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

Arcadis Mayflower AR Project (Contract # B0086003.1302) August 7, 2013 through August 11, 2013 Collection Dates

Determination of: Aliphatic Hydrocarbons (ALI), Total Petroleum Hydrocarbons (TPH), and Polycyclic Aromatic Hydrocarbons (PAHs) in Water Samples

(QC Batch ENV 3080)

September 13, 2013

**Technical Report 13-3099** 

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### Narrative

### Technical Report 13-3099 Arcadis Mayflower AR Project (Contract # B0086003.1302) Water Samples August 7, 2013 through August 11, 2013 Collection Dates

#### September 13, 2013

#### Introduction

B&B Laboratories received a shipment of two (2) ice chests that were sent by Daniel Mays of Arcadis using FedEx on August 8, 2013 and arrived on August 9, 2013 in College Station, Texas. The ice chests arrived sealed and in good condition.

Cooler Number	Temperature	Samples Received	
1	0.3°C 1.1°C (Temp Blank)	Thirteen (13) sediments in 8oz or 4oz jars Three (3) 1L water samples in B/R ambe bottles.	
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.	

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

Cooler Number	Temperature	Samples Received
	5.1°C	Eleven (11) sediments in 8oz or 4oz jars
1	1.2°C (Temp Blank)	Two (2) 1L water samples in B/R amber bottles.
	1.5°C	Eleven (11) sediments in 8oz or 4oz jars
2	2.3°C (Temp Blank)	Four (4) 1L water samples in B/R amber bottles.
3	2.1°C	Twenty-one (21) sediments in 8oz or 4oz
5	1.9°C (Temp Blank)	jars
4	6.1°C	Seventeen (17) sediments in 8oz or 4oz jars
7	0.9°C (Temp Blank)	Two (2) 1L water samples in B/R amber bottles.

The water and sediment samples were collected between August 7, 2013 and August 12, 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 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. The water samples were analyzed for Total Petroleum Hydrocarbons (TPH) and C<sub>9</sub> to C<sub>40</sub> Aliphatic Hydrocarbons (ALI) by GC/FID, Polycyclic Aromatic Hydrocarbons (PAH) by GC/MS-SIM, and selected biological markers by GC/MS-SIM.

The analytical results for ALI, TPH, PAH, and biological markers are included in this report.

#### **Analytical Methods**

The standard operating procedures for TPH, ALI, PAH, hopanes, and TAS are listed in Table 1.

Matrix	Extraction	ALI/TPH	PAH
Water	B&B 1011	B&B 1016	B&B 1006

Table 1. Standard Operating Procedures for each analytical test.

#### **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 an "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	ТРН	ALI	PAH
Water	μg/L	μg/L	ng/L

#### Table 3. Data Qualifier Definitions.

Qualifier	Definition
В	Analyte detected in the procedural blank greater than 3X MDL
D	Diluted Value
1	Analytical interference
J	Analyte detected below the method detection limit
NA	Not Applicable
U	Analyte not detected
х	Analyte <3X MDL
Y	Spiked level of analyte <50% of the native concentration
*	Outside QA limits, refer to narrative

Aliphatics	Water MDLs
Sample size 1L, 1ml final extract vo	
Unit of measure	μg/L
	μαίς
n-C9	0.288
n-C10	0.252
n-C11	0.251
n-C12	0.266
n-C13	0.258
i-c15	0.256
n-C14	0.277
i-c16	0.234
n-C15	0.256
n-C16	0.234
i-c18	0.100
n-C17	0.174
Pristane	0.190
n-C18	0.100
Phytane	0.201
n-C19	0.073
n-C20	0.073
n-C21	0.081
n-C22	0.150
n-C23	0.130
n-C24	0.069
n-C25	0.066
n-C26	0.070
n-C27	0.069
n-C28	0.003
n-C29	0.087
n-C30	0.081
n-C31	0.126
n-C32	0.083
n-C33	0.282
n-C34	
n-C35	0.106 0.112
n-C36	
n-C37	0.113 0.148
n-C38 n-C39	0.127
	0.160
n-C40	0.144
Total Petroleum Hydrocarbons	13
Total Resolved Hydrocarbons	13
Unresolved Complex Mixture	13
	10
Extractable Organic Matter	100
	and the second sec

Table 4. Method Detection Limits.

РАН	Water MDLs
Sample size	1.0L, 1mL final extract
Unit of measure	ng/L
cis/trans Decalin	1.14
C1-Decalins	2.28
C2-Decalins	2.28
C3-Decalins	2.28
C4-Decalins	2.28
Naphthalene	2.91
C1-Naphthalenes	1.36
C2-Naphthalenes	5.82
C3-Naphthalenes	5.82
C4-Naphthalenes	5.82
Benzothiophene	1.29
C1-Benzothiophenes	2.57
C2-Benzothiophenes	2.57
C3-Benzothiophenes	2.57
C4-Benzothiophenes	2.57
Biphenyl	5.09
Acenaphthylene	1.17
Acenaphthene	1.44
Dibenzofuran	1.19
Fluorene	0.81
C1-Fluorenes	1.63
C2-Fluorenes	1.63
C3-Fluorenes	1.63
Carbazole	0.83
Anthracene	0.77
Phenanthrene	2.26
C1-Phenanthrenes/Anthracenes	0.70
C2-Phenanthrenes/Anthracenes	3.03
C3-Phenanthrenes/Anthracenes	3.03
C4-Phenanthrenes/Anthracenes	3.03
Dibenzothiophene	0.82
C1-Dibenzothiophenes	0.67
C2-Dibenzothiophenes	1.34
C3-Dibenzothiophenes	1.34
C4-Dibenzothiophenes	1.34
Fluoranthene	1.09
Pyrene	1.37
C1-Fluoranthenes/Pyrenes	2.47
C2-Fluoranthenes/Pyrenes	2.47
C3-Fluoranthenes/Pyrenes	2.47
C4-Fluoranthenes/Pyrenes	2.47
Naphthobenzothiophene	1.03
C1-Naphthobenzothiophenes	2.07
C2-Naphthobenzothiophenes	2.07
C3-Naphthobenzothiophenes	2.07
C4-Naphthobenzothiophenes	2.07
Benz(a)anthracene	0.74
Chrysene/Triphenylene	0.80
C1-Chrysenes	1.60
C I-Onrysenes	1.60

#### Table 4. Continued. Method Detection Limits.

PAH (continued)	Water MDLs 1.0L, 1mL final extract
Sample size Unit of measure	ng/L
Unit of measure	ng/L
C2-Chrysenes	1.60
C3-Chrysenes	1.60
C4-Chrysenes	1.60
Benzo(b)fluoranthene	2.38
Benzo(k,j)fluoranthene	2.51
Benzo(a)fluoranthene	2.51
Benzo(e)pyrene	2.69
Benzo(a)pyrene	1.91
Perylene	0.63
Indeno(1,2,3-c,d)pyrene	1.39
Dibenzo(a,h)anthracene	1.14
Benzo(g,h,i)perylene	2.51
Individual Alkyl Isomers, TAS, and Hopanes	
2-Methylnaphthalene	1.10
1-Methylnaphthalene	1.42
2,6-Dimethylnaphthalene	0.70
1,6,7-Trimethylnaphthalene	0.67
1-Methylfluorene	1.47
4-Methyldibenzothiophene	0.97
2/3-Methyldibenzothiophene	0.97
1-Methyldibenzothiophene	0.97
3-Methylphenanthrene	0.94
2-Methylphenanthrene	0.94
2-Methylanthracene	0.94
4/9-Methylphenanthrene	0.94
1-Methylphenanthrene	0.94
3,6-Dimethylphenanthrene	1.67
Retene	1.59
2-Methylfluoranthene	1.15
Benzo(b)fluorene	1.37
C29-Hopane	8.19
18a-Oleanane	8.19
C30-Hopane	8.19
C20-TAS	2.60
C21-TAS	2.60
C26(20S)-TAS	2.60
C26(20R)/C27(20S)-TAS	2.60
C28(20S)-TAS	2.60
C27(20R)-TAS	2.60
C28(20R)-TAS	2.60

#### **Quality Assurance/Quality Control - Waters**

#### Total Petroleum Hydrocarbons (TPH) and Aliphatic Hydrocarbons (ALI)

The quality assurance/quality control procedure for this program included the analyses of a procedural blank and a blank spike/blank spike duplicate per analytical batch of no more than 20 samples. Additionally, a standard reference material (SRM) was analyzed with each data set. The SRM is a petroleum sample (NIST SRM 2779) that is analyzed with each TPH/ALI run and for which controls are established based on performance. Procedural blanks are used to determine that sample preparation and analyses are free of contaminants. The blank spike/blank spike duplicate are used to measure accuracy and precision of the analysis. 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%. The QC criterion for RPDs in valid spiked duplicates is ≤30%. The QC criterion for the NIST SRM 2779 is <20% of the laboratory determined mean.

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%. Refer to Table 5 for Method Performance Criteria for Aliphatic Hydrocarbons and TPH.

#### Polycyclic Aromatic Hydrocarbons (PAH)

The quality assurance/quality control procedure for this program included the analyses of a procedural blank and a blank spike/blank spike duplicate of no more than 20 samples. A standard reference oil (NIST 2779) were analyzed with this data set. Procedural blanks are used to determine that sample preparation and analyses are free of contaminants. The blank spike/blank 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 the reference oil 2779 SRM is  $\pm$  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 6 for Method Performance Criteria for PAH.

### **Quality Assurance/Quality Control Variances - Waters**

#### Aliphatic Hydrocarbons (ALI) and Total Petroleum Hydrocarbons (TPH)

#### 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

No variances were observed.

#### **Procedural Blank**

#### Observation

No variances were observed.

#### Blank Spike/Blank Spike Duplicate

#### Observation

No variances were observed.

#### Laboratory Control Standard (Petroleum)

#### Observation

No variances were observed.

#### Additional QC Batch Information

#### Observation

No variances were observed.

#### 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

No variances were observed.

#### **Procedural Blank**

#### Observation

No variances were observed.

#### Blank Spike/Blank Spike Duplicate

#### Observation

• No variances were observed.

#### Laboratory Control Standard (Solution 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.

Element or Sample Type	Minimum Frequency	Measurement Quality Objective/ Acceptance Criteria	Corrective Action
Initial Calibration (all target analytes, except i-C13, i-C14, i-C15 and i-C18)	Prior to every sequence, or as needed based on continuing calibration/verification check.	6-point calibration curve %RSD ≤ 15	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or every 10 field samples, whichever is more frequent	%D ≤ 25	Perform Instrument Maintenance. Re-analyze affected samples.
Initial Calibration Verification (Second Source or can be met if CCAL is second source)	Per initial calibration	%R target analytes 80-120%	Resolve before proceeding.
SRM 2779 Reference Oil (Instrument SRM)	One per batch per GC sequence	Baseline resolution of n-C17 from pristane and analytes must be <20% of laboratory derived mean	Resolve before proceeding.
Performance Evaluation Mixture (PEM)	One per batch per GC sequence	%R 75-125%	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; average %R 60-120% for valid spikes, RPD ≤30%. No more than 2 analytes may exceed 40-120%	Evaluate impact to data, discuss with manager to determine if corrective action is needed.
Blank Spike/Blank Spike Duplicate	One per batch/every 20 field samples	%R 40% - 120% for target analytes; RPD ≤30%. No more than 2 analytes may exceed 40-120%	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 MDL unless analyte not detected in associated sample(s) or analyte concentration >10x blank value	Resolve before proceeding. QA coordinator may be contacted to resolve issues.
Laboratory Duplicate (not required for aqueous samples)	One per batch/every 20 field samples	$RPD \le 30\%$ 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 to determine if corrective action is needed.
Mass Discrimination	Initial calibration and CCVs (mid-level)	Ratio for the raw areas of n-C36 / n-C20 ≥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%	Re-extract affected samples. Evaluate impact to data, discuss with lab manager, determine if corrective action is needed.

Table 6. Method Performance Criteria for Extended PAH (Parent and Alkyl Homologs) and Related Compounds.
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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 $\leq 20\%$	Resolve before proceeding.
Continuing Calibration Verification (CCV)	Every 12 hours or 6-9 field samples	$RPD \le 25\%$ , 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	$RPD \le 30\%$ 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 6. 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

Wineld Jrank

Donell S. Frank Project Quality Manager

**Sample/Analyses Description** 

# Arcadis - Mayflower AR Sample Inventory

	LIIE NUILIDE	Client Identification	Collection Date	Received Date	Analysis	Matrix	Comments	B&B SDG	Client Project #
	ARC1762	SO-DA-EB-02-080713	08/07/13	08/09/13	PAH	Water	44 analytes, 1 of 1	13080901	B0086003.1302
222	<b>ARC1763</b>	SO-DA-EB-03-080813	08/08/13	08/09/13	PAH	Water	44 analytes, 1 of 2	13080901	B0086003.1302
	<b>ARC1765</b>	SED-DA-EB-07-080913	08/09/13	08/13/13	PAH, TPH, ALI	Water	1 of 2	13081301	B0086003.1302
120	<b>ARC1767</b>	SED-DA-DI-Water	08/09/13	08/13/13	PAH, TPH, ALI	Water	1 of 2	13081301	B0086003.1302
	<b>ARC1769</b>	SED-DA-EB-08-081013	08/10/13	08/13/13	PAH, TPH, ALI	Water	1 of 2	13081301	B0086003.1302
	<b>ARC1771</b>	SO-DA-EB-04-081113	08/11/13	08/13/13	PAH	Water	44 analytes. 1 of 2	13081301	B0086003 1302

# **Water Samples**

Aliphatic Hydrocarbons (C9 – C40)/ Total Petroleum Hydrocarbons/ Extractable Organic Matter Concentrations

#### Arcadis-Mayflower AR Aliphatic Hydrocarbon and Total Petroleum Hydrocarbon Data Client Submitted Samples

Sample Name	ARC1765.D		ARC1767.D	ARC1769.D	
Client Name	SED-DA-EB-07-080913		SED-DA-DI-Water	SED-DA-EB-08-081013	
Matrix	Water		Water	Water	
Collection Date	08/09/13		08/09/13	08/10/13	
Received Date	08/13/13		08/13/13	08/13/13	
Extraction Date	08/13/13		08/13/13	08/13/13	
Extraction Batch	ENV 3080		ENV 3080	ENV 3080	
Date Acquired	16-Aug-2013, 15:08:47		16-Aug-2013, 16:19:32	16-Aug-2013, 17:30:16	
Method	ALI2012.M		ALI2012.M	ALI2012.M	
Sample Volume (L)	1.07		1.05	1.07	
Dilution	1X		1X	1X	
Diration		_		ix	_
Target Compounds	Su. Corrected Conc. (µg/L)	Q	Su. Corrected Q Conc. (µg/L)	Su. Corrected Conc. (µg/L)	C
n-C9	<0.288		<0.288 U	<0.288	
n-C10	<0.252		<0.252 U	<0.252	
n-C11	<0.251		<0.251 U	<0.251	
n-C12	<0.266		<0.266 U	<0.266	
n-C13	<0.258		<0.258 U	<0.258	
i-C15	<0.256		<0.256 U	<0.256	
n-C14	<0.277		<0.277 U	<0.277	
i-C16	<0.234		<0.234 U	<0.234	
n-C15	<0.256		<0.256 U	<0.256	
n-C16	<0.234		<0.234 U	<0.234	
i-C18	<0.1		<0.1 U	<0.1	ι
n-C17	<0.174	U	<0.174 U	<0.174	υ
Pristane	<0.19	U	<0.19 U	<0.19	U
n-C18	<0.1	U	<0.1 U	<0.1	U
Phytane	<0.201	U	<0.201 U	<0.201	U
n-C19	< 0.073	U	<0.073 U	<0.073	U
n-C20	< 0.077	U	<0.077 U	<0.077	U
n-C21	<0.081	U	<0.081 U	<0.081	U
n-C22	<0.15	U	<0.15 U	<0.15	U
n-C23	<0.117	U	<0.117 U	<0.117	U
n-C24	<0.069	U	<0.069 U	<0.069	U
n-C25	<0.066	U	<0.066 U	<0.066	
n-C26	<0.07	U	<0.07 U	<0.07	
n-C27	<0.069	U	<0.069 U	<0.069	
n-C28	<0.077	U	<0.077 U	<0.077	
n-C29	<0.087	U	<0.087 U	<0.087	
n-C30	<0.081	U	<0.081 U	<0.081	
n-C31	<0.126		<0.126 U	<0.126	
n-C32	<0.083	U	<0.083 U	<0.083	
n-C33	<0.282		<0.282 U	<0.282	
n-C34	<0.106	100	<0.106 U	<0.106	
n-C35	<0.112		<0.112 U	<0.112	
n-C36	<0.113		<0.113 U	<0.113	
n-C37	<0.148		<0.148 U	<0.148	
n-C38	<0.127		<0.127 U	<0.127	
n-C39	<0.16		<0.16 U	<0.127	
n-C40	<0.144		<0.144 U	<0.144	
Total Alkanes		U	U		U
Total Petroleum Hydrocarbons	<13 L		<13 U	<13	U
Total Resolved Hydrocarbons Unresolved Complex Mixture	<13 L <13 L		<13 U <13 U	<13 <13	
EOM (µg/L)	252		171	196	
Surrogate (Su)	Su Recovery (%)		Su Recovery (%)	Su Recovery (%)	
n-dodecane-d26	75		71	77	
n-eicosane-d42	94		98	98	

#### Arcadis-Mayflower AR Aliphatic Hydrocarbon and Total Petroleum Hydrocarbon Data Procedural Blank Report

Sample Name	ENV3080A.D			
Client Name	Procedural Blank			
Matrix	Water			
Collection Date	NA			
Received Date	NA			
Extraction Date	08/13/13			
Extraction Batch	ENV 3080			
Date Acquired	16-Aug-2013, 11:36:47			
Method	ALI2012.M			
Sample Volume (L)	1.0			
Dilution	1X			
Target Compounds	Su. Corrected	QQ	3X MDL	Actual MDL
	Conc. (µg/L)		Conc. (µg/L)	Conc. (µg/L)
n-C9	<0.288	U	0.865	0.288
n-C10	<0.252		0.755	0.252
n-C11	<0.251		0.752	0.251
n-C12	<0.266		0.799	0.266
n-C13	<0.258	11.22	0.775	0.258
i-C15	<0.256	2000 B	0.769	0.256
n-C14	<0.277		0.830	0.277
i-C16	<0.234	8.77	0.702	0.234
n-C15	<0.256		0.769	0.256
n-C16	<0.234		0.702	0.234
i-C18 n-C17	<0.1 <0.174		0.301	0.100
Pristane	<0.19		0.521 0.570	0.174
n-C18	<0.1		0.301	0.100
Phytane	<0.201		0.602	0.201
n-C19	<0.073		0.220	0.073
n-C20	<0.077		0.232	0.077
n-C21	<0.081		0.242	0.081
n-C22	<0.15		0.449	0.150
n-C23	<0.117		0.351	0.117
n-C24	<0.069	U	0.206	0.069
n-C25	<0.066	U	0.197	0.066
n-C26	< 0.07	U	0.211	0.070
n-C27	<0.069	U	0.206	0.069
n-C28	<0.077	U	0.231	0.077
n-C29	<0.087	U	0.262	0.087
n-C30	<0.081		0.243	0.081
n-C31	<0.126		0.378	0.126
n-C32	<0.083		0.248	0.083
n-C33	<0.282		0.846	0.282
n-C34	<0.106		0.319	0.106
n-C35	< 0.112		0.335	0.112
n-C36	<0.113		0.339	0.113
n-C37	<0.148	2.722	0.444	0.148
n-C38 n-C39	<0.127 <0.16		0.382	0.127
n-C40	<0.16	-	0.481	0.160 0.144
Total Alkanes		U		
Total Petroleum Hydrocarbons	<13		39.0	13
Total Resolved Hydrocarbons	<13		39.0	13
Unresolved Complex Mixture	<13	U	39.0	13
EOM (µg/L)	<100	U	300	100
Surrogate (Su)	Su Recovery (%)			
n-dodecane-d26	80			
n-eicosane-d42	98			
n-triacontane-d62	99			

Surrogate (Su)

n-dodecane-d26 n-eicosane-d42 n-triacontane-d62

# Arcadis-Mayflower AR Aliphatic Hydrocarbon and Total Petroleum Hydrocarbon Data Blank Spike Report

Sample Name	ENV3080B.D		ENV3080C.D			
Client Name	Blank Spike		Blank Spike Duplicate			
Matrix	Water		Water			
Collection Date	NA					
Received Date			NA			
	NA		NA			
Extraction Date	08/13/13		08/13/13			
Extraction Batch	ENV 3080		ENV 3080			
Date Acquired	16-Aug-2013, 12:47:23		16-Aug-2013, 13:58:00			
Method	ALI2012.M		ALI2012.M			
Sample Volume (L)	1.0		1.0			
Dilution	1X		1X			
Target Compounds	Su. Corrected	Recovery Q	Su. Corrected		Q RPD Q	Spike Amount
	Conc. (µg/L)	(%)	Conc. (µg/L)	(%)	(%)	(bd)
n-C9	7.31	73	6.51	65	12	10.0
n-C10	7.86	79	6.93	69	13	10.0
n-C11	8.32	84	7.33	74	13	9.90
n-C12	8.34	83	7.35	73	13	10.0
n-C13	8.63	86	7.63	76	12	10.0
n-C14	8.84	90	8.01	81	10	9.86
n-C15	9.57	96	8.80	88	8	9.98
n-C16	10.2	102	9.39	94	8	10.0
n-C17	10.7	107	9.9	100	8	9.94
Pristane	10.7	108	9.9	100	8	9.90
n-C18	11.1	111	10.3	103	7	10.0
Phytane	11.0	111	10.3	103	7	9.91
n-C19	11.2	112	10.4	104	7	10.0
n-C20	11.1	111	10.4	104	7	10.0
n-C21	11.0	110	10.3	103	7	10.0
n-C22	11.1	112	10.4	104	7	9.95
n-C23	11.0	111	10.3	104	6	9.91
n-C24	11.0	109	10.3	103	6	10.0
n-C25	11.0	110	10.4	104	6	10.0
n-C26	11.0	111	10.4	105	6	10.0
n-C27	11.0	111	10.4	106	5	9.89
n-C28	11.1	111	10.6	106	5	10.0
n-C29	10.9	108	10.4	104	4	10.0
n-C30	10.9	109	10.3	103	6	10.0
n-C31	11.0	110	10.4	104	6	10.0
n-C32	10.9	109	10.3	102	6	10.0
n-C33	11.0	110	10.4	104	6	10.0
n-C34	11.1	110	10.4	104	6	10.0
n-C35	11.3	112	10.6	106	6	10.0
n-C36	11.2	113	10.5	106	7	9.90
1-C37	11.6	116	10.9	109	7	10.0
n-C38	11.7	117	10.8	108	8	10.0
n-C39	11.7	117	10.6	106	10	10.0
n-C40	11.9	119	11.0	110	8	10.0
Average %Recovery		106		98		

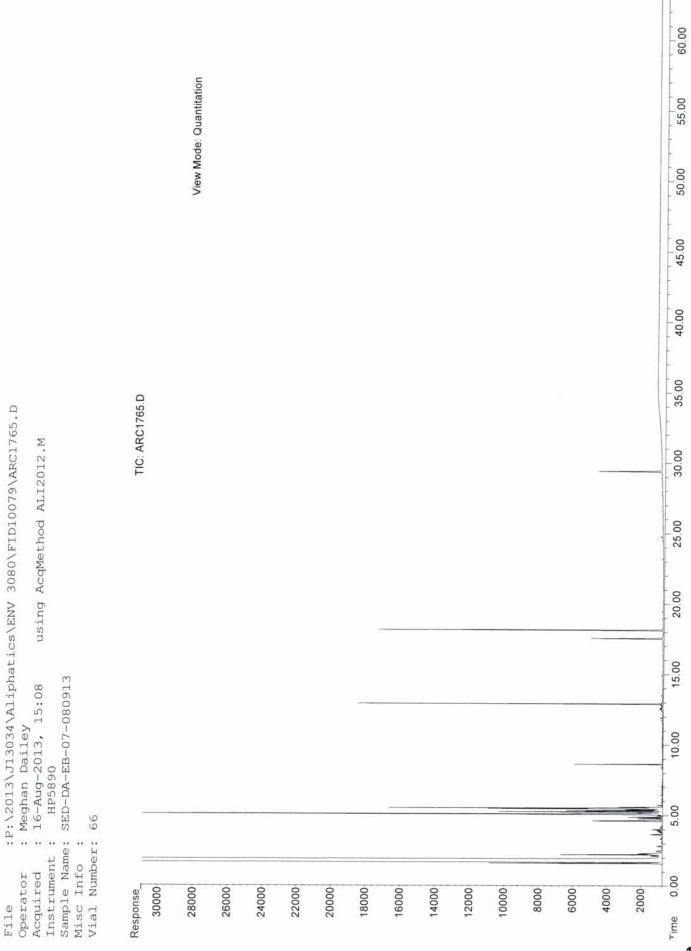
106 98 Su Recovery (%) Su Recovery (%) 71 93 76 100 98 99

7

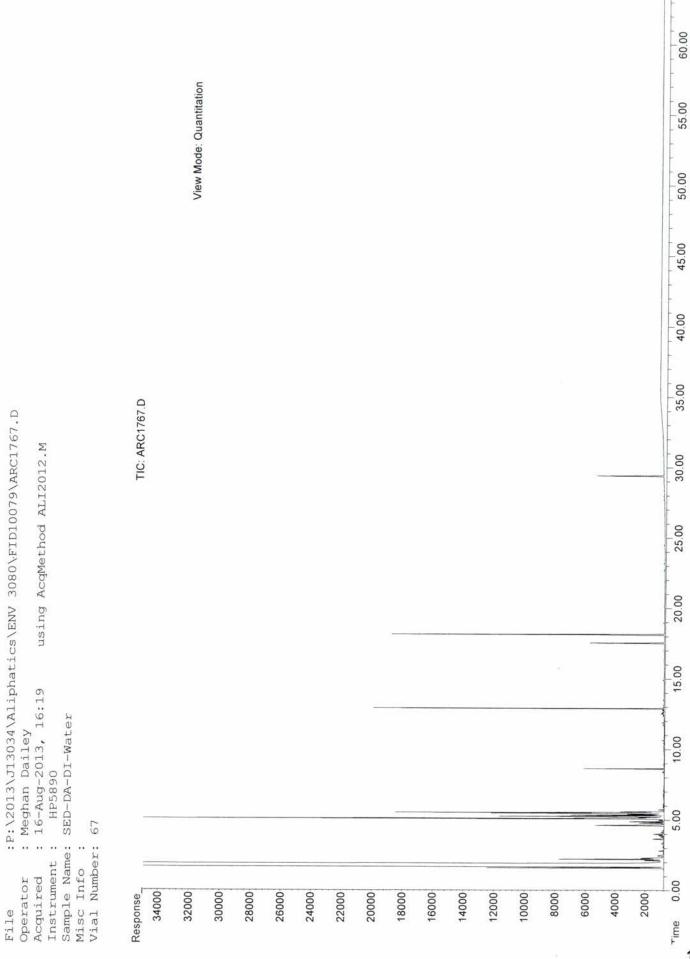
Sample Name	FID10079C.D	
Client Name	AL-SRM2779-20-01	
Matrix	Reference Oil	
Collection Date	NA	
Received Date	NA	
Extraction Date	08/13/13	
Extraction Batch	ENV 3080	
Date Acquired	15-Aug-2013, 22:38:15	
Method	ALI2012.M	
Sample Dry Weight (mg)	20.0	
Sample Wet Weight (mg)	NA	
% Dry	NA	
% Moisture	NA	
% Lipid (dry)	NA	
% Lipid (wet)	NA	
Dilution	1X	

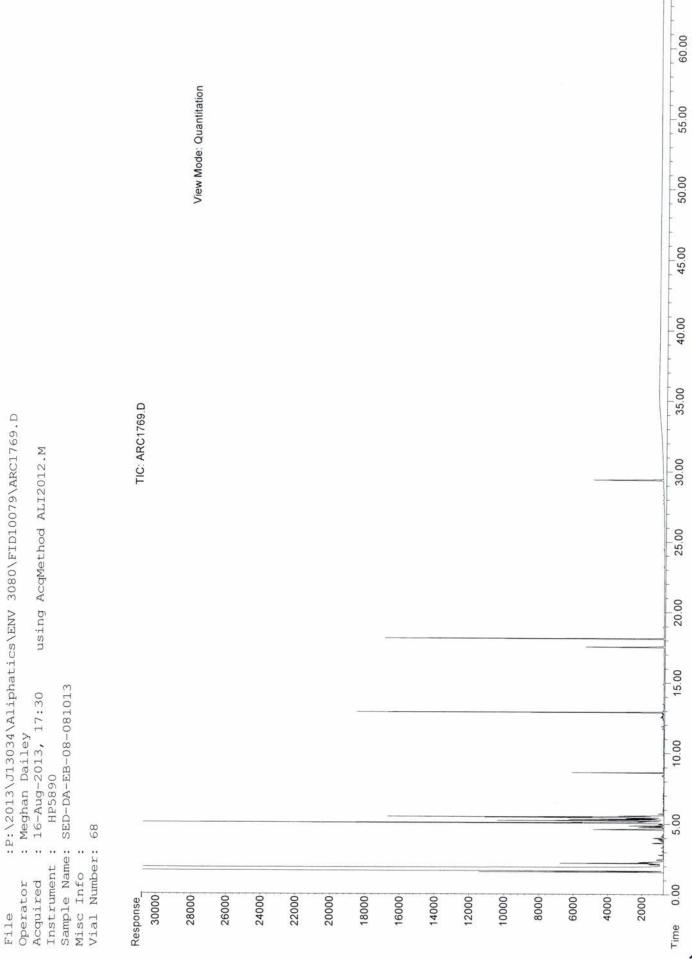
Target Compounds	Su. Corrected Conc. (µg/mg)	Q	Q	RPD (%)	B&B Average	-20% Conc. (µg/mg)	+20% Conc. (µg/mg)
n-C9	13.9			3	13.5	(pg/ng) 10.8	16.2
n-C10	12.3			3	12.0	9.60	14.4
n-C11	11.3			4	10.8	8.64	13.0
n-C12	9.91			1	9.82	7.86	11.8
n-C13	8.86			5	8.41	6.73	10.1
i-C15	1.91			2	1.95	1.56	2.34
n-C14	7.47			3	7.70	6.16	9.24
i-C16	2.81			5	2.95	2.36	3.54
n-C15	7.38			2	7.23	5.78	8.68
n-C16	6.01			2	6.15	4.92	7.38
i-C18	1.48			5	1.56	1.25	1.87
n-C17	5.00			6	4.69	3.75	5.63
Pristane	2.62			8	2.42	1.94	2.90
n-C18	4.02			5	3.84	3.07	4.61
Phytane	1.53			2	1.51	1.21	1.81
n-C19	3.80			9	3.47	2.78	4.16
n-C20	3.09			8	2.84	2.70	3.41
n-C21	2.59			9	2.37	1.90	2.84
n-C22	2.39			9	2.04	1.63	2.45
n-C23	1.99			8	1.84	1.47	2.45
n-C23	1.99			7	1.66		1.99
n-C25	1.47			7	1.37	1.33	1.64
n-C26	1.47			9	1.37	0.904	
n-C27	0.989			10	0.892	0.904	1.36
n-C28				5	0.892	0.714	0.931
n-C29	0.816 0.776				0.778		
				5		0.591	0.887
n-C30	0.678			2 7	0.666	0.533	0.799
n-C31	0.577				0.539	0.431	0.647
n-C32	0.419			6	0.443	0.354	0.532
n-C33	0.503			7	0.467	0.374	0.560
n-C34	0.453			6	0.428	0.342	0.514
n-C35	0.353			3	0.342	0.274	0.410
n-C36	0.227			7	0.211	0.169	0.253
n-C37	0.218	1.1		6	0.206	0.165	0.247
n-C38	0.165			4	0.172	0.138	0.206
n-C39	0.155			9	0.169	0.135	0.203
n-C40	0.171	J		3	0.176	0.141	0.211
Total Petroleum Hydrocarbons	616			1	607	484	726
Surrogate (Su)	Su Recovery (%)	_					
n-dodecane-d26	92						
n-eicosane-d42	96						
n-triacontane-d62	97						

### Total Petroleum Hydrocarbons Chromatograms



File





File

### Polycyclic Aromatic Hydrocarbon Concentration

#### Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Client Submitted Samples

#### Sample Name ARC1762.D ARC1763.D ARC1765.D ARC1767.D ARC1769.D **Client Name** SO-DA-EB-02-080713 SO-DA-EB-03-080813 SED-DA-EB-07-080913 SED-DA-DI-Water SED-DA-EB-08-081013 Matrix Water Water Water Water Water 08/10/13 **Collection Date** 08/07/13 08/08/13 08/09/13 08/09/13 **Received Date** 08/09/13 08/09/13 08/13/13 08/13/13 08/13/13 Extraction Date 08/13/13 08/13/13 08/13/13 08/13/13 08/13/13 **Extraction Batch** ENV 3080 ENV 3080 ENV 3080 ENV 3080 ENV 3080 **Date Acquired** 8/20/13 23:03 8/21/13 0:11 8/21/13 1:20 8/21/13 2:28 8/21/13 4:45 Method PAH-2012.M PAH-2012.M PAH-2012.M PAH-2012.M PAH-2012.M Sample Volume (L) 1.04 1.04 1.07 1.05 1.07 % Dry NA NA NA NA NA NA % Moisture NA NA NA NA 1X 1X 1X 1X Dilution 1X Su. Corrected Q Su. Corrected Q Su. Corrected Su. Corrected Q Su. Corrected Q 0 **Target Compounds** Conc. (ng/L) Conc. (ng/L) Conc. (ng/L) Conc. (ng/L) Conc. (ng/L) NA NA <1.1 U <1.1 U <1.1 U cis/trans Decalin C1-Decalins NA NA <2.3 U <2.3 U <2.3 U C2-Decalins NA NA <2.3 U <2.3 U <2.3 U C3-Decalins NA NA <2.3 U <2.3 U <2.3 U C4-Decalins NA NA <2.3 U <2.3 U <2.3 U 77.4 130 203 Naphthalene 118 108 1.80 1.52 2.13 2.04 1.89 C1-Naphthalenes <5.8 U <5.8 U <5.8 U <5.8 U <5.8 U C2-Naphthalenes C3-Naphthalenes <5.8 U <5.8 U <5.8 U <5.8 U <5.8 U C4-Naphthalenes <5.8 U <5.8 U <5.8 U <5.8 U <5.8 U Benzothiophene NA NA <1.3 U <1.3 U <1.3 U C1-Benzothiophenes NA NA <2.6 U <2.6 U <2.6 U C2-Benzothiophenes NA NA <2.6 U <2.6 U <2.6 U C3-Benzothiophenes NA NA <2.6 U <2.6 U <2.6 U C4-Benzothiophenes NA NA <2.6 U <2.6 U <2.6 U Biphenyl NA NA 1.21 J L 66.0 1.26 .1 Acenaphthylene <1.2 U <12 U <12 U <12 U <1.2 U <1.4 U <1.4 U <1.4 U Acenaphthene <1.4 U <1.4 U NA NA 0.82 .1 0.93 .1 Dibenzofuran 1.31 0.66 J 0.66 J 0.73 J 0.66 J 0.62 Fluorene J C1-Eluorenes <1.6 U <16 U <16 U <16 U <1.6 U <1.6 U C2-Fluorenes <1.6 U <1.6 U <1.6 U <1.6 U C3-Fluorenes <1.6 U <1.6 U <1.6 U <1.6 U <1.6 U <0.8 U <0.8 U <0.8 U Carbazole NA NA Anthracene <0.8 U 0.186 J <0.8 U <0.8 U <0.8 U Phenanthrene 3.09 3.04 4.42 2.75 2.91 <0.7 U <0.7 U <0.7 U <0.7 U <0.7 U C1-Phenanthrenes/Anthracenes C2-Phenanthrenes/Anthracenes <3 U <3 U <3 U <3 U <3 U C3-Phenanthrenes/Anthracenes <3 U <3 U <3 U <3 U <3 U C4-Phenanthrenes/Anthracenes <3 U <3 U <3 U <3 U <3 U Dibenzothiophene <0.8 U <0.8 U <0.8 U <0.8 U <0.8 U C1-Dibenzothiophenes <0.7 U <0.7 U <0.7 U <0.7 U <0.7 U C2-Dibenzothiophenes <1.3 U <1.3 U <1.3 U <1.3 U <1.3 U C3-Dibenzothiophenes <1.3 U <1.3 U <1.3 U <1.3 U <1.3 U C4-Dibenzothiophenes <1.3 U <1.3 U <1.3 U <1.3 U <1.3 U Fluoranthene 1.03 J 0.81 J 1.13 0.87 J 1.04 J Pyrene 1.11 J 1.17 J 1.46 0.97 J 1.15 J C1-Fluoranthenes/Pyrenes <2.5 U <2.5 U <2.5 U <2.5 U <25 U C2-Fluoranthenes/Pyrenes <2.5 U <2.5 U <2.5 U <2.5 U <2.5 U C3-Fluoranthenes/Pyrenes <2.5 U <2.5 U <2.5 U <2.5 U <2.5 U C4-Fluoranthenes/Pyrenes <25 U <2.5 U <2.5 U <2.5 U <2.5 U Naphthobenzothiophene NA NA <1 U <1 U <1 U NA <21 U <2.1 U <2.1 U C1-Naphthobenzothiophenes NA NA C2-Naphthobenzothiophenes NA <2.1 U <2.1 U <2.1 U <2.1 U NA NA <21 U C3-Naphthobenzothiophenes <2.1 U C4-Naphthobenzothiophenes NA NA <2.1 U <2.1 U <2.1 U <0.7 U <0.7 U <0.7 U <0.7 U Benz(a)anthracene <07 U Chrysene/Triphenylene <0.8 U <0.8 U <0.8 U <0.8 U <0.8 U C1-Chrysenes <1.6 U <1.6 U <1.6 U <1.6 U <1.6 U C2-Chrysenes <1.6 U <1.6 U <1.6 U <1.6 U <1.6 U C3-Chrysenes <1.6 U <1.6 U <1.6 U <1.6 U <1.6 U C4-Chrysenes <1.6 U <1.6 U <1.6 U <1.6 U <1.6 U Benzo(b)fluoranthene <2.4 U <2.4 U <2.4 U <2.4 U <2.4 U <2.5 U <2.5 U Benzo(k,j)fluoranthene <2.5 U <2.5 U <2.5 U Benzo(a)fluoranthene NA NA <2.5 U <2.5 U <2.5 U <2.7 U <2.7 U <2.7 U Benzo(e)pyrene <2.7 U <2.7 U <1.9 U <1.9 U Benzo(a)pyrene <1.9 U <1.9 U <1.9 U <0.6 U <0.6 U <0.6 U <0.6 U <0.6 U Perylene Indeno(1,2,3-c,d)pyrene <1.4 U <1.4 U <1.4 U <1.4 U <1.4 U Dibenzo(a,h)anthracene <1.1 U <1.1 U <1.1 U <1.1 U <1.1 U Benzo(g,h,i)perylene <2.5 U <2.5 U <2.5 U <2.5 U <2.5 U **Total PAHs** 125 84.8 142 117 212

#### Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Client Submitted Samples

#### Sample Name ARC1762.D ARC1763.D ARC1765.D ARC1767.D ARC1769.D **Client Name** SO-DA-EB-02-080713 SO-DA-EB-03-080813 SED-DA-EB-07-080913 SED-DA-DI-Water SED-DA-EB-08-081013 Matrix Water Water Water Water Water **Collection Date** 08/07/13 08/08/13 08/09/13 08/09/13 08/10/13 **Received Date** 08/09/13 08/09/13 08/13/13 08/13/13 08/13/13 Extraction Date 08/13/13 08/13/13 08/13/13 08/13/13 08/13/13 Extraction Batch ENV 3080 ENV 3080 ENV 3080 ENV 3080 ENV 3080 Date Acquired 8/20/13 23:03 8/21/13 0:11 8/21/13 1:20 8/21/13 2:28 8/21/13 4:45 Method PAH-2012.M PAH-2012.M PAH-2012.M PAH-2012.M PAH-2012.M Sample Volume (L) 1.04 1.04 1.07 1.05 1.07 % Dry NA NA NA NA NA % Moisture NA NA NA NA NA Dilution 1X 1X 1X 1X 1X Su. Corrected Q Target Compounds Su. Corrected Q Su. Corrected Q Su. Corrected Q Su. Corrected Q Conc. (ng/L) Conc. (ng/L) Conc. (ng/L) Conc. (ng/L) Conc. (ng/L) Individual Alkyl Isomers and Hopanes 2-Methylnaphthalene 1.73 1.53 2.21 1.79 1.58 1-Methylnaphthalene 1.09 J 0.857 J 1.11 J 1.42 1.41 J 2,6-Dimethylnaphthalene NA NA <0.7 U <0.7 U <0.7 U 1,6,7-Trimethylnaphthalene NA NA <0.7 U <0.7 U <0.7 U 1-Methylfluorene NA NA <1.5 U <1.5 U <1.5 U 4-Methyldibenzothiophene NA NA <1 U <1 U <1 U 2/3-Methyldibenzothiophene NA <1 U NA <1 U <1 U 1-Methyldibenzothiophene NA NA <1 11 <1 11 <1 U 3-Methylphenanthrene NA NA <0.9 U <0.9 U <0.9 U 2-Methylphenanthrene NA NA <0.9 U <0.9 11 <0.9 U 2-Methylanthracene NA NA <0.9 U <0.9 U <0.9 U 4/9-Methylphenanthrene NA NA <0.9 U <0.9 U <0.9 U 1-Methylphenanthrene NA NA <0.9 U <0.9 U <0.9 U 3,6-Dimethylphenanthrene NA NA <1.7 U <1.7 U <1.7 U Retene NA NA <1.6 U <1.6 U <1.6 U 2-Methylfluoranthene NA NA <1.1 U <1.1 U <1.1 U Benzo(b)fluorene NA NA <1.4 U <1.4 U <1.4 U C29-Hopane NA NA <8.2 U <8.2 U <8.2 U 18a-Oleanane NA NA <8.2 U <8.2 U <8.2 U C30-Hopane NA NA <8.2 U <8.2 U <8.2 U C20-TAS NA NA <2.6 U <2.6 U <2.6 U C21-TAS NA NA <2.6 U <2.6 U <2.6 U C26(20S)-TAS NA NA <2.6 U <2.6 U <2.6 U C26(20R)/C27(20S)-TAS NA NA <2.6 U <2.6 U <2.6 U C28(20S)-TAS NA NA <2.6 U <2.6 U <2.6 U C27(20R)-TAS NA NA <2.6 U <2.6 U <2.6 U C28(20R)-TAS NA NA <2.6 U <2.6 U <2.6 U Surrogate Recovery Naphthalene-d8 82 81 70 83 86 83 Acenaphthene-d10 81 71 82 83 Phenanthrene-d10 98 98 90 102 102 Chrysene-d12 75 74 66 72 71 Perylene-d12 79 78 70 79 80

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Sample Name	ARC1771.D SO-DA-EB-04-081113					
Client Name						
Matrix Collection Date	Water 08/11/13 08/13/13 08/13/13					
Received Date						
Extraction Date						
Extraction Batch	ENV 3080					
Date Acquired	8/21/13 5:54					
Method	PAH-2012.M					
Sample Volume (L)	1.02					
% Dry % Moisture	NA					
Dilution	1X					
Target Compounds	Su. Corrected Q Conc. (ng/L)					
cis/trans Decalin	NA					
C1-Decalins	NA					
C2-Decalins C3-Decalins	NA					
C3-Decalins C4-Decalins	NA NA					
Naphthalene	162					
C1-Naphthalenes	2.13					
C2-Naphthalenes	<5.8 U					
C3-Naphthalenes	<5.8 U					
C4-Naphthalenes	<5.8 U					
Benzothiophene C1-Benzothiophenes	NA					
C2-Benzothiophenes	NA					
C3-Benzothiophenes	NA					
C4-Benzothiophenes	NA					
Biphenyl	NA					
Acenaphthylene	<1.2 U					
Acenaphthene	<1.4 U					
Dibenzofuran Fluorene	NA 0.70 J					
C1-Fluorenes	<1.6 U					
C2-Fluorenes	<1.6 U					
C3-Fluorenes	<1.6 U					
Carbazole	NA					
Anthracene	<0.8 U					
Phenanthrene	3.37					
C1-Phenanthrenes/Anthracenes C2-Phenanthrenes/Anthracenes	<0.7 U <3 U					
C3-Phenanthrenes/Anthracenes	<3 U					
C4-Phenanthrenes/Anthracenes	<3 U					
Dibenzothiophene	<0.8 U					
C1-Dibenzothiophenes	<0.7 U					
C2-Dibenzothiophenes	<1.3 U					
C3-Dibenzothiophenes C4-Dibenzothiophenes	<1.3 U <1.3 U					
Fluoranthene	0.85 J					
Pyrene	1.30 J					
C1-Fluoranthenes/Pyrenes	<2.5 U					
C2-Fluoranthenes/Pyrenes	<2.5 U					
C3-Fluoranthenes/Pyrenes	<2.5 U					
C4-Fluoranthenes/Pyrenes	<2.5 U					
Naphthobenzothiophene C1-Naphthobenzothiophenes	NA NA					
C2-Naphthobenzothiophenes	NA					
C3-Naphthobenzothiophenes	NA					
C4-Naphthobenzothiophenes	NA					
Benz(a)anthracene	<0.7 U					
Chrysene/Triphenylene	<0.8 U					
C1-Chrysenes	<1.6 U					
C2-Chrysenes C3-Chrysenes	<1.6 U <1.6 U					
C4-Chrysenes	<1.6 U					
Benzo(b)fluoranthene	<2.4 U					
Benzo(k,j)fluoranthene	<2.5 U					
Benzo(a)fluoranthene	NA					
Benzo(e)pyrene	<2.7 U					
Benzo(a)pyrene	<1.9 U					
Perylene Indeno(1,2,3-c,d)pyrene	<0.6 U <1.4 U					
Dibenzo(a,h)anthracene	<1.1 U					
Benzo(g,h,i)perylene	<2.5 U					
Total PAHs	170					

Sample Name Client Name Matrix Collection Date Received Date Extraction Date Extraction Batch Date Acquired Method Sample Volume (L) % Dry % Moisture Dilution	ARC1771.D SO-DA-EB-04-081113 Water 08/11/13 08/13/13 ENV 3080 8/21/13 5:54 PAH-2012.M 1.02 NA NA 1X	
Target Compounds	Su. Corrected	Q
Individual Alkyl Isomers and Hopanes	Conc. (ng/L)	
	0.00	
2-Methylnaphthalene	2.02	3 3
1-Methylnaphthalene	1.33	J
2,6-Dimethylnaphthalene	NA	
1,6,7-Trimethylnaphthalene	NA	
1-Methylfluorene	NA	
4-Methyldibenzothiophene 2/3-Methyldibenzothiophene	NA	
1-Methyldibenzothiophene	NA	
3-Methylphenanthrene	NA	
2-Methylphenanthrene	NA	
2-Methylanthracene	NA	
4/9-Methylphenanthrene	NA	
1-Methylphenanthrene	NA	
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	80	
Acenaphthene-d10	81	
Phenanthrene-d10	101	
Chrysene-d12	71	
Perylene-d12	77	

Sample Name Client Name

Client Name	Procedural Blank		
Matrix	Water		
Collection Date	NA		
Received Date	NA		
Extraction Date	08/13/13		
Extraction Batch	ENV 3080		
Date Acquired	8/20/13 19:37		
Method	PAH-2012.M		
Sample Volume (L)	1.0		
% Dry	NA		
% Moisture	NA		
Dilution	1X		
Target Compounds	Su. Corrected ( Conc. (ng/L)	Q 3X MDI	Actual MD
cis/trans Decalin	<1.1		
C1-Decalins	<2.3		
C2-Decalins	<2.3		
C3-Decalins	<2.3		
C4-Decalins	<2.3	U 6.85	2.28
Naphthalene	4.68	8.72	2.91
C1-Naphthalenes	1.66	4.09	1.36
C2-Naphthalenes	<5.8	U 17.4	5.82
C3-Naphthalenes	<5.8 1	J 17.4	5.82
C4-Naphthalenes	<5.8 1		
Benzothiophene	<1.3 (		
C1-Benzothiophenes	<2.6 1		
C2-Benzothiophenes	<2.6 (		
C3-Benzothiophenes	<2.6 (		
	<2.6 (		
C4-Benzothiophenes			
Biphenyl	1.26		
Acenaphthylene	<1.2 \		
Acenaphthene	<1.4 (		
Dibenzofuran	<1.2 U		
Fluorene	<0.8 U		
C1-Fluorenes	<1.6 \	J 4.88	1.63
C2-Fluorenes	<1.6 \	J 4.88	1.63
C3-Fluorenes	<1.6 L	J 4.88	1.63
Carbazole	<0.8 (	J 2.50	0.833
Anthracene	<0.8 \	J 2.30	0.767
Phenanthrene	1.69	J 6.79	2.26
C1-Phenanthrenes/Anthracenes	<0.7 (	J 2.10	0.701
C2-Phenanthrenes/Anthracenes	<3 (		
C3-Phenanthrenes/Anthracenes	<3 (		
C4-Phenanthrenes/Anthracenes	<3 (		
Dibenzothiophene	<0.8 (		
	<0.7 U		
C1-Dibenzothiophenes			
C2-Dibenzothiophenes	<1.3 L		
C3-Dibenzothiophenes	<1.3 U		
C4-Dibenzothiophenes	<1.3 L		1 10 10 10 10 10
Fluoranthene	<1.1 L		
Pyrene	<1.4 L		
C1-Fluoranthenes/Pyrenes	<2.5 L		
C2-Fluoranthenes/Pyrenes	<2.5 L	J 7.41	
C3-Fluoranthenes/Pyrenes	<2.5 L	J 7.41	2.47
C4-Fluoranthenes/Pyrenes	<2.5 L	J 7.41	2.47
Naphthobenzothiophene	<1 L	J 3.10	1.03
C1-Naphthobenzothiophenes	<2.1 L		
C2-Naphthobenzothiophenes	<2.1 U		
C3-Naphthobenzothiophenes	<2.1 L		
C4-Naphthobenzothiophenes	<2.1 U		
Benz(a)anthracene	<0.7 L		
	<0.7 L <0.8 L		
Chrysene/Triphenylene			
C1-Chrysenes	<1.6 L		
C2-Chrysenes	<1.6 L		
C3-Chrysenes	<1.6 L		
C4-Chrysenes	<1.6 L		
Benzo(b)fluoranthene	<2.4 L		
Benzo(k,j)fluoranthene	<2.5 L		2.51
Benzo(a)fluoranthene	<2.5 L	7.53	2.51
Benzo(e)pyrene	<2.7 L		
Benzo(a)pyrene	<1.9 L		
Perylene	<0.6 L		
ndeno(1,2,3-c,d)pyrene	<1.4 L		
Dibenzo(a,h)anthracene	<1.1 U		
Benzo(g,h,i)perylene	<2.5 L		
Total PAHs	9.29		

ENV3080A.D Procedural Blank

Sample Name Client Name Matrix Collection Date Received Date Extraction Date Extraction Batch Date Acquired Method Sample Volume (L) % Dry % Moisture Dilution	ENV3080A.D Procedural Blank Water NA 08/13/13 ENV 3080 8/20/13 19:37 PAH-2012.M 1.0 NA NA 1X			
Target Compounds	Su. Corrected Conc. (ng/L)	Q	3X MDL	Actual MDL
Individual Alkyl Isomers and Hopanes				
2-Methylnaphthalene	1.52		3.31	1.10
1-Methylnaphthalene	1.09		4.26	1.42
2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphthalene	<0.7	1000	2.09	0.696
1-Methylfluorene	<1.5		4.41	1.47
4-Methyldibenzothiophene	<1.5		2.90	0.966
2/3-Methyldibenzothiophene	<1		2.90	0.966
1-Methyldibenzothiophene	<1	1000	2.90	0.966
3-Methylphenanthrene	<0.9	1.225	2.82	0.939
2-Methylphenanthrene	<0.9		2.82	0.939
2-Methylanthracene	<0.9		2.82	0.939
4/9-Methylphenanthrene	<0.9	U	2.82	0.939
1-Methylphenanthrene	<0.9	U	2.82	0.939
3,6-Dimethylphenanthrene	<1.7	U	5.01	1.67
Retene	<1.6	U	4.78	1.59
2-Methylfluoranthene	<1.1	U	3.44	1.15
Benzo(b)fluorene	<1.4		4.12	1.37
C29-Hopane	<8.2		24.6	8.19
18a-Oleanane	<8.2		24.6	8.19
C30-Hopane	<8.2	100	24.6	8.19
C20-TAS	<2.6	070	7.80	2.60
C21-TAS	<2.6	0.00	7.80	2.60
C26(20S)-TAS	<2.6	- T	7.80	2.60
C26(20R)/C27(20S)-TAS	<2.6		7.80	2.60
C28(20S)-TAS	<2.6 <2.6		7.80 7.80	2.60 2.60
C27(20R)-TAS C28(20R)-TAS	<2.6		7.80	2.60
Surrogate Recovery				
Naphthalene-d8	85			
Acenaphthene-d10	86			
Phenanthrene-d10	96			
Chrysene-d12	84			
Pervlene-d12	89			

### Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Blank Spike Report

Sample Name	ENV3080B.D		ENV3080C.D			
Client Name	Blank Spike		Blank Spike Dupl.			
Matrix	Water		Water			
Collection Date Received Date	NA NA		NA NA			
Extraction Date	08/13/13		08/13/13			
Extraction Batch	ENV 3080		ENV 3080			
Date Acquired	8/20/13 20:46		8/20/13 21:54			
Method	PAH-2012.M		PAH-2012.M			
Sample Volume (L)	1.0		1.0			
% Dry	NA		NA			
% Moisture	NA		NA			
Dilution	1X		1X			
Target Compounds	Su. Corrected Conc. (ng/L)	Q Recovery Q (%)	Su. Corrected Conc. (ng/L)	Q Recovery Q (%)	RPD Q (%)	Spike amoun (ng)
cis/trans Decalin	80.6	82	80.5	81	0	98.9
C1-Decalins	NA		NA			00.0
C2-Decalins	NA		NA			
C3-Decalins	NA		NA			
C4-Decalins	NA		NA			
Naphthalene	85	85	83.8	84	1	100
C1-Naphthalenes	NA		NA			
C2-Naphthalenes	NA		NA			
C3-Naphthalenes	NA		NA			
C4-Naphthalenes	NA	70	NA			
Benzothiophene	77.4	78	77.1	78	0	99.4
C1-Benzothiophenes	NA		NA			
C2-Benzothiophenes C3-Benzothiophenes	NA NA		NA			
C3-Benzothiophenes	NA		NA NA			
Biphenyl	80	81	79.4	80	1	99.1
Acenaphthylene	81.4	82	81.2	82	ò	99.2
Acenaphthene	80.8	81	78.9	79	2	100
Dibenzofuran	81.6	82	80.2	81	2	99.5
Fluorene	82.1	82	82.0	82	0	100
C1-Fluorenes	NA		NA			
C2-Fluorenes	NA		NA			
C3-Fluorenes	NA		NA			
Carbazole	83.0	84	83.6	84	1	99.1
Anthracene	81.5	81	81.3	81	0	100
Phenanthrene	86.4	87	87.4	88	1	99.1
C1-Phenanthrenes/Anthracenes	NA		NA			
C2-Phenanthrenes/Anthracenes	NA		NA			
C4-Phenanthrenes/Anthracenes	NA NA		NA NA			
Dibenzothiophene	104	105	105.1	107	1	98.6
C1-Dibenzothiophenes	NA	105	NA	107	a	90.0
C2-Dibenzothiophenes	NA		NA			
C3-Dibenzothiophenes	NA		NA			
C4-Dibenzothiophenes	NA		NA			
luoranthene	85.0	85	84.7	85	0	100
Pyrene	88.2	88	87.4	87	1	100
C1-Fluoranthenes/Pyrenes	NA		NA			1994.0
C2-Fluoranthenes/Pyrenes	NA		NA			
C3-Fluoranthenes/Pyrenes	NA		NA			
C4-Fluoranthenes/Pyrenes	NA	622	NA			
Naphthobenzothiophene	80.4	80	76.2	76	5	101
C1-Naphthobenzothiophenes	NA		NA			
22-Naphthobenzothiophenes	NA		NA			
C3-Naphthobenzothiophenes	NA		NA			
24-Naphthobenzothiophenes	NA 01.2	04	NA	00	0	00.0
Benz(a)anthracene Chrysene/Triphenylene	91.2 79.0	91 79	86.1	86 78	6 2	99.8
Chrysenes	NA	19	77.2 NA	/8	4	99.4
2-Chrysenes	NA		NA			
3-Chrysenes	NA		NA			
C4-Chrysenes	NA		NA			
Benzo(b)fluoranthene	77.5	77	76.9	77	1	100
enzo(k,j)fluoranthene	72.8	73	67.3	68	8	99.6
Benzo(a)fluoranthene	NA	0.005	NA	(5) (5)	-	
enzo(e)pyrene	79.3	80	76.6	77	3	99.6
Senzo(a)pyrene	77.0	77	74.9	75	3	99.8
erylene	81.0	81	80.1	80	1	100
ndeno(1,2,3-c,d)pyrene	76.4	78	75.0	76	2	98.3
Dibenzo(a,h)anthracene	79.5	80	78.0	79	2	99.1
enzo(g,h,i)perylene	77.0	78	75.0	76	3	99.1
enze(g, n, )per j tente						

Contraction Name	511 /00000 D		EN1/00000 D						
Sample Name	ENV3080B.D		ENV3080C.D						
Client Name	Blank Spike		Blank Spike Dupl.						
Matrix	Water		Water						
Collection Date	NA		NA						
Received Date	NA		NA						
Extraction Date Extraction Batch	08/13/13 ENV 3080		ENV 3080	08/13/13					
	8/20/13 20:46		8/20/13 21:54						
Date Acquired Method	PAH-2012.M		PAH-2012.M						
Sample Volume (L)	1.0		1.0						
% Dry	NA		NA						
% Moisture	NA		NA						
Dilution	1X		1X						
Target Compounds	Su. Corrected	Q Recovery Q	Su. Corrected	Q Recovery Q	RPD Q	Spike amount			
	Amount (ng)	(%)	Amount (ng)	(%)	(%)	(ng)			
Individual Alkyl Isomers and Hopanes						100			
2-Methylnaphthalene	78.8	79	77.6		2	100			
1-Methylnaphthalene	78.7	79	78.2		1	99.9			
2,6-Dimethylnaphthalene	76.2	76	77.8		2	100			
1,6,7-Trimethylnaphthalene	82.2	82	81.1	81	1	100			
1-Methylfluorene	84.3	84	86.0		2	101			
4-Methyldibenzothiophene	88	87	88.9	88	1	101			
2/3-Methyldibenzothiophene	NA		NA						
I-Methyldibenzothiophene	NA		NA						
3-Methylphenanthrene	NA		NA						
2-Methylphenanthrene	NA		NA						
2-Methylanthracene	NA		NA						
4/9-Methylphenanthrene	NA		NA						
-Methylphenanthrene	83.6	85	83.0	84	1	98.9			
3,6-Dimethylphenanthrene	76.4	76	76.6	77	0	100			
Retene	80.0	89	78.1	87	2	89.4			
2-Methylfluoranthene	92.9	92	93.2	93	0	101			
Benzo(b)fluorene	91.1	90	89.9	89	1	101			
29-Hopane	NA		NA						
8a-Oleanane	NA		NA						
C30-Hopane	88.6	89	83.1	83	6	100			
C20-TAS	NA		NA			2020-202			
C21-TAS	NA		NA						
C26(20S)-TAS	NA		NA						
226(20R)/C27(20S)-TAS	85.3	85	83.2	83	3	100			
C28(20S)-TAS	NA		NA						
C27(20R)-TAS	NA		NA						
C28(20R)-TAS	NA		NA						
Surrogate Recovery									
Naphthalene-d8	81		81						
Acenaphthene-d10	83		85						
Phenanthrene-d10	96		99						
Chrysene-d12	82		79						
Pervlene-d12	85		86						

Sample Name	MS70058K.D						
Client Name Matrix	AR-SRM2779-WK4.0-002						
Collection Date	Gulf of Mexico Crude Oil NA						
Received Date	NA						
Extraction Date	NA						
Extraction Date	ENV 3080						
Date Acquired	8/20/13 18:28						
Method Sample Weight (mg)	PAH-2012.M						
	4.1						
	7.1	_	_				
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	674						
C1-Decalins	988						
C2-Decalins	884						
C3-Decalins	777						
C4-Decalins	502			0820	12122000000	121-222	1302525
Naphthalene	716			18	$855 \pm 46$	647	1081
C1-Naphthalenes	1535						
C2-Naphthalenes C3-Naphthalenes	1798 1200						
C4-Naphthalenes	672						
Benzothiophene	7.5	÷Ĩ.					
C1-Benzothiophenes	33.4	5					
C2-Benzothiophenes	23.0						
C3-Benzothiophenes	35.2						
C4-Benzothiophenes	27.4						
Biphenyl	147						
Acenaphthylene	9.44	J					
Acenaphthene	12.4						
Dibenzofuran	27.2						
Fluorene	118						
C1-Fluorenes	254						
C2-Fluorenes	382						
C3-Fluorenes	329						
Carbazole	4.3						(19.00 C)
Anthracene Phenanthrene		J		22	3.42 ± 0.59	2.26	4.81
C1-Phenanthrenes/Anthracenes	220 550			16	258 ± 27	185	342
C2-Phenanthrenes/Anthracenes	625						
C3-Phenanthrenes/Anthracenes	441						
C4-Phenanthrenes/Anthracenes	252						
Dibenzothiophene	40.0			26	51.8 ± 2.1	39.8	64.7
C1-Dibenzothiophenes	101			20	01.0 1 2.1	00.0	04.7
C2-Dibenzothiophenes	147						
C3-Dibenzothiophenes	114						
C4-Dibenzothiophenes	43.6						
Fluoranthene	3.90	J		11	$4.36 \pm 0.40$	3.17	5.71
Pyrene	12.6			16	14.81 ± 0.39	11.5	18.2
C1-Fluoranthenes/Pyrenes	74.0						
C2-Fluoranthenes/Pyrenes	122						
C3-Fluoranthenes/Pyrenes	117						
C4-Fluoranthenes/Pyrenes	93.8						
Naphthobenzothiophene	20.4						
C1-Naphthobenzothiophenes	54.5						
C2-Naphthobenzothiophenes C3-Naphthobenzothiophenes	64.6 46.4						
23-Naphthobenzothiophenes	46.4						
3enz(a)anthracene	7.04	à		0	7.03 ± 0.85	4.94	9.5
Chrysene/Triphenylene	37.4	2		24	47.4 ± 1.7	36.6	9.5 58.9
C1-Chrysenes	93.9			10		00.0	00.0
C2-Chrysenes	115						
C3-Chrysenes	73.5						
C4-Chrysenes	45.8						
Benzo(b)fluoranthene	4.61	J		20	5.62 ± 0.34	4.22	7.15
Benzo(k,j)fluoranthene	0.278	J					
Benzo(a)fluoranthene	<10						
Benzo(e)pyrene	8.8			21	10.78 ± 0.60	8.14	13.7
Benzo(a)pyrene	1.44						
Perylene	0.513						
ndeno(1,2,3-c,d)pyrene	0.720						
Nikenne (e. h) entherees -				34	0.574 ± 0.091	0.386	0.798
Dibenzo(a,h)anthracene Benzo(g,h,i)perylene	0.408			30	2.11 ± 0.26	1.48	2.84

Sample Name	MS70058K.D
Client Name	AR-SRM2779-WK4.0-002
Matrix	Gulf of Mexico Crude Oil
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3080
Date Acquired	8/20/13 18:28
Method	PAH-2012.M
Sample Weight (mg)	4.1

Target Compounds	Su. Corrected Conc. (ng/mg)		Q	RPD (%)	SRM 2779 Certified Value	-20% Certified Value	+20% Certified Value
Individual Alkyl Isomers and Hopanes				1.57	(ug/g)	(ug/g)	(ug/g)
2-Methylnaphthalene		1439		12	1630 ± 50	1264	2016
1-Methylnaphthalene		973		16	$1140 \pm 20$	896	1392
2,6-Dimethylnaphthalene		871					
1,6,7-Trimethylnaphthalene		315					
1-Methylfluorene		215					
4-Methyldibenzothiophene		89.0					
2/3-Methyldibenzothiophene		41.2					
1-Methyldibenzothiophene		29.4					
3-Methylphenanthrene		141		38	206 ± 32	139	286
2-Methylphenanthrene		181		24	$230 \pm 14$	173	293
2-Methylanthracene		10.9			200 2 14	100	200
4/9-Methylphenanthrene		196		17	232 ± 19	170	301
1-Methylphenanthrene		140		18	169 ± 10	127	215
3,6-Dimethylphenanthrene		42.9			100 1 10	121	210
Retene		22.8					
2-Methylfluoranthene		3.28	-E				
Benzo(b)fluorene		12.7					
C29-Hopane		27.6					
18a-Oleanane		<10	U.				
C30-Hopane		48.1	0				
C20-TAS		6.74	- í i				
C21-TAS		8.06	-				
C26(20S)-TAS		3.77					
C26(20R)/C27(20S)-TAS		11.7					
C28(20S)-TAS		8.20	аř –				
C27(20R)-TAS		7.38					
C28(20R)-TAS		5.55					
Surrogate Recovery							
Naphthalene-d8	93						
Acenaphthene-d10	93						
Phenanthrene-d10	90						
Chrysene-d12	97						
Perylene-d12	91						
Peak Resolution							
4/9-Methylphenanthrene from							
1-Methylyphenanthrene (m/z 192)	88%						

Sample Name	MS70058J.D				
Client Name	AR-WKCC-250-038				
Matrix	Solution				
Collection Date	NA				
Received Date	NA				
Extraction Date	NA				
Extraction Batch	ENV 3080				
Date Acquired	8/20/13 17:20				
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 Cond (ng/mL)
cis/trans Decalin	2	39	3.3	247	210	284
C1-Decalins	٨	A				
C2-Decalins	١	A				
C3-Decalins	٢	A				
C4-Decalins	١	A				
Naphthalene	24	43	2.7	250	213	288
C1-Naphthalenes		A				
C2-Naphthalenes		A				
C3-Naphthalenes		A				
C4-Naphthalenes		A				
Benzothiophene		42	2.6	249	211	286
C1-Benzothiophenes		A				
C2-Benzothiophenes		A				
C3-Benzothiophenes		A				
C4-Benzothiophenes		A	212	6263	1.2.2.2.2	1277
Biphenyl		42	2.2	248	211	285
Acenaphthylene		31	7.3	248	211	285
Acenaphthene		32	7.6	251	213	288
Dibenzofuran		39	4.1	249	211	286
Fluorene		36	5.8	251	213	288
C1-Fluorenes		A				
C2-Fluorenes		A				
C3-Fluorenes		A		0.40	244	005
Carbazole		26	9.4	248	211	285
Anthracene Phenanthrene		39	4.7	251	213	288
		48	0.1	248	211	285
C1-Phenanthrenes/Anthracenes		A				
C2-Phenanthrenes/Anthracenes C3-Phenanthrenes/Anthracenes		A				
C4-Phenanthrenes/Anthracenes		IA IA				
Dibenzothiophene		16	0.1	247	210	283
C1-Dibenzothiophenes		IA	0.1	241	210	203
C2-Dibenzothiophenes		A				
C3-Dibenzothiophenes		A				
C4-Dibenzothiophenes		A				
Fluoranthene	23		7.9	250	213	288
Pyrene	24		2.6	250	213	288
C1-Fluoranthenes/Pyrenes		A	2.0	200	210	200
C2-Fluoranthenes/Pyrenes		A				
C3-Fluoranthenes/Pyrenes		A				
C4-Fluoranthenes/Pyrenes		A				
Naphthobenzothiophene	21		14.2	252	214	289
C1-Naphthobenzothiophenes		A				200
22-Naphthobenzothiophenes		A				
C3-Naphthobenzothiophenes		A				
C4-Naphthobenzothiophenes	N					
Benz(a)anthracene	23		5.7	250	212	287
Chrysene/Triphenylene	22		10.1	249	211	286
C1-Chrysenes		A	8.5%	22012	100	
22-Chrysenes	N					
C3-Chrysenes	N					
C4-Chrysenes	N					
Benzo(b)fluoranthene	22		8.9	251	213	288
Benzo(k,j)fluoranthene	22		8.6	249	212	286
Benzo(a)fluoranthene	N		40450	(50.572)	10100	
Benzo(e)pyrene	23		7.7	249	212	286
Benzo(a)pyrene	23		8.2	250	212	287
Perylene	23		7.0	250	213	288
ndeno(1,2,3-c,d)pyrene	22		8.7	246	209	283
Dibenzo(a,h)anthracene	22		7.7	248	211	285
Benzo(g,h,i)perylene	23		4.1	248	211	285

MS70058J.D
AR-WKCC-250-038
Solution
NA
NA
NA
ENV 3080
8/20/13 17:20
PAH-2012.M
1.0

Target Compounds	Concentration		Q	RPD	LCM	-15%	+15%
	(ng/mL)			(%)	Certified Conc.	Certified Conc.	
Individual Alkyl Isomers and Hopanes					(ng/mL)	(ng/mL)	(ng/mL)
2-Methyinaphthalene		236		5.7	250	213	288
1-Methylnaphthalene		238		4.9	250	212	287
2,6-Dimethylnaphthalene		237		5.2	250	213	288
1,6,7-Trimethylnaphthalene		231		7.9	250	213	288
1-Methylfluorene		224		11.7	252	214	290
4-Methyldibenzothiophene		241		4.3	252	214	290
2/3-Methyldibenzothiophene		NA					
1-Methyldibenzothiophene		NA					
3-Methylphenanthrene		NA					
2-Methylphenanthrene		NA					
2-Methylanthracene		NA					
4/9-Methylphenanthrene		NA					
1-Methylphenanthrene		223		10.1	247	210	284
3,6-Dimethylphenanthrene		222		11.9	250	213	288
Retene		206		7.9	223	190	257
2-Methylfluoranthene		236		6.6	252	214	289
Benzo(b)fluorene		215		16.1	252	214	290
C29-Hopane		NA					
18a-Oleanane		NA					
C30-Hopane		247		1.3	250	213	288
C20-TAS		NA					
C21-TAS		NA					
C26(20S)-TAS		NA					
C26(20R)/C27(20S)-TAS		221		12.3	250	213	288
C28(20S)-TAS		NA					
C27(20R)-TAS		NA					
C28(20R)-TAS		NA					
Surrogate Recovery							
Naphthalene-d8	96						
Acenaphthene-d10	93						
Phenanthrene-d10	102						
Chrysene-d12	90						
Perylene-d12	96						

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

Sample Name	MS70058I.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3080
Date Acquired	8/20/13 16:11
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)	1	Q RPD (%)	ICV Certified Conc. (ng/mL)	-20% Certified Conc. (ng/mL)	+20% Certified Conc (ng/mL)
cis/trans Decalin		270	7.7	250	200	300
C1-Decalins		NA				
C2-Decalins		NA				
C3-Decalins		NA				
C4-Decalins		NA				
Naphthalene		286	13.4	250	200	300
C1-Naphthalenes		NA				
C2-Naphthalenes		NA				
C3-Naphthalenes		NA				
C4-Naphthalenes		NA				
Benzothiophene		285	13.1	250	200	300
C1-Benzothiophenes		NA				
C2-Benzothiophenes		NA				
C3-Benzothiophenes		NA				
C4-Benzothiophenes		NA		28404		
Biphenyl		284	12.3	251	201	301
Acenaphthylene		286				
Acenaphthene		279	11.0	250	200	300
Dibenzofuran		291	15.2	250	200	300
Fluorene		286	13.4	250	200	300
C1-Fluorenes		NA				
C2-Fluorenes		NA				
C3-Fluorenes		NA				
Carbazole		284	12.5	250	200	300
Anthracene		277	10.3	250	200	300
Phenanthrene		284	12.7	250	200	300
C1-Phenanthrenes/Anthracenes		NA				
C2-Phenanthrenes/Anthracenes		NA				
C3-Phenanthrenes/Anthracenes		NA				
C4-Phenanthrenes/Anthracenes		NA	100000000000			
Dibenzothiophene		288	14.0	250	200	300
C1-Dibenzothiophenes		NA				
C2-Dibenzothiophenes		NA				
C3-Dibenzothiophenes		NA				
C4-Dibenzothiophenes		NA		1010.0	00000	1000
Fluoranthene		284	12.6	250	200	300
Pyrene		294	16.1	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	027197	12223	12272	
Benz(a)anthracene		269	7.3	250	200	300
Chrysene/Triphenylene		284	12.5	250	200	300
C1-Chrysenes		NA				
C2-Chrysenes		NA				
C3-Chrysenes		NA				
C4-Chrysenes		NA				
Benzo(b)fluoranthene		290	14.9	250	200	300
Benzo(k,j)fluoranthene		279	11.0	250	200	300
Benzo(a)fluoranthene		NA				
Benzo(e)pyrene		277	10.3	250	200	300
Benzo(a)pyrene		270	7.5	250	200	300
Perylene		275	9.4	251	200	301
ndeno(1,2,3-c,d)pyrene		278	10.6	250	200	300
Dibenzo(a,h)anthracene		289	14.4	250	200	300
Benzo(g,h,i)perylene		283	12.2	250	200	300

Sample Name	MS700581.D
Client Name	AR-WKICV-250-004
Matrix	Solution
Collection Date	NA
Received Date	NA
Extraction Date	NA
Extraction Batch	ENV 3080
Date Acquired	8/20/13 16:11
Method	PAH-2012.M
Sample Volume (mL)	1.0

Target Compounds	Concentration (ng/mL)		Q	RPD	ICV Certified Conc.	-20% Certified Conc.	+20%
Individual Alkyl Isomers and Hopanes	(ng/mL)			(%)	(ng/mL)	(ng/mL)	Certified Conc (ng/mL)
2-Methylnaphthalene		294		16.0	250	200	301
1-Methyinaphthalene		294		15.8	251	200	301
2.6-Dimethylnaphthalene		292		15.3	250	200	300
1,6,7-Trimethylnaphthalene		290		14.6	250	200	301
1-Methylfluorene		NA		140,023	1000		(1000000)
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		270		7.7	250	200	300
3,6-Dimethylphenanthrene		NA				200	000
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		235		6.4	250	200	300
Acenaphthene-d10		229		8.8	250	200	300
Phenanthrene-d10		242		3.4	250	200	300
Chrysene-d12		225		10.5	250	200	300
Perylene-d12		232		7.4	250	200	300

# Polycyclic Aromatic Hydrocarbon Histograms













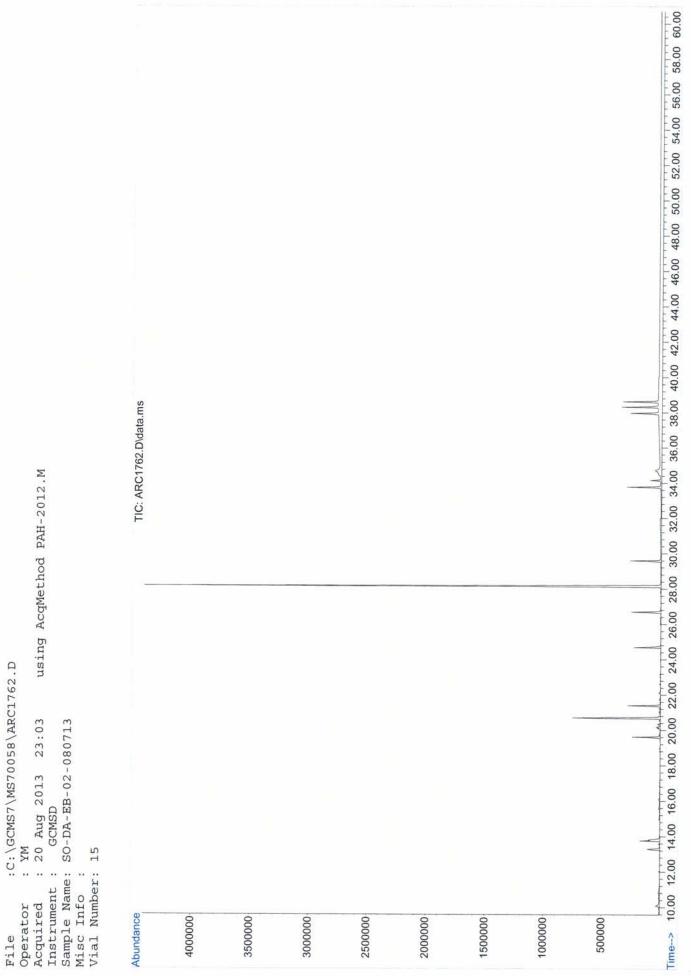








# Polycyclic Aromatic Hydrocarbon Total Ion Chromatograms



File

012.M	TIC: ARC1763.D\data.ms									32.00 34.00 38.00 38.00 40.00 42.00 44.00 46.00 48.00 50.00 52.00 54.00 56.00 58.00 50.00
3.D using AcqMethod PAH-2012.M										0 24.00 26.00 28.00 30.00
:C:\GCMS7\MS70058\ARC1763.D r : YM d : 21 Aug 2013 00:11 us ent : GCMSD Name: SO-DA-EB-03-080813 fo : mber: 16										10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00 26.00 28.00
File :( Operator : Acquired : Instrument : Sample Name: Misc Info : Vial Number:	Abundance 450000	400000	350000	300000	250000	200000	150000	100000	50000	Time> 10

File Operator		:C:\GCMS7\MS70058\ARC1765.D : YM	058\ARC1	.765.D															
Acquired : Instrument : Sample Name: Misc Info : Vial Number:		21 Aug 2013 1:20 GCMSD SED-DA-EB-07-080913 17	1:20 -080913	sn	ing A	cqMetł	Iod PAI	using AcgMethod PAH-2012.M	Σ.										
Abundance								TIC: AR	TIC: ARC1765.D\data ms	data ms									
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Total Petroleum Hydrocarbons/ Aliphatic Hydrocarbons Raw Data

#### **B&B LABORATORIES ALIPHATICS/TEH QA FORM**

Extraction Page:	_ENV 3080	Analyst:Meghan Dailey
Client:Arcadis Mayf	lower Project	Date: Sepember 13, 2013
Job: #:J13034		Project Quality Manager: W Jack
SDG #:13080901	and 13081301	Date: 09/13/13
Initial Calibration:	No failures	ICV No failures
Surrogate Recoveries:	No failures	
Procedural Blank:	No failures	
Blank Spike:	No failures	
Blank Spike Duplicate:	No failures	
Laboratory Duplicate:	NA	
Matrix Spike:	NA	
Matirx Spike Duplicate:	NA	
SRM 2779 Reference C		
	No failures	
Mass Discrimination Ch	eck (n-C36/n-C20 >0.7) No failures	

### FID Sequence Summary Report



Sequence name:	FID10078 2013-08-15 16-37-34
Acquisition date:	8/15/2013 4:37:35 PM
Acquired by:	Meghan Dailey
Data Directory	C:\CHEM32\3\DATA\FID10078 2013-08-15 16-37-34

Line	Location	Sample Name	Datafile	Method	Injection Date
4	Vial 51	Solvent Blank	FID10079A.D	ALI2012.M	08/15/2013 20:16:53
5	Vial 52	AL-WKCC-25-024	FID10079B.D	ALI2012.M	08/15/2013 21:27:36
6	Vial 53	AL-SRM2779-20-01	FID10079C.D	ALI2012.M	08/15/2013 22:38:15
7	Vial 51	Solvent Blank	FID10079D.D	ALI2012.M	08/15/2013 23:49:09
8	Vial 54	AL-RetWin-001	FID10079E.D	ALI2012.M	08/16/2013 00:59:51
9	Vial 55	AL-WKPem-001	FID10079F.D	ALI2012.M	08/16/2013 02:10:37
10	Vial 56		ENV3078A.D	ALI2012.M	08/16/2013 03:21:21
11	Vial 57		ENV3078B.D	ALI2012.M	08/16/2013 04:32:05
12	Vial 58		ENV3078C.D	ALI2012.M	08/16/2013 05:42:46
13	Vial 59		NPS0301.D	ALI2012.M	08/16/2013 06:53:32
14	Vial 60		NPS0302.D	ALI2012.M	08/16/2013 08:04:24
15	Vial 61		NPS0303.D	ALI2012.M	08/16/2013 09:15:19
16	Vial 62	AL-WKCC-25-024	FID10079G.D	ALI2012.M	08/16/2013 10:26:04
17	Vial 63		ENV3080A.D	ALI2012.M	08/16/2013 11:36:47
18	Vial 64		ENV3080B.D	ALI2012.M	08/16/2013 12:47:23
19	Vial 65		ENV3080C.D	ALI2012.M	08/16/2013 13:58:00
20	Vial 66		ARC1765.D	ALI2012.M	08/16/2013 15:08:47
21	Vial 67		ARC1767.D	ALI2012.M	08/16/2013 16:19:32
22	Vial 68		ARC1769.D	ALI2012.M	08/16/2013 17:30:16
23	Vial 69	AL-WKCC-25-024	FID10079H.D	ALI2012.M	08/16/2013 18:40:48

Page 1

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ Data File : FID10079B.D Signal(s) : FID2B.CH Acq On : 15-Aug-2013, 21:27:36 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc : ALS Vial : 52 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 16 15:15:07 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase :

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

Signal Info :

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 .		n-hexadecane-d34		1.000	0.0	75	0.00
		n-C8	0.962	1.019	-5.9 -4.5 -4.3	77	0.02
3		n-C9	1.011	1.056	-4.5	76	0.00
4		n-C10	1.064	1.110	-4.3	77	0.00
5		n-C11	1.069	1.116	-4.4	77	0.00
6 5	S	n-dodecane-d26	0.992	1.027		77	0.00
7		n-C12	1.116	1.163	-4.2	76	0.00
10		n-C13	1.122	1.161	-3.5	76	0.00
12		n-C14	1.164		-3.0		
14		n-C15	1.189	1.214	-2.1	75	0.00
15		n-C16	1.208	1.226	-1.5	75	0.00
16 1	I	5a-androstane	1.000	1.000	0.0	73	0.00
18		n-C17	0.952	0.990			0.00
19		Pristane	0.949	0.986		74	0.00
20		n-C18	0.944	0.977	-3.5	74	0.00
21		Phytane	0.962	0.996 0.977	-3.5 -3.1	74	
22		n-C19			-3.1	74	0.00
	S	n-eicosane-d42		0.773			0.00
24		n-C20	0.957	0.984	-2.8	74	0.00
25		n-C21	0.969	0.996	-2.8 -2.3 -2.0	73	0.01
26		n-C22	0.974	0.996	-2.3	73	0.01
27		n-C23	0.982	1.002	-2.0	73	0.01
28		n-C24	0.984	1.000	-1.6	73	0.01
29		n-C25	0.985	0.999	-1.4	73	0.01
30		n-C26	0.989	0.999 0.971	-1.0 -0.7	72	0.02
31		n-C27	0.964	0.971	-0.7	72	0.02
32		n-C28	0.976		-0.6		0.02
33		n-C29	0.978		-0.3		0.01
34 S	5	n-triacontane-d62		0.746	1.1	71	0.00
35		n-C30	0.964	0.968 0.951	-0.4 -0.7	72	0.00
36		n-C31	0.944	0.951	-0.7	72	0.00
37		n-C32	0.929		-1.1		0.00
38		n-C33	0.898		-1.8		0.00
39		n-C34	0.903	0.926	-2.5	72	0.00
40		n-C35	0.872	0.894	-2.5 -1.6	73	0.00
41		n-C36	0.935	0.950	-1.6	72	0.00
42		n-C37			-1.1		
43		n-C38	0.827	0.837	-1.2	72	0.00

44	n-C39		0.795	0.798	-0.4	72	0.00
45	n-C40		0.722	0.726	-0.6	70	0.00
		Evaluate	Continuing Cal	ibration	Report - No	t Fo	unds
8	i-13		0.017	0.000	100.0#	0#	-9.03#
9	i-14		0.018	0.000	100.0#	0#	-9.73#
11	i-15		0.018	0.000	100.0#	0#	-10.88#
13	i-16		0.019	0.000	100.0#	0#	-11.77#
17	i-18		0.019	0.000	100.0#	0#	-13.72#
46	TPH		0.018	0.000	100.0#	0#	-29.05#
47	TRH1		0.018	0.000	100.0#	0#	-7.75#
48	TRH2		0.018	0.000	100.0#	0#	-15.92#
49	TRH3		0.018	0.000	100.0#	0#	-23.38#
50	TRH4		0.018	0.000	100.0#	0#	-28.40#
51	TRH5		0.018	0.000	100.0#	0#	-33.37#
52	TRH6		0.018	0.000	100.0#	0#	-44.83#
53	GRO		0.018	0.000	100.0#	0#	-5.27#
54	DRO		0.018	0.000	100.0#	0#	-14.31#
55	RRO		0.018	0.000	100.0#	0#	-33.00#

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

FID1C08BACK081213.M Mon Aug 19 11:07:38 2013

Integration File: autointl.e           Quant Time: Aug 16 15:15:07 7013           Quant Title : : C8 - C40 alighatic           Quant Title : : C8 - C40 alighatic           Quant Method : P:Y2005/J05453/Alighatics/ENV3078/FIDIC08BACK081213.M           Quant Title : : C8 - C40 alighatic           Tintegrator: ChemBtation           Volume Inj. :           Signal Info :           Compound         R. T. Response Conc Units           Integrator           Internal Standards         12.910         26461         50.000 ug/mlm           System Monitoring Compounds           6         S n-dodecane-d26         6.634         14729         25.680 ug/mlm           34) 8 n-triacontane-d62         2.9.11         1546000         2.6.61         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62         2.6.62 <th< th=""><th>Data F Signal Acq On Operat Sample Misc</th><th>Path : P:\2013\J13034\Al. File : FID10079B.D (s) : FID2B.CH : 15-Aug-2013, 21:2 or : Meghan Dailey : AL-WKCC-25-024 : .al : 52 Sample Multip</th><th>7:36</th><th>30\FID10079\</th><th></th></th<>	Data F Signal Acq On Operat Sample Misc	Path : P:\2013\J13034\Al. File : FID10079B.D (s) : FID2B.CH : 15-Aug-2013, 21:2 or : Meghan Dailey : AL-WKCC-25-024 : .al : 52 Sample Multip	7:36	30\FID10079\	
Signal Phase :         Signal Info :         Internal Standards         Internal Standards         1) I n-hexadecame-d34       12.910       286461       50.000 ug/mlm         16) I 5a-androstane       18.148       363178       50.072 ug/mlm         System Monitoring Compounds       6       6.634       147129       25.880 ug/mlm         23) S n-eicosane-d22       27.548       141062       25.650 ug/mlm         34) S n-triacontane-d62       29.419       135428       24.768 ug/mlm         34) S n-triacontane-d62       29.419       135428       24.768 ug/mlm         34) n-C9       4.826       151283       26.123 ug/mlm         35) n-C11       7.552       160006       26.134 ug/mlm         36) i-13       0.000       0       N.D. ug/mld         39) i-14       0.000       0       N.D. ug/mld         31) n-C14       11.102       170748       25.956 ug/mlm         31) i-16       0.000       0       N.D. ug/mld         31) i-16	Quant Quant Quant QLast Respon	Time: Aug 16 15:15:07 20 Method : P:\2005\J05453 Title : C8 - C40 alipha Update : Mon Aug 12 14:5 ase via : Initial Calibra	\Aliphatics\ENV3 atic 55:52 2013	3078\FID1C08B	ACK081213.M
Internal Standards           1) I         n-hexadecane-d34         12.910         286461         50.000 ug/mlm           16) I         5a-androstane         18.148         363178         50.072 ug/mlm           System Monitoring Compounds         6         6.634         147129         25.880 ug/mlm           23) S         n-edoccane-d22         17.548         141062         25.650 ug/mlm           34) S         n-triacontane-d62         29.419         135428         24.768 ug/mlm           31) n-C9         4.826         151283         26.123 ug/mlm           31) n-C9         4.826         1651283         26.082 ug/mlm           51) n-C11         7.582         160066         26.134 ug/mlm           70) n-C12         8.839         163690         25.96 ug/mlm           8) i-13         0.000         0         N.D. ug/ml           9) i-14         0.000         0         N.D. ug/ml           10) n-C13         10.009         166595         25.926 ug/mlm           11) i-15         0.000         0         N.D. ug/mld           12) n-C16         13.160         173885         25.127 ug/mlm           13) i-16         0.000         0         N.D. ug/mld <td>Signal</td> <td>Phase :</td> <td></td> <td></td> <td></td>	Signal	Phase :			
1) I         n-hexadecane-d34         12.910         286461         50.000 ug/mlm           16) I         5a-androstane         18.148         363178         50.072 ug/mlm           System         Monitoring Compounds         6         n-dodecane-d26         8.634         147129         25.880 ug/mlm           23) S         n-eicosane-d42         17.548         141062         25.650 ug/mlm           34) S         n-triacontane-d62         29.419         135428         24.768 ug/mlm           34) S         n-triacontane-d62         29.419         135428         26.123 ug/mlm           31) n-C9         4.826         151283         26.082 ug/mlm           31) n-C10         6.233         158962         26.082 ug/mlm           31) n-C11         7.582         160060         26.134 ug/mlm           36) i-13         0.000         0         N.D. ug/ml           9) i-14         0.000         0         N.D. ug/ml           11) i-15         0.000         0         N.D. ug/ml           12) n-C16         13.160         173885         25.127 ug/mlm           13) i-16         0.000         0         N.D. ug/mld           14) n-C15         12.129         173056         25.655 ug/m		Compound	R.T.	Response	Conc Units
1) I         n-hexadecane-d34         12.910         286461         50.000 ug/mlm           16) I         5a-androstane         18.148         363178         50.072 ug/mlm           System         Monitoring Compounds         6         n-dodecane-d26         8.634         147129         25.880 ug/mlm           23) S         n-eicosane-d42         17.548         141062         25.650 ug/mlm           34) S         n-triacontane-d62         29.419         135428         24.768 ug/mlm           34) S         n-triacontane-d62         29.419         135428         26.123 ug/mlm           31) n-C9         4.826         151283         26.082 ug/mlm           31) n-C10         6.233         158962         26.082 ug/mlm           31) n-C11         7.582         160060         26.134 ug/mlm           36) i-13         0.000         0         N.D. ug/ml           9) i-14         0.000         0         N.D. ug/ml           11) i-15         0.000         0         N.D. ug/ml           12) n-C16         13.160         173885         25.127 ug/mlm           13) i-16         0.000         0         N.D. ug/mld           14) n-C15         12.129         173056         25.655 ug/m	Inter	nal Standards			
16)       I       5a-androstane       18.148       363178       50.072 ug/mlm         System       Monitoring Compounds       -       -       -       -         6)       S       n-dicosane-d42       17.548       147129       25.880 ug/mlm         33)       S       n-triacontane-d62       29.419       135428       24.768 ug/mlm         34)       S       n-triacontane-d62       29.419       135428       24.768 ug/mlm         30       n-C8       3.515       146061       26.511 ug/mlm         31       n-C9       4.826       151283       26.123 ug/mlm         51       n-C11       7.582       160006       25.596 ug/mlm         71       n-C12       8.839       163690       25.596 ug/mlm         8)       i-13       0.000       0       N.D. ug/mld         10)       n-C14       11.102       170748       25.605 ug/mlm         11)       i-16       0.000       0       N.D. ug/mld         12)       n-C14       11.102       170748       25.605 ug/mlm         13)       i-16       0.000       0       N.D. ug/mld         14)       n-C15       12.129       173056			12.910	286461	50.000 ug/mlm
6) S       n-dodecame-d26       8.634       147129       25.880 ug/mlm         23) S       n-etcosame-d42       17.548       141062       25.650 ug/mlm         23) S       n-triacontame-d62       29.419       135428       24.768 ug/mlm         31) S       n-triacontame-d62       29.419       135428       24.768 ug/mlm         31) n-C9       4.826       151283       26.123 ug/mlm         41) n-C10       6.233       158962       26.082 ug/mlm         5) n-C11       7.582       16006       26.134 ug/mlm         8) i-13       0.000       0       N.D. ug/ml         9) i-14       0.000       0       N.D. ug/ml         10) n-C13       10.009       166595       25.926 ug/mlm         11) i-15       0.000       0       N.D. ug/mld         12) n-C16       13.160       173885       25.127 ug/mlm         13) i-16       0.000       0       N.D. ug/mld         14) n-C15       12.129       17356       25.415 ug/mlm         15) n-C16       13.160       173885       25.127 ug/mlm         16) n-C17       14.261       177290       25.665 ug/mlm         19) Pristane       15.434       177347       25.895 ug/	16) I	5a-androstane		363178	50.072 ug/mlm
6) S       n-dodecame-d26       8.634       147129       25.880 ug/mlm         23) S       n-etcosame-d42       17.548       141062       25.650 ug/mlm         23) S       n-triacontame-d62       29.419       135428       24.768 ug/mlm         31) S       n-triacontame-d62       29.419       135428       24.768 ug/mlm         31) n-C9       4.826       151283       26.123 ug/mlm         41) n-C10       6.233       158962       26.082 ug/mlm         5) n-C11       7.582       16006       26.134 ug/mlm         8) i-13       0.000       0       N.D. ug/ml         9) i-14       0.000       0       N.D. ug/ml         10) n-C13       10.009       166595       25.926 ug/mlm         11) i-15       0.000       0       N.D. ug/mld         12) n-C16       13.160       173885       25.127 ug/mlm         13) i-16       0.000       0       N.D. ug/mld         14) n-C15       12.129       17356       25.415 ug/mlm         15) n-C16       13.160       173885       25.127 ug/mlm         16) n-C17       14.261       177290       25.665 ug/mlm         19) Pristane       15.434       177347       25.895 ug/	Sveto	m Monitoring Compounds			
34) S       n-triacontane-d62       29.419       135428       24.768 ug/mlm         Target Compounds			8.634	147129	25.880 ug/mlm
Target Compounds2)n-C83.51514606126.511ug/mlm3)n-C94.82615128326.123ug/mlm4)n-C106.23315896226.082ug/mlm5)n-C117.58216000626.134ug/mlm7)n-C128.83916369025.596ug/mlm8)i=130.0000N.D.ug/mld9)i=140.0000N.D.ug/mld10)n-C1310.00916659525.926ug/mld11)i=150.0000N.D.ug/mld12)n-C1411.10217074825.605ug/mlm13)i=160.0000N.D.ug/mlm14)n-C1512.12917305625.415ug/mlm15)n-C1613.1601738525.127ug/mlm16)n-C1714.26117729025.665ug/mlm19)Pristane14.37817713825.728ug/mlm20)n-C1815.59618013725.814ug/mlm21)Phytane15.59618013725.814ug/mlm22)n-C1916.6691769425.745ug/mlm23)n-C2220.54218083525.596ug/mlm24)n-C2321.82717996525.2124ug/mlm30)n-C2425.51618142625.299ug/mlm31)n-C2726.677 </td <td>23) S</td> <td>n-eicosane-d42</td> <td>17.548</td> <td>141062</td> <td>25.650 ug/mlm</td>	23) S	n-eicosane-d42	17.548	141062	25.650 ug/mlm
2)         n-C8         3.515         146061         26.511 ug/mlm           3)         n-C9         4.826         151283         26.123 ug/mlm           4)         n-C10         6.233         158962         26.082 ug/mlm           5)         n-C11         7.582         160006         26.134 ug/mlm           7)         n-C12         8.839         163690         25.596 ug/mlm           8)         i-13         0.000         0         N.D. ug/mld           9)         i-14         0.000         0         N.D. ug/mld           10)         n-C13         10.009         165595         25.926 ug/mlm           11)         i-15         0.000         0         N.D. ug/mld           12)         n-C14         11.102         170748         25.605 ug/mlm           13)         i-16         0.000         0         N.D. ug/mld           14)         n-C15         12.129         17365         25.127 ug/mlm           15)         n-C16         13.160         173885         25.127 ug/mlm           16)         n-C27         14.261         17720         25.665 ug/mlm           17)         i-18         0.000         0         N.	34) S	n-triacontane-d62	29.419	135428	24.768 ug/mlm
2)         n-C8         3.515         146061         26.511 ug/mlm           3)         n-C9         4.826         151283         26.123 ug/mlm           4)         n-C10         6.233         158962         26.082 ug/mlm           5)         n-C11         7.582         160006         26.134 ug/mlm           7)         n-C12         8.839         163690         25.596 ug/mlm           8)         i-13         0.000         0         N.D. ug/mld           9)         i-14         0.000         0         N.D. ug/mld           10)         n-C13         10.009         165595         25.926 ug/mlm           11)         i-15         0.000         0         N.D. ug/mld           12)         n-C14         11.102         170748         25.605 ug/mlm           13)         i-16         0.000         0         N.D. ug/mld           14)         n-C15         12.129         17365         25.127 ug/mlm           15)         n-C16         13.160         173885         25.127 ug/mlm           16)         n-C27         14.261         17720         25.665 ug/mlm           17)         i-18         0.000         0         N.	Targe	t Compounds			
4)       n-C10       6.233       158962       26.082       ug/mlm         5)       n-C11       7.582       160006       26.134       ug/mlm         7)       n-C12       8.839       163690       25.596       ug/mlm         8)       i-13       0.000       0       N.D.       ug/ml         9)       i-14       0.000       0       N.D.       ug/ml         10)       n-C13       10.009       166595       25.926       ug/ml         11)       i-15       0.000       0       N.D.       ug/ml         12)       n-C14       11.102       170748       25.605       ug/mlm         13)       i-16       0.000       0       N.D.       ug/mld         14)       n-C15       12.129       173056       25.415       ug/mlm         15)       n-C16       13.160       17385       25.127       ug/mlm         17)       i-18       0.000       0       N.D.       ug/mlm         18)       n-C17       14.261       177290       25.665       ug/mlm         20)       n-C18       15.434       177347       25.895       ug/mlm         21)	2)	n-C8	3.515		
5)       n-C11       7.582       160006       26.134 ug/mlm         7)       n-C12       8.839       163690       25.596 ug/mlm         8)       i-13       0.000       0       N.D. ug/ml         9)       i-14       0.000       0       N.D. ug/mld         10)       n-C13       10.009       166595       25.926 ug/mlm         11)       i-15       0.000       0       N.D. ug/mld         12)       n-C14       11.102       170748       25.605 ug/mlm         13)       i-16       0.000       0       N.D. ug/mld         14)       n-C15       12.129       173056       25.415 ug/mlm         15)       n-C16       13.160       17385       25.728 ug/mlm         17)       i-18       0.000       0       N.D. ug/mld         18)       n-C17       14.261       177290       25.665 ug/mlm         19)       Pristane       14.378       17718       25.728 ug/mlm         20)       n-C18       15.434       177347       25.895 ug/mlm         21)       Phytane       15.596       180137       25.474 ug/mlm         22)       n-C20       17.946       178662	3)	n-C9			
8)         i-13         0.000         0         N.D. ug/ml           9)         i-14         0.000         0         N.D. ug/mld           10)         n-C13         10.009         166595         25.926 ug/mlm           11)         i-15         0.000         0         N.D. ug/mld           12)         n-C14         11.102         170748         25.605 ug/mlm           13)         i-16         0.000         0         N.D. ug/mld           14)         n-C15         12.129         173056         25.415 ug/mlm           15)         n-C16         13.160         173885         25.127 ug/mlm           17)         i-18         0.000         0         N.D. ug/mld           18)         n-C17         14.261         177290         25.665 ug/mlm           19)         Pristane         15.434         177347         25.895 ug/mlm           20)         n-C18         15.434         177347         25.814 ug/mlm           21)         Phytane         15.596         180137         25.814 ug/mlm           22)         n-C20         17.946         178666         25.745 ug/mlm           23)         n-C23         21.827         179962 <td></td> <td></td> <td></td> <td>158962</td> <td>26.082 ug/mlm</td>				158962	26.082 ug/mlm
8)         i-13         0.000         0         N.D. ug/ml           9)         i-14         0.000         0         N.D. ug/mld           10)         n-C13         10.009         16595         25.926 ug/mlm           11)         i-15         0.000         0         N.D. ug/mld           12)         n-C14         11.102         170748         25.605 ug/mlm           13)         i-16         0.000         0         N.D. ug/mld           14)         n-C15         12.129         173056         25.415 ug/mlm           15)         n-C16         13.160         173885         25.127 ug/mlm           17)         i-18         0.000         0         N.D. ug/mld           18)         n-C17         14.261         177290         25.665 ug/mlm           19)         Pristane         15.434         177347         25.895 ug/mlm           20)         n-C18         15.434         177347         25.814 ug/mlm           21)         Phytane         15.596         180137         25.814 ug/mlm           22)         n-C20         17.946         178666         25.745 ug/mlm           23)         n-C23         21.827         179962	5) 7)	n-C12		163690	25.596 ug/mim
10)       n-C13       10.009       166595       25.926 ug/mlm         11)       i-15       0.000       0       N.D. ug/mld         12)       n-C14       11.102       170748       25.605 ug/mlm         13)       i-16       0.000       0       N.D. ug/mld         14)       n-C15       12.129       173056       25.415 ug/mlm         15)       n-C16       13.160       173885       25.127 ug/mlm         17)       i-18       0.000       0       N.D. ug/mld         18)       n-C17       14.261       177290       25.665 ug/mlm         19)       Pristane       14.378       177138       25.728 ug/mlm         20)       n-C17       14.261       177290       25.665 ug/mlm         21)       Phytane       15.596       180137       25.814 ug/mlm         22)       n-C19       16.669       176984       25.742 ug/mlm         24)       n-C20       17.946       178666       25.475 ug/mlm         25)       n-C21       19.243       179085       25.479 ug/mlm         26)       n-C24       23.087       179240       25.124 ug/mlm         28)       n-C24       25.516				000000	N.D. ug/ml
11)i-150.0000N.D.ug/mld12)n-C1411.10217074825.605ug/mlm13)i-160.0000N.D.ug/mld14)n-C1512.12917305625.415ug/mlm15)n-C1613.16017388525.127ug/mlm17)i-180.0000N.D.ug/mld18)n-C1714.26117729025.665ug/mlm20)n-C1815.43417734725.895ug/mlm21)Phytane15.59618013725.728ug/mlm22)n-C1916.66917698425.742ug/mlm23)n-C2017.94617866625.745ug/mlm24)n-C2017.94617866625.745ug/mlm25)n-C2119.24317908525.479ug/mlm26)n-C2220.54218083525.268ug/mlm27)n-C2321.82717996225.276ug/mlm30)n-C2625.51618142625.299ug/mlm31)n-C2726.67717615425.123ug/mlm33)n-C2928.88617816025.124ug/mlm35)n-C3029.95417479825.006ug/mlm36)n-C3130.97917259325.209ug/mlm38)n-C3332.94016573725.456ug/mlm39)n-C3433.87816756825.5	9)	i-14			
12)n-C1411.10217074825.605 ug/mlm13)i-160.0000N.D. ug/mld14)n-C1512.12917305625.415 ug/mlm15)n-C1613.16017388525.127 ug/mlm17)i-180.0000N.D. ug/mld18)n-C1714.26117729025.665 ug/mlm19)Pristane14.37817713825.728 ug/mlm20)n-C1815.43417734725.895 ug/mlm21)Phytane15.59618013725.814 ug/mlm22)n-C1916.66917698425.742 ug/mlm24)n-C2017.94617866625.745 ug/mlm25)n-C2119.24317908525.479 ug/mlm26)n-C2220.54218083525.596 ug/mlm27)n-C2321.82717996225.276 ug/mlm28)n-C2423.08717924025.124 ug/mlm30)n-C2625.51618142625.299 ug/mlm31)n-C2726.67717615425.205 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3029.95417479825.006 ug/mlm36)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					25.926 ug/mlm
13)i-160.0000N.D.ug/mld14)n-C1512.12917305625.415ug/mlm15)n-C1613.16017388525.127ug/mlm17)i-180.0000N.D.ug/mld18)n-C1714.26117729025.665ug/mlm19)Pristane14.37817713825.728ug/mlm20)n-C1815.43417734725.895ug/mlm21)Phytane15.59618013725.814ug/mlm22)n-C1916.66917698425.742ug/mlm24)n-C2017.94617866625.745ug/mlm25)n-C2119.24317908525.479ug/mlm26)n-C2220.54218035525.266ug/mlm27)n-C2321.82717996225.276ug/mlm28)n-C2423.08717924025.124ug/mlm30)n-C2625.51618142625.299ug/mlm31)n-C2726.67717615425.105ug/mlm33)n-C2827.80317804725.154ug/mlm35)n-C3029.95417479825.006ug/mlm36)n-C3130.97917259325.209ug/mlm37)n-C3231.97216808124.949ug/mlm38)n-C3332.94016573725.456ug/mlm39)n-C3433.878167568<					
14)n-C1512.12917305625.415 ug/mlm15)n-C1613.16017388525.127 ug/mlm17)i-180.0000N.D.ug/mld18)n-C1714.26117729025.665 ug/mlm20)n-C1815.43417734725.895 ug/mlm21)Phytane15.59618013725.814 ug/mlm22)n-C1916.66917698425.742 ug/mlm24)n-C2017.94617866625.745 ug/mlm25)n-C2119.24317908525.974 ug/mlm26)n-C2220.54218083525.596 ug/mlm27)n-C2321.82717996225.276 ug/mlm28)n-C2423.08717924025.124 ug/mlm29)n-C2625.51618142625.999 ug/mlm30)n-C2726.67717615425.205 ug/mlm31)n-C2726.67717781425.050 ug/mlm33)n-C2827.80317804725.154 ug/mlm35)n-C3130.97917259325.209 ug/mlm36)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
17)i-180.0000N.D.ug/mld18)n-C1714.26117729025.665ug/mlm19)Pristane14.37817713825.728ug/mlm20)n-C1815.43417734725.895ug/mlm21)Phytane15.59618013725.814ug/mlm22)n-C1916.66917698425.742ug/mlm24)n-C2017.94617866625.745ug/mlm25)n-C2119.24317908525.479ug/mlm26)n-C2220.54218083525.596ug/mlm27)n-C2321.82717924025.124ug/mlm28)n-C2423.08717924025.124ug/mlm30)n-C2625.51618142625.299ug/mlm31)n-C2726.67717615425.205ug/mlm32)n-C3827.80317804725.154ug/mlm33)n-C2928.89617816025.123ug/mlm36)n-C3130.97917259325.209ug/mlm37)n-C3231.97216808124.949ug/mlm38)n-C3332.94016573725.456ug/mlm39)n-C3433.87816756825.591ug/mlm		n-C15	12.129		
18)n-C1714.26117729025.665 ug/mlm19)Pristane14.37817713825.728 ug/mlm20)n-C1815.43417734725.895 ug/mlm21)Phytane15.59618013725.814 ug/mlm22)n-C1916.66917698425.742 ug/mlm24)n-C2017.94617866625.745 ug/mlm25)n-C2119.24317908525.479 ug/mlm26)n-C2320.54218083525.596 ug/mlm27)n-C2321.82717996225.276 ug/mlm28)n-C2423.08717924025.124 ug/mlm29)n-C2625.51618142625.299 ug/mlm30)n-C2726.67717615425.205 ug/mlm31)n-C2728.89617816025.123 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3130.97917259325.209 ug/mlm36)n-C3130.97917259325.209 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
19)Pristane14.37817713825.728 ug/mlm20)n-C1815.43417734725.895 ug/mlm21)Phytane15.59618013725.814 ug/mlm22)n-C1916.66917698425.742 ug/mlm24)n-C2017.94617866625.745 ug/mlm25)n-C2119.24317908525.479 ug/mlm26)n-C2220.54218083525.596 ug/mlm27)n-C2321.8271796225.276 ug/mlm28)n-C2423.08717924025.124 ug/mlm29)n-C2524.31918053525.268 ug/mlm30)n-C2625.51618142625.299 ug/mlm31)n-C2726.67717615425.205 ug/mlm32)n-C2827.80317804725.124 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3029.95417479825.006 ug/mlm36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
20)n-C1815.43417734725.895 ug/mlm21)Phytane15.59618013725.814 ug/mlm22)n-C1916.66917698425.742 ug/mlm24)n-C2017.94617866625.745 ug/mlm25)n-C2119.24317908525.479 ug/mlm26)n-C2220.54218083525.596 ug/mlm27)n-C2321.8271796225.276 ug/mlm28)n-C2423.08717924025.124 ug/mlm29)n-C2524.31918053525.268 ug/mlm30)n-C2625.51618142625.299 ug/mlm31)n-C2726.67717615425.205 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3029.95417479825.006 ug/mlm36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
22)n-C1916.66917698425.742 ug/mlm24)n-C2017.94617866625.745 ug/mlm25)n-C2119.24317908525.479 ug/mlm26)n-C2220.54218083525.596 ug/mlm27)n-C2321.82717996225.276 ug/mlm28)n-C2423.08717924025.124 ug/mlm29)n-C2524.31918053525.268 ug/mlm30)n-C2625.51618142625.299 ug/mlm31)n-C2726.67717615425.205 ug/mlm32)n-C2827.80317804725.154 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3029.95417479825.006 ug/mlm36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
24) $n-C20$ 17.94617866625.745ug/mlm25) $n-C21$ 19.24317908525.479ug/mlm26) $n-C22$ 20.54218083525.596ug/mlm27) $n-C23$ 21.82717996225.276ug/mlm28) $n-C24$ 23.08717924025.124ug/mlm29) $n-C25$ 24.31918053525.268ug/mlm30) $n-C26$ 25.51618142625.299ug/mlm31) $n-C27$ 26.67717615425.205ug/mlm32) $n-C28$ 27.80317804725.154ug/mlm33) $n-C29$ 28.89617816025.123ug/mlm36) $n-C31$ 30.97917259325.209ug/mlm37) $n-C32$ 31.97216808124.949ug/mlm38) $n-C33$ 32.94016573725.456ug/mlm39) $n-C34$ 33.87816756825.591ug/mlm					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$					
30)n-C2625.51618142625.299ug/mlm31)n-C2726.67717615425.205ug/mlm32)n-C2827.80317804725.154ug/mlm33)n-C2928.89617816025.123ug/mlm35)n-C3029.95417479825.006ug/mlm36)n-C3130.97917259325.209ug/mlm37)n-C3231.97216808124.949ug/mlm38)n-C3332.94016573725.456ug/mlm39)n-C3433.87816756825.591ug/mlm					2016년 27월 17월 2016년 21일 - 18월 18월 18일 - 18g - 1
31)n-C2726.67717615425.205 ug/mlm32)n-C2827.80317804725.154 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3029.95417479825.006 ug/mlm36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
32)n-C2827.80317804725.154 ug/mlm33)n-C2928.89617816025.123 ug/mlm35)n-C3029.95417479825.006 ug/mlm36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
35)n-C3029.95417479825.006 ug/mlm36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm	32)	n-C28	27.803	178047	25.154 ug/mlm
36)n-C3130.97917259325.209 ug/mlm37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
37)n-C3231.97216808124.949 ug/mlm38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
38)n-C3332.94016573725.456 ug/mlm39)n-C3433.87816756825.591 ug/mlm					
39) n-C34 33.878 167568 25.591 ug/mlm					
40) n-C35 34.875 162220 25.647 ug/mlm	39)				
	40)	n-C35	34.875	162220	25.647 ug/mlm

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ Data File : FID10079B.D Signal(s) : FID2B.CH Acg On : 15-Aug-2013, 21:27:36 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc : ALS Vial : 52 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 16 15:15:07 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 36.009
 168807
 24.904 ug/mlm

 37.319
 154426
 25.287 ug/mlm

 38.840
 151955
 25.345 ug/mlm

 40.631
 144717
 25.108 ug/mlm

 42.735
 131310
 25.061 ug/mlm

 0.000
 0
 N.D. ug/mld

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 47) TRH1 48) TRH2 49) TRH3 50) TRH4 51) TRH5 52) TRH6 53) GRO 54) DRO 55) RRO

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

\_\_\_\_\_

45'132 0+0-u 6C3-4 10.631 u-C38 38.840 1637 61272 960-u 600'91 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M TIC: FID10079B.D 34.875 878.65 35'840 31.972 626.05 59.419 59.419 58.896 n-C28 27,803 P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ 120-4 26.677 52'216 920-u P-CS2 618.43 p-C24 780.65 u-C23 128.12 0 u-css 20.542 120-4 anesocia-ed 841.81 QLast Update : Mon Aug 12 14:55:52 2013 849.71 610-u 699'91 Sample Multiplier: 1 ગાકીસાવ 15.59615.434 Response via : Initial Calibration enteleine : C8 - C40 aliphatic 15-Aug-2013, 21:27:36 BUE Quant Time: Aug 16 15:15:07 2013 esapested=H 160 12.910 910-U 5173 Integration File: autointl.e PLD-U 201 610-u AL-WKCC-25-024 600'01 Meghan Dailey B-Gdecane 8.840 FID10079B.D Integrator: ChemStation 110-4 285'2 FID2B.CH 6.233 010-4 60-u 928.4 80-4 3.515 52 ... •• .. Signal Phase Quant Title .. .. Signal Info Volume Inj. ... Data File Data Path Signal(s) Response 24000 22000 8000 2000 20000-18000 16000 14000 12000 10000 6000 4000 ò Operator ALS Vial Acq On Sample Misc

'08BACK081213.M Mon Aug 19 11:07:50 2013 49

3 Page:

60.00

55.00

50.00

45.00

40.00

35.00

30.00

25.00

15.00

10.00

5.00

0.00

Time

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\

Data File : FID10079G.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 10:26:04 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc . ALS Vial : 62 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 16 15:21:33 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound 7 n-C12 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.2081.223-1.2730.001.0001.0000.0710.000.9520.992-4.2720.000.9490.990-4.3730.000.9440.980-3.8720.000.9620.998-3.7720.000.9480.981-3.5720.000.9480.981-3.5720.000.9570.985-2.9720.000.9690.998-3.0720.000.9690.998-3.0720.000.9740.998-2.5710.000.9821.003-2.1710.000.9841.001-1.7710.000.9841.001-1.7710.000.9890.997-0.8700.000.9890.997-0.8700.000.9760.980-0.2700.000.9760.980-0.2700.010.9290.939-1.170-0.010.9290.939-1.170-0.010.9290.939-1.170-0.010.9350.962-2.971-0.020.8420.860-2.171-0.020.827</ 16 I 5a-androstane 
 10
 1
 54 androstane

 18
 n-C17

 19
 Pristane

 20
 n-C18

 21
 Phytane

 22
 n-C19

 23
 S

 24
 n-C20
 23 S n-eicos 24 n-C20 25 n-C21 26 n-C22 27 n-C23 28 n-C24 29 n-C25 30 n-C26 31 n-C27 32 n-C28 33 n-C29 34 S n-triac 34 S n-triacontane-d62 

 34
 S
 n-tria

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

44	n-C39		0.795	0.800	-0.6	70	-0.03
45	n-C40		0.722	0.738	-2.2	70	-0.03
		Evaluate Co	ontinuing Cali	bration	Report - Not	For	unds
8 9	i-13		0.017	0.000	100.0#	0#	-9.03#
9	i-14		0.018	0.000	100.0#	0#	-9.73#
11	i-15		0.018	0.000	100.0#	0#	-10.88#
13	i-16		0.019	0.000	100.0#	0#	-11.77#
17	i-18		0.019	0.000	100.0#	0#	-13.72#
46	TPH		0.018	0.000	100.0#	0#	-29.05#
47	TRH1		0.018	0.000	100.0#	0#	-7.75#
48	TRH2		0.018	0.000	100.0#	0#	-15.92#
49	TRH3		0.018	0.000	100.0#	0#	-23.38#
50	TRH4		0.018	0.000	100.0#	0#	-28.40#
51	TRH5		0.018	0.000	100.0#	0#	-33.37#
52	TRH6		0.018	0.000	100.0#	0#	-44.83#
53	GRO		0.018	0.000	100.0#	0#	-5.27#
54	DRO		0.018	0.000	100.0#	0#	-14.31#
55	RRO		0.018	0.000	100.0#	0#	-33.00#

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

FID1C08BACK081213.M Mon Aug 19 11:07:21 2013

	27 <del>2</del> 2323		(QI Revi							
Data Pa	ath : P:\2013\J13034\Al	inhatics\FNV 30	30\FTD10079\							
	le : FID10079G.D	ipilacies (Env 500	50 (11010075 (							
	(s) : FID2B.CH									
	Acq On : 16-Aug-2013, 10:26:04									
	Operator : Meghan Dailey									
Sample : AL-WKCC-25-024 Misc :										
MID VID	it . 02 bampic nater	P++>+ +								
Integra	tion File: autointl.e									
Quant I	'ime: Aug 16 15:21:33 2	013								
	lethod : P:\2005\J05453		3078\FID1C08B	ACK081213.M						
	Citle : C8 - C40 aliph									
	Npdate : Mon Aug 12 14:									
	e via : Initial Calibr	ation								
Integra	tor: ChemStation									
Volume	Inj. :									
	Phase :									
	Info :									
and Produced										
	Compound	R.T.	Response	Conc Units						
	al Standards									
	al Standards n-hexadecane-d34	12 905	279963	50.000 ug/mlm						
	5a-androstane									
10, 1	ou undrobeano									
System	Monitoring Compounds									
6) S	n-dodecane-d26	8.630	142878	25.715 ug/mlm						
23) S	n-eicosane-d42	17.541	137687	25.724 ug/mlm 24.775 ug/mlm						
34) S	n-triacontane-d62	29.406	131847	24.775 ug/mlm						
Target	Compounds	3.509	142046	26 391 ug/mlm						
2)	n-C8 n-C9 n-C10	4.823	142040	26.381 ug/mlm 25.917 ug/mlm						
3)	n-09		1540607	25.898 ug/mlm						
4)	n-c10			25.925 ug/mlm						
2)	n-C11	8.836	159547	25.525 ug/mim						
7) 8)	n-C12 i-13	0.000	109047	25.528 ug/mlm N.D. ug/ml						
9)	i - 14	0.000	0	N.D. ug/mld						
	n-C13			25.850 ug/mlm						
	i-15	0.000	102007	N.D. ug/mld						
12)	n-C14	11.098	166635	25.568 ug/mlm						
13)	i-16									
		0.000	0	N.D. ug/mld						
14)		0.000 12.126	0 168648	N.D. ug/mld 25.342 ug/mlm						
	n-C15	12.126	168648	25.342 ug/mlm						
15)	n-C15 n-C16	12.126 13.156	168648 169515	25.342 ug/mlm 25.064 ug/mlm						
15) 17)	n-C15 n-C16 i-18	12.126 13.156 0.000	168648 169515 0	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld						
15) 17) 18)	n-C15 n-C16 i-18 n-C17	12.126 13.156 0.000 14.256	168648 169515 0 172915	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm						
15) 17) 18) 19)	n-C15 n-C16 i-18 n-C17 Pristane	12.126 13.156 0.000 14.256 14.373	168648 169515 0 172915 173098	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm						
15) 17) 18) 19) 20)	n-C15 n-C16 i-18 n-C17 Pristane n-C18	12.126 13.156 0.000 14.256 14.373 15.428	168648 169515 0 172915 173098 173093	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm						
15) 17) 18) 19) 20) 21)	n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane	12.126 13.156 0.000 14.256 14.373 15.428 15.590	168648 169515 0 172915 173098	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm						
15) 17) 18) 19) 20) 21) 22)	n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662	168648 169515 0 172915 173098 173093 175663	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 22) 24)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938	168648 169515 0 172915 173098 173093 175663 172949	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25)	n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235	168648 169515 0 172915 173098 173093 175663 172949 174168	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm						
15) 17) 18) 20) 21) 22) 24) 25) 26) 27)	n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235	168648 169515 0 172915 173098 173093 175663 172949 174168 174628	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm						
15) 17) 18) 20) 21) 22) 24) 25) 26) 27) 28)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C23 n-C24</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C23 n-C24 n-C25</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.150 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) 31)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C23 n-C24 n-C25 n-C26</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 176271	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.150 ug/mlm 25.271 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) 31) 32)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C23 n-C24 n-C25 n-C26 n-C27</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504 26.664	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 175734 176271 171180	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.968 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.150 ug/mlm 25.255 ug/mlm 25.166 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) 31) 32) 33)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C17 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 n-C28</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504 26.664 27.791	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 175734 176271 171180 172966	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.864 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.150 ug/mlm 25.255 ug/mlm 25.166 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 22) 24) 25) 26) 27) 28) 29) 30) 31) 32) 33) 33)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 n-C28 n-C29</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504 26.664 27.791 28.884	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 176271 171180 172966 173130	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.864 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.150 ug/mlm 25.255 ug/mlm 25.166 ug/mlm 25.107 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) 31) 32) 33) 35) 36)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C17 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 n-C28 n-C29 n-C30</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504 26.664 27.791 28.884 29.941	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 176271 171180 172966 173130 169903	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.864 ug/mlm 25.864 ug/mlm 25.845 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.150 ug/mlm 25.255 ug/mlm 25.166 ug/mlm 25.107 ug/mlm 25.084 ug/mlm						
14) 15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) 31) 32) 33) 35) 36) 37) 38)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 n-C28 n-C29 n-C30 n-C31</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504 26.664 27.791 28.884 29.941 30.967	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 176271 171180 172966 173130 169903 167718	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.864 ug/mlm 25.864 ug/mlm 25.865 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.251 ug/mlm 25.255 ug/mlm 25.166 ug/mlm 25.107 ug/mlm 25.084 ug/mlm 24.972 ug/mlm						
15) 17) 18) 19) 20) 21) 22) 24) 25) 26) 27) 28) 29) 30) 31) 32) 33) 35) 35) 36) 37)	<pre>n-C15 n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 n-C22 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 n-C28 n-C29 n-C30 n-C31 n-C31</pre>	12.126 13.156 0.000 14.256 14.373 15.428 15.590 16.662 17.938 19.235 20.532 21.816 23.076 24.306 25.504 26.664 27.791 28.884 29.941 30.967 31.960	168648 169515 0 172915 173098 173093 175663 172949 174168 174628 176339 175191 174631 175734 176271 171180 172966 173130 169903 167718 163583	25.342 ug/mlm 25.064 ug/mlm N.D. ug/mld 25.719 ug/mlm 25.832 ug/mlm 25.864 ug/mlm 25.864 ug/mlm 25.865 ug/mlm 25.786 ug/mlm 25.527 ug/mlm 25.645 ug/mlm 25.281 ug/mlm 25.251 ug/mlm 25.255 ug/mlm 25.166 ug/mlm 25.107 ug/mlm 25.084 ug/mlm 24.972 ug/mlm						

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ Data File : FID10079G.D Signal(s) : FID2B.CH Acg On : 16-Aug-2013, 10:26:04 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc : ALS Vial : 62 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 16 15:21:33 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 35.99116646625.233 ug/mlm37.29615187625.552 ug/mlm38.81514923125.574 ug/mlm40.60214116525.164 ug/mlm42.70813006525.505 ug/mlm 41) n-C36 

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GRO

 54)
 DRO

 55)
 RRO

 n-C37 42) 0 N.D. ug/mld 0.000 0.000 0 N.D. ug/mld 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0.000 0.000 0.000 0.000 0.000 0.000 0 N.D. ug/mld 0 N.D. ug/mld 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

45.708 0+0-4 40.602 u-C39 u-C38 38.815 150-u 967.75 960-u 166'98 u-C32 u-C34 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M TIC: FID10079G.D 298.462 733.867 u-C33 32,928 -n-C29 -n-C31 -n-C31 -0-C31 -0-C32 31.960 20.967 59.406 820-u P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ 162.75 123-u 56.664 P-C26 \$22'20¢ P-CSE 306 p-C24 920.65 P-C23 918.12 0 u-css 50.532 1-C21 19.235 anssozia-n Ja-androst 661.81 : Mon Aug 12 14:55:52 2013 175'11-61)-u 16.662 Sample Multiplier: 1 antitive 824.010.065.01 Response via : Initial Calibration enteland Quant Title : C8 - C40 aliphatic 98280 16-Aug-2013, 10:26:04 Quant Time: Aug 16 15:21:33 2013 B-Gokaqeca 991 12,905 510-U 971 71 Integration File: autointl.e \$10-U 860.11 613-u AL-WKCC-25-024 S00.01 Meghan Dailey Breddecane 968.8 FID10079G.D Integrator: ChemStation 112-4 629 L FID2B.CH 010-4 6.229 60-u 4'853 80-u 3,509 62 •• •• ... QLast Update Signal Phase Volume Inj. Signal Info •• ... ••• .. •• .. Data Path Data File Signal(s) 4000 2000 22000 20000 18000 16000 14000 12000 10000 8000 6000 Response\_ ò Operator ALS Vial Acq On Sample Misc

3 Page:

60.00

55.00

50.00

45.00

40.00

35.00

30.00

25.00

15.00

10.00

5.00

0.00

Time

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ Data File : FID10079H.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 18:40:48 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc . . ALS Vial : 69 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 19 11:05:12 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound 7 n-C12 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.2081.225-1.4760.001.0001.0000.0740.000.9520.987-3.7760.000.9490.984-3.7760.000.9490.984-3.7760.000.9440.976-3.4750.000.9620.995-3.4750.000.9480.978-3.2750.000.9570.983-2.7750.000.9690.996-2.8750.000.9690.996-2.8750.000.9821.002-2.0750.000.9841.001-1.7740.000.9841.001-1.5740.000.9851.000-1.5740.000.9890.977-0.8740.000.9890.979-0.1730.000.9640.979-0.1730.020.9780.979-0.173-0.020.9290.941-1.373-0.020.9290.941-1.373-0.020.9350.962-2.975-0.020.8420.860-2.174-0.030.8270.843-1.974-0.0316 I 5a-androstane 
 18
 n-C17

 19
 Pristane

 20
 n-C18

 21
 Phytane

 22
 n-C19

 23
 S

 n-eicosane-d42
 23 S n-eicosane-d42 24 n-C20 25 n-C21 26 n-C22 27 n-C23 28 n-C24 29 n-C25 30 n-C26 31 n-C27 32 n-C28 33 n-C29 34 S n-triacontane-34 S n-triacontane-d62 

 34
 S
 n-triad

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

44	n-C39	0.	795	0.799	-0.5	74	-0.04
45	n-C40	0.	722	0.738	-2.2	73	-0.05
		Evaluate Continuing	Cal	ibration	Report - Not	Fo	unds
8	i-13	0.	017	0.000	100.0#	0#	-9.03#
9	i-14	0.	018	0.000	100.0#	0#	-9.73#
11	i-15	0.	018	0.000	100.0#	0#	-10.88#
13	i-16	0.	019	0.000	100.0#	0#	-11.77#
17	i-18	0.	019	0.000	100.0#	0#	-13.72#
46	TPH	0.	018	0.000	100.0#	0#	-29.05#
47	TRH1	0.	018	0.000	100.0#	0#	-7.75#
48	TRH2	0.	018	0.000	100.0#	0#	-15.92#
49	TRH3	0.	018	0.000	100.0#	0#	-23.38#
50	TRH4	0.	018	0.000	100.0#	0#	-28.40#
51	TRH5	0.	018	0.000	100.0#	0#	-33.37#
52	TRH6	0.	018	0.000	100.0#	0#	-44.83#
53	GRO	0.	018	0.000	100.0#	0#	-5.27#
54	DRO	0.	018	0.000	100.0#	0#	-14.31#
55	RRO	0.	018	0.000	100.0#	0#	-33.00#

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

FID1C08BACK081213.M Mon Aug 19 11:05:32 2013

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ Data File : FID10079H.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 18:40:48 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc . ALS Vial : 69 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 19 11:05:12 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90329092550.000 ug/mlm16) I5a-androstane18.13637060350.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.62914854625.728 ug/mlm23) Sn-eicosane-d4217.53714418225.692 ug/mlm34) Sn-triacontane-d6229.40213845124.814 ug/mlm 

 3.509
 146922
 26.258 ug/mlm

 4.822
 152216
 25.881 ug/mlm

 6.228
 160278
 25.894 ug/mlm

 7.577
 161164
 25.919 ug/mlm

 8.835
 165571
 25.493 ug/mlm

 0.000
 0
 N.D. ug/mld

 10.004
 168659
 25.844 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.096
 173159
 25.568 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.124
 175832
 25.426 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.253
 180512
 25.608 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.253
 180512
 25.608 ug/mlm

 15.425
 180768
 25.866 ug/mlm

 15.587
 183591
 25.782 ug/mlm

 15.587
 183591
 25.776 ug/mlm

 16.659
 180843
 25.776 ug/mlm

 19.232
 182762
 25.482 ug/mlm

 20.530
 184800
 25.633 ug/mlm

 21.813
 183539
 25.262 ug/mlm

 23.073
 183055
 Target Compounds 2) n-C8 3) n-C9 4) n-C10 5) n-C11 7) n-C12 8) i-13 9) i-14 10) n-C13 11) i-15 12) n-C14 13) i-16 14) n-C15 15) n-C16 17) i-18 18) n-C17 19) Pristane 20) n-C18 21) Phytane 22) n-C19 24) n-C20 25) n-C21 26) n-C22 27) n-C23 28) n-C24 29) n-C25 30) n-C26 31) n-C26 31) n-C27 32) n-C28 33) n-C28 33) n-C28 33) n-C29 35) n-C30 36) n-C31 37) n-C32 38) n-C33 39) n-C34 40) n-C35 2) n-C8 n-C9 3)

Data Path : P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ Data File : FID10079H.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 18:40:48 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc . ALS Vial : 69 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 19 11:05:12 2013 Ouant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 35.987
 174521
 25.231
 ug/mlm

 37.290
 159238
 25.552
 ug/mlm

 38.812
 156242
 25.538
 ug/mlm

 40.593
 147967
 25.157
 ug/mlm

 42.688
 136321
 25.496
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GRO

 54)
 DRO

 55)
 RRO

 41) n-C36

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m) = manual int.

(QT Reviewed) Quantitation Report

45.688 \$0.594 38.812 37.290 186.85 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M TIC: FID10079H.D 34.855 198.55 35.921 196.15 -n-C30 -n-C30 -n-C30 -n-C30 196'08 -29.402 -28.878 987.75 P:\2013\J13034\Aliphatics\ENV 3080\FID10079\ 199.92 25.500 54.303 2/0'22 21.813 029'0 19,232 anesosie-n 961.81 PE6 21 : Mon Aug 12 14:55:52 2013 12.53.71 699.91 Sample Multiplier: 1 Prestane 524-5485-51 Response via : Initial Calibration enteledra : C8 - C40 aliphatic 16-Aug-2013, 18:40:48 642 7 Quant Time: Aug 19 11:05:12 2013 B-Pekedeca 124 12,903 12.124 Integration File: autointl.e 960'11 AL-WKCC-25-024 10.004 Meghan Dailey H-6decane 968.8 FID10079H.D Integrator: ChemStation LLG L FID2B.CH 6.228 4.822 60G.E 69 •• •• ••• QLast Update Signal Phase Quant Title Volume Inj. Signal Info ... ••• •• •• Data Path Data File Signal(s) 24000 22000 10000 8000 6000 4000 2000 Response 20000 18000 16000 14000 12000 Ó Operator ALS Vial Acq On Sample Misc

:08BACK081213.M Mon Aug 19 11:06:12 2013 59

3 Page:

60.00

55.00

50.00

45.00

40.00 660-u

35.00

30.00

25.00 p-C26

20.00 p-CS2

15.00

10.00 E10-4

> 5.00 60-u

> > 0.00

Time

0+0-40

1-C38 150-u

960-n

u-C32

n-C34 n-C33 n-C35

920-u

LSD-u

P-CSE

u-C24

P-C23

U-CS1

610-U

910-U

+10-4

110-4

010-4

80-u

			Concentration
Data File Name	FID10079C.D		FID10079C.D
Sample Name	AL-SRM2779-20-01		AL-SRM2779-20-01
Misc Info	0		15-Aug-2013, 22:38:15
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	15-Aug-2013, 22:38:15		0.05
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	53
Vial Number	53	IS Area 1	320383
Sample Multiplier	0.05	IS Area 2	446097

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8		3.52	1960080	15.91	15.905
3) n-C9		4.84	1731290	13.37	13.365
4) n-C1	0	6.25	1619610	11.88	11.880
5) n-C1	1	7.60	1485320	10.85	10.846
7) n-C1		8.85	1366210	9.55	9.551
8) i-13		9.03	325014	2.26	2.261
9) i-14		9.73	206332	1.38	1.383
10) n-C1	3	10.02	1228030	8.54	8.544
11) i-15		10.89	280903	1.84	1.844
12) n-C1	4	11.12	1073680	7.20	7.198
13) i-16	4	11.78	418503	2.70	2.704
14) n-C1		12.14	1083240	7.11	7.112
15) n-C1		13.18	897087	5.80	5.795
	0				
17) i-18	7	13.73	240700	1.43	1.431
18) n-C1		14.28	817051	4.81	4.815
19) Prista		14.38	426612	2.52	2.522
20) n-C1		15.45	652376	3.88	3.877
21) Phyta		15.60	253296	1.48	1.478
22) n-C1		16.69	618285	3.66	3.661
24) n-C2		17.96	507127	2.97	2.975
25) n-C2		19.26	431233	2.50	2.497
26) n-C2		20.56	374604	2.16	2.158
27) n-C2		21.84	336009	1.92	1.921
28) n-C24	4	23.10	299422	1.71	1.708
29) n-C2	5	24.33	249137	1.42	1.419
30) n-C20	5	25.53	210213	1.19	1.193
31) n-C2	7	26.68	163679	0.95	0.953
32) n-C2	3	27.81	136827	0.79	0.787
33) n-C29	9	28.90	130354	0.75	0.748
35) n-C30	)	29.96	112275	0.65	0.654
36) n-C3:	l I	30.99	93500.5	0.56	0.556
37) n-C3	2	31.98	66859.8	0.40	0.404
38) n-C33	3	32.94	77529.6	0.48	0.485
39) n-C34		33.89	70238.5	0.44	0.437
40) n-C35		34.88	52762.9	0.34	0.340
41) n-C36		36.01	36401.7	0.22	0.219
12) n-C3		37.32	31529.2	0.21	0.210
13) n-C38		38.85	23415.5	0.16	0.159
14) n-C39		40.63	21142.6	0.15	0.149
15) n-C40		42.74	21142.0	0.13	0.145
16) TPH		7.60	106256000	659.00	659.000
7) TRH1		7.60			124.979
			20151400	124.98	
18) TRH2		12.14	12005600	74.46	74.459
19) TRH3		21.84	1905080	11.82	11.815
50) TRH4		26.68	1672960	10.38	10.376
51) TRH5		31.98	1365430	8.47	8.468
52) TRH6		37.32	212337	1.32	1.317
3) GRO		0.00	0	0.00	0.000
4) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
6) n-doo	lecane-d26	8.64	117196	0.92	92.2
23) n-eice	osane-d42	17.55	131145	0.97	96.4
84) n-tria	contane-d62	29.43	129894	0.97	96.6
	adecane-d34	12.91	320383	2.50	320383.000
1) n-he>	adecane-u34	12.91	520505	2.50	520585.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : FID10079C.D Signal(s) : FID2B.CH Acq On : 15-Aug-2013, 22:38:15 Operator : Meghan Dailey Sample : AL-SRM2779-20-01 Misc ALS Vial : 53 Sample Multiplier: 0.05 Integration File: autoint1.e Quant Time: Aug 16 15:43:32 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Fri Aug 16 15:16:38 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units ------Internal Standards 1) In-hexadecane-d3412.91532038350.000 ug/mlm16) I5a-androstane18.16244609750.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.6361171960.922 ug/mlm23) Sn-eicosane-d4217.5531311450.971 ug/mlm34) Sn-triacontane-d6229.4261298940.967 ug/mlm 

 3.523
 1960080
 15.905
 ug/mlm

 4.838
 1731287
 13.365
 ug/mlm

 6.246
 1619611
 11.880
 ug/mlm

 7.596
 1485323
 10.845
 ug/mlm

 9.033
 325014
 2.261
 ug/mlm

 9.733
 206332
 1.383
 ug/mlm

 10.024
 1228032
 8.544
 ug/mlm

 11.780
 418503
 2.704
 ug/mlm

 11.780
 418503
 2.704
 ug/mlm

 13.176
 897087
 5.795
 ug/mlm

 13.731
 240700
 1.431
 ug/mlm

 14.277
 817051
 4.815
 ug/mlm

 15.605
 253296
 1.478
 ug/mlm

 15.605
 253296
 1.478
 ug/mlm

 15.605
 253296
 1.478
 ug/mlm

 16.686
 618285
 3.661
 ug/mlm

 20.556
 374604
 2.158
 ug/mlm

 21.839
 336009
 1.921
 ug/mlm

 24.329
 249137
 1.419
 ug/mlm

 <t Target Compounds 2) n-C8 3) n-C9 4) n-C10 5) n-C11 7) n-C12 8) i-13 i-14 9) n-C13 10) 11) i-15 n-C14 12) i-16 13) 14) n-C15 n-C16 15) i-18 17) n-C17 Pristane n-C18 Phytane n-C19 18) 19) 20) 21) 22) n-C20 24) n-C21 25) n-C22 26) n-C23 27) n-C24 28) n-C25 29) n-C26 n-C27 n-C28 n-C29 n-C30 n-C31 30) 31) 32) 33) 35) 36) 37) n-C32 38) n-C33 39) n-C34 40) n-C35

Data Fi Signal Acq On Operato Sample Misc	<pre>ath : C:\msdchem\2\data\FID: Lle : FID10079C.D (s) : FID2B.CH : 15-Aug-2013, 22:38:15 or : Meghan Dailey : AL-SRM2779-20-01 : al : 53 Sample Multiplies</pre>			
Quant I Quant M Quant I QLast U Respons	tion File: autoint1.e Time: Aug 16 15:43:32 2013 Method : P:\2005\J05453\Alig Title : C8 - C40 aliphatic Mpdate : Fri Aug 16 15:16:38 Se via : Initial Calibration tor: ChemStation	2013	078\FID1C08E	ACK081213.M
Volume	Inj. :			
	Phase :			
Signal	Info :			
	Compound	R.T.	Response	Conc Units
41)	n-C36	36.010	36402	0.010
10)	11 000	20.010		U.ZI9 ud/mim
42)	n-C37	37.323	31529	0.219 ug/mlm 0.210 ug/mlm
42) 43)	n-C37 n-C38		31529 23415	0.219 ug/mlm 0.210 ug/mlm 0.159 ug/mlm
42) 43) 44)	n-C37 n-C38 n-C39	37.323	31529 23415 21143	0.219 ug/mlm 0.210 ug/mlm 0.159 ug/mlm 0.149 ug/mlm
45)	n-C37 n-C38 n-C39 n-C40	37.323 38.847 40.633 42.745	21265	0.219 ug/mlm 0.210 ug/mlm 0.159 ug/mlm 0.149 ug/mlm 0.165 ug/mlm
45) 46)	n-C37 n-C38 n-C39 n-C40 TPH	37.323 38.847 40.633 42.745	21265 106256229	0.165 ug/mlm 658.999 ug/mlm
45) 46) 47)	n-C37 n-C38 n-C39 n-C40 TPH TRH1	37.323 38.847 40.633 42.745 7.596f 7.596	21265 106256229 20151420	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm
45) 46) 47) 48)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f	21265 106256229 20151420 12005615	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm
45) 46) 47) 48) 49)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f 21.839f	21265 106256229 20151420 12005615 1905085	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm 11.815 ug/mlm
45) 46) 47) 48) 49) 50)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f 21.839f 26.684f	21265 106256229 20151420 12005615 1905085 1672963	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm 11.815 ug/mlm 10.376 ug/mlm
45) 46) 47) 48) 49) 50) 51)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f 21.839f 26.684f 31.979f	21265 106256229 20151420 12005615 1905085 1672963 1365429	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm 11.815 ug/mlm 10.376 ug/mlm 8.468 ug/mlm
45) 46) 47) 48) 49) 50) 51) 52)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f 21.839f 26.684f 31.979f 37.323f	21265 106256229 20151420 12005615 1905085 1672963 1365429 212337	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm 11.815 ug/mlm 10.376 ug/mlm 8.468 ug/mlm 1.317 ug/mlm
45) 46) 47) 48) 49) 50) 51) 52) 53)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH2 TRH3 TRH4 TRH5 TRH6 GRO	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f 21.839f 26.684f 31.979f 37.323f 0.000	21265 106256229 20151420 12005615 1905085 1672963 1365429 212337 0	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm 11.815 ug/mlm 10.376 ug/mlm 8.468 ug/mlm 1.317 ug/mlm N.D. ug/mld
45) 46) 47) 48) 49) 50) 51) 52) 53)	n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	37.323 38.847 40.633 42.745 7.596f 7.596 12.144f 21.839f 26.684f 31.979f 37.323f	21265 106256229 20151420 12005615 1905085 1672963 1365429 212337	0.165 ug/mlm 658.999 ug/mlm 124.979 ug/mlm 74.459 ug/mlm 11.815 ug/mlm 10.376 ug/mlm 8.468 ug/mlm 1.317 ug/mlm

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m)=manual int.

Quantitation Report (QT Reviewed)

C:\msdchem\2\data\FID10079

FID10079C.D

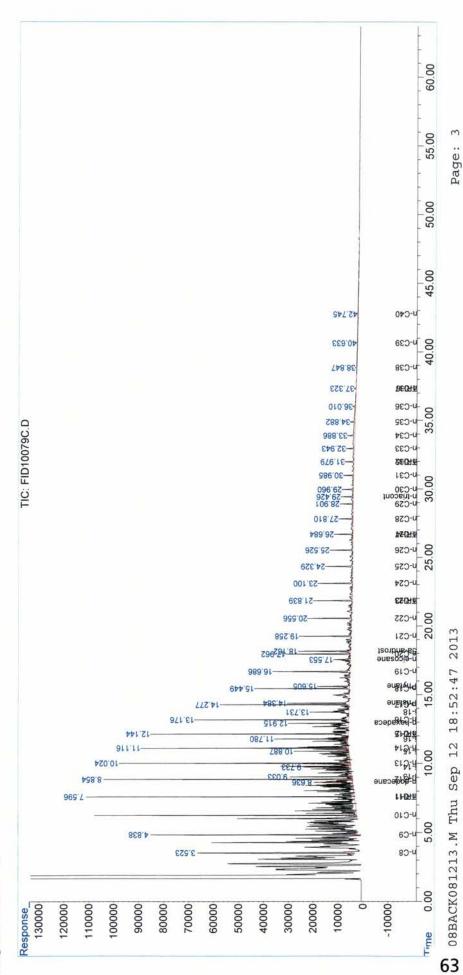
...

••

Data Path Data File

Quant Time: Aug 16 15:43:32 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Sample Multiplier: 0.05 QLast Update : Fri Aug 16 15:16:38 2013 : Initial Calibration : C8 - C40 aliphatic 15-Aug-2013, 22:38:15 Integration File: autoint1.e AL-SRM2779-20-01 Meghan Dailey Integrator: ChemStation FID2B.CH 53 Response via Quant Title .. .. ... Signal(s) Operator ALS Vial Acq On Sample Misc

Volume Inj. : Signal Phase : Signal Info :



			Concentration
Data File Name	FID10079F.D		FID10079F.D
Sample Name	AL-WKPem-001		AL-WKPem-001
Misc Info	0		16-Aug-2013, 02:10:37
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 02:10:37		1
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	55
Vial Number	55	IS Area 1	302628
Sample Multiplier	1	IS Area 2	388762

# Nam	e	Ret Time	Target Response	Amount	Concentration
2) n-C8		0.00	0	0.00	0.000
3) n-C9		0.00	0	0.00	0.000
4) n-C10		0.00	0	0.00	0.000
5) n-C11		0.00	0	0.00	0.000
7) n-C12		0.00	0	0.00	0.000
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C13		0.00	0	0.00	0.000
11) i-15		0.00	0	0.00	0.000
12) n-C14		0.00	0	0.00	0.000
13) i-16		0.00	0	0.00	0.000
14) n-C15		0.00	0	0.00	0.000
15) n-C16		0.00	0	0.00	0.000
		0.00	0	0.00	0.000
17) i-18		0.00		0.00	0.000
18) n-C17		0.00	0		
19) Pristane			0	0.00	0.000
20) n-C18		0.00	0	0.00	0.000
21) Phytane		0.00	0	0.00	0.000
22) n-C19		0.00	0	0.00	0.000
24) n-C20		0.00	0	0.00	0.000
25) n-C21		0.00	0	0.00	0.000
26) n-C22		0.00	0	0.00	0.000
27) n-C23		0.00	0	0.00	0.000
28) n-C24		0.00	0	0.00	0.000
29) n-C25		0.00	0	0.00	0.000
30) n-C26		0.00	0	0.00	0.000
31) n-C27		0.00	0	0.00	0.000
32) n-C28		0.00	0	0.00	0.000
33) n-C29		0.00	0	0.00	0.000
35) n-C30		0.00	0	0.00	0.000
36) n-C31		0.00	0	0.00	0.000
37) n-C32		0.00	0	0.00	0.000
38) n-C33		0.00	0	0.00	0.000
39) n-C34		0.00	0	0.00	0.000
10) n-C35		0.00	0	0.00	0.000
1) n-C36		0.00	0	0.00	0.000
12) n-C37		0.00	0	0.00	0.000
13) n-C38		0.00	0	0.00	0.000
14) n-C39		0.00	Ő	0.00	0.000
15) n-C40		0.00	0	0.00	0.000
16) TPH		12.91	9148860	1302.19	1302.190
		8.63			18.977
17) TRH1			133329	18.98	127.021
18) TRH2		12.91	892417	127.02	
19) TRH3		26.15	6122.38	0.87	0.871
50) TRH4		29.41	139727	19.89	19.888
51) TRH5		35.96	166155	23.65	23.649
52) TRH6		50.44	32383.3	4.61	4.609
53) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
6) n-dodecane-o	126	8.63	122392	20.38	101.9
23) n-eicosane-d	42	17.54	120063	20.40	101.3
84) n-triacontane	-d62	29.41	119706	20.45	102.2
1) n-hexadecan	e-d34	12.91	302628	50.00	302628.000
1) II IICAUGECUIII					

Data Path : C:\msdchem\2\data\FID10079\ Data File : FID10079F.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 02:10:37 Operator : Meghan Dailey Sample : AL-WKPem-001 Misc ALS Vial : 55 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 16 15:28:10 2013 Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90830262850.000 ug/mlm16) I5a-androstane18.14538876250.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.63212239220.379 ug/mlm23) Sn-eicosane-d4217.54512006320.395 ug/mlm34) Sn-triacontane-d6229.41311970620.452 ug/mlm 
 Description
 Description
 Description
 Description

 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/ml Target Compounds 2) n-C8 3) n-C9 4) n-C10 5) n-C11 7) n-C12 i-13 8) i-14 9) 10) n-C13 i-15 11) n-C14 12) i-16 13) n-C15 14) n-C16 15) i-18 17) 

 17)
 1-16

 18)
 n-C17

 19)
 Pristane

 20)
 n-C18

 21)
 Phytane

 22)
 n-C19

 n-C20 24) n-C21 25) n-C22 26) n-C23 27) n-C24 n-C25 n-C26 28) 29) 30) 

 30)
 n-C26

 31)
 n-C27

 32)
 n-C28

 33)
 n-C29

 35)
 n-C30

 36)
 n-C31

 37)
 n-C32

 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Fi Signal( Acq On Operato Sample Misc	<pre>htth : C:\msdchem\2\data\FID1 le : FID10079F.D (s) : FID2B.CH : 16-Aug-2013, 02:10:37 or : Meghan Dailey : AL-WKPem-001 : l : 55 Sample Multiplier</pre>				
Quant I Quant M Quant I QLast U Respons	tion File: autoint1.e 'ime: Aug 16 15:28:10 2013 Nethod : P:\2005\J05453\Alip 'itle : C8 - C40 aliphatic 'pdate : Mon Aug 12 14:55:52 Ne via : Initial Calibration tor: ChemStation	2013	78\FID1C081	BACK081213.M	
Volume	Inj. :				
Signal	Phase :				
Signal	Info :				
	Compound		-		
	Compound	R.T.	Response	Conc Units	
41)		0.000			
S78077 # 23	n-C36 n-C37			N.D. ug/mld	
42) 43)	n-C36 n-C37 n-C38	0.000		N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld	
42) 43) 44)	n-C36 n-C37 n-C38 n-C39	0.000 0.000		N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld	
42) 43) 44)	n-C36 n-C37 n-C38	0.000 0.000 0.000	0 0 0 0 0 0	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld	
42) 43) 44) 45) 46)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH	0.000 0.000 0.000 0.000 0.000 12.908f	0 0 0 0 9148858	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm	
42) 43) 44) 45) 46) 47)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1	0.000 0.000 0.000 0.000 0.000 12.908f 8.632	0 0 0 9148858 133329	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm	
42) 43) 44) 45) 46) 47) 48)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH1 TRH2	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f	0 0 0 9148858 133329 892417	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm	
42) 43) 44) 45) 46) 47) 48) 49)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f 26.150f	0 0 0 9148858 133329 892417 6122	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm 0.871 ug/mlm	
42) 43) 44) 45) 46) 47) 48) 49) 50)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f 26.150f 29.413	0 0 0 9148858 133329 892417 6122 139727	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm 0.871 ug/mlm 19.888 ug/mlm	
42) 43) 44) 45) 46) 47) 48) 49) 50) 51)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f 26.150f 29.413 35.960f	0 0 0 9148858 133329 892417 6122 139727 166155	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm 0.871 ug/mlm 19.888 ug/mlm 23.649 ug/mlm	
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f 26.150f 29.413 35.960f 50.443f	0 0 0 9148858 133329 892417 6122 139727 166155	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm 0.871 ug/mlm 19.888 ug/mlm 23.649 ug/mlm	
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GRO	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f 26.150f 29.413 35.960f 50.443f 0.000	0 0 0 9148858 133329 892417 6122 139727 166155 32383 0	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm 0.871 ug/mlm 19.888 ug/mlm 23.649 ug/mlm 4.609 ug/mlm N.D. ug/mld	
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	0.000 0.000 0.000 0.000 12.908f 8.632 12.908f 26.150f 29.413 35.960f 50.443f	0 0 0 9148858 133329 892417 6122 139727 166155 32383 0	N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld 1302.187 ug/mlm 18.977 ug/mlm 127.021 ug/mlm 0.871 ug/mlm 19.888 ug/mlm 23.649 ug/mlm	

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m)=manual int.



C:\msdchem\2\data\FID10079\

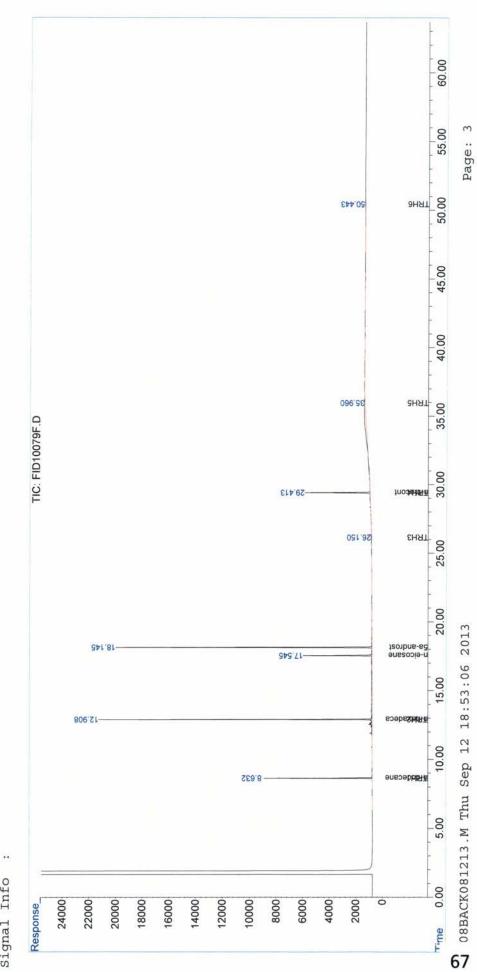
••

Data Path

Quant Method : P:\2005\J05453\Aliphatics\ENV3078\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Sample Multiplier: 1 : Initial Calibration 16-Aug-2013, 02:10:37 Quant Time: Aug 16 15:28:10 2013 Integration File: autointl.e Meghan Dailey AL-WKPem-001 FID10079F.D FID2B.CH 55 Response via .. ... .. Data File Signal(s) Operator ALS Vial Acq On Sample Misc

Volume Inj. : Signal Phase : Signal Info :

Integrator: ChemStation



			Concentration
Data File Name	ENV3080A.D		ENV3080A.D
Sample Name	Procedural Blank		Procedural Blank
Misc Info	0		16-Aug-2013, 11:36:47
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 11:36:47		1
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	63
Vial Number	63	IS Area 1	273122
Sample Multiplier	1	IS Area 2	347809

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C	8	0.00	0	0.00	0.000
3) n-C	Э	0.00	0	0.00	0.000
4) n-C:	10	0.00	0	0.00	0.000
5) n-C:		0.00	0	0.00	0.000
7) n-C:		0.00	0	0.00	0.000
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C:		0.00	0	0.00	0.000
11) i-15		0.00	0	0.00	0.000
12) n-C1		0.00	0	0.00	0.000
13) i-16		0.00	0	0.00	0.000
14) n-C1		0.00	0	0.00	0.000
15) n-C1		0.00	0	0.00	0.000
17) i-18		0.00	0	0.00	0.000
18) n-C1		0.00	0	0.00	0.000
33333737762		0.00	0	0.00	
19) Prist			0		0.000
20) n-C1		0.00		0.00	0.000
21) Phys		0.00	0	0.00	0.000
22) n-C1		0.00	0	0.00	0.000
24) n-C2		0.00	0	0.00	0.000
25) n-C2		0.00	0	0.00	0.000
26) n-C2		0.00	0	0.00	0.000
27) n-C2		0.00	0	0.00	0.000
28) n-C2	24	0.00	0	0.00	0.000
29) n-C2	25	0.00	0	0.00	0.000
30) n-C2	26	0.00	0	0.00	0.000
31) n-C2	27	0.00	0	0.00	0.000
32) n-C2	28	0.00	0	0.00	0.000
33) n-C2	.9	0.00	0	0.00	0.000
35) n-C3	0	0.00	0	0.00	0.000
36) n-C3	1	0.00	0	0.00	0.000
37) n-C3	12	0.00	0	0.00	0.000
38) n-C3	3	0.00	0	0.00	0.000
39) n-C3	14	0.00	0	0.00	0.000
40) n-C3		0.00	0	0.00	0.000
41) n-C3		0.00	0	0.00	0.000
42) n-C3		0.00	0	0.00	0.000
43) n-C3		0.00	0	0.00	0.000
44) n-C3		0.00	0	0.00	0.000
45) n-C4		0.00	0	0.00	0.000
46) TPH		12.90	7051240	1121.80	1121.800
40) TRH	1	8.63	119013	18.93	18.934
		12.90	795815	126.61	126.608
48) TRH		24.49	18428.4	2.93	2.932
49) TRH					
50) TRH		29.40	135286	21.52	21.523
51) TRH		36.00	94920	15.10	15.101
52) TRH		52.58	22670.7	3.61	3.607
53) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
6) n-do	decane-d26	8.63	86372.6	15.93	79.7
23) n-eid	cosane-d42	17.54	103453	19.64	97.6
34) n-tri	acontane-d62	29.40	103449	19.76	98.7
			2724.22	50.00	2724.22.000
1) n-he	xadecane-d34	12.90	273122	50.00	273122.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : ENV3080A.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 11:36:47 Operator : Meghan Dailey Sample : Procedural Blank Misc : ALS Vial : 63 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 30 08:06:03 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90427312250.000 ug/mlm16) I5a-androstane18.13634780950.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.6298637315.935 ug/mlm23) Sn-eicosane-d4217.53910345319.643 ug/mlm34) Sn-triacontane-d6229.40410344919.755 ug/mlm 
 23.404
 105445
 15.755 ug/mlm

 0.000
 0
 N.D.
 ug/mld

 <td Target Compounds 2) n-C8 n-C9 3) n-C9 n-C10 n-C11 i-13 i-14 n-C13 i-15 4) 5) 7) 8) 9) 10) 11) n-C14 12) i-16 13) n-C15 14)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2530)n-C2631)n-C2732)n-C2833)n-C29 14) n-C29 33) 35) n-C30 36) n-C31 n-C32 37) 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Path : C:\msdchem\2\data\FID10079\ Data File : ENV3080A.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 11:36:47 Operator : Meghan Dailey Sample : Procedural Blank Misc . ALS Vial : 63 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 30 08:06:03 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units 
 0.000
 0
 N.D.
 ug/mld

 12.904f
 7051241
 1121.797
 ug/mlm

 8.629
 119013
 18.934
 ug/mlm

 12.904f
 795815
 126.608
 ug/mlm

 24.493
 18428
 2.932
 ug/mlm

 29.404
 135286
 21.523
 ug/mlm

 35.996f
 94920
 15.101
 ug/mlm

 52.578f
 22671
 3.607
 ug/mlm

 0.000
 0
 N.D.
 ug/mld
 41) n-C36 

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GRO

 54)
 DRO

 671 3.607 ug/mlm 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0 N.D. ug/mld 0.000 DRO 54) RRO 0.000 55)

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m) = manual int.

Quantitation Report (QT Reviewed)

C:\msdchem\2\data\FID10079\

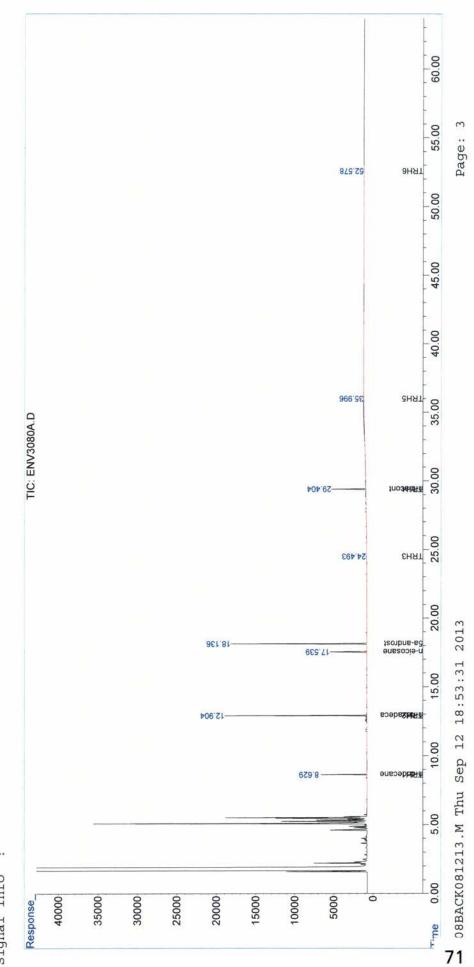
ENV3080A.D

...

Data Path Data File

Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Sample Multiplier: 1 : C8 - C40 aliphatic 16-Aug-2013, 11:36:47 Integration File: autointl.e Quant Time: Aug 30 08:06:03 2013 Procedural Blank Meghan Dailey Integrator: ChemStation FID2B.CH 63 Response via Quant Title . . .... Signal(s) Operator ALS Vial Acq On Sample Misc

Volume Inj. : Signal Phase : Signal Info :



-

			Concentration
Data File Name	ENV3080B.D		ENV3080B.D
Sample Name	Blank Spike		Blank Spike
Misc Info	0		16-Aug-2013, 12:47:23
Data File Path	P:\2013\J13034\Aliphatics\ENV 3080\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 12:47:23		1
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	64
Vial Number	64	IS Area 1	269653
Sample Multiplier	1	IS Area 2	344098

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C	8	3.51	19103	3.68	3.683
3) n-C	9	4.82	37095	6.80	6.805
4) n-C	10	6.23	41973.2	7.32	7.316
5) n-C	11	7.58	44619.6	7.74	7.742
7) n-C	12	8.83	46724.1	7.76	7.762
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C	13	10.00	48602.2	8.04	8.035
11) i-15		0.00	0	0.00	0.000
12) n-C		11.10	51646.6	8.23	8.228
13) i-16		0.00	0	0.00	0.000
14) n-C:		12.12	57125.9	8.91	8.912
15) n-C		13.15	61601.5	9.46	9.456
17) i-18		0.00	01001.5	0.00	0.000
18) n-C		14.25	65036.8	9.94	9.937
19) Pris		14.25	65159.2	9.99	9.989
20) n-C		15.42	67053.3		
				10.33	10.334
21) Phy		15.59	67810.7	10.26	10.256
22) n-C		16.66	67901.4	10.42	10.424
24) n-Ca		17.93	67990.5	10.34	10.340
25) n-C		19.23	68352.6	10.26	10.264
26) n-C2		20.53	69317.6	10.36	10.356
27) n-C2		21.81	68912.5	10.22	10.216
28) n-C2		23.07	68901.7	10.19	10.194
29) n-C2		24.30	69319	10.24	10.240
30) n-C2	26	25.50	69868.5	10.28	10.283
31) n-C2	27	26.66	67785	10.24	10.237
32) n-C2	28	27.79	69342.9	10.34	10.340
33) n-C2	29	28.88	67889.7	10.10	10.104
35) n-C3	30	29.94	67254.4	10.15	10.155
36) n-C3	31	30.96	66347.7	10.23	10.228
37) n-C3	32	31.96	64681	10.13	10.133
38) n-C3	33	32.92	63303.9	10.26	10.262
89) n-C3	34	33.86	63930.7	10.30	10.305
10) n-C3	35	34.86	62911	10.50	10.498
1) n-C3	36	35.98	66863.8	10.41	10.411
12) n-C3	37	37.29	62543.4	10.81	10.809
13) n-C3		38.81	61829	10.88	10.885
4) n-C3		40.59	59628.1	10.92	10.919
15) n-C4		42.70	54884	11.06	11.056
(6) TPH		0.00	0	0.00	0.000
7) TRH		0.00	0	0.00	0.000
8) TRH		0.00	0	0.00	0.000
19) TRH		0.00	0	0.00	0.000
			0		
50) TRH		0.00		0.00	0.000
51) TRH		0.00	0	0.00	0.000
52) TRH		0.00	0	0.00	0.000
3) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
영양 가슴 모양	odecane-d26	8.63	76418.8	14.28	71.4
2.2	cosane-d42	17.54	97687.4	18.75	93.1
84) n-tri	acontane-d62	29.40	102034	19.70	98.4
1) n-he	exadecane-d34	12.90	269653	50.00	269653.000
C) For	ndrostane	18.14	344098	50.07	344098.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : ENV3080B.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 12:47:23 Operator : Meghan Dailey Sample : Blank Spike Misc ALS Vial : 64 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 19 11:35:51 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90426965350.000 ug/mlm16) I5a-androstane18.13634409850.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.6287641914.280 ug/mlm23) Sn-eicosane-d4217.5389768718.748 ug/mlm34) Sn-triacontane-d6229.40410203419.695 ug/mlm 

 3.506
 19103
 3.683 ug/mlm

 4.821
 37095
 6.805 ug/ml

 6.227
 41973
 7.316 ug/mlm

 7.577
 44620
 7.742 ug/mlm

 0.000
 0
 N.D. ug/mld

 10.003
 48602
 8.035 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.095
 51647
 8.228 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.123
 57126
 8.912 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.123
 57126
 8.912 ug/mlm

 13.153
 61601
 9.456 ug/mlm

 14.251
 65037
 9.937 ug/mlm

 14.369
 65159
 9.989 ug/mlm

 15.424
 67053
 10.334 ug/mlm

 15.586
 67811
 10.256 ug/mlm

 16.658
 67991
 10.424 ug/mlm

 17.933
 67991
 10.340 ug/mlm

 23.072
 68902
 10.193 ug/mlm

 24.302
 69319
 10.240 ug/mlm

 25.498
 69869
 10.283 ug/mlm

 26.660
 67785
 10.237 ug/mlm< Target Compounds 2) n-C8 n-C9 3) 4) n-Cl0 5) n-Cl1 7) n-Cl2 i-13 8) i-14 9) n-C13 10) i-15 11) n-C14 12) i-16 13) n-C15 14) n-C16 15) n-C16 i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 17) 18) 19) 20) 21) 22) 24) n-C20 n-C21 n-C22 n-C23 n-C24 n-C25 n-C26 n-C27 n-C28 25) 26) 27) 28) 29) 30) 31) n-C28 n-C29 n-C30 n-C31 32) 33) 35) 36) 
 37)
 n-C32

 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Path : C:\msdchem\2\data\FID10079\ Data File : ENV3080B.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 12:47:23 Operator : Meghan Dailey Sample : Blank Spike Misc : ALS Vial : 64 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 19 11:35:51 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 35.984
 66864
 10.411 ug/mlm

 37.288
 62543
 10.809 ug/mlm

 38.806
 61829
 10.885 ug/mlm

 40.587
 59628
 10.919 ug/mlm

 42.696
 54884
 11.056 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 41) n-C36 42) n-C37 43) n-C38 44) n-C39 45) n-C40 46) TPH TRH1 47) TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 0 N.D. ug/mld 0 N.D. ug/mld 0.000 48) 0 N.D. ug/mld 0.000 49) 0 N.D. ug/mld 0.000 50) 0.000 51) 0.000 52) GRO 53) 0.000 DRO 0.000 54) 55) RRO 0.000

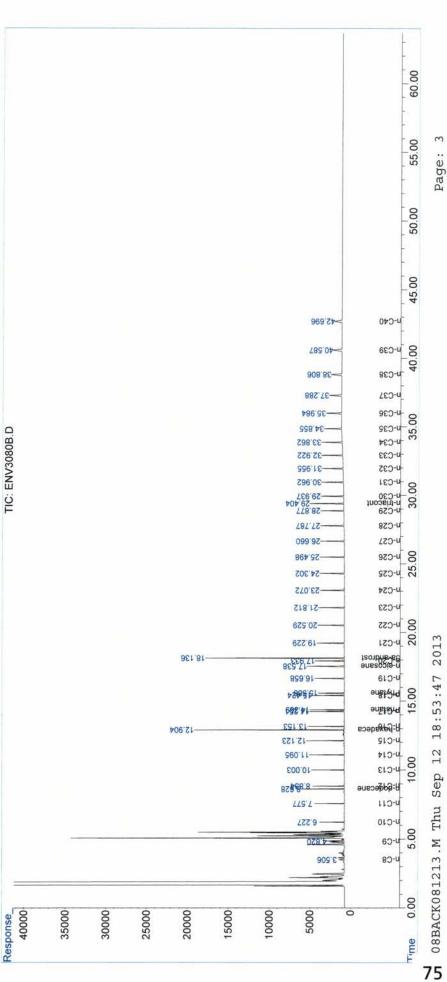
SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m) = manual int.

Quantitation Report (QT Reviewed)

Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M TIC: ENV3080B.D QLast Update : Mon Aug 12 14:55:52 2013 C:\msdchem\2\data\FID10079\ Sample Multiplier: 1 : Initial Calibration : C8 - C40 aliphatic 16-Aug-2013, 12:47:23 Integration File: autointl.e Quant Time: Aug 19 11:35:51 2013 Meghan Dailey Blank Spike Integrator: ChemStation ENV3080B.D FID2B.CH 64 •• Response via Volume Inj. Signal Phase Title .. .. Signal Info 2 Data Path Data File Signal(s) 40000 35000 Response Operator ALS Vial Acq On Sample Quant Misc



			Concentration
Data File Name	ENV3080C.D		ENV3080C.D
Sample Name	Blank Spike dUplicate		Blank Spike dUplicate
Misc Info	0		16-Aug-2013, 13:58:00
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 13:58:00		1
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	65
Vial Number	65	IS Area 1	278052
Sample Multiplier	1	IS Area 2	356721

# Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	3.50	18956.6	3.54	3.545
3) n-C9	4.82	36465.6	6.49	6.487
4) n-C10	6.23	40825.7	6.90	6.901
5) n-C11	7.58	43414.1	7.31	7.305
7) n-C12	8.83	45465.2	7.32	7.324
8) i-13	0.00	0	0.00	0.000
9) i-14	0.00	0	0.00	0.000
10) n-C13	10.00	47397.9	7.60	7.599
11) i-15	0.00	0	0.00	0.000
12) n-C14	11.10	51607.4	7.97	7.973
13) i-16	0.00	0	0.00	0.000
14) n-C15	12.12	57941.3	8.77	8.767
15) n-C16	13.15	62831.7	9.35	9.354
17) i-18	0.00	0	0.00	0.000
18) n-C17	14.25	66836.8	9.85	9.851
19) Pristane	14.37	66903.6	9.89	9.893
20) n-C18	15.42	69215.9	10.29	10.289
21) Phytane	15.59	70002.7	10.21	10.213
22) n-C19	16.66	69938.5	10.36	10.356
24) n-C20	17.93	70517.1	10.35	10.345
25) n-C21	19.23	70876.7	10.33	10.267
26) n-C22	20.53	71859.1	10.36	10.355
27) n-C23	21.81	71863.1	10.28	10.276
28) n-C24	23.07	71931	10.28	10.265
	24.30	72713.7		10.361
29) n-C25			10.36	
30) n-C26	25.50	73298.9	10.41	10.406
31) n-C27	26.66	71428.4	10.41	10.405
32) n-C28	27.79	73422.5	10.56	10.561
33) n-C29	28.88	72205.5	10.37	10.366
35) n-C30	29.94	70576.9	10.28	10.279
36) n-C31	30.96	69530.2	10.34	10.340
37) n-C32	31.96	67618.5	10.22	10.219
38) n-C33	32.92	66180.5	10.35	10.349
39) n-C34	33.86	66810	10.39	10.388
10) n-C35	34.85	65564	10.55	10.553
11) n-C36	35.99	69411.8	10.43	10.426
12) n-C37	37.29	64909.3	10.82	10.821
13) n-C38	38.80	63549.1	10.79	10.792
14) n-C39	40.59	59848.6	10.57	10.571
15) n-C40	42.69	56204.8	10.92	10.921
16) TPH	0.00	0	0.00	0.000
17) TRH1	0.00	0	0.00	0.000
18) TRH2	0.00	0	0.00	0.000
19) TRH3	0.00	0	0.00	0.000
50) TRH4	0.00	0	0.00	0.000
51) TRH5	0.00	0	0.00	0.000
52) TRH6	0.00	0	0.00	0.000
3) GRO	0.00	0	0.00	0.000
4) DRO	0.00	0	0.00	0.000
5) RRO	0.00	0	0.00	0.000
6) n-dodecane-d26	8.63	84344.7	15.28	76.4
23) n-eicosane-d42	17.54	108321	20.05	99.6
34) n-triacontane-d62	29.40	106742	19.88	99.3
1) n-hexadecane-d34	12.90	278052	50.00	278052.000
16) 5a-androstane	18.14	356721	50.07	356721.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : ENV3080C.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 13:58:00 Operator : Meghan Dailey Sample : Blank Spike dUplicate Misc : ALS Vial : 65 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 19 13:41:12 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 

 1) I
 n-hexadecane-d34
 12.904
 278052
 50.000 ug/mlm

 6) I
 5a-androstane
 18.136
 356721
 50.072 ug/mlm

 16) I System Monitoring Compounds 6) Sn-dodecane-d268.6298434515.285 ug/mlm23) Sn-eicosane-d4217.53710832120.053 ug/mlm34) Sn-triacontane-d6229.40210674219.875 ug/mlm 

 3.501
 18957
 3.545 ug/mlm

 4.821
 36466
 6.487 ug/ml

 6.227
 40826
 6.901 ug/mlm

 7.577
 43414
 7.305 ug/mlm

 8.834
 45465
 7.324 ug/mlm

 0.000
 0
 N.D. ug/mld

 10.003
 47398
 7.599 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.095
 51607
 7.973 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.123
 57941
 8.767 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.123
 57941
 8.767 ug/mlm

 13.153
 62832
 9.354 ug/mlm

 14.252
 66837
 9.851 ug/mlm

 15.424
 69216
 10.289 ug/mlm

 15.424
 69216
 10.289 ug/mlm

 15.424
 69216
 10.356 ug/mlm

 15.424
 69216
 10.326 ug/mlm

 15.424
 69216
 10.267 ug/mlm

 16.658
 69939
 10.356 ug/mlm

 12.3072
 71859
 10.3276 ug/mlm

 23.072
 71931
 10.265 ug/mlm Target Compounds 2) n-C8 3) n-C9 n-C10 n-C11 n-C12 i-13 i-14 4) 5) 7) 8) 9) n-C13 10) i-15 11) n-C14 12) i-16 13) n-C15 14) 15) n-C16 i-18 17) i-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 18) 19) 20) 21) 22) 24) n-C21 25) n-C22 26) n-C23 27) 28) n-C24 29) n-C25 n-C26 30) n-C27 31) n-C28 32) 33) n-C29 n-C30 n-C31 35) 36) 37) n-C32 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data F: Signal Acq On Operato Sample Misc	ath : C:\msdchem\2\data\FID ile : ENV3080C.D (s) : FID2B.CH : 16-Aug-2013, 13:58:00 or : Meghan Dailey : Blank Spike dUplicate : al : 65 Sample Multiplie					
Quant 1 Quant 1 Quant 1 QLast 1 Respons	Integration File: autoint1.e Quant Time: Aug 19 13:41:12 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation					
Volume	Inj. :					
	Phase :					
Signal	Info :					
	Compound	R.T.	Response	Conc Units		
41)						
41) 42)	Compound n-C36 n-C37	R.T. 35.987 37.287	Response 69412 64909	10.426 ug/mlm		
41) 42) 43)	n-C36	35.987	69412			
42) 43) 44)	n-C36 n-C37 n-C38 n-C39	35.987 37.287	69412 64909	10.426 ug/mlm 10.821 ug/mlm		
42) 43) 44)	n-C36 n-C37 n-C38	35.987 37.287 38.805	69412 64909 63549	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm		
42) 43) 44)	n-C36 n-C37 n-C38 n-C39	35.987 37.287 38.805 40.595	69412 64909 63549 59849	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld		
42) 43) 44) 45) 46) 47)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1	35.987 37.287 38.805 40.595 42.694 0.000 0.000	69412 64909 63549 59849 56205 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH1 TRH2	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48) 49)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48) 49) 50)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48) 49) 50) 51)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH2 TRH3 TRH4 TRH5	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0 0 0 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0 0 0 0 0 0 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GRO	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld		
42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52)	n-C36 n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6	35.987 37.287 38.805 40.595 42.694 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	69412 64909 63549 59849 56205 0 0 0 0 0 0 0 0 0 0 0	10.426 ug/mlm 10.821 ug/mlm 10.792 ug/mlm 10.571 ug/mlm 10.921 ug/mlm N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld N.D. ug/mld		

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m)=manual int.

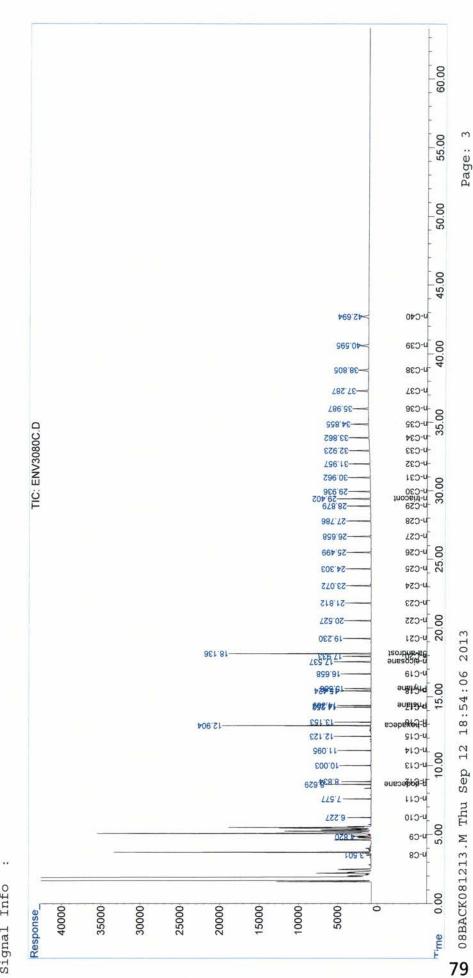
(QT Reviewed) Quantitation Report

••

Data Path

Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M QLast Update : Mon Aug 12 14:55:52 2013 C:\msdchem\2\data\FID10079\ Ч Sample Multiplier: : Initial Calibration 16-Aug-2013, 13:58:00 Meghan Dailey Blank Spike dUplicate Quant Title : C8 - C40 aliphatic Quant Time: Aug 19 13:41:12 2013 Integration File: autoint1.e Integrator: ChemStation ENV3080C.D FID2B.CH 65 Response via .. .. ... Data File Signal(s) Operator ALS Vial Acq On Sample Misc

•• Signal Phase Volume Inj. Signal Info



			Concentration
Data File Name	ARC1765.D		ARC1765.D
Sample Name	SED-DA-EB-07-080913		SED-DA-EB-07-080913
Misc Info	0		16-Aug-2013, 15:08:47
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 15:08:47		0.934579
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	66
Vial Number	66	IS Area 1	262044
Sample Multiplier	0.934579	IS Area 2	334460

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8		0.00	0	0.00	0.000
3) n-C9		0.00	0	0.00	0.000
4) n-C1	0	0.00	0	0.00	0.000
5) n-C1		0.00	0	0.00	0.000
7) n-C1		0.00	0	0.00	0.000
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C1	3	0.00	0	0.00	0.000
11) i-15	5	0.00	0	0.00	0.000
12) n-C1	٨	0.00	0	0.00	0.000
13) i-16	2	0.00	0	0.00	0.000
14) n-C1	<b>C</b>	0.00	0	0.00	0.000
		0.00	0	0.00	0.000
15) n-C1	0	0.00			
17) i-18	7		0	0.00	0.000
18) n-C1		0.00	0	0.00	0.000
19) Prist		0.00	0	0.00	0.000
20) n-C1		0.00	0	0.00	0.000
21) Phyt		0.00	0	0.00	0.000
22) n-C1		0.00	0	0.00	0.000
24) n-C2	0	0.00	0	0.00	0.000
25) n-C2	1	0.00	0	0.00	0.000
26) n-C2	2	0.00	0	0.00	0.000
27) n-C2	3	0.00	0	0.00	0.000
28) n-C2	4	0.00	0	0.00	0.000
29) n-C2	5	0.00	0	0.00	0.000
30) n-C2	6	0.00	0	0.00	0.000
31) n-C2	7	0.00	0	0.00	0.000
32) n-C2	8	0.00	0	0.00	0.000
33) n-C2	9	0.00	0	0.00	0.000
35) n-C3	0	0.00	0	0.00	0.000
36) n-C3	1	0.00	0	0.00	0.000
37) n-C3.		0.00	0	0.00	0.000
38) n-C3		0.00	0	0.00	0.000
39) n-C3		0.00	0	0.00	0.000
10) n-C3		0.00	0	0.00	0.000
41) n-C3		0.00	0	0.00	0.000
12) n-C3		0.00	0	0.00	0.000
(3) n-C3		0.00	0	0.00	0.000
14) n-C3		0.00	0	0.00	0.000
2001 1923		0.00	0		
15) n-C40	0			0.00	0.000
16) TPH		12.90	7294740	1127.91	1127.906
17) TRH1		8.63	119376	18.46	18.458
18) TRH2		12.90	776560	120.07	120.071
19) TRH3		24.77	10883.1	1.68	1.683
50) TRH4		29.40	105210	16.27	16.267
51) TRH5		34.85	14473.8	2.24	2.238
52) TRH6	)	35.72	11905.4	1.84	1.841
53) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
6) n-do	decane-d26	8.63	77542.6	13.94	74.6
23) n-eic	osane-d42	17.54	95899.2	17.70	94.1
34) n-tria	acontane-d62	29.40	93184.8	17.29	92.4
	vadecane_d34	12.90	262044	46.73	262044.000
1) n-hex	kauecane-u54	12.50	202044	1011 3	202044.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : ARC1765.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 15:08:47 Operator : Meghan Dailey Sample : SED-DA-EB-07-080913 Misc : ALS Vial : 66 Sample Multiplier: 0.934579 Integration File: autoint1.e Quant Time: Aug 30 08:13:57 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 
 1) I
 n-hexadecane-d34
 12.903
 262044
 50.000 ug/mlm

 .6) I
 5a-androstane
 18.135
 334460
 50.072 ug/mlm
 16) I System Monitoring Compounds 6) Sn-dodecane-d268.6297754313.935 ug/mlm23) Sn-eicosane-d4217.5369589917.697 ug/mlm34) Sn-triacontane-d6229.4039318517.295 ug/mlm 0N.D.ug/mld Target Compounds 2) n-C8 0.000 n-C9 3) 0.000 n-C10 n-C11 0.000 4) 5) 0.000 n-C12 7) 0.000 i-13 8) 0.000 i-14 9) 0.000 n-C13 10) 0.000 i-15 0.000 11) n-C14 0.000 12) i-16 0.000 13) n-C15 14) 0.000 15) n-C16 0.000 17) i-18 0.000 

 17)
 1-18

 18)
 n-C17

 19)
 Pristane

 20)
 n-C18

 21)
 Phytane

 22)
 n-C19

 0.000 0.000 0.000 0.000 0.000 24) n-C20 0.000 25) n-C21 0.000 26) n-C22 0.000 27) n-C23 0.000 28) n-C24 0.000 29) n-C25 0.000 0.000 30) n-C26 n-C27 0.000 31) n-C28 0.000 32) n-C29 33) 0.000 n-C30 35) 0.000 n-C31 36) 0.000 n-C32 0.000 37) 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35
 0.000 0.000 0.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : ARC1765.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 15:08:47 Operator : Meghan Dailey Sample : SED-DA-EB-07-080913 Misc 10 ALS Vial : 66 Sample Multiplier: 0.934579 Integration File: autoint1.e Quant Time: Aug 30 08:13:57 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 
 0.000
 0
 N.D.
 ug/mld

 12.903f
 7294735
 1127.902
 ug/mlm

 8.629
 119376
 18.458
 ug/mlm

 12.903f
 776560
 120.071
 ug/mlm

 24.768f
 10883
 1.683
 ug/mlm

 29.403
 105210
 16.267
 ug/mlm

 34.853f
 14474
 2.238
 ug/mlm

 35.719f
 11905
 1.841
 ug/mlm

 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld
 41) n-C36 42) n-C37 43) n-C38 44) n-C39 45) n-C40 46) TPH 47) TRH1 48) TRH2 49) TRH3 50) TRH4 51) TRH5 52) TRH6 TRH6 GRO 52) 53) DRO 54) 54) DRO 55) RRO

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m) = manual int.



Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M 617.85 34.854 TIC: ARC1765.D 59.403 54.768 Sample Multiplier: 0.934579 18.135 QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration 969.71 C:\msdchem\2\data\FID10079\ : C8 - C40 aliphatic 16-Aug-2013, 15:08:47 Integration File: autoint1.e Quant Time: Aug 30 08:13:57 2013 SED-DA-EB-07-080913 15.903 Meghan Dailey 629.8 Integrator: ChemStation ARC1765.D FID2B.CH 99 •• •• .. Volume Inj. Signal Phase .. Title •• Signal Info ... .. . Data Path Data File Signal(s) 25000 10000 35000 30000 20000 15000 5000 Response Operator ALS Vial Acq On Sample Quant Misc

Page: 3

60.00

55.00

50.00

45.00

40.00

35.00

30.00

25.00 снят.

20.00

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5a-androst

esepezadeca

anscabetane

Ò

8 08BACK081213.M Thu Sep 12 18:54:21 2013

			Concentration
Data File Name	ARC1767.D		ARC1767.D
Sample Name	SED-DA-DI-Water		SED-DA-DI-Water
Misc Info	0		16-Aug-2013, 16:19:32
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 16:19:32		0.952381
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	67
Vial Number	67	IS Area 1	281942
Sample Multiplier	0.952381	IS Area 2	360785

#	Name	Ret Time	Target Response	Amount	Concentration
2) n-C8		0.00	0	0.00	0.000
3) n-C9		0.00	0	0.00	0.000
4) n-C10	0	0.00	0	0.00	0.000
5) n-C11	1	0.00	0	0.00	0.000
7) n-C12	2	0.00	0	0.00	0.000
8) i-13		0.00	0	0.00	0.000
9) i-14		0.00	0	0.00	0.000
10) n-C13	3	0.00	0	0.00	0.000
11) i-15		0.00	0	0.00	0.000
12) n-C14	1	0.00	0	0.00	0.000
13) i-16		0.00	0	0.00	0.000
14) n-C15	5	0.00	0	0.00	0.000
15) n-C16	5	0.00	0	0.00	0.000
17) i-18		0.00	0	0.00	0.000
18) n-C17	7	0.00	0	0.00	0.000
19) Prista		0.00	0	0.00	0.000
20) n-C18		0.00	0	0.00	0.000
21) Phyta		0.00	0	0.00	0.000
22) n-C19		0.00	0	0.00	0.000
24) n-C20		0.00	0	0.00	0.000
25) n-C21		0.00	0	0.00	0.000
26) n-C22		0.00	0	0.00	0.000
27) n-C23		0.00	0	0.00	0.000
28) n-C24		0.00	0	0.00	0.000
29) n-C25		0.00	0	0.00	0.000
30) n-C26		0.00	0	0.00	0.000
31) n-C27		0.00	0	0.00	0.000
32) n-C28		0.00	0	0.00	0.000
33) n-C29		0.00	0	0.00	0.000
35) n-C30		0.00	0	0.00	0.000
		0.00	0	0.00	0.000
36) n-C31		0.00	0	0.00	0.000
37) n-C32		0.00	0	0.00	
38) n-C33		0.00		0.00	0.000
39) n-C34			0		0.000
40) n-C35		0.00 0.00	0	0.00	0.000
41) n-C36				0.00	0.000
42) n-C37		0.00	0	0.00	0.000
43) n-C38		0.00	0	0.00	0.000
44) n-C39		0.00	0	0.00	0.000
45) n-C40		0.00	0	0.00	0.000
46) TPH		12.90	6982480	1019.91	1019.914
47) TRH1		8.63	165869	24.23	24.228
48) TRH2		12.90	847169	123.74	123.744
49) TRH3		24.49	11851.8	1.73	1.731
50) TRH4		29.40	134883	19.70	19.702
51) TRH5		34.81	5343.47	0.78	0.781
52) TRH6		37.48	9078.33	1.33	1.326
53) GRO		0.00	0	0.00	0.000
54) DRO		0.00	0	0.00	0.000
55) RRO		0.00	0	0.00	0.000
	lecane-d26	8.63	79860.4	13.59	71.4
23) n-eico	osane-d42	17.54	107568	18.75	97.8
34) n-tria	contane-d62	29.40	108057	18.95	99.4
1) n-hex	adecane-d34	12.90	281942	47.62	281942.000
	drostane	18.14	360785	47.69	360785.000

Data Path : C:\msdchem\2\data\FID10079\ Data File : ARC1767.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 16:19:32 Operator : Meghan Dailey Sample : SED-DA-DI-Water Misc : ALS Vial : 67 Sample Multiplier: 0.952381 Integration File: autoint1.e Quant Time: Aug 30 08:15:23 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units Internal Standards 1) In-hexadecane-d3412.90328194250.000 ug/mlm16) I5a-androstane18.13536078550.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.6297986013.593ug/mlm23) Sn-eicosane-d4217.53710756818.752ug/mlm34) Sn-triacontane-d6229.40210805718.946ug/mlm 
 D.000
 O.N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld

 0.000</ Target Compounds 2) n-C8 n-C9 3) 4) n-Cl0 5) n-Cl1 7) n-Cl2 8) i-l3 9) i-14 n-C13 i-15 10) 11) n-C14 i-16 12) 13) n-C15 n-C16 i-18 14) 15) 17) 1-18 n-C17 Pristane n-C18 Phytane n-C19 n-C20 n-C21 18) 19) 20) 21) 22) 24) n-C21 n-C22 n-C23 n-C24 25) 26) 27) 28) n-C25 29) n-C26 30) n-C27 31) n-C28 32) n-C29 33) n-C30 35) n-C31 36) 37) n-C32 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Path : C:\msdchem\2\data\FID10079\ Data File : ARC1767.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 16:19:32 Operator : Meghan Dailey Sample : SED-DA-DI-Water Misc ALS Vial : 67 Sample Multiplier: 0.952381 Integration File: autoint1.e Quant Time: Aug 30 08:15:23 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Compound R.T. Response Conc Units 
 0.000
 0
 N.D.
 ug/mld

 12.903f
 6982485
 1019.911
 ug/mlm

 8.629
 165869
 24.228
 ug/mlm

 12.903f
 847169
 123.743
 ug/mlm

 24.491
 11852
 1.731
 ug/mlm

 29.402
 134883
 19.702
 ug/mlm

 34.805f
 5343
 0.781
 ug/mlm

 37.484f
 9078
 1.326
 ug/mld

 0.000
 0
 N.D.
 ug/mld
 41) n-C36 42) n-C37 n-C38 43) n-C39 44) n-C40 45) TPH 46) 47) TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 48) 49) 50) 51) 52) 53) GRO 54) DRO 55) RRO 0.000 0 N.D. ug/mld

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m) = manual int.



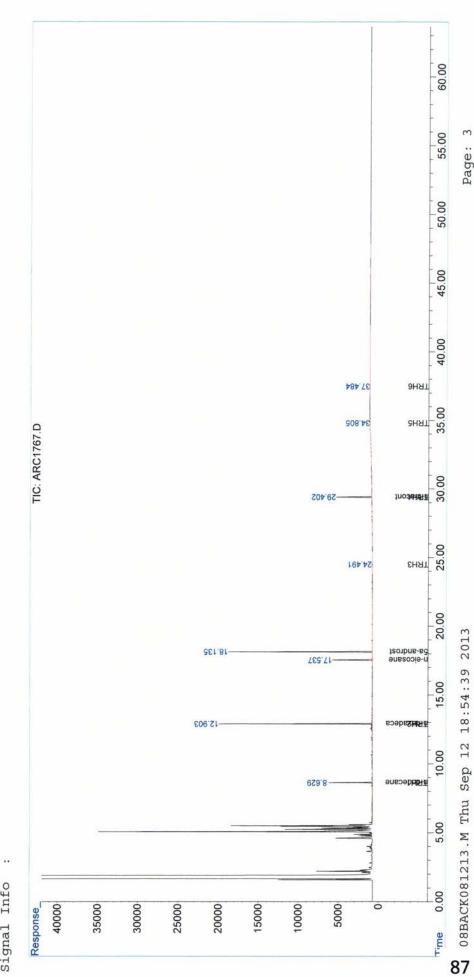
C:\msdchem\2\data\FID10079\

••

Data Path

Integration File: autoint1.e
Quant Time: Aug 30 08:15:23 2013
Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Sample Multiplier: 0.952381 QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration 16-Aug-2013, 16:19:32 : C8 - C40 aliphatic SED-DA-DI-Water Meghan Dailey Integrator: ChemStation ARC1767.D FID2B.CH 67 Quant Title ... .. •• Data File Signal(s) Operator ALS Vial Acq On Sample Misc

Volume Inj. : Signal Phase : Signal Info :



			Concentration
Data File Name	ARC1769.D		ARC1769.D
Sample Name	SED-DA-EB-08-081013		SED-DA-EB-08-081013
Misc Info	0		16-Aug-2013, 17:30:16
Data File Path	C:\msdchem\2\data\FID10079\		ALI2012.M
Operator	Meghan Dailey		
Date Acquired	16-Aug-2013, 17:30:16		0.934579
Instrument Name	HP5890		
Acq. Method File	ALI2012.M	Vial #	68
Vial Number	68	IS Area 1	260209
Sample Multiplier	0.934579	IS Area 2	332915

# Name	Ret Time	Target Response	Amount	Concentration
2) n-C8	0.00	0	0.00	0.000
3) n-C9	0.00	0	0.00	0.000
4) n-C10	0.00	0	0.00	0.000
5) n-C11	0.00	0	0.00	0.000
7) n-C12	0.00	0	0.00	0.000
8) i-13	0.00	0	0.00	0.000
9) i-14	0.00	0	0.00	0.000
10) n-C13	0.00	0	0.00	0.000
11) i-15	0.00	0	0.00	0.000
12) n-C14	0.00	0	0.00	0.000
13) i-16	0.00	0	0.00	0.000
14) n-C15	0.00	0	0.00	0.000
15) n-C16	0.00	0	0.00	0.000
17) i-18	0.00	0	0.00	0.000
18) n-C17	0.00	0	0.00	0.000
19) Pristane	0.00	0	0.00	0.000
20) n-C18	0.00	0	0.00	0.000
	0.00	0	0.00	0.000
21) Phytane				
22) n-C19	0.00	0	0.00	0.000
24) n-C20	0.00	0	0.00	0.000
25) n-C21	0.00	0	0.00	0.000
26) n-C22	0.00	0	0.00	0.000
27) n-C23	0.00	0	0.00	0.000
28) n-C24	0.00	0	0.00	0.000
29) n-C25	0.00	0	0.00	0.000
30) n-C26	0.00	0	0.00	0.000
31) n-C27	0.00	0	0.00	0.000
32) n-C28	0.00	0	0.00	0.000
33) n-C29	0.00	0	0.00	0.000
35) n-C30	0.00	0	0.00	0.000
36) n-C31	0.00	0	0.00	0.000
37) n-C32	0.00	0	0.00	0.000
38) n-C33	0.00	0	0.00	0.000
39) n-C34	0.00	0	0.00	0.000
40) n-C35	0.00	0	0.00	0.000
11) n-C36	0.00	0	0.00	0.000
12) n-C37	0.00	0	0.00	0.000
13) n-C38	0.00	0	0.00	0.000
14) n-C39	0.00	0	0.00	0.000
45) n-C40	0.00	0	0.00	0.000
46) TPH	12.90	7420490	1152.67	1152.672
47) TRH1	8.63	142931	22.20	22.202
48) TRH2	12.90	787633	122.35	122.348
49) TRH3	24.49	7583.87	1.18	1.178
50) TRH4	29.40	124069	19.27	19.272
51) TRH5	35.38	24939.8	3.87	3.874
	35.72	11269	1.75	1.750
52) TRH6				
3) GRO	0.00	0	0.00	0.000
54) DRO	0.00	0	0.00	0.000
55) RRO	0.00	0	0.00	0.000
6) n-dodecane-d26	8.63	79216.2	14.34	76.7
23) n-eicosane-d42	17.54	99411.6	18.43	98.0
34) n-triacontane-d62	29.40	99648.1	18.58	99.3
1) - havedaaaaa d24	12.90	260209	46.73	260209.000
<ol> <li>n-hexadecane-d34</li> </ol>	12.50	200205	40.75	200205.000

Data F Signal Acq On Operato Sample Misc	ath : C:\msdchem\2\data ile : ARC1769.D (s) : FID2B.CH : 16-Aug-2013, 17:3 or : Meghan Dailey : SED-DA-EB-08-0810 : al : 68 Sample Multi	0:16 13		
Quant 1 Quant 1 Quant 2 QLast 1 Respons	ation File: autoint1.e Fime: Aug 30 08:24:50 2 Method : P:\2013\J13034 Fitle : C8 - C40 aliph Update : Mon Aug 12 14: se via : Initial Calibr ator: ChemStation	\Aliphatics\ENV 3 atic 55:52 2013	080\FID1C08B	ACK081213.M
Signal	Inj. : Phase : Info :			
	Compound	R.T.	Response	Conc Units
Interr	nal Standards			
1) I	n-hexadecane-d34	12.903	260209	50.000 ug/mlm 50.072 ug/mlm
16) I	5a-androstane	18.134	332915	50.072 ug/mlm
System	Monitoring Compounds			
6) S	n-dodecane-d26 n-eicosane-d42	8.628	79216	14.336 ug/mlm 18.430 ug/mlm
23) S 34) S	n-eicosane-d42 n-triacontane-d62	17.536	99412 99648	18.430 ug/mlm 18.580 ug/mlm
54/ 5		29.405	99040	10.500 ug/miim
	Compounds	Sa (1897) (19		2, 2, 25
	n-C8	0.000	0	
4)	n-C9 n-C10	0.000 0.000	0	
5)	n-C10 n-C11 n-C12	0.000	0	N.D. ug/mld
7)	n-C12	0.000	0 0	N.D. ug/mld
8)	i-13	0.000	0	
9) 10)	i-14 n-C13	0.000	0	N.D. ug/mld N.D. ug/mld
11)	i-15	0.000	0	N.D. ug/mld
12)	n-C14	0.000	0	N.D. ug/mld
13)	i-16	0.000	0	N.D. ug/mld
14) 15)	n-C15 n-C16	0.000 0.000	0	N.D. ug/mld N.D. ug/mld
17)	i-18	0.000	0	N.D. ug/mld
18)	n-C17	0.000	0	N.D. ug/mld
19)	Pristane	0.000	0	N.D. ug/mld
20) 21)	n-C18 Phytane	0.000	0	N.D. ug/mld N.D. ug/mld
22)	n-Cl9	0.000	0	N.D. ug/mld
24)	n-C20	0.000	0	N.D. ug/mld
25)	n-C21	0.000	0	N.D. ug/mld
26) 27)	n-C22 n-C23	0.000	0	N.D. ug/ml N.D. ug/mld
28)	n-C24	0.000	õ	N.D. ug/mld
29)	n-C25	0.000	0	N.D. ug/mld
30) 31)	n-C26 n-C27	0.000	0	N.D. ug/mld
32)	n-C28	0.000 0.000	0	N.D. ug/mld N.D. ug/mld
33)	n-C29	0.000	õ	N.D. ug/mld
35)	n-C30	0.000	0	N.D. ug/mld
36) 37)	n-C31 n-C32	0.000 0.000	0	N.D. ug/mld
38)	n-C33	0.000	0	N.D. ug/mld N.D. ug/mld
39)	n-C34	0.000	0	N.D. ug/ml
40)	n-C35	0.000	0	N.D. ug/mld

Data Path : C:\msdchem\2\data\FID10079\ Data File : ARC1769.D Signal(s) : FID2B.CH Acq On : 16-Aug-2013, 17:30:16 Operator : Meghan Dailey Sample : SED-DA-EB-08-081013 Misc ALS Vial : 68 Sample Multiplier: 0.934579 Integration File: autoint1.e Quant Time: Aug 30 08:24:50 2013 Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 
 0.000
 0
 N.D.
 ug/mld

 12.903f
 7420487
 1152.669
 ug/mlm

 12.903f
 787633
 122.348
 ug/mlm

 24.490
 7584
 1.178
 ug/mlm

 29.403
 124069
 19.272
 ug/mlm

 35.376f
 24940
 3.874
 ug/mlm

 35.717f
 11269
 1.750
 ug/mlm

 0.000
 0
 N.D.
 ug/mld

 0.000
 0
 N.D.
 ug/mld
 41) n-C36 42) n-C37 n-C38 n-C39 43) 44) n-C40 45) TPH 46) 47) TRH1 TRH2 48) TRH3 49) TRH4 50) TRH5 TRH6 51) 52) 53) GRO 54) DRO 55) RRO

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m) = manual int.

Integration File: autoint1.e
Quant Time: Aug 30 08:24:50 2013
Quant Method : P:\2013\J13034\Aliphatics\ENV 3080\FID1C08BACK081213.M 98 659 TIC: ARC1769.D (QT Reviewed) -29.403 54.490 Quantitation Report Sample Multiplier: 0.934579 18.134 : Mon Aug 12 14:55:52 2013 : Initial Calibration 969.71 C:\msdchem\2\data\FID10079' C8 - C40 aliphatic 16-Aug-2013, 17:30:16 Meghan Dailey SED-DA-EB-08-081013 12,903 8.628 Integrator: ChemStation ARC1769.D FID2B.CH 68 •• •• •• QLast Update Response via Volume Inj. Signal Phase Quant Title Signal Phase Signal Info ... •• Data Path Data File Signal(s) 25000 20000 Response 35000 30000 15000 10000 5000 Operator ALS Vial Acq On Sample Misc

Page: 3

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n-eicosane 5a-androst

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anecabe

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20.00

15.00

10.00

5.00

0.00

Time

08BACK081213.M Thu Sep 12 18:54:57 2013

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## Polycyclic Aromatic Hydrocarbon Raw Data

# **B&B LABORATORIES PAHs QA FORM**

Extraction Page:ENV 3080	Analyst:Y. Miao
Client:Aracadis Mayflower	Date:9/13/2013
Job: #:J13034	Project Quality Manager: W Jalan
SDG #:13080901 and 13081301	Date: 09/13/13
Initial Calibration: No failures	ICV No failures
Surrogate Recoveries: No failures	
Procedural Blank: No failures	
Blank Spike: No failures	
Blank Spike Duplicate: No failures	
Laboratory Duplicate: NA	
Matrix Spike: NA	
Matirx Spike Duplicate: NA	
SRM/LCS (Solution, Tissue, Sediment): Solution no failures	
CCC (from a second source): No failures	
SRM-2279 Reference Oil No failures	
Mass Discrimination Check (benzo(ghi)perylene/phenanthree No failures	ne >0.7)

93

Inst Data Inst	Comment Operator	: Arc : YM n: C:\ rol E Fol Pc	cadis-Mayf \MSDCHEM\1 Pre-Seq Cm Pre-Seq Cm ost-Seq Cm	nd:	
	Method Secti	ons 1	o Run	Sequence Barcode Options	
	(X) Full Met	hod		( ) On Mismatch, Inject Anyway	
	() Reproces	sing	Only	( ) On Mismatch, Don't Inject	
				(X) Barcode Disabled	
	·		Comp 1		1
1)	Sample	1		e Name/Misc Info PAH-2012 Solvent rinse	
2)	Sample			PAH-2012 AR-WKC1-020-030	
3)	Sample			PAH-2012 AR-WKC2-100-030	
4)	Sample			PAH-2012 AR-WKC3-250-030	
5)	Sample			PAH-2012 AR-WKC4-500-030	
6)	Sample			PAH-2012 AR-WKC5-1000-030	
7)	Sample	7		PAH-2012 AR-WKC6-5000-030	
8)	Sample	8	MS70058H	PAH-2012 AR-WKISSU-250-002	
9)	Sample	9	MS70058I	PAH-2012 AR-WKICV-250-004	
10)	Sample	10	MS70058J	PAH-2012 AR-WKCC-250-038	
11)	Sample	11	MS70058K	PAH-2012 AR-SRM2779-WK4.0-002	
12)	Sample	12	ENV3080A	PAH-2012	
13)	Sample	13	ENV3080B	PAH-2012	
14)	Sample	14	ENV3080C	PAH-2012	
15)	Sample	15		PAH-2012	
16)	Sample		ARC1763		
17)	Sample	17		PAH-2012	
18)	Sample	18		PAH-2012	
19)	Sample	19		PAH-2012 AR-WKCC-250-038	
20)	Sample	20	ARC1769		
21)	Sample		ARC1771		
22)	Sample		ENV3084A	1. 이상 2018 - 선생님과 2017 The Tank Tank Tank Tank Tank Tank Tank Tank	
23)	Sample		ENV3084B		
24) 25)	Sample		ENV3084C ARC1768	PAH-2012	
26)	Sample Sample		ARC1768 ARC1854		
27)	Sample	27		PAH-2012 PAH-2012 AR-WKCC-250-038	
211	Compre	~ (	10700501	TURE FOLS UN MUCO 200 000	

Data Path : C:\GCMS7\MS70058\ Data File : MS70058J.D Acq On : 20 Aug 2013 5:20 pm Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 06:42:05 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

		Compound	AvgRF	CCRF	%Dev Ar	ea% ]	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	84	0.00
	s	Naphthalene-d8	1.671	1.604	4.0	87	0.00
3		cis/trans Decalin	0.292	0.283	3.1	83	0.00
	un	Cl-Decalins	0.292	0.000	100.0#		
	un	C2-Decalins	0.292	0.000	100.0#		-13.52#
6		C3-Decalins	0.292	0.000	100.0#	0#	-15.88#
7	un	C4-Decalins	0.292	0.000	100.0#		
8	Т	Naphthalene	1.823	1.775	2.6	88	0.00
9	т	2-Methylnaphthalene	1.196	1.129	5.6	86	0.00
10	т	1-Methylnaphthalene	1.109	1.056	4.8	86	0.00
11		2,6-Dimethylnaphthalene	1.048	0.995	5.1	86	0.00
12		1,6,7-Trimethylnaphthalene	0.954	0.881	7.7	85	0.00
	un	C2-Naphthalenes	1.823	0.000	100.0#		-18.89#
	un	C3-Naphthalenes	1.823	0.000	100.0#		-20.37#
15	un	C4-Naphthalenes	1.823	0.000	100.0#		-22.26#
16	т	Benzothiophene	1.510	1.472	2.5	89	0.03
17	un	C1-Benzothiophenes	1.510	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.510	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.510	0.000	100.0#		-20.31#
20	un	C4-Benzothiophenes	1.510	0.000	100.0#		-22.23#
21	S	Acenaphthene-d10	0.969	0.899	7.2	85	0.00
22	т	Biphenyl	1.535	1.501	2.2	88	0.00
23	Т	Acenaphthylene	1.633	1.519	7.0	87	0.00
24	т	Acenaphthene	1.047	0.971	7.3	85	0.00
25	Т	Dibenzofuran	1.752	1.682	4.0	87	0.00
26	Т	Fluorene	1.345	1.270	5.6	85	0.00
27	т	1-Methylfluorene	0.721	0.642	11.0	83	0.00
28	un	C1-Fluorenes	1.345	0.000	100.0#	0#	-23.51#
29	un	C2-Fluorenes	1.345	0.000	100.0#	0#	-24.79#
30	un	C3-Fluorenes	1.345	0.000	100.0#	0#	-27.59#
31		Pyrene-d10	1.000	1.000	0.0	82	0.00
32	S	Phenanthrene-d10	0.885	0.905	-2.3	88	0.00
33	Т	Carbazole	0.917	0.835	8.9	80	0.00
34	Т	Dibenzothiophene	1.122	1.121	0.1	86	0.00
35	т	4-Methyldibenzothiophene	0.708	0.678	4.2	86	0.00
36	un	2/3-Methyldibenzothiophene	0.708	0.000	100.0#	0#	-26.21#
37	un	1-Methyldibenzothiophene	0.708	0.000	100.0#	0#	-26.52#
	un	C2-Dibenzothiophenes	1.122	0.000	100.0#	0#	-27.83#
39	un	C3-Dibenzothiophenes	1.122	0.000	100.0#		-28.49#
	un	C4-Dibenzothiophenes	1.122	0.000	100.0#		-31.09#
41		Phenanthrene	0.993	0.992	0.1	88	0.00
42		Anthracene	0.907	0.865	4.6	83	0.00
	un	3-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
44	un	2-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylanthracene	0.816	0.000	100.0#		-26.73#
46	un	4/9-Methylphenanthrene	0.816	0.000	100.0#	0#	-26.93#

Data Path : C:\GCMS7\MS70058\ Data File : MS70058J.D Acq On : 20 Aug 2013 5:20 pm Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 22 06:42:05 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

		Compound	AvgRF	CCRF	%Dev Ar	ea% 1	Dev(min)
47	Т	1-Methylphenanthrene	0.816	0.737	9.7	82	0.00
48	Т	3,6-Dimethylphenanthrene	0.810	0.719	11.2	80	0.00
49		Retene	0.371	0.343	7.5	82	0.00
	un	C2-Phenanthrenes/Anthracene	0.993	0.000	100.0#		-28.56#
	un	C3-Phenanthrenes/Anthracene	0.993	0.000	100.0#		-29.43#
52	un	C4-Phenanthrenes/Anthracene	0.993	0.000	100.0#		-32.06#
53	Т	Naphthobenzothiophene	1.302	1.129	13.3	78	0.00
54	un	C1-Naphthobenzothiophenes	1.302	0.000	100.0#		-34.55#
55	un	C2-Naphthobenzothiophenes	1.302	0.000	100.0#		-36.02#
56	un	C3-Naphthobenzothiophenes	1.302	0.000	100.0#		-37.42#
57	un	C4-Naphthobenzothiophenes	1.302	0.000	100.0#		-37.92#
58	Т	Fluoranthene	1.295	1.197	7.6	81	0.00
59	Т	Pyrene	1.217	1.186	2.5	86	-0.03
60	т	2-Methylfluoranthene	0.792	0.742	6.3	83	0.00
61	Т	Benzo(b) fluorene	0.893	0.760	14.9	77	0.00
62	un	C1-Fluoranthenes/Pyrenes	1.295	0.000	100.0#	0#	-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-35.09#
66	S	Chrysene-d12	1.235	1.116	9.6	82	0.00
67	Т	Benz(a)anthracene	1.018	0.962	5.5	91	0.00
68	т	Chrysene/Triphenylene	1.450	1.311	9.6	80	0.00
69	un	C1-Chrysenes	1.450	0.000	100.0#	0#	-35.83#
70	un	C2-Chrysenes	1.450	0.000	100.0#		-36.99#
71	un	C3-Chrysenes	1.450	0.000	100.0#		-38.11#
72	un	C4-Chrysenes	1.450	0.000	100.0#		-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	77	0.00
74	un	C29-Hopane	0.393	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.393	0.000	100.0#	0#	-42.34#
76	Т	C30-Hopane	0.393	0.388	1.3	82	0.00
77	Т	Benzo(b)fluoranthene	1.350	1.235	8.5	80	0.00
78	Т	Benzo(k,j)fluoranthene	1.469	1.347	8.3	79	0.00
79	un	Benzo(a)fluoranthene	1.469	0.000	100.0#	0#	-37.34#
80	Т	Benzo(e)pyrene	1.395	1.292	7.4	81	0.00
81	Т	Benzo(a)pyrene	1.313	1.210	7.8	80	-0.04
82	Т	Indeno(1,2,3-c,d)pyrene	1.633	1.497	8.3	80	0.00
83	Т	Dibenzo(a,h)anthracene	1.302	1.206	7.4	81	0.00
84	un	C1-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-48.31#
85		C2-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-50.30#
	un	C3-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#	0#	-51.23#
87		Benzo(g,h,i)perylene	1.444	1.386	4.0	83	-0.04
88		Perylene-d12	1.215	1.168	3.9	81	0.00
89		Perylene	1.347	1.256	6.8	82	-0.04
90	S	5(b)H-Cholane	0.262	0.239	8.8	79	0.00
	un	C20-TAS	1.496	0.000	100.0#		-33.30#
92	un	C21-TAS	1.496	0.000	100.0#	0#	-34.24#

Data Path : C:\GCMS7\MS70058\ Data File : MS70058J.D Acq On : 20 Aug 2013 5: Operator : YM Sample : AR-WKCC-250-038 5:20 pm Misc : ALS Vial : 10 Sample Multiplier: 1 Quant Time: Aug 22 06:42:05 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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) 1.4960.000100.0#0# -38.70#1.4961.32211.677 -0.041.4960.000100.0#0# -40.24#1.4960.000100.0#0# -41.09#1.4960.000100.0#0# -41.42# 93 un C26(20S)-TAS C26(20R)/C27(20S)-TAS 94 T 
 94
 1
 C28(20R)/C27(

 95
 un
 C28(20S)-TAS

 96
 un
 C27(20R)-TAS

 97
 un
 C28(20R)-TAS
 

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Acq C Opera Sampl Misc ALS V	Path : C:\GCMS7\MS70058\ File : MS70058J.D on : 20 Aug 2013 5:20 p tor : YM e : AR-WKCC-250-038 : Tial : 10 Sample Multipli Time: Aug 22 06:42:05 2013	ler: 1				
Quant Quant QLast	Method : C:\GCMS7\MS70058\ Title : PAH Calibration T Update : Wed Aug 21 18:15: nse via : Initial Calibrati	AR70058. Table-201 55 2013				
	Compound	R.T.	QIon	Response	Conc Uni	ts Dev(Min)
	rnal Standards					
		21.399	176	363550m	251.05	0.00
31)	Pyrene-d10	29.600	212	668267m	250.63	0.00
73)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	38.309	264	669193m	250.32	0.00
Svet	em Monitoring Compounds					
2)	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12	13.766	136	580957m	240.12	0.00
21)	Acenaphthene-d10	19.616	164	325634m	232.15	0.00
32)	Phenanthrene-d10	24.683	188	603510m	255.68	0.00
66)	Chrysene-d12	33.770	240	743978m	225.91	0.00
88)	Peryrene-diz	38.619	264	780613m	240.27	0.00
90)	5(b)H-Cholane	34.158	217	159529m	227.60	0.00
Targ	et Compounds					Qvalue
3)	cis/trans Decalin	11.120	138	101260m	239.32	
4)	Cl-Decalins	0.000		0 0 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 Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene	0.000		0	N.D. (	d
8)	Naphthalene	13.822	128	642580m	243.38	
9)	2-Methylnaphthalene	16.078	142	409276m	236.37	
10)	1-MethyInaphthalene	16.413	142	381806m	237.79	
	2,6-Dimethylnaphthalene					
13)	1,6,7-Trimethylnaphtha	0.000	1/0		230.91 N.D. (	4
14)		0.000		0	N.D. 0	d
15)	C4-Naphthalenes	0.000		0	N.D.	a
	Benzothiophene	14.017	134	529535m	242.21	
	C1-Benzothiophenes	0.000		0	N.D. (	d
18)	C2-Benzothiophenes	0.000		0	N.D. d	d
	C3-Benzothiophenes	0.000		0	N.D. 0	d
	C4-Benzothiophenes	0.000	12802235	0	N.D. (	d
	Biphenyl	17.638	154	538681m	242.39	
	Acenaphthylene	19.115	152	545412m	230.57	
	Acenaphthene Dibenzofuran	19.728		352129m	232.15	
	Fluorene	20.313 21.483	168 166	605813m 460706m	238.83 236.49	
	1-Methylfluorene	23.471	180	234071m	224.12	
	C1-Fluorenes	0.000	100	0	N.D. 0	đ
	C2-Fluorenes	0.000		0	N.D. 0	
30)	C3-Fluorenes	0.000		0	N.D. d	
33)	Carbazole	25.514	167	551331m	225.59	
34)	Dibenzothiophene	24.337	184	736622m	246.20	
	4-Methyldibenzothiophene	25.860	198	455711m	241.49	
	2/3-Methyldibenzothiop	0.000		0	N.D.	
	1-Methyldibenzothiophene	0.000		0	N.D. (	
	C2-Dibenzothiophenes	0.000		0	N.D. (	
	C3-Dibenzothiophenes	0.000		0	N.D. C	
	C4-Dibenzothiophenes	0.000	170	0	N.D. 0	u -
	Phenanthrene Anthracene	24.787 24.960	178 178	655326m 578073m	247.54 239.13	
42)	micht acons	24.500	1/0	5760750	232.13	

Data Path : C:\GCMS7\MS70058\ Data File : MS70058J.D Acq On : 20 Aug 2013 5:20 p Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 10 Sample Multipli Quant Time: Aug 22 06:42:05 2013 Quant Method : C:\GCMS7\MS70058 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 18:15: Response via : Initial Calibrati	ier: 1 3 (AR70058) Fable-201 55 2013				
Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
<pre>43) 3-Methylphenanthrene 44) 2-Methylphenanthrene 45) 2-Methylphenanthrene 46) 4/9-Methylphenanthrene 47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene 50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr 52) C4-Phenanthrenes/Anthr 53) Naphthobenzothiophene 54) C1-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 56) C3-Naphthobenzothiophenes 57) C4-Naphthobenzothiophenes 58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene 61) Benzo(b) fluorene 62) C1-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 66) C4-Fluoranthenes/Pyrenes 70) Benz(a) anthracene 68) Chrysene/Triphenylene 69) C1-Chrysenes 71) C3-Chrysenes 72) C4-Chrysenes 73) C2-Chrysenes 74) C29-Hopane 75) 18a-Oleanane 76) C30-Hopane 77) Benzo(b) fluoranthene 78) Benzo(c) fluoranthene 79) Benzo(a) fluoranthene 79) Benzo(a) fluoranthene 79) Benzo(a) fluoranthene 80) Benzo(e) pyrene 81) Benzo(a) pyrene 82) Indeno(1,2,3-c,d) pyrene</pre>	0.000 0.000 0.000 26.899 27.973 30.639 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 28.873 29.635 30.397 31.020 0.000 0.0	192 206 234 234 234 202 202 216 216 216 216 216 218 228 228 228 228 228 228 228 228 228	0 0 0 485994m 480056m 204289m 0 0 757550m 0 0 757550m 0 0 798429m 790314m 497837m 511185m 0 0 0 0 640218m 868411m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N.D. N.D. N.D. N.D. 223.47 222.24 206.43 N.D. N.D. N.D. 218.22 N.D. N.D. 218.22 N.D. N.D. 231.18 243.55 235.68 214.62 N.D. N.D. N.D. N.D. N.D. N.D. 235.79 224.62 N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D	d d d d d d d d d d d d d d d d d d d
	43.152	278	798433m 0	229.44 N.D.	
86) C3-Dibenzo(a,h)anthrac	0.000	0.7.6	0 0	N.D. N.D.	
87) Benzo(g,h,i)perylene 89) Perylene	44.405 38.697	276 252	840225m	237.83 233.40	12
91) C20-TAS 92) C21-TAS	0.000		0	N.D. N.D.	
93) C26(20S)-TAS	0.000	0.01	0	N.D.	
94) C26(20R)/C27(20S)-TAS 95) C28(20S)-TAS	39.317 0.000	231	883697m 0	220.94 N.D.	d
96) C27(20R)-TAS 97) C28(20R)-TAS	0.000		0 0	N.D. N.D.	

Data Path : C:\GCMS7\MS70058\ Data File : MS70058J.D Acq On : 20 Aug 2013 Operator : YM 5:20 pm Sample : AR-WKCC-250-038 Misc : ALS Vial : 10 Sample Multiplier: 1 Quant Time: Aug 22 06:42:05 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QION Response Conc Units Dev(Min) ------(#) = qualifier out of range (m) = manual integration (+) = signals summed

(QT Reviewed) Quantitation Report

58.00 56.00 54.00 52.00 50.00 48.00 4 46.00 44.00 T.enelyneq(i,h,e)ozne8 T, an analytick, R, B) Sathadrebul C30-Hopane,T 42.00 40.00 C26(20R)/C27(20S)-TAS,T 38.00 Signal Penylene-discontantante discussion of the service of the se TIC: MS70058J.D\data.ms T,enertherouth(i,k)ozne8 T,enertherouth(d)ozne8 36.00 34.00 S, anslord)-H(d)B 3,5hbiensammen5engenderdine(e) T,enerdointoznedontriqeM 32.00 Z-Methylfluoranthene,T<sub>Retene,T</sub> 30.00 Pyrene-d10.1 **T**, enshtneroul **F** 28.00 T,enendhylphenanthrene,T T, enerthylphenanthrene, T 26.00 PAH Calibration Table-2013A T,enertqointoznegig 2,01b-enertiginerangightA C:\GCMS7\MS70058\AR70058.M 24.00 2013 T, anaroufity diametere. T Ч 22.00 Sample Multiplier: : Wed Aug 21 18:15:55 : Initial Calibration Calibration T,enelentingeniyntemiyntemiyntemi T,enelentingeniyntemi T,enelenel 5:20 pm 20.00 Time: Aug 22 06:42:05 2013 2013 T,nenutoznediG T.eneflikkkeresetindeneoA T,enelythylenesA C:\GCMS7\MS70058\ 18.00 07:04:12 AR-WKCC-250-038 T,enelentingentyntemid-8.5 T,lynenyl,T 20 Aug 2013 YM 16.00 T, Anelin aphthalene, T, Anelia (1990) - T, Anelia MS70058J.D 14.00 22 S,8b-9091606464640 58.M Thu Aug 10 Method : .. 12.00 QLast Update Response via Title .. •• ••• T,nilsoed ensitivation 10.00 Data Path Data File Operator ALS Vial ò 50000 Abundance 500000 300000 250000 200000 150000 Acq On 550000 450000 000001 Sample 400000 350000 Quant Quant Quant Ą Misc 101

Page:

60.00

Data Path : C:\GCMS7\MS70058\ Data File : MS70058L.D Acq On : 21 Aug 2013 3:37 am Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 21 19:57:32 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

		Compound	AvgRF	CCRF	%Dev A:	rea% I	Dev(min)
1	 I	Fluorene-d10	1.000	1.000	0.0	88	0.00
	S	Naphthalene-d8	1.671	1.619	3.1	92	0.00
	т	cis/trans Decalin	0.292	0.330	-13.0	101	0.00
	un	C1-Decalins	0.292	0.000	100.0#		-12.32#
	un	C2-Decalins	0.292	0.000	100.0#		-13.52#
	un	C3-Decalins	0.292	0.000	100.0#		-15.88#
7	un	C4-Decalins	0.292	0.000	100.0#	0#	-18.33#
8	т	Naphthalene	1.823	1.812	0.6	95	0.00
9	т	2-Methylnaphthalene	1.196	1.118	6.5	89	0.00
10	т	1-Methylnaphthalene	1.109	1.046	5.7	89	0.00
11	Т	2,6-Dimethylnaphthalene	1.048	1.022	2.5	92	0.00
12	т	1,6,7-Trimethylnaphthalene	0.954	0.907	4.9	91	-0.03
13	un	C2-Naphthalenes	1.823	0.000	100.0#	0#	-18.89#
14	un	C3-Naphthalenes	1.823	0.000	100.0#		-20.37#
15	un	C4-Naphthalenes	1.823	0.000	100.0#	0#	-22.26#
16	т	Benzothiophene	1.510	1.499	0.7	95	0.00
17	un	C1-Benzothiophenes	1.510	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.510	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.510	0.000	100.0#	0#	-20.31#
20	un	C4-Benzothiophenes	1.510	0.000	100.0#	0#	-22.23#
21	S	Acenaphthene-d10	0.969	0.896	7.5	89	0.00
22	Т	Biphenyl	1.535	1.511	1.6	93	0.00
23	Т	Acenaphthylene	1.633	1.593	2.4	96	0.00
24	т	Acenaphthene	1.047	0.977	6.7	89	0.00
25	Т	Dibenzofuran	1.752	1.696	3.2	92	0.00
26	т	Fluorene	1.345	1.310	2.6	92	0.00
27	Т	1-Methylfluorene	0.721	0.700	2.9	95	-0.03
	un	C1-Fluorenes	1.345	0.000	100.0#	0#	-23.51#
29		C2-Fluorenes	1.345	0.000	100.0#		-24.79#
30	un	C3-Fluorenes	1.345	0.000	100.0#	0#	-27.59#
31		Pyrene-d10	1.000	1.000	0.0	84	0.00
32	S	Phenanthrene-d10	0.885	1.020	-15.3	101	0.00
	Т	Carbazole	0.917	0.934	-1.9	91	0.00
	Т	Dibenzothiophene	1.122	1.196	-6.6	93	0.00
35	Т	4-Methyldibenzothiophene	0.708	0.709	-0.1	91	-0.03
36	un	2/3-Methyldibenzothiophene	0.708	0.000	100.0#	0#	-26.21#
	un	1-Methyldibenzothiophene	0.708	0.000	100.0#		-26.52#
	un	C2-Dibenzothiophenes	1.122	0.000	100.0#		-27.83#
39	un	C3-Dibenzothiophenes	1.122	0.000	100.0#		-28.49#
	un	C4-Dibenzothiophenes	1.122	0.000	100.0#		-31.09#
	Т	Phenanthrene	0.993	1.096	-10.4	99	-0.03
42		Anthracene	0.907	0.935	-3.1	91	-0.03
	un	3-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylanthracene	0.816	0.000	100.0#		-26.73#
46	un	4/9-Methylphenanthrene	0.816	0.000	100.0#	0#	-26.93#

Data Path : C:\GCMS7\MS70058\ Data File : MS70058L.D Acq On : 21 Aug 2013 3:37 am Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 21 19:57:32 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

		Compound	AvgRF	CCRF	%Dev Ar	ea%	Dev(min)
47	 Т	1-Methylphenanthrene	0.816	0.719	11.9	81	0.00
48		3,6-Dimethylphenanthrene	0.810	0.716	11.6	81	0.00
49		Retene	0.371	0.372	-0.3	91	0.00
50	un	C2-Phenanthrenes/Anthracene	0.993	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	0.993	0.000	100.0#		-29.43#
52	un	C4-Phenanthrenes/Anthracene	0.993	0.000	100.0#		-32.06#
53	Т	Naphthobenzothiophene	1.302	1.056	18.9	74	0.00
54	un	C1-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-37.92#
58	т	Fluoranthene	1.295	1.167	9.9	80	0.00
59	Т	Pyrene	1.217	1.343	-10.4	99	-0.03
	Т	2-Methylfluoranthene	0.792	0.843	-6.4	96	0.00
61	т	Benzo(b)fluorene	0.893	0.768	14.0	79	0.00
	un	C1-Fluoranthenes/Pyrenes	1.295	0.000	100.0#	0#	-30.71#
	un	C2-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-32.18#
64	un	C3-Fluoranthenes/Pyrenes	1.295	0.000	100.0#	0#	-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.295	0.000	100.0#	0#	-35.09#
66	S	Chrysene-d12	1.235	1.042	15.6	77	0.00
67	т	Benz(a)anthracene	1.018	0.927	8.9	89	0.00
68	Т	Chrysene/Triphenylene	1.450	1.286	11.3	80	0.00
	un	Cl-Chrysenes	1.450	0.000	100.0#		-35.83#
	un	C2-Chrysenes	1.450	0.000	100.0#		-36.99#
	un	C3-Chrysenes	1.450	0.000	100.0#		-38.11#
72	un	C4-Chrysenes	1.450	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	82	0.00
74	un	C29-Hopane	0.393	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.393	0.000	100.0#	0#	-42.34#
76	т	C30-Hopane	0.393	0.377	4.1	86	0.00
77	т	Benzo(b)fluoranthene	1.350	1.268	6.1	88	0.00
78	Т	Benzo(k,j)fluoranthene	1.469	1.166	20.6	73	0.00
	un	Benzo(a)fluoranthene	1.469	0.000	100.0#	0#	-37.34#
80	т	Benzo(e)pyrene	1.395	1.242	11.0	83	0.00
81	т	Benzo(a)pyrene	1.313	1.273	3.0	90	-0.04
82	т	Indeno(1,2,3-c,d)pyrene	1.633	1.466	10.2	84	-0.04
83	Т	Dibenzo(a,h)anthracene	1.302	1.174	9.8	84	-0.04
84	un	C1-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-48.31#
	un	C2-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#	0#	-50.30#
	un	C3-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-51.23#
87		Benzo(g,h,i)perylene	1.444	1.331	7.8	85	-0.04
88		Perylene-d12	1.215	1.117	8.1	83	0.00
89		Perylene	1.347	1.299	3.6	91	-0.04
90		5(b)H-Cholane	0.262	0.248	5.3	88	0.00
	un	C20-TAS	1.496	0.000	100.0#		-33.30#
92	un	C21-TAS	1.496	0.000	100.0#	0#	-34.24#

Data Path : C:\GCMS7\MS70058\ Data File : MS70058L.D Acq On : 21 Aug 2013 3:37 am Operator : YM Sample : AR-WKCC-250-038 Misc 2 ALS Vial : 19 Sample Multiplier: 1 Quant Time: Aug 21 19:57:32 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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 unC26(20S)-TAS1.4960.000100.0#0# -38.70#94 TC26(20R)/C27(20S)-TAS1.4961.30612.781 -0.0495 unC28(20S)-TAS1.4960.000100.0#0# -40.24#96 unC27(20R)-TAS1.4960.000100.0#0# -41.09#97 unC28(20R)-TAS1.4960.000100.0#0# -41.42# 

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Path : C:\GCMS7\MS70058\ Data File : MS70058L.D Acq On : 21 Aug 2013 3:37 a Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 19 Sample Multipl: Quant Time: Aug 21 19:57:32 2013	ier: 1				
Quant Method : C:\GCMS7\MS70058 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 18:15 Response via : Initial Calibration	\AR70058. Table-201 :55 2013				
Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
Internal Standards 1) Fluorene-d10 31) Pyrene-d10 73) Benzo(a)pyrene-d12					
System Monitoring Compounds 2) Naphthalene-d8 21) Acenaphthene-d10 32) Phenanthrene-d10 66) Chrysene-d12 88) Perylene-d12 90) 5(b)H-Cholane	13.766 19.616 24.683 33.770 38.619 34.158	164	340192m	231.45	0.00
Target Compounds					Qvalue
	0.000 0.000 0.000 13.822 16.078	128 142	0 0 0 687276m 424653m	N.D. N.D. N.D. 248.42 234.06 235.54 243.86 237.71	d d d
<ul> <li>15) C4-Naphthalenes</li> <li>16) Benzothiophene</li> <li>17) C1-Benzothiophenes</li> <li>18) C2-Benzothiophenes</li> <li>19) C3-Benzothiophenes</li> <li>20) C4-Benzothiophenes</li> <li>22) Biphenyl</li> <li>23) Acenaphthylene</li> <li>24) Acenaphthene</li> <li>25) Dibenzofuran</li> <li>26) Fluorene</li> </ul>	0.000 13.989 0.000 0.000 0.000 17.638 19.115 19.728 20.313 21.483	134 154 152 154 168 166	0 565112m 0 0 568077m 599586m 371354m 640194m 498064m	N.D. 246.68 N.D. N.D. N.D. 243.94 241.90 233.64 240.86 243.99	d d d
<ul> <li>27) 1-Methylfluorene</li> <li>28) C1-Fluorenes</li> <li>29) C2-Fluorenes</li> <li>30) C3-Fluorenes</li> <li>33) Carbazole</li> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiophene</li> <li>38) C2-Dibenzothiophenes</li> <li>39) C3-Dibenzothiophenes</li> <li>40) C4-Dibenzothiophenes</li> <li>41) Phenanthrene</li> <li>42) Anthracene</li> </ul>	$\begin{array}{c} 23.436\\ 0.000\\ 0.000\\ 25.514\\ 24.337\\ 25.826\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 24.752\\ 24.925\end{array}$	180 167 184 198 178	267480m 0 0 628275m 800368m 485196m 0 0 0 0 0 736992m 636222m	244.41 N.D. N.D. 252.48 262.72 252.52 N.D. N.D. N.D. N.D. 273.41 258.48	d d d d d

Data Path : C:\GCMS7\MS70058\ Data File : MS70058L.D Acq On : 21 Aug 2013 3:37 am Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 19 Sample Multiplier: 1 Quant Time: Aug 21 19:57:32 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration							
Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)		
43) 3-Methylphenanthrene			0	N.D.			
44) 2-Methylphenanthrene	0.000		0	N.D.			
45) 2-Methylanthracene	0.000		0	N.D.			
<ul><li>45) 2-Methylanthracene</li><li>46) 4/9-Methylphenanthrene</li><li>47) 1-Methylphenanthrene</li></ul>	0.000		0	N.D.	d		
47) 1-Methylphenanthrene	26.899	192	482377m	217.84			
48) 3,6-Dimethylphenanthrene	27.973	206	486526m	221.21			
49) Retene	30.639	234	225465m	223.75			
50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr	0.000		0 0	N.D.	d		
51) C3-Phenanthrenes/Anthr	0.000				d		
52) C4-Phenanthrenes/Anthr	0.000	224	0	N.D.			
53) Naphthobenzothiophene			0	204.03 N D	5		
54) Cl-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes	0.000		0	N.D. N.D.	d		
56) C3-Naphthobenzothiophenes	0.000			N.D.			
57) C4-Naphthobenzothiophenes			0				
58) Fluoranthene	28.873	202	792925m	225.48			
58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene	29.635	202	911586m	275.90			
60) 2-Methylfluoranthene	30.397	216	575848m	267.73			
61) Benzo(b)fluorene	31.020	216	525965m	216.87			
<ul><li>62) C1-Fluoranthenes/Pyrenes</li><li>63) C2-Fluoranthenes/Pyrenes</li><li>64) C3-Fluoranthenes/Pyrenes</li></ul>	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.			
65) C4-Fluoranthenes/Pyrenes 67) Benz(a)anthracene	0.000	220	0		a		
67) Benz (a) anthracene	33./31	228	628107m 867788m				
68) Chrysene/Triphenylene 69) Cl-Chrysenes	0.000		0		5		
70) C2-Chrysenes	0.000		0	N.D.			
71) C3-Chrysenes	0.000		0	N.D.			
72) C4-Chrysenes	0.000		0	N.D.			
74) C29-Hopane	0.000		0	N.D.	d		
75) 18a-Oleanane	0.000		0	N.D.	d		
76) C30-Hopane	42.672	191	269606m				
77) Benzo(b)fluoranthene	37.261	252	907869m	235.25			
78) Benzo(k,j)fluoranthene	37.339	252	829910m	197.65	22		
<ul><li>79) Benzo(a)fluoranthene</li><li>80) Benzo(e)pyrene</li></ul>	0.000	252	0 884291m	N.D. 221.71	a		
81) Benzo(a)pyrene	38.231 38.386	252					
82) Indeno(1,2,3-c,d)pyrene	43.041	276					
83) Dibenzo(a,h)anthracene	43.115	278	831709m	223.47			
84) Cl-Dibenzo(a,h)anthrac			0	N.D.	d		
85) C2-Dibenzo(a,h)anthrac	0.000		0	N.D.			
86) C3-Dibenzo(a,h)anthrac	0.000		0	N.D.			
87) Benzo(g,h,i)perylene	44.405	276	942702m	228.30			
89) Perylene	38.697	252	929230m	241.36			
91) C20-TAS	0.000		0	N.D.			
92) C21-TAS	0.000		0	N.D.			
93) C26(20S)-TAS	0.000	0.0.7	0	N.D.	d		
94) C26(20R)/C27(20S)-TAS	39.318	231	933354m	218.20	4		
95) C28(20S)-TAS	0.000		0	N.D.			
96) C27(20R)-TAS 97) C28(20R)-TAS	0.000		0	N.D. N.D.			
5// C20(20R/-IAD	0.000		0	IN.D.	<u>u</u>		

Data Path : C:\GCMS7\MS70058\ Data File : MS70058L.D : 21 Aug 2013 3:37 am Acq On Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 19 Sample Multiplier: 1 Quant Time: Aug 21 19:57:32 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed

(QT Reviewed) Quantitation Report

56.00 54.00 52.00 50.00 48.00 4 46.00 44.00 T,enelyneq(i,n,p)ozned T,enesenting(d,s)oznedenese(b,2.5.5.t)onebni C30-Hopane,T 42.00 40.00 C26(20R)/C27(20S)-TAS,T I.STb-2nanyd(s)axaadu(s)oznad T.ananyd(a)oznad 38.00 TIC: MS70058L.D\data.ms T,enanthenouit((,))fluoranthene,T T,enedtneroult(d)ozne8 36.00 34.00 S, 5(b)H-Cholane, S enelynendinT\enesyn&Stbfsmasyntons(s)sne8 T,enertothiophene,T 32.00 T,enarthfolgungithythem-S T,enarol(b)fluorene,T 30.00 Pyrene-d10,1 Pyrene,T T,enerthenell 28.00 T, enerthylphenanthrene, T, enerthrene, T, enerthylphenanthrene, T, ene T.enerthrenanthrene.T 26.00 T,energonation T,energene,T 4-Methyldibenzothiophene,T C:\GCMS7\MS70058\AR70058.M PAH Calibration Table-2013A T,enecene,T Phenaphtenanthophene,T 24.00 2013 T.9nerhylfluorene,T Н 22.00 Sample Multiplier: QLast Update : Wed Aug 21 18:15:55 lishthqsniγnteminT-7,8,t ------Fluorene,∓ Calibration Fluorene-d10,1 am 20.00 21 19:57:32 2013 2013 T,nshutoznadiQ 3:37 4.9HannaddhaanaaaA T, ensithylenesA C:\GCMS7\MS70058\ 21 Aug 2013 3: YM AR-WKCC-250-038 18.00 07:04:24 F, en el entragent y de la comparte T,Ivnenqia 16.00 T, eneledit denivritem-s T, enelenir denivritem-r : Initial MS70058L.D 14.00 22 S. abanate Material T. anandointozna B Time: Aug Thu Aug Method : 19 12.00 Response via Quant Title •• •• •• T,nilsoeO anent/aio 10.00 Path Data File Operator ALS Vial M. 8 50000 450000 250000 0 uO Abundance 100000 Sample 550000 400000 350000 300000 150000 500000 200000 Quant Quant ٨ Data Misc Acq 108 FL.

Page:

60.00

58.00

Data Path : C:\GCMS7\MS70058\ Data File : MS70058M.D Acq On : 21 Aug 2013 12:46 pm Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 21 20:07:40 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

-		Compound	AvgRF	CCRF	%Dev A	rea%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	88	0.00
2	S	Naphthalene-d8	1.671	1.610	3.7	91	0.00
	т	cis/trans Decalin	0.292	0.309	-5.8	94	0.00
	un	C1-Decalins	0.292	0.000	100.0#		-12.32#
5	un	C2-Decalins	0.292	0.000	100.0#		-13.52#
	un	C3-Decalins	0.292	0.000	100.0#	0#	-15.88#
7		C4-Decalins	0.292	0.000	100.0#		-18.33#
8	Т	Naphthalene	1.823	1.823	0.0	95	0.00
9	т	2-Methylnaphthalene	1.196	1.100	8.0	87	0.00
10	т	1-Methylnaphthalene	1.109	1.048	5.5	89	0.00
11	т	2,6-Dimethylnaphthalene	1.048	1.024	2.3	92	0.00
12		1,6,7-Trimethylnaphthalene	0.954	0.929	2.6	93	-0.03
13	un	C2-Naphthalenes	1.823	0.000	100.0#		-18.89#
	un	C3-Naphthalenes	1.823	0.000	100.0#	0#	-20.37#
	un	C4-Naphthalenes	1.823	0.000	100.0#		-22.26#
	т	Benzothiophene	1.510	1.500	0.7	94	0.00
	un	C1-Benzothiophenes	1.510	0.000	100.0#		-15.49#
	un	C2-Benzothiophenes	1.510	0.000	100.0#		-17.92#
	un	C3-Benzothiophenes	1.510	0.000	100.0#		-20.31#
	un	C4-Benzothiophenes	1.510	0.000	100.0#		-22.23#
21		Acenaphthene-d10	0.969	0.898	7.3	88	0.00
22	Т	Biphenyl	1.535	1.552	-1.1	95	0.00
23	T	Acenaphthylene	1.633	1.564	4.2	94	0.00
24	T	Acenaphthene	1.047	0.994	5.1	90	-0.03
25	T	Dibenzofuran	1.752	1.681	4.1	90	0.00
26	T	Fluorene	1.345	1.321	1.8	92	0.00
27	T	1-Methylfluorene	0.721	0.738	-2.4	99	-0.03
	un	C1-Fluorenes	1.345	0.000	100.0#		-23.51#
	un	C2-Fluorenes	1.345	0.000	100.0#		-24.79#
	un	C3-Fluorenes	1.345	0.000	100.0#		-27.59#
					100.01	011	27.35π
31	I	Pyrene-d10	1.000	1.000	0.0	83	0.00
32	S	Phenanthrene-d10	0.885	1.044	-18.0	103	0.00
33		Carbazole	0.917	0.918	-0.1	89	0.00
34	т	Dibenzothiophene	1.122	1.196	-6.6	93	0.00
35	т	4-Methyldibenzothiophene	0.708	0.742	-4.8	95	-0.03
36	un	2/3-Methyldibenzothiophene	0.708	0.000	100.0#		-26.21#
37	un	1-Methyldibenzothiophene	0.708	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.122	0.000	100.0#		-27.83#
39	un	C3-Dibenzothiophenes	1.122	0.000	100.0#		-28.49#
40	un	C4-Dibenzothiophenes	1.122	0.000	100.0#		-31.09#
41	т	Phenanthrene	0.993	1.155	-16.3	104	-0.03
42	т	Anthracene	0.907	0.973	-7.3	95	-0.03
	un	3-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylanthracene	0.816	0.000	100.0#		-26.73#
	un	4/9-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
		· · · · · · · · · · · · · · · · · · ·			200.01	0 11	20.201

Data Path : C:\GCMS7\MS70058\ Data File : MS70058M.D Acq On : 21 Aug 2013 12:46 pm Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 21 20:07:40 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

		Compound	AvgRF	CCRF	%Dev Ar	ea% I	Dev(min)
- 47	 Т	1-Methylphenanthrene	0.816	0.702	14.0	79	0.00
48	т	3,6-Dimethylphenanthrene	0.810	0.671	17.2	75	0.00
49	Т	Retene	0.371	0.359	3.2	87	0.00
50	un	C2-Phenanthrenes/Anthracene	0.993	0.000	100.0#	0#	-28.56#
51	un	C3-Phenanthrenes/Anthracene	0.993	0.000	100.0#		-29.43#
52	un	C4-Phenanthrenes/Anthracene	0.993	0.000	100.0#	0#	-32.06#
53	т	Naphthobenzothiophene	1.302	0.996	23.5	70	0.00
54	un	C1-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-34.55#
55	un	C2-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-36.02#
56	un	C3-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-37.42#
57	un	C4-Naphthobenzothiophenes	1.302	0.000	100.0#	0#	-37.92#
58	т	Fluoranthene	1.295	1.118	13.7	76	0.00
59	Т	Pyrene	1.217	1.437	-18.1	105	-0.03
60	Т	2-Methylfluoranthene	0.792	0.854	-7.8	97	0.00
61		Benzo(b)fluorene	0.893	0.700	21.6	72	0.00
	un	C1-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-30.71#
63	un	C2-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-32.18#
	un	C3-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-34.00#
65	un	C4-Fluoranthenes/Pyrenes	1.295	0.000	100.0#		-35.09#
66	S	Chrysene-d12	1.235	0.976	21.0	72	0.00
	т	Benz(a)anthracene	1.018	0.920	9.6	88	0.00
	Т	Chrysene/Triphenylene	1.450	1.135	21.7	70	0.00
	un	C1-Chrysenes	1.450	0.000	100.0#		-35.83#
	un	C2-Chrysenes	1.450	0.000	100.0#		-36.99#
	un	C3-Chrysenes	1.450	0.000	100.0#		-38.11#
72	un	C4-Chrysenes	1.450	0.000	100.0#	0#	-39.74#
73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	79	0.00
74	un	C29-Hopane	0.393	0.000	100.0#	0#	-40.28#
75	un	18a-Oleanane	0.393	0.000	100.0#	0#	-42.34#
76	Т	C30-Hopane	0.393	0.372	5.3	80	0.00
	Т	Benzo(b)fluoranthene	1.350	1.434	-6.2	95	-0.04
78	Т	Benzo(k,j)fluoranthene	1.469	1.067	27.4#	64	0.00
	un	Benzo(a)fluoranthene	1.469	0.000	100.0#	0#	-37.34#
80	Т	Benzo(e)pyrene	1.395	1.297	7.0	83	-0.04
81		Benzo(a)pyrene	1.313	1.346	-2.5	91	-0.04
82	Т	Indeno(1,2,3-c,d)pyrene	1.633	1.485	9.1	81	-0.04
83	т	Dibenzo(a,h)anthracene	1.302	1.199	7.9	82	-0.04
	un	C1-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-48.31#
	un	C2-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-50.30#
	un	C3-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		-51.23#
87		Benzo(g,h,i)perylene	1.444	1.348	6.6	82	-0.04
88		Perylene-d12	1.215	1.107	8.9	79	0.00
89		Perylene	1.347	1.351	-0.3	90	-0.04
90		5(b)H-Cholane	0.262	0.241	8.0	81	0.00
	un	C20-TAS	1.496	0.000	100.0#		-33.30#
92	un	C21-TAS	1.496	0.000	100.0#	0#	-34.24#

Data Path : C:\GCMS7\MS70058\ Data File : MS70058M.D Acq On : 21 Aug 2013 12:46 pm Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 27 Sample Multiplier: 1 Quant Time: Aug 21 20:07:40 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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 unC26(20S)-TAS1.4960.000100.0#0# -38.70#94 TC26(20R)/C27(20S)-TAS1.4961.33910.579 -0.0495 unC28(20S)-TAS1.4960.000100.0#0# -40.24#96 unC27(20R)-TAS1.4960.000100.0#0# -41.09#97 unC28(20R)-TAS1.4960.000100.0#0# -41.42# 

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Acq C Opera Sampl Misc ALS V	ial : 27 Sample Multipl:	ier: 1				
Quant Quant QLast	Time: Aug 21 20:07:40 201 Method : C:\GCMS7\MS70058 Title : PAH Calibration 7 Update : Wed Aug 21 18:15 nse via : Initial Calibrat	AR70058 Table-201 :55 2013				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
	rnal Standards					
		21 399	176	378279m	251 05	0.00
31)	Pyrene-d10	29.600	212	677095m	250 63	0.00
73)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	38.309	264	682402m	250.32	0.00
	em Monitoring Compounds					
2)	Naphthalene-d8	13.766	136	606751m	241.02	0.00
21)	Acenaphthene-d10	19.616	164	338450m	231.89	0.00
32)	Phenanthrene-d10	24.683	188	705822m	295.13	0.00
66)	Chrysene-d12	33.770	240	659432m	197.63	0.00
88)	Chrysene-d12 Perylene-d12 5(b)H-Cholane	38.619	264	754335m	227.68	0.00
90)	5(b)H-Cholane	34.158	217	164386m	229.99	0.00
Tara	et Compounds					Qvalue
Iary 3)	cis/trans Decalin	11 120	138	115247m	261 77	Qvarue
4)	cis/trans Decalin C1-Decalins	0 000	100	11524711	N D	d
	C2-Decalins	0.000		0	N.D.	d
6)	C3-Decalins	0.000		0	N.D.	d
7)	C3-Decalins C4-Decalins Naphthalene	0.000		0	N.D.	d
8)	Naphthalene	13.822	128	686567m	249.91	
9)	2-Methylnaphthalene	16.078	142	414681m	230.17	
10)	1-Methvlnaphthalene	16 413	142	394230m	235 96	
11)	2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes	18.168	156	385847m	244.29	
12)	1,6,7-Trimethylnaphtha	21.009	170	349876m	243.35	
13)	C2-Naphthalenes	0.000		0	N.D.	d
14)	C3-Naphthalenes	0.000		0	N.D.	d
	C4-Naphthalenes	0.000		0	N.D.	
	Benzothiophene	13.989	134	561733m	246.93	
	Cl-Benzothiophenes	0.000		0	N.D.	
	C2-Benzothiophenes	0.000		0	N.D.	
	C3-Benzothiophenes C4-Benzothiophenes	0.000		0	N.D. N.D.	
	Biphenyl	0.000 17.638	154	579252m	250.49	u
	Acenaphthylene	19.115	152	584266m	237.38	
	Acenaphthene	19.700	154	375248m	237.76	
	Dibenzofuran	20.313	168	630206m	238.78	
	Fluorene	21.483	166	498684m	246.02	
	1-Methylfluorene	23.436	180	280056m	257.71	
28)	C1-Fluorenes	0.000		0	N.D.	d
29)	C2-Fluorenes	0.000		0	N.D.	d
	C3-Fluorenes	0.000		0	N.D.	d
	Carbazole	25.514	167	614614m	248.21	
	Dibenzothiophene	24.337	184	796615m	262.78	
	4-Methyldibenzothiophene	25.826	198	505383m	264.32	
	2/3-Methyldibenzothiop	0.000		0	N.D.	3
	1-Methyldibenzothiophene	0.000		0	N.D.	
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	
	C4-Dibenzothiophenes Phenanthrene	0.000	178	0 773025m	N.D.	u
2012	Anthracene	24.752 24.925	178	659120m	288.19 269.11	
72/	. arour doone	~	110	00012011	207.11	

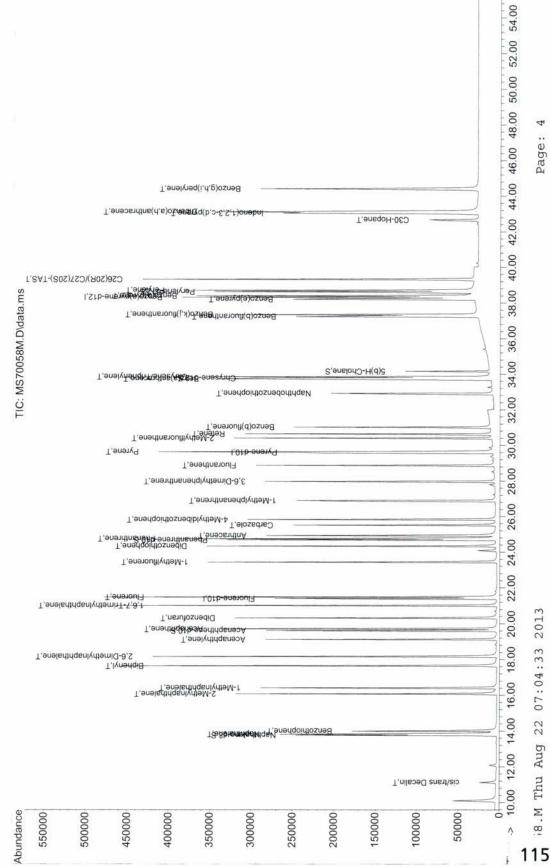
Data Acq C Opera Sampl Misc ALS V Quant Quant Quant Quant	Path : C:\GCMS7\MS70058\ File : MS70058M.D On : 21 Aug 2013 12:46 p ator : YM le : AR-WKCC-250-038 : Vial : 27 Sample Multipli Time: Aug 21 20:07:40 2013 Method : C:\GCMS7\MS70058\ Title : PAH Calibration T : Update : Wed Aug 21 18:15: onse via : Initial Calibrati	ier: 1 AR70058 Table-203			
	Compound	R.T.	QIon	Response	Conc Units Dev(Min)
43)	3-Methylphenanthrene			0	N.D. d
44)	2-Methylphenanthrene	0.000			N.D. d
45)	2-Methylanthracene 4/9-Methylphenanthrene	0.000		0	N.D. d
46)	4/9-Methylphenanthrene	0.000		0	N.D. d
	1-Methylphenanthrene				
	3,6-Dimethylphenanthrene				
	Retene	30.639	234	216597m	
50)	C2-Phenanthrenes/Anthr	0.000		0	
51)	C3-Phenanthrenes/Anthr	0.000		0	N.D. d
	C4-Phenanthrenes/Anthr			0	N.D.
53)	Naphthobenzothiophene	32.916	234		
55)	C1-Naphthobenzothiophenes C2-Naphthobenzothiophenes	0.000		0	N.D. d N.D. d
	C3-Naphthobenzothiophenes			0	N.D. d
	C4-Naphthobenzothiophenes			õ	
	Fluoranthene		202		
	Pyrene	29.635	202	756144m 970385m	295.15
60)	2-Methylfluoranthene	30.397	216	581103m	271.51
61)	Benzo(b)fluorene	31.020	216	477176m	
62)	Cl-Fluoranthenes/Pyrenes C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d
63)	C2-Fluoranthenes/Pyrenes	0.000		0	N.D. d
	C3-Fluoranthenes/Pyrenes			0	N.D. d
65)	C4-Fluoranthenes/Pyrenes	0.000	000	0	
	Benz(a) anthracene	33.731 33.847		620046m 762313m	
69)		0.000	220		N.D. d
70)	C2-Chrysenes	0.000		0	N.D. d
	C3-Chrysenes	0.000		0	N.D. d
	C4-Chrysenes	0.000		0	N.D. d
74)	C29-Hopane	0.000		0	N.D. d
	18a-Oleanane	0.000		0	N.D. d
		42.672	191	253343m	
	Benzo(b)fluoranthene	37.223	252		
	Benzo(k,j)fluoranthene	37.339	252	723932m	
	Benzo(a) fluoranthene	0.000	050	0	N.D. d
	Benzo(e)pyrene Benzo(a)pyrene	38.192 38.386	252		
	Indeno(1,2,3-c,d)pyrene		252 276		
	Dibenzo (a, h) anthracene		278	809587m	
		0.000	2,0	0	N.D. d
		0.000		Õ	N.D. d
	C3-Dibenzo(a,h)anthrac	0.000		0	N.D. d
	Benzo(g,h,i)perylene	44.405	276		
89)	Perylene	38.697	252		251.06
	C20-TAS	0.000		0	N.D. d
	C21-TAS	0.000		0	N.D. d
	C26(20S)-TAS	0.000		0	N.D. d
	C26(20R)/C27(20S)-TAS		231	912321m	223.68
	C28(20S) - TAS	0.000		0	N.D. d
	C27(20R)-TAS C28(20R)-TAS	0.000		0	N.D. d
51)	20 (20 (7 - 1 AD	0.000		0	N.D. d

Data Path : C:\GCMS7\MS70058\ Data File : MS70058M.D Acq On : 21 Aug 2013 12:46 pm Operator : YM Sample : AR-WKCC-250-038 Misc : ALS Vial : 27 Sample Multiplier: 1 Quant Time: Aug 21 20:07:40 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

(QT Reviewed) Quantitation Report

Ч Sample Multiplier: 12:46 pm C:\GCMS7\MS70058\ AR-WKCC-250-038 21 Aug 2013 MS70058M.D MX 27 •• ., ... .... File Path Acq On Operator ALS Vial Sample Data Data Misc

C:\GCMS7\MS70058\AR70058.M PAH Calibration Table-2013A 21 18:15:55 2013 : Wed Aug 21 18:15:55 : Initial Calibration 21 20:07:40 2013 Time: Aug •• .. Quant Method Response via QLast Update Quant Title Quant



Page:

60.00

58.00

56.00

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

Data File Name	MS70058H.D	Surrogate/Internal Multiplier Factor:	1.00
Data File Path	C:\msdchem\2\data\MS70058\	AR-WKSU-2500-001:	(ng/mL)
Operator	YM	Naphthalene-d8	250.125
Date Acquired	8/20/2013 15:03	Acenaphthene-d10	250.163
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194
Sample Name	AR-WKISSU-250-002	Chrysene-d12	250.038
Misc Info	0	Perylene-d12	250.031
Instrument Name	GCMSD	5(b)H-Cholane	250.000
Vial Number	8		
Sample Multiplier	1		
Sample Amount	0		

#### Copy data below to Spread Sheet

MS70058H.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
	C1-Decalins	0.00	0	0.0000	0.0000
	C2-Decalins	0.00	0	0.0000	0.0000
15710	C3-Decalins	0.00	0	0.0000	0.0000
200	C4-Decalins	0.00	0	0.0000	0.0000
10.00	Naphthalene	0.00	0	0.0000	0.0000
	C1-Naphthalenes	0.00	0	0.0000	0.0000
	C2-Naphthalenes	0.00	0	0.0000	0.0000
1000 C		0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
E-C2376	C4-Naphthalenes		0		
	Benzothiophene	0.00		0.0000	0.0000
	C1-Benzothiophenes	0.00	0	0.0000	0.0000
22 C 22	C2-Benzothiophenes	0.00	0	0.0000	0.0000
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
100 T. S. S.	C4-Benzothiophenes	0.00	0	0.0000	0.0000
	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
	C2-Fluorenes	0.00	0	0.0000	0.0000
30)	C3-Fluorenes	0.00	0	0.0000	0.0000
Sec. Sec.	Carbazole	0.00	0	0.0000	0.0000
5.6.634	Anthracene	0.00	0	0.0000	0.0000
2.12.536	Phenanthrene	0.00	o	0.0000	0.0000
53		0.00	0	0.0000	0.0000
	C1-Phenanthrenes/Anthracenes		0		
	C2-Phenanthrenes/Anthracenes	0.00		0.0000	0.0000
2007520	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
20 million	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	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
	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	Naphthobenzothiophene	0.00	õ	0.0000	0.0000
6.1 SAM11	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
S. 200 S.	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
526630	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
2665263	Benz(a)anthracene	0.00	0	0.0000	0.0000
23231	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
71)	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
77)	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(e)pyrene	0.00	0	0.0000	0.0000
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
			0		
	Perylene	0.00		0.0000	0.0000
	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
861	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
30)					

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
_		(minute)	(area)		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
2010-01	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
	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
	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	13.77	549145	235.34	94.09
21)	Acenaphthene-d10	19.62	311487	230.25	92.04
32)	Phenanthrene-d10	24.68	556103	240.84	96.26
66)	Chrysene-d12	33.77	691395	214.62	85.83
88)	Perylene-d12	38.62	754927	232.20	92.87
90)	5(b)H-Cholane	34.16	160076	228.22	91.29
-100 C	Internal Standards				
1)	Fluorene-d10	21.40	350628	251.05	
31)	Pyrene-d10	29.60	653720	250.63	
73)	Benzo(a)pyrene-d12	38.31	669669	250.33	

2 com	ereacton	nopor		eviewed)	
Data Path : C:\msdchem\2\data\MS Data File : MS70058H.D Acq On : 20 Aug 2013 3:03 p Operator : YM Sample : AR-WKISSU-250-002 Misc : ALS Vial : 8 Sample Multiplie	pm				
Quant Time: Aug 21 19:38:12 2013 Quant Method : C:\GCMS7\MS70058 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 18:15 Response via : Initial Calibration	AR70058. Table-201 :55 2013				
Compound	R.T.	QIon	Response	Conc Unit	s Dev(Min)
Internal Standards 1) Fluorene-d10 31) Pyrene-d10 73) Benzo(a)pyrene-d12	21.399 29.600	176 212	350628m 653720m	251.05	0.00
System Monitoring Compounds 2) Naphthalene-d8 21) Acenaphthene-d10 32) Phenanthrene-d10 66) Chrysene-d12 88) Perylene-d12 90) 5(b)H-Cholane	24.683 33.770 38.619	188 240 264	556103m 691395m 754927m	235.34 230.25 240.84 214.62 232.19 228.22	0.00 0.00 0.00 0.00
5) C2-Decalins 6) C3-Decalins	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000		0 0 0 0 0 0 0	N.D. d N.D. d	

Data Path : C:\msdchem\2\data\MS7 Data File : MS70058H.D Acq On : 20 Aug 2013 3:03 pm Operator : YM Sample : AR-WKISSU-250-002 Misc : ALS Vial : 8 Sample Multiplier Quant Time: Aug 21 19:38:12 2013	n N		
Quant Method : C:\GCMS7\MS70058\A Quant Title : PAH Calibration Ta QLast Update : Wed Aug 21 18:15:5 Response via : Initial Calibratio	able-2013A 55 2013		
Compound	R.T. QION	Response	Conc Units Dev(Min)
<pre>44) 2-Methylphenanthrene 45) 2-Methylphenanthrene 46) 4/9-Methylphenanthrene 47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene 50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr 52) C4-Phenanthrenes/Anthr 53) Naphthobenzothiophene 54) C1-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 56) C3-Naphthobenzothiophenes 57) C4-Naphthobenzothiophenes 58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene 61) Benzo(b) fluorene 62) C1-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 66) C4-Fluoranthenes/Pyrenes 67) Benz(a) anthracene 68) Chrysene/Triphenylene 69) C1-Chrysenes 70) C2-Chrysenes 71) C3-Chrysenes 72) C4-Chrysenes 73) C2-Hopane 74) C29-Hopane 75) 18a-Oleanane 76) C30-Hopane 77) Benzo(b) fluoranthene 78) Benzo(a) fluoranthene 79) Benzo(a) fluoranthene 80) Benzo(a) pyrene 81) Benzo(a) pyrene 82) Indeno(1,2,3-c,d) pyrene 83) Dibenzo(a,h) anthrac 84) C1-Dibenzo(a,h) anthrac 85) C2-Dibenzo(a,h) anthrac 86) C3-Dibenzo(a,h) anthrac 87) Benzo(g,h,i) perylene 89) Perylene 91) C20-TAS 92) C21-TAS 93) C26(20S)-TAS</pre>	0.000 0		
94) C26(20R)/C27(20S)-TAS 95) C28(20S)-TAS 96) C27(20R)-TAS 97) C28(20R)-TAS	0.000 0.000 0.000 0.000	0 0 0 0	N.D. d N.D. d N.D. d N.D. d

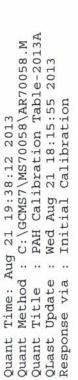
Data Path : C:\msdchem\2\data\MS70058\ Data File : MS70058H.D Acq On : 20 Aug 2013 3:03 pm Operator : YM Sample : AR-WKISSU-250-002 Misc : ALS Vial : 8 Sample Multiplier: 1 Quant Time: Aug 21 19:38:12 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) 

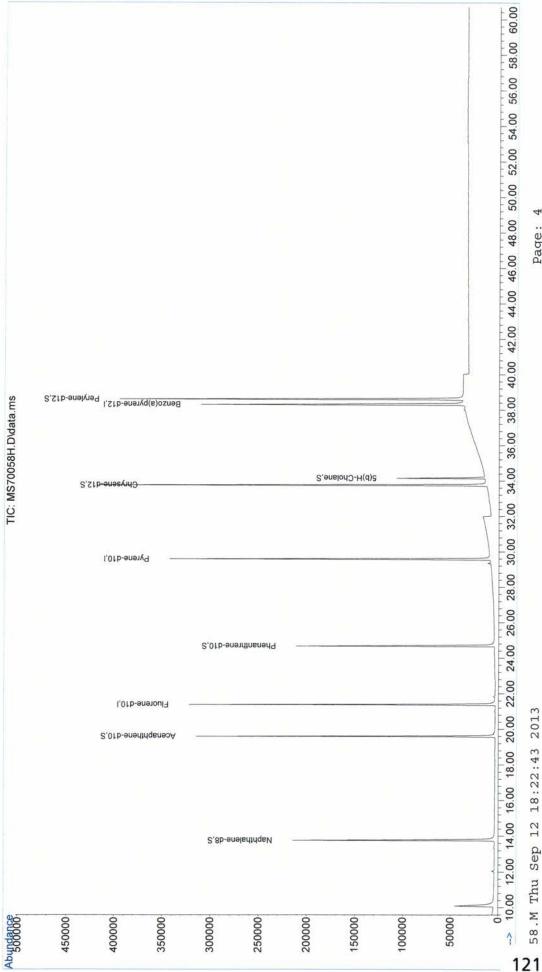
(#) = qualifier out of range (m) = manual integration (+) = signals summed

AR70058.M Thu Sep 12 18:22:42 2013

(QT Reviewed) Quantitation Report

C:\msdchem\2\data\MS70058\ Sample Multiplier: 1 md 3:03 AR-WKISSU-250-002 20 Aug 2013 YM MS70058H.D ω .. •• •• .. ... .. Data Path Data File Operator ALS Vial Acq On Sample Misc





Page:

4

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

Data File Name	MS70058K.D	Surrogate/Internal Multiplier Factor:	1.00
Data File Path	C:\msdchem\2\data\MS70058\	AR-WKSU-2500-001:	(ng/mL)
Operator	YM	Naphthalene-d8	250.125
Date Acquired	8/20/2013 18:28	Acenaphthene-d10	250.163
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194
Sample Name	AR-SRM2779-WK4.0-002	Chrysene-d12	250.038
Misc Info	0	Perylene-d12	250.031
Instrument Name	GCMSD	5(b)H-Cholane	250.000
Vial Number	11		
Sample Multiplier	0.24461		
Sample Amount	0		

## Copy data below to Spread Sheet

MS70058K.D AR-SRM2779-WK4.0-002 8/20/2013 PAH-2012.M 4.088140305

*	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
3	cis/trans Decalin	11.12	1648980	607.7287	674.3006
0.0	C1-Decalins	12.29	2417040	890.7987	988.3787
	C2-Decalins	13.77	2160900	796.3988	883.6381
	C3-Decalins	16.64	1900720	700.5092	777.2445
	C4-Decalins	17.67	1228780	452.8661	502.4740
		13.82	10920700	645.0023	715.6573
	Naphthalene				
	C1-Naphthalenes	16.25	23429700	1383.8134	1535.3994
025	C2-Naphthalenes	18.45	27429500	1620.0496	1797.5134
	C3-Naphthalenes	20.45	18307900	1081.3058	1199.7545
25332	C4-Naphthalenes	22.76	10259000	605.9210	672.2949
2.307	Benzothiophene	14.05	94243	6.7220	7.4583
	C1-Benzothiophenes	15.58	421643	30.0741	33.3684
	C2-Benzothiophenes	18.20	290453	20.7169	22.9862
	C3-Benzothiophenes	20.28	444271	31.6880	35.1592
20)	C4-Benzothiophenes	22.04	345706	24.6579	27.3590
22)	Biphenyl	17.64	1883700	132.1738	146.6524
23)	Acenaphthylene	19.12	129080	8.5094	9.4415
24)	Acenaphthene	19.73	108446	11.1489	12.3702
25)	Dibenzofuran	20.31	399086	24.5346	27.2222
26)	Fluorene	21.48	1327050	106.2261	117.8623
28)	C1-Fluorenes	23.47	2856030	228.6157	253.6588
29)	C2-Fluorenes	25.20	4305020	344.6041	382.3528
30)	C3-Fluorenes	26.83	3706350	296.6826	329.1818
	Carbazole	25.51	68814	3.8365	4.2568
	Anthracene	24.96	67934	3.8291	4.2485
2014	Phenanthrene	24.79	3860870	198.7133	220.4808
그 같은 그 같은 것 것 같은 것 같은 것 같은 것 같은 것 같은 것 같	C1-Phenanthrenes/Anthracenes	26.67	9624150	495.3409	549.6017
	C2-Phenanthrenes/Anthracenes	28.35			
2.2	· 영양· 요즘 것 같은 것 같은 것 같은 것 같이 가지 않는 것 같이 있는 것 같은 것 같이 있는 것 같이 있다. 것 같은 것 같은 것 같은 것 같이 있는 것 같이 있는 것 같이 있는 것 같이 있는		10942100	563.1729	624.8641
1.	C3-Phenanthrenes/Anthracenes	29.88	7722070	397.4448	440.9818
100 M	C4-Phenanthrenes/Anthracenes	31.33	4405180	226.7283	251.5646
	Dibenzothiophene	24.34	790666	36.0068	39.9511
	C1-Dibenzothiophenes	26.16	1992881	90.7556	100.6971
1998.2	C2-Dibenzothiophenes	27.25	2907470	132.4062	146.9102
10.005	C3-Dibenzothiophenes	28.77	2249370	102.4363	113.6574
40)	C4-Dibenzothiophenes	30.19	863138	39.3074	43.6132
58)	Fluoranthene	28.91	88990	3.5107	3.8953
59)	Pyrene	29.67	270793	11.3705	12.6161
62)	C1-Fluoranthenes/Pyrenes	31.47	1691050	66.7135	74.0214
63)	C2-Fluoranthenes/Pyrenes	32.57	2788690	110.0163	122.0677
64)	C3-Fluoranthenes/Pyrenes	33.96	2666210	105.1840	116.7061
65)	C4-Fluoranthenes/Pyrenes	35.09	2143580	84.5658	93.8294
53)	Naphthobenzothiophene	32.92	469357	18.4220	20.4400
54)	C1-Naphthobenzothiophenes	34.08	1252090	49.1439	54.5272
	C2-Naphthobenzothiophenes	35.75	1484330	58.2590	64.6408
0.0000	C3-Naphthobenzothiophenes	37.15	1064580	41.7840	46.3612
26319	C4-Naphthobenzothiophenes	38.11	455615	17.8827	19.8416
	Benz(a)anthracene	33.73	126528	6.3493	7.0448
0.02070	Chrysene/Triphenylene	33.81	956687	33.7161	37.4094
	C1-Chrysenes	35.21	2401180	84.6236	93.8934
	C2-Chrysenes	36.25	2949480		
			1000.100	103.9470	115.3336
	C3-Chrysenes	37.96	1879480	66.2375	73.4932
	C4-Chrysenes	39.36	1170930	41.2664	45.7869
	Benzo(b)fluoranthene	37.26	116144	4.1527	4.6076
	Benzo(k,j)fluoranthene	37.30	7620	0.2504	0.2778
2.5.2.3.1.	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(e)pyrene	38.23	228067	7.8903	8.7546
	Benzo(a)pyrene	38.39	35285	1.2971	1.4392
	Perylene	38.74	12899	0.4623	0.5129
82)	Indeno(1,2,3-c,d)pyrene	43.11	21960	0.6490	0.7201
83)	Dibenzo(a,h)anthracene	43.15	9916	0.3676	0.4079
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C3-Dibenzo(a,h)anthracenes		0		
86)	C3-Dibenzu(a,njantmacenes	0.00	U	0.0000	0.0000

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
_		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.08	14401900	1297.0665	1439.1501
10)	1-Methylnaphthalene	16.41	9027800	876.7654	972.8082
11)	2,6-Dimethylnaphthalene	18.20	7639230	784.7700	870.7355
12)	1,6,7-Trimethylnaphthalene	21.04	2517390	284.1023	315.2235
27)	1-Methylfluorene	23.47	1297010	193.6563	214.8698
35)	4-Methyldibenzothiophene	25.86	1111440	80.2514	89.0423
36)	2/3-Methyldibenzothiophene	26.14	514725	37.1656	41.2368
37)	1-Methyldibenzothiophene	26.48	366716	26.4788	29.3793
43)	3-Methylphenanthrene	26.45	2023050	126.7469	140.6310
44)	2-Methylphenanthrene	26.52	2605190	163.2190	181.0983
45)	2-Methylanthracene	26.69	156540	9.8075	10.8818
46)	4/9-Methylphenanthrene	26.80	2819570	176.6505	196.0012
47)	1-Methylphenanthrene	26.90	2019800	126.5438	140.4057
48)	3,6-Dimethylphenanthrene	27.97	612712	38.6486	42.8823
49)	Retene	30.71	149114	20.5302	22.7792
60)	2-Methylfluoranthene	30.43	45871	2.9589	3.2830
61)	Benzo(b)fluorene	31.02	199350	11.4038	12.6530
74)	C29-Hopane	40.68	202848	24.8871	27.6133
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	41.97	353599	43.3826	48.1348
91)	C20-TAS	33.30	188349	6.0758	6.7414
92)	C21-TAS	34.39	225099	7.2613	8.0567
93)	C26(20S)-TAS	38.50	105261	3.3955	3.7675
94)	C26(20R)/C27(20S)-TAS	39.40	326497	10.5322	11.6859
95)	C28(20S)-TAS	40.17	229039	7.3884	8.1977
96)	C27(20R)-TAS	40.61	206177	6.6509	7.3795
97)	C28(20R)-TAS	41.75	155049	5.0016	5.5495
Presson.	Surrogate Standards				0.02/02/2
2)	Naphthalene-d8	13.77	885153	57.05	93.25
	Acenaphthene-d10	19.62	513581	57.10	93.31
1000	Phenanthrene-d10	24.68	955527	55.16	90.13
	Chrysene-d12	33.77	1440560	59.60	97.45
	Perylene-d12	38.62	1399870	55.59	90.90
	5(b)H-Cholane	34.16	348352	64.12	104.86
×208	Internal Standards	25 23 10 F	25465770	178 S 4 C 4 S 4 S	
1)	Fluorene-d10	21.40	570271	61.41	
1000	Pyrene-d10	29.60	1199700	61.31	
	Benzo(a)pyrene-d12	38.31	1268700	61.23	

Data Path : C:\msdchem\2\data\MS70058\ Data File : MS70058K.D Acq On : 20 Aug 2013 6:28 pm Operator : YM Sample : AR-SRM2779-WK4.0-002 Misc : ALS Vial : 11 Sample Multiplier: 0.24461 Quant Time: Aug 21 20:33:38 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) Internal Standards1) Fluorene-d1021.399176570271m251.0531) Pyrene-d1029.6002121199703m250.6373) Benzo(a)pyrene-d1238.3092641268702m250.32 0.00 0.00 0.00 System Monitoring Compounds 2) Naphthalene-d813.766136885153m57.050.0021) Acenaphthene-d1019.616164513581m57.100.0032) Phenanthrene-d1024.68318895527m55.160.0066) Chrysene-d1233.7702401440562m59.600.0088) Perylene-d1238.6192641399874m55.590.0090) 5 (b)H-Cholane34.158217348352m64.120.00 Target Compounds3) cis/trans Decalin11.1201381648977m607.734) C1-Decalins12.2901522417041m890.805) C2-Decalins13.7661662160900m796.406) C3-Decalins16.6361801900724m700.517) C4-Decalins17.6661941228782m452.878) Naphthalene13.82212810920673m645.009) 2-Methylnaphthalene16.07914214401916m1297.0710) 1-Methylnaphthalene16.4131429027798m876.7611) 2, 6-Dimethylnaphthalene18.1961567639226m784.7712) 1, 6, 7-Trimethylnaphthal.21.0371702517391m284.1013) C2-Naphthalenes18.44615627429460m1620.0514) C3-Naphthalenes20.45217018307864m1081.3115) C4-Naphthalenes15.577148421643m30.0718) C2-Benzothiophenes15.577148421643m20.7219) C3-Benzothiophenes18.196162290453m20.7219) C3-Benzothiophenes20.285176444271m31.6920) C4-Benzothiophenes21.031168399080m24.6621) Biphenyl17.639154108446m11.1525) Dibenzofuran20.313168399080m24.5326) Fluorenes23.4711802856025m228.6227) C1-Fluorenes25.2021944305022m344.60</tr Target Compounds Ovalue 36) 2/3-Methyldibenzothiop... 26.137 198 514725m 37.17 36)2/3-Methyldibenzothiop...26.137198514725m37.1737)1-Methyldibenzothiophene26.484198366716m26.4838)C2-Dibenzothiophenes27.2462122907471m132.4139)C3-Dibenzothiophenes28.7692262249373m102.4440)C4-Dibenzothiophenes30.189240863138m39.3141)Phenanthrene24.7871783860866m198.7142)Anthracene24.96017867934m3.8343)3-Methylphenanthrene26.4491922023045m126.75

Data Path : C:\msdchem\2\data\MS70058\ Data File : MS70058K.D Acq On : 20 Aug 2013 6:28 pm Operator : YM Sample : AR-SRM2779-WK4.0-002 Misc : ALS Vial : 11 Sample Multiplier: 0.24461 Quant Time: Aug 21 20:33:38 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration 
 Compound
 R.T. QIon Response Conc Units

 44) 2-Methylphenanthrene
 26.518
 192
 2605188m
 163.22

 45) 2-Methylphenanthrene
 26.691
 192
 156540m
 9.81

 46) 4/9-Methylphenanthrene
 26.795
 192
 2819572m
 176.65

 47) 1-Methylphenanthrene
 26.797
 206
 612712m
 38.65

 49) Retene
 30.708
 234
 149114m
 20.53

 50) C2-Phenanthrenes/Anthr...
 29.877
 200
 7722070m
 53.17

 51) C3-Phenanthrenes/Anthr...
 29.877
 200
 7722070m
 53.17

 51) C3-Phenanthrenes/Anthr...
 29.877
 201
 1494329m
 58.26

 52) C3-Naphthobenzothiophenes
 37.44
 52020m
 39.14

 51) C4-Naphthobenzothiophenes
 37.145
 276
 1064576m
 41.78

 57) C4-Naphthobenzothiophenes
 31.15
 290
 455615m
 17.88

 58) Fluoranthene
 29.669
 202
 27073m
 11.37

 61) Benzo(bfluoranthene
 30.020
 216 1691052m
 Compound R.T. QION Response Conc Units Dev(Min) 

 87)
 Benzo (g, n, 1) peryrene
 44.442
 276
 42210m
 1.41

 89)
 Perylene
 38.736
 252
 12899m
 0.46

 91)
 C20-TAS
 33.304
 231
 188349m
 6.08

 92)
 C21-TAS
 34.391
 231
 225099m
 7.26

 93)
 C26 (20S) -TAS
 38.503
 231
 105261m
 3.40

 94)
 C26 (20R) / C27 (20S) -TAS
 39.395
 231
 326497m
 10.53

 95)
 C28 (20S) -TAS
 40.165
 231
 229039m
 7.39

 96)
 C27 (20R) -TAS
 40.608
 231
 206177m
 6.65

 97)
 C28 (20R) -TAS
 41.751
 231
 155049m
 5.00

Data Path : C:\msdchem\2\data\MS70058\ Data File : MS70058K.D Acq On : 20 Aug 2013 6:28 pm Operator : YM Sample : AR-SRM2779-WK4.0-002 Misc : ALS Vial : 11 Sample Multiplier: 0.24461 Quant Time: Aug 21 20:33:38 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed Quantitation Report (QT Reviewed)

Sample Multiplier: 0.24461 C:\msdchem\2\data\MS70058\ 6:28 pm : AR-SRM2779-WK4.0-002 : 20 Aug 2013 MS70058K.D MХ : 11 .. .. •• Data Path Data File Operator ALS Vial Acq On Sample Misc

Quant Time: Aug 21 20:33:38 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

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								ບູກູ່ ອີບ ບູກີ ອີບ ມ	u, sənəları T.ə T.ə mənəri mənəri ənəri ənəri ( ) ق ) ق ) ق ( ) ) ق ) ق ) ق ( ) ) ق ) ق ) ق ( ) ) ق ) ق ) ق ( ) ) ق ) ق ) ق ( ) ) ) ( ) ) ) ( ) ) ) ( ) ) ) ( ) ) ) ) ( ) ) ( ) ) ) ( ) ) ( ) ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ( ) ) ( ) ) ( ) ( ) ) ( ) ( ) ) ( ) ) ( ) ) ( ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ) ( ) ( ) ) ) ( ) ) ) ( ) ) )	qsnlydia T,ene T,ene r,e. A A A A A A A A A A A A A A A A A A A	A T-T-Taimon A 10-Turnon A 10	-Stessole -Stess	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	0 22.00 24.00 26.00 28.00
TIC: MS700									Ibes'nu Iusceues'	un'səuə anssəuə anssau unssu unssu	Lorberger Filentine Tentine Tentine Tentine Tenene Tenene tenenene tenenenen	Vienes (1997) Vienes	Munimur	0 30.00 32.00 34.00
TIC: MS70058K.D\data.ms									u	n, sənəriq nu, sənəri nu, sənəriq nu, sənəriq	nu, 2001) 2010 2010) 2010 2010	Adottrige dontrige 2-2-2 2-2 2-2 2-2 2-2 2-2 2-2	CCCC CCC CCCCC CCCCCCCCCCCCCCCCCCCCCCC	36.00 38.00 40.00
											n n <b>7,enexe</b> T,enexe	<b><i>и</i>. <del>2</del>, 9, 16, 16, 16, 16, 16, 16, 16, 16, 16, 16</b>	වාණුභාය පිනිහිත් පැනුහැත්	0 42.00 44.00
														46.00 48.00 50.00 52.00 54.00 56.00 58.00 60.00

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

Data File Name ENV3080A.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path C:\GCMS7\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator YM	Naphthalene-d8	250.125	
Date Acquired 8/20/2013 19:37	Acenaphthene-d10	250.163	Copy data bel
Acq. Method File PAH-2012.M	Phenanthrene-d10	250.194	to Spread Shi
Sample Name Procedural Blank	Chrysene-d12	250.038	
Misc Info 0	Perylene-d12	250.031	ENV3080A.
Instrument Name GCMSD	5(b)H-Cholane	250.000	Procedural Bl
Vial Number 12			8/20/2013
Sample Multiplier 1			PAH-2012 N

Sample Multiplier 1 Sample Amount 0

2

elow Sheet

A.D Blank 13 PAH-2012.M 1

#	# Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)	concentration	Concentration
31	cis/trans Decalin	0.00	0	0.0000	0.0000
201	C1-Decalins	0.00	0	0.0000	0.0000
	C2-Decalins	0.00	0	0.0000	0.0000
	C3-Decalins	0.00	0	0.0000	0.0000
	C4-Decalins	0.00	0	0.0000	0.0000
	Naphthalene	13.85	11201	4.5104	4.6839
n anna an an Car	C1-Naphthalenes	16.25	3965	1.5966	1.6580
	C2-Naphthalenes	0.00	0	0.0000	0.0000
- C - C - C - C - C - C - C - C - C - C	C3-Naphthalenes	0.00	0	0.0000	0.0000
	C4-Naphthalenes	0.00	0	0.0000	0.0000
	Benzothiophene	0.00	0	0.0000	0.0000
5364.5	C1-Benzothiophenes	0.00	0	0.0000	0.0000
	C2-Benzothiophenes	0.00	0	0.0000	0.0000
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
	Biphenyl	17.67	2537	1.2137	1.2604
C235.14	Acenaphthylene	0.00	0	0.0000	0.0000
	Acenaphthene	0.00	0	0.0000	0.0000
0.53	Dibenzofuran	0.00	0	0.0000	0.0000
	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
	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
	Phenanthrene	24.79	4255	1.6291	1.6917
aana ahoo mada ahaana ah 1996.	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	Dibenzothiophene	0.00	0	0.0000	0.0000
2013 NOV (1993) 1993 (1993)	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
0 0 000	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
2012	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
1.000	Fluoranthene	0.00	õ	0.0000	0.0000
	Pyrene	0.00	ō	0.0000	0.0000
	C1-Fluoranthenes/Pyrenes	0.00	õ	0.0000	0.0000
	C2-Fluoranthenes/Pyrenes	0.00	ō	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	ŏ	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes	0.00	õ	0.0000	0.0000
	Naphthobenzothiophene	0.00	õ	0.0000	0.0000
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
N72007	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C3-Naphthobenzothiophenes	0.00	o	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
1923	Benz(a)anthracene	0.00	0	0.0000	0.0000
	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
5.255	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
2.253	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)nuorantiene Benzo(e)pyrene	0.00	0	0.0000	0.0000
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
	Perylene	0.00	0	0.0000	0.0000
55632		0.00	0	0.0000	
1999 B.C.	Indeno(1,2,3-c,d)pyrene				0.0000
	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	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	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.08	2377	1.4596	1.5157
10)	1-Methylnaphthalene	16.41	1588	1.0515	1.0919
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
	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
	1-Methylphenanthrene	0.00	0	0.0000	0.0000
	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
100	Retene	0.00	0	0.0000	0.0000
60)	2-Methylfluoranthene	0.00	0	0.0000	0.0000
11.000	Benzo(b)fluorene	0.00	0	0.0000	0.0000
-	C29-Hopane	0.00	0	0.0000	0.0000
	18a-Oleanane	0.00	0	0.0000	0.0000
1.1.1.1	C30-Hopane	0.00	0	0.0000	0.0000
1.1.1.1	C20-TAS	0.00	0	0.0000	0.0000
	C21-TAS	0.00	0	0.0000	0.0000
2 2 C	C26(20S)-TAS	0.00	0	0.0000	0.0000
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
	C28(20S)-TAS	0.00	0	0.0000	0.0000
	C27(20R)-TAS	0.00	0	0.0000	0.0000
1000	C28(20R)-TAS	0.00	0	0.0000	0.0000
- 1	Surrogate Standards	27507-70	0.025.9		50275202790733
21	Naphthalene-d8	13.77	482343	211.96	84.74
	Acenaphthene-d10	19.62	283801	215.11	85.99
	Phenanthrene-d10	24.68	561084	240.93	96.30
	Chrysene-d12	33.77	681591	209.77	83.90
	Pervlene-d12	38.62	765904	222.44	88.97
1111	5(b)H-Cholane	34.16	176821	238.05	95.22
201	Internal Standards				
11	Fluorene-d10	21.40	341947	251.05	
	Pyrene-d10	29.60	659337	250.63	
	Benzo(a)pyrene-d12	38.31	709186	250.33	

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080A.D Acq On : 20 Aug 2013 7:37 pm Operator : YM Sample : Procedural Blank Misc : ALS Vial : 12 Sample Multiplier: 1 Quant Time: Aug 21 20:42:52 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QION Response Conc Units Dev(Min) ...... Internal Standards21.399176341947m251.050.0031) Pyrene-d1029.600212659337m250.630.0073) Benzo(a)pyrene-d1238.309264709186m250.320.00 System Monitoring Compounds 2) Naphthalene-d813.766136482343m211.960.0021) Acenaphthene-d1019.616164283801m215.110.0032) Phenanthrene-d1024.683188561084m240.930.0066) Chrysene-d1233.770240681591m209.770.0088) Perylene-d1238.619264765904m222.440.0090) 5 (b)H-Cholane34.158217176821m238.050.00 

 90) 5(b)H-Cholane
 34.158
 217
 176821m
 238.05

 Target Compounds
 0
 0
 N.D. d

 3) cis/trans Decalins
 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

 9) 2-Methylnaphthalene
 16.413
 122
 1777

 11) 2, 6-Dimethylnaphthalene
 16.019
 142
 2377m
 1.46

 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) Benzothiophenes
 0.000
 0
 N.D. d

 17) C1-Benzothiophenes
 0.000
 0
 N.D. d

 20) C4-Benzothiophenes
 0.000
 0
 N.D. d

 21) bienzofuran
 0.000
 0
 N.D. d

 22) Biphenyl
 1 Qvalue

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080A.D Acq On : 20 Aug 2013 7:37 pm Operator : YM Sample : Procedural Blank Misc : ALS Vial : 12 Sample Multiplier: 1 Quant Time: Aug 21 20:42:52 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration 
 Compound
 R.T. QIon Response Conc Units

 441
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 451
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 461
 3.6-Dimethylphenanthrene
 0.000
 0
 N.D. d

 471
 1-Methylphenanthrene
 0.000
 0
 N.D. d

 481
 3.6-Dimethylphenanthrene
 0.000
 0
 N.D. d

 491
 Retene
 0.000
 0
 N.D. d

 50
 C2-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 51
 C2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 52
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 53
 R2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 54
 C1-Maphthobenzothiophenes
 0.000
 0
 N.D. d

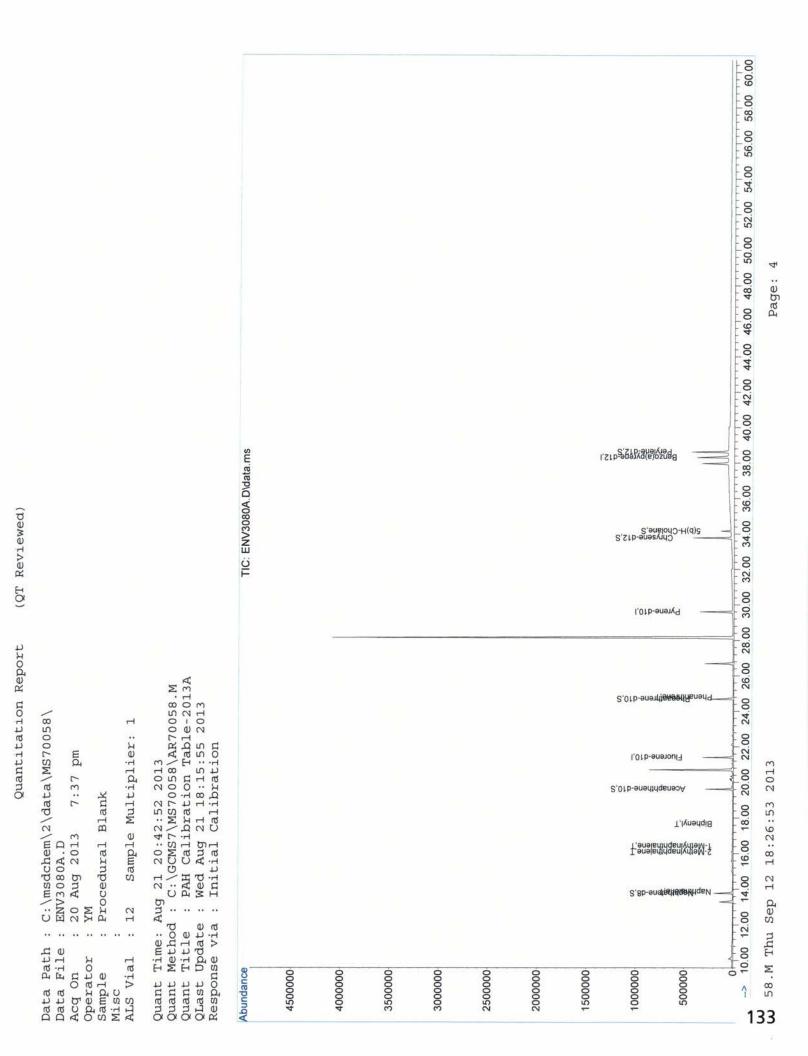
 59
 Pyrene
 0.000
 0
 N.D. d

 61
 Benzo(b)fluoranthene
 0.000
 0
 N.D. d

 62
 C1-Fluoranthenes/Pyrenes
 <td Compound R.T. QIon Response Conc Units Dev(Min) 

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080A.D Acq On : 20 Aug 2013 7:37 pm Operator : YM Sample : Procedural Blank Misc : ALS Vial : 12 Sample Multiplier: 1 Quant Time: Aug 21 20:42:52 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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



Data File Name	ENV3080B.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\M570058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/20/2013 20:46	Acenaphthene-d10	250.163	Copy
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spi
Sample Name	Blank Spike	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ENV
Instrument Name	GCMSD	5(b)H-Cholane	250.000	Bla
Vial Number	13			8/2
Sample Multiplier	1			PAH

# Sample Amount 0

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py data below Spread Sheet

ENV3080B.D Blank Spike 8/20/2013 PAH-2012.M 1

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
1400		(minute)	(area)		Concentration
3)	cis/trans Decalin	11.12	32101	77.5894	80.6407
	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
120	Naphthalene	13.82	210280	81.4512	84.6544
	C1-Naphthalenes	16.25	247294	95.7884	99.5555
	C2-Naphthalenes	0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
	Benzothiophene	14.02	159249	74.4926	77.4221
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000
19)	C3-Benzothiophenes	0.00	0	0.0000	0.0000
20)	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.64	167310	76.9916	80.0194
23)	Acenaphthylene	19.12	181167	78.3261	81.4064
24)	Acenaphthene	19.73	115332	77.7603	80.8184
	Dibenzofuran	20.31	194677	78.4902	81.5770
26)	Fluorene	21.48	150399	78.9546	82.0596
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	25.51	193892	79.8703	83.0113
42) /	Anthracene	24.96	188246	78.3973	81.4804
41)	Phenanthrene	24.79	218595	83.1279	86.3970
43)+44)+45)+46)+47) (	C1-Phenanthrenes/Anthracenes	5.38	173858	66.1152	68.7153
- constraint and a constraint and the second s	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
51) (	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
52) (	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
34) (	Dibenzothiophene	24.34	296206	99.6669	103.5865
	C1-Dibenzothiophenes	8.62	159012	53.5041	55.6082
	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
	Fluoranthene	28.87	280658	81.8084	85.0257
59) F	Pyrene	29.63	273536	84.8637	88.2011
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
65) (	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
53) M	Naphthobenzothiophene	32.92	266781	77.3665	80.4091
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	Benz(a)anthracene	33.73	236689	87.7570	91.2082
	Chrysene/Triphenylene	33.85	291838	75.9927	78.9812
	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
2.444.8277	Benzo(b)fluoranthene	37.26	294524	74.5785	77.5114
	Benzo(k,j)fluoranthene	37.34	301046	70.0640	72.8194
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(e)pyrene	38.23	311227	76.2537	79.2525
	Benzo(a)pyrene	38.39	284451	74.0524	76.9646
	Perylene	38.70	306921	77.9024	80.9660
	ndeno(1,2,3-c,d)pyrene	43.08	351277	73.5254	76.4169
	Dibenzo(a,h)anthracene	43.15	291287	76.4831	79.4909
63) L			0	0.0000	0.0000
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
84) (	21-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
84) ( 85) (					

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
_	17	(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.08	128432	75.8583	78.8416
10)	1-Methylnaphthalene	16.41	118862	75.7064	78.6837
11)	2,6-Dimethylnaphthalene	18.17	108851	73.3354	76.2194
12)	1,6,7-Trimethylnaphthalene	21.04	106798	79.0454	82.1540
27)	1-Methylfluorene	23.47	82842	81.1200	84.3102
35)	4-Methyldibenzothiophene	25.86	159012	84.8321	88.1683
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.90	173858	80.4804	83.6454
48)	3,6-Dimethylphenanthrene	27.97	157797	73.5430	76.4352
49)	Retene	30.64	75633	76.9398	79.9656
60)	2-Methylfluoranthene	30.40	187644	89.4301	92.9471
61)	Benzo(b)fluorene	31.02	207318	87.6264	91.0725
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.67	98100	85.2368	88.5889
1.1.1.1.1	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
2018	C26(20S)-TAS	0.00	0	0.0000	0.0000
	C26(20R)/C27(20S)-TAS	39.32	359260	82.0736	85.3013
000.5	C28(20S)-TAS	0.00	0	0.0000	0.0000
	C27(20R)-TAS	0.00	0	0.0000	0.0000
	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.77	477475	201.83	80.69
1.1.1.1	Acenaphthene-d10	19.62	285222	207.95	83.13
	Phenanthrene-d10	24.68	564412	240.73	96.22
60 M.M.	Chrysene-d12	33.77	668551	204.38	81.74
100	Perviene-d12	38.62	756658	212.80	85.11
- 12	5(b)H-Cholane	34.16	166838	217.50	87.00
- T/	Internal Standards	0.0000.0			
1)	Fluorene-d10	21.40	355483	251.05	
100 M	Pyrene-d10	29.60	663797	250.63	
	Benzo(a)pyrene-d12	38.31	732371	250.33	

Data Acq C Opera Sampl Misc ALS V Quant Quant Quant	Path : C:\msdchem\2\data\M File : ENV3080B.D On : 20 Aug 2013 8:46 p ator : YM Le : Blank Spike : Vial : 13 Sample Multipl : Time: Aug 21 20:50:34 201 : Method : C:\GCMS7\MS70058 : Title : PAH Calibration 1	pm ier: 1 3 \AR70058 Table-201				
Respo	Update : Wed Aug 21 18:15 onse via : Initial Calibrat	ion				
	Compound	R.T.	QIon	Response	Conc Unit	.s Dev(Min)
Inte	ernal Standards Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12					
Syst	em Monitoring Compounds					
2) 21) 32) 66) 88) 90)	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12 5(b)H-Cholane	13.766 19.616 24.683 33.770 38.619 34.158	136 164 188 240 264 217	477475m 285222m 564412m 668551m 756658m 166838m	201.83 207.95 240.73 204.38 212.80 217.50	0.00 0.00 0.00 0.00 0.00 0.00
Tara	at Compounds					Qvalue
5) 6) 7) 8) 9) 10) 11) 12) 13)	cis/trans Decalin C1-Decalins C2-Decalins C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene 2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes C3-Naphthalenes	0.000 0.000 13.822 16.079 16.413 18.168 21.037	128 142 142	128432m 118862m 108851m 106798m	N.D. d N.D. d 81.45 75.86 75.71	
15) 16) 17) 18) 19) 20)	C4-Naphthalenes Benzothiophene C1-Benzothiophenes C2-Benzothiophenes C3-Benzothiophenes C4-Benzothiophenes Biphenyl	0.000 14.017 0.000 0.000 0.000 0.000 17.639	134	0 159249m 0 0 0 0 167310m	N.D. N.D. 74.49 N.D. d N.D. d N.D. d N.D. d N.D. d 76.99	
24) 25) 26) 27)	Acenaphthylene Acenaphthene Dibenzofuran Fluorene 1-Methylfluorene C1-Fluorenes	19.115 19.728 20.313 21.483 23.471 0.000	152 154 168 166 180	181167m 115332m 194677m 150399m 82842m 0	78.33 77.76 78.49 78.95 81.12 N.D. d	
29) 30) 33) 34) 35)	C2-Fluorenes C3-Fluorenes Carbazole Dibenzothiophene 4-Methyldibenzothiophene	0.000 0.000 25.514 24.337 25.860	167 184 198	0 0 193892m 296206m 159012m	N.D. d N.D. d 79.87 99.67 84.83	
37) 38) 39) 40) 41)	2/3-Methyldibenzothiop 1-Methyldibenzothiophene C2-Dibenzothiophenes C3-Dibenzothiophenes C4-Dibenzothiophenes Phenanthrene Anthracene	0.000 0.000 0.000 0.000 24.787 24.960	178 178	0 0 0 218595m 188246m	N.D. d N.D. d N.D. d N.D. d N.D. d 83.13 78.40	
	3-Methylphenanthrene	0.000		0	N.D. d	

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080B.D Acq On : 20 Aug 2013 8:46 pm Operator : YM Sample : Blank Spike Misc : ALS Vial : 13 Sample Multiplier: 1 Quant Time: Aug 21 20:50:34 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration									
		.T. QIon	Response	Conc Units Dev(Min)					
44) 2-Methylphenanth:	rene 0.	000	0	N.D. d					
<pre>45) 2-Methylanthracen 46) 4/9-Methylphenant 47) 1-Methylphenanth 48) 3,6-Dimethylphena</pre>	ne 0.	000	0	N.D. d					
46) 4/9-Methylphenant	chrene 0.	000	0	N.D. d					
47) 1-Methylphenanth:	rene 26.	899 192	173858m	80.48					
48) 3,6-Dimethylphena	anthrene 27.	973 206	157797m	73.54					
49) Retene	30.	639 234	/5633m	76.94					
50) C2-Phenanthrenes, 51) C3-Phenanthrenes,	Anthr 0.	000	0	N.D. d					
51) C3-Phenanthrenes,	Anthr 0.	000		N.D. a					
52) C4-Phenanthrenes,	Anthr 0.	000	0	N.D. d					
53) Naphthobenzothion	priene 32.	916 234	266781m	//.3/					
54) Cl-Naphthobenzoth 55) C2-Naphthobenzoth	iophenes 0.	000	0	N.D. d					
56) C3-Naphthobenzoth	iophenes 0.	000	0	N.D. d N.D. d					
57) C4-Naphthobenzoth	iophenes 0.	000	0						
58) Fluoranthene			280658m	81 81					
59) Pyrene	20.	635 202	280658m 273536m	84 86					
60) 2-Methylfluoranth	nene 30.	397 216	187644m	89.43					
61) Benzo(b)fluorene	31.	020 216	207318m	87.63					
62) C1-Fluoranthenes	Pvrenes 0.	000	0	N.D. d					
<ul><li>62) C1-Fluoranthenes</li><li>63) C2-Fluoranthenes</li></ul>	Pyrenes 0.	000	0	N.D. d 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.	731 228	236689m	87.76					
<ul><li>65) C4-Fluoranthenes/</li><li>67) Benz(a)anthracene</li><li>68) Chrysene/Tripheny</li></ul>	vlene 33.	848 228	291838m	75.99					
69) Cl-Chrysenes	0.	000	0	N.D. d					
70) C2-Chrysenes	0.	000	0	N.D. d					
71) C3-Chrysenes		000	0	N.D. d					
72) C4-Chrysenes		000	0	N.D. d					
74) C29-Hopane		000	0	N.D. d					
75) 18a-Oleanane	0.		0	N.D. d					
76) C30-Hopane		673 191							
77) Benzo(b)fluoranth				74.58					
<ul><li>78) Benzo(k,j)fluorar</li><li>79) Benzo(a)fluoranth</li></ul>			301046m 0	70.06					
80) Benzo(e)pyrene	38.			N.D. d 76.25					
81) Benzo(a)pyrene	38	387     252	284451m						
82) Indeno(1,2,3-c,d)	pyrene 43	078 276	351277m	73.53					
83) Dibenzo(a,h)anthr			291287m	76.48					
84) Cl-Dibenzo(a,h)an	thrac 0.		0	N.D. d					
85) C2-Dibenzo(a,h)ar	thrac 0.	000	0	N.D. d					
86) C3-Dibenzo(a,h)an	thrac 0.	000	0	N.D. d					
87) Benzo(g,h,i)peryl			313070m						
89) Perylene	38.			77.90					
91) C20-TAS	Ο.	000	0	N.D. d					
92) C21-TAS		000	0	N.D. d					
93) C26(20S)-TAS	0.		0	N.D. d					
94) C26(20R)/C27(20S)		318 231	359260m	82.07					
95) C28(20S)-TAS	0.		0	N.D. d					
96) C27(20R)-TAS	0.		0	N.D. d					
97) C28(20R)-TAS	0.	000	0	N.D. d					

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080B.D Acq On : 20 Aug 2013 8:46 pm Operator : YM Sample : Blank Spike Misc : ALS Vial : 13 Sample Multiplier: 1 Quant Time: Aug 21 20:50:34 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

Reviewed)
Rev
(QT
Report
Quantitation

C:\msdchem\2\data\MS70058\ Sample Multiplier: 1 8:46 pm : 20 Aug 2013 : Blank Spike ENV3080B.D : : 13 WХ .. .. •• Data Path Data File Operator ALS Vial Acq On Sample Misc

Quant Time: Aug 21 20:50:34 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

Abundance 50000001	450000	4000000	350000	300000	250000	2000000	150000	55 00000 000000000000000000000000000000	~
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								AcerAstrantinghtsingere-d10.S     Dibenzofuran, T     Dibenzofuran, T     Fluorethyinaphtnalene, T     Fluorethyinariane-d10.L	N V N
								T.enencence Dipersolution C.015 C.00	1 M
								Carbasole, T 4-Methyldibenzothiophene, T 1-Methylphenanthrene, T	A MA
								3,6-Dimethylphenanthrene,T Fluoranthene,T	N A A
								ا,01b-anen≹yrene,yrene,T,enentnene T,enentnenentlyntamAS	N N
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Data File Name	ENV3080C.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/20/2013 21:54	Acenaphthene-d10	250.163	Copy data
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread
Sample Name	Blank Spike Dupl.	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ENV3080
Instrument Name	GCMSD	5(b)H-Cholane	250.000	Blank Spike
Vial Number	14			8/20/20
Sample Multiplier	1			PAH-201

Sample Amount 0

y data below Spread Sheet

ENV3080C.D Blank Spike Dupl. 8/20/2013 PAH-2012.M 1

Sample Amount					1	
#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration	
3)	cis/trans Decalin	11.12	34140	80.0054	80.5307	
	C1-Decalins	0.00	0	0.0000	0.0000	
	C2-Decalins	0.00	0	0.0000	0.0000	
2023	C3-Decalins	0.00	0	0.0000	0.0000	
6.68	C4-Decalins	0.00	0	0.0000	0.0000	
	Naphthalene	13.82	221651	83.2417	83.7882	
	C1-Naphthalenes	16.25	260290	97.7527	98.3945	
	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	14.02	168908	76.6053	77.1083	
17)	C1-Benzothiophenes	0.00	0	0.0000	0.0000	
18)	C2-Benzothiophenes	0.00	0	0.0000	0.0000	
	C3-Benzothiophenes	0.00	0	0.0000	0.0000	
	C4-Benzothiophenes	0.00	0	0.0000	0.0000	
5-11-12-14	Biphenyl	17.64	176850	78.9039	79.4220	
10000	Acenaphthylene	19.12	192412	80.6551	81.1847	
6.3.3632		19.73	119882	78.3672	78.8817	
	Acenaphthene					
	Dibenzofuran	20.31	203792	79.6636	80.1867	
	Fluorene	21.48	160140	81.5087	82.0439	
	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	25.51	208182	83.0964	83.6420	
42)	Anthracene	24.96	200130	80.7609	81.2912	
41)	Phenanthrene	24.79	235769	86.8774	87.4478	
3)+44)+45)+46)+47)	C1-Phenanthrenes/Anthracenes	5.38	183916	67.7703	68.2153	
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000	
	Dibenzothiophene	24.34	320171	104.3890	105.0744	
the second se	동안을 알았지 않을 것 같은 것이 아랫동안 관련 수가 있는 것이 같이 많이 많이 있다.					
	C1-Dibenzothiophenes	8.62	170862	55.7081	56.0739	
2188	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000	
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000	
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000	
58)	Fluoranthene	28.87	297985	84.1644	84.7170	
59)	Pyrene	29.63	288745	86.8032	87.3731	
62)	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000	
63)	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000	
1 P. 1999	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000	
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000	
	Naphthobenzothiophene	32.92	269388	75.6990	76.1960	
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000	
	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000	
Sector Sector			0			
	C3-Naphthobenzothiophenes	0.00		0.0000	0.0000	
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000	
	Benz(a)anthracene	33.73	238050	85.5235	86.0850	
	Chrysene/Triphenylene	33.85	304160	76.7443	77.2482	
	C1-Chrysenes	0.00	0	0.0000	0.0000	
	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	37.26	313653	76.3760	76.8775	
	Benzo(k,j)fluoranthene	37.34	298593	66.8277	67.2665	
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000	
	Benzo(e)pyrene	38.23	322994	76.1014	76.6011	
(15.44.57)	Benzo(a)pyrene	38.39	297179	74.3985	74.8870	
					80.0660	
	Perylene	38.70	325887	79.5437		
	Indeno(1,2,3-c,d)pyrene	43.08	370253	74.5248	75.0141	
	Dibenzo(a,h)anthracene	43.15	307032	77.5251	78.0341	
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	
	C2 Dihannala blantheasanas	0.00	0	0.0000	0.0000	
86)	C3-Dibenzo(a,h)anthracenes	0.00	U	0.0000	0.0000	

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.08	134557	77.0563	77.5622
10)	1-Methylnaphthalene	16.41	125733	77.6445	78.1543
11)	2,6-Dimethylnaphthalene	18.17	118327	77.2924	77.7999
12)	1,6,7-Trimethylnaphthalene	21.04	112301	80.5878	81.1169
27)	1-Methylfluorene	23.47	90019	85.4640	86.0251
35)	4-Methyldibenzothiophene	25.86	170862	88.3262	88.9061
36)	2/3-Methyldibenzothiophene	0.00	0	0.0000	0.0000
37)	1-Methyldibenzothiophene	0.00	0	0.0000	0.0000
43)	3-Methylphenanthrene	0.00	0	0.0000	0.0000
44)	2-Methylphenanthrene	0.00	0	0.0000	0.0000
45)	2-Methylanthracene	0.00	0	0.0000	0.0000
46)	4/9-Methylphenanthrene	0.00	0	0.0000	0.0000
47)	1-Methylphenanthrene	26.90	183916	82.4952	83.0368
48)	3,6-Dimethylphenanthrene	27.97	168483	76.0873	76.5869
49)	Retene	30.64	78731	77.6067	78.1162
60)	2-Methylfluoranthene	30.40	200541	92.6117	93.2198
61)	Benzo(b)fluorene	31.02	218162	89.3492	89.9358
74)	C29-Hopane	0.00	0	0.0000	0.0000
75)	18a-Oleanane	0.00	0	0.0000	0.0000
76)	C30-Hopane	42.67	98826	82.5741	83.1163
10.00	C20-TAS	0.00	0	0.0000	0.0000
92)	C21-TAS	0.00	0	0.0000	0.0000
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000
94)	C26(20R)/C27(20S)-TAS	39.32	376169	82.6404	83.1830
95)	C28(20S)-TAS	0.00	0	0.0000	0.0000
	C27(20R)-TAS	0.00	0	0.0000	0.0000
01010	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards				
2)	Naphthalene-d8	13.77	496304	203.40	81.32
	Acenaphthene-d10	19.62	299752	211.89	84.70
	Phenanthrene-d10	24.68	601439	248.56	99.35
66)	Chrysene-d12	33.77	663756	196.62	78.63
10.00	Perviene-d12	38.62	796496	215.41	86.15
	5(b)H-Cholane	34.16	175604	220.14	88.06
0	Internal Standards				
1)	Fluorene-d10	21.40	366646	251.05	
	Pyrene-d10	29.60	685049	250.63	
1000	Benzo(a)pyrene-d12	38.31	761582	250.33	

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Data	Path : C:\msdchem\2\data\M	970058\				
	File : ENV3080C.D	5700501				
	Dn : 20 Aug 2013 9:54	ma				
Opera	ator · VM	Pill				
Sampl	ator : YM Le : Blank Spike Dupl. :					
Migo	. Dialik opike Dapi.					
ATC I	/ial : 14 Sample Multipl	ior. 1				
ALD V	Tai : 14 Sample Multipi	TET: T				
Quant	Time, Aug 21 20, 58, 40 201	2				
	Time: Aug 21 20:58:40 201 Method : C:\GCMS7\MS70058		м			
	Title : PAH Calibration		LJA			
	Update : Wed Aug 21 18:15					
Respo	onse via : Initial Calibrat	10n				
	2	22.000				
	Compound	R.T.	Qion	Response	Conc Un	its Dev(Min)
Inte	ernal Standards	10 10 10	563	2.222.2		
1)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	21.399	176	366646m	251.05	0.00
31)	Pyrene-d10	29.600	212	685049m	250.63	0.00
73)	Benzo(a)pyrene-d12	38.309	264	761582m	250.32	0.00
525 - N						
Syst	em Monitoring Compounds		81/16/2012s	Version discover and		
2)	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12	13.766	136	496304m	203.40	0.00
21)	Acenaphthene-d10	19.616	164	299752m	211.89	0.00
32)	Phenanthrene-d10	24.683	188	601439m	248.56	0.00
66)	Chrysene-d12	33.770	240	663756m	196.62	0.00
88)	Perylene-d12	38.619	264	796496m	215.41	0.00
90)	5(b)H-Cholane	34.158	217	175604m	220.14	0.00
Targ	et Compounds					Qvalue
3)	cis/trans Decalin	11.120	138	34140m	80.01	
	C1-Decalins	0.000		0	N.D.	d
5)	C2-Decalins	0.000		0	N.D.	d
6)	C3-Decalins	0.000		0 0 0	N.D.	d
7)	C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene	0.000		0	N.D.	d
8)	Naphthalene	13.822	128	221651m	83.24	
9)	2-Methylnaphthalene	16.079	142	134557m	77.06	
10)	1-Methylnaphthalene	16.413	142	125733m	77.64	
11)	2,6-Dimethylnaphthalene	18.168	156	118327m	77.29	
12)	1,6,7-Trimethylnaphtha	21.037	170	112301m	80.59	
	C2-Naphthalenes	0.000		0	N.D.	d
	가장에 가는 그 것 같아요. ㅠ요 알 것 같아요. 것이 것 같아요. 것이 것 같아요. 같이 것 같아요.	0.000		õ	N.D.	
	C4-Naphthalenes	0.000		0	N.D.	<u>.</u>
	Benzothiophene	14.017	134		76.61	
	C1-Benzothiophenes	0.000	C. C. C.	0	N.D.	d
	C2-Benzothiophenes	0.000		õ	N.D.	
	C3-Benzothiophenes	0.000		0	N.D.	
	C4-Benzothiophenes	0.000		Ő	N.D.	
	Biphenyl	17.639	154	176850m	78.90	u
	Acenaphthylene	19.115		192412m	80.66	
	Acenaphthene	19.728		119882m	78.37	
	Dibenzofuran	20.313		203792m	79.66	
		21.483				
	Fluorene		166	160140m	81.51	
	1-Methylfluorene	23.471	180	90019m	85.46	3
	C1-Fluorenes	0.000		0	N.D.	
	C2-Fluorenes	0.000		0	N.D.	
	C3-Fluorenes	0.000	1.65	0	N.D.	a
	Carbazole	25.514		208182m	83.10	
	Dibenzothiophene	24.337		320171m	104.39	
	4-Methyldibenzothiophene	25.860	198	170862m	88.33	
	2/3-Methyldibenzothiop	0.000		0	N.D.	
	1-Methyldibenzothiophene	0.000		0	N.D.	
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	d
40)	C4-Dibenzothiophenes	0.000		0	N.D.	d
	Phenanthrene	24.787	178	235769m	86.88	
	Anthracene	24.960	178	200130m	80.76	
43)	3-Methylphenanthrene	0.000		0	N.D.	d

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080C.D Acq On : 20 Aug 2013 9:54 pm Operator : YM Sample : Blank Spike Dupl. Misc : ALS Vial : 14 Sample Multiplier: 1 Quant Time: Aug 21 20:58:40 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration 
 Compound
 R.T. QION Response Conc Units

 44)
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 45)
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 47)
 1-Methylphenanthrene
 26.899
 192
 183916m
 82.50

 48)
 3.6-Dimethylphenanthrene
 27.973
 206
 168443m
 76.09

 49)
 Retene
 30.639
 234
 78731m
 77.61

 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)
 Naphthobenzothiophenes
 0.000
 0
 N.D. d

 54)
 C1-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 56)
 C2-Z48745m
 86.80
 0
 2.97985m
 84.16

 59)
 Fyrene
 29.635
 202
 288742m
 92.61

 61)
 Benzo(b)fluoranthene
 30.312
 Compound R.T. QIon Response Conc Units Dev(Min) -----SChar way to Bee and the state of the state

Data Path : C:\msdchem\2\data\MS70058\ Data File : ENV3080C.D Acq On : 20 Aug 2013 9:54 pm Operator : YM Sample : Blank Spike Dupl. Misc : ALS Vial : 14 Sample Multiplier: 1 Quant Time: Aug 21 20:58:40 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

r Reviewed)
(QT
Report
Quantitation

Data Path :	Data Path : C:\msdchem\2\data\MS70058\	
Data File :	: ENV3080C.D	
Acq On :	: 20 Aug 2013 9:54 pm	
Operator :	: YM	
Sample :	: Blank Spike Dupl.	
Misc :		
ALS Vial : 14	: 14 Sample Multiplier: 1	
Quant Time:	Quant Time: Aug 21 20:58:40 2013	
Quant Metho	10d : C:\GCMS7\MS70058\AR70058.M	
Quant Title	e : PAH Calibration Table-2013A	
QLast Updat	ite : Wed Aug 21 18:15:55 2013	
Response via	ria : Initial Calibration	

Abundance	500000	450000	400000	350000	300000	250000	200000	150000	100000	50000	2	1
nce	000	00	000	000	000	000	000	000				10.00
										Byatans Deca		
										penivriteM-S anivriteM-S		00 16.00
								Τ,ε	Vinaphthalene	T,Iynenqia -		0 18.00
								S	OLD-anpight	lyntigene⊃A JAfregenegene Brutozneiura	_	0 20.00
								T,ər	herdingphthalen 1,01b-an	the second se		0 22.00
										1-Methylfluor		0 24.00
									T,enerdo 2,01b-energi nerdoirtozne			
									nanqointosins T,ananthrisna			26.00 2
		2						T.ac	Aphenanthrei T 99		THE REAL	28.00
									1,01b-9	Fluoranthen PyreneyTen	-	30
F									r,ananunak T,anano	Benzo(b)flu Retend Methylfuc	-	.00 32
Ы С: Ш								T	ənənqointozr	Naphthoben		32.00
NV308								T,	an <b>a Anazand</b> Z, and	Band H(d)2		34.00
OC.D										7		36.00
TIC: ENV3080C.D\data.ms									. Frenerikieun	and the second second	-	38
ns									C27(20S)-TA b-ene)vere-d b-tene-d		====	8
												40.00
									ľ	C30-Hopane,		42.00
								h,		(i,6,6)04000 Benzo(g,h,i)		44.00
									. Java fuad	(11116) - 711-7		
											ri li cu i	46.00 4
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												54.00 5
												56.00
												58.00
												0 60.00

Page: 4

-

Data File Name	ARC1762.D	Surrogate/Internal Multiplier Factor:	1.00
Data File Path	C:\GCMS7\MS70058\	AR-WKSU-2500-001:	(ng/mL)
Operator	YM	Naphthalene-d8	250.125
Date Acquired	8/20/2013 23:03	Acenaphthene-d10	250.163
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194
Sample Name	SO-DA-EB-02-080713	Chrysene-d12	250.038
Misc Info	0	Perylene-d12	250.031
Instrument Name	GCMSD	5(b)H-Cholane	250.000
Vial Number	15		
Sample Multiplier	0.96154		
Sample Amount	0		

## Copy data below to Spread Sheet

ARC1762.D SO-DA-EB-02-080713 8/20/2013 PAH-2012.M 1.039998336

#	Compound Name	Ret Time (minute)	Target Response (area)	Concentration	Su. Corrected Concentration
2	cīs/trans Decalin	0.00	(area) O	0.0000	0.0000
2433	C1-Decalins	0.00	0	0.0000	0.0000
10.5		0.00	0		
2963	C2-Decalins			0.0000	0.0000
	C3-Decalins	0.00	0	0.0000	0.0000
2.82	C4-Decalins	0.00	0	0.0000	0.0000
	Naphthalene	13.82	281890	115.6136	117.5651
9)+10	C1-Naphthalenes	16.25	4304	1.7652	1.7950
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
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
- + Al	C4-Benzothiophenes	0.00	0	0.0000	0.0000
	Biphenyl	0.00	0	0.0000	0.0000
	Acenaphthylene	0.00	õ	0.0000	0.0000
		0.00	0	0.0000	0.0000
	Acenaphthene		0		
	Dibenzofuran	0.00		0.0000	0.0000
	Fluorene	21.48	1175	0.6531	0.6642
	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	24.79	7261	3.0375	3.0888
	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	
			0		0.0000
1	Dibenzothiophene	0.00		0.0000	0.0000
	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
12,21,01	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.87	3156	1.0120	1.0291
59)	Pyrene	29.63	3193	1.0897	1.1081
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
0.027	여 사람이 가지 않는 것 같아요. 이 집에 집에 집에 가지 않는 것이 같아.				
1000	Naphthobenzothiophene	0.00	0	0.0000	0.0000
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	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
	C2-Chrysenes	0.00	0	0.0000	0.0000
2000	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00	0		
0.000				0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(e)pyrene	0.00	0	0.0000	0.0000
10.000	Benzo(a)pyrene	0.00	0	0.0000	0.0000
1000	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
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
841	귀엽 것 같은 것이 다 같은 것은 것 같은 것이 같은 것이 없는 것이 같은 것이 같다.		0	0.0000	
	C2-Dibenzo(a,h)anthracenes	0.00	U U		UINNN
85)	C2-Dibenzo(a,h)anthracenes C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000 0.0000

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.08	2713	1.6967	1.7254
10)	1-Methylnaphthalene	16.41	1591	1.0730	1.0911
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
10100	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000
1.00	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
1.11	18a-Oleanane	0.00	0	0.0000	0.0000
	C30-Hopane	0.00	0	0.0000	0.0000
	C20-TAS	0.00	0	0.0000	0.0000
	C21-TAS	0.00	0	0.0000	0.0000
	C26(20S)-TAS	0.00	0	0.0000	0.0000
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
	C28(20S)-TAS	0.00	0	0.0000	0.0000
	C27(20R)-TAS	0.00	0	0.0000	0.0000
	C28(20R)-TAS	0.00	0	0.0000	0.0000
	Surrogate Standards	1204030	25	100202-0024	100000000
21	Naphthalene-d8	13.77	443218	198.37	82.48
<b>-</b>	Acenaphthene-d10	19.62	258256	199.37	82.88
	Phenanthrene-d10	24.68	504236	236.58	98.34
	Chrysene-d12	33.77	537378	180.71	75.16
	Pervlene-d12	38.62	641926	190.76	79.35
10 C 12 C	5(b)H-Cholane	34.16	147409	203.06	84.47
501	Internal Standards				-7. C.C.
11	Fluorene-d10	21.40	322818	241.39	
	Pyrene-d10	29.60	580218	240.99	
	Benzo(a)pyrene-d12	38.31	666439	240.70	

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1762.D Acq On : 20 Aug 2013 11:03 pm Operator : YM Sample : SO-DA-EB-02-080713 Misc : ALS Vial : 15 Sample Multiplier: 0.96154 Quant Time: Aug 21 21:09:30 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QION Response Conc Units Dev(Min) Internal Standards21.399176322818m251.050.0031) Pyrene-d1029.600212580218m250.630.0073) Benzo(a)pyrene-d1238.309264666439m250.320.00 System Monitoring Compounds 2) Naphthalene-d813.766136443218m198.370.0021) Acenaphthene-d1019.616164258256m199.370.0032) Phenanthrene-d1024.683188504236m236.580.0066) Chrysene-d1233.770240537378m180.710.0088) Perylene-d1238.619264641926m190.770.0090) 5 (b)H-Cholane34.158217147409m203.060.00 

 90)
 5 (b)H-Cholane
 34.158
 217
 147409m
 203.06

 Target Compounds
 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

 9)
 2-Methylnaphthalene
 16.413
 142
 2713m
 1.70

 10)
 1-Methylnaphthalene
 16.078
 142
 2713m
 1.70

 11)
 2,6-Dimethylnaphthalene
 0.000
 0
 N.D. d

 13)
 C2-Naphthalenes
 0.000
 0
 N.D. d

 14)
 C3-Naphthalenes
 0.000
 0
 N.D. d

 16)
 Benzothiophenes
 0.000
 0
 N.D. d

 17)
 C1-Benzothiophenes
 0.000
 0
 N.D. d

 18)
 C2-Penzothiophenes
 0.000
 0
 N.D. d

 20)
 C4-Benzothiophenes
 0.000
 0
 N.D. d
 Target Compounds Ovalue

Data Acq C Opera Sampl Misc	Path : C:\msdchem\2\data\MS File : ARC1762.D On : 20 Aug 2013 11:03 p ator : YM Le : SO-DA-EB-02-080713 : Yial : 15 Sample Multipli	om	5154		
Quant Quant QLast	Time: Aug 21 21:09:30 2013 Method : C:\GCMS7\MS70058 Title : PAH Calibration T Update : Wed Aug 21 18:15: Onse via : Initial Calibrati	AR70058 able-201 55 2013			
	Compound			Response	Conc Units Dev(Min)
44)	2-Methylphenanthrene	0.000		0	N.D. d
45)	2-Methylanthracene 4/9-Methylphenanthrene	0.000		0	N.D. d
46)	4/9-Methylphenanthrene	0.000		0	
47)	1-Methylphenanthrene 3,6-Dimethylphenanthrene	0.000		0	N.D. d N.D. d
40)	Retene	0.000		0	N.D. d
50)	C2-Phenanthrenes/Anthr	0.000		Ö	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 Cl-Naphthobenzothiophenes	0.000		0	N.D. d
	C1-Naphthobenzothiophenes C2-Naphthobenzothiophenes			0	N.D. N.D. d
	C3-Naphthobenzothiophenes			0	N.D. d
	C4-Naphthobenzothiophenes	0.000		0	N.D. d
	Fluoranthene	28.873	202	3156m	1.01
59)	Pyrene	29.635	202	3193m	1.09
60)	2-Methylfluoranthene Benzo(b)fluorene	0.000		0	N.D. d
61)	Benzo(b)fluorene C1-Fluoranthenes/Pyrenes	0.000		0	N.D. d
	C2-Fluoranthenes/Pyrenes			0	N.D. d N.D. d
64)	C3-Fluoranthenes/Pyrenes	0.000		õ	N.D. d
65)	C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d
67)	Benz(a)anthracene	0.000		0	N.D. d
	Chrysene/Triphenylene			0	N.D. d
	C1-Chrysenes	0.000		0	N.D. d
	C2-Chrysenes C3-Chrysenes	0.000		0	N.D. d N.D. d
	C4-Chrysenes	0.000		0	N.D. d
	C29-Hopane	0.000		0	N.D. d
	18a-Oleanane	0.000		0	N.D. d
	C30-Hopane	0.000		0	N.D. d
	Benzo(b) fluoranthene			0	N.D. d
	Benzo(k,j)fluoranthene Benzo(a)fluoranthene	0.000		0	N.D. d N.D. d
	Benzo (e) pyrene	0.000		õ	N.D. d
81)	Benzo(a)pyrene	0.000		0	N.D. d
82)	Indeno(1,2,3-c,d)pyrene Dibenzo(a,h)anthracene	0.000		0	N.D. d
83)	Dibenzo(a, h) anthracene	0.000		0	N.D. d
	Cl-Dibenzo(a,h)anthrac C2-Dibenzo(a,h)anthrac			0	N.D. d
		0.000		0	N.D. d N.D. d
	Benzo(g,h,i)perylene	0.000		õ	N.D. d
	Perylene	0.000		0	N.D. d
	C20-TAS	0.000		0	N.D. d
	C21-TAS	0.000		0	N.D. d
	C26(20S) - TAS C26(20B)/C27(20S) - TAS	0.000		0	N.D. d
	C26(20R)/C27(20S)-TAS C28(20S)-TAS	0.000		0	N.D. d N.D. d
		0.000		0	N.D. d
97)	C27 (20R) -TAS C28 (20R) -TAS	0.000		0	N.D. d

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1762.D Acq On : 20 Aug 2013 11:03 pm Operator : YM Sample : SO-DA-EB-02-080713 Misc : ALS Vial : 15 Sample Multiplier: 0.96154 Quant Time: Aug 21 21:09:30 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

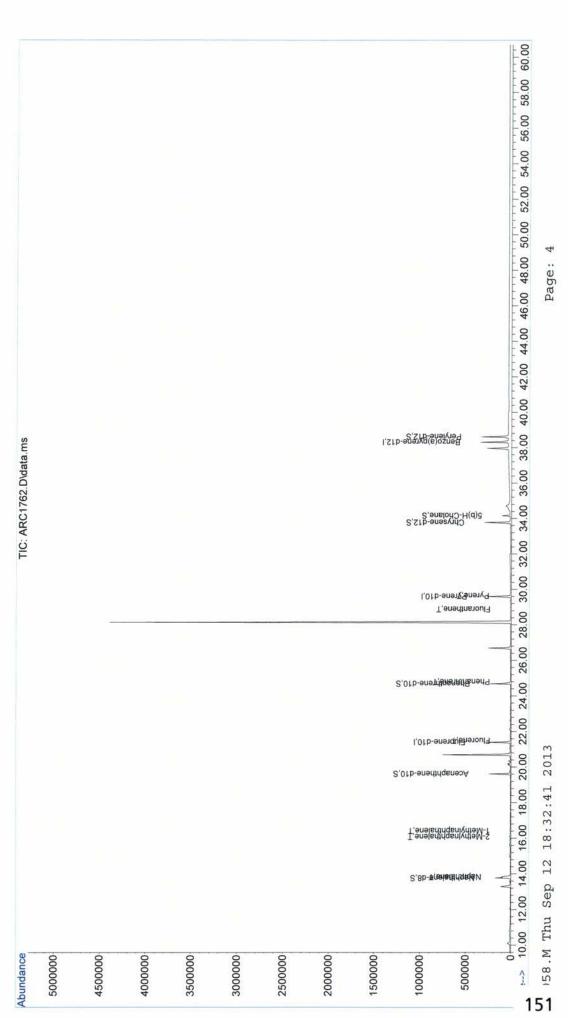
(#) = qualifier out of range (m) = manual integration (+) = signals summed

AR70058.M Thu Sep 12 18:32:39 2013

Quantitation Report (QT Reviewed)

Sample Multiplier: 0.96154 C:\msdchem\2\data\MS70058\ 11:03 pm SO-DA-EB-02-080713 20 Aug 2013 ARC1762.D 15 WХ ... •• •• ... Data Path Data File Operator ALS Vial Acq On Sample Misc

Quant Time: Aug 21 21:09:30 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration



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Data File Name	ARC1763.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\msdchem\2\data\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/21/2013 0:11	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	SO-DA-EB-03-080813	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ARC1763.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SO-DA-EB-03-0808
Vial Number	16			8/21/2013
Sample Multiplier	0.96154			PAH-2012.M
Sample Amount	0			1.039998336

# et

0813 1.039998336

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
	sis Arnes Desalin	(minute)	(area)	0.0000	Concentration
1.27	cis/trans Decalin	0.00	0	0.0000	0.0000
100	C1-Decalins	0.00	0	0.0000	0.0000
	C2-Decalins		0	0.0000	0.0000
	C3-Decalins	0.00	0	0.0000	0.0000
	C4-Decalins	0.00	196872	0.0000	0.0000
	Naphthalene	13.85		75.8149	77.4326
	C1-Naphthalenes	16.25	3876	1.4926	1.5245
	C2-Naphthalenes	0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
	C4-Naphthalenes	0.00	0	0.0000	0.0000
	Benzothiophene	0.00	0	0.0000	0.0000
	C1-Benzothiophenes	0.00	0	0.0000	0.0000
1370	C2-Benzothiophenes	0.00	0	0.0000	0.0000
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
	C4-Benzothiophenes	0.00	0	0.0000	0.0000
Construction of the second sec	Biphenyl	0.00	0	0.0000	0.0000
	Acenaphthylene	0.00	0	0.0000	0.0000
	Acenaphthene	0.00	0	0.0000	0.0000
	Dibenzofuran	0.00	0	0.0000	0.0000
	Fluorene	21.48	1240	0.6472	0.6610
	C1-Fluorenes	0.00	0	0.0000	0.0000
1995 B	C2-Fluorenes	0.00	0	0.0000	0.0000
	C3-Fluorenes	0.00	0	0.0000	0.0000
C	Carbazole	0.00	0	0.0000	0.0000
42)	Anthracene	24.96	424	0.1822	0.1861
41)	Phenanthrene	24.79	7586	2.9766	3.0401
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
1.1 Constraints	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
	Fluoranthene	28.87	2637	0.7931	0.8100
	Pyrene	29.63	3592	1.1498	1.1744
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
6.211.011	Naphthobenzothiophene	0.00	0	0.0000	0.0000
	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	Benz(a)anthracene	0.00	0	0.0000	0.0000
	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000
	C1-Chrysenes C2-Chrysenes	0.00	0	0.0000	0.0000
(e)(3)(c)			0		
	C3-Chrysenes	0.00		0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
1.55.244	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
605577	Benzo(e)pyrene	0.00	0	0.0000	0.0000
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
	Perylene	0.00	0	0.0000	0.0000
65500	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
0.51	C2-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
85)					
	C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
_	52.65	(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9)	2-Methylnaphthalene	16.08	2551	1.4980	1.5300
10)	1-Methylnaphthalene	16.41	1325	0.8390	0.8569
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
0.00	18a-Oleanane	0.00	0	0.0000	0.0000
83.85	C30-Hopane	0.00	0	0.0000	0.0000
20.05	C20-TAS	0.00	0	0.0000	0.0000
	C21-TAS	0.00	0	0.0000	0.0000
	C26(20S)-TAS	0.00	0	0.0000	0.0000
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000
202 C.	C28(20S)-TAS	0.00	0	0.0000	0.0000
	C27(20R)-TAS	0.00	0	0.0000	0.0000
	C28(20R)-TAS	0.00	0	0.0000	0.0000
1	Surrogate Standards				
2)	Naphthalene-d8	13.77	465785	195.75	81.39
1000	Acenaphthene-d10	19.62	269667	195.47	81.26
C	Phenanthrene-d10	24.68	535243	235.55	97.91
222	Chrysene-d12	33.77	561605	177.14	73.68
0.05	Perylene-d12	38.62	678451	187.61	78.04
10.05	5(b)H-Cholane	34.16	150628	193.07	80.32
	Internal Standards				
1)	Fluorene-d10	21.40	343807	241.39	
	Pyrene-d10	29.60	618598	240.99	
S. 1997	Benzo(a)pyrene-d12	38.31	716212	240.70	

	Quai	ICT CUCTOII	Repor		CVICWCU)	
Data	Path : C:\msdchem\2\data\M	1970058				
Data	File : ARC1763.D					
	n : 21 Aug 2013 12:11 tor : YM	am				
Sampl	e : SO-DA-EB-03-080813					
MISC ALS V	: Tial : 16 Sample Multipl	ier: 0.96	5154			
<b>a</b>		2				
	Time: Aug 22 06:52:02 201		м			
	Method : C:\GCMS7\MS70058 Title : PAH Calibration					
	Update : Wed Aug 21 18:15		LJA			
	nse via : Initial Calibrat					
	Compound	R.T.	QION	Response	Conc Uni	ts Dev(Min)
Inte	rnal Standards					
1)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	21.399	176	343807m	251.05	0.00
31)	Pyrene-dlu Damas (2)	29.600	212	618598m	250.63	0.00
13)	Benzo (a) pyrene-d12	38.309	264	/16212m	250.32	0.00
Svet	em Monitoring Compounds					
2)	Naphthalene-d8	13 766	136	465785m	195 75	0 00
21)	Naphthalene-d8 Acenaphthene-d10	19.616	164	269667m	195.47	0.00
32)	Phenanthrene-d10	24.683	188	535243m	235.55	0.00
66)	Chrysene-d12	33.770	240	561605m	177.14	0.00
88)	Phenanthrene-d10 Chrysene-d12 Perylene-d12	38.619	264	678451m	187.61	0.00
90)	5(b)H-Cholane	34.158	217	150628m	193.07	0.00
-						0 1
Targ	et Compounds	0 000		0	N.D.	Qvalue
3)	cis/trans Decalin C1-Decalins	0.000		0	N.D.	d
	C2-Decalins	0.000		0	N.D. N.D. N.D. N.D. N.D.	d
6)	C3-Decaling	0.000		0	N.D.	d
7)	C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene 2,6-Dimethylnaphthalene	0.000		0	N.D.	d
8)	Naphthalene	13.850	128	196872m	75.81	
9)	2-Methylnaphthalene	16.078	142	2551m	1.50	
10)	1-Methylnaphthalene	16.413	142	1325m	0.84	
11)	2,6-Dimethylnaphthalene	0.000		0	N.D.	d
12)	1,6,7-Trimethyinaphtha	0.000		0	N.D.	d
13)	C2-Naphthalenes					
	C3-Naphthalenes C4-Naphthalenes	0.000		0	N.D. N.D.	
	Benzothiophene	0.000		0	N.D.	
	C1-Benzothiophenes	0.000		0	N.D.	
	C2-Benzothiophenes	0.000		0	N.D.	
	C3-Benzothiophenes	0.000		0	N.D.	
	C4-Benzothiophenes	0.000		0	N.D.	
	Biphenyl	0.000		0	N.D.	d
	Acenaphthylene	0.000		0	N.D.	
	Acenaphthene	0.000		0	N.D.	
	Dibenzofuran	0.000	1.6.6	0	N.D.	d
	Fluorene	21.483	166	1240m	0.65	2
	1-Methylfluorene C1-Fluorenes	0.000		0	N.D. N.D.	
	C2-Fluorenes	0.000		0	N.D.	
	C3-Fluorenes	0.000		0	N.D.	
	Carbazole	0.000		0	N.D.	
	Dibenzothiophene	0.000		0	N.D.	
35)	4-Methyldibenzothiophene	0.000		0	N.D.	
	2/3-Methyldibenzothiop	0.000		0	N.D.	
	1-Methyldibenzothiophene	0.000		0	N.D.	
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	
	C4-Dibenzothiophenes	0.000	170	0 7586m	N.D.	u
	Phenanthrene Anthracene	24.787 24.960	178 178	7586m 424m	2.98 0.18	
	3-Methylphenanthrene	0.000	110	42411	N.D.	d
		5.000				

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1763.D Acq On : 21 Aug 2013 12:11 am Operator : YM Sample : SO-DA-EB-03-080813 Misc : ALS Vial : 16 Sample Multiplier: 0.96154 Quant Time: Aug 22 06:52:02 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration 
 Compound
 R.T. QIon Response Conc Units

 44) 2-Methylphenanthrene
 0.000
 0
 N.D. d

 45) 2-Methylphenanthrene
 0.000
 0
 N.D. d

 47) 1-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) 7-Methylphenanthrene
 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) Naphthobenzothiophenes
 0.000
 0
 N.D. d

 54) C2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 55) C2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 61) Benzo(b)fluoranthene
 0.000
 0
 N.D. d

 62) C1-Fluoranthenes/Pyrenes
 0.000
 0
 N.D. d

 63) C2-Fluoranthenes/Pyrenes
 0.000
 N.D. d

 64) C3 R.T. QIon Response Conc Units Dev(Min) Compound 

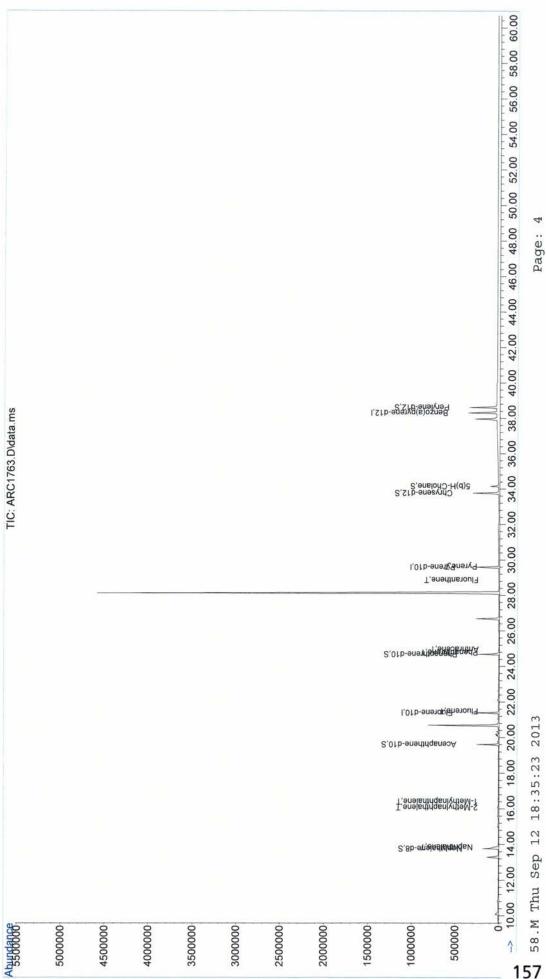
Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1763.D Acq On : 21 Aug 2013 12:11 am Operator : YM Sample : SO-DA-EB-03-080813 Misc : ALS Vial : 16 Sample Multiplier: 0.96154 Quant Time: Aug 22 06:52:02 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

AR70058.M Thu Sep 12 18:35:21 2013



TIC: ARC1763.D\data.ms Sample Multiplier: 0.96154 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration C:\msdchem\2\data\MS70058\ am Quant Time: Aug 22 06:52:02 2013 12:11 SO-DA-EB-03-080813 21 Aug 2013 ARC1763.D WХ : 16 •• .. •• ... •• Data Path Data File Operator ALS Vial Acq On Abyrodolog, Sample Misc



# Compound Name

3) cis/trans Decalin

Data File Name	ARC1765.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\GCMS7\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/21/2013 1:20	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	SED-DA-EB-07-080913	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ARC1765.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SED-DA-EB-07-080913
Vial Number	17			8/21/2013
Sample Multiplier	0.93458			PAH-2012.M
Sample Amount	0			1.069999358

#### 1.069999358 Ret Time Target Response Concentration Su. Corrected (minute) (area) Concentration 0 0.0000 0.00 0.0000 0.0000 0.00 0.00 0

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	13.82	307183	116.3010	129.6879
9)+10	C1-Naphthalenes	16.25	5041	1.9085	2.1282
13	C2-Naphthalenes	0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
	C4-Naphthalenes	0.00	0	0.0000	0.0000
1990	Benzothiophene	0.00	0	0.0000	0.0000
1431	C1-Benzothiophenes	0.00	0	0.0000	0.0000
	C2-Benzothiophenes	0.00	0	0.0000	0.0000
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
	C4-Benzothiophenes	0.00	õ	0.0000	0.0000
025	Biphenyl	17.67	2404	1.0813	1.2058
	Acenaphthylene	0.00	0	0.0000	0.0000
	Acenaphthene	0.00	0	0.0000	0.0000
	Dibenzofuran	20.31	2992	1.1791	1.3148
	Fluorene	21.48	1280	0.6568	0.7324
	C1-Fluorenes	0.00	0	0.0000	0.0000
	C2-Fluorenes	0.00	0	0.0000	0.0000
2012	C3-Fluorenes	0.00	0	0.0000	0.0000
100202	Carbazole	0.00	0	0.0000	
100		0.00	0		0.0000
	Anthracene			0.0000	0.0000
a second that the second se	Phenanthrene	24.79	10251	3.9600	4.4159
	C1-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C2-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C3-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	Dibenzothiophene	0.00	0	0.0000	0.0000
	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
38)	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
39)	C3-Dibenzothiophenes	0.00	0	0.0000	0.0000
40)	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
58)	Fluoranthene	28.87	3435	1.0171	1.1342
59)	Pyrene	29.63	4162	1.3117	1.4627
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
	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
Con 1963	Benzo(e)pyrene	0.00	õ	0.0000	0.0000
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
	Pervlene	0.00	0	0.0000	0.0000
	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
C2025	Dibenzo(a,h)anthracene	0.00	0	0.0000	
	C1-Dibenzo(a,h)anthracenes	0.00	0		0.0000
		0.00		0.0000	0.0000
0,2220	C2-Dibenzo(a,h)anthracenes		0	0.0000	0.0000
	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

# 158

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
		(minute)	(area)		Concentration
	Individual Alkyl Isomers and Hopanes				
9	2-Methylnaphthalene	16.08	3436	1.9837	2.2120
10	1-Methylnaphthalene	16.41	1605	0.9992	1.1142
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
	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	13.77	395228	163.29	69.86
21)	Acenaphthene-d10	19.62	231724	165.14	70.63
32)	Phenanthrene-d10	24.68	483974	209.69	89.68
	Chrysene-d12	33.77	493830	153.36	65.63
10000	Pervlene-d12	38.62	589143	164.05	70.20
	5(b)H-Cholane	34.16	134390	173.46	74.24
	Internal Standards			100 000	SCALE C
1)	Fluorene-d10	21.40	339898	234.63	
31)	Pyrene-d10	29.60	610698	234.23	
10.000	Benzo(a)pyrene-d12	38.31	691321	233.95	

	£		F			
Data Acq C Opera Sampl Misc	Path : C:\msdchem\2\data\M File : ARC1765.D On : 21 Aug 2013 1:20 a ator : YM .e : SED-DA-EB-07-080913 : Yial : 17 Sample Multipl:	am	3458			
Quant Quant QLast	Time: Aug 21 21:11:28 201 Method : C:\GCMS7\MS70058 Title : PAH Calibration 7 Update : Wed Aug 21 18:15 Onse via : Initial Calibrat:	\AR70058 Fable-201 :55 2013				
	Compound	R.T.	QION	Response	Conc Units	B Dev(Min)
1) 31)	ernal Standards Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	21.399 29.600	176 212	339898m 610698m	251.05 250.63	0.00
2) 21) 32) 66) 88) 90)	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12 5(b)H-Cholane	38.619	264	589143m	163.29 165.14 209.69 153.36 164.05 173.46	0.00 0.00
3) 4) 5) 6) 7) 8) 9) 10) 11) 12) 13) 14) 15) 16) 17) 18) 20) 22) 23) 24) 26) 27) 28) 26) 27) 28) 29) 30) 34) 35) 36) 37) 38) 39) 40)	C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene 2,6-Dimethylnaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes C3-Naphthalenes C4-Naphthalenes Benzothiophene C1-Benzothiophenes C2-Benzothiophenes C3-Benzothiophenes C3-Benzothiophenes C4-Benzothiophenes Biphenyl Acenaphthylene Acenaphthylene Acenaphthene Dibenzofuran Fluorene 1-Methylfluorene C1-Fluorenes C3-Fluorenes C3-Fluorenes Carbazole Dibenzothiophene 4-Methyldibenzothiophene 2/3-Methyldibenzothiophene C2-Dibenzothiophenes C3-Dibenzothiophenes C3-Dibenzothiophenes C4-Dibenzothiophenes	0.000 0.000 0.000 13.822 16.079 16.413 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 17.666 0.000 0.000 17.666 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	128 142 142	0 0 0 307183m 3436m 1605m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N.D. d N.D. d N.D. d N.D. d N.D. d N.D. d N.D. d N.D. d N.D. d 1.08 N.D. d 1.18 0.66 N.D. d N.D. d	Qvalue
42)	Phenanthrene Anthracene 3-Methylphenanthrene	24.787 0.000 0.000	178	10251m 0 0	3.96 N.D. d N.D. d	

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1765.D Acq On : 21 Aug 2013 1:20 am Operator : YM Sample : SED-DA-EB-07-080913 Misc : ALS Vial : 17 Sample Multiplier: 0.93458 Quant Time: Aug 21 21:11:28 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration 
 Compound
 R.T. QIon Response Conc Units

 44) 2-Methylphenanthrene
 0.000
 0
 N.D. d

 45) 2-Methylphenanthrene
 0.000
 0
 N.D. d

 46) 3-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) Naphthobenzothiophenes
 0.000
 0
 N.D. d

 54) C2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 55) Pyrene
 28.873
 202
 3435m
 1.02

 59) Pyrene
 29.635
 202
 4162m
 1.31

 61) Benzo(b)fluoranthenes/Pyrenes
 0.000
 0
 N.D. d

 63) C2-Fluoranthenes/Pyrenes
 0.000
 0
 N.D. d

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

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1765.D Acq On : 21 Aug 2013 1:20 am Operator : YM Sample : SED-DA-EB-07-080913 Misc : ALS Vial : 17 Sample Multiplier: 0.93458 Quant Time: Aug 21 21:11:28 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

(QT Reviewed) Quantitation Report

Sample Multiplier: 0.93458 C:\msdchem\2\data\MS70058\ ARC1765.D 1:20 am Quant Time: Aug 21 21:11:28 2013 SED-DA-EB-07-080913 21 Aug 2013 ΜХ : 17 Data Path : .. Data File Operator ALS Vial Acq On Sample Misc

Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration

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Data File Name	ARC1767.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\GCMS7\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/21/2013 2:28	Acenaphthene-d10	250.163	Copy
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Sp
Sample Name	SED-DA-DI-Water	Chrysene-d12	250.038	11.0000
Misc Info	0	Perylene-d12	250.031	AR
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SED-D
Vial Number	18			8/
Sample Multiplier	0.95238			PAH

# Sample Amount 0

\_

# y data below Spread Sheet

ARC1767.D SED-DA-DI-Water 8/21/2013 PAH-2012.M 1.05000105

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected
21	1. /	(minute)	(area)	0.0000	Concentration
1.1.1.1	cis/trans Decalin	0.00	0	0.0000	0.0000
	C1-Decalins	0.00	0	0.0000	0.0000
	C2-Decalins	0.00	0	0.0000	0.0000
	C3-Decalins	0.00	0	0.0000	0.0000
1.1	C4-Decalins	0.00	0	0.0000	0.0000
	Naphthalene	13.82	300889	107.5418	105.4442
	C1-Naphthalenes	16.25	5705	2.0390	1.9993
63.84	C2-Naphthalenes	0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
	C4-Naphthalenes	0.00	0	0.0000	0.0000
	Benzothiophene	0.00	0	0.0000	0.0000
0.0000	C1-Benzothiophenes	0.00	0	0.0000	0.0000
1.12	C2-Benzothiophenes	0.00	0	0.0000	0.0000
	C3-Benzothiophenes	0.00	0	0.0000	0.0000
	C4-Benzothiophenes	0.00	0	0.0000	0.0000
22)	Biphenyl	17.67	2338	0.9927	0.9734
23)	Acenaphthylene	0.00	0	0.0000	0.0000
Contraction of the second s	Acenaphthene	0.00	0	0.0000	0.0000
1. Sec. 19.	Dibenzofuran	20.31	2215	0.8240	0.8080
	Fluorene	21.48	1270	0.6152	0.6032
	C1-Fluorenes	0.00	0	0.0000	0.0000
	C2-Fluorenes	0.00	0	0.0000	0.0000
117.225	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	24.79	7681	2.7485	2.6949
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
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
	Fluoranthene	28.87	3159	0.8665	0.8496
	Pyrene	29.63	3314	0.9675	0.9486
	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C2-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C3-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	C4-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
	Naphthobenzothiophene	0.00	0	0.0000	0.0000
10.44	C1-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C2-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
122010	Benz(a)anthracene	0.00	0	0.0000	0.0000
	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
	C1-Chrysenes	0.00	0	0.0000	0.0000
	C2-Chrysenes	0.00	0	0.0000	0.0000
	C3-Chrysenes	0.00	627		
	C4-Chrysenes	0.00	0	0.0000	0.0000
	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
55,53,67,5	Benzo(e)pyrene	0.00	0		
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
	Perylene	0.00	0		0.0000
S47.34.			0	0.0000	0.0000
	Indeno(1,2,3-c,d)pyrene Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
				0.0000	0.0000
	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
	C2-Dibenzo(a,h)anthracenes C3-Dibenzo(a,h)anthracenes	0.00	0	0.0000	0.0000
		0.00	0	0.0000	0.0000
87)	Benzo(g,h,i)perylene	0.00	0	0.0000	0.0000

#	# Compound Name	Ret Time	Target Response	Concentration	Su. Corrected	
		(minute)	(area)		Concentration	
	Individual Alkyl Isomers and Hopanes					
9)	2-Methylnaphthalene	16.08	3286	1.7909	1.7560	
10)	1-Methylnaphthalene	16.41	2419	1.4217	1.3939	
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	
	1-Methylphenanthrene	0.00	0	0.0000	0.0000	
	3,6-Dimethylphenanthrene	0.00	0	0.0000	0.0000	
	Retene	0.00	0	0.0000	0.0000	
	2-Methylfluoranthene	0.00	0	0.0000	0.0000	
	Benzo(b)fluorene	0.00	0	0.0000	0.0000	
	C29-Hopane	0.00	0	0.0000	0.0000	
	18a-Oleanane	0.00	0	0.0000	0.0000	
	C30-Hopane	0.00	0	0.0000	0.0000	
	C20-TAS	0.00	0	0.0000	0.0000	
0.007	C21-TAS	0.00	0	0.0000	0.0000	
	C26(20S)-TAS	0.00	0	0.0000	0.0000	
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000	
0.07	C28(20S)-TAS	0.00	0	0.0000	0.0000	
	C27(20R)-TAS	0.00	0	0.0000	0.0000	
	C28(20R)-TAS	0.00	0	0.0000	0.0000	
1	Surrogate Standards		-			
21	Naphthalene-d8	13.77	505487	197.16	82.77	
	Acenaphthene-d10	19.62	289603	194.83	81.78	
	Phenanthrene-d10	24.68	605529	243.02	101.99	
200	Chrysene-d12	33.77	596752	171.66	72.09	
	Perviene-d12	38.62	731326	187.94	78.92	
10.0	5(b)H-Cholane	34.16	164251	195.66	82.18	
-01	Internal Standards					
1)	Fluorene-d10	21.40	366909	239.09		
	Pyrene-d10	29.60	671843	238.69		
	Benzo(a)pyrene-d12	38.31	763329	238.40		

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Data Path : C:\msdchem\2\data\M	S70058\				
Data File : ARC1767.D					
Acq On : 21 Aug 2013 2:28	am				
Operator : YM					
Sample : SED-DA-DI-Water Misc :					
Misc :					
ALS Vial : 18 Sample Multipl	ier: 0.95	5238			
Quant Time: Aug 21 21:15:12 201	3				
Quant Method : C:\GCMS7\MS70058		. М			
Quant Title : PAH Calibration	Table-201	L3A			
QLast Update : Wed Aug 21 18:15	:55 2013				
Response via : Initial Calibrat	ion				
Compound	R.T.	QION	Response	Conc Uni	lts Dev(Min)
Internal Standards					
1) Fluorene-d10	21.399	176	366909m	251.05	0.00
31) Pyrene-d10	29.600	212	671843m	250.63	0.00
<ol> <li>Fluorene-d10</li> <li>Pyrene-d10</li> <li>Benzo(a)pyrene-d12</li> </ol>	38.309	264	763329m	250.32	0.00
System Monitoring Compounds					
2) Naphthalene-d8	13.766	136	505487m	197.16	0.00
21) Acenaphthene-d10	19.616	164	289603m	194.83	0.00
32) Phenanthrene-d10	24.683	188	605529m	243.02	0.00
<ol> <li>2) Naphthalene-d8</li> <li>21) Acenaphthene-d10</li> <li>32) Phenanthrene-d10</li> <li>66) Chrysene-d12</li> </ol>	33.770	240	596752m	171.66	0.00
88) Perylene-d12	38.619	264	731326m	187.94	0.00
	34.158			195.66	
Target Compounds					Qvalue
3) cis/trans Decalin	0.000		0	N.D.	d
4) C1-Decalins	0.000 0.000 0.000		0	N.D. N.D. N.D.	d
5) C2-Decalins	0.000		0	N.D.	d
6) C3-Decalins	0.000		0	N.D.	d
<ul> <li>7) C3-Decalins</li> <li>7) C4-Decalins</li> <li>8) Naphthalene</li> <li>9) 2-Methylnaphthalene</li> <li>10) 1-Methylnaphthalene</li> <li>11) 2,6-Dimethylnaphthalene</li> <li>12) 1,6,7-Trimethylnaphtha</li> <li>13) C2-Naphthalenes</li> </ul>	0.000		0	N.D.	d
8) Naphthalene	13.822	128	300889m	107.54	
<ol><li>2-Methylnaphthalene</li></ol>	16.078	142	3286m	1.79	
<ol> <li>1-Methylnaphthalene</li> </ol>	16.413	142	2419m	1.42	
11) 2,6-Dimethylnaphthalene	0.000		0	N.D.	d
12) 1,6,7-Trimethylnaphtha	0.000		0	N.D. N.D.	d
<ol> <li>C2-Naphthalenes</li> </ol>	0.000		0	N.D.	d
14) C3-Naphthalenes	0.000		0	N.D.	d
15) C4-Naphthalenes	0.000		0	N.D.	
16) Benzothiophene	0.000		0	N.D.	
17) Cl-Benzothiophenes	0.000		0	N.D.	
18) C2-Benzothiophenes	0.000		0	N.D.	
19) C3-Benzothiophenes	0.000		0	N.D.	
20) C4-Benzothiophenes	0.000		0	N.D.	d
22) Biphenyl	17.666	154	2338m	0.99	1
23) Acenaphthylene	0.000		0	N.D.	
24) Acenaphthene	0.000	1.00	0	N.D.	a
25) Dibenzofuran	20.313	168	2215m	0.82	
26) Fluorene	21.483	166	1270m	0.62	
27) 1-Methylfluorene	0.000		0	N.D.	
28) C1-Fluorenes	0.000		0	N.D.	
29) C2-Fluorenes	0.000		0	N.D. N.D.	
30) C3-Fluorenes	0 000			N 1)	a
22) Carbarele	0.000		0		
33) Carbazole	0.000		0	N.D.	d
34) Dibenzothiophene	0.000		0 0	N.D. N.D.	d d
<ul><li>34) Dibenzothiophene</li><li>35) 4-Methyldibenzothiophene</li></ul>	0.000 0.000 0.000		0 0 0	N.D. N.D. N.D.	d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> </ul>	0.000 0.000 0.000 0.000		0 0 0	N.D. N.D. N.D. N.D.	d d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> <li>37) 1-Methyldibenzothiophene</li> </ul>	0.000 0.000 0.000 0.000 0.000		0 0 0 0	N.D. N.D. N.D. N.D. N.D.	d d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> <li>37) 1-Methyldibenzothiophene</li> <li>38) C2-Dibenzothiophenes</li> </ul>	0.000 0.000 0.000 0.000 0.000 0.000		0 0 0 0 0	N.D. N.D. N.D. N.D. N.D. N.D.	d d d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> <li>37) 1-Methyldibenzothiophene</li> <li>38) C2-Dibenzothiophenes</li> <li>39) C3-Dibenzothiophenes</li> </ul>	0.000 0.000 0.000 0.000 0.000 0.000 0.000		0 0 0 0 0 0	N.D. N.D. N.D. N.D. N.D. N.D. N.D.	d d d d d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> <li>37) 1-Methyldibenzothiophene</li> <li>38) C2-Dibenzothiophenes</li> <li>39) C3-Dibenzothiophenes</li> <li>40) C4-Dibenzothiophenes</li> </ul>	$\begin{array}{c} 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ \end{array}$	170		N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D.	d d d d d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> <li>37) 1-Methyldibenzothiophene</li> <li>38) C2-Dibenzothiophenes</li> <li>39) C3-Dibenzothiophenes</li> <li>40) C4-Dibenzothiophenes</li> <li>41) Phenanthrene</li> </ul>	0.000 0.000 0.000 0.000 0.000 0.000 0.000 24.787	178	0 0 0 0 0 0 7681m	N.D. N.D. N.D. N.D. N.D. N.D. N.D. 2.75	d d d d d d d d d
<ul> <li>34) Dibenzothiophene</li> <li>35) 4-Methyldibenzothiophene</li> <li>36) 2/3-Methyldibenzothiop</li> <li>37) 1-Methyldibenzothiophene</li> <li>38) C2-Dibenzothiophenes</li> <li>39) C3-Dibenzothiophenes</li> <li>40) C4-Dibenzothiophenes</li> </ul>	$\begin{array}{c} 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ \end{array}$	178		N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D.	d d d d d d d d d d

Data Path : C:\msdchem\2\data\MS Data File : ARC1767.D Acq On : 21 Aug 2013 2:28 a Operator : YM Sample : SED-DA-DI-Water Misc : ALS Vial : 18 Sample Multipli Quant Time: Aug 21 21:15:12 2013 Quant Method : C:\GCMS7\MS70058\ Quant Title : PAH Calibration T QLast Update : Wed Aug 21 18:15: Response via : Initial Calibrati	m er: 0.95 AR70058. able-201 55 2013	. М		
Compound	R.T.			Conc Units Dev(Min)
<pre>44) 2-Methylphenanthrene 45) 2-Methylphenanthrene 46) 4/9-Methylphenanthrene 47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene 50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr 52) C4-Phenanthrenes/Anthr 53) Naphthobenzothiophene 54) C1-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 56) C3-Naphthobenzothiophenes 57) C4-Naphthobenzothiophenes 58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene 61) Benzo(b)fluorene 62) C1-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 66) C1-Chrysenes 70) C2-Chrysenes 71) C3-Chrysenes 72) C4-Chrysenes 73) C4-Chrysenes 74) C29-Hopane 75) 18a-Oleanane 76) C30-Hopane 77) Benzo(b)fluoranthene 78) Benzo(a)fluoranthene 79) Benzo(a)fluoranthene 80) Benzo(e)pyrene 81) Benzo(a)fluoranthene 80) Benzo(a)fluoranthene 80) Benzo(a)fluoranthene 81) Benzo(a,h)anthrac 85) C2-Dibenzo(a,h)anthrac 85) C2-Dibenzo(a,h)anthrac 86) C3-Dibenzo(a,h)anthrac 87) Benzo(g,h,i)perylene 89) Perylene 91) C20-TAS 92) C21-TAS 93) C26(20S)-TAS</pre>	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0	202 202	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N.D. d N.D. d N.
94) C26(20R)/C27(20S)-TAS 95) C28(20S)-TAS 96) C27(20R)-TAS 97) C28(20R)-TAS	0.000 0.000 0.000 0.000		0 0 0	N.D. d N.D. d N.D. d N.D. d

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Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1767.D Acq On : 21 Aug 2013 2:28 am Operator : YM Sample : SED-DA-DI-Water Misc : ALS Vial : 18 Sample Multiplier: 0.95238 Quant Time: Aug 21 21:15:12 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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

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AR70058.M Thu Sep 12 18:36:44 2013

(QT Reviewed) Quantitation Report

Sample Multiplier: 0.95238 Quant Time: Aug 21 21:15:12 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Data Path : C:\msdchem\2\data\MS70058\ 2:28 am : SED-DA-DI-Water : 21 Aug 2013 : ARC1767.D WХ : 18 •• Data File Operator ALS Vial Acq On Sample Misc

: PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Quant Title

Abundance

TIC: ARC1767.D\data.ms

500000	400000	350000	300000	250000	200000	1500000	1000000	50000	4
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							T,enelsrind T,enelsrind	asnivniaer-S asnivniaer-F	0+^++++++++++++++++++++++++++++++++++++
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								Dibenzofura	+ hould be here a fear of the second s
						S'(	0tb-ənəπ†β⊮	1990 1990 1980 1980 1980 1980 1980 1980	and and a start of the
									Harder -
								Fluoranthen Pyrene%Ten	
							S.Srb-enes	сиро —	The sector of th
							2,21b-enes 2,ensio	9(р)н-Су	All wards
						1,516-	egerva(e)oz(	Ben Ben	Wh-

Page: 4

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

# Compound Name

Data File Name	ARC1769.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\GCMS7\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/21/2013 4:45	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	SED-DA-EB-08-081013	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ARC1769.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SED-DA-EB-08-081013
Vial Number	20			8/21/2013
Sample Multiplier	0.93458			PAH-2012.M
Sample Amount	0			1.069999358

Ret Time

1.069999358 Target Response Concentration Su. Corrected

#	compound Name	Ret Time	rarget Response	concentration	Su. correcter
		(minute)	(area)		Concentratio
3)	cis/trans Decalin	0.00	0	0.0000	0.0000
4)	C1-Decalins	0.00	0	0.0000	0.0000
2380	C2-Decalins	0.00	0	0.0000	0.0000
	C3-Decalins	0.00	0	0.0000	0.0000
5.8.5	C4-Decalins	0.00	0	0.0000	0.0000
	Naphthalene	13.82	491276	202.5768	199.5704
			4595		
the second s	C1-Naphthalenes	16.25		1.8947	1.8666
1000	C2-Naphthalenes	0.00	0	0.0000	0.0000
	C3-Naphthalenes	0.00	0	0.0000	0.0000
15)	C4-Naphthalenes	0.00	0	0.0000	0.0000
	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
	Biphenyl	17.67	2574	1.2609	1.2422
	Acenaphthylene	0.00	0	0.0000	0.0000
	Acenaphthene	0.00	0	0.0000	0.0000
	Dibenzofuran	20.31	2161	0.9275	0.9137
1000	Fluorene	21.48	1188	0.6639	0.6541
		0.00	0	0.0000	0.0000
	C1-Fluorenes		0		
	C2-Fluorenes	0.00		0.0000	0.0000
	C3-Fluorenes	0.00	0	0.0000	0.0000
	Carbazole	0.00	0	0.0000	0.0000
5.073	Anthracene	0.00	0	0.0000	0.0000
41)	Phenanthrene	24.79	6823	2.9107	2.8675
3)+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
	C4-Phenanthrenes/Anthracenes	0.00	0	0.0000	0.0000
	Dibenzothiophene	0.00	0	0.0000	0.0000
	C1-Dibenzothiophenes	0.00	0	0.0000	0.0000
1001 0.00000	C2-Dibenzothiophenes	0.00	0	0.0000	0.0000
			0		0.0000
	C3-Dibenzothiophenes	0.00		0.0000	
	C4-Dibenzothiophenes	0.00	0	0.0000	0.0000
	Fluoranthene	28.87	3179	1.0395	1.0241
	Pyrene	29.63	3301	1.1489	1.1318
77.985-116	C1-Fluoranthenes/Pyrenes	0.00	0	0.0000	0.0000
32-29-51 To 1	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
	C3-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	C4-Naphthobenzothiophenes	0.00	0	0.0000	0.0000
	Benz(a)anthracene	0.00	0	0.0000	0.0000
	Chrysene/Triphenylene	0.00	0	0.0000	0.0000
	C1-Chrysenes	0.00	0	0.0000	0.0000
			0		
0.000333	C2-Chrysenes	0.00		0.0000	0.0000
1.1.23.1	C3-Chrysenes	0.00	0	0.0000	0.0000
	C4-Chrysenes	0.00	0	0.0000	0.0000
0.000	Benzo(b)fluoranthene	0.00	0	0.0000	0.0000
223.477	Benzo(k,j)fluoranthene	0.00	0	0.0000	0.0000
	Benzo(a)fluoranthene	0.00	0	0.0000	0.0000
80)	Benzo(e)pyrene	0.00	0	0.0000	0.0000
	Benzo(a)pyrene	0.00	0	0.0000	0.0000
	Perylene	0.00	0	0.0000	0.0000
CO2063	Indeno(1,2,3-c,d)pyrene	0.00	0	0.0000	0.0000
821	Dibenzo(a,h)anthracene	0.00	0	0.0000	0.0000
		0.00			0.0000
83)		0.00	0	() ()()()()()	
83) 84)	C1-Dibenzo(a,h)anthracenes	0.00	0	0.0000	
83) 84) 85)		0.00 0.00 0.00	0 0 0	0.0000 0.0000 0.0000	0.0000

#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected	
		(minute)	(area)		Concentration	
	Individual Alkyl Isomers and Hopanes					
9)	2-Methylnaphthalene	16.08	2514	1.5807	1.5573	
10)	1-Methylnaphthalene	16.41	2081	1.4110	1.3901	
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	
	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	
	C29-Hopane	0.00	0	0.0000	0.0000	
75)	18a-Oleanane	0.00	0	0.0000	0.0000	
	C30-Hopane	0.00	0	0.0000	0.0000	
	C20-TAS	0.00	0	0.0000	0.0000	
92)	C21-TAS	0.00	0	0.0000	0.0000	
	C26(20S)-TAS	0.00	0	0.0000	0.0000	
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000	
- A	C28(20S)-TAS	0.00	0	0.0000	0.0000	
	C27(20R)-TAS	0.00	0	0.0000	0.0000	
0.21	C28(20R)-TAS	0.00	0	0.0000	0.0000	
1	Surrogate Standards	012472		and an Editorial		
21	Naphthalene-d8	13.77	444876	200.19	85.64	
	Acenaphthene-d10	19.62	250618	194.52	83.20	
1000	Phenanthrene-d10	24.68	496072	237.35	101.51	
	Chrysene-d12	33.77	482761	165.55	70.85	
1.1.1	Pervlene-d12	38.62	607883	185.94	79.57	
	5(b)H-Cholane	34.16	133594	189.42	81.07	
1	Internal Standards					
1)	Fluorene-d10	21.40	312084	234.63		
	Pyrene-d10	29.60	553018	234.23		
1000	Benzo(a)pyrene-d12	38.31	629328	233.95		

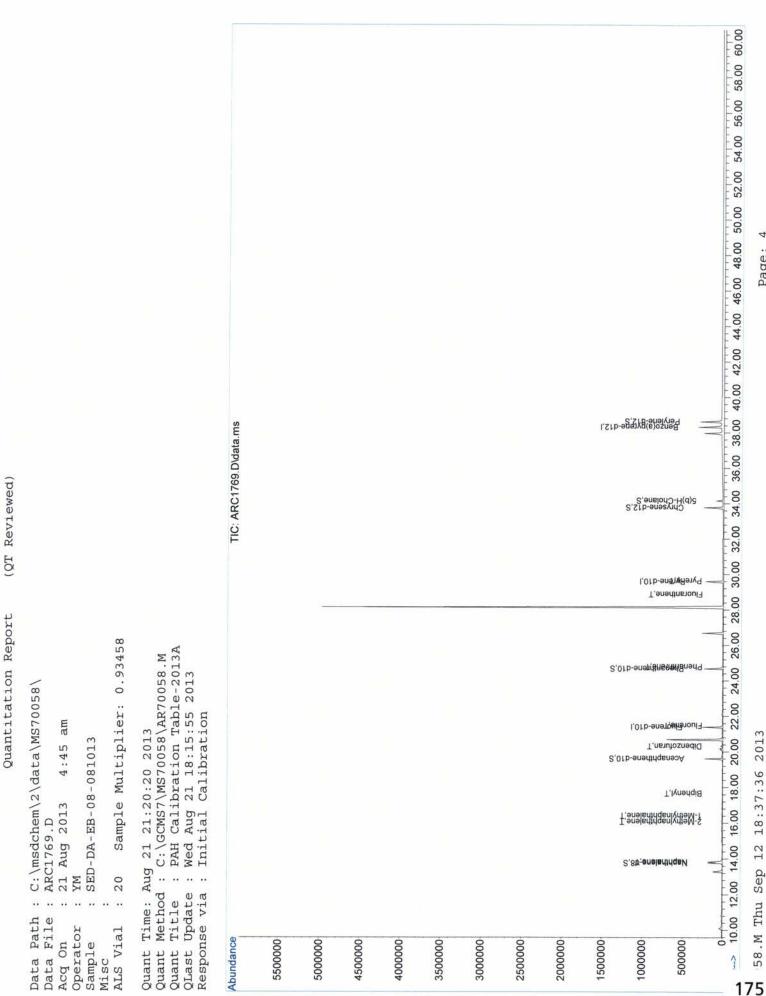
	<b>x</b>		noper	· · · · ·		
	Path : C:\msdchem\2\data\Ms File : ARC1769.D	\$70058\				
Acq C	on : 21 Aug 2013 4:45 a	am				
Opera Sampl	tor : YM .e : SED-DA-EB-08-081013 :					
Misc ALS V	: Vial : 20 Sample Multipl:	ier: 0.93	3458			
	Time: Aug 21 21:20:20 2013					
	Method : C:\GCMS7\MS70058		. М			
	Title : PAH Calibration 7					
	Update : Wed Aug 21 18:15					
Respo	onse via : Initial Calibrat:	ion				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
Inte	rnal Standards					
1)	Fluorene-d10 Pyrene-d10	21.399	176	312084m	251.05	0.00
31)	Pyrene-d10	29.600	212	553018m	250.63	0.00
73)	Benzo(a)pyrene-d12	38.309	264	629328m	250.32	0.00
Svet	em Monitoring Compounds					
2)	Naphthalene-d8	13.766	136	444876m	200.19	0.00
21)	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12	19.616	164	250618m	194.52	0.00
32)	Phenanthrene-d10	24.683	188	496072m	237.35	0.00
66)	Chrysene-d12	33.770	240	482761m	165.55	0.00
88)	Perylene-d12	38.619	264	607883m	185.94	0.00
90)	5(b)H-Cholane	34.158	217	133594m	189.42	0.00
Tarq	et Compounds					Qvalue
3)	cis/trans Decalin	0.000		0	N.D.	d
	C1-Decalins	0.000 0.000 0.000		0	N.D. N.D. N.D.	d
5)	C2-Decalins	0.000		0	N.D.	d
6)	C3-Decalins	0.000		0	N.D.	d
7)	C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene	0.000	100	0	N.D.	d
8)	Naphthalene	13.822	142	491276m	202.58	
10)	2-Methylnaphthalene	16.078	142	2514m	1.58	
11)	2,6-Dimethylnaphthalene	0 000	142	20810	N D	Б
12)	1, 6, 7-Trimethylnaphtha C2-Naphthalenes	0.000		Ő	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.	
	Benzothiophene	0.000		0	N.D.	
	C1-Benzothiophenes	0.000		0	N.D.	
	C2-Benzothiophenes	0.000		0	N.D.	
	C3-Benzothiophenes C4-Benzothiophenes	0.000		0	N.D. N.D.	
	Biphenyl	17.666	154	2574m	1.26	u
	Acenaphthylene	0.000		0	N.D.	d
	Acenaphthene	0.000		0	N.D.	
25)	Dibenzofuran	20.313	168	2161m	0.93	
	Fluorene	21.483	166	1188m	0.66	
	1-Methylfluorene	0.000		0	N.D.	
	C1-Fluorenes	0.000		0	N.D.	
	C2-Fluorenes	0.000		0	N.D.	
	C3-Fluorenes Carbazole	0.000		0	N.D.	
	Dibenzothiophene	0.000		0	N.D. N.D.	
	4-Methyldibenzothiophene	0.000		0	N.D.	
	2/3-Methyldibenzothiop	0.000		õ	N.D.	
	1-Methyldibenzothiophene	0.000		0	N.D.	
	C2-Dibenzothiophenes	0.000		0	N.D.	
	C3-Dibenzothiophenes	0.000		0	N.D.	d
	C4-Dibenzothiophenes	0.000		0	N.D.	d
	Phenanthrene	24.787	178	6823m	2.91	
	Anthracene	0.000		0	N.D.	
43)	3-Methylphenanthrene	0.000		0	N.D.	u

(QT	Reviewed)

Data Acq C Opera Sampl Misc ALS V Quant Quant Quant	Path : C:\msdchem\2\data\MS File : ARC1769.D On : 21 Aug 2013 4:45 a ator : YM .e : SED-DA-EB-08-081013 Yial : 20 Sample Multipli Time: Aug 21 21:20:20 2013 Method : C:\GCMS7\MS70058 Title : PAH Calibration T Update : Wed Aug 21 18:15:	.er: 0.93 AR70058 able-201	. M		
	onse via : Initial Calibrati	on	OTon	Response	Conc Units Dev(Min)
		R.I.	Q1011		
44)	2-Methylphenanthrene	0.000		0	N.D. d
45)	2-Methylphenanthrene 2-Methylanthracene	0.000		0	N.D. d
46)	4/9-Methvlphenanthrene	0.000		0	
47)	1-Methylphenanthrene 3,6-Dimethylphenanthrene	0.000		0	N.D. d
48)	3,6-Dimethylphenanthrene	0.000		0	N.D. d
49)	Receile	0.000		0	N.D. d
	C2-Phenanthrenes/Anthr			0	N.D. d
51)	C3-Phenanthrenes/Anthr	0.000		0	N.D. d
52)	C4-Phenanthrenes/Anthr Naphthobenzothiophene	0.000		0	N.D. d
53) 54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d N.D. d
	C2-Naphthobenzothiophenes			0	
56)	C3-Nanhthohenzothionhenes	0 000		0	N.D. d
57)	C4-Naphthobenzothiophenes	0.000		0	N.D. d
58)	Fluoranthene	28.873	202	3179m	
		29.635			1.15
	2-Methylfluoranthene	0.000		0	N.D. d
		0.000		0	N.D. d
62)	C1-Fluoranthenes/Pyrenes	0.000		0	
63)	C2-Fluoranthenes/Pyrenes C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes	0.000		0	
64)	C3-Fluoranthenes/Pyrenes	0.000		0	N.D. d
		0.000		0	N.D. d
67)	Benz(a) anthracene	0.000		0	N.D. d
	Chrysene/Triphenylene	0.000		0	N.D. d
	C1-Chrysenes C2-Chrysenes	0.000		0	N.D. d N.D. d
	C3-Chrysenes	0.000		0	N.D. d
	C4-Chrysenes	0.000		0	N.D. d
	C29-Hopane	0.000		0	N.D. d
	18a-Oleanane	0.000		0	N.D. d
	C30-Hopane	0.000		0	N.D. d
	Benzo(b)fluoranthene	0.000		0	N.D. d
	Benzo(k,j)fluoranthene	0.000		0	N.D. d
		0.000		0	N.D. d
		0.000		0	N.D. d
81)	Benzo(a)pyrene Indeno(1,2,3-c,d)pyrene	0.000		0	N.D. d
82)	Dibenzo(a, h) anthracene	0.000		0	N.D. d
		0.000		0	N.D. d N.D. d
		0.000		0	N.D. d
	C3-Dibenzo(a,h)anthrac	0.000		0	N.D. d
	Benzo(g,h,i)perylene	0.000		0	N.D. d
	Perylene	0.000		0	N.D. d
	C20-TAS	0.000		0	N.D. d
	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(20S)-TAS C27(20R)-TAS C28(20R)-TAS	0.000		0	N.D. d

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1769.D Acq On : 21 Aug 2013 4:45 am Operator : YM Sample : SED-DA-EB-08-081013 Misc : ALS Vial : 20 Sample Multiplier: 0.93458 Quant Time: Aug 21 21:20:20 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

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



4 Page:

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

77) Benzo(b)fluoranthene

78) Benzo(k,i)fluoranthene

79) Benzo(a)fluoranthene

82) Indeno(1,2,3-c,d)pyrene

83) Dibenzo(a,h)anthracene

87) Benzo(g,h,i)perylene

84) C1-Dibenzo(a,h)anthracenes

85) C2-Dibenzo(a,h)anthracenes

86) C3-Dibenzo(a,h)anthracenes

80) Benzo(e)pyrene

81) Benzo(a)pyrene

89) Perviene

Data File Name	ARC1771.D	Surrogate/Internal Multiplier Factor:	1.00	
Data File Path	C:\GCMS7\MS70058\	AR-WKSU-2500-001:	(ng/mL)	
Operator	YM	Naphthalene-d8	250.125	
Date Acquired	8/21/2013 5:54	Acenaphthene-d10	250.163	Copy data below
Acq. Method File	PAH-2012.M	Phenanthrene-d10	250.194	to Spread Sheet
Sample Name	SO-DA-EB-04-081113	Chrysene-d12	250.038	
Misc Info	0	Perylene-d12	250.031	ARC1771.D
Instrument Name	GCMSD	5(b)H-Cholane	250.000	SO-DA-EB-04-081113
Vial Number	21			8/21/2013
Sample Multiplier	0.98039			PAH-2012.M
Sample Amount	0			1.020002244

**Ret Time Target Response** Concentration Su. Corrected # Compound Name (minute) (area) Concentration 0.0000 3) cis/trans Decalin 0.00 0 0.0000 0.00 0 0.0000 0.0000 4) C1-Decalins 0.0000 0.0000 5) C2-Decalins 0.00 0 0.0000 6) C3-Decalins 0.00 0 0.0000 7) C4-Decalins 0.00 0 0.0000 0.0000 8) Naphthalene 13.82 386170 162.0702 160.8570 5082 2.1328 2.1169 16.25 9)+10) C1-Naphthalenes 0.0000 0.0000 13) C2-Naphthalenes 0.00 0 14) C3-Naphthalenes 0.00 0 0.0000 0.0000 0 0.0000 0.0000 15) C4-Naphthalenes 0.00 16) Benzothiophene 0.00 0 0.0000 0.0000 0.0000 0.0000 0.00 0 17) C1-Benzothiophenes 0.0000 18) C2-Benzothiophenes 0.00 0 0.0000 19) C3-Benzothiophenes 0.00 0 0.0000 0.0000 20) C4-Benzothiophenes 0.00 0 0.0000 0.0000 0.0000 22) Biphenyl 0.00 0 0.0000 23) Acenaphthylene 0.00 0 0.0000 0.0000 0.0000 0.0000 24) Acenaphthene 0.00 0 25) Dibenzofuran 0.00 0 0.0000 0.0000 26) Fluorene 21.48 1232 0.7008 0.6955 0.0000 28) C1-Fluorenes 0.00 0 0.0000 0.0000 0.0000 0.00 0 29) C2-Fluorenes 0.0000 0.0000 0.00 30) C3-Fluorenes 0 33) Carbazole 0.00 0 0.0000 0.0000 42) Anthracene 0.00 0 0.0000 0.0000 41) Phenanthrene 24.79 7908 3.3687 3.3435 0.0000 0.0000 43)+44)+45)+46)+47) C1-Phenanthrenes/Anthracenes 0.00 0 50) C2-Phenanthrenes/Anthracenes 0.00 0 0.0000 0.0000 51) C3-Phenanthrenes/Anthracenes 0.0000 0.0000 0.00 0 52) C4-Phenanthrenes/Anthracenes 0.00 0 0.0000 0.0000 0.0000 0.0000 34) Dibenzothiophene 0.00 0 35)+36)+37) C1-Dibenzothiophenes 0.00 0 0.0000 0.0000 38) C2-Dibenzothiophenes 0.00 0 0.0000 0.0000 0.0000 39) C3-Dibenzothiophenes 0.00 0 0.0000 40) C4-Dibenzothiophenes 0.00 0 0.0000 0.0000 58) Fluoranthene 28.87 2616 0.8542 0.8478 29.63 3742 1.3005 1.2908 59) Pyrene 0.0000 0.0000 62) C1-Fluoranthenes/Pyrenes 0.00 0 63) C2-Fluoranthenes/Pyrenes 0.0000 0.0000 0.00 0 0.0000 64) C3-Fluoranthenes/Pyrenes 0.00 0.0000 0 0.0000 0.0000 65) C4-Fluoranthenes/Pyrenes 0.00 0 53) Naphthobenzothiophene 0.00 0 0.0000 0.0000 0.0000 0.0000 54) C1-Naphthobenzothiophenes 0.00 0 0.00 0.0000 0.0000 55) C2-Naphthobenzothiophenes 0 0.0000 0.00 0.0000 56) C3-Naphthobenzothiophenes 0 0.0000 57) C4-Naphthobenzothiophenes 0.00 0 0.0000 67) Benz(a)anthracene 0.00 0 0.0000 0.0000 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 71) C3-Chrysenes 0.00 0 0.0000 0.0000 0.00 0 0.0000 0.0000 72) C4-Chrysenes

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#	Compound Name	Ret Time	Target Response	Concentration	Su. Corrected	
		(minute)	(area)		Concentration	
	Individual Alkyl Isomers and Hopanes					
9)	2-Methylnaphthalene	16.08	3152	2.0172	2.0021	
10)	1-Methylnaphthalene	16.41	1930	1.3319	1.3219	
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	
	C20-TAS	0.00	0	0.0000	0.0000	
	C21-TAS	0.00	0	0.0000	0.0000	
93)	C26(20S)-TAS	0.00	0	0.0000	0.0000	
	C26(20R)/C27(20S)-TAS	0.00	0	0.0000	0.0000	
	C28(20S)-TAS	0.00	0	0.0000	0.0000	
	C27(20R)-TAS	0.00	0	0.0000	0.0000	
	C28(20R)-TAS	0.00	0	0.0000	0.0000	
~~~	Surrogate Standards					
2)	Naphthalene-d8	13.77	430739	197.28	80.45	
	Acenaphthene-d10	19.62	251292	198.51	80.94	
	Phenanthrene-d10	24.68	517268	247.14	100.75	
	Chrysene-d12	33.77	505085	172.96	70.56	
	Perviene-d12	38.62	609130	188.89	77.06	
1000	5(b)H-Cholane	34.16	139048	199.87	81.55	
/	Internal Standards					
1)	Fluorene-d10	21.40	321657	246.13		
	Pyrene-d10	29.60	580951	245.71		
	Benzo(a)pyrene-d12	38.31	651176	245.42		

Data Path : C:\msdchem\2\data\MS Data File : ARC1771.D Acq On : 21 Aug 2013 5:54 a Operator : YM Sample : SO-DA-EB-04-081113 Misc : ALS Vial : 21 Sample Multipli Quant Time: Aug 22 06:52:24 2013 Quant Time: Aug 22 06:52:24 2013 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 18:153 Response via : Initial Calibration	am ier: 0.98 AR70058 Table-201 :55 2013	. м			
Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
Internal Standards 1) Fluorene-d10 31) Pyrene-d10 73) Benzo(a)pyrene-d12					
System Monitoring Compounds 2) Naphthalene-d8 21) Acenaphthene-d10 32) Phenanthrene-d10 66) Chrysene-d12 88) Perylene-d12 90) 5(b)H-Cholane	33.770 38.619	240 264	505085m	172.96 188.89	0.00
<pre>Target Compounds 3) cis/trans Decalin 4) C1-Decalins 5) C2-Decalins 6) C3-Decalins 7) C4-Decalins 7) C4-Decalins 8) Naphthalene 9) 2-Methylnaphthalene 10) 1-Methylnaphthalene 11) 2,6-Dimethylnaphthalene 12) 1,6,7-Trimethylnaphtha 13) C2-Naphthalenes 14) C3-Naphthalenes 15) C4-Naphthalenes 16) Benzothiophene 17) C1-Benzothiophenes 18) C2-Benzothiophenes 19) C3-Benzothiophenes 19) C3-Benzothiophenes 20) C4-Benzothiophenes 21) Biphenyl 23) Acenaphthylene 24) Acenaphthene 25) Dibenzofuran 26) Fluorene 27) 1-Methylfluorene 28) C1-Fluorenes 30) C3-Fluorenes 30) C3-Fluorenes 31) Carbazole 34) Dibenzothiophene 35) 4-Methyldibenzothiophene 36) 2/3-Methyldibenzothiophene 39) C3-Dibenzothiophenes 39) C3-Dibenzothiophenes 39) C3-Dibenzothiophene 31) Phenanthrene 42) Anthracene 43) 3-Methylphenanthrene</pre>	0.000 0.000 13.822 16.078 16.413	128 142 142	0 0 386170m 3152m 1930m 0 0 0	1.33	

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1771.D Acq On : 21 Aug 2013 5:54 am Operator : YM Sample : SO-DA-EB-04-081113 Misc : ALS Vial : 21 Sample Multiplier: 0.98039 Quant Time: Aug 22 06:52:24 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration 
 Compound
 R.T. QION Response Conc Units

 441
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 451
 2-Methylphenanthrene
 0.000
 0
 N.D. d

 471
 1-Methylphenanthrene
 0.000
 0
 N.D. d

 471
 1-Methylphenanthrene
 0.000
 0
 N.D. d

 481
 3,6-Dimethylphenanthrene
 0.000
 0
 N.D. d

 491
 Retene
 0.000
 0
 N.D. d

 501
 C2-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 511
 C3-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 521
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 521
 C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 531
 Naphthobenzothiophenes
 0.000
 0
 N.D. d

 541
 C1-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 551
 C2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 652
 C1-Fluoranthenes Compound R.T. QIon Response Conc Units Dev(Min) 

Data Path : C:\msdchem\2\data\MS70058\ Data File : ARC1771.D Acq On : 21 Aug 2013 5:54 am Operator : YM Sample : SO-DA-EB-04-081113 Misc : ALS Vial : 21 Sample Multiplier: 0.98039 Quant Time: Aug 22 06:52:24 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min)

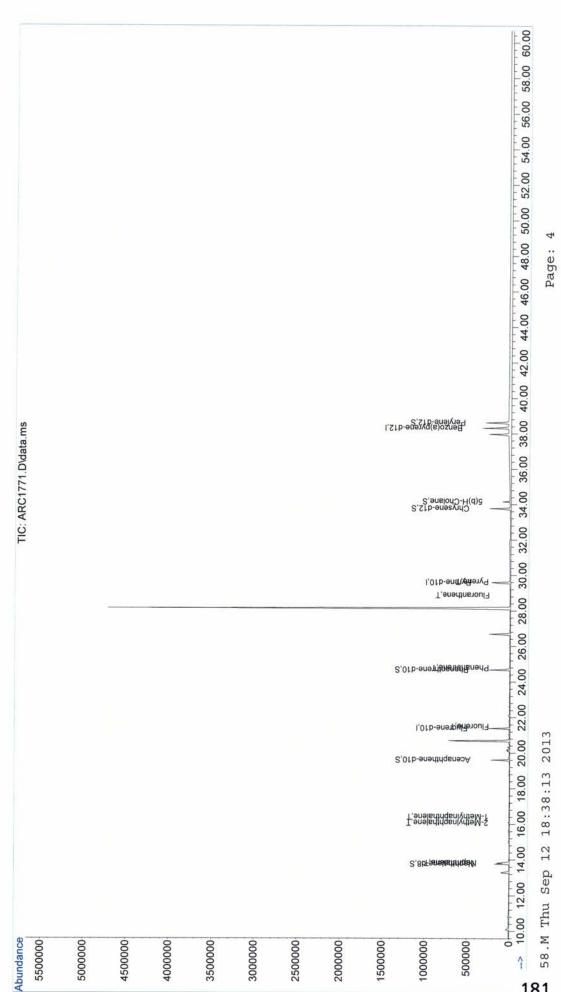
(#) = qualifier out of range (m) = manual integration (+) = signals summed

AR70058.M Thu Sep 12 18:38:12 2013

(QT Reviewed) Quantitation Report

Sample Multiplier: 0.98039 C:\msdchem\2\data\MS70058 5:54 am 21 Aug 2013 5:54 YM SO-DA-EB-04-081113 ARC1771.D 21 •• .. .. .. .. ... Data File Data Path Operator ALS Vial Acq On Sample Misc

Method : C:\GCMS7\MS70058\AR70058.M Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration Time: Aug 22 06:52:24 2013 Quant Title Quant Quant



## Aliphatic Hydrocarbons/ Total Petroleum Hydrocarbons/ Initial Calibration Data and Initial Calibration Verification Data

TPH/Aliphatic ICAL FID1C08BACK081213.M

GC/FID-1 BACK

Method Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Method File : FID1C08BACK081213.M Title : C8 - C40 aliphatic Last Update : Mon Aug 12 14:55:52 2013 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File		
1	1	1	50	P:\2013\J13001\ALI\MSDCHEM	data\FID	1\FID10073\FID10073C.D
	2	10	50	P:\2013\J13001\ALI\MSDCHEM	data\FID	1\FID10073\FID10073D.D
3	3	25	50	P:\2013\J13001\ALI\MSDCHEM	data\FID	1\FID10073\FID10073E.D
4	4	40	50	P:\2013\J13001\ALI\MSDCHEM	data\FID	1\FID10073\FID10073F.D
5	5	50	50	P:\2013\J13001\ALI\MSDCHEM	data\FID	1\FID10073\FID10073G.D
6	6	100	50	P:\2013\J13001\ALI\MSDCHEM	data\FID	1\FID10073\FID10073H.D

	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 12 14:22 2013	Aug 12 14:22 2013	09-Aug-2013, 22:41:20
2	2	Aug 12 14:27 2013	Aug 12 14:27 2013	09-Aug-2013, 23:51:52
3	3	Aug 12 14:31 2013	Aug 12 14:31 2013	10-Aug-2013, 01:02:24
4	4	Aug 12 14:35 2013	Aug 12 14:35 2013	10-Aug-2013, 02:13:04
5	5	Aug 12 14:39 2013	Aug 12 14:39 2013	10-Aug-2013, 03:23:38
6	6	Aug 12 14:44 2013	Aug 12 14:44 2013	10-Aug-2013, 04:34:12

FID1C08BACK081213.M Mon Aug 12 14:56:11 2013

Response	Factor	Report	HP5890
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Me Ti La	thoc tle st U	l Path : P:\2013\3 H File : FID1C08BA : C8 - C40 al Update : Mon Aug ase Via : Initial	CK0812 iphati 12 14:	13.M c 55:52			ID 1∖F	ID1007	3\		Alali3
Ca 1 4	libr	Faction Files =FID10073C.D 2 =FID10073F.D 5		=FID10 =FID10	073D.D 073G.D	3 6	= F = F	ID1007 ID1007	3E.D 3H.D		
		Compound	1	2	3	4	5	6	Avg	%RSD	
		n-hexadecane-d34									
2)		n-C8 n-C9 n-C10	0.956	1.014	0.983	0.969	0.986	0.862	0.962	5.46 5.35	
3)		n-C9	1.005	1 103	1 083	1 086	1 085	0.900	1 064	2 91	
4) 5)		n-C11	1.074	1,101	1.086	1.095	1.092	0.965	1.069	4.85	
61	S	n-dodecane-d26	1.000	1.009	1.002	1.038	1.003	0.902	0.992	4.70	
71		n = C   2	1 127	1 150	1 137	1 128	1 1 4 5	1 009	1 116	4 76	
8)		i-13	1.125	1.152	1.141	1.154	1.149	1.009	1.122	4.99	
9)		i-13 i-14 n-C13 i-15	1.170	1.198	1.187	1.190	1.192	1.046	1.164	5.04	
10)		n-C13	1.125	1.152	1.141	1.154	1.149	1.009	1.122	4.99	
11)		i-15 n-C14	1.214	1.225	1.209	1.211	1.212	1.060	1.189	5.30	
12)		n-C14 i-16	1.1/0	1.198	1.18/	1.190	1.192	1.046	1.164	5.04	
13)		n-C15	1 214	1 225	1 209	1 211	1 212	1 060	1 189	5 30	
15)		n-C16	1.249	1.244	1.228	1.223	1.231	1.073	1.208	5.52	
16)	I	5a-androstane i-18 n-C17	and the second			IS	ГD				
17)		i-18	0.955	0.968	0.960	0.971	0.965	0.845	0.944	5.17	
18)		n-C17	0.969	0.979	0.969	0.967	0.975	0.856	0.952	5.00	
		Pristane									
20)		n-C18 Phytane	0.955	0.908	0.900	0.971	0.905	0.845	0.944	5.18	
221		n-C19	0.960	0.973	0.965	0.972	0.970	0.847	0.948	5.25	
23)	S	n-C19 n-eicosane-d42 n-C20 n-C21	0.775	0.770	0.767	0.793	0.764	0.679	0.758	5.27	
24)		n-C20	0.972	0.980	0.973	0.985	0.978	0.853	0.957	5.36	
25)		n-C21	0.984	0.996	0.987	0.989	0.994	0.865	0.969	5.29	
26)		n-C22	0.992	0.999	0.990	1.001	0.996	0.867	0.974	5.39	
27)		n-C23				0.999				5.42	
28)		n-C24 n-C25							0.984 0.985	5.46 5.48	
29) 30)									0.989	5.78	
31)									0.964		
32)									0.976		
33)											
	S									6.05	
35)									0.964 0.944	6.24	
36) 37)									0.944	6.65 6.91	
38)									0.898		
39)		n-C34	0.938	0.949	0.929	0.924	0.912	0.764	0.903	7.64	
40)		n-C35	0.893	0.928	0.895	0.895	0.881	0.741	0.872	7.59	
41)			0.984	0.990	0.958	0.937	0.941	0.798	0.935	7.53	
42)									0.842	7.38	
43)									0.827	6.86	
44)									0.795	6.84	
45)									0.722	7.11	
46)									0.905		
47) 48)									0.905		
40)									0.905	5.73	
50)									0.905	5.73	
51)			0.918	0.936	0.922	0.930	0.924	0.800	0.905	5.73	
52)		TRH6	0.918	0.936	0.922	0.930	0.924	0.800	0.905	5.73	

53)	GRO	0.918	0.936	0.922	0.930	0.924	0.800	0.905	5.73
54)	DRO	0.918	0.936	0.922	0.930	0.924	0.800	0.905	5.73
55)	RRO	0.918	0.936	0.922	0.930	0.924	0.800	0.905	5.73
(#) =	Out of Range								

FID1C08BACK081213.M Mon Aug 12 14:56:03 2013

	Area for TPH Calculations
Last Calibration Update	Mon Aug 12 14:44:48 2013
Quant Method	FID1C08BACK081213.M

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	FID10073C.D	FID10073D.D	FID10073E.D	FID10073F.D	FID10073G.D	FID10073H.D
n-C8	9117	77857	188499	291362	352928	72218
n-C9	9578		197797		368042	75932
n-C10	10163		207556	326517	388060	80317
n-C11	10255		208394	329031	391233	80783
n-C12	10555	86658	214265	339153	402706	82989
n-C13	10739	88505	219073	346829	411631	846199
n-C14	11088	91324	226227	357826	424031	86975
n-C15	11521	93428	230576	364007	431554	883118
n-C16	11792	94455	232923	367530	435910	889122
n-C17	11948	96726	238635	376430	446735	91113
Pristane	11944	96562	238683	376376	446725	908737
n-C18	11923	96930	239559	378180	448208	91192
Phytane	12125	98535	243595	383107	456112	925459
n-C19	11967	97244	240347	378543	449691	911938
n-C20	12143	98208	243017	383571	454323	92085
n-C21	12167	98724	243725	384963	457017	923803
n-C22	12394	99952	246952	389670	462814	935593
n-C23	12412	99765	246307	388885	462119	931772
n-C24	12449	99865	246380	389086	462171	931521
n-C25	12463	100899	248590	392936	466818	939992
n-C26	12663	101467	250624	396256	470373	942117
n-C27	12261	99138	243994	385742	457968	918311
n-C28	12439	100297	246825	391092	463855	927617
n-C29	12460	100743	247866	392769	465313	925638
1-C30	12206	99218	244132	385624	456903	903030
n-C31	11880	98300	241138	380036	449032	881127
n-C32	11645	96156	235110	369310	434911	850522
n-C33	11419	94217	230336	360673	423685	824270
1-C34	11691	94703	231131	359862	421994	822174
n-C35	11142	92834	223108	348317	408561	798634
1-C36	12037	97002	233923	364710	427630	842927
n-C37	10939	89315	214042	334137	393746	775887
n-C38	10515	87583	210812	330963	387580	770733
1-C39	10331	82965	201077	317436	372412	739442
n-C40	8368	76169	186397	295785	345664	691641
Average Area (use for "PH, TRPH, GRO, DRO, RR	11450 O)	93611	229760	361878	428527	862212
Average of n-C38 & n-C40	9442	81876	198605	313374	366622	731187
-C36/n-C20	0.99	0.99	0.96	0.95	0.94	0.92

For Isoprenoids (other than Pristane and Phytane) use area for normal alkane; i-C13 use n-C13

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073C.D Signal(s) : FID2B.CH Acq On : 09-Aug-2013, 22:41:20 Operator : Meghan Dailey Sample : AL-WKC1-1.25-019 Misc : ALS Vial : 53 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 12 14:22:32 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Tue Aug 06 16:29:04 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 

 1) I
 n-hexadecane-d34
 12.909
 381314
 50.000 ug/mlm

 16) I
 5a-androstane
 18.142
 499832
 50.072 ug/mlm

 16) I System Monitoring Compounds 

 6) S
 n-dodecane-d26
 8.631
 9529
 1.268 ug/mlm

 23) S
 n-eicosane-d42
 17.541
 9737
 1.276 ug/mlm

 34) S
 n-triacontane-d62
 29.404
 9732
 1.312 ug/mlm

 3.499
 9117
 1.288 ug/mlm

 4.818
 9578
 1.279 ug/mlm

 6.228
 10163
 1.281 ug/mlm

 7.579
 10255
 1.277 ug/mlm

 8.836
 10555
 1.249 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 10.006
 10739
 1.258 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.099
 11088
 1.247 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.126
 11521
 1.268 ug/mlm

 13.157
 11792
 1.283 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.255
 11948
 1.238 ug/mlm

 15.427
 11923
 1.250 ug/mlm

 15.591
 1215
 1.247 ug/mlm

 15.591
 12143
 1.258 ug/mlm

 17.937
 12143
 1.258 ug/mlm

 19.232
 12167
 1.249 ug/mlm

 17.937
 12143
 1.269 ug/mlm

 20.531
 12394
 1.269 ug/mlm

 23.075
 12449
 1.267 ug/mlm

 Target Compounds 2) n-C8 3) n-C9 n-C9 n-C10 n-C11 n-C12 i-13 i-14 n-C13 i-15 4) 5) 7) 8) 9) 10) 11) n-C14 12) i-16 n-C15 13) 14) n-C16 15) i-18 n-C17 Pristane n-C18 Phytane n-C19 17) 18) 19) 20) 21) 22) n-C20 24) 25) n-C21 n-C22 n-C23 26) 27) 28) n-C24 29) n-C25 n-C26 n-C27 n-C28 n-C29 30) 31) 32) 33) n-C30 n-C31 35) 36) n-C32 37) 38) n-C33 39) n-C34 40) n-C35 n-C33 n-C35

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073C.D Signal(s) : FID2B.CH Acq On : 09-Aug-2013, 22:41:20 Operator : Meghan Dailey Sample : AL-WKC1-1.25-019 Misc 2 ALS Vial : 53 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:22:32 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Tue Aug 06 16:29:04 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 35.985
 12037
 1.280 ug/mlm

 37.292
 10938
 1.293 ug/mlm

 38.813
 10515
 1.233 ug/mlm

 40.587
 10331
 1.258 ug/mlm

 42.695
 8368
 1.113 ug/mlm

 41) n-C36 n-C37 n-C38 n-C39 42) 43) 44) n-C40 TPH 45) 0.000 0 N.D. ug/mld 0 N.D. ug/mld 46) TRH1 TRH2 TRH3 0.000 47) 0 N.D. ug/mld 48) 0.000 0 N.D. ug/mld 0 N.D. ug/mld 0.000 49) TRH4 0.000 50) TRH5 0 N.D. ug/mld 0.000 51) 0 N.D. ug/mld TRH6 52) 0.000 0 N.D. ug/mld 53) GRO 0.000 54) DRO 55) RRO 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m) = manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M TIC: FID10073C.D (QT Reviewed) P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Quantitation Report 18.142 QLast Update : Tue Aug 06 16:29:04 2013 , ri Sample Multiplier: : Initial Calibration : C8 - C40 aliphatic 09-Aug-2013, 22:41:20 Quant Time: Aug 12 14:22:32 2013 15.909 Integration File: autointl.e AL-WKC1-1.25-019 Meghan Dailey Integrator: ChemStation FID10073C.D FID2B.CH 53 .. .. .. Response via Signal Phase Quant Title Volume Inj. .. •• ., ... Signal Info ... Data Path Data File Signal(s) Response 30000-25000-15000 10000 20000 Operator ALS Vial Acq On Sample Misc

60.00 3 55.00 Page: 50.00 45.00 45.695 0+0-4 40.00 40.587 660-n £18.8E n-C38 -31 595 7537 h 960-u 35.985 35.00 u-C32 958.46 P-C34 498.664 -35'652 696.16-20.963 30.00 -59.938 -59.404 -58.881 u-C28 882 22-26.662 122-u 25.00 920-4 -52.501 u-C25 -54'302 1-C24 -53.075 p-C23 -21.814 p-C22 20.00 -50.531 08BACK081213.M Mon Aug 12 14:46:46 2013 120-4 -19 235 n-ercosane 498.27 610-4 -16.662 ansight 15.00 189 91= antistand 642 71= 13.157 B-Foxeadeca -15'156 510-4 ₽10-U 660'11-10.00 900.01agog=H 9669;8 ans 110-4 629.7 6,228 010-4 5.00 60-u 818.4 80-4 3 466 0.00 5000-Ó Ime

190

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073D.D Signal(s) : FID2B.CH Acq On : 09-Aug-2013, 23:51:52 Operator : Meghan Dailey Sample : AL-WKC2-10-019 Misc : Misc ALS Vial : 54 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:27:09 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:22:42 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90938335450.000 ug/mlm16) I5a-androstane18.14150071450.072 ug/mlm System Monitoring Compounds 

 6) S
 n-dodecane-d26
 8.631
 77356
 10.231 ug/mlm

 23) S
 n-eicosane-d42
 17.540
 77526
 10.128 ug/mlm

 34) S
 n-triacontane-d62
 29.406
 76777
 10.287 ug/mlm

 3.498
 77857
 10.892 ug/mlm

 4.817
 81584
 10.815 ug/mlm

 6.227
 84579
 10.582 ug/mlm

 7.579
 84486
 10.453 ug/mlm

 8.837
 86658
 10.200 ug/mlm

 0.000
 0
 N.D. ug/ml

 0.000
 0
 N.D. ug/mld

 10.006
 88505
 10.324 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.099
 91324
 10.247 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.099
 91324
 10.230 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.126
 93428
 10.267 ug/mlm

 13.157
 94455
 10.230 ug/mlm

 14.256
 96726
 10.035 ug/mlm

 15.428
 96930
 10.154 ug/mlm

 15.591
 98535
 10.134 ug/mlm

 15.591
 98535
 10.143 ug/mlm

 17.938
 98208
 10.170 ug/mlm

 17.938
 98208
 10.170 ug/mlm

 20.532
 9952
 10.215 ug/mlm

 21.815
 9765
 10.143 ug/mlm TargetCompounce2)n-C83)n-C94)n-C105)n-C117)n-C128)i-139)i-1410)n-C1311)i-1512)n-C1413)i-1614)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2530)n-C2631)n-C2732)n-C3036)n-C3137)n-C3238)n-C3339)n-C34 Target Compounds 2) n-C8 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073D.D Signal(s) : FID2B.CH Acq On : 09-Aug-2013, 23:51:52 Operator : Meghan Dailey Sample : AL-WKC2-10-019 Misc : ALS Vial : 54 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:27:09 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:22:42 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 35.991
 97002
 10.282 ug/mlm

 37.292
 89315
 10.441 ug/mlm

 38.812
 87583
 10.374 ug/mlm

 40.596
 82965
 10.141 ug/mlm

 42.703
 76169
 10.196 ug/mlm

 41) n-C36 42) n-C37 43) n-C38 n-C39 n-C40 44) 45) 0 N.D. ug/mld 46) TPH 0.000 TRH1 TRH2 TRH2 47) 0.000 0 N.D. ug/mld 0 N.D. ug/mld 0.000 48) 0.000 0 N.D. ug/mld 49) TRH3 0.000 50) 0 N.D. ug/mld TRH4 TRH5 51) 0.000 0 N.D. ug/mld TRH6 0 N.D. ug/mld 0 N.D. ug/mld 52) 0.000 GRO 0.000 53) DRO 0.000 54) 0 N.D. ug/mld RRO 55) 0.000 0 N.D. ug/mld

SemiQuant Compounds - Not Calibrated on this Instrument

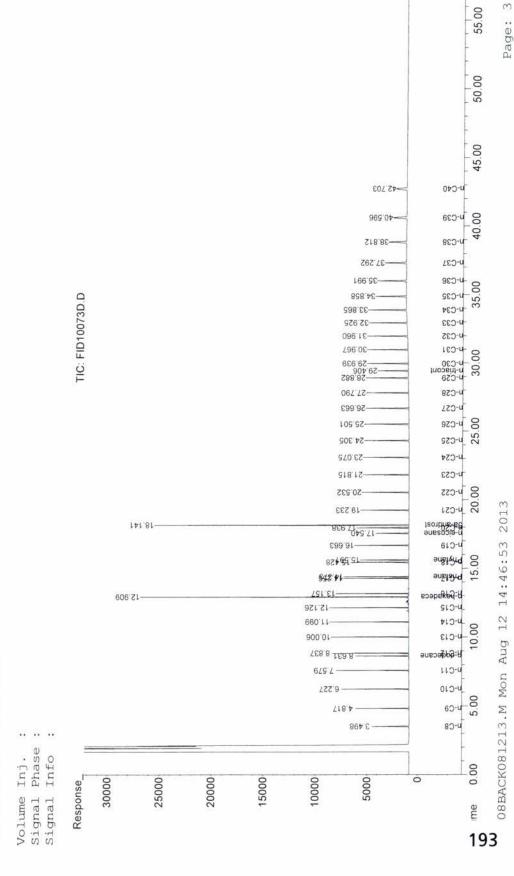
(f) = RT Delta > 1/2 Window

(m)=manual int.

\_\_\_\_\_

(QT Reviewed) Quantitation Report

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ QLast Update : Mon Aug 12 14:22:42 2013 Sample Multiplier: 1 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 09-Aug-2013, 23:51:52 Quant Time: Aug 12 14:27:09 2013 Integration File: autointl.e AL-WKC2-10-019 Meghan Dailey FID10073D.D Integrator: ChemStation FID2B.CH 54 •• .. .. Data Path Data File Signal(s) Operator ALS Vial Acq On Sample Misc



60.00

55.00

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073E.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 01:02:24 Operator : Meghan Dailey Sample : AL-WKC3-25-019 Misc : Misc ALS Vial : 55 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 12 14:31:09 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:27:17 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90838333750.000 ug/mlm16) I5a-androstane18.14149920150.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.63219214725.357ug/mlm23) Sn-eicosane-d4217.54319244925.260ug/mlm34) Sn-triacontane-d6229.40818946725.458ug/mlm 

 3.500
 188499
 26.082 ug/mlm

 4.817
 197797
 25.968 ug/mlm

 6.228
 207556
 25.806 ug/mlm

 7.579
 208394
 25.673 ug/mlm

 8.838
 214265
 25.157 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 10.007
 219073
 25.524 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.100
 226227
 25.373 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.128
 230576
 25.322 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.258
 238635
 24.904 ug/mlm

 15.430
 23959
 25.239 ug/mlm

 15.592
 243595
 25.194 ug/mlm

 15.592
 243595
 25.194 ug/mlm

 15.592
 243595
 25.107 ug/mlm

 15.430
 23959
 25.238 ug/mlm

 15.592
 243595
 25.107 ug/mlm

 20.534
 246952
 25.348 ug/mlm

 21.818
 246307
 25.134 ug/mlm

 23.079
 246380
 Target Compounds TargetComparison2)n-C83)n-C94)n-C105)n-C117)n-C128)i-139)i-1410)n-C1311)i-1512)n-C1413)i-1614)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2631)n-C2732)n-C2833)n-C2935)n-C3036)n-C3137)n-C3339)n-C34 2) n-C8 n-C9 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35
 n-C33

```
Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\
Data File : FID10073E.D
Signal(s) : FID2B.CH
Acq On : 10-Aug-2013, 01:02:24
Operator : Meghan Dailey
Sample : AL-WKC3-25-019
Misc
        :
ALS Vial : 55 Sample Multiplier: 1
Integration File: autoint1.e
Quant Time: Aug 12 14:31:09 2013
Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M
Quant Title : C8 - C40 aliphatic
QLast Update : Mon Aug 12 14:27:17 2013
Response via : Initial Calibration
Integrator: ChemStation
Volume Inj.
          :
Signal Phase :
Signal Info
                                         Response Conc Units
                                R.T.
      Compound
35.99323392324.947 ug/mlm37.29721404225.190 ug/mlm38.81521081225.157 ug/mlm40.59620107724.827 ug/mlm
41)
   n-C36
42)
      n-C37
      n-C38
43)
      n-C39
44)
                               42.700
                                           186397 25.260 ug/mlm
      n-C40
45)
                                             0
                                                    N.D. ug/mld
      TPH
46)
                               0.000
     TRH1
                                               0 N.D. ug/mld
                               0.000
47)
     TRH2
                                               0 N.D. ug/mld
                               0.000
48)
                                                0 N.D. ug/mld
     TRH3
                               0.000
49)
     TRH4
50)
                               0.000
                                               0 N.D. ug/mld
     TRH5
                                               0 N.D. ug/mld
51)
                               0.000
     TRH6
                                                0 N.D. ug/mld
52)
                               0.000
                                                0 N.D. ug/mld
53)
     GRO
                               0.000
                               0.000
                                                0 N.D. ug/mld
54)
     DRO
55)
     RRO
                                0.000
                                                0 N.D. ug/mld
```

SemiQuant Compounds - Not Calibrated on this Instrument

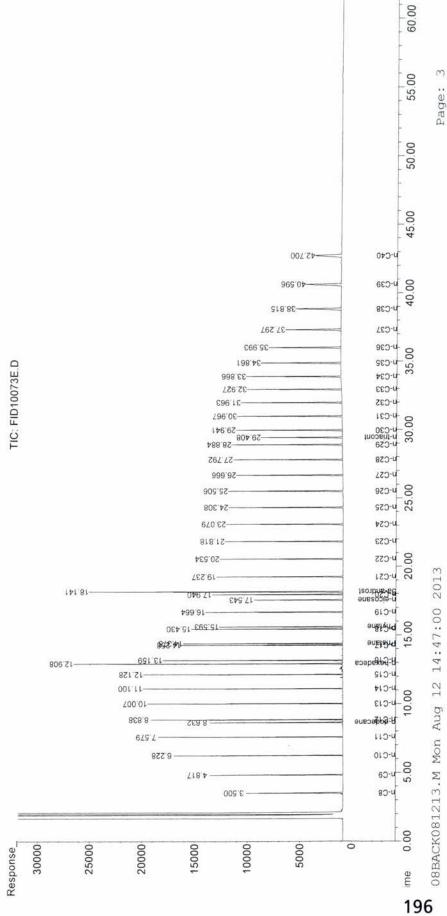
(f)=RT Delta > 1/2 Window

(m)=manual int.

Quantitation Report (QT Reviewed)

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ QLast Update : Mon Aug 12 14:27:17 2013 Sample Multiplier: 1 Quant Title : C8 - C40 aliphatic 10-Aug-2013, 01:02:24 Quant Time: Aug 12 14:31:09 2013 Integration File: autointl.e AL-WKC3-25-019 Meghan Dailey FID10073E.D FID2B.CH 55 ... •• .. .. •• .. .. Data Path Data File Signal (s) Operator ALS Vial Acq On Sample Misc

Response via : Initial Calibration 12.908 Integrator: ChemStation Volume Inj. : Signal Phase : Volume Inj. Signal Info Response\_ 30000



Data F Signal Acq On Operato Sample Misc	<pre>ath : P:\2013\J13001\AL bile : FID10073F.D (s) : FID2B.CH : 10-Aug-2013, 02:13 or : Meghan Dailey : AL-WKC4-40-019 : al : 56 Sample Multip</pre>	3:04	FID 1\FID1007	3\
Quant Quant Quant QLast Respons	ation File: autoint1.e Time: Aug 12 14:35:43 20 Method : P:\2013\J13001\ Title : C8 - C40 alipha Update : Mon Aug 12 14:3 se via : Initial Calibra ator: ChemStation	ALI\MSDCHEM dat atic 31:22 2013	a\FID 1\FID1	0073\FID1C08BACK081213.I
Signal	Inj. : Phase : Info :			
		R.T.	Response	Conc Units
	nal Standards			
1) I	n-hexadecane-d34	12.908	375489	50.000 ug/mlm 50.072 ug/mlm
16) I	n-hexadecane-d34 5a-androstane	18.140	487025	50.072 ug/mlm
Sveton	n Monitoring Compounds			
6) S	n-dodecane-d26	8.633	311896	41.967 ug/mlm
23) S	n-dodecane-d26 n-eicosane-d42	17.544	310706	41.899 ug/mlm
34) S	n-triacontane-d62	29.411	308189	42.522 ug/mlm
Target	Compounds			
	n-C8	3.502	291362	40.861 ug/mlm
3)	n-C9	4.819	309016	41.145 ug/mlm
4)	n-C10 n-C11	6.229 7.581	326517	41.240 ug/mlm 41.251 ug/mlm
5) 7)	n-C12	8.839	339153	40.589 ug/mlm
8)	i-13	0.000	0	N.D. ug/mld
9)	i-14 n-C13	0.000	0	N.D. ug/mld 41.232 ug/mlm
10) 11)	n-C13	10.009		
12)	n-C14	11.102		N.D. ug/mld 40.959 ug/mlm
13)	i-16	0.000	0	N.D. ug/mld
14)	n-C15	12.129	364007	40.821 ug/mlm
15)	n-C16 i-18	13.160 0.000	367530 0	40.604 ug/mlm N.D. ug/mld
17) 18)	n-C17	14.260	376430	40.354 ug/mlm
19)	Pristane	14.378	376376	40.477 ug/mlm
20)	n-C18	15.432	378180	40.939 ug/mlm
21) 22)	Phytane n-C19	15.596 16.667	383107 378543	40.697 ug/mlm 40.853 ug/mlm
24)	n-C20	17.943	383571	41.056 ug/mlm
25)	n-C21	19.240	384963	40.770 ug/mlm
26)	n-C22	20.538	389670	41.108 ug/mlm
27) 28)	n-C23 n-C24	21.822 23.081	388885 389086	40.776 ug/mlm 40.765 ug/mlm
29)	n-C25	24.313	392936	41.167 ug/mlm
30)	n-C26	25.509	396256	41.409 ug/mlm
31)	n-C27	26.669	385742	41.435 ug/mlm
32) 33)	n-C28 n-C29	27.795 28.887	391092 392769	41.544 ug/mlm 41.730 ug/mlm
35)	n-C30	29.946	385624	41.618 ug/mlm
36)	n-C31	30.970	380036	41.882 ug/mlm
37)	n-C32	31.965	369310	41.347 ug/mlm
38)	n-C33	32.933	360673	41.691 ug/mlm
39) 40)	n-C34 n-C35	33.870 34.867	359862 348317	41.185 ug/mlm 41.116 ug/mlm
407		54.007	010017	

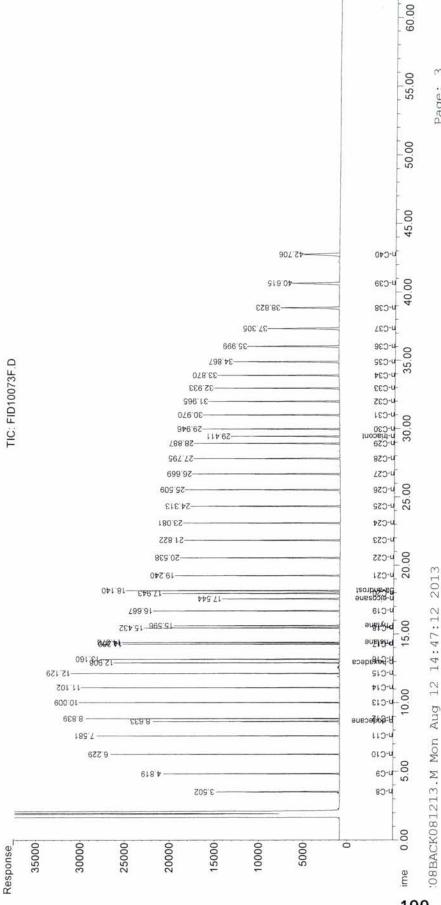
Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073F.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 02:13:04 Operator : Meghan Dailey Sample : AL-WKC4-40-019 Misc : ALS Vial : 56 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:35:43 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:31:22 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 35.99936471039.988 ug/mlm37.30533413740.468 ug/mlm38.82333096340.678 ug/mlm40.61531743640.438 ug/mlm42.70629578541.391 ug/mlm0.0000N.D. ug/mld 41) n-C36 n-C37 n-C38 n-C39 n-C40 TPH 42) 43) 44) 45) TPH TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GR0 DR0 RR0 0 N.D. ug/mld 0 N.D. ug/mld 46) 0.000 47) 0 N.D. ug/mld 0.000 48) 0 N.D. ug/mld 0.000 49) 0.000 0 N.D. ug/mld 50) 0 N.D. ug/mld 51) 0.000 0.000 0 N.D. ug/mld 52) 53) 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 54) 0 N.D. ug/mld 55) 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m) = manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M TIC: FID10073F.D P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ OLast Update : Mon Aug 12 14:31:22 2013 Sample Multiplier: 1 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 10-Aug-2013, 02:13:04 Quant Time: Aug 12 14:35:43 2013 Integration File: autointl.e AL-WKC4-40-019 Meghan Dailey FID10073F.D Integrator: ChemStation FID2B.CH 56 \*\* \*\* .. Signal Phase ••• .. .. Volume Inj. ... Signal Info Data Path Data File Signal(s) Response 35000 Operator ALS Vial Acq On Sample Misc



Page: 3

	Qua	Intitation Report	QI REVI	ewea
Data F. Signal Acq On Operato	ath : P:\2013\J13001\AL ile : FID10073G.D (s) : FID2B.CH : 10-Aug-2013, 03:2 or : Meghan Dailey		TID 1\FID1007	3\
Misc	: AL-WKC5-50-019 : al : 57 Sample Multi	plier: 1		
Quant S Quant M Quant S QLast N Respons	ation File: autointl.e Time: Aug 12 14:39:27 2 Method : P:\2013\J13001 Title : C8 - C40 aliph Update : Mon Aug 12 14: se via : Initial Calibr ator: ChemStation	\ALI\MSDCHEM dat atic 35:51 2013	a\FID 1\FID1	0073\FID1C08BACK081213.M
Signal	Inj. : Phase : Info :			
	Compound	R.T.	Response	Conc Units
Interr	hal Standards			
1) I 16) I	n-hexadecane-d34 5a-androstane	12.906	357816 464561	50.000 ug/mlm 50.072 ug/mlm
			101001	ootore agrinein
System	n Monitoring Compounds	8 633	358855	50.638 ug/mlm
23) S	n-dodecane-d26 n-eicosane-d42 n-triacontane-d62	17.545	356753	50.580 ug/mlm
34) S	n-eicosane-d42 n-triacontane-d62	29.411	354384	51.088 ug/mlm
Target	Compounds			
2)	n-C8 n-C9	3.501	352928	
3)	n-C9	4.819		51.249 ug/mlm
	n-C10 n-C11	6.229 7.581		51.284 ug/mlm 51.377 ug/mlm
7)	n-C12	8.839	402706	50.536 ug/mlm
	n-C12 i-13	0.000	0	50.536 ug/mlm N.D. ug/mld
	i-14	0.000	0	N.D. ug/mld
	n-C13 i-15	0.000		51.353 ug/mlm N.D. ug/mld
12)	n-C14	11.102	424031	50.953 ug/mlm
13)	i-16	0.000	0	N.D. ug/mld
14)	n-C15	12.129	431554	50.807 ug/mlm
15) 17)	n-C16 i-18	13.161 0.000	435910 0	50.527 ug/mlm N.D. ug/mld
18)	n-C17	14.260	446735	50.362 ug/mlm
19)	Pristane	14.378	446725	50.515 ug/mlm
20)	n-C18	15.434	448208	51.001 ug/mlm
21) 22)	Phytane n-C19	15.597 16.668	456112 449691	50.944 ug/mlm 51.012 ug/mlm
24)	n-C20	17.944	454323	51.068 ug/mlm
25)	n-C21	19.240	457017	50.810 ug/mlm
26)	n-C22	20.540	462814	51.227 ug/mlm
27) 28)	n-C23 n-C24	21.823 23.084	462119 462171	50.801 ug/mlm 50.740 ug/mlm
29)	n-C25	24.314	466818	51.222 ug/mlm
30)	n-C26	25.511	470373	51.448 ug/mlm
31)	n-C27	26.672	457968	51.476 ug/mlm
32) 33)	n-C28 n-C29	27.796 28.890	463855 465313	51.542 ug/mlm 51.675 ug/mlm
35)	n-C30	29.947	456903	51.523 ug/mlm
36)	n-C31	30.972	449032	51.687 ug/mlm
37)	n-C32	31.968	434911	50.849 ug/mlm
38) 39)	n-C33 n-C34	32.933 33.874	423685 421994	51.159 ug/mlm 50.519 ug/mlm
40)	n-C35	34.869	408561	50.518 ug/mlm

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073G.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 03:23:38 Operator : Meghan Dailey Sample : AL-WKC5-50-019 Misc : ALS Vial : 57 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:39:27 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:35:51 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 36.001
 427630
 49.200 ug/mlm

 37.306
 393746
 50.145 ug/mlm

 38.829
 387580
 50.139 ug/mlm

 40.614
 372412
 50.024 ug/mlm

 42.721
 345664
 51.025 ug/mlm

 0.000
 0
 N.D. ug/mld

 41) n-C36 n-C37 42) n-C37 n-C38 n-C39 n-C40 TPH TRH1 TRH2 TRH3 TRH3 TRH4 TRH5 TRH6 43) 44) 45) 0 0 N.D. ug/mld 0 N.D. ug/mld 46) 0.000 47) 0 N.D. ug/mld 0.000 48) 0 N.D. ug/mld 0.000 49) 0.000 0 N.D. ug/mld 50) 0 N.D. ug/mld 51) 0.000 TRH6 0 N.D. ug/mld 52) 0.000 GRO 53) 0.000 0 N.D. ug/mld DRO RRO 0 N.D. ug/mld 0.000 54) 0 N.D. ug/mld 55) 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m)=manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M 45.721 \$19.05 678 826 906.75 100.95-TIC: FID10073G.D 698 78 \$78.65 35,933 31.968 30.972 196.947 P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ 114 62-28,890 967.75 26.672 -56.511 54314 \$3.084 21.823 20.540 19.240 \* P6 12 B1= QLast Update : Mon Aug 12 14:35:51 2013 575'21 899.91-Sample Multiplier: 1 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 092574 10-Aug-2013, 03:23:38 Quant Time: Aug 12 14:39:27 2013 13.161 906.21 15 158 Integration File: autointl.e 11.102 AL-WKC5-50-019 600.01-Meghan Dailey 628.8 FID10073G.D Integrator: ChemStation 189.7 FID2B.CH 6.229 618.4 109'8 57 .. .. •• Signal Phase Volume Inj. •• Data Path : ... Signal Info .. Data File Signal(s) 25000 10000 5000 35000 30000 20000-15000 40000 Response Operator ALS Vial Acq On Sample Misc

08BACK081213.M Mon Aug 12 14:47:18 2013 یة 202

Page: 3

60.00

55.00

50.00

45.00

40.00 660-4

35.00

30.00

25.00

20.00 D-C55

0+2-4

P-C38

150-u 960-u 960-u

4-C34

-C33

-n-C29 -n-C32 -n-C31 -n-C32 -n-C29

n-C28

1-C26

P-C25

u-C24

u-C23

120-U

610-4

อกธิเชิกๆ อกธิเชิกๆ 15.00

SID-U

\$10-U

110-4

010-4

80-u

Ó

10.00 610-U

5.00 60-u

0.00

esepe**%6**3=6

B-6decane

anesogia-n Ba-androst

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073H.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 04:34:12 Operator : Meghan Dailey Sample : AL-WKC6-100-019 Misc . ALS Vial : 58 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:44:35 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:39:35 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound \_\_\_\_\_ Internal Standards 1) I n-hexadecane-d34 16) I 5a-androstane 12.90841834850.000 ug/mlm18.14453967650.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.63875432091.028 ug/mlm23) Sn-eicosane-d4217.55473716390.109 ug/mlm34) Sn-triacontane-d6229.42371635388.574 ug/mlm 

 3.507
 722182
 90.132 ug/mlm

 4.824
 759329
 90.124 ug/mlm

 6.234
 803179
 90.562 ug/mlm

 7.586
 807832
 90.609 ug/mlm

 8.845
 829898
 89.043 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 10.015
 846199
 90.319 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.108
 869751
 89.435 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.136
 883118
 88.949 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.269
 911137
 88.670 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.387
 908737
 88.705 ug/mlm

 15.607
 924549
 89.200 ug/mlm

 15.607
 924549
 89.200 ug/mlm

 17.956
 920851
 89.249 ug/mlm

 16.679
 911938
 89.200 ug/mlm

 19.253
 923803
 88.458 ug/mlm

 20.552
 935593
 89.158 ug/mlm

 21.836
 931772
 Target Compounds 2) n-C8 3) n-C9 

 4)
 n-C10

 5)
 n-C11

 7)
 n-C12

 8)
 i-13

 9)
 i-14

 n-C13 10) i-15 11) n-C14 12) 13) i-16 n-C15 14) n-C16 15) i-18 17) n-C20 24) n-C21 25) n-C22 26) n-C23 27) n-C24 28) n-C25 29) n-C26 30) n-C27 31) n-C28 32) n-C29 33) 35) n-C30 36) n-C31 37) n-C32 38) n-C33 39) n-C34 40) n-C35

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073H.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 04:34:12 Operator : Meghan Dailey Sample : AL-WKC6-100-019 Misc : ALS Vial : 58 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 14:44:35 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:39:35 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 41) n-C36 42) n-C37 43) n-C38 44) n-C39 45) n-C40 46) TPH 47) TRH1 40) TRH1 36.02084292783.625 ug/mlm37.32477588785.305 ug/mlm38.85577073386.269 ug/mlm40.64173944285.992 ug/mlm42.75069164188.458 ug/mlm0.0000N.D. ug/mld 0 N.D. ug/mld 0.000 0 N.D. ug/mld N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld
N.D. ug/mld TRH1 TRH2 TRH3 TRH4 TRH5 TRH6 GR0 0.000 48) 0.000 49) 50) 0.000 51) 0.000 52) 0.000 53) 0.000 54) DRO 55) RRO 0.000 0.000

SemiQuant Compounds - Not Calibrated on this Instrument

(f) = RT Delta > 1/2 Window

(m) = manual int.

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Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M 45'120 149.04 38.85 37.324 36.020 TIC: FID10073H.D 34,884 33,886 35.947 846.15 780.087 -29.423 P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ +28.90¢ 21.8.72 589.92 52 25¢ 54'350 53'086 968.12 50.553 19,253 18.144 996'21 QLast Update : Mon Aug 12 14:39:35 2013 629'91-Sample Multiplier: 1 244.21-703.21-Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 10-Aug-2013, 04:34:12 1892741 Quant Time: Aug 12 14:44:35 2013 13.168 2 308 12,136 Integration File: autointl.e 801.11 AL-WKC6-100-019 S10.01 Meghan Dailey 548.8 FID10073H.D Integrator: ChemStation 989.7 FID2B.CH 6.234 4.824 3.507 58 ·· ·· • Signal Phase Volume Inj. ... ., •• .. Signal Info Data Path Data File Signal(s) 40000 80000 70000 60000 50000 30000 20000 10000 Response Operator ALS Vial Acq On Sample Misc

:08BACK081213.M Mon Aug 12 14:47:26 2013

Page: 3

60.00

55.00

50.00

45.00

40.00 660-u

35.00 960-u

30.00

25.00

15.00 ansiting

10.00

5.00 60-u 80-u

0.00

ime

205

0+0-U

P-C38

1637 960-4

P-C34

-C33

N-C28

D-C52

p-CSS

p-CS4

p-C23

anseggia-n

610-u

antistane

n-C14

110-4

010-4

B-Goxageca

anscare

Ó

.0 u-css

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073I.D Signal(s) : FID2B.CH Acg On : 10-Aug-2013, 05:44:45 Operator : Meghan Dailey Sample : AL-WKICV-25-002 Misc : ALS Vial : 59 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 12 15:02:23 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.2081.290-6.8910.001.0001.0000.0870.000.9520.997-4.7890.000.9490.983-3.6880.000.9440.996-5.5900.000.9620.995-3.4880.000.9481.014-7.0910.000.9481.014-7.0910.000.7580.762-0.5860.000.9571.003-4.8890.000.9691.043-7.6920.000.9741.033-6.1900.000.9821.041-6.0900.000.9841.041-5.8900.000.9841.041-5.8900.000.9850.9562.9830.000.9841.047-8.6930.000.9761.050-7.6920.000.9741.047-8.6920.000.9291.021-9.9930.000.9291.021-9.9930.000.9351.003-7.3910.000.9351.003-7.3910.000.9290.955-9.5920.000.929<td 16 I 5a-androstane 
 10
 1
 5a androstane

 18
 n-C17

 19
 Pristane

 20
 n-C18

 21
 Phytane

 22
 n-C19
 23 S n-eicosane-d42 24 n-C20 25 n-C21 
 25
 n-C21

 26
 n-C22

 27
 n-C23

 28
 n-C24

 29
 n-C25

 30
 n-C26

 31
 n-C27

 32
 n-C28

 33
 n-C29
 34 S n-triacontane-d62 

 34
 S
 n-tria

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

44	n-C39		0.795	0.867	-9.1	93	0.00
45	n-C40		0.722	0.818	-13.3	95	0.00
		Evaluate C	ontinuing Cal.	ibration	Report - Not	E Fo	unds
8	i-13		0.017	0.000	100.0#	0#	-9.03#
9	i-14		0.018	0.000	100.0#	0#	-9.73#
11	i-15		0.018	0.000	100.0#	0#	-10.88#
13	i-16		0.019	0.000	100.0#	0#	-11.77#
17	i-18		0.019	0.000	100.0#	0#	-13.72#
46	TPH		0.018	0.000	100.0#	0#	-29.05#
47	TRH1		0.018	0.000	100.0#	0#	-7.75#
48	TRH2		0.018	0.000	100.0#	0#	-15.92#
49	TRH3		0.018	0.000	100.0#	0#	-23.38#
50	TRH4		0.018	0.000	100.0#	0#	-28.40#
51	TRH5		0.018	0.000	100.0#	0#	-33.37#
52	TRH6		0.018	0.000	100.0#	0#	-44.83#
53	GRO		0.018	0.000	100.0#	0#	-5.27#
54	DRO		0.018	0.000	100.0#	0#	-14.31#
55	RRO		0.018	0.000	100.0#	0#	-33.00#

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

FID1C08BACK081213.M Mon Aug 12 15:02:29 2013

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073I.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 05:44:45 Operator : Meghan Dailey Sample : AL-WKICV-25-002 Misc : ALS Vial : 59 Sample Multiplier: 1 Integration File: autoint1.e Ouant Time: Aug 12 15:02:23 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) In-hexadecane-d3412.90733094250.000 ug/mlm16) I5a-androstane18.13643250550.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.63116303524.823 ug/mlm23) Sn-eicosane-d4217.54016557725.282 ug/mlm34) Sn-triacontane-d6229.40416728225.690 ug/mlm 

 3.496
 168879
 26.533 ug/mlm

 4.816
 179593
 26.844 ug/mlm

 6.227
 185126
 26.292 ug/mlm

 7.579
 189776
 26.830 ug/mlm

 8.837
 192281
 26.026 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 10.007
 196420
 26.459 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.100
 200305
 26.000 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.127
 206706
 26.276 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.257
 212692
 25.854 ug/mlm

 15.429
 215216
 26.387 ug/mlm

 15.592
 214414
 25.801 ug/mlm

 15.592
 214414
 25.811 ug/mlm

 15.592
 214414
 25.801 ug/mlm

 15.592
 214414
 25.801 ug/mlm

 16.663
 218721
 26.713 ug/mlm

 17.938
 216961
 26.252 ug/mlm

 20.533
 22302
 26.541 ug/mlm

 23.076
 222147
 Target Compounds 2) n-C8 2) n-C8 3) n-C9 4) n-C10 5) n-C11 7) n-C12 8) i-13 9) i-14 10) n-C13 11) i-15 12) n-C14 13) i-16 10) 11)1-1512)n-C1413)i-1614)n-C1515)n-C1617)i-1818)n-C1719)Pristane20)n-C1821)Phytane22)n-C1924)n-C2025)n-C2126)n-C2227)n-C2328)n-C2429)n-C2631)n-C2732)n-C2833)n-C2935)n-C3036)n-C3137)n-C3220)n-C33 11) 
 38)
 n-C33

 39)
 n-C34

 40)
 n-C35
 n-C33

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073I.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 05:44:45 Operator : Meghan Dailey Sample : AL-WKICV-25-002 Misc : ALS Vial : 59 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 15:02:23 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 

 35.988
 212254
 26.294 ug/mlm

 37.290
 196605
 27.033 ug/mlm

 38.812
 188880
 26.454 ug/mlm

 40.597
 187313
 27.289 ug/mlm

 42.701
 176284
 28.251 ug/mlm

 0.000
 0
 N.D. ug/mld

 41) n-C36 

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 50)
 TRH4

 51)
 TRH5

 52)
 TPH6

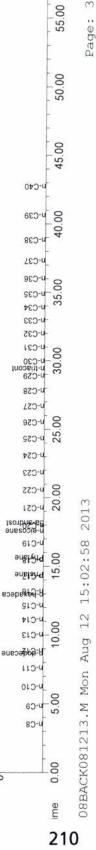
 0.000 0 N.D. ug/mld 0.000 0.000 0.000 0.000 **TRH6** 0.000 52) GRO DRO RRO 0.000 53) 0.000 54) 0.000 55)

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m) = manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M TIC: FID100731.D P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ 56.663 203.502 920.65 918 534 961.81 QLast Update : Mon Aug 12 14:55:52 2013 8E6 Z1 Sample Multiplier: 1 699.91 624.01 Sec.01 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 10-Aug-2013, 05:44:45 内花城 Quant Time: Aug 12 15:02:23 2013 15.907 12.127 Integration File: autointl.e 001.11 AL-WKICV-25-002 10.007 Meghan Dailey 758.8 Integrator: ChemStation FID100731.D 619 L FID2B.CH 6.227 918.4 59 ..... .. Signal Phase .... Volume Inj. ••• ... Signal Info 2 .. ... Data File Data Path Signal (s) 20000 Response 25000 15000 Operator ALS Vial Acq On Sample Misc



60.00

45.701

169'07

38,812 067.78

886'9

858.48

59.404

079.71

3'466

10000

5000

ò

33.866

32,925 196'18

30.965

59'640

188.85-

57,790

54 308

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\

Data File : FID10073J.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 06:55:19 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc : ALS Vial : 60 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 12 15:06:55 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 25% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(Min) Compound 10 10 n-C13 12 n-C14 14 n-C15 15 n-C16 1.2081.228-1.7860.001.0001.0000.0860.000.9520.971-2.0860.000.9490.967-1.9860.000.9440.961-1.8860.000.9620.980-1.9860.000.9480.965-1.8860.000.9480.965-1.8860.000.9570.975-1.9860.000.9570.975-1.9860.000.9690.989-2.1860.000.9740.992-1.8860.000.9821.002-2.0860.000.9841.006-2.2860.000.9851.008-2.3860.000.9891.012-2.3860.000.9761.006-3.1870.000.9740.991-5.0880.000.9641.003-4.0870.000.9641.003-4.0870.000.9290.984-5.9880.000.9290.984-5.9880.000.9350.977-4.5870.000.9350.977-4.5870.000.842<t 16 I 5a-androstane 
 18
 n-C17

 19
 Pristane

 20
 n-C18

 21
 Phytane

 22
 n-C19

 23
 S

 n-eicosane-d42
 24 n-C20 
 24
 n-C20

 25
 n-C21

 26
 n-C22

 27
 n-C23

 28
 n-C24

 29
 n-C25

 30
 n-C26

 31
 n-C27

 32
 n-C28

 33
 n-C29

 34
 5
 n-tria
 34 S n-triacontane-d62 

 34
 S
 n-tria

 35
 n-C30

 36
 n-C31

 37
 n-C32

 38
 n-C33

 39
 n-C34

 40
 n-C35

 41
 n-C36

 42
 n-C37

 43
 n-C38

45	n-C40				2.9	82	0.00
			0.722	0.705	2.4	80	0.00
		Evaluate	Continuing Cal	ibration	Report - Not	t Fo	unds
8	i-13		0.017	0.000	100.0#	0#	-9.03#
8 9	i-14		0.018	0.000	100.0#	0#	-9.73#
11	i-15		0.018	0.000	100.0#	0#	-10.88#
13	i-16		0.019	0.000	100.0#	0#	-11.77#
17	i-18		0.019	0.000	100.0#	0#	-13.72#
46	TPH		0.018	0.000	100.0#	0#	-29.05#
47	TRH1		0.018	0.000	100.0#	0#	-7.75#
48	TRH2		0.018	0.000	100.0#	0#	-15.92#
49	TRH3		0.018	0.000	100.0#	0#	-23.38#
50	TRH4		0.018	0.000	100.0#	0#	-28.40#
51	TRH5		0.018	0.000	100.0#	0#	-33.37#
52	TRH6		0.018	0.000	100.0#	0#	-44.83#
53	GRO		0.018	0.000	100.0#	0#	-5.27#
54	DRO		0.018	0.000	100.0#	0#	-14.31#
55	RRO		0.018	0.000	100.0#	0#	-33.00#

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

FID1C08BACK081213.M Mon Aug 12 15:07:00 2013

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073J.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 06:55:19 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc . ALS Vial : 60 Sample Multiplier: 1 Integration File: autoint1.e Quant Time: Aug 12 15:06:55 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound Internal Standards 1) I n-hexadecane-d34 16) I 5a-androstane 12.90732834050.000 ug/mlm18.13642703550.072 ug/mlm System Monitoring Compounds 6) Sn-dodecane-d268.63116508325.334 ug/mlm23) Sn-eicosane-d4217.54016390225.347 ug/mlm34) Sn-triacontane-d6229.40416506425.674 ug/mlm 

 3.497
 162962
 25.806 ug/mlm

 4.816
 169849
 25.588 ug/mlm

 6.227
 178929
 25.613 ug/mlm

 7.579
 179128
 25.525 ug/mlm

 8.837
 184006
 25.103 ug/mlm

 0.000
 0
 N.D. ug/mld

 0.000
 0
 N.D. ug/mld

 10.007
 187399
 25.444 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.099
 194009
 25.382 ug/mlm

 0.000
 0
 N.D. ug/mld

 11.099
 194009
 25.320 ug/mlm

 0.000
 0
 N.D. ug/mld

 12.127
 197616
 25.320 ug/mlm

 0.000
 0
 N.D. ug/mld

 14.257
 204555
 25.184 ug/mlm

 15.429
 205116
 25.471 ug/mlm

 15.592
 208514
 25.516 ug/mlm

 15.592
 208514
 25.516 ug/mlm

 16.663
 205679
 25.442 ug/mlm

 17.938
 208214
 25.516 ug/mlm

 20.532
 211817
 25.498 ug/mlm

 21.816
 211505
 Target Compounds 2) n-C8 

 3)
 n-C9

 4)
 n-C10

 5)
 n-C11

 7)
 n-C12

 8)
 i-13

 9)
 i-14

 10)
 n-C13

 11)
 i-15

 n-C9 3) 10) i-15 n-C14 11) 12) i-16 n-C15 13) 14) 15) n-C16 

 13)
 n=C16

 17)
 i=18

 18)
 n=C17

 19)
 Pristane

 20)
 n=C18

 21)
 Phytane

 22)
 n=C19

 24)
 n=C20

 n-C20 n-C21 n-C22 24) 25) 26) 27) n-C23 n-C24 n-C25 n-C26 28) 29) 30) 
 30,
 n-C26

 31)
 n-C27

 32)
 n-C28

 33)
 n-C29

 35)
 n-C30

 36)
 n-C31

 37)
 n-C32

 38)
 n-C33

 39)
 n-C34

 40)
 n-C35

Data Path : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ Data File : FID10073J.D Signal(s) : FID2B.CH Acq On : 10-Aug-2013, 06:55:19 Operator : Meghan Dailey Sample : AL-WKCC-25-024 Misc : ALS Vial : 60 Sample Multiplier: 1 Integration File: autointl.e Quant Time: Aug 12 15:06:55 2013 Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M Quant Title : C8 - C40 aliphatic QLast Update : Mon Aug 12 14:55:52 2013 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound 35.98820404625.601 ug/mlm37.29018336025.535 ug/mlm38.80517668925.064 ug/mlm40.58916458724.285 ug/mlm42.69414993624.337 ug/mlm0.0000N.D. ug/mld 41) n-C36 

 41)
 n-C36

 42)
 n-C37

 43)
 n-C38

 44)
 n-C39

 45)
 n-C40

 46)
 TPH

 47)
 TRH1

 48)
 TRH2

 49)
 TRH3

 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld 
 50)
 TRH4

 51)
 TRH5

 52)
 TRH6

 53)
 GRO

 54)
 DRO

 55)
 RRO
 0.000 0 N.D. ug/mld 0.000 0 N.D. ug/mld

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window

(m)=manual int.

Quant Method : P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\FID1C08BACK081213.M +45 694 689 07 38,805 37.290 886.35 TIC: FID10073J.D 198.45 23.863 32,923 896.15 996.06-29.404 P:\2013\J13001\ALI\MSDCHEM data\FID 1\FID10073\ -58.880 681.72-26,663 56.503 54.305 920'82 918.12 Quantitation Report 20.532 18.136 QLast Update : Mon Aug 12 14:55:52 2013 17.540 Sample Multiplier: 1 16.663 624.515.429 Response via : Initial Calibration Quant Title : C8 - C40 aliphatic 10-Aug-2013, 06:55:19 242 14 Quant Time: Aug 12 15:06:55 2013 esapeRbQ-U 19 15.907 15.127 Integration File: autointl.e 660.11 AL-WKCC-25-024 10.007 Meghan Dailey H-GdGecaue 288.8 FEGS FID10073J.D Integrator: ChemStation 629°2 FID2B.CH 6.227 918.4 3.497 60 •• •• Signal Phase Volume Inj. .. .. •• Signal Info Data Path Data File Signal(s) 20000 15000 10000 5000 ò 25000 Response ALS Vial Operator Acq On Sample Misc

60.00

55.00

50.00

45.00

40.00

35.00 u-C32

30.00

25.00

20.00 223-4

0+0-4

P-C39 950-u

150-n

960-u

4-C34

P-C33

u-C35

-n-C29 -n-C30 -n-C30

N-C28

D-C27

p-C25

p-C24

1-C23

120-u

610-4

ansigna 15.00

anteland

910-U

p-C14

110-4

010-4

60-u 80-4 10.00

5.00

0.00

ime

anseogia-n Javandrost

# **Aliphatic Mass Discrimination Ratio**

B&B Laboratories Project J13034 Report 13-3099

#### Arcadis-Mayflower AR Aliphatic Hydrocarbon and Total Petroleum Hydrocarbon Data Mass Discrimination

File Name	Sample Name	n-C20 (Area)	n-C36 (Area)	n-C36/n-C20 ratio	C
		(Alea)	(Alea)		-
FID10073C.D	AL-WKC1-1.25-019	12143	12037	0.99	
FID10073D.D	AL-WKC2-10-019	98208	97002	0.99	
FID10073E.D	AL-WKC3-25-019	243017	233923	0.96	
FID10073F.D	AL-WKC4-40-019	383571	364710	0.95	
FID10073G.D	AL-WKC5-50-019	454323	427630	0.94	
FID10073H.D	AL-WKC6-100-019	920851	842927	0.92	
FID10073I.D	AL-WKICV-25-002	216961	212254	0.98	
FID10073J.D	AL-WKCC-25-024	208214	204046	0.98	
FID10079B.D	AL-WKCC-25-024	178666	168807	0.94	
FID10079G.D	AL-WKCC-25-024	174168	166466	0.96	
FID10079H.D	AL-WKCC-25-024	182258	174521	0.96	

Qualifiers (Q): Ratio of n-C36 to n-C20 needs to be > 0.70

**Aliphatic Internal Standard Area Data** 

### B&B Laboratories Project J13034 Report 13-3099

# Arcadis-Mayflower AR Aliphatic Hydrocarbon and Total Petroleum Hydrocarbon Data Area of Internal Standards

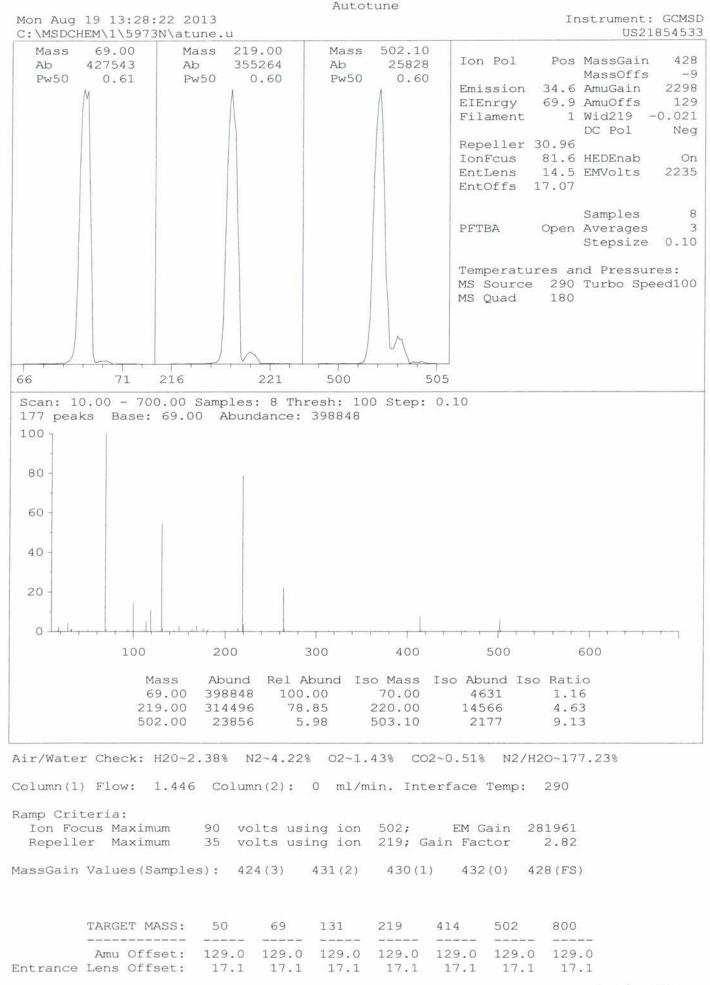
B0086003.1302	
Client Project #	

		-	n-hexadecane-d34			5a-androstane	
		Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)
21.8	AL-WKC3-25-019	383337	191669	766674	499201	249601	998402
20.8	AL-WKICV-25-002	330942	165471	661884	432505	216253	865010
123 3	AL-WKCC-25-024	328340	164170	656680	427035	213518	854070
	AL-WKCC-25-024	286461	143231	572922	363178	181589	726356
	AL-SRM2779-20-01	320383			446097		
FID10079F.D AL-V	WKPem-001	302628			388762		
FID10079G.D AL-W	VKCC-25-024	279963	139982	559926	353476	176738	706952
_	cedural Blank	273122			347809		
ENV3080B.D BI	Blank Spike	269653			344098		
ENV3080C.D Blank S	Blank Spike Duplicate	278052			356721		
ARC1765.D SED-DA	SED-DA-EB-07-080913	262044			334460		
ARC1767.D SED-	SED-DA-DI-Water	281942			360785		
ARC1769.D SED-DA	SED-DA-EB-08-081013	260209			332915		
FID10079H.D AL-W	AL-WKCC-25-024	290925	145463	581850	370603	185302	741206

### Polycyclic Aromatic Hydrocarbon Initial Calibration Data and Initial Calibration Verification Data

## PAH ICAL AR 70058.M

GC/MS 7 (PAH-2012)



Me Ti La	Method Path : C:\GCMS7\MS70058\ Method File : AR70058.M Title : PAH Calibration Table-2013A Last Update : Wed Aug 21 18:15:55 2013 Response Via : Initial Calibration Calibration Files										
Ca 1 6	=M	ation Files S70058B.D 2 =MS S70058G.D	70058C	.D 3	=MS7	0058D.1	D 4	=MS70	058E.D	5 =MS7005	8F.D
		Compound	1	2	3	4	5	6	Avg	%RSD	-
1)	т	Fluorene-d10				TOT	D				
		Naphthalene-d8	1,960	1.675	1.560	1.610	1.595	1.625	1.671	8.77	
	т	cis/trans Decalin	0.352	0.291	0.289	0.277	0.274	0.271	0.292	10.35	
	un	C1-Decalins	0.352	0.291	0.289	0.277	0.274	0.271	0.292	10.35	
		C2-Decalins									
	un	C3-Decalins	0.352	0.291	0.289	0.277	0.274	0.271	0.292	10.35	
	un	C4-Decalins Naphthalene	0.352	0.291	0.289	0.277	0.274	0.271	0.292	10.35	
	Т	Naphthalene	2.132	1.797	1.693	1.755	1.755	1.807	1.823	8.58	
	Т	2-Methylnaphth									
	T	1-Methylnaphth	1 160	1 030	1.035	0 995	1 039	1 084	1 048	6.26	
12)	Ť	2,6-Dimethylna 1,6,7-Trimethy	1 121	0 939	0.902	0.907	0 913	0 966	0 954	9 12	
13)	un	C2-Naphthalenes	2.132	1.797	1.693	1.755	1.755	1.807	1.823	8.58	
14)	un	C3-Naphthalenes	2.132	1.797	1.693	1.755	1.755	1.807	1.823	8.58	
15)	un	C4-Naphthalenes	2.132	1.797	1.693	1.755	1.755	1.807	1.823	8.58	
16)	Т	C4-Naphthalenes Benzothiophene	1.775	1.492	1.395	1.443	1.453	1.502	1.510	8.96	
17)		Cl-Benzothioph									
18)		C2-Benzothioph									
19)	un	C3-Benzothioph	1.775	1.492	1.395	1.443	1.453	1.502	1.510	8.96	
20)		C4-Benzothioph Acenaphthene-d10	1.775	1.492	1.395	1.443	1.453	1.502	1.510	8.96	
21) 22)	5 T	Acenaphthene-dio	1.146	1 507	1 429	1 490	1 502	1 549	1 525	9.30	
22)	Ť	Biphenyl Acenaphthylene Acenaphthene Dibenzofuran	1 797	1 585	1 465	1 604	1 599	1 750	1 633	7 40	
24)	T	Acenaphthene	1.234	1.038	0.966	1.000	1.005	1.042	1.047	9.11	
25)	Т	Dibenzofuran	1.973	1.718	1.635	1.722	1.708	1.753	1.752	6.59	
26)	т	Fluorene	1.527	1.321	1.255	1.312	1.323	1.333	1.345	6.93	
27)	т	1-Methylfluorene	0.854	0.702	0.651	0.689	0.688	0.743	0.721	9.92	
28)	un	C1-Fluorenes C2-Fluorenes	1.527	1.321	1.255	1.312	1.323	1.333	1.345	6.93	
29)											
30)	un	C3-Fluorenes	1.527	1.321	1.255	1.312	1.323	1.333	1.345	6.93	
31)	I	Pyrene-d10				ISTI	)				
32)		Phenanthrene-d10									
33)										3.82	
34)	1	Dibenzothiophene									
35)		4-Methyldibenz									
36)		2/3-Methyldibe 1-Methyldibenz									
37) 38)		C2-Dibenzothio									
39)		C3-Dibenzothio	1.186	1.105	1.077	1.153	1,110	1.102	1,122	3.56	
40)		C4-Dibenzothio	1.186	1.105	1.077	1.153	1.110	1.102	1.122	3.56	
41)		Phenanthrene									
42)		Anthracene									
43)		3-Methylphenan									
44)		2-Methylphenan									
45)		2-Methylanthra									
46)		4/9-Methylphen									
47)		1-Methylphenan									
48) 49)		3,6-Dimethylph Retene							0.810		
49) 50)		C2-Phenanthren									
51)		C3-Phenanthren									
52)		C4-Phenanthren									
53)		Naphthobenzoth	1.623	1.298	1.189	1.219	1.216	1.266	1.302	12.46	

		Path : C:\GCMS7\M File : AR70058.M	S70058	\						
Ti	tle	: PAH Calibrat	ion Tal	ble-20	13A					
54)	un					1.219	1.216	1.266	1.302	12.46
55)		C2-Naphthobenz								12.46
56)		C3-Naphthobenz								12.46
57)		C4-Naphthobenz								12.46
58)		Fluoranthene								9.08
59)		Pyrene	1 396	1 208	1 1/1	1 102	1 166	1 100	1.217	7.47
601	T	2-Methylfluora	0 941	0 773	0 739	0 793	0 765	0 752	0 702	9.38
61)		Benzo(b) fluorene								9.13
		C1-Fluoranthen								9.13
63)		C2-Fluoranthen								9.08
64)		C3-Fluoranthen								9.08
65)		C4-Fluoranthen								
66)										9.08
		Chrysene-d12								8.93
67)		Benz(a) anthracene								13.46
68)		Chrysene/Triph								12.19
69)	un	C1-Chrysenes	1.791	1.443	1.354	1.425	1.405	1.283	1.450	12.19
70)	un	C2-Chrysenes	1.791	1.443	1.354	1.425	1.405	1.283	1.450	12.19
71)	un	C2-Chrysenes C3-Chrysenes C4-Chrysenes	1.791	1.443	1.354	1.425	1.405	1.283	1.450	12.19
72)	un	C4-Chrysenes	1.791	1.443	1.354	1.425	1.405	1.283	1.450	12.19
73)	I	Benzo(a)pyrene-dl2	2			ISTI	)			
74)	un									
75)	un	C29-Hopane 18a-Oleanane	0.462	0.393	0.363	0.365	0.377	0.401	0 393	9.30
76)		C30-Hopane	0.462	0.393	0.363	0.365	0.377	0.401	0 393	9.30
77)		Benzo(b)fluora								11.09
78)	Т	Benzo(k,j)fluo								11.01
79)		Benzo(a) fluora								11.01
80)	Т	Benzo(e)pyrene	1.709	1.361	1 225	1 289	1 369	1 418	1 395	12.04
81)		Benzo (a) pyrene								11.26
82)		Indeno(1,2,3-c	1 914	1 573	1 443	1 522	1 619	1 726	1 633	10.22
83)		Dibenzo(a,h)an								10.22
84)		Cl-Dibenzo(a,h								10.21
85)		C2-Dibenzo(a,h								10.21
86)		C3-Dibenzo(a,h								10.21
		Benzo(g,h,i)pe								10.21
88)										
89)	о т	Perylene-d12 Perylene	1 500	1.200	1.100	1.15/	1.201	1.184	1.215	9.44
28333		F(b) U Cholono	1.583	1.2/5	1.180	1.245	1.294	1.503	1.347	11.79
90)	S	5(b)H-Cholane								11.28
91)		C20-TAS		1.500						11.87
92)		C21-TAS		1.500						11.87
				1.500						11.87
94)		C26(20R)/C27(2								11.87
		C28(20S)-TAS		1.500						11.87
96)		C27(20R)-TAS		1.500						11.87
		C28(20R)-TAS		1.500						11.87

(#) = Out of Range

- (	QT	Reviewed)	

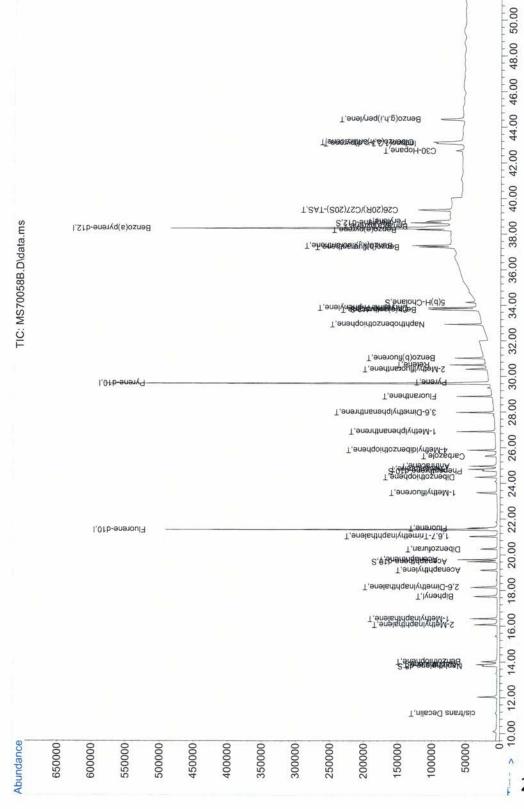
Data Path : C:\GCMS7\MS70058\ Data File : MS70058B.D Acq On : 20 Aug 2013 8:11 Operator : YM Sample : AR-WKC1-020-030 Misc : ALS Vial : 2 Sample Multipl Quant Time: Aug 21 18:08:35 20 Quant Method : C:\GCMS7\MS7005 Quant Title : PAH Calibration QLast Update : Wed Aug 21 07:5 Response via : Initial Calibra	lier: 1 013 58\AR70058 1 Table-203 52:32 2013				
Compound	R.T.	QIon	Response	Conc Uni	ts Dev(Min)
Internal Standards					
	21 200	176	506663m	251 05	0 00
31) Pyrepe-d10	29 600	212	1038061m	250 63	0.00
<ol> <li>Fluorene-d10</li> <li>Pyrene-d10</li> <li>Benzo(a)pyrene-d12</li> </ol>	38 309	254	1071576m	250.03	0.00
/s/ benzo(a/pyrene-diz	50.505	204	10/15/01	250.52	0.00
System Monitoring Compounds					
2) Naphthalene-da	13 766	136	79140m	23 89	0 00
<ol> <li>Naphthalene-d8</li> <li>Acenaphthene-d10</li> <li>Phenapthrene-d10</li> </ol>	19 616	164	46304m	23.05	0.00 0.00 0.00
32) Phenanthrene-d10	24 683	188	79566m	23.51	0.00
66) Chrysene-d12	33 770	240	119341m	22.70	0.00
88) Perviene-d12	39 619	240	122079m	23.43	0.00
88) Perylene-d12 90) 5(b)H-Cholane	24 150	204	27311m	23.52	0.00
907 5 (b) II-CHOTAILE	54.150	21/	2/51111	24.01	0.00
Target Compounds					Qvalue
3) cis/trans Decalin	11 120	138	14041m	36 56	QVALAC
4) Cl-Decalins	0 000	100	140410	JU.JU	4
5) C2-Decalins	0.000		0	N.D.	2
6) C3-Decalins	0.000		0	N.D.	2
7) CA Decaling	0.000		0	N.D.	2
<ol> <li>C4-Decalins</li> <li>Naphthalene</li> <li>2-Methylnaphthalene</li> <li>1-Methylnaphthalene</li> </ol>	12.000	100	0	N.D.	a
0) 2 Mothylpophthalona	15.850	128	86047m	23.35	
9) 2-Methylnaphthalene	16.078	142	55/56m	23.17	
10) I-Methyinaphthalene	16.413	142	52210m	23.52	
11) 2,6-Dimethylnaphthalene	18.195	156	46838m	21.93	
<ul><li>12) 1,6,7-Trimethylnaphtha</li><li>13) C2-Naphthalenes</li></ul>	. 21.037	170	45244m	23.54	
13) C2-Naphthalenes					
	0.000			N.D.	
15) C4-Naphthalenes	0.000		0	N.D.	a
16) Benzothiophene	14.017	134	71198m	23.40	-
17) Cl-Benzothiophenes	0.000		0	N.D.	
18) C2-Benzothiophenes	0.000		0	N.D.	
19) C3-Benzothiophenes	0.000		0	N.D.	
20) C4-Benzothiophenes	0.000	154	0	N.D.	a
22) Biphenyl	17.666	154	68816m	22.11	
23) Acenaphthylene	19.143	152	71965m	20.67	
24) Acenaphthene	19.728		49900m	23.81	
25) Dibenzofuran	20.313		79245m	22.71	
26) Fluorene	21.483	166	61758m	22.78	
27) 1-Methylfluorene	23.471	180	34742m	23.75	
28) Cl-Fluorenes	0.000		0	N.D.	
29) C2-Fluorenes	0.000		0	N.D.	
30) C3-Fluorenes	0.000	12/22	0	N.D.	a
33) Carbazole	25.514	167	76811m	20.15	
34) Dibenzothiophene	24.337	184	96885m	21.07	
35) 4-Methyldibenzothiophene		198	67223m	22.94	
36) 2/3-Methyldibenzothiop			0	N.D.	
37) 1-Methyldibenzothiophene			0	N.D.	
38) C2-Dibenzothiophenes	0.000		0	N.D.	
39) C3-Dibenzothiophenes	0.000		0	N.D.	
40) C4-Dibenzothiophenes	0.000		0	N.D.	d
41) Phenanthrene	24.787	178	92502m	23.04	
42) Anthracene	24.960	178	81112m	21.98	

Data Acq C Opera Sampl Misc ALS V	: Vial : 2 Sample Multiplie	er: 1			
Quant Quant QLast	Time: Aug 21 18:08:35 2013 Method : C:\GCMS7\MS70058 Title : PAH Calibration T Update : Wed Aug 21 07:52: onse via : Initial Calibrati	AR70058 able-203 32 2013			
					Conc Units Dev(Min)
		0.000		0	N.D. d
44)	2-Methylphenanthrene 2-Methylanthracene	0.000		0	N.D. d N.D. d
45)	2-Methylanthracene	0.000		0	
46)	4/9-Methylphenanthrene	0.000	100	0	N.D. d
47)	1-Methylphenanthrene 3,6-Dimethylphenanthrene Retene	26.899	192	75994m	22.56
40)	S, 6-Dimethyiphenanthiene	21.913	206	75332III 32310m	22.64
50)	C2-Phenanthrenes/Anthr	0 000	234	0	N.D. d
	입장 것이 집 것 같아. 이 것 이 것 이 것 이 것 이 것 이 것 같아. 이 것 같아. 이 것 있 것 같아. 이 집 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0.000		0	N.D. d
52)	C4-Phenanthrenes/Anthr	0.000		0	N.D.
53)	Naphthobenzothiophene	32.916	234	135305m	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D. d
	C2-Naphthobenzothiophenes			0	N.D. d
	C3-Naphthobenzothiophenes			0	N.D. d
	C4-Naphthobenzothiophenes			0	N.D. d
	Fluoranthene Pyrene			125872m 115605m	
61)	2-Methylfluoranthene Benzo(b)fluorene	31.020	216	87922m	23.86
62)	C1-Fluoranthenes/Pyrenes	0.000	220	0	N.D. d
	C2-Fluoranthenes/Pyrenes			0	N.D. d
64)	C3-Fluoranthenes/Durenes	0 000		0	N D d
65)	C4-Fluoranthenes/Pyrenes	0.000		0	N.D. d
67)	C4-Fluoranthenes/Pyrenes Benz(a)anthracene	33.731	228	99955m	21.11
68)	Chrysene/Triphenylene	33.847	228	147448m	26.15
69)	Cl-Chrysenes	0.000		0	N.D. d
	C2-Chrysenes C3-Chrysenes	0.000		0	N.D. d N.D. d
	C4-Chrysenes	0.000		0	N.D. d
	C29-Hopane	0.000		o	N.D. d
	18a-Oleanane	0.000		0	N.D. d
76)	C30-Hopane	42.672	191	39520m	21.80
	Benzo(b)fluoranthene	37.261	252	138659m	21.90
	Benzo(k,j)fluoranthene	37.339	252	151489m	22.70
	Benzo(a)fluoranthene	0.000	050	0	N.D. d
	Benzo(e)pyrene	38.231	252	145740m	24.60
	Benzo(a)pyrene Indeno(1,2,3-c,d)pyrene	38.425	252 276	129828m 161067m	23.23 22.70
	Dibenzo(a, h) anthracene	43.152	278	128636m	22.74
	C1-Dibenzo(a,h)anthrac	0.000	1911 8	0	N.D. d
	C2-Dibenzo(a,h)anthrac	0.000		0	N.D. d
	C3-Dibenzo(a,h)anthrac	0.000		0	N.D. d
87)	Benzo(g,h,i)perylene	44.442	276	145809m	23.28
	Perylene	38.697	252	135638m	23.24
	C20-TAS	0.000		0	N.D. d
	C21-TAS	0.000		0	N.D. d
	C26(20S)-TAS C26(20B)/C27(20S)-TAS	0.000	221	0	N.D. d
	C26(20R)/C27(20S)-TAS C28(20S)-TAS	39.356 0.000	231	155342m 0	23.97 ND d
	C27 (20R) - TAS	0.000		0	N.D. d N.D. d
	C28 (20R) - TAS	0.000		0	N.D. d
117222 <b>2</b> 6	energiano di Astrolationa di Astrolatica di Astrolatica				

Data Path : C:\GCMS7\MS70058\ Data File : MS70058B.D Acq On : 20 Aug 2013 8:11 am Operator : YM Sample : AR-WKC1-020-030 Misc : ALS Vial : 2 Sample Multiplier: 1 Quant Time: Aug 21 18:08:35 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 07:52:32 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed Quantitation Report (QT Reviewed)

Ч Sample Multiplier: am 21 18:08:35 2013 8:11 C:\GCMS7\MS70058\ 20 Aug 2013 8: YM AR-WKC1-020-030 MS70058B.D Time: Aug 2 •• •• •• •• .. Data Path Data File Operator ALS Vial Acq On Sample Quant Misc

Quant Time: Aug 21 18:08:35 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 07:52:32 2013 Response via : Initial Calibration



Page: 4

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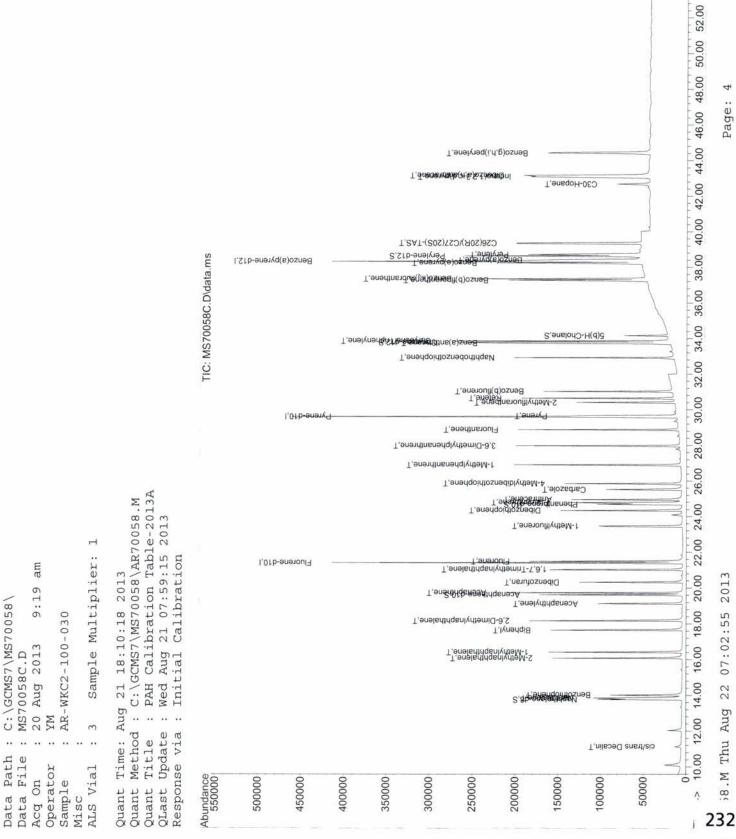
Thu Aug

(QT Reviewed)	ed)	ewed)	Re	(QT	1
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Data Path : C:\GCMS7\MS70058\ Data File : MS70058C.D Acq On : 20 Aug 2013 9:19 a Operator : YM Sample : AR-WKC2-100-030 Misc : ALS Vial : 3 Sample Multiplie Quant Time: Aug 21 18:10:18 2013	er: l					
Quant Method : C:\GCMS7\MS70058 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 07:59 Response via : Initial Calibrati	AR70058 Table-201 15 2013					
Compound	R.T.	QIon	Response	Conc Un	its	Dev(Min)
Internal Standards 1) Fluorene-d10 31) Pyrene-d10 73) Benzo(a)pyrene-d12						
System Monitoring Compounds 2) Naphthalene-d8	13.766 19.616 24.683 33.770 38.619	136 164 188 240 264	292742m 166953m 291101m 408967m	101.24 99.12 98.11 98.70 98.87		0.00 0.00 0.00 0.00 0.00
<ul> <li>7) C4-Decalins</li> <li>8) Naphthalene</li> <li>9) 2-Methylnaphthalene</li> <li>10) 1-Methylnaphthalene</li> <li>11) 2,6-Dimethylnaphthalene</li> <li>12) 1,6,7-Trimethylnaphtha</li> <li>13) C2-Naphthalenes</li> </ul>	0.000 0.000 0.000 13.850 16.078 16.413 18.168	128 142 142 156 170	0 313966m 207077m 193458m 179871m 164061m 0	N.D. N.D. N.D. 98.49 99.05 100.59 97.40	d d d d	Qvalue
<pre>20) C4-Benzothiophenes 22) Biphenyl 23) Acenaphthylene 24) Acenaphthene 25) Dibenzofuran 26) Fluorene 27) 1-Methylfluorene 28) C1-Fluorenes 29) C2-Fluorenes 30) C3-Fluorenes 33) Carbazole 34) Dibenzothiophene 35) 4-Methyldibenzothiophene 36) 2/3-Methyldibenzothiophene 38) C2-Dibenzothiophenes 39) C3-Dibenzothiophenes 40) C4-Dibenzothiophenes 41) Phenanthrene 42) Anthracene</pre>	0.000 17.638 19.115 19.728 20.313 21.483 23.471 0.000 0.000 25.514 24.337 25.860 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 24.787 24.960	154 152 154 168 166 180 167 184 198	0 260807m 274703m 181705m 298698m 231265m 123570m 0 0 294023m 366626m 231794m 0 0 0 0 0 0 325705m 292797m	N.D. 96.93 90.99 99.61 98.22 97.87 N.D. N.D. 94.76 98.00 97.48 N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D	d ddd dddd	

Data	Path : C:\GCMS7\MS70058\						
	ata File : MS70058C.D						
	Acq On : 20 Aug 2013 9:19 am						
Sample	Dperator : YM Sample : AR-WKC2-100-030						
Misc ALS V	: ial : 3 Sample Multiplie	er: 1					
Quant	Time: Aug 21 18:10:18 2013	3					
Quant	Method : C:\GCMS7\MS70058\	AR70058					
	Title : PAH Calibration T		l3A				
	Update : Wed Aug 21 07:59:						
Respo	nse via : Initial Calibrati	.on					
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)	
43)	3-Methylphenanthrene	0 000					
	2-Methylphenanthrene			0	N.D. N.D.		
45)	2-Methylanthracene	0.000		0	N.D.		
46)	4/9-Methylphenanthrene	0.000					
47)	4/9-Methylphenanthrene 1-Methylphenanthrene	26.899	192	260851m	95.13	u.	
48)	3,6-Dimethylphenanthrene	27.973	206	260708m	96.28		
	Retene			108425m			
50)	C2-Phenanthrenes/Anthr	0.000		0	N.D.	d	
	C3-Phenanthrenes/Anthr	0.000		0	N.D.		
52)	C4-Phenanthrenes/Anthr	0.000		0	N.D.		
	Naphthobenzothiophene			439523m	100.39		
54)	C1-Naphthobenzothiophenes C2-Naphthobenzothiophenes	0.000		0	N.D.	d	
55)	C2-Naphthobenzothiophenes	0.000		0	N.D.		
	C3-Naphthobenzothiophenes			0	N.D.		
	C4-Naphthobenzothiophenes			0		d	
	Fluoranthene	28.873	202	434161m 406603m	100.69		
59)	Pyrene 2-Methylfluoranthene	29.635	202	406603m	99.58		
		31.020	210	292843m 0	97.61 N.D.	4	
63)	C1-Fluoranthenes/Pyrenes	0.000		0	N.D.		
64)	C2-Fluoranthenes/Pyrenes C3-Fluoranthenes/Pyrenes	0.000		0	N.D.		
	C4-Fluoranthenes/Pyrenes			0	N.D.		
	Benz(a)anthracene			338105m			
68)	Chrysene/Triphenylene	33.847	228		103.78		
69)	C1-Chrysenes	0.000		0	N.D.	d	
	C2-Chrysenes	0.000		0	N.D.	d	
	C3-Chrysenes	0.000		0	N.D.		
	C4-Chrysenes	0.000		0	N.D.		
	C29-Hopane	0.000		0	N.D.		
	18a-Oleanane	0.000		0	N.D.	d	
	C30-Hopane	42.672	191	139283m	98.11		
	Benzo(b) fluoranthene	37.261	252	464944m	86.91		
	Benzo(k,j)fluoranthene Benzo(a)fluoranthene	37.339	252	511831m 0	90.93 N.D.	3	
	Benzo (e) pyrene	38.231	252	480777m	97.35	u	
	Benzo(a)pyrene	38.386	252		95.30		
	Indeno(1,2,3-c,d)pyrene	43.078	276		93.56		
	Dibenzo(a, h) anthracene	43.152	278	434977m	92.92		
		0.000		0	N.D.	d	
		0.000		0	N.D.		
86)	C3-Dibenzo(a,h)anthrac	0.000		0	N.D.	d	
87)	Benzo(g,h,i)perylene	44.405	276	501546m	96.88		
	Perylene	38.697	252	452563m	93.60		
	C20-TAS	0.000		0	N.D.		
	C21-TAS	0.000		0	N.D.		
	C26(20S)-TAS	0.000		0	N.D.	d	
	C26(20R)/C27(20S)-TAS	39.356	231	532142m	99.59	- 3	
	C28 (20S) - TAS	0.000		0	N.D.		
	C27 (20R) - TAS C28 (20R) - TAS	0.000		0	N.D.		
91)	(20(20K) - IAD	0.000		0	N.D.	u	

Data Path : C:\GCMS7\MS70058\ Data File : MS70058C.D Acq On : 20 Aug 2013 9:19 am Operator : YM Sample : AR-WKC2-100-030 Misc : ALS Vial : 3 Sample Multiplier: 1 Quant Time: Aug 21 18:10:18 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 07:59:15 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed



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(QT	Reviewed)	
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Data Acq C Opera Sampl Misc ALS V Quant Quant Quant	Path : C:\GCMS7\MS70058\ File : MS70058D.D On : 20 Aug 2013 10:28 a tor : YM .e : AR-WKC3-250-030 : 'ial : 4 Sample Multiplie Time: Aug 21 18:12:38 2013 Method : C:\GCMS7\MS70058\ Title : PAH Calibration D	er: 1 3 (AR70058. Table-201					
Respo	Update : Wed Aug 21 08:09: nse via : Initial Calibrati	lon					
	Compound	R.T.		Response			
1) 31)	rnal Standards	21.399 29.600	176 212	430907m 811827m	251.05 250.63		0.00
	em Monitoring Compounds						
2)	Naphthalene-d8 Acenaphthene-d10	13.766	136	669755m			
32)	Phenanthrene-d10	24.683	164 188	682740m	231.92		0.00
66)	Phenanthrene-d10 Chrysene-d12 Perylene-d12	33.770	240	912809m	228.77		0 00
88)	Perylene-d12	38.619	264	960102m	226.06		0.00
90)	5(b)H-Cholane	34.158	217	202528m	220.80		0.00
	et Compounds	243 153 5					Qvalue
	cis/trans Decalin Cl-Decalins			122590m		2	
		0.000		0	N.D. N.D.		
6)	C3-Decalins	0.000		õ	N.D.	d	
7)	C4-Decalins	0.000		0	N.D. N.D.	d	
	Naphthalene	13.850	128	726480m	232.15		
10)	2-Methylnaphthalene	16.079	142	476506m	231.91		
11)	1-Methylnaphthalene 2,6-Dimethylnaphthalene	18.168	142	421343m	234.15		
12)	1,6,7-Trimethylnaphtha	21.037	170	376705m	230.27		
13)	C2-Naphthalenes	0.000		0	N.D.		
	C3-Naphthalenes	0.000		0	N.D.	d	
	C4-Naphthalenes Benzothiophene	0.000 14.017	134	0 594900m	N.D. 229.16		
	Cl-Benzothiophenes	0.000	134	0	229.10 N.D.	d	
	C2-Benzothiophenes	0.000		0	N.D.		
	C3-Benzothiophenes	0.000		0	N.D.		
	C4-Benzothiophenes	0.000		0	N.D.	d	
	Biphenyl Acenaphthylene	17.639 19.115	154 152	611716m	231.69		
	Acenaphthene	19.115	152	623788m 415218m	210.17 231.24		
	Dibenzofuran	20.313	168	697966m	232.83		
	Fluorene	21.483	166	539754m	234.48		
	1-Methylfluorene	23.471	180	281543m	227.23		
	C1-Fluorenes C2-Fluorenes	0.000		0	N.D.		
	C3-Fluorenes	0.000		0	N.D. N.D.		
	Carbazole	25.514	167	693164m	232.52	u	
34)	Dibenzothiophene	24.337	184	859609m	238.70		
	4-Methyldibenzothiophene	25.860	198	530427m	231.87	22	
	2/3-Methyldibenzothiop	0.000		0	N.D.		
	1-Methyldibenzothiophene C2-Dibenzothiophenes	0.000		0	N.D.		
	C3-Dibenzothiophenes	0.000		0	N.D. N.D.		
	C4-Dibenzothiophenes	0.000		0	N.D.		
41)	Phenanthrene	24.787	178	742735m	233.07		
42)	Anthracene	24.960	178	696540m	240.42		

Data Path : C:\GCMS7\MS70058\ Data File : MS70058D.D Acq On : 20 Aug 2013 10:28 am Operator : YM Sample : AR-WKC3-250-030 Misc : ALS Vial : 4 Sample Multiplier: 1 Quant Time: Aug 21 18:12:38 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:09:46 2013					
Response via : Initial C Compound		QIon	Response	Conc Uni	its Dev(Min)
43) 3-Methylphenanthre			0	N.D.	
44) 2-Methylphenanthre			0	N.D.	
45) 2-Methylanthracene	0.000		0	N.D.	
46) 4/9-Methylphenanth	rene 0.000	1.0.0	0	N.D.	d
<ul> <li>46) 4/9-Methylphenanth</li> <li>47) 1-Methylphenanthre</li> <li>48) 3,6-Dimethylphenan</li> </ul>	ne 26.899	192	595269m	225.53	
48) 3,6-Dimethyiphenan 49) Retene	27.973	206	248373m	230.55	
50) C2-Phenanthrenes/A	30.639	234	248373m 0		a
51) C3-Phenanthrenes/A	nthr 0.000		0	N.D. N.D.	
52) C4-Phenanthrenes/A	nthr. 0.000		0	N.D.	u
53) Naphthobenzothioph	ene 32.916	234			
54) Cl-Naphthobenzothic	ophenes 0.000	80.5151	0	N.D.	d
55) C2-Naphthobenzothic	ophenes 0.000		0	N.D.	
56) C3-Naphthobenzothic	ophenes 0.000		0	N.D.	d
57) C4-Naphthobenzothic			0		d
58) Fluoranthene	28.873	202	990023m	238.52	
59) Pyrene 60) 2-Methylfluoranther	29.635	202	924113m	235.06	
60) 2-Methylfluoranthe	ne 30.397	216	602084m	235.49	
61) Benzo(b)fluorene	31.020	216	666525m		3
62) C1-Fluoranthenes/P	renes 0.000		0		
<ul><li>63) C2-Fluoranthenes/P</li><li>64) C3-Fluoranthenes/P</li></ul>	renes 0.000		0	N.D.	
65) C4-Fluoranthenes/P	vrenes 0.000		0	N.D. N.D.	
67) Benz(a)anthracene	33.731		704911m		u
68) Chrysene/Triphenyle				241.10	
69) Cl-Chrysenes			0		d
70) C2-Chrysenes	0.000		0	N.D.	
71) C3-Chrysenes	0.000		0	N.D.	
72) C4-Chrysenes	0.000		0	N.D.	d
74) C29-Hopane	0.000		0	N.D.	
75) 18a-Oleanane	0.000		0	N.D.	d
76) C30-Hopane	42.672		315099m	228.28	
<ul><li>77) Benzo(b)fluoranther</li><li>78) Benzo(k,j)fluoranth</li></ul>			1029925m	193.45	
79) Benzo(a)fluoranther			1129858m 0	201.93 N.D.	5
80) Benzo(e)pyrene	38.231		1059096m	218.24	a
81) Benzo(a)pyrene	38.386		1008368m		
82) Indeno(1,2,3-c,d)py			1231378m	214.73	
83) Dibenzo(a,h)anthrad			989750m	216.08	
84) Cl-Dibenzo(a,h)anth	nrac 0.000		0	N.D.	d
85) C2-Dibenzo(a,h)anth	nrac 0.000		0	N.D.	d
86) C3-Dibenzo(a,h)anth			0	N.D.	d
87) Benzo(g,h,i)peryler			1108227m	218.45	
89) Perylene	38.697	252	1025337m	217.04	-
91) C20-TAS	0.000		0	N.D.	
92) C21-TAS	0.000		0	N.D.	
93) C26(20S)-TAS	0.000		0	N.D.	a
94) C26(20R)/C27(20S)-1 95) C28(20S)-TAS	CAS 39.356 0.000	231	1154939m 0	220.39 N.D.	d
96) C27(20R)-TAS	0.000		0	N.D. N.D.	
97) C28(20R)-TAS	0.000		0	N.D.	
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Data Path : C:\GCMS7\MS70058\ Data File : MS70058D.D Acq On : 20 Aug 2013 10:28 am Operator : YM Sample : AR-WKC3-250-030 Misc : ALS Vial : 4 Sample Multiplier: 1 Quant Time: Aug 21 18:12:38 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:09:46 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

ч Sample Multiplier: 10:28 am Time: Aug 21 18:12:38 2013 C:\GCMS7\MS70058\ AR-WKC3-250-030 20 Aug 2013 YM MS70058D.D 4 •• ... .. Data Path Data File Operator ALS Vial Acq On Sample Quant Misc

Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:09:46 2013 Response via : Initial Calibration

52.00 50.00 46.00 48.00 44.00 T.enslyneq(i,d,g)osned T, อกัออออาหนะ(คเวะ 65 ก่องกาย bri C30-Hopane,T 42.00 40.00 T, 247-(202)/C27(205)-TAS, T 38.00 TIC: MS70058D.D\data.ms T,enertineroult(I,J)oznetenertineroult(d)ozne8 36.00 34.00 S, 5(b)H-Cholane, S STS4ADAMARAMATA SEAMORE CO)SA T, enerto into an addition of the transformation of transformation of the transformation of the transformation 32.00 T,enetex, T,enentinerouthythem-2 T,enerouth(d)ozne8 30.00 Pyrene-d10.1 T,anany 9 T,enerthene,T 28.00 T.enerthylphenanthrene, T.energin T,enenthrenanthrene,T 24.00 26.00 Carbazole, T.-Methyldibenzothiophene, T T, anardointoznadio T, anardointoznadio T, anardointoznadio T, anardointoznadio T, And Thorene, T 22.00 T.ənəlsrtirqqnirq<del>namr-7.3.F</del> T.ənərədQitp-ənərout3 20.00 T,nenutoznediQ T,enentrideneskelenentridenesA T.ensiyhthylene.A 16.00 18.00 T,enels/thqsnly/themid-8,S T,lynshqia T.enelshingshingshineM-1 T.enelshingshingshineM-1 14.00 S.8b-eneiteringendentozneB 10.00 12.00 T,nilsoeD enert/sio ċ Abundance 100000 700000 500000 400000 350000 300000 200000 150000 50000 650000 600000 450000 550000 250000 ٨

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Data Path : C:\GCMS7\MS70058\ Data File : MS70058E.D Acq On : 20 Aug 2013 11:37 am Operator : YM Sample : AR-WKC4-500-030 Misc : ALS Vial : 5 Sample Multiplier: 1 Quant Time: Aug 21 18:13:44 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:15:36 2013 Response via : Initial Calibration R.T. QIon Response Conc Units Dev(Min) Compound Internal Standards 1) Fluorene-d1021.399176443412m251.0531) Pyrene-d1029.600212826442m250.6373) Benzo(a)pyrene-d1238.309264877800m250.32 0.00 0.00 0.00 System Monitoring Compounds 2) Naphthalene-d813.7661361422186m483.610.0021) Acenaphthene-d1019.616164825383m483.430.0032) Phenanthrene-d1024.6831881492441m513.500.0066) Chrysene-d1233.7702401947924m479.250.0088) Perylene-d1238.6192642029180m472.970.0090) 5 (b) H-Cholane34.158217431889m466.510.00 

 Target Compounds

 3) cis/trans Decalin
 11.120
 138
 241835m
 555.03

 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
 13.822
 128
 1550197m
 481.51

 9) 2-Methylnaphthalene
 16.078
 142
 1023507m
 484.52

 10) 1-Methylnaphthalene
 16.413
 142
 948259m
 485.69

 11) 2,6-Dimethylnaphthalene
 18.168
 156
 878495m
 471.19

 12) 1,6,7-Trimethylnaphthal.
 21.037
 170
 801335m
 475.75

 13) C2-Naphthalenes
 0.000
 0
 N.D. d

 14) C3-Naphthalenes
 0.000
 0
 N.D. d

 15) C4-Naphthalenes
 0.000
 0
 N.D. d

 16) Benzothiophenes
 0.000
 0
 N.D. d

 16) C3-Benzothiophenes
 0.000
 0
 N.D. d

 20) C4-Benzothiophenes
 0.000
 0
 N.D. d
 < Target Compounds Qvalue 

 35)
 4-Methyldibenzothiopnene
 25.860
 198
 1147996m
 492.96

 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
 24.787
 178
 1608208m
 494.31

 42)
 Anthracene
 24.960
 178
 1502621m
 506.87

Data Path : C:\GCMS7\MS70058\ Data File : MS70058E.D Acq On : 20 Aug 2013 11:37 a Operator : YM Sample : AR-WKC4-500-030 Misc : ALS Vial : 5 Sample Multiplie					
Quant Time: Aug 21 18:13:44 2013 Quant Method : C:\GCMS7\MS70058 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 08:15: Response via : Initial Calibrati	AR70058 able-201 36 2013				
Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
43) 3-Methylphenanthrene	0.000		0	N.D.	d
	0.000		0	N.D.	
45) 2-Methvlanthracene	0.000		0	N.D.	
46) 4/9-Methylphenanthrene	0.000		0	N.D.	d
			1295751m		
48) 3,6-Dimethylphenanthrene					
49) Retene		234	544170m		
50) C2-Phenanthrenes/Anthr			0	N.D.	
51) C3-Phenanthrenes/Anthr			0	N.D.	a
	0.000		0	N.D.	
53) Naphthobenzothiophene 54) Cl-Naphthobenzothiophenes	0 000	234	2022788m 0	471.56 N.D.	6
55) C2-Naphthobenzothiophenes	0.000		0	N.D.	
56) C3-Naphthobenzothiophenes			0	N.D.	
57) C4-Naphthobenzothiophenes			0	N.D.	
58) Fluoranthene	28.873	202	2153106m		
59) Pyrene	29.635	202	1967106m	491.17	
60) 2-Methylfluoranthene	30.396	216	1300451m	498.91	
61) Benzo(b)fluorene	31.020	216	1459930m		
62) C1-Fluoranthenes/Pyrenes	0.000		0	N.D.	
63) C2-Fluoranthenes/Pyrenes			0	N.D.	
64) C3-Fluoranthenes/Pyrenes	0.000		0	N.D.	
<ul><li>65) C4-Fluoranthenes/Pyrenes</li><li>67) Benz(a)anthracene</li></ul>	0.000	220	0	N.D.	a
68) Chrysene/Triphenylene	33.847	228	1495624m 2334634m		
69) C1-Chrysenes	0.000	220	255405411		5
70) C2-Chrysenes	0.000		õ	N.D.	
71) C3-Chrysenes	0.000		0	N.D.	
72) C4-Chrysenes	0.000		0	N.D.	
74) C29-Hopane	0.000		0	N.D.	d
75) 18a-Oleanane	0.000		0	N.D.	d
76) C30-Hopane	42.672	191	640458m		
77) Benzo(b)fluoranthene	37.261	252			
78) Benzo(k,j)fluoranthene	37.339	252	2419524m	422.76	2
79) Benzo(a)fluoranthene	0.000	252	0	N.D.	d
<ul><li>80) Benzo(e)pyrene</li><li>81) Benzo(a)pyrene</li></ul>	38.231	252	2250416m 2130124m		
82) Indeno(1,2,3-c,d)pyrene	38.386	276			
83) Dibenzo(a,h)anthracene	43.152	278	2116435m	458.58	
	0.000	270	0	N.D.	d
	0.000		0	N.D.	
	0.000		0	N.D.	
87) Benzo(g,h,i)perylene	44.405	276	2336634m		
89) Perylene	38.697	252	2184959m	459.61	
91) C20-TAS	0.000		0	N.D.	
92) C21-TAS	0.000		0	N.D.	
93) C26(20S)-TAS	0.000		0	N.D.	d
94) C26(20R)/C27(20S)-TAS	39.356	231	2383151m	450.70	
95) C28(20S)-TAS	0.000		0	N.D.	
96) C27(20R)-TAS	0.000		0	N.D.	
97) C28(20R)-TAS	0.000		0	N.D.	a

Data Path : C:\GCMS7\MS70058\ Data File : MS70058E.D Acq On : 20 Aug 2013 11:37 am Operator : YM Sample : AR-WKC4-500-030 Misc : ALS Vial : 5 Sample Multiplier: 1 Quant Time: Aug 21 18:13:44 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:15:36 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Multiplier: 1 : 20 Aug 2013 11:37 am : YM : AR-WKC4-500-030 Data Path : C:\GCMS7\MS70058\ Data File : MS70058E.D ۰ د د Operator ALS Vial Acq On Sample Misc

Quant Time: Aug 21 18:13:44 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:15:36 2013 Response via : Initial Calibration

lata.ms	Benzo(g,h,i)penylene.T Benzo(k)fluoranthene.Benzo(k)fluoranthene.Benzo(k)fluoranthene.Benzo(k)fluoranthene.T Benzo(g)pyrene.T Benzo(g,h,i)penylene.T Benzo(g,h,i)penylene.T Benzo(g,h,i)penylene.T
IIC: MS70058E.D\data.ms	T <sup>2</sup>
-	T.enerithrenerithylphinererithy
	T.enehqointoznadig T.enehqointoznadig C.ohegegyggggggggg T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznatiolyhistenso T.enehqointoznationtoznatiolyhistenso T.enehqointoznationtezationtoznationtezationtoznationtezationtoznat
	T,lynərdylä T,ənəlertiriqeniyritəmiG-ð.S T,ənəlyfitdelitəskeantiriqenapati T,ənəlyfitdelitəskeantiriqenapati T,ənəlyfitdelitəskeantiriqenapati T,ənəlsritriqeniyritəminT-5,0,1,0,1b,ənənəula
	T. (knehdia

54.00 56.00 58.00 60.00

Data Acq O Opera Sampl Misc ALS V Quant Quant Quant QLast	Path : C:\GCMS7\MS70058\ File : MS70058F.D on : 20 Aug 2013 12:46 p tor : YM e : AR-WKC5-1000-030 : Tial : 6 Sample Multiplie Time: Aug 21 18:14:47 2013 Method : C:\GCMS7\MS70058\ Title : PAH Calibration T Update : Wed Aug 21 08:20: nse via : Initial Calibrati	er: 1 AR70058. 'able-201 59 2013					
	Compound	R.T.	QIon	Response	Conc Un	its	Dev(Min)
	rnal Standards Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12						
Syst	em Monitoring Compounds						
2) 21) 32) 66) 88)	em Monitoring Compounds Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12 5 (b) H-Cholane		264		983.46		0.00
Targ	et Compounds						Qvalue
4) 5)	cis/trans Decalin C1-Decalins C2-Decalins C3-Decalins C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene	0.000		490465m 0 0 0 3179697m	N.D. N.D.	d	
11) 12) 13)	2,6-Dimethyinaphthalene 1,6,7-Trimethylnaphtha C2-Naphthalenes	18.168 21.037 0.000	156 170	1882620m 1654942m 0	991.04 957.90 N.D.	d	
15) 16) 17)	C3-Naphthalenes C4-Naphthalenes Benzothiophene C1-Benzothiophenes C2-Benzothiophenes	0.000 0.000 13.989 0.000 0.000	134	0 0 2617710m 0 0	N.D. N.D. 957.42 N.D. N.D.	d	
19) 20) 22)	C3-Benzothiophenes C4-Benzothiophenes Biphenyl Acenaphthylene	0.000 0.000 17.639 19.115	154 152	0 0 2699873m 2874427m	N.D. N.D. 970.79 918.11	d	
25) 26) 27)	Acenaphthene Dibenzofuran Fluorene 1-Methylfluorene	19.728 20.313 21.483 23.471		1824973m 3080485m 2401650m 1255387m	971.19 986.51 960.61		
29) 30) 33)	Cl-Fluorenes C2-Fluorenes C3-Fluorenes Carbazole Dibenzothiophene	0.000 0.000 25.514 24.337	167 184	0 0 3290526m 3868836m	N.D. N.D. 1015.64 983.25	d	
35) 36) 37) 38)	4-Methyldibenzothiophene 2/3-Methyldibenzothiop 1-Methyldibenzothiophene C2-Dibenzothiophenes C3-Dibenzothiophenes	25.860 0.000 0.000 0.000 0.000	198	2347348m 0 0 0 0	939.52 N.D. N.D. N.D. N.D.	d d	
40) 41)	C4-Dibenzothiophenes Phenanthrene Anthracene	0.000 24.787 24.960	178 178	0 3264156m 3069201m	N.D. 932.84 961.88		

Data Path : C:\GCMS7\MS70058\ Data File : MS70058F.D Acq On : 20 Aug 2013 12:46 g Operator : YM Sample : AR-WKC5-1000-030 Misc : ALS Vial : 6 Sample Multiplie Quant Time: Aug 21 18:14:47 2013 Quant Method : C:\GCMS7\MS70058 Quant Title : PAH Calibration T QLast Update : Wed Aug 21 08:20: Response via : Initial Calibrati	er: 1 AR70058 Table-201 59 2013			
Compound	R.T.	QIon	Response	Conc Units Dev(Min)
<pre>43) 3-Methylphenanthrene 44) 2-Methylphenanthrene 45) 2-Methylphenanthrene 46) 4/9-Methylphenanthrene 47) 1-Methylphenanthrene 48) 3,6-Dimethylphenanthrene 48) 3,6-Dimethylphenanthrene 49) Retene 50) C2-Phenanthrenes/Anthr 51) C3-Phenanthrenes/Anthr 52) C4-Phenanthrenes/Anthr 53) Naphthobenzothiophene 54) C1-Naphthobenzothiophenes 55) C2-Naphthobenzothiophenes 56) C3-Naphthobenzothiophenes 57) C4-Naphthobenzothiophenes 58) Fluoranthene 59) Pyrene 60) 2-Methylfluoranthene 61) Benzo(b) fluorene 62) C1-Fluoranthenes/Pyrenes 63) C2-Fluoranthenes/Pyrenes 64) C3-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 65) C4-Fluoranthenes/Pyrenes 66) C4-Fluoranthenes/Pyrenes 70 Benz(a) anthracene 80 Chrysene/Triphenylene 69) C1-Chrysenes 71) C3-Chrysenes 72) C4-Chrysenes 73) 18a-Oleanane 74) C29-Hopane 75) 18a-Oleanane 76) C30-Hopane 77) Benzo(b) fluoranthene 78) Benzo(k,j) fluoranthene 79) Benzo(a) fluoranthene 79) Benzo(a) fluoranthene 79) Benzo(a) fluoranthene 70) Benzo(a) fluoranthene 71) Benzo(a) fluoranthene 72) Indeno(1,2,3-c,d) pyrene 73) Dibenzo(a,h) anthracene 74) C1-Dibenzo(a,h) anthrac 75) C2-Dibenzo(a,h) anthrac</pre>	0.000 0.000 0.000 26.899 27.973 30.639 0.000 0.000 32.916 0.000 0.000 0.000 0.000 28.873 29.635 30.397 31.020 0.000 0.	192 206 234 234 234 202 202 216 216 216 218 228 228 228 228 228 228 252 252 252	0 0 0 2670509m 2798295m 1138472m 0 0 4327441m 0 0 4327441m 0 0 4327441m 0 0 0 4441966m 4122107m 2723322m 3081019m 0 0 0 3364667m 4940132m 0 0 0 3364667m 4940132m 0 0 0 0 1298017m 4631142m 5063308m 0 4695426m 4292504m 5481033m	N.D. d N.D. d N.D. d N.D. d 926.69 982.00 867.67 N.D. d N.D. d N.D. d N.D. d N.D. d N.D. d 940.75 N.D. d N.D. d 979.87 959.44 973.71 975.89 N.D. d N.D. d N.
<ul><li>87) Benzo(g,h,i)perylene</li><li>89) Perylene</li></ul>	44.442 38.697	276 252	4851943m	
91) C20-TAS	0.000		0	N.D. d
92) C21-TAS	0.000		0	N.D. d
93) C26(20S)-TAS 94) C26(20R)/C27(20S)-TAS	0.000 39.356	231	0 4874686m	N.D. d 940.58
95) C28(20S)-TAS	0.000	~~ <del>_</del>	4074000lll 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:\GCMS7\MS70058\ Data File : MS70058F.D Acq On : 20 Aug 2013 12:46 pm Operator : YM Sample : AR-WKC5-1000-030 Misc : ALS Vial : 6 Sample Multiplier: 1 Misc Quant Time: Aug 21 18:14:47 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:20:59 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) (#) = qualifier out of range (m) = manual integration (+) = signals summed

C:\GCMS7\MS70058'

... ...

Data Path

60.00 58.00 56.00 54.00 52.00 50.00 48.00 4 Page: 46.00 44.00 T,enslyneq(i,h,p)ozne8 T.enebenimus ((be) 65 คือ biometric T,ensqoHopane,T 42.00 40.00 T.2AT-(20S)/C27(20S)-TAS,T Benzo(e)pyrene,T Perylene-d12,S Benzo(a)pyrene, L 38.00 TIC: MS70058F.D\data.ms 1,Stb-enervy(s)osnes T,enertinerouli(i,k)of Ase thread (b) of the terms of terms 36.00 34.00 S, 9nslord)-H(d)2 2.5.6hayaaayal (7).4naaqandaaca) zood T,enertothiophene,T 32.00 T,eneten T,enetinstoutityttiem-S T,enetenityttiemerenet T,enetenityttiemerenet 30.00 Pyrene,T hteue-q10'l Fluoranthene,T 28.00 T.enendthylphenanthrene16, 5 T, anandhrandhrena, T, anandhrena, T, anandhrena, T, anandhrena, T, anandhrena, T, anandhrena, T, anandhrena, T 26.00 Carbazole T 4-Methyldibenzothiophene, T : PAH Calibration Table-2013A T.anandointoznadi. Z.anandointoznadi. C:\GCMS7\MS70058\AR70058.M 24.00 Wed Aug 21 08:20:59 2013 Initial Calibration T, eneroutify diffuorene, T 22.00 Ч Sample Multiplier: Fluorene,T mq Fluorene-d10,1 20.00 Time: Aug 21 18:14:47 2013 2013 T,nenutoznediQ 12:46T,enshirkq8h9.5menthqansoA T.enslythyleneoA AR-WKC5-1000-030 16.00 18.00 07:03:15 T, Instruction T, Instruction T, Instruction T, and Instruction T, and the term of ter 20 Aug 2013 YM MS70058F.D T, enelshindsnivnest T, energy T, energ 14.00 22 2,8b-anatertation to an and the second secon 58.M Thu Aug Method : •• i. 12.00 9 QLast Update Response via Title .... T,nilsoed anent/aio 10.00 Data File Operator ALS Vial Abundance 2200000 400000 ò 600000 Acq On 3200000 3000000 200000 Sample 2800000 1800000 1400000 000000 2600000 2400000 2000000 1600000 1200000 800000 Quant Quant Quant Ą Misc 244 i

Data Path : C:\GCMS7\MS70058\ Data File : MS70058G.D Acg On : 20 Aug 2013 1:54 pm Operator : YM Sample : AR-WKC6-5000-030 Misc : ALS Vial : 7 Sample Multiplier: 1 Quant Time: Aug 21 18:15:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:27:01 2013 Response via : Initial Calibration Compound R.T. QIon Response Conc Units Dev(Min) Internal Standards 1) Fluorene-dl021.399176427820m251.0531) Pyrene-dl029.600212823180m250.6373) Benzo(a)pyrene-dl238.309264815579m250.32 0.00 0.00 0.00 System Monitoring Compounds 2) Naphthalene-d813.76613613849608m4867.870.0021) Acenaphthene-d1019.6161648171582m4952.890.0032) Phenanthrene-d1024.68318814301625m4923.520.0066) Chrysene-d1233.77024020765066m5123.060.0088) Perylene-d1238.61926419295443m4859.890.0090) 5 (b) H-Cholane34.1582174236272m4944.780.00 Target Compounds Target Compounds3) cis/trans Decalin11.1201382286079m4832.544) C1-Decalins0.0000N.D. d5) C2-Decalins0.0000N.D. d6) C3-Decalins0.0000N.D. d7) C4-Decalins0.0000N.D. d8) Naphthalene13.82212815398679m9) 2-Methylnaphthalene16.07914210145197m90) 1-Methylnaphthalene16.4131429204335m11) 2,6-Dimethylnaphthalene18.1681569234401m12) 1,6,7-Trimethylnaphthal...21.0371708234521m13) C2-Naphthalenes0.0000N.D. d Qvalue 

 12)
 1,6,7-Trimethylnaphthal...
 21.037
 170
 8234521m
 5166.88

 13)
 C2-Naphthalenes
 0.000
 0
 N.D. d

 14)
 C3-Naphthalenes
 0.000
 0
 N.D. d

 15)
 C4-Naphthalenes
 0.000
 0
 N.D. d

 16)
 Benzothiophene
 13.989
 134
 12717360m
 4944.34

 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

 21)
 Biphenyl
 17.639
 154
 13083134m
 5003.72

 23)
 Acenaphthylene
 19.115
 152
 14792152m
 5024.63

 24)
 Acenaphthylene
 19.728
 154
 895816m
 4983.31

 25)
 Dibenzofuran
 20.313
 168
 14863533m
 4980.03

 26)
 Fluorene
 21.433
 166
 11384280m
 4968.73

 27)</ 

 35)
 4-Methyldibenzothiopnene
 25.860
 198
 12580711m
 5417.58

 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
 24.787
 178
 16474671m
 5059.44

 42)
 Anthracene
 24.960
 178
 15882496m
 5342.89

Data Acq C Opera Sampl Misc ALS V Quant Quant Quant QLast	Path : C:\GCMS7\MS70058\ File : MS70058G.D on : 20 Aug 2013 1:54 p tor : YM e : AR-WKC6-5000-030 : Yial : 7 Sample Multiplie Time: Aug 21 18:15:45 2013 Method : C:\GCMS7\MS70058\ Title : PAH Calibration T Update : Wed Aug 21 08:27: onse via : Initial Calibrati	er: 1 AR70058. Cable-201 01 2013				
	Compound	R.T.	QIon	Response	Conc Un	its Dev(Min)
43)	3-Methylphenanthrene	0.000		0	N.D.	d
44)	2-Methylphenanthrene	0.000		0	N.D.	
45)	2-Methylanthracene	0.000		0	N.D.	
46)	4/9-Methylphenanthrene	0.000	100	0	N.D.	a
48)	1-Methylphenanthrene 3,6-Dimethylphenanthrene Retene	20.099	206	13846614m	5227 88	
49)	Retene	30 639	234	5234804m	4295 24	
50)	C2-Phenanthrenes/Anthr	0.000	251	0	N.D.	d
51)	C3-Phenanthrenes/Anthr	0.000		0	N.D.	
52)	C4-Phenanthrenes/Anthr	0.000		0	N.D.	
53)	Naphthobenzothiophene	32.916	234	20915744m	4893.87	
54)	C1-Naphthobenzothiophenes	0.000		0	N.D.	d
	C2-Naphthobenzothiophenes			0	N.D.	
	C3-Naphthobenzothiophenes			0	N.D.	
	C4-Naphthobenzothiophenes			0	N.D.	d
	Fluoranthene			19463309m		
				19673492m		
60)	2-Methylfluoranthene Benzo(b)fluorene	30.397	216	12459506m	4/92.96	
	C1-Fluoranthenes/Pyrenes		216	14722013m 0	5020.03 N.D.	7
	C2-Fluoranthenes/Pyrenes			0	N.D.	0.020
64)	C3-Fluoranthenes/Pyrenes	0.000				
65)	C3-Fluoranthenes/Pyrenes C4-Fluoranthenes/Pyrenes Benz(a)anthracene	0.000		0	N.D.	
67)	Benz(a) anthracene	33.731	228	19003544m	4802.89	
	Chrysene/Triphenylene			20935992m		
	C1-Chrysenes	0.000		0	N.D.	d
70)	C2-Chrysenes	0.000		0	N.D.	d
	C3-Chrysenes	0.000		0	N.D.	d
	C4-Chrysenes	0.000		0	N.D.	
	C29-Hopane	0.000		0	N.D.	
	18a-Oleanane	0.000	101	0	N.D.	d
	C30-Hopane Benzo(b)fluoranthene	42.672	191	6529229m 22798695m		
	Benzo(k,j)fluoranthene	37.261 37.339		23005309m		
	Benzo(a) fluoranthene	0.000	232	2300330511	N.D.	b
	Benzo(e)pyrene	38.231	252	23002161m		
	Benzo(a)pyrene			24032827m		
	Indeno(1,2,3-c,d)pyrene		276	27633173m	5175.07	
83)	Dibenzo(a,h)anthracene	43.152	278	22496496m	5280.22	
84)	Cl-Dibenzo(a,h)anthrac	0.000		0	N.D.	d
	C2-Dibenzo(a,h)anthrac	0.000		0	N.D.	
	C3-Dibenzo(a,h)anthrac	0.000		0	N.D.	d
	Benzo(g,h,i)perylene			23660232m		
	Perylene	38.736	252	24502635m		
	C20-TAS	0.000		0	N.D.	
	C21-TAS	0.000		0	N.D.	
	C26 (20S) - TAS C26 (20R) / C27 (20S) - TAS	0.000 39.356	221	0 25364062m	N.D.	u
	C28(20R)/C27(20S)-TAS C28(20S)-TAS	0.000	231	2536406211	N.D.	d
	C27 (20R) - TAS	0.000		0	N.D.	
	C28 (20R) - TAS	0.000		0	N.D.	
6	- A					

Data Path : C:\GCMS7\MS70058\ Data File : MS70058G.D Acq On : 20 Aug 2013 1:54 pm Operator : YM Sample : AR-WKC6-5000-030 Misc : ALS Vial : 7 Sample Multiplier: 1 Quant Time: Aug 21 18:15:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 08:27:01 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

50.00 48.00 4 Page: 46.00 44.00 T,enelyneq(i,h,g)ozne8 T,eneseritins(n,e)odratemyq(b,o-E,C,f)enebra T.aneqoHopane,T 42.00 40.00 T.26(20R)/C27(205)-TAS,T T.enerve(e) anerve(e) aner 38.00 TIC: MS70058G.D\data.ms Senzo(a)pyrene-d12,1 T, anartigenent (alasting and a solution of the solution of th 36.00 34.00 S, 9nslond-H(d)2 T,enelynerdinTle T, enertiophic to the second state of the seco 32.00 T,eneteRence(d) T,enerouff(d)ozneB 30.00 T, enertherouthyrds M-S Pyrene,T Pyrene-d10,1 T, anantheneul R 28.00 T.enendhnandhylpheanthrene, T.enendhrene, T. T,enenthrenanthrene,T 26.00 T.enenqointosnediblynteM-A T, elosed te. T PAH Calibration Table-2013A T,enerthread Diperson T,enerthead C, T,enerthead T,enerthead C, T, C:\GCMS7\MS70058\AR70058.M 24.00 Wed Aug 21 08:27:01 2013 Initial Calibration T-Methylfluorene,T 22.00 Ч Sample Multiplier: T,eneletitiqsnivfiemirT-5,0,+ T,eneletitiqsnivfiemirT-5,0,+ Fluorene-d10,1 1:54 pm Time: Aug 21 18:15:45 2013 20.00 2013 T,nshitoznadiQ T.enertingelebenentingeneoA T,enalytitylene,T C:\GCMS7\MS70058 AR-WKC6-5000-030 18.00 07:03:22 T, enels/thqsnly/temiQ-8,S T,lynshqi8 20 Aug 2013 YM 16.00 MS70058G.D T, ensishingphingphingene, T 14.00 22 \$, Shotantine ShendontozneB Thu Aug •• •• •• .. 12.00 5 QLast Update Method Response via Title .. ••• .. T,nilsoed anst/ais 10.00 Data Path Data File Operator ALS Vial 38.M Abyndance 0 1000000 1.4e+07 1.3e+07 1.2e+07 1e+07 2000000 Acq On Sample 1.6e+07 1.5e+07 0000006 8000000 0000002 6000000 5000000 4000000 3000000 1.1e+07 Quant Quant Quant Misc 4 248

60.00

58.00

00 56.

54.00

52.00

Data Path : C:\GCMS7\MS70058\ Data File : MS70058I.D Acq On : 20 Aug 2013 4:11 pm Operator : YM Sample : AR-WKICV-250-004 Misc : ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 21 19:44:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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 A	rea%	Dev(min)
1	I	Fluorene-d10	1.000	1.000	0.0	100	0.00
2	S	Naphthalene-d8	1.671	1.567	6.2	101	0.00
3	Т	cis/trans Decalin	0.292	0.319	-9.2	111	0.00
	un	C1-Decalins	0.292	0.000	100.0#		-12.32#
5	un	C2-Decalins	0.292	0.000	100.0#		-13.52#
6	un	C3-Decalins	0.292	0.000	100.0#		-15.88#
7	un	C4-Decalins	0.292	0.000	100.0#		-18.33#
8	Т	Naphthalene	1.823	2.087	-14.5	124	0.00
9	т	2-Methylnaphthalene	1.196	1.405	-17.5	127	0.00
10	т	1-Methylnaphthalene	1.109	1.303	-17.5	126	0.00
11	Т	2,6-Dimethylnaphthalene	1.048	1.223	-16.7	125	0.00
12	т	1,6,7-Trimethylnaphthalene	0.954	1.106	-15.9	127	0.00
13	un	C2-Naphthalenes	1.823	0.000	100.0#	0#	-18.89#
	un	C3-Naphthalenes	1.823	0.000	100.0#	0#	-20.37#
15	un	C4-Naphthalenes	1.823	0.000	100.0#	0#	-22.26#
16	т	Benzothiophene	1.510	1.733	-14.8	125	0.03
17	un	C1-Benzothiophenes	1.510	0.000	100.0#	0#	-15.49#
18	un	C2-Benzothiophenes	1.510	0.000	100.0#	0#	-17.92#
19	un	C3-Benzothiophenes	1.510	0.000	100.0#	0#	-20.31#
	un	C4-Benzothiophenes	1.510	0.000	100.0#	0#	-22.23#
21		Acenaphthene-d10	0.969	0.887	8.5	99	0.00
22	Т	Biphenyl	1.535	1.757	-14.5	123	0.00
23	т	Acenaphthylene	1.633	1.887	-15.6	129	0.00
24	Т	Acenaphthene	1.047	1.167	-11.5	121	0.00
	Т	Dibenzofuran	1.752	2.051	-17.1	126	0.00
	Т	Fluorene	1.345	1.537	-14.3	123	0.00
	Т	1-Methylfluorene	0.721	0.000	100.0#		-23.47#
	un	C1-Fluorenes	1.345	0.000	100.0#		-23.51#
	un	C2-Fluorenes	1.345	0.000	100.0#		-24.79#
30	un	C3-Fluorenes	1.345	0.000	100.0#	0#	-27.59#
31		Pyrene-d10	1.000	1.000	0.0	101	0.00
32	S	Phenanthrene-d10	0.885	0.856	3.3	103	0.00
	Т	Carbazole	0.917	1.049	-14.4	123	0.00
34	Т	Dibenzothiophene	1.122	1.311	-16.8	123	0.00
35	Т	4-Methyldibenzothiophene	0.708	0.000	100.0#		-25.86#
	un	2/3-Methyldibenzothiophene	0.708	0.000	100.0#		-26.21#
37	un	1-Methyldibenzothiophene	0.708	0.000	100.0#	0#	-26.52#
38	un	C2-Dibenzothiophenes	1.122	0.000	100.0#		-27.83#
	un	C3-Dibenzothiophenes	1.122	0.000	100.0#		-28.49#
	un	C4-Dibenzothiophenes	1.122	0.000	100.0#		-31.09#
41		Phenanthrene	0.993	1.139	-14.7	124	0.00
42		Anthracene	0.907	1.003	-10.6	118	0.00
	un	3-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylphenanthrene	0.816	0.000	100.0#		-26.93#
	un	2-Methylanthracene	0.816	0.000	100.0#		-26.73#
46	un	4/9-Methylphenanthrene	0.816	0.000	100.0#	0#	-26.93#

AR70058.M Thu Aug 22 07:03:57 2013

Data Path : C:\GCMS7\MS70058\ Data File : MS70058I.D Acq On : 20 Aug 2013 4:11 pm Operator : YM Sample : AR-WKICV-250-004 Misc : ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 21 19:44:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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%

47       T       1-Methylphenanthrene       0.816       0.892       -9.3       121       0.00         48       T       3,6-Dimethylphenanthrene       0.810       0.000       100.0#       0# -27.97#         49       T       Retene       0.371       0.000       100.0#       0# -27.97#         50       un       C2-Phenanthrenes/Anthracene       0.993       0.000       100.0#       0# -28.43#         51       un       C3-Phenanthrenes/Anthracene       0.993       0.000       100.0#       0# -32.06#         53       T       Naphthobenzothiophenes       1.302       0.000       100.0#       0# -34.55#         55       un       C1-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         67       un       C4-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.92#         58       T       Fluoranthene       1.295       0.000       100.0#       0# -37.42#         61       T       Benzo(b/fluorene       0.893       0.000       100.0#       0# -31.41/22       0.00         62       un       C1-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -31.0#	-		Compound	AvgRF	CCRF	%Dev A	rea%	Dev(min)
49 T       Retene       0.371       0.000       100.0#       0# -30.64#         50 un       C2-Phenanthrenes/Anthracene       0.993       0.000       100.0#       0# -29.43#         51 un       C4-Phenanthrenes/Anthracene       0.993       0.000       100.0#       0# -32.06#         51 un       C4-Phenanthrenes/Anthracene       0.993       0.000       100.0#       0# -32.06#         54 un       C1-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -32.05#         55 un       C2-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -34.55#         57 un       C4-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         57 un       C4-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         58 T       Fluoranthene       1.295       1.469       -13.4       122       0.00         59 T       Pyrene       1.217       1.431       -17.6       127       -0.03         61 T       Benzo(b) fluorene       0.893       0.000       100.0#       # -31.02#         62 un       C1-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       # -32.0F# <t< td=""><td>47</td><td>т</td><td>1-Methylphenanthrene</td><td>0.816</td><td>0.892</td><td>-9.3</td><td>121</td><td>0.00</td></t<>	47	т	1-Methylphenanthrene	0.816	0.892	-9.3	121	0.00
50 un         C2-Phenanthrenes/Anthracene         0.993         0.000         100.0#         0# -29.43#           51 un         C3-Phenanthrenes/Anthracene         0.993         0.000         100.0#         0# -22.43#           51 un         C3-Phenanthrenes/Anthracene         0.993         0.000         100.0#         0# -32.92#           54 un         C1-Napthtobenzothiophenes         1.302         0.000         100.0#         0# -33.29#           55 un         C2-Napthtobenzothiophenes         1.302         0.000         100.0#         0# -37.42#           56 un         C3-Napthtobenzothiophenes         1.302         0.000         100.0#         0# -37.42#           57 un         C4-Napthtobenzothiophenes         1.302         0.000         100.0#         0# -37.42#           58 T         Fluoranthene         0.792         0.000         100.0#         0# -30.40#           61 T         Benzo(b)fluorene         0.893         0.000         100.0#         0# -32.18#           62 un         C1-Fluoranthenes/Pyrenes         1.295         0.000         100.0#         0# -33.0#           63 un         C3-Fluoranthenes/Pyrenes         1.295         0.000         100.0#         0# -35.0#           64 S         Chrysene/T	48	Т	3,6-Dimethylphenanthrene	0.810	0.000	100.0#	0#	-27.97#
50 un         C2-Phenanthrenes/Anthracene         0.993         0.000         100.0#         0# -28.56#           51 un         C3-Phenanthrenes/Anthracene         0.993         0.000         100.0#         0# -32.05#           53 T         Naphthobenzothiophene         1.302         0.000         100.0#         0# -32.05#           54 un         C1-Naphthobenzothiophenes         1.302         0.000         100.0#         0# -33.05#           55 un         C2-Naphthobenzothiophenes         1.302         0.000         100.0#         0# -33.62#           56 un         C3-Naphthobenzothiophenes         1.302         0.000         100.0#         0# -33.02#           57 T         Pyrene         1.217         1.431         -17.6         127         -0.03           60 T         Pyrene         1.215         1.469         -13.4         122         0.00           61 T         Benzo(b)fluorene         0.990         100.0#         0# -33.04#         1.02#           62 un         C1-Fluoranthenes/Pyrenes         1.295         0.000         100.0#         0# -33.0#           64 un         C3-Fluoranthenes/Pyrenes         1.295         0.000         100.0#         0# -35.9#           65 Chrysene-d12         1.2	49	Т	Retene	0.371	0.000	100.0#	0#	-30.64#
52       un       C4-Phenanthrenes/Anthracene       0.993       0.000       100.0#       0# -32.05#         53       T       Naphthobenzothiophenes       1.302       0.000       100.0#       0# -34.55#         55       un       C2-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -36.02#         56       un       C2-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         57       un       C4-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         58       T       Fluoranthene       1.295       1.469       -13.4       127       0.00         60       T       2-Methylfluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -30.40#         61       T       Benzo(b)fluorene       0.893       0.000       100.0#       0# -31.02#         62       un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -32.18#         63       un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#         64       un       C3-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#	50	un	C2-Phenanthrenes/Anthracene	0.993	0.000	100.0#		
53 T       Naphthobenzothiophenes       1.302       0.000       100.0#       0# -32.92#         54 un       C1-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -36.02#         55 un       C2-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         56 un       C3-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         57 un       C4-Naphthobenzothiophenes       1.302       0.000       100.0#       0# -37.42#         58 T       Fluoranthene       1.295       1.469       -13.4       122       0.00         59 T       Pyrene       1.217       1.431       -17.6       127       -0.03         60 T       2-Methylfluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -33.0#         61 un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -33.0#         64 un       C3-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -33.0#         65 S       Chrysenedla       1.654       -14.1       1.24       0.00         66 S       Chrysenes       1.450       0.000       100.0#       0# -38.18#         70 un       <	51	un	C3-Phenanthrenes/Anthracene	0.993	0.000	100.0#	0#	-29.43#
54 unC1-Naphthobenzothiophenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-34.55\#$ 55 unC2-Naphthobenzothiophenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-36.02\#$ 57 unC4-Naphthobenzothiophenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-37.42\#$ 58 TFluoranthene $1.295$ $1.469$ $100.0\#$ $0\#$ $-37.42\#$ 59 TPyrene $1.217$ $1.431$ $-17.6$ $127$ $-0.03$ 60 T $2$ -Methylfluoranthene $0.792$ $0.000$ $100.0\#$ $0\#$ $-30.40\#$ 61 TBenzo(b)fluorene $0.830$ $0.000$ $100.0\#$ $0\#$ $-31.02\#$ 63 unC2-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-34.00\#$ 64 unC3-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 65 unC4-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 66 SChrysene-d12 $1.235$ $1.112$ $10.0$ $100$ $0.00$ 67 TBenzo(a)anthracene $1.450$ $1.654$ $-14.1$ $124$ $0.00$ 68 TChrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-35.83\#$ 70 unC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-39.74\#$ 73 IBenzo(a)pyrene-d12 $1.000$ $1.000$ $00$ $0.00$ $0\#$ $-42.34\#$ 75 un18a-0leanane $0.393$ $0.000$ $100.0\#$ <td< td=""><td></td><td></td><td></td><td>0.993</td><td>0.000</td><td>100.0#</td><td>0#</td><td>-32.06#</td></td<>				0.993	0.000	100.0#	0#	-32.06#
55UNC2-Naphthobenzothiophenes1.3020.000 $100.0\#$ $0\#$ $-36.02\#$ 56UNC3-Naphthobenzothiophenes1.3020.000 $100.0\#$ $0\#$ $-37.92\#$ 58TFluoranthene1.2951.469 $-13.4$ $122$ $0.00$ 59TPyrene1.2171.431 $-17.6$ $127$ $-0.03$ 60T2-Methylfluoranthene $0.792$ $0.000$ $100.0\#$ $0\#$ $-30.40\#$ 61TBenzo(b)fluorene $0.893$ $0.000$ $100.0\#$ $0\#$ $-31.02\#$ 62UNC1-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-32.18\#$ 64UNC3-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 65UNC4-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 65Chrysene-d12 $1.235$ $1.112$ $10.0$ $100$ $0.00$ 67TBenze(a) anthracene $1.450$ $1.654$ $-144.1$ $124$ $0.00$ 68TChrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-35.83\#$ 70UNC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-37.34\#$ 71INBenzo(a) pyrene-d12 $1.000$ $1.000$ $0.0$ $0\#$ $-39.74\#$ 73IBenzo(a) pyrene-d12 $1.000$ $1.000$ $0.0$ $0\#$ $-37.34\#$ 74I </td <td>53</td> <td>Т</td> <td></td> <td></td> <td>0.000</td> <td>100.0#</td> <td>0#</td> <td>-32.92#</td>	53	Т			0.000	100.0#	0#	-32.92#
56 unC3-Naphthobenzothiophenes1.3020.000 $100.0\#$ $0\#$ $-37.42\#$ 57 unC4-Naphthobenzothiophenes1.3020.000 $100.0\#$ $0\#$ $-37.42\#$ 58 TFluoranthene1.2951.469 $-13.4$ $122$ $0.00$ 59 TPyrene $1.217$ $1.431$ $-17.6$ $127$ $-0.03$ 60 T2-Methylfluoranthene $0.792$ $0.000$ $100.0\#$ $0\#$ $-30.40\#$ 61 TBenzo(b)fluorene $0.893$ $0.000$ $100.0\#$ $0\#$ $-31.02\#$ 62 unC1-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-34.00\#$ 63 unC2-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-34.00\#$ 65 unC4-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 66 SChrysene-dl2 $1.235$ $1.112$ $10.00$ $100.0\#$ $0\#$ $-35.09\#$ 70 unC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-36.99\#$ 71 unC3-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-38.11\#$ 72 unC4-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-37.34\#$ 73 IBenzo(a)pyrene-dl2 $1.000$ $1.000$ $0.00$ $0\#$ $-42.67\#$ 74 unC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-42.67\#$ 75 unI8a-Oleanane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.67$	54	un		1.302	0.000	100.0#	0#	-34.55#
57unC4-Naphthobenzothiophenes1.3020.000 $100.0\#$ $0\#$ $-37.92\#$ 58TFluoranthene $1.295$ $1.469$ $-13.4$ $122$ $0.00$ 59TPyrene $1.217$ $1.431$ $-17.6$ $127$ $-0.03$ 60T $2$ -Methylfluoranthene $0.792$ $0.000$ $100.0\#$ $0\#$ $-30.40\#$ 61TBenzo(b) fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-30.71\#$ 63unC2-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-32.18\#$ 64unC3-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 65unC3-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 66SChrysene-dl2 $1.235$ $1.112$ $10.0$ $100$ $0.00$ 67TBenz(a)anthracene $1.450$ $1.654$ $-14.1$ $124$ $0.00$ 68TChrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-35.83\#$ 70unC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-35.83\#$ 71unC3-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-38.74\#$ 72unC4-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-38.74\#$ 73IBenzo(a)pyrenedl2 $1.000$ $1.000$ $0.00$ $0\%$ $-42.34\#$ <				1.302	0.000	100.0#		
58 T       Fluoranthene       1.295       1.469       -13.4       122       0.00         59 T       Pyrene       1.217       1.431       -17.6       127       -0.03         60 T       2-Methylfluoranthene       0.792       0.000       100.0#       0#       -30.40#         61 T       Benzo(b)fluorene       0.893       0.000       100.0#       0#       -30.40#         62 un       C1-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0#       -31.02#         63 un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0#       -32.0#         64 un       C3-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0#       -35.09#         65 S       Chrysene-dl2       1.235       1.12       10.0       100       0.00         67 T       Benz(a)anthracene       1.450       1.654       -14.1       124       0.00         69 un       C1-Chrysenes       1.450       0.000       100.0#       0#       -38.1#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0#       -39.7#         71 un       C3-Chrysenes       1.450       0.000	56	un		1.302	0.000	100.0#		
59 T       Pyrene       1.217       1.431       -17.6       127       -0.03         60 T       2-Methylfluoranthene       0.792       0.000       100.0#       0# -30.40#         61 T       Benzo(b)fluorene       0.893       0.000       100.0#       0# -30.71#         62 un       C1-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -30.71#         63 un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -32.18#         64 un       C3-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#         65 un       C4-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#         66 S       Chrysene-d12       1.235       1.112       10.0       100       0.00         67 T       Benz(a) anthracene       1.450       1.654       -14.1       124       0.00         69 un       C1-Chrysenes       1.450       0.000       100.0#       0# -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0# -39.74#         73 I       Benzo(a)pyrene-d12       1.000       1.000       0.0       0# -40.28#         71 un       C3-Ch					0.000	100.0#	0#	-37.92#
60T2-Methylfluoranthene0.7920.000100.0#0# -30.40#61TBenzo(b)fluorante0.8930.000100.0#0# -31.02#62unC1-Fluoranthenes/Pyrenes1.2950.000100.0#0# -30.71#63unC2-Fluoranthenes/Pyrenes1.2950.000100.0#0# -32.18#64unC3-Fluoranthenes/Pyrenes1.2950.000100.0#0# -34.00#65unC4-Fluoranthenes/Pyrenes1.2950.000100.0#0# -35.09#66SChrysene-dl21.2351.11210.01000.0067TBenz(a) anthracene1.0181.098-7.91270.0068TChrysenes1.4500.000100.0#0# -35.83#70unC2-Chrysenes1.4500.000100.0#0# -36.99#71unC3-Chrysenes1.4500.000100.0#0# -39.74#72unC4-Chrysenes1.4500.000100.0#0# -42.34#73IBenzo(a) pyrene-dl21.0001.0000.00# -42.34#74TBenzo(a) pyrene-dl21.0001.0000.00# -42.67#74InBenzo(a) fluoranthene1.4690.000100.0#0# -42.67#75un18a-Oleanane0.3930.000100.0#0# -42.67#75un18a-Oleanane0.3930.000100.0#0# -42.67#75 <t< td=""><td></td><td></td><td></td><td>1.295</td><td>1.469</td><td>-13.4</td><td>122</td><td>0.00</td></t<>				1.295	1.469	-13.4	122	0.00
61 T       Benzo (b) fluorene       0.893       0.000       100.0#       0# -31.02#         62 un       C1-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -30.71#         63 un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -32.18#         64 un       C3-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -34.00#         65 un       C4-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#         66 S       Chrysene-d12       1.235       1.112       10.0       100       0.00         67 T       Benz(a) anthracene       1.018       1.098       -7.9       127       0.00         67 un       C2-Chrysenes       1.450       0.654       -14.1       124       0.00         69 un       C2-Chrysenes       1.450       0.000       100.0#       # -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       # -34.28#         71 un       C3-Chrysenes       1.450       0.000       100.0#       # -42.34#         73 I       Benzo(a) pyrene-d12       1.000       1.000       0.0       9 -40.28#         75 un       18a-Olea				1.217	1.431	-17.6	127	-0.03
62 un       C1-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -30.71#         63 un       C2-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -32.18#         64 un       C3-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -32.18#         65 un       C4-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#         66 S       Chrysene-dl2       1.235       1.112       10.0       100       0.00         67 T       Benz(a) anthracene       1.018       1.098       -7.9       127       0.00         68 T       Chrysene/Triphenylene       1.450       0.600       100.0#       0# -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0# -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0# -38.11#         72 un       C4-Chrysenes       1.450       0.000       100.0#       0# -42.28#         73 I       Benzo(a)pyrene-dl2       1.000       1.000       0.00       0# -42.28#         74 un       C29-Hopane       0.393       0.000       100.0#       # -42.67#         77 T       Benzo(a)pyrene <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
63 un 63 un C2-Fluoranthenes/Pyrenes1.2950.000100.0#0# -32.18#64 un 65 un 65 un C4-Fluoranthenes/Pyrenes1.2950.000100.0#0# -34.00#65 un 66 SChrysene-dl21.2351.11210.01000.0067 T 67 T 68 T 69 un 61 C1-Chrysenes1.0181.098-7.91270.0068 T 69 un 61 C1-Chrysenes1.4500.000100.0#0# -35.83#-35.83#70 un 72 C2-Chrysenes1.4500.000100.0#0# -36.99#71 un 73 I 74 un 75 un 75 un 75 un 75 un 75 un 76 T 77 T 77 Benzo(a)fluoranthene1.0001.0000.0074 un 75 un 75 un 76 T 77 T 77 Benzo(k)fluoranthene1.3501.565-15.91270.0076 T 77 T 77 Benzo(k)fluoranthene1.4691.648-12.212.10.0077 T 77 Benzo(k)fluoranthene1.4590.000100.0# 0# 0# -42.67#-42.34#76 T 77 Benzo(a)fluoranthene1.4691.648-12.212.10.0078 T 79 Benzo(a)fluoranthene1.4691.648-12.212.10.0079 un 80 T 81 Benzo(a)fluoranthene1.3631.549-11.41220.0081 T 82 D 82 D 83 D1.518-16.61270.0084 un 84 C1-Dibenzo(a,h)anthracene1.3020.000100.0#0#-48.31#85 un 85 C2-Dibenzo(a,h)anthracenes1.3020.0001						100.0#		
64 unC3-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-34.00\#$ 65 unC4-Fluoranthenes/Pyrenes $1.295$ $0.000$ $100.0\#$ $0\#$ $-35.09\#$ 66 SChrysene-dl2 $1.235$ $1.112$ $10.0$ $100$ $0.00$ 67 TBenz(a) anthracene $1.018$ $1.098$ $-7.9$ $127$ $0.00$ 68 TChrysene/Triphenylene $1.450$ $1.654$ $-14.1$ $124$ $0.00$ 69 unC1-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-35.83\#$ 70 unC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-36.99\#$ 71 unC3-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-38.11\#$ 72 unC4-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-42.28\#$ 73 IBenzo(a)pyrene-dl2 $1.000$ $1.000$ $0.0$ $0\%$ $-42.28\#$ 75 un18a-Oleanane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.67\#$ 77 TBenzo(b)fluoranthene $1.469$ $1.648$ $-12.2$ $127$ $0.00$ 78 TBenzo(a)fluoranthene $1.469$ $0.000$ $100.0\#$ $0\#$ $-37.34\#$ 80 TBenzo(a)fluoranthene $1.395$ $1.554$ $-11.4$ $122$ $0.00$ 81 TBenzo(a)pyrene $1.302$ $1.518$ $-16.6$ $127$ $0.00$ 83 TDibenzo(a,h) anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-48.31\#$ <t< td=""><td></td><td></td><td>이 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같이 가지 않는 것 같은 것 같은 것 같은 것 같이 있는 것 같이 있다.</td><td></td><td></td><td></td><td></td><td></td></t<>			이 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같이 가지 않는 것 같은 것 같은 것 같은 것 같이 있는 것 같이 있다.					
65 un       C4-Fluoranthenes/Pyrenes       1.295       0.000       100.0#       0# -35.09#         66 S       Chrysene-dl2       1.235       1.112       10.0       100       0.00         67 T       Benz(a) anthracene       1.018       1.098       -7.9       127       0.00         68 T       Chrysene/Triphenylene       1.450       1.654       -14.1       124       0.00         69 un       C1-Chrysenes       1.450       0.000       100.0#       0# -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0# -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0# -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0# -36.99#         72 un       C4-Chrysenes       1.450       0.000       100.0#       0# -37.4#         73 I       Benzo(a)pyrene-dl2       1.000       1.000       0.0       0# -42.2##         74 un       C29-Hopane       0.393       0.000       100.0#       0# -42.6#         75 un       18a-Oleanane       0.393       0.000       100.0#       0# -37.34#         76 T       Benzo(b)fluoranthene       1.469 </td <td>63</td> <td>un</td> <td></td> <td></td> <td></td> <td>100.0#</td> <td></td> <td></td>	63	un				100.0#		
66 S       Chrysene-dl2       1.235       1.112       10.0       100       0.00         67 T       Benz (a) anthracene       1.018       1.098       -7.9       127       0.00         68 T       Chrysene/Triphenylene       1.450       1.654       -14.1       124       0.00         69 un       C1-Chrysenes       1.450       0.000       100.0#       0# -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0# -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0# -38.11#         72 un       C4-Chrysenes       1.450       0.000       100.0#       0# -40.28#         73 I       Benzo(a)pyrene-dl2       1.000       1.000       0.0       96       0.00         74 un       C29-Hopane       0.393       0.000       100.0#       0# -40.28#         75 un       18a-Oleanane       0.393       0.000       100.0#       0# -42.67#         77 T       Benzo(b) fluoranthene       1.469       1.648       -12.2       121       0.00         78 T       Benzo(a) pyrene       1.395       1.554       -11.4       122       0.00         78 T       Benzo(								
67 T       Benz (a) anthracene       1.018       1.098       -7.9       127       0.00         68 T       Chrysene/Triphenylene       1.450       1.654       -14.1       124       0.00         69 un       C1-Chrysenes       1.450       0.000       100.0#       0#       -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0#       -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0#       -38.11#         72 un       C4-Chrysenes       1.450       0.000       100.0#       0#       -39.74#         73 I       Benzo(a)pyrene-d12       1.000       1.000       0.0       96       0.00         74 un       C29-Hopane       0.393       0.000       100.0#       0#       -42.34#         75 un       18a-Oleanane       0.393       0.000       100.0#       0#       -42.67#         77 T       Benzo(k) fluoranthene       1.469       1.648       -12.2       121       0.00         79 un       Benzo(a) pyrene       1.313       1.419       -81       117       -0.04         80 T       Benzo(a) pyrene       1.633       1.849       -13.2			[1] : 이상 이 것은 사용이 있는 것은				0#	-35.09#
68 T       Chrysene/Triphenylene       1.450       1.654       -14.1       124       0.00         69 un       C1-Chrysenes       1.450       0.000       100.0#       0#       -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0#       -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0#       -38.11#         72 un       C4-Chrysenes       1.450       0.000       100.0#       0#       -39.74#         73 I       Benzo(a)pyrene-d12       1.000       1.000       0.0       96       0.00         74 un       C29-Hopane       0.393       0.000       100.0#       0#       -42.34#         75 un       18a-Oleanane       0.393       0.000       100.0#       0#       -42.67#         77 T       Benzo(b)fluoranthene       1.469       1.648       -12.2       127       0.00         79 un       Benzo(a)fluoranthene       1.469       1.648       -12.2       117       0.04         80 T       Benzo(a)fluoranthene       1.469       1.648       -12.2       117       0.00         81 T       Benzo(a,h)anthracenes       1.302       1.554 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.00</td></t<>								0.00
69 un       C1-Chrysenes       1.450       0.000       100.0#       0# -35.83#         70 un       C2-Chrysenes       1.450       0.000       100.0#       0# -36.99#         71 un       C3-Chrysenes       1.450       0.000       100.0#       0# -38.11#         72 un       C4-Chrysenes       1.450       0.000       100.0#       0# -39.74#         73 I       Benzo(a)pyrene-d12       1.000       1.000       0.0       96       0.00         74 un       C29-Hopane       0.393       0.000       100.0#       0# -40.28#         75 un       18a-Oleanane       0.393       0.000       100.0#       0# -42.34#         76 T       C30-Hopane       0.393       0.000       100.0#       0# -42.67#         77 T       Benzo(b)fluoranthene       1.369       1.648       -12.2       121       0.00         79 un       Benzo(a)fluoranthene       1.469       1.648       -12.2       121       0.00         80 T       Benzo(a)fluoranthene       1.313       1.419       -8.1       117       -0.04         82 T       Indeno(1,2,3-c,d)pyrene       1.302       1.554       -11.4       122       0.00         83 T       Dibenzo(a,				1.018				
70unC2-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-36.99\#$ 71unC3-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-38.11\#$ 72unC4-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-39.74\#$ 73IBenzo(a) pyrene-d12 $1.000$ $1.000$ $0.00$ $0\#$ $-40.28\#$ 74unC29-Hopane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.28\#$ 75un18a-Oleanane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.67\#$ 76TC30-Hopane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.67\#$ 77TBenzo(b) fluoranthene $1.469$ $1.648$ $-12.2$ $121$ $0.00$ 78TBenzo(a) pyrene $1.395$ $1.554$ $-11.4$ $122$ $0.00$ 81TBenzo(a) pyrene $1.331$ $1.419$ $-8.1$ $117$ $-0.04$ 82TIndeno(1,2,3-c,d) pyrene $1.302$ $1.518$ $-16.6$ $127$ $0.00$ 83TDibenzo(a,h) anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-51.23\#$ 85unC2-Dibenzo(a,h) anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-51.23\#$ 86unC3-Dibenzo(a,h) anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-51.23\#$ 86unC3-Dibenzo(a,h) anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-51.23\#$ <								
71 unC3-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-38.11\#$ 72 unC4-Chrysenes $1.450$ $0.000$ $100.0\#$ $0\#$ $-39.74\#$ 73 IBenzo(a)pyrene-dl2 $1.000$ $1.000$ $0.00\#$ $0\#$ $-39.74\#$ 73 IBenzo(a)pyrene-dl2 $1.000$ $1.000$ $0.00\#$ $0\#$ $-42.34\#$ 75 un18a-Oleanane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.34\#$ 76 TC30-Hopane $0.393$ $0.000$ $100.0\#$ $0\#$ $-42.67\#$ 77 TBenzo(b)fluoranthene $1.350$ $1.565$ $-15.9$ $127$ $0.00$ 78 TBenzo(a)fluoranthene $1.469$ $1.648$ $-12.2$ $121$ $0.00$ 79 unBenzo(a)fluoranthene $1.469$ $1.648$ $-12.2$ $121$ $0.00$ 81 TBenzo(a)fluoranthene $1.395$ $1.554$ $-11.4$ $122$ $0.00$ 81 TBenzo(a)fluoranthene $1.302$ $1.518$ $-16.6$ $127$ $0.00$ 83 TDibenzo(a,h)anthracene $1.302$ $1.518$ $-16.6$ $127$ $0.00$ 84 unC1-Dibenzo(a,h)anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-51.23\#$ 85 unC2-Dibenzo(a,h)anthracenes $1.302$ $0.000$ $100.0\#$ $0\#$ $-51.23\#$ 87 TBenzo(g,h,i)perylene $1.444$ $1.648$ $-14.1$ $123$ $-0.04$ 88 SPerylene-dl2 $1.215$ $1.128$ $7.2$ $98$ $0.00$								
72 unC4-Chrysenes1.4500.000100.0#0# -39.74#73 IBenzo(a)pyrene-dl21.0001.0000.0960.0074 unC29-Hopane0.3930.000100.0#0# -40.28#75 un18a-Oleanane0.3930.000100.0#0# -42.34#76 TC30-Hopane0.3930.000100.0#0# -42.67#77 TBenzo(b)fluoranthene1.3501.565-15.91270.0078 TBenzo(a)fluoranthene1.4690.000100.0#0# -37.34#80 TBenzo(a)fluoranthene1.4690.000100.0#0# -37.34#80 TBenzo(a)pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -50.30#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-dl21.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.00								
73 I       Benzo(a)pyrene-dl2       1.000       1.000       0.0       96       0.00         74 un       C29-Hopane       0.393       0.000       100.0#       0# -40.28#         75 un       18a-Oleanane       0.393       0.000       100.0#       0# -42.34#         76 T       C30-Hopane       0.393       0.000       100.0#       0# -42.67#         77 T       Benzo(b)fluoranthene       1.350       1.565       -15.9       127       0.00         78 T       Benzo(a)fluoranthene       1.469       1.648       -12.2       121       0.00         79 un       Benzo(a)fluoranthene       1.469       0.000       100.0#       0# -37.34#         80 T       Benzo(a)pyrene       1.313       1.419       -8.1       117       -0.04         81 T       Benzo(a,h)anthracene       1.302       1.518       -16.6       127       0.00         83 T       Dibenzo(a,h)anthracenes       1.302       0.000       100.0#       0# -48.31#         85 un       C2-Dibenzo(a,h)anthracenes       1.302       0.000       100.0#       0# -50.30#         86 un       C3-Dibenzo(a,h)anthracenes       1.302       0.000       100.0#       0# -51.23#								
74 unC29-Hopane0.3930.000100.0#0# -40.28#75 un18a-Oleanane0.3930.000100.0#0# -42.34#76 TC30-Hopane0.3930.000100.0#0# -42.67#77 TBenzo(b)fluoranthene1.3501.565-15.91270.0078 TBenzo(k,j)fluoranthene1.4691.648-12.21210.0079 unBenzo(a)fluoranthene1.4690.000100.0#0# -37.34#80 TBenzo(e)pyrene1.3951.554-11.41220.0081 TBenzo(a)pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3020.000100.0#0# -48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -50.30#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0# -33.30#	72	un	C4-Chrysenes	1.450	0.000	100.0#	0#	-39.74#
74 unC29-Hopane0.3930.000100.0#0# -40.28#75 un18a-Oleanane0.3930.000100.0#0# -42.34#76 TC30-Hopane0.3930.000100.0#0# -42.67#77 TBenzo(b)fluoranthene1.3501.565-15.91270.0078 TBenzo(k,j)fluoranthene1.4691.648-12.21210.0079 unBenzo(a)fluoranthene1.4690.000100.0#0# -37.34#80 TBenzo(e)pyrene1.3951.554-11.41220.0081 TBenzo(a)pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3020.000100.0#0# -48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -50.30#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0# -33.30#	73	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	96	0.00
75 un18a-Oleanane0.3930.000100.0#0# -42.34#76 TC30-Hopane0.3930.000100.0#0# -42.67#77 TBenzo(b) fluoranthene1.3501.565-15.91270.0078 TBenzo(k,j) fluoranthene1.4691.648-12.21210.0079 unBenzo(a) fluoranthene1.4690.000100.0#0# -37.34#80 TBenzo(e) pyrene1.3131.419-8.1117-0.0481 TBenzo(a) pyrene1.6331.849-13.21230.0083 TDibenzo(a,h) anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h) anthracenes1.3020.000100.0#0# -48.31#85 unC2-Dibenzo(a,h) anthracenes1.3020.000100.0#0# -50.30#86 unC3-Dibenzo(a,h) anthracenes1.3020.000100.0#0# -51.23#87 TBenzo(g,h,i) perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b) H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0# -33.30#	74	un	C29-Hopane	0.393	0.000	100.0#	0#	-40.28#
77 TBenzo(b)fluoranthene1.3501.565-15.91270.0078 TBenzo(k,j)fluoranthene1.4691.648-12.21210.0079 unBenzo(a)fluoranthene1.4690.000100.0#0#-37.34#80 TBenzo(e)pyrene1.3951.554-11.41220.0081 TBenzo(a)pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	75	un	18a-Oleanane	0.393	0.000	100.0#		
78 TBenzo(k,j)fluoranthene1.4691.648-12.21210.0079 unBenzo(a)fluoranthene1.4690.000100.0#0#-37.34#80 TBenzo(e)pyrene1.3951.554-11.41220.0081 TBenzo(a)pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	76	т	C30-Hopane	0.393	0.000	100.0#		
79 unBenzo(a) fluoranthene1.4690.000100.0#0#-37.34#80 TBenzo(e) pyrene1.3951.554-11.41220.0081 TBenzo(a) pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d) pyrene1.6331.849-13.21230.0083 TDibenzo(a,h) anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h) anthracenes1.3020.000100.0#0#-48.31#85 unC2-Dibenzo(a,h) anthracenes1.3020.000100.0#0#-50.30#86 unC3-Dibenzo(a,h) anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i) perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b) H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	77	Т	Benzo(b)fluoranthene	1.350	1.565	-15.9	127	0.00
80 TBenzo(e)pyrene1.3951.554-11.41220.0081 TBenzo(a)pyrene1.3131.419-8.1117-0.0482 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	78	Т	Benzo(k,j)fluoranthene	1.469	1.648	-12.2	121	0.00
81 T       Benzo(a) pyrene       1.313       1.419       -8.1       117       -0.04         82 T       Indeno(1,2,3-c,d) pyrene       1.633       1.849       -13.2       123       0.00         83 T       Dibenzo(a,h) anthracene       1.302       1.518       -16.6       127       0.00         84 un       C1-Dibenzo(a,h) anthracenes       1.302       0.000       100.0#       0# -48.31#         85 un       C2-Dibenzo(a,h) anthracenes       1.302       0.000       100.0#       0# -50.30#         86 un       C3-Dibenzo(a,h) anthracenes       1.302       0.000       100.0#       0# -51.23#         87 T       Benzo(g,h,i) perylene       1.444       1.648       -14.1       123       -0.04         88 S       Perylene-d12       1.215       1.128       7.2       98       0.00         89 T       Perylene       1.347       1.481       -9.9       121       -0.04         90 S       5(b)H-Cholane       0.262       0.232       11.5       96       0.00         91 un       C20-TAS       1.496       0.000       100.0#       0# -33.30#	79	un	Benzo(a)fluoranthene	1.469	0.000	100.0#	0#	-37.34#
82 TIndeno(1,2,3-c,d)pyrene1.6331.849-13.21230.0083 TDibenzo(a,h)anthracene1.3021.518-16.61270.0084 unC1-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -50.30#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0# -33.30#	80	Т	Benzo(e)pyrene	1.395	1.554	-11.4	122	0.00
83 T       Dibenzo(a,h)anthracene       1.302       1.518       -16.6       127       0.00         84 un       C1-Dibenzo(a,h)anthracenes       1.302       0.000       100.0#       0#       -48.31#         85 un       C2-Dibenzo(a,h)anthracenes       1.302       0.000       100.0#       0#       -50.30#         86 un       C3-Dibenzo(a,h)anthracenes       1.302       0.000       100.0#       0#       -51.23#         87 T       Benzo(g,h,i)perylene       1.444       1.648       -14.1       123       -0.04         88 S       Perylene-dl2       1.215       1.128       7.2       98       0.00         89 T       Perylene       1.347       1.481       -9.9       121       -0.04         90 S       5(b)H-Cholane       0.262       0.232       11.5       96       0.00         91 un       C20-TAS       1.496       0.000       100.0#       0#       -33.30#	81	Т	Benzo(a)pyrene	1.313	1.419	-8.1	117	-0.04
84 unC1-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -48.31#85 unC2-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -50.30#86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0# -51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0# -33.30#	82	Т	Indeno(1,2,3-c,d)pyrene	1.633	1.849	-13.2	123	0.00
85 unC2-Dibenzo(a,h) anthracenes1.3020.000100.0#0#-50.30#86 unC3-Dibenzo(a,h) anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-dl21.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b) H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	83	Т	Dibenzo(a,h)anthracene	1.302	1.518	-16.6	127	
86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	84	un	C1-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#	0#	
86 unC3-Dibenzo(a,h)anthracenes1.3020.000100.0#0#-51.23#87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	85	un	C2-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#	0#	-50.30#
87 TBenzo(g,h,i)perylene1.4441.648-14.1123-0.0488 SPerylene-dl21.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	86	un	C3-Dibenzo(a,h)anthracenes	1.302	0.000	100.0#		
88 SPerylene-d121.2151.1287.2980.0089 TPerylene1.3471.481-9.9121-0.0490 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	87	т	Benzo(g,h,i)perylene	1.444		-14.1		
89 T         Perylene         1.347         1.481         -9.9         121         -0.04           90 S         5(b)H-Cholane         0.262         0.232         11.5         96         0.00           91 un         C20-TAS         1.496         0.000         100.0#         0# -33.30#							98	
90 S5(b)H-Cholane0.2620.23211.5960.0091 unC20-TAS1.4960.000100.0#0#-33.30#	89	т					121	
91 un C20-TAS 1.496 0.000 100.0# 0# -33.30#	90	S	5(b)H-Cholane	0.262	0.232		96	0.00
			C20-TAS	1.496	0.000	100.0#	0#	-33.30#
	92	un	C21-TAS	1.496	0.000	100.0#		

Data Path : C:\GCMS7\MS70058\ Data File : MS70058I.D Acq On : 20 Aug 2013 4:11 pm Operator : YM Sample : AR-WKICV-250-004 ; Misc ALS Vial : 9 Sample Multiplier: 1 Quant Time: Aug 21 19:44:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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
 1.496
 0.000
 100.0#
 0# -38.70#

 94 T
 C26(20R)/C27(20S)-TAS
 1.496
 0.000
 100.0#
 0# -39.36#

 95 un
 C28(20S)-TAS
 1.496
 0.000
 100.0#
 0# -40.24#

 96 un
 C27(20R)-TAS
 1.496
 0.000
 100.0#
 0# -41.09#

 97 un
 C28(20R)-TAS
 1.496
 0.000
 100.0#
 0# -41.42#

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Acq O Opera Sampl Misc ALS V Quant Quant Quant	<pre>Path : C:\GCMS7\MS70058\ File : MS70058I.D On : 20 Aug 2013 4:11 p tor : YM .e : AR-WKICV-250-004</pre>	er: 1 AR70058. Cable-201				
Respo	nse via : Initial Calibrati	.on				
	Compound					s Dev(Min)
Inte	rnal Standards					
1)	Fluorene-d10 Pyrene-d10 Benzo(a)pyrene-d12	21.399	176	432645m	251.05	0.00
31)	Pyrene-d10	29.600	212	820890m	250.63	0.00
73)	Benzo(a)pyrene-d12	38.309	264	836417m	250.32	0.00
Syst	em Monitoring Compounds					
2)	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12	13.767	136	675423m	234.59	0.00
21)	Acenaphthene-d10	19.616	164	382324m	229.03	0.00
32)	Phenanthrene-d10	24.683	188	701341m	241.89	0.00
66)	Chrysene-dl2	33.770	240	910527m	225.08	0.00
90)	Perylene-d12 5(b)H-Cholane	34.158				0.00
507	5 (b) il chotalle	J4.130	211	1937111	221.12	0.00
	et Compounds					Qvalue
	cis/trans Decalin	11.120	138			
10	C1-Decalins	0.000 0.000 0.000		0 0 0	N.D. d	
	C2-Decalins	0.000		0	N.D. d	
6)	C3-Decalins	0.000		0	N.D. d	
/)	C4-Decalins Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene	0.000	100	0	N.D. d	
9)	2-Methylnaphthalene	16 079	142	605774m	286.14	
10)	1-Methylnaphthalene	16 413	142	560997m	293.99	
11)	2,6-Dimethylnaphthalene	18,168	156	527039m	291.75	
	1,6,7-Trimethylnaphtha			476600m		
	C2-Naphthalenes	0.000		0	N.D.	
14)	C3-Naphthalenes	0.000		0	N.D. d	
	C4-Naphthalenes	0.000		0	N.D.	
	Benzothiophene	14.017	134	742311m	285.31	
	C1-Benzothiophenes	0.000		0	N.D. d	
	C2-Benzothiophenes	0.000		0	N.D. d	
	C3-Benzothiophenes C4-Benzothiophenes	0.000		0	N.D. d	
	Biphenyl	0.000 17.639	154	0 750363m	N.D. d 283.71	
	Acenaphthylene	19.115	152	806414m	286.47	
	Acenaphthene	19.728	154	503879m	279.14	
	Dibenzofuran	20.313	168	879285m	291.28	
26)	Fluorene	21.483	166	663417m	286.16	
27)	1-Methylfluorene	0.000		0	N.D. d	
	C1-Fluorenes	0.000		0	N.D. d	
	C2-Fluorenes	0.000		0	N.D. d	
	C3-Fluorenes	0.000		0	N.D. d	
	Carbazole	25.514	167	851274m	283.56	
	Dibenzothiophene	24.337	184	1058594m	288.03	
	4-Methyldibenzothiophene	0.000		0	N.D. d	
	2/3-Methyldibenzothiop 1-Methyldibenzothiophene	0.000		0	N.D. d	
	C2-Dibenzothiophenes	0.000		0	N.D. d N.D. d	
	C3-Dibenzothiophenes	0.000		0	N.D. d	
	C4-Dibenzothiophenes	0.000		0	N.D. d	
	Phenanthrene	24.787	178	924154m	284.19	
	Anthracene	24.960	178	823793m	277.42	

Data Path : C:\GCMS7\MS70058\ Data File : MS70058I.D Acq On : 20 Aug 2013 4:11 pm Operator : YM Sample : AR-WKICV-250-004 Misc <u>ت</u> ALS Vial : 9 Sample Multiplier: 1 Quant Time: Aug 21 19:44:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 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-Methylphenanthrene
 0.000
 0
 N.D. d

 46) 4/9-Methylphenanthrene
 0.000
 0
 N.D. d

 47) 1-Methylphenanthrene
 26.899
 192
 722058m
 270.28

 48) 3, 6-Dimethylphenanthrene
 0.000
 0
 N.D. d

 49) Retene
 0.000
 0
 N.D. d

 50) C2-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 51) C3-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 52) C4-Phenanthrenes/Anthr...
 0.000
 0
 N.D. d

 53) Naphthobenzothiophene
 0.000
 0
 N.D. d

 54) C1-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 55) C2-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 56) C3-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 57) C4-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 58) Fluoranthene
 28.873
 202
 1204071m
 283.81

 ------

 5)
 C2 Naphthobenzothiophenes
 0.000
 0
 N.D. d

 56)
 C3-Naphthobenzothiophenes
 0.000
 0
 N.D. d

 58)
 Fluoranthene
 28.873
 202
 1204071m
 283.81

 59)
 Pyrene
 29.635
 202
 1171625m
 293.93

 60)
 2-Methylfluoranthene
 0.000
 0
 N.D. d

 61)
 Benzo(b) fluorene
 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
 33.731
 228
 897675m
 269.14

 68)
 Chrysenes
 0.000
 0
 N.D. d
 70

 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

 73)
 Benzo(k,j)fluoranthene
 37.32
 252

Data Path : C:\GCMS7\MS70058\ Data File : MS70058I.D Acq On : 20 Aug 2013 4:11 pm Operator : YM Sample : AR-WKICV-250-004 Misc : ALS Vial : 9 Sample Multiplier: 1 Quant Time: Aug 21 19:44:45 2013 Quant Method : C:\GCMS7\MS70058\AR70058.M Quant Title : PAH Calibration Table-2013A QLast Update : Wed Aug 21 18:15:55 2013 Response via : Initial Calibration (#) = qualifier out of range (m) = manual integration (+) = signals summed

54.00 52.00 50.00 46.00 48.00 4 44.00 T,enelyneq(i,h,g)ozne8 T,อกอร์เลทศาสตุฟระวิจริกัยสัญญาอbril-40.00 42.00 38.00 Beltananenenenenenen Perylene. T. Perylene. T. Perylene, Perylene, Perylene, Perylene. T. Peryle TIC: MS70058I.D\data.ms T.enettneroufl(i,j)fluoranthenedEnzo(k,j)fluoranthene.T 36.00 34.00 S.enslord)-H(d)2 T,enslynendrin Fisherserander 32.00 30.00 1,01b-energe T, Pyrene-d10,1 Fluoranthene,T 28.00 T.enendnandnene.T. 24.00 26.00 T, elosed a Carbazole, T PAH Calibration Table-2013A T. Sn Shitter and the shifter of the state o C:\GCMS7\MS70058\AR70058.M T, enerto thiophenerul : Wed Aug 21 18:15:55 2013 : Initial Calibration 22.00 r-I Sample Multiplier: Calibration Fluorene,T T,eneleritraenivritemit-7,0,1 md 20.00 2013 Time: Aug 21 19:44:45 2013 T,nshutosnediQ 4:11T.enerthigeneood S.01b-enerthigeneood T, analyhthylenacA C:\GCMS7\MS70058\ AR-WKICV-250-004 07:04:03 16.00 18.00 T.enelenthqsnlyhtemiQ-8,S T,lynengia 20 Aug 2013 YM T, enelishingeniyihem-S T, enelishingeniyihem-t MS700581.D 14.00 22 Tester Nach Hand Hand Hand 8.M Thu Aug •• ... 10.00 12.00 5 Method QLast Update Response via Title ... .. •• T,nilsoeD ensit/sio Data Path Data File Operator ALS Vial 40 100000 Abundance 850000 400000 300000 200000 150000 800000 750000 000002 650000 600000 550000 500000 450000 350000 250000 50000 Acq On Sample Quant Quant Quant Ņ Misc 255 ~

Page:

60.00

58.00

56.00

## **PAH Mass Discrimination Ratio**

B&B Laboratories Project J13034 Report 13-3099

### Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data Mass Discrimination Sheet

File Name	Sample Name	Benzo(g,h,i)perylene Concentration (ng/mL)	Phenanthrene Concentration (ng/mL)	Benzo(g,h,i)perylene/ Phenanthrene ratio	Q
MS70058B.D	AR-WKC1-020-030	23.3	22.0	4.04	
	이 이 것 같아요. 한 것 않는 것 것 것 것 같아요.		23.0	1.01	
MS70058C.D	AR-WKC2-100-030	96.9	98.9	0.98	
MS70058D.D	AR-WKC3-250-030	218	233	0.94	
MS70058E.D	AR-WKC4-500-030	457	494	0.92	
MS70058F.D	AR-WKC5-1000-030	969	933	1.04	
MS70058G.D	AR-WKC6-5000-030	5010	5059	0.99	
MS70058I.D	AR-WKICV-250-004	283	284	0.99	
MS70058J.D	AR-WKCC-250-038	238	248	0.96	
MS70058L.D	AR-WKCC-250-038	228	273	0.83	
MS70058M.D	AR-WKCC-250-038	231	288	0.80	

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

## **PAH Internal Standard Area Data**

B&B Laboratories Project J13034 Report 13-3099

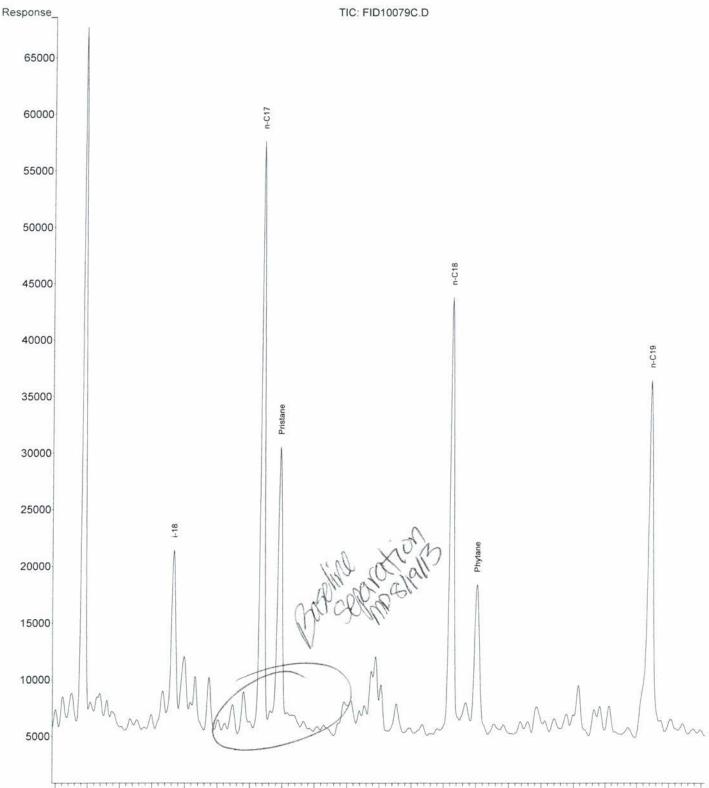
## Arcadis - Mayflower AR Polycyclic Aromatic Hydrocarbon Data The Area of the Internal Standards in the Associated Calibration Standard

Client Project #B0086003.1302

File Name	Sample Name	Inter FI	Internal Standard 1 Fluorene-d10	o 1	Inter	Internal Standard 2 Pyrene-d10	ard 2	Inter Benz	Internal Standard 3 Benzo(a)pyrene-d12	ard 3 e-d12
		Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)	Response (Area)	50% (Area)	200% (Area)
MS70058D.D MS70058I.D	AR-WKC3-250-030 AR-WKICV-250-004	430907 432645	215454	861814	811827 820890	405914	1623654	868995 836417	434498	1737990
<b>MS70058J.D</b> ENV3080B.D ENV3080C.D ARC1762.D ARC1765.D ARC1765.D	<b>AR-WKCC-250-038</b> Blank Spike Blank Spike Dupl. SO-DA-EB-02-080713 SO-DA-EB-03-080813 SFD-DA-FR-07-080913	<b>363550</b> 355483 366646 322818 343807 339898	181775	727100	<b>668267</b> 663797 685049 580218 618598 610608	334134	1336534	<b>669193</b> 732371 761582 666439 716212 66132	334597	1338386
ARC1767.D MS70058L.D ARC1769.D	SED-DA-DI-Water SED-DA-DI-Water <b>AR-WKCC-250-038</b> SED-DA-EB-08-081013	366909 380945 312084	190473	761890	671843 680436 553018	340218	1360872	763329 763329 715683 629328	357842	1431366
ARC1771.D MS70058M.D	SO-DA-EB-04-081113 AR-WKCC-250-038	321657 <b>378279</b>	189140	756558	580951 <b>677095</b>	338548	1354190	651176 682402	341201	1364804

SRM-2779 Reference Oil Aliphatic and PAH Resolution Checks

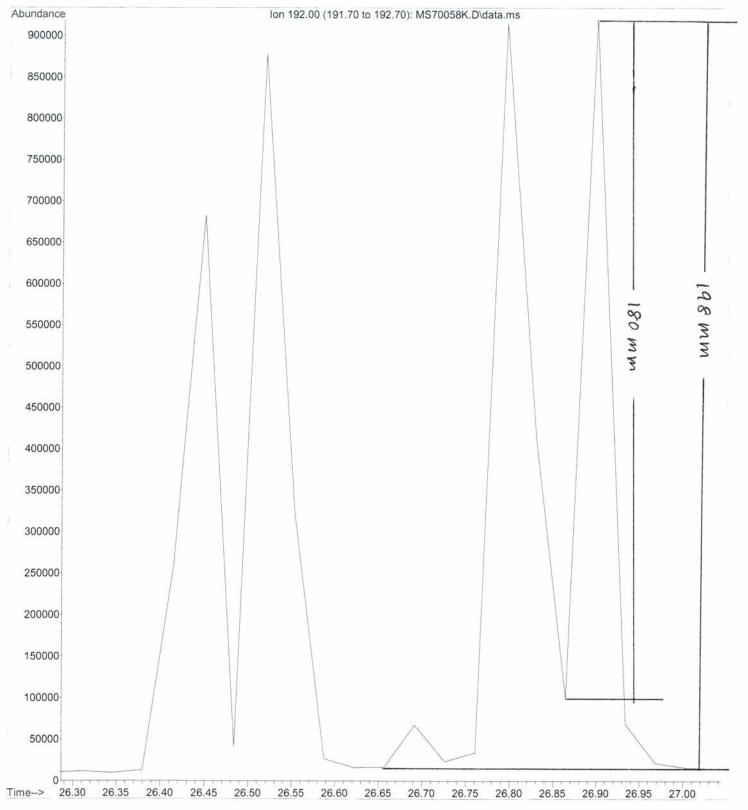
```
File :P:\2013\J13034\Aliphatics\ENV 3080\FID10079\FID10079C.D
Operator : Meghan Dailey
Acquired : 15-Aug-2013, 22:38:15 using AcqMethod ALI2012.M
Instrument : HP5890
Sample Name: AL-SRM2779-20-01
Misc Info :
Vial Number: 53
```



Time 13.00 13.20 13.40 13.60 13.80 14.00 14.20 14.40 14.60 14.80 15.00 15.20 15.40 15.60 15.80 16.00 16.20 16.40 16.60 16.80

File :C:\GCMS7\MS70058\MS70058K.D
Operator : YM
Acquired : 20 Aug 2013 6:28 pm using AcqMethod PAH-2012.M
Instrument : GCMSD
Sample Name: AR-SRM2779-WK4.0-002
Misc Info :
Vial Number: 11





**Supporting Documents** 

### Shipping, Sample Receiving, and Project Initiation Documents

### **B&B LABORATORIES RECEIVING/INTEGRITY REPORT**

Job: J13034 Date Received: 8/09/13 SDG#: 13080901
sender: Avcadis- May flower, AR
1. Number of Shipping Containers: 2 Avcadis: Dawiel Mays
Comments: 10F2, large blue cooler
2. Airbill Present? Yes No Shipping Company: Fed EX
Airbill Number: 8022 2781 5917 Comments: PON
3. Custody Seals on Container? No (es) Intac) Not Intact Comments: Outop of duct tape.
4. Chain of Custody Records? Comments No res COC for all codulors in Cooler 1
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ice Temperature/Comments: 0,3°C / temp blank 1.1°C (T6
6. List of Broken Containers:
-Nove-
7. Number of Samples Expected: 2000 Number of Samples Received:
8. Problems/Discrepancies: (COOLOV 1:
None 13 seds 3 waters
9. Resolutions: NIA
10. Checked in by: OUUUDA BULWStu Date: \$/09/13

Phine cooper

Ice type: wet Ice Cooler Temp: 0.3 Thermaneter: 6 Temp blank: 1.1 Custody Seal:

Solg 13080901 Cooler lof2



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# CHAIN OF CUSTODY RECORD

Home Office 14:391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.kdi-bi.com

**Brooks**)

Client: ARCADE S								Analyses	
Project 10: Ney Clance P. puline Inc. 1 at - BOOS6003 1301	Deline In	c. 4 x x + - 1	300866	1301			50		Other Instructions
B&B Contact: Jun Ranife Z	Saile Z	~					205	#	Seg 1308 (90)
Sampler Signature: Daniel Mays	i mays	9	Hannel Mary	2			1 + 2	10/1	Cooley 141 5
Sample ID	Sample Date	Sample Date Sample Time	Sample Matrix	Preservative	Containers Type	No.	HAD -		Comments
So- DA -020 (0 05)	8/7/13 730		Seil	none	4 02	-			44 PAHS List
Sc- DA - Olo (0.54)	, , ,	735		7	-			-	
Se-DA-020 (10-15)		740		1	1			4	
SC-DA-022 (0.05)		815		- )	30				
50:00 22 (0:5-10)		820		3					
(5-101) 270-W-3		525		3	1			-	
56-04-035 (c-0.5)		540							
50-DA - CAS (C.S. 10)		845		2	N	-			
Se-DA-C25 (1.0-1.5)		Sso							
Sc. DA- Dup-04-056713	>		7	7	7	>	~		+
				Total #	Total # of Containers	0			

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
error Josed han Hundelt	ARCADIS	6/8/18 1800	1600	Printed Name All CALLED Pro CALLES COL	B. E. alos	\$ (51/13)	Puch
Surveyor of the	+	+		square William March			
Puntesytame				Printed Name.			
Signature.				Signature:			

G=Gas Ws=Waste HW=Hazardous Waste W=Water T=Tissue S=So#/Sedment R=Rinseate P=Product Matrix:

Sample Container: Voltimaterial G=Glass C=Coro P=Ptastic B=Bag

Home Office 14331B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6389 http://www.kdi-bi.com PS 75 CHAIN OF CUSTODY RECORD

**Brooks**)

Client: ARCADI <								Analyses	
Project ID: Mary flow -	Peelne Incident	cident - 0	Beestor 2.	3.1301			5		Other Instructions
B&B Contact: Lean R Sampler Signature: Danel	Zerice Z	Manie	Dalla	la .			Xrg)	# 30	John SCROVEL
Sample ID	Sample Date	Sample Date Sample Time	Sample Matrix	Preservative	Containers T vna	Brs	CALL	7000	Comments
Su-DA-032 (0.05)	21213	1000	Ser	7 61 6	20/7	-			2/11 PALIS 1 . 1
SC. DN 032 (05+10)	1	lues	-	_	>	-	×	~	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Sc- DA-032 (10-15)	+-	1010	+	}	+	-	×		+
SO-DA-EB-olevenz	13 1	1110	Water	hone	1 46	T AN	X	-	>
(50-0H-013 (00-2)	8/8/13	1	S1	No. 1	402	-	×	4	
SU DNOIGLE CS/MS		SHL		-	- \	-	×	2	
50 01-019 (0-05) r.D		745		7	1	-	×	2	
(ny- 50/ 510. VO- 35		750		3		-	×	4	
\$ - DA - UG ( 10 15 )		755		3	1	1	×	ч	11
45. DA-019 (15-200)	1 t	800	>	>	>	-	X	2	Extract + Hald
				Total # (	Total # of Containers	11.			1
Dolinguishood Du				1					

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Protostame Joyedhay Flonerfelt	ARCAPES	8/8/13	1600	Putter Anne P. C. Love S. P. LOSTEN	E.B. aby	S. (P.1. S	1.261
Sarature ( 1 1	7	7	+	Sparse LULLUL SAUCH			
Printed Mame				Printed Namo:			
Signaturo.				Signature:			

G=Gas Ws=Waste HW=Hazardous Waste W≠Water T=Tissue S=Soi/Sedmicrit R=Rinseate P=Product Matrix.

Sampte Container: Voltmaterial G=Gtass P=Plastic B=Bag

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# CHAIN OF CUSTODY RECORD

TD Brook

Britatin M. M.								Amstrone	
Luged ID. I I wy thomas	Linelia	ia- Incide	trabe				100		Other Instructions
B&B Contact: Jun R.	Runicz						27	14	Sta 1208 0901
Sampler Signature: Den: el Mays	May	ott	mill	Unge			48	137	Coolev lat 1
Sample ID s	Sample Date	Sample Time	Sample Matrix	Preservative	Containers	No.	EALL.		Comments
SO-04-019 (24.34)	8/8/13	805	S. I	here v	14.02	-		2	Etc. L + H +
SU-DA-019 (3.0 7.0)	-	210	_	2	-	-		2	Exteret 4 14.11
50-DM-CAI (0-0.5)	_	910		3	1			2	14 DOLLE 1 1
So-04-021 (0.5-1.0)		315		7	1			2	
(21-01) (ro-bd-og		920		7	X			1	
(20-01 01 (15-20)		925		3				2	Former + Hill
Sc-0A-021 (2.0-2.0)	_	730	-	7				2	Extent + Hel
SC-DA-021 (3.0-40)	-	935	-	7	X			2	Eduat + Hall
50 DA-023 (0-0.5)		1000		3	1			2	44 PAILS Lich
420-0A 223 (05-10)	+	1005	$\rightarrow$	+	+	→ →		2	44 PAHS L'ST

Keiinquished By	Company Name	Date	Time	Received Bv	Company Name	Date O	
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more have a construed Flower half	ARCHOTS	5/8/13	1600	Brunn Annalina PV211 ctol	R.B. U.K.	0, 01/8	
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rived Name							
				Printed Name:			
Signature:				Sinnaturo			
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G=Gas Ws=Waste HW=Hazaidous Waste W=Water T=Trssue S=Soil/Sedmerit R=Rnseate P=Product Malroc:

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

C=Core B=Bag

5/2 3/2	&RA	aboratories, Inc. Home Off
	RS	B&B Labora

# CHAIN OF CUSTODY RECORD

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

TD

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	9	+					WI	/ / /	Other Instructions	
B&B Contact: Juan Review -	N.	UT acida	1ct - M		10006003.1301		2	× /	# C40 2.0000	-
Sampler Signature: Danie	Inays	Minniel	C. Mar	- who			1 3	raji	Colevel 1	( <del>1</del> )
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50-101-623 (1.01.5) 8/8/13	18/13	1010	Seil	here "	20/7	1	×	2	44 PAHS LISH	10
(12-51) ECO-40 05	1	1015		,	-	(		2	Extract + Hold	
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50-04-623 (3.0-40)		1025			1			Ч	Extract & Hold	<u> </u>
(S-0-0) 470-04-05		1050		,				2	44 PAHA L.St	<u> </u>
(0.1-20) 420-A0-02		1055	nn 340		Ň			2	-	
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S0-DA-027 (0-0.5)		1130			X			2		
Sc-DA-017 (0.51.1)		1135		3	~			2		<u> </u>
Sc. DA-627 (1.4.45)	>	1146	*	1	7 1	+	+	2	+	r
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Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
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Matrix: T-Trissuo G=Gas S=SoldSotement Ws=Wasto R=Renseato HW=Hazardous Waste P=Product W=Wator

Sanyole Container: Vol/materiak G=Glass C=Core P=Plastic B=Bag

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CHAIN OF CUSTODY RECORD Pg. 5/5

Brooks

	Home	Home Office 14391B South Dowling Road	Ih Dowling Roa	d College	Station TX 7784	College Station TX 77845 phone (979) 693-3446	fax (979) 693-6389	http://www.tdi-bi.com		SNOOLA I
Client: MACADES							×	Analyses		
Project ID: May Clauce P. guline The dart	P-Lat I	Ac.dat.	- 1300% 003.13e1	03.130	~		1		Other Instructions	uctions
B&B Contact: Juga Remire 2	mirez						1 100	#	0.01	
Sampler Signature: Daniel Mays	mays	Marriel	dulun	_\			18	13	10102020401	0401 
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2	Refinduished By	Company Name	Date	Time				
mer lo which Flower telt ARCADIS 8/13 600 Fronted have ANTULLE EVENTE 872 Labors 8/09/13 1 V V Segnature ULL 20 20 100 872 Labors 8/09/13 1 Printed Name: Printed Name: Signature: Signature: Signature:					Kecerved By	Company Name	Date	Time
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Matrix:

G≈Gas Ws∡Waste HW≃Hazardous Wasto W≃Water

Sampio Containor: Vol/matoual G=Glass C=Core P=Plastic B=Bag

C=Core B=Bag

3&B Laboratories

Environmental Sample Inventory

from Master Log

# Boj	# qor	CLIENT NAME	FILENAME	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler # Sent by	Sent by:	Container	Project #
	J13034	Arcadis - Mayflower AR	ARC1722	SO-DA-020 (0-0.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64408	J13034	Arcadis - Mayflower AR	ARC1723	SO-DA-020 (0.5-1.0)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64409	J13034	Arcadis - Mayflower AR	ARC1724	SO-DA-020 (1.0-1.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64410	J13034	Arcadis - Mayflower AR	ARC1725	SO-DA-022 (0-0.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0066003.1302
64411	J13034	Arcadis - Mayflower AR	ARC1726	SO-DA-022 (0.5-1.0)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64412	J13034	Arcadis - Mayflower AR	ARC1727	SO-DA-022 (1.0-1.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64413	J13034	Arcadis - Maylower AR	ARC1728	SO-DA-025 (0-0.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mavs	4oz clear glass iar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1729	SO-DA-025 (0.5-1.0)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass lar	B0086003.1302
64415	J13034	Arcadis - Mayflower AR	ARC1730	SO-DA-025 (1.0-1.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mavs	4oz clear glass iar	B0086003 1302
64416	J13034	Arcadis - Mayflower AR	ARC1731	SO-DA-DUP-04-080713	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mavs	4oz clear glass lar	B0086003.1302
64417	J13034	Arcadis - Mayflower AR	ARC1732	SO-DA-032 (0-0.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass iar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1733	SO-DA-032 (0.5-1.0)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass iar	B0086003.1302
64419	J13034	Arcadis - Mayflower AR	ARC1734	SO-DA-032 (1.0-1.5)	08/07/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass iar	B0086003.1302
-	J13034	Arcadis - Mayflower AR	ARC1735	SO-DA-019 (0-0.5)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
-	J13034	Arcadis - Mayflower AR	ARC1736	SO-DA-019 (0-0.5) MS	08/08/13	08/09/13 extract & HOLD	SOIL	MS	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1737	SO-DA-019 (0-0.5) MSD	08/08/13	08/09/13 extract & HOLD	SOIL	MSD	13080901	Cooler 2	1	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1738	SO-DA-019 (0.5-1.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Maylower AR	ARC1739	SO-DA-019 (1.0-1.5)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2		4oz clear glass lar	B0086003.1302
	J13034	Arcadis - Maylower AR	ARC1740	SO-DA-019 (1.5-2.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2		4oz clear glass jar	B0086003.1302
_	J13034	Arcadis - Mayflower AR	ARC1741	SO-DA-019 (2.0-3.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	-	4oz clear glass iar	80086003.1302
_	J13034	Arcadis - Mayflower AR	ARC1742	SO-DA-019 (3.0-4.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass ar	B0086003.1302
_	J13034	Arcadis - Maylower AR	ARC1743	SO-DA-021 (0-0.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2		4oz clear glass lar	B0086003.1302
		Arcadis - Maylower AR	ARC1744	SO-DA-021 (0.5-1.0)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2		4oz clear glass jar	B0086003.1302
-	J13034	Arcadis - Mayllower AR	ARC1745	SO-DA-021 (1.0-1.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2		4oz clear glass jar	B0086003.1302
1	J13034	Arcadis - Maylower AR	ARC1746	SO-DA-021 (1.5-2.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayllower AR	ARC1747	SO-DA-021 (2.0-3.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
_	J13034	Arcadis - Mayflower AR	ARC1748	SO-DA-021 (3.0-4.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2		4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1749	SO-DA-023 (0-0.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
_	J13034	Arcadis - Mayllower AR	ARC1750	SO-DA-023 (0.5-1.0)	08/08/13		SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Maylower AR	ARC1751	SO-DA-023 (1.0-1.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
-	J13034	Arcadis - Mayflower AR	ARC1752	SO-DA-023 (1.5-2.0)	08/08/13		SOIL		13080901	Cooler 2		4oz clear glass jar	B0086003.1302
		Arcadis - Mayflower AR	ARC1753	SO-DA-023 (2.0-3.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
		Arcadis - Mayflower AR	ARC1754	SO-DA-023 (3.0-4.0)	08/08/13		SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
1	J13034	Arcadis - Mayflower AR	ARC1755	SO-DA-024 (0-0.5)	08/08/13		SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
1	J13034	Arcadis - Mayflower AR	ARC1756	SO-DA-024 (0.5-1.0)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
		Arcadis - Maylower AR	ARC1757	SO-DA-024 (1.0-1.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0085003.1302
		Arcadis - Maylower AR	ARC1758	SO-DA-027 (0-0.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
		Arcadis - Maylower AR	ARC1759	SO-DA-027 (0.5-1.0)	08/08/13		SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0085003.1302
		Arcadis - Mayflower AR	ARC1760	SO-DA-027 (1.0-1.5)	08/08/13	08/09/13 PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
4		Arcadis - Mayflower AR	ARC1761	SO-DA-DUP-05-080813	08/08/13		SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
6		Arcadis - Mayflower AR	ARC1762	SO-DA-EB-02-080713	08/07/13		WATER	44 analytes, 1 of 1	13080901	Cooler 1	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
		Arcadis - Mayllower AR	ARC1763	SO-DA-EB-03-080813	08/08/13	08/09/13 PAH	WATER	44 analytes, 1 of 2	13080901	Cooler 1		1L amber glass BR bottle	B0086003.1302
64449	J13034	Arcadis - Maylower AR	ARC1764	SO-DA-EB-03-080813	08/08/13	08/09/13 PAH	WATER	44 analytes. 2 of 2	13080901	Cooler 1	Arcadis Daniel Mays	11 amhar cizee BD hollo	RURRUNA 1303

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Job #: <u>J13034</u> SDG: <u>13080901</u> Client: <u>Avcadis-Mayflower</u> Initiation Date: <u>8/09/13</u> AR	Number of Samples: 2 Matrix: Waters Due Date: 45 days: 9/22/13 Comments: Collected 8/07-8/08 extract by 8/13-8/14 received 8/09/13
Analyses	
PAHs D OCs/PCBs	Aliphatics(TPH EOM
Dry Wt. WL.	
☐ Short Columns □ Long Columns	
Requested QA/QC (per batch of Clien	t Samples)
Blank SRM/LCS	420 - 20 900-40 W
Blank Spike Duplicate	□ Matrix Spike
Matrix Spike Duplicate	
	FIC STANDARDS TO USE
Surrogate(s): P.1. P. A.C	Volume(s):
Spike Standard(s):	Volume(s):
Internal Standard(s):	Volume(s):
Final Extract Volume (ml):	Final Solvent:
Comments:	
Sample Custodian Signature: <u>AUUUU</u> Laboratory Manager Signature: <u>Sample Initiaiton - general Rev 1.doc</u>	a Buludta Date: 8/09,/13 Date: 3/9/15 cc: COC Book

## **B&B LABORATORIES SAMPLE INITIATION FORM-ENV**

1		NY NAME	PIT PULLAND	A PUPPIN	THE REAL		a state a stat						
£ i	5	INI NAME	FILENAME	CLIENI IU	COL. DATE	RECVD Analysis	MATRIX	RIX COMMENTS	B&B SDG	B SDG Cooler # Sent by	Sent by:	Container	r Project #
	4 Arca	J13034 Arcadis - Mayflower AR	ARC1762	AR ARC1762 SO-DA-EB-02-080713	08/07/13	08/09/13 PAH	WATER 4	14 analytes. 1 of 1	13080901	Cooler 1	WATER 44 analytes. 1 of 1 13080901 Cooler 1 Arcadis: Daniel Mavs	11 amber class BR hottle	BODREDOR 1302
	4 Arca	dis - Mayflower AR	ARC1763	SO-DA-EB-03-080813	08/08/13	08/09/13 PAH	WATER	MATER 44 analytee 1 of 2	1308001	Contar 1	Areadier Daniel Mane		
							11-11-11-11	T antan look in a s	Inenonci		Circaus, Daliet Mays	IL diffuel glass on Doule	BUUGOUUS.13UZ

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## **B&B LABORATORIES SAMPLE INITIATION FORM-ENV**

Job #: <u>J13034</u> SDG: <u>13080901</u> Client: <u>Avcaclis- Mayflowev</u> Af Initiation Date: <u>8/09/13</u>	Number of Samples: 14 Matrix: Soil Due Date: <u>45 days</u> : <u>9/22/13</u> Comments: extract & hold
Analyses	-E Aliphatics/(PH EOM
PAHs OCs/PCBs Dry Wt. WLipid	
Short Columns	
Requested QA/QC (per batch of Clien	
Blank BSRM/LCS/64/	
Blank Spike Duplicate	Matrix Spike
Matrix Spike Duplicate	Duplicate
SEE BACK FOR SPECI	FIC STANDARDS TO USE
Surrogate(s):	Volume(s):
Spike Standard(s):	Volume(s): 107_1
Internal Standard(s):	Volume(s):
Final Extract Volume (ml):	Final Solvent: DC2
Comments: Sample Custodian Signature: Laboratory Manager Signature: Sample Initiaiton - general Rev 1.doc Rev 1	BUUL Date: 8/09/13 Date: 5/3/3 cc: COC Book Extraction Lab

3&B Laboratories

## **Environmental Sample Inventory**

# 80-	# qof	CLIER	Job # CLIENT NAME	FILENAME CLIENTID	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler # Sent by:	Sent by:	Container	a Project #
34420	J13034	1	Arcadis - Mayflower AR	ARC1735	SO-DA-019 (0-0.5)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
4421	J13034	Arcad	Arcadis - Mayflower AR	ARC1736	SO-DA-019 (0-0.5) MS	08/08/13	08/09/13 extract & HOLD	SOIL	WS	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass lar	B0086003.1302
4422	J13034		Arcadis - Mayflower AR	ARC1737	SO-DA-019 (0-0.5) MSD	08/08/13	08/09/13 extract & HOLD	SOIL	MSD	13080901	Cooler 2	1	4oz clear glass lar	B0086003.1302
34423	J13034		Arcadis - Mayflower AR	ARC1738	SO-DA-019 (0.5-1.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	1	4oz clear olass iar	80086003 1302
64424	J13034	Arcad	Arcadis - Mayflower AR	ARC1739	SO-DA-019 (1.0-1.5)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	-	4oz clear dass iar	B0086003 1302
64425	J13034		Arcadis - Mayflower AR	ARC1740	SO-DA-019 (1.5-2.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	-	4oz clear glass iar	B0086003 1302
64426	J13034		Arcadis - Mayflower AR	ARC1741	SO-DA-019 (2.0-3.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	-	4oz clear glass iar	B0086003.1302
64427	J13034		Arcadis - Mayflower AR	ARC1742	SO-DA-019 (3.0-4.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass iar	B0086003.1302
64431	J13034	-	Arcadis - Mayflower AR	ARC1746	SO-DA-021 (1.5-2.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	1	4oz clear class lar	B0086003 1302
4432	J13034	Arcad	Arcadis - Mayflower AR	ARC1747	SO-DA-021 (2.0-3.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	-	4oz clear glass iar	B0086003.1302
64433	J13034	Arcad	Arcadis - Mayflower AR	ARC1748	SO-DA-021 (3.0-4.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2		4oz clear glass jar	B0086003.1302
4437	J13034	Arcad	Arcadis - Mayflower AR	ARC1752	SO-DA-023 (1.5-2.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2		4oz clear glass jar	B0086003.1302
4438	J13034		Arcadis - Mayflower AR	ARC1753	SO-DA-023 (2.0-3.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2		4oz clear glass jar	B0086003.1302
34439	J13034		Arcadis - Mayflower AR	ARC1754	SO-DA-023 (3.0-4.0)	08/08/13	08/09/13 extract & HOLD	SOIL		13080901	Cooler 2	Arcadis: Daniel Mave	407 clear class iar	R0086003 1302

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8/9/2013 11:55 AM

## **B&B LABORATORIES SAMPLE INITIATION FORM-ENV**

Analyses         PAHs       OCs/PCBs       Aliphanics/TPH       EOM         Dry Wt.       %Lipid       TOC/TIC	nitiation Date: 8/09/13 AR C	Number of Samples: 26 Matrix: Soil Due Date: 45 days: 9/22/13 Comments: PAH: 44 avalytes received 8/09/13
Dry Wt.       %Lipid       TOC/TIC         Short Columns       Long Columns       Image: Columns         Requested QA/QC (per batch of Client Samples)       Image: Client Samples)         Blank       SRM/LCS/_/       Blank Spike         Blank       SRM/LCS/_/       Blank Spike         Blank Spike Duplicate       Set Matrix Spike       Duplicate         Strogate(s):	Analyses	
Image: Short Columns       Image: Long Columns       Image: Columns	PAHs D OCs/PCBs	Aliphatics/TPH D EOM
Requested QA/QC (per batch ofClient Samples)         Image: Blank       Image: SRM/LCSH         Image: Blank       Image: SRM/LCSH         Image: Blank       Image: SRM/LCSH         Image: Blank       Image: SRM/LCS         Image: Blank       Image: Srmmer Standard(s):         Image: Standard(s):       Image: Standard(s):         Image: Standard(s):       Image: Standard(s):         Image: Standard(s):		
Blank SRM/LCS 9446 Blank Spike   Blank Spike Duplicate 9446 Matrix Spike   Matrix Spike Duplicate 9466   Matrix Spike Duplicate 9466   Stere Back FOR SPECIFIC STANDARDS TO USE   Surrogate(s): 9464   Spike Standard(s): 9464   Matrix Spike Standard(s): 9464   Blank Spike Standard(s): 9464   Matrix Spike Standard(s): 9464	Short Columns Long Columns	
Blank Spike Duplicate       Imatrix Spike         Imatrix Spike Duplicate       Imatrix Spike         SEE BACK FOR SPECIFIC STANDARDS TO USE         Surrogate(s):       Imatrix Spike Standard(s):         Spike Standard(s):       Imatrix Spike         Internal Standard(s):       Imatrix Spike         Volume(s):       Imatrix Spike         Final Extract Volume (ml):       Imatrix Spike	Requested QA/QC (per batch of Client Sa	amples)
Imatrix Spike Duplicate     SEE BACK FOR SPECIFIC STANDARDS TO USE     Surrogate(s):     Image: Spike Standard(s):     PAH     Addition     Volume(s):     Internal Standard(s):     PAH     Addition     Volume(s):     Internal Standard(s):     PAH     Addition     Volume(s):     Internal Standard(s):     PAH     Final Extract Volume (ml):     Image: Participation     Final Solvent:     Prime Solvent:     Prime Solvent:	Blank ESRM/LCS_19416	Blank Spike
SEE BACK FOR SPECIFIC STANDARDS TO USE         Surrogate(s):       24/4       A. ( / Volume(s):       200/4         Spike Standard(s):       24/4       A. ( / Volume(s):       200/4         Internal Standard(s):       24/4       A. ( / Volume(s):       200/4         Final Extract Volume (ml):       200       Final Solvent:       200/4	Blank Spike Duplicate	9- Matrix Spike
Surrogate(s): $244$ , $4(1)$ Volume(s): $1624$ , $4(1)$ Spike Standard(s): $244$ , $4(1)$ Volume(s): $1624$ , $4(1)$ Internal Standard(s): $244$ , $4(1)$ Volume(s): $1624$ , $4(1)$ Final Extract Volume (ml): $26$ Final Solvent: $264$ , $464$	Matrix Spike Duplicate	Duplicate
Spike Standard(s):	SEE BACK FOR SPECIFIC ST	TANDARDS TO USE
Internal Standard(s):     P.4.11     A.C.     Volume(s):     I.G.       Final Extract Volume (ml):	urrogate(s):	Volume(s):
Final Extract Volume (ml): Final Solvent:	2.12	Valumate) /02-1
	pike Standard(s):	volume(s):
Comments:		
	nternal Standard(s):	Volume(s): <u>///i</u>
Sample Custodian Signature: Autola Buli Studie 8/89/13 Laboratory Manager Signature: Date: 3/3/13	nternal Standard(s): <u>P.4-11</u> <u>A</u> <u>C(</u>	Volume(s): <u>///i</u>
Sample Initiation - general Rev 1.doc cc: COC Book Rev 1 CCC Book	internal Standard(s): <u>P.411</u> <u>A</u> ( <u>1</u> Sinal Extract Volume (ml): <u>0</u> Comments: Sample Custodian Signature: <u>AWAWAA</u>	Volume(s): ////

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## 3&B Laboratories

## Environmental Sample Inventory

E	CLIENT NAME	FILENAME CLIENT ID	CLIENT ID		COL. DATE	RECVD	Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a Project #
g	Arcadis - Mayflower AR	<b>ARC1722</b>	SO-DA-020 (0-0.5)	-0.5)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
adit	Arcadis - Mayflower AR	ARC1723	SO-DA-020 (0.5-1.0)	5-1.0)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
sipec	Arcadis - Mayflower AR	ARC1724	SO-DA-020 (1.0-1.5)	0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mavs	4oz clear olass iar	B0086003.1302
cadit	Arcadis - Mayflower AR	<b>ARC1725</b>	SO-DA-022 (0-0.5)	-0.5)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadi	Arcadis - Mayflower AR	<b>ARC1726</b>	SO-DA-022 (0.5-1.0)	5-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadi	Arcadis - Mayflower AR	ARC1727	SO-DA-022 (1.0-1.5)	0-1.5)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadit	Arcadis - Mayflower AR	ARC1728	SO-DA-025 (0-0.5)	-0.5)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadit	Arcadis - Mayflower AR	<b>ARC1729</b>	SO-DA-025 (0.5-1.0)	(2-1.0)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass iar	B0086003.1302
cadit	Arcadis - Mayflower AR	ARC1730	SO-DA-025 (1.0-1.5)	0-1.5)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass iar	B0086003.1302
cadi	Arcadis - Mayflower AR	ARC1731	SO-DA-DUP-04-080713	4-080713	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadit	Arcadis - Mayflower AR	<b>ARC1732</b>	SO-DA-032 (0-0.5)	-0.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1733	SO-DA-032 (0.5-1.0)	5-1.0)	08/07/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1734	SO-DA-032 (1.0-1.5)	0-1.5)	08/07/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1743	SO-DA-021 (0-0.5)	-0.5)	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1744	SO-DA-021 (0.5-1.0)	5-1.0)	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2		4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1745	SO-DA-021 (1.0-1.5)	0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1749	SO-DA-023 (0-0.5)	-0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2		4oz clear glass jar	B0086003.1302
cadit	Arcadis - Mayflower AR	ARC1750	SO-DA-023 (0.5-1.0)	5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1751	SO-DA-023 (1.0-1.5)	0-1.5)	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1755	SO-DA-024 (0-0.5)	0.5)	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1756	SO-DA-024 (0.5-1.0)	5-1.0)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1757	SO-DA-024 (1.0-1.5)	0-1.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1758	SO-DA-027 (0-0.5)	0.5)	08/08/13	08/09/13	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1759	SO-DA-027 (0.5-1.0)	5-1.0)	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1760	SO-DA-027 (1.0-1.5)	0-1.5)	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
cadis	Arcadis - Mayflower AR	ARC1761	SO-DA-DUP-05-080813	5-080813	08/08/13	08/09/13 PAH	PAH	SOIL	44 analytes	13080901	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302

12

## amanda brewster

From:	amanda brewster <amandabrewster@tdi-bi.com></amandabrewster@tdi-bi.com>
Sent:	Friday, August 09, 2013 11:20 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 8/09/13
Attachments:	COC 8-09-13.pdf

## Hi Daniel,

We received your samples this morning in good condition. The internal temperature of Cooler 1 was 0.3°C and the temperature blank was 1.1°C The internal temperature of Cooler 2 was 2.2°C and the temperature blank was 4.0°C

A PDF of the COC is attached for your records.

Regards, Amanda

From: Mays, Daniel [mailto:Daniel.Mays@arcadis-us.com] Sent: Thursday, August 08, 2013 5:44 PM To: amanda brewster Subject: Tracking number for coolers shipped 8-8-2013

Good Evening Amanda,

We shipped two coolers to B+B Labs today tracking # 8022 2781 5891.

Regards,

Danny Mays | Environmental Specialist, E.I. | <u>daniel.mays@arcadis-us.com</u> 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.



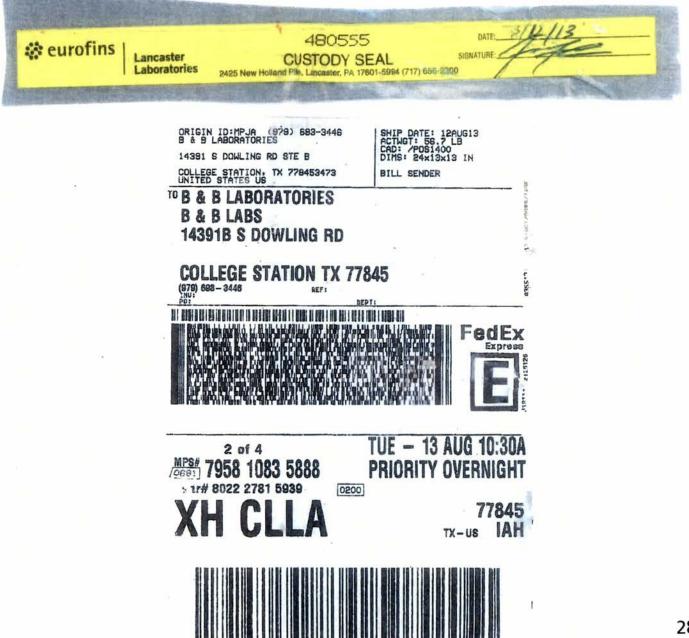
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## **B&B LABORATORIES RECEIVING/INTEGRITY REPORT**

Job: J13034 Date Received: 8/13/13 SDG#: 13081301
sender: Arcadis-Mayflower, AR
1. Number of Shipping Containers: 4 Avcadis: Daniel Mays
Comments: 10f4 large blue cooler
2. Airbill Present? (Yes)No Shipping Company: Fed EX
Airbill Number: 7958 1083 5888 Comments: PON
3. Custody Seals on Container? No (res) (Intact) Not Intact Outop of duct tape
4 Chain of Custody Records? Comments Cooler 3
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ice Temperature/Comments: 5.1°C/ temp blank 1.2°C (T6)
6. List of Broken Containers:
None
7. Number of Samples Expected: 4 CODLEVS Number of Samples Received:
8. Problems/Discrepancies: (Coller ):
None II soils 2 waters
9. Resolutions:
NIA
10. Checked in by: AUUUda BUW the Date: 8/13/13

land coder

Solg 13081301 Ice type: wet Ice (coller 10f4 Cooler temp: 5.1 Temp blank: 1.2 Thermometer: 6 Custochy Seal:



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## **B&B LABORATORIES RECEIVING/INTEGRITY REPORT**

Job: J13034 Date Received: 8/13/13 SDG#: 13081301
sender: Avcadis- Mayflower AR
Sender: <u>AVCadis- Mayflower AR</u> 1. Number of Shipping Containers: <u>4</u> Ar Cadis: Dawiel Mays
Comments: 20f4, large blue cooler
2. Airbill Present? (Yes)No Shipping Company: Fed Ex
Airbill Number: 7958 1083 5899 Comments: PON
3. Custody Seals on Container? No (res) Intact Not Intact Comments: Outop of duct tape
4. Chain of Custody Records? Comments No Yes in Cooler 3
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ice Ice I.S°C/TEMp blank 2.3°C/T6
6. List of Broken Containers:
AIDHO.
7. Number of Samples Expected: 4 CODVEVS Number of Samples Received:
8. Problems/Discrepancies: (Cooleva:
None Ilseds
4 waters
9. Resolutions: NIA
10. Checked in by: allale Bulle Bulle Date: 8/13/13

Variage coder

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

Solg 1308 1301 Cooler 2054

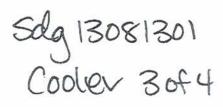


## **B&B LABORATORIES RECEIVING/INTEGRITY REPORT**

Job: J13034 Date Received: 8/13/13 SDG#: 13081301
sender: Avcadis-May Plower AR
1. Number of Shipping Containers: 4 Avcadis: Daniel Mays
Comments: 30f4, large blue cooler
2. Airbill Present? (Yes) No Shipping Company: Fed EX
Airbill Number: S022 2781 5939 Comments: PON
3. Custody Seals on Container? No res Intact Not Intact Comments: OU top of duct tape
4. Chain of Custody Records? Comments No res all COC's In Cooler 3
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ce T6
6. List of Broken Containers:
None
7. Number of Samples Expected: 4 CodeVS Number of Samples Received:
8. Problems/Discrepancies:
8. Problems/Discrepancies: NOUR NOUR
9. Resolutions: N/A
10. Checked in by: amalla Bulustu Date: 8/13/13

lavge coder

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



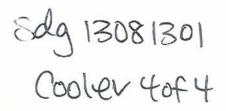
eurofins Lancaster CUSTODY SE Laboratories 2425 New Holland Pike, Lancaster, PA 178	AL SIGNATURE
Fedex NEW Package Express US Airbill B022 2781 5939	w. 0200
1 From Date Sender's Name Phone	Express Package Service      To must locations.     Packages up to 1     Por packages up to 1     Por packages     Por p
Company Address	Koodynamics * NURDAY ************************************
City State ZIP 2 Your Internal Billing Reference	5 Packaging *Declared values limit 2009.
3 To Recipient's <u>Name</u> Phone	Special Handling and Delivery Signature Options     SATURDAY Delivery     NOT available for FodEx Standard Overnight, FodEx 2Day A.M., or FodEx Enginest, Sever.     No Scapeture Required Direct Signature
Address       HOLD Weekday         We campt deliver to P.0. boxes or P.0. 21P coords.       Dept/RoorSuite/Room         Address       MOLD Seturday         Address       FodS First Our methods for PodS first Our methods for Pod	No Signature Required     Partage may be for writing     determine support of the sector of the
City State ZIP	7 Payment Bill to: Sender Sender Sender Sender Total Packages Total Weight Total Packages Total Weight
8022 2781 5939	Rev. Date 1/12 - Part #367007 - 17011 FedEx - PRIHTED IN U.S.A. SRF 285

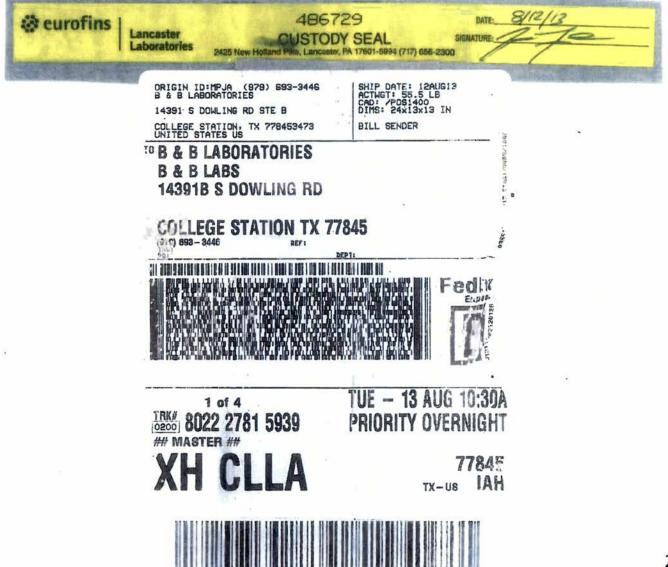
## **B&B LABORATORIES RECEIVING/INTEGRITY REPORT**

Job: J13034 Date Received: 8/13/13 SDG#: 13081301
sender: Arcadis- May flower AR
1. Number of Shipping Containers: 4 Av Cadis: Daniel Mays
Comments: 40fy large blue cooler
2. Airbill Present? (Yes) No Shipping Company: Fed EX
Airbill Number: 8022 2781 5939 Comments: PON
3. Custody Seals on Container? Comments: No res Intact Not Intact
4. Chain of Custody Records? Comments No (es as 8/13/13 In Cooler 3
5. General Sample Conditions: Frozen Cool Unrefrigerated Dry Ice Blue Ice Ice Ice Ice Ice Ice Ice Ice Ice Ic
6. List of Broken Containers:
None
7. Number of Samples Expected: 4 COOLEYS Number of Samples Received:
8. Problems/Discrepancies: COOLEV 4'.
foc ab 17 seds 2 waters
9. Resolutions:
10. Checked in by: alla Bull Date: 8/13/13

Large coder

Ice type: wetice Looler temp: 6.1 Tempe blank: 0.9 Thermometer: 6 Custody scal:





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# 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

TD BOOK

								Analyses			
Client: APCADES			1				2 2		00	Other Instructions	
Project 10: May 110 - er Pipeline Incident 130036603,1301	elar Incu	dent Bac	86003.	106			281		Sala 12	Sala 13081301	
B&B Contact: Jues Ramee Z	a: Danel Mays	Stimil	mm				Pot war	# 121	Coole	Cooler Soft (	Θ
			Sample			Containers	17:1	00)		Comments	
Sample ID	Sample Date	Sample Date Sample Time	Matrix	Preservative	ve Type	No.	110	+			T
Leen ad ad ( a. c.)	8/4/13	1235	Sed	Pere	4802	5	XX	17	Full hist	15	
Conservation (0.5-10)	1	1240		-	1204 2	22	-	4	Hy PA	44 PAH LISH	
the mail and a set		1245			3	>		2	*		
(		1250			3	7		2	Li-	atract + 120 cd	7
Second Contraction		1255			>	3		2		Xtrutt Hold	Pol.
DED DHOUL ( YO SIC)		1300			7	7		Ы	++	- xtract + Hold	Hold
DEPORTON (3.0-3.3.		1400		-	1802	7	×	N	Full List	+	
SED. PM - 042 (0.0.2)		1400			208 1	N F	×	М	Full List		
THE DH-CHT CO CO THE		2041			1 800	3	~	2	Full List	.+	
VED-DA-ON (10-2-10)		1405	$\rightarrow$	7	140	1720	+	N	44 PAUS List	1.1	
200 000 000 000				To	Total # of Containers	iners (C					
		Annound Mar	-	Date	Time		Received By		Company Name	Date	Time
Relinquished By		Company Mante	T	+							
		2101.01		2-h 12	700	. Call	Aural of Aventeday	Cherry 1	Rep and	8/3/3	05:11

	Company Name	Date	Time	Received By	Company reams	Date	
Relinquished By	Company month						
This Maux	ARUADIS	8-12-13	1700	Printed Name Auralicia Syewister	BiB (abs	8/13/13	11:30
Prented Name - MMIC 1	+	+	+	signation autolical Arudita			
Signature							
24				Printed Name			
Phrotest (Sattre)							
				Signature:			
Signaturo:							

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

288

G≂Gas Ws∍Wasto HW≃Hazardous Wasto W≠Water

T=Tissue S=Scil/Sedimoni R=Rmseate P=Product

Materx:

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# CHAIN OF CUSTODY RECORD

Home Office 14391B South Dowing Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6369



			NPAN FIRMAN IRAAA ALAAA	Charle Al nonero againon	A / / 845 phone (9/9) 693-3446	fax (979) 693-6389	http://www.tdi-bi.com		
Client: ARCADIS		_				Ana	Analyses		
Project 10: Pley Hower Repetine Incident	relive I.		130086003.1361	1951:50		510		Other Instructions	SL
B&B Contact: Jacon Raniec Z	niec Z					50	#	Sda 1208120	201
Sampler Signature: Denie Mays	mays	Mond	Magn			1000	12/0	Cholev 30	C+4
Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type No.		00	Comments	
SED-DA-C42 (1.0-1.5) 8/4/13	8/4/13	1410	Sed	Acne	5	4	1 april	PALLE I L	
V SEP. DA + B - 07 - 080 913 6/9/13	6/9/13	1015	Batil	pore i	X CJ 947	X 2.2		11 1.11	
WSED DN- DI-Water	8/9/13	1070	Water	Non C 1	146 22 X	V 212			
WSED-DA-ER-08-081413	8/10/13	Sre	Water		X & 2 9473	+++ +			
SED-DA-O4S (0-US)	-	900	Sad	3	X 1 7 208,	X			
(01-50) 04-042 (01-10)	_	965	_	->	4.241	Т		4	
SED-DA-52 (0-05)		930		->	1-1-208	X		Toll In Live	
(0.1-20) 23-00-00-00-00-00-00-00-00-00-00-00-00-00		935			1-20%	1		44 PDU 1	
VSED-DA-USA (10-1.5)		940	-		4. 2 4 1	5		1/ 1 PA 1/ 1 ~1	
VSED-DA-DAPUL OSKUIS	>		7	+ +	× 1208	+ ×	Full	IL LOT	
				Total # of	Total # of Containers U3			1	
Relinquished By		Company Name	Date	te Time	Received By	ad By	Company Name	Name Date	Timo
Previous Same Damiel NUVS		ARUADS	21-8	-12-13 1700	Printed Name ALLA LLV	Autoria Sventeta	1	9	20
Signatu/+		+	+	+		James al	-	0	0
						Variation of the	-		

rinted Name: Signature:

> Printed Name Signature:

T = T issue S = Soil/Sedment R=Rinseate P=Product

Malmx:

Sampie Container: Volimatenal G=Glass C=Core P=Plastic B=Bag C=Coro B=Bag

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# CHAIN OF CUSTODY RECORD



Home Office 14391B South Dowling Road College Station TX 77845 phone (979) 693-3446 fax (979) 693-6369 http://www.tdi-bi.com

Analyses	other Instructions	4 / # Sold 13081301	e troc man and the	Comments	4 Full List	+ 44 PAH List	+	+ +	+ Full List	4 laber: ms/mso	4 [abel: Juns/msD	4 44 PAH Lat	4 HAY PAH List	It Extract + He ld		
d		28	24	Preservative Containers	none \$ 802 4.1 X X	1 4 4°2 41 ×	I yest X	+ 4. rt X	XX 1 2.081	XX 72.81	48024 XX	× 4.2 + X	X 120H	XHACHAX	Total # of Containers	
	Incident 130086 00 3, 1301		Dunie Huy	Sample Date Sample Time Sample	15 1640 S.d	1045 1	10 50	1055	1115	5111	5111	1120	1125	1120		
ARTANTS	Project 1D: Muy Azuer Recline Incident	B&B Contact: Juna Ramire Z	Sampler Signature: Daniel Wurfs	Sample ID Sample D	VSED DA-DIS (C. 0.5) 8/10/15	VSED-PA-013 (0.5-1.0)	VSED-DA-018 (1.0-1.5)	VSED. DA - 01% (1.5-2.4)	(SED- D4-019 (C-0.5)	(200-01 9 (0-0.5)ms)	SED-DA-019 (040.5)mb)	(SED-DA-24 (0.5-1.4)	VSED-DA-014 (1.4-1.5)	VSED-DA 017 (1.5-2.0)		

Relinquished By	Company Name	Date	Time	Received By	Company Name	Date	Time
Pering hame DAMIE Ways	ARCADIS	8-21-8	1700	Printed Name HUNAUCO EXPERIMENTEN	Rife Calos	\$/13/13	1.30
Segnature V	+	+	$\rightarrow$	signation aurulation and the	2		
Printed Name:				Printed Name:			
Signature:		_		Signature:			
Matrix:	Sample C	onteiner: Volfmatonal					
T≖Tissue G=Gas S=Soil/Sodimont Ws±Wasto	G=Glass P+Phasho	G=Glass C=Coro P+Phashc B=Bag					

G≖Gas Ws≞Wasto HW≃Hazardous Waste W∞Weiter

Ť = Tiasue S=Soil/Sodimeril R=Rinseato P=Product

B&B & B & O

# CHAIN OF CUSTODY RECORD

Brooks

B&B Laboratories, inc.	Home Offic	Home Office 14391B South Dowling Road	lowling Road	College Station TX 77	College Station TX 77845 phone (979) 693-3446	fax (979) 693-6389	http://www.tdi-bi.com		Brooks
Client: ARCANES							Analyses		
Project ID: Mayflower P. peliar Inciden	Peliar Inc	ident	1			8012		Other Instructions	
B&B Contact: Jueo Rea Sampler Signature: <u>Vanie I</u>	I Maps	June 1	Alley			let word	1 Sec	da 13081301 (color 30f 4 (	4
Sample ID	Sample Date Sample Time	-	Sample P Matrix P	Preservative	Containers Type No.	CALLS FEIL	190)		Τ
SED-DA-018 (20-2.5) 8/10/13	8/10/13	1135 S	Sed	Mone V	3	7		Link that	Τ
V 80-04-026 (0-0.5)	8/11/13	830		7	Yozy IX	-	h/7	PAHS Lit	Τ
B. DA-Wil CO. U.S. M.S.	-	830	_	3	XIAI	-			Γ
05~ (50-0) 720- VO- 3/		830		7	× - >	-			1
(SU-DA. 016 (25-1.0)	-	835		7	X	1			
(20-DA-026 (1.0-1.5)	-	840		7	X	-			
Se-pA-023 (00.5)	-	1000		7	XIX	-			
S-0A-028 (0.5-10)	-	1005		7	XIX	-			
S0-04-028 (1.0-15)		1010	1 c	7	X 1 × 1	-			Τ
VV 56-DA-EB-04-081113	7	WCO U	Veter	× *	A6 QXX	11		A	
				Total # of Containers	intainers				]
Relinquished By	0	Company Name	Date	Time	Receiv	Received By	Company Name	Date Time	G
Printers Name Marile Marie		ARCADIS	8-2-2-8	3 706	into any stand	No RVDI 1240		13	
AWAY N N					Printed Name 7 VTVACE	AL DICWISIC	10.10	811212 P	0

Relinquished By	Company Name	Date	Time	Received Bv	Company Namo	Data 1	Time
Printed Rumin PMANIE Maries	ARCANY	8-12-13	706	LIMIT'S RUD. Chr.		012 113	
the second		-	-	A MARKAN AND A MARKAN AND A LONG AND A MARKAN AND AND A MARKAN AND A MARKAN AND A MARKAN AND AND AND AND AND AND AND AND AND A	some star	-	00
September	+	+	2	synature Mulaudo Eveninte			
Printed Name:				Printed Name:			
Signature:				Chromitises			
				Juginorio.			

Malmx:

G=Gas Ws⇒Waste HW=Hozardous Waste W≠Water

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

C=Core B=Bag

B&B

## 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

Client: ARCADIS			1				Analyses	80	
Project 10: My flower Profine Incid	pelinet	acident.	Ĩ			220	1 /	•	Other Instructions
B&B Contact: June Row	Runnez					28		# 10401	12101211
Sampler Signature: Danie 1 May 5	1 mays	Jamil	Muth			4	12/	18	v soft E
Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers Type	No. VAUS EH	000		Comments
~ So-DA-029 (U-0.5) 5/11/13	8/11/13	1030	Sed	Ment	+ 402 4	I X I	-	HU PAUS	1-1 51
126-0A-024 (005-12)	-	1635	-	-	1 - 1	I X 1.	-		
(50-00-029 (1.0-1.5)	7	1040	+		4 4 4	7 1	-	$\rightarrow$	
SEP-DA-046 (0.0.5) 8/12/13	8/12/13	835	-		802 4	× 1 )	~	Full Lict	
SED-DA-046 (6.5-10)	-	840			1 1/02		3	441 PAN List	(st
6ED-DA-0416 (1.0-1.5)	-	345		-	× 20/2 ×	-	(V)	10.7 AND HA	10.24
SED-04 049 (0-0.5)	-	905	_	-	208	- X	60	Full List	
SED-DA-049 (0.5-1.0)	-	210		3	+ 20 h	-	in0)	TY PANA YY	17.34
SED-DA-049 (1.0-1.5)	_	915	-		Hol V		3	1 hh	they PAR List
SED-04-041 (0-0.5)	$\rightarrow$	950	*	>	1208	XXII	641	Full List	
				Total	Total # of Containers				
Relinquished By		Company Name	H	Date Tir	Time	Raceived By		Company Name	Date   Time
Proto Name DUMIE NUMS	2	APUADIS		8-7-13 1700		Printed Name ALLULICA EVENSTO	istor	-	1
	The second secon		and the second sec		Γ				

Signature: Sample Container: Volfmateual G=Glass C=Core P=Ptastec B=Bag

rinted Name;

Juna Buen

lignature.

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 $\rightarrow$ 

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Y

made Nam Signaturo: G∝Gas Ws∡Wasto HW≠Mazard∩us Wasto W≃Water T=Tissue S=Soil/Sodiment R=Rinseate P=Product

Mafrix:

C=Core B=Bag

B&B & B

# CHAIN OF CUSTODY RECORD

TD Brooks

B&B Laboratories, Inc.	Home O	Home Office 14391B South Dowling Road	Ih Dowling Roa		College Station TX 77845 phone (979) 693-3446	16 fax (979) 693-6389	http://www.kdi-bi.com		Brooks
Client: ACADES							Analyses		
Project 10: Maxflauser R. P. Ene Incident	oline Ta	cid-n+				12 Sis/		Other Instructions	ions
B&B Contact: Juan Kamire Sampler Signature: Minnul	Kanirez Minul 1	Mun				Por S	# 76	0	201
Sample ID	Sample Date	Sample Date Sample Time	Sample Matrix	Preservative	Containers Type No.	DAHS + DEV	100	COLEV Sof	
SED DA-043 (0.5-1.0) 8/12/13	8/17/13	953	Sed	None V	3		101	44 DALL L	407
SED-DH-0415 (1.0-1.5)	-	1000	-	3	4.2 41 1		N	PAH	
SED-DA-04/4 (0-0.5)		1010	-	3	8024	×	60	1	110
SEP-DH-044 (U.S-1.0)		1015		7	102 ×		M	44) PAH Las	
SED BA-644 (1.0-1.5)	_	1020	-	7	1 20%		M		
SED 04-047 (0 0.5)		1030	-	7	- 208	×	3 La		
->ED-DA-647 (0.5-1.0)		1035	_	7	4.05	11.	N	WH PAH List	
SED-DA-047 (1.0-1.5)	-	106/0		7	1. 20%		N		
SEP-DA-048 (0-05)		1745	-	3	802 -	×	3 Flor	Coll 1.34	
SED-DA-048 (0-0.5) mS	1c	1245	>	3	807 44 1	X		II List	
				Total # of	Total # of Containers				
Relinquished By		Company Name	H	to Time	Race	Received By	Company Name	Name Date	Time
Protect Name DAMIR MW	N N	thems	8-11-13	-B 1700	Printed Name	Auducia Brewster	Sit.	S.	11. 3.0
Signature		+	+	4	Signature J.UU.QU	runda Brewst	3		
Printed Name	_		_	-Max-	Printed Name				

Sampte Container: Vollmatenat C=Core B=Bag G=Glass P=Plastic

nted Name

Signature:

G≖Gas Ws≟Wasto HWathazardous Waste W≠Water T=Tissue S=Soi/Sodmon R=Rinseate P=Product

Signaturo.

Matrix

B&B & B

# CHAIN OF CUSTODY RECORD

TD Brooks

B&B Laboratories, Inc.	Home Offi	ce 14391B Sour	h Dowling Road	Home Office 14391B South Dowling Road College Station TX 77845		phone (979) 693-3446	fax (979) 693-6389	http://www.ldi-bi.com	ldi-bi.com		Brooks
Client: ARCA OT S							V	Analyses			
Project 10: May Hower Pipeline Incidne	eeline	Incidan					12			Other Instructions	2
B&B Contact: Jun Kentrez Sampler Signature: JAMIL	ALC M	di					1 8770 J	# 12	Selo	Cala 1308 1301	10 10
Sample ID	Sample Date	Sample Time	Sample Matrix	Preservative	Containers		है। हो	1900		Commonder	
SED-DA-046 (0-05) #5D	8/12/13	1245	5-2	hene	802	-	$\downarrow$	6	F. L.		
SEP-04 -048 (0.5-1.0)	-	1250	_	7		XII		100	HH DUIL		
SED-PH-048 (1.0-1.5)	7-	1255	2	t	20%	XIX		100	44 PAHR 124	1.1	
50-04-04-01-07-08121	>		+	7	802	X	X	M	Full List	+	
								+			
								+			
				Total # of	Total # of Containers			-			
Relinquished By	ŏ	Company Name	Date	Time		Received Bv	ed Bv	0			
mence have Damie New	5 AR	RUADIS	8-12-13		Distant Lines	MIMIN	HIMING & BOUND		a	Uate	Time
internet the second sec		4	+	1	2144A (D.2151140	The state of the s	21swalet a		Som 0:0	\$15/15	1.50
				-	Signature.	MUDINE	counda evenuat	The second			

Sampio Containor: Volfmatoriat G=Glass C=Coro P=Ptrsinc B=Bag

Printed Namo: Signaturo:

Printed Name. Signaturo:

G≡Gas Ws=Wasto HW≃Hazardous Wasto W =Water T=Tissue S=Scel/Sodimen R=Rinseate P=Product

Matrix:

&B Laboratories

## Environmental Sample Inventory

ROOMANDA 1307	ROOMEONA 1302	RUDBEND3 1302	R0086003 1302	BOOBEOND 1302	RUDREDDA 1302	ROORFOOR 1302	B0086003 1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	B00B6003.1302	B0086003.1302	B0085003.1302	B0086003.1302	B0086003.1302	B0005000 1000	B0086003 1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	BOUBBOUS 1302	BOOBSOO3 1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302 Brinsenna 1307	B0066003.1302	B0086003.1302	B0086003.1302	B0086003.1302 B0086003.1302	B0086003.1302	B0086003.1302	80066003.1302	B0086003.1302	B0086003 1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	B0086003.1302	BU0000003 1302	BUUBBUUS 1302	B0086003.1302	B0086003.1302	B0086003 1302	B0086003 1302	B0086003.1302	B0086003.1302	B0086003.1302 P0086003.1302	B0066003.1302	B0066003.1302
11 amhar class RR hottla	11 amber class RR hotila	11 amber diace BR hottle	11 amber diese BR hottle	11 amber alace BD howe	11. ambar place RR hottla	11 amber class BR hottla	1L amber class BR bottle	4oz clear glass jar	4oz clear glass jar	4oz clear glass jar	4oz clear glass jar	4oz clear glass jar	4oz clear glass jar	4oz ciear glass jar	4oz clear glass jar	4oz clear glass jar	402 clear glass jar	402 clear glass jar Roz clear class iar	4oz clear glass jar	4oz clear glass jar	4oz clear glass jar	4oz clear glass jar	402 Clear glass jar Boy clear clear ior	Roz clear class isr	Boz clear glass jar	4oz clear glass jar	4oz clear glass jar	Boz clear glass jar	4oz clear glass jar	Boz clear class iar	4oz clear glass jar	4oz clear glass jar	Boz clear glass jar	402 clear olass jar	Boz clear glass jar	4oz clear glass jar	4oz clear glass jar	402 clear glass jar 402 clear glass jar	4oz clear glass jar	Boz clear glass jar	Boz clear glass jar	Boz clear glass jar	4oz clear glass jar 4oz clear olass iar	Boz clear glass jar	8oz clear gless jar	4oz clear glass jar	doz clear glass jar	402 clear glass jar 402 clear class jar	Boz clear glass jar	Boz clear glass jar	4oz clear glass jar	402 clear glass jar 407 clear olass jar	Boz clear glass jar	Boz clear glass jar	Boz clear glass jar 407 clear class jar	4oz clear glass jar	4oz clear glass jar
1	Arradis Daniel Mays		T	Accordio: Decide Mayo	Arcadis: Danial Mays	Arradis: Danial Mave		T		Arcadis: Deniel Mays					Daniel Mays	Daniel Mays	Arcadis: Uaniel Mays	Arcadis: Daniel Mays		Daniel	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays				Arcadis: Daniel Mays				Arcadis: Daniel Mays			Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcedis: Ueniel Mays	Arcadis, Uaniel Mays Arcadie: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays Arcadis: Daniel Mays		Arcadis: Daniel Mays	Arcadis: Daniel Mays Arradie: Danial Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mays
Cooler 2	Conter 2	Contar 2	Conlar 2	Contar A	Conlar 4	Conlar 1	Cooler 1	Cooler 1	Cooler 1	Cooler 1	Cooler 1	Cooler 1	Cooler 1	Cooler 1	Cooler 1	Cooler	Cooler	Cooler 2	Cooler 2	Cooler 2	Cooler 2	Cooler 2	Conter 2	Cooler 2	Cooler 2	Cooler 2	Cooler 2	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3		Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 3	Cooler 4	Cooler 4	Cooler 4	Conter 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4
13081301	13081301	13081301	13081301	10010001	13081301	13081301	13081301	13081301	13081301	13081301	13081301	13081301	13081301	13081301	3081301	3081301	1001202	3081301	3081301	13081301	13081301	3081301	1061301	13081301	13081301	13081301	13081301	13081301	13081301	13081301	3081301	13081301	13081301	13081301	3081301	3081301	3081301	3081301	3081301	3081301	3081301	13081301	13081301	13081301	13081301	13081301	100013001	13081301	13081301	13081301	3081301	3081301	13081301	13081301	13081301	13081301	13081301
		1 010				alutas 1 of 2		alytes	44 analytes, MS	0				-						44 analytes 1				MS	0	talytes	44 analytes 1		44 analytes			44 anaiyles	1 and date			analytes	44 analytes	44 analytes					44 analytes 144 analytes 1	-	on HOLD per Lyndi Mott 8/13/13 1		+	On HULU Per Lyndi Mott 8/13/13 1	÷	1.1		on HOLD per Lyndi Mott 8/13/13 1	1	10.1	on HOLD per Lyndi Molt 8/13/13 1	HOLD per Lyndi Mott 8/13/13	on HOLD per Lyndi Mott 8/13/13 1
		WATER 1				T	1	1									SULL 4			SED 4		SED	SED	T	1				SED 4	T			SED	T			SED 4	T	SED 4			SED			SED o				T	SED o	1	SFD 0			T	SED 0	SED 0
DAH TPH AII	U IOH	+	DRVI3VI3 HOID	-	-				PAH	PAH	PAH	PAH	PAH		PAH	PAH	PAH	PAH TPH AL	PAH	PAH				PAH TPH ALI	08/13/13 PAH. TPH. ALI	PAH	PAH		PAH	PAH TPH. ALI	PAH	PAH	PAH, TPH, AU		PAH, TPH, ALI	PAH	PAH	PAH, IPH, ALI	PAH	08/13/13 PAH, TPH, ALI	08/13/13 PAH, TPH, ALI	08/13/13 PAH, TPH, ALI	PAH		НОГД		HOLD	HOLD	HOLD			HOLD		НОГД	HOLD	НОГД	HOLD
OR/13/13	08/13/13	08/13/13	08/13/13	CHCHON	08/13/13 HOI D	DRYI 2/13 PAH	08/13/13 HOLD	08/13/13	08/13/13	08/13/13	08/13/13 PAH	08/13/13 PAH	08/13/13 PAH	08/13/13	08/13/13	08/13/13	ELIEU00	08/13/13 5	08/13/13	08/13/13	08/13/13	08/13/13	CUS/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13 PAH	08/13/13	08/13/13 PAH	08/13/13 PAH	08/13/13	08/13/13	08/13/13 PAH	08/13/13	08/13/13	08/13/13 HOLD	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13 HOLD	08/13/13	08/13/13 HOLD
DRUD9/13	08/09/13	CHUCHA CONCOLOGICA	CRIDD/13	CHONO	08/10/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	08/11/13	501100	08/09/13	08/09/13	08/09/13	08/09/13	08/08/13	CRIDO13	08/09/13	08/09/13	08/09/13	08/09/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/12/13	08/10/13	08/10/13	ELIOLISO	08/10/13	08/10/13	08/10/13	08/10/13	CLIOUTSO	08/10/13	08/10/13	08/10/13	08/10/13	08/10/13
SFD-DA-FR-07-080913	SED-DA-FR-07-080913	SED-DA-DI-Water	SFD-DA-DI-Water	SED DA ED DA DA1013	SED-DA-EB-08-081013	SO-DA-FR-04-081113	SO-DA-EB-04-081113	SO-DA-026 (0-0.5)	SO-DA-026 (0-0.5) MS	SO-DA-026 (0-0.5) MSD	SO-DA-026 (0.5-1.0)	SO-DA-026 (1.0-1.5)	SO-DA-028 (0-0.5)	SO-DA-028 (0.5-1.0)	SO-DA-028 (1.0-1.5)	(G-D-D -029 (0-0.5)	(0.1-C.0) 620-PU-DS	SED-DA-021 (0-0 5)	SED-DA-021 (0.5-1.0)	SED-DA-021 (1.0-1.5)	SED-DA-021 (1.5-2.0)	SED-DA-021 (2.0-3.0)	SED-DA-021 (3.0-3.3) SED-DA-042 (0.0.5)	SED-DA-042 (0-0.5) MS	SED-DA-042 (0-0.5) MSD	SED-DA-042 (0.5-1.0)	SED-DA-042 (1.0-1.5)	SED-DA-046 (0-0.5)	SED-DA-046 (0.5-1.0)	SED-DA-049 (0-0.5)	SED-DA-049 (0.5-1.0)	SED-DA-049 (1.0-1.5)	SED-DA-043 (0-0.5)	SED-DA-043 (1.0-1.5)	SED-DA-044 (0-0.5)	SED-DA-044 (0.5-1.0)	SED-DA-044 (1.0-1.5)	SED-DA-047 (0-0.5)	SED-DA-047 (1.0-1.5)	SED-DA-048 (0-0.5)	SED-DA-048 (0-0.5) MS	SED-DA-048 (0-0.5) MSD	SED-DA-048 (1.0-1.5)	SED-DA-DUP-07-081213	SED-DA-045 (0-0.5)	SED-DA-045 (0.5-1.0)	SED-UA-052 (0-0.5)	SED-UA-052 (0.5-1.0)	SED-DA-DUP-06-081013	SED-DA-018 (0-0.5)	SED-DA-018 (0.5-1.0)	SED-DA-018 (1.0-1.5) SED-DA-018 (1.6-2.0)	SED-DA-019 (0-0.5)	SED-DA-019 (0-0.5) MS	SED-DA-019 (0-0.5) MSD SED-DA-019 (0 5-1 0)	SED-DA-019 (1.0-1.5)	SED-DA-019 (1.5-2.0)
ARC1765	1	1.	1			ARC1771	ARC1772	ARC1773	ARC1774	ARC1775	ARC1776	ARC1777	ARC1778	ARC1779		1	ARC1/82					ARC1788	APC1700	ARC1791	ARC1792	ARC1793	ARC1794	ARC1795	ARC1796	ARC1798	ARC1799	ARC1800	ARC1801	ARC1803	ARC1804	ARC1805	ARC1806	ARC1808	ARC1809	ARC1810	ARC1811	ARC1812	ARC1814	ARC1815	ARC1816	ARC1817	ARC1818	APC1820	ARC1821	ARC1822	ARC1823	ARC1824	ARC1826	ARC1827	ARC1828		ARC1831
Arcadis - Mavilower AR	Arcadis - Mavlower AR	Arcadie - Mavflower AR	Arcadis - Mayfower AR	Arredic Madhuar AD	Arcadis - Mavflower AR	Arcadis - Maviower AR	Arcadis - Mavflower AR	Arcadis - Maylower AR	Arcadis - Mayliower AR	Arcadis - Mayliower AR	Arcadis - Mayflower AR	Arcadis - Mayllower AR	Arcadis - Mayflower AH	Arcadis - Maytiower AK	Arcadis - Mavflower AR	Arcadis - Mayflower AR	1.1	Arcadis - Mayflower AR	Arcadis - Mayllower AR	Arcadis - Maylower AR	Arcadis - Mavilower AR	Arcadis - Mayflower AR	Arcadis - Mayflower AR	Arcadis - Mayltower AR	Arcadis - Mayflower AR	Arcadis - Mayllower AR	1	1	4	Arcadis - Mayflower AR	1 1	1	- Mayflower	- Mayflower	Arcadis - Maytower AR Arcadis - Maytower AR	- Mayflower		Arcadis - Mayllower AR	Arcadis - Mayflower AR	Arcadis - Mayliower AR	Arcadis - Mayflower AR	Arcadis - Mayllower AR	Arcadis - Mayllower AR	Arcadis - Maylower AR	Arcadis - Mavinuwer AR	Arcadis - Mayflower AR	Arcadis - Mayflower AR	Arcadis - Mayflower AR	Arcadis - Mayliower AR Arcadis - Mayliower AR	Arcadis - Mayllower AR	Arcadis - Mayllower AR	Arcadis - Mayllower AR Arcadis - Mavliower AR	Arcadis - Mayflower AR	Arcadis - Mayflower AR			
113034	113034	113034	113034	VEUCEI	113034	113034	113034	J13034	J13034	J13034	J13034	J13034	J13034	J13034	J13034	12021	113034	113034	1			1	113034	T					J13034				113034	113034	J13034	J13034	T	113034				113034			J13034		113034			J13034	113034	113034			113034		J13034
64453	64454	64455	64456	TAA57	64458	64459	64460	64461	64462	64463	64464	64465	64466	64467	64468	R0440A	04410	64472	64473	64474	64475	644/6	64478	64479	64480	64481	64482	64483	64484	1.			64489			64493	64494		1	-	-	64500	64502	64503	64504		64507	-				64513	-		64517	11	29

a Project#	B0066003.1302
Container	4oz clear glass jar
B SDG Cooler # Sent by:	381301 Cooler 4 Arcadis: Daniel Mays
MATRIX COMMENTS B&	SED on HOLD per Lyndi Mott 8/13/13 130
COL. DATE RECVD Analysis	08/10/13 08/13/13 HOLD
FILENAME CLIENTID	ARC1832 SED-DA-019 (2.0-2.5)
CLIENY NAME	Arcadis - Mayllower AR
# Job #	J13034
# 607	6452(

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## **B&B LABORATORIES SAMPLE INITIATION FORM-ENV**

Job #: J13034	Number of Samples: 4
SDG: 13081301	Matrix: Water
Client: Avcadis-MayflowerAR	Due Date: 45 days: 9/27/13
Initiation Date: 8/13/13	Comments: 3 Waters: PAH, TPA, AU
	received \$113/13 PAH 44 analytes
Analyses	
	Aliphatics/TPH EOM
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	C STANDARDS TO USE
Surrogate(s): (act / 14-14-	
Spike Standard(s):	
Internal Standard(s): <u>C.C.P+++</u>	Volume(s):
Final Extract Volume (ml): /. 0	
Final Extract Volume (mi):	Final Solvent: DYM
Comments:	Final Solvent: DYM
	Final Solvent: $\underline{\mathcal{D}}_{\mathcal{M}}$
Comments:	8 90° 1 8 2/13/13 Bueultu Date: 8/13/13
Comments:	$5^{9^{9^{1}}}$

&B Laboratories

**Environmental Sample Inventory** 

-	I CLIENT NAME	u	FILENAME	CLIENTID	COL. DATE	RECVD Analy	Sis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	Project #
12		flower AR	ARC1765	SED-DA-EB-07-080913	08/09/13	08/13/13 PAH.	AH, TPH, ALI	WATER	1 of 2	-	Cooler 2	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
8	Arcadis - N	Aayflower AR	ARC1767	SED-DA-DI-Water	08/09/13	08/13/13 PAH, TPH,	TPH, ALI	WATER	1 of 2	13081301	Cooler 2 A	Arcadis: Daniel Mays	11. amber glass BR bottle	B0086003.1302
J13034		Tower AR	ARC1769	SED-DA-EB-06-061013	08/10/13	08/13/13 PAH.	TPH, ALI	WATER	1 of 2		Cooler 4	Arcadis: Daniel Mays	1L amber glass BR bottle	B0086003.1302
8		flower AR	ARC1771	I SO-DA-EB-04-081113	08/11/13	08/13/13 PAH		WATER	44 analytes, 1 of 2	-	Cooler 1	Arcadis: Daniel Mays	11. amber glass BR bottle	B0086003.1302

B&B LABORATORIES SAM	
Job #: <u>J13034</u> SDG: <u>13081301</u> Client: <u>Arcadis - Mayflower</u> AR Initiation Date: <u>8/13/13</u>	Number of Samples: 13 Matrix: <u>sediments</u> Due Date: 45 days: 9/27/13 Comments: PIAH, TPH, AU VECEIVED 8/13/13
	Aliphatics/TPH EOM TOC/TIC
Requested QA/QC (per batch of Client Blank Spike Duplicate Matrix Spike Duplicate	
	IC STANDARDS TO USE
Surrogate(s):/.4.4.4.4.1	Volume(s): /072-1
Spike Standard(s): <u>64-14</u> <u>A-i1</u>	Volume(s):
Internal Standard(s): CALLA(1	Volume(s): /// C
Final Extract Volume (ml):	Final Solvent: PCM
Comments:	

&B Laboratories

Environmental Sample Inventory

# 80	10b #	Job # CLIENT NAME	FILENAME CLIENTID	CLIENT ID	COL. DATE	RECVD Analysis	MATRIX COMMENTS	S B&B SDG	Cooler#	Sent by:	Container	a: Project#
4472	J13034	Arcadis - Mayflower AR	ARC1784	SED-DA-021 (0-0.5)	08/09/13	08/13/13 PAH, TPH, ALI	SED	1308130	Cooler 2		8oz clear glass jar	B0086003.1302
64478	J13034	Arcadis - Mayflower AR	ARC1790	SED-DA-042 (0-0.5)	08/09/13	08/13/13 PAH, TPH, ALI	SED	13081301	Cooler 2	1	8oz clear glass iar	B0086003.1302
64479	J13034	Arcadis - Mayflower AR	ARC1791	SED-DA-042 (0-0.5) MS	08/09/13	08/13/13 PAH, TPH, ALI	SED MS	13081301			Boz clear glass lar	B0086003.1302
64480	J13034	Arcadis - Mayflower AR	ARC1792	SED-DA-042 (0-0.5) MSD	08/09/13	08/13/13 PAH, TPH, ALI	SED MSD	13081301	-	-	8oz clear glass iar	B0086003.1302
64483	J13034	Arcadis - Mayflower AR	ARC1795	SED-DA-046 (0-0.5)	08/12/13	08/13/13 PAH. TPH. ALI	SED	1308130	-		lear class	B0086003 1302
486	J13034	Arcadis - Mayflower AR	ARC1798	SED-DA-049 (0-0.5)	08/12/13	08/13/13 PAH. TPH. ALI	SED	1308130	-		Boz clear class lar	B0086003 1302
64489	J13034	Arcadis - Mayflower AR	ARC1801	SED-DA-043 (0-0.5)	08/12/13	08/13/13 PAH, TPH, ALI		1308130	Cooler 3		8oz clear olass lar	B0086003.1302
64492	J13034	Arcadis - Mayflower AR	ARC1804	SED-DA-044 (0-0.5)	08/12/13	08/13/13 PAH, TPH, ALI	SED	13081301	-	Arcadis:	Boz clear olass lar	B0086003 1307
495	J13034	Arcadis - Mayflower AR	ARC1807	SED-DA-047 (0-0.5)	08/12/13	08/13/13 PAH, TPH, ALI		1308130	Cooler 3	Arcadis:	8oz clear olass iar	B0086003 1302
64498	J13034	Arcadis - Mayllower AR	ARC1810	SED-DA-048 (0-0.5)	08/12/13	08/13/13 PAH, TPH, ALI	SED	1308130	-	Arcadis: Daniel		B0086003 1302
499	J13034	Arcadis - Mayflower AR	ARC1811	SED-DA-048 (0-0.5) MS	08/12/13	08/13/13 PAH, TPH, ALI	SED	1308130	-	Arcadis: Daniel Mavs		B0086003.1302
64500	J13034	Arcadis - Mayflower AR	ARC1812	SED-DA-048 (0-0.5) MSD	08/12/13	08/13/13 PAH, TPH, ALI	SED MSD	13081301	Cooler 3	Arcadis: Daniel Mays	Boz clear glass lar	B0086003.1302
64503	J13034	J13034 Arcadis - Mayflower AR	ARC1815	SED-DA-DUP-07-081213	08/12/13	08/13/13 PAH, TPH, ALI	SED	13081301	-	Arcadis: Daniel Mavs	Boz clear olass iar	B0086003.1302

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## **B&B LABORATORIES SAMPLE INITIATION FORM-ENV**

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Job #: J13034	Number of Samples: 27
SDG: 13081301	Matrix: Soil/sediment
Client: Arcadis - MayflowerAK	
Initiation Date: 8/13/13	Comments: PAH: 44 aualytes
	received \$13/13
Analyses	
PAHs D OCs/PCBs	Aliphatics/TPH EOM
Dry Wt. WLipid	
Short Columns Long Columns	
Requested QA/QC (per batch of Clien	t Samples)
Blank - SRM/LCS	
Blank Spike Duplicate	Matrix Spike
Matrix Spike Duplicate	Duplicate
	FIC STANDARDS TO USE
Surrogate(s):	
	Volume(s): <u>/ 77 / 1</u>
Surrogate(s): f (	Volume(s):         I         I           Volume(s):         I         I         I
Surrogate(s): P A-1/ A. ( Spike Standard(s): P A+ A. (	Volume(s):         I           Volume(s):         I
Surrogate(s):	Volume(s): <u>Cont</u> Volume(s): <u>Cont</u> Volume(s): <u>Volume(s)</u> Final Solvent: <u>Print</u>
Surrogate(s):	Volume(s):         Colume(s):           Volume(s):         Volume(s):           Volume(s):         Volume(s):
Surrogate(s):	Volume(s): <u>Cont</u> Volume(s): <u>Cont</u> Volume(s): <u>Market</u> Final Solvent: <u>Principal</u>
Surrogate(s):	Volume(s): <u>Cont</u> Volume(s): <u>Cont</u> Volume(s): <u>Market</u> Final Solvent: <u>Principal</u>
Surrogate(s): <u>PAH</u> <u>A</u> ( Spike Standard(s): <u>PAH</u> <u>A</u> ( Internal Standard(s): <u>PAH</u> <u>A</u> Final Extract Volume (ml): <u>P</u> AH	Volume(s): <u>Cont</u> Volume(s): <u>Cont</u> Volume(s): <u>Market</u> Final Solvent: <u>Document</u>
Surrogate(s):	Volume(s): $1074$ Volume(s): $1074$ Volume(s): $1074$ Final Solvent: $2744$
Surrogate(s): <u>PAH</u> <u>A</u> ( Spike Standard(s): <u>PAH</u> <u>A</u> ( Internal Standard(s): <u>PAH</u> <u>A</u> Final Extract Volume (ml): <u>P</u> AH	Volume(s): $1074$ Volume(s): $1074$ Volume(s): $1074$ Final Solvent: $2744$

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**I&B** Laboratories

## Environmental Sample Inventory

# 607	1	JOD # CLIENT NAME	FILENAME	FILENAME CLIENT ID	COL. DATE	RECVD Analysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Cooler # Sent by:	Container	a Project#
64461	1	Arcadis - Mayflower AR	ARC1773	SO-DA-026 (0-0.5)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64462	J13034	Arcadis - Mayflower AR	ARC1774	SO-DA-026 (0-0.5) MS	08/11/13	08/13/13 PAH	SOIL	44 analytes, MS	13081301	Cooler 1	Cooler 1 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64463	J13034	Arcadis - Mayflower AR	ARC1775	SO-DA-026 (0-0.5) MSD	08/11/13	08/13/13 PAH	SOIL	44 analytes, MSD	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64464	J13034	Arcadis - Mayflower AR	ARC1776	SO-DA-026 (0.5-1.0)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64465	J13034	Arcadis - Mayflower AR	ARC1777	SO-DA-026 (1.0-1.5)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64466	J13034	Arcadis - Mayflower AR	ARC1778	SO-DA-028 (0-0.5)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64467	J13034	Arcadis - Mayflower AR	ARC1779	SO-DA-028 (0.5-1.0)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64468	J13034	Arcadis - Mayflower AR	ARC1780	SO-DA-028 (1.0-1.5)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64469	J13034	Arcadis - Mayflower AR	ARC1781	SO-DA-029 (0-0.5)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64470	J13034	Arcadis - Mayflower AR	ARC1782	SO-DA-029 (0.5-1.0)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64471	J13034	Arcadis - Mayflower AR	ARC1783	SO-DA-029 (1.0-1.5)	08/11/13	08/13/13 PAH	SOIL	44 analytes	13081301	Cooler 1	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64473	J13034	Arcadis - Mayflower AR	ARC1785	SED-DA-021 (0.5-1.0)	08/09/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 2		4oz clear glass jar	B0086003.1302
64474	J13034	Arcadis - Mayflower AR	ARC1786	SED-DA-021 (1.0-1.5)	08/09/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 2	1.11	4oz clear glass jar	B0086003.1302
64481	J13034	Arcadis - Mayflower AR	ARC1793	SED-DA-042 (0.5-1.0)	08/09/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64482	J13034	Arcadis - Mayflower AR	ARC1794	SED-DA-042 (1.0-1.5)	08/09/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 2	Cooler 2 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64484	J13034	Arcadis - Mayflower AR	ARC1796	SED-DA-046 (0.5-1.0)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64485	J13034	Arcadis - Mayflower AR	ARC1797	SED-DA-046 (1.0-1.5)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64487	J13034	Arcadis - Mayllower AR	ARC1799	SED-DA-049 (0.5-1.0)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64488	J13034	Arcadis - Maylower AR	ARC1800	SED-DA-049 (1.0-1.5)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64490	J13034	Arcadis - Mayflower AR	ARC1802	SED-DA-043 (0.5-1.0)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64491	J13034	Arcadis - Mayflower AR	ARC1803	SED-DA-043 (1.0-1.5)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1805	SED-DA-044 (0.5-1.0)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1806	SED-DA-044 (1.0-1.5)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64496	J13034	Arcadis - Mayflower AR	ARC1808	SED-DA-047 (0.5-1.0)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - Mayflower AR	ARC1809	SED-DA-047 (1.0-1.5)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
-		Arcadis - Mayflower AR	ARC1813		08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64502	J13034	Arcadis - Mayflower AR	ARC1814	SED-DA-048 (1.0-1.5)	08/12/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 3	Cooler 3 Arcadis: Daniel Mays	4oz clear class iar	B0086003.1302

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Page 1 of 1

## Number of Samples: 3 Job #: J13034 Matrix: sediments SDG: 13081301 client: Arcadis-Mayflower AR Due Date: 45 days: 9/27/13 Comments: extract & hold Initiation Date: 8/13/13 received 8/13/13 Analyses T 1 ·P PAHs OCs/PCBs Aliphatics/TPH EOM - 0. Dry Wt. %Lipid TOC/TIC D Short Columns Long Columns Requested QA/QC (per batch of Client Samples) SRM/LCS MILLS Blank Blank Spike 0. Blank Spike Duplicate Matrix Spike D Matrix Spike Duplicate Duplicate SEE BACK FOR SPECIFIC STANDARDS TO USE Surrogate(s): Volume(s): Spike Standard(s): PAU Volume(s): 1021 Internal Standard(s): <u>*h+H, A(.)*</u> Volume(s): <u>////</u> DAN Final Extract Volume (ml): Final Solvent: Comments: amanda Burgetin Date: 8/13/13 Sample Custodian Signature: Laboratory Manager Signature: Date: Sample Initiation - general Rev 1.doc cc: COC Book Rev 1 Extraction Lab

## **B&B LABORATORIES SAMPLE INITIATION FORM-ENV**

38.8 Laboratories

Environmental Sample Inventory

		CLIENT N	AME	FILENAME	CLIENT ID	COL. DATE	RECVD A	nalysis	MATRIX	COMMENTS	B&B SDG	Cooler #	Sent by:	Container	a Project#
	J13034	Arcadis - M	- Mayflower AR	ARC1787	SED-DA-021 (1.5-2.0)	08/09/13	08/13/13 ex	ktract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64476		Arcadis - N	is - Mayflower AR	ARC1788	SED-DA-021 (2.0-3.0)	08/09/13	08/13/13 ex	ktract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
	J13034	Arcadis - A	Mayflower AR	ARC1789	SED-DA-021 (3.0-3.3)	08/09/13	08/13/13 ex	ktract & HOLD	SED		13081301	Cooler 2	Arcadis: Daniel Mavs	4oz clear class iar	B0086003.1302

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Lyndi Mott | Project Chemistry/Data Quality Specialist | lyndi.mott@arcadis-us.com ARCADIS U.S., Inc. | 2929 Briarpark Drive | Suite 300 | Houston, TX 77042 T. 713.953.4829 | T. 832.534.8140 | M. 315.569.9448 www.arcadis-us.com ARCADIS, Imagine the result

Please consider the environment before printing this email.



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

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

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

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

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

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

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## amanda brewster

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

## Juan Ramirez

Environmental Lab Manager TDI-BI/B&B Labs 14391B South Dowling Rd. College Station, TX 77845 Office - (979) 693-3446 Fax - (979) 693-6389 Cell – (979) 777-0793

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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com] Sent: Monday, August 12, 2013 8:14 PM To: Juan Ramirez Cc: Tomlinson, Lisa; Capria, Dennis; Chandler, Jennifer Subject: RE: DARSP on hold

Juan,

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

Thank you, Lyndi Mott

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

Juan,

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

Thank you,

## amanda brewster

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

Hi Daniel/Ryan,

We received your coolers today in good condition.

The internal temperature of Cooler 1 was 5.1°C and the temperature blank was 1.2°C The internal temperature of Cooler 2 was 1.5°C and the temperature blank was 2.3°C The internal temperature of Cooler 3 was 2.1°C and the temperature blank was 1.9°C The internal temperature of Cooler 4 was 6.1°C and the temperature blank was 0.9°C

A PDF of the COCs is attached for your records.

Regards, Amanda

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

Good Evening Amanda,

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

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

## Regards,

Danny Mays | Environmental Specialist, E.I. | <u>daniel.mays@arcadis-us.com</u> 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.



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#### amanda brewster

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

Hello Lyndi,

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

Juan

#### Juan Ramirez

Environmental Lab Manager TDI-BI/B&B Labs 14391B South Dowling Rd. College Station, TX 77845 Office - (979) 693-3446 Fax - (979) 693-6389 Cell – (979) 777-0793

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

Juan,

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

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

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

SED-DA-052(0.0-0.5) SED-DA-052(0.5-1.0) SED-DA-052(1.0-1.5) SED-DA-018(0.0-0.5) SED-DA-018(0.5-1.0) SED-DA-018(1.0-1.5) SED-DA-018(1.5-2.0)

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

SED-DA-DUP-06

Lyndi Mott | Project Chemistry/Data Quality Specialist | lyndi.mott@arcadis-us.com ARCADIS U.S., Inc. | 2929 Briarpark Drive | Suite 300 | Houston, TX 77042 T. 713.953.4829 I T. 832.534.8140 I M. 315.569.9448 www.arcadis-us.com ARCADIS, Imagine the result Please consider the environment before printing this email.



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Job #: <u>J13034</u> SDG: <u>13081301</u> Client: <u>Avcadis-Mayflowev</u> Initiation Date: <u>8/14/13</u> Analyses PAHs OCS/PCBS Aliphatigs/TPH E EOM						
Dry Wt. Willipid						
Short Columns Long Columns						
Requested QA/QC (per batch of Clien	t Samples)					
Blank SRM/LCS_19	Blank Spike					
Blank Spike Duplicate	☐= Matrix Spike					
Matrix Spike Duplicate	Duplicate					
7	FIC STANDARDS TO USE					
Surrogate(s):	Volume(s):					
Spike Standard(s):A.(.)						
Internal Standard(s): <u>2414</u> A-C(	Volume(s):					
Final Extract Volume (ml):	Final Solvent:					
Comments: Sample Custodian Signature:	2 Breinsten Date: 8/14/13					

# 3&B Laboratories

# Environmental Sample Inventory

# 60	1ob #	Job # CLIENT NAME	FILENAME CLIENTID	CLIENTID	COL. DATE	ATE RECVD Analysis	MATRIX	COMMENTS	B&B SDG Cooler # Sent by:	Cooler #	Sent by:	Container	a Project#
64505	J13034	Arcadis - Mayflower AR	ARC1817	SED-DA-045 (0.5-1.0)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear glass jar	B0086003.1302
64507	J13034	Arcadis - Maylower AR	ARC1819	SED-DA-052 (0.5-1.0)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	1.4	B0086003 1302
1508	J13034	Arcadis - Mayflower AR	ARC1820	SED-DA-052 (1.0-1.5)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear o	80086003.1302
64511	J13034	Arcadis - Mayflower AR	ARC1823	SED-DA-018 (0.5-1.0)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear o	B0086003.1302
4512	J13034	Arcadis - Mayflower AR	ARC1824	SED-DA-018 (1.0-1.5)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mays	4oz clear o	B0086003 1302
4513	J13034	Arcadis - Mayflower AR	ARC1825	SED-DA-018 (1.5-2.0)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mavs		B0086003 1302
4517	J13034	Arcadis - Mayflower AR	ARC1829	SED-DA-019 (0.5-1.0)	08/10/13	08/13/13 PAH	SED	44 analytes	13081301	Cooler 4	Arcadis: Daniel Mavs	4oz clear glass lar	B0086003.1302
34518	J13034	Arcadis - Mayflower AR	ARC1830	SED-DA-019 (1.0-1.5)	08/10/13	08/13/13   PAH	SED	44 analytes	12081301	Conter 4	Arradie Danial Marie		

8

Job #: <u>J13034</u> SDG: <u>13081301</u> Client: <u>Avcadis-Mayflower</u> Initiation Date: <u>8/14/13</u> AR	Number of Samples: Matrix: Sed Due Date: N/A Comments: Extract: HDLD received 8/13/13
Analyses	
PAHS OCs/PCBs	Aliphatics/TPH EOM
Dry Wt. WLipid	
Short Columns	
Requested QA/QC (per batch of Clier	nt Samples)
Blank D'SRM/LCS	Blank Spike
Blank Spike Duplicate	Matrix Spike
Matrix Spike Duplicate	Duplicate
Surrogate(s):	Volume(s):
Internal Standard(s): <u><u>M14</u> A-(1</u>	
Final Extract Volume (ml):	Final Solvent:
Comments: Sample Custodian Signature: <u>AMAUQAA</u> Laboratory Manager Signature:	Brewster Date: 8/14/13 Date: 3/1/3

Buddad 4	# Ingler #	B0086003.1302
Containar a		4oz clear glass jar
Sent by:	and a second sec	Arcadis: Daniel Mays
Cooler #		Cooler 4
<b>B&amp;B SDG</b>		13081301
COMMENTS		
MATRIX		SED
RECVD Analysis	A LOUGH A LA L	UB/13/13 extract & HOLD
COL. DATE	CHICKICO	00/10/13
E CLIENTID	CED DA DIO II E 2 DI	ALL-UNATE IL O-L'U
FILENAME	ABC+821	ICDIONIC
NLIN	Arcadis - Mayfower AR	
# qor	13034	
# 60-	616	

Job #: J13034 SDG: 13081301 Client: Avcadis-MayfloulevAR Initiation Date: 8/14/13 PAHs OCS/PCBs August 2013 Number of Samples: 7 Matrix: Sedliments Due Date: 45 days: 9/28/13 Comments: PAH, TPH, ALI Vecel Ved 8/13/13 Aliphatics/TPH December 2014 EOM							
Dry Wt. Willipid TOC/TIC							
Short Columns Long Columns							
Requested QA/QC (per batch of Client Samples)         Blank       SRM/LCS/GYL/A       Blank Spike         Blank Spike Duplicate       Blank Spike         Matrix Spike Duplicate       Duplicate							
SEE BACK FOR SPECIFIC STANDARDS TO USE       Surrogate(s):							
Spike Standard(s): Volume(s):							
Internal Standard(s):     0.11     Volume(s):     0.11       Final Extract Volume (ml):     (     Final Solvent:     0.11							
Final Extract Volume (ml):							

Rev 1

cc: COC Book Extraction Lab

**B&B Laboratories** 

Environmental Sample Inventory

Project #	B0086003 1302	B0086003 1302	B0086003 1302	RODRROOM 1302	B0086003 1302	B0086003.1302	RUNSEUN2 1202
Container a	Boz clear class lar	8oz clear glass iar	oz clear class iar	oz clear class lar	oz clear olass lar	oz clear glass iar	va cloar class inc
Sent by:	Arcadis: Daniel Mays	Arcadis: Daniel Mays	Arcadis: Daniel Mavs	Arcadis: Daniel Mavs	Arcadis: Daniel Mavs	13081301 Cooler 4 Arcadis: Daniel Mays Bc	Arradie Danial Maue
Cooler #	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Cooler 4	Conter d
B&B SDG	13081301	13081301	13081301	13081301	13081301	13081301	13081301
MATRIX COMMENTS							
MATRIX	SED	SED	SED	SED	SED	SED	CIES
Analysis	PAH, TPH, ALI	PAH, TPH, AU	PAH, TPH, ALI	PAH, TPH, ALI	PAH, TPH, ALI	08/13/13 PAH, TPH, ALI	PAH TPH AII
RECVD	0/13 08/13/13 PAH, TPH	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13	08/13/13
					1.	08/10/13	
CLIENT ID	SED-DA-045 (0-0.5)	SED-DA-052 (0-0.5)	SED-DA-DUP-06-081013	SED-DA-018 (0-0.5)	SED-DA-019 (0-0.5)	SED-DA-019 (0-0.5) MS	SED-DA-019 (0-0.5) MSD
FILENAME CLIENTID	ARC1816		1		1	ARC1827	ARC1828
-	Arcadis - Mayflower AR	Arcadis - Mayflower AR	adis - Mayllower AR	Arcadis - Mayflower AR	Arcadis - Mayflower AR	Arcadis - Mayflower AR	Arcadis - Mavflower AR
1	-	-		J13034 Arc			113034 Arc
			_			64515 J	1

1/1

Page 1 of 1

8/14/2013 11:20 AM

#### amanda brewster

From:juanramirez@tdi-bi.comSent:Thursday, August 15, 2013 9:04 AMTo:'Mott, Lyndi'; 'amanda brewster'; 'Donell Frank'Cc:'Chandler, Jennifer'; 'Capria, Dennis'; 'Tom Mc Donald'Subject:RE: Samples Received 8/13/13

We will extract the duplicate bottle with the next set of waters.

Juan

Juan Ramirez

Environmental Lab Manager TDI-BI/B&B Labs 14391B South Dowling Rd. College Station, TX 77845 Office - (979) 693-3446 Fax - (979) 693-6389 Cell – (979) 777-0793

Web Site: http://tdi-bi.com/

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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com] Sent: Thursday, August 15, 2013 8:59 AM To: juanramirez@tdi-bi.com; 'amanda brewster'; 'Donell Frank' Cc: Chandler, Jennifer; Capria, Dennis; 'Tom Mc Donald' Subject: RE: Samples Received 8/13/13

Juan,

If you have other water matrices to extract by 8/16, can you include the 2<sup>nd</sup> liter of DI water. That way we would have a duplicate analysis of the DI water. I apologize that I didn't let you know sooner. I didn't realize they had already shipped the DI water.

Thank you, Lyndi Mott

From: juanramirez@tdi-bi.com [mailto:juanramirez@tdi-bi.com] Sent: Thursday, August 15, 2013 8:50 AM To: Mott, Lyndi; 'amanda brewster'; 'Donell Frank' Cc: Chandler, Jennifer; Capria, Dennis; 'Tom Mc Donald' Subject: RE: Samples Received 8/13/13

Lyndi,

We have extracted 1 liter bottle for ARC1767 (SED-DA-DI-Water). Do we also need to extract the 2<sup>nd</sup> 1 liter bottle? Extraction Holding time for the sample is due 8/16/2013.

Juan

#### Juan Ramirez

Environmental Lab Manager TDI-BI/B&B Labs 14391B South Dowling Rd. College Station, TX 77845 Office - (979) 693-3446 Fax - (979) 693-6389 Cell – (979) 777-0793

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From: Mott, Lyndi [mailto:Lyndi.Mott@arcadis-us.com] Sent: Thursday, August 15, 2013 8:05 AM To: amanda brewster; Juan Ramirez; Donell Frank Cc: Chandler, Jennifer; Capria, Dennis Subject: RE: Samples Received 8/13/13

All,

On this coc is a sample labeled as DI water; SED-DA-DI water. We sent 2 liters just in case we need to reanalyze. This is unopened DI water that we received from Lancaster. We want to see what is in the DI water since we are seeing hits in the equipment blanks. We are trying to determine if the source is from the field or the DI water since your method has much lower detection limits than Lancaster. Please analyze the DI water in the same manner as the equipment blanks. Thank you,

Lyndi Mott | Project Chemistry/Data Quality Specialist | lyndi.mott@arcadis-us.com

ARCADIS U.S., Inc. | 2929 Briarpark Drive | Suite 300 | Houston, TX 77042 T. 713.953.4829 | T. 832.534.8140 | M. 315.569.9448 www.arcadis-us.com

ARCADIS, Imagine the result

Please consider the environment before printing this email.



From: amanda brewster [mailto:amandabrewster@tdi-bi.com]
Sent: Tuesday, August 13, 2013 3:32 PM
To: Mays, Daniel; Lewis, Ryan; Parmelee, Rhiannon; Chandler, Jennifer; Capria, Dennis; Mott, Lyndi
Cc: Juan Ramirez; Donell Frank; tommcdonald@tdi-bi.com
Subject: Samples Received 8/13/13

Hi Daniel/Ryan,

We received your coolers today in good condition.

The internal temperature of Cooler 1 was 5.1°C and the temperature blank was 1.2°C The internal temperature of Cooler 2 was 1.5°C and the temperature blank was 2.3°C The internal temperature of Cooler 3 was 2.1°C and the temperature blank was 1.9°C The internal temperature of Cooler 4 was 6.1°C and the temperature blank was 0.9°C

A PDF of the COCs is attached for your records.

Regards, Amanda

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

Good Evening Amanda,

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

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

Regards, Danny Mays | Environmental Specialist, E.I. | <u>daniel.mays@arcadis-us.com</u> 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.



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JOD #: 313034	Number of Samples:
SDG: 13081301	Matrix: Water
Client: Avcadis-Mayflower	Due Date: 45 clays: 9/29/13
Initiation Date: 8/15/13	Comments: PAH, TPH, ALL
received 8/13/13	collected \$109/13 extract by \$115/13
Analyses	provide and a second
	Aliphatics/TPH De EOM
Dry Wt. WLipid	
Short Columns Long Columns	
Requested QA/QC (per batch of Client	
Blank SRM/LCS	Blank Spike
Blank Spike Duplicate	Matrix Spike
Matrix Spike Duplicate	Duplicate
SEE BACK FOR SPEC	IFIC STANDARDS TO USE
	Volume(s):
Spike Standard(s):	Volume(s): <u>/cv_/</u>
Internal Standard(s): 811-4 A.C.	Volume(s): 102.1
Final Extract Volume (ml): 7. C	Final Solvent: 12.9
Comments:	
	a DE
Sample Custodian Signature:	BNew Sthe Date: 8/15/13
	2 01000 ~ 1 Uate: 013/13
Laboratory Manager Signature:	Date: 2/15/13

Froject #	B0086003.1302
Container	1L amber glass BR bottle
oler # Sent by:	oler 2 Arcadis: Daniel Mays
TS B&B SDG Co	13081301 Co
MATRIX COMMEN	WALEK 2 of 2
RECVD Analysis	10113/13 PAN, 1PH, ALI
COL. DATE	100/08/13
CLIENT ID	SCO-DV-DI-VAIG
FILENAME CLIEN	20101
CLIENT NAME	
Job #	
Log # 64456	

Page 1 of 1

### **Laboratory Bench Sheet Logs**

Spike: 100 µL PAH: <u>Ak-WhSK-100000</u> Pest/PCB:	Turbo Vap II Bath T (C): Pressure (>20psj/; Check Water Level: Turbo Vap Date:	Internal Chain of Custody	Extraction Prep	3.13	Initials: Initials	Extra	8-13-15 8-13-53 Initials	Concentration	8-14-13 8-14-13	Initials:	Short Columns	8-14-13 B-14-13	Initials: Euclimiteds: Euclim	ENV 3080 Page 1 of 2
Surrogate: JUU ML SF PAH: <u>AP-WKSU-25bU-002</u> PA Pest/PCB:	GC Int Std:         IOU         µL         Turbo Vap II           PAH:         AR-WFIS - 2500 -000         Bath T (C):         PestvPCB:           PestvPCB:	Extraction Comments				VAH DNIY	KHH ONIJ			PAH only	ſ			
Lipids Y/O Dry Wt. Y/O Copper Y/O EOM ON Lond /Short	Added Witness 8/13/13 ++4 & -13-13 8/13/13 ++4 & -13-13 Hth Car 8/15/13 & -13-13 B-15-13	Dry Wt. Dry Wt. (g)					1/2	to the	2	d	/			
13081301 D9 01 AR ALI	O mL Surrogate: Spike: Internal:	Wet Wt.	1.00	1.00	1,00	1.04	70.1	1.25	40.1	102				
Job #. JJJJJ4 SDG #: 1308C Client: Arc adus - Naug Flower Analysis: [28 PAH DESTS DEB 20 Other: TPH Extraction Solvent: DCM	Final Solvent: DCM Final Volume: 1. Beneral Comments: Perfort 13-3099 Add 0AH + ALI Standards, avortze PAH only - CK SEC COMMENTS FOUR SPECIFIC avortzes PAH only - CK	Client ID	Proced wrad Blawle	ENV3080 B SPM "194+ Blance Spike	3 ENV3080 C Blowle Spille Duplicati	AP CITIC 20 - DA - EB - 02 - 08 07 13	APCI765 SED-DA-EB-07-080813	APCITICT SED-DA-DI-Water	ARCI769/SED - DA-EB - 08-081013	50-DA-ER-04-081113	•			
MATRIX MATRIX MATER SEDIMENT TISSUE	General Comments: Peport 13-3099 Add 0AH+AL1 SEE COMMMEN	Sample Name	1 ENV3080A	<sup>2</sup> ENV3080 B	3 ENV3080C	_	· APCITUS	7 APCITION	8 APCI769	11LLIJAN .	10	11	12	3

B&B LABORATORIES ENVIRONMENTAL EXTRACTION LOG

ENVIROLOG Rev 2 Env. Extraction Log

ENVIROLOG Rev 2 Env. Extraction Log

## ENV 3080 Page 2 of 2

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		MILENT MARY MARY MILEN	1 22								
	SEDIMENT	,									
	WATER	Lab Manager	Transfe	Transferred by Date/Int	e/Int	Date/Int:	Bal. Cal.	Date/Int:			
H		14/1 2 222	From ENV Pg: ENV3080	ENV3080	~	8-14-13	R	8/14/13 C/r	3 Cle		
	Sample Name	Client ID	Smpl WWVol (90) 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
-	ENV3080A	ENV3080A Procedural Blanch	1.00		8	24.308	24.308 24.308	0.000	0		
2	BUSUSUR	ENV3USUB Blanck Spike	1.00		2	23.763	23.763 23.277 0.014	0.014	420		
6	ENV3080C	ENV3080C Blanck Spilk Duplicath	00'		3	22.743	22.743 22.7580.015	0.015	450		
4	201702	APCITIE2 SO-DA-EB-02-080713	1.04		3	24.534	24.53424.538 0.004	0.004	115		
5	APC1763	APC1763 SU-DA-EB-03-080813	1.04	8	3	24.170	24.170 24.175 0.005	200.0	[나나		
9	APCITLES	SED-DA-EB-07-080913	LoJ	17	3	24.155	24.155 24.164 0.009	600.0	252	121	
~	Laring	APCITICT SED-DA-DI-Water	1.05	R	3	861-42	24.204 0.006	90000	171	Ph	
	APCITLES	APC1769 SED-DA-EB-08-081013	٢٥.١	to	8	22 .665	22.672 0.007	C00.0	196	18	
6	111124	APC1771 20-DA-EB-04-081113	1.02		3	23.781	23, 784 0.003	0.003	88		
10						1					
11											
12											

EOM Rev 2 EOM Logbook

		T	1	1	1	1	1		Γ	1				1					C	2
	Comments															The Relative Percent Difference (RPD) between duplicates must be ≤ 25%. Date/Int:			FOM 1020	Page 2 of 2
4	EOM µg/g (Dry Wt. Basis)							1								(RPD) between d RPD				
	EOM µg/g (Wet Wt. Basis)													x 100%		ercent Difference				
	Wt. of 100 µl EOM Wt. (mg)													(EOM1 - EOM2)	(EOM <sub>1</sub> + EOM <sub>2</sub> ) × 0.5	The Relative Pe Date/Int:	Sample:	Duplicate:		
	Filter & Sample Wt (mg)														(EOM1 + E					
	Initial Filter Wt (mg)													%RPD=		Wt. of 100 µl Lipid Wt. (mg)	20	ololo		
	Final Extract Vol (mL)				K	Þ.											0.000	7 10.0100		
	Dry Wt. (%)			1	17											Filter & Sample Wt (mg)	24.549	34,287		
	Smpl Wt./Vol (g/L) Wet Wt. Dry Wt.				1	Z								x 1000		Initial Filter Wt (mg)	24.549	122.221	400-0	
4	Client ID													(EOM Wt. (mg)) (Final Extract Vol. (ml))	(Smpl Wt/Vol. (g/L)) (0.10 ml)		Solvent Blank	EOM Standard	EOM - WYLC-10-004	
	Sample Name	8	4	2	0	2	8	6	0		~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-	= EOM						EOM Rev 2 EOM Logbook
		13	14	15	16	17	18	19	20	21	22	23	24							

**B&B LABORATORIES EOM LOGBOOK** 

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