83		73		84		79		80	
Phenanthrene-d10	84		82		86		84		83	
Chrysene-d12	89		91		93		90		98	
Perylene-d12	15		1	L	56		69		3	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1675.D	ARC1676.D	ARC1679.D	ARC1680.D	ARC1681.D
Client Name	SO-DA-011 (0.5-1.0)	SO-DA-011 (1.0-1.5)	SO-DA-010 (0-0.5)	SO-DA-010 (0.5-1.0)	SO-DA-010 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 18:31	8/20/13 19:36	8/20/13 20:42	8/20/13 21:48	8/20/13 22:53
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.1	15.1	15.1	15.1
% Dry	81	86	82	85	77
% Moisture	19	14	18	15	23
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	5.26		1.60		3.17		1.02		0.909	
C1-Naphthalenes	5.69		1.83		6.75		0.93	J	1.04	
C2-Naphthalenes	10.6		3.19		25.2		1.42		1.29	
C3-Naphthalenes	6.84		2.19		57.6		0.99		1.06	
C4-Naphthalenes	6.64		2.26		68.5		3.93		<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	0.582		0.095		1.21		0.356		0.139	
Acenaphthene	0.113		0.145		<0.1	U	0.170		0.248	
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	7.02		2.10		2.55		0.862		2.32	
C1-Fluorenes	2.60		0.877		9.54		0.781		0.990	
C2-Fluorenes	<0.4	U	<0.4	U	40.4		<0.4	U	<0.4	U
C3-Fluorenes	<0.4	U	<0.4	U	75.2		<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	0.589		0.035	J	1.54		0.567		0.192	
Phenanthrene	20.6		5.06		18.1		3.55		7.67	
C1-Phenanthrenes/Anthracenes	9.13		<0.1	U	49.7		6.37		5.66	
C2-Phenanthrenes/Anthracenes	5.99		<0.3	U	107		15.3		<0.3	U
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	154		21.8		<0.3	U
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	116		20.1		<0.3	U
Dibenzothiophene	2.25		0.559		9.22		0.48		0.615	
C1-Dibenzothiophenes	1.77		0.408		44.8		1.89		0.718	
C2-Dibenzothiophenes	1.98		0.444		104		9.66		1.41	
C3-Dibenzothiophenes	1.18		0.184	J	153		21.5		2.03	
C4-Dibenzothiophenes	<0.2	U	<0.2	U	129		<0.2	U	<0.2	U
Fluoranthene	6.66		0.745		12.8		2.50		1.88	
Pyrene	3.15		0.159		19.4		2.09		0.871	
C1-Fluoranthenes/Pyrenes	1.86		0.568		36.5		4.84		1.03	
C2-Fluoranthenes/Pyrenes	2.93		<0.5	U	60.8		7.62		2.02	
C3-Fluoranthenes/Pyrenes	1.12		<0.5	U	44.1		6.00		1.33	
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	61.5		11.5		<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	1.62		0.138	J	5.70		0.832		0.326	
Chrysene/Triphenylene	4.10		0.125		28.8		3.74		1.11	
C1-Chrysenes	1.68		<0.2	U	42.8		6.85		1.53	
C2-Chrysenes	1.73		<0.2	U	65.3		9.84		2.63	
C3-Chrysenes	0.981		<0.2	U	55.5		7.17		1.63	
C4-Chrysenes	<0.2	U	<0.2	U	31.7		<0.2	U	<0.2	U
Benzo(b)fluoranthene	6.76		0.230		19.5		3.70		1.03	
Benzo(k,j)fluoranthene	2.17		0.070	J	6.17		1.40		0.384	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	3.67		0.134	J	19.2		3.40		0.979	
Benzo(a)pyrene	1.10		0.041	J	5.81		0.847		0.213	
Perylene	0.141	J	<1.3	U	1.89		<1.3	U	<1.3	U
Indeno(1,2,3-c,d)pyrene	3.38		0.110		8.78		<0.1	U	0.451	
Dibenzo(a,h)anthracene	0.930		0.038	J	3.83		0.748		0.211	
Benzo(g,h,i)perylene	3.49		0.084	J	17.9		2.64		0.540	
Total PAHs	136		23.4		1724		187		44.5	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1675.D	ARC1676.D	ARC1679.D	ARC1680.D	ARC1681.D
Client Name	SO-DA-011 (0.5-1.0)	SO-DA-011 (1.0-1.5)	SO-DA-010 (0-0.5)	SO-DA-010 (0.5-1.0)	SO-DA-010 (1.0-1.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 18:31	8/20/13 19:36	8/20/13 20:42	8/20/13 21:48	8/20/13 22:53
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.0	15.1	15.1	15.1	15.1
% Dry	81	86	82	85	77
% Moisture	19	14	18	15	23
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 Hopa										
2-Methylnaphthalene	5.93		1.88		6.73		1.00	J	1.15	J
1-Methylnaphthalene	2.95		0.988		3.81		0.439	J	0.467	J
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	82		77		80		78		79	
Acenaphthene-d10	82		73		81		74		63	
Phenanthrene-d10	86		86		86		84		87	
Chrysene-d12	98		94		86		93		93	
Perylene-d12	1	L	0	L	13		1	L	0	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1682.D	ARC1683.D	ARC1684.D	ARC1685.D	ARC1686.D
Client Name	SO-DA-DUP-02-080213	SO-DA-009 (0-0.5)	SO-DA-009 (0.5-1.0)	SO-DA-009 (1.0-1.5)	SO-DA-008 (0-0.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 23:59	8/21/13 2:10	8/21/13 3:16	8/21/13 4:21	8/21/13 5:27
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.1
% Dry	83	82	74	87	86
% Moisture	18	18	26	13	14
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	5.51		3.59		1.34		0.982		1.56	
C1-Naphthalenes	10.8		5.47		1.41		1.00	J	2.21	
C2-Naphthalenes	23.4		14.1		3.04		2.04		8.82	
C3-Naphthalenes	36.5		27.7		3.60		2.06		28.6	
C4-Naphthalenes	60.6		77.1		<0.7	U	<0.7	U	58.3	
Benzothiophene	NA		NA		NA		NA		NA	
C1-Benzothiophenes	NA		NA		NA		NA		NA	
C2-Benzothiophenes	NA		NA		NA		NA		NA	
C3-Benzothiophenes	NA		NA		NA		NA		NA	
C4-Benzothiophenes	NA		NA		NA		NA		NA	
Biphenyl	NA		NA		NA		NA		NA	
Acenaphthylene	1.75		2.43		0.262		0.106		1.12	
Acenaphthene	<0.1	U	<0.1	U	<0.1	U	0.128		<0.1	U
Dibenzofuran	NA		NA		NA		NA		NA	
Fluorene	6.01		3.06		0.83		0.992		1.76	
C1-Fluorenes	11.2		10.7		0.93		0.533		11.8	
C2-Fluorenes	49.9		<0.4	U	<0.4	U	<0.4	U	<0.4	U
C3-Fluorenes	124		<0.4	U	<0.4	U	<0.4	U	<0.4	U
Carbazole	NA		NA		NA		NA		NA	
Anthracene	2.39		4.69		0.36		0.108	J	<0.1	U
Phenanthrene	28.5		15.2		2.89		2.67		10.8	
C1-Phenanthrenes/Anthracenes	48.0		41.4		6.25		<0.1	U	52.0	
C2-Phenanthrenes/Anthracenes	145		131		11.0		<0.3	U	139	
C3-Phenanthrenes/Anthracenes	287		249		18.9		<0.3	U	215	
C4-Phenanthrenes/Anthracenes	270		223		19.7		<0.3	U	212	
Dibenzothiophene	8.64		6.66		0.71		0.438		6.42	
C1-Dibenzothiophenes	40.4		38.3		1.99		1.20		49.4	
C2-Dibenzothiophenes	141		141		5.93		2.61		152	
C3-Dibenzothiophenes	278		268		14.7		4.91		277	
C4-Dibenzothiophenes	273		194		12.2		<0.2	U	235	
Fluoranthene	19.9		12.8		1.63		0.534		5.64	
Pyrene	30.0		22.6		2.03		0.494		14.3	
C1-Fluoranthenes/Pyrenes	69.2		58.5		6.11		1.20		40.2	
C2-Fluoranthenes/Pyrenes	109		100		10.5		2.43		72.2	
C3-Fluoranthenes/Pyrenes	96.6		86.0		8.18		1.91		66.9	
C4-Fluoranthenes/Pyrenes	144		90.2		12.2		<0.5	U	101	
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	8.62		7.54		0.633		0.175	J	3.33	
Chrysene/Triphenylene	42.3		32.8		3.12		0.833		26.8	
C1-Chrysenes	78.6		57.7		7.13		1.97		58.3	
C2-Chrysenes	116		91.6		9.26		3.21		94.7	
C3-Chrysenes	86.6		64.4		7.75		2.21		63.6	
C4-Chrysenes	49.6		40.1		3.53		<0.2	U	36.4	
Benzo(b)fluoranthene	32.0		28.3		2.75		0.673		10.4	
Benzo(k,j)fluoranthene	12.1		11.4		1.07		0.256		3.93	
Benzo(a)fluoranthene	NA		NA		NA		NA		NA	
Benzo(e)pyrene	29.0		23.5		2.55		0.664		13.9	
Benzo(a)pyrene	10.1		9.89		0.899		0.149		4.49	
Perylene	2.44		3.09		<1.3	U	<1.3	U	<1.3	U
Indeno(1,2,3-c,d)pyrene	13.1		9.87		1.21		0.305		4.13	
Dibenzo(a,h)anthracene	5.68		4.71		0.613		0.134		2.57	
Benzo(g,h,i)perylene	27.1		19.5		1.96		0.404		11.1	
Total PAHs	2834		2231		189.2		37.3		2098	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1682.D	ARC1683.D	ARC1684.D	ARC1685.D	ARC1686.D
Client Name	SO-DA-DUP-02-080213	SO-DA-009 (0-0.5)	SO-DA-009 (0.5-1.0)	SO-DA-009 (1.0-1.5)	SO-DA-008 (0-0.5)
Matrix	Soil	Soil	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/02/13	08/02/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 23:59	8/21/13 2:10	8/21/13 3:16	8/21/13 4:21	8/21/13 5:27
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.1	15.1
% Dry	83	82	74	87	86
% Moisture	18	18	26	13	14
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 Hopa										
2-Methylnaphthalene	11.7		5.97		1.49		1.05	J	2.24	
1-Methylnaphthalene	5.13		2.54		0.706		0.513	J	1.22	
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	82		81		73		80		70	
Acenaphthene-d10	77		76		70		75		74	
Phenanthrene-d10	88		89		82		85		92	
Chrysene-d12	91		100		87		93		91	
Perylene-d12	6	L	11		3	L	1	L	5	L

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1687.D	ARC1688.D	ARC1719.D	ARC1720.D
Client Name	SO-DA-008 (0.5-1.0)	SO-DA-008 (1.0-1.5)	SO-DA-018 (1.0-1.5)	SO-DA-DUP-03-080613
Matrix	Soil	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/06/13	08/06/13
Received Date	08/06/13	08/06/13	08/07/13	08/07/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/21/13 6:32	8/21/13 7:38	8/21/13 8:44	8/21/13 9:49
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.2
% Dry	88	88	82	79
% Moisture	12	12	18	21
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	0.648		0.750		3.15		5.39	
C1-Naphthalenes	0.430	J	0.754	J	3.29		7.19	
C2-Naphthalenes	0.704		1.50		<0.7	U	16.2	
C3-Naphthalenes	<0.7	U	1.24		<0.7	U	29.0	
C4-Naphthalenes	<0.7	U	<0.7	U	<0.7	U	103	
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	U	<0	U	<0	U	3.57	
Acenaphthene	<0.1	U	<0.1	U	<0.1	U	<0.1	U
Dibenzofuran	NA		NA		NA		NA	
Fluorene	0.759		2.69		5.25		6.22	
C1-Fluorenes	0.354	J	<0.4	U	2.18		20.3	
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	0.042	J	<0.1	U	<0.1	U	4.25	
Phenanthrene	2.78		9.00		14.3		29.9	
C1-Phenanthrenes/Anthracenes	<0.1	U	5.76		7.03		50.5	
C2-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	261	
C3-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	604	
C4-Phenanthrenes/Anthracenes	<0.3	U	<0.3	U	<0.3	U	612	
Dibenzothiophene	0.246		0.609		1.43		9.68	
C1-Dibenzothiophenes	0.447		0.581		1.32		46.3	
C2-Dibenzothiophenes	0.933		<0.2	U	<0.2	U	222	
C3-Dibenzothiophenes	1.15		<0.2	U	<0.2	U	693	
C4-Dibenzothiophenes	<0.2	U	<0.2	U	<0.2	U	702	
Fluoranthene	0.627		1.29		2.00		16.8	
Pyrene	0.103	J	0.333		0.404		52.0	
C1-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	0.966		132	
C2-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	1.88		215	
C3-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	1.48		202	
C4-Fluoranthenes/Pyrenes	<0.5	U	<0.5	U	<0.5	U	207	
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	0.087	J	<0.2	U	0.163	J	8.90	
Chrysene/Triphenylene	0.355		<0.1	U	0.918		65.4	
C1-Chrysenes	0.609		<0.2	U	2.19		152	
C2-Chrysenes	<0.2	U	<0.2	U	3.58		206	
C3-Chrysenes	<0.2	U	<0.2	U	2.44		167	
C4-Chrysenes	<0.2	U	<0.2	U	<0.2	U	78.3	
Benzo(b)fluoranthene	0.292		<0.2	U	0.728		33.3	
Benzo(k,j)fluoranthene	0.114		<0.1	U	0.208		14.5	
Benzo(a)fluoranthene	NA		NA		NA		NA	
Benzo(e)pyrene	0.252		<0.2	U	0.736		35.3	
Benzo(a)pyrene	0.042	J	<0.1	U	0.097	J	14.0	
Perylene	<1.3	U	<1.3	U	<1.3	U	4.98	
Indeno(1,2,3-c,d)pyrene	0.116		<0.1	U	0.327		11.5	
Dibenzo(a,h)anthracene	0.064	J	<0.1	U	0.167		6.52	
Benzo(g,h,i)perylene	0.087	J	<0.1	U	0.337		27.6	
Total PAHs	11.2		24.5		56.6		5076	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Client Submitted Samples

Sample Name	ARC1687.D	ARC1688.D	ARC1719.D	ARC1720.D
Client Name	SO-DA-008 (0.5-1.0)	SO-DA-008 (1.0-1.5)	SO-DA-018 (1.0-1.5)	SO-DA-DUP-03-080613
Matrix	Soil	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/06/13	08/06/13
Received Date	08/06/13	08/06/13	08/07/13	08/07/13
Extraction Date	08/15/13	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/21/13 6:32	8/21/13 7:38	8/21/13 8:44	8/21/13 9:49
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1	15.2
% Dry	88	88	82	79
% Moisture	12	12	18	21
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 Hopa								
2-Methylnaphthalene	0.485	J	0.811	J	3.54		7.77	
1-Methylnaphthalene	0.183	J	0.364	J	1.58		3.43	
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	75		76		79		93	
Acenaphthene-d10	21	*	43		72		84	
Phenanthrene-d10	85		88		87		93	
Chrysene-d12	86		90		93		97	
Perylene-d12	1	L	0	L	1	L	17	

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Procedural Blank Report

Sample Name	ENV3083A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/15/13
Extraction Batch	ENV 3083
Date Acquired	8/20/13 6:28
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	0.108	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	<0.3	U	0.881	0.294
Acenaphthylene	<0	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	<0.2	U	0.624	0.208
C1-Phenanthrenes/Anthracenes	<0.1	U	0.232	0.077
C2-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
C3-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
C4-Phenanthrenes/Anthracenes	<0.3	U	0.855	0.285
Dibenzothiophene	<0.1	U	0.348	0.116
C1-Dibenzothiophenes	<0.1	U	0.191	0.064
C2-Dibenzothiophenes	<0.2	U	0.696	0.232
C3-Dibenzothiophenes	<0.2	U	0.696	0.232
C4-Dibenzothiophenes	<0.2	U	0.696	0.232
Fluoranthene	0.1	J	1.00	0.333
Pyrene	0.1	J	0.408	0.136
C1-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C2-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C3-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
C4-Fluoranthenes/Pyrenes	<0.5	U	1.41	0.469
Naphthobenzothiophene	NA		0.383	0.128
C1-Naphthobenzothiophenes	NA		0.767	0.256
C2-Naphthobenzothiophenes	NA		0.767	0.256
C3-Naphthobenzothiophenes	NA		0.767	0.256
C4-Naphthobenzothiophenes	NA		0.767	0.256
Benz(a)anthracene	<0.2	U	0.577	0.192
Chrysene/Triphenylene	<0.1	U	0.347	0.116
C1-Chrysenes	<0.2	U	0.695	0.232
C2-Chrysenes	<0.2	U	0.695	0.232
C3-Chrysenes	<0.2	U	0.695	0.232
C4-Chrysenes	<0.2	U	0.695	0.232
Benzo(b)fluoranthene	<0.2	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	0.249			

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Procedural Blank Report

Sample Name	ENV3083A.D
Client Name	Procedural Blank
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/15/13
Extraction Batch	ENV 3083
Date Acquired	8/20/13 6:28
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	82
Acenaphthene-d10	84
Phenanthrene-d10	84
Chrysene-d12	93
Perylene-d12	85

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1674.D	ENV3083C.D	ENV3083D.D
Client Name	SO-DA-011 (0-0.5)	MS (SO-DA-011 (0-0.5) MS/MSD)	MSD (SO-DA-011 (0-0.5) MS/MSD)
Matrix	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 17:25	8/20/13 8:40	8/20/13 9:45
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	85	80	80
% Moisture	15	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	3.78		10.4		99			9.68		89			7		100
C1-Naphthalenes	3.89		NA					NA							
C2-Naphthalenes	6.86		NA					NA							
C3-Naphthalenes	4.26		NA					NA							
C4-Naphthalenes	4.55		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					NA							
Acenaphthylene	0.698		7.49		103			6.91		94			8		99.2
Acenaphthene	0.237		6.81		99			6.03		87			12		100
Dibenzofuran	NA		NA					NA							
Fluorene	3.82		10.1		95			9.15		80			10		100
C1-Fluorenes	1.58		NA					NA							
C2-Fluorenes	<0.4	U	NA					NA							
C3-Fluorenes	<0.4	U	NA					NA							
Carbazole	NA		NA					NA							
Anthracene	0.958	L	6.20	L	79			5.99	L	76			3		100
Phenanthrene	14.6		27.5		195		Y	21.6		106		Y	24		99.1
C1-Phenanthrenes/Anthracenes	8.71		NA					NA							
C2-Phenanthrenes/Anthracenes	8.97		NA					NA							
C3-Phenanthrenes/Anthracenes	5.92		NA					NA							
C4-Phenanthrenes/Anthracenes	7.00		NA					NA							
Dibenzothiophene	1.41		8.95		115			8.76		112			2		98.6
C1-Dibenzothiophenes	1.33		NA					NA							
C2-Dibenzothiophenes	2.35		NA					NA							
C3-Dibenzothiophenes	3.77		NA					NA							
C4-Dibenzothiophenes	4.42		NA					NA							
Fluoranthene	20.8		52.3		473		Y	41.3		308		Y	24		100
Pyrene	13.4		36.4		346		Y	32.9		294		Y	10		100
C1-Fluoranthenes/Pyrenes	7.20		NA					NA							
C2-Fluoranthenes/Pyrenes	10.0		NA					NA							
C3-Fluoranthenes/Pyrenes	5.01		NA					NA							
C4-Fluoranthenes/Pyrenes	7.89		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	7.40		20.6		199	*		20.8		202	*		1		100
Chrysene/Triphenylene	16.1		47.8		481		Y	40.6		372		Y	16		99.4
C1-Chrysenes	7.53		NA					NA							
C2-Chrysenes	6.37		NA					NA							
C3-Chrysenes	5.66		NA					NA							
C4-Chrysenes	2.66		NA					NA							
Benzo(b)fluoranthene	25.7		74.8		738		Y	64.3		580		Y	15		100
Benzo(k,j)fluoranthene	9.38		17.2		118			15.3		89			12		100
Benzo(a)fluoranthene	NA		NA					NA							
Benzo(e)pyrene	14.9		43.5		431		Y	35.8		316		Y	19		100
Benzo(a)pyrene	6.55	L	11.0	L	66			9.89	L	50			10		100
Perylene	1.42	L	2.42	L	15			2.15	L	11			12		100
Indeno(1,2,3-c,d)pyrene	14.2		27.6		205		Y	35.7		329		Y	25		98.3
Dibenzo(a,h)anthracene	4.05		9.67		85			9.62		85			1		99.1
Benzo(g,h,i)perylene	16.2	L	45.1	L	439		Y	39.4	L	352		Y	14		99.1
Average % Recovery					218	*				181	*				

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Matrix Spike Report

Sample Name	ARC1674.D	ENV3083C.D	ENV3083D.D
Client Name	SO-DA-011 (0-0.5)	MS (SO-DA-011 (0-0.5) MS/MSD)	MSD (SO-DA-011 (0-0.5) MS/MSD)
Matrix	Soil	Soil	Soil
Collection Date	08/02/13	08/02/13	08/02/13
Received Date	08/06/13	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083	ENV 3083
Date Acquired	8/20/13 17:25	8/20/13 8:40	8/20/13 9:45
Method	PAH-2012.M	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1	15.1
% Dry	85	80	80
% Moisture	15	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	4.03		10.4		95			9.62		84			8		100
1-Methylnaphthalene	2.04		8.20		93			7.66		85			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	100		86					78							
Acenaphthene-d10	80		92					81							
Phenanthrene-d10	83		86					83							
Chrysene-d12	98		96					95							
Perylene-d12	3	L	8	L				2	L						

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1674.D	ENV3083E.D
Client Name	SO-DA-011 (0-0.5)	Dupl. (SO-DA-011 (0-0.5))
Matrix	Soil	Soil
Collection Date	08/02/13	08/02/13
Received Date	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083
Date Acquired	8/20/13 17:25	8/20/13 10:51
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	85	85
% Moisture	15	15
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	3.78		3.82		1		1.03	0.342
C1-Naphthalenes	3.89		3.76		3		3.09	1.03
C2-Naphthalenes	6.86		6.47		6		2.05	0.684
C3-Naphthalenes	4.26		4.91		14		2.05	0.684
C4-Naphthalenes	4.55		4.68		3		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	0.698		0.815		15		0.122	0.041
Acenaphthene	0.237		0.220		8	X	0.308	0.103
Dibenzofuran	NA		NA				0.613	0.204
Fluorene	3.82		3.83		0		0.55	0.183
C1-Fluorenes	1.58		1.50		5		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	0.958	L	1.05		9		0.346	0.115
Phenanthrene	14.6		14.4		1		0.624	0.208
C1-Phenanthrenes/Anthracenes	8.71		8.85		2		0.232	0.077
C2-Phenanthrenes/Anthracenes	8.97		9.19		2		0.855	0.285
C3-Phenanthrenes/Anthracenes	5.92		6.00		1		0.855	0.285
C4-Phenanthrenes/Anthracenes	7.00		7.84		11		0.855	0.285
Dibenzothiophene	1.41		1.21		15		0.348	0.116
C1-Dibenzothiophenes	1.33		1.33		0		0.191	0.064
C2-Dibenzothiophenes	2.35		2.24		5		0.696	0.232
C3-Dibenzothiophenes	3.77		4.21		11		0.696	0.232
C4-Dibenzothiophenes	4.42		4.12		7		0.696	0.232
Fluoranthene	20.8		17.6		17		1.00	0.333
Pyrene	13.4		12.2		9		0.408	0.136
C1-Fluoranthenes/Pyrenes	7.20		7.00		3		1.41	0.469
C2-Fluoranthenes/Pyrenes	10.0		9.11		9		1.41	0.469
C3-Fluoranthenes/Pyrenes	5.01		5.34		6		1.41	0.469
C4-Fluoranthenes/Pyrenes	7.89		7.68		3		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	7.40		6.18		18		0.577	0.192
Chrysene/Triphenylene	16.1		14.7		9		0.347	0.116
C1-Chrysenes	7.53		6.41		16		0.695	0.232
C2-Chrysenes	6.37		7.67		19		0.695	0.232
C3-Chrysenes	5.66		5.42		4		0.695	0.232
C4-Chrysenes	2.66		3.05		13		0.695	0.232
Benzo(b)fluoranthene	25.7		23.9		7		0.609	0.203
Benzo(k,j)fluoranthene	9.38		8.19		14		0.294	0.098
Benzo(a)fluoranthene	NA		NA				0.294	0.098
Benzo(e)pyrene	14.9		13.5		10		0.530	0.177
Benzo(a)pyrene	6.55	L	5.62		15		0.304	0.101
Perylene	1.42	L	1.16	J	20	X	3.80	1.27
Indeno(1,2,3-c,d)pyrene	14.2		12.9		10		0.151	0.050
Dibenzo(a,h)anthracene	4.05		3.51		14		0.193	0.064
Benzo(g,h,i)perylene	16.2	L	14.6		11		0.264	0.088
Total PAHs	291.6		276.3		5			

Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Duplicate Report

Sample Name	ARC1674.D	ENV3083E.D
Client Name	SO-DA-011 (0-0.5)	Dupl. (SO-DA-011 (0-0.5))
Matrix	Soil	Soil
Collection Date	08/02/13	08/02/13
Received Date	08/06/13	08/06/13
Extraction Date	08/15/13	08/15/13
Extraction Batch	ENV 3083	ENV 3083
Date Acquired	8/20/13 17:25	8/20/13 10:51
Method	PAH-2012.M	PAH-2012.M
Sample Dry Weight (g)	15.1	15.1
% Dry	85	85
% Moisture	15	15
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	4.03		3.87		4		3.89	1.30
1-Methylnaphthalene	2.04		1.99		2		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	100		79					
Acenaphthene-d10	80		80					
Phenanthrene-d10	83		84					
Chrysene-d12	98		90					
Perylene-d12	3	L	2	L				

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

Sample Name	ENV3083B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/15/13
Extraction Batch	ENV 3083
Date Acquired	8/20/13 7:34
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	36.6					
C1-Decalins	8.4					
C2-Decalins	13.4					
C3-Decalins	28.7					
C4-Decalins	46.7					
Naphthalene	694		20	848 ± 95	527	1226
C1-Naphthalenes	213					
C2-Naphthalenes	199					
C3-Naphthalenes	143					
C4-Naphthalenes	102					
Benzothiophene	28.5					
C1-Benzothiophenes	29.6					
C2-Benzothiophenes	20.6					
C3-Benzothiophenes	77.4					
C4-Benzothiophenes	15.8					
Biphenyl	64.9					
Acenaphthylene	76.0					
Acenaphthene	27.9					
Dibenzofuran	81.1					
Fluorene	51.5		49	85 ± 15	49.0	130
C1-Fluorenes	57.2					
C2-Fluorenes	134					
C3-Fluorenes	180					
Carbazole	19.7					
Anthracene	186		1	184 ± 18	116	263
Phenanthrene	386		5	406 ± 44	253	585
C1-Phenanthrenes/Anthracenes	304					
C2-Phenanthrenes/Anthracenes	303					
C3-Phenanthrenes/Anthracenes	262					
C4-Phenanthrenes/Anthracenes	124					
Dibenzothiophene	49.3					
C1-Dibenzothiophenes	65.7					
C2-Dibenzothiophenes	120					
C3-Dibenzothiophenes	142					
C4-Dibenzothiophenes	82.6					
Fluoranthene	669		3	651 ± 50	421	911
Pyrene	529		9	581 ± 39	379	806
C1-Fluoranthenes/Pyrenes	376					
C2-Fluoranthenes/Pyrenes	394					
C3-Fluoranthenes/Pyrenes	181					
C4-Fluoranthenes/Pyrenes	119					
Naphthobenzothiophene	169					
C1-Naphthobenzothiophenes	133					
C2-Naphthobenzothiophenes	125					
C3-Naphthobenzothiophenes	105					
C4-Naphthobenzothiophenes	43.3					
Benz(a)anthracene	372		10	335 ± 25	217	468
Chrysene/Triphenylene	468		16	399 ± 36	254	566
C1-Chrysenes	331					
C2-Chrysenes	192					
C3-Chrysenes	109					
C4-Chrysenes	35.1					
Benzo(b)fluoranthene	485		7	453 ± 21	302	616
Benzo(k,j)fluoranthene	482		9	442 ± 23	293	605
Benzo(a)fluoranthene	78.9					
Benzo(e)pyrene	324		0	325 ± 25	210	455
Benzo(a)pyrene	275		26	358 ± 17	239	488
Perylene	342		15	397 ± 45	246	575
Indeno(1,2,3-c,d)pyrene	321		6	341 ± 57	199	517
Dibenzo(a,h)anthracene	53.0		0	53 ± 10	30.1	81.9
Benzo(g,h,i)perylene	284		8	307 ± 45	183	458
Total PAHs	11371					

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

Sample Name	ENV3083B.D
Client Name	SRM 1941b
Matrix	Sediment
Collection Date	NA
Received Date	NA
Extraction Date	08/15/13
Extraction Batch	ENV 3083
Date Acquired	8/20/13 7:34
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	224					
1-Methylnaphthalene	108					
2,6-Dimethylnaphthalene	95.9					
1,6,7-Trimethylnaphthalene	16.5					
1-Methylfluorene	30.0					
4-Methyldibenzothiophene	41.8					
2/3-Methyldibenzothiophene	26.3					
1-Methyldibenzothiophene	11.7					
3-Methylphenanthrene	82.1		24	105 ± 13	64.4	153
2-Methylphenanthrene	107					
2-Methylanthracene	61.0					
4/9-Methylphenanthrene	65.8					
1-Methylphenanthrene	63.3		14	73.2 ± 5.9	47.1	103
3,6-Dimethylphenanthrene	35.6					
Retene	33.4					
2-Methylfluoranthene	78.0					
Benzo(b)fluorene	89.3					
C29-Hopane	229					
18a-Oleanane	33.1					
C30-Hopane	295					
C20-TAS	2.09	J				
C21-TAS	6.71					
C26(20S)-TAS	2.39					
C26(20R)/C27(20S)-TAS	9.24					
C28(20S)-TAS	6.48					
C27(20R)-TAS	6.05					
C28(20R)-TAS	6.82					

Surrogate Recovery	
Naphthalene-d8	71
Acenaphthene-d10	78
Phenanthrene-d10	80
Chrysene-d12	83
Perylene-d12	82

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

Sample Name	MS50161K.D
Client Name	AR-SRM2779-WK-4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3083
Date Acquired	8/20/13 5:23
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	690						
C1-Decalins	926						
C2-Decalins	780						
C3-Decalins	692						
C4-Decalins	497						
Naphthalene	654			27	855 ± 46	647	1081
C1-Naphthalenes	1416						
C2-Naphthalenes	1786						
C3-Naphthalenes	1186						
C4-Naphthalenes	650						
Benzothiophene	7.9	J					
C1-Benzothiophenes	34.8						
C2-Benzothiophenes	31.6						
C3-Benzothiophenes	34.6						
C4-Benzothiophenes	29.9						
Biphenyl	148						
Acenaphthylene	8.50	J					
Acenaphthene	14.1						
Dibenzofuran	30.5						
Fluorene	107						
C1-Fluorenes	276						
C2-Fluorenes	415						
C3-Fluorenes	294						
Carbazole	4.7	J					
Anthracene	3.9	J		14	3.42 ± 0.59	2.26	4.81
Phenanthrene	221			15	258 ± 27	185	342
C1-Phenanthrenes/Anthracenes	559						
C2-Phenanthrenes/Anthracenes	629						
C3-Phenanthrenes/Anthracenes	452						
C4-Phenanthrenes/Anthracenes	267						
Dibenzothiophene	39.9			26	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	121						
C2-Dibenzothiophenes	165						
C3-Dibenzothiophenes	141						
C4-Dibenzothiophenes	75.3						
Fluoranthene	4.82	J		10	4.36 ± 0.40	3.17	5.71
Pyrene	12.7			15	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	75.3						
C2-Fluoranthenes/Pyrenes	135						
C3-Fluoranthenes/Pyrenes	132						
C4-Fluoranthenes/Pyrenes	125						
Naphthobenzothiophene	23.5						
C1-Naphthobenzothiophenes	51.5						
C2-Naphthobenzothiophenes	71.0						
C3-Naphthobenzothiophenes	62.1						
C4-Naphthobenzothiophenes	24.8						
Benz(a)anthracene	6.00	J		16	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	40.3			16	47.4 ± 1.7	36.6	58.9
C1-Chrysenes	102						
C2-Chrysenes	132						
C3-Chrysenes	94.1						
C4-Chrysenes	47.3						
Benzo(b)fluoranthene	4.75	J		17	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene	0.496	J					
Benzo(a)fluoranthene	<10	U					
Benzo(e)pyrene	9.3	J		14	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	1.94	J					
Perylene	0.790	J					
Indeno(1,2,3-c,d)pyrene	0.717	J					
Dibenzo(a,h)anthracene	0.483	J		17	0.574 ± 0.091	0.386	0.798
Benzo(g,h,i)perylene	1.88	J		11	2.11 ± 0.26	1.48	2.84
Total PAHs	14549						

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

Sample Name	MS50161K.D
Client Name	AR-SRM2779-WK-4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3083
Date Acquired	8/20/13 5:23
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)	Q	RPD (%)	SRM 2779 Certified Value (ug/g)	-20% Certified Value (ug/g)	+20% Certified Value (ug/g)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	1314		21	1630 ± 50	1264	2016
1-Methylnaphthalene	905		23	1140 ± 20	896	1392
2,6-Dimethylnaphthalene	837					
1,6,7-Trimethylnaphthalene	257					
1-Methylfluorene	214					
4-Methyldibenzothiophene	85.5					
2/3-Methyldibenzothiophene	36.6					
1-Methyldibenzothiophene	25.4					
3-Methylphenanthrene	150		32	206 ± 32	139	286
2-Methylphenanthrene	182		24	230 ± 14	173	293
2-Methylanthracene	9.20	J				
4/9-Methylphenanthrene	221		5	232 ± 19	170	301
1-Methylphenanthrene	135		22	169 ± 10	127	215
3,6-Dimethylphenanthrene	40.8					
Retene	4.80	J				
2-Methylfluoranthene	4.83	J				
Benzo(b)fluorene	16.1					
C29-Hopane	20.7					
18a-Oleanane	<10	U				
C30-Hopane	41.9					
C20-TAS	4.98	J				
C21-TAS	3.88	J				
C26(20S)-TAS	3.77	J				
C26(20R)/C27(20S)-TAS	12.1					
C28(20S)-TAS	9.25	J				
C27(20R)-TAS	7.72	J				
C28(20R)-TAS	6.33	J				

Surrogate Recovery	
Naphthalene-d8	86
Acenaphthene-d10	93
Phenanthrene-d10	88
Chrysene-d12	92
Perylene-d12	87

Peak Resolution	
4/9-Methylphenanthrene from 1-Methylyphenanthrene (m/z 192)	93%

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

Sample Name	MS50161J.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3083
Date Acquired	8/20/13 4:17
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)	Q	RPD (%)	LCM Certified Conc. (ng/mL)	-15% Certified Conc. (ng/mL)	+15% Certified Conc. (ng/mL)
cis/trans Decalin	264		6.5	247	210	284
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	267		6.4	250	213	288
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	265		6.3	249	211	286
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	259		4.4	248	211	285
Acenaphthylene	222		11.1	248	211	285
Acenaphthene	251		0.0	251	213	288
Dibenzofuran	255		2.6	249	211	286
Fluorene	247		1.5	251	213	288
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	226		9.0	248	211	285
Anthracene	236		6.1	251	213	288
Phenanthrene	250		0.9	248	211	285
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	255		3.5	247	210	283
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	253		0.9	250	213	288
Pyrene	252		0.9	250	213	288
C1-Fluoranthenes/Pyrenes	NA					
C2-Fluoranthenes/Pyrenes	NA					
C3-Fluoranthenes/Pyrenes	NA					
C4-Fluoranthenes/Pyrenes	NA					
Naphthobenzothiophene	227		10.2	252	214	289
C1-Naphthobenzothiophenes	NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	214		15.3	250	212	287
Chrysene/Triphenylene	236		5.1	249	211	286
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	261		4.2	251	213	288
Benzo(k,j)fluoranthene	266		6.8	249	212	286
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	273		9.2	249	212	286
Benzo(a)pyrene	250		0.3	250	212	287
Perylene	257		2.6	250	213	288
Indeno(1,2,3-c,d)pyrene	225		8.8	246	209	283
Dibenzo(a,h)anthracene	230		7.3	248	211	285
Benzo(g,h,i)perylene	239		3.7	248	211	285

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

Sample Name	MS50161J.D
Client Name	AR-WKCC-250-038
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3083
Date Acquired	8/20/13 4:17
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)	Q	RPD (%)	LCM Certified Conc. (ng/mL)	-15% Certified Conc. (ng/mL)	+15% Certified Conc. (ng/mL)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	260		3.6	250	213	288
1-Methylnaphthalene	260		4.2	250	212	287
2,6-Dimethylnaphthalene	253		1.2	250	213	288
1,6,7-Trimethylnaphthalene	245		1.9	250	213	288
1-Methylfluorene	234		7.3	252	214	290
4-Methyldibenzothiophene	247		2.1	252	214	290
2/3-Methyldibenzothiophene	NA					
1-Methyldibenzothiophene	NA					
3-Methylphenanthrene	NA					
2-Methylphenanthrene	NA					
2-Methylanthracene	NA					
4/9-Methylphenanthrene	NA					
1-Methylphenanthrene	239		3.3	247	210	284
3,6-Dimethylphenanthrene	248		0.8	250	213	288
Retene	213		4.5	223	190	257
2-Methylfluoranthene	227		10.5	252	214	289
Benzo(b)fluorene	221		13.0	252	214	290
C29-Hopane	NA					
18a-Oleanane	NA					
C30-Hopane	255		2.2	250	213	288
C20-TAS	NA					
C21-TAS	NA					
C26(20S)-TAS	NA					
C26(20R)/C27(20S)-TAS	230		8.5	250	213	288
C28(20S)-TAS	NA					
C27(20R)-TAS	NA					
C28(20R)-TAS	NA					

Surrogate Recovery	
Naphthalene-d8	107
Acenaphthene-d10	100
Phenanthrene-d10	100
Chrysene-d12	108
Perylene-d12	100

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

Sample Name	MS50161I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3083
Date Acquired	8/20/13 3:12
Method	PAH-2012.M
Sample Volume (mL)	1.0

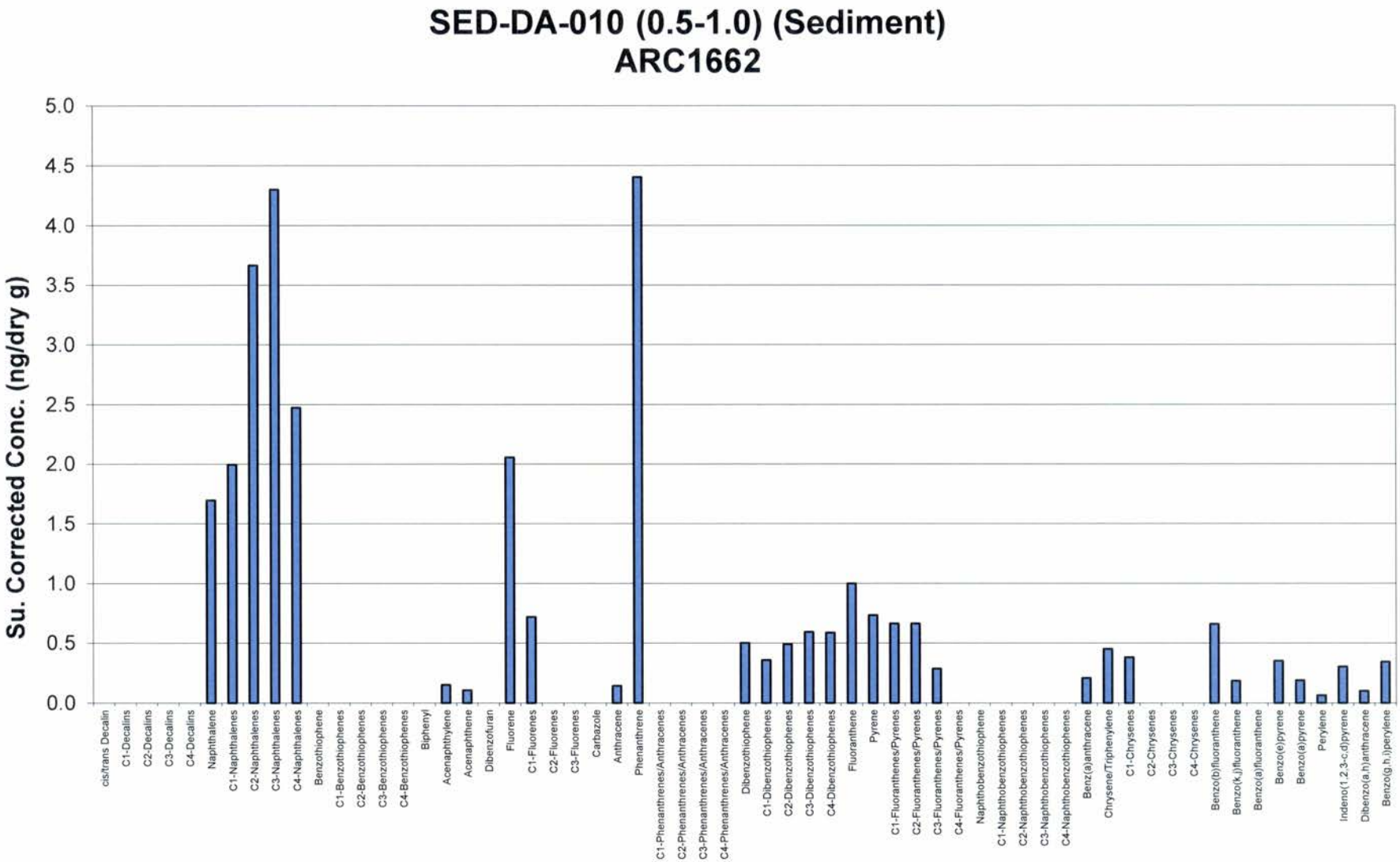
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
cis/trans Decalin	274		9.0	250	200	300
C1-Decalins	NA					
C2-Decalins	NA					
C3-Decalins	NA					
C4-Decalins	NA					
Naphthalene	287		13.8	250	200	300
C1-Naphthalenes	NA					
C2-Naphthalenes	NA					
C3-Naphthalenes	NA					
C4-Naphthalenes	NA					
Benzothiophene	283		12.2	250	200	300
C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	286		13.0	251	201	301
Acenaphthylene	256					
Acenaphthene	285		12.9	250	200	300
Dibenzofuran	289		14.4	250	200	300
Fluorene	279		11.0	250	200	300
C1-Fluorenes	NA					
C2-Fluorenes	NA					
C3-Fluorenes	NA					
Carbazole	278		10.5	250	200	300
Anthracene	277		10.1	250	200	300
Phenanthrene	286		13.4	250	200	300
C1-Phenanthrenes/Anthracenes	NA					
C2-Phenanthrenes/Anthracenes	NA					
C3-Phenanthrenes/Anthracenes	NA					
C4-Phenanthrenes/Anthracenes	NA					
Dibenzothiophene	289		14.5	250	200	300
C1-Dibenzothiophenes	NA					
C2-Dibenzothiophenes	NA					
C3-Dibenzothiophenes	NA					
C4-Dibenzothiophenes	NA					
Fluoranthene	281		11.5	250	200	300
Pyrene	297		17.2	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	272		8.5	250	200	300
Chrysene/Triphenylene	277		10.0	250	200	300
C1-Chrysenes	NA					
C2-Chrysenes	NA					
C3-Chrysenes	NA					
C4-Chrysenes	NA					
Benzo(b)fluoranthene	295		16.5	250	200	300
Benzo(k,j)fluoranthene	293		15.6	250	200	300
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	295		16.3	250	200	300
Benzo(a)pyrene	277		10.0	250	200	300
Perylene	267		6.3	251	200	301
Indeno(1,2,3-c,d)pyrene	258		3.0	250	200	300
Dibenzo(a,h)anthracene	273		8.7	250	200	300
Benzo(g,h,i)perylene	266		6.2	250	200	300

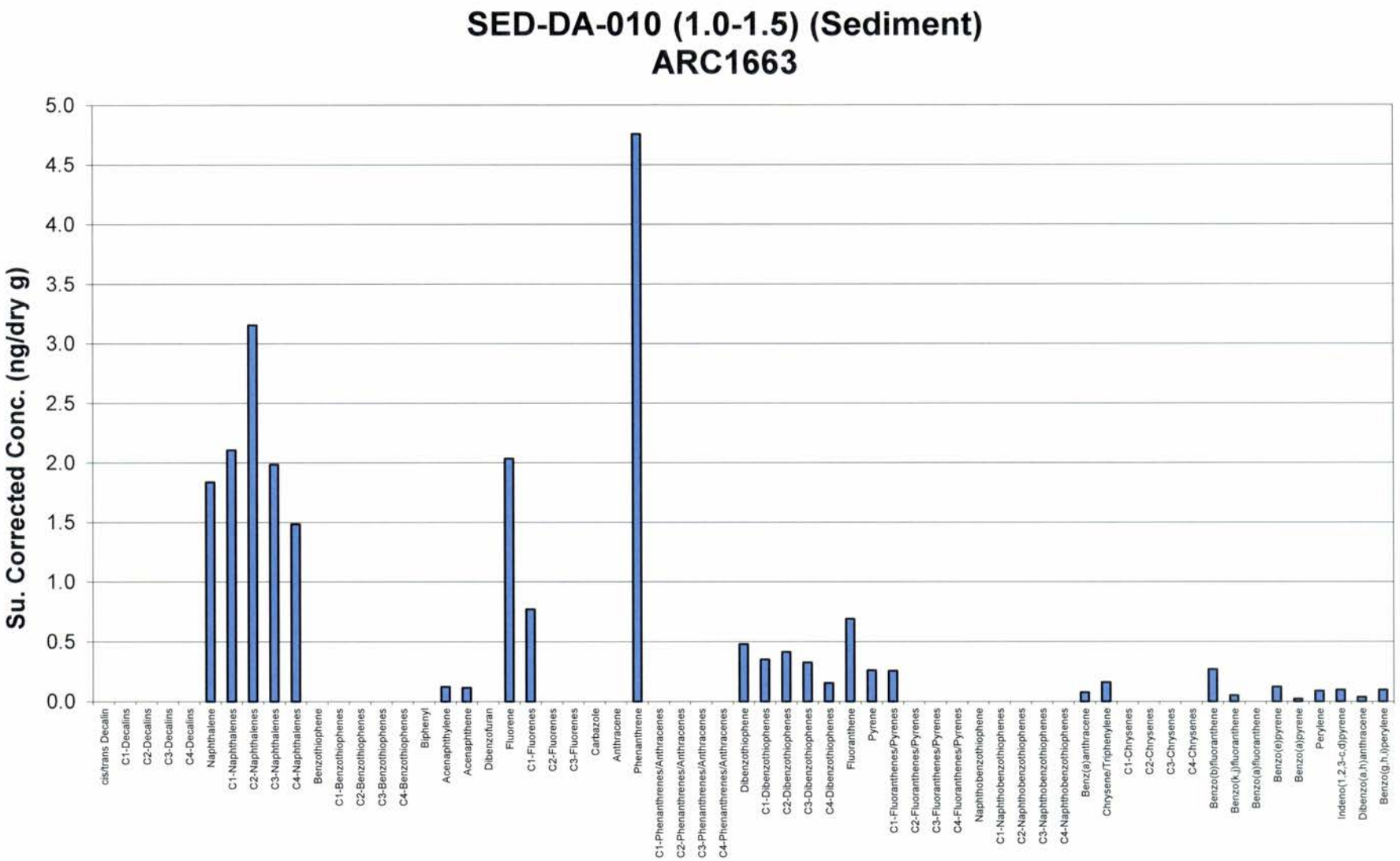
Arcadis - Mayflower AR
Polycyclic Aromatic Hydrocarbon Data
Laboratory Control Material Report

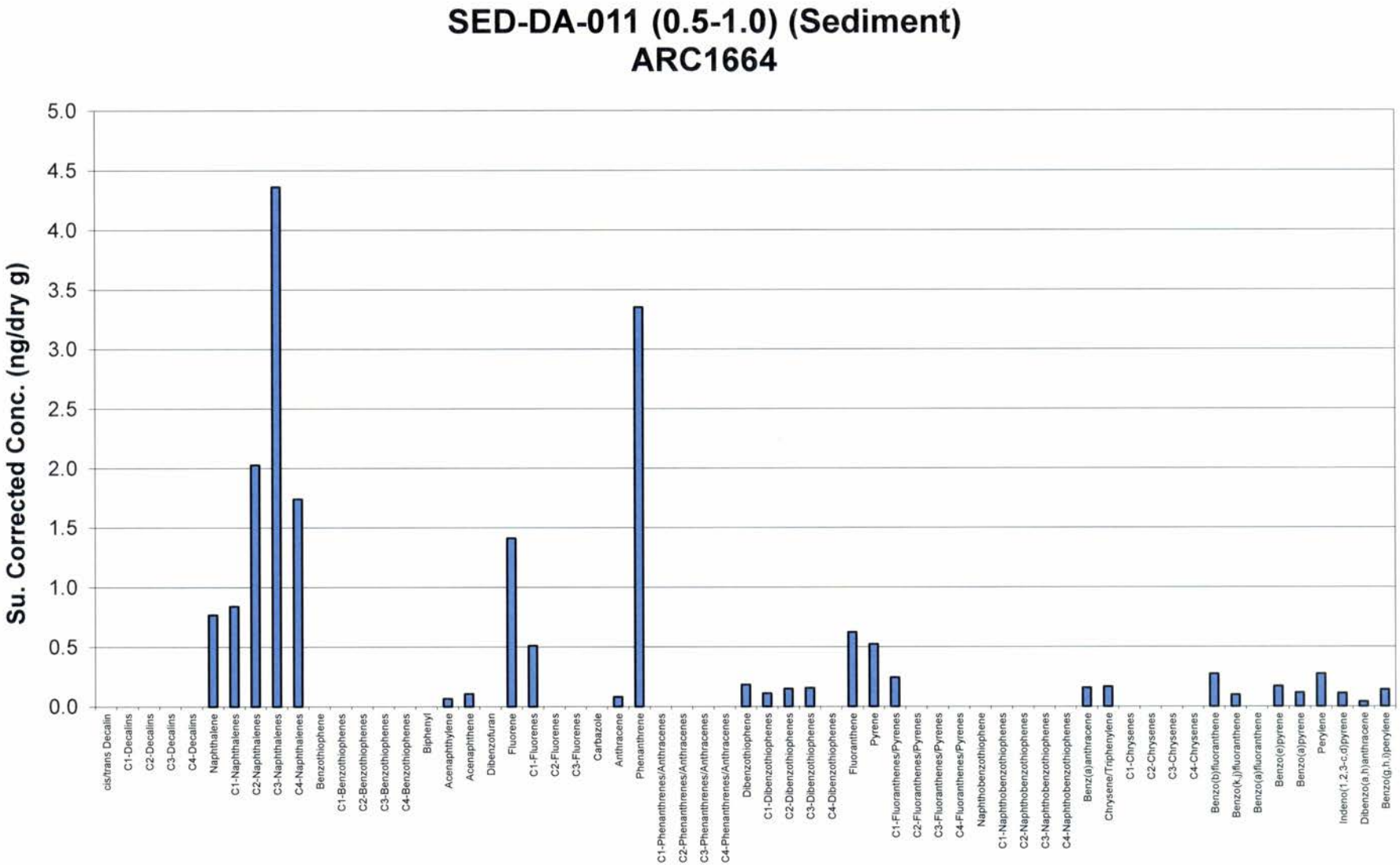
Sample Name	MS50161I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3083
Date Acquired	8/20/13 3:12
Method	PAH-2012.M
Sample Volume (mL)	1.0

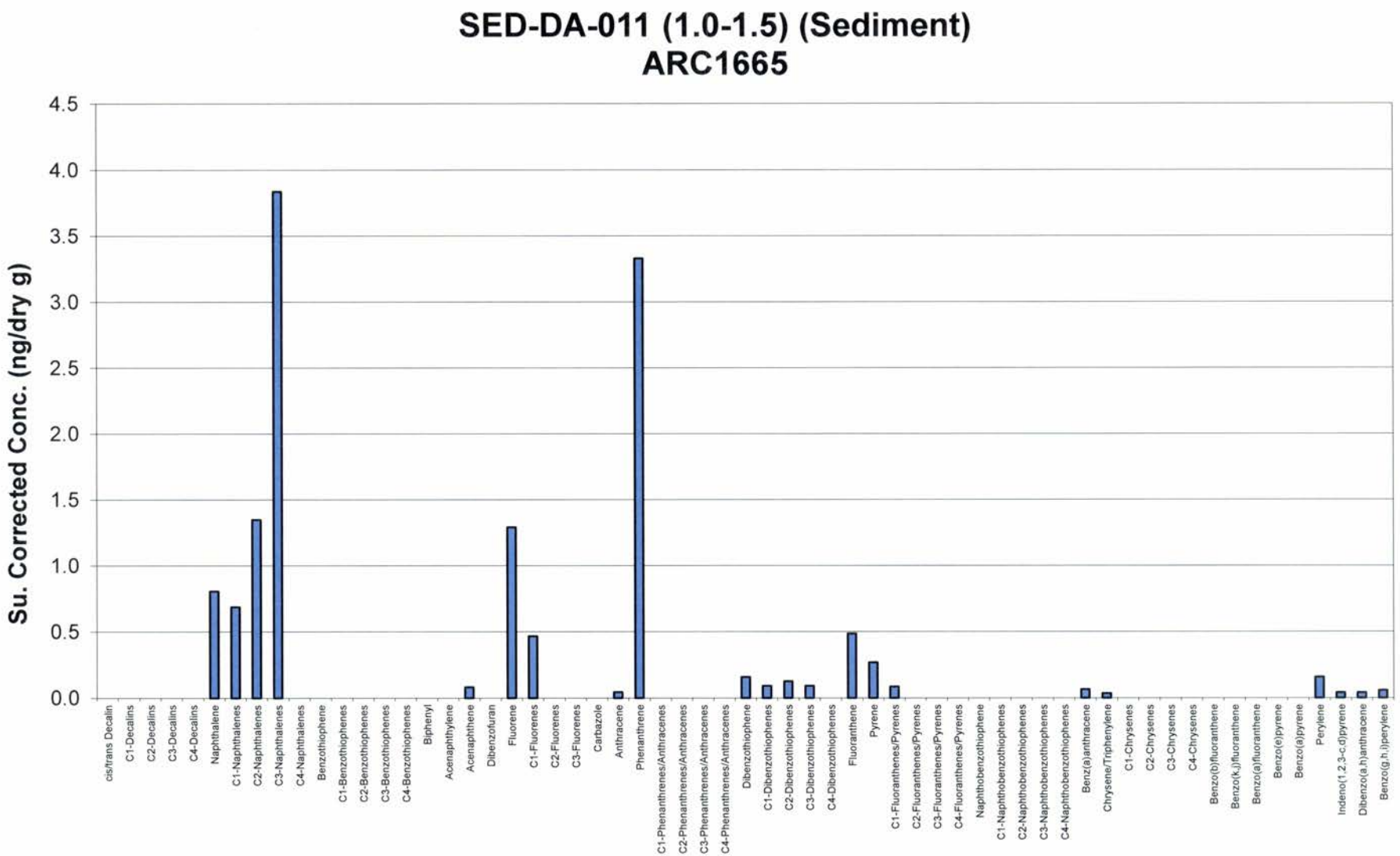
Target Compounds	Concentration (ng/mL)	Q	RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc. (ng/mL)
Individual Alkyl Isomers and Hopanes						
2-Methylnaphthalene	297		17.1	250	200	301
1-Methylnaphthalene	294		15.9	251	200	301
2,6-Dimethylnaphthalene	283		12.4	250	200	300
1,6,7-Trimethylnaphthalene	285		13.0	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	282		11.9	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	237		5.4	250	200	300
Acenaphthene-d10	227		9.8	250	200	300
Phenanthrene-d10	237		5.2	250	200	300
Chrysene-d12	255		2.2	250	200	300
Perylene-d12	216		14.6	250	200	300

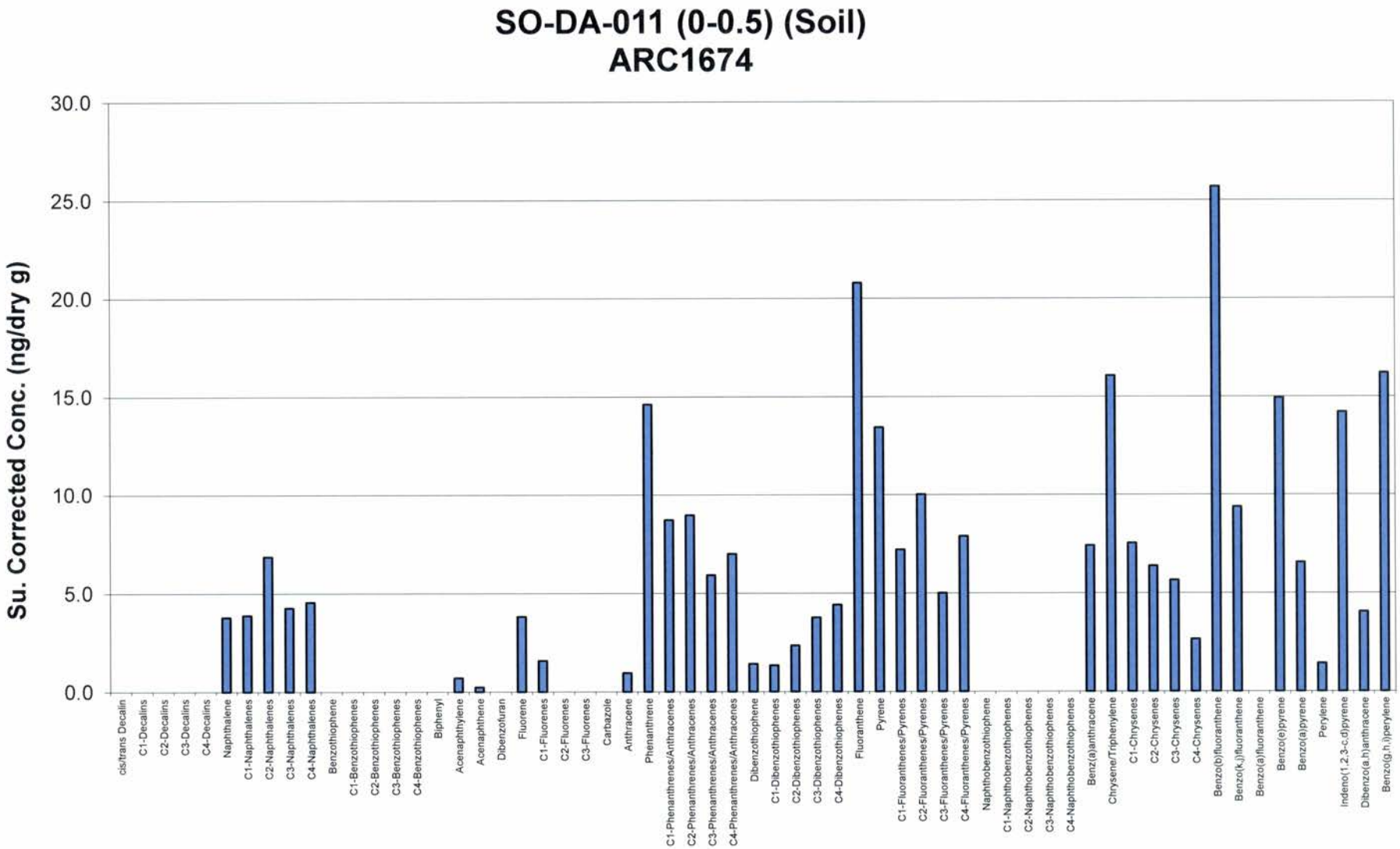
Polycyclic Aromatic Hydrocarbon Histograms

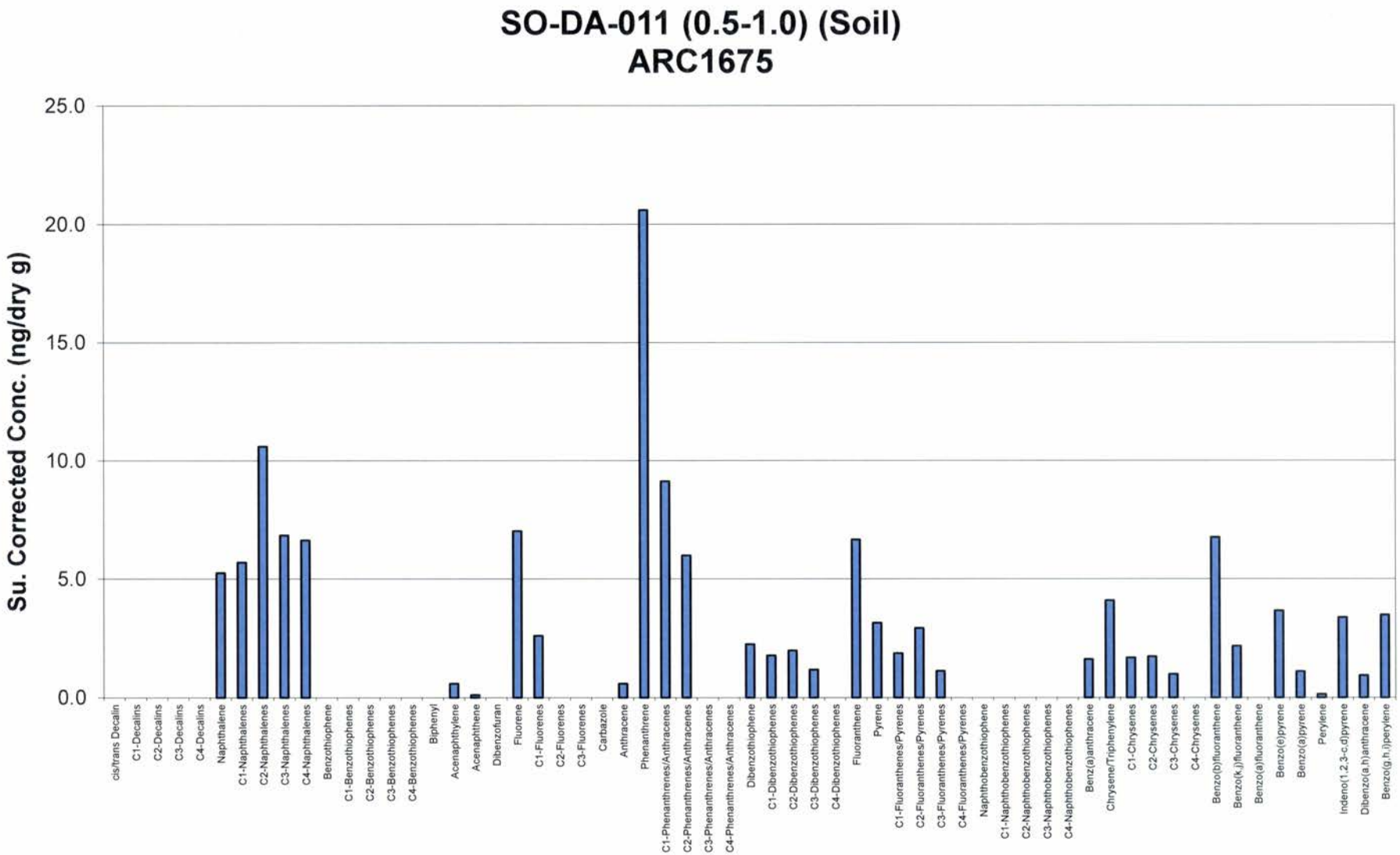

SED-DA-010 (0.5-1.0) (Sediment)
ARC1662
Su. Corrected Conc. (ng/dry g)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

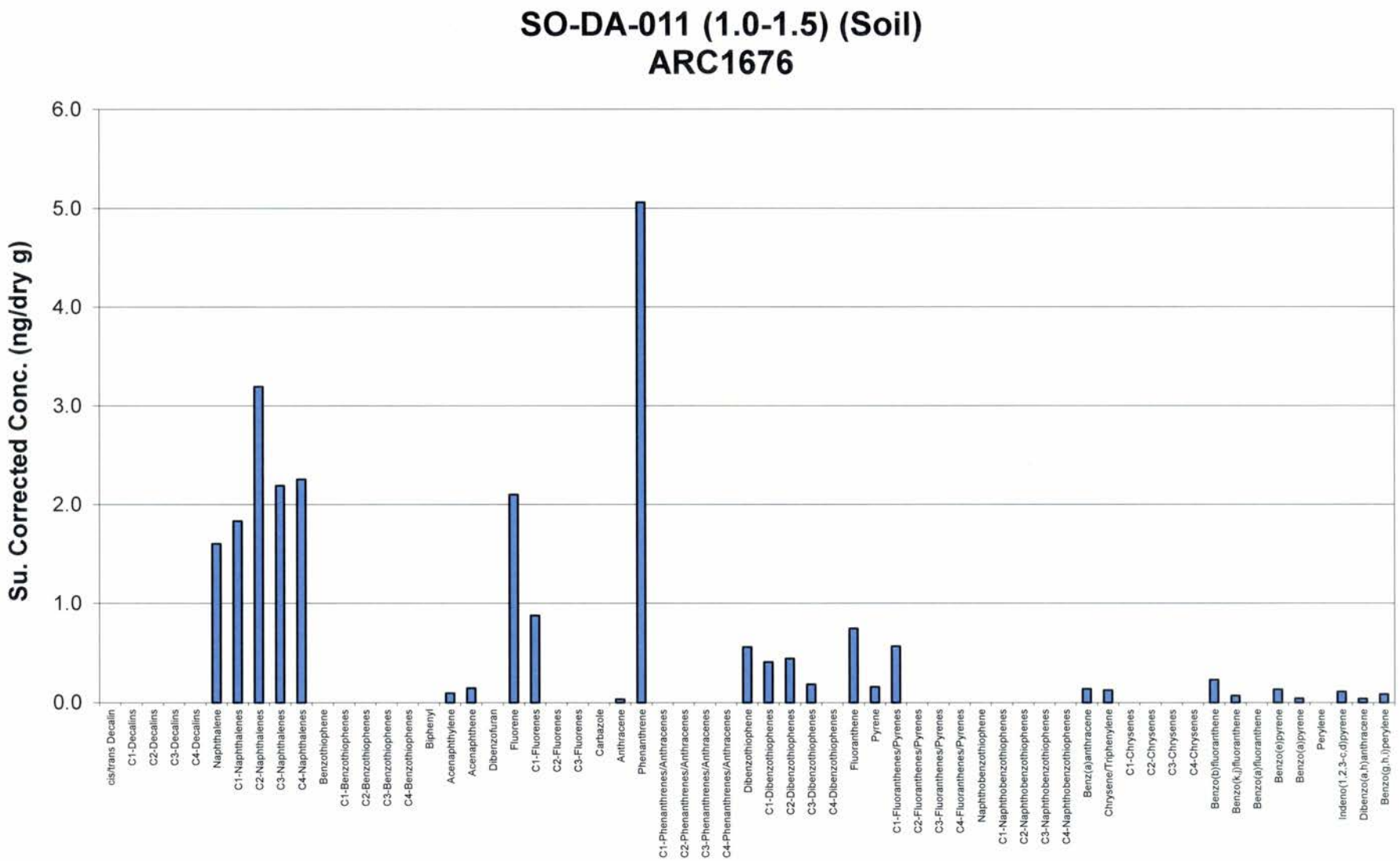

SED-DA-010 (1.0-1.5) (Sediment)
ARC1663
Su. Corrected Conc. (ng/dry g)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

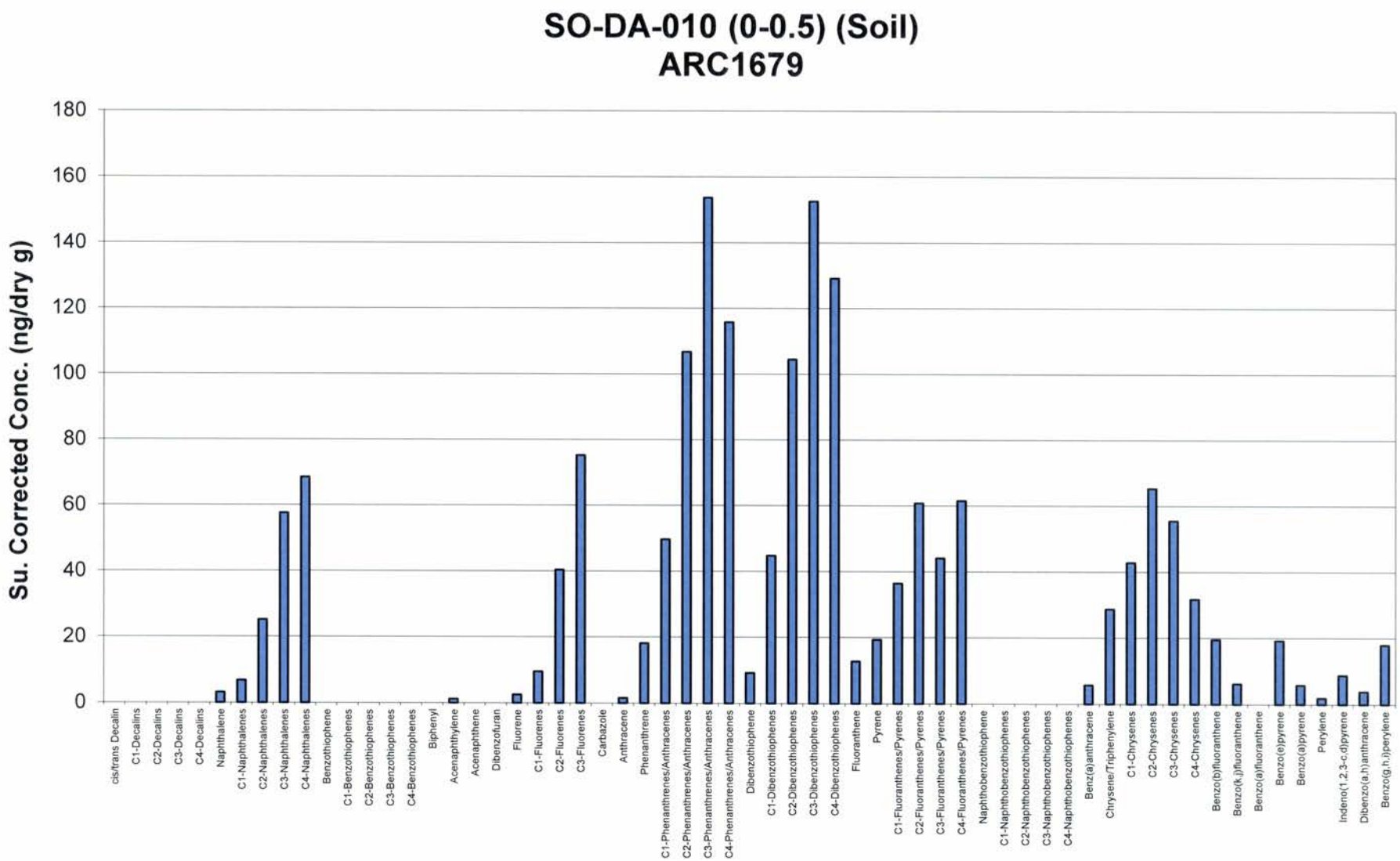

SED-DA-011 (0.5-1.0) (Sediment)
ARC1664
Su. Corrected Conc. (ng/dry g)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

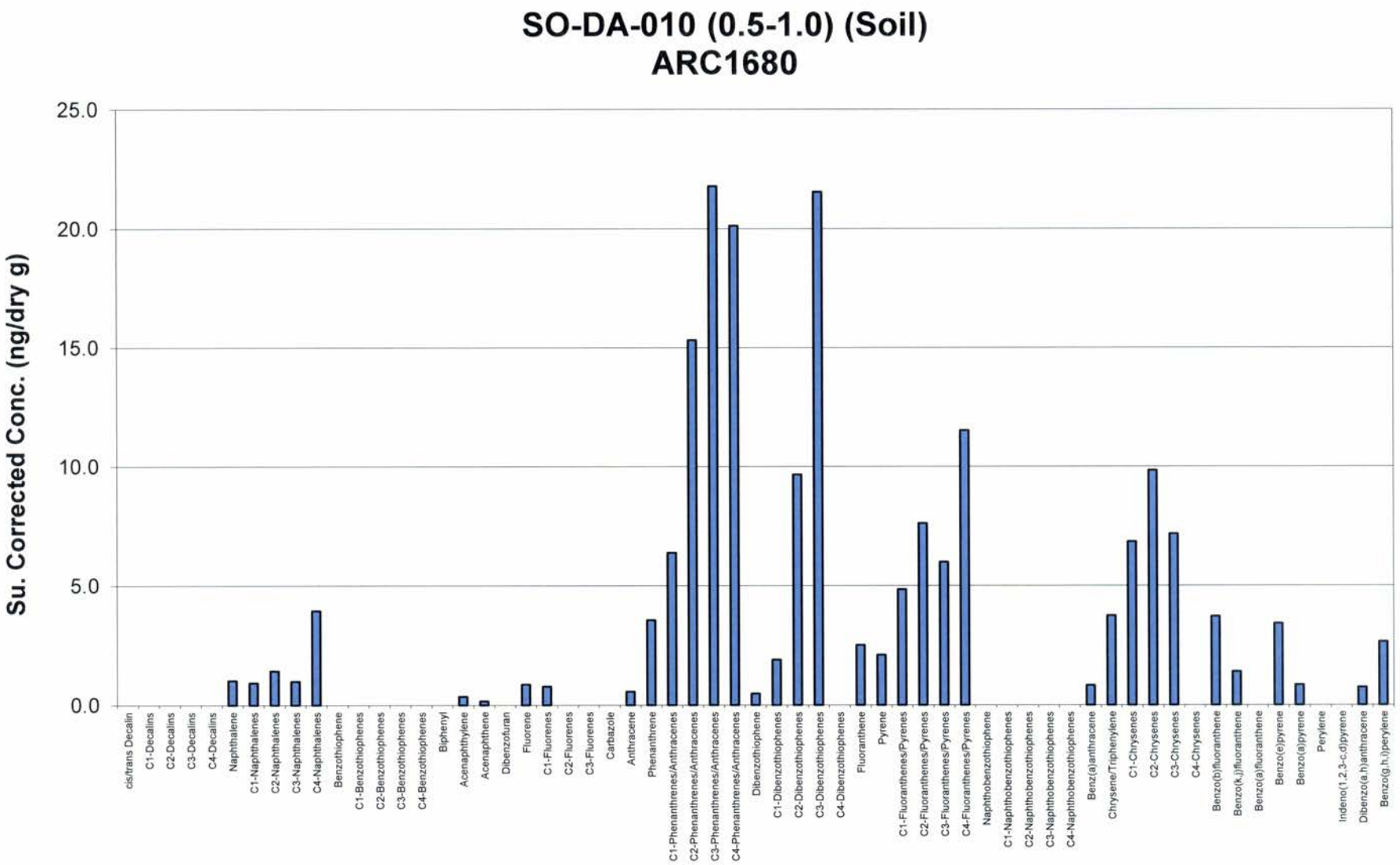

SED-DA-011 (1.0-1.5) (Sediment)
ARC1665
Su. Corrected Conc. (ng/dry g)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

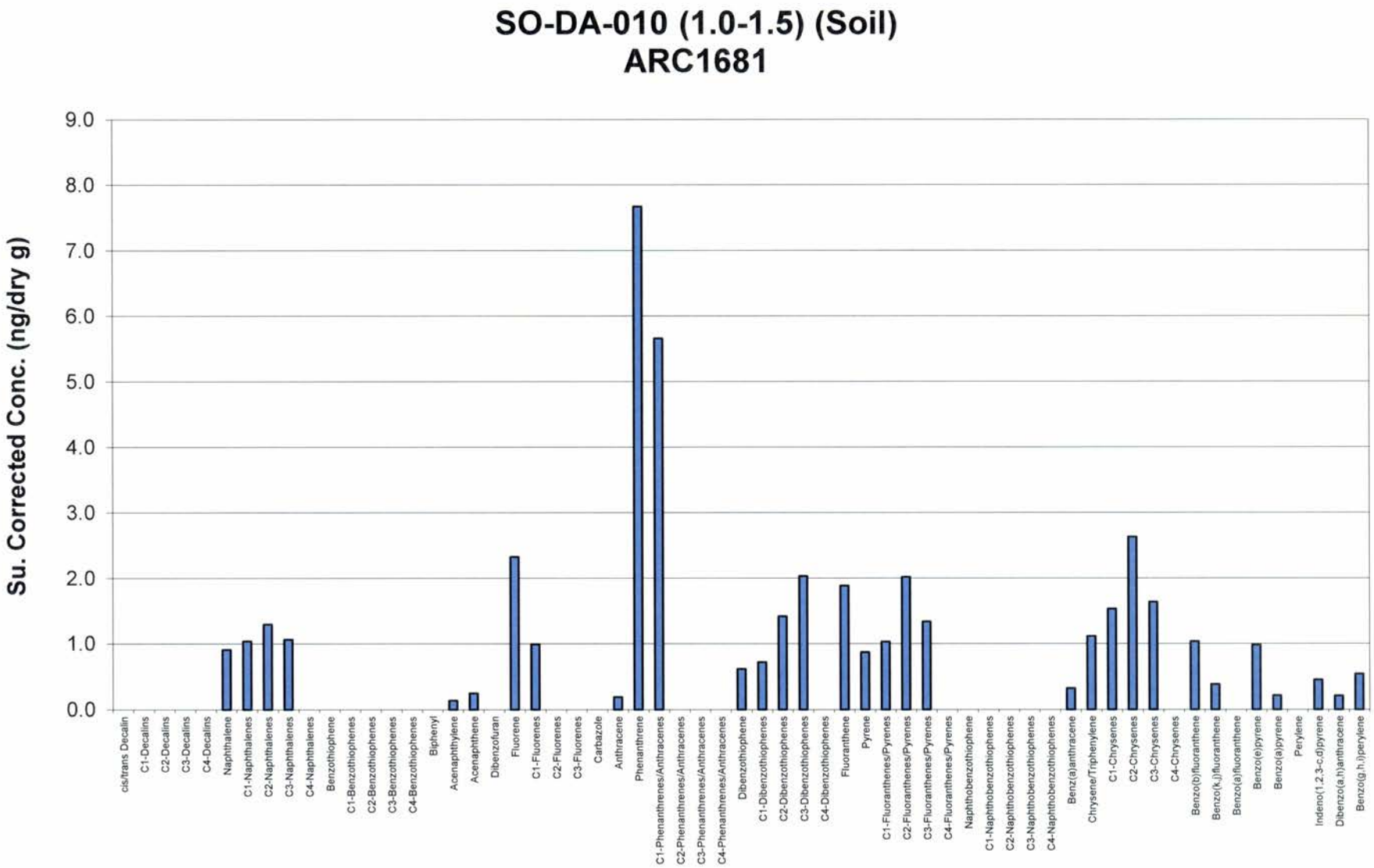

SO-DA-011 (0-0.5) (Soil)
ARC1674
Su. Corrected Conc. (ng/dry g)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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(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

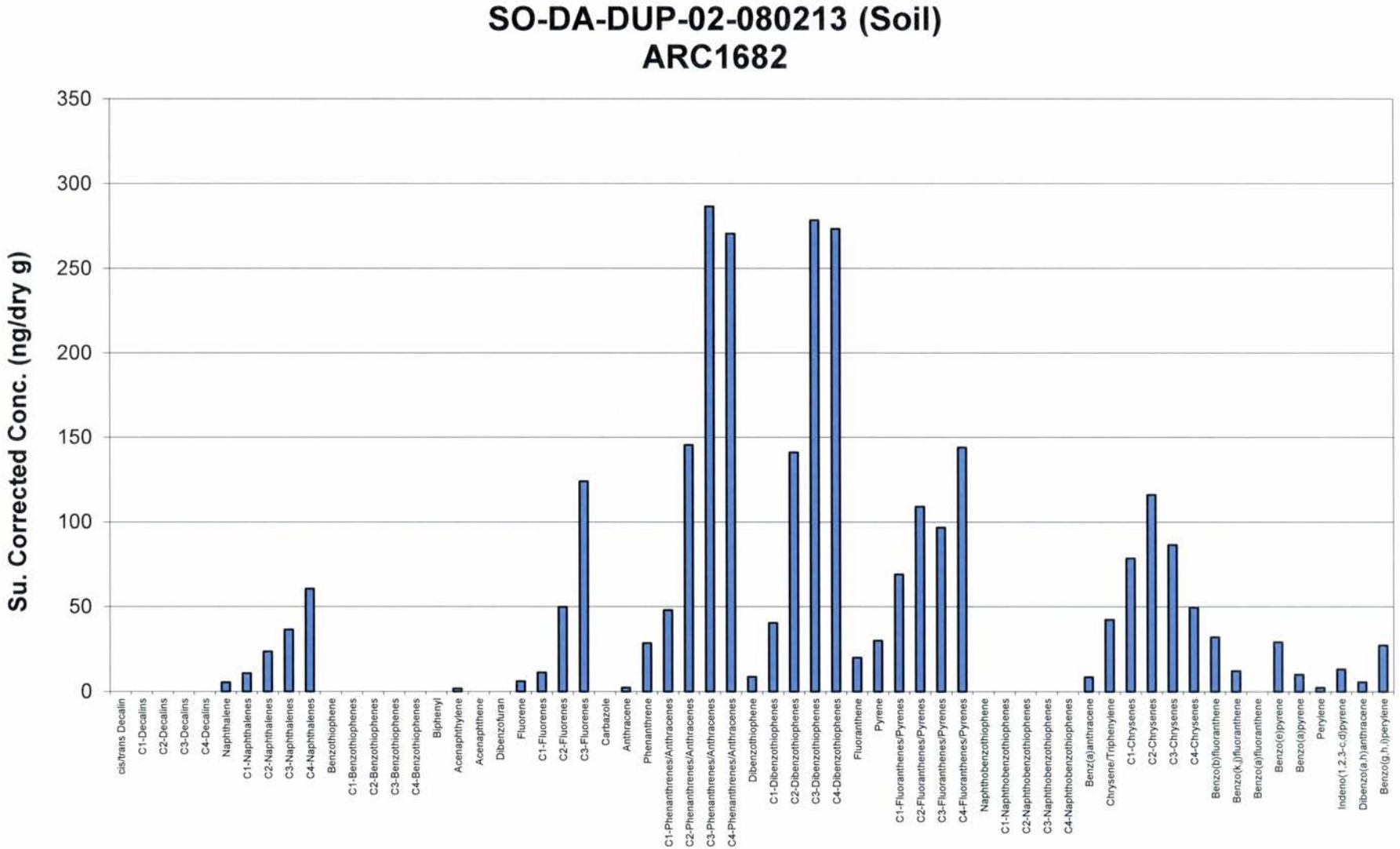

SO-DA-011 (0.5-1.0) (Soil)
ARC1675
Su. Corrected Conc. (ng/dry g)
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

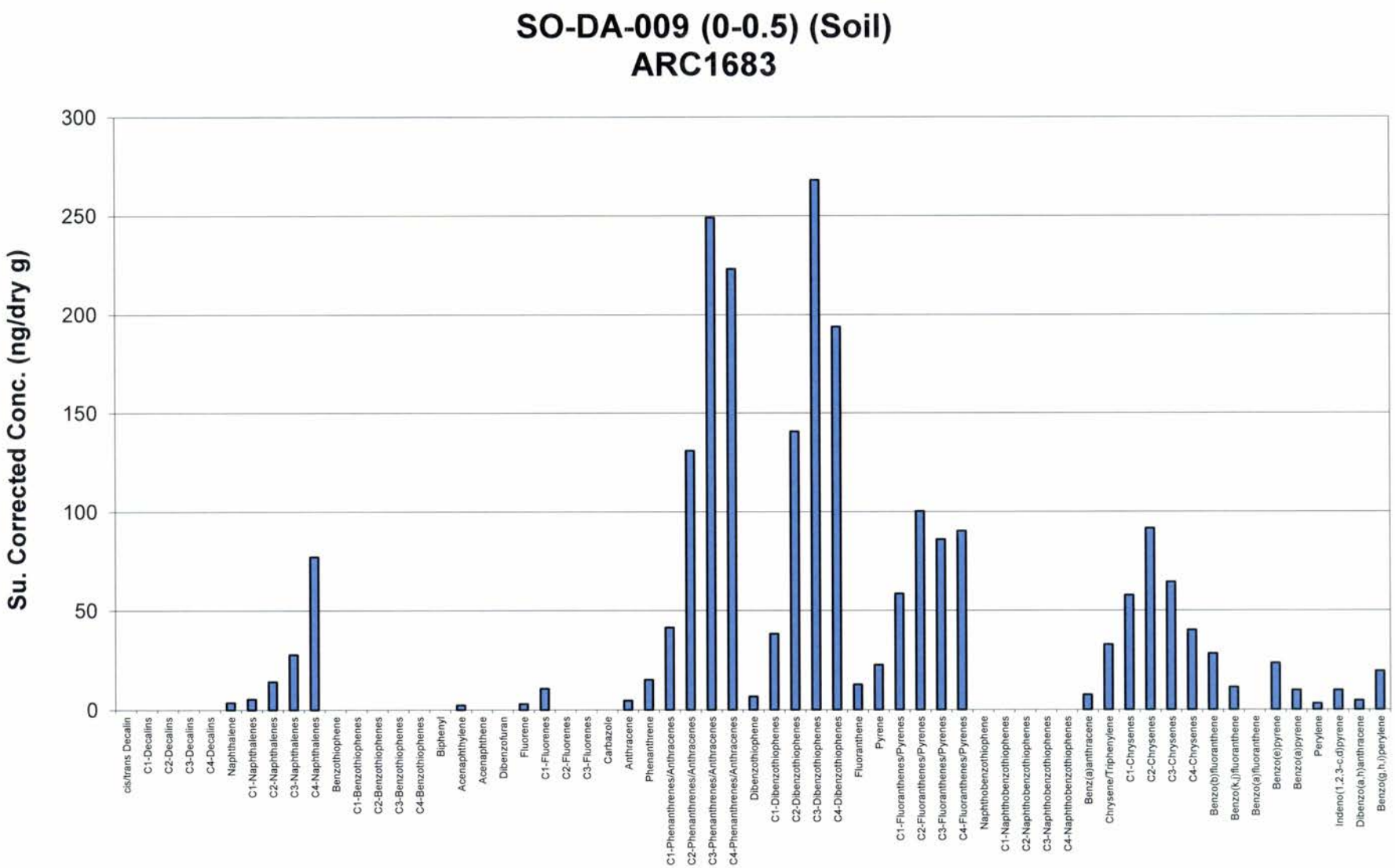

SO-DA-011 (1.0-1.5) (Soil)
ARC1676
Su. Corrected Conc. (ng/dry g)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

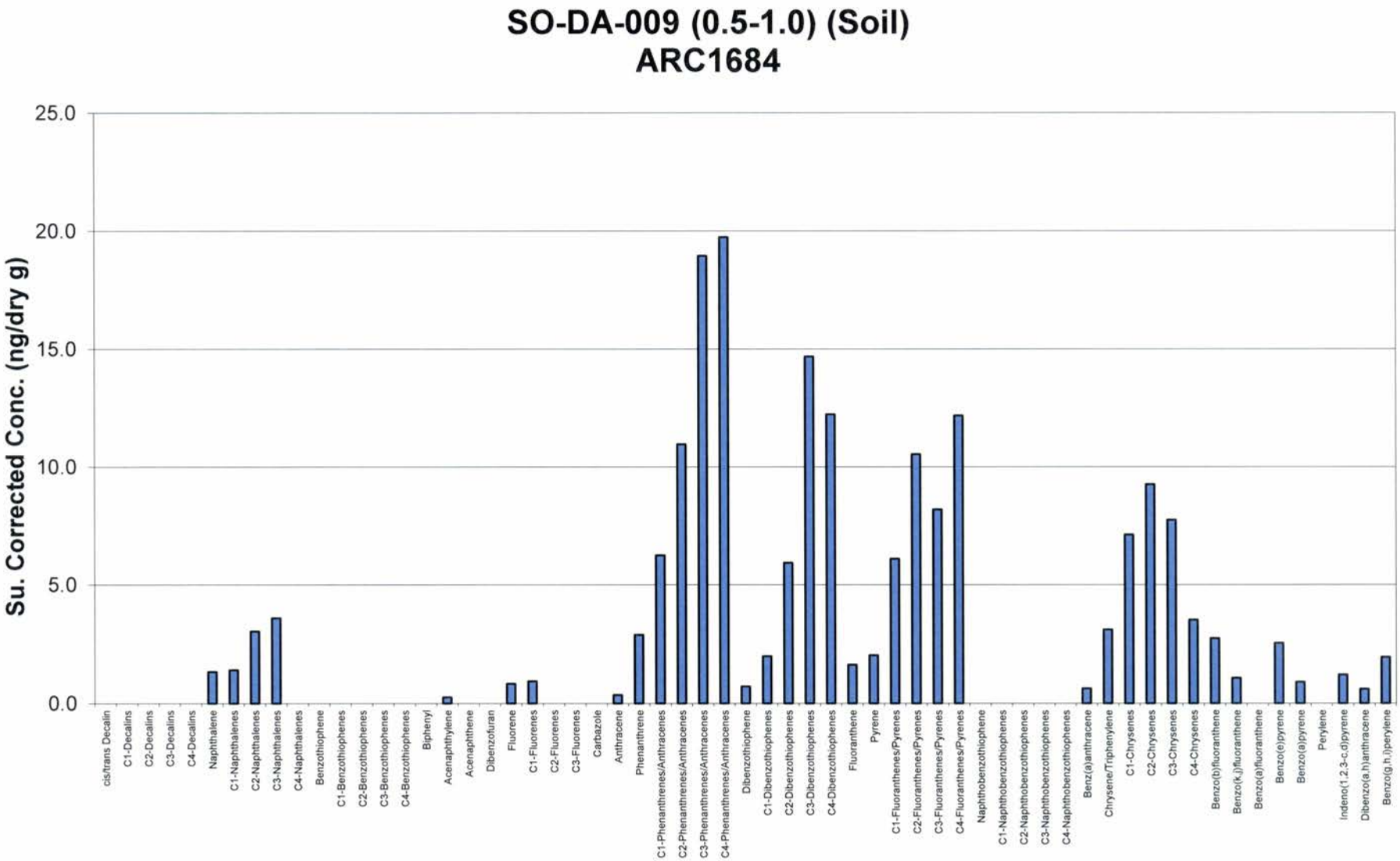

SO-DA-010 (0-0.5) (Soil)
ARC1679
Su. Corrected Conc. (ng/dry g)
180
160
140
120
100
80
60
40
20
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

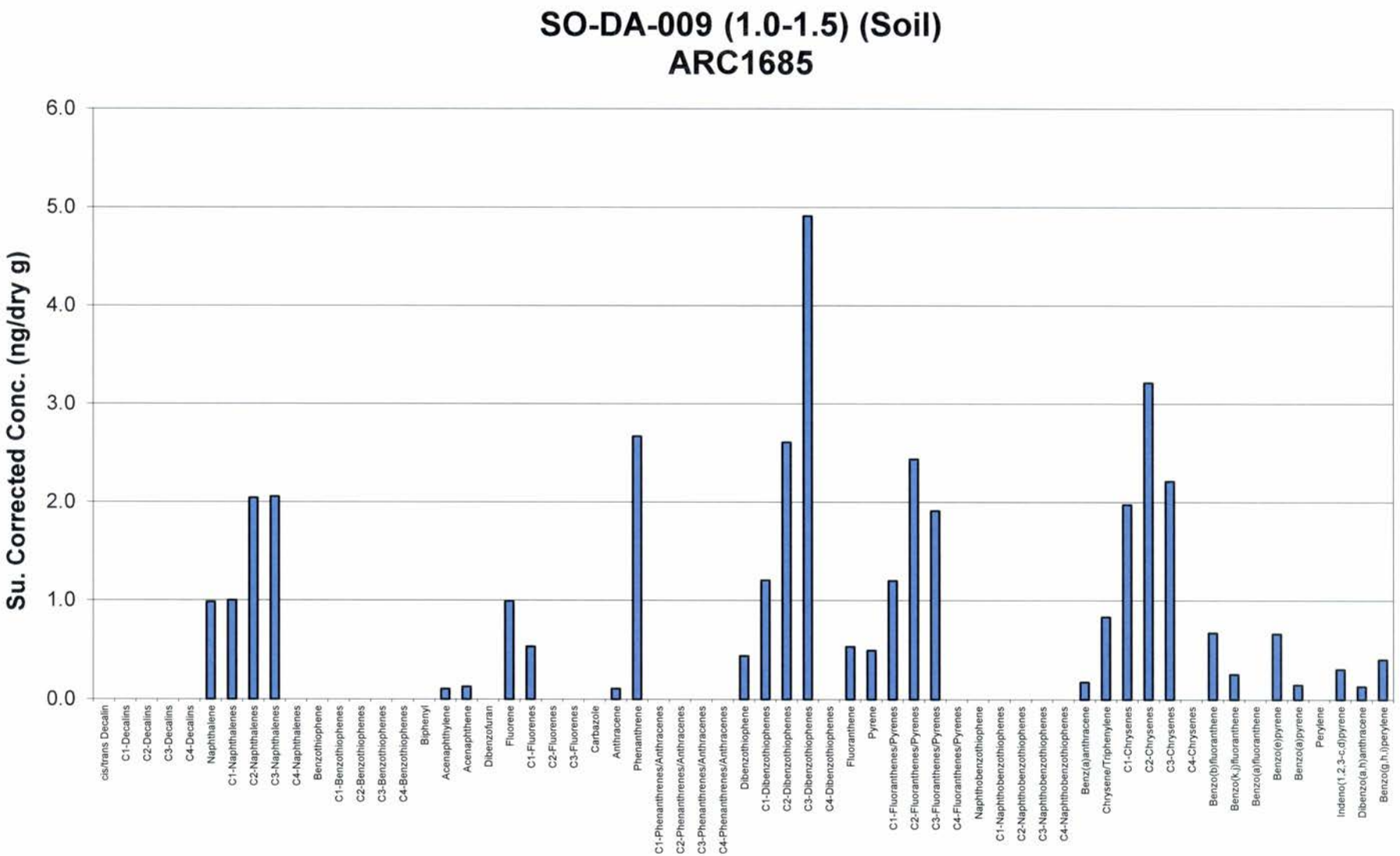

SO-DA-010 (0.5-1.0) (Soil)
ARC1680
Su. Corrected Conc. (ng/dry g)
25.0
20.0
15.0
10.0
5.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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

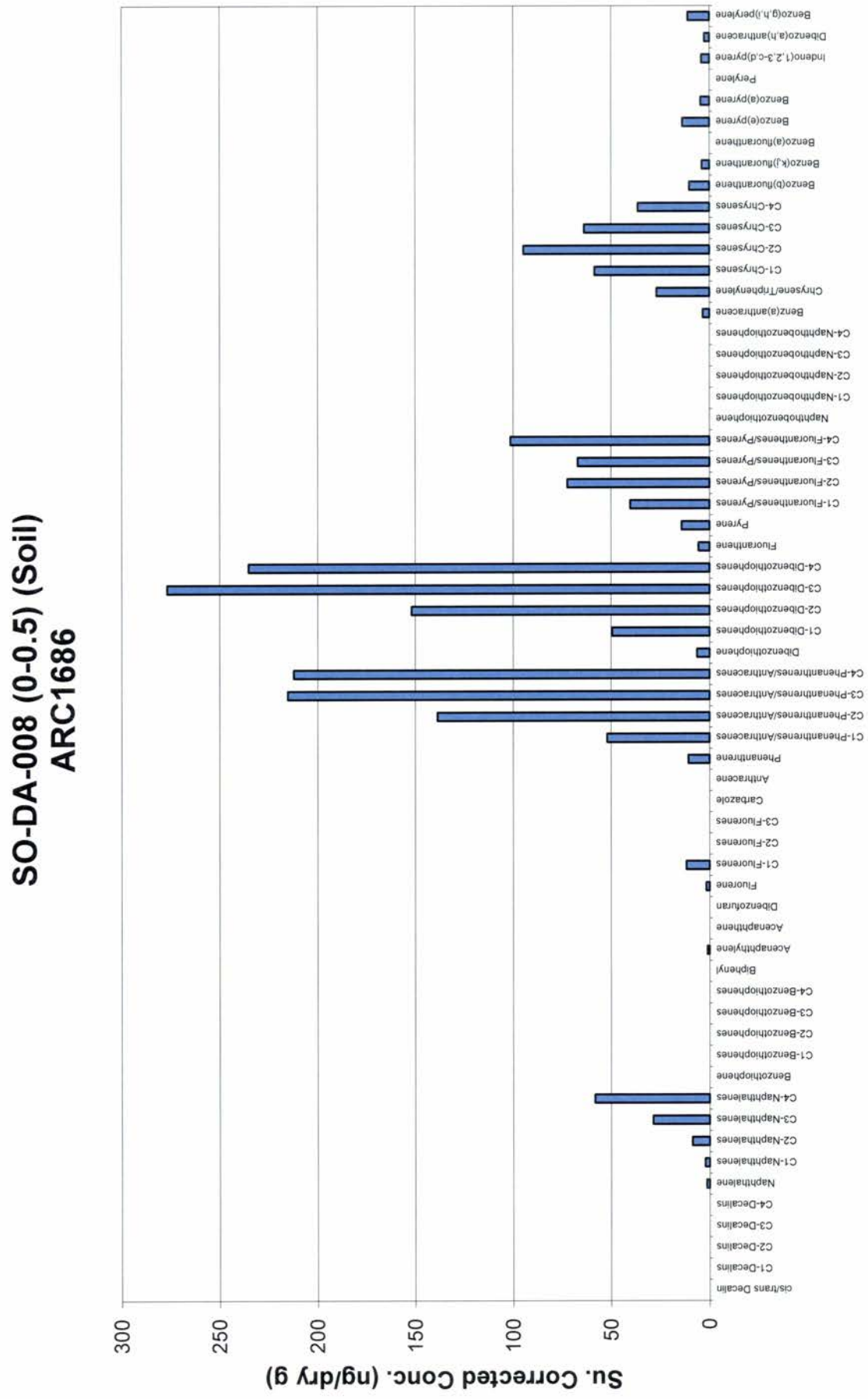

SO-DA-010 (1.0-1.5) (Soil)
ARC1681
Su. Corrected Conc. (ng/dry g)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
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

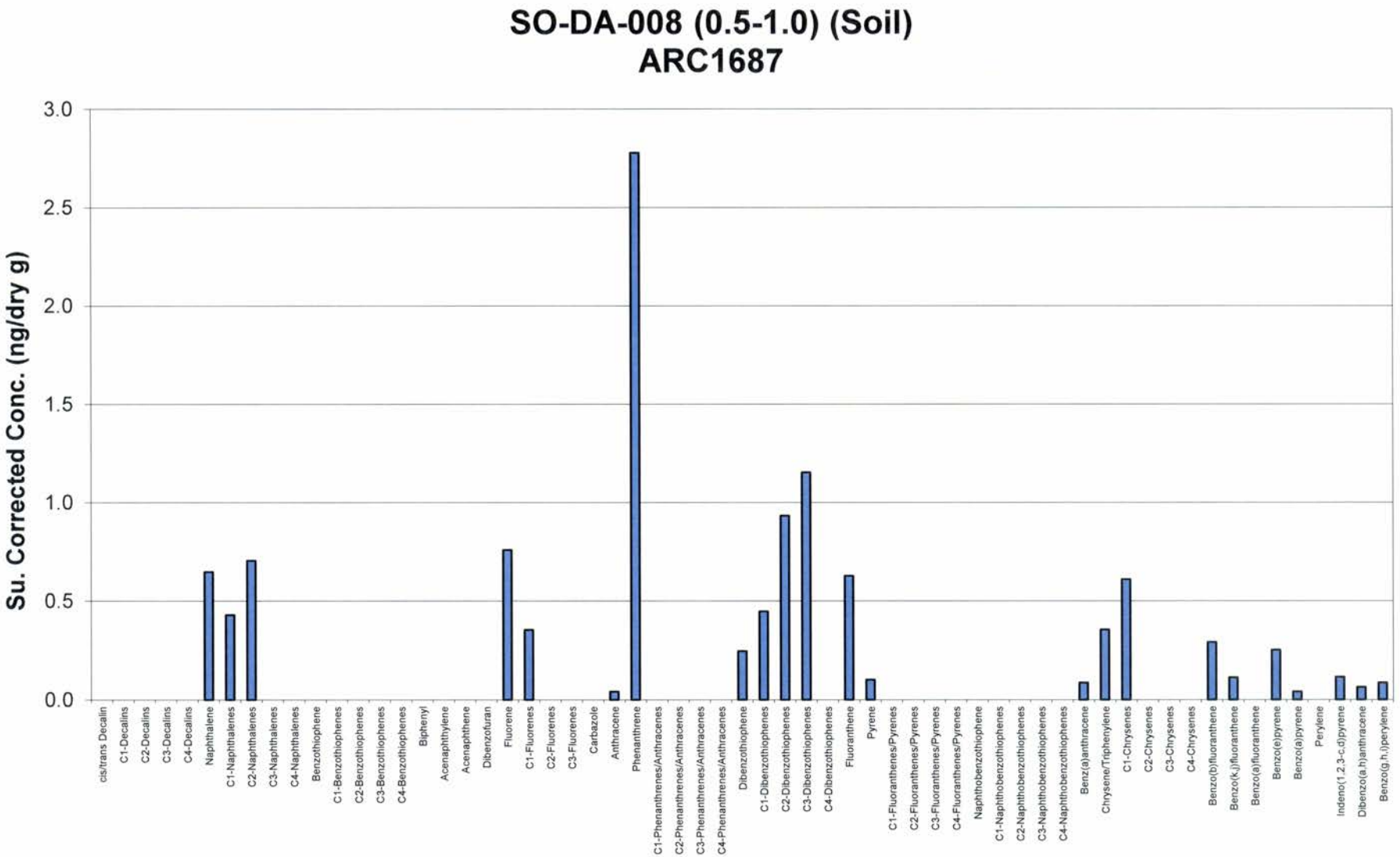

SO-DA-DUP-02-080213 (Soil)
ARC1682
Su. Corrected Conc. (ng/dry g)
350
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

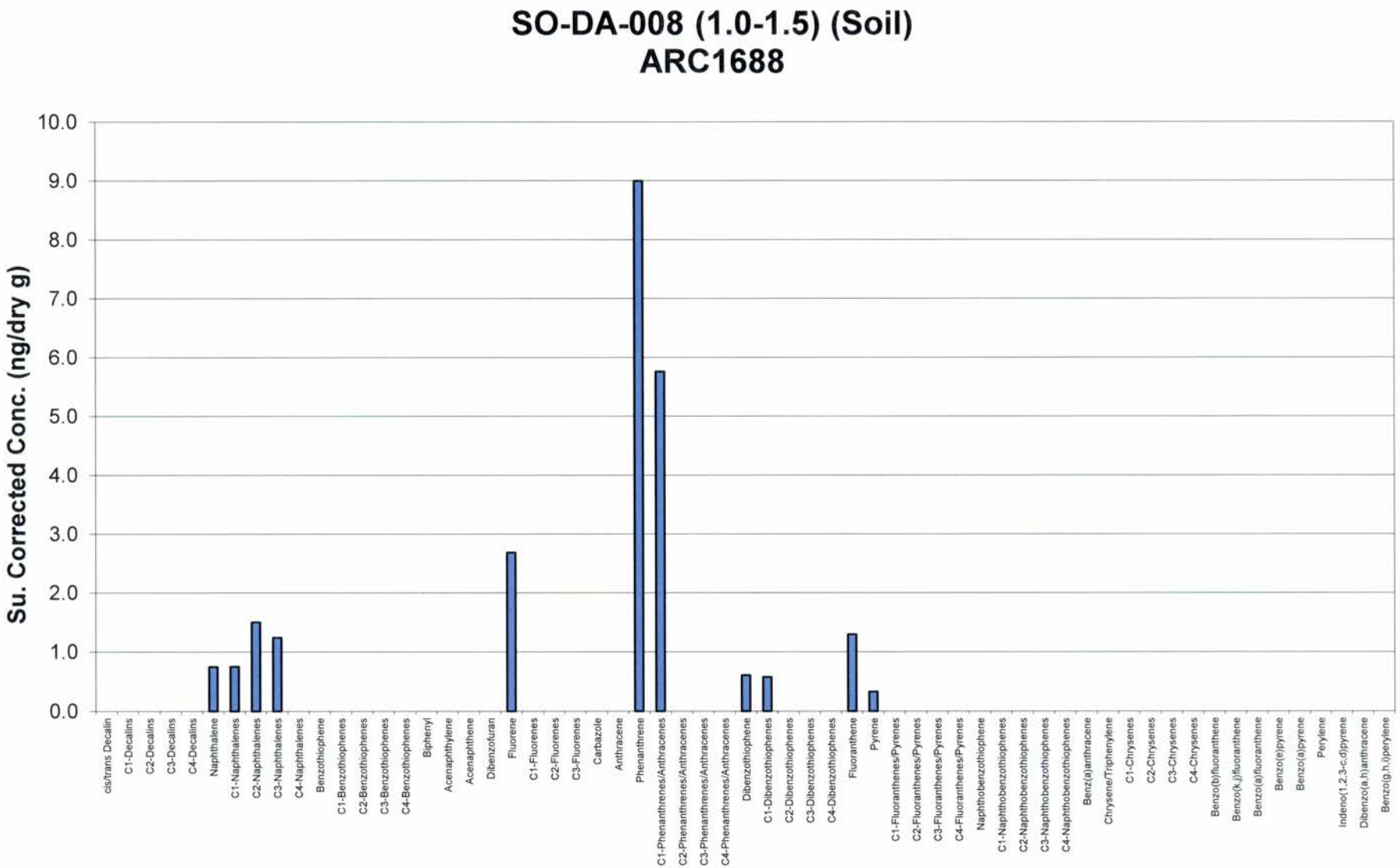

SO-DA-009 (0-0.5) (Soil)
ARC1683
Su. Corrected Conc. (ng/dry g)
300
250
200
150
100
50
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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-009 (0.5-1.0) (Soil)
ARC1684
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

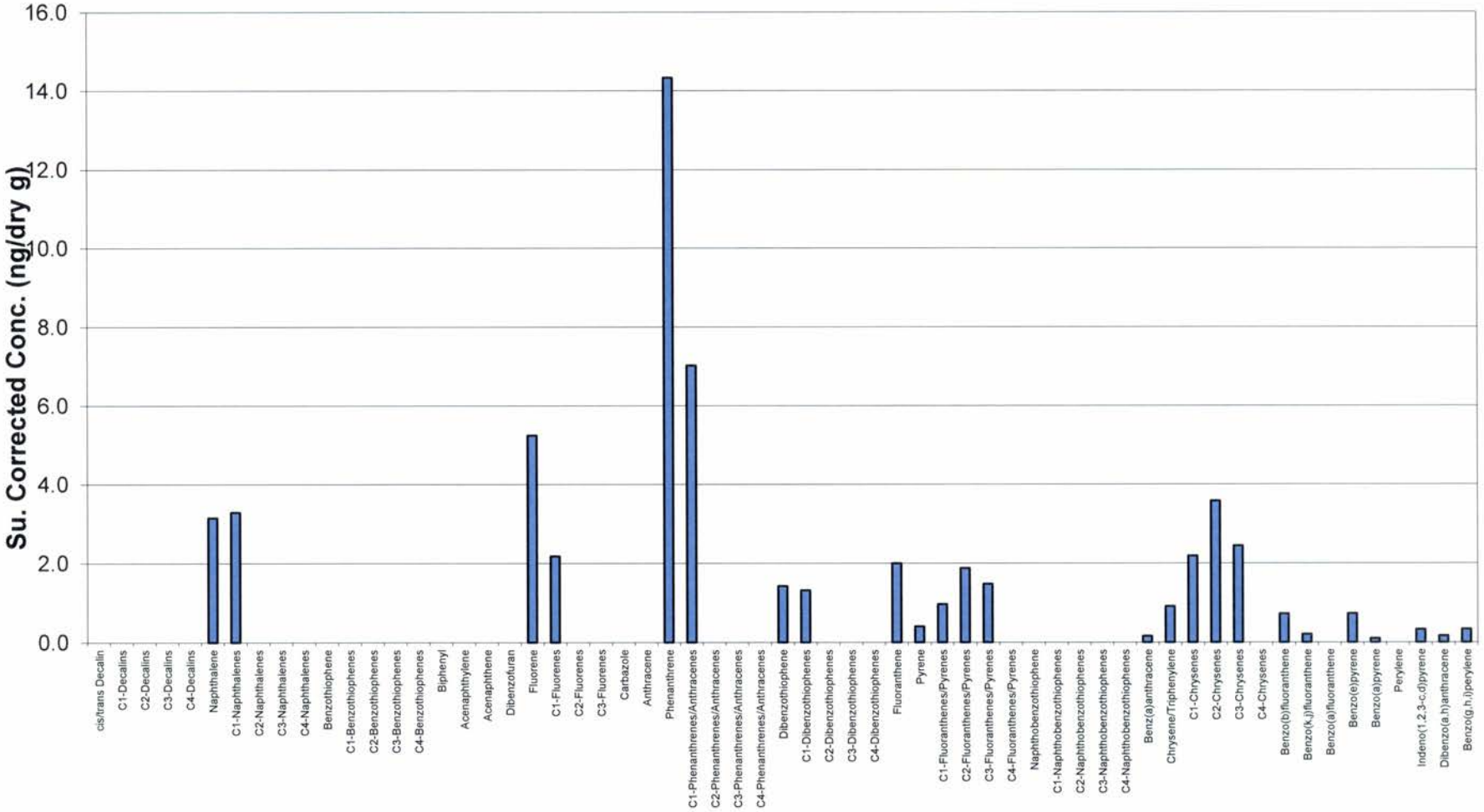

SO-DA-009 (1.0-1.5) (Soil)
ARC1685
Su. Corrected Conc. (ng/dry g)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

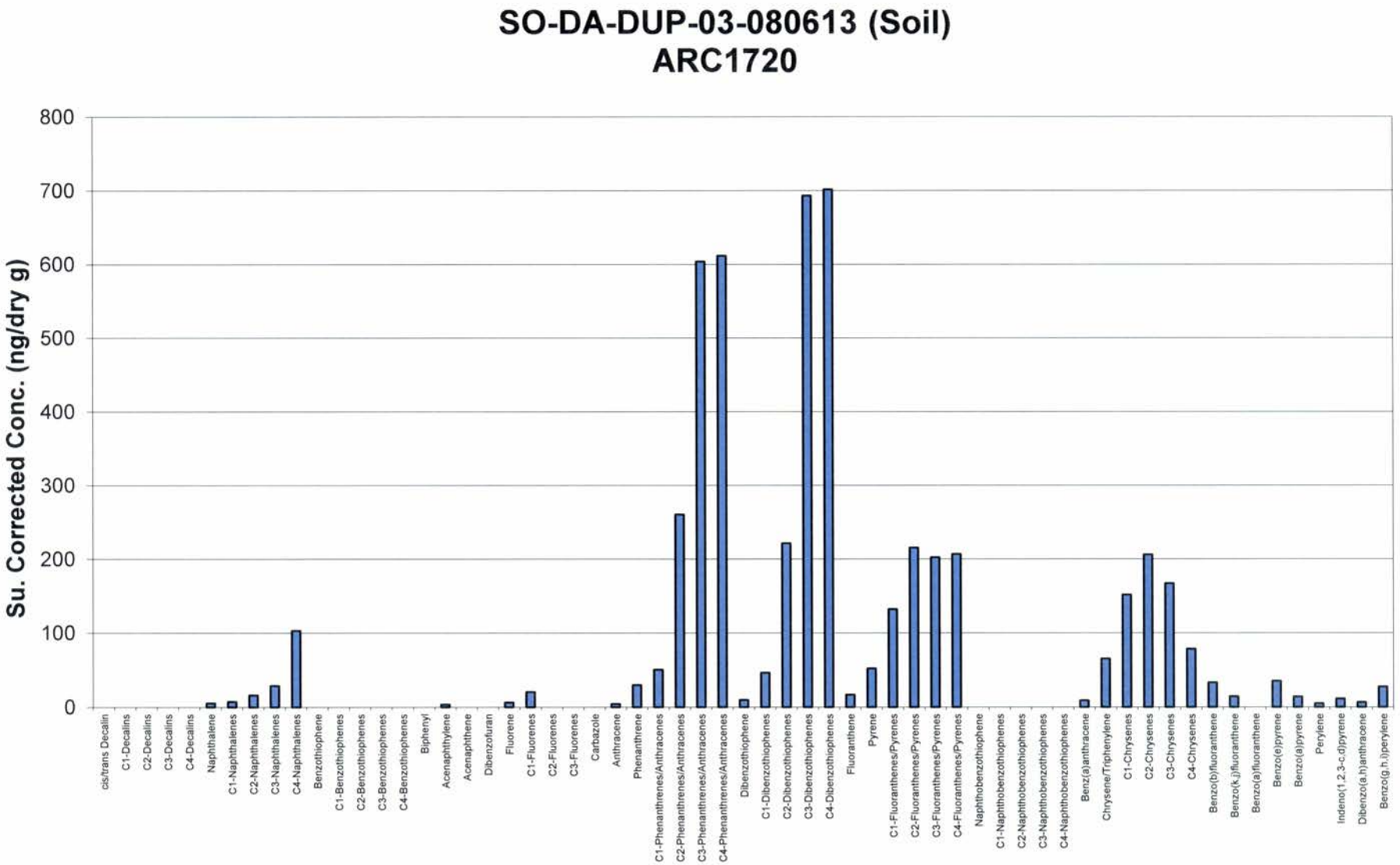

SO-DA-008 (0-0.5) (Soil)
ARC1686
Su. Corrected Conc. (ng/dry g)
0
50
100
150
200
250
300
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
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-008 (0.5-1.0) (Soil)
ARC1687
Su. Corrected Conc. (ng/dry g)
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-008 (1.0-1.5) (Soil)
ARC1688
Su. Corrected Conc. (ng/dry g)
10.0
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

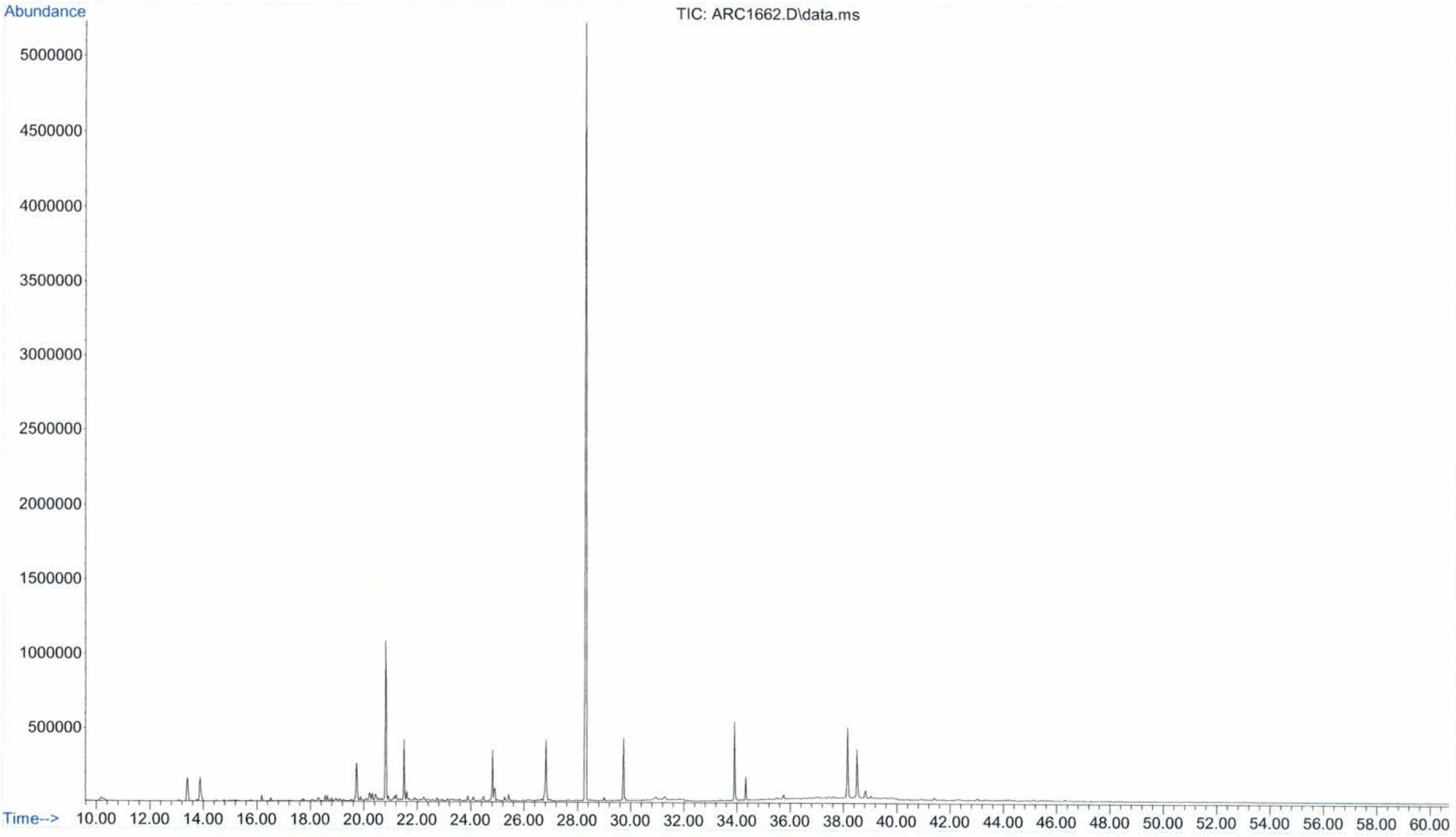
SO-DA-018 (1.0-1.5) (Soil)
ARC1719



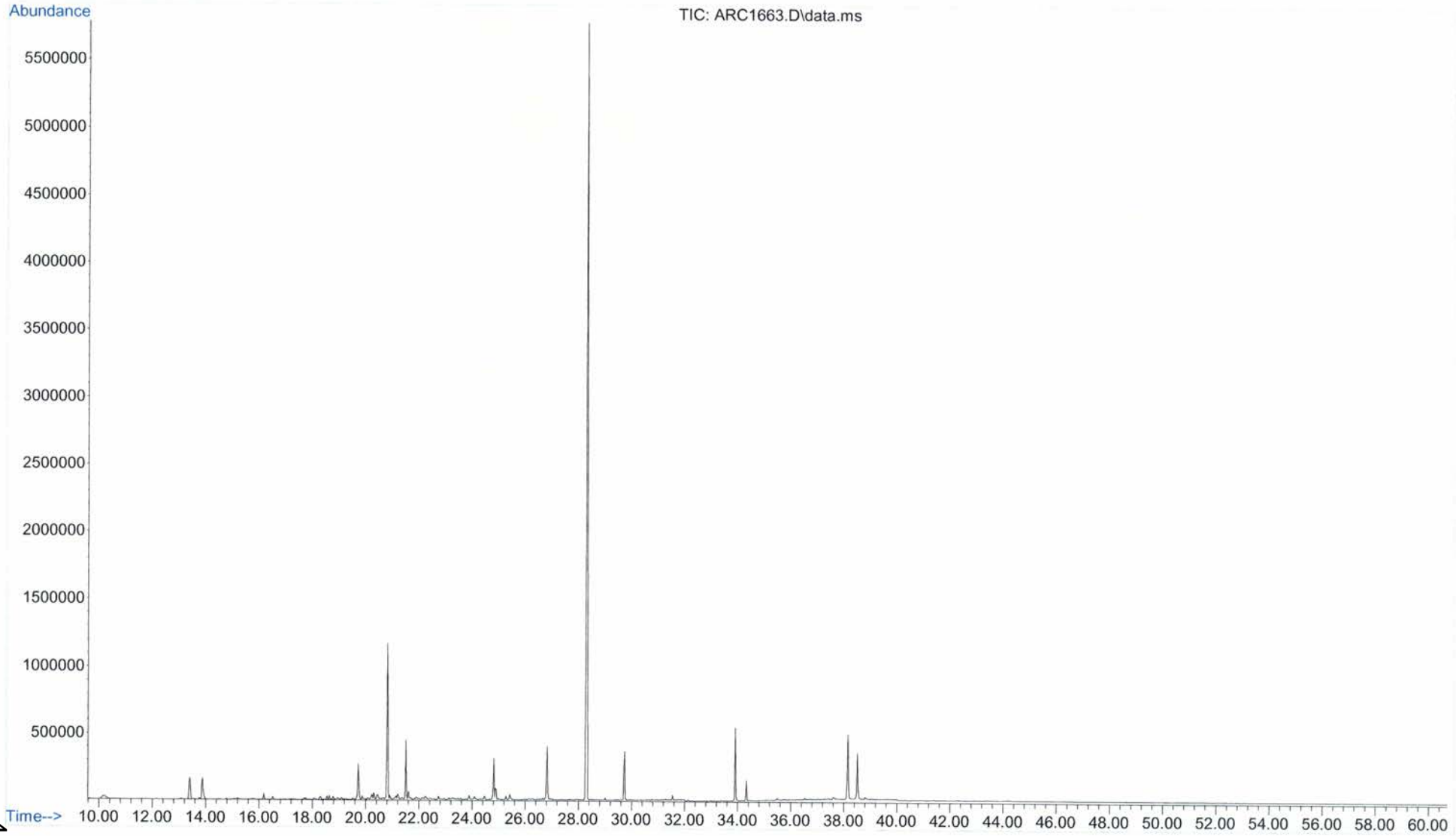

SO-DA-DUP-03-080613 (Soil)
ARC1720
Su. Corrected Conc. (ng/dry g)
800
700
600
500
400
300
200
100
0
cis/trans Decalin
C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins
Naphthalene
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
Benzothiophene
C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes
Biphenyl
Acenaphthylene
Acenaphthene
Dibenzofuran
Fluorene
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
Carbazole
Anthracene
Phenanthrene
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
Dibenzothiophene
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes
Fluoranthene
Pyrene
C1-Fluoranthenes/Pyrenes
C2-Fluoranthenes/Pyrenes
C3-Fluoranthenes/Pyrenes
C4-Fluoranthenes/Pyrenes
Naphthobenzothiophene
C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes
Benz(a)anthracene
Chrysene/Triphenylene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes
Benzo(b)fluoranthene
Benzo(k,j)fluoranthene
Benzo(a)fluoranthene
Benzo(e)pyrene
Benzo(a)pyrene
Perylene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

Polycyclic Aromatic Hydrocarbon Total Ion Chromatograms

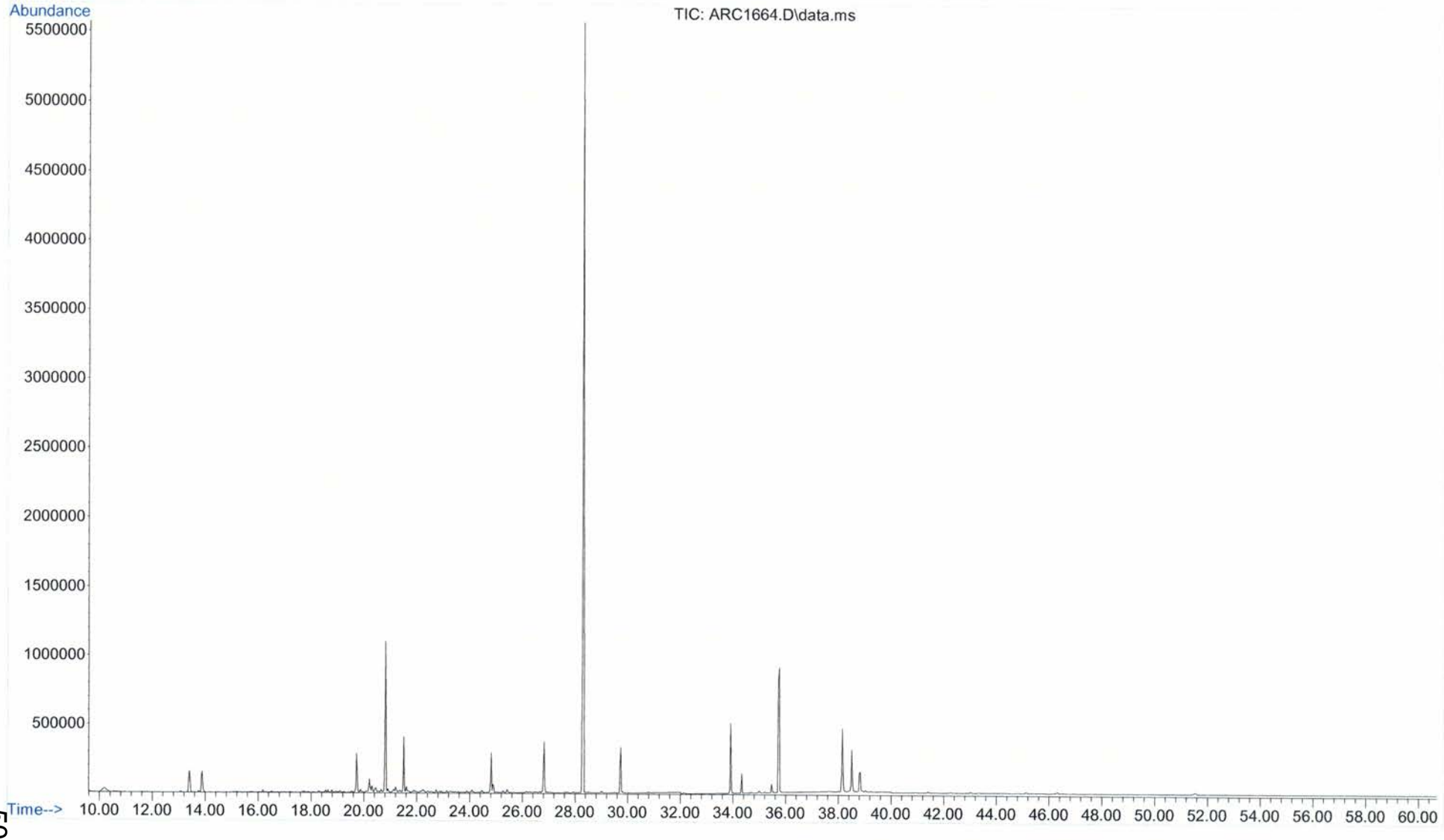
File :C:\GCMS5\MS50161\ARC1662.D
Operator : YM
Acquired : 20 Aug 2013 11:57 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-010 (0.5-1.0)
Misc Info :
Vial Number: 17



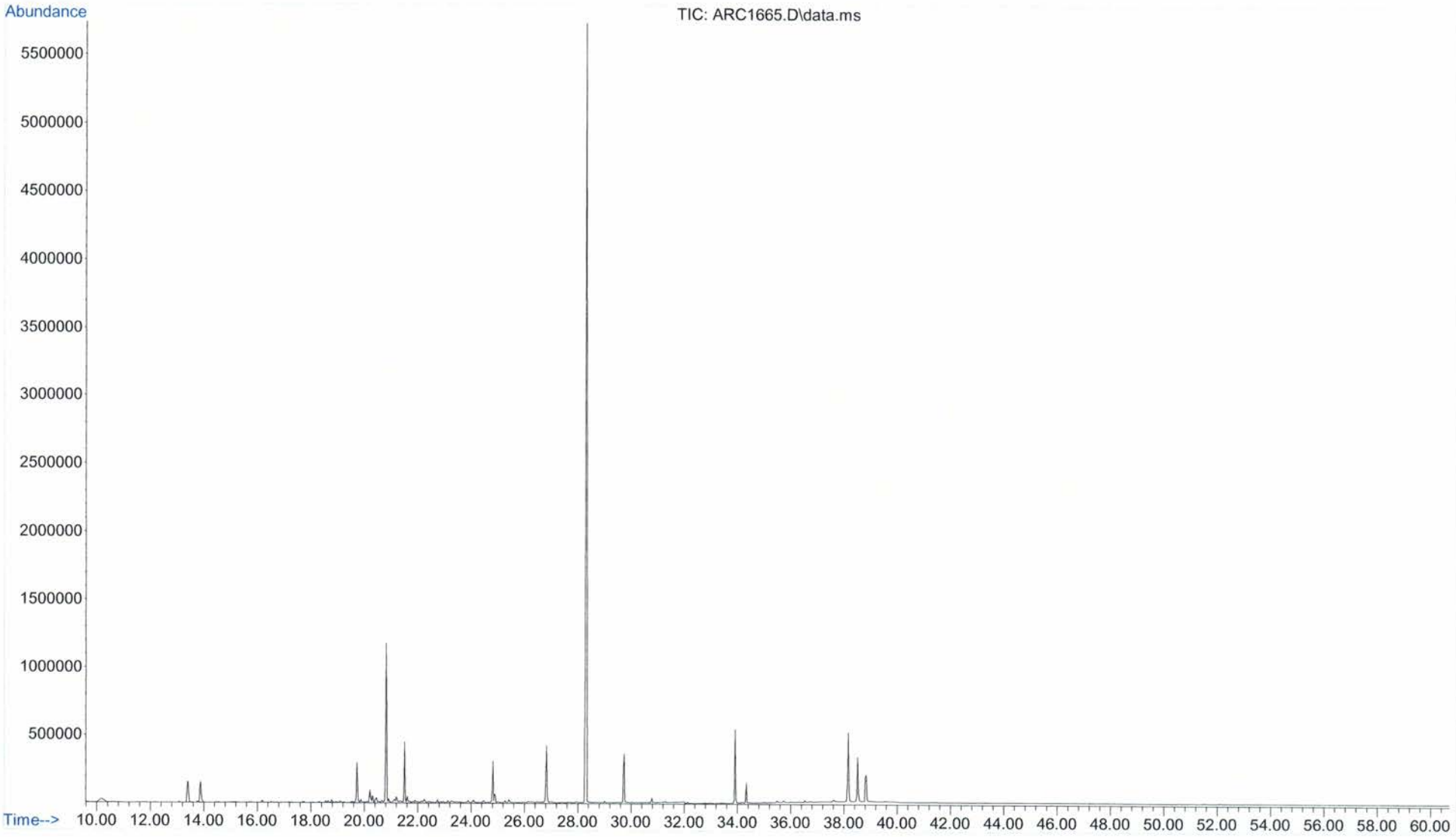
File :C:\GCMS5\MS50161\ARC1663.D
Operator : YM
Acquired : 20 Aug 2013 13:03 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-010 (1.0-1.5)
Misc Info :
Vial Number: 18



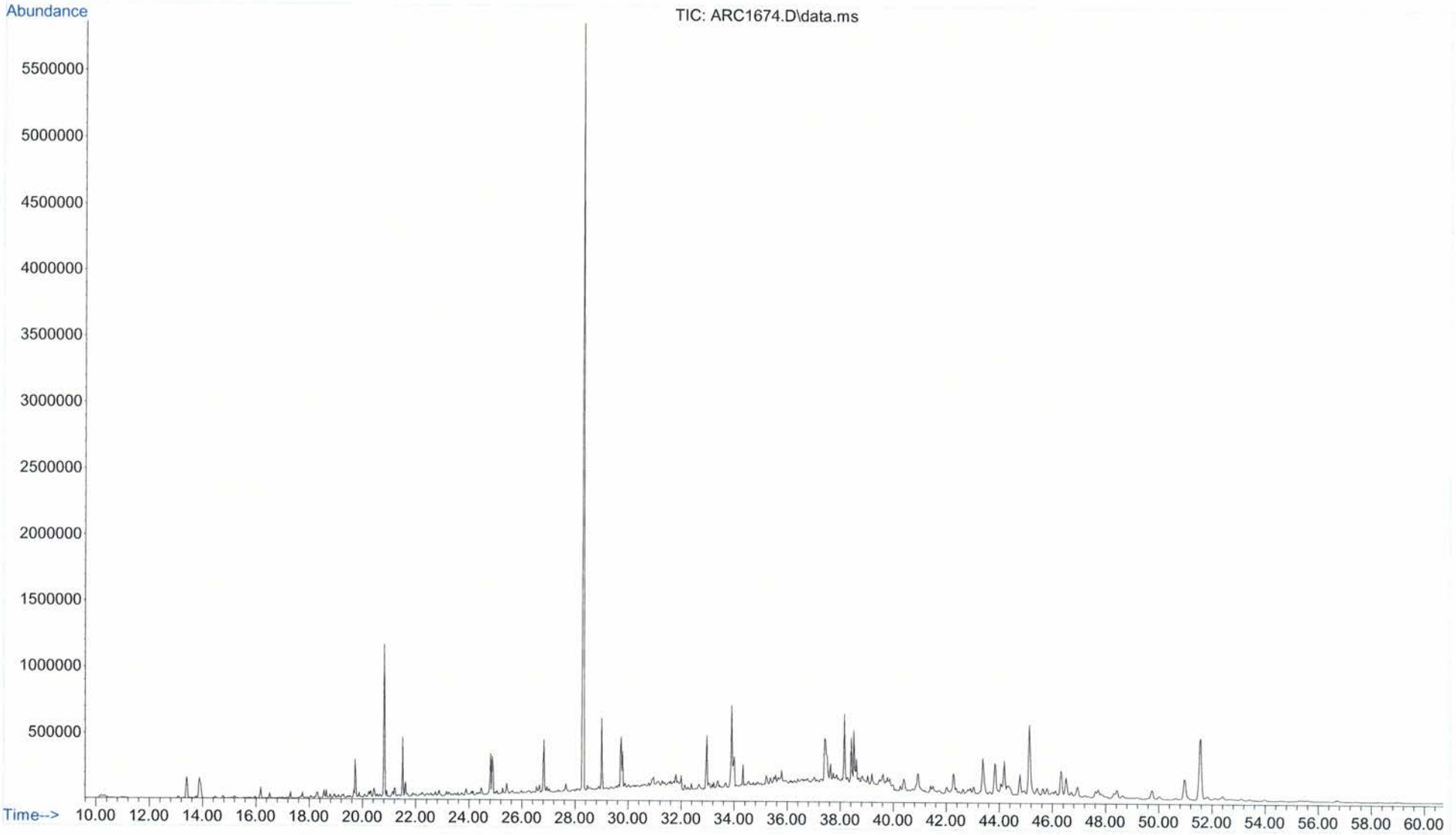
File :C:\GCMS5\MS50161\ARC1664.D
Operator : YM
Acquired : 20 Aug 2013 14:08 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-011 (0.5-1.0)
Misc Info :
Vial Number: 19



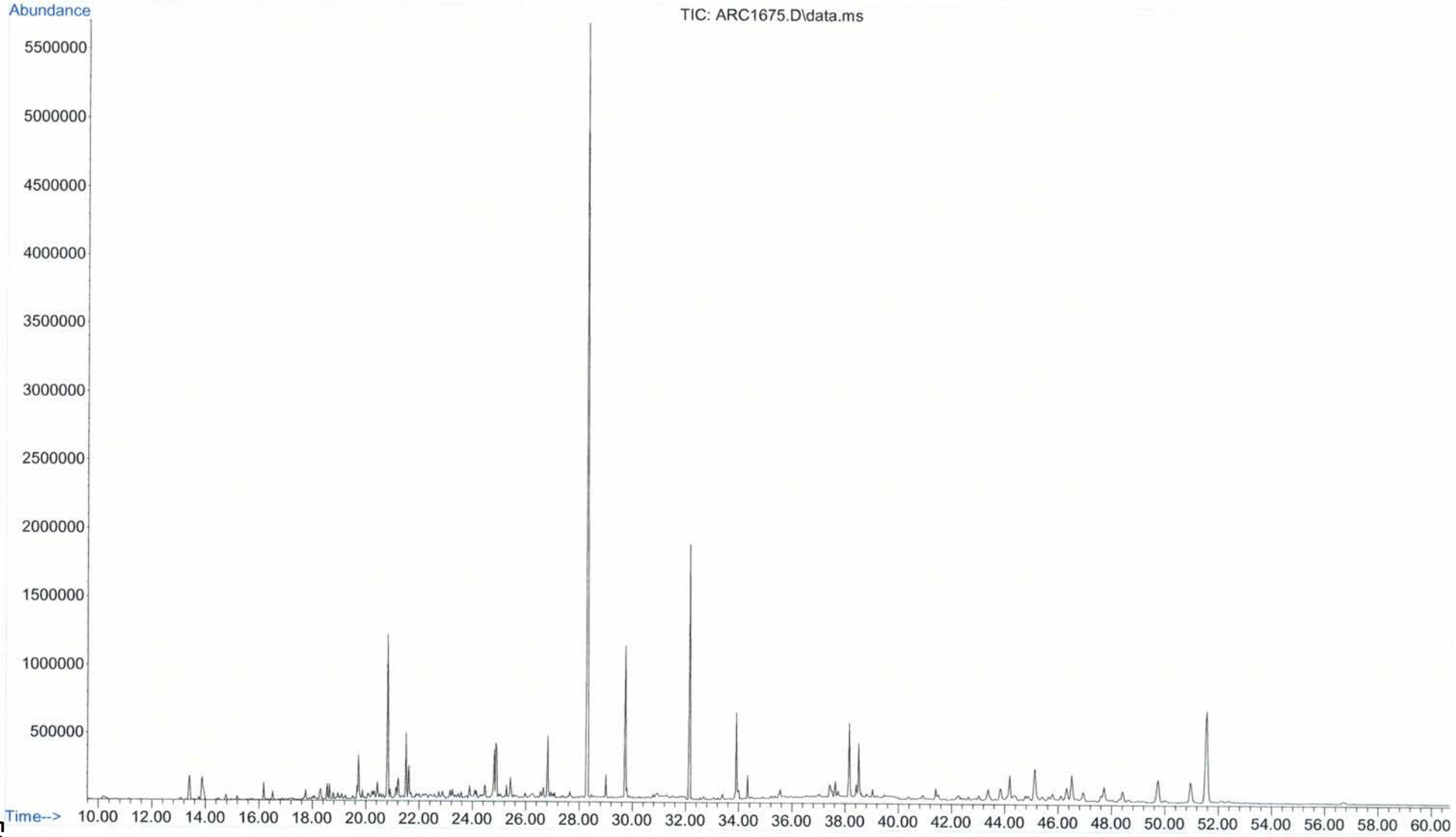
File :C:\GCMS5\MS50161\ARC1665.D
Operator : YM
Acquired : 20 Aug 2013 16:19 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SED-DA-011 (1.0-1.5)
Misc Info :
Vial Number: 21



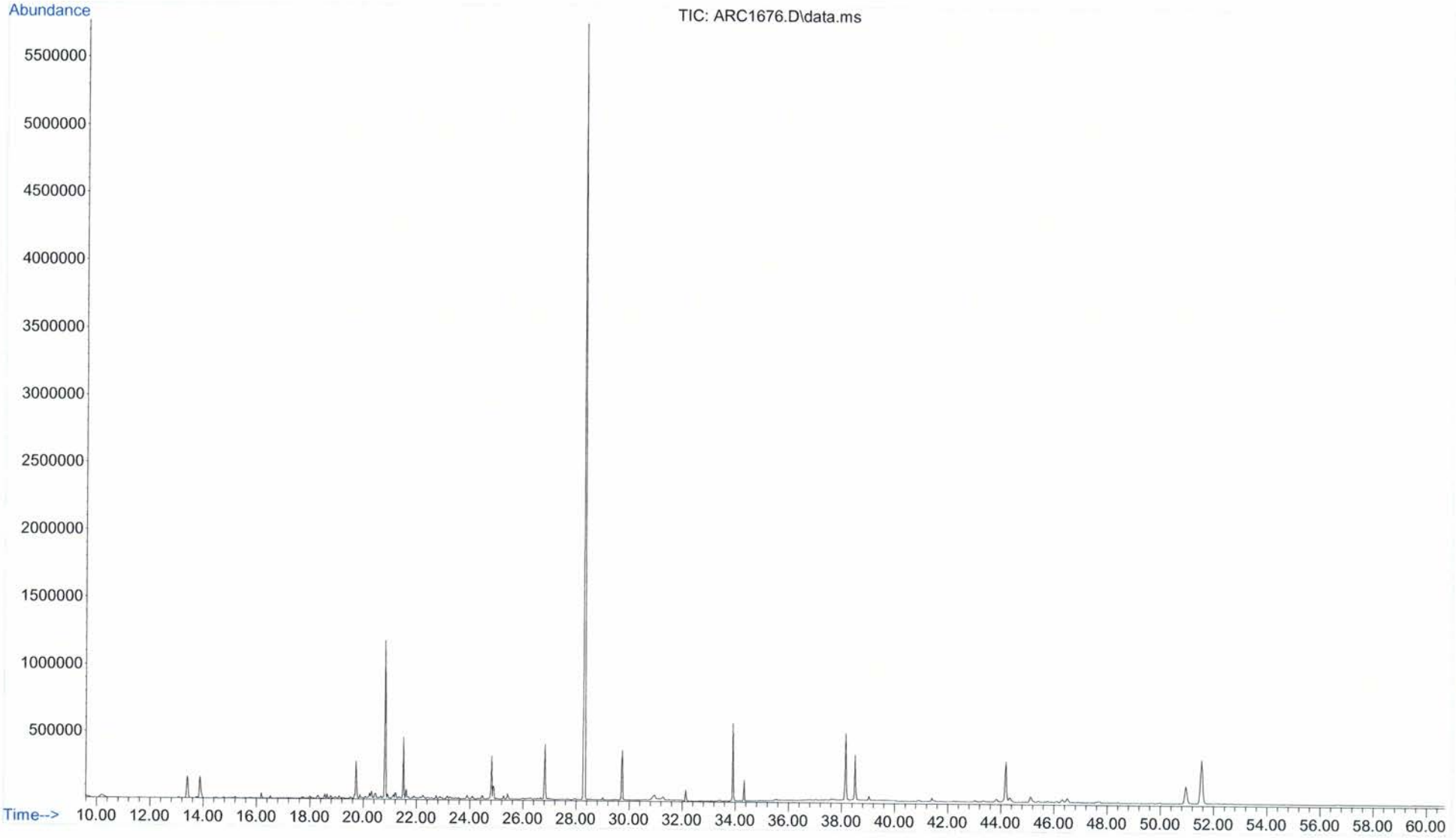
File :C:\GCMS5\MS50161\ARC1674.D
Operator : YM
Acquired : 20 Aug 2013 17:25 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-011 (0-0.5)
Misc Info :
Vial Number: 22



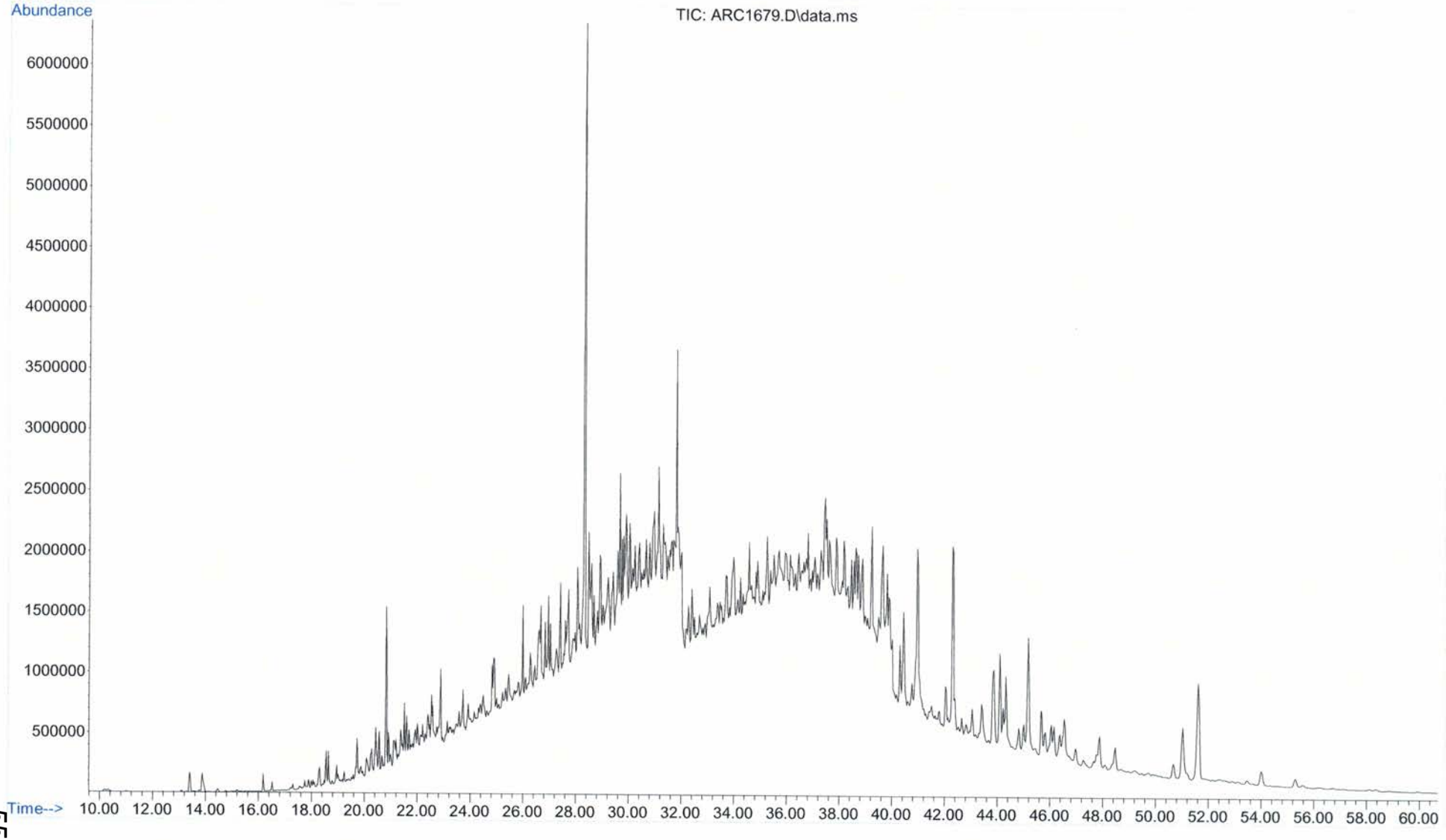
File :C:\GCMS5\MS50161\ARC1675.D
Operator : YM
Acquired : 20 Aug 2013 18:31 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-011 (0.5-1.0)
Misc Info :
Vial Number: 23



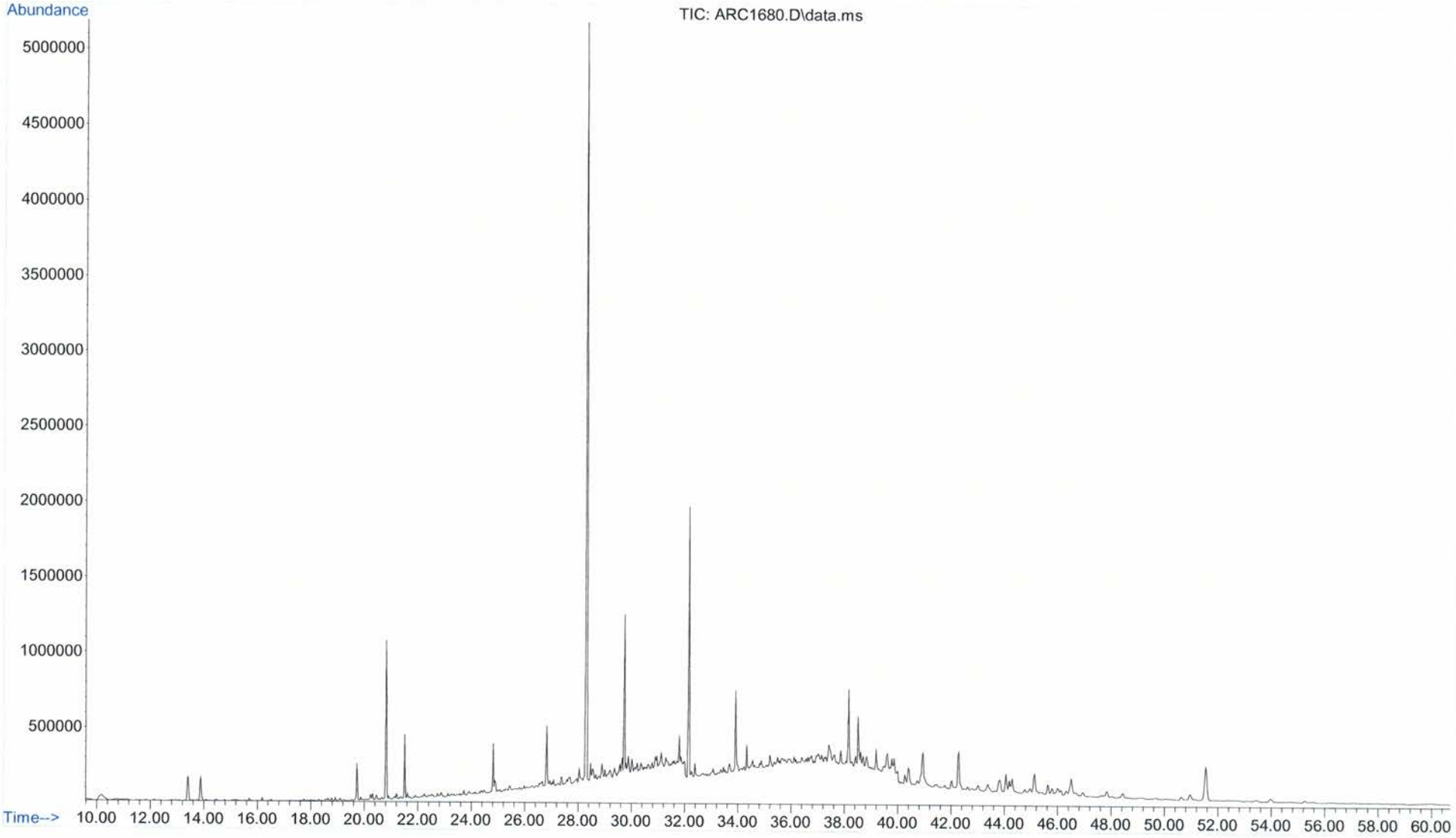
File :C:\GCMS5\MS50161\ARC1676.D
Operator : YM
Acquired : 20 Aug 2013 19:36 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-011 (1.0-1.5)
Misc Info :
Vial Number: 24



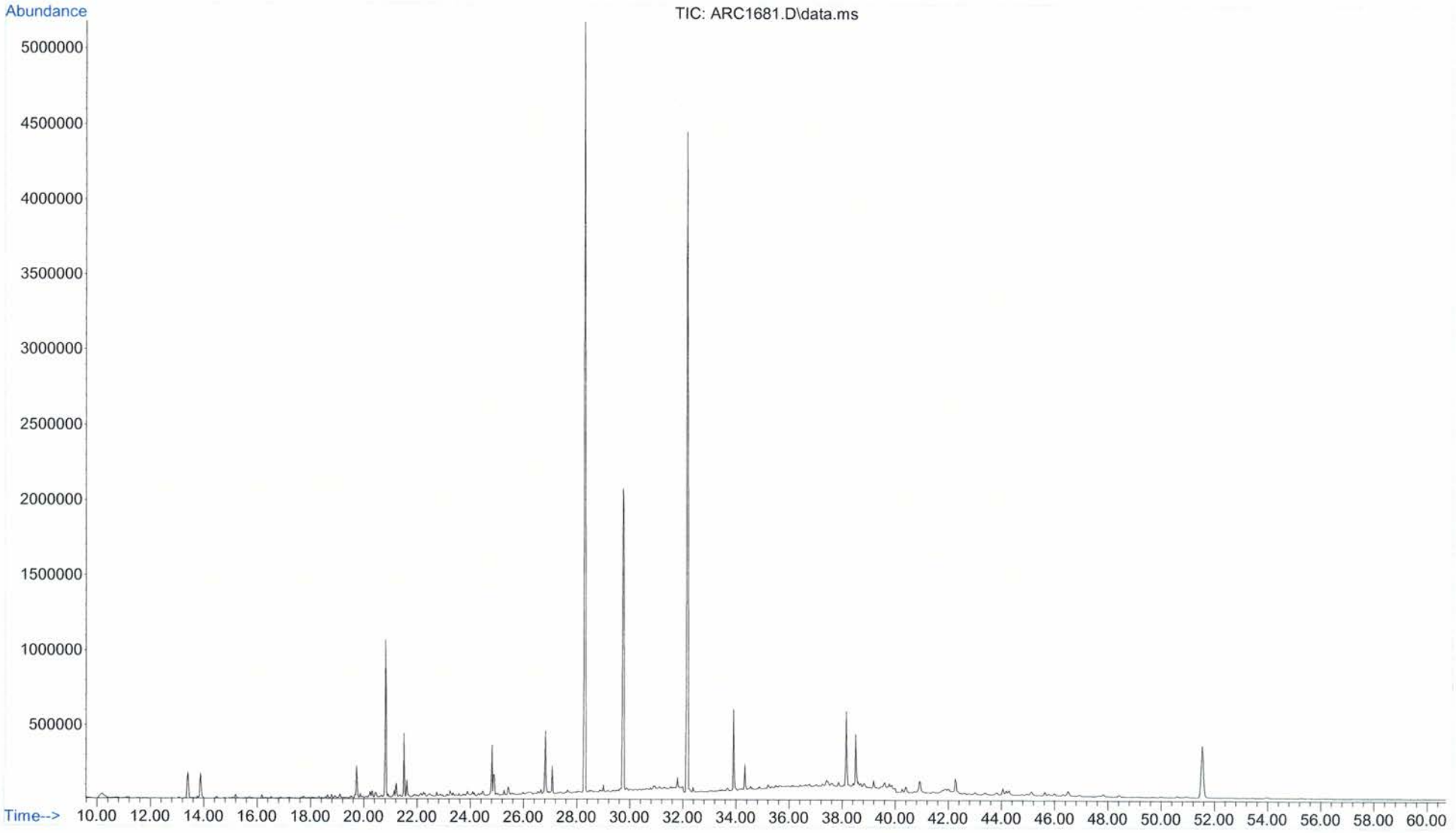
File :C:\GCMS5\MS50161\ARC1679.D
Operator : YM
Acquired : 20 Aug 2013 20:42 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-010 (0-0.5)
Misc Info :
Vial Number: 25



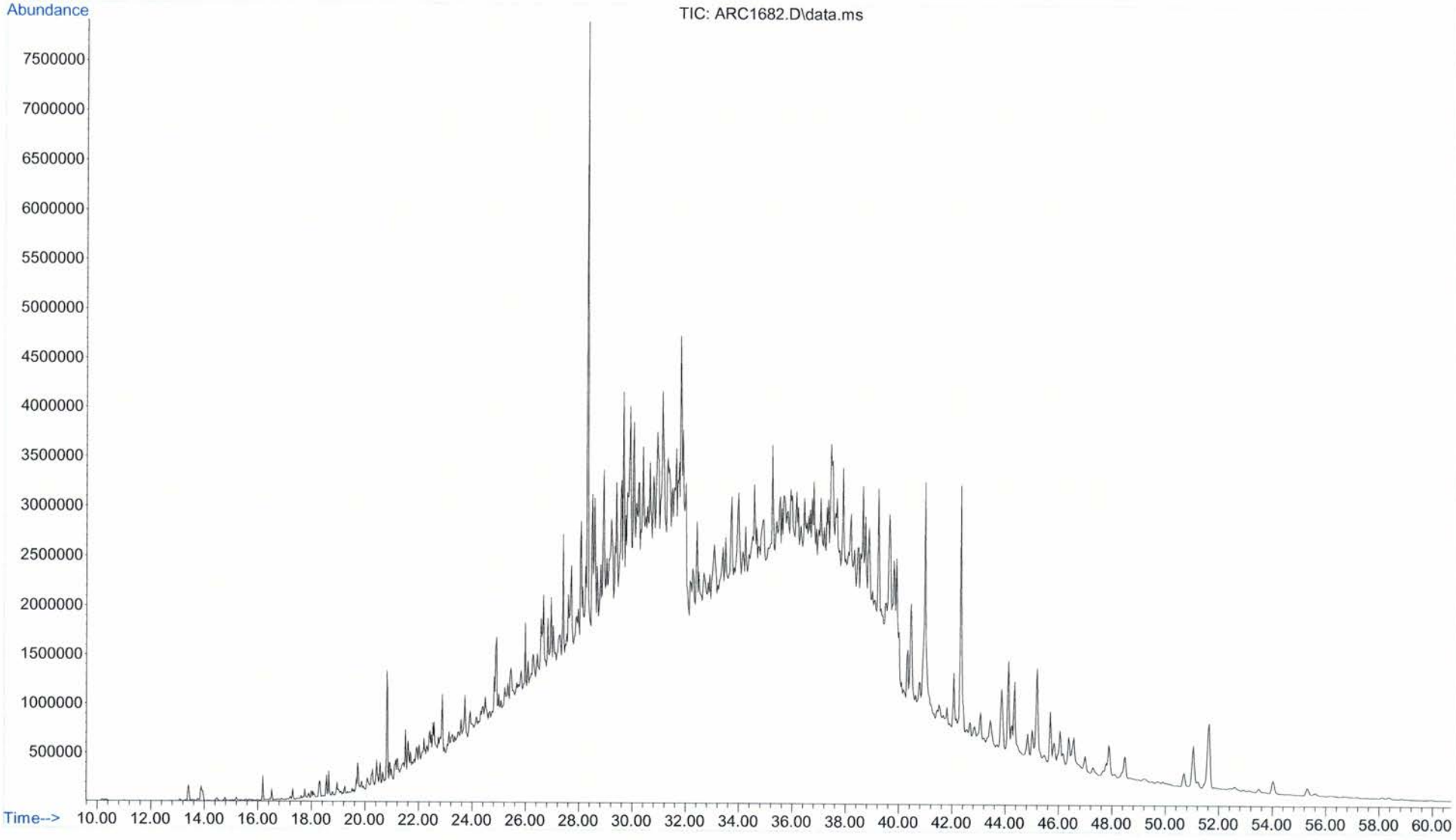
File :C:\GCMS5\MS50161\ARC1680.D
Operator : YM
Acquired : 20 Aug 2013 21:48 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-010 (0.5-1.0)
Misc Info :
Vial Number: 26



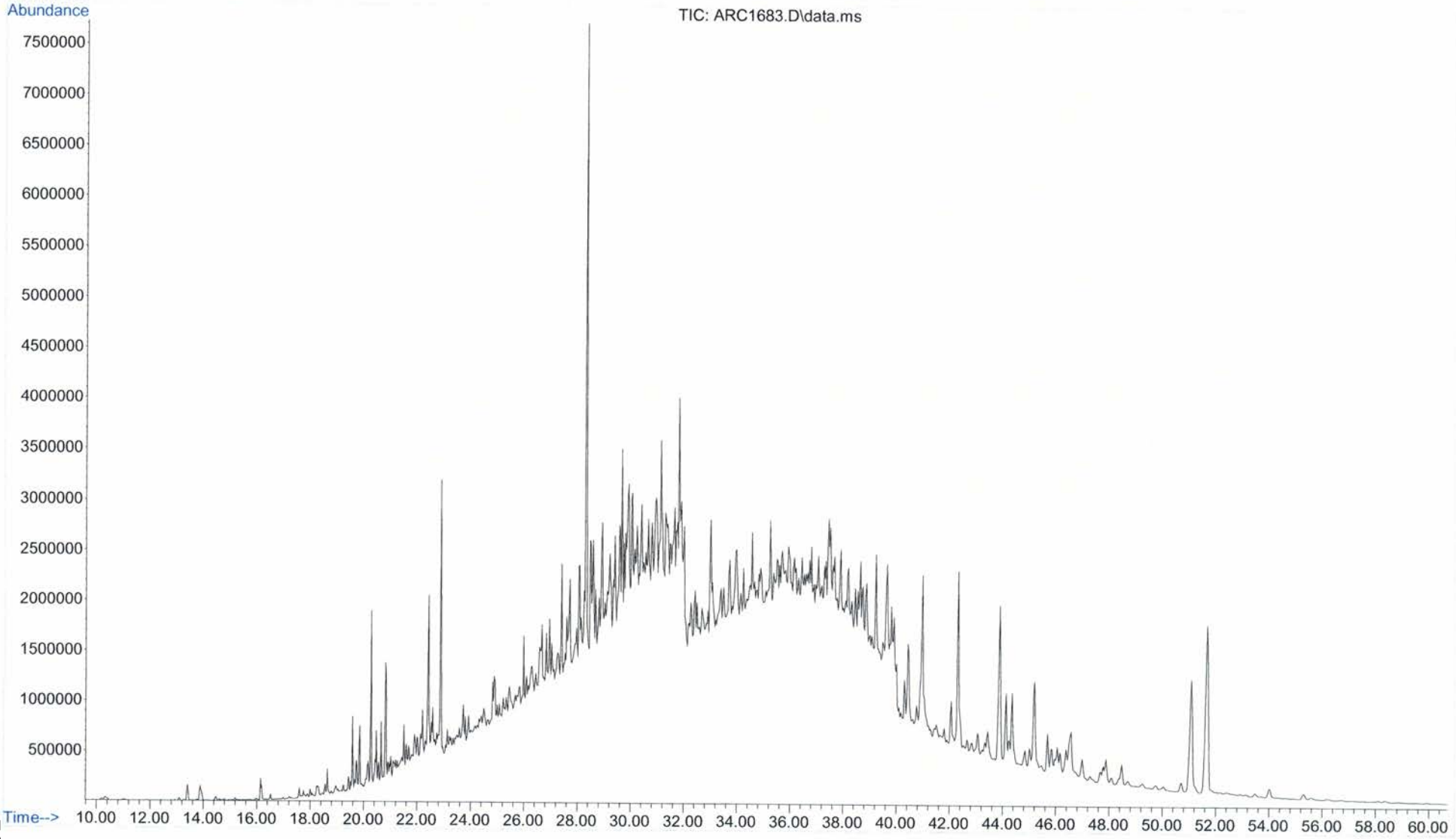
File :C:\GCMS5\MS50161\ARC1681.D
Operator : YM
Acquired : 20 Aug 2013 22:53 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-010 (1.0-1.5)
Misc Info :
Vial Number: 27



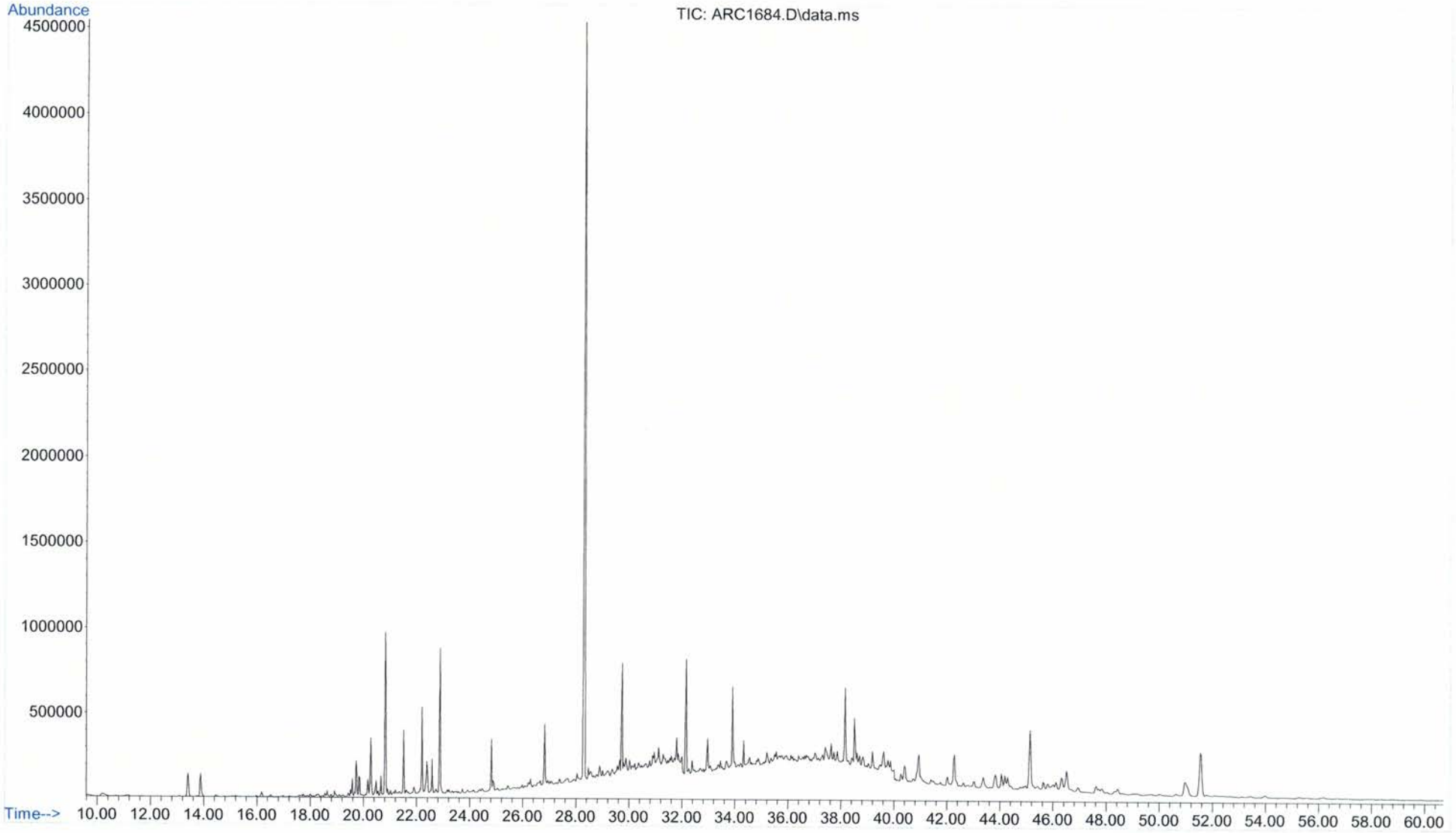
File :C:\GCMS5\MS50161\ARC1682.D
Operator : YM
Acquired : 20 Aug 2013 23:59 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-DUP-02-080213
Misc Info :
Vial Number: 28



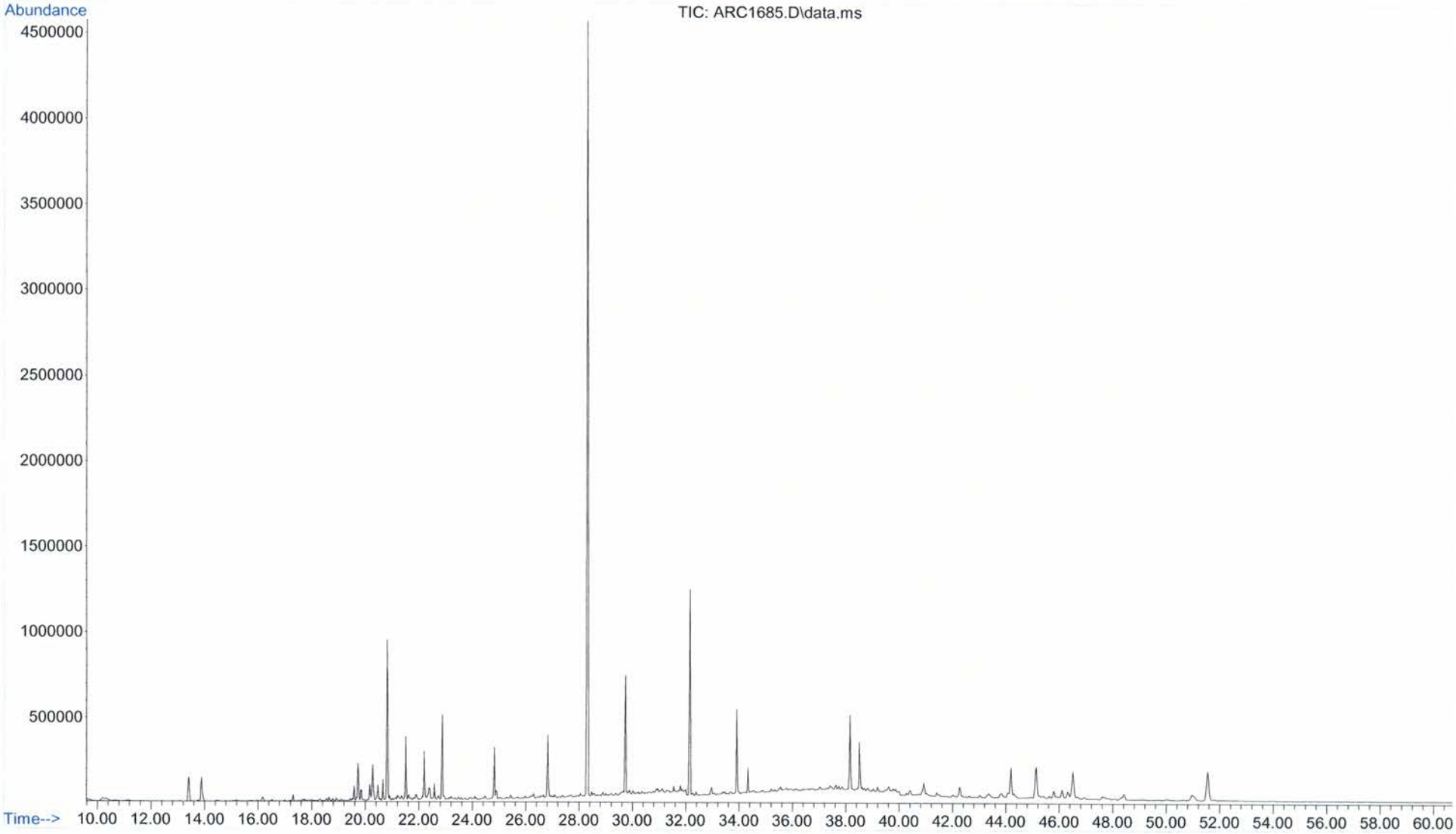
File :C:\GCMS5\MS50161\ARC1683.D
Operator : YM
Acquired : 21 Aug 2013 2:10 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-009 (0-0.5)
Misc Info :
Vial Number: 30



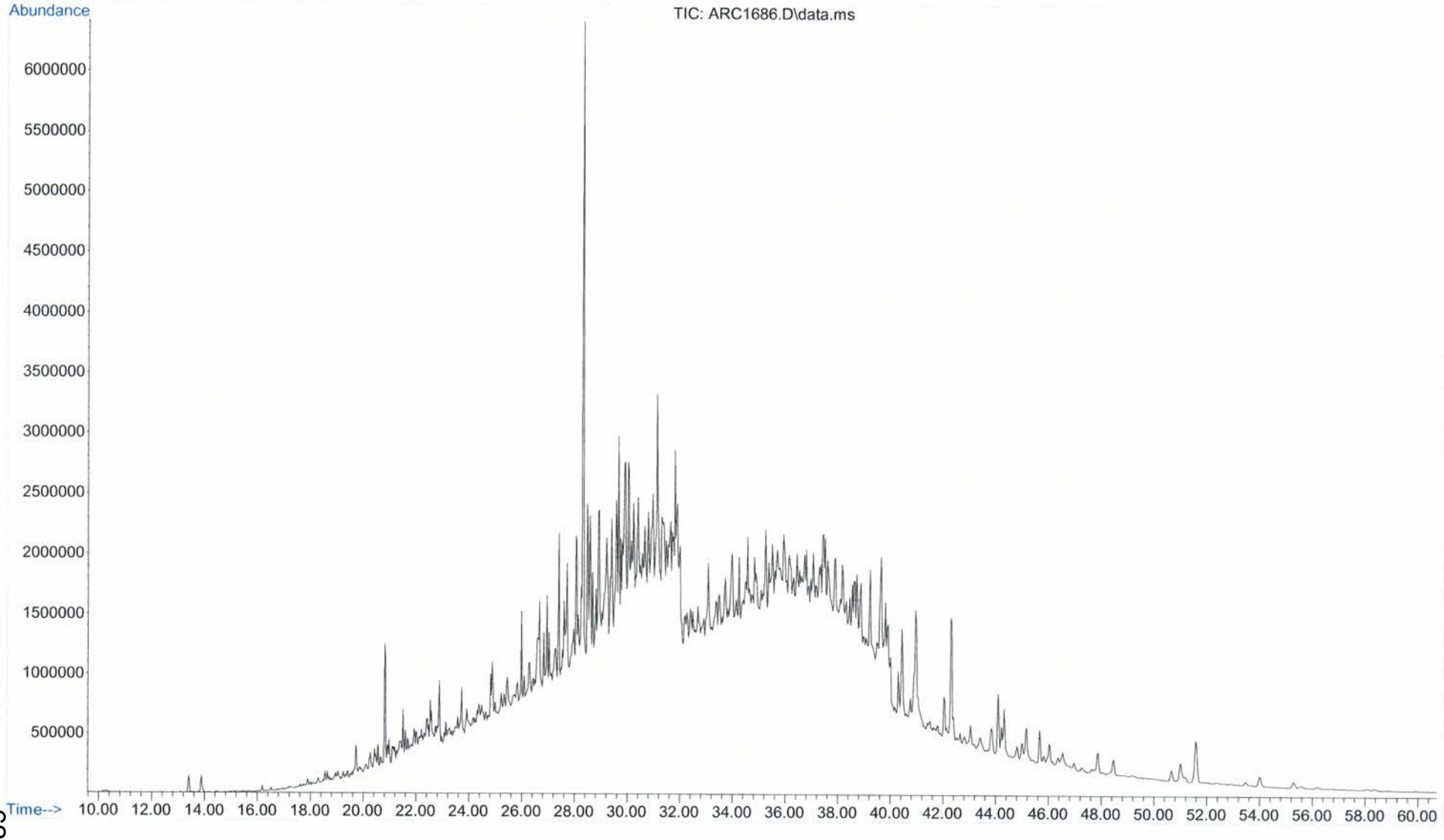
File :C:\GCMS5\MS50161\ARC1684.D
Operator : YM
Acquired : 21 Aug 2013 3:16 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-009 (0.5-1.0)
Misc Info :
Vial Number: 31



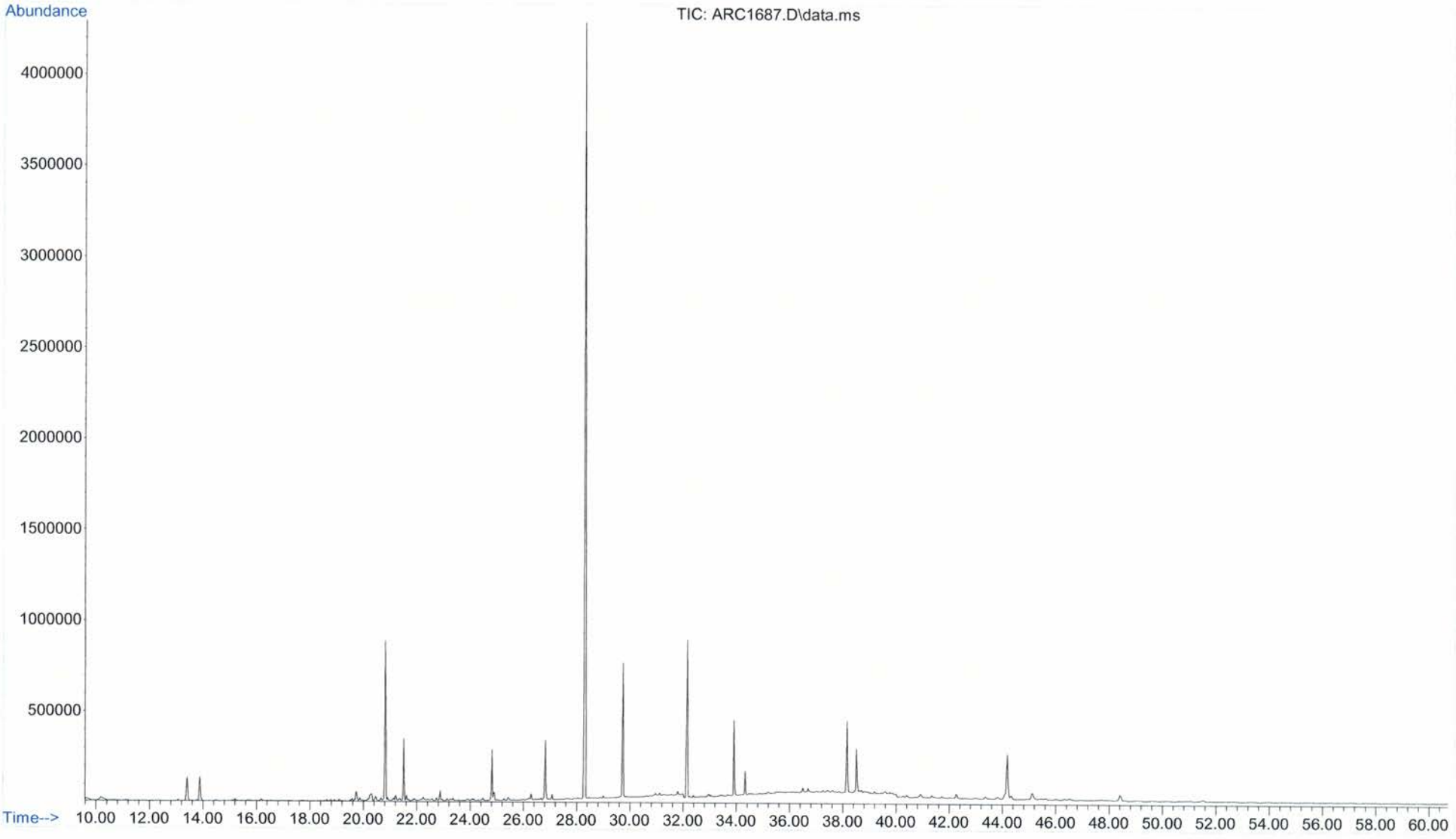
File :C:\GCMS5\MS50161\ARC1685.D
Operator : YM
Acquired : 21 Aug 2013 4:21 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-009 (1.0-1.5)
Misc Info :
Vial Number: 32



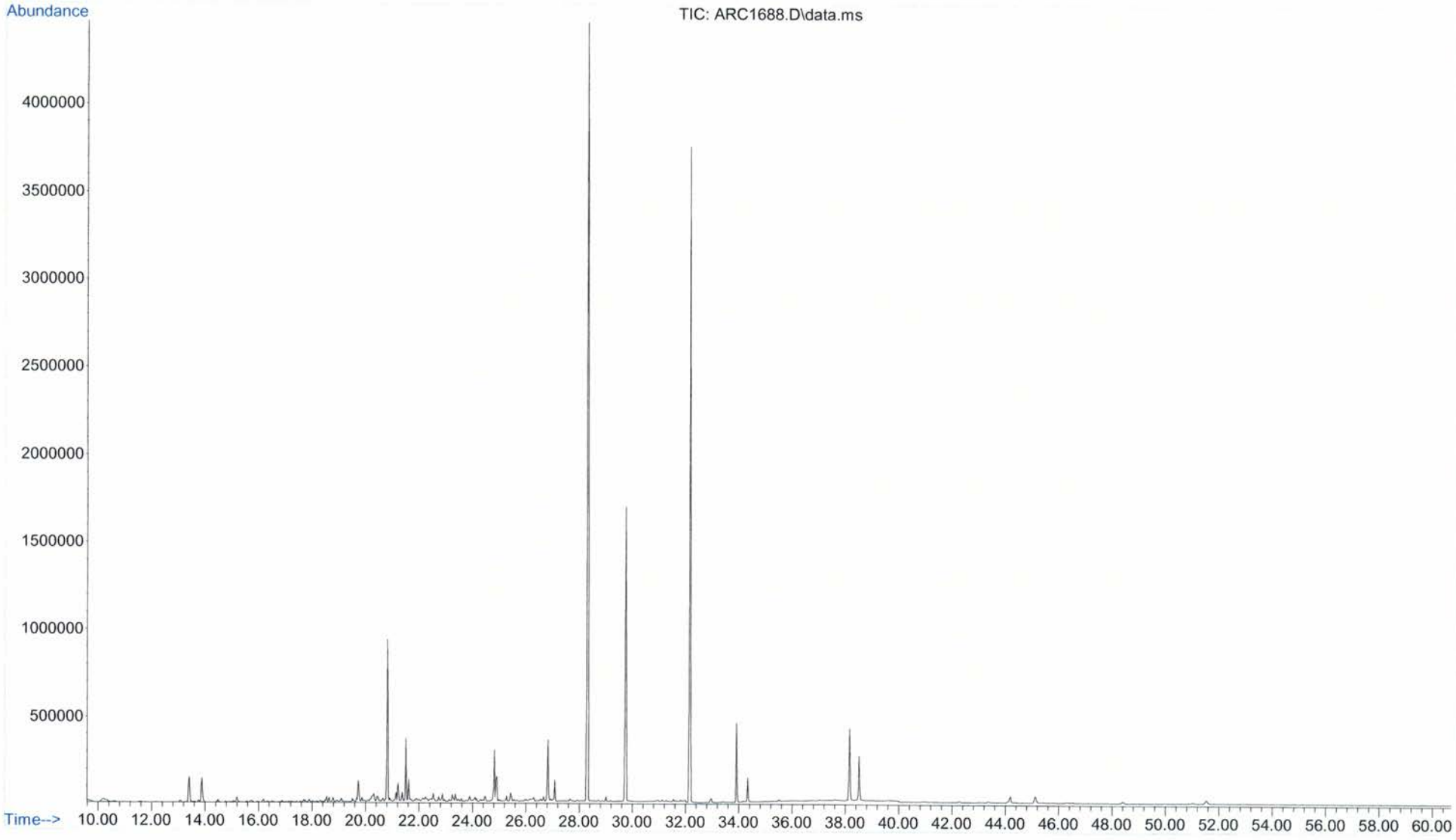
File :C:\GCMS5\MS50161\ARC1686.D
Operator : YM
Acquired : 21 Aug 2013 5:27 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-008 (0-0.5)
Misc Info :
Vial Number: 33



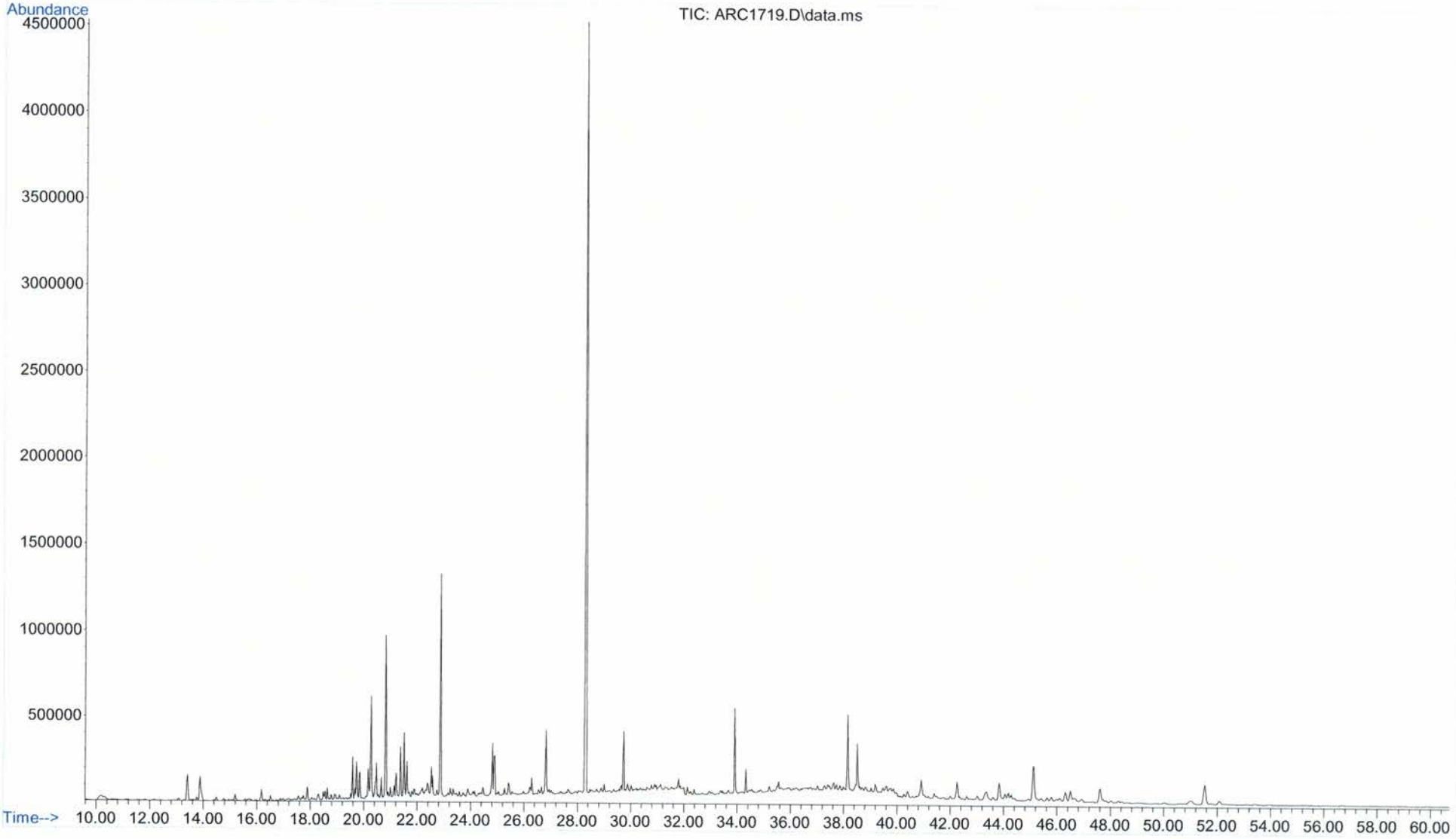
File :C:\GCMS5\MS50161\ARC1687.D
Operator : YM
Acquired : 21 Aug 2013 6:32 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-008 (0.5-1.0)
Misc Info :
Vial Number: 34



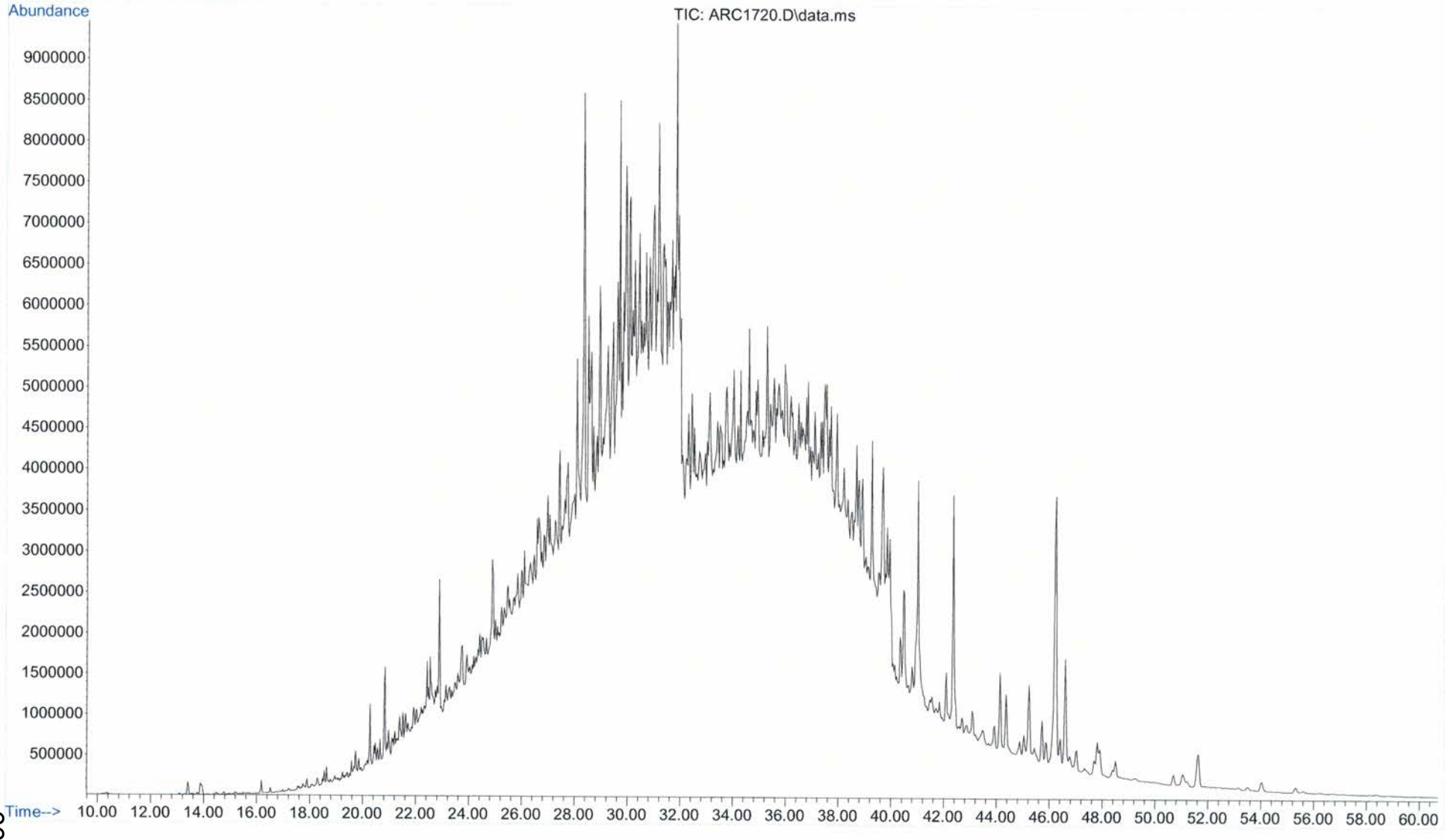
File :C:\GCMS5\MS50161\ARC1688.D
Operator : YM
Acquired : 21 Aug 2013 7:38 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-008 (1.0-1.5)
Misc Info :
Vial Number: 35



File :C:\GCMS5\MS50161\ARC1719.D
Operator : YM
Acquired : 21 Aug 2013 8:44 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-018 (1.0-1.5)
Misc Info :
Vial Number: 36



File :C:\GCMS5\MS50161\ARC1720.D
Operator : YM
Acquired : 21 Aug 2013 9:49 using AcqMethod PAH-2012.M
Instrument : GCMS5
Sample Name: SO-DA-DUP-03-080613
Misc Info :
Vial Number: 37



Polycyclic Aromatic Hydrocarbon Raw Data

B&B LABORATORIES PAHs QA FORM

Extraction Page: ENV 3083	Analyst: Y. Miao
Client: Arcadis Mayflower Project	Date: September 17, 2013
Job: #: J13034	Project Quality Manager: W Hland
SDG #: 13080601 and 13080701	Date: 09/18/13

Initial Calibration: No failures	ICV No failures

Surrogate Recoveries: d-10 Acenaphthene out on SRC1687 09/18/13 WJ

d12-Perylene was outside of the laboratory %recovery limits in 13 client samples samples and 3 internal QC samples that were submitted by the client. Recoveries are qualifed with an "L"

Procedural Blank:

No failures

Blank Spike:

NA

Blank Spike Duplicate:

NA

Laboratory Duplicate:

No failures

Matrix Spike:

Benz(a)anthracene was detected outside of the laboratory %recovery limits of 40-120%
Eight other compounds were detected outside of the laboratory %recovery limits of 40-120%, however these compounds are outside of the limits due to high native concentrations of PAHs in the sample. Peaks are qualifed with a "Y" - invalid spike

Matirx Spike Duplicate:

Benz(a)anthracene was detected outside of the laboratory %recovery limits of 40-120%
Eight other compounds were detected outside of the laboratory %recovery limits of 40-120%, however these compounds are outside of the limits due to high native concentrations of PAHs in the sample. Peaks are qualifed with a "Y" - invalid spike

SRM/LCS (Solution, Tissue, Sediment):

Solution no failures
Sediment (1941b) no failures

CCC (from a second source):

No failures

SRM-2279 Reference Oil

No failures

Mass Discrimination Check (benzo(ghi)perylene/phenanthrene >0.7)

No failures

Sequence Name: C:\msdchem\1\sequence\MS50161.s
Comment: Arcadis-Mayflower AR-Sediments-PAH (08/19/13)
Operator: YM
Data Path: C:\MSDCHEM\1\DATA\MS50161\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

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

Line		Sample Name/Misc Info		
1)	Sample 1	MS50161A	PAH-2012	Solvent
2)	Sample 2	MS50161B	PAH-2012	AR-WKC1-020-030
3)	Sample 3	MS50161C	PAH-2012	AR-WKC2-100-030
4)	Sample 4	MS50161D	PAH-2012	AR-WKC3-250-030
5)	Sample 5	MS50161E	PAH-2012	AR-WKC4-500-030
6)	Sample 6	MS50161F	PAH-2012	AR-WKC5-1000-030
7)	Sample 7	MS50161G	PAH-2012	AR-WKC6-5000-030
8)	Sample 8	MS50161H	PAH-2012	AR-WKISSU-250-002
9)	Sample 9	MS50161I	PAH-2012	AR-WKICV-250-004
10)	Sample 10	MS50161J	PAH-2012	AR-WKCC-250-038
11)	Sample 11	MS50161K	PAH-2012	AR-SRM2779-WK-4.0-002
12)	Sample 12	ENV3083A	PAH-2012	
13)	Sample 13	ENV3083B	PAH-2012	
14)	Sample 14	ENV3083C	PAH-2012	
15)	Sample 15	ENV3083D	PAH-2012	
16)	Sample 16	ENV3083E	PAH-2012	
17)	Sample 17	ARC1662	PAH-2012	
18)	Sample 18	ARC1663	PAH-2012	
19)	Sample 19	ARC1664	PAH-2012	
20)	Sample 20	MS50161L	PAH-2012	AR-WKCC-250-038
21)	Sample 21	ARC1665	PAH-2012	
22)	Sample 22	ARC1674	PAH-2012	
23)	Sample 23	ARC1675	PAH-2012	
24)	Sample 24	ARC1676	PAH-2012	
25)	Sample 25	ARC1679	PAH-2012	
26)	Sample 26	ARC1680	PAH-2012	
27)	Sample 27	ARC1681	PAH-2012	
28)	Sample 28	ARC1682	PAH-2012	
29)	Sample 29	MS50161M	PAH-2012	AR-WKCC-250-038
30)	Sample 30	ARC1683	PAH-2012	
31)	Sample 31	ARC1684	PAH-2012	
32)	Sample 32	ARC1685	PAH-2012	
33)	Sample 33	ARC1686	PAH-2012	
34)	Sample 34	ARC1687	PAH-2012	
35)	Sample 35	ARC1688	PAH-2012	
36)	Sample 36	ARC1719	PAH-2012	
37)	Sample 37	ARC1720	PAH-2012	
38)	Sample 38	MS50161N	PAH-2012	AR-WKCC-250-038

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	74	0.00
2	S	Naphthalene-d8	1.671	1.782	-6.6	84	0.00
3	T	cis/trans Decalin	0.315	0.336	-6.7	86	0.00
4	un	C1-Decalins	0.315	0.000	100.0#	0#	-12.38#
5	un	C2-Decalins	0.315	0.000	100.0#	0#	-13.48#
6	un	C3-Decalins	0.315	0.000	100.0#	0#	-15.96#
7	un	C4-Decalins	0.315	0.000	100.0#	0#	-18.73#
8	T	Naphthalene	1.722	1.836	-6.6	84	0.00
9	T	2-Methylnaphthalene	1.127	1.169	-3.7	82	0.00
10	T	1-Methylnaphthalene	1.058	1.103	-4.3	82	0.00
11	T	2,6-Dimethylnaphthalene	1.019	1.031	-1.2	81	0.00
12	T	1,6,7-Trimethylnaphthalene	0.985	0.966	1.9	79	0.00
13	un	C2-Naphthalenes	1.722	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.722	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.722	0.000	100.0#	0#	-21.94#
16	T	Benzothiophene	1.402	1.494	-6.6	84	0.00
17	un	C1-Benzothiophenes	1.402	0.000	100.0#	0#	-15.58#
18	un	C2-Benzothiophenes	1.402	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.402	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.402	0.000	100.0#	0#	-21.79#
21	S	Acenaphthene-d10	0.982	0.978	0.4	80	-0.02
22	T	Biphenyl	1.475	1.542	-4.5	83	0.00
23	T	Acenaphthylene	1.540	1.378	10.5	74	0.00
24	T	Acenaphthene	1.007	1.008	-0.1	80	0.00
25	T	Dibenzofuran	1.576	1.617	-2.6	81	0.00
26	T	Fluorene	1.244	1.225	1.5	79	-0.02
27	T	1-Methylfluorene	0.834	0.776	7.0	76	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.59#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	72	0.00
32	S	Phenanthrene-d10	0.928	0.932	-0.4	78	0.00
33	T	Carbazole	0.768	0.702	8.6	76	0.00
34	T	Dibenzothiophene	0.896	0.928	-3.6	81	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.722	2.0	77	0.00
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.26#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.78#
40	un	C4-Dibenzothiophenes	0.896	0.000	100.0#	0#	-30.81#
41	T	Phenanthrene	0.983	0.992	-0.9	78	0.00
42	T	Anthracene	0.895	0.843	5.8	74	0.00
43	un	3-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
44	un	2-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
45	un	2-Methylanthracene	0.788	0.000	100.0#	0#	-26.80#
46	un	4/9-Methylphenanthrene	0.788	0.000	100.0#	0#	-27.03#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	0.788	0.763	3.2	77	0.00
48	T	3,6-Dimethylphenanthrene	0.710	0.705	0.7	81	0.00
49	T	Retene	0.367	0.351	4.4	80	0.00
50	un	C2-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	1.106	0.998	9.8	70	0.00
54	un	C1-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-36.11#
56	un	C3-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.31#
57	un	C4-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.96#
58	T	Fluoranthene	1.147	1.157	-0.9	81	0.00
59	T	Pyrene	1.246	1.258	-1.0	76	0.00
60	T	2-Methylfluoranthene	0.787	0.709	9.9	73	0.00
61	T	Benzo(b)fluorene	0.672	0.590	12.2	75	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-31.60#
63	un	C2-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-32.42#
64	un	C3-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-34.04#
65	un	C4-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-35.40#
66	S	Chrysene-d12	1.090	1.173	-7.6	87	0.00
67	T	Benz(a)anthracene	1.110	0.953	14.1	69	0.00
68	T	Chrysene/Triphenylene	1.119	1.063	5.0	71	0.00
69	un	C1-Chrysenes	1.119	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	1.119	0.000	100.0#	0#	-36.50#
71	un	C3-Chrysenes	1.119	0.000	100.0#	0#	-38.45#
72	un	C4-Chrysenes	1.119	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	67	0.00
74	un	C29-Hopane	0.565	0.000	100.0#	0#	-40.95#
75	un	18a-Oleanane	0.565	0.000	100.0#	0#	-41.77#
76	T	C30-Hopane	0.565	0.577	-2.1	72	0.00
77	T	Benzo(b)fluoranthene	1.374	1.432	-4.2	74	-0.03
78	T	Benzo(k,j)fluoranthene	1.347	1.441	-7.0	78	-0.03
79	un	Benzo(a)fluoranthene	1.347	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.444	1.583	-9.6	79	-0.03
81	T	Benzo(a)pyrene	1.283	1.287	-0.3	72	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.079	0.988	8.4	69	-0.03
83	T	Dibenzo(a,h)anthracene	0.876	0.815	7.0	69	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-48.76#
85	un	C2-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.69#
86	un	C3-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.73#
87	T	Benzo(g,h,i)perylene	0.876	0.845	3.5	71	-0.03
88	S	Perylene-d12	1.240	1.242	-0.2	73	0.00
89	T	Perylene	1.297	1.332	-2.7	74	-0.03
90	S	5(b)H-Cholane	0.379	0.397	-4.7	77	0.00
91	un	C20-TAS	1.879	0.000	100.0#	0#	-33.39#
92	un	C21-TAS	1.879	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	1.879	0.000	100.0#	0#	-38.83#
94 T	C26(20R)/C27(20S)-TAS	1.879	1.725	8.2	65	-0.03
95 un	C28(20S)-TAS	1.879	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	1.879	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	1.879	0.000	100.0#	0#	-42.03#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	348253m	251.05		0.00
31) Pyrene-d10	29.738	212	660808m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	470882m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	618129m	266.67		0.00
21) Acenaphthene-d10	19.715	164	339512m	249.15		-0.02
32) Phenanthrene-d10	24.822	188	614762m	251.32		0.00
66) Chrysene-d12	33.907	240	773149m	269.03		0.00
88) Perylene-d12	38.835	264	584187m	250.43		0.00
90) 5(b)H-Cholane	34.328	217	186464m	261.84		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	115400m	263.79		
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	13.947	128	636715m	266.55		
9) 2-Methylnaphthalene	16.182	142	405748m	259.53		
10) 1-Methylnaphthalene	16.518	142	382137m	260.48		
11) 2,6-Dimethylnaphthalene	18.284	156	357594m	252.94		
12) 1,6,7-Trimethylnaphtha...	21.145	170	334960m	245.25		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	514921m	264.72		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	529842m	258.92		
23) Acenaphthylene	19.245	152	474053m	221.89		
24) Acenaphthene	19.826	154	350111m	250.59		
25) Dibenzofuran	20.430	168	557988m	255.23		
26) Fluorene	21.593	166	425782m	246.70		
27) 1-Methylfluorene	23.579	180	271060m	234.17		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.		
33) Carbazole	25.642	167	458242m	226.31		
34) Dibenzothiophene	24.455	184	602842m	255.20		
35) 4-Methyldibenzothiophene	25.981	198	479722m	246.87		
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	24.907	178	648092m	250.00		
42) Anthracene	25.076	178	557053m	235.97		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	497312m	239.23		
48) 3,6-Dimethylphenanthrene	28.099	206	465032m	248.33		
49) Retene	30.783	234	206783m	213.44		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	33.064	234	662196m	227.18		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	763497m	252.51		
59) Pyrene	29.795	202	828935m	252.35		
60) 2-Methylfluoranthene	30.557	216	470305m	226.59		
61) Benzo(b)fluorene	31.151	216	392411m	221.39		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.874	228	626601m	214.06		
68) Chrysene/Triphenylene	34.004	228	696658m	236.09		
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	43.010	191	271576m	255.45		
77) Benzo(b)fluoranthene	37.408	252	674976m	261.15		
78) Benzo(k,j)fluoranthene	37.506	252	675006m	266.43		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	741557m	273.01		
81) Benzo(a)pyrene	38.608	252	603831m	250.29		
82) Indeno(1,2,3-c,d)pyrene	43.369	276	456818m	224.98		
83) Dibenzo(a,h)anthracene	43.435	278	379635m	230.34		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	393792m	238.86		
89) Perylene	38.900	252	627054m	256.97		
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	39.548	231	811409m	229.57		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

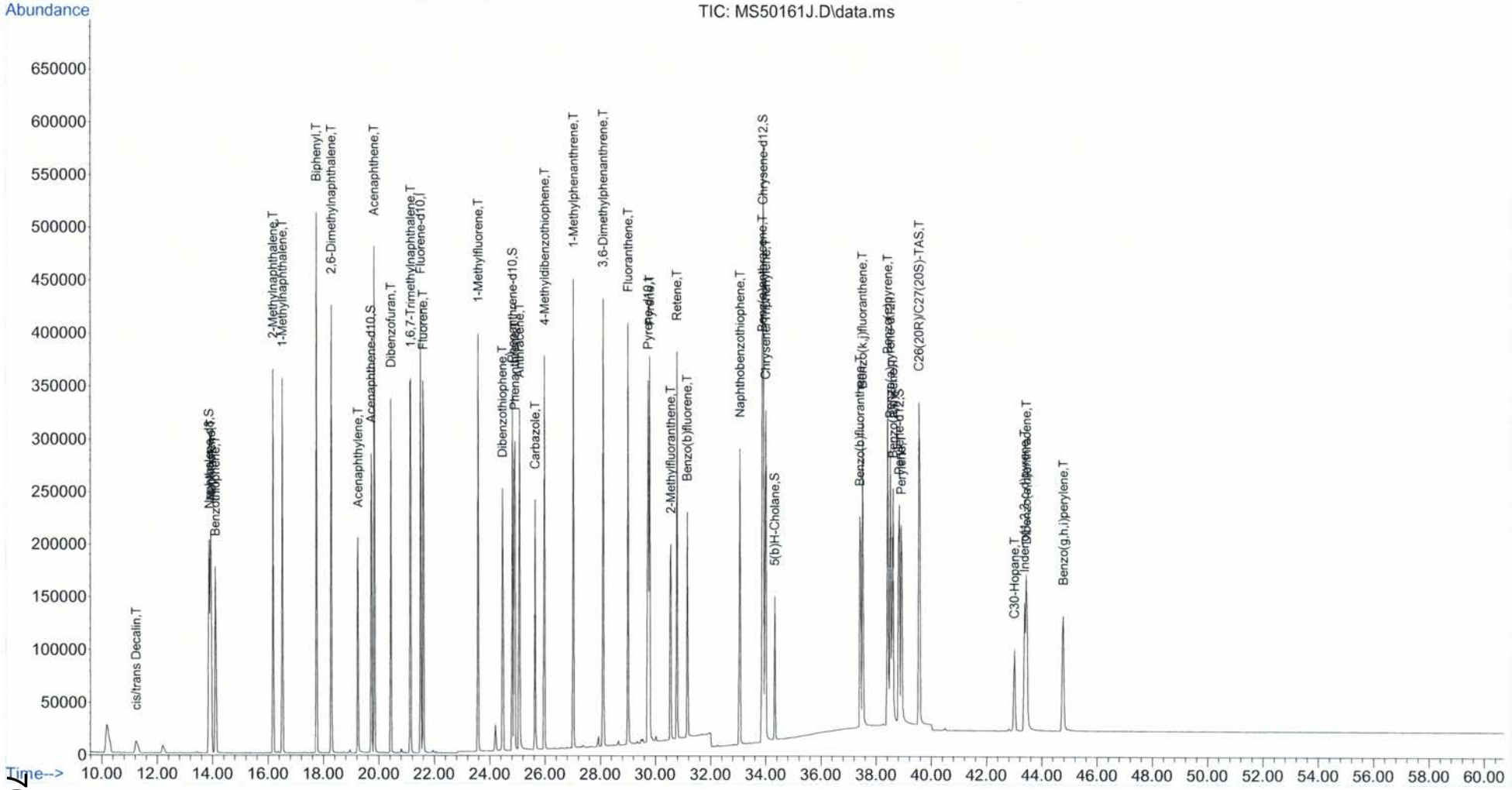
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161J.D
Acq On : 20 Aug 2013 4:17 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 20 08:49:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	87	0.00
2	S	Naphthalene-d8	1.671	1.520	9.0	84	0.00
3	T	cis/trans Decalin	0.315	0.285	9.5	85	0.00
4	un	C1-Decalins	0.315	0.000	100.0#	0#	-12.38#
5	un	C2-Decalins	0.315	0.000	100.0#	0#	-13.48#
6	un	C3-Decalins	0.315	0.000	100.0#	0#	-15.96#
7	un	C4-Decalins	0.315	0.000	100.0#	0#	-18.73#
8	T	Naphthalene	1.722	1.561	9.3	84	0.00
9	T	2-Methylnaphthalene	1.127	1.033	8.3	85	0.00
10	T	1-Methylnaphthalene	1.058	0.961	9.2	84	0.00
11	T	2,6-Dimethylnaphthalene	1.019	0.926	9.1	86	0.00
12	T	1,6,7-Trimethylnaphthalene	0.985	0.884	10.3	85	0.00
13	un	C2-Naphthalenes	1.722	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.722	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.722	0.000	100.0#	0#	-21.94#
16	T	Benzothiophene	1.402	1.278	8.8	84	0.00
17	un	C1-Benzothiophenes	1.402	0.000	100.0#	0#	-15.58#
18	un	C2-Benzothiophenes	1.402	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.402	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.402	0.000	100.0#	0#	-21.79#
21	S	Acenaphthene-d10	0.982	0.884	10.0	85	-0.02
22	T	Biphenyl	1.475	1.358	7.9	86	0.00
23	T	Acenaphthylene	1.540	1.384	10.1	87	-0.02
24	T	Acenaphthene	1.007	0.920	8.6	86	0.00
25	T	Dibenzofuran	1.576	1.450	8.0	86	0.00
26	T	Fluorene	1.244	1.132	9.0	86	-0.02
27	T	1-Methylfluorene	0.834	0.729	12.6	84	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.59#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	82	0.00
32	S	Phenanthrene-d10	0.928	0.871	6.1	83	0.00
33	T	Carbazole	0.768	0.749	2.5	92	0.00
34	T	Dibenzothiophene	0.896	0.898	-0.2	89	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.675	8.4	81	0.00
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.26#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.78#
40	un	C4-Dibenzothiophenes	0.896	0.000	100.0#	0#	-30.81#
41	T	Phenanthrene	0.983	0.931	5.3	83	-0.03
42	T	Anthracene	0.895	0.834	6.8	84	0.00
43	un	3-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
44	un	2-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
45	un	2-Methylanthracene	0.788	0.000	100.0#	0#	-26.80#
46	un	4/9-Methylphenanthrene	0.788	0.000	100.0#	0#	-27.03#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	0.788	0.733	7.0	84	0.00
48	T	3,6-Dimethylphenanthrene	0.710	0.719	-1.3	94	0.00
49	T	Retene	0.367	0.362	1.4	93	0.00
50	un	C2-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	1.106	0.955	13.7	76	0.00
54	un	C1-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-36.11#
56	un	C3-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.31#
57	un	C4-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.96#
58	T	Fluoranthene	1.147	1.150	-0.3	91	0.00
59	T	Pyrene	1.246	1.191	4.4	82	0.00
60	T	2-Methylfluoranthene	0.787	0.720	8.5	85	-0.03
61	T	Benzo(b)fluorene	0.672	0.654	2.7	94	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-31.60#
63	un	C2-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-32.42#
64	un	C3-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-34.04#
65	un	C4-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-35.40#
66	S	Chrysene-d12	1.090	1.145	-5.0	97	0.00
67	T	Benz(a)anthracene	1.110	0.946	14.8	78	0.00
68	T	Chrysene/Triphenylene	1.119	0.997	10.9	76	0.00
69	un	C1-Chrysenes	1.119	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	1.119	0.000	100.0#	0#	-36.50#
71	un	C3-Chrysenes	1.119	0.000	100.0#	0#	-38.45#
72	un	C4-Chrysenes	1.119	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	77	0.00
74	un	C29-Hopane	0.565	0.000	100.0#	0#	-40.95#
75	un	18a-Oleanane	0.565	0.000	100.0#	0#	-41.77#
76	T	C30-Hopane	0.565	0.593	-5.0	85	0.00
77	T	Benzo(b)fluoranthene	1.374	1.446	-5.2	85	-0.03
78	T	Benzo(k,j)fluoranthene	1.347	1.440	-6.9	89	-0.03
79	un	Benzo(a)fluoranthene	1.347	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.444	1.505	-4.2	86	-0.03
81	T	Benzo(a)pyrene	1.283	1.271	0.9	81	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.079	1.003	7.0	80	-0.03
83	T	Dibenzo(a,h)anthracene	0.876	0.842	3.9	82	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-48.76#
85	un	C2-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.69#
86	un	C3-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.73#
87	T	Benzo(g,h,i)perylene	0.876	0.825	5.8	79	-0.03
88	S	Perylene-d12	1.240	1.214	2.1	81	0.00
89	T	Perylene	1.297	1.313	-1.2	83	-0.03
90	S	5(b)H-Cholane	0.379	0.391	-3.2	87	0.00
91	un	C20-TAS	1.879	0.000	100.0#	0#	-33.39#
92	un	C21-TAS	1.879	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	1.879	0.000	100.0#	0#	-38.83#
94 T	C26(20R)/C27(20S)-TAS	1.879	1.954	-4.0	85	-0.03
95 un	C28(20S)-TAS	1.879	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	1.879	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	1.879	0.000	100.0#	0#	-42.03#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	409476m	251.05		0.00
31) Pyrene-d10	29.738	212	750488m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	537212m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	620140m	227.54		0.00
21) Acenaphthene-d10	19.715	164	360558m	225.04		-0.02
32) Phenanthrene-d10	24.822	188	652320m	234.81		0.00
66) Chrysene-d12	33.907	240	857610m	262.76		0.00
88) Perylene-d12	38.835	264	651668m	244.87		0.00
90) 5(b)H-Cholane	34.328	217	209776m	258.21		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	115111m	223.79		
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	13.947	128	636620m	226.66		
9) 2-Methylnaphthalene	16.182	142	421718m	229.41		
10) 1-Methylnaphthalene	16.518	142	391640m	227.04		
11) 2,6-Dimethylnaphthalene	18.284	156	377601m	227.16		
12) 1,6,7-Trimethylnaphtha...	21.145	170	360374m	224.41		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	518134m	226.54		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	548586m	228.00		
23) Acenaphthylene	19.223	152	559659m	222.80		
24) Acenaphthene	19.826	154	375894m	228.81		
25) Dibenzofuran	20.430	168	588152m	228.80		
26) Fluorene	21.593	166	462536m	227.92		
27) 1-Methylfluorene	23.579	180	299623m	220.14		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	555410m	241.53		
34) Dibenzothiophene	24.455	184	663139m	247.18		
35) 4-Methyldibenzothiophene	25.981	198	509876m	231.04		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	690718m	234.60		
42) Anthracene	25.076	178	626054m	233.51		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.		d
44)	2-Methylphenanthrene	0.000		0	N.D.		d
45)	2-Methylanthracene	0.000		0	N.D.		d
46)	4/9-Methylphenanthrene	0.000		0	N.D.		d
47)	1-Methylphenanthrene	27.026	192	542642m	229.84		
48)	3,6-Dimethylphenanthrene	28.099	206	539006m	253.44		
49)	Retene	30.783	234	242404m	220.31		
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.		d
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.		d
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53)	Naphthobenzothiophene	33.064	234	719575m	217.36		
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.		d
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.		d
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.		d
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.		d
58)	Fluoranthene	29.004	202	861752m	250.94		
59)	Pyrene	29.795	202	891382m	238.93		
60)	2-Methylfluoranthene	30.529	216	542750m	230.24		
61)	Benzo(b)fluorene	31.151	216	493876m	245.34		
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.		d
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.		d
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.		d
67)	Benz(a)anthracene	33.874	228	706678m	212.57		
68)	Chrysene/Triphenylene	34.004	228	741681m	221.31		
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	43.010	191	317918m	262.11		
77)	Benzo(b)fluoranthene	37.408	252	777532m	263.68		
78)	Benzo(k,j)fluoranthene	37.506	252	769325m	266.17		
79)	Benzo(a)fluoranthene	0.000		0	N.D.		d
80)	Benzo(e)pyrene	38.413	252	804293m	259.54		
81)	Benzo(a)pyrene	38.608	252	680517m	247.25		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	529002m	228.36		
83)	Dibenzo(a,h)anthracene	43.435	278	447615m	238.05		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.		d
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.		d
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.		d
87)	Benzo(g,h,i)perylene	44.776	276	438450m	233.11		
89)	Perylene	38.900	252	705121m	253.28		
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	39.548	231	1048615m	260.05		
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:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

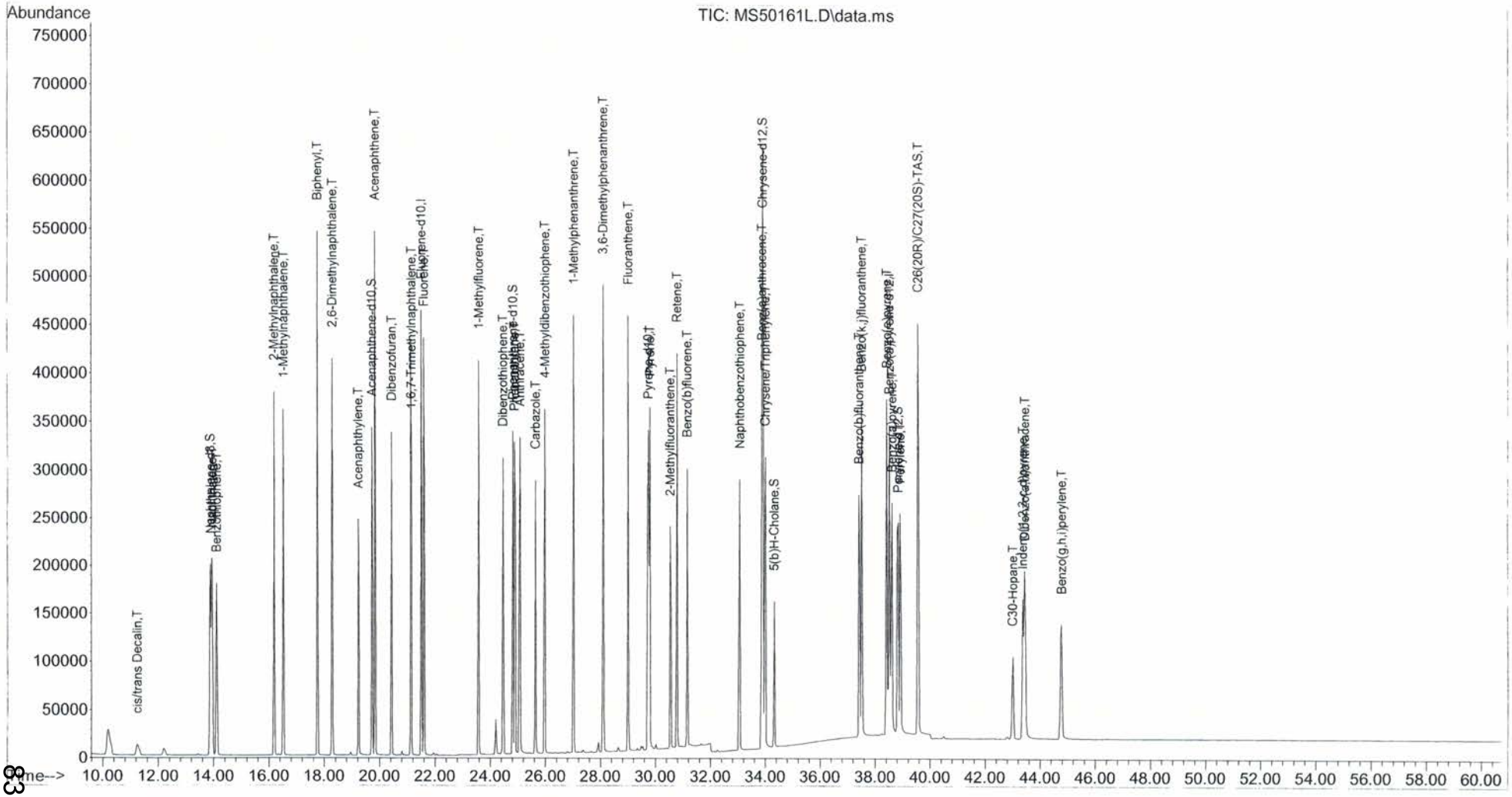
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161L.D
Acq On : 20 Aug 2013 3:14 pm
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 31 20:28:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	82	0.00
2	S	Naphthalene-d8	1.671	1.389	16.9	72	0.00
3	T	cis/trans Decalin	0.315	0.253	19.7	71	0.00
4	un	C1-Decalins	0.315	0.000	100.0#	0#	-12.38#
5	un	C2-Decalins	0.315	0.000	100.0#	0#	-13.48#
6	un	C3-Decalins	0.315	0.000	100.0#	0#	-15.96#
7	un	C4-Decalins	0.315	0.000	100.0#	0#	-18.73#
8	T	Naphthalene	1.722	1.424	17.3	72	0.00
9	T	2-Methylnaphthalene	1.127	0.979	13.1	76	0.00
10	T	1-Methylnaphthalene	1.058	0.900	14.9	74	0.00
11	T	2,6-Dimethylnaphthalene	1.019	0.903	11.4	78	0.00
12	T	1,6,7-Trimethylnaphthalene	0.985	0.883	10.4	80	0.00
13	un	C2-Naphthalenes	1.722	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.722	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.722	0.000	100.0#	0#	-21.94#
16	T	Benzothiophene	1.402	1.170	16.5	72	0.00
17	un	C1-Benzothiophenes	1.402	0.000	100.0#	0#	-15.58#
18	un	C2-Benzothiophenes	1.402	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.402	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.402	0.000	100.0#	0#	-21.79#
21	S	Acenaphthene-d10	0.982	0.864	12.0	78	-0.02
22	T	Biphenyl	1.475	1.284	12.9	76	0.00
23	T	Acenaphthylene	1.540	1.504	2.3	89	-0.02
24	T	Acenaphthene	1.007	0.902	10.4	79	0.00
25	T	Dibenzofuran	1.576	1.403	11.0	78	0.00
26	T	Fluorene	1.244	1.141	8.3	81	-0.02
27	T	1-Methylfluorene	0.834	0.779	6.6	84	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.59#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	85	0.00
32	S	Phenanthrene-d10	0.928	0.799	13.9	78	0.00
33	T	Carbazole	0.768	0.753	2.0	95	0.00
34	T	Dibenzothiophene	0.896	0.819	8.6	84	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.639	13.3	79	0.00
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.26#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.78#
40	un	C4-Dibenzothiophenes	0.896	0.000	100.0#	0#	-30.81#
41	T	Phenanthrene	0.983	0.852	13.3	79	-0.03
42	T	Anthracene	0.895	0.822	8.2	85	0.00
43	un	3-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
44	un	2-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
45	un	2-Methylanthracene	0.788	0.000	100.0#	0#	-26.80#
46	un	4/9-Methylphenanthrene	0.788	0.000	100.0#	0#	-27.03#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	0.788	0.716	9.1	85	0.00
48	T	3,6-Dimethylphenanthrene	0.710	0.731	-3.0	99	0.00
49	T	Retene	0.367	0.387	-5.4	103	0.00
50	un	C2-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	1.106	0.995	10.0	82	0.00
54	un	C1-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-36.11#
56	un	C3-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.31#
57	un	C4-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.96#
58	T	Fluoranthene	1.147	1.134	1.1	93	0.00
59	T	Pyrene	1.246	1.145	8.1	81	0.00
60	T	2-Methylfluoranthene	0.787	0.754	4.2	91	-0.03
61	T	Benzo(b)fluorene	0.672	0.740	-10.1	110	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-31.60#
63	un	C2-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-32.42#
64	un	C3-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-34.04#
65	un	C4-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-35.40#
66	S	Chrysene-d12	1.090	1.092	-0.2	95	0.00
67	T	Benz(a)anthracene	1.110	1.052	5.2	89	0.00
68	T	Chrysene/Triphenylene	1.119	0.979	12.5	77	0.00
69	un	C1-Chrysenes	1.119	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	1.119	0.000	100.0#	0#	-36.50#
71	un	C3-Chrysenes	1.119	0.000	100.0#	0#	-38.45#
72	un	C4-Chrysenes	1.119	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	94	0.00
74	un	C29-Hopane	0.565	0.000	100.0#	0#	-40.95#
75	un	18a-Oleanane	0.565	0.000	100.0#	0#	-41.77#
76	T	C30-Hopane	0.565	0.502	11.2	88	0.00
77	T	Benzo(b)fluoranthene	1.374	1.221	11.1	88	-0.03
78	T	Benzo(k,j)fluoranthene	1.347	1.205	10.5	91	-0.03
79	un	Benzo(a)fluoranthene	1.347	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.444	1.242	14.0	87	-0.03
81	T	Benzo(a)pyrene	1.283	1.090	15.0	85	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.079	0.883	18.2	86	-0.03
83	T	Dibenzo(a,h)anthracene	0.876	0.740	15.5	88	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-48.76#
85	un	C2-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.69#
86	un	C3-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.73#
87	T	Benzo(g,h,i)perylene	0.876	0.678	22.6	79	-0.03
88	S	Perylene-d12	1.240	1.042	16.0	85	0.00
89	T	Perylene	1.297	1.111	14.3	86	-0.03
90	S	5(b)H-Cholane	0.379	0.361	4.7	98	0.00
91	un	C20-TAS	1.879	0.000	100.0#	0#	-33.39#
92	un	C21-TAS	1.879	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	1.879	0.000	100.0#	0#	-38.83#
94 T	C26(20R)/C27(20S)-TAS	1.879	1.905	-1.4	101	-0.03
95 un	C28(20S)-TAS	1.879	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	1.879	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	1.879	0.000	100.0#	0#	-42.03#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	383355m	251.05		0.00
31) Pyrene-d10	29.738	212	774886m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	658559m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	530476m	207.90		0.00
21) Acenaphthene-d10	19.715	164	329936m	219.96		-0.02
32) Phenanthrene-d10	24.822	188	617965m	215.44		0.00
66) Chrysene-d12	33.907	240	844036m	250.45		0.00
88) Perylene-d12	38.835	264	685438m	210.10		0.00
90) 5(b)H-Cholane	34.329	217	237406m	238.37		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	95336m	197.98		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	543576m	206.72		
9) 2-Methylnaphthalene	16.182	142	374169m	217.41		
10) 1-Methylnaphthalene	16.518	142	343350m	212.61		
11) 2,6-Dimethylnaphthalene	18.284	156	344870m	221.61		
12) 1,6,7-Trimethylnaphtha...	21.146	170	337249m	224.32		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	443883m	207.30		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	485906m	215.71		
23) Acenaphthylene	19.223	152	569487m	242.16		
24) Acenaphthene	19.827	154	344950m	224.28		
25) Dibenzofuran	20.430	168	532854m	221.41		
26) Fluorene	21.593	166	436386m	229.69		
27) 1-Methylfluorene	23.579	180	299764m	235.25		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	576619m	242.85		
34) Dibenzothiophene	24.455	184	623961m	225.25		
35) 4-Methyldibenzothiophene	25.981	198	497764m	218.45		
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	652671m	214.70		
42) Anthracene	25.077	178	637356m	230.24		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	547580m	224.63		
48) 3,6-Dimethylphenanthrene	28.100	206	565829m	257.68		
49) Retene	30.784	234	267146m	235.16		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	33.064	234	774194m	226.50		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	877330m	247.44		
59) Pyrene	29.795	202	885104m	229.78		
60) 2-Methylfluoranthene	30.529	216	586528m	240.98		
61) Benzo(b)fluorene	31.151	216	576902m	277.56		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	811274m	236.35		
68) Chrysene/Triphenylene	34.004	228	752532m	217.48		
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	43.010	191	330332m	222.16		
77) Benzo(b)fluoranthene	37.408	252	804958m	222.68		
78) Benzo(k,j)fluoranthene	37.506	252	789547m	222.83		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	813350m	214.10		
81) Benzo(a)pyrene	38.608	252	715503m	212.06		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	570906m	201.04		
83) Dibenzo(a,h)anthracene	43.435	278	482281m	209.23		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	441722m	191.58		
89) Perylene	38.900	252	731239m	214.26		
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	39.548	231	1253228m	253.53		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

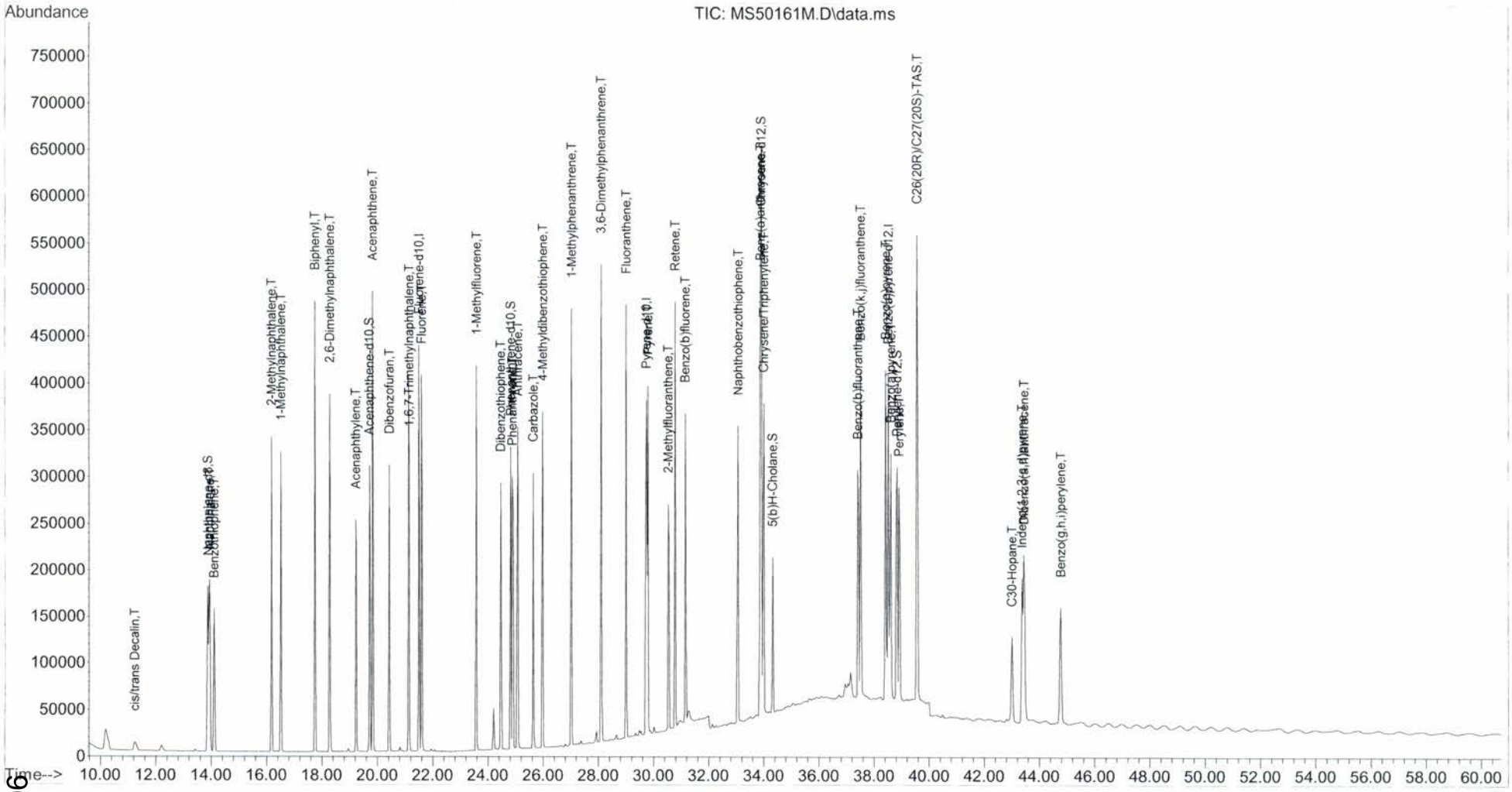
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161M.D
Acq On : 21 Aug 2013 1:05 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 21 07:29:55 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 21 12:25:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	72	0.00
2	S	Naphthalene-d8	1.671	1.342	19.7	61	0.00
3	T	cis/trans Decalin	0.315	0.250	20.6	62	0.00
4	un	C1-Decalins	0.315	0.000	100.0#	0#	-12.38#
5	un	C2-Decalins	0.315	0.000	100.0#	0#	-13.48#
6	un	C3-Decalins	0.315	0.000	100.0#	0#	-15.96#
7	un	C4-Decalins	0.315	0.000	100.0#	0#	-18.73#
8	T	Naphthalene	1.722	1.385	19.6	61	0.00
9	T	2-Methylnaphthalene	1.127	0.962	14.6	65	0.00
10	T	1-Methylnaphthalene	1.058	0.893	15.6	64	0.00
11	T	2,6-Dimethylnaphthalene	1.019	0.901	11.6	69	0.00
12	T	1,6,7-Trimethylnaphthalene	0.985	0.889	9.7	70	0.00
13	un	C2-Naphthalenes	1.722	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.722	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.722	0.000	100.0#	0#	-21.94#
16	T	Benzothiophene	1.402	1.134	19.1	62	0.00
17	un	C1-Benzothiophenes	1.402	0.000	100.0#	0#	-15.58#
18	un	C2-Benzothiophenes	1.402	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.402	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.402	0.000	100.0#	0#	-21.79#
21	S	Acenaphthene-d10	0.982	0.859	12.5	68	-0.02
22	T	Biphenyl	1.475	1.281	13.2	67	0.00
23	T	Acenaphthylene	1.540	1.518	1.4	79	-0.02
24	T	Acenaphthene	1.007	0.900	10.6	69	0.00
25	T	Dibenzofuran	1.576	1.409	10.6	69	0.00
26	T	Fluorene	1.244	1.148	7.7	72	-0.02
27	T	1-Methylfluorene	0.834	0.781	6.4	74	0.00
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.59#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	75	0.00
32	S	Phenanthrene-d10	0.928	0.800	13.8	69	0.00
33	T	Carbazole	0.768	0.765	0.4	86	0.00
34	T	Dibenzothiophene	0.896	0.819	8.6	74	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.645	12.5	71	0.00
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.26#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.78#
40	un	C4-Dibenzothiophenes	0.896	0.000	100.0#	0#	-30.81#
41	T	Phenanthrene	0.983	0.845	14.0	69	0.00
42	T	Anthracene	0.895	0.830	7.3	76	0.00
43	un	3-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
44	un	2-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
45	un	2-Methylanthracene	0.788	0.000	100.0#	0#	-26.80#
46	un	4/9-Methylphenanthrene	0.788	0.000	100.0#	0#	-27.03#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 21 12:25:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	0.788	0.724	8.1	76	0.00
48	T	3,6-Dimethylphenanthrene	0.710	0.728	-2.5	87	0.00
49	T	Retene	0.367	0.381	-3.8	90	0.00
50	un	C2-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	1.106	0.967	12.6	70	0.00
54	un	C1-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-36.11#
56	un	C3-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.31#
57	un	C4-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.96#
58	T	Fluoranthene	1.147	1.122	2.2	81	0.00
59	T	Pyrene	1.246	1.138	8.7	71	0.00
60	T	2-Methylfluoranthene	0.787	0.745	5.3	80	-0.03
61	T	Benzo(b)fluorene	0.672	0.727	-8.2	96	-0.03
62	un	C1-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-31.60#
63	un	C2-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-32.42#
64	un	C3-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-34.04#
65	un	C4-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-35.40#
66	S	Chrysene-d12	1.090	1.037	4.9	80	0.00
67	T	Benz(a)anthracene	1.110	1.009	9.1	76	0.00
68	T	Chrysene/Triphenylene	1.119	0.931	16.8	65	0.00
69	un	C1-Chrysenes	1.119	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	1.119	0.000	100.0#	0#	-36.50#
71	un	C3-Chrysenes	1.119	0.000	100.0#	0#	-38.45#
72	un	C4-Chrysenes	1.119	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	64	0.00
74	un	C29-Hopane	0.565	0.000	100.0#	0#	-40.95#
75	un	18a-Oleanane	0.565	0.000	100.0#	0#	-41.77#
76	T	C30-Hopane	0.565	0.534	5.5	64	0.00
77	T	Benzo(b)fluoranthene	1.374	1.365	0.7	67	-0.03
78	T	Benzo(k,j)fluoranthene	1.347	1.383	-2.7	71	-0.03
79	un	Benzo(a)fluoranthene	1.347	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.444	1.329	8.0	63	-0.03
81	T	Benzo(a)pyrene	1.283	1.210	5.7	65	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.079	0.867	19.6	58	-0.03
83	T	Dibenzo(a,h)anthracene	0.876	0.732	16.4	59	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-48.76#
85	un	C2-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.69#
86	un	C3-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.73#
87	T	Benzo(g,h,i)perylene	0.876	0.644	26.5#	51	-0.03
88	S	Perylene-d12	1.240	1.124	9.4	63	0.00
89	T	Perylene	1.297	1.198	7.6	63	-0.03
90	S	5(b)H-Cholane	0.379	0.440	-16.1	81	0.00
91	un	C20-TAS	1.879	0.000	100.0#	0#	-33.39#
92	un	C21-TAS	1.879	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 21 12:25:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	1.879	0.000	100.0#	0#	-38.83#
94 T	C26(20R)/C27(20S)-TAS	1.879	2.188	-16.4	79	-0.03
95 un	C28(20S)-TAS	1.879	0.000	100.0#	0#	-40.85#
96 un	C27(20R)-TAS	1.879	0.000	100.0#	0#	-40.85#
97 un	C28(20R)-TAS	1.879	0.000	100.0#	0#	-42.03#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 21 12:25:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	337202m	251.05		0.00
31) Pyrene-d10	29.738	212	685245m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	449398m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	450816m	200.86		0.00
21) Acenaphthene-d10	19.715	164	288660m	218.78		-0.02
32) Phenanthrene-d10	24.822	188	546927m	215.62		0.00
66) Chrysene-d12	33.907	240	708837m	237.85		0.00
88) Perylene-d12	38.835	264	504470m	226.60		0.00
90) 5(b)H-Cholane	34.328	217	197444m	290.52		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	83048m	196.06		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	465149m	201.11		
9) 2-Methylnaphthalene	16.182	142	323339m	213.59		
10) 1-Methylnaphthalene	16.518	142	299434m	210.80		
11) 2,6-Dimethylnaphthalene	18.284	156	302388m	220.90		
12) 1,6,7-Trimethylnaphtha...	21.145	170	298425m	225.66		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	378589m	201.01		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	426215m	215.11		
23) Acenaphthylene	19.223	152	505744m	244.49		
24) Acenaphthene	19.826	154	302726m	223.77		
25) Dibenzofuran	20.430	168	470751m	222.38		
26) Fluorene	21.593	166	386231m	231.12		
27) 1-Methylfluorene	23.579	180	264091m	235.62		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	517936m	246.67		
34) Dibenzothiophene	24.455	184	551703m	225.22		
35) 4-Methyldibenzothiophene	25.981	198	444327m	220.50		
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	24.907	178	572581m	212.99		
42) Anthracene	25.076	178	569145m	232.49		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 21 12:25:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	489548m	227.10		
48) 3,6-Dimethylphenanthrene	28.099	206	498032m	256.47		
49) Retene	30.783	234	232976m	231.91		
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.	d	
53) Naphthobenzothiophene	33.064	234	665384m	220.13		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	767913m	244.91		
59) Pyrene	29.795	202	777690m	228.31		
60) 2-Methylfluoranthene	30.529	216	512562m	238.14		
61) Benzo(b)fluorene	31.151	216	501596m	272.89		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.874	228	688228m	226.73		
68) Chrysene/Triphenylene	34.004	228	632366m	206.66		
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	43.010	191	239479m	236.02		
77) Benzo(b)fluoranthene	37.408	252	613867m	248.86		
78) Benzo(k,j)fluoranthene	37.506	252	618111m	255.64		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	594015m	229.14		
81) Benzo(a)pyrene	38.608	252	542096m	235.45		
82) Indeno(1,2,3-c,d)pyrene	43.369	276	382574m	197.42		
83) Dibenzo(a,h)anthracene	43.435	278	325473m	206.92		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.		
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.775	276	286414m	182.04		
89) Perylene	38.900	252	538293m	231.14		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.548	231	982061m	291.14		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
Misc :
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Aug 21 12:25:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

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

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161N.D
Acq On : 21 Aug 2013 10:55 am
Operator : YM
Sample : AR-WKCC-250-038
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Quant Time: Aug 21 12:25:21 2013
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Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
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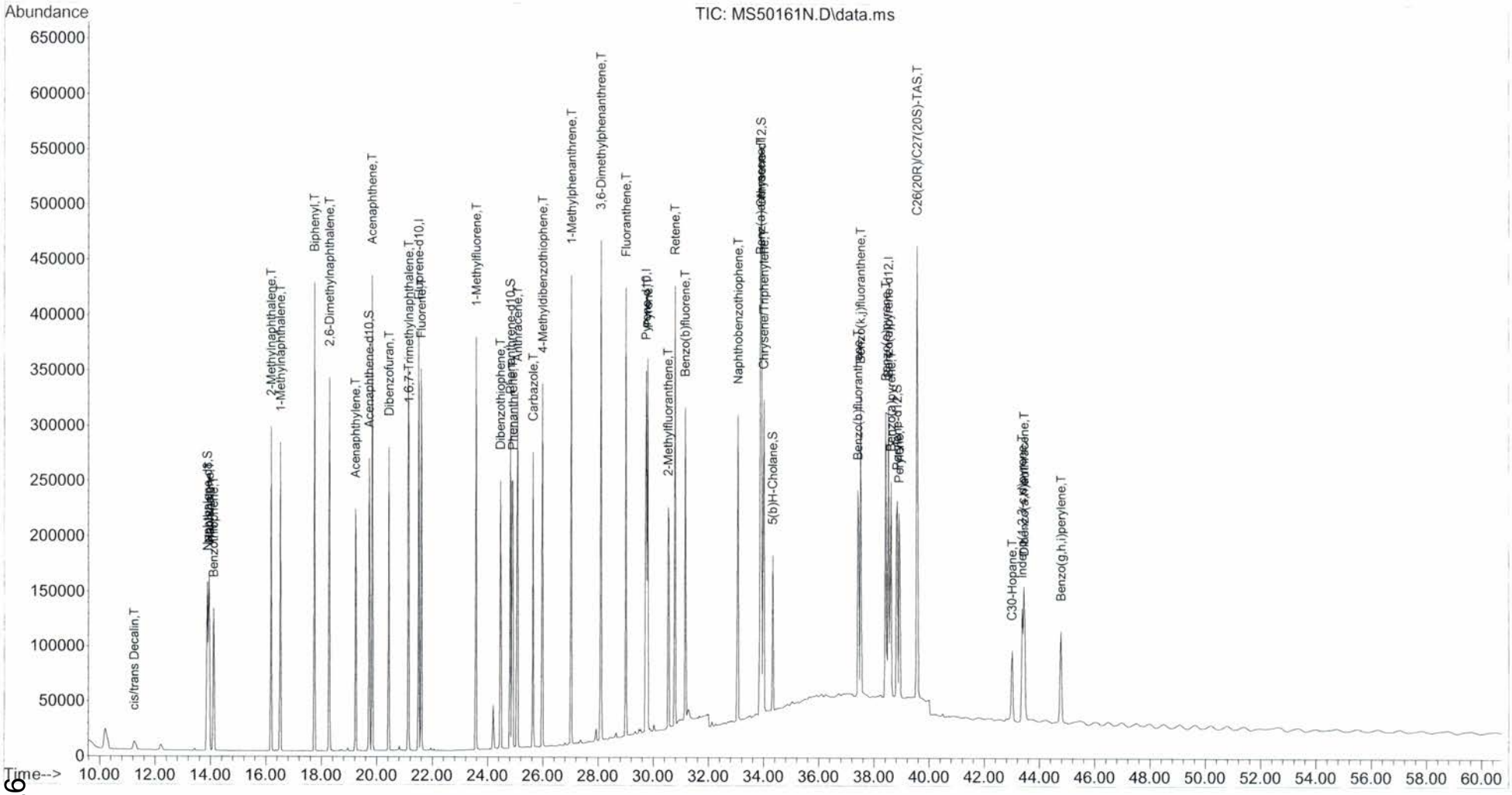


Tissues, Sediments and Water PAH Report (use Phenanthrene-d10 as surrogate correction)

Data File Name MS50161H.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 2:06
Acq. Method File PAH-2012.M
Sample Name AR-WKISSU-250-002
Misc Info 0
Instrument Name GCMS5
Vial Number 8
Sample Multiplier 1
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

MS50161H.D
AR-WKISSU-250-002
8/20/2013
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	13.88	669717	245.08	97.98
21)	Acenaphthene-d10	19.74	368114	229.15	91.60
32)	Phenanthrene-d10	24.82	661875	238.26	95.23
66)	Chrysene-d12	33.91	745537	228.43	91.36
88)	Perylene-d12	38.83	577118	228.22	91.28
90)	5(b)H-Cholane	34.33	214075	277.31	110.92
	Internal Standards				
1)	Fluorene-d10	21.50	410554	251.05	
31)	Pyrene-d10	29.74	750461	250.63	
73)	Benzo(a)pyrene-d12	38.51	510457	250.33	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161H.D
Acq On : 20 Aug 2013 2:06 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 20:22:33 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	410554m	251.05		0.00
31) Pyrene-d10	29.738	212	750461m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	510457m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	669717m	245.08		0.00
21) Acenaphthene-d10	19.737	164	368114m	229.15		0.00
32) Phenanthrene-d10	24.822	188	661875m	238.26		0.00
66) Chrysene-d12	33.907	240	745537m	228.43		0.00
88) Perylene-d12	38.835	264	577118m	228.22		0.00
90) 5(b)H-Cholane	34.328	217	214075m	277.31		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	0.000		0	N.D.	d	
9) 2-Methylnaphthalene	0.000		0	N.D.	d	
10) 1-Methylnaphthalene	0.000		0	N.D.	d	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	0.000		0	N.D.	d	
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	0.000		0	N.D.	d	
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	0.000		0	N.D.	d	
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161H.D
Acq On : 20 Aug 2013 2:06 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 20:22:33 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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\MS50161\
Data File : MS50161H.D
Acq On : 20 Aug 2013 2:06 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 20:22:33 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

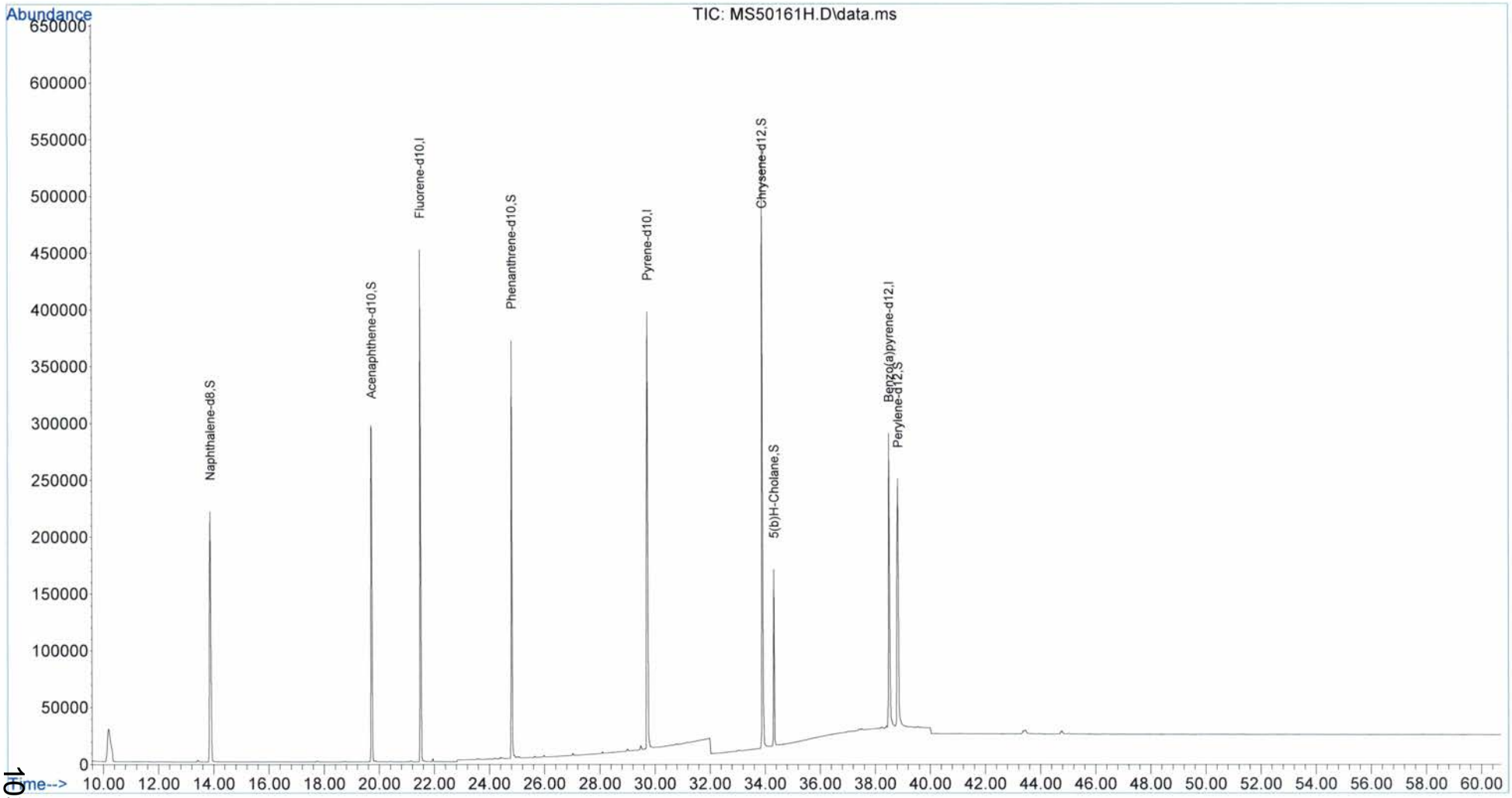
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161H.D
Acq On : 20 Aug 2013 2:06 am
Operator : YM
Sample : AR-WKISSU-250-002
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 31 20:22:33 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name MS50161K.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 5:23
Acq. Method File PAH-2012.M
Sample Name AR-SRM2779-WK-4.0-002
Misc Info 0
Instrument Name GCMS5
Vial Number 11
Sample Multiplier 0.24461
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

MS50161K.D
AR-SRM2779-WK-4.0-002
8/20/2013
PAH-2012.M
4.088140305

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.24	1937180	607.6381	690.4688
4)	C1-Decalins	12.40	2596740	814.5244	925.5569
5)	C2-Decalins	14.77	2187900	686.2827	779.8338
6)	C3-Decalins	16.76	1940600	608.7120	691.6890
7)	C4-Decalins	17.79	1393380	437.0618	496.6402
8)	Naphthalene	13.95	10022800	575.7434	654.2263
9)+10)	C1-Naphthalenes	16.35	21687850	1245.8233	1415.6486
13)	C2-Naphthalenes	18.55	27361800	1571.7611	1786.0169
14)	C3-Naphthalenes	20.56	18168100	1043.6432	1185.9082
15)	C4-Naphthalenes	22.87	9960600	572.1721	650.1682
16)	Benzothiophene	14.15	98696	6.9623	7.9114
17)	C1-Benzothiophenes	15.69	434519	30.6523	34.8307
18)	C2-Benzothiophenes	18.71	393694	27.7725	31.5584
19)	C3-Benzothiophenes	20.39	432000	30.4747	34.6289
20)	C4-Benzothiophenes	22.82	372438	26.2731	29.8545
22)	Biphenyl	17.75	1944560	130.3947	148.1696
23)	Acenaphthylene	19.25	116451	7.4795	8.4991
24)	Acenaphthene	19.85	126195	12.3939	14.0834
25)	Dibenzofuran	20.43	427613	26.8389	30.4974
26)	Fluorene	21.61	1185710	94.2695	107.1199
28)	C1-Fluorenes	23.58	3051530	242.6110	275.6828
29)	C2-Fluorenes	25.42	4598210	365.5794	415.4137
30)	C3-Fluorenes	26.97	3257170	258.9613	294.2618
33)	Carbazole	25.64	67534	4.1510	4.7169
42)	Anthracene	25.08	65393	3.4475	3.9174
41)	Phenanthrene	24.91	4058670	194.8480	221.4089
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	10240561	491.6273	558.6438
50)	C2-Phenanthrenes/Anthracenes	28.47	11522900	553.1904	628.5990
51)	C3-Phenanthrenes/Anthracenes	30.02	8286330	397.8092	452.0369
52)	C4-Phenanthrenes/Anthracenes	31.86	4891140	234.8134	266.8221
34)	Dibenzothiophene	24.48	665645	35.0695	39.8500
35)+36)+37)	C1-Dibenzothiophenes	26.28	2025952	106.7372	121.2872
38)	C2-Dibenzothiophenes	27.39	2763970	145.6198	165.4700
39)	C3-Dibenzothiophenes	28.89	2355480	124.0987	141.0153
40)	C4-Dibenzothiophenes	30.95	1257970	66.2761	75.3106
58)	Fluoranthene	29.03	103029	4.2407	4.8188
59)	Pyrene	29.79	295215	11.1849	12.7095
62)	C1-Fluoranthenes/Pyrenes	30.92	1610080	66.2710	75.3047
63)	C2-Fluoranthenes/Pyrenes	32.42	2887890	118.8655	135.0688
64)	C3-Fluoranthenes/Pyrenes	34.10	2830100	116.4872	132.3662
65)	C4-Fluoranthenes/Pyrenes	35.24	2676040	110.1459	125.1605
53)	Naphthobenzothiophene	33.06	483807	20.6568	23.4726
54)	C1-Naphthobenzothiophenes	34.23	1060570	45.2824	51.4552
55)	C2-Naphthobenzothiophenes	35.95	1464000	62.5074	71.0281
56)	C3-Naphthobenzothiophenes	37.31	1279940	54.6488	62.0983
57)	C4-Naphthobenzothiophenes	38.32	510973	21.8167	24.7906
67)	Benz(a)anthracene	33.87	124227	5.2817	6.0017
68)	Chrysene/Triphenylene	34.00	841087	35.4741	40.3098
69)	C1-Chrysenes	35.20	2126580	89.6916	101.9180
70)	C2-Chrysenes	36.70	2764450	116.5946	132.4883
71)	C3-Chrysenes	38.12	1963910	82.8308	94.1220
72)	C4-Chrysenes	39.58	987154	41.6346	47.3100
77)	Benzo(b)fluoranthene	37.44	114201	4.1832	4.7535
78)	Benzo(k,j)fluoranthene	37.47	11674	0.4363	0.4957
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	235816	8.2195	9.3400
81)	Benzo(a)pyrene	38.61	43507	1.7074	1.9401
89)	Perylene	38.83	17923	0.6954	0.7902
82)	Indeno(1,2,3-c,d)pyrene	43.40	13524	0.6306	0.7165
83)	Dibenzo(a,h)anthracene	43.47	7392	0.4246	0.4825
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	28825	1.6554	1.8810

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	13177300	1156.5454	1314.2008
10)	1-Methylnaphthalene	16.52	8510550	796.0319	904.5436
11)	2,6-Dimethylnaphthalene	18.28	7584840	736.1978	836.5532
12)	1,6,7-Trimethylnaphthalene	21.15	2249950	226.0527	256.8672
27)	1-Methylfluorene	23.58	1588390	188.2912	213.9583
35)	4-Methyldibenzothiophene	25.98	1174340	75.2129	85.4656
36)	2/3-Methyldibenzothiophene	26.26	503099	32.2220	36.6144
37)	1-Methyldibenzothiophene	26.60	348513	22.3211	25.3638
43)	3-Methylphenanthrene	26.57	2200500	131.7403	149.6986
44)	2-Methylphenanthrene	26.66	2669300	159.8066	181.5908
45)	2-Methylanthracene	26.83	135211	8.0949	9.1983
46)	4/9-Methylphenanthrene	26.94	3252510	194.7223	221.2660
47)	1-Methylphenanthrene	27.03	1983040	118.7210	134.9045
48)	3,6-Dimethylphenanthrene	28.10	540813	35.9430	40.8426
49)	Retene	30.78	32900	4.2265	4.8026
60)	2-Methylfluoranthene	30.56	70863	4.2490	4.8282
61)	Benzo(b)fluorene	31.18	201178	14.1255	16.0510
74)	C29-Hopane	40.95	204203	18.1849	20.6638
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.29	413592	36.8317	41.8524
91)	C20-TAS	33.45	163771	4.3869	4.9849
92)	C21-TAS	34.56	127588	3.4177	3.8836
93)	C26(20S)-TAS	38.71	123947	3.3201	3.7727
94)	C26(20R)/C27(20S)-TAS	39.61	397790	10.6555	12.1080
95)	C28(20S)-TAS	40.43	303890	8.1403	9.2499
96)	C27(20R)-TAS	40.88	253602	6.7932	7.7192
97)	C28(20R)-TAS	42.03	207867	5.5681	6.3271
	Surrogate Standards				
2)	Naphthalene-d8	13.88	889048	52.63	86.02
21)	Acenaphthene-d10	19.74	564098	56.80	92.83
32)	Phenanthrene-d10	24.82	1058570	53.86	88.00
66)	Chrysene-d12	33.91	1299050	56.26	91.98
88)	Perylene-d12	38.83	1313340	53.30	87.15
90)	5(b)H-Cholane	34.33	451617	60.04	98.19
	Internal Standards				
1)	Fluorene-d10	21.50	620803	61.41	
31)	Pyrene-d10	29.74	1298790	61.31	
73)	Benzo(a)pyrene-d12	38.51	1216590	61.23	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161K.D
Acq On : 20 Aug 2013 5:23 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 31 21:20:51 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	620803m	251.05		0.00
31) Pyrene-d10	29.738	212	1298787m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	1216588m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	889048m	52.63		0.00
21) Acenaphthene-d10	19.737	164	564098m	56.80		0.00
32) Phenanthrene-d10	24.822	188	1058565m	53.86		0.00
66) Chrysene-d12	33.907	240	1299051m	56.26		0.00
88) Perylene-d12	38.835	264	1313337m	53.30		0.00
90) 5(b)H-Cholane	34.328	217	451617m	60.04		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	1937175m	607.64		
4) C1-Decalins	12.404	152	2596740m	814.52		
5) C2-Decalins	14.774	166	2187904m	686.28		
6) C3-Decalins	16.764	180	1940601m	608.71		
7) C4-Decalins	17.792	194	1393375m	437.06		
8) Naphthalene	13.947	128	10022759m	575.74		
9) 2-Methylnaphthalene	16.182	142	13177251m	1156.55		
10) 1-Methylnaphthalene	16.518	142	8510553m	796.03		
11) 2,6-Dimethylnaphthalene	18.284	156	7584836m	736.20		
12) 1,6,7-Trimethylnaphtha...	21.145	170	2249952m	226.05		
13) C2-Naphthalenes	18.552	156	27361784m	1571.76		
14) C3-Naphthalenes	20.564	170	18168131m	1043.64		
15) C4-Naphthalenes	22.873	184	9960598m	572.17		
16) Benzothiophene	14.148	134	98696m	6.96		
17) C1-Benzothiophenes	15.690	148	434519m	30.65		
18) C2-Benzothiophenes	18.709	162	393694m	27.77		
19) C3-Benzothiophenes	20.385	176	432000m	30.47		
20) C4-Benzothiophenes	22.822	190	372438m	26.27		
22) Biphenyl	17.747	154	1944561m	130.39		
23) Acenaphthylene	19.245	152	116451m	7.48		
24) Acenaphthene	19.849	154	126195m	12.39		
25) Dibenzofuran	20.430	168	427613m	26.84		
26) Fluorene	21.615	166	1185708m	94.27		
27) 1-Methylfluorene	23.579	180	1588392m	188.29		
28) C1-Fluorenes	23.579	180	3051526m	242.61		
29) C2-Fluorenes	25.416	194	4598211m	365.58		
30) C3-Fluorenes	26.969	208	3257173m	258.96		
33) Carbazole	25.642	167	67534m	4.15		
34) Dibenzothiophene	24.483	184	665645m	35.07		
35) 4-Methyldibenzothiophene	25.981	198	1174344m	75.21		
36) 2/3-Methyldibenzothiop...	26.263	198	503099m	32.22		
37) 1-Methyldibenzothiophene	26.602	198	348513m	22.32		
38) C2-Dibenzothiophenes	27.393	212	2763967m	145.62		
39) C3-Dibenzothiophenes	28.891	226	2355483m	124.10		
40) C4-Dibenzothiophenes	30.953	240	1257970m	66.28		
41) Phenanthrene	24.907	178	4058671m	194.85		
42) Anthracene	25.076	178	65393m	3.45		
43) 3-Methylphenanthrene	26.574	192	2200500m	131.74		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161K.D
Acq On : 20 Aug 2013 5:23 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 31 21:20:51 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	2669300m	159.81		
45)	2-Methylanthracene	26.828	192	135211m	8.09		
46)	4/9-Methylphenanthrene	26.941	192	3252505m	194.72		
47)	1-Methylphenanthrene	27.026	192	1983035m	118.72		
48)	3,6-Dimethylphenanthrene	28.099	206	540813m	35.94		
49)	Retene	30.783	234	32900m	4.23		
50)	C2-Phenanthrenes/Anthr...	28.467	206	11522895m	553.19		
51)	C3-Phenanthrenes/Anthr...	30.021	220	8286326m	397.81		
52)	C4-Phenanthrenes/Anthr...	31.857	234	4891143m	234.81		
53)	Naphthobenzothiophene	33.064	234	483807m	20.66		
54)	C1-Naphthobenzothiophenes	34.231	248	1060568m	45.28		
55)	C2-Naphthobenzothiophenes	35.949	262	1463998m	62.51		
56)	C3-Naphthobenzothiophenes	37.311	276	1279943m	54.65		
57)	C4-Naphthobenzothiophenes	38.316	290	510973m	21.82		
58)	Fluoranthene	29.032	202	103029m	4.24		
59)	Pyrene	29.795	202	295215m	11.18		
60)	2-Methylfluoranthene	30.557	216	70863m	4.25		
61)	Benzo(b)fluorene	31.179	216	201178m	14.13		
62)	C1-Fluoranthenes/Pyrenes	30.925	216	1610078m	66.27		
63)	C2-Fluoranthenes/Pyrenes	32.416	230	2887889m	118.87		
64)	C3-Fluoranthenes/Pyrenes	34.101	244	2830103m	116.49		
65)	C4-Fluoranthenes/Pyrenes	35.236	258	2676043m	110.15		
67)	Benz(a)anthracene	33.874	228	124227m	5.28		
68)	Chrysene/Triphenylene	34.004	228	841087m	35.47		
69)	C1-Chrysenes	35.204	242	2126581m	89.69		
70)	C2-Chrysenes	36.695	256	2764447m	116.59		
71)	C3-Chrysenes	38.122	270	1963914m	82.83		
72)	C4-Chrysenes	39.580	284	987154m	41.63		
74)	C29-Hopane	40.950	191	204203m	18.18		
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	42.290	191	413592m	36.83		
77)	Benzo(b)fluoranthene	37.441	252	114201m	4.18		
78)	Benzo(k,j)fluoranthene	37.473	252	11674m	0.44		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	235816m	8.22		
81)	Benzo(a)pyrene	38.608	252	43507m	1.71		
82)	Indeno(1,2,3-c,d)pyrene	43.402	276	13524m	0.63		
83)	Dibenzo(a,h)anthracene	43.468	278	7392m	0.42		
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	44.776	276	28825m	1.66		
89)	Perylene	38.835	252	17923m	0.70		
91)	C20-TAS	33.453	231	163771m	4.39		
92)	C21-TAS	34.555	231	127588m	3.42		
93)	C26(20S)-TAS	38.705	231	123947m	3.32		
94)	C26(20R)/C27(20S)-TAS	39.613	231	397790m	10.66		
95)	C28(20S)-TAS	40.427	231	303890m	8.14		
96)	C27(20R)-TAS	40.884	231	253602m	6.79		
97)	C28(20R)-TAS	42.029	231	207867m	5.57		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161K.D
Acq On : 20 Aug 2013 5:23 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 31 21:20:51 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

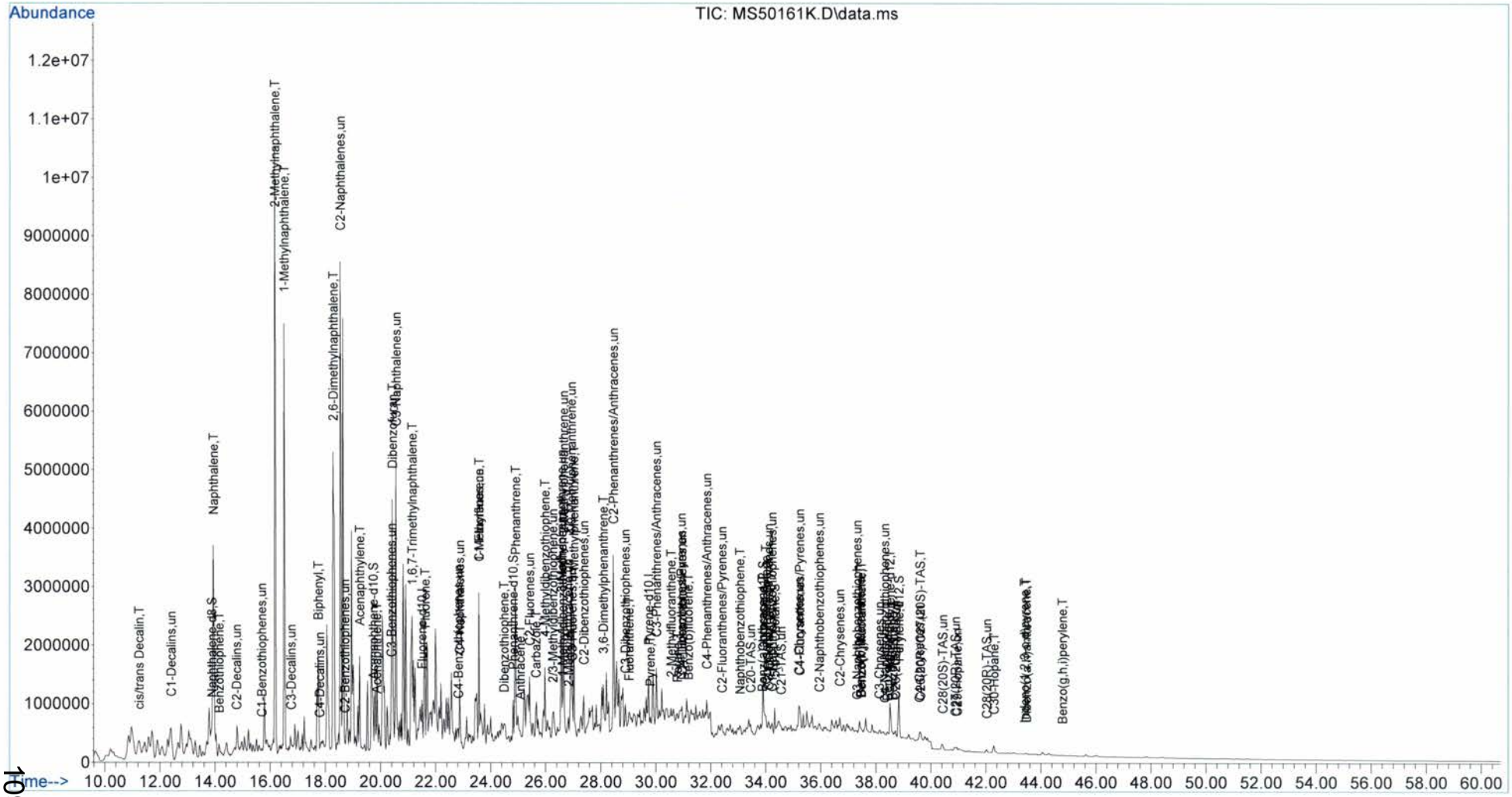
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : MS50161K.D
Acq On : 20 Aug 2013 5:23 am
Operator : YM
Sample : AR-SRM2779-WK-4.0-002
Misc :
ALS Vial : 11 Sample Multiplier: 0.24461

Quant Time: Aug 31 21:20:51 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ENV3083A.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 6:28
Acq. Method File PAH-2012.M
Sample Name Procedural Blank
Misc Info 0
Instrument Name GCMS5
Vial Number 12
Sample Multiplier 0.06667
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ENV3083A.D
Procedural Blank
8/20/2013
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	13.95	3371	0.0909	0.1081
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	29.00	2204	0.0457	0.0544
59)	Pyrene	29.79	3802	0.0726	0.0864
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	13.88	493976	13.73	82.32
21)	Acenaphthene-d10	19.74	295917	13.99	83.87
32)	Phenanthrene-d10	24.82	546834	14.02	84.06
66)	Chrysene-d12	33.91	711139	15.52	93.10
88)	Perylene-d12	38.83	617000	14.19	85.15
90)	5(b)H-Cholane	34.33	217521	16.39	98.35
	Internal Standards				
1)	Fluorene-d10	21.50	360445	16.74	
31)	Pyrene-d10	29.74	702425	16.71	
73)	Benzo(a)pyrene-d12	38.51	585001	16.69	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083A.D
Acq On : 20 Aug 2013 6:28 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 31 21:32:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	360445m	251.05		0.00
31) Pyrene-d10	29.738	212	702425m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	585001m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	493976m	13.73		0.00
21) Acenaphthene-d10	19.737	164	295917m	13.99		0.00
32) Phenanthrene-d10	24.822	188	546834m	14.02		0.00
66) Chrysene-d12	33.907	240	711139m	15.52		0.00
88) Perylene-d12	38.835	264	617000m	14.19		0.00
90) 5(b)H-Cholane	34.328	217	217521m	16.39		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	3371m	0.09		
9) 2-Methylnaphthalene	0.000		0	N.D.	d	
10) 1-Methylnaphthalene	0.000		0	N.D.	d	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	0.000		0	N.D.	d	
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	0.000		0	N.D.	d	
35) 4-Methyldibenzothiophene	0.000		0	N.D.	d	
36) 2/3-Methyldibenzothiop...	0.000		0	N.D.	d	
37) 1-Methyldibenzothiophene	0.000		0	N.D.	d	
38) C2-Dibenzothiophenes	0.000		0	N.D.	d	
39) C3-Dibenzothiophenes	0.000		0	N.D.	d	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	0.000		0	N.D.	d	
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083A.D
Acq On : 20 Aug 2013 6:28 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 31 21:32:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	0.000		0	N.D.	d	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	29.004	202	2204m	0.05		
59)	Pyrene	29.795	202	3802m	0.07		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	0.000		0	N.D.	d	
68)	Chrysene/Triphenylene	0.000		0	N.D.	d	
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	0.000		0	N.D.	d	
78)	Benzo(k,j)fluoranthene	0.000		0	N.D.	d	
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	0.000		0	N.D.	d	
81)	Benzo(a)pyrene	0.000		0	N.D.	d	
82)	Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83)	Dibenzo(a,h)anthracene	0.000		0	N.D.	d	
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	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\MS50161\
Data File : ENV3083A.D
Acq On : 20 Aug 2013 6:28 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 31 21:32:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

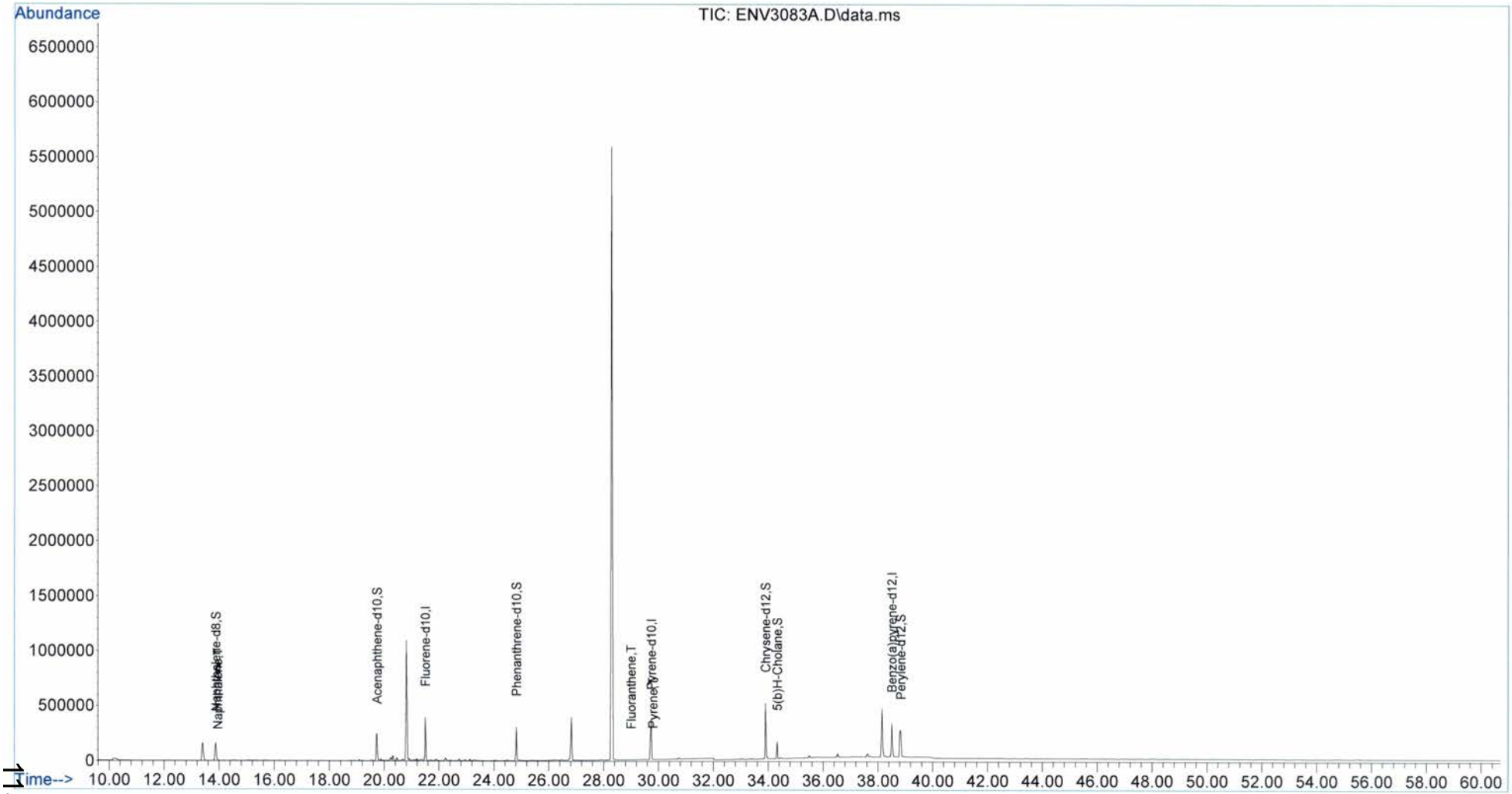
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083A.D
Acq On : 20 Aug 2013 6:28 am
Operator : YM
Sample : Procedural Blank
Misc :
ALS Vial : 12 Sample Multiplier: 0.06667

Quant Time: Aug 31 21:32:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ENV3083B.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 7:34
Acq. Method File PAH-2012.M
Sample Name SRM 1941b
Misc Info 0
Instrument Name GCMS5
Vial Number 13
Sample Multiplier 0.24752
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

ENV3083B.D
SRM 1941b
8/20/2013
PAH-2012.M
4.040077569

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.49	66866	29.4732	36.6409
4)	C1-Decalins	12.40	15414	6.7942	8.4465
5)	C2-Decalins	14.77	24477	10.7890	13.4128
6)	C3-Decalins	17.37	52316	23.0599	28.6679
7)	C4-Decalins	17.66	85226	37.5661	46.7020
8)	Naphthalene	13.95	6916080	558.2764	694.0458
9)+10)	C1-Naphthalenes	16.35	2124303	171.4769	213.1791
13)	C2-Naphthalenes	18.55	1982910	160.0633	198.9897
14)	C3-Naphthalenes	20.56	1428350	115.2985	143.3384
15)	C4-Naphthalenes	22.87	1019960	82.3323	102.3550
16)	Benzothiophene	14.10	231255	22.9242	28.4992
17)	C1-Benzothiophenes	16.45	240314	23.8222	29.6156
18)	C2-Benzothiophenes	18.31	167333	16.5876	20.6216
19)	C3-Benzothiophenes	20.83	627905	62.2439	77.3812
20)	C4-Benzothiophenes	20.85	128083	12.6968	15.7846
22)	Biphenyl	17.75	554040	52.2067	64.9030
23)	Acenaphthylene	19.25	677106	61.1134	75.9758
24)	Acenaphthene	19.83	162787	22.4664	27.9300
25)	Dibenzofuran	20.43	739971	65.2643	81.1362
26)	Fluorene	21.62	370429	41.3853	51.4500
28)	C1-Fluorenes	23.58	411906	46.0192	57.2107
29)	C2-Fluorenes	25.98	964678	107.7761	133.9866
30)	C3-Fluorenes	27.68	1299080	145.1366	180.4329
33)	Carbazole	25.64	185687	15.8451	19.6985
42)	Anthracene	25.08	2042260	149.4744	185.8256
41)	Phenanthrene	24.91	4656080	310.3257	385.7950
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.80	3669356	244.5610	304.0367
50)	C2-Phenanthrenes/Anthracenes	28.47	3657600	243.7765	303.0614
51)	C3-Phenanthrenes/Anthracenes	30.02	3157350	210.4356	261.6122
52)	C4-Phenanthrenes/Anthracenes	30.78	1501030	100.0429	124.3727
34)	Dibenzothiophene	24.46	542141	39.6537	49.2972
35)+36)+37)	C1-Dibenzothiophenes	26.28	722039	52.8119	65.6555
38)	C2-Dibenzothiophenes	27.70	1319740	96.5293	120.0047
39)	C3-Dibenzothiophenes	28.89	1562590	114.2921	142.0872
40)	C4-Dibenzothiophenes	30.95	908840	66.4750	82.6413
58)	Fluoranthene	29.00	9424320	538.5293	669.4963
59)	Pyrene	29.79	8084020	425.2097	528.6180
62)	C1-Fluoranthenes/Pyrenes	30.92	5294190	302.5239	376.0958
63)	C2-Fluoranthenes/Pyrenes	32.68	5540160	316.5781	393.5679
64)	C3-Fluoranthenes/Pyrenes	34.07	2547620	145.5774	180.9809
65)	C4-Fluoranthenes/Pyrenes	35.40	1679950	95.9964	119.3422
53)	Naphthobenzothiophene	33.06	2287260	135.5781	168.5498
54)	C1-Naphthobenzothiophenes	34.23	1799090	106.6418	132.5764
55)	C2-Naphthobenzothiophenes	35.95	1701700	100.8689	125.3995
56)	C3-Naphthobenzothiophenes	37.31	1429450	84.7313	105.3374
57)	C4-Naphthobenzothiophenes	38.19	587884	34.8471	43.3217
67)	Benz(a)anthracene	33.87	5065350	298.9868	371.6986
68)	Chrysene/Triphenylene	34.00	6427520	376.3542	467.8812
69)	C1-Chrysenes	35.37	4544750	266.1112	330.8278
70)	C2-Chrysenes	36.70	2638210	154.4762	192.0439
71)	C3-Chrysenes	38.12	1503890	88.0580	109.4731
72)	C4-Chrysenes	39.58	482443	28.2487	35.1186
77)	Benzo(b)fluoranthene	37.44	7432620	390.4702	485.4302
78)	Benzo(k,j)fluoranthene	37.44	7231620	387.5841	481.8422
79)	Benzo(a)fluoranthene	37.80	1183950	63.4547	78.8865
80)	Benzo(e)pyrene	38.41	5213110	260.5990	323.9750
81)	Benzo(a)pyrene	38.61	3930050	221.1970	274.9907
89)	Perylene	38.93	4944480	275.1309	342.0410
82)	Indeno(1,2,3-c,d)pyrene	43.40	3862140	258.2698	321.0794
83)	Dibenzo(a,h)anthracene	43.47	517648	42.6467	53.0181
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	2775810	228.6238	284.2237

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	1464010	180.5629	224.4746
10)	1-Methylnaphthalene	16.52	660293	86.7874	107.8936
11)	2,6-Dimethylnaphthalene	18.28	565754	77.1656	95.9318
12)	1,6,7-Trimethylnaphthalene	21.15	93932	13.2617	16.4868
27)	1-Methylfluorene	23.58	145061	24.1641	30.0406
35)	4-Methyldibenzothiophene	25.98	378481	33.6531	41.8373
36)	2/3-Methyldibenzothiophene	26.26	237681	21.1337	26.2733
37)	1-Methyldibenzothiophene	26.60	105877	9.4142	11.7036
43)	3-Methylphenanthrene	26.57	794877	66.0666	82.1335
44)	2-Methylphenanthrene	26.66	1033490	85.8991	106.7892
45)	2-Methylanthracene	26.80	590740	49.0996	61.0403
46)	4/9-Methylphenanthrene	26.94	637266	52.9666	65.8477
47)	1-Methylphenanthrene	27.03	612983	50.9483	63.3386
48)	3,6-Dimethylphenanthrene	28.13	310110	28.6131	35.5716
49)	Retene	30.78	150543	26.8487	33.3782
60)	2-Methylfluoranthene	30.59	753804	62.7493	78.0095
61)	Benzo(b)fluorene	31.18	737086	71.8496	89.3230
74)	C29-Hopane	40.95	1443690	184.3861	229.2276
75)	18a-Oleanane	42.06	208394	26.6158	33.0886
76)	C30-Hopane	42.29	1855620	236.9969	294.6331
91)	C20-TAS	33.45	43864	1.6851	2.0949
92)	C21-TAS	34.43	140508	5.3979	6.7107
93)	C26(20S)-TAS	38.71	50032	1.9221	2.3895
94)	C26(20R)/C27(20S)-TAS	39.61	193450	7.4318	9.2392
95)	C28(20S)-TAS	40.43	135610	5.2098	6.4767
96)	C27(20R)-TAS	40.88	126666	4.8662	6.0496
97)	C28(20R)-TAS	42.03	142864	5.4884	6.8232
	Surrogate Standards				
2)	Naphthalene-d8	13.88	526912	43.83	70.80
21)	Acenaphthene-d10	19.74	339727	48.07	77.64
32)	Phenanthrene-d10	24.82	705227	49.81	80.44
66)	Chrysene-d12	33.91	853978	51.34	82.96
88)	Perylene-d12	38.83	871887	50.75	82.01
90)	5(b)H-Cholane	34.33	277688	52.95	85.57
	Internal Standards				
1)	Fluorene-d10	21.50	447036	62.14	
31)	Pyrene-d10	29.74	946652	62.03	
73)	Benzo(a)pyrene-d12	38.51	858371	61.96	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083B.D
Acq On : 20 Aug 2013 7:34 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24752

Quant Time: Aug 31 21:53:03 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	447036m	251.05		0.00
31) Pyrene-d10	29.738	212	946652m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	858371m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	526912m	43.83		0.00
21) Acenaphthene-d10	19.737	164	339727m	48.07		0.00
32) Phenanthrene-d10	24.822	188	705227m	49.81		0.00
66) Chrysene-d12	33.907	240	853978m	51.34		0.00
88) Perylene-d12	38.835	264	871887m	50.75		0.00
90) 5(b)H-Cholane	34.328	217	277688m	52.95		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.487	138	66866m	29.47		
4) C1-Decalins	12.404	152	15414m	6.79		
5) C2-Decalins	14.774	166	24477m	10.79		
6) C3-Decalins	17.367	180	52316m	23.06		
7) C4-Decalins	17.658	194	85226m	37.57		
8) Naphthalene	13.947	128	6916077m	558.28		
9) 2-Methylnaphthalene	16.182	142	1464007m	180.56		
10) 1-Methylnaphthalene	16.518	142	660293m	86.79		
11) 2,6-Dimethylnaphthalene	18.284	156	565754m	77.17		
12) 1,6,7-Trimethylnaphtha...	21.145	170	93932m	13.26		
13) C2-Naphthalenes	18.552	156	1982907m	160.06		
14) C3-Naphthalenes	20.564	170	1428348m	115.30		
15) C4-Naphthalenes	22.873	184	1019956m	82.33		
16) Benzothiophene	14.103	134	231255m	22.92		
17) C1-Benzothiophenes	16.451	148	240314m	23.82		
18) C2-Benzothiophenes	18.306	162	167333m	16.59		
19) C3-Benzothiophenes	20.832	176	627905m	62.24		
20) C4-Benzothiophenes	20.855	190	128083m	12.70		
22) Biphenyl	17.747	154	554040m	52.21		
23) Acenaphthylene	19.245	152	677106m	61.11		
24) Acenaphthene	19.826	154	162787m	22.47		
25) Dibenzofuran	20.430	168	739971m	65.26		
26) Fluorene	21.615	166	370429m	41.39		
27) 1-Methylfluorene	23.579	180	145061m	24.16		
28) C1-Fluorenes	23.579	180	411906m	46.02		
29) C2-Fluorenes	25.981	194	964678m	107.78		
30) C3-Fluorenes	27.676	208	1299081m	145.14		
33) Carbazole	25.642	167	185687m	15.85		
34) Dibenzothiophene	24.455	184	542141m	39.65		
35) 4-Methyldibenzothiophene	25.981	198	378481m	33.65		
36) 2/3-Methyldibenzothiop...	26.263	198	237681m	21.13		
37) 1-Methyldibenzothiophene	26.602	198	105877m	9.41		
38) C2-Dibenzothiophenes	27.704	212	1319741m	96.53		
39) C3-Dibenzothiophenes	28.891	226	1562589m	114.29		
40) C4-Dibenzothiophenes	30.953	240	908840m	66.48		
41) Phenanthrene	24.907	178	4656084m	310.33		
42) Anthracene	25.077	178	2042261m	149.47		
43) 3-Methylphenanthrene	26.574	192	794877m	66.07		

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083B.D
Acq On : 20 Aug 2013 7:34 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24752

Quant Time: Aug 31 21:53:03 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	1033494m	85.90		
45) 2-Methylanthracene	26.800	192	590740m	49.10		
46) 4/9-Methylphenanthrene	26.941	192	637266m	52.97		
47) 1-Methylphenanthrene	27.026	192	612983m	50.95		
48) 3,6-Dimethylphenanthrene	28.128	206	310110m	28.61		
49) Retene	30.783	234	150543m	26.85		
50) C2-Phenanthrenes/Anthr...	28.467	206	3657596m	243.78		
51) C3-Phenanthrenes/Anthr...	30.021	220	3157353m	210.44		
52) C4-Phenanthrenes/Anthr...	30.783	234	1501031m	100.04		
53) Naphthobenzothiophene	33.064	234	2287262m	135.58		
54) C1-Naphthobenzothiophenes	34.231	248	1799091m	106.64		
55) C2-Naphthobenzothiophenes	35.949	262	1701702m	100.87		
56) C3-Naphthobenzothiophenes	37.311	276	1429451m	84.73		
57) C4-Naphthobenzothiophenes	38.186	290	587884m	34.85		
58) Fluoranthene	29.004	202	9424320m	538.53		
59) Pyrene	29.795	202	8084017m	425.21		
60) 2-Methylfluoranthene	30.586	216	753804m	62.75		
61) Benzo(b)fluorene	31.179	216	737086m	71.85		
62) C1-Fluoranthenes/Pyrenes	30.925	216	5294191m	302.52		
63) C2-Fluoranthenes/Pyrenes	32.675	230	5540155m	316.58		
64) C3-Fluoranthenes/Pyrenes	34.069	244	2547619m	145.58		
65) C4-Fluoranthenes/Pyrenes	35.398	258	1679948m	96.00		
67) Benz(a)anthracene	33.875	228	5065354m	298.99		
68) Chrysene/Triphenylene	34.004	228	6427515m	376.35		
69) C1-Chrysenes	35.366	242	4544746m	266.11		
70) C2-Chrysenes	36.695	256	2638206m	154.48		
71) C3-Chrysenes	38.122	270	1503889m	88.06		
72) C4-Chrysenes	39.580	284	482443m	28.25		
74) C29-Hopane	40.950	191	1443691m	184.39		
75) 18a-Oleanane	42.062	191	208394m	26.62		
76) C30-Hopane	42.291	191	1855619m	237.00		
77) Benzo(b)fluoranthene	37.441	252	7432623m	390.47		
78) Benzo(k,j)fluoranthene	37.441	252	7231622m	387.58		
79) Benzo(a)fluoranthene	37.797	252	1183949m	63.45		
80) Benzo(e)pyrene	38.413	252	5213107m	260.60		
81) Benzo(a)pyrene	38.608	252	3930051m	221.20		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	3862144m	258.27		
83) Dibenzo(a,h)anthracene	43.468	278	517648m	42.65		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	2775814m	228.62		
89) Perylene	38.932	252	4944475m	275.13		
91) C20-TAS	33.453	231	43864m	1.69		
92) C21-TAS	34.426	231	140508m	5.40		
93) C26(20S)-TAS	38.705	231	50032m	1.92		
94) C26(20R)/C27(20S)-TAS	39.613	231	193450m	7.43		
95) C28(20S)-TAS	40.427	231	135610m	5.21		
96) C27(20R)-TAS	40.884	231	126666m	4.87		
97) C28(20R)-TAS	42.029	231	142864m	5.49		

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083B.D
Acq On : 20 Aug 2013 7:34 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24752

Quant Time: Aug 31 21:53:03 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

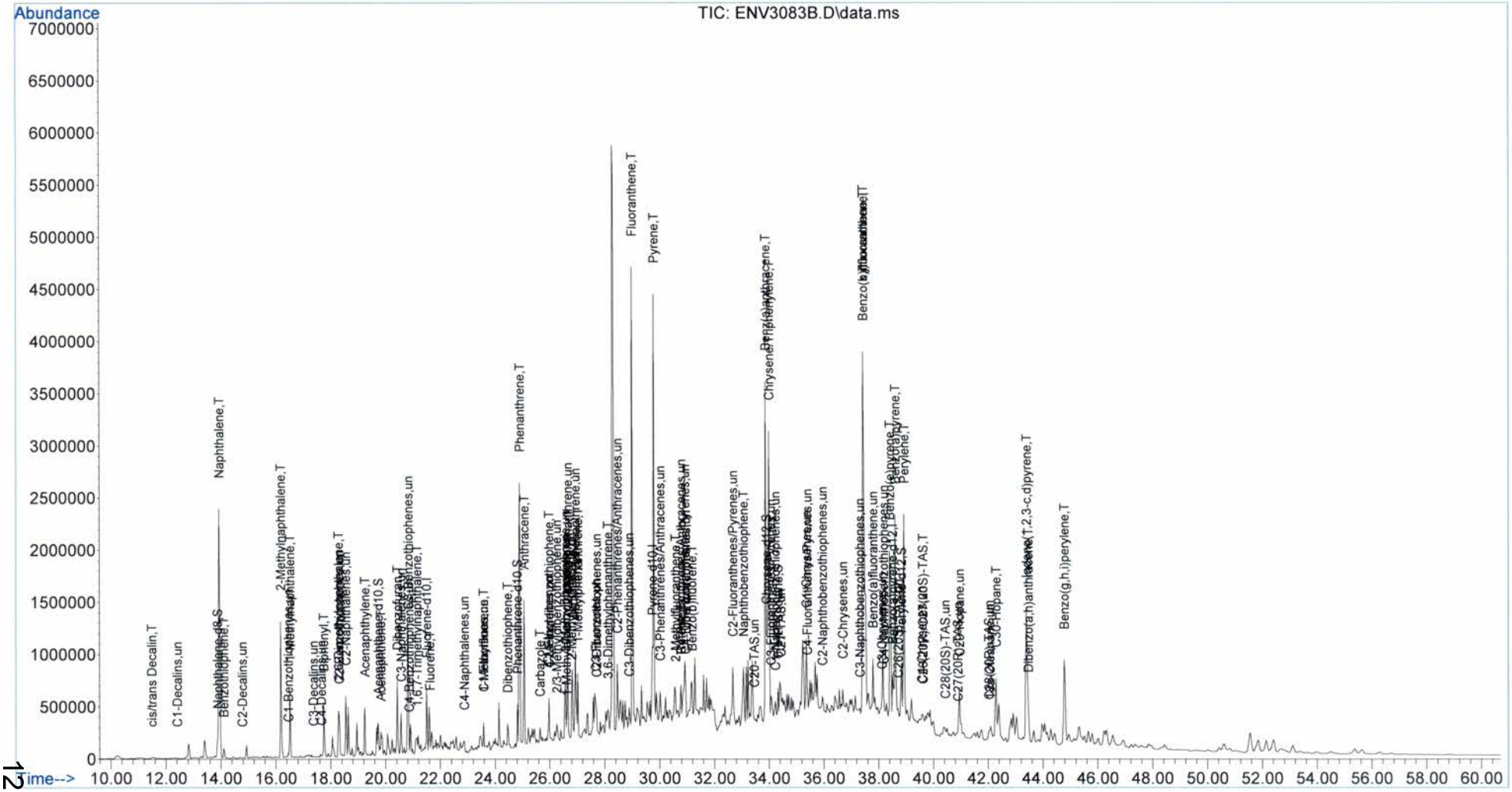
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083B.D
Acq On : 20 Aug 2013 7:34 am
Operator : YM
Sample : SRM 1941b
Misc :
ALS Vial : 13 Sample Multiplier: 0.24752

Quant Time: Aug 31 21:53:03 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ENV3083C.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 8:40
Acq. Method File PAH-2012.M
Sample Name MS (SO-DA-011 (0-0.5) MS/MSD)
Misc Info 0
Instrument Name GCMS5
Vial Number 14
Sample Multiplier 0.0664
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ENV3083C.D
(SO-DA-011 (0-0.5) MS/MSD)
8/20/2013
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	13.95	336064	8.9553	10.3555
9)+10)	C1-Naphthalenes	16.35	383666	10.2238	11.8223
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	19.25	217271	6.4737	7.4859
24)	Acenaphthene	19.83	129231	5.8877	6.8083
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	237874	8.7732	10.1449
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	237775	5.3645	6.2032
41)	Phenanthrene	24.91	1155500	23.7393	27.4511
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.41	276995	5.6908	6.5806
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	343275	7.7396	8.9497
35)+36)+37)	C1-Dibenzothiophenes	8.66	232307	5.2377	6.0566
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	2566870	45.2134	52.2828
59)	Pyrene	29.79	1942360	31.4927	36.4168
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	978347	17.8008	20.5841
68)	Chrysene/Triphenylene	34.00	2290840	41.3477	47.8127
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	3796340	64.6892	74.8038
78)	Benzo(k,j)fluoranthene	37.47	854422	14.8533	17.1757
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	2318050	37.5854	43.4621
81)	Benzo(a)pyrene	38.61	519340	9.4809	10.9633
89)	Perylene	38.93	116089	2.0952	2.4228
82)	Indeno(1,2,3-c,d)pyrene	43.40	1101620	23.8942	27.6303
83)	Dibenzo(a,h)anthracene	43.47	312866	8.3604	9.6676
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	1459640	38.9937	45.0907

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	220228	8.9666	10.3686
10)	1-Methylnaphthalene	16.52	163438	7.0916	8.2004
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	232307	6.3672	7.3627
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	27.03	276995	7.0967	8.2063
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	518399	14.24	85.72
21)	Acenaphthene-d10	19.74	326587	15.26	91.84
32)	Phenanthrene-d10	24.82	659827	14.37	86.48
66)	Chrysene-d12	33.91	858918	15.92	95.88
88)	Perylene-d12	38.84	71572	1.35	8.14
90)	5(b)H-Cholane	34.33	231727	14.33	86.33
	Internal Standards				
1)	Fluorene-d10	21.50	363271	16.67	
31)	Pyrene-d10	29.74	823843	16.64	
73)	Benzo(a)pyrene-d12	38.51	709927	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083C.D
Acq On : 20 Aug 2013 8:40 am
Operator : YM
Sample : MS (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 01 10:36:24 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	363271m	251.05		0.00
31) Pyrene-d10	29.738	212	823843m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	709927m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	518399m	14.24		0.00
21) Acenaphthene-d10	19.737	164	326587m	15.26		0.00
32) Phenanthrene-d10	24.822	188	659827m	14.37		0.00
66) Chrysene-d12	33.907	240	858918m	15.92		0.00
88) Perylene-d12	38.835	264	71572m	1.35		0.00
90) 5(b)H-Cholane	34.329	217	231727m	14.33		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	336064m	8.96		
9) 2-Methylnaphthalene	16.182	142	220228m	8.97		
10) 1-Methylnaphthalene	16.518	142	163438m	7.09		
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	19.245	152	217271m	6.47		
24) Acenaphthene	19.827	154	129231m	5.89		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	237874m	8.77		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	343275m	7.74		
35) 4-Methyldibenzothiophene	25.981	198	232307m	6.37		
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	24.907	178	1155498m	23.74		
42) Anthracene	25.077	178	237775m	5.36		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083C.D
Acq On : 20 Aug 2013 8:40 am
Operator : YM
Sample : MS (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 01 10:36:24 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	276995m	7.10		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	2566874m	45.21		
59) Pyrene	29.795	202	1942364m	31.49		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	978347m	17.80		
68) Chrysene/Triphenylene	34.004	228	2290837m	41.35		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	3796344m	64.69		
78) Benzo(k,j)fluoranthene	37.473	252	854422m	14.85		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	2318049m	37.59		
81) Benzo(a)pyrene	38.608	252	519340m	9.48		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	1101616m	23.89		
83) Dibenzo(a,h)anthracene	43.468	278	312866m	8.36		
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	44.776	276	1459635m	38.99		
89) Perylene	38.932	252	116089m	2.10		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	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\MS50161\
Data File : ENV3083C.D
Acq On : 20 Aug 2013 8:40 am
Operator : YM
Sample : MS (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 01 10:36:24 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

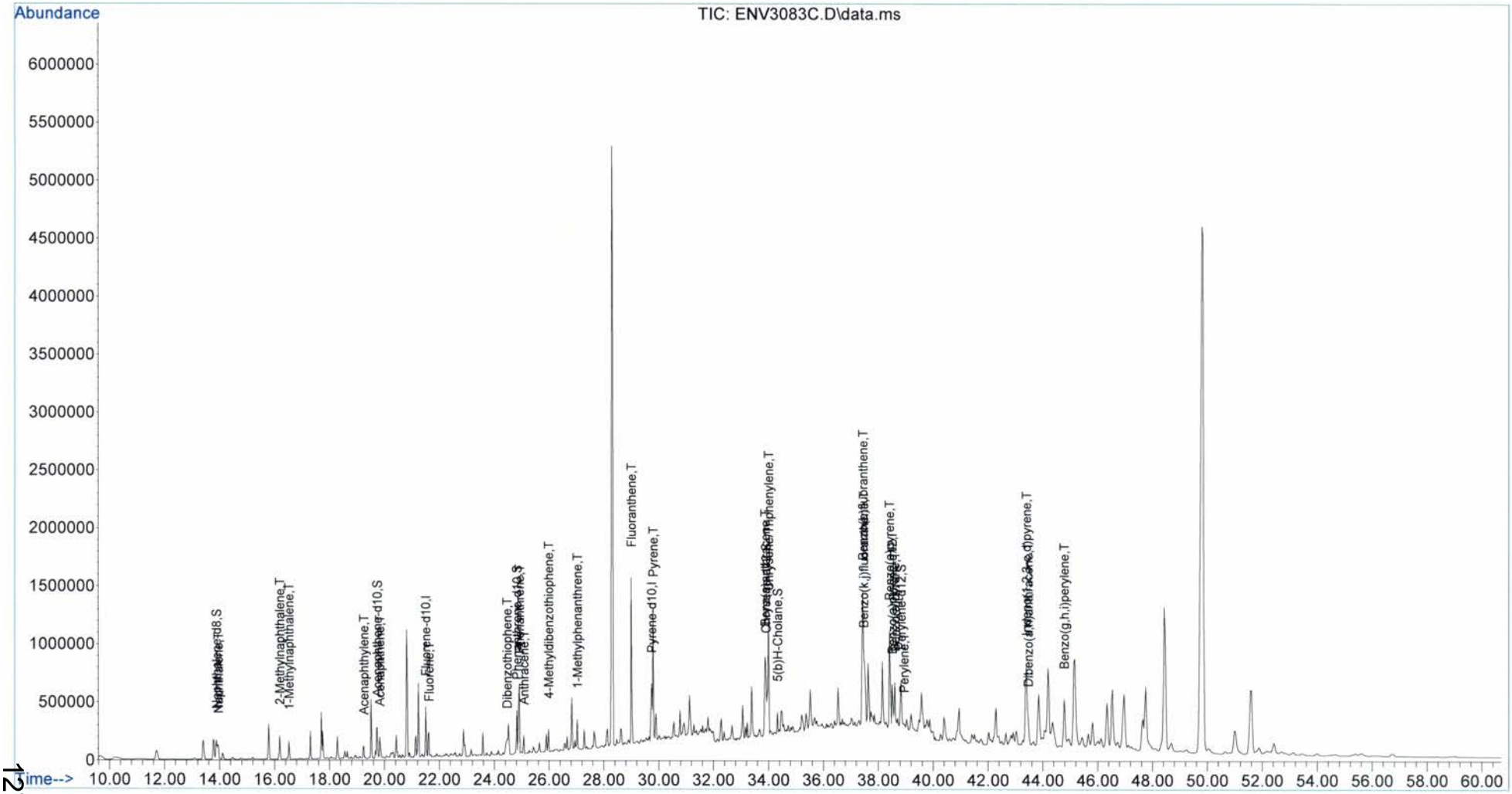
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083C.D
Acq On : 20 Aug 2013 8:40 am
Operator : YM
Sample : MS (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 14 Sample Multiplier: 0.0664

Quant Time: Sep 01 10:36:24 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ENV3083D.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 9:45
Acq. Method File PAH-2012.M
Sample Name MSD (SO-DA-011 (0-0.5) MS/MSD)
Misc Info 0
Instrument Name GCMS5
Vial Number 15
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

ENV3083D.D
) (SO-DA-011 (0-0.5) MS/MSD)
8/20/2013
PAH-2012.M
15.06931887

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	11.24	37384	5.0633	6.1088
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.95	323519	8.0244	9.6814
9)+10)	C1-Naphthalenes	16.35	367520	9.1158	10.9982
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	19.25	206389	5.7238	6.9058
24)	Acenaphthene	19.83	117772	4.9943	6.0256
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	220997	7.5866	9.1532
28)	C1-Fluorenes	0.00	0	0.0000	0.0000
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	216544	4.9656	5.9910
41)	Phenanthrene	24.91	857497	17.9060	21.6035
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.41	246778	5.1531	6.2173
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	316963	7.2636	8.7635
35)+36)+37)	C1-Dibenzothiophenes	8.66	215411	4.9364	5.9557
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	1909850	34.1922	41.2528
59)	Pyrene	29.79	1656900	27.3049	32.9433
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	930696	17.2115	20.7657
68)	Chrysene/Triphenylene	34.00	1834690	33.6579	40.6082
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	3171030	53.2862	64.2897
78)	Benzo(k,j)fluoranthene	37.51	739610	12.6794	15.2977
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	1857500	29.7011	35.8344
81)	Benzo(a)pyrene	38.61	455192	8.1949	9.8871
89)	Perylene	38.84	99973	1.7794	2.1468
82)	Indeno(1,2,3-c,d)pyrene	43.40	1381950	29.5599	35.6639
83)	Dibenzo(a,h)anthracene	43.47	302443	7.9700	9.6158
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	1238890	32.6385	39.3783

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	210321	7.9706	9.6165
10)	1-Methylnaphthalene	16.52	157199	6.3488	7.6598
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	215411	6.0009	7.2401
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	27.03	246778	6.4262	7.7533
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	506353	12.94	77.98
21)	Acenaphthene-d10	19.74	309688	13.47	81.11
32)	Phenanthrene-d10	24.82	621823	13.76	82.88
66)	Chrysene-d12	33.91	833464	15.70	94.62
88)	Perylene-d12	38.84	17080	0.32	1.92
90)	5(b)H-Cholane	34.33	228302	13.92	83.93
	Internal Standards				
1)	Fluorene-d10	21.50	390047	16.66	
31)	Pyrene-d10	29.74	810059	16.63	
73)	Benzo(a)pyrene-d12	38.51	719456	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083D.D
Acq On : 20 Aug 2013 9:45 am
Operator : YM
Sample : MSD (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:39:45 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	390047m	251.05		0.00
31) Pyrene-d10	29.738	212	810059m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	719456m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	506353m	12.94		0.00
21) Acenaphthene-d10	19.737	164	309688m	13.47		0.00
32) Phenanthrene-d10	24.822	188	621823m	13.76		0.00
66) Chrysene-d12	33.907	240	833464m	15.70		0.00
88) Perylene-d12	38.835	264	17080m	0.32		0.00
90) 5(b)H-Cholane	34.329	217	228302m	13.92		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	37384m	5.06		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	323519m	8.02		
9) 2-Methylnaphthalene	16.182	142	210321m	7.97		
10) 1-Methylnaphthalene	16.518	142	157199m	6.35		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	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	19.245	152	206389m	5.72		
24) Acenaphthene	19.827	154	117772m	4.99		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	220997m	7.59		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	316963m	7.26		
35) 4-Methyldibenzothiophene	25.981	198	215411m	6.00		
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	24.907	178	857497m	17.91		
42) Anthracene	25.077	178	216544m	4.97		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083D.D
Acq On : 20 Aug 2013 9:45 am
Operator : YM
Sample : MSD (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:39:45 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	246778m	6.43		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	1909845m	34.19		
59) Pyrene	29.795	202	1656895m	27.30		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	930696m	17.21		
68) Chrysene/Triphenylene	34.004	228	1834693m	33.66		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	3171031m	53.29		
78) Benzo(k,j)fluoranthene	37.506	252	739610m	12.68		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	1857504m	29.70		
81) Benzo(a)pyrene	38.608	252	455192m	8.19		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	1381947m	29.56		
83) Dibenzo(a,h)anthracene	43.468	278	302443m	7.97		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	1238888m	32.64		
89) Perylene	38.835	252	99973m	1.78		
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\MS50161\
Data File : ENV3083D.D
Acq On : 20 Aug 2013 9:45 am
Operator : YM
Sample : MSD (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:39:45 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

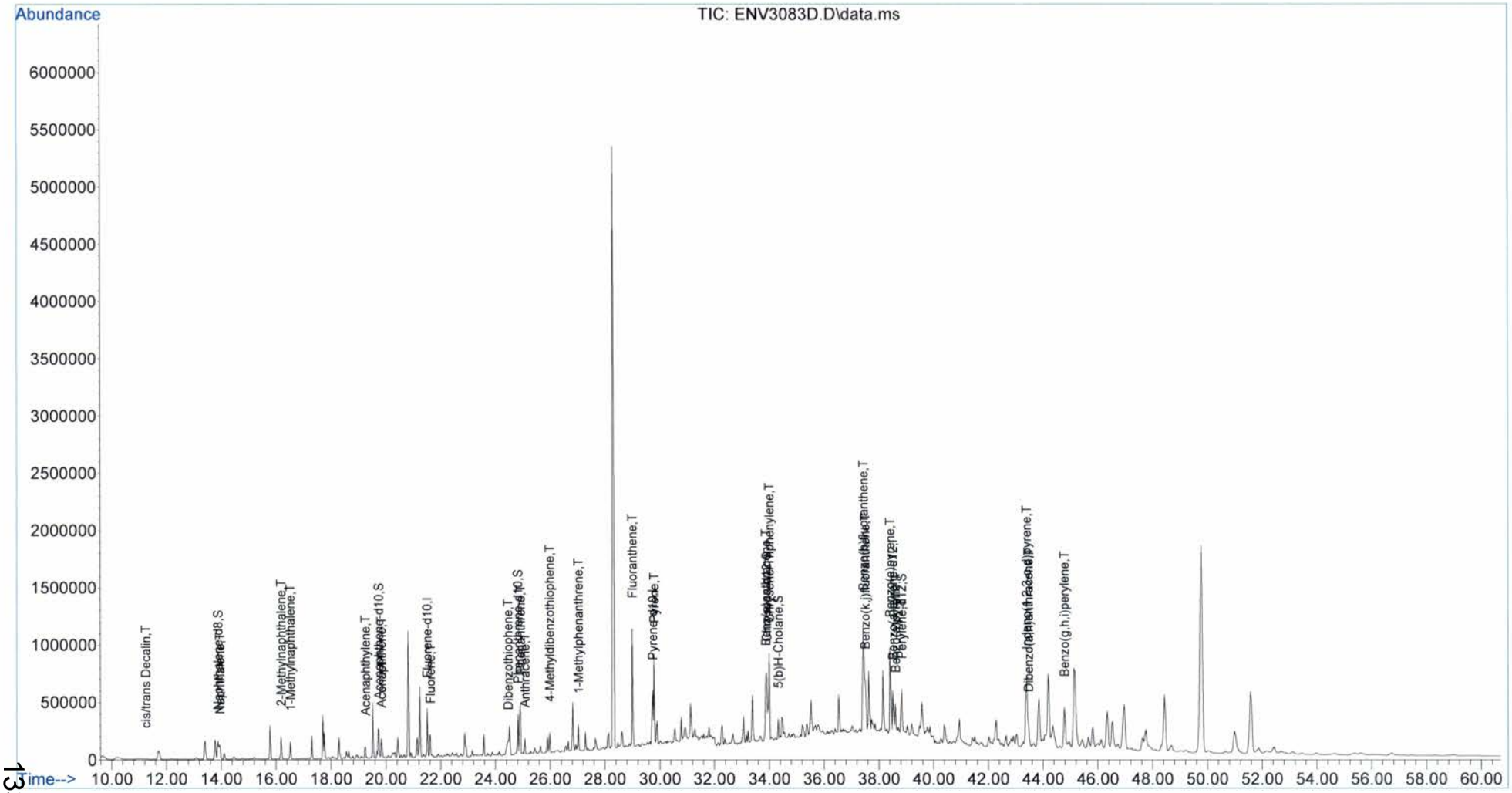
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083D.D
Acq On : 20 Aug 2013 9:45 am
Operator : YM
Sample : MSD (SO-DA-011 (0-0.5) MS/MSD)
Misc :
ALS Vial : 15 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:39:45 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ENV3083E.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/20/2013 10:51
Acq. Method File PAH-2012.M
Sample Name Dupl. (SO-DA-011 (0-0.5))
Misc Info 0
Instrument Name GCMS5
Vial Number 16
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

ENV3083E.D
Dupl. (SO-DA-011 (0-0.5))
8/20/2013
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	13.95	133536	3.2106	3.8190
9)+10)	C1-Naphthalenes	16.35	131371	3.1585	3.7571
13)	C2-Naphthalenes	18.64	226174	5.4378	6.4683
14)	C3-Naphthalenes	20.92	171765	4.1297	4.9123
15)	C4-Naphthalenes	21.64	163725	3.9364	4.6824
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	19.25	25476	0.6849	0.8146
24)	Acenaphthene	19.83	4495	0.1848	0.2198
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	96881	3.2238	3.8348
28)	C1-Fluorenes	23.58	37908	1.2614	1.5005
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	39934	0.8853	1.0531
41)	Phenanthrene	24.91	601592	12.1447	14.4463
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	368640	7.4420	8.8523
50)	C2-Phenanthrenes/Anthracenes	28.30	382527	7.7223	9.1858
51)	C3-Phenanthrenes/Anthracenes	30.02	249916	5.0452	6.0013
52)	C4-Phenanthrenes/Anthracenes	30.78	326642	6.5942	7.8438
34)	Dibenzothiophene	24.46	45773	1.0141	1.2063
35)+36)+37)	C1-Dibenzothiophenes	26.28	50559	1.1201	1.3324
38)	C2-Dibenzothiophenes	27.70	84854	1.8799	2.2362
39)	C3-Dibenzothiophenes	28.89	159633	3.5366	4.2068
40)	C4-Dibenzothiophenes	30.95	156286	3.4624	4.1186
58)	Fluoranthene	29.00	854988	14.7983	17.6027
59)	Pyrene	29.79	646063	10.2930	12.2436
62)	C1-Fluoranthenes/Pyrenes	30.92	340140	5.8872	7.0029
63)	C2-Fluoranthenes/Pyrenes	32.68	442716	7.6626	9.1147
64)	C3-Fluoranthenes/Pyrenes	34.52	259158	4.4855	5.3356
65)	C4-Fluoranthenes/Pyrenes	35.40	372913	6.4544	7.6776
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	290795	5.1990	6.1843
68)	Chrysene/Triphenylene	34.00	697957	12.3787	14.7245
69)	C1-Chrysenes	35.20	304054	5.3926	6.4145
70)	C2-Chrysenes	36.40	363599	6.4486	7.6707
71)	C3-Chrysenes	37.64	256900	4.5563	5.4197
72)	C4-Chrysenes	39.58	144338	2.5599	3.0450
77)	Benzo(b)fluoranthene	37.44	1195650	20.1218	23.9351
78)	Benzo(k,j)fluoranthene	37.47	400868	6.8825	8.1868
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	708444	11.3449	13.4949
81)	Benzo(a)pyrene	38.61	261873	4.7216	5.6164
89)	Perylene	38.93	54876	0.9782	1.1636
82)	Indeno(1,2,3-c,d)pyrene	43.40	505500	10.8288	12.8810
83)	Dibenzo(a,h)anthracene	43.47	111942	2.9543	3.5142
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	464313	12.2507	14.5723

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	88563	3.2534	3.8699
10)	1-Methylnaphthalene	16.52	42808	1.6759	1.9935
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	24130	0.6499	0.7730
36)	2/3-Methyldibenzothiophene	26.26	17400	0.4686	0.5574
37)	1-Methyldibenzothiophene	26.60	9029	0.2432	0.2893
43)	3-Methylphenanthrene	26.57	53640	1.3504	1.6063
44)	2-Methylphenanthrene	26.66	80341	2.0226	2.4059
45)	2-Methylanthracene	26.83	160854	4.0495	4.8169
46)	4/9-Methylphenanthrene	26.94	41663	1.0489	1.2476
47)	1-Methylphenanthrene	27.03	32142	0.8092	0.9625
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	526270	13.04	78.56
21)	Acenaphthene-d10	19.74	314569	13.26	79.87
32)	Phenanthrene-d10	24.82	652387	13.96	84.07
66)	Chrysene-d12	33.91	819098	14.92	89.90
88)	Perylene-d12	38.83	15248	0.28	1.71
90)	5(b)H-Cholane	34.33	243600	14.88	89.69
	Internal Standards				
1)	Fluorene-d10	21.50	402388	16.66	
31)	Pyrene-d10	29.74	837906	16.63	
73)	Benzo(a)pyrene-d12	38.51	718379	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083E.D
Acq On : 20 Aug 2013 10:51 am
Operator : YM
Sample : Dupl. (SO-DA-011 (0-0.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:19:58 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	402388m	251.05		0.00
31) Pyrene-d10	29.738	212	837906m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	718379m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	526270m	13.04		0.00
21) Acenaphthene-d10	19.737	164	314569m	13.26		0.00
32) Phenanthrene-d10	24.822	188	652387m	13.96		0.00
66) Chrysene-d12	33.907	240	819098m	14.92		0.00
88) Perylene-d12	38.835	264	15248m	0.28		0.00
90) 5(b)H-Cholane	34.329	217	243600m	14.88		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	133536m	3.21		
9) 2-Methylnaphthalene	16.182	142	88563m	3.25		
10) 1-Methylnaphthalene	16.518	142	42808m	1.68		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	226174m	5.44		
14) C3-Naphthalenes	20.922	170	171765m	4.13		
15) C4-Naphthalenes	21.637	184	163725m	3.94		
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	19.245	152	25476m	0.68		
24) Acenaphthene	19.827	154	4495m	0.18		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	96881m	3.22		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	37908m	1.26		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	45773m	1.01		
35) 4-Methyldibenzothiophene	25.981	198	24130m	0.65		
36) 2/3-Methyldibenzothiop...	26.263	198	17400m	0.47		
37) 1-Methyldibenzothiophene	26.602	198	9029m	0.24		
38) C2-Dibenzothiophenes	27.704	212	84854m	1.88		
39) C3-Dibenzothiophenes	28.891	226	159633m	3.54		
40) C4-Dibenzothiophenes	30.953	240	156286m	3.46		
41) Phenanthrene	24.907	178	601592m	12.14		
42) Anthracene	25.077	178	39934m	0.89		
43) 3-Methylphenanthrene	26.574	192	53640m	1.35		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083E.D
Acq On : 20 Aug 2013 10:51 am
Operator : YM
Sample : Dupl. (SO-DA-011 (0-0.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:19:58 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	80341m	2.02		
45) 2-Methylanthracene	26.828	192	160854m	4.05		
46) 4/9-Methylphenanthrene	26.941	192	41663m	1.05		
47) 1-Methylphenanthrene	27.026	192	32142m	0.81		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.297	206	382527m	7.72		
51) C3-Phenanthrenes/Anthr...	30.021	220	249916m	5.05		
52) C4-Phenanthrenes/Anthr...	30.784	234	326642m	6.59		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	854988m	14.80		
59) Pyrene	29.795	202	646063m	10.29		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.925	216	340140m	5.89		
63) C2-Fluoranthenes/Pyrenes	32.675	230	442716m	7.66		
64) C3-Fluoranthenes/Pyrenes	34.523	244	259158m	4.49		
65) C4-Fluoranthenes/Pyrenes	35.398	258	372913m	6.45		
67) Benz(a)anthracene	33.875	228	290795m	5.20		
68) Chrysene/Triphenylene	34.004	228	697957m	12.38		
69) C1-Chrysenes	35.204	242	304054m	5.39		
70) C2-Chrysenes	36.403	256	363599m	6.45		
71) C3-Chrysenes	37.635	270	256900m	4.56		
72) C4-Chrysenes	39.581	284	144338m	2.56		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	1195645m	20.12		
78) Benzo(k,j)fluoranthene	37.473	252	400868m	6.88		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	708444m	11.34		
81) Benzo(a)pyrene	38.608	252	261873m	4.72		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	505500m	10.83		
83) Dibenzo(a,h)anthracene	43.468	278	111942m	2.95		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	464313m	12.25		
89) Perylene	38.932	252	54876m	0.98		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083E.D
Acq On : 20 Aug 2013 10:51 am
Operator : YM
Sample : Dupl. (SO-DA-011 (0-0.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:19:58 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

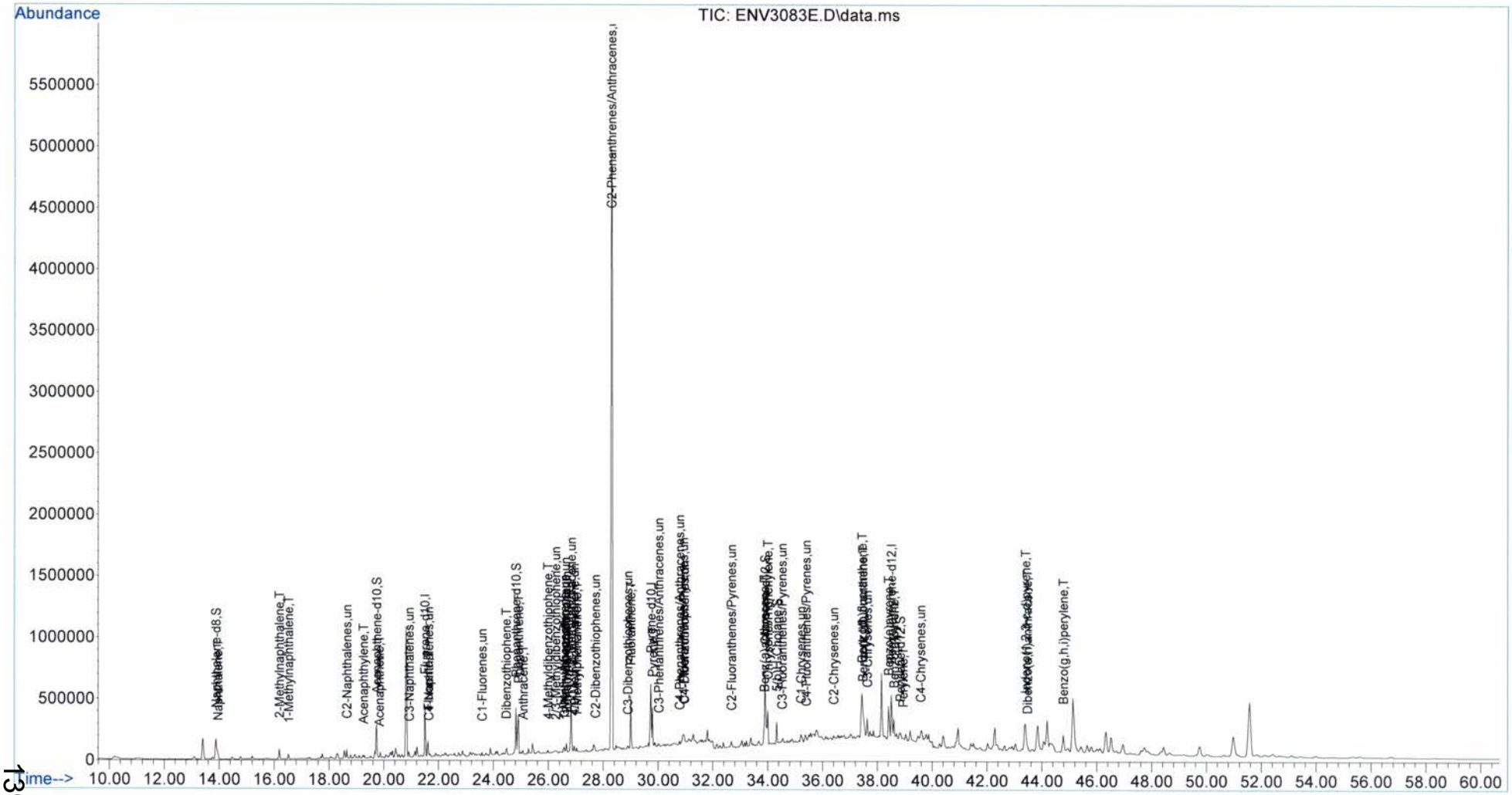
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ENV3083E.D
Acq On : 20 Aug 2013 10:51 am
Operator : YM
Sample : Dupl. (SO-DA-011 (0-0.5))
Misc :
ALS Vial : 16 Sample Multiplier: 0.06636

Quant Time: Sep 01 10:19:58 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1662.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/20/2013 11:57
Acq. Method File PAH-2012.M
Sample Name SED-DA-010 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 17
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

ARC1662.D
SED-DA-010 (0.5-1.0)
8/20/2013
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	13.95	56729	1.4299	1.6957
9)+10)	C1-Naphthalenes	16.35	66721	1.6818	1.9943
13)	C2-Naphthalenes	18.55	122639	3.0913	3.6658
14)	C3-Naphthalenes	20.21	143877	3.6266	4.3006
15)	C4-Naphthalenes	21.64	82776	2.0865	2.4742
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	19.25	4511	0.1271	0.1508
24)	Acenaphthene	19.83	2121	0.0914	0.1084
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	49703	1.7340	2.0562
28)	C1-Fluorenes	23.58	17368	0.6059	0.7185
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	5092	0.1218	0.1444
41)	Phenanthrene	24.91	170507	3.7136	4.4036
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	17691	0.4228	0.5014
35)+36)+37)	C1-Dibenzothiophenes	26.28	12634	0.3020	0.3581
38)	C2-Dibenzothiophenes	27.70	17301	0.4135	0.4904
39)	C3-Dibenzothiophenes	28.89	20910	0.4998	0.5927
40)	C4-Dibenzothiophenes	30.95	20754	0.4960	0.5882
58)	Fluoranthene	29.00	45151	0.8431	0.9998
59)	Pyrene	29.79	35924	0.6175	0.7322
62)	C1-Fluoranthenes/Pyrenes	31.29	29987	0.5599	0.6640
63)	C2-Fluoranthenes/Pyrenes	33.91	29916	0.5586	0.6624
64)	C3-Fluoranthenes/Pyrenes	34.33	12901	0.2409	0.2857
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	9135	0.1762	0.2089
68)	Chrysene/Triphenylene	34.00	19820	0.3792	0.4497
69)	C1-Chrysenes	35.20	16762	0.3207	0.3803
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	29744	0.5554	0.6587
78)	Benzo(k,j)fluoranthene	37.47	8227	0.1567	0.1859
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	16709	0.2969	0.3521
81)	Benzo(a)pyrene	38.61	7960	0.1593	0.1888
89)	Perylene	38.93	2793	0.0552	0.0655
82)	Indeno(1,2,3-c,d)pyrene	43.37	10727	0.2550	0.3024
83)	Dibenzo(a,h)anthracene	43.44	2913	0.0853	0.1012
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	9903	0.2899	0.3438

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	43684	1.6824	1.9951
10)	1-Methylnaphthalene	16.52	23037	0.9455	1.1212
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	6375	0.1852	0.2197
36)	2/3-Methyldibenzothiophene	26.26	3133	0.0910	0.1079
37)	1-Methyldibenzothiophene	26.60	3126	0.0908	0.1077
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	499757	12.98	78.11
21)	Acenaphthene-d10	19.74	310636	13.73	82.57
32)	Phenanthrene-d10	24.82	607406	14.02	84.33
66)	Chrysene-d12	33.91	756198	14.86	89.42
88)	Perylene-d12	38.83	122722	2.54	15.28
90)	5(b)H-Cholane	34.33	227664	15.43	92.89
	Internal Standards				
1)	Fluorene-d10	21.50	384329	16.68	
31)	Pyrene-d10	29.74	777721	16.65	
73)	Benzo(a)pyrene-d12	38.51	648280	16.63	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1662.D
Acq On : 20 Aug 2013 11:57 am
Operator : YM
Sample : SED-DA-010 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 01 10:46:46 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	384329m	251.05		0.00
31) Pyrene-d10	29.738	212	777721m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	648280m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	499757m	12.98		0.00
21) Acenaphthene-d10	19.737	164	310636m	13.73		0.00
32) Phenanthrene-d10	24.822	188	607406m	14.02		0.00
66) Chrysene-d12	33.907	240	756198m	14.86		0.00
88) Perylene-d12	38.835	264	122722m	2.54		0.00
90) 5(b)H-Cholane	34.328	217	227664m	15.43		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	56729m	1.43		
9) 2-Methylnaphthalene	16.182	142	43684m	1.68		
10) 1-Methylnaphthalene	16.518	142	23037m	0.95		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	122639m	3.09		
14) C3-Naphthalenes	20.207	170	143877m	3.63		
15) C4-Naphthalenes	21.637	184	82776m	2.09		
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	19.245	152	4511m	0.13		
24) Acenaphthene	19.827	154	2121m	0.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	49703m	1.73		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	17368m	0.61		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	17691m	0.42		
35) 4-Methyldibenzothiophene	25.981	198	6375m	0.19		
36) 2/3-Methyldibenzothiop...	26.263	198	3133m	0.09		
37) 1-Methyldibenzothiophene	26.602	198	3126m	0.09		
38) C2-Dibenzothiophenes	27.704	212	17301m	0.41		
39) C3-Dibenzothiophenes	28.891	226	20910m	0.50		
40) C4-Dibenzothiophenes	30.953	240	20754m	0.50		
41) Phenanthrene	24.907	178	170507m	3.71		
42) Anthracene	25.077	178	5092m	0.12		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1662.D
Acq On : 20 Aug 2013 11:57 am
Operator : YM
Sample : SED-DA-010 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 01 10:46:46 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	45151m	0.84		
59) Pyrene	29.795	202	35924m	0.62		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.292	216	29987m	0.56		
63) C2-Fluoranthenes/Pyrenes	33.907	230	29916m	0.56		
64) C3-Fluoranthenes/Pyrenes	34.328	244	12901m	0.24		
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	9135m	0.18		
68) Chrysene/Triphenylene	34.004	228	19820m	0.38		
69) C1-Chrysenes	35.204	242	16762m	0.32		
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	29744m	0.56		
78) Benzo(k,j)fluoranthene	37.473	252	8227m	0.16		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	16709m	0.30		
81) Benzo(a)pyrene	38.608	252	7960m	0.16		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	10727m	0.25		
83) Dibenzo(a,h)anthracene	43.435	278	2913m	0.09		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	9903m	0.29		
89) Perylene	38.932	252	2793m	0.06		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1662.D
Acq On : 20 Aug 2013 11:57 am
Operator : YM
Sample : SED-DA-010 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 01 10:46:46 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

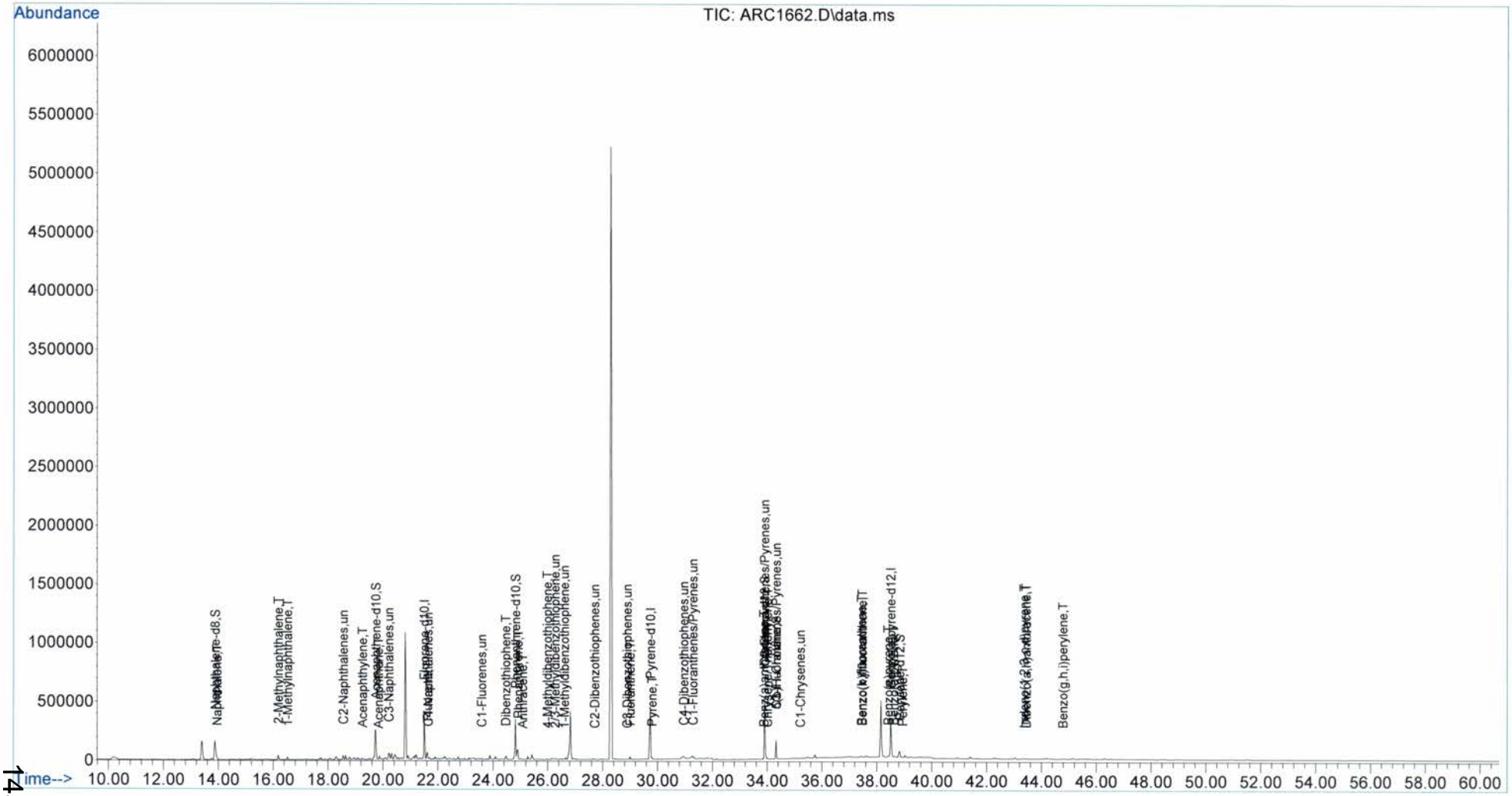
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1662.D
Acq On : 20 Aug 2013 11:57 am
Operator : YM
Sample : SED-DA-010 (0.5-1.0)
Misc :
ALS Vial : 17 Sample Multiplier: 0.06645

Quant Time: Sep 01 10:46:46 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1663.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/20/2013 13:03
Acq. Method File PAH-2012.M
Sample Name SED-DA-010 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 18
Sample Multiplier 0.06609
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1663.D
SED-DA-010 (1.0-1.5)
8/20/2013
PAH-2012.M
15.13088213

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.95	62151	1.5141	1.8370
9)+10)	C1-Naphthalenes	16.35	71275	1.7364	2.1066
13)	C2-Naphthalenes	18.55	106719	2.5999	3.1542
14)	C3-Naphthalenes	20.21	67160	1.6362	1.9850
15)	C4-Naphthalenes	21.64	50230	1.2237	1.4846
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.22	3756	0.1023	0.1241
24)	Acenaphthene	19.76	2270	0.0946	0.1147
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	49771	1.6782	2.0360
28)	C1-Fluorenes	23.58	18860	0.6359	0.7715
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	24.88	180299	3.9213	4.7574
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	16547	0.3949	0.4791
35)+36)+37)	C1-Dibenzothiophenes	26.28	12133	0.2896	0.3513
38)	C2-Dibenzothiophenes	27.70	14272	0.3406	0.4133
39)	C3-Dibenzothiophenes	28.89	11230	0.2680	0.3252
40)	C4-Dibenzothiophenes	29.88	5326	0.1271	0.1542
58)	Fluoranthene	29.00	30513	0.5690	0.6903
59)	Pyrene	29.79	12491	0.2144	0.2601
62)	C1-Fluoranthenes/Pyrenes	30.92	11303	0.2108	0.2557
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.91	3293	0.0634	0.0770
68)	Chrysene/Triphenylene	34.00	6980	0.1334	0.1618
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.41	11915	0.2208	0.2679
78)	Benzo(k,j)fluoranthene	37.51	2285	0.0432	0.0524
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	5762	0.1016	0.1233
81)	Benzo(a)pyrene	38.61	943	0.0187	0.0227
89)	Perylene	38.83	3760	0.0738	0.0895
82)	Indeno(1,2,3-c,d)pyrene	43.37	3421	0.0807	0.0979
83)	Dibenzo(a,h)anthracene	43.47	1059	0.0308	0.0373
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	2764	0.0803	0.0974

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	48251	1.7960	2.1790
10)	1-Methylnaphthalene	16.52	23024	0.9133	1.1081
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	6439	0.1868	0.2267
36)	2/3-Methyldibenzothiophene	26.26	3809	0.1105	0.1341
37)	1-Methyldibenzothiophene	26.60	1885	0.0547	0.0664
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	502407	12.61	76.30
21)	Acenaphthene-d10	19.71	284147	12.14	73.40
32)	Phenanthrene-d10	24.82	591307	13.63	82.43
66)	Chrysene-d12	33.91	763456	14.98	90.64
88)	Perylene-d12	38.83	7599	0.16	0.94
90)	5(b)H-Cholane	0.00	0	0.00	0.00
	Internal Standards				
1)	Fluorene-d10	21.50	395497	16.59	
31)	Pyrene-d10	29.74	774593	16.56	
73)	Benzo(a)pyrene-d12	38.51	649659	16.54	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1663.D
Acq On : 20 Aug 2013 1:03 pm
Operator : YM
Sample : SED-DA-010 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:13:54 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	395497m	251.05		0.00
31) Pyrene-d10	29.738	212	774593m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	649659m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	502407m	12.61		0.00
21) Acenaphthene-d10	19.715	164	284147m	12.14		-0.02
32) Phenanthrene-d10	24.822	188	591307m	13.63		0.00
66) Chrysene-d12	33.907	240	763456m	14.98		0.00
88) Perylene-d12	38.835	264	7599m	0.16		0.00
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	62151m	1.51		
9) 2-Methylnaphthalene	16.182	142	48251m	1.80		
10) 1-Methylnaphthalene	16.518	142	23024m	0.91		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	106719m	2.60		
14) C3-Naphthalenes	20.206	170	67160m	1.64		
15) C4-Naphthalenes	21.637	184	50230m	1.22		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	19.223	152	3756m	0.10		
24) Acenaphthene	19.759	154	2270m	0.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	49771m	1.68		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	18860m	0.64		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	16547m	0.39		
35) 4-Methyldibenzothiophene	25.981	198	6439m	0.19		
36) 2/3-Methyldibenzothiop...	26.263	198	3809m	0.11		
37) 1-Methyldibenzothiophene	26.602	198	1885m	0.05		
38) C2-Dibenzothiophenes	27.704	212	14272m	0.34		
39) C3-Dibenzothiophenes	28.891	226	11230m	0.27		
40) C4-Dibenzothiophenes	29.879	240	5326m	0.13		
41) Phenanthrene	24.879	178	180299m	3.92		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1663.D
Acq On : 20 Aug 2013 1:03 pm
Operator : YM
Sample : SED-DA-010 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:13:54 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	0.000		0	N.D.	d	
45)	2-Methylanthracene	0.000		0	N.D.	d	
46)	4/9-Methylphenanthrene	0.000		0	N.D.	d	
47)	1-Methylphenanthrene	0.000		0	N.D.	d	
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	29.004	202	30513m	0.57		
59)	Pyrene	29.795	202	12491m	0.21		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	30.925	216	11303m	0.21		
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.907	228	3293m	0.06		
68)	Chrysene/Triphenylene	34.004	228	6980m	0.13		
69)	C1-Chrysenes	0.000		0	N.D.	d	
70)	C2-Chrysenes	0.000		0	N.D.	d	
71)	C3-Chrysenes	0.000		0	N.D.	d	
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.408	252	11915m	0.22		
78)	Benzo(k,j)fluoranthene	37.506	252	2285m	0.04		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	5762m	0.10		
81)	Benzo(a)pyrene	38.608	252	943m	0.02		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	3421m	0.08		
83)	Dibenzo(a,h)anthracene	43.468	278	1059m	0.03		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.776	276	2764m	0.08		
89)	Perylene	38.835	252	3760m	0.07		
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\MS50161\
Data File : ARC1663.D
Acq On : 20 Aug 2013 1:03 pm
Operator : YM
Sample : SED-DA-010 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:13:54 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

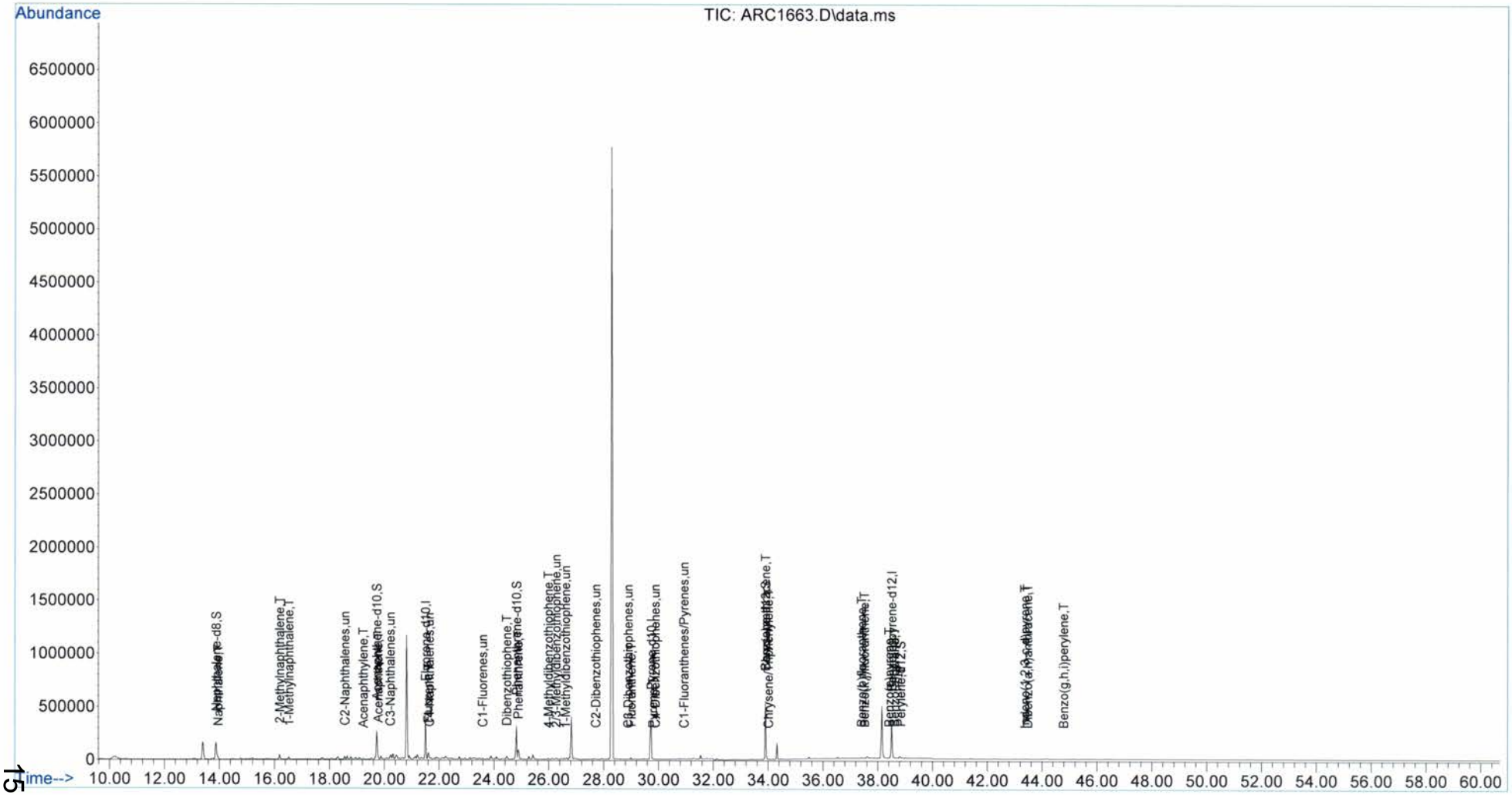
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1663.D
Acq On : 20 Aug 2013 1:03 pm
Operator : YM
Sample : SED-DA-010 (1.0-1.5)
Misc :
ALS Vial : 18 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:13:54 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1664.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 14:08
Acq. Method File PAH-2012.M
Sample Name SED-DA-011 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 19
Sample Multiplier 0.06645
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1664.D
SED-DA-011 (0.5-1.0)
8/20/2013
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	13.95	24392	0.6601	0.7688
9)+10)	C1-Naphthalenes	16.35	26689	0.7223	0.8413
13)	C2-Naphthalenes	18.64	64327	1.7408	2.0276
14)	C3-Naphthalenes	20.21	138416	3.7459	4.3629
15)	C4-Naphthalenes	21.64	55221	1.4944	1.7406
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.22	1901	0.0575	0.0670
24)	Acenaphthene	19.83	1980	0.0916	0.1067
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	32323	1.2107	1.4101
28)	C1-Fluorenes	23.58	11688	0.4378	0.5099
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	2609	0.0695	0.0809
41)	Phenanthrene	24.88	118706	2.8786	3.3528
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	5863	0.1560	0.1817
35)+36)+37)	C1-Dibenzothiophenes	26.28	3574	0.0951	0.1108
38)	C2-Dibenzothiophenes	27.70	4775	0.1271	0.1480
39)	C3-Dibenzothiophenes	28.89	5016	0.1335	0.1555
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	25761	0.5356	0.6238
59)	Pyrene	29.79	23476	0.4493	0.5233
62)	C1-Fluoranthenes/Pyrenes	31.60	10023	0.2084	0.2427
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	6275	0.1348	0.1570
68)	Chrysene/Triphenylene	34.00	6629	0.1412	0.1645
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.41	11349	0.2344	0.2730
78)	Benzo(k,j)fluoranthene	37.51	3976	0.0838	0.0976
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	7433	0.1461	0.1701
81)	Benzo(a)pyrene	38.61	4488	0.0993	0.1157
89)	Perylene	38.90	10728	0.2347	0.2733
82)	Indeno(1,2,3-c,d)pyrene	43.37	3620	0.0952	0.1108
83)	Dibenzo(a,h)anthracene	43.44	1050	0.0340	0.0396
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	3700	0.1198	0.1395

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	17523	0.7246	0.8439
10)	1-Methylnaphthalene	16.52	9166	0.4039	0.4704
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	1872	0.0606	0.0705
36)	2/3-Methyldibenzothiophene	26.26	961	0.0311	0.0362
37)	1-Methyldibenzothiophene	26.60	741	0.0240	0.0279
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	474194	13.22	79.57
21)	Acenaphthene-d10	19.71	294774	13.98	84.12
32)	Phenanthrene-d10	24.82	555404	14.27	85.86
66)	Chrysene-d12	33.91	710005	15.53	93.48
88)	Perylene-d12	38.83	408329	9.34	56.24
90)	5(b)H-Cholane	34.33	195648	14.67	88.28
	Internal Standards				
1)	Fluorene-d10	21.50	357973	16.68	
31)	Pyrene-d10	29.74	698486	16.65	
73)	Benzo(a)pyrene-d12	38.51	586180	16.63	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1664.D
Acq On : 20 Aug 2013 2:08 pm
Operator : YM
Sample : SED-DA-011 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Sep 01 14:15:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	357973m	251.05		0.00
31) Pyrene-d10	29.738	212	698486m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	586180m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	474194m	13.22		0.00
21) Acenaphthene-d10	19.715	164	294774m	13.98		-0.02
32) Phenanthrene-d10	24.822	188	555404m	14.27		0.00
66) Chrysene-d12	33.907	240	710005m	15.53		0.00
88) Perylene-d12	38.835	264	408329m	9.34		0.00
90) 5(b)H-Cholane	34.328	217	195648m	14.67		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	24392m	0.66		
9) 2-Methylnaphthalene	16.182	142	17523m	0.72		
10) 1-Methylnaphthalene	16.518	142	9166m	0.40		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	64327m	1.74		
14) C3-Naphthalenes	20.207	170	138416m	3.75		
15) C4-Naphthalenes	21.637	184	55221m	1.49		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	19.223	152	1901m	0.06		
24) Acenaphthene	19.826	154	1980m	0.09		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	32323m	1.21		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	11688m	0.44		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	5863m	0.16		
35) 4-Methyldibenzothiophene	25.981	198	1872m	0.06		
36) 2/3-Methyldibenzothiop...	26.263	198	961m	0.03		
37) 1-Methyldibenzothiophene	26.602	198	741m	0.02		
38) C2-Dibenzothiophenes	27.704	212	4775m	0.13		
39) C3-Dibenzothiophenes	28.891	226	5016m	0.13		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	118706m	2.88		
42) Anthracene	25.077	178	2609m	0.07		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1664.D
Acq On : 20 Aug 2013 2:08 pm
Operator : YM
Sample : SED-DA-011 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Sep 01 14:15:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	25761m	0.54		
59) Pyrene	29.795	202	23476m	0.45		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.603	216	10023m	0.21		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	6275m	0.13		
68) Chrysene/Triphenylene	34.004	228	6629m	0.14		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.408	252	11349m	0.23		
78) Benzo(k,j)fluoranthene	37.506	252	3976m	0.08		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	7433m	0.15		
81) Benzo(a)pyrene	38.608	252	4488m	0.10		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	3620m	0.10		
83) Dibenzo(a,h)anthracene	43.435	278	1050m	0.03		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	3700m	0.12		
89) Perylene	38.900	252	10728m	0.23		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1664.D
Acq On : 20 Aug 2013 2:08 pm
Operator : YM
Sample : SED-DA-011 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Sep 01 14:15:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

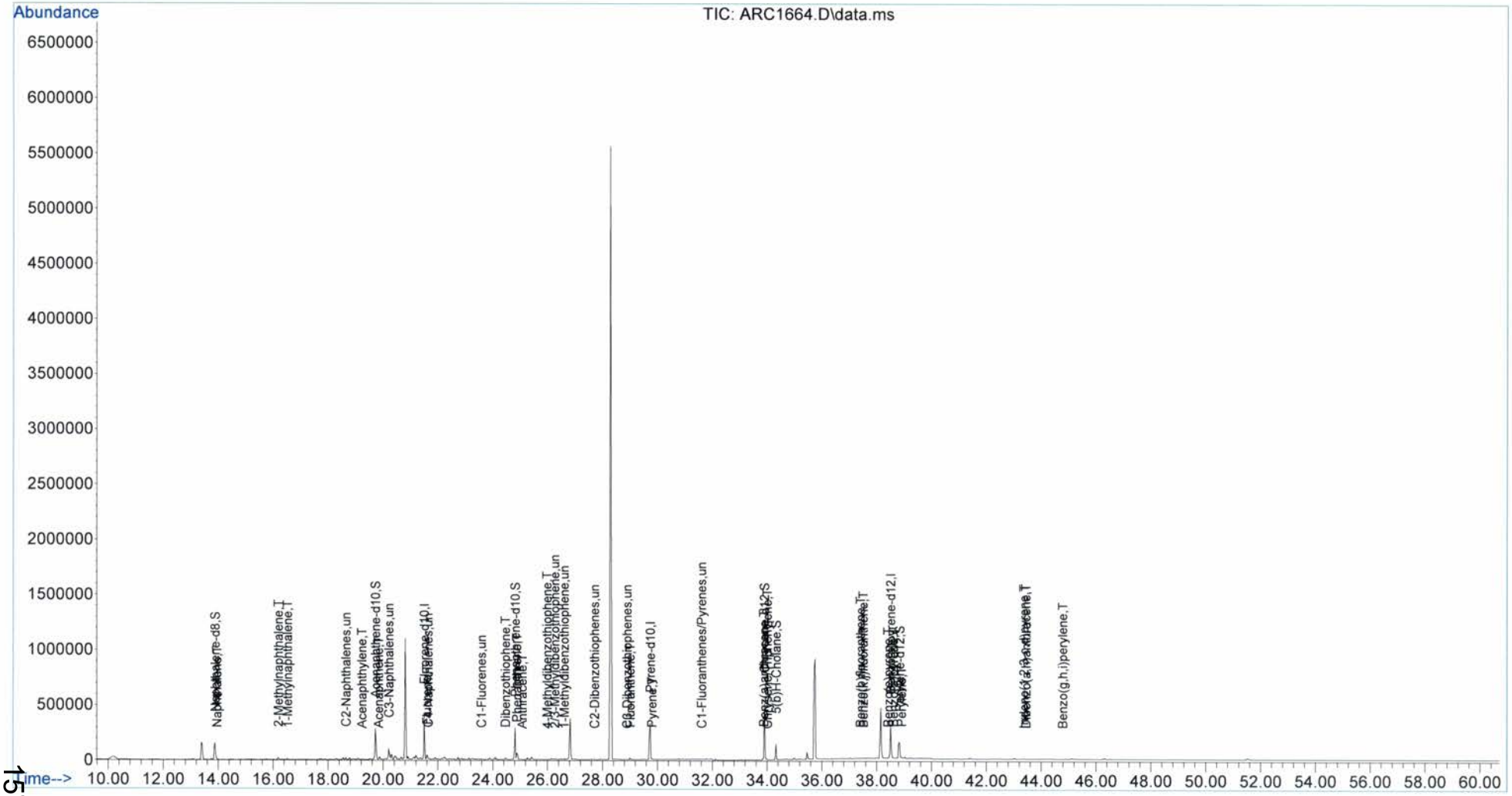
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1664.D
Acq On : 20 Aug 2013 2:08 pm
Operator : YM
Sample : SED-DA-011 (0.5-1.0)
Misc :
ALS Vial : 19 Sample Multiplier: 0.06645

Quant Time: Sep 01 14:15:10 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1665.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/20/2013 16:19
Acq. Method File PAH-2012.M
Sample Name SED-DA-011 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 21
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

ARC1665.D
SED-DA-011 (1.0-1.5)
8/20/2013
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	13.95	27472	0.6766	0.8083
9)+10)	C1-Naphthalenes	16.35	23383	0.5759	0.6880
13)	C2-Naphthalenes	18.55	45850	1.1293	1.3491
14)	C3-Naphthalenes	20.21	130389	3.2114	3.8366
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	19.83	1631	0.0687	0.0821
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	31713	1.0811	1.2915
28)	C1-Fluorenes	23.58	11464	0.3908	0.4669
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	1546	0.0377	0.0450
41)	Phenanthrene	24.88	125665	2.7871	3.3296
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	5406	0.1316	0.1572
35)+36)+37)	C1-Dibenzothiophenes	26.28	3129	0.0762	0.0910
38)	C2-Dibenzothiophenes	27.70	4348	0.1058	0.1264
39)	C3-Dibenzothiophenes	28.89	3177	0.0773	0.0924
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	21389	0.4067	0.4859
59)	Pyrene	29.79	12777	0.2236	0.2672
62)	C1-Fluoranthenes/Pyrenes	30.78	3784	0.0720	0.0860
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.91	2749	0.0540	0.0645
68)	Chrysene/Triphenylene	34.00	1467	0.0286	0.0341
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	38.90	6445	0.1325	0.1583
82)	Indeno(1,2,3-c,d)pyrene	43.37	1373	0.0339	0.0405
83)	Dibenzo(a,h)anthracene	43.47	1136	0.0346	0.0413
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	1613	0.0491	0.0586

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	15702	0.5909	0.7059
10)	1-Methylnaphthalene	16.52	7681	0.3080	0.3680
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	1649	0.0488	0.0583
36)	2/3-Methyldibenzothiophene	26.26	827	0.0245	0.0292
37)	1-Methyldibenzothiophene	26.60	653	0.0193	0.0231
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	483369	12.27	73.92
21)	Acenaphthene-d10	19.71	304601	13.15	79.22
32)	Phenanthrene-d10	24.82	591271	13.90	83.71
66)	Chrysene-d12	33.91	749411	14.99	90.36
88)	Perylene-d12	38.83	531045	11.42	68.85
90)	5(b)H-Cholane	34.33	207869	14.65	88.29
	Internal Standards				
1)	Fluorene-d10	21.50	392797	16.66	
31)	Pyrene-d10	29.74	762695	16.63	
73)	Benzo(a)pyrene-d12	38.51	622748	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1665.D
Acq On : 20 Aug 2013 4:19 pm
Operator : YM
Sample : SED-DA-011 (1.0-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06636

Quant Time: Sep 01 11:05:52 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	392797m	251.05		0.00
31) Pyrene-d10	29.738	212	762695m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	622748m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	483369m	12.27		0.00
21) Acenaphthene-d10	19.715	164	304601m	13.15		-0.02
32) Phenanthrene-d10	24.822	188	591271m	13.90		0.00
66) Chrysene-d12	33.907	240	749411m	14.99		0.00
88) Perylene-d12	38.835	264	531045m	11.42		0.00
90) 5(b)H-Cholane	34.328	217	207869m	14.65		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	27472m	0.68		
9) 2-Methylnaphthalene	16.182	142	15702m	0.59		
10) 1-Methylnaphthalene	16.518	142	7681m	0.31		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	45850m	1.13		
14) C3-Naphthalenes	20.207	170	130389m	3.21		
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	0.000		0	N.D.	d	
24) Acenaphthene	19.826	154	1631m	0.07		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	31713m	1.08		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	11464m	0.39		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	5406m	0.13		
35) 4-Methyldibenzothiophene	25.981	198	1649m	0.05		
36) 2/3-Methyldibenzothiop...	26.263	198	827m	0.02		
37) 1-Methyldibenzothiophene	26.602	198	653m	0.02		
38) C2-Dibenzothiophenes	27.704	212	4348m	0.11		
39) C3-Dibenzothiophenes	28.891	226	3177m	0.08		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	125665m	2.79		
42) Anthracene	25.077	178	1546m	0.04		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1665.D
Acq On : 20 Aug 2013 4:19 pm
Operator : YM
Sample : SED-DA-011 (1.0-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06636

Quant Time: Sep 01 11:05:52 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	21389m	0.41		
59) Pyrene	29.795	202	12777m	0.22		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.784	216	3784m	0.07		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.907	228	2749m	0.05		
68) Chrysene/Triphenylene	34.004	228	1467m	0.03		
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	43.370	276	1373m	0.03		
83) Dibenzo(a,h)anthracene	43.468	278	1136m	0.03		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	1613m	0.05		
89) Perylene	38.900	252	6445m	0.13		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1665.D
Acq On : 20 Aug 2013 4:19 pm
Operator : YM
Sample : SED-DA-011 (1.0-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06636

Quant Time: Sep 01 11:05:52 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

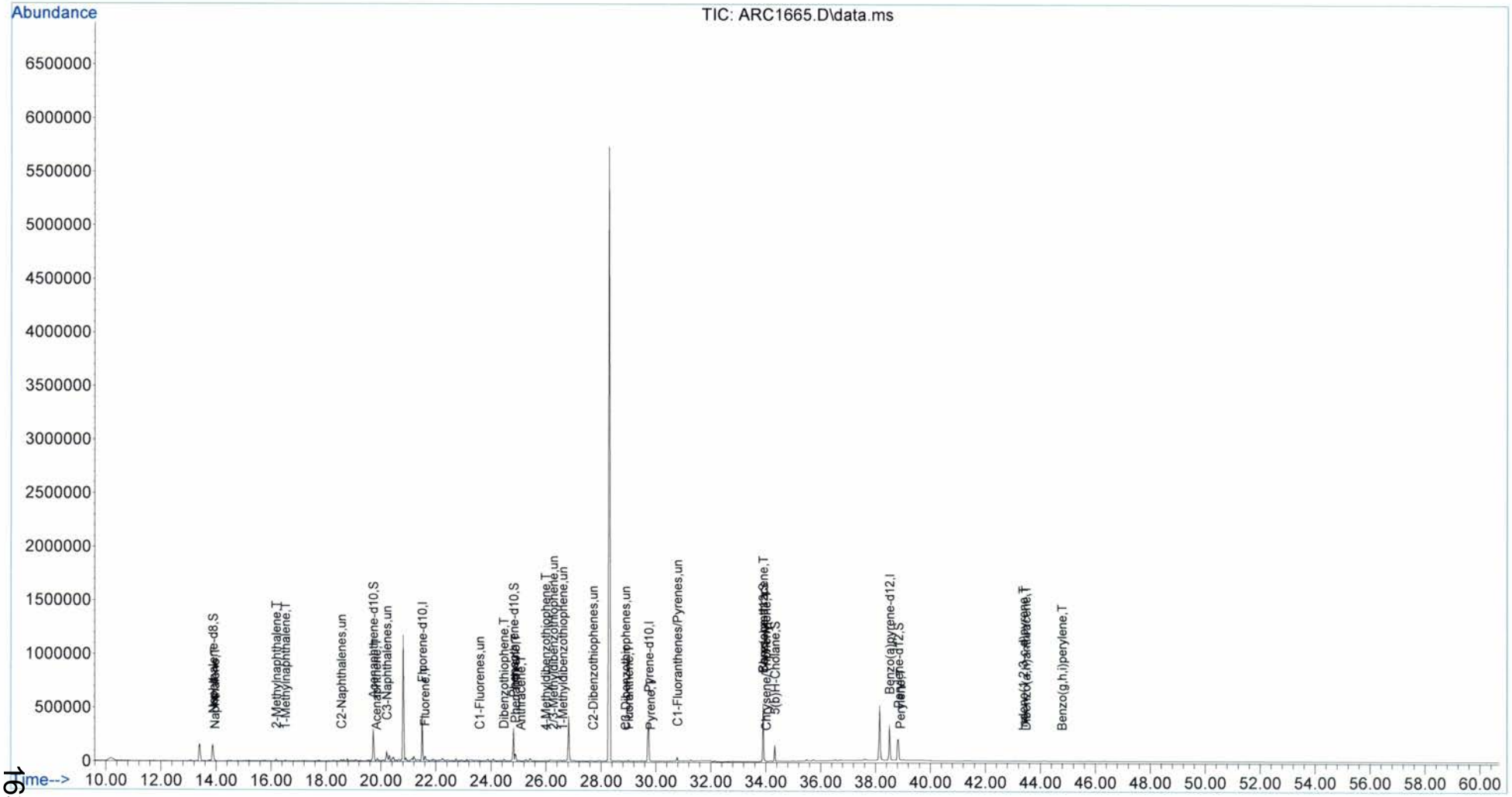
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1665.D
Acq On : 20 Aug 2013 4:19 pm
Operator : YM
Sample : SED-DA-011 (1.0-1.5)
Misc :
ALS Vial : 21 Sample Multiplier: 0.06636

Quant Time: Sep 01 11:05:52 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1674.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/20/2013 17:25
Acq. Method File PAH-2012.M
Sample Name SO-DA-011 (0-0.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 22
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

ARC1674.D
SO-DA-011 (0-0.5)
8/20/2013
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	13.95	127511	3.1314	3.7782
9)+10)	C1-Naphthalenes	16.35	131173	3.2214	3.8867
13)	C2-Naphthalenes	18.64	231412	5.6830	6.8568
14)	C3-Naphthalenes	20.56	143821	3.5320	4.2615
15)	C4-Naphthalenes	21.64	153503	3.7697	4.5484
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.22	21068	0.5785	0.6980
24)	Acenaphthene	19.83	4680	0.1965	0.2371
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	93183	3.1673	3.8214
28)	C1-Fluorenes	23.58	38539	1.3099	1.5805
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	34139	0.7939	0.9578
41)	Phenanthrene	24.88	572156	12.1155	14.6179
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.80	341069	7.2222	8.7139
50)	C2-Phenanthrenes/Anthracenes	28.30	350922	7.4308	8.9656
51)	C3-Phenanthrenes/Anthracenes	30.02	231799	4.9084	5.9222
52)	C4-Phenanthrenes/Anthracenes	31.86	273861	5.7990	6.9968
34)	Dibenzothiophene	24.46	50178	1.1660	1.4069
35)+36)+37)	C1-Dibenzothiophenes	26.28	47438	1.1024	1.3301
38)	C2-Dibenzothiophenes	27.70	83814	1.9477	2.3500
39)	C3-Dibenzothiophenes	28.89	134448	3.1243	3.7696
40)	C4-Dibenzothiophenes	29.88	157561	3.6614	4.4177
58)	Fluoranthene	29.00	949843	17.2441	20.8058
59)	Pyrene	29.79	666367	11.1358	13.4358
62)	C1-Fluoranthenes/Pyrenes	30.92	328868	5.9705	7.2037
63)	C2-Fluoranthenes/Pyrenes	32.68	457412	8.3042	10.0194
64)	C3-Fluoranthenes/Pyrenes	33.84	228575	4.1497	5.0068
65)	C4-Fluoranthenes/Pyrenes	35.40	360214	6.5396	7.8903
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	327114	6.1344	7.4014
68)	Chrysene/Triphenylene	34.00	716077	13.3212	16.0726
69)	C1-Chrysenes	35.20	335495	6.2412	7.5303
70)	C2-Chrysenes	36.40	283734	5.2783	6.3685
71)	C3-Chrysenes	38.19	251952	4.6871	5.6552
72)	C4-Chrysenes	39.58	118528	2.2050	2.6604
77)	Benzo(b)fluoranthene	37.44	1312640	21.2982	25.6972
78)	Benzo(k,j)fluoranthene	37.51	469795	7.7766	9.3828
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	801519	12.3749	14.9309
81)	Benzo(a)pyrene	38.61	312220	5.4274	6.5484
89)	Perylene	38.90	68404	1.1756	1.4184
82)	Indeno(1,2,3-c,d)pyrene	43.37	570116	11.7749	14.2070
83)	Dibenzo(a,h)anthracene	43.44	131819	3.3541	4.0469
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	528035	13.4321	16.2064

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	88934	3.3370	4.0263
10)	1-Methylnaphthalene	16.52	42239	1.6890	2.0379
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	22238	0.6282	0.7580
36)	2/3-Methyldibenzothiophene	26.26	16949	0.4788	0.5777
37)	1-Methyldibenzothiophene	26.60	8251	0.2331	0.2812
43)	3-Methylphenanthrene	26.55	48270	1.2746	1.5379
44)	2-Methylphenanthrene	26.66	70241	1.8548	2.2379
45)	2-Methylanthracene	26.83	147300	3.8897	4.6931
46)	4/9-Methylphenanthrene	26.94	37049	0.9783	1.1804
47)	1-Methylphenanthrene	27.03	38209	1.0090	1.2174
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	652523	16.51	99.57
21)	Acenaphthene-d10	19.71	306521	13.20	79.55
32)	Phenanthrene-d10	24.82	612721	13.75	82.88
66)	Chrysene-d12	33.91	854400	16.32	98.43
88)	Perylene-d12	38.83	23801	0.43	2.58
90)	5(b)H-Cholane	34.33	237375	13.98	84.33
	Internal Standards				
1)	Fluorene-d10	21.50	393646	16.65	
31)	Pyrene-d10	29.74	798231	16.62	
73)	Benzo(a)pyrene-d12	38.51	744549	16.60	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1674.D
Acq On : 20 Aug 2013 5:25 pm
Operator : YM
Sample : SO-DA-011 (0-0.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06631

Quant Time: Sep 01 10:30:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	393646m	251.05		0.00
31) Pyrene-d10	29.738	212	798231m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	744549m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	652523m	16.51		0.00
21) Acenaphthene-d10	19.715	164	306521m	13.20		-0.02
32) Phenanthrene-d10	24.822	188	612721m	13.75		0.00
66) Chrysene-d12	33.907	240	854400m	16.32		0.00
88) Perylene-d12	38.835	264	23801m	0.43		0.00
90) 5(b)H-Cholane	34.328	217	237375m	13.98		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	127511m	3.13		
9) 2-Methylnaphthalene	16.182	142	88934m	3.34		
10) 1-Methylnaphthalene	16.518	142	42239m	1.69		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	231412m	5.68		
14) C3-Naphthalenes	20.564	170	143821m	3.53		
15) C4-Naphthalenes	21.637	184	153503m	3.77		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	19.223	152	21068m	0.58		
24) Acenaphthene	19.826	154	4680m	0.20		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	93183m	3.17		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	38539m	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	24.455	184	50178m	1.17		
35) 4-Methyldibenzothiophene	25.981	198	22238m	0.63		
36) 2/3-Methyldibenzothiop...	26.263	198	16949m	0.48		
37) 1-Methyldibenzothiophene	26.602	198	8251m	0.23		
38) C2-Dibenzothiophenes	27.704	212	83814m	1.95		
39) C3-Dibenzothiophenes	28.891	226	134448m	3.12		
40) C4-Dibenzothiophenes	29.879	240	157561m	3.66		
41) Phenanthrene	24.879	178	572156m	12.12		
42) Anthracene	25.077	178	34139m	0.79		
43) 3-Methylphenanthrene	26.546	192	48270m	1.27		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1674.D
Acq On : 20 Aug 2013 5:25 pm
Operator : YM
Sample : SO-DA-011 (0-0.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06631

Quant Time: Sep 01 10:30:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	70241m	1.85		
45) 2-Methylanthracene	26.828	192	147300m	3.89		
46) 4/9-Methylphenanthrene	26.941	192	37049m	0.98		
47) 1-Methylphenanthrene	27.026	192	38209m	1.01		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.297	206	350922m	7.43		
51) C3-Phenanthrenes/Anthr...	30.021	220	231799m	4.91		
52) C4-Phenanthrenes/Anthr...	31.857	234	273861m	5.80		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	949843m	17.24		
59) Pyrene	29.795	202	666367m	11.14		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.925	216	328868m	5.97		
63) C2-Fluoranthenes/Pyrenes	32.675	230	457412m	8.30		
64) C3-Fluoranthenes/Pyrenes	33.842	244	228575m	4.15		
65) C4-Fluoranthenes/Pyrenes	35.398	258	360214m	6.54		
67) Benz(a)anthracene	33.875	228	327114m	6.13		
68) Chrysene/Triphenylene	34.004	228	716077m	13.32		
69) C1-Chrysenes	35.204	242	335495m	6.24		
70) C2-Chrysenes	36.403	256	283734m	5.28		
71) C3-Chrysenes	38.186	270	251952m	4.69		
72) C4-Chrysenes	39.581	284	118528m	2.20		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	1312638m	21.30		
78) Benzo(k,j)fluoranthene	37.506	252	469795m	7.78		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	801519m	12.37		
81) Benzo(a)pyrene	38.608	252	312220m	5.43		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	570116m	11.77		
83) Dibenzo(a,h)anthracene	43.435	278	131819m	3.35		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	528035m	13.43		
89) Perylene	38.900	252	68404m	1.18		
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\MS50161\
Data File : ARC1674.D
Acq On : 20 Aug 2013 5:25 pm
Operator : YM
Sample : SO-DA-011 (0-0.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06631

Quant Time: Sep 01 10:30:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

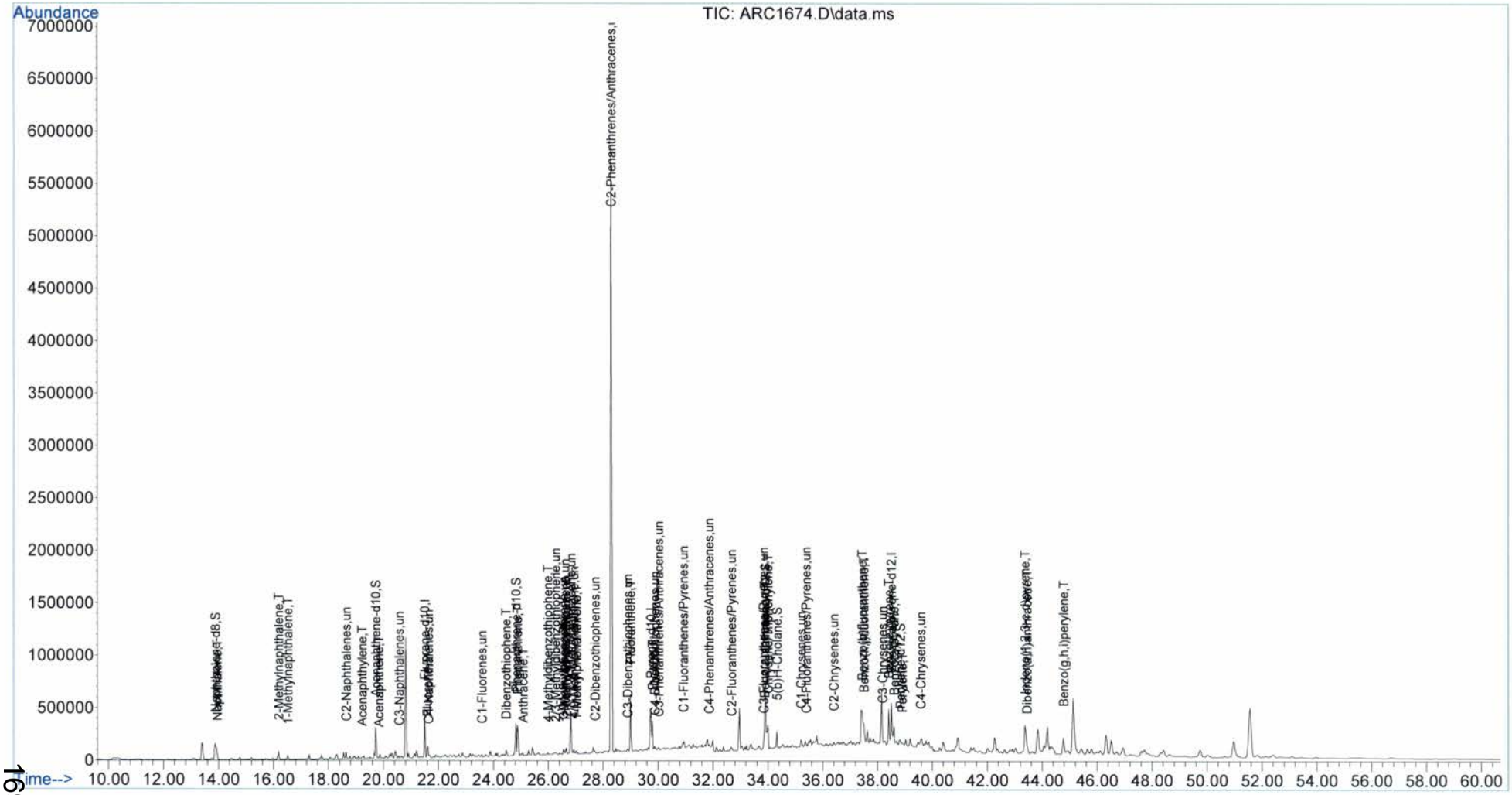
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1674.D
Acq On : 20 Aug 2013 5:25 pm
Operator : YM
Sample : SO-DA-011 (0-0.5)
Misc :
ALS Vial : 22 Sample Multiplier: 0.06631

Quant Time: Sep 01 10:30:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name	ARC1675.D
Data File Path	C:\msdchem\2\data\MS50161\
Operator	YM
Date Acquired	8/20/2013 18:31
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-011 (0.5-1.0)
Misc Info	0
Instrument Name	GCMS5
Vial Number	23
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

ARC1675.D
SO-DA-011 (0.5-1.0)
8/20/2013
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	13.95	191635	4.4954	5.2568
9)+10)	C1-Naphthalenes	16.35	207535	4.8684	5.6929
13)	C2-Naphthalenes	18.55	386469	9.0658	10.6013
14)	C3-Naphthalenes	20.92	249418	5.8508	6.8418
15)	C4-Naphthalenes	21.64	241973	5.6762	6.6376
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.22	18965	0.4974	0.5817
24)	Acenaphthene	19.94	2405	0.0965	0.1128
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	184965	6.0053	7.0224
28)	C1-Fluorenes	23.58	68494	2.2238	2.6004
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	22715	0.5036	0.5889
41)	Phenanthrene	24.88	872602	17.6181	20.6021
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.80	386648	7.8065	9.1287
50)	C2-Phenanthrenes/Anthracenes	28.30	253760	5.1235	5.9913
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	86848	1.9243	2.2502
35)+36)+37)	C1-Dibenzothiophenes	26.28	68417	1.5159	1.7727
38)	C2-Dibenzothiophenes	27.70	76554	1.6962	1.9835
39)	C3-Dibenzothiophenes	28.89	45448	1.0070	1.1776
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	329131	5.6974	6.6623
59)	Pyrene	29.79	168879	2.6909	3.1467
62)	C1-Fluoranthenes/Pyrenes	30.92	92110	1.5945	1.8645
63)	C2-Fluoranthenes/Pyrenes	32.68	144621	2.5034	2.9274
64)	C3-Fluoranthenes/Pyrenes	33.68	55444	0.9598	1.1223
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	77442	1.3847	1.6193
68)	Chrysene/Triphenylene	34.00	197474	3.5028	4.0960
69)	C1-Chrysenes	35.20	80922	1.4354	1.6785
70)	C2-Chrysenes	36.40	83512	1.4813	1.7322
71)	C3-Chrysenes	38.19	47290	0.8388	0.9809
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.41	357504	5.7800	6.7589
78)	Benzo(k,j)fluoranthene	37.51	112643	1.8579	2.1726
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	204072	3.1395	3.6712
81)	Benzo(a)pyrene	38.61	54318	0.9409	1.1002
89)	Perylene	38.90	7056	0.1208	0.1413
82)	Indeno(1,2,3-c,d)pyrene	43.37	140326	2.8879	3.3770
83)	Dibenzo(a,h)anthracene	43.44	31372	0.7954	0.9301
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	117785	2.9855	3.4912

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	141524	5.0724	5.9316
10)	1-Methylnaphthalene	16.52	66011	2.5214	2.9484
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	36195	0.9749	1.1401
36)	2/3-Methyldibenzothiophene	26.26	24496	0.6598	0.7716
37)	1-Methyldibenzothiophene	26.60	7726	0.2081	0.2434
43)	3-Methylphenanthrene	26.55	62558	1.5751	1.8419
44)	2-Methylphenanthrene	26.66	88269	2.2225	2.5989
45)	2-Methylanthracene	26.83	155318	3.9107	4.5730
46)	4/9-Methylphenanthrene	26.94	41776	1.0519	1.2300
47)	1-Methylphenanthrene	27.03	38727	0.9751	1.1402
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	565498	13.67	82.15
21)	Acenaphthene-d10	19.71	333641	13.72	82.44
32)	Phenanthrene-d10	24.82	665238	14.23	85.52
66)	Chrysene-d12	33.91	891946	16.24	97.65
88)	Perylene-d12	38.80	8511	0.15	0.92
90)	5(b)H-Cholane	34.33	247184	14.50	87.21
	Internal Standards				
1)	Fluorene-d10	21.50	413474	16.70	
31)	Pyrene-d10	29.74	839946	16.67	
73)	Benzo(a)pyrene-d12	38.51	749695	16.65	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1675.D
Acq On : 20 Aug 2013 6:31 pm
Operator : YM
Sample : SO-DA-011 (0.5-1.0)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06653

Quant Time: Sep 01 11:46:23 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	413474m	251.05		0.00
31) Pyrene-d10	29.738	212	839946m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	749695m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	565498m	13.67		0.00
21) Acenaphthene-d10	19.715	164	333641m	13.72		-0.02
32) Phenanthrene-d10	24.822	188	665238m	14.23		0.00
66) Chrysene-d12	33.907	240	891946m	16.24		0.00
88) Perylene-d12	38.802	264	8511m	0.15		-0.03
90) 5(b)H-Cholane	34.328	217	247184m	14.50		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	191635m	4.50		
9) 2-Methylnaphthalene	16.182	142	141524m	5.07		
10) 1-Methylnaphthalene	16.518	142	66011m	2.52		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	386469m	9.07		
14) C3-Naphthalenes	20.922	170	249418m	5.85		
15) C4-Naphthalenes	21.637	184	241973m	5.68		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	19.223	152	18965m	0.50		
24) Acenaphthene	19.938	154	2405m	0.10		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	184965m	6.01		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	68494m	2.22		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	86848m	1.92		
35) 4-Methyldibenzothiophene	25.981	198	36195m	0.97		
36) 2/3-Methyldibenzothiop...	26.263	198	24496m	0.66		
37) 1-Methyldibenzothiophene	26.602	198	7726m	0.21		
38) C2-Dibenzothiophenes	27.704	212	76554m	1.70		
39) C3-Dibenzothiophenes	28.891	226	45448m	1.01		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	872602m	17.62		
42) Anthracene	25.077	178	22715m	0.50		
43) 3-Methylphenanthrene	26.546	192	62558m	1.58		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1675.D
Acq On : 20 Aug 2013 6:31 pm
Operator : YM
Sample : SO-DA-011 (0.5-1.0)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06653

Quant Time: Sep 01 11:46:23 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	88269m	2.22		
45) 2-Methylanthracene	26.828	192	155318m	3.91		
46) 4/9-Methylphenanthrene	26.941	192	41776m	1.05		
47) 1-Methylphenanthrene	27.026	192	38727m	0.98		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.297	206	253760m	5.12		
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	329131m	5.70		
59) Pyrene	29.795	202	168879m	2.69		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.925	216	92110m	1.59		
63) C2-Fluoranthenes/Pyrenes	32.675	230	144621m	2.50		
64) C3-Fluoranthenes/Pyrenes	33.680	244	55444m	0.96		
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	77442m	1.38		
68) Chrysene/Triphenylene	34.004	228	197474m	3.50		
69) C1-Chrysenes	35.204	242	80922m	1.44		
70) C2-Chrysenes	36.403	256	83512m	1.48		
71) C3-Chrysenes	38.186	270	47290m	0.84		
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.408	252	357504m	5.78		
78) Benzo(k,j)fluoranthene	37.506	252	112643m	1.86		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	204072m	3.14		
81) Benzo(a)pyrene	38.608	252	54318m	0.94		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	140326m	2.89		
83) Dibenzo(a,h)anthracene	43.435	278	31372m	0.80		
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	44.776	276	117785m	2.99		
89) Perylene	38.900	252	7056m	0.12		
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\MS50161\
Data File : ARC1675.D
Acq On : 20 Aug 2013 6:31 pm
Operator : YM
Sample : SO-DA-011 (0.5-1.0)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06653

Quant Time: Sep 01 11:46:23 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

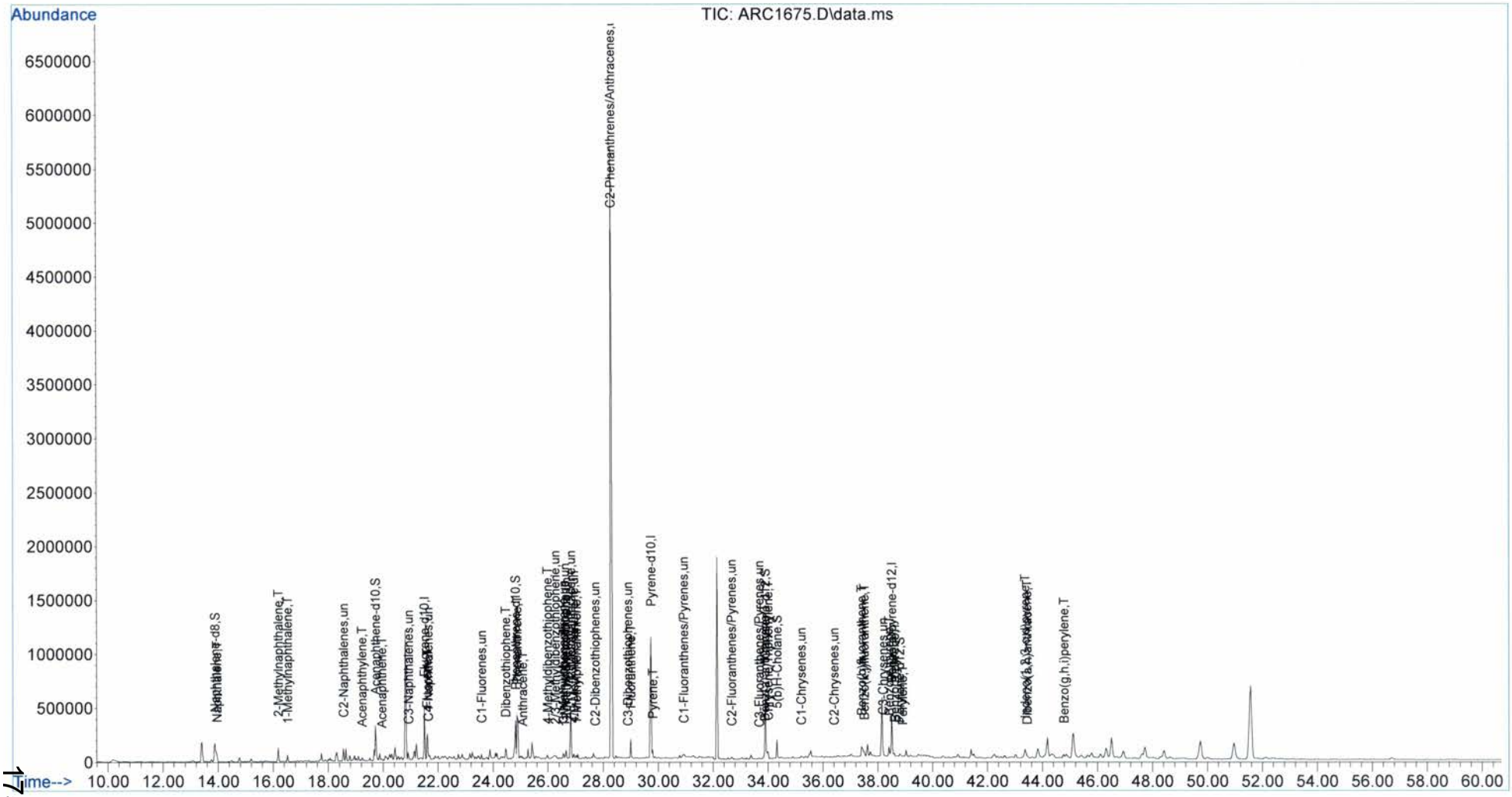
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1675.D
Acq On : 20 Aug 2013 6:31 pm
Operator : YM
Sample : SO-DA-011 (0.5-1.0)
Misc :
ALS Vial : 23 Sample Multiplier: 0.06653

Quant Time: Sep 01 11:46:23 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1676.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 19:36
Acq. Method File PAH-2012.M
Sample Name SO-DA-011 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 24
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

ARC1676.D
SO-DA-011 (1.0-1.5)
8/20/2013
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	13.95	57152	1.3747	1.6044
9)+10)	C1-Naphthalenes	16.35	65350	1.5719	1.8345
13)	C2-Naphthalenes	18.55	113777	2.7368	3.1939
14)	C3-Naphthalenes	20.92	78142	1.8796	2.1936
15)	C4-Naphthalenes	21.64	80367	1.9332	2.2561
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.22	3025	0.0814	0.0949
24)	Acenaphthene	19.76	3021	0.1242	0.1450
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	54123	1.8019	2.1028
28)	C1-Fluorenes	23.58	22566	0.7513	0.8768
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	1251	0.0296	0.0345
41)	Phenanthrene	24.88	201261	4.3370	5.0615
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	20248	0.4788	0.5588
35)+36)+37)	C1-Dibenzothiophenes	26.28	14789	0.3497	0.4082
38)	C2-Dibenzothiophenes	27.70	16072	0.3801	0.4436
39)	C3-Dibenzothiophenes	28.89	6679	0.1580	0.1843
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	34564	0.6386	0.7453
59)	Pyrene	29.79	8002	0.1361	0.1588
62)	C1-Fluoranthenes/Pyrenes	30.92	26337	0.4866	0.5679
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	6211	0.1185	0.1383
68)	Chrysene/Triphenylene	34.00	5645	0.1069	0.1247
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.41	10456	0.1967	0.2296
78)	Benzo(k,j)fluoranthene	37.51	3133	0.0601	0.0702
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	6392	0.1144	0.1335
81)	Benzo(a)pyrene	38.61	1731	0.0349	0.0407
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.37	3945	0.0945	0.1103
83)	Dibenzo(a,h)anthracene	43.44	1103	0.0325	0.0380
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	2425	0.0715	0.0835

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	43732	1.6073	1.8757
10)	1-Methylnaphthalene	16.52	21618	0.8467	0.9881
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	7551	0.2171	0.2533
36)	2/3-Methyldibenzothiophene	26.26	5417	0.1557	0.1817
37)	1-Methyldibenzothiophene	26.60	1821	0.0524	0.0611
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	513129	12.72	76.89
21)	Acenaphthene-d10	19.71	287304	12.11	73.22
32)	Phenanthrene-d10	24.82	620872	14.18	85.69
66)	Chrysene-d12	33.91	801768	15.59	94.24
88)	Perylene-d12	38.80	1235	0.03	0.16
90)	5(b)H-Cholane	34.33	218144	14.90	90.09
	Internal Standards				
1)	Fluorene-d10	21.50	400863	16.60	
31)	Pyrene-d10	29.74	782361	16.58	
73)	Benzo(a)pyrene-d12	38.51	640463	16.56	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1676.D
Acq On : 20 Aug 2013 7:36 pm
Operator : YM
Sample : SO-DA-011 (1.0-1.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06614

Quant Time: Sep 01 11:55:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	400863m	251.05		0.00
31) Pyrene-d10	29.738	212	782361m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	640463m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	513129m	12.72		0.00
21) Acenaphthene-d10	19.715	164	287304m	12.11		-0.02
32) Phenanthrene-d10	24.822	188	620872m	14.18		0.00
66) Chrysene-d12	33.907	240	801768m	15.59		0.00
88) Perylene-d12	38.803	264	1235m	0.03		-0.03
90) 5(b)H-Cholane	34.329	217	218144m	14.90		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	57152m	1.37		
9) 2-Methylnaphthalene	16.182	142	43732m	1.61		
10) 1-Methylnaphthalene	16.518	142	21618m	0.85		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	113777m	2.74		
14) C3-Naphthalenes	20.922	170	78142m	1.88		
15) C4-Naphthalenes	21.637	184	80367m	1.93		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	19.223	152	3025m	0.08		
24) Acenaphthene	19.759	154	3021m	0.12		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	54123m	1.80		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	22566m	0.75		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	20248m	0.48		
35) 4-Methyldibenzothiophene	25.981	198	7551m	0.22		
36) 2/3-Methyldibenzothiop...	26.263	198	5417m	0.16		
37) 1-Methyldibenzothiophene	26.602	198	1821m	0.05		
38) C2-Dibenzothiophenes	27.704	212	16072m	0.38		
39) C3-Dibenzothiophenes	28.891	226	6679m	0.16		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.879	178	201261m	4.34		
42) Anthracene	25.077	178	1251m	0.03		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1676.D
Acq On : 20 Aug 2013 7:36 pm
Operator : YM
Sample : SO-DA-011 (1.0-1.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06614

Quant Time: Sep 01 11:55:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	34564m	0.64		
59) Pyrene	29.795	202	8002m	0.14		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	30.925	216	26337m	0.49		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	6211m	0.12		
68) Chrysene/Triphenylene	34.004	228	5645m	0.11		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.408	252	10456m	0.20		
78) Benzo(k,j)fluoranthene	37.506	252	3133m	0.06		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	6392m	0.11		
81) Benzo(a)pyrene	38.608	252	1731m	0.03		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	3945m	0.09		
83) Dibenzo(a,h)anthracene	43.435	278	1103m	0.03		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	2425m	0.07		
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\MS50161\
Data File : ARC1676.D
Acq On : 20 Aug 2013 7:36 pm
Operator : YM
Sample : SO-DA-011 (1.0-1.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06614

Quant Time: Sep 01 11:55:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

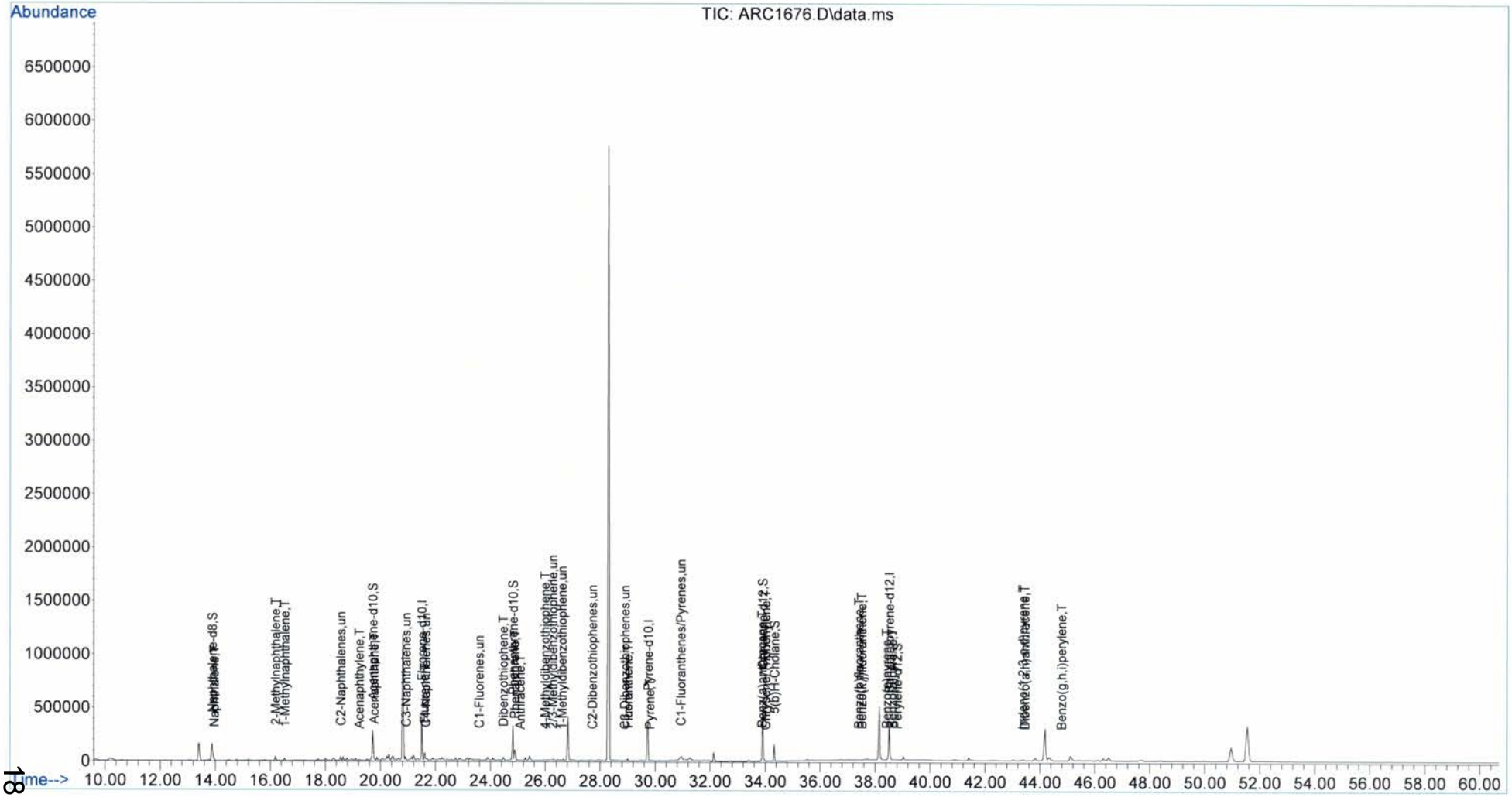
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1676.D
Acq On : 20 Aug 2013 7:36 pm
Operator : YM
Sample : SO-DA-011 (1.0-1.5)
Misc :
ALS Vial : 24 Sample Multiplier: 0.06614

Quant Time: Sep 01 11:55:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1679.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 20:42
Acq. Method File PAH-2012.M
Sample Name SO-DA-010 (0-0.5)
Misc Info 0
Instrument Name GCMS5
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

ARC1679.D
SO-DA-010 (0-0.5)
8/20/2013
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	13.95	112900	2.7251	3.1660
9)+10)	C1-Naphthalenes	16.35	240700	5.8098	6.7499
13)	C2-Naphthalenes	18.64	898408	21.6851	25.1938
14)	C3-Naphthalenes	20.56	2053900	49.5754	57.5968
15)	C4-Naphthalenes	22.87	2444180	58.9957	68.5413
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	19.25	38452	1.0378	1.2057
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	20.43	79645	2.1005	2.4403
26)	Fluorene	21.62	65818	2.1988	2.5546
28)	C1-Fluorenes	23.58	245894	8.2146	9.5437
29)	C2-Fluorenes	25.44	1040460	34.7589	40.3829
30)	C3-Fluorenes	27.37	1938020	64.7438	75.2194
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	59433	1.3263	1.5409
41)	Phenanthrene	24.91	767501	15.5964	18.1200
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	2107085	42.8182	49.7462
50)	C2-Phenanthrenes/Anthracenes	28.47	4522380	91.8996	106.7691
51)	C3-Phenanthrenes/Anthracenes	31.12	6510090	132.2920	153.6971
52)	C4-Phenanthrenes/Anthracenes	31.89	4905020	99.6750	115.8026
34)	Dibenzothiophene	24.48	355765	7.9339	9.2176
35)+36)+37)	C1-Dibenzothiophenes	26.28	1729658	38.5729	44.8140
38)	C2-Dibenzothiophenes	27.39	4031520	89.9063	104.4533
39)	C3-Dibenzothiophenes	29.57	5888300	131.3140	152.5608
40)	C4-Dibenzothiophenes	30.95	4983810	111.1430	129.1261
58)	Fluoranthene	29.00	631216	10.9974	12.7768
59)	Pyrene	29.79	1039350	16.6682	19.3651
62)	C1-Fluoranthenes/Pyrenes	31.29	1802180	31.3984	36.4788
63)	C2-Fluoranthenes/Pyrenes	32.68	3002810	52.3164	60.7812
64)	C3-Fluoranthenes/Pyrenes	34.23	2178100	37.9478	44.0878
65)	C4-Fluoranthenes/Pyrenes	35.46	3040240	52.9684	61.5388
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	272549	4.9050	5.6986
68)	Chrysene/Triphenylene	33.97	1387610	24.7726	28.7808
69)	C1-Chrysenes	35.24	2064850	36.8631	42.8276
70)	C2-Chrysenes	36.44	3150640	56.2473	65.3482
71)	C3-Chrysenes	37.64	2673700	47.7328	55.4560
72)	C4-Chrysenes	39.58	1530530	27.3240	31.7451
77)	Benzo(b)fluoranthene	37.44	996341	16.8098	19.5296
78)	Benzo(k,j)fluoranthene	37.54	308448	5.3091	6.1681
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	1029520	16.5280	19.2022
81)	Benzo(a)pyrene	38.64	276552	4.9988	5.8076
89)	Perylene	38.93	91007	1.6263	1.8894
82)	Indeno(1,2,3-c,d)pyrene	43.44	351867	7.5567	8.7793
83)	Dibenzo(a,h)anthracene	43.47	124478	3.2934	3.8263
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.81	583944	15.4458	17.9449

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	157161	5.7960	6.7338
10)	1-Methylnaphthalene	16.52	83539	3.2833	3.8145
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	771713	20.9212	24.3063
36)	2/3-Methyldibenzothiophene	26.26	509156	13.8033	16.0367
37)	1-Methyldibenzothiophene	26.60	448789	12.1667	14.1353
43)	3-Methylphenanthrene	26.57	395067	10.0116	11.6315
44)	2-Methylphenanthrene	26.66	533898	13.5297	15.7189
45)	2-Methylanthracene	26.83	137987	3.4968	4.0626
46)	4/9-Methylphenanthrene	26.94	640194	16.2234	18.8484
47)	1-Methylphenanthrene	27.03	399939	10.1350	11.7749
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	534290	13.29	80.02
21)	Acenaphthene-d10	19.71	316590	13.40	80.65
32)	Phenanthrene-d10	24.82	663964	14.30	86.07
66)	Chrysene-d12	33.94	781896	14.33	86.33
88)	Perylene-d12	38.83	116496	2.18	13.12
90)	5(b)H-Cholane	34.33	270429	16.56	99.76
	Internal Standards				
1)	Fluorene-d10	21.50	401053	16.67	
31)	Pyrene-d10	29.74	832910	16.64	
73)	Benzo(a)pyrene-d12	38.54	717011	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1679.D
Acq On : 20 Aug 2013 8:42 pm
Operator : YM
Sample : SO-DA-010 (0-0.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 01 12:04:00 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	401053m	251.05		0.00
31) Pyrene-d10	29.738	212	832910m	250.63		0.00
73) Benzo(a)pyrene-d12	38.543	264	717011m	250.32		0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	534290m	13.29		0.00
21) Acenaphthene-d10	19.715	164	316590m	13.40		-0.02
32) Phenanthrene-d10	24.822	188	663964m	14.30		0.00
66) Chrysene-d12	33.939	240	781896m	14.33		0.03
88) Perylene-d12	38.835	264	116496m	2.18		0.00
90) 5(b)H-Cholane	34.329	217	270429m	16.56		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	112900m	2.73		
9) 2-Methylnaphthalene	16.182	142	157161m	5.80		
10) 1-Methylnaphthalene	16.518	142	83539m	3.28		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	898408m	21.69		
14) C3-Naphthalenes	20.564	170	2053896m	49.58		
15) C4-Naphthalenes	22.873	184	2444176m	59.00		
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	19.245	152	38452m	1.04		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	20.430	168	79645m	2.10		
26) Fluorene	21.615	166	65818m	2.20		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	245894m	8.21		
29) C2-Fluorenes	25.444	194	1040463m	34.76		
30) C3-Fluorenes	27.365	208	1938023m	64.74		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.483	184	355765m	7.93		
35) 4-Methyldibenzothiophene	25.981	198	771713m	20.92		
36) 2/3-Methyldibenzothiop...	26.263	198	509156m	13.80		
37) 1-Methyldibenzothiophene	26.602	198	448789m	12.17		
38) C2-Dibenzothiophenes	27.393	212	4031515m	89.91		
39) C3-Dibenzothiophenes	29.569	226	5888296m	131.31		
40) C4-Dibenzothiophenes	30.953	240	4983808m	111.14		
41) Phenanthrene	24.907	178	767501m	15.60		
42) Anthracene	25.077	178	59433m	1.33		
43) 3-Methylphenanthrene	26.574	192	395067m	10.01		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1679.D
Acq On : 20 Aug 2013 8:42 pm
Operator : YM
Sample : SO-DA-010 (0-0.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 01 12:04:00 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	533898m	13.53		
45) 2-Methylanthracene	26.828	192	137987m	3.50		
46) 4/9-Methylphenanthrene	26.941	192	640194m	16.22		
47) 1-Methylphenanthrene	27.026	192	399939m	10.14		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.467	206	4522382m	91.90		
51) C3-Phenanthrenes/Anthr...	31.123	220	6510087m	132.29		
52) C4-Phenanthrenes/Anthr...	31.885	234	4905016m	99.68		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	631216m	11.00		
59) Pyrene	29.795	202	1039351m	16.67		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.292	216	1802181m	31.40		
63) C2-Fluoranthenes/Pyrenes	32.675	230	3002812m	52.32		
64) C3-Fluoranthenes/Pyrenes	34.231	244	2178097m	37.95		
65) C4-Fluoranthenes/Pyrenes	35.463	258	3040237m	52.97		
67) Benz(a)anthracene	33.875	228	272549m	4.90		
68) Chrysene/Triphenylene	33.972	228	1387612m	24.77		
69) C1-Chrysenes	35.236	242	2064851m	36.86		
70) C2-Chrysenes	36.436	256	3150637m	56.25		
71) C3-Chrysenes	37.635	270	2673702m	47.73		
72) C4-Chrysenes	39.581	284	1530525m	27.32		
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	37.441	252	996341m	16.81		
78) Benzo(k,j)fluoranthene	37.538	252	308448m	5.31		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.446	252	1029520m	16.53		
81) Benzo(a)pyrene	38.640	252	276552m	5.00		
82) Indeno(1,2,3-c,d)pyrene	43.435	276	351867m	7.56		
83) Dibenzo(a,h)anthracene	43.468	278	124478m	3.29		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.808	276	583944m	15.45		
89) Perylene	38.932	252	91007m	1.63		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	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\MS50161\
Data File : ARC1679.D
Acq On : 20 Aug 2013 8:42 pm
Operator : YM
Sample : SO-DA-010 (0-0.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 01 12:04:00 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

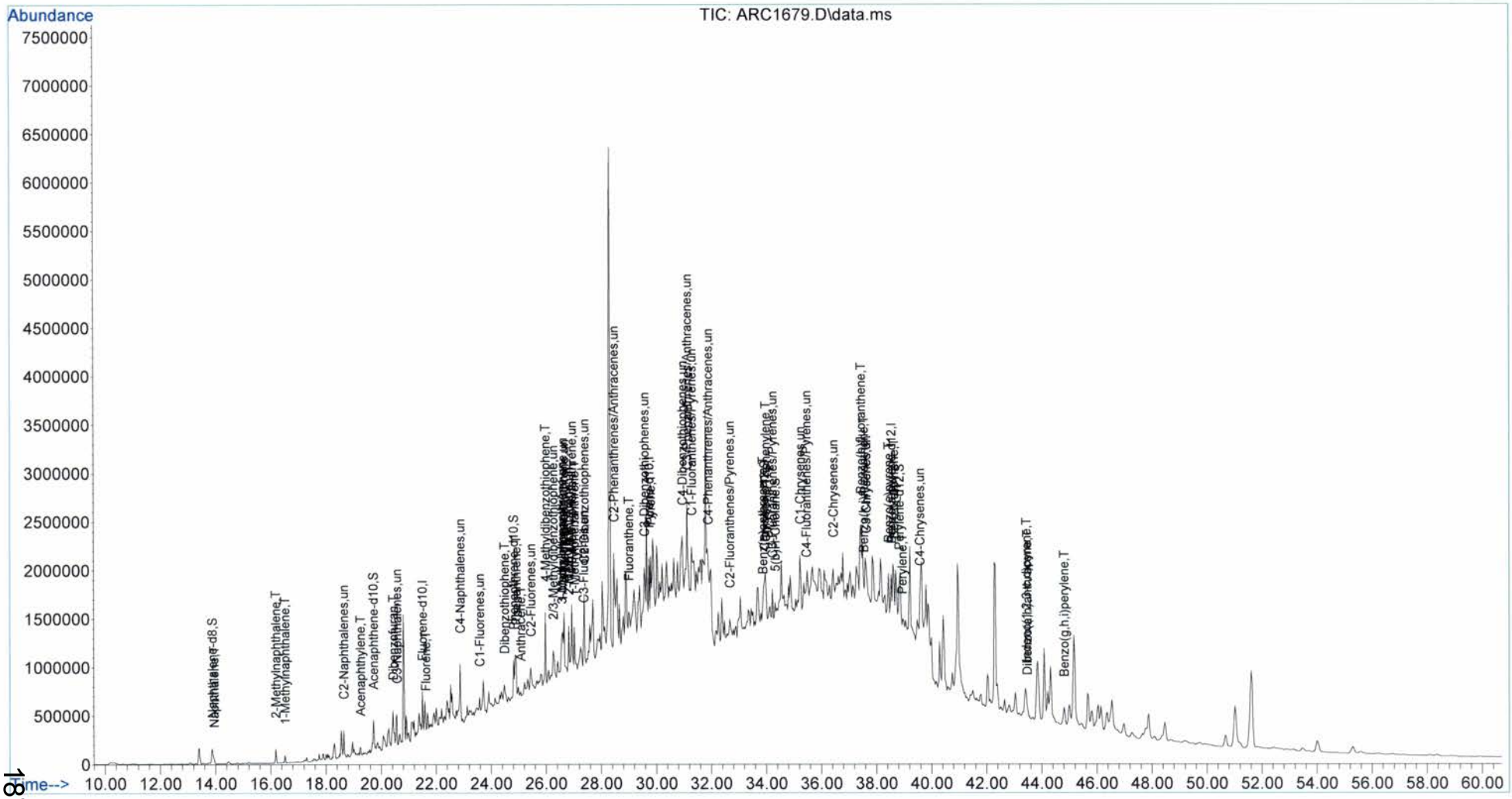
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1679.D
Acq On : 20 Aug 2013 8:42 pm
Operator : YM
Sample : SO-DA-010 (0-0.5)
Misc :
ALS Vial : 25 Sample Multiplier: 0.0664

Quant Time: Sep 01 12:04:00 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1680.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 21:48
Acq. Method File PAH-2012.M
Sample Name SO-DA-010 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 26
Sample Multiplier 0.06618
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1680.D
SO-DA-010 (0.5-1.0)
8/20/2013
PAH-2012.M
15.11030523

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.95	34069	0.8586	1.0177
9)+10)	C1-Naphthalenes	16.35	30984	0.7809	0.9255
13)	C2-Naphthalenes	18.64	47598	1.1996	1.4218
14)	C3-Naphthalenes	20.56	32987	0.8313	0.9854
15)	C4-Naphthalenes	21.64	131620	3.3171	3.9317
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	19.22	10661	0.3004	0.3561
24)	Acenaphthene	19.76	3318	0.1430	0.1695
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	20855	0.7275	0.8622
28)	C1-Fluorenes	23.58	18899	0.6592	0.7814
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	20116	0.4780	0.5665
41)	Phenanthrene	24.91	138276	2.9919	3.5462
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	248475	5.3763	6.3724
50)	C2-Phenanthrenes/Anthracenes	28.30	596996	12.9173	15.3105
51)	C3-Phenanthrenes/Anthracenes	30.02	849588	18.3828	21.7885
52)	C4-Phenanthrenes/Anthracenes	31.86	784824	16.9815	20.1276
34)	Dibenzothiophene	24.46	16965	0.4028	0.4775
35)+36)+37)	C1-Dibenzothiophenes	26.28	67054	1.5922	1.8872
38)	C2-Dibenzothiophenes	28.04	343359	8.1532	9.6637
39)	C3-Dibenzothiophenes	28.89	765608	18.1796	21.5477
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	113736	2.1099	2.5008
59)	Pyrene	29.79	103180	1.7619	2.0883
62)	C1-Fluoranthenes/Pyrenes	31.60	220125	4.0835	4.8401
63)	C2-Fluoranthenes/Pyrenes	32.68	346640	6.4305	7.6219
64)	C3-Fluoranthenes/Pyrenes	34.52	272834	5.0613	5.9990
65)	C4-Fluoranthenes/Pyrenes	35.46	524244	9.7252	11.5270
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	36642	0.7021	0.8322
68)	Chrysene/Triphenylene	33.97	165838	3.1524	3.7365
69)	C1-Chrysenes	35.20	303962	5.7780	6.8485
70)	C2-Chrysenes	36.40	436829	8.3037	9.8421
71)	C3-Chrysenes	38.22	318305	6.0507	7.1717
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	172569	3.1213	3.6995
78)	Benzo(k,j)fluoranthene	37.47	64051	1.1819	1.4009
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	166883	2.8722	3.4043
81)	Benzo(a)pyrene	38.61	36879	0.7146	0.8470
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	43.44	22255	0.6312	0.7482
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	78517	2.2265	2.6390

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	21962	0.8457	1.0024
10)	1-Methylnaphthalene	16.52	9022	0.3702	0.4388
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	26196	0.7562	0.8963
36)	2/3-Methyldibenzothiophene	26.26	21062	0.6080	0.7206
37)	1-Methyldibenzothiophene	26.60	19796	0.5714	0.6773
43)	3-Methylphenanthrene	26.57	24442	0.6595	0.7817
44)	2-Methylphenanthrene	26.66	28210	0.7612	0.9022
45)	2-Methylanthracene	26.83	146789	3.9608	4.6946
46)	4/9-Methylphenanthrene	26.94	29209	0.7881	0.9342
47)	1-Methylphenanthrene	27.03	19825	0.5349	0.6340
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	496727	12.90	77.94
21)	Acenaphthene-d10	19.71	277294	12.25	74.00
32)	Phenanthrene-d10	24.82	609202	13.97	84.37
66)	Chrysene-d12	33.91	791797	15.45	93.39
88)	Perylene-d12	38.83	12263	0.25	1.49
90)	5(b)H-Cholane	34.33	229539	15.07	91.08
	Internal Standards				
1)	Fluorene-d10	21.50	382832	16.61	
31)	Pyrene-d10	29.74	779651	16.59	
73)	Benzo(a)pyrene-d12	38.51	666610	16.57	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1680.D
Acq On : 20 Aug 2013 9:48 pm
Operator : YM
Sample : SO-DA-010 (0.5-1.0)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Sep 01 14:01:35 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	382832m	251.05		0.00
31) Pyrene-d10	29.738	212	779651m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	666610m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	496727m	12.90		0.00
21) Acenaphthene-d10	19.715	164	277294m	12.25		-0.02
32) Phenanthrene-d10	24.822	188	609202m	13.97		0.00
66) Chrysene-d12	33.907	240	791797m	15.45		0.00
88) Perylene-d12	38.835	264	12263m	0.25		0.00
90) 5(b)H-Cholane	34.328	217	229539m	15.07		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	34069m	0.86		
9) 2-Methylnaphthalene	16.182	142	21962m	0.85		
10) 1-Methylnaphthalene	16.518	142	9022m	0.37		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	47598m	1.20		
14) C3-Naphthalenes	20.564	170	32987m	0.83		
15) C4-Naphthalenes	21.637	184	131620m	3.32		
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	19.223	152	10661m	0.30		
24) Acenaphthene	19.759	154	3318m	0.14		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	20855m	0.73		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	18899m	0.66		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	16965m	0.40		
35) 4-Methyldibenzothiophene	25.981	198	26196m	0.76		
36) 2/3-Methyldibenzothiop...	26.263	198	21062m	0.61		
37) 1-Methyldibenzothiophene	26.602	198	19796m	0.57		
38) C2-Dibenzothiophenes	28.043	212	343359m	8.15		
39) C3-Dibenzothiophenes	28.891	226	765608m	18.18		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.907	178	138276m	2.99		
42) Anthracene	25.077	178	20116m	0.48		
43) 3-Methylphenanthrene	26.574	192	24442m	0.66		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1680.D
Acq On : 20 Aug 2013 9:48 pm
Operator : YM
Sample : SO-DA-010 (0.5-1.0)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Sep 01 14:01:35 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	28210m	0.76		
45) 2-Methylanthracene	26.828	192	146789m	3.96		
46) 4/9-Methylphenanthrene	26.941	192	29209m	0.79		
47) 1-Methylphenanthrene	27.026	192	19825m	0.53		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.297	206	596996m	12.92		
51) C3-Phenanthrenes/Anthr...	30.021	220	849588m	18.38		
52) C4-Phenanthrenes/Anthr...	31.857	234	784824m	16.98		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	113736m	2.11		
59) Pyrene	29.795	202	103180m	1.76		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.603	216	220125m	4.08		
63) C2-Fluoranthenes/Pyrenes	32.675	230	346640m	6.43		
64) C3-Fluoranthenes/Pyrenes	34.523	244	272834m	5.06		
65) C4-Fluoranthenes/Pyrenes	35.463	258	524244m	9.73		
67) Benz(a)anthracene	33.875	228	36642m	0.70		
68) Chrysene/Triphenylene	33.972	228	165838m	3.15		
69) C1-Chrysenes	35.204	242	303962m	5.78		
70) C2-Chrysenes	36.403	256	436829m	8.30		
71) C3-Chrysenes	38.219	270	318305m	6.05		
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	172569m	3.12		
78) Benzo(k,j)fluoranthene	37.473	252	64051m	1.18		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	166883m	2.87		
81) Benzo(a)pyrene	38.608	252	36879m	0.71		
82) Indeno(1,2,3-c,d)pyrene	0.000		0	N.D.	d	
83) Dibenzo(a,h)anthracene	43.435	278	22255m	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	44.776	276	78517m	2.23		
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\MS50161\
Data File : ARC1680.D
Acq On : 20 Aug 2013 9:48 pm
Operator : YM
Sample : SO-DA-010 (0.5-1.0)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Sep 01 14:01:35 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

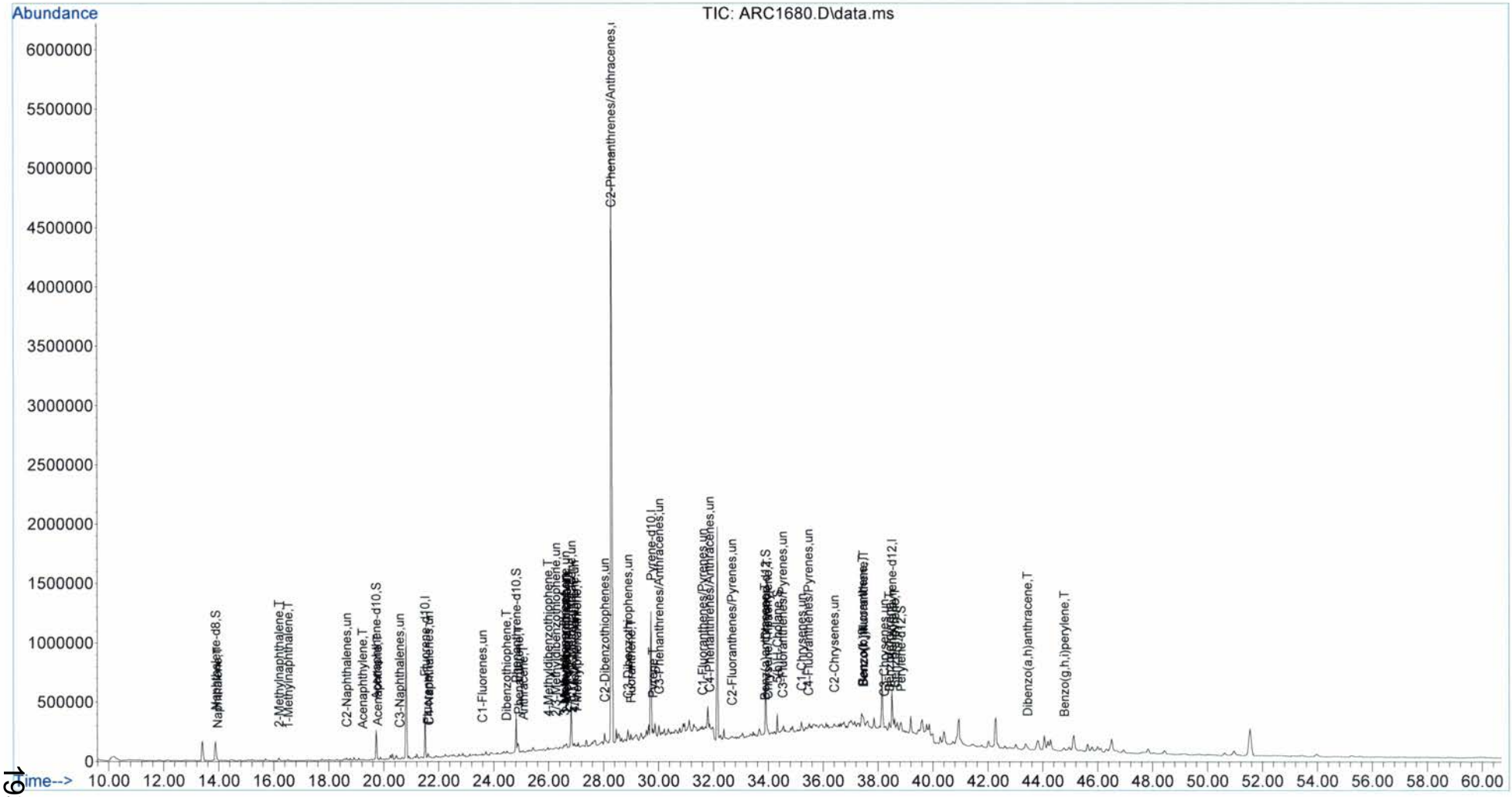
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1680.D
Acq On : 20 Aug 2013 9:48 pm
Operator : YM
Sample : SO-DA-010 (0.5-1.0)
Misc :
ALS Vial : 26 Sample Multiplier: 0.06618

Quant Time: Sep 01 14:01:35 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1681.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 22:53
Acq. Method File PAH-2012.M
Sample Name SO-DA-010 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 27
Sample Multiplier 0.06609
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1681.D
SO-DA-010 (1.0-1.5)
8/20/2013
PAH-2012.M
15.13088213

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.95	31964	0.7926	0.9086
9)+10)	C1-Naphthalenes	16.35	36482	0.9046	1.0371
13)	C2-Naphthalenes	18.31	45494	1.1280	1.2933
14)	C3-Naphthalenes	20.21	37330	0.9256	1.0612
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	19.25	4367	0.1211	0.1388
24)	Acenaphthene	19.76	5094	0.2159	0.2476
25)	Dibenzofuran	20.43	49732	1.3473	1.5447
26)	Fluorene	21.59	59086	2.0277	2.3247
28)	C1-Fluorenes	23.58	25149	0.8631	0.9895
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	7016	0.1677	0.1923
41)	Phenanthrene	24.91	307345	6.6917	7.6718
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	226696	4.9357	5.6587
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.45	22460	0.5367	0.6153
35)+36)+37)	C1-Dibenzothiophenes	26.28	26225	0.6266	0.7184
38)	C2-Dibenzothiophenes	28.04	51600	1.2329	1.4135
39)	C3-Dibenzothiophenes	28.89	74206	1.7731	2.0328
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	88031	1.6433	1.8840
59)	Pyrene	29.79	44190	0.7593	0.8705
62)	C1-Fluoranthenes/Pyrenes	31.60	48110	0.8981	1.0296
63)	C2-Fluoranthenes/Pyrenes	32.16	94216	1.7587	2.0163
64)	C3-Fluoranthenes/Pyrenes	34.33	62375	1.1644	1.3349
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	14722	0.2839	0.3255
68)	Chrysene/Triphenylene	33.97	50675	0.9693	1.1113
69)	C1-Chrysenes	35.20	69808	1.3353	1.5309
70)	C2-Chrysenes	36.40	119908	2.2936	2.6295
71)	C3-Chrysenes	38.19	74522	1.4254	1.6342
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	51919	0.9015	1.0336
78)	Benzo(k,j)fluoranthene	37.51	18909	0.3350	0.3840
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	51693	0.8541	0.9792
81)	Benzo(a)pyrene	38.61	9993	0.1859	0.2131
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.37	17810	0.3936	0.4513
83)	Dibenzo(a,h)anthracene	43.43	6762	0.1841	0.2111
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	17288	0.4706	0.5396

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	26395	1.0000	1.1464
10)	1-Methylnaphthalene	16.52	10087	0.4073	0.4669
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	12806	0.3720	0.4265
36)	2/3-Methyldibenzothiophene	26.26	8171	0.2373	0.2721
37)	1-Methyldibenzothiophene	26.60	5248	0.1524	0.1748
43)	3-Methylphenanthrene	26.57	21005	0.5703	0.6539
44)	2-Methylphenanthrene	26.66	29317	0.7960	0.9126
45)	2-Methylanthracene	26.83	143392	3.8933	4.4636
46)	4/9-Methylphenanthrene	26.94	14678	0.3985	0.4569
47)	1-Methylphenanthrene	27.03	18304	0.4970	0.5698
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	510173	13.04	78.86
21)	Acenaphthene-d10	19.71	238090	10.35	62.59
32)	Phenanthrene-d10	24.82	625049	14.42	87.22
66)	Chrysene-d12	33.91	786074	15.44	93.42
88)	Perylene-d12	38.83	4258	0.08	0.50
90)	5(b)H-Cholane	34.33	234774	14.80	89.55
	Internal Standards				
1)	Fluorene-d10	21.50	388587	16.59	
31)	Pyrene-d10	29.74	773751	16.56	
73)	Benzo(a)pyrene-d12	38.51	693433	16.54	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1681.D
Acq On : 20 Aug 2013 10:53 pm
Operator : YM
Sample : SO-DA-010 (1.0-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06609

Quant Time: Sep 01 12:19:25 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	388587m	251.05		0.00
31) Pyrene-d10	29.738	212	773751m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	693433m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	510173m	13.04		0.00
21) Acenaphthene-d10	19.715	164	238090m	10.35		-0.02
32) Phenanthrene-d10	24.822	188	625049m	14.42		0.00
66) Chrysene-d12	33.907	240	786074m	15.44		0.00
88) Perylene-d12	38.835	264	4258m	0.08		0.00
90) 5(b)H-Cholane	34.328	217	234774m	14.80		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	31964m	0.79		
9) 2-Methylnaphthalene	16.182	142	26395m	1.00		
10) 1-Methylnaphthalene	16.518	142	10087m	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	18.306	156	45494m	1.13		
14) C3-Naphthalenes	20.206	170	37330m	0.93		
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	19.245	152	4367m	0.12		
24) Acenaphthene	19.759	154	5094m	0.22		
25) Dibenzofuran	20.430	168	49732m	1.35		
26) Fluorene	21.593	166	59086m	2.03		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	25149m	0.86		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	22460m	0.54		
35) 4-Methyldibenzothiophene	25.981	198	12806m	0.37		
36) 2/3-Methyldibenzothiop...	26.263	198	8171m	0.24		
37) 1-Methyldibenzothiophene	26.602	198	5248m	0.15		
38) C2-Dibenzothiophenes	28.043	212	51600m	1.23		
39) C3-Dibenzothiophenes	28.891	226	74206m	1.77		
40) C4-Dibenzothiophenes	0.000		0	N.D.		
41) Phenanthrene	24.907	178	307345m	6.69		
42) Anthracene	25.076	178	7016m	0.17		
43) 3-Methylphenanthrene	26.574	192	21005m	0.57		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1681.D
Acq On : 20 Aug 2013 10:53 pm
Operator : YM
Sample : SO-DA-010 (1.0-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06609

Quant Time: Sep 01 12:19:25 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	29317m	0.80		
45) 2-Methylanthracene	26.828	192	143392m	3.89		
46) 4/9-Methylphenanthrene	26.941	192	14678m	0.40		
47) 1-Methylphenanthrene	27.026	192	18304m	0.50		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	88031m	1.64		
59) Pyrene	29.795	202	44190m	0.76		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.603	216	48110m	0.90		
63) C2-Fluoranthenes/Pyrenes	32.156	230	94216m	1.76		
64) C3-Fluoranthenes/Pyrenes	34.328	244	62375m	1.16		
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.874	228	14722m	0.28		
68) Chrysene/Triphenylene	33.972	228	50675m	0.97		
69) C1-Chrysenes	35.204	242	69808m	1.34		
70) C2-Chrysenes	36.403	256	119908m	2.29		
71) C3-Chrysenes	38.186	270	74522m	1.43		
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	51919m	0.90		
78) Benzo(k,j)fluoranthene	37.506	252	18909m	0.33		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	51693m	0.85		
81) Benzo(a)pyrene	38.608	252	9993m	0.19		
82) Indeno(1,2,3-c,d)pyrene	43.369	276	17810m	0.39		
83) Dibenzo(a,h)anthracene	43.435	278	6762m	0.18		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.775	276	17288m	0.47		
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\MS50161\
Data File : ARC1681.D
Acq On : 20 Aug 2013 10:53 pm
Operator : YM
Sample : SO-DA-010 (1.0-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06609

Quant Time: Sep 01 12:19:25 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

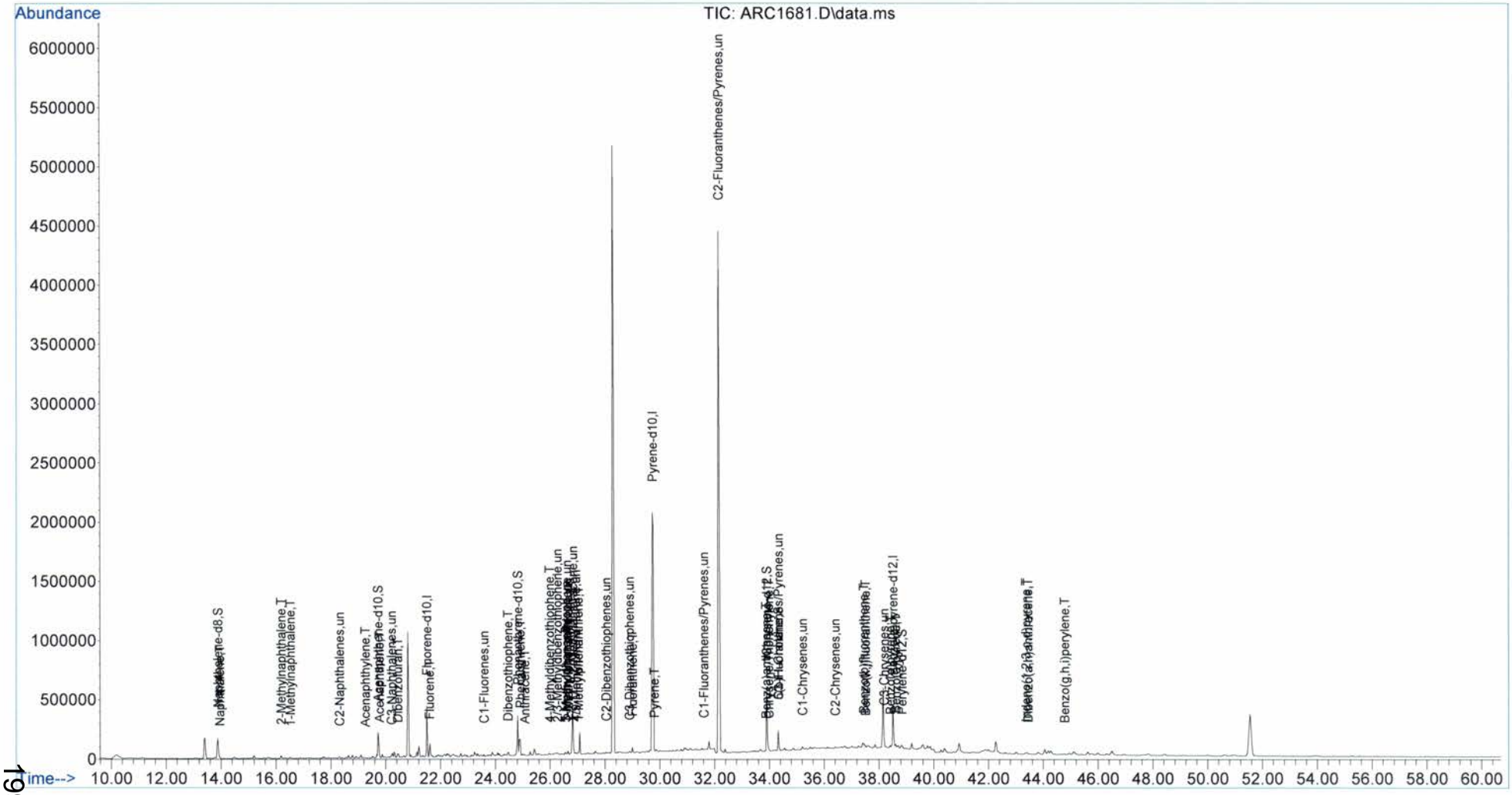
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1681.D
Acq On : 20 Aug 2013 10:53 pm
Operator : YM
Sample : SO-DA-010 (1.0-1.5)
Misc :
ALS Vial : 27 Sample Multiplier: 0.06609

Quant Time: Sep 01 12:19:25 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1682.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/20/2013 23:59
Acq. Method File PAH-2012.M
Sample Name SO-DA-DUP-02-080213
Misc Info 0
Instrument Name GCMS5
Vial Number 28
Sample Multiplier 0.06609
Sample Amount 0

Surrogate/Internal Multiplier Factor: 1.00

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

Copy data below to Spread Sheet

ARC1682.D
SO-DA-DUP-02-080213
8/20/2013
PAH-2012.M
15.13088213

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.95	197659	4.8630	5.5067
9)+10)	C1-Naphthalenes	16.35	386722	9.5145	10.7739
13)	C2-Naphthalenes	18.64	840808	20.6863	23.4245
14)	C3-Naphthalenes	20.56	1308680	32.1974	36.4592
15)	C4-Naphthalenes	22.87	2175320	53.5191	60.6032
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	19.25	56062	1.5422	1.7464
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	20.43	152561	4.1011	4.6440
26)	Fluorene	21.62	155872	5.3077	6.0102
28)	C1-Fluorenes	23.58	290786	9.9017	11.2124
29)	C2-Fluorenes	25.47	1293570	44.0481	49.8786
30)	C3-Fluorenes	27.39	3214440	109.4569	123.9453
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	90293	2.1083	2.3873
41)	Phenanthrene	24.91	1184790	25.1916	28.5261
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	1992302	42.3613	47.9685
50)	C2-Phenanthrenes/Anthracenes	28.50	6040120	128.4281	145.4276
51)	C3-Phenanthrenes/Anthracenes	30.05	11901900	253.0646	286.5617
52)	C4-Phenanthrenes/Anthracenes	31.89	11231000	238.7997	270.4086
34)	Dibenzothiophene	24.48	327086	7.6322	8.6424
35)+36)+37)	C1-Dibenzothiophenes	26.28	1528011	35.6545	40.3740
38)	C2-Dibenzothiophenes	27.39	5336810	124.5294	141.0129
39)	C3-Dibenzothiophenes	29.40	10537100	245.8726	278.4178
40)	C4-Dibenzothiophenes	29.91	10341200	241.3012	273.2413
58)	Fluoranthene	29.03	961851	17.5342	19.8551
59)	Pyrene	29.79	1578800	26.4924	29.9991
62)	C1-Fluoranthenes/Pyrenes	31.63	3350720	61.0824	69.1677
63)	C2-Fluoranthenes/Pyrenes	33.03	5286020	96.3619	109.1169
64)	C3-Fluoranthenes/Pyrenes	33.71	4681470	85.3414	96.6376
65)	C4-Fluoranthenes/Pyrenes	35.50	6972570	127.1076	143.9323
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.91	404422	7.6154	8.6234
68)	Chrysene/Triphenylene	33.97	1998370	37.3292	42.2703
69)	C1-Chrysenes	35.24	3715150	69.3978	78.5837
70)	C2-Chrysenes	36.44	5484680	102.4527	116.0140
71)	C3-Chrysenes	38.15	4092490	76.4470	86.5659
72)	C4-Chrysenes	39.65	2343520	43.7764	49.5709
77)	Benzo(b)fluoranthene	37.47	1457560	28.2749	32.0175
78)	Benzo(k,j)fluoranthene	37.51	540831	10.7033	12.1200
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.48	1389210	25.6431	29.0374
81)	Benzo(a)pyrene	38.64	427170	8.8779	10.0530
89)	Perylene	38.96	104882	2.1550	2.4402
82)	Indeno(1,2,3-c,d)pyrene	43.44	469102	11.5834	13.1166
83)	Dibenzo(a,h)anthracene	43.50	164949	5.0179	5.6822
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.84	786554	23.9213	27.0877

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	273726	10.2896	11.6516
10)	1-Methylnaphthalene	16.52	112996	4.5267	5.1259
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	661622	18.7676	21.2518
36)	2/3-Methyldibenzothiophene	26.26	454535	12.8934	14.6000
37)	1-Methyldibenzothiophene	26.60	411854	11.6827	13.2291
43)	3-Methylphenanthrene	26.57	390656	10.3584	11.7295
44)	2-Methylphenanthrene	26.66	502123	13.3140	15.0764
45)	2-Methylanthracene	26.83	149007	3.9510	4.4740
46)	4/9-Methylphenanthrene	26.94	579057	15.3540	17.3863
47)	1-Methylphenanthrene	27.03	371459	9.8494	11.1531
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	534436	13.55	81.97
21)	Acenaphthene-d10	19.74	294533	12.70	76.83
32)	Phenanthrene-d10	24.82	648019	14.60	88.31
66)	Chrysene-d12	33.94	782308	15.00	90.80
88)	Perylene-d12	38.87	43984	0.95	5.72
90)	5(b)H-Cholane	34.36	241266	16.99	102.81
	Internal Standards				
1)	Fluorene-d10	21.50	391626	16.59	
31)	Pyrene-d10	29.74	792314	16.56	
73)	Benzo(a)pyrene-d12	38.58	620690	16.54	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1682.D
Acq On : 20 Aug 2013 11:59 pm
Operator : YM
Sample : SO-DA-DUP-02-080213
Misc :
ALS Vial : 28 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:12:20 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	391626m	251.05		0.00
31) Pyrene-d10	29.738	212	792314m	250.63		0.00
73) Benzo(a)pyrene-d12	38.576	264	620690m	250.32		0.06
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	534436m	13.55		0.00
21) Acenaphthene-d10	19.737	164	294533m	12.70		0.00
32) Phenanthrene-d10	24.822	188	648019m	14.60		0.00
66) Chrysene-d12	33.940	240	782308m	15.00		0.03
88) Perylene-d12	38.867	264	43984m	0.95		0.03
90) 5(b)H-Cholane	34.361	217	241266m	16.99		0.03
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	197659m	4.86		
9) 2-Methylnaphthalene	16.183	142	273726m	10.29		
10) 1-Methylnaphthalene	16.518	142	112996m	4.53		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	840808m	20.69		
14) C3-Naphthalenes	20.564	170	1308684m	32.20		
15) C4-Naphthalenes	22.873	184	2175318m	53.52		
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	19.245	152	56062m	1.54		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	20.430	168	152561m	4.10		
26) Fluorene	21.615	166	155872m	5.31		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	290786m	9.90		
29) C2-Fluorenes	25.472	194	1293570m	44.05		
30) C3-Fluorenes	27.393	208	3214438m	109.46		
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.483	184	327086m	7.63		
35) 4-Methyldibenzothiophene	25.981	198	661622m	18.77		
36) 2/3-Methyldibenzothiop...	26.263	198	454535m	12.89		
37) 1-Methyldibenzothiophene	26.602	198	411854m	11.68		
38) C2-Dibenzothiophenes	27.393	212	5336810m	124.53		
39) C3-Dibenzothiophenes	29.399	226	10537094m	245.87		
40) C4-Dibenzothiophenes	29.908	240	10341174m	241.30		
41) Phenanthrene	24.907	178	1184790m	25.19		
42) Anthracene	25.077	178	90293m	2.11		
43) 3-Methylphenanthrene	26.574	192	390656m	10.36		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1682.D
Acq On : 20 Aug 2013 11:59 pm
Operator : YM
Sample : SO-DA-DUP-02-080213
Misc :
ALS Vial : 28 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:12:20 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	502123m	13.31		
45) 2-Methylanthracene	26.828	192	149007m	3.95		
46) 4/9-Methylphenanthrene	26.941	192	579057m	15.35		
47) 1-Methylphenanthrene	27.026	192	371459m	9.85		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.495	206	6040123m	128.43		
51) C3-Phenanthrenes/Anthr...	30.049	220	11901903m	253.06		
52) C4-Phenanthrenes/Anthr...	31.886	234	11231016m	238.80		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.032	202	961851m	17.53		
59) Pyrene	29.795	202	1578800m	26.49		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.631	216	3350723m	61.08		
63) C2-Fluoranthenes/Pyrenes	33.032	230	5286015m	96.36		
64) C3-Fluoranthenes/Pyrenes	33.713	244	4681469m	85.34		
65) C4-Fluoranthenes/Pyrenes	35.496	258	6972570m	127.11		
67) Benz(a)anthracene	33.907	228	404422m	7.62		
68) Chrysene/Triphenylene	33.972	228	1998371m	37.33		
69) C1-Chrysenes	35.236	242	3715145m	69.40		
70) C2-Chrysenes	36.436	256	5484675m	102.45		
71) C3-Chrysenes	38.154	270	4092490m	76.45		
72) C4-Chrysenes	39.645	284	2343516m	43.78		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.473	252	1457564m	28.27		
78) Benzo(k,j)fluoranthene	37.506	252	540831m	10.70		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.478	252	1389212m	25.64		
81) Benzo(a)pyrene	38.640	252	427170m	8.88		
82) Indeno(1,2,3-c,d)pyrene	43.435	276	469102m	11.58		
83) Dibenzo(a,h)anthracene	43.501	278	164949m	5.02		
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	44.841	276	786554m	23.92		
89) Perylene	38.965	252	104882m	2.15		
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	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\MS50161\
Data File : ARC1682.D
Acq On : 20 Aug 2013 11:59 pm
Operator : YM
Sample : SO-DA-DUP-02-080213
Misc :
ALS Vial : 28 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:12:20 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

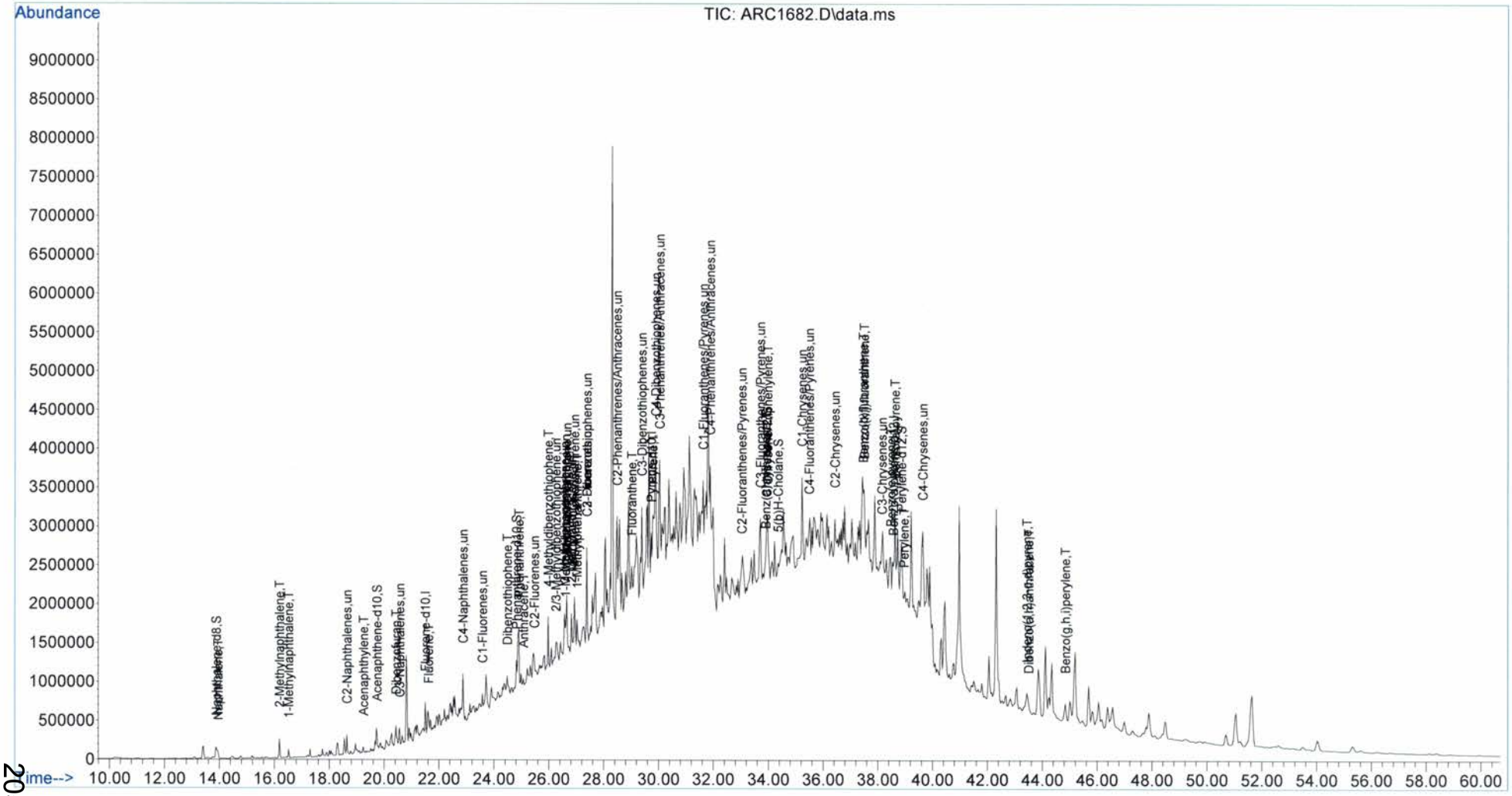
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1682.D
Acq On : 20 Aug 2013 11:59 pm
Operator : YM
Sample : SO-DA-DUP-02-080213
Misc :
ALS Vial : 28 Sample Multiplier: 0.06609

Quant Time: Sep 01 14:12:20 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1683.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/21/2013 2:10
Acq. Method File PAH-2012.M
Sample Name SO-DA-009 (0-0.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 30
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

ARC1683.D
SO-DA-009 (0-0.5)
8/21/2013
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	13.95	136180	3.1772	3.5853
9)+10)	C1-Naphthalenes	16.35	207833	4.8489	5.4717
13)	C2-Naphthalenes	18.64	535791	12.5004	14.1060
14)	C3-Naphthalenes	20.56	1053650	24.5822	27.7398
15)	C4-Naphthalenes	22.87	2929990	68.3583	77.1389
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	19.25	82539	2.1532	2.4297
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	83948	2.7107	3.0589
28)	C1-Fluorenes	23.58	294623	9.5136	10.7356
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	182707	4.1568	4.6907
41)	Phenanthrene	24.91	648819	13.4421	15.1687
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	1769367	36.6574	41.3660
50)	C2-Phenanthrenes/Anthracenes	28.50	5601170	116.0438	130.9495
51)	C3-Phenanthrenes/Anthracenes	31.12	10651600	220.6777	249.0234
52)	C4-Phenanthrenes/Anthracenes	31.89	9538240	197.6111	222.9940
34)	Dibenzothiophene	24.48	259542	5.9010	6.6590
35)+36)+37)	C1-Dibenzothiophenes	26.28	1492138	33.9255	38.2832
38)	C2-Dibenzothiophenes	27.39	5484550	124.6979	140.7152
39)	C3-Dibenzothiophenes	29.40	10450700	237.6093	268.1299
40)	C4-Dibenzothiophenes	29.91	7557110	171.8198	193.8898
58)	Fluoranthene	29.03	638458	11.3407	12.7974
59)	Pyrene	29.79	1222860	19.9939	22.5621
62)	C1-Fluoranthenes/Pyrenes	31.63	2916820	51.8103	58.4653
63)	C2-Fluoranthenes/Pyrenes	32.68	5000650	88.8242	100.2336
64)	C3-Fluoranthenes/Pyrenes	34.23	4291610	76.2300	86.0216
65)	C4-Fluoranthenes/Pyrenes	35.46	4502400	79.9745	90.2471
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	363997	6.6786	7.5365
68)	Chrysene/Triphenylene	33.97	1596590	29.0599	32.7926
69)	C1-Chrysenes	35.24	2810690	51.1579	57.7291
70)	C2-Chrysenes	36.44	4461280	81.2006	91.6307
71)	C3-Chrysenes	38.15	3133290	57.0296	64.3550
72)	C4-Chrysenes	39.65	1954120	35.5672	40.1358
77)	Benzo(b)fluoranthene	37.47	1232300	25.0487	28.2661
78)	Benzo(k,j)fluoranthene	37.54	487294	10.1051	11.4031
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	1077550	20.8418	23.5189
81)	Benzo(a)pyrene	38.64	402426	8.7637	9.8894
89)	Perylene	38.96	127258	2.7398	3.0918
82)	Indeno(1,2,3-c,d)pyrene	43.44	337990	8.7452	9.8685
83)	Dibenzo(a,h)anthracene	43.50	130927	4.1735	4.7096
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.84	541786	17.2655	19.4833

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	148532	5.2947	5.9748
10)	1-Methylnaphthalene	16.52	59301	2.2528	2.5421
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	660914	18.2672	20.6136
36)	2/3-Methyldibenzothiophene	26.26	436988	12.0780	13.6294
37)	1-Methyldibenzothiophene	26.60	394236	10.8964	12.2960
43)	3-Methylphenanthrene	26.57	312041	8.0620	9.0975
44)	2-Methylphenanthrene	26.66	393604	10.1692	11.4755
45)	2-Methylanthracene	26.83	189468	4.8951	5.5239
46)	4/9-Methylphenanthrene	26.94	553607	14.3031	16.1403
47)	1-Methylphenanthrene	27.03	320647	8.2843	9.3484
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	559120	13.44	81.05
21)	Acenaphthene-d10	19.74	308039	12.60	75.95
32)	Phenanthrene-d10	24.82	669589	14.70	88.62
66)	Chrysene-d12	33.94	884630	16.53	99.71
88)	Perylene-d12	38.87	82577	1.86	11.22
90)	5(b)H-Cholane	34.36	220938	16.30	98.33
	Internal Standards				
1)	Fluorene-d10	21.50	414356	16.65	
31)	Pyrene-d10	29.74	815854	16.62	
73)	Benzo(a)pyrene-d12	38.54	594323	16.60	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1683.D
Acq On : 21 Aug 2013 2:10 am
Operator : YM
Sample : SO-DA-009 (0-0.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:39:32 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	414356m	251.05		0.00
31) Pyrene-d10	29.738	212	815854m	250.63		0.00
73) Benzo(a)pyrene-d12	38.543	264	594323m	250.32		0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	559120m	13.44		0.00
21) Acenaphthene-d10	19.737	164	308039m	12.60		0.00
32) Phenanthrene-d10	24.822	188	669589m	14.70		0.00
66) Chrysene-d12	33.939	240	884630m	16.53		0.03
88) Perylene-d12	38.867	264	82577m	1.86		0.03
90) 5(b)H-Cholane	34.361	217	220938m	16.30		0.03
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	136180m	3.18		
9) 2-Methylnaphthalene	16.182	142	148532m	5.29		
10) 1-Methylnaphthalene	16.518	142	59301m	2.25		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	535791m	12.50		
14) C3-Naphthalenes	20.564	170	1053645m	24.58		
15) C4-Naphthalenes	22.873	184	2929988m	68.36		
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	19.245	152	82539m	2.15		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	83948m	2.71		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	294623m	9.51		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.483	184	259542m	5.90		
35) 4-Methyldibenzothiophene	25.981	198	660914m	18.27		
36) 2/3-Methyldibenzothiop...	26.263	198	436988m	12.08		
37) 1-Methyldibenzothiophene	26.602	198	394236m	10.90		
38) C2-Dibenzothiophenes	27.393	212	5484552m	124.70		
39) C3-Dibenzothiophenes	29.399	226	10450710m	237.61		
40) C4-Dibenzothiophenes	29.908	240	7557112m	171.82		
41) Phenanthrene	24.907	178	648819m	13.44		
42) Anthracene	25.077	178	182707m	4.16		
43) 3-Methylphenanthrene	26.574	192	312041m	8.06		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1683.D
Acq On : 21 Aug 2013 2:10 am
Operator : YM
Sample : SO-DA-009 (0-0.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:39:32 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	393604m	10.17		
45) 2-Methylanthracene	26.828	192	189468m	4.90		
46) 4/9-Methylphenanthrene	26.941	192	553607m	14.30		
47) 1-Methylphenanthrene	27.026	192	320647m	8.28		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.495	206	5601168m	116.04		
51) C3-Phenanthrenes/Anthr...	31.123	220	10651613m	220.68		
52) C4-Phenanthrenes/Anthr...	31.885	234	9538236m	197.61		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.032	202	638458m	11.34		
59) Pyrene	29.795	202	1222858m	19.99		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.631	216	2916824m	51.81		
63) C2-Fluoranthenes/Pyrenes	32.675	230	5000650m	88.82		
64) C3-Fluoranthenes/Pyrenes	34.231	244	4291607m	76.23		
65) C4-Fluoranthenes/Pyrenes	35.463	258	4502403m	79.97		
67) Benz(a)anthracene	33.875	228	363997m	6.68		
68) Chrysene/Triphenylene	33.972	228	1596591m	29.06		
69) C1-Chrysenes	35.236	242	2810690m	51.16		
70) C2-Chrysenes	36.436	256	4461283m	81.20		
71) C3-Chrysenes	38.154	270	3133287m	57.03		
72) C4-Chrysenes	39.645	284	1954115m	35.57		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.473	252	1232301m	25.05		
78) Benzo(k,j)fluoranthene	37.538	252	487294m	10.11		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.446	252	1077552m	20.84		
81) Benzo(a)pyrene	38.640	252	402426m	8.76		
82) Indeno(1,2,3-c,d)pyrene	43.435	276	337990m	8.75		
83) Dibenzo(a,h)anthracene	43.500	278	130927m	4.17		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.841	276	541786m	17.27		
89) Perylene	38.965	252	127258m	2.74		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1683.D
Acq On : 21 Aug 2013 2:10 am
Operator : YM
Sample : SO-DA-009 (0-0.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:39:32 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

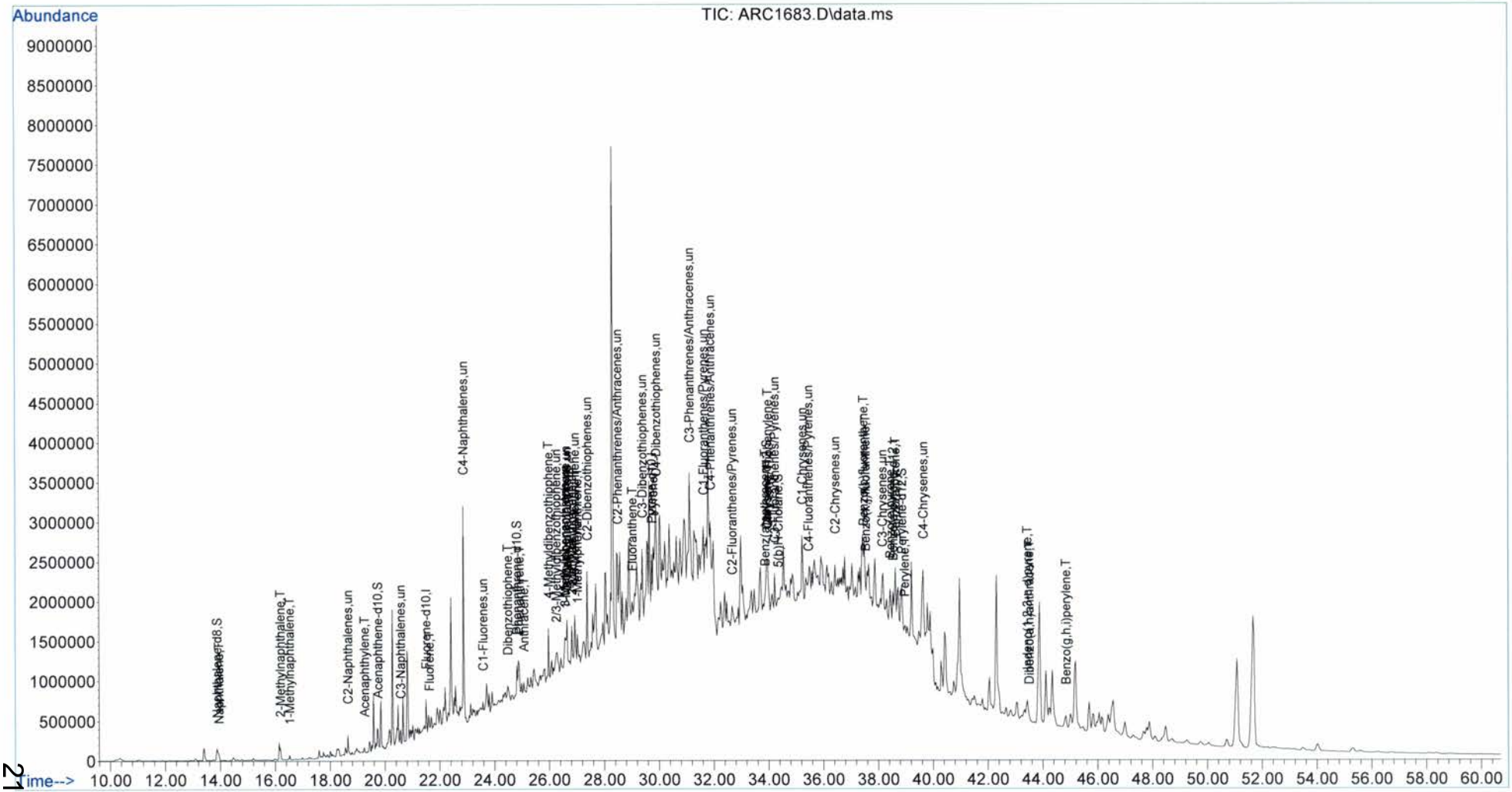
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1683.D
Acq On : 21 Aug 2013 2:10 am
Operator : YM
Sample : SO-DA-009 (0-0.5)
Misc :
ALS Vial : 30 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:39:32 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1684.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/21/2013 3:16
Acq. Method File PAH-2012.M
Sample Name SO-DA-009 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 31
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

ARC1684.D
SO-DA-009 (0.5-1.0)
8/21/2013
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	13.95	39034	1.0966	1.3357
9)+10)	C1-Naphthalenes	16.35	41168	1.1566	1.4088
13)	C2-Naphthalenes	18.64	88975	2.4997	3.0447
14)	C3-Naphthalenes	20.56	105162	2.9544	3.5986
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	19.25	6834	0.2147	0.2615
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	20.43	18581	0.5704	0.6947
26)	Fluorene	21.62	17556	0.6826	0.8315
28)	C1-Fluorenes	23.58	19711	0.7664	0.9335
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	11544	0.2954	0.3598
41)	Phenanthrene	24.91	101766	2.3714	2.8884
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	220095	5.1287	6.2470
50)	C2-Phenanthrenes/Anthracenes	28.30	386074	8.9965	10.9580
51)	C3-Phenanthrenes/Anthracenes	30.02	667328	15.5504	18.9409
52)	C4-Phenanthrenes/Anthracenes	31.86	695255	16.2011	19.7335
34)	Dibenzothiophene	24.46	22890	0.5854	0.7130
35)+36)+37)	C1-Dibenzothiophenes	26.28	63775	1.6309	1.9865
38)	C2-Dibenzothiophenes	28.04	190432	4.8698	5.9316
39)	C3-Dibenzothiophenes	28.89	471405	12.0551	14.6835
40)	C4-Dibenzothiophenes	30.95	392795	10.0448	12.2349
58)	Fluoranthene	29.00	67078	1.3401	1.6323
59)	Pyrene	29.79	90833	1.6704	2.0346
62)	C1-Fluoranthenes/Pyrenes	31.60	250934	5.0133	6.1064
63)	C2-Fluoranthenes/Pyrenes	32.68	432858	8.6479	10.5334
64)	C3-Fluoranthenes/Pyrenes	33.81	336329	6.7194	8.1844
65)	C4-Fluoranthenes/Pyrenes	35.24	500555	10.0003	12.1808
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	25198	0.5200	0.6334
68)	Chrysene/Triphenylene	33.97	125050	2.5600	3.1182
69)	C1-Chrysenes	35.20	285757	5.8500	7.1255
70)	C2-Chrysenes	36.40	371315	7.6015	9.2589
71)	C3-Chrysenes	38.22	310609	6.3588	7.7452
72)	C4-Chrysenes	39.58	141406	2.8948	3.5260
77)	Benzo(b)fluoranthene	37.44	106359	2.2573	2.7495
78)	Benzo(k,j)fluoranthene	37.47	40638	0.8799	1.0717
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	103563	2.0915	2.5475
81)	Benzo(a)pyrene	38.61	32442	0.7377	0.8985
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.40	36863	0.9959	1.2130
83)	Dibenzo(a,h)anthracene	43.47	15110	0.5029	0.6126
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	48347	1.6087	1.9594

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	28491	1.2230	1.4896
10)	1-Methylnaphthalene	16.52	12677	0.5799	0.7064
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	23277	0.7236	0.8814
36)	2/3-Methyldibenzothiophene	26.26	26282	0.8170	0.9952
37)	1-Methyldibenzothiophene	26.60	14216	0.4419	0.5383
43)	3-Methylphenanthrene	26.57	22555	0.6554	0.7983
44)	2-Methylphenanthrene	26.66	29035	0.8437	1.0277
45)	2-Methylanthracene	26.83	127681	3.7103	4.5193
46)	4/9-Methylphenanthrene	26.94	24652	0.7164	0.8726
47)	1-Methylphenanthrene	27.03	16172	0.4699	0.5724
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	420084	12.16	73.33
21)	Acenaphthene-d10	19.71	236490	11.65	70.21
32)	Phenanthrene-d10	24.82	551536	13.62	82.10
66)	Chrysene-d12	33.91	689216	14.49	87.38
88)	Perylene-d12	38.83	24541	0.58	3.48
90)	5(b)H-Cholane	34.33	200558	15.45	93.19
	Internal Standards				
1)	Fluorene-d10	21.50	344100	16.65	
31)	Pyrene-d10	29.74	725362	16.62	
73)	Benzo(a)pyrene-d12	38.51	569214	16.60	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1684.D
Acq On : 21 Aug 2013 3:16 am
Operator : YM
Sample : SO-DA-009 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:49:42 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	344100m	251.05		0.00
31) Pyrene-d10	29.738	212	725362m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	569214m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	420084m	12.16		0.00
21) Acenaphthene-d10	19.715	164	236490m	11.65		-0.02
32) Phenanthrene-d10	24.822	188	551536m	13.62		0.00
66) Chrysene-d12	33.907	240	689216m	14.49		0.00
88) Perylene-d12	38.835	264	24541m	0.58		0.00
90) 5(b)H-Cholane	34.328	217	200558m	15.45		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	39034m	1.10		
9) 2-Methylnaphthalene	16.182	142	28491m	1.22		
10) 1-Methylnaphthalene	16.518	142	12677m	0.58		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	88975m	2.50		
14) C3-Naphthalenes	20.564	170	105162m	2.95		
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	19.245	152	6834m	0.21		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	20.430	168	18581m	0.57		
26) Fluorene	21.615	166	17556m	0.68		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	19711m	0.77		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	22890m	0.59		
35) 4-Methyldibenzothiophene	25.981	198	23277m	0.72		
36) 2/3-Methyldibenzothiop...	26.263	198	26282m	0.82		
37) 1-Methyldibenzothiophene	26.602	198	14216m	0.44		
38) C2-Dibenzothiophenes	28.043	212	190432m	4.87		
39) C3-Dibenzothiophenes	28.891	226	471405m	12.06		
40) C4-Dibenzothiophenes	30.953	240	392795m	10.04		
41) Phenanthrene	24.907	178	101766m	2.37		
42) Anthracene	25.077	178	11544m	0.30		
43) 3-Methylphenanthrene	26.574	192	22555m	0.66		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1684.D
Acq On : 21 Aug 2013 3:16 am
Operator : YM
Sample : SO-DA-009 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:49:42 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	29035m	0.84		
45) 2-Methylanthracene	26.828	192	127681m	3.71		
46) 4/9-Methylphenanthrene	26.941	192	24652m	0.72		
47) 1-Methylphenanthrene	27.026	192	16172m	0.47		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.297	206	386074m	9.00		
51) C3-Phenanthrenes/Anthr...	30.021	220	667328m	15.55		
52) C4-Phenanthrenes/Anthr...	31.857	234	695255m	16.20		
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	29.004	202	67078m	1.34		
59) Pyrene	29.795	202	90833m	1.67		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.603	216	250934m	5.01		
63) C2-Fluoranthenes/Pyrenes	32.675	230	432858m	8.65		
64) C3-Fluoranthenes/Pyrenes	33.810	244	336329m	6.72		
65) C4-Fluoranthenes/Pyrenes	35.236	258	500555m	10.00		
67) Benz(a)anthracene	33.875	228	25198m	0.52		
68) Chrysene/Triphenylene	33.972	228	125050m	2.56		
69) C1-Chrysenes	35.204	242	285757m	5.85		
70) C2-Chrysenes	36.403	256	371315m	7.60		
71) C3-Chrysenes	38.219	270	310609m	6.36		
72) C4-Chrysenes	39.581	284	141406m	2.89		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	106359m	2.26		
78) Benzo(k,j)fluoranthene	37.473	252	40638m	0.88		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	103563m	2.09		
81) Benzo(a)pyrene	38.608	252	32442m	0.74		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	36863m	1.00		
83) Dibenzo(a,h)anthracene	43.468	278	15110m	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	44.776	276	48347m	1.61		
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\MS50161\
Data File : ARC1684.D
Acq On : 21 Aug 2013 3:16 am
Operator : YM
Sample : SO-DA-009 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:49:42 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

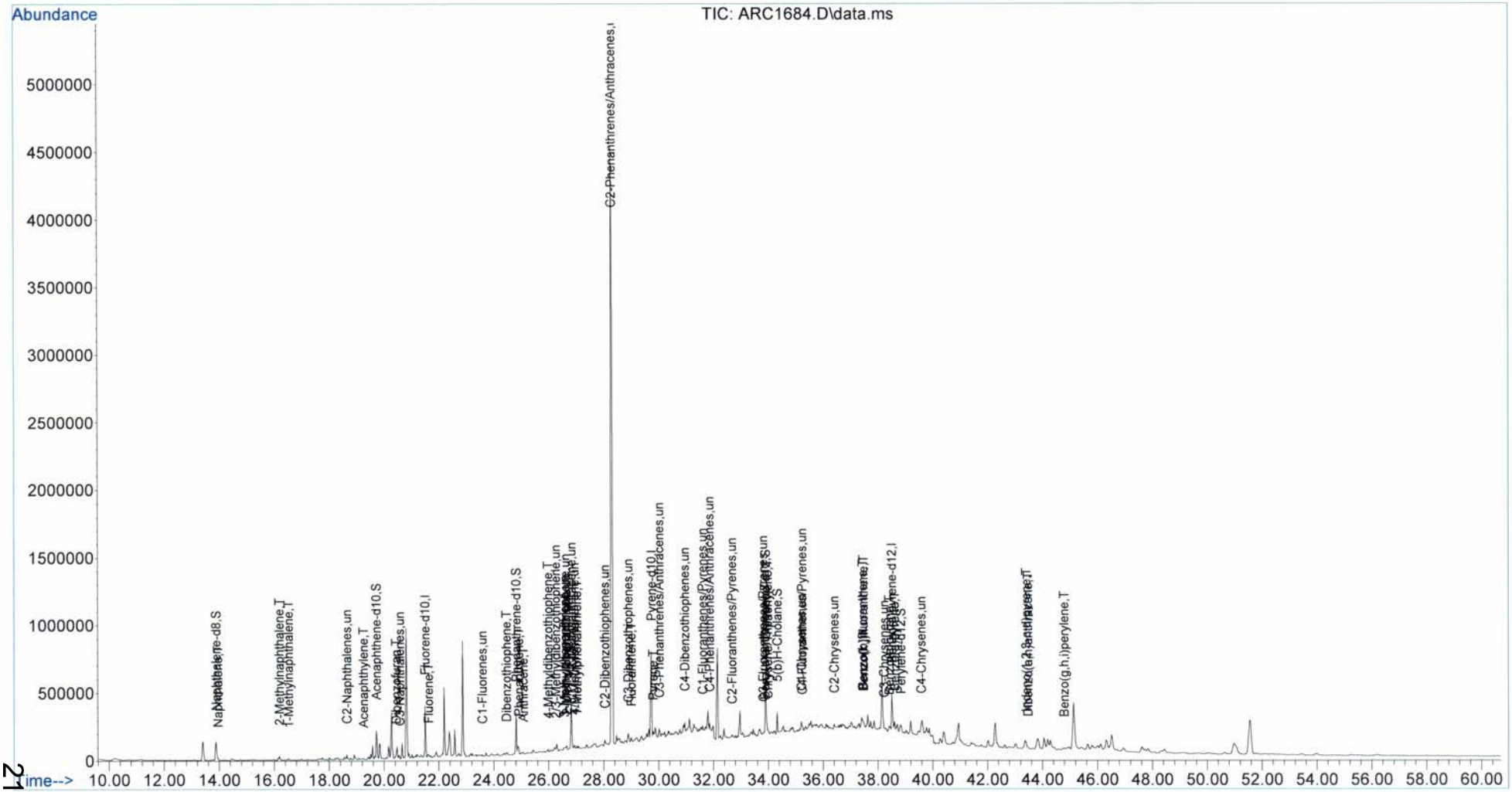
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1684.D
Acq On : 21 Aug 2013 3:16 am
Operator : YM
Sample : SO-DA-009 (0.5-1.0)
Misc :
ALS Vial : 31 Sample Multiplier: 0.06631

Quant Time: Sep 01 12:49:42 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1685.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/21/2013 4:21
Acq. Method File PAH-2012.M
Sample Name SO-DA-009 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 32
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

ARC1685.D
SO-DA-009 (1.0-1.5)
8/21/2013
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	13.95	29265	0.8331	0.9822
9)+10)	C1-Naphthalenes	16.35	29831	0.8492	1.0012
13)	C2-Naphthalenes	18.64	60906	1.7338	2.0441
14)	C3-Naphthalenes	20.21	61237	1.7432	2.0552
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	19.25	2815	0.0896	0.1056
24)	Acenaphthene	19.76	2228	0.1084	0.1278
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.59	21359	0.8415	0.9921
28)	C1-Fluorenes	23.58	11473	0.4520	0.5329
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	3463	0.0912	0.1075
41)	Phenanthrene	24.91	94369	2.2631	2.6682
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	14126	0.3718	0.4383
35)+36)+37)	C1-Dibenzothiophenes	26.28	38785	1.0208	1.2034
38)	C2-Dibenzothiophenes	28.04	84020	2.2113	2.6070
39)	C3-Dibenzothiophenes	28.89	158301	4.1662	4.9118
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	22008	0.4525	0.5335
59)	Pyrene	29.79	22151	0.4192	0.4943
62)	C1-Fluoranthenes/Pyrenes	31.60	49524	1.0183	1.2005
63)	C2-Fluoranthenes/Pyrenes	32.68	100423	2.0648	2.4343
64)	C3-Fluoranthenes/Pyrenes	34.33	78873	1.6217	1.9119
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	7000	0.1487	0.1753
68)	Chrysene/Triphenylene	33.97	33536	0.7066	0.8330
69)	C1-Chrysenes	35.20	79505	1.6751	1.9749
70)	C2-Chrysenes	36.40	129416	2.7266	3.2146
71)	C3-Chrysenes	38.19	89094	1.8771	2.2130
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	26468	0.5708	0.6730
78)	Benzo(k,j)fluoranthene	37.47	9855	0.2168	0.2556
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	27457	0.5635	0.6643
81)	Benzo(a)pyrene	38.61	5473	0.1265	0.1491
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.37	9409	0.2583	0.3045
83)	Dibenzo(a,h)anthracene	43.44	3363	0.1137	0.1341
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	10122	0.3422	0.4035

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	20439	0.8890	1.0481
10)	1-Methylnaphthalene	16.52	9392	0.4353	0.5132
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	14718	0.4709	0.5552
36)	2/3-Methyldibenzothiophene	26.26	15529	0.4968	0.5857
37)	1-Methyldibenzothiophene	26.60	8538	0.2732	0.3221
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	455349	13.36	80.48
21)	Acenaphthene-d10	19.71	248473	12.40	74.69
32)	Phenanthrene-d10	24.82	554087	14.08	84.82
66)	Chrysene-d12	33.91	714078	15.45	93.10
88)	Perylene-d12	38.83	7303	0.17	1.05
90)	5(b)H-Cholane	34.33	194131	15.20	91.60
	Internal Standards				
1)	Fluorene-d10	21.50	339855	16.66	
31)	Pyrene-d10	29.74	705343	16.63	
73)	Benzo(a)pyrene-d12	38.51	560584	16.61	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1685.D
Acq On : 21 Aug 2013 4:21 am
Operator : YM
Sample : SO-DA-009 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06636

Quant Time: Sep 01 13:05:44 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	339855m	251.05		0.00
31) Pyrene-d10	29.738	212	705343m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	560584m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	455349m	13.36		0.00
21) Acenaphthene-d10	19.715	164	248473m	12.40		-0.02
32) Phenanthrene-d10	24.822	188	554087m	14.08		0.00
66) Chrysene-d12	33.907	240	714078m	15.45		0.00
88) Perylene-d12	38.835	264	7303m	0.17		0.00
90) 5(b)H-Cholane	34.329	217	194131m	15.20		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	29265m	0.83		
9) 2-Methylnaphthalene	16.182	142	20439m	0.89		
10) 1-Methylnaphthalene	16.518	142	9392m	0.44		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	60906m	1.73		
14) C3-Naphthalenes	20.207	170	61237m	1.74		
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	19.245	152	2815m	0.09		
24) Acenaphthene	19.759	154	2228m	0.11		
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.593	166	21359m	0.84		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	11473m	0.45		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	14126m	0.37		
35) 4-Methyldibenzothiophene	25.981	198	14718m	0.47		
36) 2/3-Methyldibenzothiop...	26.263	198	15529m	0.50		
37) 1-Methyldibenzothiophene	26.602	198	8538m	0.27		
38) C2-Dibenzothiophenes	28.043	212	84020m	2.21		
39) C3-Dibenzothiophenes	28.891	226	158301m	4.17		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.907	178	94369m	2.26		
42) Anthracene	25.077	178	3463m	0.09		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1685.D
Acq On : 21 Aug 2013 4:21 am
Operator : YM
Sample : SO-DA-009 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06636

Quant Time: Sep 01 13:05:44 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	22008m	0.45		
59) Pyrene	29.795	202	22151m	0.42		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.603	216	49524m	1.02		
63) C2-Fluoranthenes/Pyrenes	32.675	230	100423m	2.06		
64) C3-Fluoranthenes/Pyrenes	34.329	244	78873m	1.62		
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	7000m	0.15		
68) Chrysene/Triphenylene	33.972	228	33536m	0.71		
69) C1-Chrysenes	35.204	242	79505m	1.68		
70) C2-Chrysenes	36.403	256	129416m	2.73		
71) C3-Chrysenes	38.187	270	89094m	1.88		
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	26468m	0.57		
78) Benzo(k,j)fluoranthene	37.473	252	9855m	0.22		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	27457m	0.56		
81) Benzo(a)pyrene	38.608	252	5473m	0.13		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	9409m	0.26		
83) Dibenzo(a,h)anthracene	43.435	278	3363m	0.11		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	10122m	0.34		
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\MS50161\
Data File : ARC1685.D
Acq On : 21 Aug 2013 4:21 am
Operator : YM
Sample : SO-DA-009 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06636

Quant Time: Sep 01 13:05:44 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

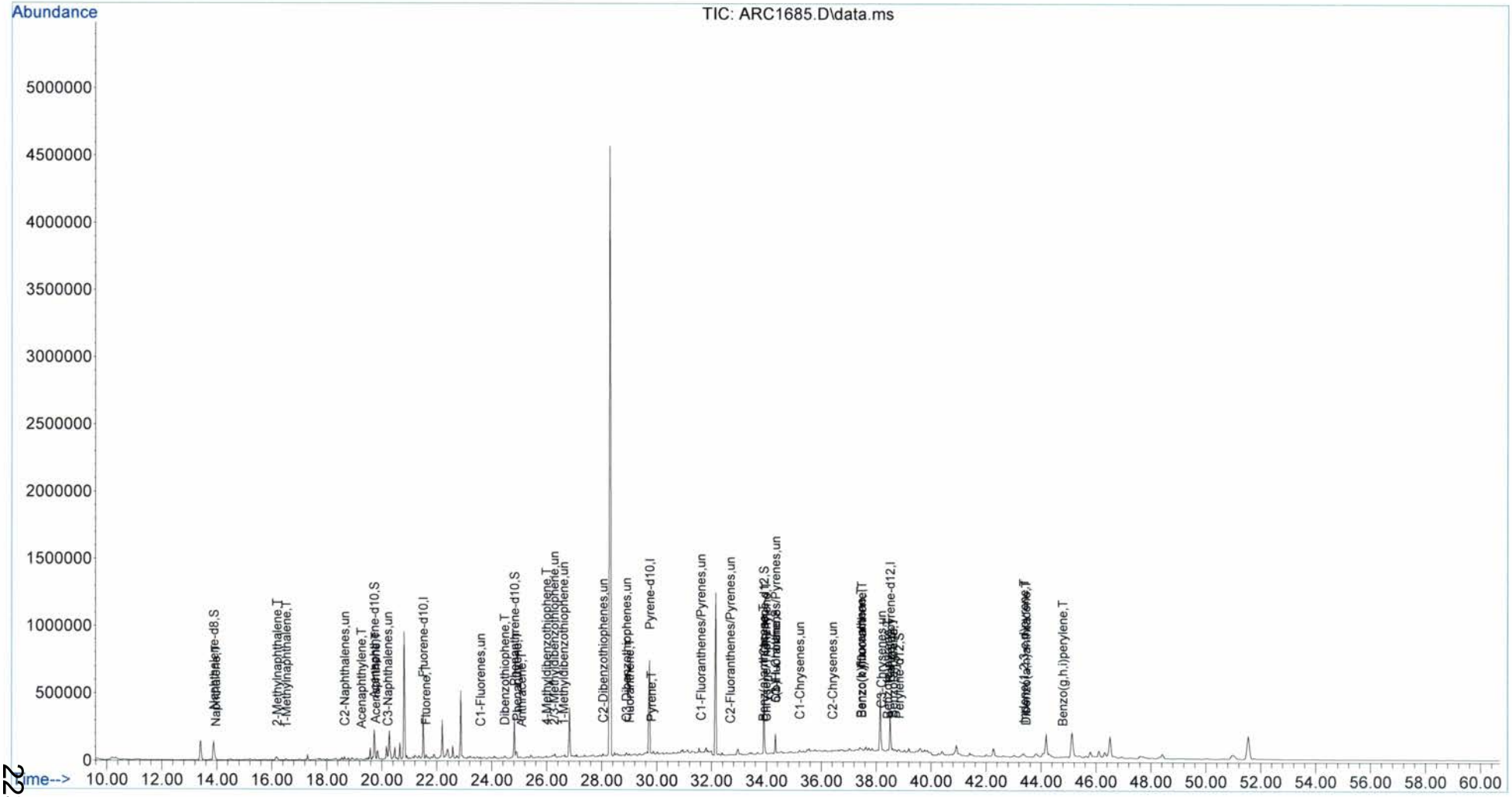
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1685.D
Acq On : 21 Aug 2013 4:21 am
Operator : YM
Sample : SO-DA-009 (1.0-1.5)
Misc :
ALS Vial : 32 Sample Multiplier: 0.06636

Quant Time: Sep 01 13:05:44 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1686.D
Data File Path C:\GCMS5\MS50161\
Operator YM
Date Acquired 8/21/2013 5:27
Acq. Method File PAH-2012.M
Sample Name SO-DA-008 (0-0.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 33
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

ARC1686.D
SO-DA-008 (0-0.5)
8/21/2013
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	13.95	52137	1.4272	1.5550
9)+10)	C1-Naphthalenes	16.35	74163	2.0301	2.2120
13)	C2-Naphthalenes	18.55	295708	8.0947	8.8198
14)	C3-Naphthalenes	20.56	959085	26.2540	28.6056
15)	C4-Naphthalenes	22.87	1953380	53.4717	58.2612
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	19.25	33677	1.0308	1.1231
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	20.43	48589	1.4533	1.5835
26)	Fluorene	21.62	42648	1.6158	1.7605
28)	C1-Fluorenes	23.58	286035	10.8369	11.8076
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	24.91	428223	9.9336	10.8233
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	2057098	47.7189	51.9932
50)	C2-Phenanthrenes/Anthracenes	28.47	5488120	127.3086	138.7119
51)	C3-Phenanthrenes/Anthracenes	30.05	8516680	197.5628	215.2588
52)	C4-Phenanthrenes/Anthracenes	31.89	8397200	194.7910	212.2388
34)	Dibenzothiophene	24.48	231495	5.8932	6.4211
35)+36)+37)	C1-Dibenzothiophenes	26.28	1782580	45.3794	49.4441
38)	C2-Dibenzothiophenes	27.39	5477950	139.4532	151.9443
39)	C3-Dibenzothiophenes	29.40	9981780	254.1080	276.8688
40)	C4-Dibenzothiophenes	29.91	8479980	215.8760	235.2124
58)	Fluoranthene	29.03	260074	5.1724	5.6357
59)	Pyrene	29.79	716772	13.1219	14.2972
62)	C1-Fluoranthenes/Pyrenes	31.29	1856740	36.9274	40.2350
63)	C2-Fluoranthenes/Pyrenes	32.68	3333870	66.3048	72.2439
64)	C3-Fluoranthenes/Pyrenes	33.71	3089030	61.4356	66.9385
65)	C4-Fluoranthenes/Pyrenes	35.43	4678030	93.0379	101.3715
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	148768	3.0563	3.3300
68)	Chrysene/Triphenylene	33.97	1208900	24.6367	26.8435
69)	C1-Chrysenes	35.24	2627040	53.5376	58.3330
70)	C2-Chrysenes	36.44	4266040	86.9395	94.7268
71)	C3-Chrysenes	38.15	2865900	58.4055	63.6369
72)	C4-Chrysenes	39.58	1640170	33.4258	36.4198
77)	Benzo(b)fluoranthene	37.44	457448	9.5345	10.3886
78)	Benzo(k,j)fluoranthene	37.54	169446	3.6031	3.9258
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.45	643826	12.7690	13.9128
81)	Benzo(a)pyrene	38.64	184705	4.1245	4.4939
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.44	142925	3.7920	4.1316
83)	Dibenzo(a,h)anthracene	43.47	72292	2.3629	2.5746
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.81	311422	10.1764	11.0879

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	49101	2.0536	2.2376
10)	1-Methylnaphthalene	16.52	25062	1.1171	1.2171
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	792723	24.5325	26.7299
36)	2/3-Methyldibenzothiophene	26.26	486849	15.0665	16.4161
37)	1-Methyldibenzothiophene	26.60	503008	15.5666	16.9610
43)	3-Methylphenanthrene	26.57	370286	10.7116	11.6711
44)	2-Methylphenanthrene	26.66	420770	12.1721	13.2624
45)	2-Methylanthracene	26.83	163330	4.7248	5.1480
46)	4/9-Methylphenanthrene	26.94	705292	20.4027	22.2303
47)	1-Methylphenanthrene	27.03	397420	11.4966	12.5264
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	413395	11.66	70.40
21)	Acenaphthene-d10	19.74	257081	12.34	74.46
32)	Phenanthrene-d10	24.82	618611	15.21	91.78
66)	Chrysene-d12	33.94	718980	15.04	90.85
88)	Perylene-d12	38.87	33678	0.78	4.70
90)	5(b)H-Cholane	34.33	199589	15.10	91.19
	Internal Standards				
1)	Fluorene-d10	21.50	352727	16.63	
31)	Pyrene-d10	29.74	727773	16.60	
73)	Benzo(a)pyrene-d12	38.54	578906	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1686.D
Acq On : 21 Aug 2013 5:27 am
Operator : YM
Sample : SO-DA-008 (0-0.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:12:56 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	352727m	251.05		0.00
31) Pyrene-d10	29.738	212	727773m	250.63		0.00
73) Benzo(a)pyrene-d12	38.543	264	578906m	250.32		0.03
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	413395m	11.66		0.00
21) Acenaphthene-d10	19.737	164	257081m	12.34		0.00
32) Phenanthrene-d10	24.822	188	618611m	15.21		0.00
66) Chrysene-d12	33.940	240	718980m	15.04		0.03
88) Perylene-d12	38.867	264	33678m	0.78		0.03
90) 5(b)H-Cholane	34.329	217	199589m	15.10		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	52137m	1.43		
9) 2-Methylnaphthalene	16.182	142	49101m	2.05		
10) 1-Methylnaphthalene	16.518	142	25062m	1.12		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.552	156	295708m	8.09		
14) C3-Naphthalenes	20.564	170	959085m	26.25		
15) C4-Naphthalenes	22.873	184	1953377m	53.47		
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	19.245	152	33677m	1.03		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	20.430	168	48589m	1.45		
26) Fluorene	21.615	166	42648m	1.62		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	286035m	10.84		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.483	184	231495m	5.89		
35) 4-Methyldibenzothiophene	25.981	198	792723m	24.53		
36) 2/3-Methyldibenzothiop...	26.263	198	486849m	15.07		
37) 1-Methyldibenzothiophene	26.602	198	503008m	15.57		
38) C2-Dibenzothiophenes	27.393	212	5477945m	139.45		
39) C3-Dibenzothiophenes	29.399	226	9981776m	254.11		
40) C4-Dibenzothiophenes	29.908	240	8479984m	215.88		
41) Phenanthrene	24.907	178	428223m	9.93		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.574	192	370286m	10.71		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1686.D
Acq On : 21 Aug 2013 5:27 am
Operator : YM
Sample : SO-DA-008 (0-0.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:12:56 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	420770m	12.17		
45)	2-Methylanthracene	26.828	192	163330m	4.72		
46)	4/9-Methylphenanthrene	26.941	192	705292m	20.40		
47)	1-Methylphenanthrene	27.026	192	397420m	11.50		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	28.467	206	5488120m	127.31		
51)	C3-Phenanthrenes/Anthr...	30.049	220	8516675m	197.56		
52)	C4-Phenanthrenes/Anthr...	31.885	234	8397202m	194.79		
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	29.032	202	260074m	5.17		
59)	Pyrene	29.795	202	716772m	13.12		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.292	216	1856737m	36.93		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	3333872m	66.31		
64)	C3-Fluoranthenes/Pyrenes	33.713	244	3089028m	61.44		
65)	C4-Fluoranthenes/Pyrenes	35.431	258	4678027m	93.04		
67)	Benz(a)anthracene	33.875	228	148768m	3.06		
68)	Chrysene/Triphenylene	33.972	228	1208899m	24.64		
69)	C1-Chrysenes	35.236	242	2627037m	53.54		
70)	C2-Chrysenes	36.436	256	4266035m	86.94		
71)	C3-Chrysenes	38.154	270	2865902m	58.41		
72)	C4-Chrysenes	39.581	284	1640171m	33.43		
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.441	252	457448m	9.53		
78)	Benzo(k,j)fluoranthene	37.538	252	169446m	3.60		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.446	252	643826m	12.77		
81)	Benzo(a)pyrene	38.640	252	184705m	4.12		
82)	Indeno(1,2,3-c,d)pyrene	43.435	276	142925m	3.79		
83)	Dibenzo(a,h)anthracene	43.468	278	72292m	2.36		
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	44.808	276	311422m	10.18		
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\MS50161\
Data File : ARC1686.D
Acq On : 21 Aug 2013 5:27 am
Operator : YM
Sample : SO-DA-008 (0-0.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:12:56 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

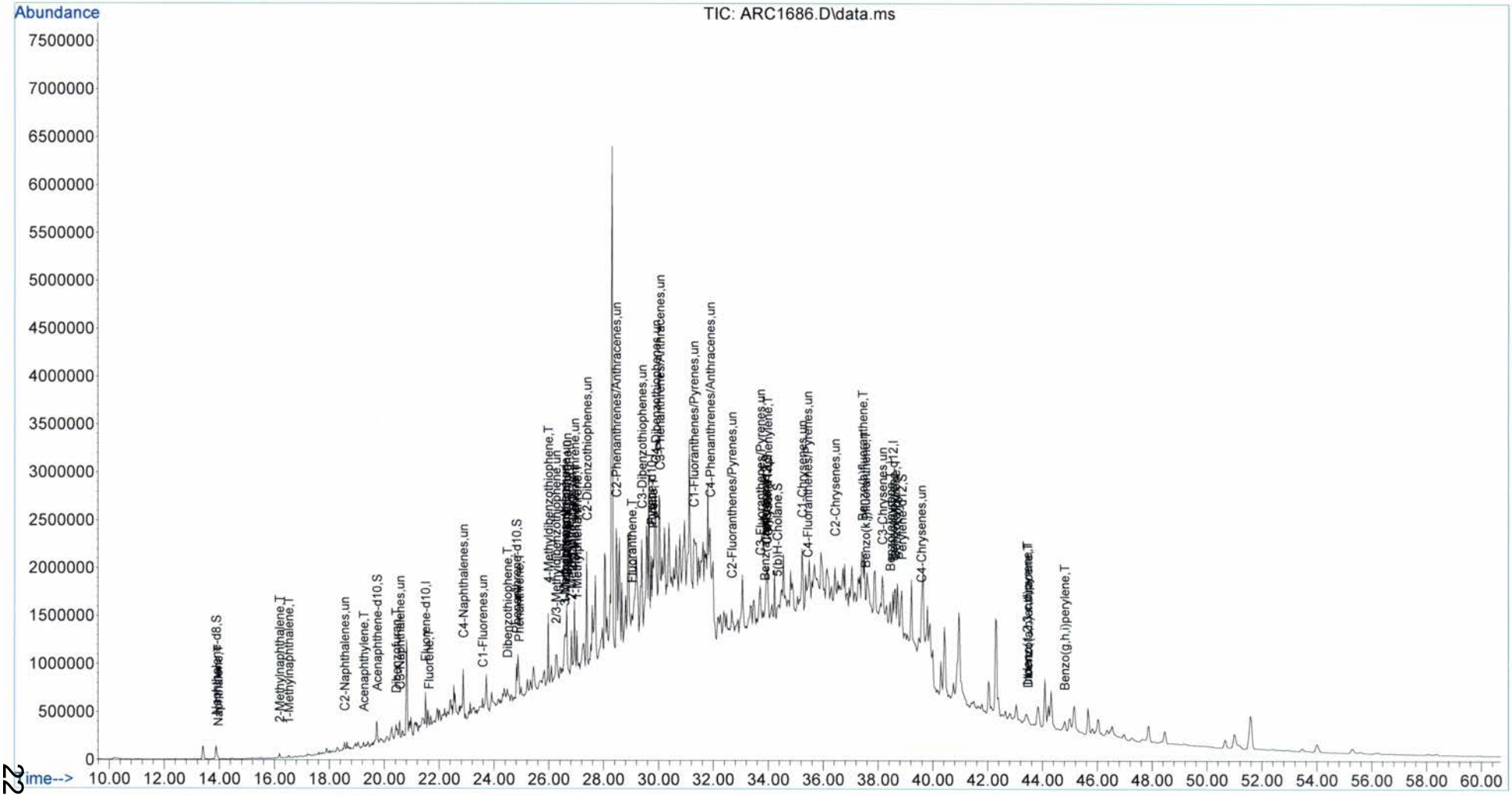
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1686.D
Acq On : 21 Aug 2013 5:27 am
Operator : YM
Sample : SO-DA-008 (0-0.5)
Misc :
ALS Vial : 33 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:12:56 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1687.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/21/2013 6:32
Acq. Method File PAH-2012.M
Sample Name SO-DA-008 (0.5-1.0)
Misc Info 0
Instrument Name GCMS5
Vial Number 34
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

ARC1687.D
SO-DA-008 (0.5-1.0)
8/21/2013
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	13.95	17643	0.5516	0.6482
9)+10)	C1-Naphthalenes	16.35	11693	0.3656	0.4296
13)	C2-Naphthalenes	18.64	19174	0.5995	0.7044
14)	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
16)	Benzothiophene	0.00	0	0.0000	0.0000
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	0.00	0	0.0000	0.0000
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.61	14931	0.6461	0.7592
28)	C1-Fluorenes	23.58	6955	0.3010	0.3537
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	1237	0.0358	0.0421
41)	Phenanthrene	24.91	89653	2.3636	2.7774
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.45	7242	0.2095	0.2462
35)+36)+37)	C1-Dibenzothiophenes	26.29	13133	0.3800	0.4465
38)	C2-Dibenzothiophenes	27.70	27444	0.7940	0.9330
39)	C3-Dibenzothiophenes	29.57	33906	0.9810	1.1527
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	23622	0.5339	0.6274
59)	Pyrene	29.79	4197	0.0873	0.1026
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	3185	0.0744	0.0874
68)	Chrysene/Triphenylene	33.97	13053	0.3023	0.3553
69)	C1-Chrysenes	35.20	22391	0.5186	0.6094
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	9787	0.2485	0.2919
78)	Benzo(k,j)fluoranthene	37.51	3731	0.0966	0.1135
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	8880	0.2145	0.2521
81)	Benzo(a)pyrene	38.61	1311	0.0357	0.0419
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.37	3047	0.0985	0.1157
83)	Dibenzo(a,h)anthracene	43.43	1371	0.0546	0.0641
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	1862	0.0741	0.0871

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	8638	0.4127	0.4849
10)	1-Methylnaphthalene	16.52	3055	0.1555	0.1828
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	5510	0.1938	0.2277
36)	2/3-Methyldibenzothiophene	26.29	4711	0.1657	0.1947
37)	1-Methyldibenzothiophene	26.60	2912	0.1024	0.1204
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	0.00	0	0.0000	0.0000
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	386284	12.45	74.94
21)	Acenaphthene-d10	19.71	63383	3.47	20.91
32)	Phenanthrene-d10	24.82	506000	14.14	85.10
66)	Chrysene-d12	33.91	598207	14.23	85.69
88)	Perylene-d12	38.83	4858	0.14	0.82
90)	5(b)H-Cholane	34.33	185824	17.12	103.14
	Internal Standards				
1)	Fluorene-d10	21.50	309611	16.67	
31)	Pyrene-d10	29.74	641996	16.64	
73)	Benzo(a)pyrene-d12	38.51	476528	16.62	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1687.D
Acq On : 21 Aug 2013 6:32 am
Operator : YM
Sample : SO-DA-008 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0664

Quant Time: Sep 01 13:21:17 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	309611m	251.05		0.00
31) Pyrene-d10	29.738	212	641996m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	476528m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	386284m	12.45		0.00
21) Acenaphthene-d10	19.715	164	63383m	3.47		-0.02
32) Phenanthrene-d10	24.822	188	506000m	14.14		0.00
66) Chrysene-d12	33.907	240	598207m	14.23		0.00
88) Perylene-d12	38.835	264	4858m	0.14		0.00
90) 5(b)H-Cholane	34.328	217	185824m	17.12		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	13.947	128	17643m	0.55		
9) 2-Methylnaphthalene	16.182	142	8638m	0.41		
10) 1-Methylnaphthalene	16.518	142	3055m	0.16		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	19174m	0.60		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.	d	
16) Benzothiophene	0.000		0	N.D.	d	
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	0.000		0	N.D.	d	
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	14931m	0.65		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	6955m	0.30		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	7242m	0.21		
35) 4-Methyldibenzothiophene	25.981	198	5510m	0.19		
36) 2/3-Methyldibenzothiop...	26.291	198	4711m	0.17		
37) 1-Methyldibenzothiophene	26.602	198	2912m	0.10		
38) C2-Dibenzothiophenes	27.704	212	27444m	0.79		
39) C3-Dibenzothiophenes	29.569	226	33906m	0.98		
40) C4-Dibenzothiophenes	0.000		0	N.D.	d	
41) Phenanthrene	24.907	178	89653m	2.36		
42) Anthracene	25.076	178	1237m	0.04		
43) 3-Methylphenanthrene	0.000		0	N.D.	d	

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1687.D
Acq On : 21 Aug 2013 6:32 am
Operator : YM
Sample : SO-DA-008 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0664

Quant Time: Sep 01 13:21:17 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	0.000		0	N.D.	d	
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	23622m	0.53		
59) Pyrene	29.795	202	4197m	0.09		
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	33.874	228	3185m	0.07		
68) Chrysene/Triphenylene	33.972	228	13053m	0.30		
69) C1-Chrysenes	35.204	242	22391m	0.52		
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	9787m	0.25		
78) Benzo(k,j)fluoranthene	37.506	252	3731m	0.10		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	8880m	0.21		
81) Benzo(a)pyrene	38.608	252	1311m	0.04		
82) Indeno(1,2,3-c,d)pyrene	43.369	276	3047m	0.10		
83) Dibenzo(a,h)anthracene	43.435	278	1371m	0.05		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.		
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.775	276	1862m	0.07		
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\MS50161\
Data File : ARC1687.D
Acq On : 21 Aug 2013 6:32 am
Operator : YM
Sample : SO-DA-008 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0664

Quant Time: Sep 01 13:21:17 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

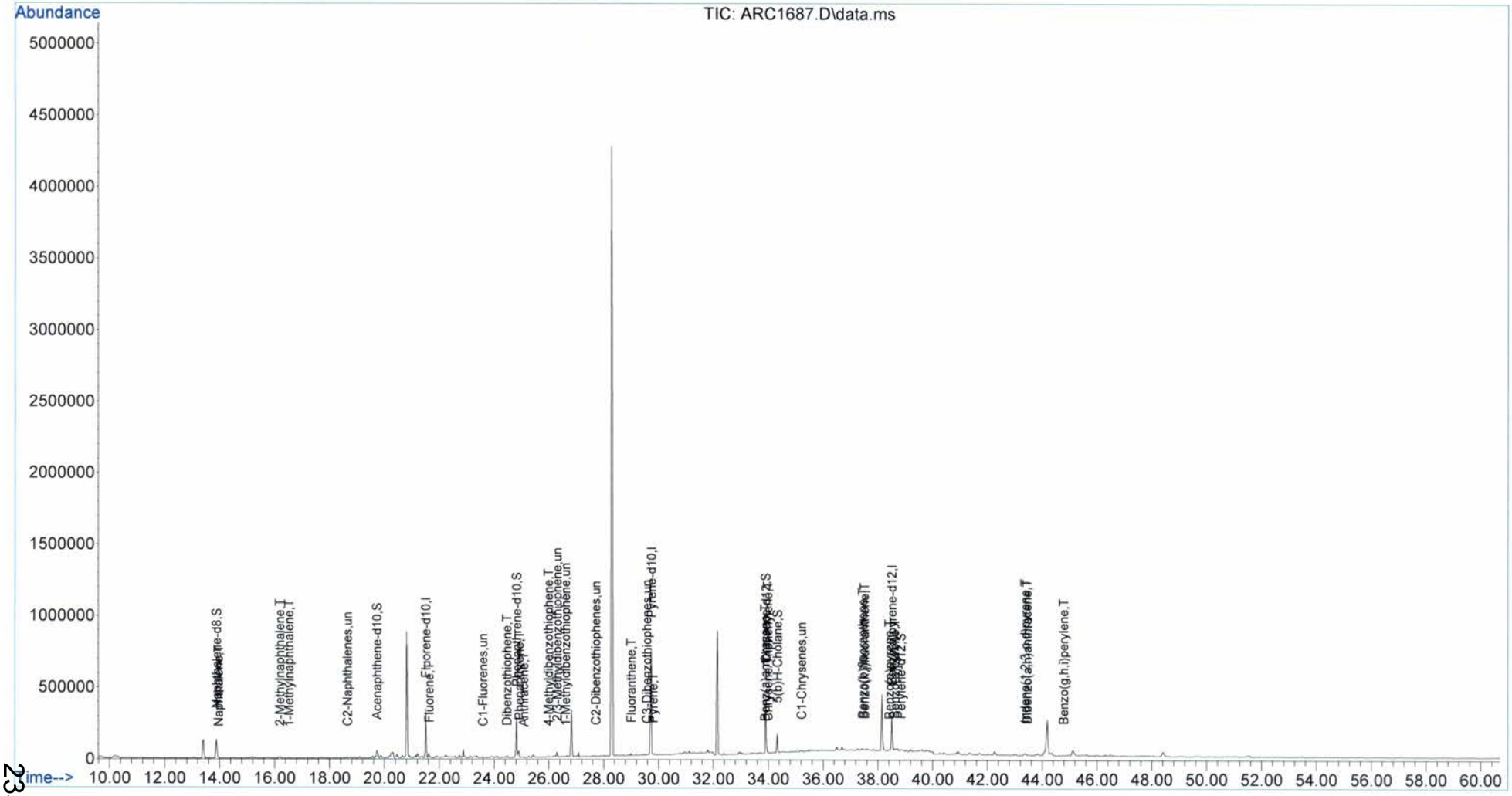
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1687.D
Acq On : 21 Aug 2013 6:32 am
Operator : YM
Sample : SO-DA-008 (0.5-1.0)
Misc :
ALS Vial : 34 Sample Multiplier: 0.0664

Quant Time: Sep 01 13:21:17 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name ARC1688.D
Data File Path C:\msdchem\2\data\MS50161\
Operator YM
Date Acquired 8/21/2013 7:38
Acq. Method File PAH-2012.M
Sample Name SO-DA-008 (1.0-1.5)
Misc Info 0
Instrument Name GCMS5
Vial Number 35
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

ARC1688.D
SO-DA-008 (1.0-1.5)
8/21/2013
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	13.95	22557	0.6615	0.7496
9)+10)	C1-Naphthalenes	16.35	22703	0.6658	0.7544
13)	C2-Naphthalenes	18.64	45236	1.3266	1.5032
14)	C3-Naphthalenes	20.21	37421	1.0975	1.2435
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	17.75	8886	0.3042	0.3447
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	21.59	58398	2.3704	2.6858
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	24.91	310136	7.9394	8.9959
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	198602	5.0842	5.7607
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	19134	0.5375	0.6091
35)+36)+37)	C1-Dibenzothiophenes	26.29	18254	0.5128	0.5811
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	52070	1.1428	1.2949
59)	Pyrene	29.74	14531	0.2936	0.3326
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
64)	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	0.00	0	0.0000	0.0000
68)	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
69)	C1-Chrysenes	0.00	0	0.0000	0.0000
70)	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
78)	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
81)	Benzo(a)pyrene	0.00	0	0.0000	0.0000
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
83)	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	15973	0.7157	0.8110
10)	1-Methylnaphthalene	16.52	6730	0.3214	0.3641
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	9734	0.3324	0.3767
36)	2/3-Methyldibenzothiophene	26.29	6503	0.2221	0.2516
37)	1-Methyldibenzothiophene	26.60	2017	0.0689	0.0781
43)	3-Methylphenanthrene	26.57	17991	0.5744	0.6508
44)	2-Methylphenanthrene	26.66	26339	0.8409	0.9527
45)	2-Methylanthracene	26.83	122164	3.9000	4.4190
46)	4/9-Methylphenanthrene	26.94	17111	0.5463	0.6189
47)	1-Methylphenanthrene	27.03	14997	0.4788	0.5425
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	418838	12.66	76.41
21)	Acenaphthene-d10	19.71	137472	7.07	42.66
32)	Phenanthrene-d10	24.82	539034	14.62	88.26
66)	Chrysene-d12	33.91	648949	14.99	90.49
88)	Perylene-d12	38.83	1999	0.06	0.33
90)	5(b)H-Cholane	34.33	186659	16.89	101.99
	Internal Standards				
1)	Fluorene-d10	21.50	329235	16.63	
31)	Pyrene-d10	29.74	659469	16.60	
73)	Benzo(a)pyrene-d12	38.51	484083	16.58	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1688.D
Acq On : 21 Aug 2013 7:38 am
Operator : YM
Sample : SO-DA-008 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:27:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	329235m	251.05		0.00
31) Pyrene-d10	29.738	212	659469m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	484083m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	418838m	12.66		0.00
21) Acenaphthene-d10	19.715	164	137472m	7.07		-0.02
32) Phenanthrene-d10	24.822	188	539034m	14.62		0.00
66) Chrysene-d12	33.907	240	648949m	14.99		0.00
88) Perylene-d12	38.835	264	1999m	0.06		0.00
90) 5(b)H-Cholane	34.328	217	186659m	16.89		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	22557m	0.66		
9) 2-Methylnaphthalene	16.182	142	15973m	0.72		
10) 1-Methylnaphthalene	16.518	142	6730m	0.32		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	45236m	1.33		
14) C3-Naphthalenes	20.206	170	37421m	1.10		
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	17.747	154	8886m	0.30		
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	21.593	166	58398m	2.37		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	19134m	0.54		
35) 4-Methyldibenzothiophene	25.981	198	9734m	0.33		
36) 2/3-Methyldibenzothiop...	26.291	198	6503m	0.22		
37) 1-Methyldibenzothiophene	26.602	198	2017m	0.07		
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.		
41) Phenanthrene	24.907	178	310136m	7.94		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.574	192	17991m	0.57		

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1688.D
Acq On : 21 Aug 2013 7:38 am
Operator : YM
Sample : SO-DA-008 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:27:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.659	192	26339m	0.84		
45) 2-Methylanthracene	26.828	192	122164m	3.90		
46) 4/9-Methylphenanthrene	26.941	192	17111m	0.55		
47) 1-Methylphenanthrene	27.026	192	14997m	0.48		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	52070m	1.14		
59) Pyrene	29.738	202	14531m	0.29		
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\MS50161\
Data File : ARC1688.D
Acq On : 21 Aug 2013 7:38 am
Operator : YM
Sample : SO-DA-008 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:27:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

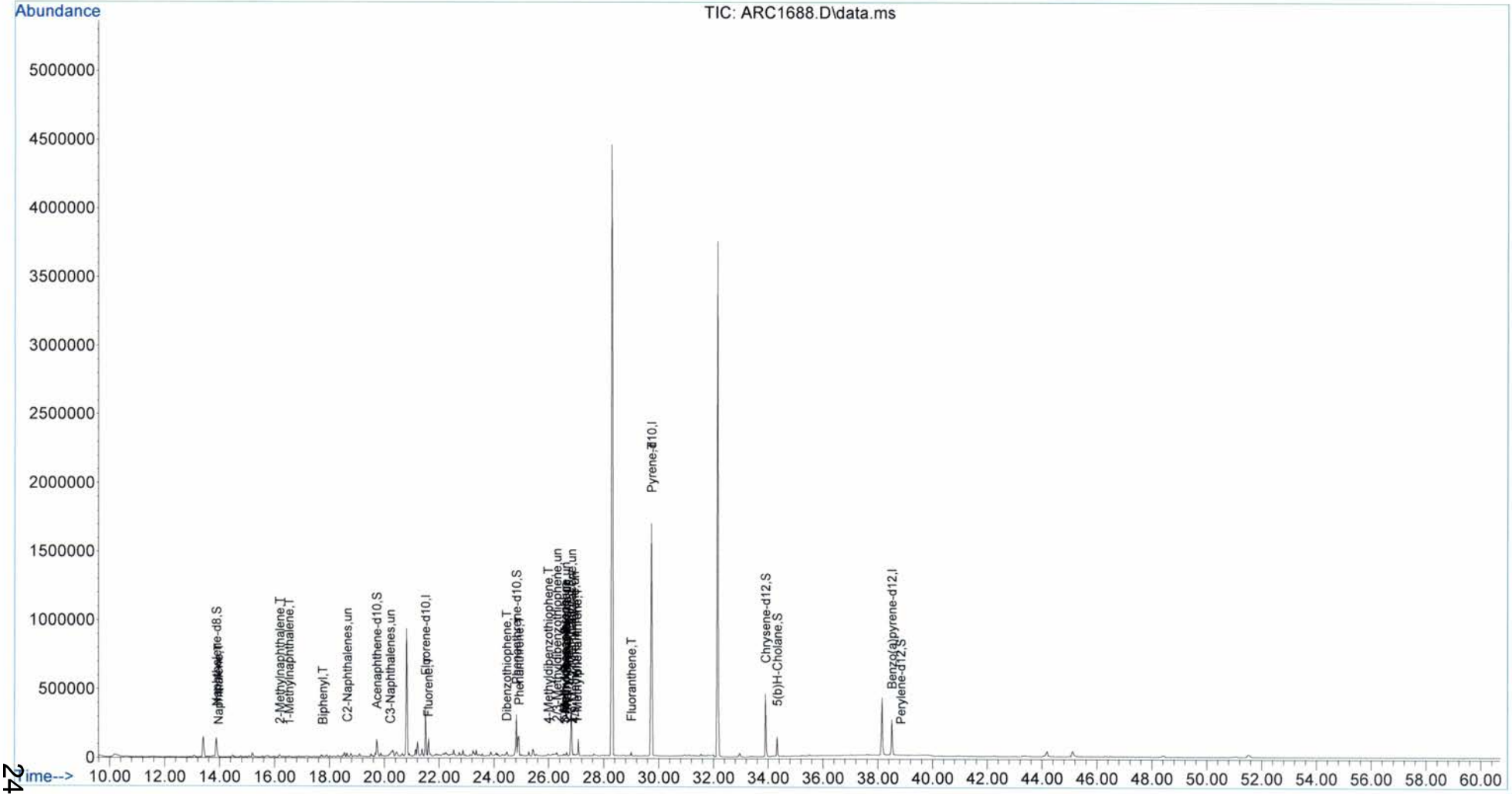
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1688.D
Acq On : 21 Aug 2013 7:38 am
Operator : YM
Sample : SO-DA-008 (1.0-1.5)
Misc :
ALS Vial : 35 Sample Multiplier: 0.06623

Quant Time: Sep 01 13:27:15 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name	ARC1719.D
Data File Path	C:\msdchem\2\data\MS50161\
Operator	YM
Date Acquired	8/21/2013 8:44
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-018 (1.0-1.5)
Misc Info	0
Instrument Name	GCMS5
Vial Number	36
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

ARC1719.D
SO-DA-018 (1.0-1.5)
8/21/2013
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	13.95	95747	2.7427	3.1505
9)+10)	C1-Naphthalenes	16.35	100025	2.8652	3.2913
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	17.75	24693	0.8257	0.9485
23)	Acenaphthylene	0.00	0	0.0000	0.0000
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	20.43	113534	3.5534	4.0819
26)	Fluorene	21.62	115200	4.5673	5.2464
28)	C1-Fluorenes	23.58	47913	1.8996	2.1821
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	24.91	508319	12.4705	14.3249
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.81	249369	6.1177	7.0274
50)	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51)	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52)	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34)	Dibenzothiophene	24.46	46107	1.2413	1.4259
35)+36)+37)	C1-Dibenzothiophenes	26.29	42598	1.1469	1.3174
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	29.00	82704	1.7395	1.9982
59)	Pyrene	29.79	18157	0.3515	0.4038
62)	C1-Fluoranthenes/Pyrenes	31.60	39999	0.8413	0.9664
63)	C2-Fluoranthenes/Pyrenes	32.68	77713	1.6346	1.8776
64)	C3-Fluoranthenes/Pyrenes	34.33	61206	1.2874	1.4788
65)	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.87	6525	0.1418	0.1628
68)	Chrysene/Triphenylene	33.94	37086	0.7993	0.9182
69)	C1-Chrysenes	35.20	88468	1.9067	2.1903
70)	C2-Chrysenes	36.40	144648	3.1176	3.5812
71)	C3-Chrysenes	38.19	98717	2.1276	2.4440
72)	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	37.44	27650	0.6334	0.7276
78)	Benzo(k,j)fluoranthene	37.51	7762	0.1814	0.2084
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.41	29410	0.6411	0.7364
81)	Benzo(a)pyrene	38.61	3437	0.0844	0.0969
89)	Perylene	0.00	0	0.0000	0.0000
82)	Indeno(1,2,3-c,d)pyrene	43.37	9761	0.2846	0.3270
83)	Dibenzo(a,h)anthracene	43.44	4034	0.1449	0.1665
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.78	8173	0.2935	0.3372

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	70465	3.0840	3.5427
10)	1-Methylnaphthalene	16.52	29560	1.3788	1.5838
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	25.98	19979	0.6539	0.7511
36)	2/3-Methyldibenzothiophene	26.29	16260	0.5322	0.6113
37)	1-Methyldibenzothiophene	26.60	6359	0.2081	0.2391
43)	3-Methylphenanthrene	26.57	33247	1.0171	1.1684
44)	2-Methylphenanthrene	26.66	43312	1.3251	1.5221
45)	2-Methylanthracene	26.83	123726	3.7852	4.3481
46)	4/9-Methylphenanthrene	26.94	26654	0.8154	0.9367
47)	1-Methylphenanthrene	27.03	22430	0.6862	0.7883
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	443448	13.09	78.93
21)	Acenaphthene-d10	19.71	239349	12.02	72.45
32)	Phenanthrene-d10	24.82	555494	14.44	87.05
66)	Chrysene-d12	33.91	699862	15.49	93.41
88)	Perylene-d12	38.83	3672	0.09	0.56
90)	5(b)H-Cholane	34.33	196549	16.34	98.58
	Internal Standards				
1)	Fluorene-d10	21.50	337481	16.65	
31)	Pyrene-d10	29.74	688985	16.62	
73)	Benzo(a)pyrene-d12	38.51	527353	16.60	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1719.D
Acq On : 21 Aug 2013 8:44 am
Operator : YM
Sample : SO-DA-018 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06631

Quant Time: Sep 01 13:36:27 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	337481m	251.05		0.00
31) Pyrene-d10	29.738	212	688985m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	527353m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	443448m	13.09		0.00
21) Acenaphthene-d10	19.715	164	239349m	12.02		-0.02
32) Phenanthrene-d10	24.822	188	555494m	14.44		0.00
66) Chrysene-d12	33.907	240	699862m	15.49		0.00
88) Perylene-d12	38.835	264	3672m	0.09		0.00
90) 5(b)H-Cholane	34.328	217	196549m	16.34		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	95747m	2.74		
9) 2-Methylnaphthalene	16.182	142	70465m	3.08		
10) 1-Methylnaphthalene	16.518	142	29560m	1.38		
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	17.747	154	24693m	0.83		
23) Acenaphthylene	0.000		0	N.D.	d	
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	20.430	168	113534m	3.55		
26) Fluorene	21.615	166	115200m	4.57		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	47913m	1.90		
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	0.000		0	N.D.	d	
34) Dibenzothiophene	24.455	184	46107m	1.24		
35) 4-Methyldibenzothiophene	25.981	198	19979m	0.65		
36) 2/3-Methyldibenzothiop...	26.291	198	16260m	0.53		
37) 1-Methyldibenzothiophene	26.602	198	6359m	0.21		
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	24.907	178	508319m	12.47		
42) Anthracene	0.000		0	N.D.	d	
43) 3-Methylphenanthrene	26.574	192	33247m	1.02		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1719.D
Acq On : 21 Aug 2013 8:44 am
Operator : YM
Sample : SO-DA-018 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06631

Quant Time: Sep 01 13:36:27 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2-Methylphenanthrene	26.659	192	43312m	1.33		
45)	2-Methylanthracene	26.828	192	123726m	3.79		
46)	4/9-Methylphenanthrene	26.941	192	26654m	0.82		
47)	1-Methylphenanthrene	27.026	192	22430m	0.69		
48)	3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49)	Retene	0.000		0	N.D.	d	
50)	C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51)	C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52)	C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53)	Naphthobenzothiophene	0.000		0	N.D.	d	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56)	C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57)	C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58)	Fluoranthene	29.004	202	82704m	1.74		
59)	Pyrene	29.795	202	18157m	0.35		
60)	2-Methylfluoranthene	0.000		0	N.D.	d	
61)	Benzo(b)fluorene	0.000		0	N.D.	d	
62)	C1-Fluoranthenes/Pyrenes	31.603	216	39999m	0.84		
63)	C2-Fluoranthenes/Pyrenes	32.675	230	77713m	1.63		
64)	C3-Fluoranthenes/Pyrenes	34.328	244	61206m	1.29		
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67)	Benz(a)anthracene	33.875	228	6525m	0.14		
68)	Chrysene/Triphenylene	33.939	228	37086m	0.80		
69)	C1-Chrysenes	35.204	242	88468m	1.91		
70)	C2-Chrysenes	36.403	256	144648m	3.12		
71)	C3-Chrysenes	38.186	270	98717m	2.13		
72)	C4-Chrysenes	0.000		0	N.D.	d	
74)	C29-Hopane	0.000		0	N.D.	d	
75)	18a-Oleanane	0.000		0	N.D.	d	
76)	C30-Hopane	0.000		0	N.D.	d	
77)	Benzo(b)fluoranthene	37.441	252	27650m	0.63		
78)	Benzo(k,j)fluoranthene	37.506	252	7762m	0.18		
79)	Benzo(a)fluoranthene	0.000		0	N.D.	d	
80)	Benzo(e)pyrene	38.413	252	29410m	0.64		
81)	Benzo(a)pyrene	38.608	252	3437m	0.08		
82)	Indeno(1,2,3-c,d)pyrene	43.370	276	9761m	0.28		
83)	Dibenzo(a,h)anthracene	43.435	278	4034m	0.14		
84)	C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85)	C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86)	C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.776	276	8173m	0.29		
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\MS50161\
Data File : ARC1719.D
Acq On : 21 Aug 2013 8:44 am
Operator : YM
Sample : SO-DA-018 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06631

Quant Time: Sep 01 13:36:27 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

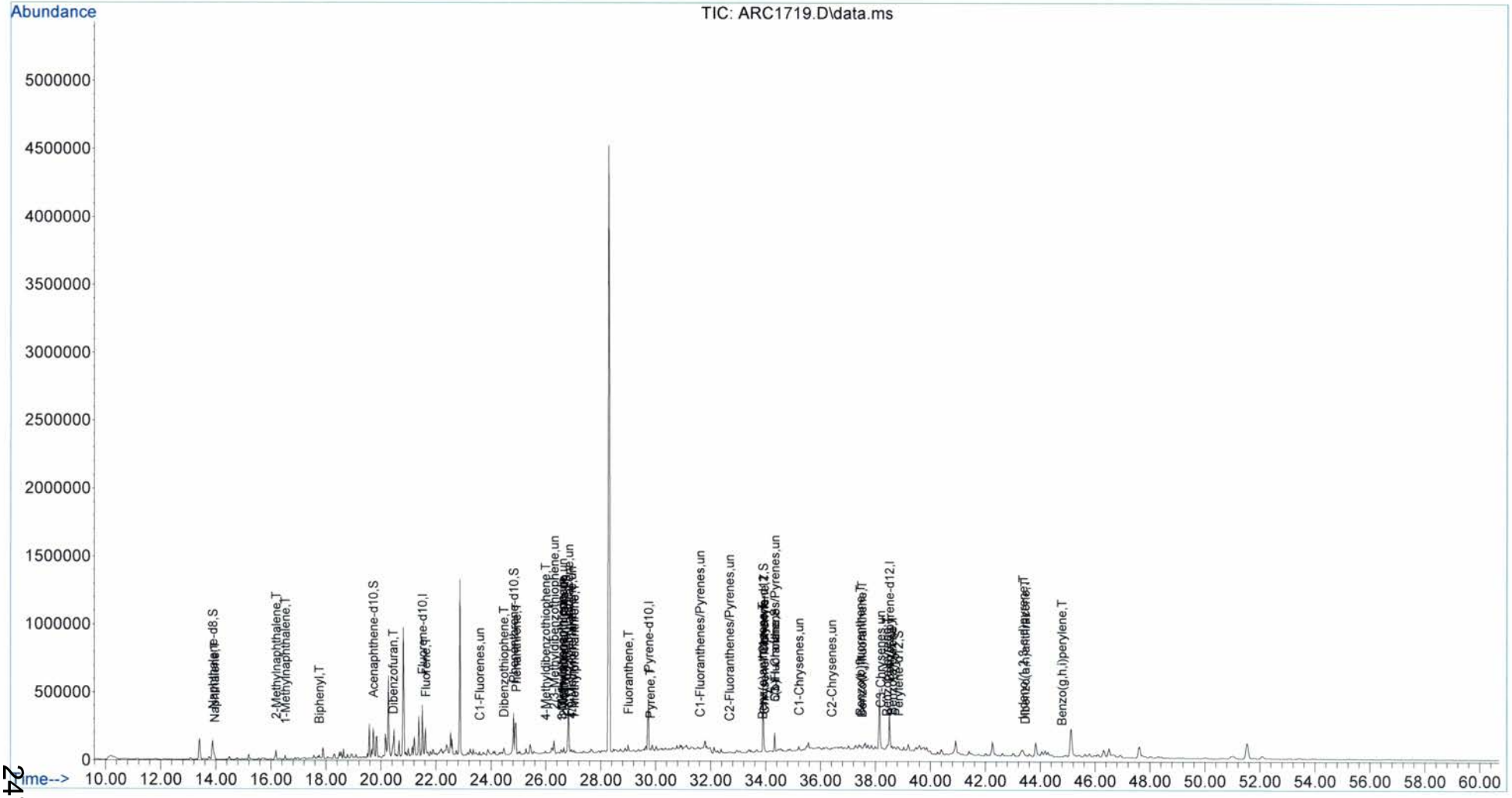
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1719.D
Acq On : 21 Aug 2013 8:44 am
Operator : YM
Sample : SO-DA-018 (1.0-1.5)
Misc :
ALS Vial : 36 Sample Multiplier: 0.06631

Quant Time: Sep 01 13:36:27 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



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

Data File Name	ARC1720.D
Data File Path	C:\GCMS5\MS50161\
Operator	YM
Date Acquired	8/21/2013 9:49
Acq. Method File	PAH-2012.M
Sample Name	SO-DA-DUP-03-080613
Misc Info	0
Instrument Name	GCMS5
Vial Number	37
Sample Multiplier	0.06592
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

ARC1720.D
SO-DA-DUP-03-080613
8/21/2013
PAH-2012.M
15.16990291

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
5)	C2-Decalins	0.00	0	0.0000	0.0000
6)	C3-Decalins	0.00	0	0.0000	0.0000
7)	C4-Decalins	0.00	0	0.0000	0.0000
8)	Naphthalene	13.95	183743	5.0213	5.3934
9)+10)	C1-Naphthalenes	16.35	245059	6.6969	7.1933
13)	C2-Naphthalenes	18.64	552200	15.0905	16.2089
14)	C3-Naphthalenes	20.56	989318	27.0360	29.0397
15)	C4-Naphthalenes	22.87	3505670	95.8029	102.9030
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	19.25	108689	3.3211	3.5672
24)	Acenaphthene	0.00	0	0.0000	0.0000
25)	Dibenzofuran	0.00	0	0.0000	0.0000
26)	Fluorene	21.62	153092	5.7904	6.2196
28)	C1-Fluorenes	23.58	500549	18.9324	20.3355
29)	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
33)	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	25.08	135098	3.9542	4.2473
41)	Phenanthrene	24.91	1045410	27.8636	29.9286
43)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	26.83	1764514	47.0301	50.5156
50)	C2-Phenanthrenes/Anthracenes	28.50	9102840	242.6205	260.6016
51)	C3-Phenanthrenes/Anthracenes	30.08	21093700	562.2159	603.8828
52)	C4-Phenanthrenes/Anthracenes	31.91	21361400	569.3517	611.5475
34)	Dibenzothiophene	24.48	307954	9.0076	9.6752
35)+36)+37)	C1-Dibenzothiophenes	26.31	1472731	43.0773	46.2699
38)	C2-Dibenzothiophenes	28.07	7055390	206.3705	221.6650
39)	C3-Dibenzothiophenes	29.43	22065700	645.4234	693.2570
40)	C4-Dibenzothiophenes	29.94	22335700	653.3186	701.7374
58)	Fluoranthene	29.03	685064	15.6547	16.8150
59)	Pyrene	29.82	2303240	48.4474	52.0379
62)	C1-Fluoranthenes/Pyrenes	31.66	5396510	123.3179	132.4572
63)	C2-Fluoranthenes/Pyrenes	32.71	8775280	200.5280	215.3895
64)	C3-Fluoranthenes/Pyrenes	34.26	8245120	188.4132	202.3769
65)	C4-Fluoranthenes/Pyrenes	35.50	8419170	192.3902	206.6486
53)	Naphthobenzothiophene	0.00	0	0.0000	0.0000
54)	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
55)	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
56)	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
57)	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
67)	Benz(a)anthracene	33.91	350909	8.2830	8.8969
68)	Chrysene/Triphenylene	34.00	2601250	60.9103	65.4245
69)	C1-Chrysenes	35.27	6042630	141.4927	151.9790
70)	C2-Chrysenes	36.47	8189380	191.7606	205.9724
71)	C3-Chrysenes	38.19	6654430	155.8184	167.3664
72)	C4-Chrysenes	39.65	3112620	72.8844	78.2861
77)	Benzo(b)fluoranthene	37.51	1121420	30.9710	33.2663
78)	Benzo(k,j)fluoranthene	37.54	477587	13.4562	14.4535
79)	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	38.51	1252140	32.9057	35.3445
81)	Benzo(a)pyrene	38.67	441064	13.0504	14.0176
89)	Perylene	39.00	158451	4.6351	4.9786
82)	Indeno(1,2,3-c,d)pyrene	43.47	304021	10.6878	11.4799
83)	Dibenzo(a,h)anthracene	43.53	140149	6.0699	6.5198
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
86)	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	44.87	594004	25.7194	27.6255

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.18	173204	7.2320	7.7680
10)	1-Methylnaphthalene	16.52	71855	3.1974	3.4343
11)	2,6-Dimethylnaphthalene	0.00	0	0.0000	0.0000
12)	1,6,7-Trimethylnaphthalene	0.00	0	0.0000	0.0000
27)	1-Methylfluorene	0.00	0	0.0000	0.0000
35)	4-Methyldibenzothiophene	26.01	592758	21.0772	22.6393
36)	2/3-Methyldibenzothiophene	26.29	385007	13.6900	14.7046
37)	1-Methyldibenzothiophene	26.63	494966	17.5999	18.9043
43)	3-Methylphenanthrene	26.57	320877	10.6653	11.4558
44)	2-Methylphenanthrene	26.69	365915	12.1623	13.0637
45)	2-Methylanthracene	26.86	187502	6.2322	6.6941
46)	4/9-Methylphenanthrene	26.97	564745	18.7710	20.1622
47)	1-Methylphenanthrene	27.05	325475	10.8182	11.6200
48)	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
49)	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
61)	Benzo(b)fluorene	0.00	0	0.0000	0.0000
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	0.00	0	0.0000	0.0000
91)	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
96)	C27(20R)-TAS	0.00	0	0.0000	0.0000
97)	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.88	547335	15.41	93.49
21)	Acenaphthene-d10	19.74	289610	13.87	84.13
32)	Phenanthrene-d10	24.82	543590	15.35	93.10
66)	Chrysene-d12	33.97	667526	16.05	97.37
88)	Perylene-d12	38.90	94053	2.88	17.46
90)	5(b)H-Cholane	34.36	153161	15.35	93.16
	Internal Standards				
1)	Fluorene-d10	21.50	351668	16.55	
31)	Pyrene-d10	29.77	630438	16.52	
73)	Benzo(a)pyrene-d12	38.61	434852	16.50	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1720.D
Acq On : 21 Aug 2013 9:49 am
Operator : YM
Sample : SO-DA-DUP-03-080613
Misc :
ALS Vial : 37 Sample Multiplier: 0.06592

Quant Time: Sep 01 13:46:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	351668m	251.05		0.00
31) Pyrene-d10	29.767	212	630438m	250.63		0.03
73) Benzo(a)pyrene-d12	38.608	264	434852m	250.32		0.10
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	547335m	15.41		0.00
21) Acenaphthene-d10	19.737	164	289610m	13.87		0.00
32) Phenanthrene-d10	24.822	188	543590m	15.35		0.00
66) Chrysene-d12	33.972	240	667526m	16.05		0.06
88) Perylene-d12	38.900	264	94053m	2.88		0.06
90) 5(b)H-Cholane	34.361	217	153161m	15.35		0.03
Target Compounds						Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d	
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	183743m	5.02		
9) 2-Methylnaphthalene	16.182	142	173204m	7.23		
10) 1-Methylnaphthalene	16.518	142	71855m	3.20		
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d	
12) 1,6,7-Trimethylnaphtha...	0.000		0	N.D.	d	
13) C2-Naphthalenes	18.642	156	552200m	15.09		
14) C3-Naphthalenes	20.564	170	989318m	27.04		
15) C4-Naphthalenes	22.873	184	3505674m	95.80		
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	19.245	152	108689m	3.32		
24) Acenaphthene	0.000		0	N.D.	d	
25) Dibenzofuran	0.000		0	N.D.	d	
26) Fluorene	21.615	166	153092m	5.79		
27) 1-Methylfluorene	0.000		0	N.D.	d	
28) C1-Fluorenes	23.579	180	500549m	18.93		
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	24.483	184	307954m	9.01		
35) 4-Methyldibenzothiophene	26.009	198	592758m	21.08		
36) 2/3-Methyldibenzothiop...	26.292	198	385007m	13.69		
37) 1-Methyldibenzothiophene	26.631	198	494966m	17.60		
38) C2-Dibenzothiophenes	28.071	212	7055390m	206.37		
39) C3-Dibenzothiophenes	29.428	226	22065749m	645.42		
40) C4-Dibenzothiophenes	29.936	240	22335682m	653.32		
41) Phenanthrene	24.907	178	1045408m	27.86		
42) Anthracene	25.077	178	135098m	3.95		
43) 3-Methylphenanthrene	26.574	192	320877m	10.67		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\data\MS50161\
Data File : ARC1720.D
Acq On : 21 Aug 2013 9:49 am
Operator : YM
Sample : SO-DA-DUP-03-080613
Misc :
ALS Vial : 37 Sample Multiplier: 0.06592

Quant Time: Sep 01 13:46:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44) 2-Methylphenanthrene	26.687	192	365915m	12.16		
45) 2-Methylanthracene	26.857	192	187502m	6.23		
46) 4/9-Methylphenanthrene	26.970	192	564745m	18.77		
47) 1-Methylphenanthrene	27.054	192	325475m	10.82		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	28.495	206	9102840m	242.62		
51) C3-Phenanthrenes/Anthr...	30.077	220	21093670m	562.22		
52) C4-Phenanthrenes/Anthr...	31.914	234	21361397m	569.35		
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.032	202	685064m	15.65		
59) Pyrene	29.823	202	2303241m	48.45		
60) 2-Methylfluoranthene	0.000		0	N.D.	d	
61) Benzo(b)fluorene	0.000		0	N.D.	d	
62) C1-Fluoranthenes/Pyrenes	31.659	216	5396507m	123.32		
63) C2-Fluoranthenes/Pyrenes	32.708	230	8775280m	200.53		
64) C3-Fluoranthenes/Pyrenes	34.264	244	8245115m	188.41		
65) C4-Fluoranthenes/Pyrenes	35.496	258	8419165m	192.39		
67) Benz(a)anthracene	33.907	228	350909m	8.28		
68) Chrysene/Triphenylene	34.004	228	2601251m	60.91		
69) C1-Chrysenes	35.269	242	6042632m	141.49		
70) C2-Chrysenes	36.468	256	8189375m	191.76		
71) C3-Chrysenes	38.187	270	6654428m	155.82		
72) C4-Chrysenes	39.645	284	3112620m	72.88		
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.506	252	1121419m	30.97		
78) Benzo(k,j)fluoranthene	37.538	252	477587m	13.46		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.511	252	1252144m	32.91		
81) Benzo(a)pyrene	38.673	252	441064m	13.05		
82) Indeno(1,2,3-c,d)pyrene	43.468	276	304021m	10.69		
83) Dibenzo(a,h)anthracene	43.533	278	140149m	6.07		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.874	276	594004m	25.72		
89) Perylene	38.997	252	158451m	4.64		
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\MS50161\
Data File : ARC1720.D
Acq On : 21 Aug 2013 9:49 am
Operator : YM
Sample : SO-DA-DUP-03-080613
Misc :
ALS Vial : 37 Sample Multiplier: 0.06592

Quant Time: Sep 01 13:46:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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\MS50161\
Data File : ARC1720.D
Acq On : 21 Aug 2013 9:49 am
Operator : YM
Sample : SO-DA-DUP-03-080613
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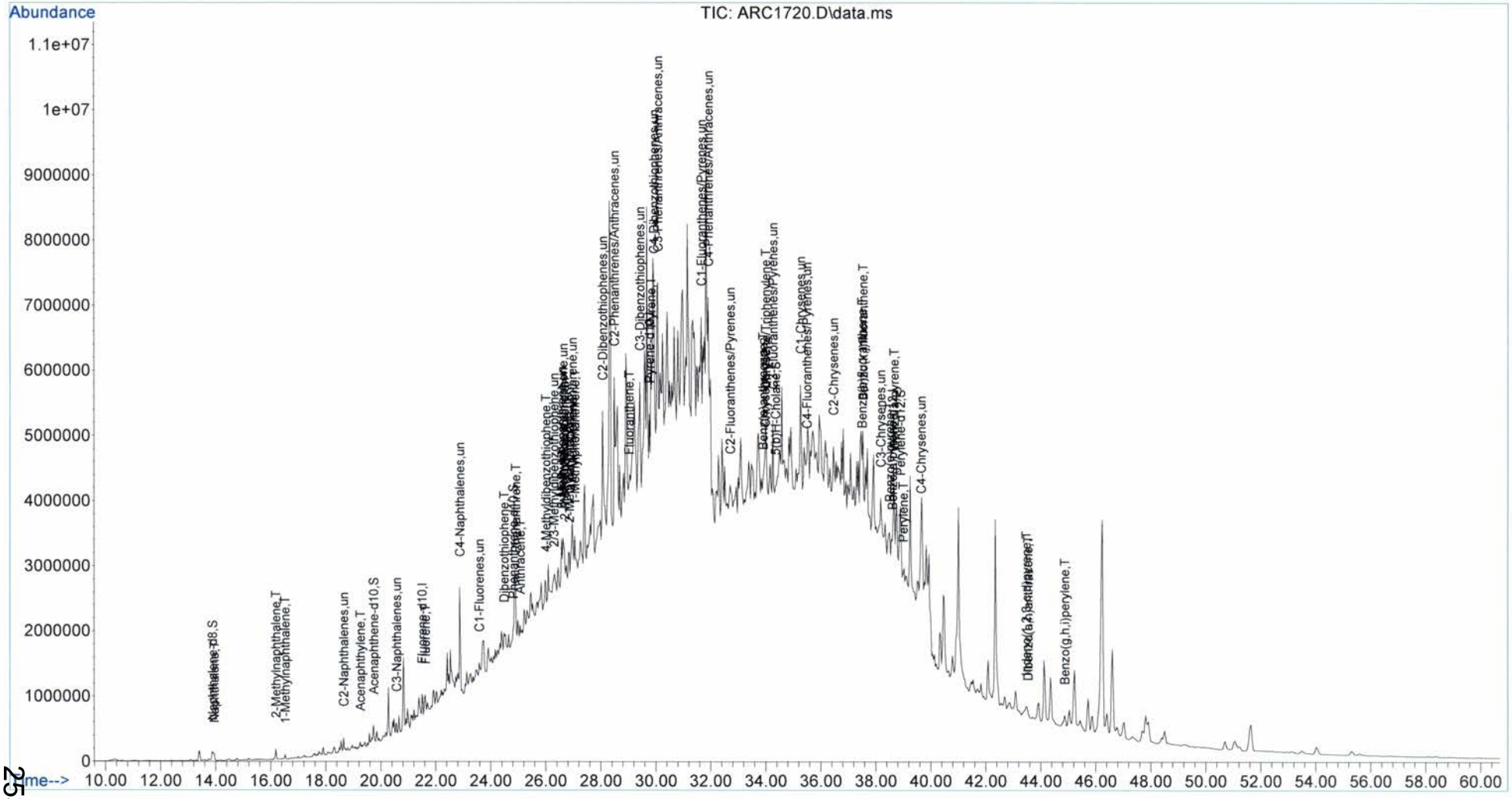
Quant Time: Sep 01 13:46:04 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



Polycyclic Aromatic Hydrocarbon
Initial Calibration Data
and
Initial Calibration Verification Data

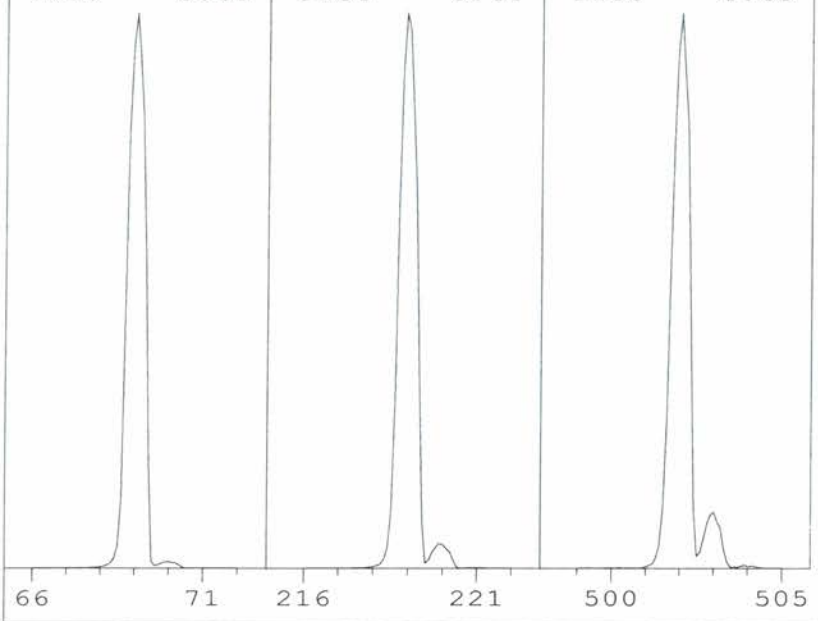
PAH ICAL
AR 50161.M

GC/MS 5
(PAH-2012)

Autotune

Mon Aug 19 13:38:06 2013 Instrument: GCMS5
C:\MSDCHEM\1\5975\atune.u US83141113

Mass	69.00	Mass	218.90	Mass	502.00
Ab	376396	Ab	331419	Ab	20477
Pw50	0.60	Pw50	0.60	Pw50	0.60

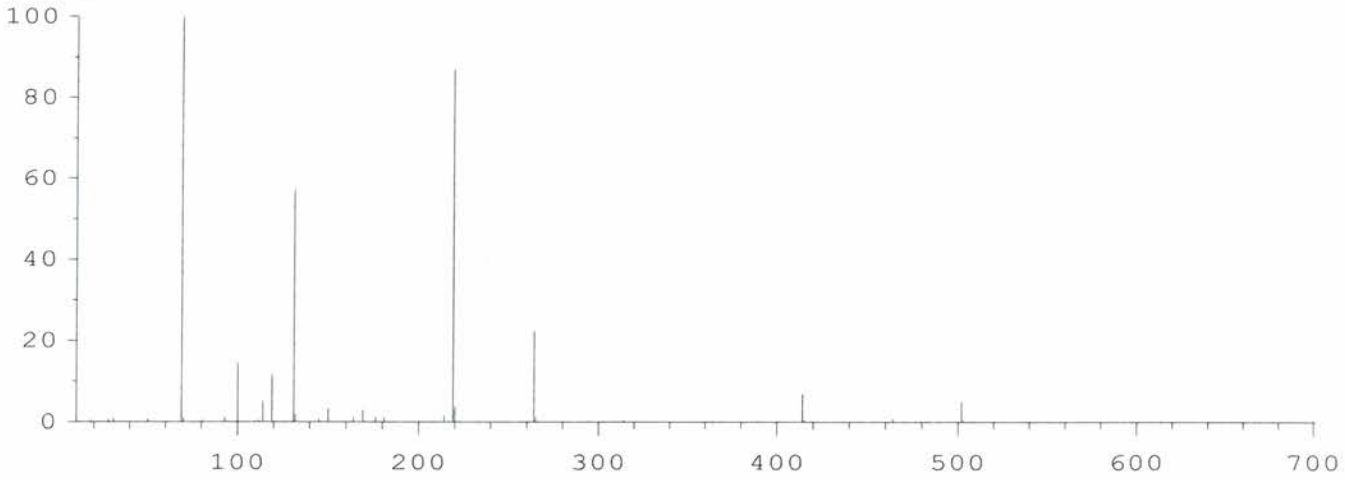


Ion Pol	Pos	MassGain	-606
		MassOffs	-39
Emission	34.6	AmuGain	1987
EIEnrgy	69.9	AmuOffs	122.38
Filament	1	Wid219	-0.010
		DC Pol	Neg
Repeller	25.93		
IonFcus	90.2	HEDEnab	On
EntLens	28.5	EMVolts	1329
EntOffs	18.57		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	290	Turbo Speed	100
MS Quad	180	HiVac	1.46e-05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
101 peaks Base: 69.00 Abundance: 358592



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	358592	100.00	70.00	3719	1.04
219.00	311872	86.97	220.00	13806	4.43
502.00	18504	5.16	503.00	1692	9.14

Air/Water Check: H2O~0.59% N2~0.65% O2~0.28% CO2~0.08% N2/H2O~109.86%

Column(1) Flow: 1.27 Column(2): 0 ml/min. Interface Temp: 290

Ramp Criteria:

Ion Focus	Maximum	90	volts using ion	502;	EM Gain 56576
Repeller	Maximum	35	volts using ion	219;	Gain Factor 0.57

MassGain Values(Samples): -600(3) -599(2) -587(1) -560(0) -472(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	122.4	122.4	122.4	122.4	122.4	122.4	122.4
Entrance Lens Offset:	18.6	18.6	18.6	18.6	18.6	18.6	18.6

MS5016 256
YM

Method Path : C:\GCMS5\MS50161\
Method File : AR50161.M
Title : PAH Calibration Table-2013A
Last Update : Tue Aug 20 08:30:52 2013
Response Via : Initial Calibration

Calibration Files
1 =MS50161B.D 2 =MS50161C.D 3 =MS50161D.D 4 =MS50161E.D 5 =MS50161F.D
6 =MS50161G.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorene-d10	----------ISTD----------							
2)	S	Naphthalene-d8	2.024	1.686	1.574	1.615	1.611	1.517	1.671	10.85
3)	T	cis/trans Decalin	0.395	0.327	0.292	0.298	0.299	0.281	0.315	13.30
4)	un	C1-Decalins	0.395	0.327	0.292	0.298	0.299	0.281	0.315	13.30
5)	un	C2-Decalins	0.395	0.327	0.292	0.298	0.299	0.281	0.315	13.30
6)	un	C3-Decalins	0.395	0.327	0.292	0.298	0.299	0.281	0.315	13.30
7)	un	C4-Decalins	0.395	0.327	0.292	0.298	0.299	0.281	0.315	13.30
8)	T	Naphthalene	2.092	1.739	1.624	1.660	1.658	1.559	1.722	11.05
9)	T	2-Methylnaphth...	1.337	1.129	1.060	1.088	1.093	1.054	1.127	9.43
10)	T	1-Methylnaphth...	1.260	1.054	0.997	1.026	1.026	0.983	1.058	9.65
11)	T	2,6-Dimethylna...	1.212	0.993	0.946	0.981	0.997	0.986	1.019	9.43
12)	T	1,6,7-Trimethy...	1.161	0.955	0.909	0.945	0.964	0.973	0.985	9.08
13)	un	C2-Naphthalenes	2.092	1.739	1.624	1.660	1.658	1.559	1.722	11.05
14)	un	C3-Naphthalenes	2.092	1.739	1.624	1.660	1.658	1.559	1.722	11.05
15)	un	C4-Naphthalenes	2.092	1.739	1.624	1.660	1.658	1.559	1.722	11.05
16)	T	Benzothiophene	1.704	1.412	1.325	1.354	1.341	1.277	1.402	11.00
17)	un	C1-Benzothioph...	1.704	1.412	1.325	1.354	1.341	1.277	1.402	11.00
18)	un	C2-Benzothioph...	1.704	1.412	1.325	1.354	1.341	1.277	1.402	11.00
19)	un	C3-Benzothioph...	1.704	1.412	1.325	1.354	1.341	1.277	1.402	11.00
20)	un	C4-Benzothioph...	1.704	1.412	1.325	1.354	1.341	1.277	1.402	11.00
21)	S	Acenaphthene-d10	1.181	0.964	0.911	0.942	0.952	0.942	0.982	10.08
22)	T	Biphenyl	1.778	1.480	1.384	1.425	1.426	1.358	1.475	10.45
23)	T	Acenaphthylene	1.835	1.484	1.386	1.443	1.495	1.597	1.540	10.41
24)	T	Acenaphthene	1.190	0.986	0.938	0.975	0.987	0.967	1.007	9.05
25)	T	Dibenzofuran	1.897	1.558	1.480	1.515	1.529	1.477	1.576	10.16
26)	T	Fluorene	1.483	1.220	1.148	1.188	1.208	1.217	1.244	9.65
27)	T	1-Methylfluorene	0.966	0.798	0.760	0.807	0.833	0.843	0.834	8.48
28)	un	C1-Fluorenes	1.483	1.220	1.148	1.188	1.208	1.217	1.244	9.65
29)	un	C2-Fluorenes	1.483	1.220	1.148	1.188	1.208	1.217	1.244	9.65
30)	un	C3-Fluorenes	1.483	1.220	1.148	1.188	1.208	1.217	1.244	9.65
31)	I	Pyrene-d10	----------ISTD----------							
32)	S	Phenanthrene-d10	1.072	0.918	0.864	0.912	0.932	0.870	0.928	8.15
33)	T	Carbazole	0.881	0.753	0.670	0.754	0.795	0.755	0.768	8.97
34)	T	Dibenzothiophene	1.014	0.913	0.827	0.866	0.886	0.871	0.896	7.16
35)	T	4-Methyldibenz...	0.828	0.715	0.682	0.725	0.743	0.729	0.737	6.65
36)	un	2/3-Methyldibe...	0.828	0.715	0.682	0.725	0.743	0.729	0.737	6.65
37)	un	1-Methyldibenz...	0.828	0.715	0.682	0.725	0.743	0.729	0.737	6.65
38)	un	C2-Dibenzothio...	1.014	0.913	0.827	0.866	0.886	0.871	0.896	7.16
39)	un	C3-Dibenzothio...	1.014	0.913	0.827	0.866	0.886	0.871	0.896	7.16
40)	un	C4-Dibenzothio...	1.014	0.913	0.827	0.866	0.886	0.871	0.896	7.16
41)	T	Phenanthrene	1.116	0.964	0.918	0.958	0.980	0.964	0.983	6.94
42)	T	Anthracene	0.995	0.858	0.820	0.886	0.927	0.887	0.895	6.72
43)	un	3-Methylphenan...	0.888	0.777	0.717	0.775	0.803	0.770	0.788	7.13
44)	un	2-Methylphenan...	0.888	0.777	0.717	0.775	0.803	0.770	0.788	7.13
45)	un	2-Methylanthra...	0.888	0.777	0.717	0.775	0.803	0.770	0.788	7.13
46)	un	4/9-Methylphen...	0.888	0.777	0.717	0.775	0.803	0.770	0.788	7.13
47)	T	1-Methylphenan...	0.888	0.777	0.717	0.775	0.803	0.770	0.788	7.13
48)	T	3,6-Dimethylph...	0.790	0.719	0.626	0.694	0.728	0.703	0.710	7.52
49)	T	Retene	0.415	0.362	0.319	0.365	0.376	0.367	0.367	8.36
50)	un	C2-Phenanthren...	1.116	0.964	0.918	0.958	0.980	0.964	0.983	6.94
51)	un	C3-Phenanthren...	1.116	0.964	0.918	0.958	0.980	0.964	0.983	6.94
52)	un	C4-Phenanthren...	1.116	0.964	0.918	0.958	0.980	0.964	0.983	6.94
53)	T	Naphthobenzoth...	1.297	1.042	1.033	1.104	1.190	0.966	1.106	10.88

Method Path : C:\GCMS5\MS50161\
Method File : AR50161.M
Title : PAH Calibration Table-2013A

54)	un	C1-Naphthobenz...	1.297	1.042	1.033	1.104	1.190	0.966	1.106	10.88
55)	un	C2-Naphthobenz...	1.297	1.042	1.033	1.104	1.190	0.966	1.106	10.88
56)	un	C3-Naphthobenz...	1.297	1.042	1.033	1.104	1.190	0.966	1.106	10.88
57)	un	C4-Naphthobenz...	1.297	1.042	1.033	1.104	1.190	0.966	1.106	10.88
58)	T	Fluoranthene	1.305	1.163	1.038	1.145	1.190	1.041	1.147	8.75
59)	T	Pyrene	1.496	1.272	1.194	1.265	1.302	0.946	1.246	14.33
60)	T	2-Methylfluora...	0.871	0.736	0.700	0.757	0.793	0.867	0.787	8.88
61)	T	Benzo(b)fluorene	0.738	0.636	0.571	0.640	0.680	0.769	0.672	10.84
62)	un	C1-Fluoranthen...	1.305	1.163	1.038	1.145	1.190	1.041	1.147	8.75
63)	un	C2-Fluoranthen...	1.305	1.163	1.038	1.145	1.190	1.041	1.147	8.75
64)	un	C3-Fluoranthen...	1.305	1.163	1.038	1.145	1.190	1.041	1.147	8.75
65)	un	C4-Fluoranthen...	1.305	1.163	1.038	1.145	1.190	1.041	1.147	8.75
66)	S	Chrysene-d12	1.185	1.121	0.973	1.107	1.134	1.021	1.090	7.17
67)	T	Benz(a)anthracene	1.276	1.045	0.997	1.103	1.198	1.042	1.110	9.60
68)	T	Chrysene/Triph...	1.246	1.047	1.081	1.145	1.242	0.953	1.119	10.25
69)	un	C1-Chrysenes	1.246	1.047	1.081	1.145	1.242	0.953	1.119	10.25
70)	un	C2-Chrysenes	1.246	1.047	1.081	1.145	1.242	0.953	1.119	10.25
71)	un	C3-Chrysenes	1.246	1.047	1.081	1.145	1.242	0.953	1.119	10.25
72)	un	C4-Chrysenes	1.246	1.047	1.081	1.145	1.242	0.953	1.119	10.25
73)	I	Benzo(a)pyrene-d12	----------ISTD----------							
74)	un	C29-Hopane	0.710	0.535	0.537	0.557	0.532	0.521	0.565	12.69
75)	un	18a-Oleanane	0.710	0.535	0.537	0.557	0.532	0.521	0.565	12.69
76)	T	C30-Hopane	0.710	0.535	0.537	0.557	0.532	0.521	0.565	12.69
77)	T	Benzo(b)fluora...	1.610	1.325	1.310	1.374	1.383	1.243	1.374	9.16
78)	T	Benzo(k,j)fluo...	1.467	1.291	1.245	1.349	1.335	1.395	1.347	5.80
79)	un	Benzo(a)fluora...	1.467	1.291	1.245	1.349	1.335	1.395	1.347	5.80
80)	T	Benzo(e)pyrene	1.672	1.432	1.348	1.435	1.390	1.385	1.444	8.05
81)	T	Benzo(a)pyrene	1.414	1.219	1.201	1.299	1.297	1.264	1.283	5.92
82)	T	Indeno(1,2,3-c...	1.170	0.994	0.965	1.050	1.086	1.211	1.079	8.94
83)	T	Dibenzo(a,h)an...	0.919	0.791	0.791	0.866	0.905	0.986	0.876	8.76
84)	un	C1-Dibenzo(a,h...	0.919	0.791	0.791	0.866	0.905	0.986	0.876	8.76
85)	un	C2-Dibenzo(a,h...	0.919	0.791	0.791	0.866	0.905	0.986	0.876	8.76
86)	un	C3-Dibenzo(a,h...	0.919	0.791	0.791	0.866	0.905	0.986	0.876	8.76
87)	T	Benzo(g,h,i)pe...	0.999	0.841	0.806	0.850	0.855	0.908	0.876	7.80
88)	S	Perylene-d12	1.484	1.159	1.150	1.226	1.221	1.201	1.240	9.96
89)	T	Perylene	1.457	1.190	1.212	1.299	1.332	1.293	1.297	7.36
90)	S	5(b)H-Cholane	0.457	0.377	0.347	0.372	0.371	0.348	0.379	10.67
91)	un	C20-TAS	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14
92)	un	C21-TAS	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14
93)	un	C26(20S)-TAS	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14
94)	T	C26(20R)/C27(2...	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14
95)	un	C28(20S)-TAS	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14
96)	un	C27(20R)-TAS	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14
97)	un	C28(20R)-TAS	2.404	1.898	1.773	1.834	1.821	1.544	1.879	15.14

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161B.D
Acq On : 19 Aug 2013 7:30 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 20 07:56:22 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:51:48 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	506310m	251.05		0.00
31) Pyrene-d10	29.738	212	1010717m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	823062m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	81660m	24.33		0.00
21) Acenaphthene-d10	19.737	164	47673m	24.13		0.00
32) Phenanthrene-d10	24.822	188	86520m	23.22		0.00
66) Chrysene-d12	33.907	240	95563m	21.57		0.00
88) Perylene-d12	38.835	264	97589m	24.44		0.00
90) 5(b)H-Cholane	0.000	217	0d	0.00		
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	15755m	37.66		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	84367m	24.39		
9) 2-Methylnaphthalene	16.182	142	53982m	23.71		
10) 1-Methylnaphthalene	16.518	142	50754m	23.72		
11) 2,6-Dimethylnaphthalene	18.284	156	48881m	23.75		
12) 1,6,7-Trimethylnaphtha...	21.145	170	46848m	23.58		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	68327m	24.22		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	71086m	23.88		
23) Acenaphthylene	19.245	152	73434m	23.47		
24) Acenaphthene	19.826	154	48085m	23.76		
25) Dibenzofuran	20.430	168	76129m	23.92		
26) Fluorene	21.615	166	59943m	23.93		
27) 1-Methylfluorene	23.579	180	39266m	23.34		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	70415m	22.75		
34) Dibenzothiophene	24.455	184	80603m	22.25		
35) 4-Methyldibenzothiophene	25.981	198	67332m	22.74		
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	24.907	178	89183m	22.66		
42) Anthracene	25.076	178	80463m	22.41		

Data Path : C:\GCMS5\MS50161\
Data File : MS50161B.D
Acq On : 19 Aug 2013 7:30 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 20 07:56:22 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:51:48 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	70824m	22.27		
48) 3,6-Dimethylphenanthrene	28.099	206	63806m	22.20		
49) Retene	30.783	234	29935m	20.13		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	33.064	234	105248m	23.64		
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	29.004	202	105329m	22.75		
59) Pyrene	29.795	202	120653m	23.94		
60) 2-Methylfluoranthene	30.557	216	70697m	22.30		
61) Benzo(b)fluorene	31.151	216	60064m	21.98		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.874	228	102690m	22.98		
68) Chrysene/Triphenylene	34.004	228	99877m	22.26		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	43.010	191	46664m	24.57		
77) Benzo(b)fluoranthene	37.441	252	106054m	24.98		
78) Benzo(k,j)fluoranthene	37.506	252	96115m	23.18		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	109504m	23.37		
81) Benzo(a)pyrene	38.608	252	92820m	22.18		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	75624m	21.09		
83) Dibenzo(a,h)anthracene	43.468	278	59863m	20.38		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.775	276	65076m	22.35		
89) Perylene	38.932	252	95932m	22.35		
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	39.580	231	158061m	25.30		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161B.D
Acq On : 19 Aug 2013 7:30 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 20 07:56:22 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:51:48 2013
Response via : Initial Calibration

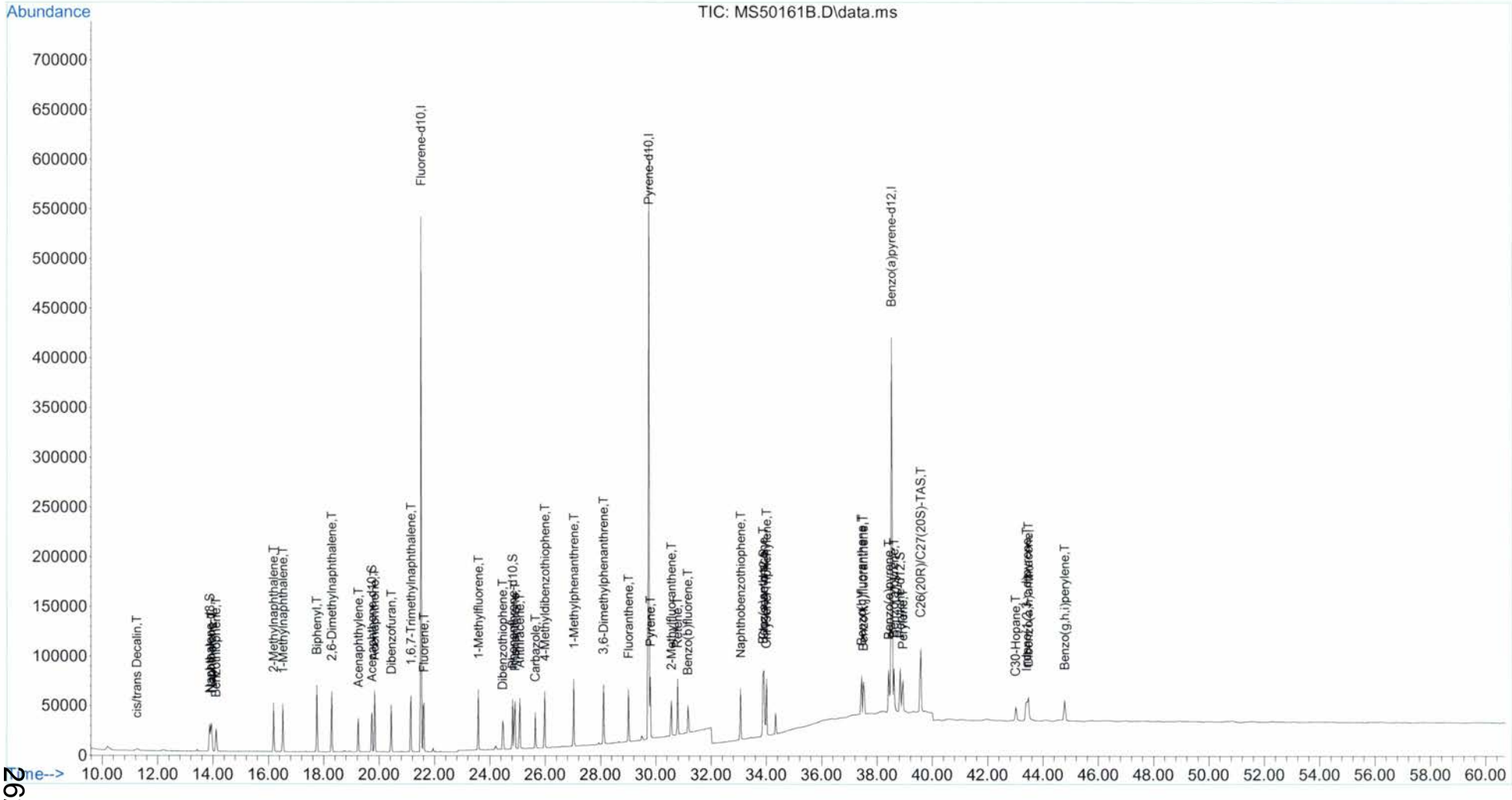
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161B.D
Acq On : 19 Aug 2013 7:30 pm
Operator : YM
Sample : AR-WKC1-020-030
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 20 07:56:22 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:51:48 2013
Response via : Initial Calibration



Data Path : C:\GCMS5\MS50161\
Data File : MS50161C.D
Acq On : 19 Aug 2013 8:36 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 20 08:05:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:56:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	275707m	97.68		
48) 3,6-Dimethylphenanthrene	28.100	206	258278m	101.53		
49) Retene	30.784	234	116126m	87.73		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	33.064	234	376134m	94.78		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	417431m	101.49		
59) Pyrene	29.795	202	456291m	102.23		
60) 2-Methylfluoranthene	30.558	216	265771m	94.27		
61) Benzo(b)fluorene	31.151	216	229969m	95.01		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	374031m	93.38		
68) Chrysene/Triphenylene	34.004	228	373293m	93.31		
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	43.010	191	158290m	93.96		
77) Benzo(b)fluoranthene	37.441	252	392723m	101.59		
78) Benzo(k,j)fluoranthene	37.506	252	380244m	101.27		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	421985m	99.93		
81) Benzo(a)pyrene	38.608	252	359959m	95.65		
82) Indeno(1,2,3-c,d)pyrene	43.370	276	289047m	89.97		
83) Dibenzo(a,h)anthracene	43.468	278	231819m	88.08		
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	44.776	276	246440m	94.18		
89) Perylene	38.932	252	352456m	91.34		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.581	231	561449m	100.50		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161C.D
Acq On : 19 Aug 2013 8:36 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 20 08:05:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:56:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	477287m	251.05		0.00
31) Pyrene-d10	29.738	212	898689m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	740473m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	320659m	101.11		0.00
21) Acenaphthene-d10	19.715	164	183440m	98.26		-0.02
32) Phenanthrene-d10	24.822	188	329396m	99.38		0.00
66) Chrysene-d12	33.907	240	401961m	102.29		0.00
88) Perylene-d12	38.835	264	342882m	93.76		0.00
90) 5(b)H-Cholane	34.328	217	111473m	99.98		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	61554m	140.01		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	330554m	101.04		
9) 2-Methylnaphthalene	16.182	142	214926m	100.32		
10) 1-Methylnaphthalene	16.518	142	200271m	99.54		
11) 2,6-Dimethylnaphthalene	18.284	156	188702m	97.27		
12) 1,6,7-Trimethylnaphtha...	21.146	170	181644m	96.98		
13) C2-Naphthalenes	0.000		0	N.D.	d	
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	266751m	100.06		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	278766m	99.37		
23) Acenaphthylene	19.245	152	279883m	94.87		
24) Acenaphthene	19.827	154	187813m	98.20		
25) Dibenzofuran	20.430	168	294685m	98.24		
26) Fluorene	21.593	166	232442m	98.24		
27) 1-Methylfluorene	23.579	180	152822m	96.26		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	267731m	97.29		
34) Dibenzothiophene	24.455	184	322975m	100.40		
35) 4-Methyldibenzothiophene	25.981	198	258640m	98.14		
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	24.907	178	342383m	97.55		
42) Anthracene	25.077	178	308608m	96.27		

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161C.D
Acq On : 19 Aug 2013 8:36 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 20 08:05:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:56:29 2013
Response via : Initial Calibration

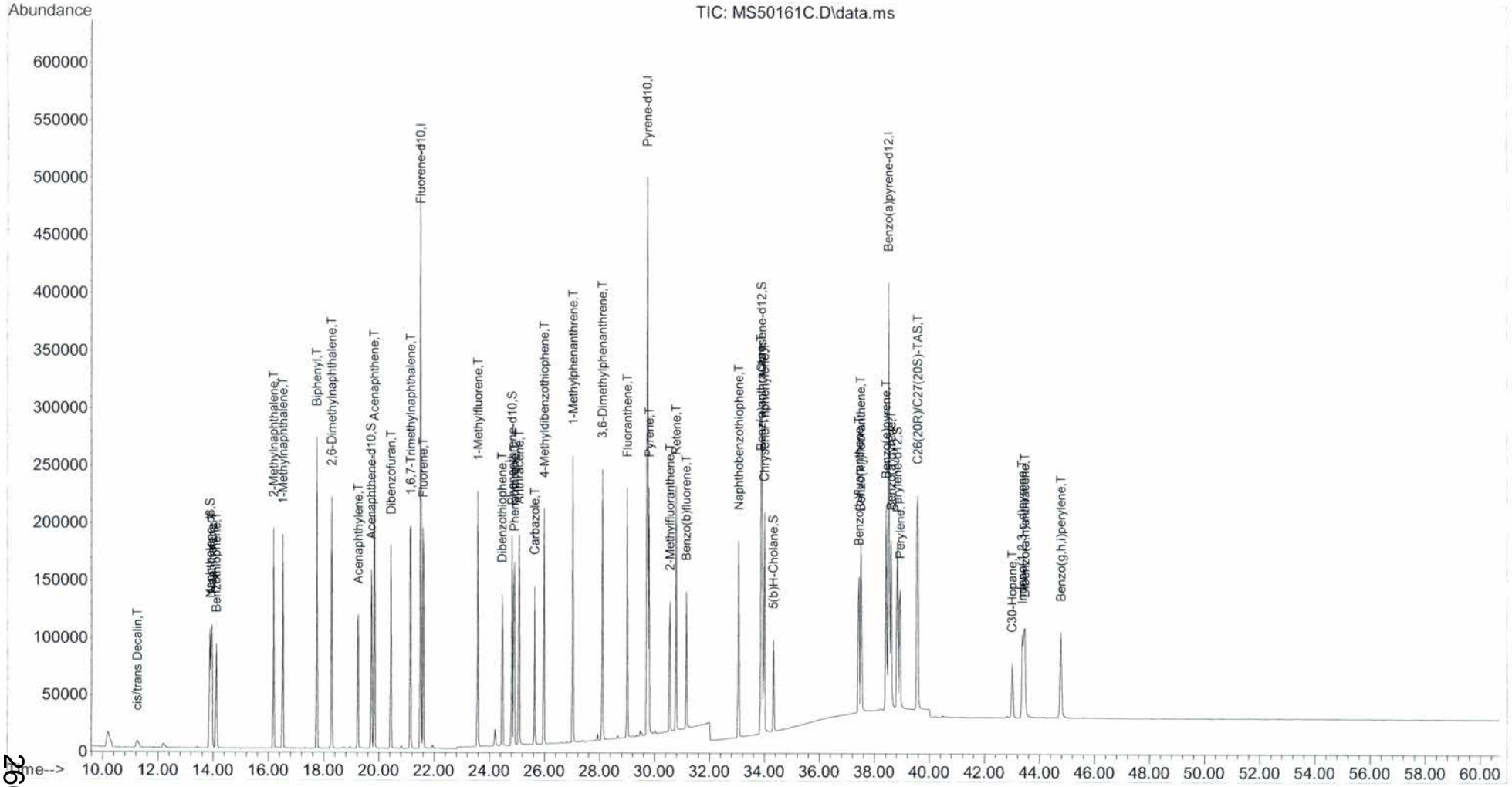
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161C.D
Acq On : 19 Aug 2013 8:36 pm
Operator : YM
Sample : AR-WKC2-100-030
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 20 08:05:21 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 07:56:29 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161D.D
Acq On : 19 Aug 2013 9:43 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 20 08:10:19 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:05:28 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	468391m	251.05		0.00
31) Pyrene-d10	29.738	212	913429m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	700364m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	734356m	235.84		0.00
21) Acenaphthene-d10	19.737	164	425225m	232.06		0.02
32) Phenanthrene-d10	24.822	188	787628m	233.51		0.00
66) Chrysene-d12	33.907	240	886713m	222.03		0.00
88) Perylene-d12	38.835	264	804371m	231.54		0.00
90) 5(b)H-Cholane	34.329	217	242390m	229.29		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	134675m	287.87		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	757626m	235.84		
9) 2-Methylnaphthalene	16.182	142	494926m	235.37		
10) 1-Methylnaphthalene	16.518	142	464594m	235.44		
11) 2,6-Dimethylnaphthalene	18.284	156	441365m	232.06		
12) 1,6,7-Trimethylnaphtha...	21.146	170	424035m	230.74		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	614396m	234.73		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	639950m	232.48		
23) Acenaphthylene	19.245	152	641496m	221.93		
24) Acenaphthene	19.827	154	438564m	233.57		
25) Dibenzofuran	20.430	168	686650m	233.35		
26) Fluorene	21.615	166	536708m	231.18		
27) 1-Methylfluorene	23.579	180	357211m	229.35		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	604718m	216.13		
34) Dibenzothiophene	24.483	184	742749m	226.94		
35) 4-Methyldibenzothiophene	25.981	198	626510m	233.67		
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	24.907	178	828547m	231.89		
42) Anthracene	25.077	178	749256m	229.65		

Data Path : C:\GCMS5\MS50161\
Data File : MS50161D.D
Acq On : 19 Aug 2013 9:43 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 20 08:10:19 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:05:28 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	646399m	224.96		
48) 3,6-Dimethylphenanthrene	28.100	206	570645m	220.54		
49) Retene	30.784	234	259958m	193.02		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	33.064	234	947161m	234.79		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	946312m	226.33		
59) Pyrene	29.795	202	1088161m	239.97		
60) 2-Methylfluoranthene	30.558	216	642127m	224.02		
61) Benzo(b)fluorene	31.151	216	524522m	213.32		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	906842m	222.01		
68) Chrysene/Triphenylene	34.004	228	979449m	240.15		
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	43.010	191	375845m	237.73		
77) Benzo(b)fluoranthene	37.441	252	918003m	248.77		
78) Benzo(k,j)fluoranthene	37.506	252	867202m	241.33		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	939375m	234.09		
81) Benzo(a)pyrene	38.608	252	838370m	234.68		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	663663m	218.42		
83) Dibenzo(a,h)anthracene	43.468	278	548209m	220.44		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	558507m	225.68		
89) Perylene	38.932	252	848691m	233.18		
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	39.581	231	1240200m	234.73		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161D.D
Acq On : 19 Aug 2013 9:43 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 20 08:10:19 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:05:28 2013
Response via : Initial Calibration

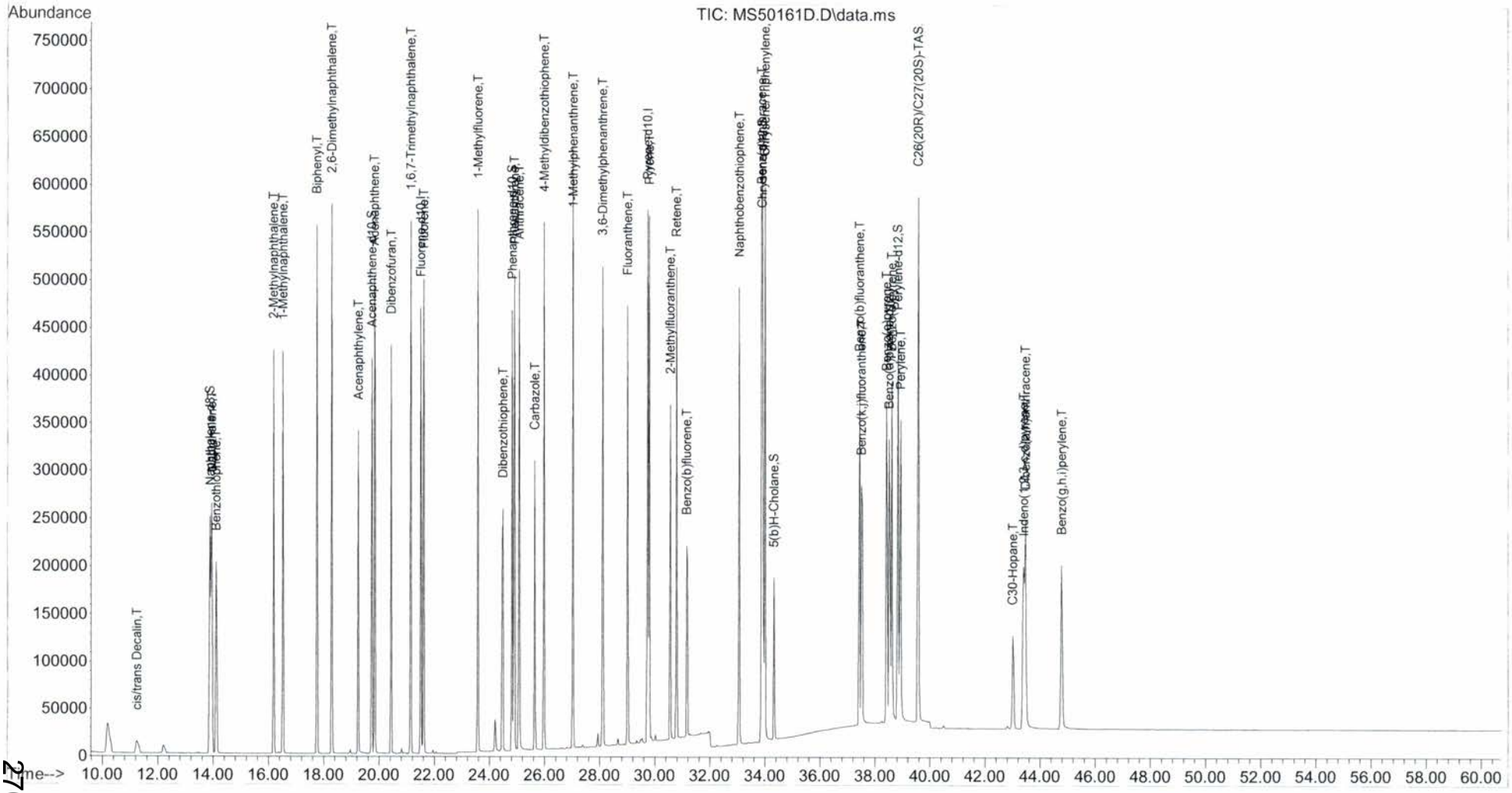
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161D.D
Acq On : 19 Aug 2013 9:43 pm
Operator : YM
Sample : AR-WKC3-250-030
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 20 08:10:19 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:05:28 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161E.D
Acq On : 19 Aug 2013 10:49 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 20 08:16:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:10:27 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	483846m	251.05		0.00
31) Pyrene-d10	29.738	212	925795m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	737454m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	1556889m	483.85		0.00
21) Acenaphthene-d10	19.737	164	908824m	480.13		0.00
32) Phenanthrene-d10	24.822	188	1685238m	492.55		0.00
66) Chrysene-d12	33.907	240	2044536m	505.32		0.00
88) Perylene-d12	38.835	264	1805768m	491.74		0.00
90) 5(b)H-Cholane	34.328	217	548418m	491.38		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	283901m	551.56		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	1599673m	482.05		
9) 2-Methylnaphthalene	16.182	142	1049953m	483.26		
10) 1-Methylnaphthalene	16.518	142	987261m	484.14		
11) 2,6-Dimethylnaphthalene	18.284	156	945466m	481.16		
12) 1,6,7-Trimethylnaphtha...	21.145	170	910597m	479.82		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	1297412m	479.74		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	1360509m	478.47		
23) Acenaphthylene	19.245	152	1379167m	462.79		
24) Acenaphthene	19.826	154	941441m	485.28		
25) Dibenzofuran	20.430	168	1453053m	478.11		
26) Fluorene	21.615	166	1146917m	478.25		
27) 1-Methylfluorene	23.579	180	783405m	487.02		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.		
33) Carbazole	25.642	167	1379988m	486.60		
34) Dibenzothiophene	24.455	184	1576234m	475.04		
35) 4-Methyldibenzothiophene	25.981	198	1349551m	496.29		
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	24.907	178	1753051m	483.49		
42) Anthracene	25.077	178	1640621m	496.18		

Data Path : C:\GCMS5\MS50161\
Data File : MS50161E.D
Acq On : 19 Aug 2013 10:49 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 20 08:16:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:10:27 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	1415196m	485.86		
48) 3,6-Dimethylphenanthrene	28.100	206	1284043m	489.55		
49) Retene	30.784	234	601736m	440.75		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	33.064	234	2051583m	501.86		
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	29.004	202	2116058m	499.37		
59) Pyrene	29.795	202	2335546m	507.94		
60) 2-Methylfluoranthene	30.558	216	1407312m	484.15		
61) Benzo(b)fluorene	31.151	216	1192531m	478.66		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	2033214m	495.24		
68) Chrysene/Triphenylene	34.004	228	2102294m	506.76		
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	43.010	191	819913m	491.37		
77) Benzo(b)fluoranthene	37.441	252	2028098m	516.01		
78) Benzo(k,j)fluoranthene	37.506	252	1978393m	516.40		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	2105935m	496.26		
81) Benzo(a)pyrene	38.608	252	1910175m	505.96		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	1520877m	475.08		
83) Dibenzo(a,h)anthracene	43.468	278	1263505m	482.44		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.776	276	1240697m	475.73		
89) Perylene	38.932	252	1915231m	499.06		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.580	231	2701443m	485.55		
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:\GCMS5\MS50161\
Data File : MS50161E.D
Acq On : 19 Aug 2013 10:49 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 20 08:16:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:10:27 2013
Response via : Initial Calibration

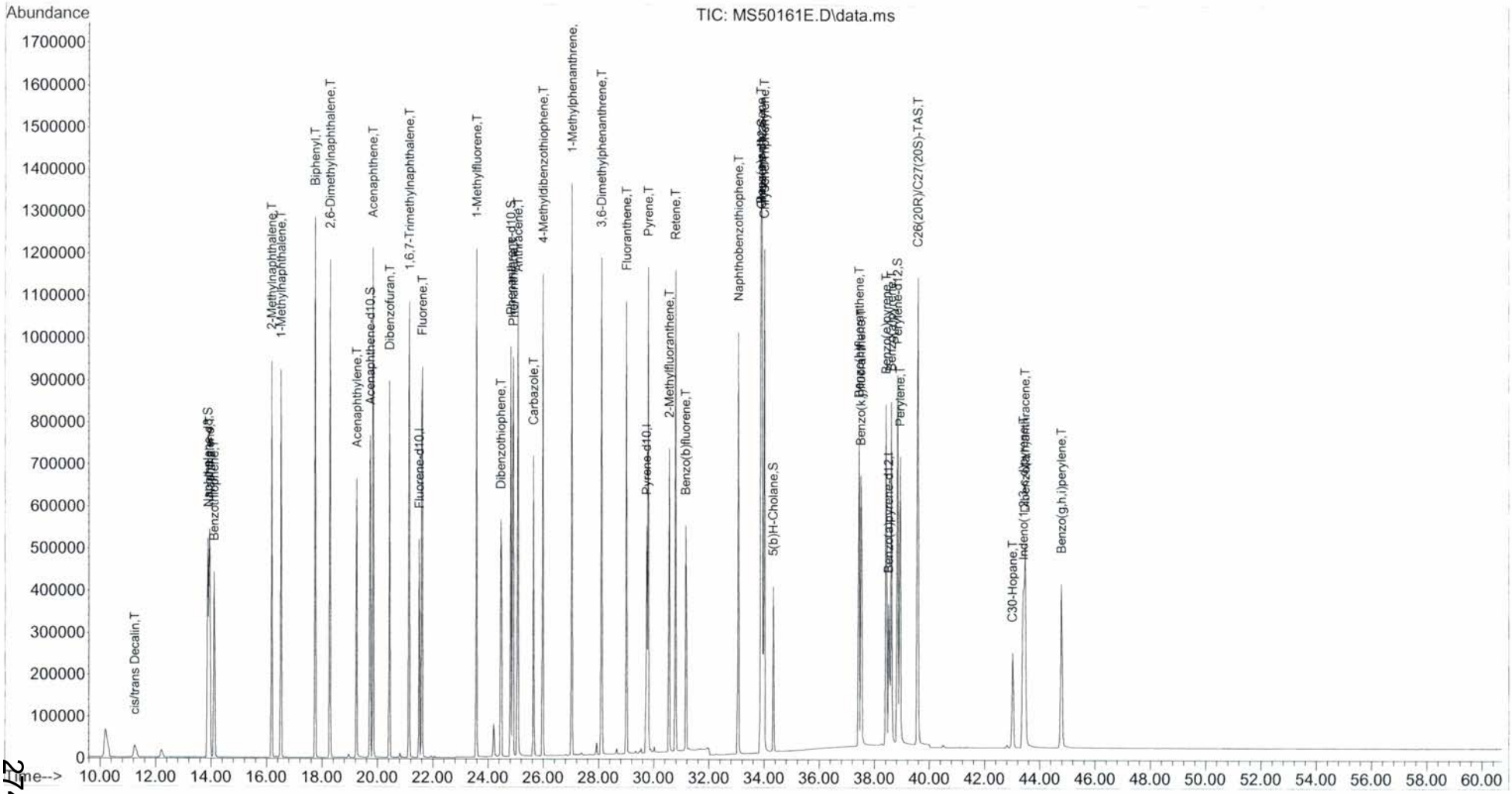
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161E.D
Acq On : 19 Aug 2013 10:49 pm
Operator : YM
Sample : AR-WKC4-500-030
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 20 08:16:50 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:10:27 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161F.D
Acq On : 19 Aug 2013 11:55 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 20 08:24:02 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:16:56 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	473773m	251.05		0.00
31) Pyrene-d10	29.738	212	905686m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	775669m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	3042378m	965.32		0.00
21) Acenaphthene-d10	19.737	164	1798638m	970.43		0.00
32) Phenanthrene-d10	24.822	188	3369065m	1005.64		0.00
66) Chrysene-d12	33.907	240	4097220m	1036.78		0.00
88) Perylene-d12	38.835	264	3784507m	976.51		0.00
90) 5(b)H-Cholane	34.329	217	1150808m	977.20		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	558786m	1044.54		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	3129715m	963.17		
9) 2-Methylnaphthalene	16.183	142	2064836m	970.74		
10) 1-Methylnaphthalene	16.518	142	1934352m	968.94		
11) 2,6-Dimethylnaphthalene	18.284	156	1881971m	978.52		
12) 1,6,7-Trimethylnaphtha...	21.146	170	1818375m	978.46		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	2515721m	949.86		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	2666816m	957.99		
23) Acenaphthylene	19.245	152	2799565m	961.15		
24) Acenaphthene	19.827	154	1866161m	982.20		
25) Dibenzofuran	20.430	168	2871261m	965.08		
26) Fluorene	21.615	166	2284974m	973.29		
27) 1-Methylfluorene	23.579	180	1583123m	1005.24		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	2846204m	1025.56		
34) Dibenzothiophene	24.455	184	3155688m	972.96		
35) 4-Methyldibenzothiophene	25.981	198	2707603m	1017.09		
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	24.907	178	3510300m	988.72		
42) Anthracene	25.077	178	3359738m	1038.47		

Data Path : C:\GCMS5\MS50161\
Data File : MS50161F.D
Acq On : 19 Aug 2013 11:55 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 20 08:24:02 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:16:56 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	2869676m	1006.82		
48) 3,6-Dimethylphenanthrene	28.100	206	2634551m	1026.33		
49) Retene	30.784	234	1214183m	908.67		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	33.064	234	4328483m	1082.34		
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.004	202	4306375m	1038.70		
59) Pyrene	29.795	202	4704932m	1045.28		
60) 2-Methylfluoranthene	30.558	216	2886834m	1014.59		
61) Benzo(b)fluorene	31.151	216	2480207m	1017.67		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	4320398m	1078.30		
68) Chrysene/Triphenylene	34.004	228	4460910m	1095.68		
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	43.010	191	1646939m	933.79		
77) Benzo(b)fluoranthene	37.441	252	4293273m	1026.32		
78) Benzo(k,j)fluoranthene	37.506	252	4120071m	1008.58		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.414	252	4291408m	957.11		
81) Benzo(a)pyrene	38.608	252	4010950m	1005.63		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	3309261m	981.62		
83) Dibenzo(a,h)anthracene	43.468	278	2778625m	1008.51		
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	44.776	276	2625975m	955.78		
89) Perylene	38.932	252	4130559m	1022.36		
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	39.581	231	5643503m	962.71		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161F.D
Acq On : 19 Aug 2013 11:55 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 20 08:24:02 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:16:56 2013
Response via : Initial Calibration

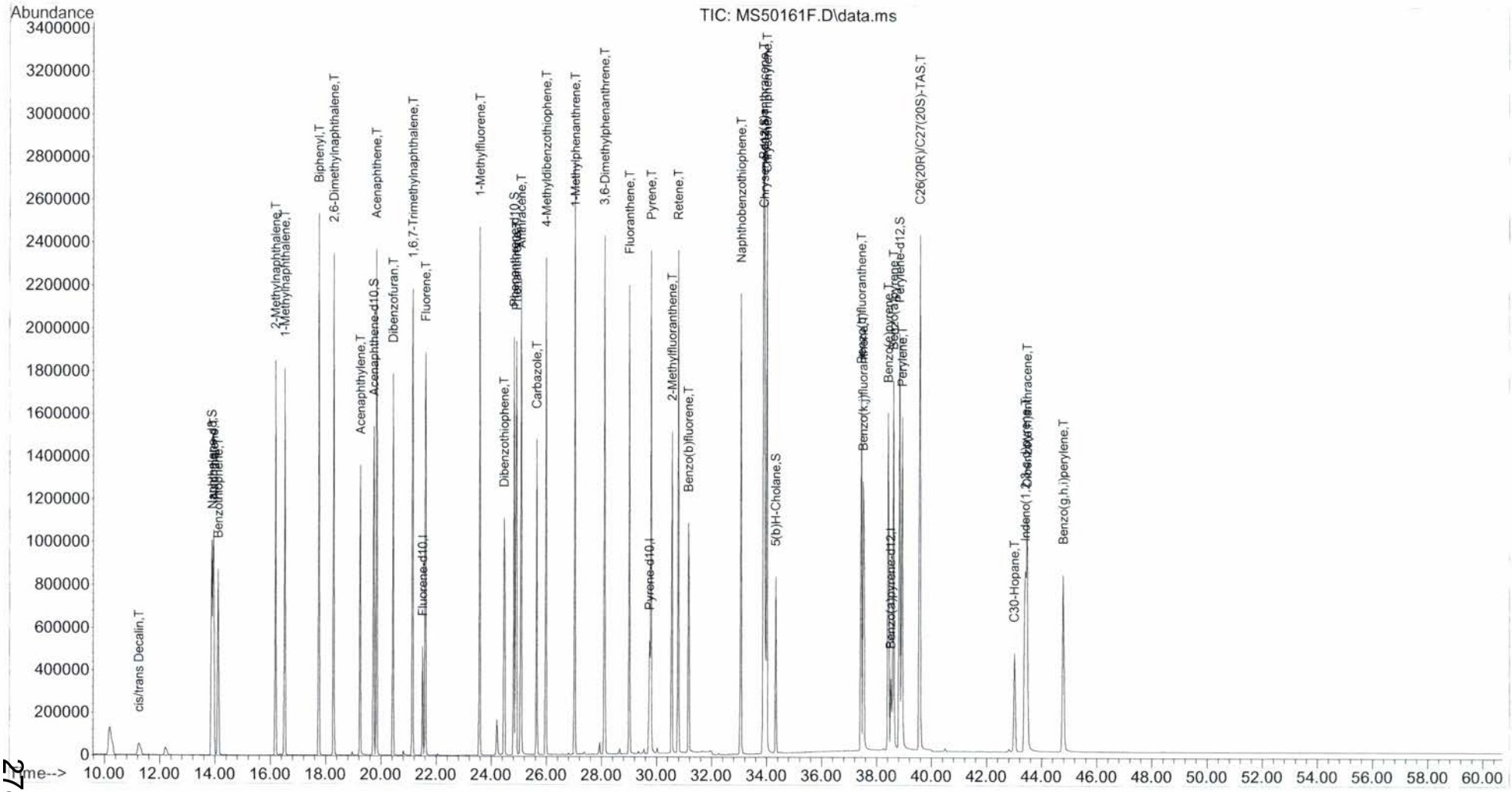
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161F.D
Acq On : 19 Aug 2013 11:55 pm
Operator : YM
Sample : AR-WKC5-1000-030
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 20 08:24:02 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:16:56 2013
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161G.D
Acq On : 20 Aug 2013 1:00 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 20 08:30:43 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:24:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	478385m	251.05		0.00
31) Pyrene-d10	29.738	212	952694m	250.63		0.00
73) Benzo(a)pyrene-d12	38.511	264	852356m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.880	136	14458598m	4542.01		0.00
21) Acenaphthene-d10	19.737	164	8985416m	4801.16		0.00
32) Phenanthrene-d10	24.822	188	16540997m	4691.24		0.00
66) Chrysene-d12	33.907	240	19407513m	4677.05		0.00
88) Perylene-d12	38.835	264	20448530m	4826.61		0.00
90) 5(b)H-Cholane	34.329	217	5920351m	4587.67		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.242	138	2644177m	4625.96		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	14854164m	4527.24		
9) 2-Methylnaphthalene	16.182	142	10055766m	4682.06		
10) 1-Methylnaphthalene	16.518	142	9354097m	4641.07		
11) 2,6-Dimethylnaphthalene	18.284	156	9391885m	4836.30		
12) 1,6,7-Trimethylnaphtha...	21.146	170	9269381m	4939.45		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	12093440m	4527.00		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	12821590m	4561.73		
23) Acenaphthylene	19.245	152	15091016m	5139.38		
24) Acenaphthene	19.827	154	9234065m	4812.76		
25) Dibenzofuran	20.430	168	14006101m	4663.34		
26) Fluorene	21.615	166	11620770m	4902.65		
27) 1-Methylfluorene	23.579	180	8092186m	5089.65		
28) C1-Fluorenes	0.000		0	N.D.	d	
29) C2-Fluorenes	0.000		0	N.D.	d	
30) C3-Fluorenes	0.000		0	N.D.	d	
33) Carbazole	25.642	167	14218141m	4869.86		
34) Dibenzothiophene	24.483	184	16315290m	4786.97		
35) 4-Methyldibenzothiophene	25.981	198	13970006m	4987.06		
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	24.907	178	18165587m	4861.54		
42) Anthracene	25.077	178	16908023m	4968.69		

Data Path : C:\GCMS5\MS50161\
Data File : MS50161G.D
Acq On : 20 Aug 2013 1:00 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 20 08:30:43 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:24:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	14478854m	4829.51		
48) 3,6-Dimethylphenanthrene	28.100	206	13382344m	4955.87		
49) Retene	30.784	234	6228784m	4446.19		
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.		
53) Naphthobenzothiophene	33.064	234	18480731m	4394.68		
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	29.004	202	19797930m	4540.26		
59) Pyrene	29.795	202	17979720m	3796.30		
60) 2-Methylfluoranthene	30.558	216	16585600m	5542.72		
61) Benzo(b)fluorene	31.179	216	14752211m	5765.01		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
63) C2-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
65) C4-Fluoranthenes/Pyrenes	0.000		0	N.D.	d	
67) Benz(a)anthracene	33.875	228	19765693m	4695.63		
68) Chrysene/Triphenylene	34.004	228	18011758m	4186.64		
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	43.010	191	8867718m	4600.41		
77) Benzo(b)fluoranthene	37.441	252	21202159m	4584.76		
78) Benzo(k,j)fluoranthene	37.538	252	23646817m	5233.41		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.446	252	23491524m	4775.75		
81) Benzo(a)pyrene	38.608	252	21475616m	4914.19		
82) Indeno(1,2,3-c,d)pyrene	43.402	276	20260136m	5494.95		
83) Dibenzo(a,h)anthracene	43.468	278	16640529m	5528.52		
84) C1-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
85) C2-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
86) C3-Dibenzo(a,h)anthrac...	0.000		0	N.D.	d	
87) Benzo(g,h,i)perylene	44.808	276	15325541m	5097.51		
89) Perylene	38.932	252	22034609m	4983.85		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	39.581	231	26280327m	4098.48		
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Data Path : C:\GCMS5\MS50161\
Data File : MS50161G.D
Acq On : 20 Aug 2013 1:00 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 20 08:30:43 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:24:08 2013
Response via : Initial Calibration

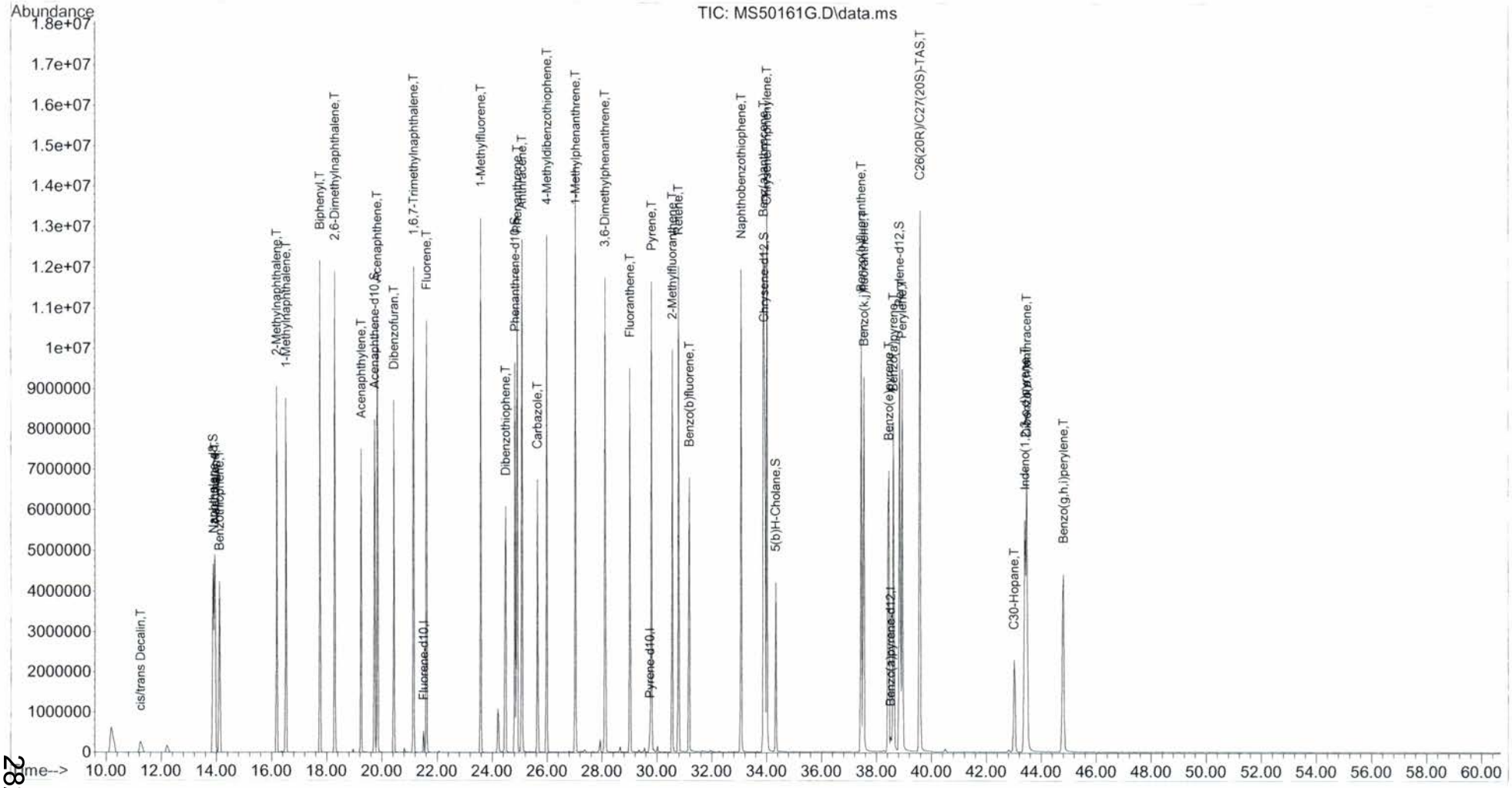
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161G.D
Acq On : 20 Aug 2013 1:00 am
Operator : YM
Sample : AR-WKC6-5000-030
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 20 08:30:43 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:24:08 2013
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161I.D
Acq On : 20 Aug 2013 3:12 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 20 08:39:41 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	102	0.00
2	S	Naphthalene-d8	1.671	1.583	5.3	103	0.00
3	T	cis/trans Decalin	0.315	0.349	-10.8	122	0.00
4	un	C1-Decalins	0.315	0.000	100.0#	0#	-12.38#
5	un	C2-Decalins	0.315	0.000	100.0#	0#	-13.48#
6	un	C3-Decalins	0.315	0.000	100.0#	0#	-15.96#
7	un	C4-Decalins	0.315	0.000	100.0#	0#	-18.73#
8	T	Naphthalene	1.722	1.979	-14.9	124	0.00
9	T	2-Methylnaphthalene	1.127	1.339	-18.8	129	0.00
10	T	1-Methylnaphthalene	1.058	1.244	-17.6	127	0.00
11	T	2,6-Dimethylnaphthalene	1.019	1.155	-13.3	125	0.00
12	T	1,6,7-Trimethylnaphthalene	0.985	1.123	-14.0	126	0.00
13	un	C2-Naphthalenes	1.722	0.000	100.0#	0#	-18.64#
14	un	C3-Naphthalenes	1.722	0.000	100.0#	0#	-20.43#
15	un	C4-Naphthalenes	1.722	0.000	100.0#	0#	-21.94#
16	T	Benzothiophene	1.402	1.596	-13.8	123	0.00
17	un	C1-Benzothiophenes	1.402	0.000	100.0#	0#	-15.58#
18	un	C2-Benzothiophenes	1.402	0.000	100.0#	0#	-18.44#
19	un	C3-Benzothiophenes	1.402	0.000	100.0#	0#	-20.36#
20	un	C4-Benzothiophenes	1.402	0.000	100.0#	0#	-21.79#
21	S	Acenaphthene-d10	0.982	0.890	9.4	100	0.00
22	T	Biphenyl	1.475	1.701	-15.3	125	0.00
23	T	Acenaphthylene	1.540	1.587	-3.1	117	0.00
24	T	Acenaphthene	1.007	1.144	-13.6	125	0.00
25	T	Dibenzofuran	1.576	1.831	-16.2	126	0.00
26	T	Fluorene	1.244	1.387	-11.5	123	-0.02
27	T	1-Methylfluorene	0.834	0.000	100.0#	0#	-23.58#
28	un	C1-Fluorenes	1.244	0.000	100.0#	0#	-23.58#
29	un	C2-Fluorenes	1.244	0.000	100.0#	0#	-25.59#
30	un	C3-Fluorenes	1.244	0.000	100.0#	0#	-27.11#
31	I	Pyrene-d10	1.000	1.000	0.0	96	0.00
32	S	Phenanthrene-d10	0.928	0.880	5.2	98	0.00
33	T	Carbazole	0.768	0.861	-12.1	124	0.00
34	T	Dibenzothiophene	0.896	1.052	-17.4	123	-0.03
35	T	4-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-25.98#
36	un	2/3-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.26#
37	un	1-Methyldibenzothiophene	0.737	0.000	100.0#	0#	-26.60#
38	un	C2-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.16#
39	un	C3-Dibenzothiophenes	0.896	0.000	100.0#	0#	-28.78#
40	un	C4-Dibenzothiophenes	0.896	0.000	100.0#	0#	-30.81#
41	T	Phenanthrene	0.983	1.135	-15.5	119	0.00
42	T	Anthracene	0.895	0.988	-10.4	116	0.00
43	un	3-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
44	un	2-Methylphenanthrene	0.788	0.000	100.0#	0#	-26.80#
45	un	2-Methylanthracene	0.788	0.000	100.0#	0#	-26.80#
46	un	4/9-Methylphenanthrene	0.788	0.000	100.0#	0#	-27.03#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161I.D
Acq On : 20 Aug 2013 3:12 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 20 08:39:41 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	0.788	0.899	-14.1	121	0.00
48	T	3,6-Dimethylphenanthrene	0.710	0.000	100.0#	0#	-28.10#
49	T	Retene	0.367	0.000	100.0#	0#	-30.78#
50	un	C2-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-28.66#
51	un	C3-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-29.51#
52	un	C4-Phenanthrenes/Anthracene	0.983	0.000	100.0#	0#	-32.16#
53	T	Naphthobenzothiophene	1.106	0.000	100.0#	0#	-33.06#
54	un	C1-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-34.36#
55	un	C2-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-36.11#
56	un	C3-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.31#
57	un	C4-Naphthobenzothiophenes	1.106	0.000	100.0#	0#	-37.96#
58	T	Fluoranthene	1.147	1.286	-12.1	119	0.00
59	T	Pyrene	1.246	1.481	-18.9	119	0.00
60	T	2-Methylfluoranthene	0.787	0.000	100.0#	0#	-30.56#
61	T	Benzo(b)fluorene	0.672	0.000	100.0#	0#	-31.18#
62	un	C1-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-31.60#
63	un	C2-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-32.42#
64	un	C3-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-34.04#
65	un	C4-Fluoranthenes/Pyrenes	1.147	0.000	100.0#	0#	-35.40#
66	S	Chrysene-d12	1.090	1.114	-2.2	110	0.00
67	T	Benz(a)anthracene	1.110	1.212	-9.2	117	0.00
68	T	Chrysene/Triphenylene	1.119	1.245	-11.3	111	0.00
69	un	C1-Chrysenes	1.119	0.000	100.0#	0#	-35.53#
70	un	C2-Chrysenes	1.119	0.000	100.0#	0#	-36.50#
71	un	C3-Chrysenes	1.119	0.000	100.0#	0#	-38.45#
72	un	C4-Chrysenes	1.119	0.000	100.0#	0#	-39.58#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	99	0.00
74	un	C29-Hopane	0.565	0.000	100.0#	0#	-40.95#
75	un	18a-Oleanane	0.565	0.000	100.0#	0#	-41.77#
76	T	C30-Hopane	0.565	0.000	100.0#	0#	-43.01#
77	T	Benzo(b)fluoranthene	1.374	1.619	-17.8	122	0.00
78	T	Benzo(k,j)fluoranthene	1.347	1.583	-17.5	126	-0.03
79	un	Benzo(a)fluoranthene	1.347	0.000	100.0#	0#	-37.44#
80	T	Benzo(e)pyrene	1.444	1.709	-18.4	125	-0.03
81	T	Benzo(a)pyrene	1.283	1.422	-10.8	117	0.00
82	T	Indeno(1,2,3-c,d)pyrene	1.079	1.132	-4.9	116	-0.03
83	T	Dibenzo(a,h)anthracene	0.876	0.966	-10.3	121	-0.03
84	un	C1-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-48.76#
85	un	C2-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.69#
86	un	C3-Dibenzo(a,h)anthracenes	0.876	0.000	100.0#	0#	-50.73#
87	T	Benzo(g,h,i)perylene	0.876	0.942	-7.5	115	-0.03
88	S	Perylene-d12	1.240	1.071	13.6	92	0.00
89	T	Perylene	1.297	1.383	-6.6	113	0.00
90	S	5(b)H-Cholane	0.379	0.356	6.1	102	0.00
91	un	C20-TAS	1.879	0.000	100.0#	0#	-33.39#
92	un	C21-TAS	1.879	0.000	100.0#	0#	-34.33#

Evaluate Continuing Calibration Report

Data Path : C:\GCMS5\MS50161\
Data File : MS50161I.D
Acq On : 20 Aug 2013 3:12 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 20 08:39:41 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 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	1.879	0.000	100.0#	0# -38.83#
94 T	C26(20R)/C27(20S)-TAS	1.879	0.000	100.0#	0# -39.58#
95 un	C28(20S)-TAS	1.879	0.000	100.0#	0# -40.85#
96 un	C27(20R)-TAS	1.879	0.000	100.0#	0# -40.85#
97 un	C28(20R)-TAS	1.879	0.000	100.0#	0# -42.03#

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

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161I.D
Acq On : 20 Aug 2013 3:12 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 20 08:39:41 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorene-d10	21.503	176	478459m	251.05		0.00
31) Pyrene-d10	29.738	212	879596m	250.63		0.00
73) Benzo(a)pyrene-d12	38.510	264	691839m	250.32		0.00
System Monitoring Compounds						
2) Naphthalene-d8	13.879	136	754811m	237.02		0.00
21) Acenaphthene-d10	19.737	164	424541m	226.77		0.00
32) Phenanthrene-d10	24.822	188	772971m	237.40		0.00
66) Chrysene-d12	33.907	240	977319m	255.48		0.00
88) Perylene-d12	38.835	264	740266m	215.99		0.00
90) 5(b)H-Cholane	34.328	217	246274m	235.38		0.00
Target Compounds						Qvalue
3) cis/trans Decalin	11.241	138	164629m	273.92		
4) C1-Decalins	0.000		0	N.D.	d	
5) C2-Decalins	0.000		0	N.D.	d	
6) C3-Decalins	0.000		0	N.D.	d	
7) C4-Decalins	0.000		0	N.D.	d	
8) Naphthalene	13.947	128	943028m	287.34		
9) 2-Methylnaphthalene	16.182	142	638514m	297.26		
10) 1-Methylnaphthalene	16.518	142	592333m	293.88		
11) 2,6-Dimethylnaphthalene	18.284	156	550169m	283.26		
12) 1,6,7-Trimethylnaphtha...	21.145	170	535165m	285.21		
13) C2-Naphthalenes	0.000		0	N.D.		
14) C3-Naphthalenes	0.000		0	N.D.	d	
15) C4-Naphthalenes	0.000		0	N.D.		
16) Benzothiophene	14.103	134	755903m	282.85		
17) C1-Benzothiophenes	0.000		0	N.D.	d	
18) C2-Benzothiophenes	0.000		0	N.D.	d	
19) C3-Benzothiophenes	0.000		0	N.D.	d	
20) C4-Benzothiophenes	0.000		0	N.D.	d	
22) Biphenyl	17.747	154	802951m	285.60		
23) Acenaphthylene	19.245	152	750190m	255.59		
24) Acenaphthene	19.826	154	546341m	284.62		
25) Dibenzofuran	20.430	168	868180m	289.04		
26) Fluorene	21.592	166	662301m	279.31		
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	25.641	167	748809m	277.83		
34) Dibenzothiophene	24.455	184	910228m	289.48		
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	24.907	178	987145m	286.07		
42) Anthracene	25.076	178	869709m	276.77		

Data Path : C:\GCMS5\MS50161\
Data File : MS50161I.D
Acq On : 20 Aug 2013 3:12 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

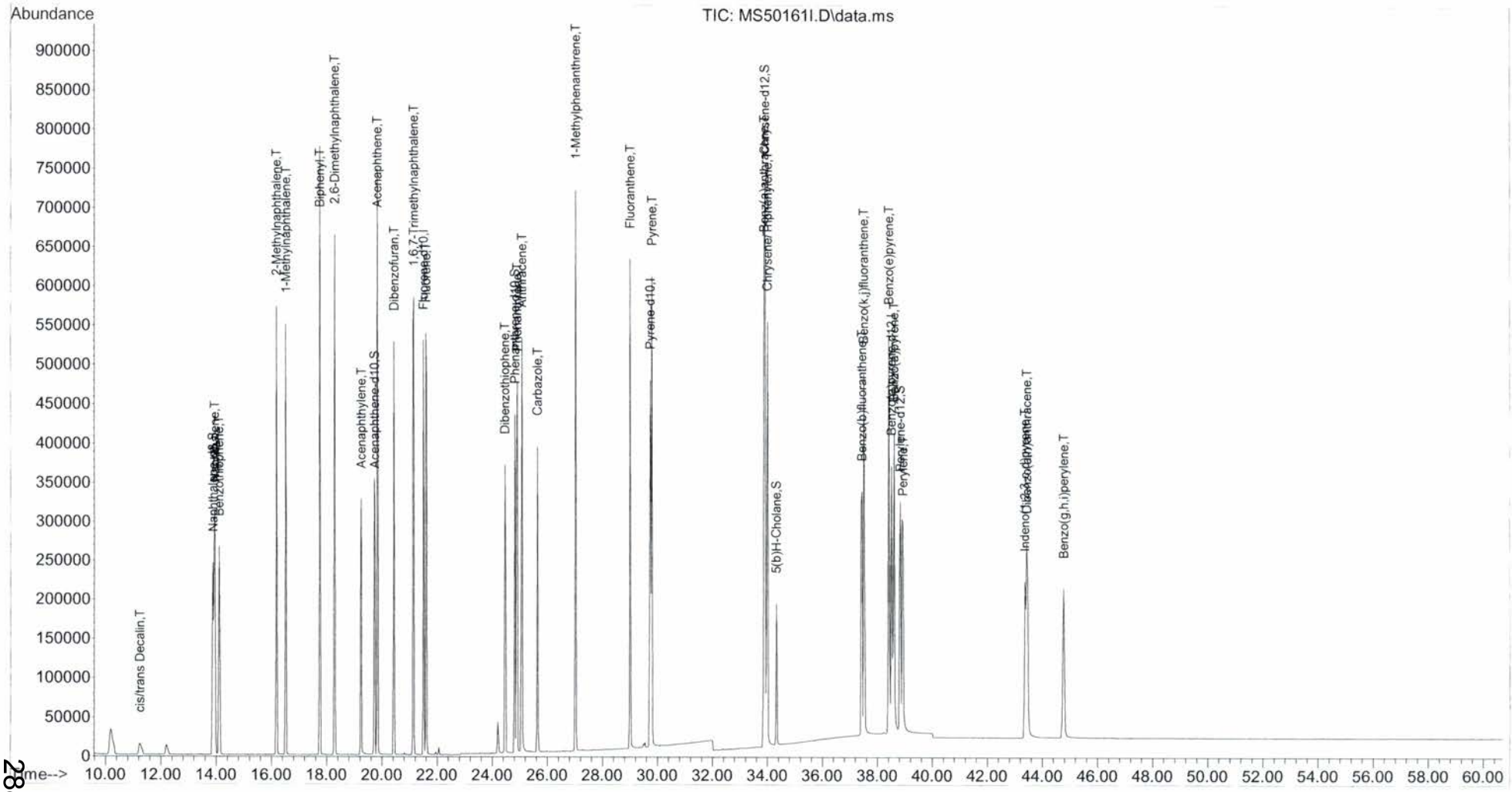
Quant Time: Aug 20 08:39:41 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d	
44) 2-Methylphenanthrene	0.000		0	N.D.	d	
45) 2-Methylanthracene	0.000		0	N.D.	d	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d	
47) 1-Methylphenanthrene	27.026	192	780261m	281.98		
48) 3,6-Dimethylphenanthrene	0.000		0	N.D.	d	
49) Retene	0.000		0	N.D.	d	
50) C2-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
51) C3-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
52) C4-Phenanthrenes/Anthr...	0.000		0	N.D.	d	
53) Naphthobenzothiophene	0.000		0	N.D.	d	
54) C1-Naphthobenzothiophenes	0.000		0	N.D.	d	
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
56) C3-Naphthobenzothiophenes	0.000		0	N.D.	d	
57) C4-Naphthobenzothiophenes	0.000		0	N.D.	d	
58) Fluoranthene	29.003	202	1129363m	280.60		
59) Pyrene	29.795	202	1299431m	297.18		
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	33.874	228	1061041m	272.31		
68) Chrysene/Triphenylene	34.004	228	1086214m	276.54		
69) C1-Chrysenes	0.000		0	N.D.	d	
70) C2-Chrysenes	0.000		0	N.D.	d	
71) C3-Chrysenes	0.000		0	N.D.	d	
72) C4-Chrysenes	0.000		0	N.D.	d	
74) C29-Hopane	0.000		0	N.D.	d	
75) 18a-Oleanane	0.000		0	N.D.	d	
76) C30-Hopane	0.000		0	N.D.	d	
77) Benzo(b)fluoranthene	37.441	252	1121103m	295.22		
78) Benzo(k,j)fluoranthene	37.505	252	1089542m	292.71		
79) Benzo(a)fluoranthene	0.000		0	N.D.	d	
80) Benzo(e)pyrene	38.413	252	1176267m	294.74		
81) Benzo(a)pyrene	38.608	252	980293m	276.56		
82) Indeno(1,2,3-c,d)pyrene	43.369	276	769041m	257.78		
83) Dibenzo(a,h)anthracene	43.435	278	661118m	273.02		
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	44.775	276	644841m	266.22		
89) Perylene	38.932	252	956717m	266.85		
91) C20-TAS	0.000		0	N.D.	d	
92) C21-TAS	0.000		0	N.D.	d	
93) C26(20S)-TAS	0.000		0	N.D.	d	
94) C26(20R)/C27(20S)-TAS	0.000		0	N.D.	d	
95) C28(20S)-TAS	0.000		0	N.D.	d	
96) C27(20R)-TAS	0.000		0	N.D.	d	
97) C28(20R)-TAS	0.000		0	N.D.	d	

Quantitation Report (QT Reviewed)

Data Path : C:\GCMS5\MS50161\
Data File : MS50161I.D
Acq On : 20 Aug 2013 3:12 am
Operator : YM
Sample : AR-WKICV-250-004
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 20 08:39:41 2013
Quant Method : C:\GCMS5\MS50161\AR50161.M
Quant Title : PAH Calibration Table-2013A
QLast Update : Tue Aug 20 08:30:52 2013
Response via : Initial Calibration



PAH Mass Discrimination Ratio

B&B Laboratories
Project J13034
Report 13-3102

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
MS50161B.D	AR-WKC1-020-030	22.3	22.7	0.99	
MS50161C.D	AR-WKC2-100-030	94.2	97.5	0.97	
MS50161D.D	AR-WKC3-250-030	226	232	0.97	
MS50161E.D	AR-WKC4-500-030	476	483	0.98	
MS50161F.D	AR-WKC5-1000-030	956	989	0.97	
MS50161G.D	AR-WKC6-5000-030	5098	4862	1.05	
MS50161I.D	AR-WKICV-250-004	266	286	0.93	
MS50161J.D	AR-WKCC-250-038	239	250	0.96	
MS50161L.D	AR-WKCC-250-038	233	235	0.99	
MS50161M.D	AR-WKCC-250-038	192	215	0.89	
MS50161N.D	AR-WKCC-250-038	182	213	0.85	

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

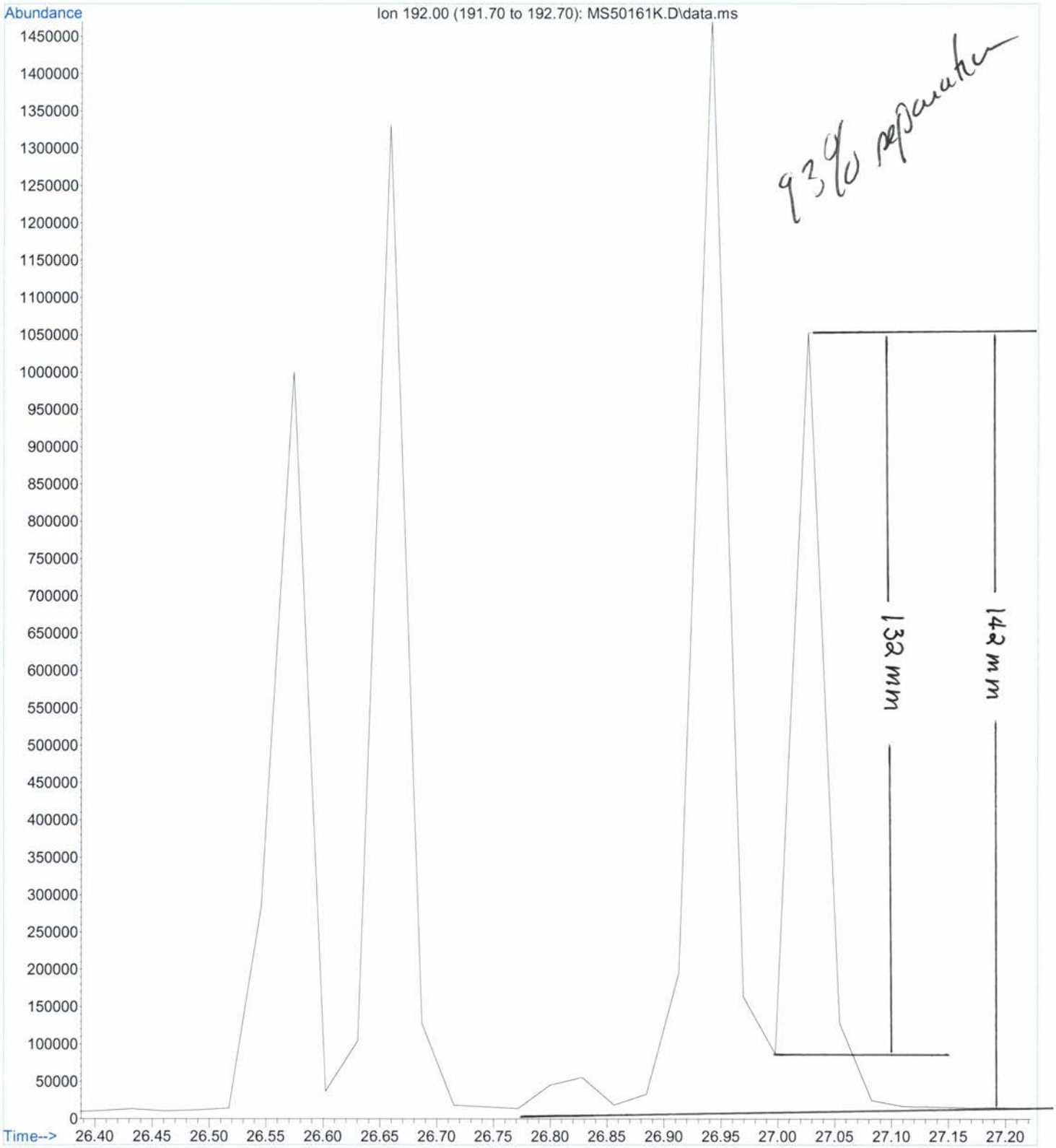
PAH Internal Standard Area Data

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

File Name	Sample Name	Internal Standard 1 Fluorene-d10			Internal Standard 2 Pyrene-d10			Internal Standard 3 Benzo(a)pyrene-d12		
		Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)
MS50161D.D	**AR-WKC3-250-030**	**468391**	**234196**	**936782**	**913429**	**456715**	**1826858**	**700364**	**350182**	**1400728**
MS50161I.D	**AR-WKICV-250-004**	**478459**			**879596**			**691839**		
MS50161J.D	**AR-WKCC-250-038**	**348253**	**174127**	**696506**	**660808**	**330404**	**1321616**	**470882**	**235441**	**941764**
ENV3083A.D	Procedural Blank	360445			702425			585001		
ENV3083B.D	SRM 1941b	447036			946652			858371		
ENV3083C.D	MS (SO-DA-011 (0-0.5) MS/MSD)	363271			823843			709927		
ENV3083D.D	MSD (SO-DA-011 (0-0.5) MS/MSD)	390047			810059			719456		
ENV3083E.D	Dupl. (SO-DA-011 (0-0.5))	402388			837906			718379		
ARC1662.D	SED-DA-010 (0.5-1.0)	384329			777721			648280		
ARC1663.D	SED-DA-010 (1.0-1.5)	395497			774593			649659		
ARC1664.D	SED-DA-011 (0.5-1.0)	357973			698486			586180		
MS50161L.D	**AR-WKCC-250-038**	**409476**	**204738**	**818952**	**750488**	**375244**	**1500976**	**537212**	**268606**	**1074424**
ARC1665.D	SED-DA-011 (1.0-1.5)	392797			762695			622748		
ARC1674.D	SO-DA-011 (0-0.5)	393646			798231			744549		
ARC1675.D	SO-DA-011 (0.5-1.0)	413474			839946			749695		
ARC1676.D	SO-DA-011 (1.0-1.5)	400863			782361			640463		
ARC1679.D	SO-DA-010 (0-0.5)	401053			832910			717011		
ARC1680.D	SO-DA-010 (0.5-1.0)	382832			779651			666610		
ARC1681.D	SO-DA-010 (1.0-1.5)	388587			773751			693433		
ARC1682.D	SO-DA-DUP-02-080213	391626			792314			620690		
MS50161M.D	**AR-WKCC-250-038**	**383355**	**191678**	**766710**	**774886**	**387443**	**1549772**	**658559**	**329280**	**1317118**
ARC1683.D	SO-DA-009 (0-0.5)	414356			815854			594323		
ARC1684.D	SO-DA-009 (0.5-1.0)	344100			725362			569214		
ARC1685.D	SO-DA-009 (1.0-1.5)	339855			705343			560584		
ARC1686.D	SO-DA-008 (0-0.5)	352727			727773			578906		
ARC1687.D	SO-DA-008 (0.5-1.0)	309611			641996			476528		
ARC1688.D	SO-DA-008 (1.0-1.5)	329235			659469			484083		
ARC1719.D	SO-DA-018 (1.0-1.5)	337481			688985			527353		
ARC1720.D	SO-DA-DUP-03-080613	351668			630438			434852		
MS50161N.D	**AR-WKCC-250-038**	**337202**	**168601**	**674404**	**685245**	**342623**	**1370490**	**449398**	**224699**	**898796**

SRM-2779 Reference Oil
PAH
Resolution Check

```
File       :C:\GCMS5\MS50161\MS50161K.D
Operator   : YM
Acquired   : 20 Aug 2013   5:23 am using AcqMethod PAH-2012.M
Instrument :   GCMS5
Sample Name: AR-SRM2779-WK-4.0-002
Misc Info  :
Vial Number: 11
```



Supporting Documents

Shipping, Sample Receiving, and Project Initiation Documents

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 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: /POS!400
DIMS: 24x13x13 IN
BILL SENDER

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

RT 819 2

FedEx Express

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

TUE - 06 AUG 10:30A
PRIORITY OVERNIGHT

0200

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

DATE: 8-5-13

SIGNATURE:

3425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 6876

0200

Recipient's Copy

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 979 693-3446

Company B+B Labs

Address 14391B South Dowling Rd

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

Dept/Floor/Suite/Room

Address

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

City College Station State TX ZIP 77845

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

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

4 Express Package Service * To most locations

NOTE: Service order has changed. Please select carefully

Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

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

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 ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☒ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

Does this shipment contain dangerous goods?

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

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

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

☒ 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.

644

fedex.com 1.800.GoFedEx 1.800.463.3339

8022 2781 6876

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: 3coolers 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

10. Checked in by: amanda Bumpstead Date: 8/06/13

email 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

IGIN ID:MPJA (979) 693-3446
& B LABORATORIES
391 S DOWLING RD STE B
OLLEGE STATION, TX 778453473
NITED STATES US

SHIP DATE: 05AUG13
ACTWGT: 68.0 LB MAN
CAD: /POS1400
DIMS: 24x13x13 IN
BILL SENDER

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

819 2 A 0366 08.06
RT
FZ

FedEx Express
J131113021201 26

2 of 3
MPS# 0681 7958 0588 0366
Mstr# 8022 2781 6876
0200

TUE - 06 AUG 10:30A
PRIORITY OVERNIGHT

XH CLLA

77845
TX-US IAH

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			Cooler #		Other Instructions / Comments
												Sdg 13080601 Cooler 2of3 (1)
SO-DA-011(0-0.5)	8-2-13	810	Soil	None	4 oz jar	1	X			3		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 Flometta	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 G=Gas
S=Soil/Sediment Ws=Waste
R=Rinseate HW=Hazardous Waste
P=Product W=Water

Sample Container: Vol/material

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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc

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

TDI Brooks

Client: ARCADIS

Project ID: 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	TEH mod. 8015			Cooler #		Other Instructions / Comments
SO-DA-009(1.0-1.5)	8-2-13	1010	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-008(0-0.5)	8-2-13	1030	Soil	None	4 oz jar	1	X				3		44 PAH List
SO-DA-008(0.5-1.0)	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							

Analyses

Other Instructions: SDG 13080601 Cooler 2 of 3 (2)

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

Sample Container Vol/material

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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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

TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Analyses

Other Instructions: Sdg 13080601 Cooler 2 of 3 (3)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs mod. 8270SIM	TPH mod. 8015			Cooler #		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

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flemmetelt	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

B&B Laboratories, Inc.

CHAIN OF CUSTODY RECORD

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

TDI Brooks

Client: ARCADIS

Project ID: B0086003.1301 Mayflower Pipeline Incident

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mays

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Analyses: TEH modified SCG	Cooler #	Other Instructions	Comments
SED-DA-006 (1.0-1.5)	8/3/13	1040	Sed	None	4oz jar	1	X		2	sdg 13080601 Cooler 2 of 3 (4)	44 PAH List
SED-DA-005 (0-0.5)	↓	1130	↓	↓	8oz	↓	↓	X	1		Full List
SED-DA-005 (0.5-1.0)		1135			4oz				2		44 PAH List
SED-DA-005 (1.0-1.5)		1140			4oz				2		44 PAH List
SED-DA-010 (0-0.5)		1410			8oz			X	1		Full List
SED-DA-010 (0.5-1.0)		1415			4oz				2		44 PAH List
SED-DA-010 (1.0-1.5)		1420			4oz				2		44 PAH List
SED-DA-011 (0-0.5)		1500			8oz			X	3		Full List
SED-DA-011 (0.5-1.0)		1505			4oz				2		44 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 Flamerfelt	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: B00860003.1301 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 + 8270 S.L.	TEH by n-J 8015			Cooler #		Other Instructions / Comments
							Analyses						sdg 13080601 Cooler 2 of 3 (5)
SED-DA-ER-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		44 PAHs List
SED-DA-012 (1.0-1.5)		940			4 oz	1	X				1		44 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		44 PAH List
SED-DA-013 (1.0-1.5)		1025			4 oz	1	X				1		44 PAH List
SED-DA-DG-004(0-0.5)	↓	950	↓	↓	8 oz	1					1		Full List
					Total # of Containers	11							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name Jonathan Flowers, III	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: PAHs + 8270 Sim	Analyses: TEH by mod 8015	Analyses	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 4/4 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		4/4 PAH List
SED-DA-015(1.0-1.5)		1140			4oz		X				1		4/4 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		4/4 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 Flemer-Feit	ARCADIS	8/5/13	1615	Printed Name: Amanda Brewster	B&B Labs	8/6/13	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: Volmatorial

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 + 8270 SIM	Analyses: TEH by mod 8015	Analyses	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 Flowerdew	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 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

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: _____ Date: 8/6/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	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 1944	☐ 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

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	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: 130806O1
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 SV1/2	☐ Blank Spike
☐	Blank Spike Duplicate	☑	Matrix Spike ____
☑	Matrix Spike Duplicate ____	☑	Duplicate ____

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

Comments:

Use ARC1635 as MSD/LS
ARC1667

Sample Custodian Signature: amanda Brewster Date: 8/06/13
Laboratory Manager Signature: ____ Date: 8/06/13

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 #
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	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
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.

B&B LABORATORIES RECEIVING/INTEGRITY REPORT

Job: J13034 Date Received: 8/07/13 SDG#: 13080701

Sender: Arcadis- Mayflower AR

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

Comments: large blue cooler

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

Airbill Number: 8022 2781 5891 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 None

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

Temperature/Comments: 0.6°C / temp blank 0.3°C (T4

6. List of Broken Containers:

None

7. Number of Samples Expected: 1 cooler Number of Samples Received: 21 sed/soil
2 water

8. Problems/Discrepancies:

None

9. Resolutions:

N/A

10. Checked in by: Amanda Brewster Date: 8/07/13

large blue cooler

Ice type: wet Ice
Cooler temp: 0.6
Temp blank: yes 0.3
Thermometer: 4
Custody seal:

Sdg 13080701
Cooler 1 of 1

eurofins | Lancaster Laboratories

486707
CUSTODY SEAL
2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE: 9-6-13
SIGNATURE: Daniel Mays

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8022 2781 5891

Form ID No. 0200

1 From [redacted]

Date 9-5-2013

Sender's Name Daniel Mays Phone

Company ARCADIS

Address Dept./Floor/Suite/Room

City State ZIP

2 Your Internal Billing Reference

3 To

Recipient's Name Phone

Company B+B Labs

Address Dept./Floor/Suite/Room

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

Address

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

City State ZIP

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

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

8022 2781 5891

4 Express Package Service *To most locations. Packages up to 150 lbs.

NOTE: Service order has changed. Please select carefully.

Next Business Day

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

2 or 3 Business Days

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

5 Packaging *Declared value limit $500.

FedEx Envelope* | FedEx Pak* | FedEx Box | FedEx Tube | Other

6 Special Handling and Delivery Signature Options

SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

No Signature Required — Package may be left without obtaining a signature for delivery.

Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

No | Yes As per attached Shipper's Declaration | Yes Shipper's Declaration not required. | Dry Ice Dry Ice, 9, UN 1845 ___ x ___ kg

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

Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

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

[redacted]

Total Packages | Total Weight | Credit Card Auth.

lbs.

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

544

Ps lot 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: Mayflower Pipeline Incident B0086003.1301

B&B Contact: Juan Ramirez

Sampler Signature:

Analyses

Other Instructions

Sdg 1308 0701
Cooler 1 of 1 (1)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs by 8270 sim	TEH by mod 8015					Comments
SED-DA-039 (0-0.5)	8/6/13	840		none	8oz	1	x	x					Full List
SED-DA-039 (0-0.5)ms		800			8oz	1		x					Full List
SED-DA-039 (0-0.5)msd		800			8oz	1		x					Full List
SED-DA-039 (0.5-1.0)		805			4oz	1							44 PAHs List
SED-DA-039 (1.0-1.5)		810			4oz	1							44 PAHs List
SED-DA-040 (0-0.5)		900			8oz	1		x					Full List
SED-DA-040 (0.5-1.0)		905			4oz	1							44 PAH List
SED-DA-040 (1.0-1.5)		910			4oz	1							44 PAH List
SED-DA-Dup-05-080613					8oz	1		x					Full List
SED-DA-EB-06-080613		840	Water		LAG	2		x					Full List
					Total # of Containers	11							

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerfelt	ARCADIS	8/6/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/7/13	11:00
Signature:				Signature:			
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

Pg 2 of 3

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B0056083.1301

B&B Contact: Juan Ramirez

Sampler Signature: Daniel Mayo

Analyses

Other Instructions

Slg 130807 01
cooler 1 of 1 (2)

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	PAHs + 8270 SIM	Comments
SO-DA-016 (0-0.5)	8/6/13	1045	Soil	None	4 oz	1	X	44 PAH List
SO-DA-016 (0.5-1.0)		1050			4 oz			
SO-DA-016 (1.0-1.5)		1055			4 oz			
SO-DA-017 (0-0.5)		1120			4 oz			
SO-DA-017 (0-0.5) MS		1120			4 oz			
SO-DA-017 (0.5-1.0)		1125			4 oz			
SO-DA-017 (1.0-1.5)		1130			4 oz			
SO-DA-018 (0-0.5)		1330			4 oz			
SO-DA-018 (0.5-1.0)		1335			4 oz			
SO-DA-018 (1.0-1.5)		1340			4 oz			
					Total # of Containers	10		

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flowerfelt	ARCADIS	8/6/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/7/13	11:00
Signature:				Signature:			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

CHAIN OF CUSTODY RECORD

B&B Laboratories, Inc.

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

TDI Brooks

Client: ARCADIS

Project ID: Mayflower Pipeline Incident B008600 3.1301

B&B Contact: Juan Rumicez

Sampler Signature: Daniel Mays

PS 3 of 3

Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	Containers No.	Analyses: PAHs + 8270 SIM	Other Instructions	Comments
								sdg 13080701 Cooler 1 of 1 (3)	
SO-DA-Dup-03-080613	8/6/13		S.1	none	4 oz	1	X		44 PAH List
SO-DA-017 (0-0.5)MSD	↓	1120	↓	↓	↓	1	X		44 PA List

Total # of Containers: 2

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Printed Name: Jonathan Flanerfelt	ARCADIS	8/6/13	1630	Printed Name: Amanda Brewster	B&B Labs	8/07/13	11:00
Signature:	↓	↓	↓	Signature: Amanda Brewster			
Printed Name:				Printed Name:			
Signature:				Signature:			

Matrix:

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

Sample Container: Vol/material

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

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
64384	J13034	Arcadis - Mayflower AR	ARC1699	SED-DA-EB-06-080613	08/06/13	08/07/13	PAH, TPH, ALI	WATER	1 of 2	13080701	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64385	J13034	Arcadis - Mayflower AR	ARC1700	SED-DA-EB-06-080613	08/06/13	08/07/13	HOLD	WATER	2 of 2	13080701	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
64386	J13034	Arcadis - Mayflower AR	ARC1701	SED-DA-039 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64387	J13034	Arcadis - Mayflower AR	ARC1702	SED-DA-039 (0-0.5) MS	08/06/13	08/07/13	PAH, TPH, ALI	SED	MS	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64388	J13034	Arcadis - Mayflower AR	ARC1703	SED-DA-039 (0-0.5) MSD	08/06/13	08/07/13	PAH, TPH, ALI	SED	MSD	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64389	J13034	Arcadis - Mayflower AR	ARC1704	SED-DA-039 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64390	J13034	Arcadis - Mayflower AR	ARC1705	SED-DA-039 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64391	J13034	Arcadis - Mayflower AR	ARC1706	SED-DA-040 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64392	J13034	Arcadis - Mayflower AR	ARC1707	SED-DA-040 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64393	J13034	Arcadis - Mayflower AR	ARC1708	SED-DA-040 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64394	J13034	Arcadis - Mayflower AR	ARC1709	SED-DA-DUP-05-080613	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar	B0086003.1302
64395	J13034	Arcadis - Mayflower AR	ARC1710	SO-DA-016 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64396	J13034	Arcadis - Mayflower AR	ARC1711	SO-DA-016 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64397	J13034	Arcadis - Mayflower AR	ARC1712	SO-DA-016 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64398	J13034	Arcadis - Mayflower AR	ARC1713	SO-DA-017 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64399	J13034	Arcadis - Mayflower AR	ARC1714	SO-DA-017 (0-0.5) MS	08/06/13	08/07/13	PAH	SOIL	44 analytes, MS	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64400	J13034	Arcadis - Mayflower AR	ARC1715	SO-DA-017 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64401	J13034	Arcadis - Mayflower AR	ARC1716	SO-DA-017 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64402	J13034	Arcadis - Mayflower AR	ARC1717	SO-DA-018 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64403	J13034	Arcadis - Mayflower AR	ARC1718	SO-DA-018 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64404	J13034	Arcadis - Mayflower AR	ARC1719	SO-DA-018 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64405	J13034	Arcadis - Mayflower AR	ARC1720	SO-DA-DUP-03-080613	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64406	J13034	Arcadis - Mayflower AR	ARC1721	SO-DA-017 (0-0.5) MSD	08/06/13	08/07/13	PAH	SOIL	44 analytes, MSD	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080701
Client: Arcadis-Mayflower AR
Initiation Date: 8/07/13

Number of Samples: 1
Matrix: water
Due Date: 45 days: 9/20/13
Comments: collected 8/06/13
extract by 8/12/13
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____	☑ Blank Spike
☑	Blank Spike Duplicate	☐	Matrix Spike ____
☐	Matrix Spike Duplicate ____	☐	Duplicate____

SEE BACK FOR SPECIFIC STANDARDS TO USE

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

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

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

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

Comments:

Sample Custodian Signature: amanda Brewster Date: 8/07/13

Laboratory Manager Signature: Date: 8/7/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64384	J13034	Arcadis - Mayflower AR	ARC1699	SED-DA-EB-06-080613	08/06/13	08/07/13	PAH, TPH, ALI	WATER	1 of 2	13080701	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle		B0086003.1302

B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080701
Client: Arcadis-MayflowerAR
Initiation Date: 8/07/13

Number of Samples: 5
Matrix: sediments
Due Date: 45 days: 9/20/13
Comments: PAH, TPH, ALI
received 8/07/13

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 NIST	☐ 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: USE AS
ARC A02 - MS
ARC1203 - MSD

Sample Custodian Signature: amanda Brewster — Date: 8/07/13
Laboratory Manager Signature: _____ — Date: 8/7/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64386	J13034	Arcadis - Mayflower AR	ARC1701	SED-DA-039 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64387	J13034	Arcadis - Mayflower AR	ARC1702	SED-DA-039 (0-0.5) MS	08/06/13	08/07/13	PAH, TPH, ALI	SED	MS	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64388	J13034	Arcadis - Mayflower AR	ARC1703	SED-DA-039 (0-0.5) MSD	08/06/13	08/07/13	PAH, TPH, ALI	SED	MSD	13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64391	J13034	Arcadis - Mayflower AR	ARC1706	SED-DA-040 (0-0.5)	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302
64394	J13034	Arcadis - Mayflower AR	ARC1709	SED-DA-DUP-05-080613	08/06/13	08/07/13	PAH, TPH, ALI	SED		13080701	Cooler 1	Arcadis: Daniel Mays	8oz clear glass jar		B0086003.1302

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B&B LABORATORIES SAMPLE INITIATION FORM-ENV

Job #: J13034
SDG: 13080701
Client: Arcadis - Mayflower AR
Initiation Date: 8/07/13

Number of Samples: 16
Matrix: Soil/sediment
Due Date: 45 days: 9/20/13
Comments: PAH: 44 analytes
received 8/07/13

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 NIST	☐ 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:

100ml ARC714 as MS
ARC171 as MSD

Sample Custodian Signature: Amanda Brewster — Date: 8/07/13
Laboratory Manager Signature: _____ — Date: 8/7/13

Log #	Job #	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a	Project #
64389	J13034	Arcadis - Mayflower AR	ARC1704	SED-DA-039 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64390	J13034	Arcadis - Mayflower AR	ARC1705	SED-DA-039 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64392	J13034	Arcadis - Mayflower AR	ARC1707	SED-DA-040 (0.5-1.0)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64393	J13034	Arcadis - Mayflower AR	ARC1708	SED-DA-040 (1.0-1.5)	08/06/13	08/07/13	PAH	SED	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64395	J13034	Arcadis - Mayflower AR	ARC1710	SO-DA-016 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64396	J13034	Arcadis - Mayflower AR	ARC1711	SO-DA-016 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64397	J13034	Arcadis - Mayflower AR	ARC1712	SO-DA-016 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64398	J13034	Arcadis - Mayflower AR	ARC1713	SO-DA-017 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64399	J13034	Arcadis - Mayflower AR	ARC1714	SO-DA-017 (0-0.5) MS	08/06/13	08/07/13	PAH	SOIL	44 analytes, MS	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64400	J13034	Arcadis - Mayflower AR	ARC1715	SO-DA-017 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64401	J13034	Arcadis - Mayflower AR	ARC1716	SO-DA-017 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64402	J13034	Arcadis - Mayflower AR	ARC1717	SO-DA-018 (0-0.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64403	J13034	Arcadis - Mayflower AR	ARC1718	SO-DA-018 (0.5-1.0)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64404	J13034	Arcadis - Mayflower AR	ARC1719	SO-DA-018 (1.0-1.5)	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64405	J13034	Arcadis - Mayflower AR	ARC1720	SO-DA-DUP-03-080613	08/06/13	08/07/13	PAH	SOIL	44 analytes	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302
64406	J13034	Arcadis - Mayflower AR	ARC1721	SO-DA-017 (0-0.5) MSD	08/06/13	08/07/13	PAH	SOIL	44 analytes, MSD	13080701	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar		B0086003.1302

16

330

amanda brewster

From: amanda brewster <amandabrewster@tdi-bi.com>
Sent: Wednesday, August 07, 2013 11:28 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 8/07/13
Attachments: COC 8-07-13.pdf

Hi Daniel,

We received your samples today in good condition.
The internal temperature of the cooler was 0.6ºC and the temperature blank was 0.3ºC.
A PDF of the COC is attached for your records.

Regards,
Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com]
Sent: Tuesday, August 06, 2013 6:16 PM
To: amanda brewster
Subject: B+B Laboratories Cooler Shipment

Good Evening Amanda,

We shipped 1 cooler to B+B tracking # 8022 2781 5891.

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.

Laboratory Bench Sheet Logs

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

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

Job #: J13034 SDG #: 13080601

Client: Arcadis - Mayflower AR

Analysis: ☒ PAH ☐ PESTS ☐ PCB ☐ ALI

Other: 44 analytes

Extraction Solvent: DCM

Final Solvent: DCM Final Volume: 1.0 mL

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

Surrogate: 100 µL
PAH: AR-WKSU-2500-002
Pest/PCB: —
Aliphatic: AL-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-WK15-2500-002
Pest/PCB: —
Aliphatic: AL-WK15-500-001
Other: —

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

General Comments:

Report 13-3102 ASE 2

PAH short list only for analysis - add PAH & ALI standards - CK

	Added	Witness
Surrogate:	8/15/13 CK	8/15/13 HA
Spike:	8/15/13 CK	8/15/13 HA
Internal:	8/19/13 CK	8/19/13 CG

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments	Internal Chain of Custody
1	ENV3083A	Procedural Blank	—	—	—		Extraction Prep: Date 8/15/13 Initials HA; Date 8/15/13 Initials CK
2	ENV3083B	SRM 1941b	4.14	97.61	4.04		
3	ENV3083C	Matrix Spike (ARC1677)	18.88	79.75	15.06		
4	ENV3083D	Matrix Spike Dup (ARC1677)	18.90	79.75	15.07		Extraction: Date 8/15/13 Initials HA; Date 8-16-13 Initials CK
5	ENV3083E	Duplicate (ARC 1674)	17.74	84.96	15.07		
6	ARC1662	SED-DA-010 (0.5-1.0)	19.11	78.75	15.05		
7	ARC1663	SED-DA-010 (1.0-1.5)	19.41	77.94	15.13		Concentration: Date 8-16-13 Initials CK; Date 8-16-13 Initials CK
8	ARC1664	SED-DA-011 (0.5-1.0)	18.39	81.82	15.05		
9	ARC1665	SED-DA-011 (1.0-1.5)	17.82	84.55	15.07		
10	ARC1674	SD-DA-011 (0-0.5)	17.75	84.96	15.08	original for MS/MSD	Short Columns: Date 8-16-13 Initials CK; Date 8-16-13 Initials CK
11	ARC1675	SD-DA-011 (0.5-1.0)	18.63	80.67	15.03		
12	ARC1676	SD-DA-011 (1.0-1.5)	17.64	85.71	15.12		

ENV 3083

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

	Sample Name	Client ID	Wet Wt. (g or L)	Dry Wt. %	Dry Wt. (g)	Extraction Comments
13	ARC1679	SD-DA-010 (0-0.5)	18.33	82.18	15.06	
14	ARC1680	SO-DA-010 (0.5-1.0)	17.81	84.85	15.11	
15	ARC1681	SO-DA-010 (1.0-1.5)	19.63	77.07	15.13	
16	ARC1682	SO-DA-DUP-02-080213	18.34	82.50	15.13	
17	ARC1683	SO-DA-009 (0-0.5)	18.34	82.24	15.08	
18	ARC1684	SO-DA-009 (0.5-1.0)	20.30	74.29	15.08	
19	ARC1685	SO-DA-009 (1.0-1.5)	17.29	87.18	15.07	
20	ARC1686	SO-DA-008 (0-0.5)	17.53	86.13	15.10	
21	ARC1687	SO-DA-008 (0.5-1.0)	17.14	87.85	15.06	
22	ARC1688	SO-DA-008 (1.0-1.5)	17.08	88.39	15.10	
23	ARC1719	SO-DA-018 (1.0-1.5)	18.40	81.97	15.08	
24	ARC1720	SO-DA-DUP-03-080613	19.31	78.57	15.17	

Internal Chain of Custody

Concentration Short Columns		
Date: 8-19-13	Date: 8-19-13	
Initials:	Initials:	
Columns SA1		
Date:	Date:	
Initials:	Initials:	
Concentration SA1		
Date:	Date:	
Initials:	Initials:	
Columns SA2		
Date:	Date:	
Initials:	Initials:	
Concentration SA2		
Date:	Date:	
Initials:	Initials:	
Transfer for HPLC		
Date:	Date:	
Initials:	Initials:	
HPLC		
Date:	Date:	
Initials:	Initials:	
Post-HPLC Concentration		
Date:	Date:	
Initials:	Initials:	
Final Extract Transfer		
Date: 8/19/13	Initials: CK	

Dry Weight Page

DRY1357, 1358, 1359

Lipid/EOM Page

EOM 1024

Clean-up/Separation/Other Columns

—

Lot Numbers

DCM: 52314
Hexane: —
Hydromatrix: —
Water: DI045-B
Silica: BCBJ9493V
Alumina: TG14BZEMS
Sodium Sulfate: 2092C525
Pentane: —
Copper: 11550-AV
Hydrochloric Acid: —
SPE Columns: —
Other: —

Sample Storage Box #

J13034-2

HPLC Storage Box #

—

QC Review

Date	Initials
8/20/13	

Copied to Folders

8/20/13 CK

B&B LABORATORIES EOM LOGBOOK

MATRIX: OTHER / (SEDIMENT) / WATER

Job #: J13034 SDG #: 13080601

Client: Arcadis - Mayflower AR

General comments:

Lab Manager Date/Int: 8/19/13 ??

Transferred by Date/Int: 8/16/13 CK
From ENV Pg: ENV3083
From DRY Pg: DRY1357, 1358, 1359

Date/Int: 8/16/13 HA

Bal. Cal. ✓ Date/Int: 8/16/13 CK

	Sample Name	Client ID	Smpl Wt./Vol (mL) 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	ENV3083A	Procedural Blank	—	—	3	30.268	30.270	0.002	—	—	
2	ENV3083B	SRM 1941b	4.04	97.61	3	30.066	30.194	0.128	928	950	
3	ENV3083C	Matrix Spike (ARC1677)	15.06	79.75	3	29.982	30.137	0.155	246	309	
4	ENV3083D	Matrix Spike Dup (ARC1677)	15.07	79.75	3	29.862	30.007	0.145	230	289	
5	ENV3083E	Duplicate (ARC1674)	15.07	84.96	3	29.754	29.824	0.070	118	139	
6	ARC1662	SED-DA-010 (0.5-1.0)	15.05	78.75	3	30.052	30.058	0.006	9	12	
7	ARC1663	SED-DA-010 (1.0-1.5)	15.13	77.94	3	30.388	30.393	0.005	8	10	
8	ARC1664	SED-DA-011 (0.5-1.0)	15.05	81.82	3	29.843	29.849	0.006	10	12	
9	ARC1665	SED-DA-011 (1.0-1.5)	15.07	84.55	3	30.616	30.620	0.004	7	8	
10	ARC1674	~~SED~~ SO-DA-011 (0-0.5) CK	15.08	84.96	3	30.152	30.236	0.084	142	167	
11	ARC1675	SO-DA-011 (0.5-1.0)	15.03	80.67	3	30.302	30.352	0.050	81	100	
12	ARC1676	SO-DA-011 (1.0-1.5)	15.12	85.71	3	29.590	29.601	0.011	19	22	

EOM 1024

B&B LABORATORIES EOM LOGBOOK

	Sample Name	Client ID	Smpl Wt./Vol (g/L) Wet Wt. Dry Wt.	Dry Wt. (%)	Final Extract Vol (mL)	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl EOM Wt. (mg)	EOM µg/g (Wet Wt. Basis)	EOM µg/g (Dry Wt. Basis)	Comments
13	ARC1679	SO-DA-010 (0-0.5)	15.06	82.18	3	30.289	30.726	0.437	715	871	
14	ARC1680	SO-DA-010 (0.5-1.0)	15.11	84.85	3	30.438	30.502	0.064	108	127	
15	ARC1681	SO-DA-010 (1.0-1.5)	15.13	77.07	3	30.651 ~~30.655~~ HA 8/16	30.680	0.029	44	58	
16	ARC1682	SO-DA-DUP-02-080213	15.13	82.50	3	29.852	30.600	0.748	1224	1483	
17	ARC1683	SO-DA-009 (0-0.5)	15.08	82.24	3	22.872	23.485	0.613	1003	1219	
18	ARC1684	SO-DA-009 (0.5-1.0)	15.08	74.29	3	30.023	30.107	0.084	124	167	
19	ARC1685	SO-DA-009 (1.0-1.5)	15.07	87.18	3	30.351	30.388	0.037	64	74	
20	ARC1686	SO-DA-008 (0-0.5)	15.10	86.13	3	22.828	23.222	0.394	674	783	
21	ARC1687	SO-DA-008 (0.5-1.0)	15.06	87.85	3	29.567	29.591	0.024	42	48	
22	ARC1688	SO-DA-008 (1.0-1.5)	15.10	88.39	3	22.853	22.868	0.015	26	30	
23	ARC1689 OK 8/16 1719	SO-DA-018 (1.0-1.5)	15.08	81.97	3	30.398	30.447	0.049	80	97	
24	ARC1720	SO-DA-DUP-03-080613	15.17	78.57	3	30.261	31.801	1.540	2393	3045	

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

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

	Initial Filter Wt (mg)	Filter & Sample Wt (mg)	Wt. of 100 µl Lipid Wt. (mg)
Solvent Blank	30.467	30.467	0.000
EOM Standard	29.960	40.151	10.191

EOM-WKLC-10-004

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

Date/Int:	RPD
8/16/13 CK	18.116%
Sample: ARC1674	
Duplicate: ~~AR~~ OK ENV3083E	

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)	1.31	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	2.30	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	2.56	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 2.74~~	2.44	2.45	77.70	2.78,
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	

DRY 1357

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	ARC1661	SED-DA-005 (1.0-1.5)	1.28	2.73	2.49	2.48	82.76	
18	ARC1662	SED-DA-010 (0.5-1.0)	1.31	2.91	2.57	2.57	78.75	
19	ARC1663	SED-DA-010 (1.0-1.5)	1.31	2.67	2.39	2.37	77.94	
20	ARC1664	SED-DA-011 (0.5-1.0)	1.30	2.51	2.31	2.29	81.82	
21	ARC1664 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 # ARC1664	
Duplicate # ARC1664 Dup	

DRY 1357

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE
  Type: _____

Job #: J13034 SDG #: 13080601

Client: Arcadis - Mayflower AR

General comments:

Lab Mananger		Date/Init: ☑ Bal. Cal.	Beaker + Dry Smpl (g)		Date/Init:
Date: 8/14/13	Init:	8/8/13	Date/Init: 8/9/13 CK ☑ Bal. Cal.	Date/Init: 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	ARC1665	SED-DA-011 (1.0-1.5)	1.29	2.52	2.32	2.33	84.55	
2	ARC1674	SO-DA-011 (0-0.5)	1.30	2.43	2.25	2.26	84.96	
3	ARC1675	SO-DA-011 (0.5-1.0)	1.30	2.80	2.51	2.51	80.67	
4	ARC1676	SO-DA-011 (1.0-1.5)	1.30	2.49	2.33	2.32	85.71	
5	ARC1677	SO-DA-011 (0-0.5) MS/MSD	1.29	2.92	2.60	2.59	79.75	
6	ARC1679	SO-DA-010 (0-0.5)	1.31	3.33	2.98	2.97	82.18	
7	ARC1680	SO-DA-010 (0.5-1.0)	1.31	2.63	2.42	2.43	84.85	
8	ARC1681	SO-DA-010 (1.0-1.5)	1.32	3.37	2.90	2.90	77.07	
9	ARC1682	SO-DA-DUP-02-080213	1.31	2.51	2.30	2.30	82.50	
10	ARC1683	SO-DA-009 (0-0.5)	1.30	2.37	2.18	2.18	82.24	
11	ARC1684	SO-DA-009 (0.5-1.0)	1.31	3.41	2.87	2.87	74.29	
12	ARC1685	SO-DA-009 (1.0-1.5)	1.31	2.48	2.33	2.33	87.18	
13	ARC1686	SO-DA-008 (0-0.5)	1.29	2.66	2.48	2.47	86.13	
14	ARC1687	SO-DA-008 (0.5-1.0)	1.29	2.36	2.24	2.23	87.85	
15	ARC1688	SO-DA-008 (1.0-1.5)	1.30	2.42	2.29	2.29	88.39	
16	ARC1689	SO-DA-007 (0-0.5)	1.30	4.32	3.70	3.69	79.14	

DRY 1358

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	ARC1690	SO-DA-007 (0.5-1.0)	1.30	3.14	2.82	2.83	83.15	
18	ARC1691	SO-DA-007 (1.0-1.5)	1.31	2.61	2.39	2.40	83.85	
19	ARC1692	SED-DA-009 (0.5-1.0)	1.30	4.15	3.59	3.58	80.00	
20	ARC1693	SED-DA-009 (1.0-1.5)	1.32	2.62	2.35	2.36	80.00	
21	ARC1693 DUP	Duplicate	1.31	2.45	2.23	2.24	81.58	
22								
23								
24								

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

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

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

Date / Init.	RPD
8/13/13 CK	1.954 %
Sample # ARC1693	
Duplicate # ARC1693 Dup	

DRY 1358

B&B LABORATORIES % DRY WEIGHT LOGBOOK

MATRIX
- ☐ OTHER
- ☒ SEDIMENT
- ☐ TISSUE Type

Job #: J13034 SDG #: 13080701, 2

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		8/9/13 CK	8/12/13 CK ☑ Bal. Cal.	8/13/13 CK ☑ Bal. Cal.	8/14/13 CK

	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
1	ARC1701	SED-DA-039 (0-0.5)	1.28	3.08	2.59	2.58	72.22	
2	ARC1702	SED-DA-039 (0-0.5) MS	1.30	3.99	3.24	3.24	72.12	
3	ARC1703	SED-DA-039 (0-0.5) MSD	1.31	2.77	~~2.37~~ CK 8/12	2.42	76.03	2.42
4	ARC1704	SED-DA-039 (0.5-1.0)	1.30	2.43	2.10	2.09	69.91	
5	ARC1705	SED-DA-039 (1.0-1.5)	1.30	2.64	2.20	2.19	66.42	
6	ARC1706	SED-DA-040 (0-0.5)	1.29	3.48	3.04	3.03	79.45	
7	ARC1707	SED-DA-040 (0.5-1.0)	1.31	4.07	3.51	3.50	79.35	
8	ARC1708	SED-DA-040 (1.0-1.5)	1.30	3.10 CK 8/12	2.78	2.77	81.67	
9	ARC1709	SED-DA-DUP-05-080613	1.31	4.57	3.91	3.90	79.45	
10	ARC1710	SO-DA-016 (0-0.5)	1.31	2.67	2.31	2.30	72.79	
11	ARC1711	SO-DA-016 (0.5-1.0)	1.31	2.86	2.53	2.52	78.06	
12	ARC1712	SO-DA-016 (1.0-1.5)	1.32	2.68	2.45	2.43	81.62	
13	ARC1713	SO-DA-017 (0-0.5)	1.29	2.94	2.61	2.60	79.39	
14	ARC1714	SO-DA-017 (0-0.5) MS	1.30	2.56	2.31	2.29	78.57	
15	ARC1715	SO-DA-017 (0.5-1.0) ~~MSD~~ OK	1.30	2.76	2.48	2.46	79.45	
16	ARC1716	SO-DA-017 (1.0-1.5)	1.33	2.97	2.66	~~2.68~~ CK	81.10	

2.606 8/13

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B&B LABORATORIES % DRY WEIGHT LOGBOOK

					Beaker + Dry Smpl (g) Date/Init: 8/12/13 CK ☑ Bal. Cal.	Beaker + Dry Smpl (g) Date/Init: 8/13/13 CK ☑ Bal. Cal.		
	Sample Name	Client ID	Beaker Wt (g)	Beaker + Wet Smpl (g)	1	2	(%) Dry Weight	Comments
17	ARC1717	SO-DA-018 (0-0.5)	1.31	3.21	2.85	2.85	81.05	
18	ARC1718	SO-DA-018 (0.5-1.0)	1.32	2.83	2.53	2.54	80.79	
19	ARC1719	SO-DA-018 (1.0-1.5)	1.30	2.52	2.29	2.30	81.97	
20	ARC1720	SO-DA-DUP-03-080613	1.30	2.42	2.17	2.18	78.57	
21	ARC1721	SO-DA-017 (0-0.5) MSD	1.31	2.52	2.27	2.27	79.34	
22	ARC1720 Dup	Duplicate	1.32	2.43	2.17	2.17	76.58	
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
8/14/13 CK	2.572%
Sample # ARC1720	
Duplicate # ARC1720 Dup	

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