New Jersey
ACCUTEST LABORATORIES

09/30/15

Technical Report for

Stantec Consulting Services Inc.

Sunoco - Marcus Hook Facility, PA

MHIC-AST-387 Closure/213402428

Accutest Job Number: JC4005

Sampling Date: 09/16/15

Report to:

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Total number of pages in report: **706**

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Accutest Laboratories

Sample Summary

Stantec Consulting Services Inc.

Job No: JC4005

Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213402428

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC4005-1	09/16/15	12:25	DH	09/16/15	AQ	Trip Blank Soil	TRIP BLANK
JC4005-2	09/16/15	08:50	DH	09/16/15	AQ	Equipment Blank	EB-20150916
JC4005-3	09/16/15	09:25	DH	09/16/15	SO	Soil	MHIC-387-1(5.0)
JC4005-4	09/16/15	09:45	DH	09/16/15	SO	Soil	MHIC-387-2(5.0)
JC4005-5	09/16/15	10:15	DH	09/16/15	SO	Soil	MHIC-387-3(5.0)
JC4005-6	09/16/15	10:45	DH	09/16/15	SO	Soil	MHIC-387-4(5.0)
JC4005-7	09/16/15	11:05	DH	09/16/15	SO	Soil	MHIC-387-5(3.0)
JC4005-8	09/16/15	11:15	DH	09/16/15	SO	Soil	MHIC-387-6(3.0)
JC4005-9	09/16/15	11:25	DH	09/16/15	SO	Soil	MHIC-387-7(3.0)
JC4005-10	09/16/15	11:35	DH	09/16/15	SO	Soil	MHIC-387-8(3.0)
JC4005-11	09/16/15	11:45	DH	09/16/15	SO	Soil	MHIC-387-9(3.0)
JC4005-12	09/16/15	11:55	DH	09/16/15	SO	Soil	MHIC-387-10(3.0)
JC4005-13	09/16/15	12:05	DH	09/16/15	SO	Soil	MHIC-387-11(3.0)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Sample Summary
(continued)

Stantec Consulting Services Inc.

Job No: JC4005

Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213402428

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC4005-14	09/16/15	12:15	DH	09/16/15	SO	Soil	MHIC-387-12(2.0)
JC4005-15	09/16/15	12:25	DH	09/16/15	SO	Soil	MHIC-387-13(2.0)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Stantec Consulting Services Inc.	**Job No**	JC4005
Site:	Sunoco - Marcus Hook Facility, PA	**Report Date**	9/30/2015 4:22:15 PM

On 09/16/2015, 13 Sample(s), 1 Trip Blank(s) and 1 Equipment Blank(s) were received at Accutest Laboratories at a maximum corrected temperature of 3.6 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JC4005 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ **Batch ID:** V3D4860

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC4206-15MS, JC4206-17DUP were used as the QC samples indicated.

Matrix: AQ **Batch ID:** V3D4861

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC4153-1MS, JC4153-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Benzene, Cyclohexane, Isopropylbenzene, Naphthalene, Xylene (total) are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Benzene, Cyclohexane, Isopropylbenzene, Naphthalene, Xylene (total) are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike / Matrix Spike Duplicate Recovery(s) for 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix: SO **Batch ID:** VI8341

- All samples were analyzed within the recommended method holding time.
- Sample(s) D75286-1MS, D75286-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for 1,2-Dichloroethane are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 1,2-Dichloroethane are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for 1,2,4-Trimethylbenzene, 1,2-Dichloroethane, 1,3,5-Trimethylbenzene, Benzene, Cyclohexane, Ethylbenzene, Hexane, Isopropylbenzene, sec-Butylbenzene, tert-Butylbenzene, Toluene, Xylene (total) are outside control limits for sample D75286-1MSD. Outside control limits due to matrix interference.

Matrix: SO **Batch ID:** VI8342

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC4386-1MS, JC4386-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JC4005-13 for Toluene-D8: Outside control limits due to matrix interference. Confirmed by reanalysis.
- JC4005-13 for 4-Bromofluorobenzene: Outside control limits due to matrix interference. Confirmed by reanalysis.

Matrix: SO **Batch ID:** VI8344

Volatiles by GCMS By Method SW846 8260C

Matrix: SO	Batch ID: VI8344

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC4386-4MS, JC4386-4MSD were used as the QC samples indicated.
- JC4005-13: Confirmation run for surrogate recoveries.

Extractables by GCMS By Method SW846 8270D

Matrix: AQ	Batch ID: OP87287

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: SO	Batch ID: OP87313

- All samples were extracted within the recommended method holding time.
- Sample(s) JC4005-3MS, JC4005-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for 4-Nitrophenol are outside control limits. High percent recoveries and no associated positive found in the QC batch.
- Matrix Spike Recovery(s) for 2,4-Dinitrophenol, 2-Methylnaphthalene are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 2,4-Dinitrophenol are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for 2-Methylnaphthalene, Naphthalene, Phenanthrene, Pyrene are outside control limits for sample OP87313-MSD. Analytical precision exceeds in-house control limits.

Volatiles by GC By Method SW846 8011

Matrix: SO	Batch ID: M:GBB3489

- The data for SW846 8011 meets quality control requirements.
- JC4005-11: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-9: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-8: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-7: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-6: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-10: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-15: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-14: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-13: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC4005-12: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846-8011

Matrix: AQ	Batch ID: OP87273

- The data for SW846-8011 meets quality control requirements.

Sample(s) JC3890-1MS, JC3890-1MSD, OP87273-MS/MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix: AQ	**Batch ID:** MP89073

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC3901-9FMS, JC3901-9FMSD, JC3901-9FSDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Nickel, Vanadium are outside control limits for sample MP89073-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Matrix: SO	**Batch ID:** MP89121

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC4200-6MS, JC4200-6MSD, JC4200-6SDL were used as the QC samples for metals.

Wet Chemistry By Method SM2540 G-97

Matrix: SO	**Batch ID:** GN32663

- The data for SM2540 G-97 meets quality control requirements.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Accutest New Jersey	**Job No**	JC4005
Site:	SECORPAE: Sunoco - Marcus Hook Facility, PA	**Report Date**	9/30/2015 8:22:17 AM

13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 09/16/2015 and were received at Accutest on 09/16/2015 properly preserved, at 0.3 Deg. C and intact. These Samples received an Accutest job number of JC4005. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method SW846 8011

Matrix: SO **Batch ID:** OP44699

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC3798-4MS, JC3798-4MSD were used as the QC samples indicated.
- Continuing calibration check standard GBB3489-CC3489 (sig.#2), files BB64719, BB64763 for surrogates exceed criteria. Targets recovery satisfactory.
- Continuing calibration check standard GBB3489-ECC3489 for surrogates exceed criteria. Targets recovery satisfactory.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(JC4005).

Summary of Hits

Job Number: JC4005
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 09/16/15

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Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC4005-1	**TRIP BLANK**					
No hits reported in this sample.						
JC4005-2	**EB-20150916**					
No hits reported in this sample.						
JC4005-3	**MHIC-387-1(5.0)**					
Cyclohexane		0.0030	0.0025	0.00039	mg/kg	SW846 8260C
Hexane		0.0010 J	0.0062	0.00048	mg/kg	SW846 8260C
Acenaphthene		0.0615	0.045	0.042	mg/kg	SW846 8270D
Anthracene		0.150	0.045	0.0038	mg/kg	SW846 8270D
Benzo(a)anthracene		0.162	0.045	0.0086	mg/kg	SW846 8270D
Benzo(a)pyrene		0.109	0.045	0.0095	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0736	0.045	0.0092	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.154	0.045	0.013	mg/kg	SW846 8270D
1,1'-Biphenyl		0.210	0.089	0.0083	mg/kg	SW846 8270D
Chrysene		0.242	0.045	0.0072	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0276 J	0.045	0.016	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.218	0.089	0.016	mg/kg	SW846 8270D
Fluoranthene		0.158	0.045	0.0054	mg/kg	SW846 8270D
Fluorene		0.210	0.045	0.0053	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0562	0.045	0.023	mg/kg	SW846 8270D
2-Methylnaphthalene		2.49	0.089	0.0084	mg/kg	SW846 8270D
Naphthalene		1.02	0.045	0.0071	mg/kg	SW846 8270D
Phenanthrene		1.40	0.045	0.0050	mg/kg	SW846 8270D
Pyrene		0.964	0.045	0.0056	mg/kg	SW846 8270D
Cobalt		5.8 B	5.9	0.048	mg/kg	SW846 6010C
Lead		22.1	2.4	0.28	mg/kg	SW846 6010C
Nickel		13.6	4.8	0.11	mg/kg	SW846 6010C
Vanadium		26.9	5.9	0.089	mg/kg	SW846 6010C
Zinc		44.9	5.9	0.91	mg/kg	SW846 6010C
JC4005-4	**MHIC-387-2(5.0)**					
Benzene		0.0023	0.00071	0.00019	mg/kg	SW846 8260C
Toluene		0.00059 J	0.0014	0.00029	mg/kg	SW846 8260C
Ethylbenzene		0.0014	0.0014	0.00023	mg/kg	SW846 8260C
Methyl Tert Butyl Ether		0.00064 J	0.0014	0.00022	mg/kg	SW846 8260C
Cyclohexane		0.0015 J	0.0028	0.00045	mg/kg	SW846 8260C
Hexane		0.00067 J	0.0071	0.00055	mg/kg	SW846 8260C
Isopropylbenzene		0.00031 J	0.0028	0.00015	mg/kg	SW846 8260C
2-Methylnaphthalene		0.0221 J	0.093	0.0087	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC4005
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 09/16/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Cobalt		4.7 B	5.0	0.040	mg/kg	SW846 6010C
Lead		11.5	2.0	0.24	mg/kg	SW846 6010C
Nickel		12.2	4.0	0.095	mg/kg	SW846 6010C
Vanadium		35.6	5.0	0.074	mg/kg	SW846 6010C
Zinc		25.7	5.0	0.76	mg/kg	SW846 6010C
JC4005-5	**MHIC-387-3(5.0)**					
Methyl Tert Butyl Ether		0.00032 J	0.00095	0.00015	mg/kg	SW846 8260C
Cobalt		3.0 B	5.1	0.041	mg/kg	SW846 6010C
Lead		6.9	2.0	0.24	mg/kg	SW846 6010C
Nickel		8.7	4.1	0.098	mg/kg	SW846 6010C
Vanadium		20.6	5.1	0.077	mg/kg	SW846 6010C
Zinc		21.7	5.1	0.78	mg/kg	SW846 6010C
JC4005-6	**MHIC-387-4(5.0)**					
Cobalt		4.6 B	5.0	0.040	mg/kg	SW846 6010C
Lead		7.8	2.0	0.24	mg/kg	SW846 6010C
Nickel		9.6	4.0	0.096	mg/kg	SW846 6010C
Vanadium		27.9	5.0	0.075	mg/kg	SW846 6010C
Zinc		23.5	5.0	0.77	mg/kg	SW846 6010C
JC4005-7	**MHIC-387-5(3.0)**					
Cobalt		4.0 B	5.0	0.040	mg/kg	SW846 6010C
Lead		8.8	2.0	0.24	mg/kg	SW846 6010C
Nickel		11.0	4.0	0.095	mg/kg	SW846 6010C
Vanadium		25.0	5.0	0.074	mg/kg	SW846 6010C
Zinc		29.8	5.0	0.76	mg/kg	SW846 6010C
JC4005-8	**MHIC-387-6(3.0)**					
Cobalt		13.0	5.3	0.043	mg/kg	SW846 6010C
Lead		8.6	2.1	0.25	mg/kg	SW846 6010C
Nickel		13.2	4.3	0.10	mg/kg	SW846 6010C
Vanadium		29.9	5.3	0.080	mg/kg	SW846 6010C
Zinc		28.1	5.3	0.82	mg/kg	SW846 6010C
JC4005-9	**MHIC-387-7(3.0)**					
Cobalt		6.1	4.9	0.039	mg/kg	SW846 6010C
Lead		11.0	2.0	0.23	mg/kg	SW846 6010C
Nickel		12.3	3.9	0.094	mg/kg	SW846 6010C
Vanadium		41.0	4.9	0.073	mg/kg	SW846 6010C

Summary of Hits

Job Number: JC4005
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 09/16/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Zinc		37.5	4.9	0.75	mg/kg	SW846 6010C
JC4005-10	**MHIC-387-8(3.0)**					
Cobalt		3.6 B	5.0	0.040	mg/kg	SW846 6010C
Lead		8.1	2.0	0.24	mg/kg	SW846 6010C
Nickel		8.7	4.0	0.096	mg/kg	SW846 6010C
Vanadium		26.4	5.0	0.075	mg/kg	SW846 6010C
Zinc		20.1	5.0	0.77	mg/kg	SW846 6010C
JC4005-11	**MHIC-387-9(3.0)**					
2,4-Dimethylphenol		0.128 J	0.18	0.066	mg/kg	SW846 8270D
Fluorene		0.0467	0.036	0.0043	mg/kg	SW846 8270D
Pyrene		0.0157 J	0.036	0.0045	mg/kg	SW846 8270D
Cobalt		4.1 B	5.0	0.040	mg/kg	SW846 6010C
Lead		11.2	2.0	0.24	mg/kg	SW846 6010C
Nickel		12.8	4.0	0.095	mg/kg	SW846 6010C
Vanadium		38.6	5.0	0.074	mg/kg	SW846 6010C
Zinc		26.0	5.0	0.76	mg/kg	SW846 6010C
JC4005-12	**MHIC-387-10(3.0)**					
Methyl Tert Butyl Ether		0.00036 J	0.0012	0.00018	mg/kg	SW846 8260C
Hexane		0.00069 J	0.0060	0.00046	mg/kg	SW846 8260C
Cobalt		6.2	5.1	0.041	mg/kg	SW846 6010C
Lead		11.1	2.0	0.24	mg/kg	SW846 6010C
Nickel		17.8	4.1	0.098	mg/kg	SW846 6010C
Vanadium		31.9	5.1	0.076	mg/kg	SW846 6010C
Zinc		32.7	5.1	0.78	mg/kg	SW846 6010C
JC4005-13	**MHIC-387-11(3.0)**					
Benzene		0.00018 J	0.00062	0.00016	mg/kg	SW846 8260C
Ethylbenzene		0.00069 J	0.0012	0.00020	mg/kg	SW846 8260C
Xylene (total)		0.0011 J	0.0012	0.00034	mg/kg	SW846 8260C
sec-Butylbenzene		0.0073	0.0025	0.00021	mg/kg	SW846 8260C
tert-Butylbenzene		0.0015 J	0.0025	0.00026	mg/kg	SW846 8260C
Cyclohexane		0.0026	0.0025	0.00039	mg/kg	SW846 8260C
Hexane		0.00096 J	0.0062	0.00048	mg/kg	SW846 8260C
Isopropylbenzene		0.0047	0.0025	0.00013	mg/kg	SW846 8260C
Naphthalene		0.00090 J	0.0062	0.00023	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene		0.0075	0.0025	0.00025	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene		0.00079 J	0.0025	0.00024	mg/kg	SW846 8260C
2-Methylnaphthalene		0.0739 J	0.081	0.0076	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC4005
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 09/16/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Phenanthrene		0.0542	0.041	0.0045	mg/kg	SW846 8270D
Pyrene		0.0265 J	0.041	0.0051	mg/kg	SW846 8270D
Cobalt		7.2	4.7	0.037	mg/kg	SW846 6010C
Lead		12.5	1.9	0.22	mg/kg	SW846 6010C
Nickel		15.1	3.7	0.090	mg/kg	SW846 6010C
Vanadium		37.4	4.7	0.070	mg/kg	SW846 6010C
Zinc		39.3	4.7	0.72	mg/kg	SW846 6010C
JC4005-14	**MHIC-387-12(2.0)**					
Hexane		0.00060 J	0.0056	0.00044	mg/kg	SW846 8260C
Benzo(a)anthracene		0.0158 J	0.037	0.0071	mg/kg	SW846 8270D
Chrysene		0.0188 J	0.037	0.0059	mg/kg	SW846 8270D
2-Methylnaphthalene		0.128	0.074	0.0069	mg/kg	SW846 8270D
Naphthalene		0.0510	0.037	0.0059	mg/kg	SW846 8270D
Phenanthrene		0.0817	0.037	0.0041	mg/kg	SW846 8270D
Pyrene		0.0641	0.037	0.0046	mg/kg	SW846 8270D
Cobalt		6.1	4.8	0.038	mg/kg	SW846 6010C
Lead		14.6	1.9	0.23	mg/kg	SW846 6010C
Nickel		13.9	3.8	0.092	mg/kg	SW846 6010C
Vanadium		33.9	4.8	0.072	mg/kg	SW846 6010C
Zinc		39.9	4.8	0.74	mg/kg	SW846 6010C
JC4005-15	**MHIC-387-13(2.0)**					
Fluoranthene		0.0219 J	0.037	0.0045	mg/kg	SW846 8270D
Phenanthrene		0.0215 J	0.037	0.0041	mg/kg	SW846 8270D
Pyrene		0.0340 J	0.037	0.0046	mg/kg	SW846 8270D
Cobalt		7.9	5.2	0.041	mg/kg	SW846 6010C
Lead		20.4	2.1	0.25	mg/kg	SW846 6010C
Nickel		15.7	4.1	0.10	mg/kg	SW846 6010C
Vanadium		34.5	5.2	0.078	mg/kg	SW846 6010C
Zinc		50.5	5.2	0.80	mg/kg	SW846 6010C

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC4005-1	**Date Sampled:**	09/16/15
Matrix:	AQ - Trip Blank Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D113513.D	1	09/22/15	XC	n/a	n/a	V3D4860
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.16	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.21	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.28	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.18	ug/l	
110-54-3	Hexane	ND	5.0	0.40	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.23	ug/l	
91-20-3	Naphthalene	ND	5.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.22	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		76-120%
17060-07-0	1,2-Dichloroethane-D4	106%		73-122%
2037-26-5	Toluene-D8	100%		84-119%
460-00-4	4-Bromofluorobenzene	95%		78-117%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC4005-1	**Date Sampled:**	09/16/15
Matrix:	AQ - Trip Blank Soil	**Date Received:**	09/16/15
Method:	SW846-8011 SW846 8011	**Percent Solids:**	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7G15149.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550
Run #2							

	Initial Volume	Final Volume
Run #1	36 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.019	0.0083	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	71%		17-143%
3017-95-6	2-Bromo-1-chloropropane	74%		17-143%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	EB-20150916		
Lab Sample ID:	JC4005-2	**Date Sampled:**	09/16/15
Matrix:	AQ - Equipment Blank	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D113554.D	1	09/23/15	XC	n/a	n/a	V3D4861
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.24	ug/l	
108-88-3	Toluene	ND	1.0	0.16	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.21	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.28	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.18	ug/l	
110-54-3	Hexane	ND	5.0	0.40	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.23	ug/l	
91-20-3	Naphthalene	ND	5.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.22	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		76-120%
17060-07-0	1,2-Dichloroethane-D4	106%		73-122%
2037-26-5	Toluene-D8	99%		84-119%
460-00-4	4-Bromofluorobenzene	96%		78-117%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	EB-20150916		
Lab Sample ID:	JC4005-2	**Date Sampled:**	09/16/15
Matrix:	AQ - Equipment Blank	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P98836.D	1	09/17/15	SW	09/17/15	OP87287	EP4300
Run #2							

	Initial Volume	Final Volume
Run #1	970 ml	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	5.2	1.9	ug/l	
51-28-5	2,4-Dinitrophenol	ND	10	6.7	ug/l	
95-48-7	2-Methylphenol	ND	2.1	1.3	ug/l	
	3&4-Methylphenol	ND	2.1	1.1	ug/l	
100-02-7	4-Nitrophenol	ND	10	0.94	ug/l	
108-95-2	Phenol	ND	2.1	0.56	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.30	ug/l	
120-12-7	Anthracene	ND	1.0	0.19	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.25	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.23	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.23	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.28	ug/l	
218-01-9	Chrysene	ND	1.0	0.17	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.29	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.60	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.24	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	0.57	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.42	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.30	ug/l	
91-20-3	Naphthalene	ND	1.0	0.27	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.19	ug/l	
129-00-0	Pyrene	ND	1.0	0.20	ug/l	
110-86-1	Pyridine	ND	2.1	0.30	ug/l	
91-22-5	Quinoline	ND	5.2	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	59%		14-88%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EB-20150916		
Lab Sample ID:	JC4005-2	**Date Sampled:**	09/16/15
Matrix:	AQ - Equipment Blank	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	40%		10-110%
118-79-6	2,4,6-Tribromophenol	84%		39-149%
4165-60-0	Nitrobenzene-d5	113%		32-128%
321-60-8	2-Fluorobiphenyl	94%		35-119%
1718-51-0	Terphenyl-d14	109%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	EB-20150916		
Lab Sample ID:	JC4005-2	**Date Sampled:**	09/16/15
Matrix:	AQ - Equipment Blank	**Date Received:**	09/16/15
Method:	SW846-8011 SW846 8011	**Percent Solids:**	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7G15150.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550
Run #2							

	Initial Volume	Final Volume
Run #1	35 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.0087	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	68%		17-143%
3017-95-6	2-Bromo-1-chloropropane	70%		17-143%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EB-20150916		
Lab Sample ID:	JC4005-2	**Date Sampled:**	09/16/15
Matrix:	AQ - Equipment Blank	**Date Received:**	09/16/15
		Percent Solids:	n/a
Project:	Sunoco - Marcus Hook Facility, PA		

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	0.54 U	50	0.54	ug/l	1	09/17/15	09/18/15	MS	SW846 6010C [1]	SW846 3010A [2]
Lead	2.3 U	3.0	2.3	ug/l	1	09/17/15	09/18/15	MS	SW846 6010C [1]	SW846 3010A [2]
Nickel	0.79 U	10	0.79	ug/l	1	09/17/15	09/18/15	MS	SW846 6010C [1]	SW846 3010A [2]
Vanadium	0.70 U	50	0.70	ug/l	1	09/17/15	09/18/15	MS	SW846 6010C [1]	SW846 3010A [2]
Zinc	4.9 U	20	4.9	ug/l	1	09/17/15	09/18/15	MS	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA37588
(2) Prep QC Batch: MP89073

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-1(5.0)		
Lab Sample ID:	JC4005-3	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	74.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207913.D	1	09/23/15	SJM	n/a	n/a	VI8341
Run #2							

	Initial Weight
Run #1	5.4 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00062	0.00017	mg/kg	
108-88-3	Toluene	ND	0.0012	0.00026	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	0.00034	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	0.00019	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0025	0.00021	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0025	0.00026	mg/kg	
110-82-7	Cyclohexane	0.0030	0.0025	0.00039	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00017	mg/kg	
110-54-3	Hexane	0.0010	0.0062	0.00048	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0025	0.00013	mg/kg	
91-20-3	Naphthalene	ND	0.0062	0.00024	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0025	0.00025	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0025	0.00024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	96%		77-125%
460-00-4	4-Bromofluorobenzene	101%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-1(5.0)		
Lab Sample ID:	JC4005-3	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	74.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M118009.D	1	09/19/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.22	0.082	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.22	0.20	mg/kg	
95-48-7	2-Methylphenol	ND	0.089	0.065	mg/kg	
	3&4-Methylphenol	ND	0.089	0.043	mg/kg	
100-02-7	4-Nitrophenol	ND	0.45	0.076	mg/kg	
108-95-2	Phenol	ND	0.089	0.033	mg/kg	
83-32-9	Acenaphthene	0.0615	0.045	0.042	mg/kg	
120-12-7	Anthracene	0.150	0.045	0.0038	mg/kg	
56-55-3	Benzo(a)anthracene	0.162	0.045	0.0086	mg/kg	
50-32-8	Benzo(a)pyrene	0.109	0.045	0.0095	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0736	0.045	0.0092	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.154	0.045	0.013	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.045	0.010	mg/kg	
92-52-4	1,1'-Biphenyl	0.210	0.089	0.0083	mg/kg	
218-01-9	Chrysene	0.242	0.045	0.0072	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0276	0.045	0.016	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.089	0.0053	mg/kg	
84-66-2	Diethyl phthalate	ND	0.089	0.0057	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.218	0.089	0.016	mg/kg	
206-44-0	Fluoranthene	0.158	0.045	0.0054	mg/kg	
86-73-7	Fluorene	0.210	0.045	0.0053	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0562	0.045	0.023	mg/kg	
91-57-6	2-Methylnaphthalene	2.49	0.089	0.0084	mg/kg	
91-20-3	Naphthalene	1.02	0.045	0.0071	mg/kg	
85-01-8	Phenanthrene	1.40	0.045	0.0050	mg/kg	
129-00-0	Pyrene	0.964	0.045	0.0056	mg/kg	
110-86-1	Pyridine	ND	0.089	0.022	mg/kg	
91-22-5	Quinoline	ND	0.22	0.016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	68%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-1(5.0)		
Lab Sample ID:	JC4005-3	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	74.4
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		30-106%
118-79-6	2,4,6-Tribromophenol	58%		24-140%
4165-60-0	Nitrobenzene-d5	66%		26-122%
321-60-8	2-Fluorobiphenyl	62%		36-112%
1718-51-0	Terphenyl-d14	66%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-1(5.0)		
Lab Sample ID:	JC4005-3	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	74.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64717.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0033	0.00055	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	129%		70-170%
460-00-4	Bromofluorobenzene (S)	118%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-1(5.0)		
Lab Sample ID:	JC4005-3	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	74.4
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	5.8 B	5.9	0.048	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	22.1	2.4	0.28	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	13.6	4.8	0.11	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	26.9	5.9	0.089	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	44.9	5.9	0.91	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-2(5.0)		
Lab Sample ID:	JC4005-4	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	70.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207914.D	1	09/23/15	SJM	n/a	n/a	VI8341
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0023	0.00071	0.00019	mg/kg	
108-88-3	Toluene	0.00059	0.0014	0.00029	mg/kg	J
100-41-4	Ethylbenzene	0.0014	0.0014	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	0.0014	0.00039	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.00064	0.0014	0.00022	mg/kg	J
135-98-8	sec-Butylbenzene	ND	0.0028	0.00024	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0028	0.00030	mg/kg	
110-82-7	Cyclohexane	0.0015	0.0028	0.00045	mg/kg	J
107-06-2	1,2-Dichloroethane	ND	0.0014	0.00019	mg/kg	
110-54-3	Hexane	0.00067	0.0071	0.00055	mg/kg	J
98-82-8	Isopropylbenzene	0.00031	0.0028	0.00015	mg/kg	J
91-20-3	Naphthalene	ND	0.0071	0.00027	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0028	0.00028	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0028	0.00027	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-122%
17060-07-0	1,2-Dichloroethane-D4	104%		68-124%
2037-26-5	Toluene-D8	97%		77-125%
460-00-4	4-Bromofluorobenzene	102%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-2(5.0)		
Lab Sample ID:	JC4005-4	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	70.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P52518.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.23	0.085	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.23	0.20	mg/kg	
95-48-7	2-Methylphenol	ND	0.093	0.068	mg/kg	
	3&4-Methylphenol	ND	0.093	0.045	mg/kg	
100-02-7	4-Nitrophenol	ND	0.47	0.079	mg/kg	
108-95-2	Phenol	ND	0.093	0.035	mg/kg	
83-32-9	Acenaphthene	ND	0.047	0.044	mg/kg	
120-12-7	Anthracene	ND	0.047	0.0040	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.047	0.0090	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.047	0.0099	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.047	0.0096	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.047	0.014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.047	0.010	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.093	0.0086	mg/kg	
218-01-9	Chrysene	ND	0.047	0.0075	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.047	0.017	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.093	0.0055	mg/kg	
84-66-2	Diethyl phthalate	ND	0.093	0.0059	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.093	0.016	mg/kg	
206-44-0	Fluoranthene	ND	0.047	0.0057	mg/kg	
86-73-7	Fluorene	ND	0.047	0.0055	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.047	0.024	mg/kg	
91-57-6	2-Methylnaphthalene	0.0221	0.093	0.0087	mg/kg	J
91-20-3	Naphthalene	ND	0.047	0.0075	mg/kg	
85-01-8	Phenanthrene	ND	0.047	0.0052	mg/kg	
129-00-0	Pyrene	ND	0.047	0.0058	mg/kg	
110-86-1	Pyridine	ND	0.093	0.023	mg/kg	
91-22-5	Quinoline	ND	0.23	0.017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	81%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-2(5.0)		
Lab Sample ID:	JC4005-4	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	70.6
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	80%		30-106%
118-79-6	2,4,6-Tribromophenol	88%		24-140%
4165-60-0	Nitrobenzene-d5	100%		26-122%
321-60-8	2-Fluorobiphenyl	95%		36-112%
1718-51-0	Terphenyl-d14	94%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-2(5.0)		
Lab Sample ID:	JC4005-4	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	70.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64718.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0035	0.00059	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	169%		70-170%
460-00-4	Bromofluorobenzene (S)	114%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-2(5.0)		
Lab Sample ID:	JC4005-4	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	70.6
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	4.7 B	5.0	0.040	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	11.5	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	12.2	4.0	0.095	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	35.6	5.0	0.074	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	25.7	5.0	0.76	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-3(5.0)		
Lab Sample ID:	JC4005-5	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	79.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207939.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	6.6 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00048	0.00013	mg/kg	
108-88-3	Toluene	ND	0.00095	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00095	0.00015	mg/kg	
1330-20-7	Xylene (total)	ND	0.00095	0.00026	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.00032	0.00095	0.00015	mg/kg	J
135-98-8	sec-Butylbenzene	ND	0.0019	0.00016	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0019	0.00020	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00030	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00095	0.00013	mg/kg	
110-54-3	Hexane	ND	0.0048	0.00037	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0019	0.00010	mg/kg	
91-20-3	Naphthalene	ND	0.0048	0.00018	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0019	0.00019	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0019	0.00018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-122%
17060-07-0	1,2-Dichloroethane-D4	105%		68-124%
2037-26-5	Toluene-D8	98%		77-125%
460-00-4	4-Bromofluorobenzene	100%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-3(5.0)		
Lab Sample ID:	JC4005-5	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	79.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117993.D	1	09/18/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.21	0.075	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.21	0.18	mg/kg	
95-48-7	2-Methylphenol	ND	0.082	0.060	mg/kg	
	3&4-Methylphenol	ND	0.082	0.039	mg/kg	
100-02-7	4-Nitrophenol	ND	0.41	0.070	mg/kg	
108-95-2	Phenol	ND	0.082	0.031	mg/kg	
83-32-9	Acenaphthene	ND	0.041	0.039	mg/kg	
120-12-7	Anthracene	ND	0.041	0.0035	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.041	0.0079	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.041	0.0088	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.041	0.0085	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.041	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.041	0.0092	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.082	0.0076	mg/kg	
218-01-9	Chrysene	ND	0.041	0.0066	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.041	0.015	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.082	0.0049	mg/kg	
84-66-2	Diethyl phthalate	ND	0.082	0.0052	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.082	0.014	mg/kg	
206-44-0	Fluoranthene	ND	0.041	0.0050	mg/kg	
86-73-7	Fluorene	ND	0.041	0.0049	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.041	0.021	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.082	0.0077	mg/kg	
91-20-3	Naphthalene	ND	0.041	0.0066	mg/kg	
85-01-8	Phenanthrene	ND	0.041	0.0046	mg/kg	
129-00-0	Pyrene	ND	0.041	0.0051	mg/kg	
110-86-1	Pyridine	ND	0.082	0.021	mg/kg	
91-22-5	Quinoline	ND	0.21	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	91%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-3(5.0)		
Lab Sample ID:	JC4005-5	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	79.7
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	88%		30-106%
118-79-6	2,4,6-Tribromophenol	81%		24-140%
4165-60-0	Nitrobenzene-d5	93%		26-122%
321-60-8	2-Fluorobiphenyl	90%		36-112%
1718-51-0	Terphenyl-d14	98%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-3(5.0)		
Lab Sample ID:	JC4005-5	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	79.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64720.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0031	0.00052	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	145%		70-170%
460-00-4	Bromofluorobenzene (S)	119%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-3(5.0)		
Lab Sample ID:	JC4005-5	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	79.7
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	3.0 B	5.1	0.041	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	6.9	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	8.7	4.1	0.098	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	20.6	5.1	0.077	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	21.7	5.1	0.78	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-4(5.0)		
Lab Sample ID:	JC4005-6	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	73.8
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207940.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	6.2 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00055	0.00015	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00018	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00030	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00017	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0022	0.00019	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0022	0.00023	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00035	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00015	mg/kg	
110-54-3	Hexane	ND	0.0055	0.00042	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0022	0.00012	mg/kg	
91-20-3	Naphthalene	ND	0.0055	0.00021	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0022	0.00022	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0022	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	94%		77-125%
460-00-4	4-Bromofluorobenzene	100%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-4(5.0)		
Lab Sample ID:	JC4005-6	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	73.8
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P52523.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265
Run #2							

	Initial Weight	Final Volume
Run #1	31.9 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.21	0.078	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.21	0.19	mg/kg	
95-48-7	2-Methylphenol	ND	0.085	0.062	mg/kg	
	3&4-Methylphenol	ND	0.085	0.041	mg/kg	
100-02-7	4-Nitrophenol	ND	0.42	0.072	mg/kg	
108-95-2	Phenol	ND	0.085	0.032	mg/kg	
83-32-9	Acenaphthene	ND	0.042	0.040	mg/kg	
120-12-7	Anthracene	ND	0.042	0.0037	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.042	0.0082	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.042	0.0090	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.042	0.0088	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.042	0.013	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.042	0.0095	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.085	0.0079	mg/kg	
218-01-9	Chrysene	ND	0.042	0.0068	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.042	0.015	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.085	0.0050	mg/kg	
84-66-2	Diethyl phthalate	ND	0.085	0.0054	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.085	0.015	mg/kg	
206-44-0	Fluoranthene	ND	0.042	0.0052	mg/kg	
86-73-7	Fluorene	ND	0.042	0.0051	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.042	0.022	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.085	0.0079	mg/kg	
91-20-3	Naphthalene	ND	0.042	0.0068	mg/kg	
85-01-8	Phenanthrene	ND	0.042	0.0047	mg/kg	
129-00-0	Pyrene	ND	0.042	0.0053	mg/kg	
110-86-1	Pyridine	ND	0.085	0.021	mg/kg	
91-22-5	Quinoline	ND	0.21	0.016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	80%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-4(5.0)		
Lab Sample ID:	JC4005-6	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	73.8
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		30-106%
118-79-6	2,4,6-Tribromophenol	104%		24-140%
4165-60-0	Nitrobenzene-d5	82%		26-122%
321-60-8	2-Fluorobiphenyl	91%		36-112%
1718-51-0	Terphenyl-d14	98%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-4(5.0)		
Lab Sample ID:	JC4005-6	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	73.8
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64721.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0033	0.00056	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	142%		70-170%
460-00-4	Bromofluorobenzene (S)	108%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-4(5.0)		
Lab Sample ID:	JC4005-6	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	73.8
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	4.6 B	5.0	0.040	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	7.8	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	9.6	4.0	0.096	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	27.9	5.0	0.075	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	23.5	5.0	0.77	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-5(3.0)		
Lab Sample ID:	JC4005-7	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	85.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207942.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	4.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00062	0.00017	mg/kg	
108-88-3	Toluene	ND	0.0012	0.00026	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	0.00034	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	0.00019	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0025	0.00021	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0025	0.00026	mg/kg	
110-82-7	Cyclohexane	ND	0.0025	0.00039	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00017	mg/kg	
110-54-3	Hexane	ND	0.0062	0.00048	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0025	0.00013	mg/kg	
91-20-3	Naphthalene	ND	0.0062	0.00023	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0025	0.00025	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0025	0.00024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	97%		77-125%
460-00-4	4-Bromofluorobenzene	98%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-5(3.0)		
Lab Sample ID:	JC4005-7	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117994.D	1	09/18/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.070	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.077	0.056	mg/kg	
	3&4-Methylphenol	ND	0.077	0.037	mg/kg	
100-02-7	4-Nitrophenol	ND	0.38	0.065	mg/kg	
108-95-2	Phenol	ND	0.077	0.029	mg/kg	
83-32-9	Acenaphthene	ND	0.038	0.036	mg/kg	
120-12-7	Anthracene	ND	0.038	0.0033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.038	0.0074	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.038	0.0082	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.038	0.0079	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.038	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.038	0.0085	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.077	0.0071	mg/kg	
218-01-9	Chrysene	ND	0.038	0.0062	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.038	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.077	0.0045	mg/kg	
84-66-2	Diethyl phthalate	ND	0.077	0.0049	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.077	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.038	0.0047	mg/kg	
86-73-7	Fluorene	ND	0.038	0.0046	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.038	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.077	0.0072	mg/kg	
91-20-3	Naphthalene	ND	0.038	0.0061	mg/kg	
85-01-8	Phenanthrene	ND	0.038	0.0043	mg/kg	
129-00-0	Pyrene	ND	0.038	0.0048	mg/kg	
110-86-1	Pyridine	ND	0.077	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	81%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-5(3.0)		
Lab Sample ID:	JC4005-7	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.6
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	80%		30-106%
118-79-6	2,4,6-Tribromophenol	77%		24-140%
4165-60-0	Nitrobenzene-d5	84%		26-122%
321-60-8	2-Fluorobiphenyl	81%		36-112%
1718-51-0	Terphenyl-d14	89%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-5(3.0)		
Lab Sample ID:	JC4005-7	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64722.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.00048	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	136%		70-170%
460-00-4	Bromofluorobenzene (S)	106%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-5(3.0)		
Lab Sample ID:	JC4005-7	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	85.6
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	4.0 B	5.0	0.040	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	8.8	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	11.0	4.0	0.095	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	25.0	5.0	0.074	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	29.8	5.0	0.76	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-6(3.0)		
Lab Sample ID:	JC4005-8	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207941.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00051	0.00014	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00017	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00028	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00016	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0021	0.00017	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0021	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00032	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00014	mg/kg	
110-54-3	Hexane	ND	0.0051	0.00040	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0021	0.00011	mg/kg	
91-20-3	Naphthalene	ND	0.0051	0.00019	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0021	0.00020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0021	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	96%		77-125%
460-00-4	4-Bromofluorobenzene	99%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-6(3.0)		
Lab Sample ID:	JC4005-8	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117995.D	1	09/18/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.068	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.074	0.054	mg/kg	
	3&4-Methylphenol	ND	0.074	0.036	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.063	mg/kg	
108-95-2	Phenol	ND	0.074	0.028	mg/kg	
83-32-9	Acenaphthene	ND	0.037	0.035	mg/kg	
120-12-7	Anthracene	ND	0.037	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.037	0.0072	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.037	0.0079	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.037	0.0077	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.037	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.037	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.074	0.0069	mg/kg	
218-01-9	Chrysene	ND	0.037	0.0060	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.037	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.074	0.0044	mg/kg	
84-66-2	Diethyl phthalate	ND	0.074	0.0047	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.074	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.037	0.0045	mg/kg	
86-73-7	Fluorene	ND	0.037	0.0044	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.037	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.074	0.0070	mg/kg	
91-20-3	Naphthalene	ND	0.037	0.0060	mg/kg	
85-01-8	Phenanthrene	ND	0.037	0.0041	mg/kg	
129-00-0	Pyrene	ND	0.037	0.0047	mg/kg	
110-86-1	Pyridine	ND	0.074	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	90%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-6(3.0)		
Lab Sample ID:	JC4005-8	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	88%		30-106%
118-79-6	2,4,6-Tribromophenol	79%		24-140%
4165-60-0	Nitrobenzene-d5	91%		26-122%
321-60-8	2-Fluorobiphenyl	88%		36-112%
1718-51-0	Terphenyl-d14	96%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-6(3.0)		
Lab Sample ID:	JC4005-8	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64723.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.00048	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	135%		70-170%
460-00-4	Bromofluorobenzene (S)	123%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-6(3.0)		
Lab Sample ID:	JC4005-8	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	13.0	5.3	0.043	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	8.6	2.1	0.25	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	13.2	4.3	0.10	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	29.9	5.3	0.080	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	28.1	5.3	0.82	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-7(3.0)		
Lab Sample ID:	JC4005-9	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	81.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207943.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	5.8 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00053	0.00014	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00029	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00016	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0021	0.00018	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0021	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00033	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00014	mg/kg	
110-54-3	Hexane	ND	0.0053	0.00041	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0021	0.00011	mg/kg	
91-20-3	Naphthalene	ND	0.0053	0.00020	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0021	0.00021	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0021	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	106%		68-124%
2037-26-5	Toluene-D8	97%		77-125%
460-00-4	4-Bromofluorobenzene	100%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-7(3.0)		
Lab Sample ID:	JC4005-9	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117996.D	1	09/18/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	31.7 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.071	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.078	0.056	mg/kg	
	3&4-Methylphenol	ND	0.078	0.037	mg/kg	
100-02-7	4-Nitrophenol	ND	0.39	0.066	mg/kg	
108-95-2	Phenol	ND	0.078	0.029	mg/kg	
83-32-9	Acenaphthene	ND	0.039	0.037	mg/kg	
120-12-7	Anthracene	ND	0.039	0.0033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.039	0.0075	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.039	0.0083	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.039	0.0080	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.039	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.039	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.078	0.0072	mg/kg	
218-01-9	Chrysene	ND	0.039	0.0062	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.039	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.078	0.0046	mg/kg	
84-66-2	Diethyl phthalate	ND	0.078	0.0049	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.078	0.014	mg/kg	
206-44-0	Fluoranthene	ND	0.039	0.0047	mg/kg	
86-73-7	Fluorene	ND	0.039	0.0046	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.039	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.078	0.0072	mg/kg	
91-20-3	Naphthalene	ND	0.039	0.0062	mg/kg	
85-01-8	Phenanthrene	ND	0.039	0.0043	mg/kg	
129-00-0	Pyrene	ND	0.039	0.0048	mg/kg	
110-86-1	Pyridine	ND	0.078	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	79%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-7(3.0)		
Lab Sample ID:	JC4005-9	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.4
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		30-106%
118-79-6	2,4,6-Tribromophenol	75%		24-140%
4165-60-0	Nitrobenzene-d5	79%		26-122%
321-60-8	2-Fluorobiphenyl	79%		36-112%
1718-51-0	Terphenyl-d14	87%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-7(3.0)		
Lab Sample ID:	JC4005-9	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	81.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64724.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.00050	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	133%		70-170%
460-00-4	Bromofluorobenzene (S)	128%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-7(3.0)		
Lab Sample ID:	JC4005-9	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	81.4
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	6.1	4.9	0.039	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	11.0	2.0	0.23	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	12.3	3.9	0.094	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	41.0	4.9	0.073	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	37.5	4.9	0.75	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-8(3.0)		
Lab Sample ID:	JC4005-10	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	86.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207944.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00048	0.00013	mg/kg	
108-88-3	Toluene	ND	0.00096	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00096	0.00016	mg/kg	
1330-20-7	Xylene (total)	ND	0.00096	0.00026	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00096	0.00015	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0019	0.00016	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0019	0.00020	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00030	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00013	mg/kg	
110-54-3	Hexane	ND	0.0048	0.00037	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0019	0.00010	mg/kg	
91-20-3	Naphthalene	ND	0.0048	0.00018	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0019	0.00019	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0019	0.00018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	105%		68-124%
2037-26-5	Toluene-D8	98%		77-125%
460-00-4	4-Bromofluorobenzene	98%		72-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-8(3.0)		
Lab Sample ID:	JC4005-10	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	86.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117997.D	1	09/18/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.069	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.075	0.055	mg/kg	
	3&4-Methylphenol	ND	0.075	0.036	mg/kg	
100-02-7	4-Nitrophenol	ND	0.38	0.064	mg/kg	
108-95-2	Phenol	ND	0.075	0.028	mg/kg	
83-32-9	Acenaphthene	ND	0.038	0.035	mg/kg	
120-12-7	Anthracene	ND	0.038	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.038	0.0073	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.038	0.0080	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.038	0.0077	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.038	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.038	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.075	0.0070	mg/kg	
218-01-9	Chrysene	ND	0.038	0.0061	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.038	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.075	0.0044	mg/kg	
84-66-2	Diethyl phthalate	ND	0.075	0.0048	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.075	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.038	0.0046	mg/kg	
86-73-7	Fluorene	ND	0.038	0.0045	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.038	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.075	0.0070	mg/kg	
91-20-3	Naphthalene	ND	0.038	0.0060	mg/kg	
85-01-8	Phenanthrene	ND	0.038	0.0042	mg/kg	
129-00-0	Pyrene	ND	0.038	0.0047	mg/kg	
110-86-1	Pyridine	ND	0.075	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	83%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-8(3.0)		
Lab Sample ID:	JC4005-10	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	86.6
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	81%		30-106%
118-79-6	2,4,6-Tribromophenol	78%		24-140%
4165-60-0	Nitrobenzene-d5	86%		26-122%
321-60-8	2-Fluorobiphenyl	83%		36-112%
1718-51-0	Terphenyl-d14	89%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-8(3.0)		
Lab Sample ID:	JC4005-10	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	86.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64725.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0028	0.00047	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	147%		70-170%
460-00-4	Bromofluorobenzene (S)	119%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-8(3.0)		
Lab Sample ID:	JC4005-10	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	86.6
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	3.6 B	5.0	0.040	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	8.1	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	8.7	4.0	0.096	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	26.4	5.0	0.075	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	20.1	5.0	0.77	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-9(3.0)		
Lab Sample ID:	JC4005-11	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	83.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207986.D	1	09/25/15	SJM	n/a	n/a	VI8344
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00053	0.00014	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00029	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00016	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0021	0.00018	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0021	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00033	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00014	mg/kg	
110-54-3	Hexane	ND	0.0053	0.00041	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0021	0.00011	mg/kg	
91-20-3	Naphthalene	ND	0.0053	0.00020	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0021	0.00021	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0021	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		70-122%
17060-07-0	1,2-Dichloroethane-D4	117%		68-124%
2037-26-5	Toluene-D8	98%		77-125%
460-00-4	4-Bromofluorobenzene	114%		72-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-9(3.0)		
Lab Sample ID:	JC4005-11	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	83.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117999.D	1	09/19/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	33.4 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	0.128	0.18	0.066	mg/kg	J
51-28-5	2,4-Dinitrophenol	ND	0.18	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.072	0.052	mg/kg	
	3&4-Methylphenol	ND	0.072	0.034	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.061	mg/kg	
108-95-2	Phenol	ND	0.072	0.027	mg/kg	
83-32-9	Acenaphthene	ND	0.036	0.034	mg/kg	
120-12-7	Anthracene	ND	0.036	0.0031	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.036	0.0069	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.036	0.0077	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.036	0.0074	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.036	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.036	0.0080	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.072	0.0067	mg/kg	
218-01-9	Chrysene	ND	0.036	0.0058	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.036	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.072	0.0042	mg/kg	
84-66-2	Diethyl phthalate	ND	0.072	0.0046	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.072	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.036	0.0044	mg/kg	
86-73-7	Fluorene	0.0467	0.036	0.0043	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.036	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.072	0.0067	mg/kg	
91-20-3	Naphthalene	ND	0.036	0.0058	mg/kg	
85-01-8	Phenanthrene	ND	0.036	0.0040	mg/kg	
129-00-0	Pyrene	0.0157	0.036	0.0045	mg/kg	J
110-86-1	Pyridine	ND	0.072	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	81%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-9(3.0)		
Lab Sample ID:	JC4005-11	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	83.2
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	80%		30-106%
118-79-6	2,4,6-Tribromophenol	76%		24-140%
4165-60-0	Nitrobenzene-d5	82%		26-122%
321-60-8	2-Fluorobiphenyl	78%		36-112%
1718-51-0	Terphenyl-d14	84%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-9(3.0)		
Lab Sample ID:	JC4005-11	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	83.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64726.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.00049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	109%		70-170%
460-00-4	Bromofluorobenzene (S)	120%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-9(3.0)		
Lab Sample ID:	JC4005-11	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	83.2
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	4.1 B	5.0	0.040	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	11.2	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	12.8	4.0	0.095	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	38.6	5.0	0.074	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	26.0	5.0	0.76	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-10(3.0)		
Lab Sample ID:	JC4005-12	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	85.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207946.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00060	0.00016	mg/kg	
108-88-3	Toluene	ND	0.0012	0.00025	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	0.00033	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.00036	0.0012	0.00018	mg/kg	J
135-98-8	sec-Butylbenzene	ND	0.0024	0.00020	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0024	0.00025	mg/kg	
110-82-7	Cyclohexane	ND	0.0024	0.00038	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00016	mg/kg	
110-54-3	Hexane	0.00069	0.0060	0.00046	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0024	0.00013	mg/kg	
91-20-3	Naphthalene	ND	0.0060	0.00023	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0024	0.00024	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0024	0.00023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	102%		68-124%
2037-26-5	Toluene-D8	97%		77-125%
460-00-4	4-Bromofluorobenzene	98%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-10(3.0)		
Lab Sample ID:	JC4005-12	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M117998.D	1	09/18/15	AD	09/18/15	OP87313	EM4935
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.070	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.076	0.055	mg/kg	
	3&4-Methylphenol	ND	0.076	0.037	mg/kg	
100-02-7	4-Nitrophenol	ND	0.38	0.065	mg/kg	
108-95-2	Phenol	ND	0.076	0.029	mg/kg	
83-32-9	Acenaphthene	ND	0.038	0.036	mg/kg	
120-12-7	Anthracene	ND	0.038	0.0033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.038	0.0074	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.038	0.0081	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.038	0.0079	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.038	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.038	0.0085	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.076	0.0071	mg/kg	
218-01-9	Chrysene	ND	0.038	0.0061	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.038	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.076	0.0045	mg/kg	
84-66-2	Diethyl phthalate	ND	0.076	0.0048	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.076	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.038	0.0047	mg/kg	
86-73-7	Fluorene	ND	0.038	0.0045	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.038	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.076	0.0071	mg/kg	
91-20-3	Naphthalene	ND	0.038	0.0061	mg/kg	
85-01-8	Phenanthrene	ND	0.038	0.0042	mg/kg	
129-00-0	Pyrene	ND	0.038	0.0048	mg/kg	
110-86-1	Pyridine	ND	0.076	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	84%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-10(3.0)		
Lab Sample ID:	JC4005-12	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.3
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	82%		30-106%
118-79-6	2,4,6-Tribromophenol	76%		24-140%
4165-60-0	Nitrobenzene-d5	87%		26-122%
321-60-8	2-Fluorobiphenyl	82%		36-112%
1718-51-0	Terphenyl-d14	91%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-10(3.0)		
Lab Sample ID:	JC4005-12	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64727.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.00048	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	130%		70-170%
460-00-4	Bromofluorobenzene (S)	124%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-10(3.0)		
Lab Sample ID:	JC4005-12	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	85.3
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	6.2	5.1	0.041	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	11.1	2.0	0.24	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	17.8	4.1	0.098	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	31.9	5.1	0.076	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	32.7	5.1	0.78	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-11(3.0)		
Lab Sample ID:	JC4005-13	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207947.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2 [a]	I207987.D	1	09/25/15	SJM	n/a	n/a	VI8344

	Initial Weight
Run #1	4.9 g
Run #2	4.9 g

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.00018	0.00062	0.00016	mg/kg	J
108-88-3	Toluene	ND	0.0012	0.00026	mg/kg	
100-41-4	Ethylbenzene	0.00069	0.0012	0.00020	mg/kg	J
1330-20-7	Xylene (total)	0.0011	0.0012	0.00034	mg/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	0.00019	mg/kg	
135-98-8	sec-Butylbenzene	0.0073	0.0025	0.00021	mg/kg	
98-06-6	tert-Butylbenzene	0.0015	0.0025	0.00026	mg/kg	J
110-82-7	Cyclohexane	0.0026	0.0025	0.00039	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00017	mg/kg	
110-54-3	Hexane	0.00096	0.0062	0.00048	mg/kg	J
98-82-8	Isopropylbenzene	0.0047	0.0025	0.00013	mg/kg	
91-20-3	Naphthalene	0.00090	0.0062	0.00023	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0075	0.0025	0.00025	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.00079	0.0025	0.00024	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	96%	70-122%
17060-07-0	1,2-Dichloroethane-D4	102%	112%	68-124%
2037-26-5	Toluene-D8	158% [c]	658% [b]	77-125%
460-00-4	4-Bromofluorobenzene	132% [c]	465% [b]	72-130%

(a) Confirmation run for surrogate recoveries.
(b) Outside control limits due to matrix interference.
(c) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-11(3.0)		
Lab Sample ID:	JC4005-13	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P52522.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.20	0.074	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.18	mg/kg	
95-48-7	2-Methylphenol	ND	0.081	0.059	mg/kg	
	3&4-Methylphenol	ND	0.081	0.039	mg/kg	
100-02-7	4-Nitrophenol	ND	0.41	0.069	mg/kg	
108-95-2	Phenol	ND	0.081	0.030	mg/kg	
83-32-9	Acenaphthene	ND	0.041	0.038	mg/kg	
120-12-7	Anthracene	ND	0.041	0.0035	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.041	0.0078	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.041	0.0086	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.041	0.0083	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.041	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.041	0.0090	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.081	0.0075	mg/kg	
218-01-9	Chrysene	ND	0.041	0.0065	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.041	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.081	0.0048	mg/kg	
84-66-2	Diethyl phthalate	ND	0.081	0.0051	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.081	0.014	mg/kg	
206-44-0	Fluoranthene	ND	0.041	0.0049	mg/kg	
86-73-7	Fluorene	ND	0.041	0.0048	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.041	0.021	mg/kg	
91-57-6	2-Methylnaphthalene	0.0739	0.081	0.0076	mg/kg	J
91-20-3	Naphthalene	ND	0.041	0.0065	mg/kg	
85-01-8	Phenanthrene	0.0542	0.041	0.0045	mg/kg	
129-00-0	Pyrene	0.0265	0.041	0.0051	mg/kg	J
110-86-1	Pyridine	ND	0.081	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	70%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-11(3.0)		
Lab Sample ID:	JC4005-13	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		30-106%
118-79-6	2,4,6-Tribromophenol	88%		24-140%
4165-60-0	Nitrobenzene-d5	75%		26-122%
321-60-8	2-Fluorobiphenyl	76%		36-112%
1718-51-0	Terphenyl-d14	83%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-11(3.0)		
Lab Sample ID:	JC4005-13	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64728.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.00050	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	116%		70-170%
460-00-4	Bromofluorobenzene (S)	129%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-11(3.0)		
Lab Sample ID:	JC4005-13	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	7.2	4.7	0.037	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	12.5	1.9	0.22	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	15.1	3.7	0.090	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	37.4	4.7	0.070	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	39.3	4.7	0.72	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-12(2.0)		
Lab Sample ID:	JC4005-14	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207948.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	5.3 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00056	0.00015	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00018	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00031	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00017	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0022	0.00019	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0022	0.00024	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00036	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00015	mg/kg	
110-54-3	Hexane	0.00060	0.0056	0.00044	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0022	0.00012	mg/kg	
91-20-3	Naphthalene	ND	0.0056	0.00021	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0022	0.00022	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0022	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-122%
17060-07-0	1,2-Dichloroethane-D4	104%		68-124%
2037-26-5	Toluene-D8	96%		77-125%
460-00-4	4-Bromofluorobenzene	101%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-12(2.0)		
Lab Sample ID:	JC4005-14	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P52519.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265
Run #2							

	Initial Weight	Final Volume
Run #1	32.4 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.18	0.067	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.074	0.053	mg/kg	
	3&4-Methylphenol	ND	0.074	0.035	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.063	mg/kg	
108-95-2	Phenol	ND	0.074	0.028	mg/kg	
83-32-9	Acenaphthene	ND	0.037	0.035	mg/kg	
120-12-7	Anthracene	ND	0.037	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	0.0158	0.037	0.0071	mg/kg	J
50-32-8	Benzo(a)pyrene	ND	0.037	0.0078	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.037	0.0076	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.037	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.037	0.0082	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.074	0.0068	mg/kg	
218-01-9	Chrysene	0.0188	0.037	0.0059	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.037	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.074	0.0043	mg/kg	
84-66-2	Diethyl phthalate	ND	0.074	0.0047	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.074	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.037	0.0045	mg/kg	
86-73-7	Fluorene	ND	0.037	0.0044	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.037	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	0.128	0.074	0.0069	mg/kg	
91-20-3	Naphthalene	0.0510	0.037	0.0059	mg/kg	
85-01-8	Phenanthrene	0.0817	0.037	0.0041	mg/kg	
129-00-0	Pyrene	0.0641	0.037	0.0046	mg/kg	
110-86-1	Pyridine	ND	0.074	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	71%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-12(2.0)		
Lab Sample ID:	JC4005-14	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	73%		30-106%
118-79-6	2,4,6-Tribromophenol	92%		24-140%
4165-60-0	Nitrobenzene-d5	80%		26-122%
321-60-8	2-Fluorobiphenyl	87%		36-112%
1718-51-0	Terphenyl-d14	84%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-12(2.0)		
Lab Sample ID:	JC4005-14	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64729.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0029	0.00049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	138%		70-170%
460-00-4	Bromofluorobenzene (S)	115%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-12(2.0)		
Lab Sample ID:	JC4005-14	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	6.1	4.8	0.038	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	14.6	1.9	0.23	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	13.9	3.8	0.092	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	33.9	4.8	0.072	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	39.9	4.8	0.74	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-13(2.0)		
Lab Sample ID:	JC4005-15	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8260C	**Percent Solids:**	87.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I207949.D	1	09/24/15	SJM	n/a	n/a	VI8342
Run #2							

	Initial Weight
Run #1	4.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00061	0.00016	mg/kg	
108-88-3	Toluene	ND	0.0012	0.00025	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	0.00033	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	0.00019	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0024	0.00021	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0024	0.00026	mg/kg	
110-82-7	Cyclohexane	ND	0.0024	0.00038	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00016	mg/kg	
110-54-3	Hexane	ND	0.0061	0.00047	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0024	0.00013	mg/kg	
91-20-3	Naphthalene	ND	0.0061	0.00023	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0024	0.00024	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0024	0.00023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	99%		68-124%
2037-26-5	Toluene-D8	96%		77-125%
460-00-4	4-Bromofluorobenzene	99%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-13(2.0)		
Lab Sample ID:	JC4005-15	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	87.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P52520.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265
Run #2							

	Initial Weight	Final Volume
Run #1	31.1 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.18	0.067	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.073	0.053	mg/kg	
	3&4-Methylphenol	ND	0.073	0.035	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.062	mg/kg	
108-95-2	Phenol	ND	0.073	0.027	mg/kg	
83-32-9	Acenaphthene	ND	0.037	0.035	mg/kg	
120-12-7	Anthracene	ND	0.037	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.037	0.0071	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.037	0.0078	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.037	0.0076	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.037	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.037	0.0082	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.073	0.0068	mg/kg	
218-01-9	Chrysene	ND	0.037	0.0059	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.037	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.073	0.0043	mg/kg	
84-66-2	Diethyl phthalate	ND	0.073	0.0047	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.073	0.013	mg/kg	
206-44-0	Fluoranthene	0.0219	0.037	0.0045	mg/kg	J
86-73-7	Fluorene	ND	0.037	0.0044	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.037	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.073	0.0069	mg/kg	
91-20-3	Naphthalene	ND	0.037	0.0059	mg/kg	
85-01-8	Phenanthrene	0.0215	0.037	0.0041	mg/kg	J
129-00-0	Pyrene	0.0340	0.037	0.0046	mg/kg	J
110-86-1	Pyridine	ND	0.073	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	75%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-13(2.0)		
Lab Sample ID:	JC4005-15	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	87.7
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	74%		30-106%
118-79-6	2,4,6-Tribromophenol	79%		24-140%
4165-60-0	Nitrobenzene-d5	84%		26-122%
321-60-8	2-Fluorobiphenyl	88%		36-112%
1718-51-0	Terphenyl-d14	84%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	MHIC-387-13(2.0)		
Lab Sample ID:	JC4005-15	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	87.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB64731.D	1	09/24/15	AMA	09/21/15	M:OP44699	M:GBB3489
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0028	0.00047	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	140%		70-170%
460-00-4	Bromofluorobenzene (S)	112%		70-170%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MHIC-387-13(2.0)		
Lab Sample ID:	JC4005-15	**Date Sampled:**	09/16/15
Matrix:	SO - Soil	**Date Received:**	09/16/15
		Percent Solids:	87.7
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	7.9	5.2	0.041	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Lead	20.4	2.1	0.25	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Nickel	15.7	4.1	0.10	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Vanadium	34.5	5.2	0.078	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]
Zinc	50.5	5.2	0.80	mg/kg	1	09/21/15	09/22/15	AP	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37607
(2) Prep QC Batch: MP89121

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

ACCUTEST LABORATORIES

SCL
FB
SVB

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 2

FED-EX Tracking #:
Accutest Quote #:
Bottle Order Control #:
Accutest Job #: JC4005

Client / Reporting Information

Company Name: Stantec
Street Address: 10600 Andrew DC
City: West Chester State: Pa Zip: 19380
Project Contact: Jennifer Menges E-mail: Jennifer.Menges@stantec.com
Phone #: 610-840-2500 Fax #: 610-840-2501
Sampler(s) Name(s): Dane Hopkins Phone #: 484-995-9740

Project Information

Project Name: MHIC - AST Closure 387
Street: 100 Green St
City: Marcus Hook State: Pa
Project #: 213401428
Client Purchase Order #:
Project Manager: Jennifer Menges

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NaOHZE	DI Water	MEOH	ENCORE	*Select VOCs 8260 + Naphthalene	* Select SVOCs 8270	EDB 8011	* Select Metals
1	TRIP BLANK		9/11/15	—	DH	trip blank	2	2								X	X		
2	EB-20150916		9/16/15	0850		field blank	10	4				3	3			X	X	X	X
3	MHIC-387-1(5.0-7.0)	1/2		0925		soil	6					3	3	4		X	X	X	X
4	MHIC-387-2(5.0-7.0)			0945								3	2	1		X	X	X	X
5	MHIC-387-3(5.0-7.0)			1015												X	X	X	X
6	MHIC-387-4(5.0-7.0)			1045												X	X	X	X
7	MHIC-387-5(3.0-5.0)			1105												X	X	X	X
8	MHIC-387-6(3.0-5.0)			1115												X	X	X	X
9	MHIC-387-7(3.0-5.0)			1125												X	X	X	X
10	MHIC-387-8(3.0-5.0)			1135												X	X	X	X
11	MHIC-387-9(3.0-5.0)			1145												X	X	X	X
12	MHIC-387-10(3.0-5.0)			1155												X	X	X	X

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

LAB USE ONLY

B6
E851
14A4
49112
E25, A11
V84

INITIAL ASESSMENT AJ
LABEL VERIFICATION 013

Turnaround Time (Business days)

☒ Std. 10 Business Days
☐ 5 Day RUSH
☐ 3 Day RUSH
☐ 2 Day RUSH
☐ 1 Day RUSH
☐ other
Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ FULLT1 (Level 3+4)
☐ NJ Reduced
☐ Commercial "C"
☐ NJ Data of Known Quality Protocol Reporting
Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data
☐ NYASP Category A
☐ NYASP Category B
☐ State Forms
☐ EDD Format
☐ Other

Comments / Special Instructions

* See comprehensive list attached

D.I. slurry voc vials frozen storage
Date: 9/16/15 Time: 2150 Initials: 013

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:
1 Dane Hopkins	9/16/15 1600	1
Relinquished by Sampler: 3	Date Time:	Received By: 3
Relinquished by: 5	Date Time:	Received By: 5
Relinquished By: 2	Date Time: 9-16-15 18:25	Received By: 2
Relinquished By: 4	Date Time:	Received By: 4

Custody Seal # ☐ Intact

JC4005: Chain of Custody
Page 1 of 7

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 2 OF 2

FED-EX Tracking #:
Accutest Quote #:
Bottle Order Control #:
Accutest Job #: JC4005

Client / Reporting Information

Company Name: Stantec
Street Address: 10060 Andrew Dr
City: West Chester State: Pa Zip: 19380
Project Contact: Jennifer Menges E-mail: Jennifer.Menges@stantec.com
Phone #: 610-840-2500 Fax: 610-840-2501
Sampler(s) Name(s): Dane Hopkins Phone #: 484-995-9440

Project Information

Project Name: MHIC-AST-Closure
Street: 100 Green Street
City: Marcus Hook State: Pa
Project #: 213401428
Client Purchase Order #:
Project Manager: Jennifer Menges

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	* select VOC 8260 + Naphthalene	* select SVOC 8270	EDB 8011	* select Metals
13	MHIC-387-11(3.0-5.0)	1/2	9/16/15	1205	DH	Soil	6					3	2	1		X	X	X	X
14	MHIC-387-12(2.0-4.0)	↓	↓	1215	↓	↓	↓									X	X	X	X
15	MHIC-387-13(2.0-4.0)			1225												X	X	X	X

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

LAB USE ONLY

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

*see comprehensive list attached

Sample custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date Time: 9/16/15 1010	Received By: 1	Relinquished By: 2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4
Relinquished By: 5	Date Time:	Received By: 5	Custody Seal #

Relinquished By: 2 — Date Time: 18:05 9-16-15 — Received By: 2

Relinquished By: 4 — Date Time: — Received By: 4

Custody Seal # — Intact

5.1 5

JC4005: Chain of Custody
Page 2 of 7

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JC4005 **Client:** STANTEC **Project:** MHIC - AST 387 CLOSURE

Date / Time Received: 9/16/2015 6:25:00 PM **Delivery Method:** Accutest Courier **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.4);

Cooler Temps (Corrected) °C: Cooler 1: (3.6);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No, Coolers	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☑	☐	☐
2. Trip Blank listed on COC:	☑	☐	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments -2 Rec'd an additional 3 Soil DI vials completely filled with water.

Accutest Laboratories
V:732.329.0200
2235 US Highway 130
F: 732.329.3499
Dayton, New Jersey
www/accutest.com

Sample Receipt Summary - Problem Resolution

Accutest Job Number: JC4005

Initiator: ANDREWS

CSR: Marie

Response Date: 9/17/2015

Response: -2, these additional vials appear to have been provided in error; please hold on the ROBO shelf.

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

Job Change Order: JC4005

Requested Date:	9/18/2015	**Received Date:**	9/16/2015
Account Name:	Stantec Consulting Services Inc.	**Due Date:**	9/30/2015
Project Description:	Sunoco - Marcus Hook Facility, PA	**Deliverable:**	REDT2
CSR:	mariem	**TAT (Days):**	14

==========

Sample #: JC4005-all

Dept:

Change:

Please revise the login project comments to: MHIC-AST-387 Closure/213402428.

==========

Above Changes Per: J. Menges

Date/Time: 9/18/2015 2:05:47 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

ACCUTEST LABORATORIES

JOB NUMBER: JC4005

COC APP

NABS? Y / (N) *Circle.*

Circle either DIH2O or NaHSO4.

SAMPLE #	MeOH VIAL	DIH2O / NaHSO4	DIH2O / NaHSO4	DIH2O
2		299	298	300
3	326	1963	1964	
4	99	1961	1962	
5	541	1973	1974	
6	328	1968	1967	
7	327	1965	1966	
8	330	1971	1972	
9	108	1943	1944	
10	329	1969	1970	
11	542	1975	1976	
12	101	1957	1958	
13	102	1955	1956	
14	100	1959	1960	
15	103	1953	1954	

5.1 5

JC4005: Chain of Custody

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ACCUTEST LABORATORIES

Job Change Order: JC4005

Requested Date:	9/28/2015	**Received Date:**	9/16/2015
Account Name:	Stantec Consulting Services Inc.	**Due Date:**	9/30/2015
Project Description:	Sunoco - Marcus Hook Facility, PA	**Deliverable:**	REDT2
CSR:	mariem	**TAT (Days):**	14

==========

Sample #: JC4005-3 to 15

Dept:

TAT: 14

Change:
Please revise the field ID's to delete the "end" depth for each.

==========

Above Changes Per: M. Schaeffer

Date/Time: 9/28/2015 1:17:06 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC4005

Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213402428

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC4005-1	Collected: 16-SEP-15 12:25 By: DH		Received: 16-SEP-15 By: AS			
TRIP BLANK						
JC4005-1	SW846-8011	18-SEP-15 17:23	VDT	17-SEP-15	AQ	V8011EDB
JC4005-1	SW846 8260C	22-SEP-15 12:32	XC			V8260SL2
JC4005-2	Collected: 16-SEP-15 08:50 By: DH		Received: 16-SEP-15 By: AS			
EB-20150916						
JC4005-2	SW846 8270D	17-SEP-15 23:36	SW	17-SEP-15	NG	AB8270SL
JC4005-2	SW846-8011	18-SEP-15 17:42	VDT	17-SEP-15	AQ	V8011EDB
JC4005-2	SW846 6010C	18-SEP-15 21:39	MS	17-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-2	SW846 8260C	23-SEP-15 18:44	XC			V8260SL2
JC4005-3	Collected: 16-SEP-15 09:25 By: DH		Received: 16-SEP-15 By: AS			
MHIC-387-1(5.0)						
JC4005-3	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-3	SW846 8270D	19-SEP-15 03:45	AD	18-SEP-15	SA	AB8270SL
JC4005-3	SW846 6010C	22-SEP-15 14:25	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-3	SW846 8260C	23-SEP-15 15:10	SJM			V8260SL2
JC4005-3	SW846 8011	24-SEP-15 16:50	AMA	21-SEP-15	AMA	V8011EDB
JC4005-4	Collected: 16-SEP-15 09:45 By: DH		Received: 16-SEP-15 By: AS			
MHIC-387-2(5.0)						
JC4005-4	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-4	SW846 8270D	19-SEP-15 03:21	SD	18-SEP-15	SA	AB8270SL
JC4005-4	SW846 6010C	22-SEP-15 14:43	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-4	SW846 8260C	23-SEP-15 15:36	SJM			V8260SL2
JC4005-4	SW846 8011	24-SEP-15 17:18	AMA	21-SEP-15	AMA	V8011EDB
JC4005-5	Collected: 16-SEP-15 10:15 By: DH		Received: 16-SEP-15 By: AS			
MHIC-387-3(5.0)						
JC4005-5	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-5	SW846 8270D	18-SEP-15 21:32	AD	18-SEP-15	SA	AB8270SL
JC4005-5	SW846 6010C	22-SEP-15 14:49	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-5	SW846 8260C	24-SEP-15 13:48	SJM			V8260SL2
JC4005-5	SW846 8011	24-SEP-15 18:14	AMA	21-SEP-15	AMA	V8011EDB

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC4005

Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213402428

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC4005-6 Collected: 16-SEP-15 10:45 By: DH Received: 16-SEP-15 By: AS MHIC-387-4(5.0)						
JC4005-6	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-6	SW846 8270D	19-SEP-15 05:07	SD	18-SEP-15	SA	AB8270SL
JC4005-6	SW846 6010C	22-SEP-15 14:55	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-6	SW846 8260C	24-SEP-15 14:14	SJM			V8260SL2
JC4005-6	SW846 8011	24-SEP-15 18:42	AMA	21-SEP-15	AMA	V8011EDB
JC4005-7 Collected: 16-SEP-15 11:05 By: DH Received: 16-SEP-15 By: AS MHIC-387-5(3.0)						
JC4005-7	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-7	SW846 8270D	18-SEP-15 22:01	AD	18-SEP-15	SA	AB8270SL
JC4005-7	SW846 6010C	22-SEP-15 15:02	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-7	SW846 8260C	24-SEP-15 15:05	SJM			V8260SL2
JC4005-7	SW846 8011	24-SEP-15 19:10	AMA	21-SEP-15	AMA	V8011EDB
JC4005-8 Collected: 16-SEP-15 11:15 By: DH Received: 16-SEP-15 By: AS MHIC-387-6(3.0)						
JC4005-8	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-8	SW846 8270D	18-SEP-15 22:30	AD	18-SEP-15	SA	AB8270SL
JC4005-8	SW846 6010C	22-SEP-15 15:08	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-8	SW846 8260C	24-SEP-15 14:40	SJM			V8260SL2
JC4005-8	SW846 8011	24-SEP-15 19:38	AMA	21-SEP-15	AMA	V8011EDB
JC4005-9 Collected: 16-SEP-15 11:25 By: DH Received: 16-SEP-15 By: AS MHIC-387-7(3.0)						
JC4005-9	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-9	SW846 8270D	18-SEP-15 22:58	AD	18-SEP-15	SA	AB8270SL
JC4005-9	SW846 6010C	22-SEP-15 15:14	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-9	SW846 8260C	24-SEP-15 15:34	SJM			V8260SL2
JC4005-9	SW846 8011	24-SEP-15 20:06	AMA	21-SEP-15	AMA	V8011EDB
JC4005-10 Collected: 16-SEP-15 11:35 By: DH Received: 16-SEP-15 By: AS MHIC-387-8(3.0)						

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC4005

Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213402428

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC4005-10	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-10	SW846 8270D	18-SEP-15 23:27	AD	18-SEP-15	SA	AB8270SL
JC4005-10	SW846 6010C	22-SEP-15 15:20	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-10	SW846 8260C	24-SEP-15 16:00	SJM			V8260SL2
JC4005-10	SW846 8011	24-SEP-15 20:34	AMA	21-SEP-15	AMA	V8011EDB
JC4005-11 Collected: 16-SEP-15 11:45 By: DH Received: 16-SEP-15 By: AS MHIC-387-9(3.0)						
JC4005-11	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-11	SW846 8270D	19-SEP-15 00:24	AD	18-SEP-15	SA	AB8270SL
JC4005-11	SW846 6010C	22-SEP-15 15:26	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-11	SW846 8011	24-SEP-15 21:02	AMA	21-SEP-15	AMA	V8011EDB
JC4005-11	SW846 8260C	25-SEP-15 14:10	SJM			V8260SL2
JC4005-12 Collected: 16-SEP-15 11:55 By: DH Received: 16-SEP-15 By: AS MHIC-387-10(3.0)						
JC4005-12	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-12	SW846 8270D	18-SEP-15 23:56	AD	18-SEP-15	SA	AB8270SL
JC4005-12	SW846 6010C	22-SEP-15 15:32	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-12	SW846 8260C	24-SEP-15 16:52	SJM			V8260SL2
JC4005-12	SW846 8011	24-SEP-15 21:31	AMA	21-SEP-15	AMA	V8011EDB
JC4005-13 Collected: 16-SEP-15 12:05 By: DH Received: 16-SEP-15 By: AS MHIC-387-11(3.0)						
JC4005-13	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-13	SW846 8270D	19-SEP-15 04:46	SD	18-SEP-15	SA	AB8270SL
JC4005-13	SW846 6010C	22-SEP-15 15:50	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-13	SW846 8260C	24-SEP-15 17:18	SJM			V8260SL2
JC4005-13	SW846 8011	24-SEP-15 21:59	AMA	21-SEP-15	AMA	V8011EDB
JC4005-13	SW846 8260C	25-SEP-15 14:36	SJM			V8260SL2
JC4005-14 Collected: 16-SEP-15 12:15 By: DH Received: 16-SEP-15 By: AS MHIC-387-12(2.0)						
JC4005-14	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-14	SW846 8270D	19-SEP-15 03:42	SD	18-SEP-15	SA	AB8270SL
JC4005-14	SW846 6010C	22-SEP-15 15:56	AP	21-SEP-15	DP	CO,NI,PB,V,ZN

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC4005

Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213402428

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC4005-14	SW846 8260C	24-SEP-15 17:44	SJM			V8260SL2
JC4005-14	SW846 8011	24-SEP-15 22:27	AMA	21-SEP-15	AMA	V8011EDB
JC4005-15	Collected: 16-SEP-15 12:25 By: DH		Received: 16-SEP-15 By: AS			
MHIC-387-13(2.0)						
JC4005-15	SM2540 G-97	18-SEP-15 17:00	KP			%SOL
JC4005-15	SW846 8270D	19-SEP-15 04:03	SD	18-SEP-15	SA	AB8270SL
JC4005-15	SW846 6010C	22-SEP-15 16:02	AP	21-SEP-15	DP	CO,NI,PB,V,ZN
JC4005-15	SW846 8260C	24-SEP-15 18:09	SJM			V8260SL2
JC4005-15	SW846 8011	24-SEP-15 23:24	AMA	21-SEP-15	AMA	V8011EDB

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-1.1	Secured Storage	Ximena Collado	09/22/15 11:55	Retrieve from Storage
JC4005-1.1	Ximena Collado	GCMS3D	09/22/15 11:55	Load on Instrument
JC4005-1.1	GCMS3D	Ximena Collado	09/23/15 09:15	Unload from Instrument
JC4005-1.1	Ximena Collado	Secured Storage	09/23/15 09:15	Return to Storage
JC4005-1.2	Secured Storage	Luis Villanueva	09/17/15 13:17	Retrieve from Storage
JC4005-1.2	Luis Villanueva	Secured Staging Area	09/17/15 13:17	Return to Storage
JC4005-1.2	Secured Staging Area	Adil Quyser	09/17/15 13:25	Retrieve from Storage
JC4005-1.2	Adil Quyser		09/17/15 17:37	Depleted
JC4005-1.2.1	Adil Quyser	Organics Prep	09/17/15 13:26	Extract from JC4005-1.2
JC4005-1.2.1	Organics Prep	Adil Quyser	09/17/15 17:37	Extract from JC4005-1.2
JC4005-1.2.1	Adil Quyser	Extract Storage	09/17/15 17:37	Return to Storage
JC4005-1.2.1	Extract Storage	Vincent Drago	09/18/15 11:41	Retrieve from Storage
JC4005-1.2.1	Vincent Drago	GC7G	09/18/15 11:41	Load on Instrument
JC4005-1.2.1	GC7G	Vincent Drago	09/21/15 10:31	Unload from Instrument
JC4005-1.2.1	Vincent Drago	Extract Freezer	09/21/15 10:31	Return to Storage
JC4005-2.1	Secured Storage	Todd Shoemaker	09/17/15 10:25	Retrieve from Storage
JC4005-2.1	Todd Shoemaker	Secured Staging Area	09/17/15 10:25	Return to Storage
JC4005-2.1	Secured Staging Area	Nicholas Goydish	09/17/15 10:39	Retrieve from Storage
JC4005-2.1	Nicholas Goydish		09/17/15 14:35	Depleted
JC4005-2.1.1	Nicholas Goydish	Organics Prep	09/17/15 10:41	Extract from JC4005-2.1
JC4005-2.1.1	Organics Prep	Nicholas Goydish	09/17/15 14:59	Extract from JC4005-2.1
JC4005-2.1.1	Nicholas Goydish	Extract Storage	09/17/15 14:59	Return to Storage
JC4005-2.1.1	Extract Storage	Sara Wellington	09/18/15 00:25	Retrieve from Storage
JC4005-2.1.1	Sara Wellington	GCMSP	09/18/15 00:25	Load on Instrument
JC4005-2.1.1	GCMSP	Linsey Kirschmann	09/23/15 14:26	Unload from Instrument
JC4005-2.1.1	Linsey Kirschmann	Extract Freezer	09/23/15 14:26	Return to Storage
JC4005-2.3	Secured Storage	Todd Shoemaker	09/17/15 14:42	Retrieve from Storage
JC4005-2.3	Todd Shoemaker	Secured Staging Area	09/17/15 14:42	Return to Storage
JC4005-2.3	Secured Staging Area	Deval Patel	09/17/15 15:39	Retrieve from Storage
JC4005-2.3	Deval Patel	Secured Storage	09/17/15 21:16	Return to Storage
JC4005-2.3.1	Deval Patel	Metals Digestion	09/17/15 21:12	Digestate from JC4005-2.3
JC4005-2.3.1	Metals Digestion	Deval Patel	09/17/15 21:12	Digestate from JC4005-2.3
JC4005-2.3.1	Deval Patel	Metals Digestate Storage	09/17/15 21:12	Return to Storage
JC4005-2.4	Secured Storage	Ximena Collado	09/22/15 11:55	Retrieve from Storage
JC4005-2.4	Ximena Collado	GCMS3D	09/22/15 11:55	Load on Instrument
JC4005-2.4	GCMS3D	Ximena Collado	09/23/15 09:15	Unload from Instrument
JC4005-2.4	Ximena Collado	Secured Storage	09/23/15 09:15	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-2.4	Secured Storage	Ximena Collado	09/23/15 12:03	Retrieve from Storage
JC4005-2.4	Ximena Collado	GCMS3D	09/23/15 12:03	Load on Instrument
JC4005-2.4	GCMS3D	Ximena Collado	09/24/15 12:37	Unload from Instrument
JC4005-2.4	Ximena Collado	Secured Storage	09/24/15 12:37	Return to Storage
JC4005-2.5	Secured Storage	Luis Villanueva	09/17/15 13:17	Retrieve from Storage
JC4005-2.5	Luis Villanueva	Secured Staging Area	09/17/15 13:17	Return to Storage
JC4005-2.5	Secured Staging Area	Adil Quyser	09/17/15 13:25	Retrieve from Storage
JC4005-2.5	Adil Quyser		09/17/15 17:37	Depleted
JC4005-2.5.1	Adil Quyser	Organics Prep	09/17/15 13:26	Extract from JC4005-2.5
JC4005-2.5.1	Organics Prep	Adil Quyser	09/17/15 17:37	Extract from JC4005-2.5
JC4005-2.5.1	Adil Quyser	Extract Storage	09/17/15 17:37	Return to Storage
JC4005-2.5.1	Extract Storage	Vincent Drago	09/18/15 11:41	Retrieve from Storage
JC4005-2.5.1	Vincent Drago	GC7G	09/18/15 11:41	Load on Instrument
JC4005-2.5.1	GC7G	Vincent Drago	09/21/15 10:31	Unload from Instrument
JC4005-2.5.1	Vincent Drago	Extract Freezer	09/21/15 10:31	Return to Storage
JC4005-3.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-3.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-3.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-3.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-3.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-3.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-3.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-3.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-3.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-3.1
JC4005-3.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-3.1
JC4005-3.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-3.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-3.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-3.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-3.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-3.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-3.1
JC4005-3.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-3.1
JC4005-3.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-3.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-3.1
JC4005-3.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-3.1
JC4005-3.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-3.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-3.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-3.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-3.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-3.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-3.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-3.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-3.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-3.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-3.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-3.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-3.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-4.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-4.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-4.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-4.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-4.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-4.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-4.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-4.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-4.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-4.1
JC4005-4.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-4.1
JC4005-4.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-4.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-4.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-4.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-4.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-4.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-4.1
JC4005-4.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-4.1
JC4005-4.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-4.1.2	Extract Storage	Sara Davis	09/18/15 23:53	Retrieve from Storage
JC4005-4.1.2	Sara Davis	GCMS2P	09/18/15 23:53	Load on Instrument
JC4005-4.1.2	GCMS2P	Kristi Schollenberger	09/26/15 11:43	Unload from Instrument
JC4005-4.1.2	Kristi Schollenberger	Extract Freezer	09/26/15 11:43	Return to Storage
JC4005-4.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-4.1
JC4005-4.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-4.1
JC4005-4.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-4.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-4.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-4.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-4.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-4.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-4.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-4.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-4.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-4.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-4.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-4.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-4.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-5.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-5.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-5.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-5.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-5.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-5.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-5.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-5.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-5.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-5.1
JC4005-5.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-5.1
JC4005-5.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-5.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-5.1
JC4005-5.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-5.1
JC4005-5.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-5.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-5.1
JC4005-5.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-5.1
JC4005-5.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-5.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-5.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-5.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-5.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-5.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-5.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-5.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-5.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-5.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-5.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-5.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-5.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-6.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-6.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-6.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-6.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-6.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-6.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-6.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-6.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-6.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-6.1
JC4005-6.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-6.1
JC4005-6.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-6.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-6.1
JC4005-6.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-6.1
JC4005-6.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-6.1.2	Extract Storage	Sara Davis	09/18/15 23:53	Retrieve from Storage
JC4005-6.1.2	Sara Davis	GCMS2P	09/18/15 23:53	Load on Instrument
JC4005-6.1.2	GCMS2P	Kristi Schollenberger	09/26/15 11:43	Unload from Instrument
JC4005-6.1.2	Kristi Schollenberger	Extract Freezer	09/26/15 11:43	Return to Storage
JC4005-6.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-6.1
JC4005-6.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-6.1
JC4005-6.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-6.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-6.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-6.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-6.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-6.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-6.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-6.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-6.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-6.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-6.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-6.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-6.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-7.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-7.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-7.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-7.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-7.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-7.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-7.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-7.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-7.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-7.1
JC4005-7.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-7.1
JC4005-7.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-7.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-7.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-7.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-7.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-7.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-7.1
JC4005-7.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-7.1
JC4005-7.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-7.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-7.1
JC4005-7.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-7.1
JC4005-7.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-7.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-7.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-7.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-7.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-7.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-7.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-7.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-7.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-7.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-7.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-7.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-7.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-8.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-8.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-8.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-8.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-8.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-8.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-8.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-8.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-8.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-8.1
JC4005-8.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-8.1
JC4005-8.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-8.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-8.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-8.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-8.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-8.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-8.1
JC4005-8.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-8.1
JC4005-8.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-8.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-8.1
JC4005-8.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-8.1
JC4005-8.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-8.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-8.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-8.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-8.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-8.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-8.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-8.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-8.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-8.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-8.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-8.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-8.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-9.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-9.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-9.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-9.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-9.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-9.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-9.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-9.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-9.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-9.1
JC4005-9.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-9.1
JC4005-9.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-9.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-9.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-9.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-9.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-9.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-9.1
JC4005-9.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-9.1
JC4005-9.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-9.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-9.1
JC4005-9.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-9.1
JC4005-9.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-9.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-9.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-9.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-9.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-9.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-9.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-9.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-9.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-9.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-9.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-9.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-9.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-10.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-10.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-10.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-10.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-10.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-10.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-10.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-10.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-10.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-10.1
JC4005-10.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-10.1
JC4005-10.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-10.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-10.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-10.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-10.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-10.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-10.1
JC4005-10.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-10.1
JC4005-10.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-10.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-10.1
JC4005-10.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-10.1
JC4005-10.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-10.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-10.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-10.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-10.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-10.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-10.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-10.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-10.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-10.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-10.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-10.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-10.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-11.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-11.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-11.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-11.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-11.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-11.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-11.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-11.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-11.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-11.1
JC4005-11.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-11.1
JC4005-11.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-11.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-11.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-11.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-11.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-11.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-11.1
JC4005-11.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-11.1
JC4005-11.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-11.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-11.1

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-11.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-11.1
JC4005-11.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-11.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-11.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-11.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-11.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-11.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-11.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-11.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-11.5	Scott McGonigal		09/23/15 13:19	Depleted
JC4005-11.6	Secured Storage	Scott McGonigal	09/25/15 12:49	Retrieve from Storage
JC4005-11.6	Scott McGonigal	GCMSI	09/25/15 12:49	Load on Instrument
JC4005-11.6	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-11.6	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-12.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-12.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-12.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-12.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-12.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-12.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-12.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-12.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-12.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-12.1
JC4005-12.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-12.1
JC4005-12.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-12.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-12.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-12.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-12.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-12.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-12.1
JC4005-12.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-12.1
JC4005-12.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-12.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-12.1
JC4005-12.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-12.1
JC4005-12.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-12.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-12.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-12.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-12.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-12.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-12.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-12.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-12.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-12.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-12.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-12.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-12.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-13.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-13.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-13.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-13.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-13.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-13.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-13.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-13.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-13.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-13.1
JC4005-13.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-13.1
JC4005-13.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-13.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-13.1
JC4005-13.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-13.1
JC4005-13.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-13.1.2	Extract Storage	Sara Davis	09/18/15 23:53	Retrieve from Storage
JC4005-13.1.2	Sara Davis	GCMS2P	09/18/15 23:53	Load on Instrument
JC4005-13.1.2	GCMS2P	Kristi Schollenberger	09/26/15 11:43	Unload from Instrument
JC4005-13.1.2	Kristi Schollenberger	Extract Freezer	09/26/15 11:43	Return to Storage
JC4005-13.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-13.1
JC4005-13.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-13.1
JC4005-13.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-13.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-13.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-13.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-13.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-13.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-13.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-13.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-13.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-13.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-13.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-13.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-13.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-13.6	Secured Storage	Scott McGonigal	09/25/15 12:49	Retrieve from Storage
JC4005-13.6	Scott McGonigal	GCMSI	09/25/15 12:49	Load on Instrument
JC4005-13.6	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-13.6	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-14.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-14.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-14.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-14.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-14.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-14.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-14.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-14.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-14.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-14.1
JC4005-14.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-14.1
JC4005-14.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-14.1.1	Extract Storage	Sara Davis	09/18/15 19:08	Retrieve from Storage
JC4005-14.1.1	Sara Davis	GCMSM	09/18/15 19:08	Load on Instrument
JC4005-14.1.1	GCMSM	Alicja Pawelec	09/22/15 11:45	Unload from Instrument
JC4005-14.1.1	Alicja Pawelec	Extract Freezer	09/22/15 11:45	Return to Storage
JC4005-14.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-14.1
JC4005-14.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-14.1
JC4005-14.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-14.1.2	Extract Storage	Sara Davis	09/18/15 23:53	Retrieve from Storage
JC4005-14.1.2	Sara Davis	GCMS2P	09/18/15 23:53	Load on Instrument
JC4005-14.1.2	GCMS2P	Kristi Schollenberger	09/26/15 11:43	Unload from Instrument
JC4005-14.1.2	Kristi Schollenberger	Extract Freezer	09/26/15 11:43	Return to Storage
JC4005-14.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-14.1
JC4005-14.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-14.1
JC4005-14.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-14.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-14.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-14.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-14.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-14.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-14.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument
JC4005-14.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-14.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-14.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-14.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-14.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-14.5	Scott McGonigal		09/30/15 13:00	Depleted
JC4005-15.1	Secured Storage	Dwayne Johnson	09/18/15 09:47	Retrieve from Storage
JC4005-15.1	Dwayne Johnson	Secured Staging Area	09/18/15 09:47	Return to Storage
JC4005-15.1	Secured Staging Area	Albert Quayson	09/18/15 09:52	Retrieve from Storage
JC4005-15.1	Albert Quayson	Secured Storage	09/18/15 11:25	Return to Storage
JC4005-15.1	Secured Storage	Alfredo Crespo	09/21/15 14:34	Retrieve from Storage
JC4005-15.1	Alfredo Crespo	Secured Staging Area	09/21/15 14:36	Return to Storage
JC4005-15.1	Secured Staging Area	Deval Patel	09/21/15 16:03	Retrieve from Storage
JC4005-15.1	Deval Patel	Secured Storage	09/21/15 17:46	Return to Storage
JC4005-15.1.1	Albert Quayson	Organics Prep	09/18/15 09:58	Extract from JC4005-15.1
JC4005-15.1.1	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-15.1
JC4005-15.1.1	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-15.1.1	Extract Storage	Sara Davis	09/18/15 23:53	Retrieve from Storage
JC4005-15.1.1	Sara Davis	GCMS2P	09/18/15 23:53	Load on Instrument
JC4005-15.1.1	GCMS2P	Kristi Schollenberger	09/26/15 11:43	Unload from Instrument
JC4005-15.1.1	Kristi Schollenberger	Extract Freezer	09/26/15 11:43	Return to Storage
JC4005-15.1.2	Albert Quayson	Organics Prep	09/18/15 09:59	Extract from JC4005-15.1
JC4005-15.1.2	Organics Prep	Sauvelson Auguste	09/18/15 15:50	Extract from JC4005-15.1
JC4005-15.1.2	Sauvelson Auguste	Extract Storage	09/18/15 15:51	Return to Storage
JC4005-15.1.3	Deval Patel	Metals Digestion	09/21/15 17:45	Digestate from JC4005-15.1
JC4005-15.1.3	Metals Digestion	Deval Patel	09/21/15 17:45	Digestate from JC4005-15.1
JC4005-15.1.3	Deval Patel	Metals Digestate Storage	09/21/15 17:46	Return to Storage
JC4005-15.2	Secured Storage	Alfredo Crespo	09/18/15 07:37	Retrieve from Storage
JC4005-15.2	Alfredo Crespo	Secured Staging Area	09/18/15 07:37	Return to Storage
JC4005-15.2	Secured Staging Area	Kruti Patel	09/18/15 09:10	Retrieve from Storage
JC4005-15.2	Kruti Patel	Secured Storage	09/18/15 12:41	Return to Storage
JC4005-15.5	Secured Storage	Scott McGonigal	09/21/15 14:10	Retrieve from Storage
JC4005-15.5	Scott McGonigal	GCMSI	09/21/15 14:10	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-15.5	GCMSI	Scott McGonigal	09/23/15 13:19	Unload from Instrument
JC4005-15.5	Scott McGonigal	Secured Staging Area	09/23/15 13:19	Return to Storage
JC4005-15.5	Secured Staging Area	Scott McGonigal	09/23/15 13:22	Retrieve from Storage
JC4005-15.5	Scott McGonigal	GCMSI	09/23/15 13:22	Load on Instrument
JC4005-15.5	GCMSI	Scott McGonigal	09/30/15 13:00	Unload from Instrument
JC4005-15.5	Scott McGonigal		09/30/15 13:00	Depleted

New Jersey
ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D4860-MB	3D113510.D	1	09/22/15	XC	n/a	n/a	V3D4860

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.24	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.21	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.28	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.18	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
110-54-3	Hexane	ND	5.0	0.40	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.23	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/l	
91-20-3	Naphthalene	ND	5.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.16	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.22	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.29	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	76-120%
17060-07-0	1,2-Dichloroethane-D4	108%	73-122%
2037-26-5	Toluene-D8	102%	84-119%
460-00-4	4-Bromofluorobenzene	93%	78-117%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D4861-MB	3D113538.D	1	09/23/15	XC	n/a	n/a	V3D4861

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.24	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.21	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.28	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.18	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
110-54-3	Hexane	ND	5.0	0.40	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.23	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/l	
91-20-3	Naphthalene	ND	5.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.16	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.22	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.29	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	76-120%
17060-07-0	1,2-Dichloroethane-D4	105%	73-122%
2037-26-5	Toluene-D8	101%	84-119%
460-00-4	4-Bromofluorobenzene	95%	78-117%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI8341-MB1	I207904.D	1	09/23/15	SJM	n/a	n/a	VI8341

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-3, JC4005-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.13	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	0.17	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	0.21	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.32	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.13	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.16	ug/kg	
110-54-3	Hexane	ND	5.0	0.39	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	0.11	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.15	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.19	ug/kg	
108-88-3	Toluene	ND	1.0	0.21	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.19	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.27	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	96%	77-125%
460-00-4	4-Bromofluorobenzene	98%	72-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI8342-MB1	I207933.D	1	09/24/15	SJM	n/a	n/a	VI8342

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.13	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	0.17	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	0.21	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.32	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.13	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.16	ug/kg	
110-54-3	Hexane	ND	5.0	0.39	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	0.11	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.15	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.19	ug/kg	
108-88-3	Toluene	ND	1.0	0.21	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.19	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.27	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	100%	68-124%
2037-26-5	Toluene-D8	98%	77-125%
460-00-4	4-Bromofluorobenzene	98%	72-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI8344-MB1	I207984.D	1	09/25/15	SJM	n/a	n/a	VI8344

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-11

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.13	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	0.17	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	0.21	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.32	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.13	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.16	ug/kg	
110-54-3	Hexane	ND	5.0	0.39	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	0.11	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.15	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.19	ug/kg	
108-88-3	Toluene	ND	1.0	0.21	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.19	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.27	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	102%	70-122%
17060-07-0	1,2-Dichloroethane-D4	102%	68-124%
2037-26-5	Toluene-D8	99%	77-125%
460-00-4	4-Bromofluorobenzene	97%	72-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D4860-BS	3D113511.D	1	09/22/15	XC	n/a	n/a	V3D4860

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	50.1	100	81-119
135-98-8	sec-Butylbenzene	50	52.1	104	78-124
98-06-6	tert-Butylbenzene	50	51.3	103	77-127
110-82-7	Cyclohexane	50	53.9	108	77-125
107-06-2	1,2-Dichloroethane	50	56.5	113	78-131
100-41-4	Ethylbenzene	50	53.2	106	80-118
110-54-3	Hexane	50	53.4	107	40-144
98-82-8	Isopropylbenzene	50	54.7	109	78-125
1634-04-4	Methyl Tert Butyl Ether	100	103	103	73-122
91-20-3	Naphthalene	50	55.6	111	66-136
108-88-3	Toluene	50	53.9	108	80-122
95-63-6	1,2,4-Trimethylbenzene	50	58.3	117	82-125
108-67-8	1,3,5-Trimethylbenzene	50	53.4	107	79-123
1330-20-7	Xylene (total)	150	161	107	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	98%	76-120%
17060-07-0	1,2-Dichloroethane-D4	103%	73-122%
2037-26-5	Toluene-D8	106%	84-119%
460-00-4	4-Bromofluorobenzene	105%	78-117%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D4861-BS	3D113539.D	1	09/23/15	XC	n/a	n/a	V3D4861

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	47.2	94	81-119
135-98-8	sec-Butylbenzene	50	44.3	89	78-124
98-06-6	tert-Butylbenzene	50	43.7	87	77-127
110-82-7	Cyclohexane	50	48.4	97	77-125
107-06-2	1,2-Dichloroethane	50	53.8	108	78-131
100-41-4	Ethylbenzene	50	50.4	101	80-118
110-54-3	Hexane	50	55.3	111	40-144
98-82-8	Isopropylbenzene	50	47.2	94	78-125
1634-04-4	Methyl Tert Butyl Ether	100	100	100	73-122
91-20-3	Naphthalene	50	51.9	104	66-136
108-88-3	Toluene	50	50.3	101	80-122
95-63-6	1,2,4-Trimethylbenzene	50	51.2	102	82-125
108-67-8	1,3,5-Trimethylbenzene	50	45.8	92	79-123
1330-20-7	Xylene (total)	150	154	103	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	76-120%
17060-07-0	1,2-Dichloroethane-D4	105%	73-122%
2037-26-5	Toluene-D8	105%	84-119%
460-00-4	4-Bromofluorobenzene	97%	78-117%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI8341-BS	I207905.D	1	09/23/15	SJM	n/a	n/a	VI8341

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-3, JC4005-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	45.6	91	77-122
135-98-8	sec-Butylbenzene	50	49.0	98	70-125
98-06-6	tert-Butylbenzene	50	50.6	101	70-126
110-82-7	Cyclohexane	50	45.1	90	66-131
107-06-2	1,2-Dichloroethane	50	46.7	93	77-140
100-41-4	Ethylbenzene	50	46.7	93	75-121
110-54-3	Hexane	50	36.7	73	37-137
98-82-8	Isopropylbenzene	50	49.4	99	70-126
1634-04-4	Methyl Tert Butyl Ether	100	83.8	84	77-121
91-20-3	Naphthalene	50	44.9	90	74-126
108-88-3	Toluene	50	47.0	94	75-123
95-63-6	1,2,4-Trimethylbenzene	50	51.2	102	75-126
108-67-8	1,3,5-Trimethylbenzene	50	49.9	100	72-124
1330-20-7	Xylene (total)	150	147	98	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	101%	68-124%
2037-26-5	Toluene-D8	100%	77-125%
460-00-4	4-Bromofluorobenzene	102%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI8342-BS	I207934.D	1	09/24/15	SJM	n/a	n/a	VI8342

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	49.3	99	77-122
135-98-8	sec-Butylbenzene	50	54.5	109	70-125
98-06-6	tert-Butylbenzene	50	55.4	111	70-126
110-82-7	Cyclohexane	50	51.9	104	66-131
107-06-2	1,2-Dichloroethane	50	48.7	97	77-140
100-41-4	Ethylbenzene	50	50.9	102	75-121
110-54-3	Hexane	50	36.2	72	37-137
98-82-8	Isopropylbenzene	50	55.3	111	70-126
1634-04-4	Methyl Tert Butyl Ether	100	87.4	87	77-121
91-20-3	Naphthalene	50	46.6	93	74-126
108-88-3	Toluene	50	50.8	102	75-123
95-63-6	1,2,4-Trimethylbenzene	50	53.2	106	75-126
108-67-8	1,3,5-Trimethylbenzene	50	55.1	110	72-124
1330-20-7	Xylene (total)	150	158	105	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	100%	68-124%
2037-26-5	Toluene-D8	101%	77-125%
460-00-4	4-Bromofluorobenzene	103%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI8344-BS	I207985.D	1	09/25/15	SJM	n/a	n/a	VI8344

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-11

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	47.5	95	77-122
135-98-8	sec-Butylbenzene	50	50.9	102	70-125
98-06-6	tert-Butylbenzene	50	52.5	105	70-126
110-82-7	Cyclohexane	50	48.7	97	66-131
107-06-2	1,2-Dichloroethane	50	46.7	93	77-140
100-41-4	Ethylbenzene	50	47.7	95	75-121
110-54-3	Hexane	50	42.5	85	37-137
98-82-8	Isopropylbenzene	50	52.2	104	70-126
1634-04-4	Methyl Tert Butyl Ether	100	83.2	83	77-121
91-20-3	Naphthalene	50	46.2	92	74-126
108-88-3	Toluene	50	47.8	96	75-123
95-63-6	1,2,4-Trimethylbenzene	50	52.9	106	75-126
108-67-8	1,3,5-Trimethylbenzene	50	52.1	104	72-124
1330-20-7	Xylene (total)	150	150	100	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	70-122%
17060-07-0	1,2-Dichloroethane-D4	100%	68-124%
2037-26-5	Toluene-D8	102%	77-125%
460-00-4	4-Bromofluorobenzene	104%	72-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC4206-15MS	3D113529.D	1	09/22/15	XC	n/a	n/a	V3D4860
JC4206-15	3D113527.D	1	09/22/15	XC	n/a	n/a	V3D4860

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-1

CAS No.	Compound	JC4206-15 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	ND		50	46.2	92	43-138
135-98-8	sec-Butylbenzene	ND		50	47.2	94	52-138
98-06-6	tert-Butylbenzene	ND		50	47.5	95	55-137
110-82-7	Cyclohexane	ND		50	50.4	101	30-148
107-06-2	1,2-Dichloroethane	ND		50	50.2	100	72-133
100-41-4	Ethylbenzene	ND		50	49.5	99	38-139
110-54-3	Hexane	ND		50	57.2	114	20-158
98-82-8	Isopropylbenzene	ND		50	50.1	100	54-137
1634-04-4	Methyl Tert Butyl Ether	ND		100	92.2	92	64-132
91-20-3	Naphthalene	ND		50	49.6	99	57-149
108-88-3	Toluene	ND		50	48.8	98	51-136
95-63-6	1,2,4-Trimethylbenzene	ND		50	52.5	105	40-143
108-67-8	1,3,5-Trimethylbenzene	ND		50	48.4	97	54-135
1330-20-7	Xylene (total)	ND		150	149	99	46-137

CAS No.	Surrogate Recoveries	MS	JC4206-15	Limits
1868-53-7	Dibromofluoromethane	100%	106%	76-120%
17060-07-0	1,2-Dichloroethane-D4	104%	110%	73-122%
2037-26-5	Toluene-D8	104%	101%	84-119%
460-00-4	4-Bromofluorobenzene	101%	93%	78-117%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D75286-1MS	I207906.D	1	09/23/15	SJM	n/a	n/a	VI8341
D75286-1MSD	I207907.D	1	09/23/15	SJM	n/a	n/a	VI8341
D75286-1	I207908.D	1	09/23/15	SJM	n/a	n/a	VI8341

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-3, JC4005-4

CAS No.	Compound	D75286-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		56.6	28.6	51	56.6	39.4	70	32* [a]	48-136/30
135-98-8	sec-Butylbenzene	ND		56.6	25.0	44	56.6	39.7	70	45* [a]	23-151/34
98-06-6	tert-Butylbenzene	ND		56.6	26.3	46	56.6	40.0	71	41* [a]	30-149/34
110-82-7	Cyclohexane	ND		56.6	36.3	64	56.6	53.5	95	38* [a]	22-154/33
107-06-2	1,2-Dichloroethane	ND		56.6	22.6	40* [a]	56.6	29.5	52* [a]	26* [a]	56-140/24
100-41-4	Ethylbenzene	ND		56.6	25.8	46	56.6	38.2	68	39* [a]	34-145/29
110-54-3	Hexane	ND		56.6	22.5	40	56.6	33.3	59	39* [a]	10-157/33
98-82-8	Isopropylbenzene	ND		56.6	26.8	47	56.6	39.7	70	39* [a]	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		56.6	38.3	68	56.6	48.0	85	22	54-129/25
91-20-3	Naphthalene	ND		56.6	14.8	26	56.6	19.5	34	27	12-160/33
108-88-3	Toluene	ND		56.6	27.6	49	56.6	39.2	69	35* [a]	40-141/30
95-63-6	1,2,4-Trimethylbenzene	ND		56.6	20.9	37	56.6	32.3	57	43* [a]	23-152/31
108-67-8	1,3,5-Trimethylbenzene	ND		56.6	22.9	40	56.6	34.5	61	40* [a]	26-150/32
1330-20-7	Xylene (total)	ND		170	75.5	44	170	112	66	39* [a]	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	D75286-1	Limits
1868-53-7	Dibromofluoromethane	108%	108%	105%	70-122%
17060-07-0	1,2-Dichloroethane-D4	116%	116%	114%	68-124%
2037-26-5	Toluene-D8	97%	98%	94%	77-125%
460-00-4	4-Bromofluorobenzene	102%	100%	99%	72-130%

(a) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC4153-1MS	3D113549.D	1	09/23/15	XC	n/a	n/a	V3D4861
JC4153-1MSD	3D113550.D	1	09/23/15	XC	n/a	n/a	V3D4861
JC4153-1	3D113548.D	1	09/23/15	XC	n/a	n/a	V3D4861

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-2

CAS No.	Compound	JC4153-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	80.4		50	150	139* [a]	50	153	145* [a]	2	43-138/12
135-98-8	sec-Butylbenzene	4.3		50	71.0	133	50	68.9	129	3	52-138/16
98-06-6	tert-Butylbenzene	1.3	J	50	67.2	132	50	66.2	130	1	55-137/16
110-82-7	Cyclohexane	21.5		50	101	159* [a]	50	105	167* [a]	4	30-148/17
107-06-2	1,2-Dichloroethane	ND		50	60.6	121	50	60.7	121	0	72-133/12
100-41-4	Ethylbenzene	14.9		50	80.7	132	50	83.1	136	3	38-139/12
110-54-3	Hexane	1.1	J	50	74.8	147	50	77.5	153	4	20-158/19
98-82-8	Isopropylbenzene	23.7		50	99.6	152* [a]	50	98.7	150* [a]	1	54-137/15
1634-04-4	Methyl Tert Butyl Ether	ND		100	111	111	100	106	106	5	64-132/13
91-20-3	Naphthalene	49.0		50	125	152* [a]	50	125	152* [a]	0	57-149/13
108-88-3	Toluene	12.3		50	73.1	122	50	76.3	128	4	51-136/13
95-63-6	1,2,4-Trimethylbenzene	444	E	50	642	396* [b]	50	626	364* [b]	3	40-143/13
108-67-8	1,3,5-Trimethylbenzene	101		50	202	202* [b]	50	196	190* [b]	3	54-135/14
1330-20-7	Xylene (total)	281		150	542	174* [a]	150	555	183* [a]	2	46-137/12

CAS No.	Surrogate Recoveries	MS	MSD	JC4153-1	Limits
1868-53-7	Dibromofluoromethane	102%	96%	103%	76-120%
17060-07-0	1,2-Dichloroethane-D4	104%	100%	109%	73-122%
2037-26-5	Toluene-D8	103%	104%	101%	84-119%
460-00-4	4-Bromofluorobenzene	101%	101%	102%	78-117%

(a) Outside control limits due to matrix interference.
(b) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC4386-1MS	I207936.D	1	09/24/15	SJM	n/a	n/a	VI8342
JC4386-1MSD	I207937.D	1	09/24/15	SJM	n/a	n/a	VI8342
JC4386-1 [a]	I207938.D	1	09/24/15	SJM	n/a	n/a	VI8342

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	JC4386-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		54.9	44.8	82	54.9	41.4	75	8	48-136/30
135-98-8	sec-Butylbenzene	ND		54.9	45.1	82	54.9	41.2	75	9	23-151/34
98-06-6	tert-Butylbenzene	ND		54.9	48.3	88	54.9	45.0	82	7	30-149/34
110-82-7	Cyclohexane	ND		54.9	41.7	76	54.9	43.3	79	4	22-154/33
107-06-2	1,2-Dichloroethane	ND		54.9	46.7	85	54.9	43.2	79	8	56-140/24
100-41-4	Ethylbenzene	ND		54.9	43.3	79	54.9	39.3	72	10	34-145/29
110-54-3	Hexane	ND		54.9	30.5	56	54.9	30.6	56	0	10-157/33
98-82-8	Isopropylbenzene	ND		54.9	46.3	84	54.9	41.2	75	12	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		110	89.1	81	110	91.5	83	3	54-129/25
91-20-3	Naphthalene	1.3		54.9	35.1	62	54.9	33.2	58	6	12-160/33
108-88-3	Toluene	ND		54.9	44.6	81	54.9	41.5	76	7	40-141/30
95-63-6	1,2,4-Trimethylbenzene	ND		54.9	45.3	82	54.9	39.6	72	13	23-152/31
108-67-8	1,3,5-Trimethylbenzene	ND		54.9	45.8	83	54.9	40.1	73	13	26-150/32
1330-20-7	Xylene (total)	ND		165	136	83	165	122	74	11	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JC4386-1	Limits
1868-53-7	Dibromofluoromethane	100%	102%		70-122%
17060-07-0	1,2-Dichloroethane-D4	98%	101%		68-124%
2037-26-5	Toluene-D8	100%	97%		77-125%
460-00-4	4-Bromofluorobenzene	100%	99%		72-130%

(a) Sample used for QC purposes only.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC4386-4MS	I207989.D	1	09/25/15	SJM	n/a	n/a	VI8344
JC4386-4MSD	I207990.D	1	09/25/15	SJM	n/a	n/a	VI8344
JC4386-4	I207992.D	1	09/25/15	SJM	n/a	n/a	VI8344

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-11

CAS No.	Compound	JC4386-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	0.29		68.5	63.6	92	68.5	60.3	88	5	48-136/30
135-98-8	sec-Butylbenzene	3.4		68.5	65.2	90	68.5	59.4	82	9	23-151/34
98-06-6	tert-Butylbenzene	ND		68.5	68.8	100	68.5	63.7	93	8	30-149/34
110-82-7	Cyclohexane	ND		68.5	60.1	88	68.5	56.4	82	6	22-154/33
107-06-2	1,2-Dichloroethane	ND		68.5	63.0	92	68.5	63.2	92	0	56-140/24
100-41-4	Ethylbenzene	0.72		68.5	64.1	92	68.5	60.4	87	6	34-145/29
110-54-3	Hexane	ND		68.5	33.5	49	68.5	31.3	46	7	10-157/33
98-82-8	Isopropylbenzene	0.37		68.5	67.0	97	68.5	62.0	90	8	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		137	120	87	137	127	92	6	54-129/25
91-20-3	Naphthalene	ND		68.5	63.2	92	68.5	67.7	99	7	12-160/33
108-88-3	Toluene	0.66		68.5	65.2	94	68.5	62.4	90	4	40-141/30
95-63-6	1,2,4-Trimethylbenzene	4.3		68.5	68.5	94	68.5	63.3	86	8	23-152/31
108-67-8	1,3,5-Trimethylbenzene	1.1		68.5	66.8	96	68.5	62.2	89	7	26-150/32
1330-20-7	Xylene (total)	3.3		206	202	97	206	192	92	5	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JC4386-4	Limits
1868-53-7	Dibromofluoromethane	96%	97%	95%	70-122%
17060-07-0	1,2-Dichloroethane-D4	93%	94%	92%	68-124%
2037-26-5	Toluene-D8	100%	99%	96%	77-125%
460-00-4	4-Bromofluorobenzene	102%	101%	99%	72-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC4206-17DUP	3D113528.D	1	09/22/15	XC	n/a	n/a	V3D4860
JC4206-17	3D113526.D	1	09/22/15	XC	n/a	n/a	V3D4860

The QC reported here applies to the following samples: **Method:** SW846 8260C

JC4005-1

CAS No.	Compound	JC4206-17 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	30
135-98-8	sec-Butylbenzene	ND		ND		nc	30
98-06-6	tert-Butylbenzene	ND		ND		nc	10
110-82-7	Cyclohexane	ND		ND		nc	30
107-06-2	1,2-Dichloroethane	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	30
110-54-3	Hexane	ND		ND		nc	30
98-82-8	Isopropylbenzene	ND		ND		nc	30
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	30
91-20-3	Naphthalene	ND		ND		nc	30
108-88-3	Toluene	ND		ND		nc	30
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	30
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	30
1330-20-7	Xylene (total)	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	JC4206-17	Limits
1868-53-7	Dibromofluoromethane	107%	105%	76-120%
17060-07-0	1,2-Dichloroethane-D4	111%	107%	73-122%
2037-26-5	Toluene-D8	102%	101%	84-119%
460-00-4	4-Bromofluorobenzene	92%	93%	78-117%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V3D4846-BFB
Lab File ID: 3D113148.D
Instrument ID: GCMS3D
Injection Date: 09/08/15
Injection Time: 12:45

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9612	17.7		Pass
75	30.0 - 60.0% of mass 95	25000	46.1		Pass
95	Base peak, 100% relative abundance	54285	100.0		Pass
96	5.0 - 9.0% of mass 95	3664	6.75		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	56861	104.7		Pass
175	5.0 - 9.0% of mass 174	4592	8.46	(8.08) [a]	Pass
176	95.0 - 101.0% of mass 174	54533	100.5	(95.9) [a]	Pass
177	5.0 - 9.0% of mass 176	3825	7.05	(7.01) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3D4846-IC4846	3D113149.D	09/08/15	13:24	00:39	Initial cal 0.2
V3D4846-IC4846	3D113150.D	09/08/15	13:51	01:06	Initial cal 0.5
V3D4846-IC4846	3D113151.D	09/08/15	14:19	01:34	Initial cal 1
V3D4846-IC4846	3D113152.D	09/08/15	14:46	02:01	Initial cal 2
V3D4846-IC4846	3D113153.D	09/08/15	15:13	02:28	Initial cal 5
V3D4846-IC4846	3D113154.D	09/08/15	15:40	02:55	Initial cal 10
V3D4846-IC4846	3D113155.D	09/08/15	16:07	03:22	Initial cal 20
V3D4846-ICC4846	3D113156.D	09/08/15	16:34	03:49	Initial cal 50
V3D4846-IC4846	3D113157.D	09/08/15	17:01	04:16	Initial cal 100
V3D4846-IC4846	3D113158.D	09/08/15	17:28	04:43	Initial cal 200
V3D4846-ICV4846	3D113161.D	09/08/15	18:50	06:05	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V3D4860-BFB
Lab File ID: 3D113507.D
Instrument ID: GCMS3D
Injection Date: 09/22/15
Injection Time: 09:34

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8836	19.1		Pass
75	30.0 - 60.0% of mass 95	23565	51.0		Pass
95	Base peak, 100% relative abundance	46197	100.0		Pass
96	5.0 - 9.0% of mass 95	3275	7.09		Pass
173	Less than 2.0% of mass 174	779	1.69	(1.60) [a]	Pass
174	50.0 - 120.0% of mass 95	48778	105.6		Pass
175	5.0 - 9.0% of mass 174	4159	9.00	(8.53) [a]	Pass
176	95.0 - 101.0% of mass 174	46538	100.7	(95.4) [a]	Pass
177	5.0 - 9.0% of mass 176	2926	6.33	(6.29) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3D4860-CC4846	3D113508.D	09/22/15	10:07	00:33	Continuing cal 20
V3D4860-CC4846	3D113509.D	09/22/15	10:44	01:10	Continuing cal 1
V3D4860-MB	3D113510.D	09/22/15	11:10	01:36	Method Blank
V3D4860-BS	3D113511.D	09/22/15	11:39	02:05	Blank Spike
JC4005-1	3D113513.D	09/22/15	12:32	02:58	TRIP BLANK
ZZZZZZ	3D113514.D	09/22/15	12:59	03:25	(unrelated sample)
ZZZZZZ	3D113515.D	09/22/15	13:26	03:52	(unrelated sample)
ZZZZZZ	3D113516.D	09/22/15	14:01	04:27	(unrelated sample)
ZZZZZZ	3D113517.D	09/22/15	14:27	04:53	(unrelated sample)
ZZZZZZ	3D113520.D	09/22/15	15:48	06:14	(unrelated sample)
ZZZZZZ	3D113521.D	09/22/15	16:15	06:41	(unrelated sample)
ZZZZZZ	3D113522.D	09/22/15	16:49	07:15	(unrelated sample)
JC4206-17	3D113526.D	09/22/15	19:20	09:46	(used for QC only; not part of job JC4005)
JC4206-15	3D113527.D	09/22/15	19:47	10:13	(used for QC only; not part of job JC4005)
JC4206-17DUP	3D113528.D	09/22/15	20:14	10:40	Duplicate
JC4206-15MS	3D113529.D	09/22/15	20:41	11:07	Matrix Spike

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V3D4861-BFB
Lab File ID: 3D113535.D
Instrument ID: GCMS3D
Injection Date: 09/23/15
Injection Time: 08:38

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10250	20.1		Pass
75	30.0 - 60.0% of mass 95	25386	49.7		Pass
95	Base peak, 100% relative abundance	51072	100.0		Pass
96	5.0 - 9.0% of mass 95	3307	6.48		Pass
173	Less than 2.0% of mass 174	983	1.92	(1.98) [a]	Pass
174	50.0 - 120.0% of mass 95	49602	97.1		Pass
175	5.0 - 9.0% of mass 174	4095	8.02	(8.26) [a]	Pass
176	95.0 - 101.0% of mass 174	49506	96.9	(99.8) [a]	Pass
177	5.0 - 9.0% of mass 176	3158	6.18	(6.38) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3D4861-CC4846	3D113536.D	09/23/15	09:14	00:36	Continuing cal 20
V3D4861-MB	3D113538.D	09/23/15	10:15	01:37	Method Blank
V3D4861-BS	3D113539.D	09/23/15	10:42	02:04	Blank Spike
ZZZZZZ	3D113541.D	09/23/15	11:43	03:05	(unrelated sample)
ZZZZZZ	3D113542.D	09/23/15	12:11	03:33	(unrelated sample)
ZZZZZZ	3D113543.D	09/23/15	12:38	04:00	(unrelated sample)
ZZZZZZ	3D113544.D	09/23/15	13:05	04:27	(unrelated sample)
ZZZZZZ	3D113545.D	09/23/15	13:32	04:54	(unrelated sample)
ZZZZZZ	3D113546.D	09/23/15	14:00	05:22	(unrelated sample)
JC4153-1	3D113548.D	09/23/15	15:55	07:17	(used for QC only; not part of job JC4005)
JC4153-1MS	3D113549.D	09/23/15	16:30	07:52	Matrix Spike
JC4153-1MSD	3D113550.D	09/23/15	16:57	08:19	Matrix Spike Duplicate
ZZZZZZ	3D113552.D	09/23/15	17:51	09:13	(unrelated sample)
ZZZZZZ	3D113553.D	09/23/15	18:17	09:39	(unrelated sample)
JC4005-2	3D113554.D	09/23/15	18:44	10:06	EB-20150916

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VI8335-BFB
Lab File ID: I207752.D
Instrument ID: GCMSI
Injection Date: 09/17/15
Injection Time: 16:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	6445	15.8		Pass
75	30.0 - 60.0% of mass 95	17428	42.7		Pass
95	Base peak, 100% relative abundance	40848	100.0		Pass
96	5.0 - 9.0% of mass 95	2731	6.69		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	39346	96.3		Pass
175	5.0 - 9.0% of mass 174	3205	7.85	(8.15) [a]	Pass
176	95.0 - 101.0% of mass 174	38976	95.4	(99.1) [a]	Pass
177	5.0 - 9.0% of mass 176	2551	6.25	(6.55) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VI8335-IC8335	I207753.D	09/17/15	17:09	00:48	Initial cal 0.2
VI8335-IC8335	I207754.D	09/17/15	17:35	01:14	Initial cal 0.5
VI8335-IC8335	I207755.D	09/17/15	18:01	01:40	Initial cal 1
VI8335-IC8335	I207756.D	09/17/15	18:27	02:06	Initial cal 2
VI8335-IC8335	I207757.D	09/17/15	18:53	02:32	Initial cal 5
VI8335-IC8335	I207758.D	09/17/15	19:19	02:58	Initial cal 10
VI8335-IC8335	I207759.D	09/17/15	19:45	03:24	Initial cal 200
VI8335-IC8335	I207761.D	09/17/15	20:37	04:16	Initial cal 100
VI8335-ICC8335	I207763.D	09/17/15	21:29	05:08	Initial cal 50
VI8335-IC8335	I207764.D	09/17/15	21:55	05:34	Initial cal 20
VI8335-ICV8335	I207765.D	09/17/15	22:21	06:00	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VI8341-BFB
Lab File ID: I207901.D
Instrument ID: GCMSI
Injection Date: 09/23/15
Injection Time: 09:06

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9533	15.9		Pass
75	30.0 - 60.0% of mass 95	26117	43.5		Pass
95	Base peak, 100% relative abundance	60026	100.0		Pass
96	5.0 - 9.0% of mass 95	3898	6.49		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	60368	100.6		Pass
175	5.0 - 9.0% of mass 174	5110	8.51	(8.46) [a]	Pass
176	95.0 - 101.0% of mass 174	57800	96.3	(95.7) [a]	Pass
177	5.0 - 9.0% of mass 176	4071	6.78	(7.04) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VI8341-CC8335	I207902.D	09/23/15	09:47	00:41	Continuing cal 50
VI8341-MB1	I207904.D	09/23/15	10:53	01:47	Method Blank
ZZZZZZ	I207904A.D	09/23/15	10:53	01:47	(unrelated sample)
VI8341-BS	I207905.D	09/23/15	11:26	02:20	Blank Spike
D75286-1MS	I207906.D	09/23/15	12:06	03:00	Matrix Spike
D75286-1MSD	I207907.D	09/23/15	12:32	03:26	Matrix Spike Duplicate
D75286-1	I207908.D	09/23/15	12:58	03:52	(used for QC only; not part of job JC4005)
ZZZZZZ	I207909.D	09/23/15	13:24	04:18	(unrelated sample)
ZZZZZZ	I207910.D	09/23/15	13:49	04:43	(unrelated sample)
ZZZZZZ	I207911.D	09/23/15	14:17	05:11	(unrelated sample)
ZZZZZZ	I207912.D	09/23/15	14:43	05:37	(unrelated sample)
JC4005-3	I207913.D	09/23/15	15:10	06:04	MHIC-387-1(5.0)
JC4005-4	I207914.D	09/23/15	15:36	06:30	MHIC-387-2(5.0)
ZZZZZZ	I207915.D	09/23/15	16:03	06:57	(unrelated sample)
ZZZZZZ	I207916.D	09/23/15	16:29	07:23	(unrelated sample)
ZZZZZZ	I207917.D	09/23/15	16:54	07:48	(unrelated sample)
ZZZZZZ	I207918.D	09/23/15	17:20	08:14	(unrelated sample)
ZZZZZZ	I207919.D	09/23/15	17:46	08:40	(unrelated sample)
ZZZZZZ	I207920.D	09/23/15	18:12	09:06	(unrelated sample)
ZZZZZZ	I207921.D	09/23/15	18:38	09:32	(unrelated sample)
ZZZZZZ	I207922.D	09/23/15	19:04	09:58	(unrelated sample)
ZZZZZZ	I207923.D	09/23/15	19:30	10:24	(unrelated sample)
ZZZZZZ	I207924.D	09/23/15	19:56	10:50	(unrelated sample)
ZZZZZZ	I207925.D	09/23/15	20:22	11:16	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VI8341-BFB
Lab File ID: I207901.D
Instrument ID: GCMSI
Injection Date: 09/23/15
Injection Time: 09:06

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	I207926.D	09/23/15	20:48	11:42	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VI8342-BFB
Lab File ID: I207930.D
Instrument ID: GCMSI
Injection Date: 09/24/15
Injection Time: 09:05

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8117	15.6		Pass
75	30.0 - 60.0% of mass 95	22389	43.1		Pass
95	Base peak, 100% relative abundance	51976	100.0		Pass
96	5.0 - 9.0% of mass 95	3454	6.65		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	47544	91.5		Pass
175	5.0 - 9.0% of mass 174	3965	7.63	(8.34) [a]	Pass
176	95.0 - 101.0% of mass 174	46605	89.7	(98.0) [a]	Pass
177	5.0 - 9.0% of mass 176	3186	6.13	(6.84) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VI8342-CC8335	I207931.D	09/24/15	09:43	00:38	Continuing cal 50
VI8342-MB1	I207933.D	09/24/15	10:51	01:46	Method Blank
ZZZZZZ	I207933A.D	09/24/15	10:51	01:46	(unrelated sample)
VI8342-BS	I207934.D	09/24/15	11:24	02:19	Blank Spike
ZZZZZZ	I207935.D	09/24/15	12:03	02:58	(unrelated sample)
JC4386-1MS	I207936.D	09/24/15	12:29	03:24	Matrix Spike
JC4386-1MSD	I207937.D	09/24/15	12:55	03:50	Matrix Spike Duplicate
JC4386-1	I207938.D	09/24/15	13:20	04:15	(used for QC only; not part of job JC4005)
JC4005-5	I207939.D	09/24/15	13:48	04:43	MHIC-387-3(5.0)
JC4005-6	I207940.D	09/24/15	14:14	05:09	MHIC-387-4(5.0)
JC4005-8	I207941.D	09/24/15	14:40	05:35	MHIC-387-6(3.0)
JC4005-7	I207942.D	09/24/15	15:05	06:00	MHIC-387-5(3.0)
JC4005-9	I207943.D	09/24/15	15:34	06:29	MHIC-387-7(3.0)
JC4005-10	I207944.D	09/24/15	16:00	06:55	MHIC-387-8(3.0)
JC4005-12	I207946.D	09/24/15	16:52	07:47	MHIC-387-10(3.0)
JC4005-13	I207947.D	09/24/15	17:18	08:13	MHIC-387-11(3.0)
JC4005-14	I207948.D	09/24/15	17:44	08:39	MHIC-387-12(2.0)
JC4005-15	I207949.D	09/24/15	18:09	09:04	MHIC-387-13(2.0)
ZZZZZZ	I207950.D	09/24/15	18:35	09:30	(unrelated sample)
ZZZZZZ	I207951.D	09/24/15	19:01	09:56	(unrelated sample)
ZZZZZZ	I207952.D	09/24/15	19:27	10:22	(unrelated sample)
ZZZZZZ	I207953.D	09/24/15	19:53	10:48	(unrelated sample)
ZZZZZZ	I207954.D	09/24/15	20:19	11:14	(unrelated sample)
ZZZZZZ	I207955.D	09/24/15	20:45	11:40	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VI8344-BFB
Lab File ID: I207981.D
Instrument ID: GCMSI
Injection Date: 09/25/15
Injection Time: 11:04

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8750	15.7		Pass
75	30.0 - 60.0% of mass 95	23957	42.9		Pass
95	Base peak, 100% relative abundance	55824	100.0		Pass
96	5.0 - 9.0% of mass 95	3771	6.76		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	55400	99.2		Pass
175	5.0 - 9.0% of mass 174	4515	8.09	(8.15) [a]	Pass
176	95.0 - 101.0% of mass 174	54144	97.0	(97.7) [a]	Pass
177	5.0 - 9.0% of mass 176	3568	6.39	(6.59) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VI8344-CC8335	I207982.D	09/25/15	11:42	00:38	Continuing cal 50
ZZZZZZ	I207984A.D	09/25/15	12:53	01:49	(unrelated sample)
VI8344-MB1	I207984.D	09/25/15	12:53	01:49	Method Blank
VI8344-BS	I207985.D	09/25/15	13:30	02:26	Blank Spike
JC4005-11	I207986.D	09/25/15	14:10	03:06	MHIC-387-9(3.0)
JC4005-13	I207987.D	09/25/15	14:36	03:32	MHIC-387-11(3.0)
JC4386-4MS	I207989.D	09/25/15	15:32	04:28	Matrix Spike
JC4386-4MSD	I207990.D	09/25/15	15:58	04:54	Matrix Spike Duplicate
JC4386-4	I207992.D	09/25/15	16:50	05:46	(used for QC only; not part of job JC4005)
ZZZZZZ	I207993.D	09/25/15	17:16	06:12	(unrelated sample)
ZZZZZZ	I207994.D	09/25/15	17:41	06:37	(unrelated sample)
ZZZZZZ	I207995.D	09/25/15	18:07	07:03	(unrelated sample)
ZZZZZZ	I207996.D	09/25/15	18:33	07:29	(unrelated sample)
ZZZZZZ	I207997.D	09/25/15	18:59	07:55	(unrelated sample)
ZZZZZZ	I207998.D	09/25/15	19:25	08:21	(unrelated sample)
ZZZZZZ	I207999.D	09/25/15	19:51	08:47	(unrelated sample)
ZZZZZZ	I208000.D	09/25/15	20:17	09:13	(unrelated sample)
ZZZZZZ	I208001.D	09/25/15	20:42	09:38	(unrelated sample)
ZZZZZZ	I208002.D	09/25/15	21:08	10:04	(unrelated sample)
ZZZZZZ	I208003.D	09/25/15	21:34	10:30	(unrelated sample)
ZZZZZZ	I208004.D	09/25/15	22:00	10:56	(unrelated sample)
ZZZZZZ	I208005.D	09/25/15	22:26	11:22	(unrelated sample)
ZZZZZZ	I208006.D	09/25/15	22:52	11:48	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	V3D4860-CC4846	**Injection Date:**	09/22/15
Lab File ID:	3D113508.D	**Injection Time:**	10:07
Instrument ID:	GCMS3D	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	112278	7.18	197326	9.40	219349	10.31	190922	13.48	112503	15.79
Upper Limit [a]	224556	7.68	394652	9.90	438698	10.81	381844	13.98	225006	16.29
Lower Limit [b]	56139	6.68	98663	8.90	109675	9.81	95461	12.98	56252	15.29

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3D4860-MB	99723	7.18	181895	9.40	208379	10.31	180437	13.48	113398	15.79
V3D4860-BS	106788	7.17	187156	9.39	210953	10.31	191815	13.48	106138	15.78
JC4005-1	103411	7.16	186304	9.39	212638	10.31	184739	13.48	112573	15.79
ZZZZZZ	103323	7.17	192806	9.39	222269	10.31	197607	13.47	124817	15.78
ZZZZZZ	104650	7.18	185849	9.39	221070	10.31	186187	13.47	110893	15.78
ZZZZZZ	103843	7.18	181097	9.39	212556	10.31	182456	13.48	109473	15.79
ZZZZZZ	93741	7.18	165838	9.40	192780	10.32	167021	13.48	102728	15.79
ZZZZZZ	94845	7.17	172555	9.39	197937	10.31	170270	13.47	102045	15.79
ZZZZZZ	98390	7.18	171690	9.40	197998	10.31	168422	13.47	101219	15.79
ZZZZZZ	92287	7.16	172695	9.39	203760	10.31	173166	13.48	105780	15.79
JC4206-17	100600	7.16	181211	9.39	204018	10.31	176478	13.48	107704	15.79
JC4206-15	99730	7.17	176178	9.40	204249	10.32	177065	13.48	110702	15.79
JC4206-17DUP	91184	7.17	169563	9.40	192533	10.31	169927	13.48	104450	15.79
JC4206-15MS	106809	7.17	187906	9.40	212775	10.32	185591	13.48	104327	15.79

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	V3D4861-CC4846	**Injection Date:**	09/23/15
Lab File ID:	3D113536.D	**Injection Time:**	09:14
Instrument ID:	GCMS3D	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	114957	7.16	191135	9.39	216194	10.31	187025	13.48	110912	15.79
Upper Limit [a]	229914	7.66	382270	9.89	432388	10.81	374050	13.98	221824	16.29
Lower Limit [b]	57479	6.66	95568	8.89	108097	9.81	93513	12.98	55456	15.29

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3D4861-MB	95594	7.17	173743	9.39	195859	10.31	166461	13.48	102923	15.79
V3D4861-BS	101564	7.17	169880	9.40	189094	10.31	169210	13.48	103090	15.79
ZZZZZZ	108294	7.17	183440	9.39	210258	10.30	179717	13.47	107176	15.78
ZZZZZZ	109755	7.16	191870	9.39	217839	10.31	186869	13.47	116359	15.79
ZZZZZZ	101931	7.17	182899	9.39	211782	10.31	179581	13.47	112547	15.78
ZZZZZZ	184946	7.18	188804	9.39	218454	10.31	185657	13.47	110612	15.78
ZZZZZZ	177077	7.18	201665	9.39	222777	10.31	188536	13.47	117805	15.78
ZZZZZZ	198163	7.16	197867	9.39	220956	10.30	188648	13.47	114788	15.78
JC4153-1	104882	7.16	174203	9.39	202846	10.31	174902	13.48	99590	15.79
JC4153-1MS	120911	7.18	201179	9.40	229747	10.31	198876	13.48	110323	15.79
JC4153-1MSD	117288	7.17	204200	9.39	228321	10.31	199226	13.48	113989	15.79
ZZZZZZ	101822	7.17	188015	9.39	212966	10.31	183404	13.47	111855	15.79
ZZZZZZ	112644	7.18	191887	9.40	214426	10.31	184030	13.48	115536	15.79
JC4005-2	97467	7.18	172352	9.39	197219	10.31	168437	13.48	100772	15.79

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VI8341-CC8335	**Injection Date:**	09/23/15
Lab File ID:	I207902.D	**Injection Time:**	09:47
Instrument ID:	GCMSI	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	81595	7.18	232260	9.44	279008	10.36	215911	13.51	110153	15.83
Upper Limit [a]	163190	7.68	464520	9.94	558016	10.86	431822	14.01	220306	16.33
Lower Limit [b]	40798	6.68	116130	8.94	139504	9.86	107956	13.01	55077	15.33

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VI8341-MB1	61591	7.18	187493	9.44	222735	10.36	184565	13.51	102764	15.83
ZZZZZZ	61591	7.18	187493	9.44	222735	10.36	184565	13.51	102764	15.83
VI8341-BS	84604	7.21	249682	9.44	303417	10.36	242889	13.51	125100	15.83
D75286-1MS	97415	7.17	243589	9.44	298275	10.36	241599	13.51	127036	15.83
D75286-1MSD	104676	7.19	219235	9.44	269418	10.36	223070	13.51	123424	15.83
D75286-1	76644	7.17	197334	9.44	240067	10.36	202090	13.51	115301	15.83
ZZZZZZ	55907	7.17	187374	9.44	228346	10.36	190538	13.51	106621	15.83
ZZZZZZ	56511	7.18	184991	9.44	225389	10.36	189312	13.52	104016	15.83
ZZZZZZ	74136	7.20	216865	9.44	257122	10.36	213447	13.51	114964	15.83
ZZZZZZ	72646	7.18	201581	9.44	236040	10.36	193363	13.51	106538	15.83
JC4005-3	59329	7.17	203989	9.44	245204	10.36	202297	13.51	109953	15.83
JC4005-4	72812	7.19	221995	9.44	269452	10.36	222437	13.51	117086	15.83
ZZZZZZ	100468	7.20	236889	9.44	286842	10.36	235413	13.51	124014	15.83
ZZZZZZ	70424	7.17	201577	9.44	240867	10.36	203502	13.51	111390	15.83
ZZZZZZ	69068	7.18	200731	9.44	242962	10.36	199906	13.51	108503	15.83
ZZZZZZ	82217	7.19	216163	9.44	258889	10.36	212728	13.51	110611	15.83
ZZZZZZ	47935	7.17	187370	9.44	229106	10.36	182346	13.51	87166	15.83
ZZZZZZ	72646	7.17	199736	9.44	243258	10.36	204905	13.51	113609	15.83
ZZZZZZ	82194	7.19	224605	9.44	266244	10.36	222287	13.51	120397	15.83
ZZZZZZ	73890	7.16	198551	9.44	239333	10.36	203269	13.51	110015	15.83
ZZZZZZ	62296	7.22	201562	9.44	244055	10.36	198062	13.51	103326	15.83
ZZZZZZ	72171	7.19	211696	9.44	257323	10.36	205458	13.51	100453	15.83
ZZZZZZ	74795	7.16	208328	9.44	252500	10.36	208421	13.51	114249	15.83
ZZZZZZ	58230	7.18	184460	9.44	219417	10.36	181341	13.52	103029	15.83

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VI8342-CC8335	**Injection Date:**	09/24/15
Lab File ID:	I207931.D	**Injection Time:**	09:43
Instrument ID:	GCMSI	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	80939	7.16	243856	9.44	287252	10.36	222244	13.51	113449	15.83
Upper Limit [a]	161878	7.66	487712	9.94	574504	10.86	444488	14.01	226898	16.33
Lower Limit [b]	40470	6.66	121928	8.94	143626	9.86	111122	13.01	56725	15.33

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
ZZZZZZ	64609	7.19	196812	9.44	238157	10.36	193802	13.51	106233	15.83
VI8342-MB1	64609	7.19	196812	9.44	238157	10.36	193802	13.51	106233	15.83
VI8342-BS	87999	7.18	257477	9.44	308699	10.36	246978	13.51	124889	15.83
ZZZZZZ	66401	7.19	229315	9.44	267298	10.36	205950	13.51	102882	15.83
JC4386-1MS	78102	7.20	231289	9.44	276660	10.36	223830	13.51	116787	15.83
JC4386-1MSD	73372	7.18	199134	9.44	242732	10.36	197794	13.51	105310	15.83
JC4386-1	62552	7.18	195004	9.44	231824	10.36	191263	13.51	107220	15.83
JC4005-5	87485	7.19	234384	9.44	278343	10.36	227016	13.51	124296	15.83
JC4005-6	72316	7.18	208278	9.44	252297	10.36	213255	13.51	116813	15.83
JC4005-8	76167	7.18	203492	9.44	244413	10.36	200184	13.51	109241	15.83
JC4005-7	63500	7.20	216077	9.44	257106	10.36	213003	13.51	115883	15.83
JC4005-9	70280	7.16	222186	9.44	266887	10.36	219194	13.51	119145	15.83
JC4005-10	64546	7.17	227322	9.44	272534	10.36	222474	13.51	122041	15.83
JC4005-12	63159	7.17	203116	9.44	240919	10.36	195215	13.51	107473	15.83
JC4005-13	68520	7.18	205069	9.44	241090	10.36	208862	13.51	128067	15.83
JC4005-14	79182	7.19	228650	9.44	267656	10.36	222507	13.51	121289	15.83
JC4005-15	66045	7.17	223600	9.44	265289	10.36	221131	13.51	120272	15.83
ZZZZZZ	59616	7.16	201975	9.44	238878	10.36	197268	13.51	110405	15.83
ZZZZZZ	64193	7.19	220917	9.44	262708	10.36	204916	13.51	92831	15.83
ZZZZZZ	69057	7.19	232142	9.44	269682	10.36	215362	13.51	102336	15.83
ZZZZZZ	64393	7.17	203376	9.44	239906	10.36	195665	13.51	105011	15.83
ZZZZZZ	82948	7.17	230342	9.44	276309	10.36	228230	13.51	122238	15.83
ZZZZZZ	66264	7.18	196298	9.44	232037	10.36	190379	13.51	104974	15.83

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VI8344-CC8335	**Injection Date:**	09/25/15
Lab File ID:	I207982.D	**Injection Time:**	11:42
Instrument ID:	GCMSI	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	81655	7.22	243909	9.44	295138	10.36	228758	13.51	115455	15.83
Upper Limit [a]	163310	7.72	487818	9.94	590276	10.86	457516	14.01	230910	16.33
Lower Limit [b]	40828	6.72	121955	8.94	147569	9.86	114379	13.01	57728	15.33

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
ZZZZZZ	60479	7.20	182383	9.44	218511	10.36	176745	13.51	97391	15.83
VI8344-MB1	60479	7.20	182383	9.44	218511	10.36	176745	13.51	97391	15.83
VI8344-BS	81549	7.24	234407	9.44	287615	10.36	226028	13.51	112658	15.83
JC4005-11	80497	7.16	213406	9.44	258326	10.36	205229	13.51	107347	15.83
JC4005-13 [c]	65855	7.20	197769	9.44	234972	10.36	204330	13.51	111707	15.83
JC4386-4MS	79927	7.23	219402	9.44	262483	10.36	210420	13.51	110487	15.83
JC4386-4MSD	81468	7.18	219961	9.44	265249	10.36	212191	13.51	112214	15.83
JC4386-4	54242	7.17	184678	9.44	220726	10.36	180693	13.51	97997	15.83
ZZZZZZ	62258	7.18	197630	9.44	236800	10.36	190792	13.52	103201	15.83
ZZZZZZ	69492	7.19	197741	9.44	234235	10.36	191379	13.51	103475	15.83
ZZZZZZ	68986	7.18	198489	9.44	233898	10.36	195324	13.51	109371	15.83
ZZZZZZ	83268	7.20	206006	9.44	243346	10.36	201027	13.51	110239	15.83
ZZZZZZ	59604	7.17	181775	9.44	220852	10.36	181239	13.51	99608	15.83
ZZZZZZ	64323	7.16	178070	9.44	218680	10.36	179856	13.51	96539	15.83
ZZZZZZ	70931	7.18	185831	9.44	227924	10.36	181106	13.51	84978	15.83
ZZZZZZ	64472	7.19	185227	9.44	224645	10.36	187249	13.51	102875	15.83
ZZZZZZ	56396	7.19	186660	9.44	223122	10.36	184179	13.51	94327	15.83
ZZZZZZ	80909	7.18	169926	9.44	210201	10.36	173747	13.51	87789	15.83
ZZZZZZ	67050	7.19	183034	9.44	221722	10.36	185159	13.51	101130	15.83
ZZZZZZ	59743	7.19	170436	9.44	208348	10.36	169990	13.51	91372	15.83
ZZZZZZ	65898	7.18	172998	9.44	207583	10.36	159482	13.51	68444	15.83
ZZZZZZ	70299	7.18	174061	9.44	204146	10.36	168355	13.51	91102	15.83

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Confirmation run for surrogate recoveries.

Volatile Surrogate Recovery Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846 8260C **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JC4005-1	3D113513.D	103	106	100	95
JC4005-2	3D113554.D	101	106	99	96
JC4153-1MS	3D113549.D	102	104	103	101
JC4153-1MSD	3D113550.D	96	100	104	101
JC4206-15MS	3D113529.D	100	104	104	101
JC4206-17DUP	3D113528.D	107	111	102	92
V3D4860-BS	3D113511.D	98	103	106	105
V3D4860-MB	3D113510.D	100	108	102	93
V3D4861-BS	3D113539.D	100	105	105	97
V3D4861-MB	3D113538.D	99	105	101	95

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	76-120%
S2 = 1,2-Dichloroethane-D4	73-122%
S3 = Toluene-D8	84-119%
S4 = 4-Bromofluorobenzene	78-117%

Volatile Surrogate Recovery Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846 8260C **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JC4005-3	I207913.D	102	103	96	101
JC4005-4	I207914.D	102	104	97	102
JC4005-5	I207939.D	103	105	98	100
JC4005-6	I207940.D	105	110	94	100
JC4005-7	I207942.D	101	103	97	98
JC4005-8	I207941.D	104	110	96	99
JC4005-9	I207943.D	105	106	97	100
JC4005-10	I207944.D	104	105	98	98
JC4005-11	I207986.D	109	117	98	114
JC4005-12	I207946.D	99	102	97	98
JC4005-13	I207987.D	96	112	658* [a]	465* [a]
JC4005-13	I207947.D	97	102	158* [b]	132* [b]
JC4005-14	I207948.D	101	104	96	101
JC4005-15	I207949.D	99	99	96	99
D75286-1MS	I207906.D	108	116	97	102
D75286-1MSD	I207907.D	108	116	98	100
JC4386-1MS	I207936.D	100	98	100	100
JC4386-1MSD	I207937.D	102	101	97	99
JC4386-4MS	I207989.D	96	93	100	102
JC4386-4MSD	I207990.D	97	94	99	101
VI8341-BS	I207905.D	101	101	100	102
VI8341-MB1	I207904.D	100	103	96	98
VI8342-BS	I207934.D	101	100	101	103
VI8342-MB1	I207933.D	101	100	98	98
VI8344-BS	I207985.D	105	100	102	104
VI8344-MB1	I207984.D	102	102	99	97

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-122%
S2 = 1,2-Dichloroethane-D4	68-124%
S3 = Toluene-D8	77-125%
S4 = 4-Bromofluorobenzene	72-130%

(a) Outside control limits due to matrix interference.
(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V3D4846-ICC4846
Lab FileID: 3D113156.D


```
                         Response Factor Report  MS3D

Method       : C:\msdchem\1\METHODS\M3D4846.M (RTE Integrator)
Title        : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update  : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration

Calibration Files
5   =3D113153.D  0.5 =3D113150.D  2   =3D113152.D  50  =3D113156.D
100 =3D113157.D  1   =3D113151.D  200 =3D113158.D  20  =3D113155.D
10  =3D113154.D  0.2 =3D113149.D      =                =

Compound
        5     0.5   2     50    100   1     200   20    10    0.2    Avg   %RSD
-------------------------------------------------------------------------------

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.093       0.075 0.104 0.108       0.104 0.103 0.102        0.098   11.61
3)  tertiary butyl alcohol
     1.115       1.191 1.135 1.147       1.111 1.143 1.232        1.153    3.76

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  FREON 115
                                                                  0.000#  -1.00
6)  FREON 152A
                                                                  0.000#  -1.00
7)  chlorotrifluoroethene
                                                                  0.000#  -1.00
8)  chlorodifluoromethane
     0.878 1.078 0.929 0.944 0.966 0.756 0.855 0.941 0.999        0.927    9.84
9)  dichlorodifluoromethane
     1.077 1.063 1.094 1.109 1.134 0.994 0.885 1.051 1.151        1.062    7.64
10)  chloromethane
     0.832 1.068 0.855 0.882 0.927 0.912 0.913 0.834 0.928        0.906    7.90
11)  vinyl chloride
     0.950 0.995 0.969 1.030 1.075 0.916 0.987 0.978 1.065 0.940  0.990    5.28
12)  bromomethane
     0.558 0.706 0.624 0.597 0.604 0.547 0.574 0.558 0.627        0.599    8.27
13)  chloroethane
     0.361 0.311 0.382 0.359 0.371 0.362 0.343 0.348 0.405        0.360    7.25
14)  1,3-butadiene
                                                                  0.000#  -1.00
15)  vinyl bromide
                                                                  0.000#  -1.00
16)  trichlorofluoromethane
     1.108       1.166 1.097 1.114       0.956 1.064 1.215        1.103    7.39
17)  pentane
                                                                  0.000#  -1.00
18)  ethyl ether
     0.222       0.235 0.212 0.219 0.195 0.217 0.212 0.237        0.218    6.08
19)  freon 123a
                                                                  0.000#  -1.00
20)  FREON 123
                                                                  0.000#  -1.00
21)  acrolein
     0.105       0.110 0.099       0.091       0.094 0.109        0.101    7.80
22)  1,1-dichloroethene
     0.754 0.710 0.805 0.765 0.781 0.727 0.736 0.769 0.854 0.654  0.756    7.20
23)  acetone
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** V3D4846-ICC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113156.D
Project: Sunoco - Marcus Hook Facility, PA

```
      0.171             0.123 0.130       0.140 0.120 0.166        0.142   15.43
24)  allyl chloride
      0.225       0.228 0.227 0.225 0.179 0.219 0.210 0.230        0.218    7.83
25)  acetonitrile
      0.047 0.054 0.052 0.048 0.050 0.040 0.049 0.046 0.051        0.049    8.16
26)  acetaldehyde
                                                                   0.000#  -1.00
27)  iodomethane
      1.002 0.827 1.060 1.017 1.029 0.911 0.986 1.021 1.124 0.744  0.972   11.67
28)  iso-butyl alcohol *This compound does not meet Initial Calibration criteria
      0.014       0.021 0.016 0.017 0.016 0.019 0.015 0.017        0.017   12.86
29)  carbon disulfide
      1.898 1.804 2.090 1.864 1.880 1.902 1.732 1.912 2.129 2.070  1.928    6.67
30)  methylene chloride
      0.548 0.494 0.582 0.517 0.519 0.542 0.499 0.529 0.586 0.564  0.538    5.99
31)  methyl acetate
      0.349       0.342 0.342 0.346       0.355 0.333 0.346        0.345    1.93
32)  methyl tert butyl ether
      1.410 1.321 1.558 1.530 1.583 1.334 1.595 1.477 1.619 1.564  1.499    7.27
33)  trans-1,2-dichloroethene
      0.639 0.570 0.650 0.660 0.666 0.635 0.619 0.660 0.725        0.647    6.38
34)  di-isopropyl ether
      1.358 1.262 1.280 1.521 1.599 1.158 1.590 1.466 1.481        1.413   11.00
35)  ethyl tert-butyl ether
      1.350 1.190 1.288 1.557 1.647 1.177 1.675 1.486 1.483        1.428   13.04
36)  2-butanone
      0.033             0.041 0.043       0.046 0.037 0.029        0.038   16.94
37)  1,1-dichloroethane
      0.789 0.622 0.800 0.804 0.815 0.738 0.767 0.796 0.892 0.709  0.773    9.30
38)  chloroprene
      0.508       0.490 0.551 0.577       0.538 0.546 0.545        0.536    5.40
39)  acrylonitrile
      0.149       0.155 0.162 0.167       0.168 0.158 0.170        0.161    4.76
40)  vinyl acetate
                        0.045 0.051       0.052 0.043 0.039        0.046   12.06
41)  ethyl acetate
      0.032             0.051 0.058       0.054 0.045 0.047        0.048   18.59
42)  2,2-dichloropropane
      0.839 0.877 0.868 0.834 0.836 0.858 0.769 0.832 0.917        0.848    4.77
43)  cis-1,2-dichloroethene
      0.433 0.371 0.490 0.466 0.473 0.435 0.458 0.468 0.515        0.457    8.95
44)  propionitrile
      0.051             0.061 0.064       0.066 0.058 0.063        0.060    8.77
45)  methyl acrylate
      0.025             0.051 0.055       0.059 0.043 0.042        0.046   26.25
            ----- Linear regression -----  Coefficient =  0.9990
              Response Ratio = -0.00584 + 0.05953 *A

46)  bromochloromethane
      0.249 0.203 0.258 0.242 0.246 0.220 0.247 0.247 0.269        0.242    8.12
47)  tetrahydrofuran
      0.103       0.148 0.145 0.147 0.121 0.153 0.141 0.157        0.139   13.05
48)  chloroform
      0.743 0.673 0.779 0.748 0.771 0.703 0.744 0.752 0.839 0.687  0.744    6.48
49)  Tert-Butyl Formate
      0.374       0.355 0.431 0.464 0.280 0.483 0.412 0.406        0.401   16.12
50)  dibromofluoromethane (s)
      0.444 0.437 0.438 0.430 0.442 0.444 0.445 0.442 0.440 0.433  0.440    1.10
51)  1,2-dichloroethane-d4 (s)
      0.463 0.463 0.466 0.452 0.461 0.462 0.464 0.461 0.458 0.457  0.461    0.90
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** V3D4846-ICC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113156.D
Project: Sunoco - Marcus Hook Facility, PA

```
52)  freon 113
      0.429       0.438 0.437 0.443 0.374 0.375 0.441 0.468        0.426    7.88
53)  methacrylonitrile
      0.184       0.181 0.220 0.235       0.246 0.206 0.210        0.212   11.45
54)  1,1,1-trichloroethane
      0.778 0.612 0.803 0.825 0.835 0.767 0.783 0.813 0.897 0.739  0.785    9.52
55)  tert amyl alcohol
                                                                   0.000#  -1.00
56)  2,2,4-Trimethylpentane
      1.412       1.350 1.848 2.041 1.165 1.684 1.708 1.659        1.608   17.66
57)  tert-amyl methyl ether
      1.275       1.247 1.446 1.550 1.024 1.606 1.402 1.392        1.368   13.51

58) I   1,4-difluorobenzene   ----------------ISTD---------------------
59)  epichlorohydrin
      0.026             0.033 0.034       0.034 0.031 0.032        0.032    9.61
60)  n-butyl alcohol
      0.007             0.010 0.011             0.009 0.008        0.009#  19.14
61)  cyclohexane
      0.582 0.445 0.646 0.663 0.662 0.590 0.572 0.630 0.693 0.532  0.602   12.28
62)  carbon tetrachloride
      0.612 0.519 0.639 0.642 0.634 0.538 0.579 0.626 0.704 0.661  0.615    9.08
63)  1,1-dichloropropene
      0.431 0.444 0.420 0.460 0.454 0.384 0.417 0.444 0.493 0.291  0.424   12.93
64)  hexane
      0.260       0.312 0.300 0.312 0.221 0.242 0.292 0.289        0.278   12.12
65)  benzene
      1.319 1.187 1.428 1.375 1.359 1.331 1.304 1.350 1.500 1.580  1.373    7.94
66)  heptane
      0.169       0.152 0.200 0.209 0.128 0.168 0.194 0.202        0.178   15.92
67)  isopropyl acetate
      0.503       0.550 0.607 0.633       0.669 0.556 0.551        0.581    9.85
68)  1,2-dichloroethane
      0.461 0.420 0.506 0.472 0.472 0.430 0.465 0.464 0.513 0.470  0.467    6.08
69)  trichloroethene
      0.323 0.276 0.324 0.336 0.335 0.321 0.315 0.334 0.371 0.329  0.326    7.18
70)  ethyl acrylate
                                                                   0.000#  -1.00
71)  tert amyl ethyl ether
                                                                   0.000#  -1.00
72)  2-nitropropane
      0.119       0.149 0.124 0.125       0.128 0.110 0.132        0.127    9.57
73)  2-chloroethyl vinyl ether
      0.152       0.131 0.200 0.202       0.205 0.185 0.185        0.180   15.65
74)  methyl methacrylate
      0.416             0.491 0.530       0.531 0.451 0.490        0.485    9.28
75)  1,2-dichloropropane
      0.346 0.319 0.356 0.366 0.359 0.317 0.352 0.352 0.399 0.312  0.348    7.56
76)  methylcyclohexane
      0.539 0.504 0.527 0.623 0.648 0.479 0.540 0.582 0.605        0.561   10.15
77)  dibromomethane
      0.215       0.226 0.229 0.227 0.181 0.228 0.224 0.255        0.223    9.22
78)  bromodichloromethane
      0.445 0.399 0.470 0.470 0.470 0.404 0.467 0.460 0.498 0.390  0.447    8.21
79)  cis-1,3-dichloropropene
      0.460 0.360 0.467 0.533 0.529 0.434 0.535 0.496 0.528        0.482   12.23
80)  toluene-d8 (s)
      1.124 1.118 1.127 1.152 1.137 1.117 1.156 1.131 1.154 1.101  1.131    1.60
81)  4-methyl-2-pentanone
      0.097             0.130 0.139       0.147 0.115 0.120        0.125   14.43
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** V3D4846-ICC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113156.D
Project: Sunoco - Marcus Hook Facility, PA

```
 82)  toluene
       0.686 0.652 0.733 0.756 0.758 0.643 0.737 0.720 0.804 0.701  0.719    6.95
 83)  3-methyl-1-butanol
       0.007             0.009 0.010       0.011 0.008 0.008        0.009#  19.12
 84)  trans-1,3-dichloropropene
       0.418 0.318 0.427 0.487 0.482 0.367 0.483 0.456 0.503        0.438   14.16
 85)  ethyl methacrylate
       0.263       0.229 0.354 0.376       0.395 0.302 0.303        0.317   19.09
 86)  1,1,2-trichloroethane
       0.227 0.201 0.231 0.250 0.245 0.217 0.246 0.233 0.271        0.236    8.61
 87)  2-hexanone
       0.063             0.092 0.102             0.089 0.089        0.087   16.67

 88) I   chlorobenzene-d5      ----------------ISTD---------------------
 89)  tetrachloroethene
       0.432 0.424 0.470 0.446 0.437 0.363 0.413 0.431 0.473 0.311  0.420   11.72
 90)  1,3-dichloropropane
       0.506 0.418 0.543 0.561 0.553 0.445 0.549 0.534 0.576 0.410  0.510   12.20
 91)  butyl acetate *This compound does not meet Initial Calibration criteria
       0.131             0.219 0.236       0.244 0.184 0.174        0.198   21.85
             ----- Linear regression -----  Coefficient =  0.9996
               Response Ratio = -0.02047 + 0.24844 *A

 92)  3,3-Dimethyl-1-Butanol
       0.033       0.034 0.044 0.053             0.039 0.035        0.040   19.20
 93)  dibromochloromethane
       0.408 0.398 0.397 0.460 0.462 0.350 0.459 0.448 0.468 0.367  0.422   10.25
 94)  1,2-dibromoethane
       0.333 0.336 0.344 0.364 0.360 0.263 0.356 0.345 0.379        0.342    9.67
 95)  n-Butyl Ether
       1.120       1.147 1.556 1.590 1.013 1.536 1.379 1.406        1.343   16.55
 96)  chlorobenzene
       0.956 0.868 1.036 1.014 1.004 0.857 0.968 0.980 1.092 1.042  0.982    7.57
 97)  1,1,1,2-tetrachloroethane
       0.469 0.482 0.485 0.498 0.510 0.402 0.516 0.490 0.518 0.511  0.488    7.06
 98)  ethylbenzene
       1.478 1.255 1.537 1.698 1.723 1.356 1.656 1.643 1.750        1.566   11.05
 99)  m,p-xylene
       0.558 0.459 0.565 0.645 0.652 0.474 0.626 0.626 0.651        0.584   12.87
100)  o-xylene
       0.563       0.598 0.678 0.697 0.455 0.688 0.637 0.662        0.622   13.14
101)  styrene
       0.752 0.651 0.844 1.014 1.039 0.660 1.034 0.949 0.988        0.881   18.02
102)  Butyl Acrylate
                                                                    0.000#  -1.00
103)  bromoform
       0.318 0.187 0.301 0.329 0.336 0.266 0.340 0.308 0.343        0.303   16.35

104) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
105)  isopropylbenzene
       2.504       2.433 3.473 3.523 1.991 3.408 3.064 3.047        2.930   19.20
106)  4-bromofluorobenzene (s)
       0.792 0.763 0.797 0.899 0.875 0.792 0.859 0.852 0.846 0.776  0.825    5.65
107)  bromobenzene
       0.798 0.608 0.848 0.915 0.888 0.739 0.874 0.848 0.883        0.822   11.69
108)  cyclohexanone
       0.077 0.078 0.082 0.082 0.072 0.077 0.105 0.088 0.085 0.092  0.084   11.28
109)  1,1,2,2-tetrachloroethane
       0.873 0.622 0.832 0.960 0.951 0.689 0.948 0.907 0.954 1.088  0.882   15.61
110)  trans-1,4-dichloro-2-butene
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** V3D4846-ICC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113156.D
Project: Sunoco - Marcus Hook Facility, PA

```
      0.202       0.171 0.213 0.214 0.131 0.213 0.189 0.225        0.195   15.80
111)  1,2,3-trichloropropane
      0.192       0.241 0.223 0.218 0.176 0.214 0.211 0.227        0.213    9.59
112)  n-propylbenzene
      2.780 2.254 2.839 3.683 3.628 2.535 3.434 3.393 3.536        3.120   16.84
113)  4-Ethyltoluene
                                                                   0.000#  -1.00
114)  2-chlorotoluene
      0.698 0.566 0.659 0.840 0.826 0.609 0.802 0.776 0.805        0.731   13.86
115)  4-chlorotoluene
      0.630 0.530 0.626 0.796 0.767 0.511 0.742 0.748 0.753        0.678   15.75
116)  1,3,5-trimethylbenzene
      2.083       1.995 2.947 2.999       2.953 2.631 2.665        2.610   15.97
117)  tert-butylbenzene
      1.626       1.673 2.518 2.630       2.575 2.169 2.052        2.178   19.24
118)  pentachloroethane
      0.589 0.527 0.575 0.764 0.785 0.519 0.808 0.687 0.668        0.658   16.90
119)  1,2,4-trimethylbenzene
      2.116       2.058 2.807 2.803 1.608 2.742 2.558 2.614        2.413   18.13
120)  sec-butylbenzene
      2.867       2.682 4.021 4.132       3.977 3.584 3.592        3.551   16.12
121)  1,3-dichlorobenzene
      1.535 1.292 1.669 1.691 1.643 1.435 1.601 1.632 1.773 1.496  1.577    8.91
122)  p-isopropyltoluene
      2.345       2.247 3.306 3.321       3.241 2.961 2.951        2.910   15.36
123)  1,4-dichlorobenzene
      1.698 1.589 1.850 1.716 1.660 1.726 1.623 1.660 1.814 2.058  1.740    7.91
124)  1,2-dichlorobenzene
      1.656 1.433 1.769 1.794 1.750 1.545 1.740 1.740 1.874 1.761  1.706    7.57
125)  1,4-Diethylbenzene
                                                                   0.000#  -1.00
126)  n-butylbenzene
      1.267       1.253 1.632 1.630 1.012 1.527 1.513 1.549        1.423   15.58
127)  1,2,4,5-Tetramethylbenzene
                                                                   0.000#  -1.00
128)  1,2-dibromo-3-chloropropane
      0.214       0.194 0.240 0.243 0.173 0.256 0.226 0.226        0.222   12.22
129)  1,3,5-trichlorobenzene
      1.741 1.461 1.812 1.887 1.840 1.488 1.847 1.809 1.969 1.905  1.776    9.58
130)  1,2,4-trichlorobenzene
      1.723 1.492 1.764 1.953 1.940 1.497 1.969 1.891 1.927 1.926  1.808   10.18
131)  hexachlorobutadiene
      0.857 0.892 0.942 0.992 1.008 0.786 0.969 0.931 0.977        0.928    7.75
132)  naphthalene
      3.163       3.263 4.121 4.137 2.615 4.336 3.837 3.777        3.656   16.15
133)  1,2,3-trichlorobenzene
      1.743 1.538 1.980 2.089 2.057 1.511 2.093 1.979 2.056 2.250  1.930   12.87
134)  hexachloroethane
      0.538       0.548 0.745 0.793       0.802 0.645 0.624        0.671   16.46
135)  Benzyl chloride
      1.619 1.640 1.669 1.773 1.750 1.365 1.743 1.712 1.720 1.643  1.664    7.05
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M3D4846.M         Fri Sep 11 09:03:50 2015   3D
```

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: V3D4846-ICV4846
Lab FileID: 3D113161.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\3D113161.D Vial: 14
Acq On : 8 Sep 2015 6:50 pm Operator: ximenac
Sample : ICV4846-50 Inst : MS3D
Misc : MS90389,V3D4846,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M3D4846.M (RTE Integrator)
Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update : Fri Sep 11 09:02:32 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.30min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	102	0.00	7.17
2		1,4-dioxane	0.098	0.109	-11.2	108	0.00	11.03
3	M	tertiary butyl alcohol	1.153	1.140	1.1	103	-0.01	7.29
4	I	pentafluorobenzene	1.000	1.000	0.0	103	0.00	9.39
5		FREON 115		----------NA----------				
6		FREON 152A		----------NA----------				
7		chlorotrifluoroethene		----------NA----------				
8		chlorodifluoromethane	0.927	0.760	18.0	83	0.00	3.85
9		dichlorodifluoromethane	1.062	0.909	14.4	85	0.00	3.84
10		chloromethane	0.906	0.799	11.8	94	0.00	4.16
11		vinyl chloride	0.990	0.936	5.5	94	0.00	4.42
12		bromomethane	0.599	0.571	4.7	99	-0.01	5.04
13		chloroethane	0.360	0.392	-8.9	113	-0.01	5.21
14		1,3-butadiene		----------NA----------				
15		vinyl bromide		----------NA----------				
16		trichlorofluoromethane	1.103	0.944	14.4	89	0.00	5.68
17		pentane		----------NA----------				
18		ethyl ether	0.218	0.209	4.1	102	0.00	6.06
19		freon 123a		----------NA----------				
20		FREON 123		----------NA----------				
21		acrolein	0.101	0.099	2.0	103	0.00	6.31
22		1,1-dichloroethene	0.756	0.706	6.6	95	0.00	6.48
23		acetone	0.142	0.148	-4.2	124	0.00	6.53
24		allyl chloride	0.218	0.238	-9.2	108	0.00	7.01
25		acetonitrile	0.049	0.049	0.0	106	0.02	6.99
26	m	acetaldehyde		----------NA----------				
27		iodomethane	0.972	0.958	1.4	97	0.00	6.76
28		iso-butyl alcohol	0.017	0.005#	70.6#	35#	0.01	9.69
29		carbon disulfide	1.928	1.798	6.7	100	0.00	6.89
30		methylene chloride	0.538	0.496	7.8	99	0.00	7.20
31		methyl acetate	0.345	0.292	15.4	88	0.00	6.99
32		methyl tert butyl ether	1.499	1.473	1.7	100	0.00	7.52
33		trans-1,2-dichloroethene	0.647	0.632	2.3	99	0.00	7.57
34		di-isopropyl ether	1.413	1.534	-8.6	104	0.00	8.12
35		ethyl tert-butyl ether	1.428	1.522	-6.6	101	0.00	8.58
36		2-butanone	0.038	0.045	-18.4	113	0.00	8.85
37	M	1,1-dichloroethane	0.773	0.794	-2.7	102	0.00	8.13
38		chloroprene	0.536	1.326	-147.4#	248#	0.00	8.24
39		acrylonitrile	0.161	0.162	-0.6	103	0.00	7.52
40		vinyl acetate	0.046	0.062	-34.8#	142	0.00	8.13
41		ethyl acetate	0.048	0.053	-10.4	108	0.00	8.86

Initial Calibration Verification

Job Number: JC4005 **Sample:** V3D4846-ICV4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113161.D
Project: Sunoco - Marcus Hook Facility, PA

42		2,2-dichloropropane	0.848	0.838	1.2	104	0.00	8.87
43		cis-1,2-dichloroethene	0.457	0.458	-0.2	101	0.00	8.87
44		propionitrile	0.060	0.059	1.7	100	0.00	8.93
		----------	True	Calc.	% Drift		----------	
45		methyl acrylate	50.000	49.254	1.5	106	0.00	8.94
		----------	AvgRF	CCRF	% Dev		----------	
46		bromochloromethane	0.242	0.243	-0.4	104	0.00	9.18
47		tetrahydrofuran	0.139	0.144	-3.6	103	0.00	9.22
48		chloroform	0.744	0.745	-0.1	103	0.00	9.24
49		Tert-Butyl Formate	0.401	0.433	-8.0	104	0.00	9.27
50	S	dibromofluoromethane (s)	0.440	0.432	1.8	104	0.00	9.44
51	S	1,2-dichloroethane-d4 (s)	0.461	0.448	2.8	102	0.00	9.86
52		freon 113	0.426	0.414	2.8	98	0.00	6.45
53		methacrylonitrile	0.212	0.223	-5.2	105	0.00	9.12
54		1,1,1-trichloroethane	0.785	0.803	-2.3	101	0.00	9.50
55		tert amyl alcohol		----------NA----------				
56		2,2,4-Trimethylpentane	1.608	1.690	-5.1	94	0.00	9.94
57		tert-amyl methyl ether	1.368	1.421	-3.9	101	0.00	9.97
58	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	10.31
59		epichlorohydrin	0.032	0.042	-31.3#	131	-0.12	11.45
60		n-butyl alcohol	0.009	0.010	-11.1	103	0.00	10.43
61	M	cyclohexane	0.602	0.623	-3.5	97	0.00	9.57
62		carbon tetrachloride	0.615	0.623	-1.3	100	0.00	9.69
63		1,1-dichloropropene	0.424	0.460	-8.5	103	0.00	9.67
64		hexane	0.278	0.333	-19.8	114	0.00	7.87
65	M	benzene	1.373	1.350	1.7	101	0.00	9.93
66		heptane	0.178	0.224	-25.8	115	0.00	10.11
67		isopropyl acetate	0.581	0.688	-18.4	117	0.00	9.85
68		1,2-dichloroethane	0.467	0.470	-0.6	102	0.00	9.95
69		trichloroethene	0.326	0.327	-0.3	100	0.00	10.65
70		ethyl acrylate		----------NA----------				
71		tert amyl ethyl ether		----------NA----------				
72		2-nitropropane	0.127	0.130	-2.4	108	0.00	11.42
73		2-chloroethyl vinyl ether	0.180	0.219	-21.7	112	0.00	11.45
74		methyl methacrylate	0.485	0.521	-7.4	109	0.00	10.92
75		1,2-dichloropropane	0.348	0.361	-3.7	102	0.00	10.92
76		methylcyclohexane	0.561	0.622	-10.9	103	0.00	10.87
77		dibromomethane	0.223	0.225	-0.9	101	0.00	11.08
78		bromodichloromethane	0.447	0.466	-4.3	102	0.00	11.21
79		cis-1,3-dichloropropene	0.482	0.520	-7.9	100	0.00	11.67
80	S	toluene-d8 (s)	1.131	1.157	-2.3	103	0.00	11.96
81		4-methyl-2-pentanone	0.125	0.142	-13.6	112	0.00	11.76
82		toluene	0.719	0.731	-1.7	99	0.00	12.03
83		3-methyl-1-butanol	0.009	0.015	-66.7#	159	0.00	11.78
84		trans-1,3-dichloropropene	0.438	0.461	-5.3	97	0.00	12.23
85		ethyl methacrylate	0.317	0.354	-11.7	103	0.00	12.22
86		1,1,2-trichloroethane	0.236	0.248	-5.1	102	0.00	12.44
87		2-hexanone	0.087	0.100	-14.9	112	0.00	12.62
88	I	chlorobenzene-d5	1.000	1.000	0.0	104	0.00	13.47
89		tetrachloroethene	0.420	0.431	-2.6	100	0.00	12.62
90		1,3-dichloropropane	0.510	0.538	-5.5	99	0.00	12.63
		----------	True	Calc.	% Drift		----------	
91		butyl acetate	50.000	47.804	4.4	103	0.00	12.69
		----------	AvgRF	CCRF	% Dev		----------	

Initial Calibration Verification

Job Number: JC4005 **Sample:** V3D4846-ICV4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113161.D
Project: Sunoco - Marcus Hook Facility, PA

92		3,3-Dimethyl-1-Butanol	0.040	0.046	-15.0	110	0.00	12.78
93		dibromochloromethane	0.422	0.446	-5.7	101	0.00	12.89
94		1,2-dibromoethane	0.342	0.354	-3.5	101	0.00	13.04
95		n-Butyl Ether	1.343	1.524	-13.5	101	0.00	13.42
96		chlorobenzene	0.982	0.985	-0.3	101	0.00	13.50
97		1,1,1,2-tetrachloroethane	0.488	0.482	1.2	100	0.00	13.56
98		ethylbenzene	1.566	1.669	-6.6	102	0.00	13.55
99		m,p-xylene	0.584	0.626	-7.2	100	0.00	13.66
100		o-xylene	0.622	0.675	-8.5	103	0.00	14.08
101		styrene	0.881	1.008	-14.4	103	0.00	14.09
102		Butyl Acrylate		----------NA----------				
103		bromoform	0.303	0.332	-9.6	104	0.00	14.36
104	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	107	0.00	15.79
105		isopropylbenzene	2.930	3.217	-9.8	99	0.00	14.42
106	S	4-bromofluorobenzene (s)	0.825	0.882	-6.9	105	0.00	14.62
107		bromobenzene	0.822	0.870	-5.8	102	0.00	14.82
108		cyclohexanone	0.084	0.129	-53.6#	170	0.00	14.58
109		1,1,2,2-tetrachloroethane	0.882	0.906	-2.7	101	0.00	14.72
110		trans-1,4-dichloro-2-bute	0.195	0.209	-7.2	105	0.00	14.76
111		1,2,3-trichloropropane	0.213	0.208	2.3	100	0.00	14.80
112		n-propylbenzene	3.120	3.654	-17.1	106	0.00	14.83
113		4-Ethyltoluene		----------NA----------				
114		2-chlorotoluene	0.731	0.785	-7.4	100	0.00	14.97
115		4-chlorotoluene	0.678	0.744	-9.7	100	0.00	15.07
116		1,3,5-trimethylbenzene	2.610	2.741	-5.0	99	0.00	14.98
117		tert-butylbenzene	2.178	2.321	-6.6	99	0.00	15.33
118		pentachloroethane	0.658	0.723	-9.9	101	0.00	15.41
119		1,2,4-trimethylbenzene	2.413	2.766	-14.6	105	0.00	15.37
120		sec-butylbenzene	3.551	3.718	-4.7	99	0.00	15.54
121		1,3-dichlorobenzene	1.577	1.599	-1.4	101	0.00	15.73
122		p-isopropyltoluene	2.910	3.120	-7.2	101	0.00	15.66
123		1,4-dichlorobenzene	1.740	1.640	5.7	102	0.00	15.81
124		1,2-dichlorobenzene	1.706	1.737	-1.8	103	0.00	16.19
125		1,4-Diethylbenzene		----------NA----------				
126		n-butylbenzene	1.423	1.577	-10.8	103	0.00	16.07
127		1,2,4,5-Tetramethylbenzen		----------NA----------				
128		1,2-dibromo-3-chloropropa	0.222	0.229	-3.2	102	0.00	16.92
129		1,3,5-trichlorobenzene	1.776	1.823	-2.6	103	0.00	17.09
130		1,2,4-trichlorobenzene	1.808	1.899	-5.0	104	0.00	17.66
131		hexachlorobutadiene	0.928	0.896	3.4	97	0.00	17.75
132		naphthalene	3.656	3.882	-6.2	101	0.00	17.90
133		1,2,3-trichlorobenzene	1.930	1.938	-0.4	99	0.00	18.10
134		hexachloroethane	0.671	0.699	-4.2	100	0.00	16.44
135		Benzyl chloride	1.664	1.817	-9.2	110	0.00	15.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3D113156.D M3D4846.M Fri Sep 11 09:03:41 2015 3D

6.9.2

6

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: V3D4860-CC4846
Lab FileID: 3D113508.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\3D113508.D                    Vial: 2
Acq On    : 22 Sep 2015  10:07 am                       Operator: XimenaC
Sample    : cc4846-20                                   Inst    : MS3D
Misc      : MS91493,V3D4860,5,,,,1                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M3D4846.M (RTE Integrator)
Title        : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update  : Fri Sep 11 09:02:32 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.30min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	99	0.00	7.18
2		1,4-dioxane	0.098	0.089	9.2	85	0.00	11.04
3	M	tertiary butyl alcohol	1.153	1.149	0.3	99	0.00	7.30
4	I	pentafluorobenzene	1.000	1.000	0.0	90	0.00	9.40
5		FREON 115		----------NA----------				
6		FREON 152A		----------NA----------				
7		chlorotrifluoroethene		----------NA----------				
8		chlorodifluoromethane	0.927	1.027	-10.8	98	0.00	3.86
9		dichlorodifluoromethane	1.062	0.861	18.9	73	0.01	3.85
10		chloromethane	0.906	0.714	21.2#	77	0.01	4.17
11		vinyl chloride	0.990	0.830	16.2	76	0.00	4.42
12		bromomethane	0.599	0.529	11.7	85	0.01	5.06
13		chloroethane	0.360	0.341	5.3	88	0.01	5.23
14		1,3-butadiene		----------NA----------				
15		vinyl bromide		----------NA----------				
16		trichlorofluoromethane	1.103	1.086	1.5	91	0.01	5.68
17		pentane		----------NA----------				
18		ethyl ether	0.218	0.230	-5.5	97	0.00	6.07
19		freon 123a		----------NA----------				
20		FREON 123		----------NA----------				
21		acrolein	0.101	0.100	1.0	95	0.00	6.32
22		1,1-dichloroethene	0.756	0.804	-6.3	94	0.00	6.49
23		acetone	0.142	0.171	-20.4#	128	0.00	6.54
24		allyl chloride	0.218	0.218	0.0	93	0.01	7.02
25		acetonitrile	0.049	0.047	4.1	91	0.00	6.97
26	m	acetaldehyde		----------NA----------				
27		iodomethane	0.972	0.968	0.4	85	0.00	6.76
28		iso-butyl alcohol	0.017	0.016	5.9	95	0.02	9.69
29		carbon disulfide	1.928	1.795	6.9	84	0.00	6.90
30		methylene chloride	0.538	0.506	5.9	86	0.00	7.20
31		methyl acetate	0.345	0.357	-3.5	96	0.00	7.00
32		methyl tert butyl ether	1.499	1.509	-0.7	92	0.00	7.53
33		trans-1,2-dichloroethene	0.647	0.644	0.5	87	0.01	7.58
34		di-isopropyl ether	1.413	1.392	1.5	85	0.01	8.13
35		ethyl tert-butyl ether	1.428	1.381	3.3	83	0.00	8.59
36		2-butanone	0.038	0.037	2.6	88	0.00	8.86
37	M	1,1-dichloroethane	0.773	0.775	-0.3	87	0.00	8.14
38		chloroprene	0.536	0.536	0.0	88	0.00	8.25
39		acrylonitrile	0.161	0.159	1.2	90	0.00	7.53
40		vinyl acetate	0.046	0.039	15.2	82	0.00	8.13
41		ethyl acetate	0.048	0.048	0.0	96	0.00	8.87

Continuing Calibration Summary

Job Number: JC4005 **Sample:** V3D4860-CC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113508.D
Project: Sunoco - Marcus Hook Facility, PA

42		2,2-dichloropropane	0.848	0.897	-5.8	97	0.00	8.88
43		cis-1,2-dichloroethene	0.457	0.432	5.5	83	0.01	8.88
44		propionitrile	0.060	0.057	5.0	89	0.00	8.94
		----------	True	Calc.	% Drift	----------		
45		methyl acrylate	20.000	20.238	-1.2	96	0.02	8.96
		----------	AvgRF	CCRF	% Dev	----------		
46		bromochloromethane	0.242	0.238	1.7	86	0.00	9.19
47		tetrahydrofuran	0.139	0.132	5.0	84	0.01	9.23
48		chloroform	0.744	0.737	0.9	88	0.00	9.24
49		Tert-Butyl Formate	0.401	0.385	4.0	84	0.00	9.28
50	S	dibromofluoromethane (s)	0.440	0.425	3.4	86	0.00	9.44
51	S	1,2-dichloroethane-d4 (s)	0.461	0.462	-0.2	90	0.00	9.86
52		freon 113	0.426	0.508	-19.2	103	0.02	6.47
53		methacrylonitrile	0.212	0.202	4.7	88	0.00	9.13
54		1,1,1-trichloroethane	0.785	0.871	-11.0	96	0.00	9.50
55		tert amyl alcohol		----------NA----------				
56		2,2,4-Trimethylpentane	1.608	1.442	10.3	76	0.00	9.94
57		tert-amyl methyl ether	1.368	1.351	1.2	86	0.01	9.97
58	I	1,4-difluorobenzene	1.000	1.000	0.0	84	0.00	10.31
59		epichlorohydrin	0.032	0.032	0.0	87	0.01	11.58
60		n-butyl alcohol	0.009	0.009#	0.0	91	0.01	10.44
61	M	cyclohexane	0.602	0.639	-6.1	85	0.00	9.57
62		carbon tetrachloride	0.615	0.712	-15.8	96	0.01	9.71
63		1,1-dichloropropene	0.424	0.452	-6.6	86	0.00	9.68
64		hexane	0.278	0.332	-19.4	96	0.00	7.88
65	M	benzene	1.373	1.336	2.7	84	0.00	9.94
66		heptane	0.178	0.210	-18.0	91	0.01	10.11
67		isopropyl acetate	0.581	0.576	0.9	87	0.02	9.87
68		1,2-dichloroethane	0.467	0.500	-7.1	91	0.01	9.96
69		trichloroethene	0.326	0.332	-1.8	84	0.01	10.66
70		ethyl acrylate		----------NA----------				
71		tert amyl ethyl ether		----------NA----------				
72		2-nitropropane	0.127	0.147	-15.7	112	0.00	11.43
73		2-chloroethyl vinyl ether	0.180	0.205	-13.9	93	0.00	11.45
74		methyl methacrylate	0.485	0.492	-1.4	92	0.01	10.93
75		1,2-dichloropropane	0.348	0.361	-3.7	86	0.01	10.92
76		methylcyclohexane	0.561	0.615	-9.6	89	0.00	10.88
77		dibromomethane	0.223	0.240	-7.6	90	0.01	11.08
78		bromodichloromethane	0.447	0.489	-9.4	90	0.01	11.22
79		cis-1,3-dichloropropene	0.482	0.521	-8.1	89	0.01	11.68
80	S	toluene-d8 (s)	1.131	1.167	-3.2	87	0.00	11.97
81		4-methyl-2-pentanone	0.125	0.129	-3.2	95	0.01	11.77
82		toluene	0.719	0.756	-5.1	89	0.00	12.04
83		3-methyl-1-butanol	0.009	0.009#	0.0	92	0.01	11.79
84		trans-1,3-dichloropropene	0.438	0.500	-14.2	93	0.01	12.24
85		ethyl methacrylate	0.317	0.333	-5.0	93	0.01	12.23
86		1,1,2-trichloroethane	0.236	0.252	-6.8	91	0.00	12.45
87		2-hexanone	0.087	0.084	3.4	80	0.01	12.63
88	I	chlorobenzene-d5	1.000	1.000	0.0	91	0.00	13.48
89		tetrachloroethene	0.420	0.421	-0.2	89	0.00	12.63
90		1,3-dichloropropane	0.510	0.541	-6.1	92	0.00	12.63
		----------	True	Calc.	% Drift	----------		
91		butyl acetate	20.000	19.521	2.4	95	0.01	12.70
		----------	AvgRF	CCRF	% Dev	----------		

Continuing Calibration Summary

Job Number: JC4005 **Sample:** V3D4860-CC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113508.D
Project: Sunoco - Marcus Hook Facility, PA

92		3,3-Dimethyl-1-Butanol	0.040	0.038	5.0	88	0.01	12.79
93		dibromochloromethane	0.422	0.448	-6.2	91	0.01	12.90
94		1,2-dibromoethane	0.342	0.350	-2.3	93	0.00	13.05
95		n-Butyl Ether	1.343	1.340	0.2	89	0.01	13.43
96		chlorobenzene	0.982	0.984	-0.2	92	0.00	13.51
97		1,1,1,2-tetrachloroethane	0.488	0.489	-0.2	91	0.00	13.56
98		ethylbenzene	1.566	1.617	-3.3	90	0.01	13.56
99		m,p-xylene	0.584	0.628	-7.5	91	0.00	13.67
100		o-xylene	0.622	0.637	-2.4	91	0.00	14.08
101		styrene	0.881	0.941	-6.8	90	0.01	14.10
102		Butyl Acrylate		----------NA----------				
103		bromoform	0.303	0.340	-12.2	101	0.00	14.36
104	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	15.79
105		isopropylbenzene	2.930	2.911	0.6	92	0.00	14.42
106	S	4-bromofluorobenzene (s)	0.825	0.829	-0.5	94	0.00	14.63
107		bromobenzene	0.822	0.821	0.1	94	0.00	14.82
108		cyclohexanone	0.084	0.090	-7.1	99	0.01	14.59
109		1,1,2,2-tetrachloroethane	0.882	0.895	-1.5	96	0.00	14.73
110		trans-1,4-dichloro-2-bute	0.195	0.211	-8.2	108	0.00	14.78
111		1,2,3-trichloropropane	0.213	0.216	-1.4	99	0.00	14.80
112		n-propylbenzene	3.120	3.286	-5.3	94	0.00	14.83
113		4-Ethyltoluene		----------NA----------				
114		2-chlorotoluene	0.731	0.747	-2.2	93	0.01	14.99
115		4-chlorotoluene	0.678	0.700	-3.2	91	0.00	15.08
116		1,3,5-trimethylbenzene	2.610	2.495	4.4	92	0.00	14.99
117		tert-butylbenzene	2.178	1.954	10.3	87	0.00	15.33
118		pentachloroethane	0.658	0.633	3.8	89	0.00	15.41
119		1,2,4-trimethylbenzene	2.413	2.453	-1.7	93	0.00	15.38
120		sec-butylbenzene	3.551	3.294	7.2	89	0.00	15.55
121		1,3-dichlorobenzene	1.577	1.613	-2.3	96	0.00	15.73
122		p-isopropyltoluene	2.910	2.869	1.4	94	0.01	15.67
123		1,4-dichlorobenzene	1.740	1.642	5.6	96	0.00	15.81
124		1,2-dichlorobenzene	1.706	1.696	0.6	94	0.00	16.20
125		1,4-Diethylbenzene		----------NA----------				
126		n-butylbenzene	1.423	1.435	-0.8	92	0.00	16.07
127		1,2,4,5-Tetramethylbenzen		----------NA----------				
128		1,2-dibromo-3-chloropropa	0.222	0.228	-2.7	98	0.00	16.92
129		1,3,5-trichlorobenzene	1.776	1.752	1.4	94	0.00	17.09
130		1,2,4-trichlorobenzene	1.808	1.829	-1.2	94	0.00	17.66
131		hexachlorobutadiene	0.928	0.824	11.2	86	0.00	17.76
132		naphthalene	3.656	3.837	-5.0	97	0.00	17.90
133		1,2,3-trichlorobenzene	1.930	1.923	0.4	94	0.00	18.11
134		hexachloroethane	0.671	0.599	10.7	90	0.00	16.44
135		Benzyl chloride	1.664	1.876	-12.7	106	0.00	15.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3D113155.D M3D4846.M Tue Sep 22 14:24:07 2015 3D

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: V3D4860-CC4846
Lab FileID: 3D113509.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\3D113509.D                    Vial: 3
Acq On    : 22 Sep 2015  10:44 am                       Operator: XimenaC
Sample    : cc4846-1                                    Inst    : MS3D
Misc      : MS91493,V3D4860,5,,,,1                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M3D4846.M (RTE Integrator)
Title        : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update  : Fri Sep 11 09:02:32 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.30min
Max. RRF Dev :          Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	94	-0.01	7.17
2		1,4-dioxane		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4	I	pentafluorobenzene	1.000	1.000	0.0	83	0.00	9.39
5		FREON 115		----------NA----------				
6		FREON 152A		----------NA----------				
7		chlorotrifluoroethene		----------NA----------				
8		chlorodifluoromethane		----------NA----------				
9		dichlorodifluoromethane		----------NA----------				
10		chloromethane	0.906	0.983	-8.5	89	-0.02	4.15
11		vinyl chloride		----------NA----------				
12		bromomethane		----------NA----------				
13		chloroethane		----------NA----------				
14		1,3-butadiene		----------NA----------				
15		vinyl bromide		----------NA----------				
16		trichlorofluoromethane		----------NA----------				
17		pentane		----------NA----------				
18		ethyl ether		----------NA----------				
19		freon 123a		----------NA----------				
20		FREON 123		----------NA----------				
21		acrolein		----------NA----------				
22		1,1-dichloroethene		----------NA----------				
23		acetone		----------NA----------				
24		allyl chloride		----------NA----------				
25		acetonitrile		----------NA----------				
26	m	acetaldehyde		----------NA----------				
27		iodomethane		----------NA----------				
28		iso-butyl alcohol		----------NA----------				
29		carbon disulfide		----------NA----------				
30		methylene chloride		----------NA----------				
31		methyl acetate		----------NA----------				
32		methyl tert butyl ether		----------NA----------				
33		trans-1,2-dichloroethene		----------NA----------				
34		di-isopropyl ether		----------NA----------				
35		ethyl tert-butyl ether		----------NA----------				
36		2-butanone		----------NA----------				
37	M	1,1-dichloroethane		----------NA----------				
38		chloroprene		----------NA----------				
39		acrylonitrile		----------NA----------				
40		vinyl acetate		----------NA----------				
41		ethyl acetate		----------NA----------				

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V3D4860-CC4846
Lab FileID: 3D113509.D

42		2,2-dichloropropane		----------NA----------				
43		cis-1,2-dichloroethene		----------NA----------				
44		propionitrile		----------NA----------				
		----------	True	Calc.	% Drift	----------		
45		methyl acrylate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
46		bromochloromethane		----------NA----------				
47		tetrahydrofuran		----------NA----------				
48		chloroform		----------NA----------				
49		Tert-Butyl Formate		----------NA----------				
50	S	dibromofluoromethane (s)	0.440	0.442	-0.5	82	0.00	9.44
51	S	1,2-dichloroethane-d4 (s)	0.461	0.485	-5.2	87	0.00	9.86
52		freon 113		----------NA----------				
53		methacrylonitrile		----------NA----------				
54		1,1,1-trichloroethane		----------NA----------				
55		tert amyl alcohol		----------NA----------				
56		2,2,4-Trimethylpentane		----------NA----------				
57		tert-amyl methyl ether		----------NA----------				
58	I	1,4-difluorobenzene	1.000	1.000	0.0	80	0.00	10.31
59		epichlorohydrin		----------NA----------				
60		n-butyl alcohol		----------NA----------				
61	M	cyclohexane		----------NA----------				
62		carbon tetrachloride		----------NA----------				
63		1,1-dichloropropene		----------NA----------				
64		hexane		----------NA----------				
65	M	benzene		----------NA----------				
66		heptane		----------NA----------				
67		isopropyl acetate		----------NA----------				
68		1,2-dichloroethane		----------NA----------				
69		trichloroethene		----------NA----------				
70		ethyl acrylate		----------NA----------				
71		tert amyl ethyl ether		----------NA----------				
72		2-nitropropane		----------NA----------				
73		2-chloroethyl vinyl ether		----------NA----------				
74		methyl methacrylate		----------NA----------				
75		1,2-dichloropropane		----------NA----------				
76		methylcyclohexane		----------NA----------				
77		dibromomethane		----------NA----------				
78		bromodichloromethane		----------NA----------				
79		cis-1,3-dichloropropene		----------NA----------				
80	S	toluene-d8 (s)	1.131	1.154	-2.0	82	0.00	11.97
81		4-methyl-2-pentanone		----------NA----------				
82		toluene		----------NA----------				
83		3-methyl-1-butanol		----------NA----------				
84		trans-1,3-dichloropropene		----------NA----------				
85		ethyl methacrylate		----------NA----------				
86		1,1,2-trichloroethane		----------NA----------				
87		2-hexanone		----------NA----------				
88	I	chlorobenzene-d5	1.000	1.000	0.0	83	0.00	13.48
89		tetrachloroethene		----------NA----------				
90		1,3-dichloropropane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
91		butyl acetate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V3D4860-CC4846
Lab FileID: 3D113509.D

92		3,3-Dimethyl-1-Butanol		----------NA----------				
93		dibromochloromethane		----------NA----------				
94		1,2-dibromoethane		----------NA----------				
95		n-Butyl Ether		----------NA----------				
96		chlorobenzene		----------NA----------				
97		1,1,1,2-tetrachloroethane		----------NA----------				
98		ethylbenzene		----------NA----------				
99		m,p-xylene		----------NA----------				
100		o-xylene		----------NA----------				
101		styrene		----------NA----------				
102		Butyl Acrylate		----------NA----------				
103		bromoform		----------NA----------				
104	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	85	0.00	15.79
105		isopropylbenzene		----------NA----------				
106	S	4-bromofluorobenzene (s)	0.825	0.784	5.0	84	0.00	14.63
107		bromobenzene		----------NA----------				
108		cyclohexanone		----------NA----------				
109		1,1,2,2-tetrachloroethane		----------NA----------				
110		trans-1,4-dichloro-2-bute		----------NA----------				
111		1,2,3-trichloropropane		----------NA----------				
112		n-propylbenzene		----------NA----------				
113		4-Ethyltoluene		----------NA----------				
114		2-chlorotoluene		----------NA----------				
115		4-chlorotoluene		----------NA----------				
116		1,3,5-trimethylbenzene		----------NA----------				
117		tert-butylbenzene		----------NA----------				
118		pentachloroethane		----------NA----------				
119		1,2,4-trimethylbenzene		----------NA----------				
120		sec-butylbenzene		----------NA----------				
121		1,3-dichlorobenzene		----------NA----------				
122		p-isopropyltoluene		----------NA----------				
123		1,4-dichlorobenzene		----------NA----------				
124		1,2-dichlorobenzene		----------NA----------				
125		1,4-Diethylbenzene		----------NA----------				
126		n-butylbenzene		----------NA----------				
127		1,2,4,5-Tetramethylbenzen		----------NA----------				
128		1,2-dibromo-3-chloropropa		----------NA----------				
129		1,3,5-trichlorobenzene		----------NA----------				
130		1,2,4-trichlorobenzene		----------NA----------				
131		hexachlorobutadiene		----------NA----------				
132		naphthalene		----------NA----------				
133		1,2,3-trichlorobenzene		----------NA----------				
134		hexachloroethane		----------NA----------				
135		Benzyl chloride		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3D113151.D M3D4846.M Tue Sep 22 14:24:53 2015 3D

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: V3D4861-CC4846
Lab FileID: 3D113536.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\3D113536.D Vial: 3
Acq On : 23 Sep 2015 9:14 am Operator: XimenaC
Sample : cc4846-20 Inst : MS3D
Misc : MS91500,V3D4861,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M3D4846.M (RTE Integrator)
Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
Last Update : Fri Sep 11 09:02:32 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.30min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	101	-0.02	7.16
2		1,4-dioxane	0.098	0.082	16.3	80	0.00	11.03
3	M	tertiary butyl alcohol	1.153	1.116	3.2	99	-0.03	7.27
4	I	pentafluorobenzene	1.000	1.000	0.0	87	0.00	9.39
5		FREON 115		----------NA----------				
6		FREON 152A		----------NA----------				
7		chlorotrifluoroethene		----------NA----------				
8		chlorodifluoromethane	0.927	1.019	-9.9	94	0.00	3.85
9		dichlorodifluoromethane	1.062	1.210	-13.9	100	-0.01	3.83
10		chloromethane	0.906	0.940	-3.8	98	-0.01	4.15
11		vinyl chloride	0.990	1.048	-5.9	93	-0.01	4.41
12		bromomethane	0.599	0.679	-13.4	106	0.00	5.05
13		chloroethane	0.360	0.407	-13.1	101	0.00	5.22
14		1,3-butadiene		----------NA----------				
15		vinyl bromide		----------NA----------				
16		trichlorofluoromethane	1.103	1.259	-14.1	103	0.00	5.67
17		pentane		----------NA----------				
18		ethyl ether	0.218	0.228	-4.6	93	-0.01	6.06
19		freon 123a		----------NA----------				
20		FREON 123		----------NA----------				
21		acrolein	0.101	0.109	-7.9	100	0.00	6.31
22		1,1-dichloroethene	0.756	0.710	6.1	80	0.00	6.48
23		acetone	0.142	0.168	-18.3	121	0.00	6.54
24		allyl chloride	0.218	0.199	8.7	82	0.00	7.01
25		acetonitrile	0.049	0.049	0.0	92	0.00	6.97
26	m	acetaldehyde		----------NA----------				
27		iodomethane	0.972	0.935	3.8	80	0.00	6.76
28		iso-butyl alcohol	0.017	0.016	5.9	93	0.00	9.68
29		carbon disulfide	1.928	1.669	13.4	76	0.00	6.88
30		methylene chloride	0.538	0.497	7.6	82	0.00	7.20
31		methyl acetate	0.345	0.374	-8.4	97	0.00	6.99
32		methyl tert butyl ether	1.499	1.490	0.6	88	0.00	7.52
33		trans-1,2-dichloroethene	0.647	0.627	3.1	83	0.00	7.57
34		di-isopropyl ether	1.413	1.360	3.8	81	0.00	8.12
35		ethyl tert-butyl ether	1.428	1.364	4.5	80	0.00	8.58
36		2-butanone	0.038	0.035	7.9	81	0.00	8.85
37	M	1,1-dichloroethane	0.773	0.748	3.2	82	0.00	8.14
38		chloroprene	0.536	0.523	2.4	83	0.00	8.24
39		acrylonitrile	0.161	0.156	3.1	86	0.00	7.52
40		vinyl acetate	0.046	0.036	21.7#	74	0.01	8.14
41		ethyl acetate	0.048	0.048	0.0	91	0.00	8.86

Continuing Calibration Summary

Job Number: JC4005 **Sample:** V3D4861-CC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113536.D
Project: Sunoco - Marcus Hook Facility, PA

42		2,2-dichloropropane	0.848	0.914	-7.8	95	0.00	8.88
43		cis-1,2-dichloroethene	0.457	0.425	7.0	79	0.00	8.88
44		propionitrile	0.060	0.057	5.0	86	0.00	8.94
		----------	True	Calc.	% Drift	----------		
45		methyl acrylate	20.000	18.634	6.8	83	0.01	8.95
		----------	AvgRF	CCRF	% Dev	----------		
46		bromochloromethane	0.242	0.231	4.5	81	0.00	9.18
47		tetrahydrofuran	0.139	0.140	-0.7	86	0.01	9.23
48		chloroform	0.744	0.729	2.0	84	0.00	9.24
49		Tert-Butyl Formate	0.401	0.370	7.7	78	0.00	9.28
50	S	dibromofluoromethane (s)	0.440	0.436	0.9	86	0.00	9.44
51	S	1,2-dichloroethane-d4 (s)	0.461	0.477	-3.5	90	0.00	9.86
52		freon 113	0.426	0.444	-4.2	87	0.00	6.44
53		methacrylonitrile	0.212	0.199	6.1	84	0.00	9.12
54		1,1,1-trichloroethane	0.785	0.839	-6.9	90	0.00	9.50
55		tert amyl alcohol		----------NA----------				
56		2,2,4-Trimethylpentane	1.608	1.300	19.2	66	0.00	9.93
57		tert-amyl methyl ether	1.368	1.350	1.3	84	0.00	9.97
58	I	1,4-difluorobenzene	1.000	1.000	0.0	83	0.00	10.31
59		epichlorohydrin	0.032	0.031	3.1	81	0.00	11.57
60		n-butyl alcohol	0.009	0.010#	-11.1	91	0.00	10.44
61	M	cyclohexane	0.602	0.602	0.0	79	0.00	9.57
62		carbon tetrachloride	0.615	0.666	-8.3	89	0.00	9.70
63		1,1-dichloropropene	0.424	0.426	-0.5	80	0.00	9.68
64		hexane	0.278	0.308	-10.8	88	0.00	7.87
65	M	benzene	1.373	1.282	6.6	79	0.00	9.94
66		heptane	0.178	0.175	1.7	75	0.00	10.11
67		isopropyl acetate	0.581	0.561	3.4	84	0.00	9.86
68		1,2-dichloroethane	0.467	0.497	-6.4	89	0.00	9.95
69		trichloroethene	0.326	0.318	2.5	79	0.00	10.65
70		ethyl acrylate		----------NA----------				
71		tert amyl ethyl ether		----------NA----------				
72		2-nitropropane	0.127	0.144	-13.4	108	0.00	11.43
73		2-chloroethyl vinyl ether	0.180	0.206	-14.4	93	0.00	11.45
74		methyl methacrylate	0.485	0.471	2.9	87	0.01	10.93
75		1,2-dichloropropane	0.348	0.344	1.1	81	0.00	10.92
76		methylcyclohexane	0.561	0.566	-0.9	81	0.00	10.88
77		dibromomethane	0.223	0.227	-1.8	84	0.00	11.08
78		bromodichloromethane	0.447	0.466	-4.3	84	0.00	11.21
79		cis-1,3-dichloropropene	0.482	0.504	-4.6	84	0.00	11.67
80	S	toluene-d8 (s)	1.131	1.158	-2.4	85	0.00	11.96
81		4-methyl-2-pentanone	0.125	0.122	2.4	89	0.00	11.76
82		toluene	0.719	0.722	-0.4	83	0.00	12.03
83		3-methyl-1-butanol	0.009	0.009#	0.0	92	0.00	11.78
84		trans-1,3-dichloropropene	0.438	0.485	-10.7	88	0.00	12.23
85		ethyl methacrylate	0.317	0.308	2.8	85	0.00	12.23
86		1,1,2-trichloroethane	0.236	0.243	-3.0	87	0.00	12.44
87		2-hexanone	0.087	0.085	2.3	79	0.01	12.63
88	I	chlorobenzene-d5	1.000	1.000	0.0	89	0.00	13.48
89		tetrachloroethene	0.420	0.409	2.6	85	0.00	12.63
90		1,3-dichloropropane	0.510	0.518	-1.6	87	0.00	12.63
		----------	True	Calc.	% Drift	----------		
91		butyl acetate	20.000	20.164	-0.8	97	0.00	12.69
		----------	AvgRF	CCRF	% Dev	----------		

Continuing Calibration Summary

Job Number: JC4005 **Sample:** V3D4861-CC4846
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3D113536.D
Project: Sunoco - Marcus Hook Facility, PA

92		3,3-Dimethyl-1-Butanol	0.040	0.040	0.0	91	0.00	12.78
93		dibromochloromethane	0.422	0.442	-4.7	88	0.01	12.90
94		1,2-dibromoethane	0.342	0.345	-0.9	89	0.00	13.05
95		n-Butyl Ether	1.343	1.266	5.7	82	0.00	13.42
96		chlorobenzene	0.982	0.931	5.2	85	0.00	13.51
97		1,1,1,2-tetrachloroethane	0.488	0.457	6.4	83	0.00	13.56
98		ethylbenzene	1.566	1.563	0.2	85	0.00	13.56
99		m,p-xylene	0.584	0.603	-3.3	86	0.00	13.67
100		o-xylene	0.622	0.595	4.3	83	0.00	14.08
101		styrene	0.881	0.909	-3.2	86	0.01	14.10
102		Butyl Acrylate		----------NA----------				
103		bromoform	0.303	0.328	-8.3	95	0.01	14.36
104	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	95	0.00	15.79
105		isopropylbenzene	2.930	2.725	7.0	85	0.00	14.42
106	S	4-bromofluorobenzene (s)	0.825	0.839	-1.7	94	0.00	14.63
107		bromobenzene	0.822	0.807	1.8	91	0.00	14.82
108		cyclohexanone	0.084	0.079	6.0	85	0.00	14.59
109		1,1,2,2-tetrachloroethane	0.882	0.853	3.3	90	0.00	14.73
110		trans-1,4-dichloro-2-bute	0.195	0.207	-6.2	105	0.00	14.77
111		1,2,3-trichloropropane	0.213	0.215	-0.9	97	0.00	14.80
112		n-propylbenzene	3.120	3.093	0.9	87	0.00	14.83
113		4-Ethyltoluene		----------NA----------				
114		2-chlorotoluene	0.731	0.705	3.6	87	0.00	14.98
115		4-chlorotoluene	0.678	0.672	0.9	86	0.00	15.08
116		1,3,5-trimethylbenzene	2.610	2.407	7.8	87	0.00	14.99
117		tert-butylbenzene	2.178	1.799	17.4	79	0.00	15.33
118		pentachloroethane	0.658	0.601	8.7	83	0.00	15.41
119		1,2,4-trimethylbenzene	2.413	2.365	2.0	88	0.00	15.38
120		sec-butylbenzene	3.551	3.076	13.4	82	0.00	15.55
121		1,3-dichlorobenzene	1.577	1.537	2.5	90	0.00	15.73
122		p-isopropyltoluene	2.910	2.661	8.6	86	0.00	15.66
123		1,4-dichlorobenzene	1.740	1.608	7.6	92	0.00	15.81
124		1,2-dichlorobenzene	1.706	1.666	2.3	91	0.00	16.19
125		1,4-Diethylbenzene		----------NA----------				
126		n-butylbenzene	1.423	1.374	3.4	87	0.00	16.07
127		1,2,4,5-Tetramethylbenzen		----------NA----------				
128		1,2-dibromo-3-chloropropa	0.222	0.235	-5.9	99	0.00	16.92
129		1,3,5-trichlorobenzene	1.776	1.702	4.2	90	0.00	17.09
130		1,2,4-trichlorobenzene	1.808	1.729	4.4	87	0.00	17.66
131		hexachlorobutadiene	0.928	0.763	17.8	78	0.00	17.76
132		naphthalene	3.656	3.755	-2.7	93	0.00	17.90
133		1,2,3-trichlorobenzene	1.930	1.843	4.5	89	0.00	18.11
134		hexachloroethane	0.671	0.563	16.1	83	0.00	16.44
135		Benzyl chloride	1.664	1.868	-12.3	104	0.00	15.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3D113155.D M3D4846.M Wed Sep 23 15:21:29 2015 3D

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VI8335-ICC8335
Lab FileID: I207763.D


```
                         Response Factor Report  MSI

Method       : C:\MSDCHEM\1\METHODS\MI8335.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Calibration Files
0.2 =I207753.D   0.5 =I207754.D   1   =I207755.D   2   =I207756.D
5   =I207757.D   10  =I207758.D   20  =I207764.D   50  =I207763.D
100 =I207761.D   200 =I207759.D       =                =

Compound
        0.2   0.5   1     2     5     10    20    50    100   200    Avg   %RSD
-------------------------------------------------------------------------------

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  ethanol
                                                                    0.000   -1.00
3)  tertiary butyl alcohol
                      1.479 1.499 1.543 1.539 1.475 1.432 1.319  1.469    5.23
4)  1,4-dioxane    **This compound does not meet initial QC criteria
                            0.113 0.122 0.181 0.122 0.098 0.121  0.126   22.40
           ----- Linear regression -----  Coefficient =  0.9847
             Response Ratio = 0.00577 + 0.11641 *A


5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  dichlorodifluoromethane
           0.878 0.887 0.830 1.033 1.029 1.027 0.993 1.093 1.024  0.977    9.15
7)  chlorodifluoromethane
           1.152 1.088 0.999 1.112 1.100 1.052 1.062 1.178 1.128  1.097    4.97
8)  chloromethane
           1.217 1.040 0.916 0.999 0.997 1.002 0.982 1.070 1.031  1.028    8.03
9)  vinyl chloride
           0.880 0.878 0.836 1.040 1.030 1.026 1.019 1.124 1.077  0.990   10.10
10)  bromomethane
           0.813 0.701 0.627 0.642 0.624 0.639 0.633 0.674 0.637  0.666    9.10
11)  chloroethane
                 0.445 0.376 0.436 0.407 0.410 0.409 0.449 0.415  0.418    5.73
12)  trichlorofluoromethane
           0.818 0.872 0.797 0.992 0.970 0.952 0.933 1.016 0.982  0.926    8.49
13)  ethyl ether
           0.265 0.232 0.208 0.224 0.222 0.229 0.228 0.225 0.228  0.229    6.65
14)  acrolein
                      0.068 0.070 0.070 0.069 0.070 0.066 0.071  0.069    2.66
15)  2-chloropropane
                 0.222 0.225 0.245 0.253 0.244 0.247 0.256 0.253  0.243    5.30
16)  freon 113
                 0.444 0.459 0.557 0.537 0.512 0.511 0.573 0.556  0.518    9.06
17)  1,1-dichloroethene
      0.551 0.729 0.706 0.695 0.796 0.828 0.799 0.806 0.839 0.843  0.759   11.98
18)  acetone
                                    0.031 0.032 0.030 0.027 0.033  0.031    8.17
19)  iodomethane
      0.835 0.970 0.970 0.905 1.059 1.093 1.066 1.069 1.094 1.111  1.017    9.13
20)  carbon disulfide
                 1.856 1.764 2.116 2.198 2.128 2.140 2.193 2.230  2.078    8.27
21)  methyl acetate
                            0.048 0.055 0.056 0.061 0.058 0.065  0.057    9.88
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** VI8335-ICC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207763.D
Project: Sunoco - Marcus Hook Facility, PA

```
22)  allyl chloride
                 0.261 0.236 0.268 0.274 0.277 0.278 0.281 0.283  0.270    5.74
23)  acetonitrile    ** Thsis compound does not  meet initial QC criteria
                                   0.019 0.014 0.025 0.037 0.033  0.026   36.34
           ----- Linear regression -----  Coefficient =  0.9899
             Response Ratio = -0.05080 + 0.03503 *A

24)  methylene chloride
           0.746 0.616 0.567 0.562 0.571 0.554 0.557 0.560 0.571  0.589   10.45
25)  1-chloropropane
                       1.101 1.167 1.016 0.936 0.913 0.913 0.924  0.996   10.30
26)  acrylonitrile
                 0.087 0.104 0.118 0.127 0.122 0.128 0.115 0.131  0.117   12.59
27)  methyl tert butyl ether
      1.383 1.497 1.387 1.301 1.381 1.362 1.354 1.381 1.461 1.443  1.395    4.07
28)  trans-1,2-dichloroethene
                 0.710 0.649 0.614 0.590 0.576 0.561 0.563 0.579  0.605    8.50
29)  hexane
                 0.948 0.752 0.809 0.787 0.738 0.723 0.745 0.776  0.785    9.15
30)  di-isopropyl ether
      1.687 1.818 1.746 1.603 1.743 1.709 1.716 1.742 1.835 1.835  1.744    4.15
31)  vinyl acetate
                                   0.025 0.031 0.029 0.035 0.039  0.032   17.35
32)  1,1-dichloroethane
           0.881 0.873 0.842 0.941 0.987 0.982 0.991 0.969 1.016  0.942    6.58
33)  chloroprene
           0.684 0.627 0.622 0.759 0.734 0.721 0.728 0.748 0.792  0.713    8.13
34)  ethyl tert-butyl ether
      1.199 1.437 1.556 1.420 1.504 1.468 1.454 1.514 1.666 1.652  1.487    8.87
35)  2-butanone
                                   0.028 0.032 0.037 0.034 0.041  0.034   14.69
36)  ethyl acetate
                             0.050 0.045 0.044 0.048 0.047 0.050  0.047    5.07
37)  2,2-dichloropropane
           0.998 0.933 0.844 0.926 0.958 0.927 0.935 0.982 0.995  0.944    5.00
38)  cis-1,2-dichloroethene
                 0.818 0.666 0.632 0.597 0.597 0.595 0.579 0.620  0.638   12.16
39)  methacrylonitrile
                             0.103 0.115 0.119 0.129 0.122 0.136  0.121    9.29
40)  propionitrile
                       0.036 0.044 0.047 0.049 0.052 0.042 0.053  0.046   13.25
41)  bromochloromethane
           0.222 0.217 0.221 0.248 0.256 0.249 0.260 0.249 0.270  0.243    7.82
42)  tetrahydrofuran
                                   0.038 0.038 0.042 0.037 0.043  0.040    6.98
43)  chloroform
      0.874 0.874 0.834 0.775 0.856 0.882 0.889 0.893 0.869 0.935  0.868    4.81
44)  tert-Butyl Formate
           0.321 0.286 0.312 0.337 0.335 0.331 0.343 0.368 0.376  0.334    8.17
45)  dibromofluoromethane (s)
      0.384 0.390 0.383 0.384 0.390 0.387 0.378 0.383 0.382 0.404  0.386    1.81
46)  1,1,1-trichloroethane
      0.686 0.833 0.821 0.736 0.878 0.923 0.900 0.921 0.944 0.971  0.861   10.73
47)  cyclohexane
      0.805 0.846 0.819 0.786 0.925 0.974 0.935 0.956 1.012 1.033  0.909    9.78

48) I   1,4-difluorobenzene   ----------------ISTD---------------------
49)   1,2-dichloroethane-d4 (s)
      0.256 0.260 0.251 0.251 0.266 0.268 0.249 0.250 0.253 0.254  0.256    2.63
50)  iso-butyl alcohol    ** This compound does not meet initial QC criteria
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** VI8335-ICC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207763.D
Project: Sunoco - Marcus Hook Facility, PA

```
                                0.017 0.013 0.013 0.013 0.013 0.015  0.014   12.91
51)  1,1-dichloropropene
            0.542 0.501 0.501 0.584 0.607 0.597 0.597 0.591 0.616  0.571    7.79
52)  carbon tetrachloride
      0.636 0.611 0.577 0.552 0.658 0.700 0.670 0.673 0.707 0.706  0.649    8.34
53)  isopropyl acetate   **This  compound does not meet initial QC criteria
                                                  0.111 0.107 0.119  0.112    5.30
54)  benzene
      1.712 1.974 1.657 1.507 1.709 1.818 1.783 1.790 1.734 1.816  1.750    6.93
55)  2,2,4-trimethylpentane
      1.401 1.611 1.578 1.573 1.874 1.870 1.843 1.816 2.156 2.163  1.788   14.01
56)  tert-amyl methyl ether
            1.100 1.166 1.252 1.244 1.187 1.152 1.170 1.299 1.242  1.201    5.16
57)  1,2-dichloroethane
                  0.379 0.369 0.411 0.423 0.413 0.422 0.410 0.431  0.407    5.36
58)  heptane
            0.348 0.316 0.310 0.381 0.392 0.385 0.366 0.378 0.392  0.363    8.73
59)  n-butyl alcohol
                        0.007 0.008 0.009 0.010 0.009 0.008 0.010  0.009   13.82
60)  trichloroethene
      0.349 0.367 0.362 0.387 0.416 0.434 0.433 0.440 0.437 0.457  0.408    9.43
61)  methyl acrylate
                                                                     0.000   -1.00
62)  methyl methacrylate
                        0.127 0.153 0.164 0.178 0.186 0.174 0.180  0.166   12.38
63)  1,2-dichloropropane
                  0.365 0.371 0.427 0.443 0.450 0.458 0.438 0.461  0.427    8.82
64)  methylcyclohexane
      0.701 0.727 0.780 0.706 0.883 0.922 0.883 0.876 0.969 0.957  0.840   12.28
65)  dibromomethane
            0.191 0.195 0.197 0.197 0.213 0.211 0.213 0.209 0.220  0.205    4.94
66)  bromodichloromethane
                  0.428 0.420 0.493 0.502 0.503 0.517 0.507 0.536  0.488    8.56
67)  2-nitropropane
                                0.035 0.054 0.043 0.051 0.046 0.054  0.047   15.67
68)  2-chloroethyl vinyl ether
            0.129 0.123 0.118 0.139 0.133 0.141 0.143 0.141 0.144  0.135    6.91
69)  epichlorohydrin
                        0.020 0.027 0.025 0.027 0.027 0.027 0.027  0.026   10.59
70)  cis-1,3-dichloropropene
      0.472 0.575 0.548 0.521 0.577 0.592 0.610 0.620 0.624 0.628  0.577    8.75
71)  4-methyl-2-pentanone
                                0.099 0.108 0.111 0.115 0.104 0.117  0.109    6.20
72)  3-methyl-1-butanol
                        0.005 0.007 0.007 0.008 0.008 0.007 0.009  0.007   15.92
73)  toluene
      1.536 1.694 1.529 1.518 1.644 1.740 1.780 1.797 1.723 1.793  1.675    6.69
74)  trans-1,3-dichloropropene
            0.407 0.462 0.452 0.459 0.470 0.481 0.497 0.499 0.492  0.469    6.16
75)  ethyl methacrylate
                        0.268 0.329 0.352 0.361 0.370 0.354 0.366  0.343   10.34
76)  1,1,2-trichloroethane
      0.146 0.208 0.208 0.217 0.239 0.238 0.244 0.250 0.243 0.247  0.224   14.22
77)  1,3-dichloropropane
                  0.389 0.394 0.419 0.441 0.445 0.454 0.449 0.446  0.430    5.99
78)  2-hexanone
                                0.084 0.094 0.081 0.082 0.083 0.086  0.085    5.42

79) I   chlorobenzene-d5      ----------------ISTD---------------------
80)  toluene-d8 (s)
```

```
      1.464 1.443 1.413 1.422 1.445 1.477 1.459 1.462 1.422 1.476  1.448    1.60
 81)  tetrachloroethene
             0.491 0.468 0.485 0.566 0.620 0.612 0.616 0.584 0.627  0.563   11.42
 82)  butyl acetate
                         0.160 0.183 0.188 0.196 0.198 0.201 0.205  0.190    8.00
 83)  3,3-Dimethyl-1-Butanol
                   0.031 0.032 0.033 0.037 0.037 0.034 0.034 0.039  0.035    8.07
 84)  dibromochloromethane
             0.399 0.391 0.374 0.427 0.451 0.459 0.475 0.463 0.488  0.436    9.28
 85)  1,2-dibromoethane
                   0.304 0.308 0.323 0.337 0.342 0.350 0.347 0.349  0.333    5.57
 86)  n-butyl ether
      2.064 2.262 2.069 1.969 2.283 2.470 2.517 2.492 2.300 2.429  2.286    8.60
 87)  chlorobenzene
      1.035 1.321 1.197 1.146 1.270 1.352 1.368 1.388 1.347 1.372  1.280    9.17
 88)  1,1,1,2-tetrachloroethane
      0.449 0.541 0.464 0.450 0.538 0.574 0.582 0.586 0.554 0.618  0.536   11.39
 89)  ethylbenzene
      2.036 2.392 2.091 2.034 2.309 2.499 2.499 2.497 2.363 2.511  2.323    8.53
 90)  m,p-xylene
      0.764 0.836 0.794 0.792 0.881 0.965 0.968 0.973 0.923 0.971  0.887    9.51
 91)  o-xylene
      0.667 0.884 0.735 0.754 0.892 0.990 1.004 1.017 0.934 1.028  0.891   14.62
 92)  styrene
      1.246 1.333 1.215 1.194 1.318 1.442 1.460 1.495 1.456 1.473  1.363    8.50
 93)  bromoform
                   0.233 0.273 0.279 0.297 0.291 0.305 0.300 0.315  0.287    8.91

 94) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 95)  4-bromofluorobenzene (s)
      0.855 0.861 0.854 0.853 0.857 0.854 0.856 0.875 0.872 0.877  0.862    1.09
 96)  isopropylbenzene
             4.063 3.629 3.742 4.370 4.861 5.061 5.165 4.711 5.428  4.559   14.09
 97)  cyclohexanone   ** This compound does not meet initial QC criteria
                               0.044 0.032 0.030 0.022 0.019 0.027  0.029   30.58
             ----- Linear regression -----  Coefficient =  0.9743
               Response Ratio = -0.00971 + 0.02542 *A

 98)  1,1,2,2-tetrachloroethane
                   0.849 0.813 0.893 0.940 0.919 0.959 0.877 0.983  0.904    6.35
 99)  trans-1,4-dichloro-2-butene
                         0.146 0.155 0.176 0.174 0.180 0.178 0.181  0.170    8.10
100)  1,2,3-trichloropropane
                         0.157 0.180 0.194 0.196 0.199 0.183 0.202  0.187    8.39
101)  bromobenzene
      0.985 1.063 1.045 0.999 1.060 1.119 1.138 1.156 1.109 1.179  1.085    6.04
102)  n-propylbenzene
             5.098 4.453 4.290 4.895 5.420 5.528 5.566 5.143 5.689  5.120    9.68
103)  2-chlorotoluene
      1.003 1.010 0.936 0.957 1.070 1.183 1.212 1.225 1.128 1.262  1.099   10.85
104)  4-chlorotoluene
                   2.861 2.735 2.958 3.074 3.146 3.136 3.004 3.172  3.011    5.10
105)  1,3,5-trimethylbenzene
      3.330 3.521 3.123 3.071 3.660 3.981 4.153 4.300 3.970 4.555  3.766   13.43
106)  tert-butylbenzene
      2.412 2.562 2.597 2.582 2.927 3.099 3.295 3.459 3.380 3.780  3.009   15.43
107)  pentachloroethane
             0.616 0.592 0.614 0.697 0.747 0.791 0.837 0.829 0.947  0.741   16.38
108)  1,2,4-trimethylbenzene
      3.350 3.561 3.146 3.175 3.620 3.961 4.071 4.145 3.848 4.337  3.721   11.18
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** VI8335-ICC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207763.D
Project: Sunoco - Marcus Hook Facility, PA

```
109)  sec-butylbenzene
       4.569 5.022 4.322 4.245 5.036 5.477 5.663 5.798 5.524 6.166  5.182   12.58
110)  p-isopropyltoluene
       3.934 4.124 3.850 3.708 4.208 4.650 4.783 4.892 4.625 5.139  4.391   11.15
111)  benzyl chloride
             1.858 1.854 1.666 1.744 1.644 1.601 1.649 1.699 1.813  1.725    5.58
112)  1,3-dichlorobenzene
       2.115 2.180 2.036 1.994 2.130 2.281 2.347 2.343 2.283 2.375  2.208    6.17
113)  1,4-dichlorobenzene
       2.215 2.417 2.139 2.086 2.204 2.303 2.302 2.310 2.263 2.328  2.257    4.31
114)  1,2-dichlorobenzene
       1.967 2.294 2.059 2.011 2.132 2.278 2.334 2.318 2.222 2.363  2.198    6.58
115)  n-butylbenzene
       1.877 2.204 2.029 2.097 2.280 2.542 2.559 2.544 2.418 2.601  2.315   11.07
116)  hexachloroethane
                  0.812 0.787 0.797 0.840 0.879 0.940 0.956 1.082  0.887   11.40
117)  1,2-dibromo-3-chloropropane
                              0.204 0.218 0.213 0.222 0.218 0.230  0.218    3.98
118)  1,3,5-Trichlorobenzene
       1.990 2.199 2.205 2.190 2.305 2.477 2.524 2.467 2.488 2.581  2.343    8.20
119)  1,2,4-trichlorobenzene
       2.157 2.189 2.160 2.064 2.139 2.254 2.305 2.282 2.334 2.359  2.224    4.34
120)  hexachlorobutadiene
       1.284 1.277 1.299 1.167 1.314 1.358 1.414 1.403 1.487 1.454  1.346    7.15
121)  naphthalene
             3.936 3.651 3.550 3.472 3.708 3.945 3.829 4.014 3.985  3.788    5.28
122)  1,2,3-trichlorobenzene
       2.192 2.086 2.160 2.014 2.010 2.116 2.218 2.159 2.263 2.220  2.144    4.03
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MI8335.M          Tue Sep 22 14:53:51 2015   RPT1
```

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: VI8335-ICV8335
Lab FileID: I207765.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VI8335\I207765.D Vial: 47
Acq On : 17 Sep 2015 10:21 pm Operator: SCOTTM
Sample : ICV8335-50 Inst : MSI
Misc : MS85730,VI8335,,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MI8335.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Sep 22 14:24:04 2015
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	102	-0.02	7.18
2	ethanol		----------NA----------				
3	tertiary butyl alcohol	1.469	1.585	-7.9	110	0.00	7.31
	----------	True	Calc.	% Drift	----------		
4	1,4-dioxane	1250.000	1449.762	-16.0	115	0.00	11.08
	----------	AvgRF	CCRF	% Dev	----------		
5 I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	9.44
6	dichlorodifluoromethane	0.977	0.954	2.4	98	0.00	3.82
7	chlorodifluoromethane	1.097	0.860	21.6	83	0.00	3.82
8	chloromethane	1.028	0.977	5.0	102	0.00	4.14
9	vinyl chloride	0.990	1.019	-2.9	102	0.00	4.38
10	bromomethane	0.666	0.601	9.8	97	0.00	5.02
11	chloroethane	0.418	0.399	4.5	100	0.00	5.19
12	trichlorofluoromethane	0.926	0.928	-0.2	102	0.00	5.64
13	ethyl ether	0.229	0.216	5.7	96	0.00	6.08
14	acrolein	0.069	0.064	7.2	94	0.00	6.29
15	2-chloropropane	0.243	1.250	-414.4#	517#	0.00	6.25
16	freon 113	0.518	0.527	-1.7	105	0.00	6.47
17	1,1-dichloroethene	0.759	0.785	-3.4	99	0.00	6.48
18	acetone	0.031	0.029	6.5	99	0.01	6.53
19	iodomethane	1.017	1.046	-2.9	100	0.00	6.74
20	carbon disulfide	2.078	2.066	0.6	99	0.00	6.88
21	methyl acetate	0.057	0.050	12.3	83	0.00	7.01
22	allyl chloride	0.270	0.266	1.5	98	0.00	7.01
	----------	True	Calc.	% Drift	----------		
23	acetonitrile	500.000	579.719	-15.9	142	-0.01	6.93
	----------	AvgRF	CCRF	% Dev	----------		
24	methylene chloride	0.589	0.542	8.0	99	0.00	7.19
25	1-chloropropane	0.996	0.890	10.6	99	0.00	7.24
26	acrylonitrile	0.117	0.120	-2.6	96	0.00	7.50
27	methyl tert butyl ether	1.395	1.328	4.8	98	0.00	7.56
28	trans-1,2-dichloroethene	0.605	0.534	11.7	97	0.00	7.59
29	hexane	0.785	0.633	19.4	89	0.00	7.93
30	di-isopropyl ether	1.744	1.821	-4.4	107	0.00	8.18
31	vinyl acetate	0.032	0.044	-37.5#	154	0.00	8.16
32	1,1-dichloroethane	0.942	0.950	-0.8	98	0.00	8.15
33	chloroprene	0.713	0.703	1.4	99	0.00	8.27

Initial Calibration Verification

Job Number: JC4005 **Sample:** VI8335-ICV8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207765.D
Project: Sunoco - Marcus Hook Facility, PA

34		ethyl tert-butyl ether	1.487	1.615	-8.6	109	0.00	8.64
35		2-butanone	0.034	0.035	-2.9	97	0.00	8.89
36		ethyl acetate	0.047	0.050	-6.4	108	0.00	8.90
37		2,2-dichloropropane	0.944	0.908	3.8	99	0.00	8.91
38		cis-1,2-dichloroethene	0.638	0.566	11.3	97	0.00	8.90
39		methacrylonitrile	0.121	0.119	1.7	94	0.00	9.13
40		propionitrile	0.046	0.045	2.2	88	0.00	8.93
41		bromochloromethane	0.243	0.244	-0.4	96	0.00	9.20
42		tetrahydrofuran	0.040	0.038	5.0	93	0.00	9.26
43		chloroform	0.868	0.857	1.3	98	0.00	9.27
44		tert-Butyl Formate	0.334	0.369	-10.5	110	0.00	9.31
45	S	dibromofluoromethane (s)	0.386	0.385	0.3	103	0.00	9.47
46		1,1,1-trichloroethane	0.861	0.883	-2.6	98	0.00	9.53
47		cyclohexane	0.909	0.927	-2.0	99	0.00	9.63
48	I	1,4-difluorobenzene	1.000	1.000	0.0	101	0.00	10.36
49	s	1,2-dichloroethane-d4 (s	0.256	0.250	2.3	101	0.00	9.88
50		iso-butyl alcohol	0.014	0.004	71.4#	32#	0.00	9.74
51		1,1-dichloropropene	0.571	0.578	-1.2	98	0.00	9.72
52		carbon tetrachloride	0.649	0.658	-1.4	99	0.00	9.75
53		isopropyl acetate	0.112	0.111	0.9	101	0.00	9.92
54		benzene	1.750	1.716	1.9	97	0.00	9.98
55		2,2,4-trimethylpentane	1.788	1.795	-0.4	100	0.00	10.02
56		tert-amyl methyl ether	1.201	1.198	0.2	103	0.00	10.04
57		1,2-dichloroethane	0.407	0.402	1.2	96	0.00	9.97
58		heptane	0.363	0.372	-2.5	103	0.00	10.19
59		n-butyl alcohol	0.009	0.009	0.0	106	0.00	10.50
60		trichloroethene	0.408	0.421	-3.2	97	0.00	10.71
61		methyl acrylate		----------NA----------				
62		methyl methacrylate	0.166	0.171	-3.0	93	0.00	10.99
63		1,2-dichloropropane	0.427	0.441	-3.3	97	0.00	10.96
64		methylcyclohexane	0.840	0.851	-1.3	98	0.00	10.95
65		dibromomethane	0.205	0.204	0.5	96	0.00	11.11
66		bromodichloromethane	0.488	0.491	-0.6	96	0.00	11.25
67		2-nitropropane	0.047	0.045	4.3	90	0.00	11.45
68		2-chloroethyl vinyl ether	0.135	0.180	-33.3#	127	0.00	11.50
69		epichlorohydrin	0.026	0.034	-30.8#	125	0.00	11.50
70		cis-1,3-dichloropropene	0.577	0.589	-2.1	96	0.00	11.72
71		4-methyl-2-pentanone	0.109	0.107	1.8	94	0.00	11.82
72		3-methyl-1-butanol	0.007	0.012	-71.4#	163	0.00	11.84
73		toluene	1.675	1.692	-1.0	95	0.00	12.09
74		trans-1,3-dichloropropene	0.469	0.469	0.0	95	0.00	12.27
75		ethyl methacrylate	0.343	0.344	-0.3	94	0.00	12.29
76		1,1,2-trichloroethane	0.224	0.233	-4.0	94	0.00	12.48
77		1,3-dichloropropane	0.430	0.426	0.9	95	0.00	12.66
78		2-hexanone	0.085	0.092	-8.2	112	0.00	12.67
79	I	chlorobenzene-d5	1.000	1.000	0.0	100	0.00	13.51
80	S	toluene-d8 (s)	1.448	1.473	-1.7	100	0.00	12.01
81		tetrachloroethene	0.563	0.581	-3.2	94	0.00	12.68
82		butyl acetate	0.190	0.218	-14.7	110	0.00	12.76
83		3,3-Dimethyl-1-Butanol	0.035	0.038	-8.6	111	0.00	12.84
84		dibromochloromethane	0.436	0.445	-2.1	93	0.00	12.93
85		1,2-dibromoethane	0.333	0.325	2.4	93	0.00	13.07
86		n-butyl ether	2.286	2.369	-3.6	95	0.00	13.50
87		chlorobenzene	1.280	1.311	-2.4	94	0.00	13.55
88		1,1,1,2-tetrachloroethane	0.536	0.563	-5.0	96	0.00	13.60
89		ethylbenzene	2.323	2.360	-1.6	94	0.00	13.61
90		m,p-xylene	0.887	0.925	-4.3	95	0.00	13.72
91		o-xylene	0.891	0.966	-8.4	95	0.00	14.13

Initial Calibration Verification

Job Number: JC4005 **Sample:** VI8335-ICV8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207765.D
Project: Sunoco - Marcus Hook Facility, PA

92		styrene	1.363	1.407	-3.2	94	0.00	14.14
93		bromoform	0.287	0.284	1.0	93	0.00	14.38
94	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	98	0.00	15.83
95	S	4-bromofluorobenzene (s)	0.862	0.891	-3.4	100	0.00	14.66
96		isopropylbenzene	4.559	4.981	-9.3	94	0.00	14.48
		----------	True	Calc.	% Drift	----------		
97		cyclohexanone	500.000	464.408	7.1	99	0.00	14.61
		----------	AvgRF	CCRF	% Dev	----------		
98		1,1,2,2-tetrachloroethane	0.904	0.910	-0.7	93	0.00	14.76
99		trans-1,4-dichloro-2-bute	0.170	0.172	-1.2	94	0.00	14.80
100		1,2,3-trichloropropane	0.187	0.194	-3.7	95	0.00	14.83
101		bromobenzene	1.085	1.116	-2.9	94	0.00	14.86
102		n-propylbenzene	5.120	5.326	-4.0	94	0.00	14.88
103		2-chlorotoluene	1.099	1.186	-7.9	95	0.00	15.02
104		4-chlorotoluene	3.011	3.009	0.1	94	0.00	15.11
105		1,3,5-trimethylbenzene	3.766	4.130	-9.7	94	0.00	15.04
106		tert-butylbenzene	3.009	3.399	-13.0	96	0.00	15.38
107		pentachloroethane	0.741	0.842	-13.6	98	0.00	15.45
108		1,2,4-trimethylbenzene	3.721	3.978	-6.9	94	0.00	15.43
109		sec-butylbenzene	5.182	5.620	-8.5	95	0.00	15.60
110		p-isopropyltoluene	4.391	4.716	-7.4	94	0.00	15.72
111		benzyl chloride	1.725	1.983	-15.0	118	0.00	15.96
112		1,3-dichlorobenzene	2.208	2.237	-1.3	93	0.00	15.77
113		1,4-dichlorobenzene	2.257	2.221	1.6	94	0.00	15.85
114		1,2-dichlorobenzene	2.198	2.224	-1.2	94	0.00	16.25
115		n-butylbenzene	2.315	2.439	-5.4	94	0.00	16.14
116		hexachloroethane	0.887	0.935	-5.4	97	0.00	16.53
117		1,2-dibromo-3-chloropropa	0.218	0.208	4.6	91	0.00	17.03
118		1,3,5-Trichlorobenzene	2.343	2.403	-2.6	95	0.00	17.25
119		1,2,4-trichlorobenzene	2.224	2.240	-0.7	96	0.00	17.89
120		hexachlorobutadiene	1.346	1.365	-1.4	95	0.00	18.03
121		naphthalene	3.788	3.750	1.0	96	0.00	18.16
122		1,2,3-trichlorobenzene	2.144	2.143	0.0	97	0.00	18.41

(#) = Out of Range SPCC's out = 0 CCC's out = 0
I207763.D MI8335.M Tue Sep 22 14:59:10 2015 RPT1

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8341-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207902.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\VI8341\I207902.D          Vial: 35
Acq On    : 23 Sep 2015   9:47 am                   Operator: SCOTTM
Sample    : CC8335-50                               Inst    : MSI
Misc      : MS91376,VI8341,,,,,1                    Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MI8335.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Sep 22 14:24:04 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	129	-0.02	7.18
2	ethanol		----------NA----------				
3	tertiary butyl alcohol	1.469	1.408	4.2	123	-0.02	7.30
	----------	True	Calc.	% Drift	----------		
4	1,4-dioxane	1250.000	1239.312	0.9	124	0.00	11.08
	----------	AvgRF	CCRF	% Dev	----------		
5 I	pentafluorobenzene	1.000	1.000	0.0	120	0.00	9.44
6	dichlorodifluoromethane	0.977	1.261	-29.1#	152	0.00	3.82
7	chlorodifluoromethane	1.097	1.118	-1.9	126	0.00	3.82
8	chloromethane	1.028	1.024	0.4	125	0.00	4.13
9	vinyl chloride	0.990	1.057	-6.8	125	0.00	4.38
10	bromomethane	0.666	0.618	7.2	117	-0.01	5.02
11	chloroethane	0.418	0.404	3.3	119	-0.01	5.18
12	trichlorofluoromethane	0.926	0.954	-3.0	123	0.00	5.64
13	ethyl ether	0.229	0.213	7.0	112	-0.01	6.07
14	acrolein	0.069	0.060	13.0	103	-0.01	6.28
15	2-chloropropane	0.243	0.245	-0.8	119	0.00	6.24
16	freon 113	0.518	0.547	-5.6	129	-0.01	6.47
17	1,1-dichloroethene	0.759	0.800	-5.4	119	0.00	6.47
18	acetone	0.031	0.028	9.7	116	-0.01	6.51
19	iodomethane	1.017	1.028	-1.1	115	0.00	6.74
20	carbon disulfide	2.078	2.100	-1.1	118	0.00	6.87
21	methyl acetate	0.057	0.059	-3.5	116	-0.01	7.00
22	allyl chloride	0.270	0.262	3.0	113	0.00	7.00
	----------	True	Calc.	% Drift	----------		
23	acetonitrile	500.000	581.173	-16.2	168	-0.03	6.92
	----------	AvgRF	CCRF	% Dev	----------		
24	methylene chloride	0.589	0.541	8.1	117	0.00	7.18
25	1-chloropropane	0.996	0.885	11.1	116	0.00	7.23
26	acrylonitrile	0.117	0.116	0.9	109	-0.01	7.49
27	methyl tert butyl ether	1.395	1.326	4.9	115	-0.01	7.55
28	trans-1,2-dichloroethene	0.605	0.541	10.6	116	0.00	7.58
29	hexane	0.785	0.735	6.4	122	-0.01	7.92
30	di-isopropyl ether	1.744	1.715	1.7	118	0.00	8.17
31	vinyl acetate	0.032	0.042	-31.3#	174	-0.02	8.15
32	1,1-dichloroethane	0.942	0.941	0.1	114	0.00	8.14
33	chloroprene	0.713	0.724	-1.5	119	0.00	8.27

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8341-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207902.D
Project: Sunoco - Marcus Hook Facility, PA

34		ethyl tert-butyl ether	1.487	1.487	0.0	118	0.00	8.64
35		2-butanone	0.034	0.033	2.9	110	0.00	8.89
36		ethyl acetate	0.047	0.046	2.1	115	-0.01	8.90
37		2,2-dichloropropane	0.944	0.951	-0.7	122	0.00	8.90
38		cis-1,2-dichloroethene	0.638	0.562	11.9	113	0.00	8.89
39		methacrylonitrile	0.121	0.120	0.8	112	0.00	9.13
40		propionitrile	0.046	0.045	2.2	103	-0.01	8.92
41		bromochloromethane	0.243	0.242	0.4	112	0.00	9.19
42		tetrahydrofuran	0.040	0.037	7.5	106	0.00	9.26
43		chloroform	0.868	0.854	1.6	115	0.00	9.26
44		tert-Butyl Formate	0.334	0.325	2.7	114	-0.01	9.30
45	S	dibromofluoromethane (s)	0.386	0.391	-1.3	122	0.00	9.46
46		1,1,1-trichloroethane	0.861	0.896	-4.1	117	0.00	9.53
47		cyclohexane	0.909	0.960	-5.6	121	0.00	9.63
48	I	1,4-difluorobenzene	1.000	1.000	0.0	120	0.00	10.36
49	s	1,2-dichloroethane-d4 (s	0.256	0.255	0.4	122	0.00	9.88
50		iso-butyl alcohol	0.014	0.013	7.1	122	0.00	9.73
51		1,1-dichloropropene	0.571	0.571	0.0	114	0.00	9.72
52		carbon tetrachloride	0.649	0.671	-3.4	119	0.00	9.75
53		isopropyl acetate	0.112	0.172	-53.6#	185	0.00	9.92
54		benzene	1.750	1.688	3.5	113	0.00	9.97
55		2,2,4-trimethylpentane	1.788	1.937	-8.3	128	0.00	10.02
56		tert-amyl methyl ether	1.201	1.158	3.6	118	0.00	10.04
57		1,2-dichloroethane	0.407	0.397	2.5	113	0.00	9.97
58		heptane	0.363	0.368	-1.4	120	0.00	10.19
59		n-butyl alcohol	0.009	0.008	11.1	118	0.00	10.49
60		trichloroethene	0.408	0.421	-3.2	114	0.00	10.71
61		methyl acrylate		----------NA----------				
62		methyl methacrylate	0.166	0.160	3.6	102	0.00	10.98
63		1,2-dichloropropane	0.427	0.425	0.5	111	0.00	10.95
64		methylcyclohexane	0.840	0.905	-7.7	124	0.00	10.95
65		dibromomethane	0.205	0.202	1.5	113	0.00	11.11
66		bromodichloromethane	0.488	0.483	1.0	112	0.00	11.24
67		2-nitropropane	0.047	0.044	6.4	104	0.00	11.45
68		2-chloroethyl vinyl ether	0.135	0.143	-5.9	120	0.00	11.50
69		epichlorohydrin	0.026	0.027	-3.8	120	0.00	11.50
70		cis-1,3-dichloropropene	0.577	0.569	1.4	110	0.00	11.71
71		4-methyl-2-pentanone	0.109	0.101	7.3	106	0.00	11.81
72		3-methyl-1-butanol	0.007	0.007	0.0	117	0.00	11.84
73		toluene	1.675	1.624	3.0	108	0.00	12.09
74		trans-1,3-dichloropropene	0.469	0.460	1.9	111	0.00	12.27
75		ethyl methacrylate	0.343	0.324	5.5	105	0.00	12.29
76		1,1,2-trichloroethane	0.224	0.229	-2.2	110	0.00	12.48
77		1,3-dichloropropane	0.430	0.418	2.8	110	0.00	12.66
78		2-hexanone	0.085	0.087	-2.4	127	0.00	12.67
79	I	chlorobenzene-d5	1.000	1.000	0.0	116	0.00	13.51
80	S	toluene-d8 (s)	1.448	1.460	-0.8	115	0.00	12.01
81		tetrachloroethene	0.563	0.583	-3.6	109	0.00	12.68
82		butyl acetate	0.190	0.190	0.0	111	0.00	12.76
83		3,3-Dimethyl-1-Butanol	0.035	0.034	2.9	116	0.00	12.84
84		dibromochloromethane	0.436	0.444	-1.8	108	0.00	12.93
85		1,2-dibromoethane	0.333	0.330	0.9	109	0.00	13.07
86		n-butyl ether	2.286	2.201	3.7	102	0.00	13.50
87		chlorobenzene	1.280	1.290	-0.8	107	0.00	13.55
88		1,1,1,2-tetrachloroethane	0.536	0.555	-3.5	110	0.00	13.61
89		ethylbenzene	2.323	2.271	2.2	105	0.00	13.61
90		m,p-xylene	0.887	0.896	-1.0	107	0.00	13.72
91		o-xylene	0.891	0.912	-2.4	104	0.00	14.13

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8341-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207902.D
Project: Sunoco - Marcus Hook Facility, PA

92		styrene	1.363	1.343	1.5	104	0.00	14.14
93		bromoform	0.287	0.289	-0.7	109	0.00	14.38
94	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	15.83
95	S	4-bromofluorobenzene (s)	0.862	0.883	-2.4	114	0.00	14.66
96		isopropylbenzene	4.559	4.808	-5.5	105	0.00	14.48
		----------	True	Calc.	% Drift	----------		
97		cyclohexanone	500.000	1397.771	-179.6#	353	0.00	14.61
		----------	AvgRF	CCRF	% Dev	----------		
98		1,1,2,2-tetrachloroethane	0.904	0.920	-1.8	108	0.00	14.76
99		trans-1,4-dichloro-2-bute	0.170	0.174	-2.4	109	0.00	14.80
100		1,2,3-trichloropropane	0.187	0.190	-1.6	107	0.00	14.83
101		bromobenzene	1.085	1.103	-1.7	107	0.00	14.86
102		n-propylbenzene	5.120	5.166	-0.9	104	0.00	14.88
103		2-chlorotoluene	1.099	1.138	-3.5	105	0.00	15.02
104		4-chlorotoluene	3.011	2.970	1.4	107	0.00	15.12
105		1,3,5-trimethylbenzene	3.766	3.951	-4.9	103	0.00	15.04
106		tert-butylbenzene	3.009	3.312	-10.1	108	0.00	15.38
107		pentachloroethane	0.741	0.828	-11.7	111	0.00	15.45
108		1,2,4-trimethylbenzene	3.721	3.772	-1.4	102	0.00	15.43
109		sec-butylbenzene	5.182	5.430	-4.8	105	0.00	15.60
110		p-isopropyltoluene	4.391	4.498	-2.4	103	0.00	15.72
111		benzyl chloride	1.725	1.745	-1.2	119	0.00	15.97
112		1,3-dichlorobenzene	2.208	2.241	-1.5	108	0.00	15.77
113		1,4-dichlorobenzene	2.257	2.209	2.1	108	0.00	15.85
114		1,2-dichlorobenzene	2.198	2.179	0.9	106	0.00	16.25
115		n-butylbenzene	2.315	2.358	-1.9	104	0.00	16.14
116		hexachloroethane	0.887	0.932	-5.1	112	0.00	16.53
117		1,2-dibromo-3-chloropropa	0.218	0.210	3.7	107	0.00	17.03
118		1,3,5-Trichlorobenzene	2.343	2.403	-2.6	110	0.00	17.25
119		1,2,4-trichlorobenzene	2.224	2.253	-1.3	111	0.00	17.89
120		hexachlorobutadiene	1.346	1.347	-0.1	108	0.00	18.03
121		naphthalene	3.788	3.776	0.3	111	0.00	18.16
122		1,2,3-trichlorobenzene	2.144	2.150	-0.3	112	0.00	18.41

(#) = Out of Range SPCC's out = 0 CCC's out = 0
I207763.D MI8335.M Wed Sep 23 14:26:15 2015 RPT1

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8342-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207931.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\VI8342\I207931.D          Vial: 46
Acq On    : 24 Sep 2015   9:43 am                   Operator: SCOTTM
Sample    : CC8335-50                               Inst    : MSI
Misc      : MS91628,VI8342,,,,,1                    Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MI8335.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Sep 22 14:24:04 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	128	-0.03	7.16
2	ethanol		----------NA----------				
3	tertiary butyl alcohol	1.469	1.382	5.9	120	-0.02	7.29
	----------	True	Calc.	% Drift	----------		
4	1,4-dioxane	1250.000	1146.763	8.3	114	0.00	11.09
	----------	AvgRF	CCRF	% Dev	----------		
5 I	pentafluorobenzene	1.000	1.000	0.0	126	0.00	9.44
6	dichlorodifluoromethane	0.977	1.233	-26.2#	157	0.00	3.82
7	chlorodifluoromethane	1.097	1.051	4.2	125	0.00	3.83
8	chloromethane	1.028	1.007	2.0	129	0.00	4.14
9	vinyl chloride	0.990	1.043	-5.4	129	0.00	4.38
10	bromomethane	0.666	0.659	1.1	131	0.00	5.03
11	chloroethane	0.418	0.416	0.5	128	0.00	5.19
12	trichlorofluoromethane	0.926	0.956	-3.2	129	0.00	5.65
13	ethyl ether	0.229	0.210	8.3	116	0.00	6.08
14	acrolein	0.069	0.052	24.6#	94	0.00	6.29
15	2-chloropropane	0.243	0.239	1.6	122	0.00	6.24
16	freon 113	0.518	0.526	-1.5	130	0.00	6.47
17	1,1-dichloroethene	0.759	0.768	-1.2	120	0.00	6.48
18	acetone	0.031	0.028	9.7	118	0.00	6.52
19	iodomethane	1.017	1.025	-0.8	121	0.00	6.74
20	carbon disulfide	2.078	2.063	0.7	122	0.00	6.88
21	methyl acetate	0.057	0.057	0.0	117	-0.01	7.00
22	allyl chloride	0.270	0.265	1.9	120	0.00	7.00
	----------	True	Calc.	% Drift	----------		
23	acetonitrile	500.000	546.864	-9.4	164	-0.03	6.92
	----------	AvgRF	CCRF	% Dev	----------		
24	methylene chloride	0.589	0.530	10.0	120	0.00	7.18
25	1-chloropropane	0.996	0.840	15.7	116	0.00	7.24
26	acrylonitrile	0.117	0.115	1.7	113	0.00	7.49
27	methyl tert butyl ether	1.395	1.303	6.6	119	0.00	7.56
28	trans-1,2-dichloroethene	0.605	0.535	11.6	120	0.00	7.58
29	hexane	0.785	0.697	11.2	122	0.00	7.93
30	di-isopropyl ether	1.744	1.646	5.6	119	0.00	8.17
31	vinyl acetate	0.032	0.042	-31.3#	184	-0.01	8.16
32	1,1-dichloroethane	0.942	0.918	2.5	117	0.00	8.14
33	chloroprene	0.713	0.683	4.2	118	0.00	8.27

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8342-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207931.D
Project: Sunoco - Marcus Hook Facility, PA

34		ethyl tert-butyl ether	1.487	1.431	3.8	119	0.00	8.64
35		2-butanone	0.034	0.034	0.0	117	0.00	8.89
36		ethyl acetate	0.047	0.045	4.3	118	0.00	8.90
37		2,2-dichloropropane	0.944	0.921	2.4	124	0.00	8.90
38		cis-1,2-dichloroethene	0.638	0.549	13.9	116	0.00	8.89
39		methacrylonitrile	0.121	0.120	0.8	118	0.00	9.13
40		propionitrile	0.046	0.044	4.3	107	-0.01	8.92
41		bromochloromethane	0.243	0.242	0.4	117	0.00	9.20
42		tetrahydrofuran	0.040	0.037	7.5	111	-0.01	9.26
43		chloroform	0.868	0.832	4.1	117	0.00	9.26
44		tert-Butyl Formate	0.334	0.321	3.9	118	0.00	9.31
45	S	dibromofluoromethane (s)	0.386	0.389	-0.8	128	0.00	9.46
46		1,1,1-trichloroethane	0.861	0.871	-1.2	119	0.00	9.53
47		cyclohexane	0.909	0.909	0.0	120	0.00	9.63
48	I	1,4-difluorobenzene	1.000	1.000	0.0	123	0.00	10.36
49	s	1,2-dichloroethane-d4 (s	0.256	0.256	0.0	126	0.00	9.88
50		iso-butyl alcohol	0.014	0.013	7.1	124	0.00	9.73
51		1,1-dichloropropene	0.571	0.567	0.7	117	0.00	9.72
52		carbon tetrachloride	0.649	0.664	-2.3	122	0.00	9.75
53		isopropyl acetate	0.112	0.176	-57.1#	195	0.00	9.92
54		benzene	1.750	1.703	2.7	117	0.00	9.98
55		2,2,4-trimethylpentane	1.788	1.858	-3.9	126	0.00	10.02
56		tert-amyl methyl ether	1.201	1.147	4.5	121	0.00	10.04
57		1,2-dichloroethane	0.407	0.392	3.7	114	0.00	9.97
58		heptane	0.363	0.361	0.6	121	0.00	10.20
59		n-butyl alcohol	0.009	0.008	11.1	115	0.00	10.49
60		trichloroethene	0.408	0.417	-2.2	117	0.00	10.71
61		methyl acrylate		----------NA----------				
62		methyl methacrylate	0.166	0.167	-0.6	111	0.00	10.98
63		1,2-dichloropropane	0.427	0.424	0.7	114	0.00	10.96
64		methylcyclohexane	0.840	0.868	-3.3	122	0.00	10.95
65		dibromomethane	0.205	0.205	0.0	118	0.00	11.11
66		bromodichloromethane	0.488	0.487	0.2	116	0.00	11.24
67		2-nitropropane	0.047	0.049	-4.3	118	0.00	11.45
68		2-chloroethyl vinyl ether	0.135	0.153	-13.3	132	0.00	11.50
69		epichlorohydrin	0.026	0.029	-11.5	131	0.00	11.50
70		cis-1,3-dichloropropene	0.577	0.576	0.2	114	0.00	11.71
71		4-methyl-2-pentanone	0.109	0.106	2.8	114	0.00	11.81
72		3-methyl-1-butanol	0.007	0.007	0.0	118	0.00	11.84
73		toluene	1.675	1.643	1.9	113	0.00	12.09
74		trans-1,3-dichloropropene	0.469	0.459	2.1	114	0.00	12.27
75		ethyl methacrylate	0.343	0.326	5.0	109	0.00	12.29
76		1,1,2-trichloroethane	0.224	0.232	-3.6	114	0.00	12.48
77		1,3-dichloropropane	0.430	0.422	1.9	114	0.00	12.66
78		2-hexanone	0.085	0.098	-15.3	146	0.00	12.67
79	I	chlorobenzene-d5	1.000	1.000	0.0	119	0.00	13.51
80	S	toluene-d8 (s)	1.448	1.478	-2.1	120	0.00	12.01
81		tetrachloroethene	0.563	0.584	-3.7	113	0.00	12.68
82		butyl acetate	0.190	0.194	-2.1	116	0.00	12.76
83		3,3-Dimethyl-1-Butanol	0.035	0.034	2.9	119	0.00	12.84
84		dibromochloromethane	0.436	0.450	-3.2	113	0.00	12.93
85		1,2-dibromoethane	0.333	0.337	-1.2	115	0.00	13.07
86		n-butyl ether	2.286	2.207	3.5	105	0.00	13.50
87		chlorobenzene	1.280	1.291	-0.9	111	0.00	13.55
88		1,1,1,2-tetrachloroethane	0.536	0.565	-5.4	115	0.00	13.60
89		ethylbenzene	2.323	2.311	0.5	110	0.00	13.61
90		m,p-xylene	0.887	0.902	-1.7	110	0.00	13.72
91		o-xylene	0.891	0.937	-5.2	110	0.00	14.13

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8342-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207931.D
Project: Sunoco - Marcus Hook Facility, PA

92		styrene	1.363	1.351	0.9	108	0.00	14.14
93		bromoform	0.287	0.296	-3.1	115	0.00	14.38
94	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	116	0.00	15.83
95	S	4-bromofluorobenzene (s)	0.862	0.881	-2.2	117	0.00	14.66
96		isopropylbenzene	4.559	4.881	-7.1	110	0.00	14.48
		----------	True	Calc.	% Drift	----------		
97		cyclohexanone	500.000	1367.809	-173.6#	356	0.00	14.61
		----------	AvgRF	CCRF	% Dev	----------		
98		1,1,2,2-tetrachloroethane	0.904	0.947	-4.8	114	0.00	14.76
99		trans-1,4-dichloro-2-bute	0.170	0.179	-5.3	115	0.00	14.80
100		1,2,3-trichloropropane	0.187	0.193	-3.2	112	0.00	14.83
101		bromobenzene	1.085	1.118	-3.0	112	0.00	14.86
102		n-propylbenzene	5.120	5.175	-1.1	108	0.00	14.88
103		2-chlorotoluene	1.099	1.162	-5.7	110	0.00	15.02
104		4-chlorotoluene	3.011	2.929	2.7	108	0.00	15.11
105		1,3,5-trimethylbenzene	3.766	4.016	-6.6	108	0.00	15.04
106		tert-butylbenzene	3.009	3.292	-9.4	110	0.00	15.38
107		pentachloroethane	0.741	0.847	-14.3	117	0.00	15.45
108		1,2,4-trimethylbenzene	3.721	3.842	-3.3	107	0.00	15.43
109		sec-butylbenzene	5.182	5.448	-5.1	109	0.00	15.60
110		p-isopropyltoluene	4.391	4.540	-3.4	108	0.00	15.72
111		benzyl chloride	1.725	1.786	-3.5	126	0.00	15.96
112		1,3-dichlorobenzene	2.208	2.244	-1.6	111	0.00	15.77
113		1,4-dichlorobenzene	2.257	2.210	2.1	111	0.00	15.85
114		1,2-dichlorobenzene	2.198	2.213	-0.7	111	0.00	16.25
115		n-butylbenzene	2.315	2.348	-1.4	107	0.00	16.14
116		hexachloroethane	0.887	0.931	-5.0	115	0.00	16.53
117		1,2-dibromo-3-chloropropa	0.218	0.220	-0.9	115	0.00	17.03
118		1,3,5-Trichlorobenzene	2.343	2.442	-4.2	115	0.00	17.25
119		1,2,4-trichlorobenzene	2.224	2.269	-2.0	115	0.00	17.89
120		hexachlorobutadiene	1.346	1.325	1.6	109	0.00	18.03
121		naphthalene	3.788	3.866	-2.1	117	0.00	18.16
122		1,2,3-trichlorobenzene	2.144	2.203	-2.8	118	0.00	18.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
I207763.D MI8335.M Fri Sep 25 08:35:02 2015 RPT1

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8344-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207982.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\VI8344\I207982.D          Vial: 51
Acq On    : 25 Sep 2015  11:42 am                   Operator: SCOTTM
Sample    : CC8335-50                               Inst    : MSI
Misc      : MS91631,VI8344,,,,,1                    Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MI8335.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Sep 22 14:24:04 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	129	0.02	7.22
2	ethanol		----------NA----------				
3	tertiary butyl alcohol	1.469	1.375	6.4	120	-0.02	7.30
	----------	True	Calc.	% Drift	----------		
4	1,4-dioxane	1250.000	1187.463	5.0	119	0.00	11.08
	----------	AvgRF	CCRF	% Dev	----------		
5 I	pentafluorobenzene	1.000	1.000	0.0	126	0.00	9.44
6	dichlorodifluoromethane	0.977	1.178	-20.6#	149	0.01	3.83
7	chlorodifluoromethane	1.097	0.998	9.0	119	0.00	3.83
8	chloromethane	1.028	0.944	8.2	121	0.00	4.14
9	vinyl chloride	0.990	0.978	1.2	121	0.00	4.38
10	bromomethane	0.666	0.568	14.7	113	0.00	5.02
11	chloroethane	0.418	0.377	9.8	116	0.00	5.19
12	trichlorofluoromethane	0.926	0.919	0.8	124	0.00	5.64
13	ethyl ether	0.229	0.206	10.0	114	0.00	6.08
14	acrolein	0.069	0.061	11.6	111	0.00	6.29
15	2-chloropropane	0.243	0.235	3.3	120	0.00	6.25
16	freon 113	0.518	0.522	-0.8	129	0.00	6.48
17	1,1-dichloroethene	0.759	0.765	-0.8	120	0.00	6.48
18	acetone	0.031	0.027	12.9	117	0.00	6.52
19	iodomethane	1.017	1.008	0.9	119	0.00	6.74
20	carbon disulfide	2.078	2.068	0.5	122	0.00	6.88
21	methyl acetate	0.057	0.055	3.5	114	0.00	7.01
22	allyl chloride	0.270	0.259	4.1	118	0.00	7.00
	----------	True	Calc.	% Drift	----------		
23	acetonitrile	500.000	512.636	-2.5	153	-0.02	6.92
	----------	AvgRF	CCRF	% Dev	----------		
24	methylene chloride	0.589	0.539	8.5	122	0.00	7.19
25	1-chloropropane	0.996	0.820	17.7	113	0.00	7.24
26	acrylonitrile	0.117	0.112	4.3	110	0.00	7.49
27	methyl tert butyl ether	1.395	1.274	8.7	116	0.00	7.56
28	trans-1,2-dichloroethene	0.605	0.536	11.4	121	0.00	7.59
29	hexane	0.785	0.698	11.1	122	0.00	7.93
30	di-isopropyl ether	1.744	1.576	9.6	114	0.00	8.17
31	vinyl acetate	0.032	0.040	-25.0#	172	-0.02	8.15
32	1,1-dichloroethane	0.942	0.904	4.0	115	0.00	8.14
33	chloroprene	0.713	0.670	6.0	116	0.00	8.27

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8344-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207982.D
Project: Sunoco - Marcus Hook Facility, PA

34		ethyl tert-butyl ether	1.487	1.374	7.6	114	0.00	8.64
35		2-butanone	0.034	0.033	2.9	112	0.00	8.89
36		ethyl acetate	0.047	0.041	12.8	108	0.00	8.91
37		2,2-dichloropropane	0.944	0.915	3.1	123	0.00	8.90
38		cis-1,2-dichloroethene	0.638	0.548	14.1	116	0.00	8.89
39		methacrylonitrile	0.121	0.114	5.8	112	0.00	9.13
40		propionitrile	0.046	0.044	4.3	106	-0.01	8.92
41		bromochloromethane	0.243	0.238	2.1	115	0.00	9.20
42		tetrahydrofuran	0.040	0.036	10.0	108	0.00	9.26
43		chloroform	0.868	0.833	4.0	118	0.00	9.27
44		tert-Butyl Formate	0.334	0.304	9.0	112	0.00	9.31
45	S	dibromofluoromethane (s)	0.386	0.399	-3.4	131	0.00	9.46
46		1,1,1-trichloroethane	0.861	0.868	-0.8	119	0.00	9.53
47		cyclohexane	0.909	0.929	-2.2	123	0.00	9.63
48	I	1,4-difluorobenzene	1.000	1.000	0.0	127	0.00	10.36
49	s	1,2-dichloroethane-d4 (s	0.256	0.253	1.2	128	0.00	9.88
50		iso-butyl alcohol	0.014	0.012	14.3	117	0.00	9.74
51		1,1-dichloropropene	0.571	0.550	3.7	117	0.00	9.72
52		carbon tetrachloride	0.649	0.644	0.8	121	0.00	9.75
53		isopropyl acetate	0.112	0.166	-48.2#	189	0.00	9.92
54		benzene	1.750	1.650	5.7	117	0.00	9.97
55		2,2,4-trimethylpentane	1.788	1.772	0.9	123	0.00	10.02
56		tert-amyl methyl ether	1.201	1.072	10.7	116	0.00	10.04
57		1,2-dichloroethane	0.407	0.379	6.9	113	0.00	9.97
58		heptane	0.363	0.336	7.4	116	0.00	10.20
59		n-butyl alcohol	0.009	0.008	11.1	114	0.00	10.49
60		trichloroethene	0.408	0.408	0.0	117	0.00	10.71
61		methyl acrylate		----------NA----------				
62		methyl methacrylate	0.166	0.157	5.4	107	0.00	10.98
63		1,2-dichloropropane	0.427	0.407	4.7	112	0.00	10.96
64		methylcyclohexane	0.840	0.841	-0.1	122	0.00	10.95
65		dibromomethane	0.205	0.198	3.4	118	0.00	11.11
66		bromodichloromethane	0.488	0.470	3.7	115	0.00	11.24
67		2-nitropropane	0.047	0.043	8.5	106	0.00	11.45
68		2-chloroethyl vinyl ether	0.135	0.135	0.0	120	0.00	11.50
69		epichlorohydrin	0.026	0.025	3.8	119	0.00	11.50
70		cis-1,3-dichloropropene	0.577	0.548	5.0	112	0.00	11.71
71		4-methyl-2-pentanone	0.109	0.101	7.3	111	0.00	11.81
72		3-methyl-1-butanol	0.007	0.007	0.0	116	0.00	11.85
73		toluene	1.675	1.592	5.0	112	0.00	12.09
74		trans-1,3-dichloropropene	0.469	0.431	8.1	110	0.00	12.27
75		ethyl methacrylate	0.343	0.311	9.3	106	0.00	12.29
76		1,1,2-trichloroethane	0.224	0.221	1.3	112	0.00	12.48
77		1,3-dichloropropane	0.430	0.400	7.0	111	0.00	12.66
78		2-hexanone	0.085	0.083	2.4	128	0.00	12.67
79	I	chlorobenzene-d5	1.000	1.000	0.0	123	0.00	13.51
80	S	toluene-d8 (s)	1.448	1.461	-0.9	122	0.00	12.01
81		tetrachloroethene	0.563	0.562	0.2	112	0.00	12.68
82		butyl acetate	0.190	0.173	8.9	107	0.00	12.76
83		3,3-Dimethyl-1-Butanol	0.035	0.031	11.4	114	0.00	12.84
84		dibromochloromethane	0.436	0.428	1.8	110	0.00	12.93
85		1,2-dibromoethane	0.333	0.321	3.6	112	0.00	13.07
86		n-butyl ether	2.286	2.089	8.6	103	0.00	13.50
87		chlorobenzene	1.280	1.248	2.5	110	0.00	13.55
88		1,1,1,2-tetrachloroethane	0.536	0.546	-1.9	114	0.00	13.60
89		ethylbenzene	2.323	2.213	4.7	109	0.00	13.61
90		m,p-xylene	0.887	0.868	2.1	109	0.00	13.72
91		o-xylene	0.891	0.902	-1.2	109	0.00	14.13

Continuing Calibration Summary

Job Number: JC4005 **Sample:** VI8344-CC8335
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** I207982.D
Project: Sunoco - Marcus Hook Facility, PA

92		styrene	1.363	1.297	4.8	106	0.00	14.14
93		bromoform	0.287	0.279	2.8	112	0.00	14.38
94	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	118	0.00	15.83
95	S	4-bromofluorobenzene (s)	0.862	0.880	-2.1	119	0.00	14.66
96		isopropylbenzene	4.559	4.722	-3.6	108	0.00	14.48
		----------	True	Calc.	% Drift	----------		
97		cyclohexanone	500.000	1418.170	-183.6#	376	0.00	14.61
		----------	AvgRF	CCRF	% Dev	----------		
98		1,1,2,2-tetrachloroethane	0.904	0.910	-0.7	112	0.00	14.76
99		trans-1,4-dichloro-2-bute	0.170	0.160	5.9	105	0.00	14.80
100		1,2,3-trichloropropane	0.187	0.186	0.5	110	0.00	14.83
101		bromobenzene	1.085	1.069	1.5	109	0.00	14.85
102		n-propylbenzene	5.120	5.078	0.8	108	0.00	14.88
103		2-chlorotoluene	1.099	1.123	-2.2	108	0.00	15.02
104		4-chlorotoluene	3.011	2.863	4.9	108	0.00	15.12
105		1,3,5-trimethylbenzene	3.766	3.904	-3.7	107	0.00	15.04
106		tert-butylbenzene	3.009	3.203	-6.4	109	0.00	15.38
107		pentachloroethane	0.741	0.813	-9.7	115	0.00	15.45
108		1,2,4-trimethylbenzene	3.721	3.756	-0.9	107	0.00	15.43
109		sec-butylbenzene	5.182	5.321	-2.7	108	0.00	15.60
110		p-isopropyltoluene	4.391	4.422	-0.7	107	0.00	15.72
111		benzyl chloride	1.725	1.646	4.6	118	0.00	15.96
112		1,3-dichlorobenzene	2.208	2.184	1.1	110	0.00	15.77
113		1,4-dichlorobenzene	2.257	2.131	5.6	109	0.00	15.85
114		1,2-dichlorobenzene	2.198	2.140	2.6	109	0.00	16.25
115		n-butylbenzene	2.315	2.312	0.1	107	0.00	16.14
116		hexachloroethane	0.887	0.885	0.2	111	0.00	16.53
117		1,2-dibromo-3-chloropropa	0.218	0.208	4.6	111	0.00	17.03
118		1,3,5-Trichlorobenzene	2.343	2.353	-0.4	113	0.00	17.25
119		1,2,4-trichlorobenzene	2.224	2.190	1.5	113	0.00	17.89
120		hexachlorobutadiene	1.346	1.262	6.2	106	0.00	18.03
121		naphthalene	3.788	3.681	2.8	113	0.00	18.16
122		1,2,3-trichlorobenzene	2.144	2.086	2.7	114	0.00	18.41

(#) = Out of Range SPCC's out = 0 CCC's out = 0
I207763.D MI8335.M Mon Sep 28 08:44:51 2015 RPT1

6.9.10

6

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 3D113513.D
Acq On : 22 Sep 2015 12:32 pm
Operator : XimenaC
Sample : jc4005-1
Misc : MS91338,V3D4860,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 22 14:26:12 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.162	65	103411	500.00	ug/L	-0.02
4) pentafluorobenzene	9.391	168	186304	50.00	ug/L	0.00
58) 1,4-difluorobenzene	10.308	114	212638	50.00	ug/L	0.00
88) chlorobenzene-d5	13.475	117	184739	50.00	ug/L	0.00
104) 1,4-dichlorobenzene-d4	15.787	152	112573	50.00	ug/L	0.00

System Monitoring Compounds

50) dibromofluoromethane (s)	9.438	113	84745	51.74	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 103.48%			
51) 1,2-dichloroethane-d4 (s)	9.863	65	90862	52.94	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 105.88%			
80) toluene-d8 (s)	11.960	98	241626	50.22	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 100.44%			
106) 4-bromofluorobenzene (s)	14.629	95	88060	47.40	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery = 94.80%			

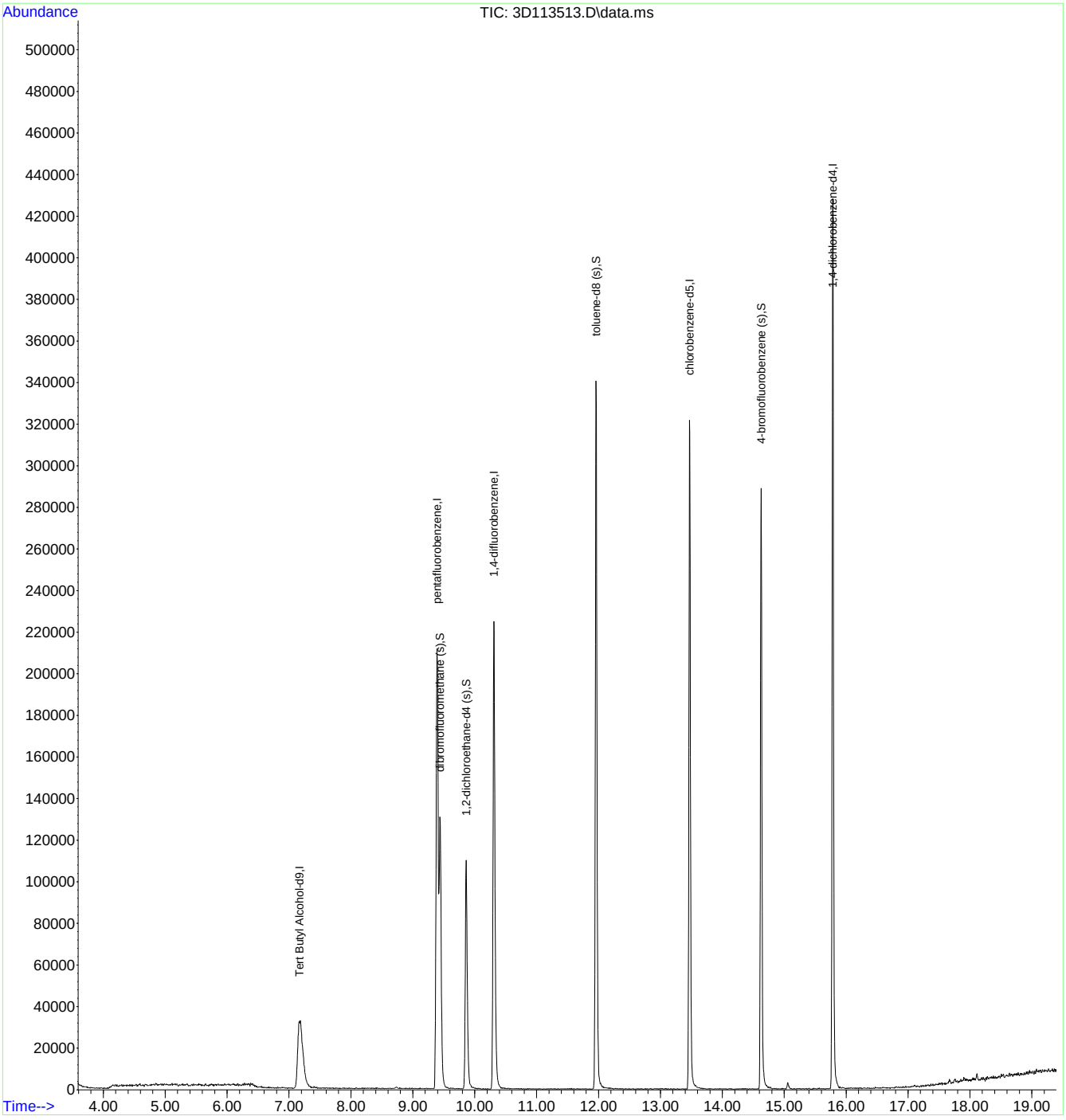
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 3D113513.D
Acq On : 22 Sep 2015 12:32 pm
Operator : XimenaC
Sample : jc4005-1
Misc : MS91338,V3D4860,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 22 14:26:12 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3D\v3d4860-4862\
Data File : 3D113554.D
Acq On : 23 Sep 2015 6:44 pm
Operator : XimenaC
Sample : jc4005-2
Misc : MS91338,V3D4861,5,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Sep 24 12:14:25 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.183	65	97467	500.00	ug/L	0.00
4) pentafluorobenzene	9.391	168	172352	50.00	ug/L	0.00
58) 1,4-difluorobenzene	10.308	114	197219	50.00	ug/L	0.00
88) chlorobenzene-d5	13.475	117	168437	50.00	ug/L	0.00
104) 1,4-dichlorobenzene-d4	15.793	152	100772	50.00	ug/L	0.01
System Monitoring Compounds						
50) dibromofluoromethane (s)	9.443	113	76613	50.56	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 101.12%			
51) 1,2-dichloroethane-d4 (s)	9.863	65	84151	53.00	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 106.00%			
80) toluene-d8 (s)	11.960	98	221765	49.69	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 99.38%			
106) 4-bromofluorobenzene (s)	14.629	95	79685	47.92	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery = 95.84%			

Target Compounds Qvalue

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

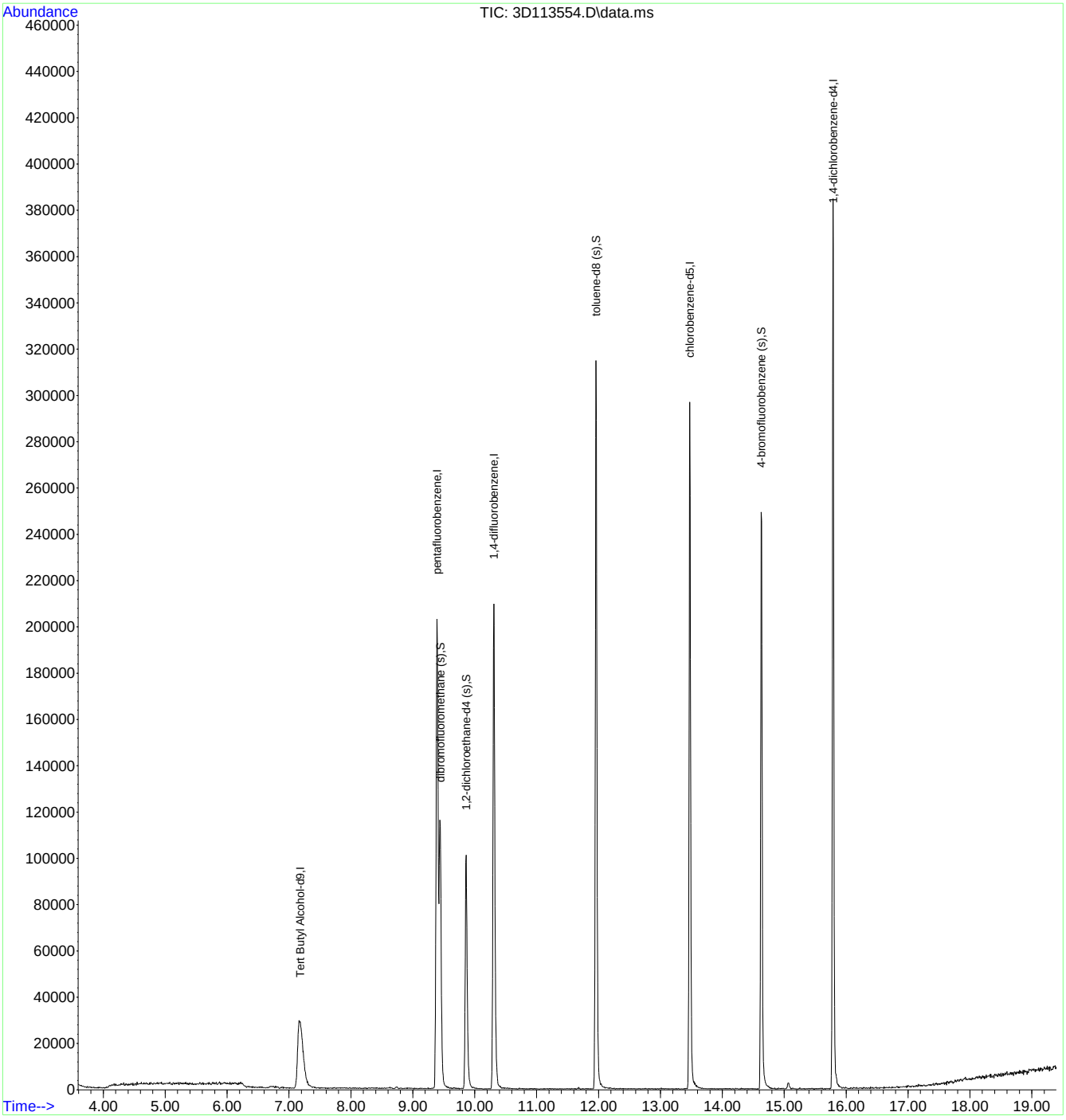
7.1.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3D\v3d4860-4862\
Data File : 3D113554.D
Acq On : 23 Sep 2015 6:44 pm
Operator : XimenaC
Sample : jc4005-2
Misc : MS91338,V3D4861,5,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Sep 24 12:14:25 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration



M3D4846.M Thu Sep 24 13:05:00 2015 T

Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8341\
Data File : I207913.D
Acq On : 23 Sep 2015 3:10 pm
Operator : SCOTTM
Sample : JC4005-3
Misc : MS91335,VI8341,5.4,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 24 09:13:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.170	65	59329	500.00	ug/L	-0.03
5) pentafluorobenzene	9.440	168	203989	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	245204	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	202297	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	109953	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.461	113	80236	50.89	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.78%			
49) 1,2-dichloroethane-d4...	9.884	65	64665	51.52	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 103.04%			
80) toluene-d8 (s)	12.013	98	280200	47.82	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 95.64%			
95) 4-bromofluorobenzene (s)	14.665	95	95559	50.44	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 100.88%			

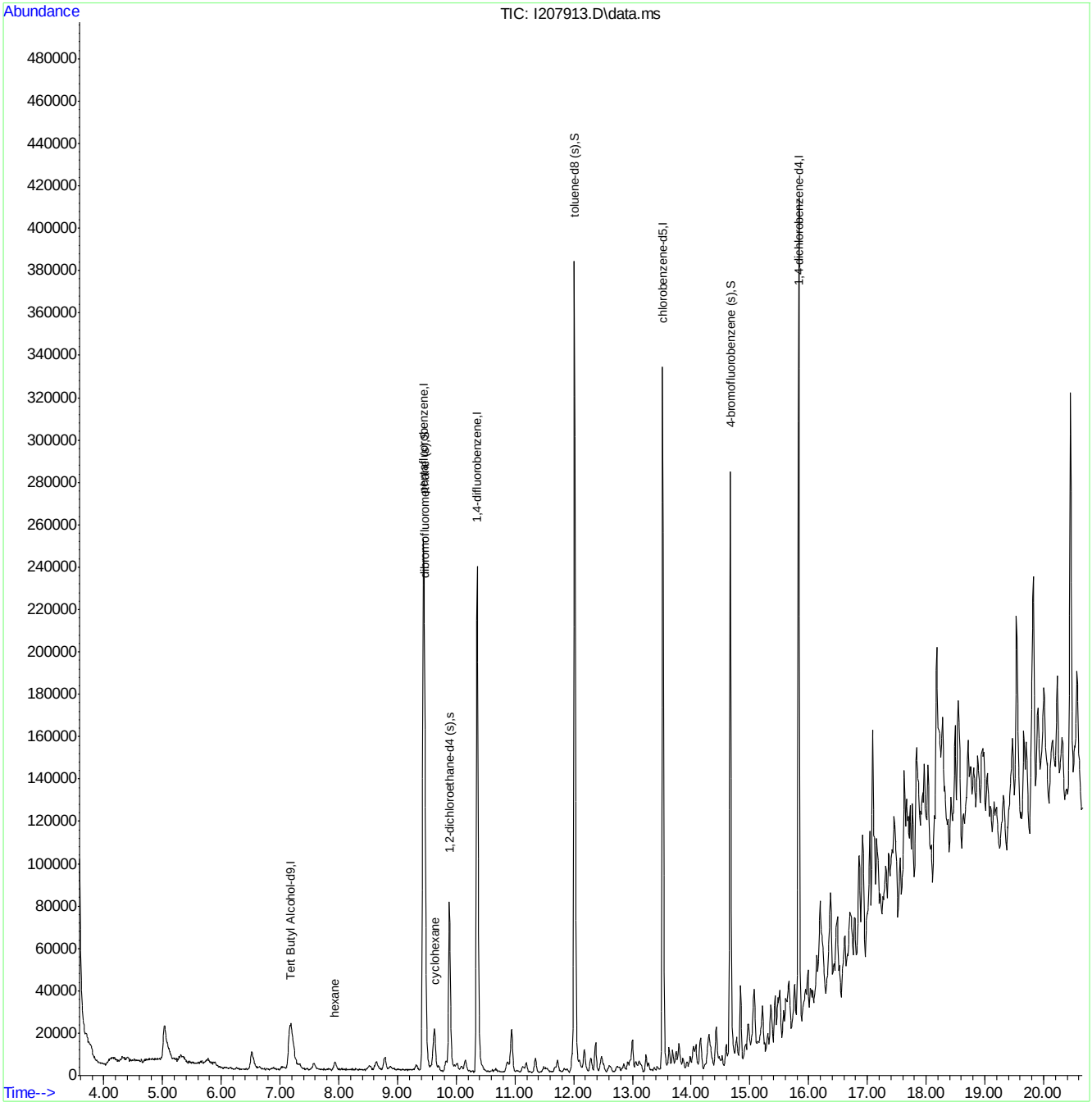
Target Compounds						Qvalue
29) hexane	7.933	57	2586	0.81	ug/L	88
47) cyclohexane	9.633	84	8845	2.38	ug/L #	43

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

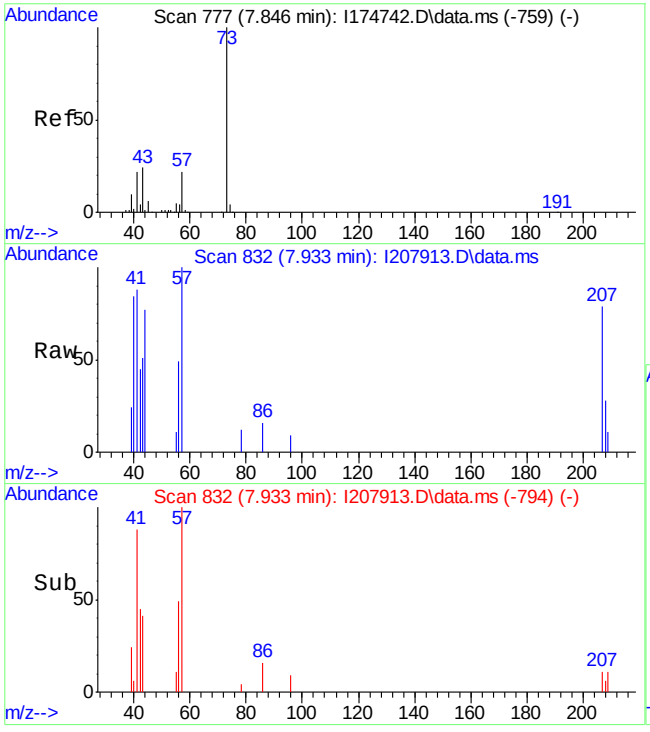
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8341\
Data File : I207913.D
Acq On : 23 Sep 2015 3:10 pm
Operator : SCOTTM
Sample : JC4005-3
Misc : MS91335,VI8341,5.4,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 24 09:13:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



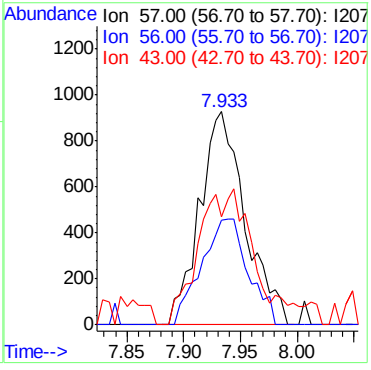
MI8335.M Thu Sep 24 09:13:23 2015 RPT1 Page: 2

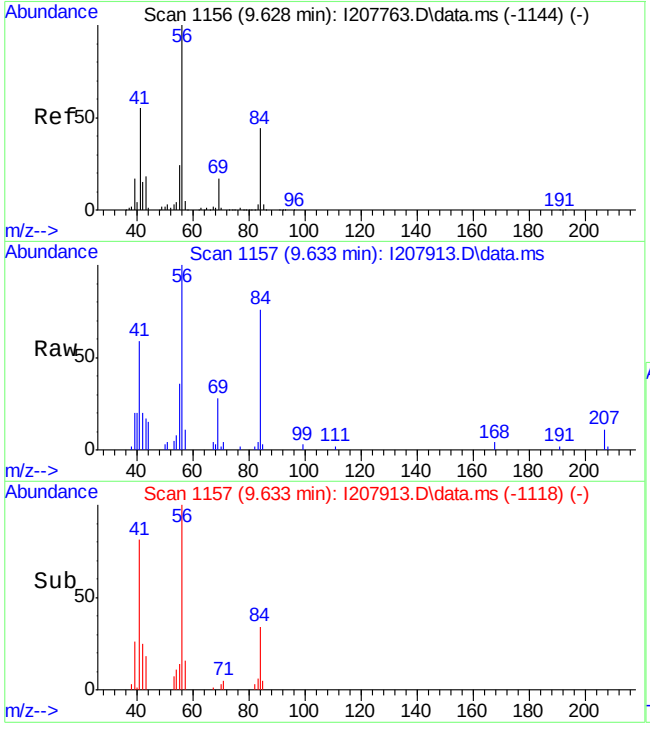


#29
hexane
Concen: 0.81 ug/L
RT: 7.933 min Scan# 832
Delta R.T. 0.000 min
Lab File: I207913.D
Acq: 23 Sep 2015 3:10 pm

Tgt Ion: 57 Resp: 2586

Ion	Ratio	Lower	Upper
57	100		
56	50.7	32.0	72.0
43	80.8	45.1	85.1

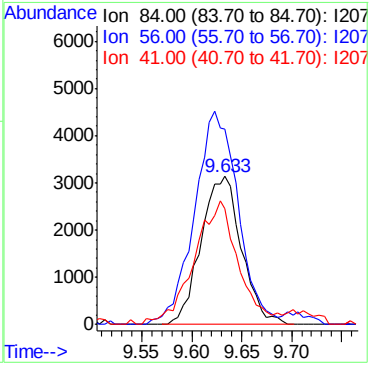




#47
cyclohexane
Concen: 2.38 ug/L
RT: 9.633 min Scan# 1157
Delta R.T. 0.005 min
Lab File: I207913.D
Acq: 23 Sep 2015 3:10 pm

Tgt Ion: 84 Resp: 8845

Ion	Ratio	Lower	Upper
84	100		
56	126.1	199.0	259.0#
41	71.8	97.0	157.0#



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 09/25/15 12:46

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8341\
Data File : I207914.D
Acq On : 23 Sep 2015 3:36 pm
Operator : SCOTTM
Sample : JC4005-4
Misc : MS91335,VI8341,5.0,,,,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 24 09:15:54 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.186	65	72812	500.00 ug/L	-0.01
5) pentafluorobenzene	9.440	168	221995	50.00 ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	269452	50.00 ug/L	0.00
79) chlorobenzene-d5	13.514	117	222437	50.00 ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	117086	50.00 ug/L	0.00
System Monitoring Compounds					
45) dibromofluoromethane (s)	9.466	113	87666	51.10 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 102.20%		
49) 1,2-dichloroethane-d4...	9.884	65	71382	51.76 ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 103.52%		
80) toluene-d8 (s)	12.018	98	311779	48.39 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.78%		
95) 4-bromofluorobenzene (s)	14.665	95	103031	51.07 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 102.14%		
Target Compounds					Qvalue
27) methyl tert butyl ether	7.546	73	2799	0.45 ug/L #	1
29) hexane	7.939	57	1652	0.47 ug/L #	75
47) cyclohexane	9.628	84	4254	1.05 ug/L #	53
54) benzene	9.984	78	15465	1.64 ug/L	98
73) toluene	12.097	91	3792	0.42 ug/L #	82
89) ethylbenzene	13.619	91	10202	0.99 ug/L	95
96) isopropylbenzene	14.476	105	2349m	0.22 ug/L	

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

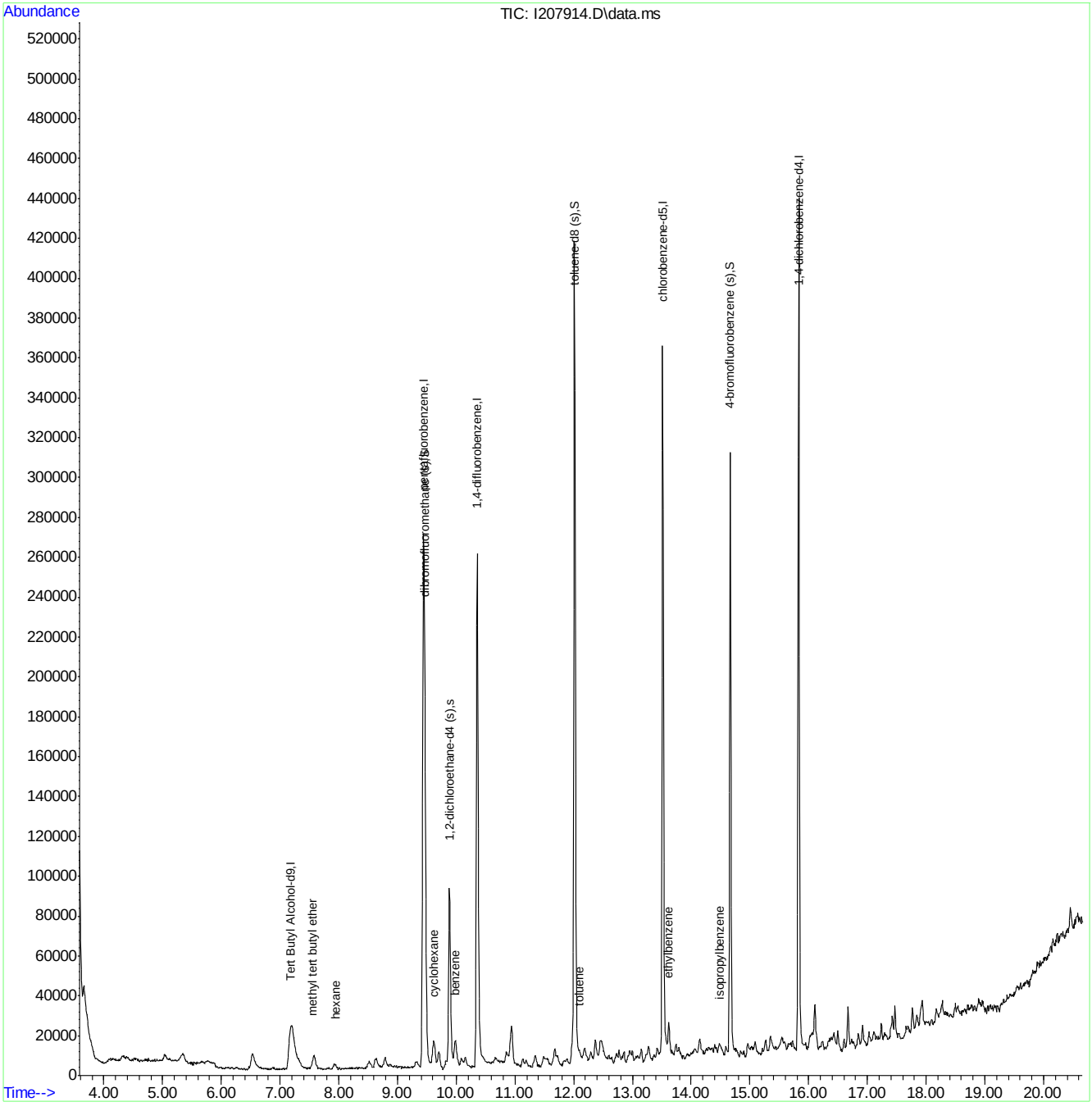
7.1.4

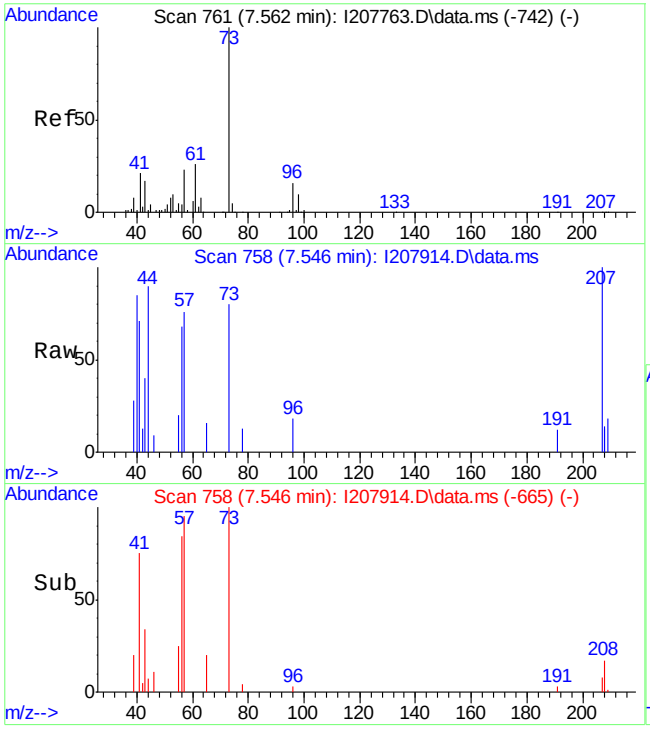
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8341\
Data File : I207914.D
Acq On : 23 Sep 2015 3:36 pm
Operator : SCOTTM
Sample : JC4005-4
Misc : MS91335,VI8341,5.0,,,,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 24 09:15:54 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

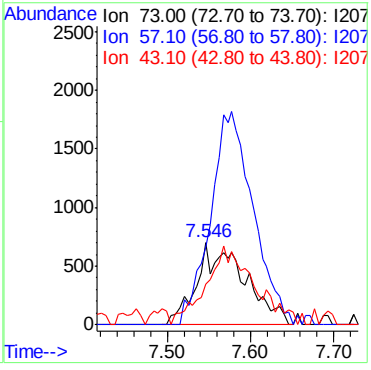


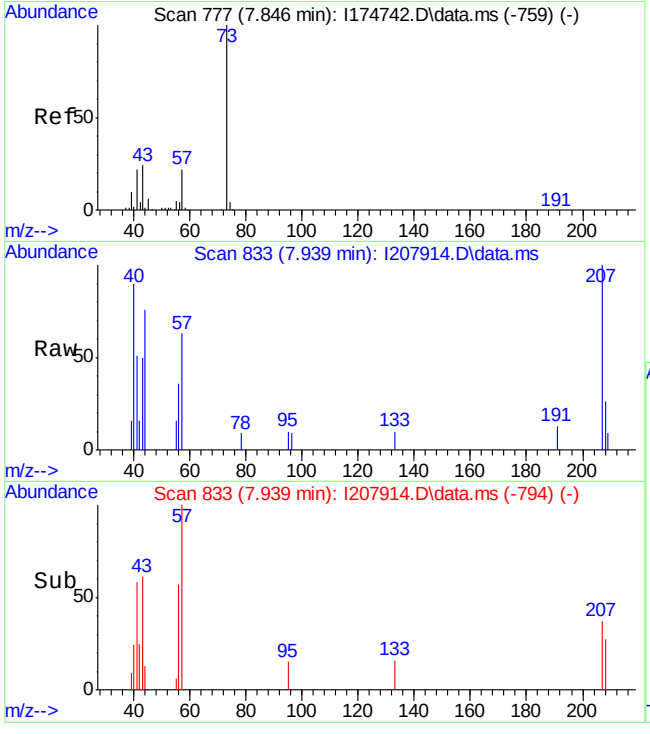


#27
methyl tert butyl ether
Concen: 0.45 ug/L
RT: 7.546 min Scan# 758
Delta R.T. -0.016 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion: 73 Resp: 2799

Ion	Ratio	Lower	Upper
73	100		
57	94.6	0.0	53.2#
43	49.8	0.0	48.2#

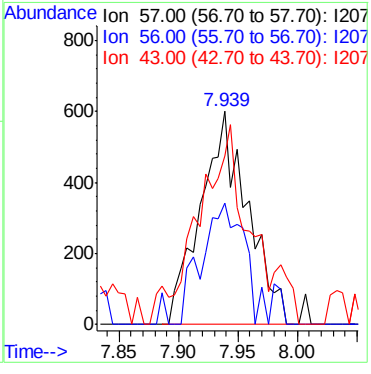


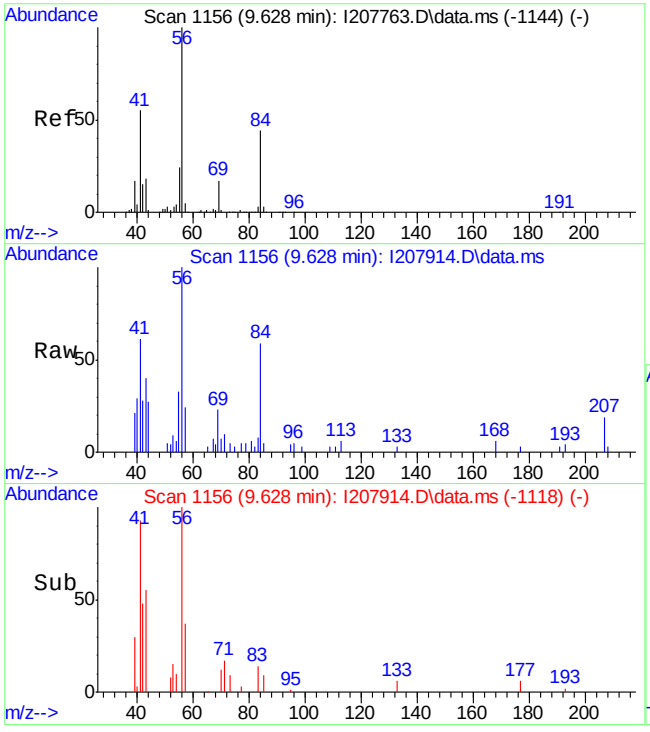


#29
hexane
Concen: 0.47 ug/L
RT: 7.939 min Scan# 833
Delta R.T. 0.005 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion: 57 Resp: 1652

Ion	Ratio	Lower	Upper
57	100		
56	52.3	32.0	72.0
43	100.4	45.1	85.1#

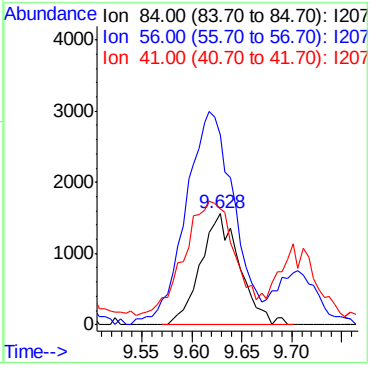


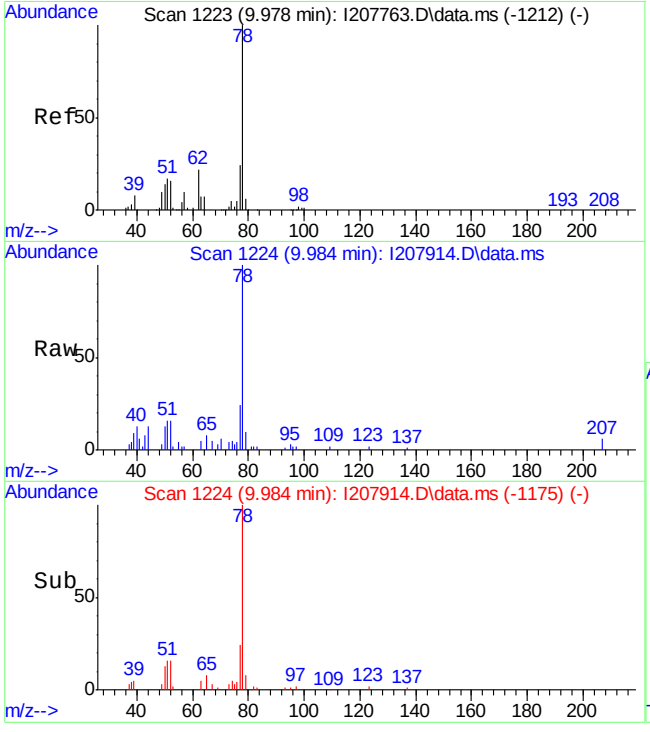


#47
cyclohexane
Concen: 1.05 ug/L
RT: 9.628 min Scan# 1156
Delta R.T. 0.000 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion: 84 Resp: 4254

Ion	Ratio	Lower	Upper
84	100		
56	147.3	199.0	259.0#
41	79.6	97.0	157.0#

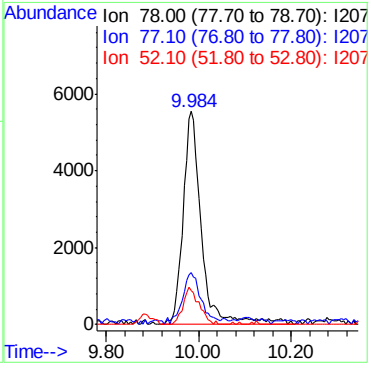


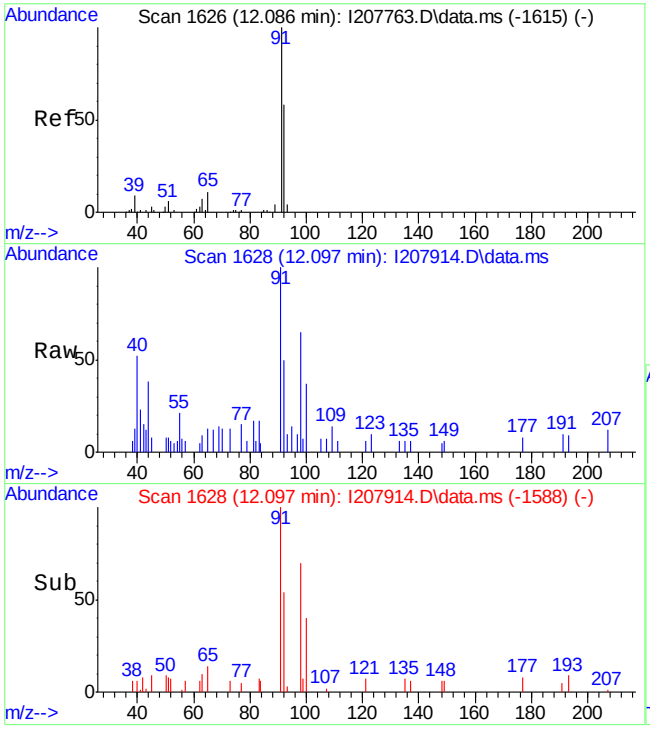


#54
benzene
Concen: 1.64 ug/L
RT: 9.984 min Scan# 1224
Delta R.T. 0.005 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion: 78 Resp: 15465

Ion	Ratio	Lower	Upper
78	100		
77	22.8	0.0	53.9
52	16.0	0.0	45.7

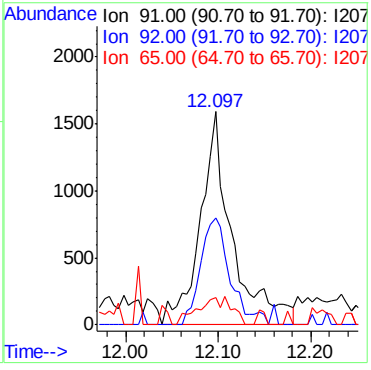


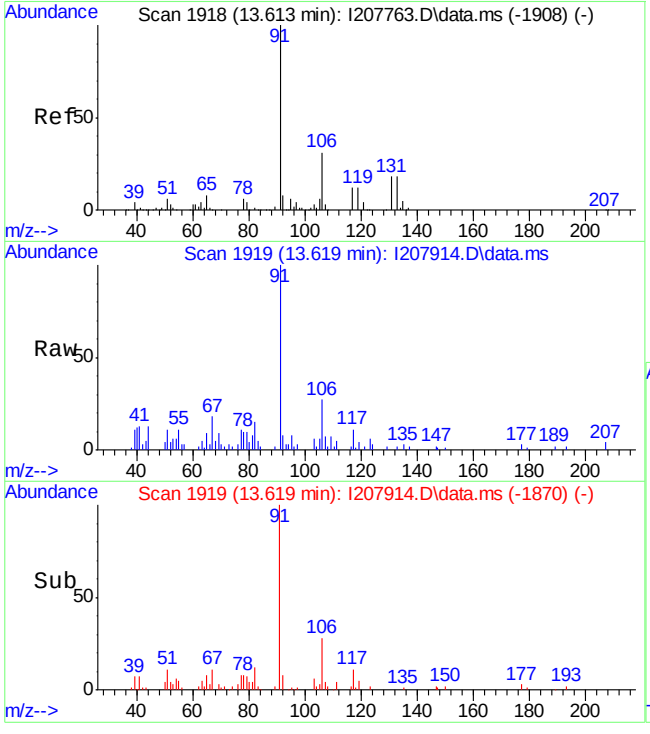


#73
toluene
Concen: 0.42 ug/L
RT: 12.097 min Scan# 1628
Delta R.T. 0.011 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion: 91 Resp: 3792

Ion	Ratio	Lower	Upper
91	100		
92	46.5	38.7	78.7
65	0.0	0.0	30.8

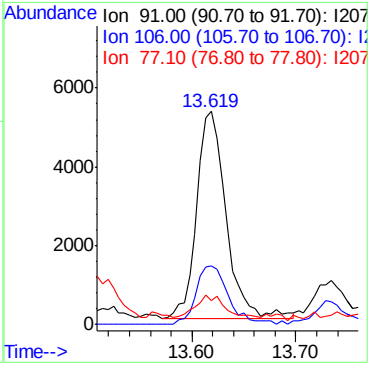


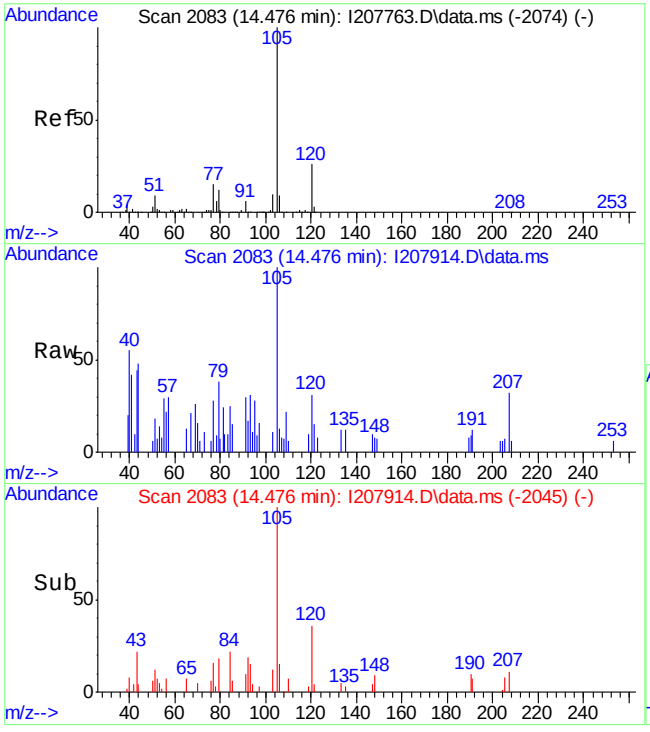


#89
ethylbenzene
Concen: 0.99 ug/L
RT: 13.619 min Scan# 1919
Delta R.T. 0.005 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion: 91 Resp: 10202

Ion	Ratio	Lower	Upper
91	100		
106	28.3	1.3	61.3
77	6.9	0.0	38.2

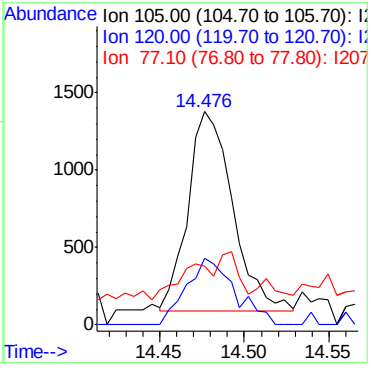




#96
isopropylbenzene
Concen: 0.22 ug/L m
RT: 14.476 min Scan# 2083
Delta R.T. 0.000 min
Lab File: I207914.D
Acq: 23 Sep 2015 3:36 pm

Tgt Ion:105 Resp: 2349

Ion	Ratio	Lower	Upper
105	100		
120	31.5	0.0	55.7
77	27.6	0.0	44.6



7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207939.D
Acq On : 24 Sep 2015 1:48 pm
Operator : SCOTTM
Sample : JC4005-5
Misc : MS91355,VI8342,6.6,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 25 09:04:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.186	65	87485	500.00	ug/L	-0.01
5) pentafluorobenzene	9.440	168	234384	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	278343	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	227016	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	124296	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.461	113	93172	51.44	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 102.88%			
49) 1,2-dichloroethane-d4...	9.884	65	74465	52.27	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 104.54%			
80) toluene-d8 (s)	12.018	98	321107	48.83	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 97.66%			
95) 4-bromofluorobenzene (s)	14.665	95	106739	49.84	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 99.68%			

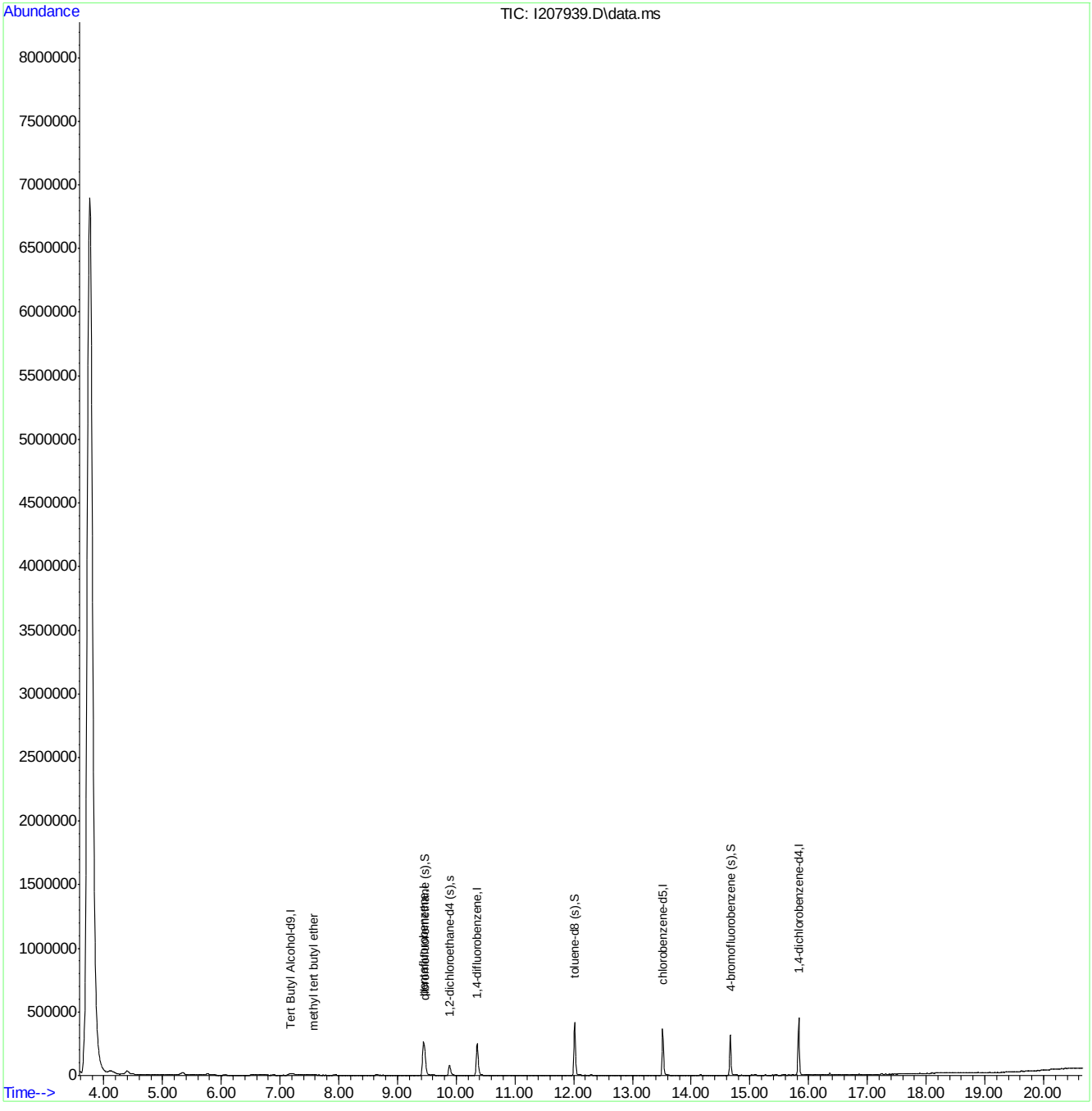
Target Compounds						Qvalue
27) methyl tert butyl ether	7.557	73	2222	0.34	ug/L	50

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

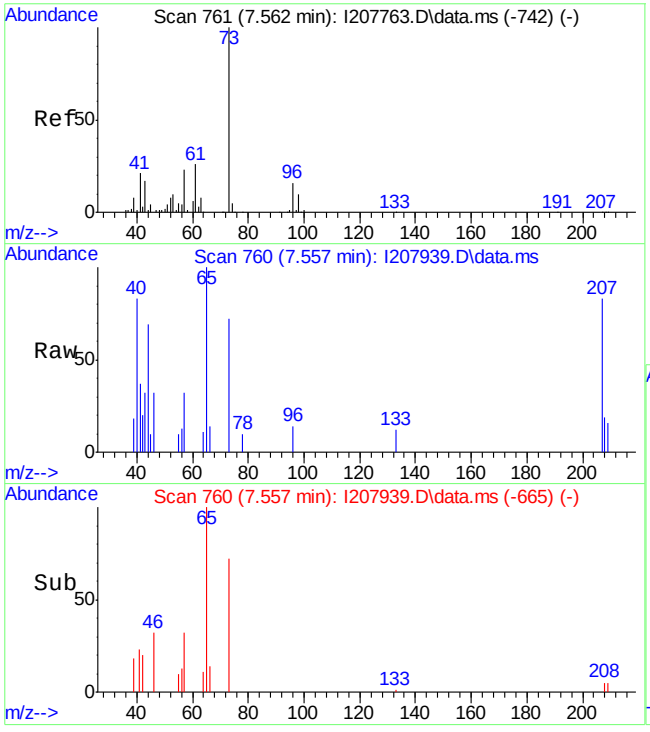
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207939.D
Acq On : 24 Sep 2015 1:48 pm
Operator : SCOTTM
Sample : JC4005-5
Misc : MS91355,VI8342,6.6,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 25 09:04:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



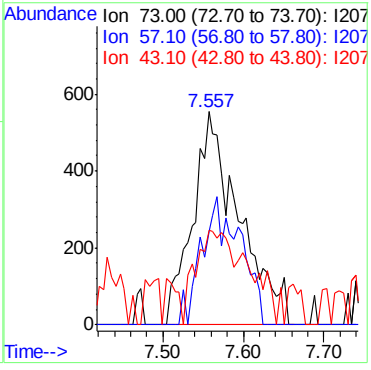
MI8335.M Fri Sep 25 09:09:19 2015 RPT1 Page: 2



#27
methyl tert butyl ether
Concen: 0.34 ug/L
RT: 7.557 min Scan# 760
Delta R.T. -0.005 min
Lab File: I207939.D
Acq: 24 Sep 2015 1:48 pm

Tgt Ion: 73 Resp: 2222

Ion	Ratio	Lower	Upper
73	100		
57	43.8	0.0	53.2
43	44.3	0.0	48.2



7.1.5

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207940.D
Acq On : 24 Sep 2015 2:14 pm
Operator : SCOTTM
Sample : JC4005-6
Misc : MS91355,VI8342,6.2,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 25 09:10:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.175	65	72316	500.00	ug/L	-0.02
5) pentafluorobenzene	9.440	168	208278	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	252297	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	213255	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.826	152	116813	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.461	113	84647	52.59	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.18%			
49) 1,2-dichloroethane-d4...	9.884	65	71287	55.20	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 110.40%			
80) toluene-d8 (s)	12.013	98	289406	46.85	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 93.70%			
95) 4-bromofluorobenzene (s)	14.665	95	100330	49.85	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 99.70%			

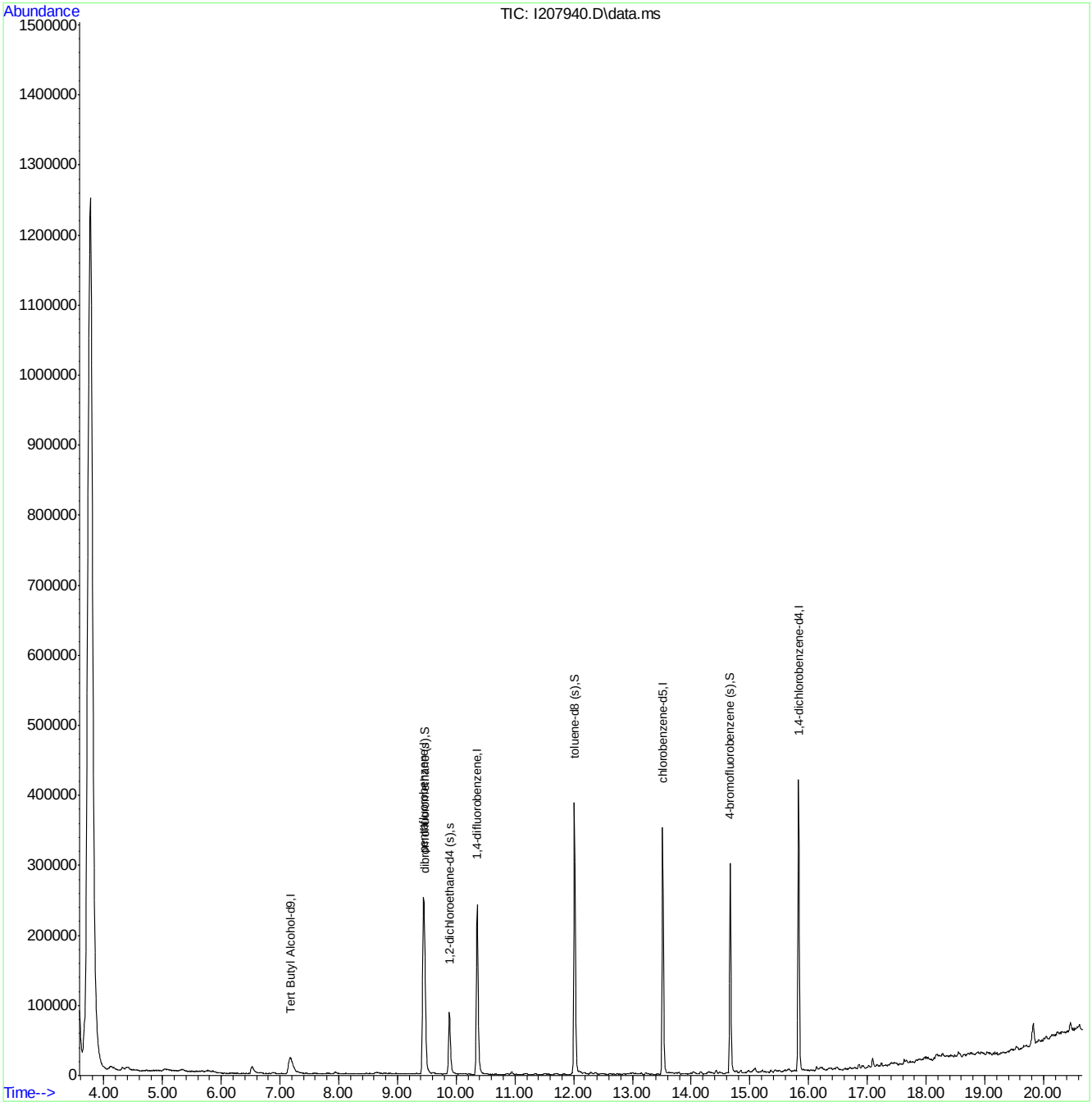
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207940.D
Acq On : 24 Sep 2015 2:14 pm
Operator : SCOTTM
Sample : JC4005-6
Misc : MS91355,VI8342,6.2,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 25 09:10:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207942.D
Acq On : 24 Sep 2015 3:05 pm
Operator : SCOTTM
Sample : JC4005-7
Misc : MS91355,VI8342,4.7,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 25 09:18:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.196	65	63500	500.00	ug/L	0.00
5) pentafluorobenzene	9.440	168	216077	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.360	114	257106	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	213003	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	115883	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.466	113	83950	50.27	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 100.54%			
49) 1,2-dichloroethane-d4...	9.884	65	67727	51.47	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.94%			
80) toluene-d8 (s)	12.013	98	297925	48.29	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.58%			
95) 4-bromofluorobenzene (s)	14.665	95	97829	49.00	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 98.00%			

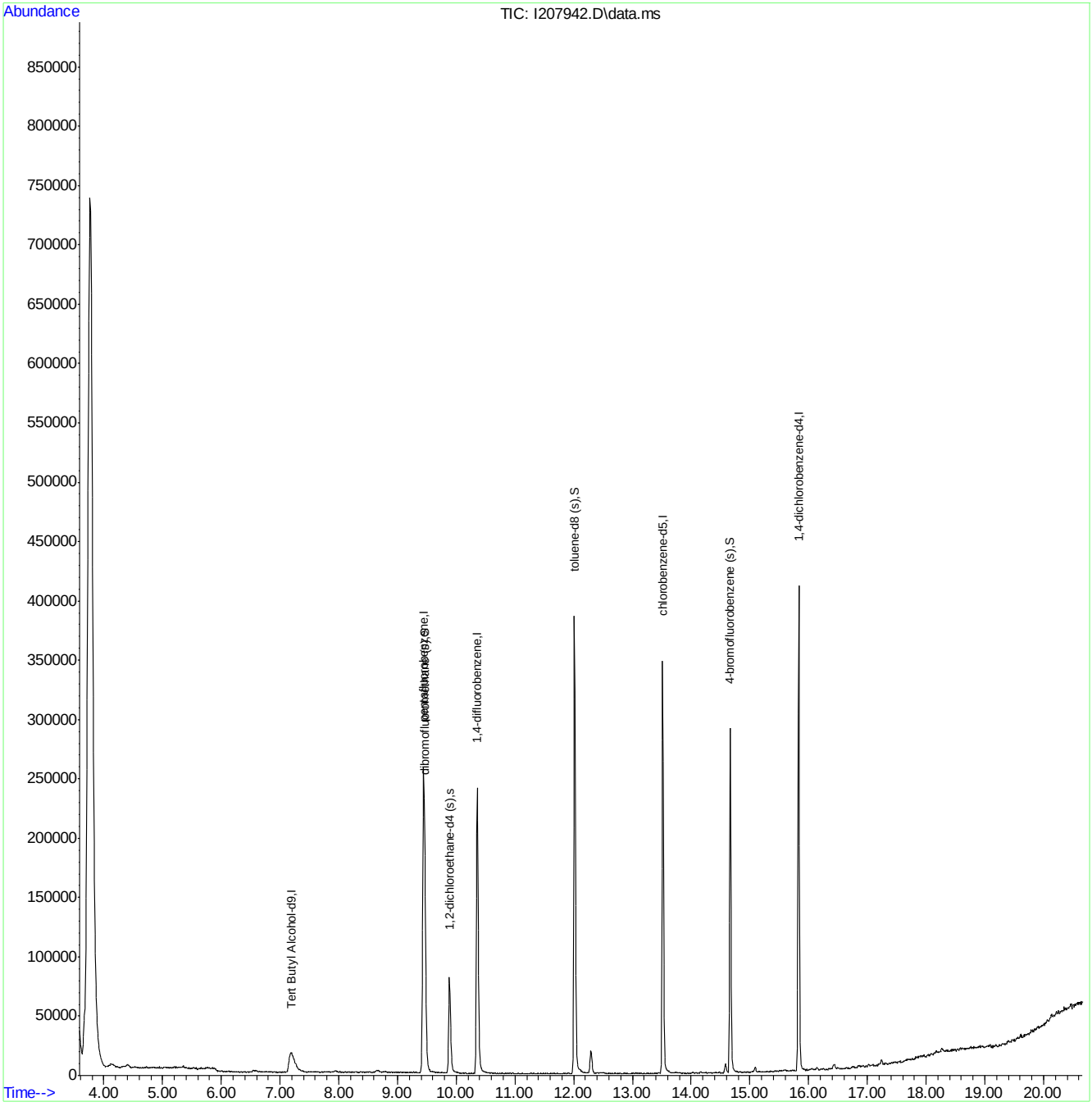
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207942.D
Acq On : 24 Sep 2015 3:05 pm
Operator : SCOTTM
Sample : JC4005-7
Misc : MS91355,VI8342,4.7,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 25 09:18:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207941.D
Acq On : 24 Sep 2015 2:40 pm
Operator : SCOTTM
Sample : JC4005-8
Misc : MS91355,VI8342,5.7,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 25 09:14:55 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.175	65	76167	500.00	ug/L	-0.02
5) pentafluorobenzene	9.440	168	203492	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.360	114	244413	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	200184	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	109241	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.461	113	81755	51.98	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.96%			
49) 1,2-dichloroethane-d4...	9.885	65	68521	54.77	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 109.54%			
80) toluene-d8 (s)	12.018	98	279081	48.13	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.26%			
95) 4-bromofluorobenzene (s)	14.665	95	93116	49.47	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 98.94%			

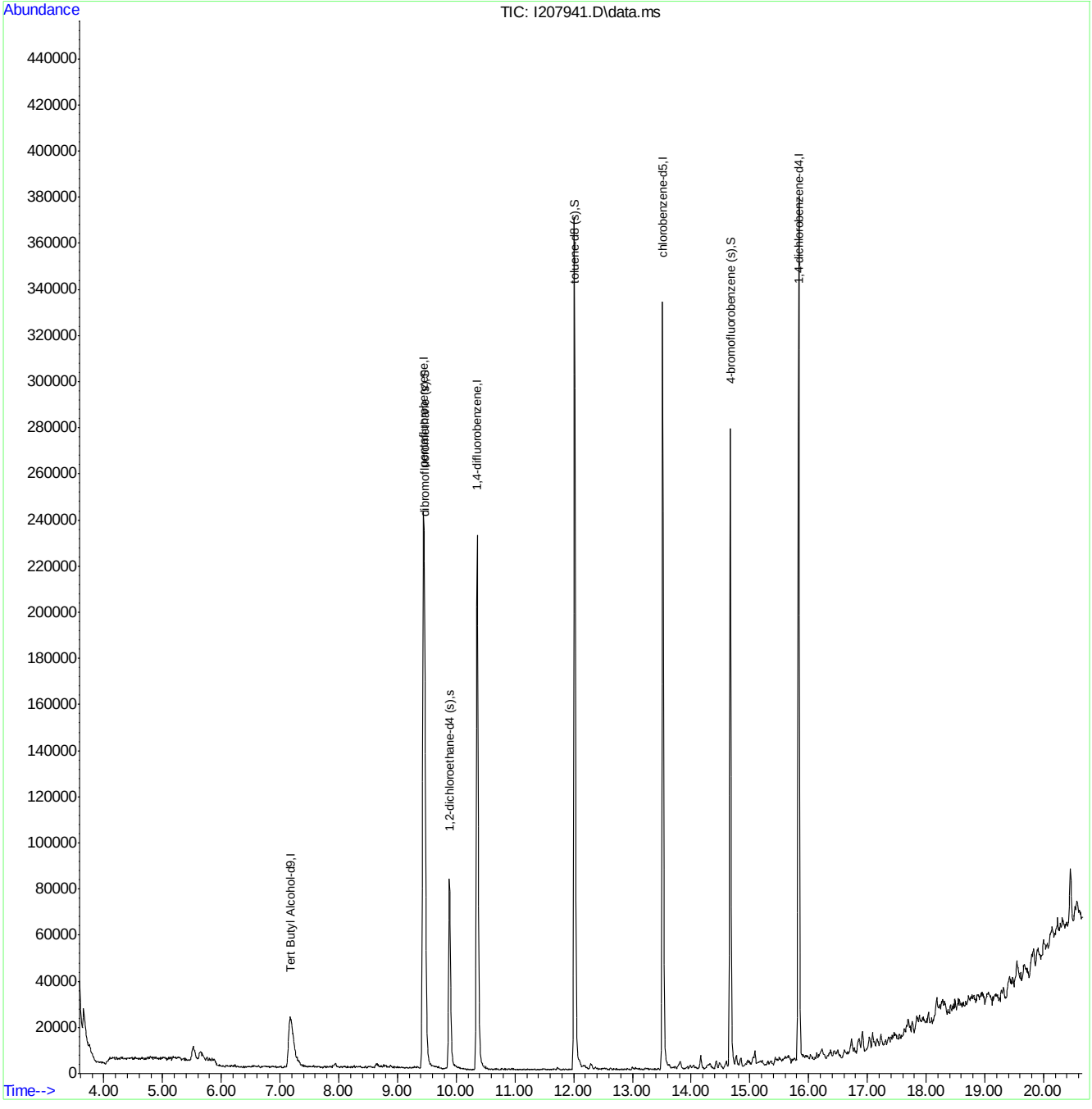
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207941.D
Acq On : 24 Sep 2015 2:40 pm
Operator : SCOTTM
Sample : JC4005-8
Misc : MS91355,VI8342,5.7,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 25 09:14:55 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



MI8335.M Fri Sep 25 09:15:05 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207943.D
Acq On : 24 Sep 2015 3:34 pm
Operator : SCOTTM
Sample : JC4005-9
Misc : MS91355,VI8342,5.8,,,,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 25 09:19:58 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.165	65	70280	500.00	ug/L	-0.03
5) pentafluorobenzene	9.440	168	222186	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	266887	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	219194	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	119145	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.461	113	90411	52.65	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.30%			
49) 1,2-dichloroethane-d4...	9.884	65	72592	53.14	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 106.28%			
80) toluene-d8 (s)	12.013	98	306751	48.31	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.62%			
95) 4-bromofluorobenzene (s)	14.665	95	102786	50.07	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 100.14%			

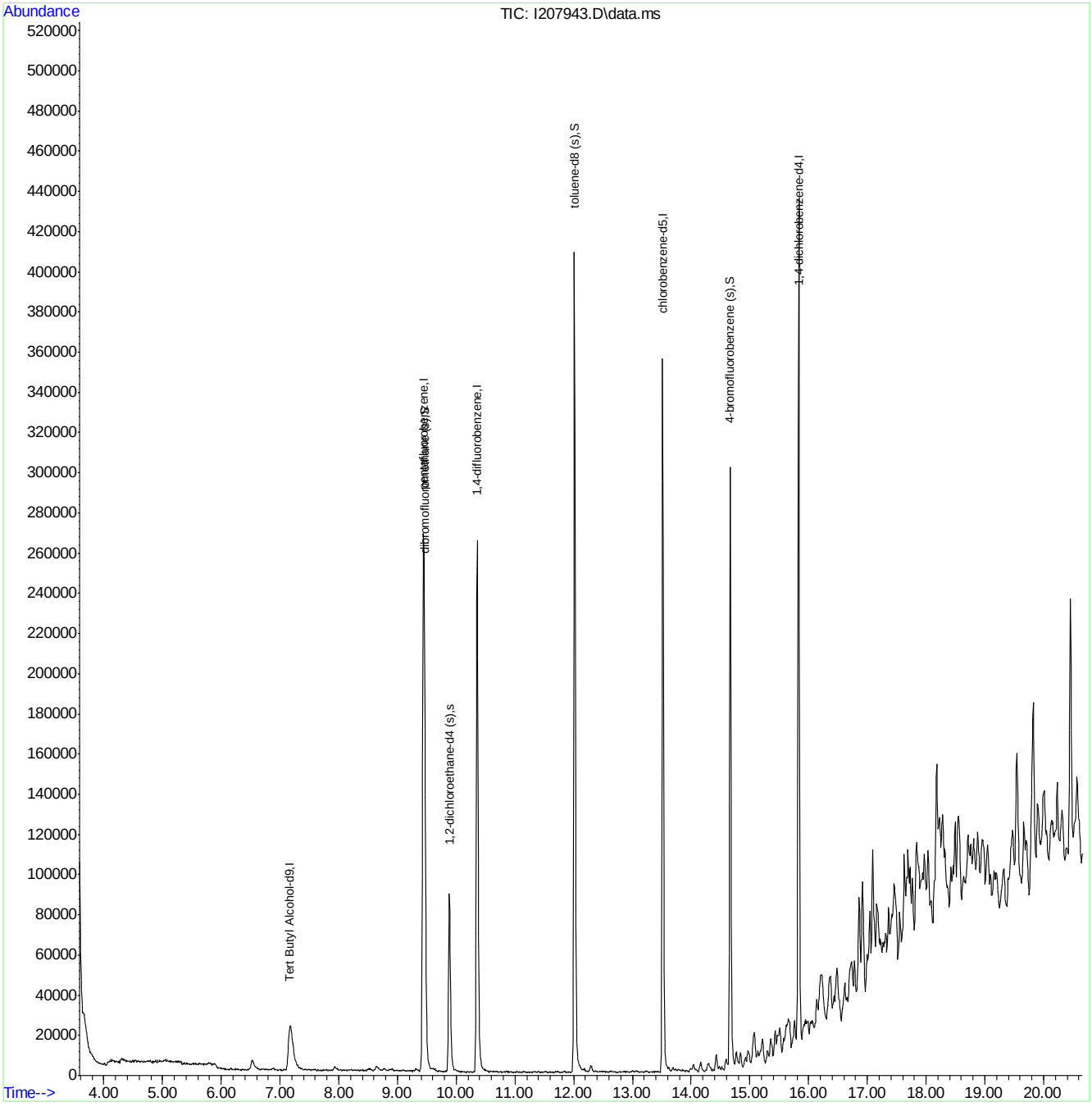
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207943.D
Acq On : 24 Sep 2015 3:34 pm
Operator : SCOTTM
Sample : JC4005-9
Misc : MS91355,VI8342,5.8,,,,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 25 09:19:58 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



MI8335.M Fri Sep 25 09:20:05 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207944.D
Acq On : 24 Sep 2015 4:00 pm
Operator : SCOTTM
Sample : JC4005-10
Misc : MS91355,VI8342,6.0,,,,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 25 09:27:08 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.170	65	64546	500.00	ug/L	-0.03
5) pentafluorobenzene	9.440	168	227322	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	272534	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	222474	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	122041	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.461	113	91285	51.96	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.92%			
49) 1,2-dichloroethane-d4...	9.884	65	73168	52.45	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 104.90%			
80) toluene-d8 (s)	12.018	98	317111	49.21	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.42%			
95) 4-bromofluorobenzene (s)	14.665	95	102569	48.78	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 97.56%			

Target Compounds Qvalue

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

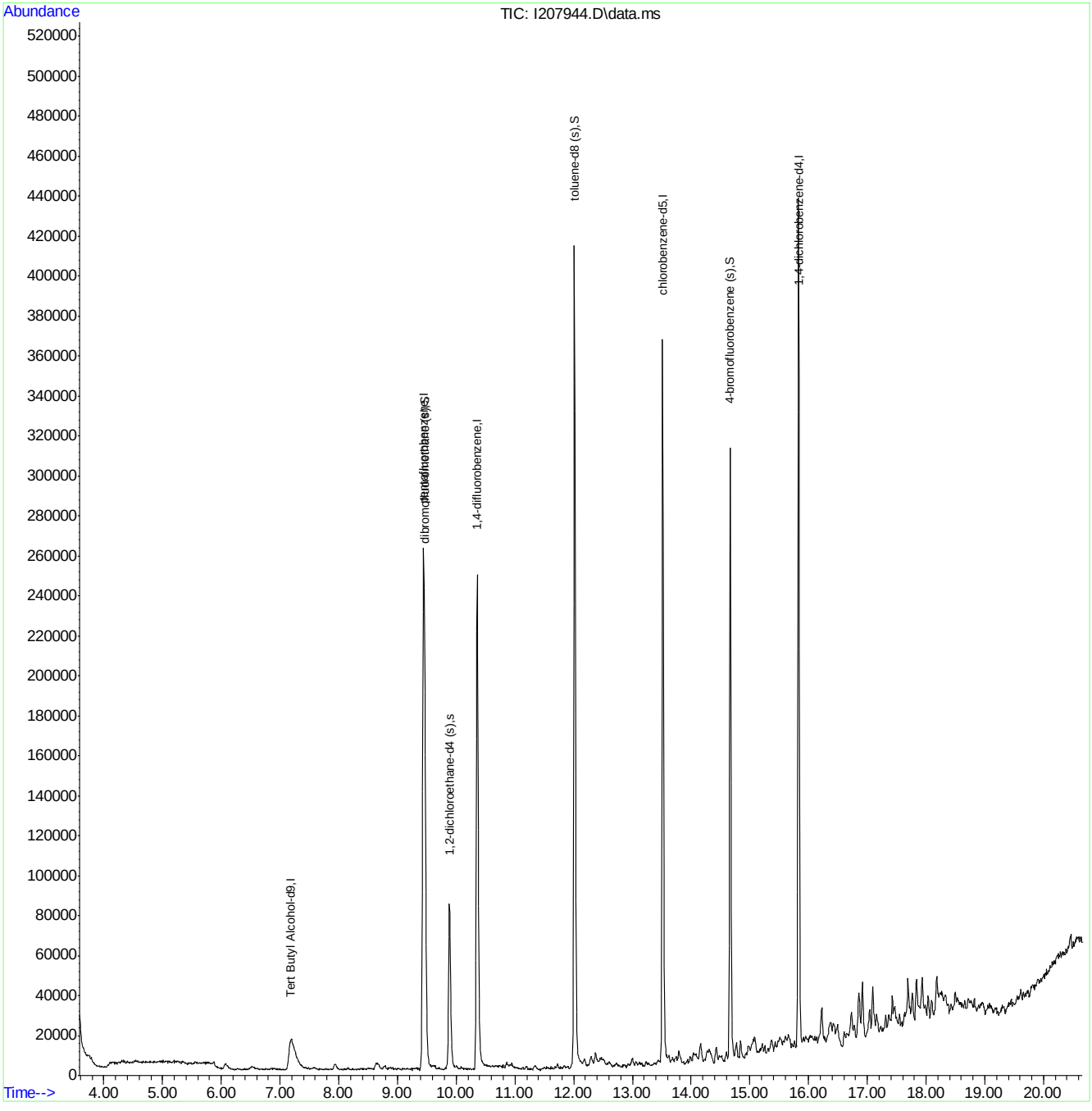
7.1.10

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207944.D
Acq On : 24 Sep 2015 4:00 pm
Operator : SCOTTM
Sample : JC4005-10
Misc : MS91355,VI8342,6.0,,,,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 25 09:27:08 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8344\
Data File : I207986.D
Acq On : 25 Sep 2015 2:10 pm
Operator : SCOTTM
Sample : JC4005-11
Misc : MS91335,VI8344,5.7,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 28 09:21:17 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.165	65	80497	500.00	ug/L	-0.03
5) pentafluorobenzene	9.440	168	213406	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	258326	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	205229	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	107347	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.461	113	90043	54.59	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 109.18%			
49) 1,2-dichloroethane-d4...	9.879	65	77327	58.48	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 116.96%			
80) toluene-d8 (s)	12.013	98	290872	48.93	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 97.86%			
95) 4-bromofluorobenzene (s)	14.665	95	105689	57.14	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 114.28%			

Target Compounds Qvalue

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

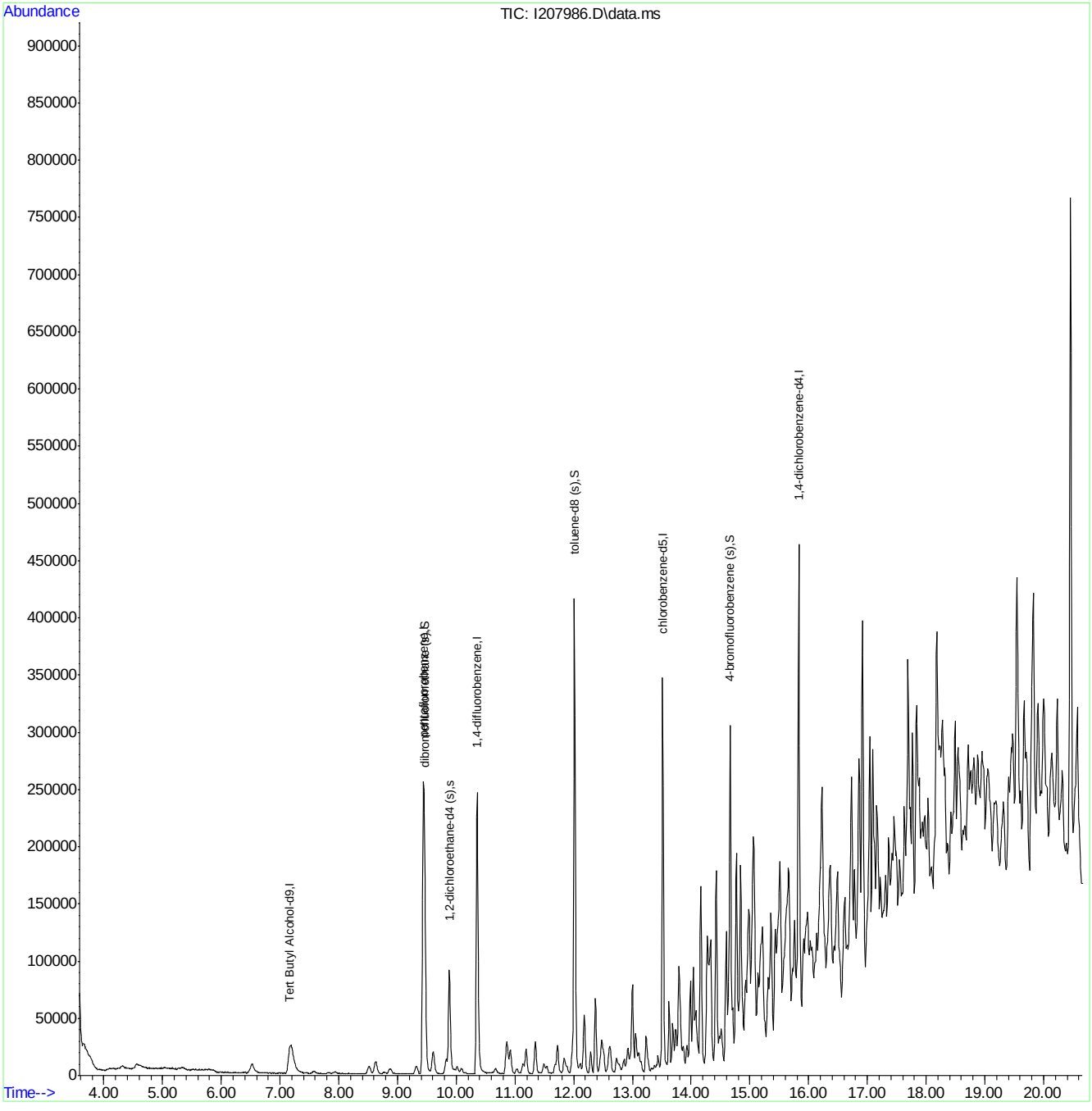
7.1.11

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8344\
Data File : I207986.D
Acq On : 25 Sep 2015 2:10 pm
Operator : SCOTTM
Sample : JC4005-11
Misc : MS91335,VI8344,5.7,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 28 09:21:17 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207946.D
Acq On : 24 Sep 2015 4:52 pm
Operator : SCOTTM
Sample : JC4005-12
Misc : MS91355,VI8342,4.9,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 25 09:32:56 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.170	65	63159	500.00	ug/L	-0.03
5) pentafluorobenzene	9.440	168	203116	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	240919	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	195215	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	107473	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.461	113	77665	49.48	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 98.96%			
49) 1,2-dichloroethane-d4...	9.884	65	62868	50.98	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 101.96%			
80) toluene-d8 (s)	12.013	98	273974	48.45	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.90%			
95) 4-bromofluorobenzene (s)	14.665	95	91045	49.17	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 98.34%			

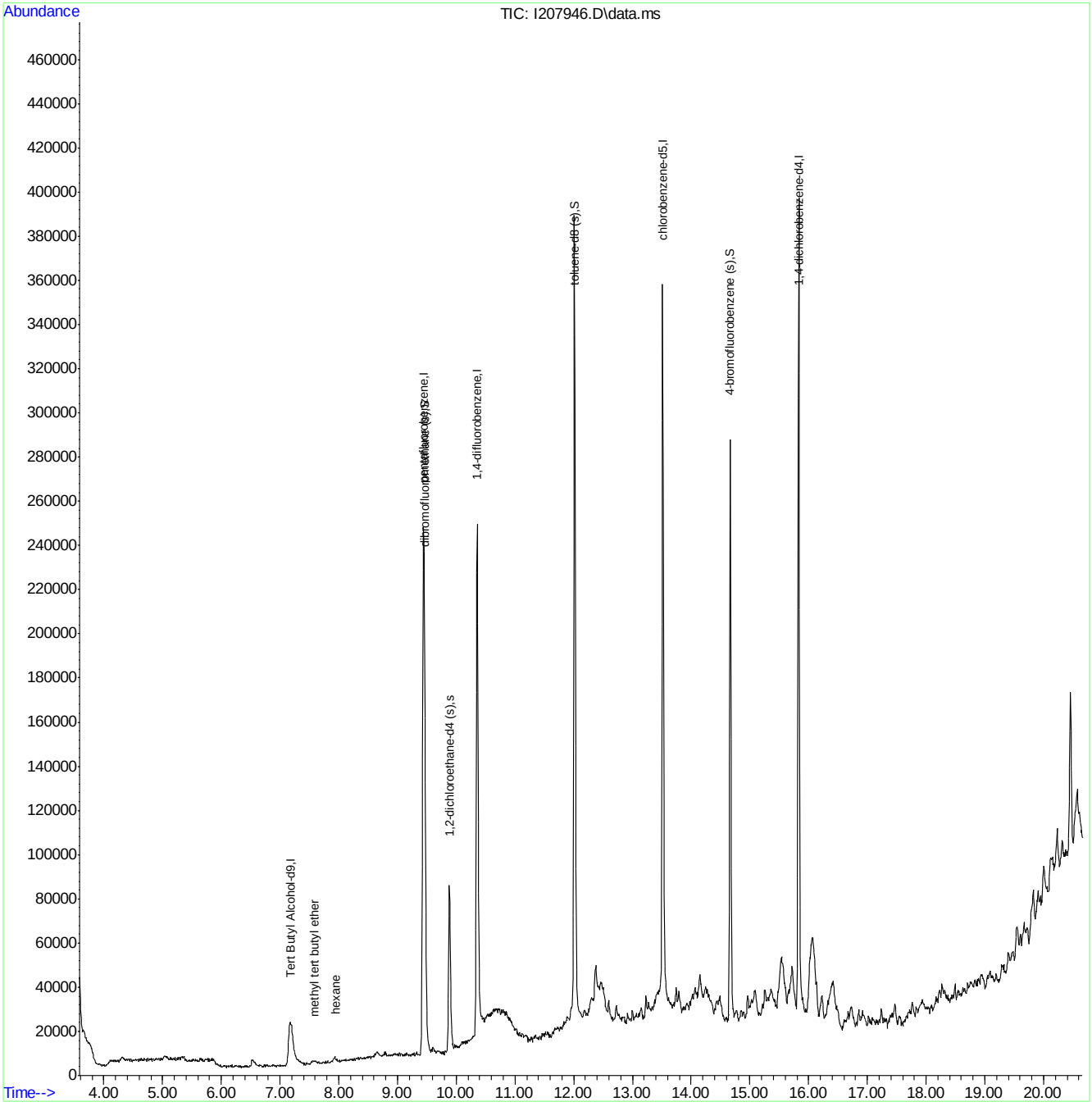
Target Compounds						Qvalue
27) methyl tert butyl ether	7.578	73	1699	0.30	ug/L	50
29) hexane	7.949	57	1827	0.57	ug/L #	83

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

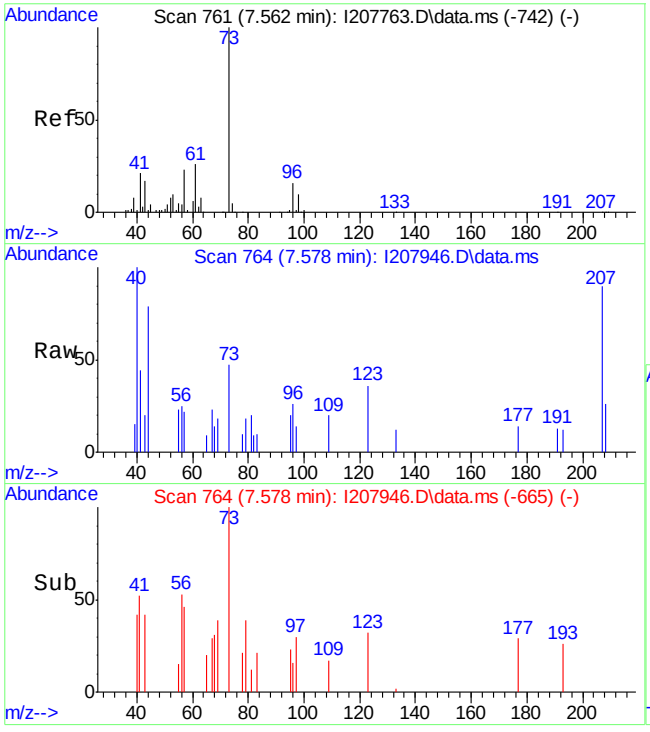
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207946.D
Acq On : 24 Sep 2015 4:52 pm
Operator : SCOTTM
Sample : JC4005-12
Misc : MS91355,VI8342,4.9,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 25 09:32:56 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



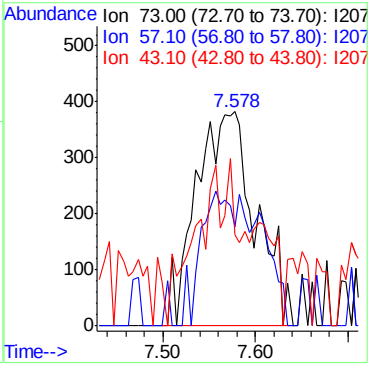
MI8335.M Fri Sep 25 09:57:00 2015 RPT1 Page: 2

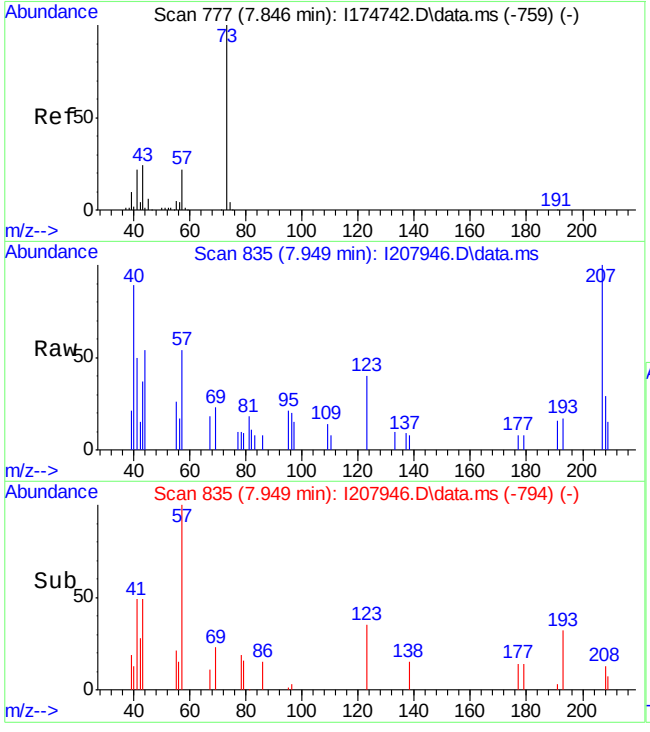


#27
methyl tert butyl ether
Concen: 0.30 ug/L
RT: 7.578 min Scan# 764
Delta R.T. 0.016 min
Lab File: I207946.D
Acq: 24 Sep 2015 4:52 pm

Tgt Ion: 73 Resp: 1699

Ion	Ratio	Lower	Upper
73	100		
57	46.1	0.0	53.2
43	42.4	0.0	48.2

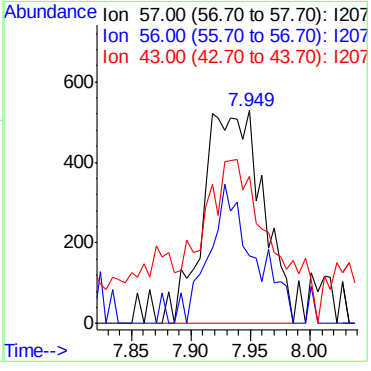




#29
hexane
Concen: 0.57 ug/L
RT: 7.949 min Scan# 835
Delta R.T. 0.016 min
Lab File: I207946.D
Acq: 24 Sep 2015 4:52 pm

Tgt Ion: 57 Resp: 1827

Ion	Ratio	Lower	Upper
57	100		
56	49.9	32.0	72.0
43	88.0	45.1	85.1#



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat
09/30/15 15:19

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207947.D
Acq On : 24 Sep 2015 5:18 pm
Operator : SCOTTM
Sample : JC4005-13
Misc : MS91355,VI8342,4.9,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Sep 25 09:59:12 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.175	65	68520	500.00	ug/L	-0.02
5) pentafluorobenzene	9.440	168	205069	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	241090	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	208862	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	128067	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.461	113	76972	48.57	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 97.14%			
49) 1,2-dichloroethane-d4...	9.884	65	62977	51.04	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.08%			
80) toluene-d8 (s)	12.013	98	477394	78.91	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 157.82%#			
95) 4-bromofluorobenzene (s)	14.665	95	145093	65.75	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 131.50%#			

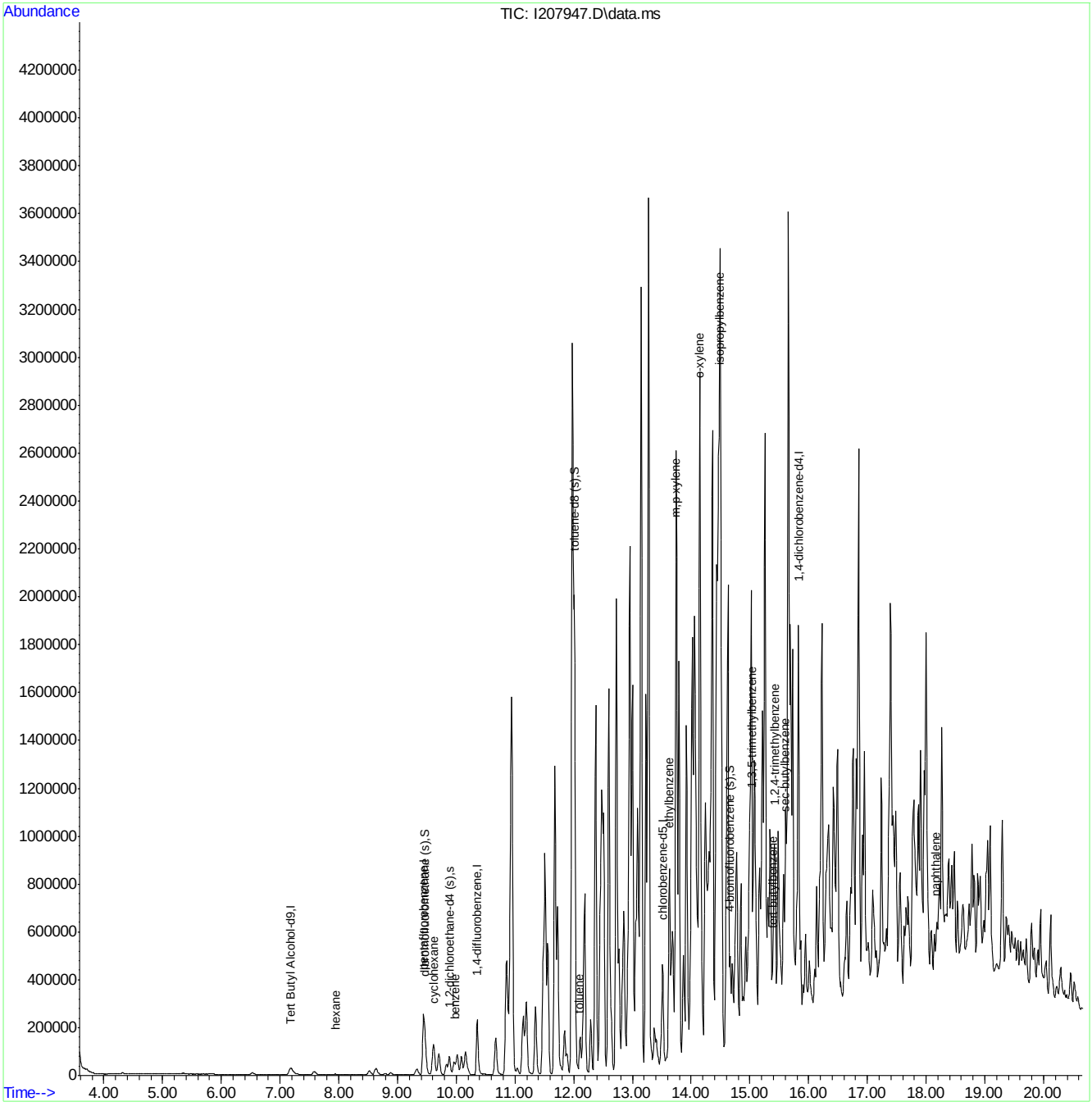
Target Compounds						Qvalue
29) hexane	7.939	57	2488	0.77	ug/L	89
47) cyclohexane	9.628	84	7905m	2.12	ug/L	
54) benzene	9.984	78	1223	0.14	ug/L	73
73) toluene	12.086	91	1170	0.14	ug/L #	1
89) ethylbenzene	13.619	91	5374	0.55	ug/L #	10
90) m,p-xylene	13.734	106	1538	0.42	ug/L	66
91) o-xylene	14.137	106	1880	0.51	ug/L	82
96) isopropylbenzene	14.476	105	44356	3.80	ug/L	96
105) 1,3,5-trimethylbenzene	15.041	105	6138m	0.64	ug/L	
106) tert-butylbenzene	15.381	119	9103	1.18	ug/L	93
108) 1,2,4-trimethylbenzene	15.428	105	57716	6.06	ug/L	97
109) sec-butylbenzene	15.596	105	77749	5.86	ug/L	99
121) naphthalene	18.164	128	7004	0.72	ug/L	91

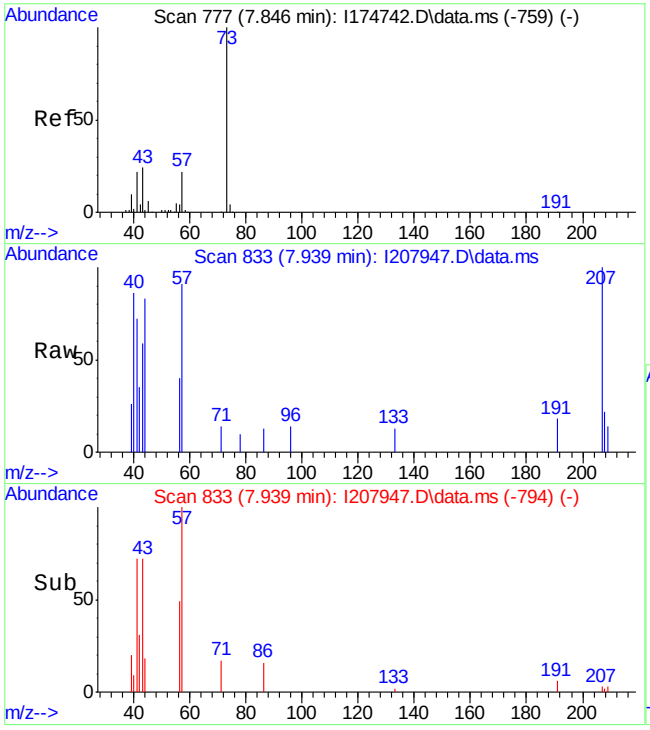
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207947.D
Acq On : 24 Sep 2015 5:18 pm
Operator : SCOTTM
Sample : JC4005-13
Misc : MS91355,VI8342,4.9,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Sep 25 09:59:12 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

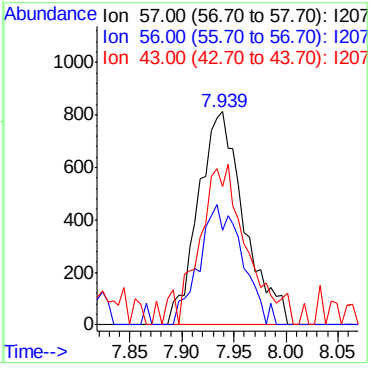


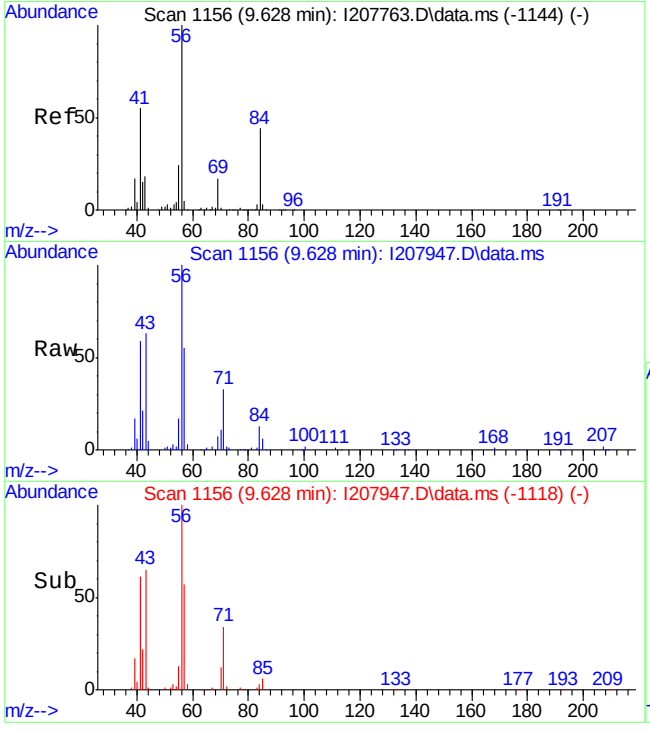


#29
hexane
Concen: 0.77 ug/L
RT: 7.939 min Scan# 833
Delta R.T. 0.005 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion: 57 Resp: 2488

Ion	Ratio	Lower	Upper
57	100		
56	53.2	32.0	72.0
43	79.9	45.1	85.1

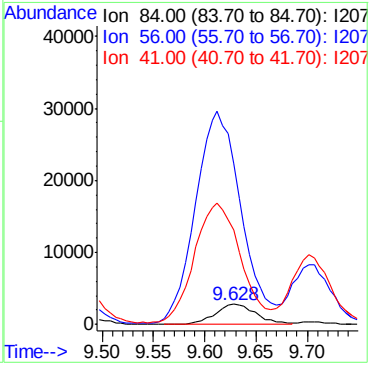


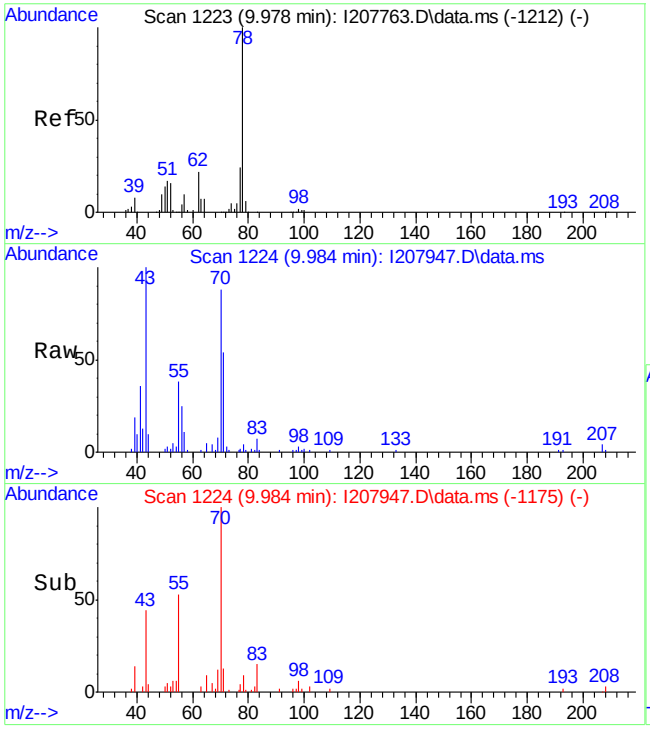


#47
cyclohexane
Concen: 2.12 ug/L m
RT: 9.628 min Scan# 1156
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion: 84 Resp: 7905

Ion	Ratio	Lower	Upper
84	100		
56	797.1	199.0	259.0#
41	469.8	97.0	157.0#

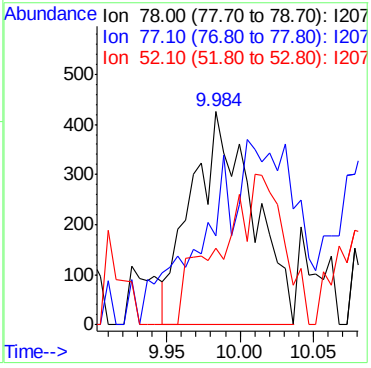


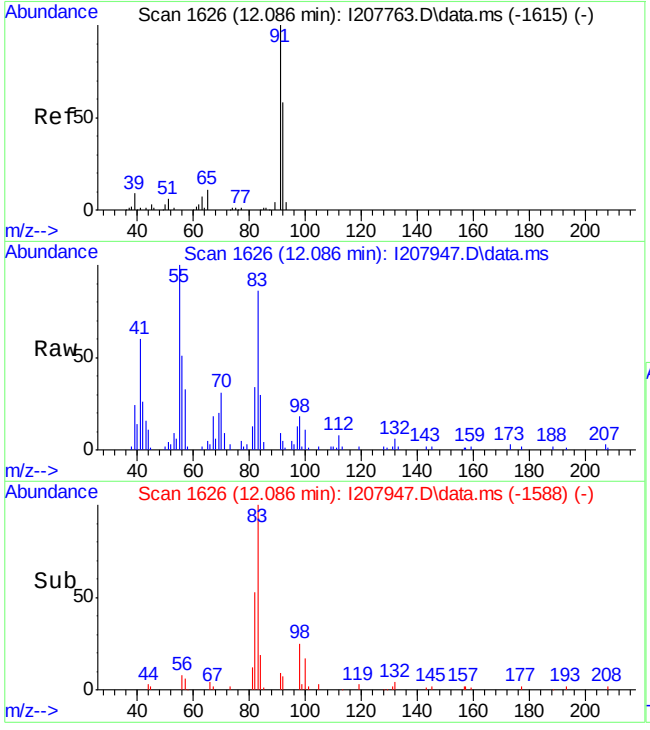


#54
benzene
Concen: 0.14 ug/L
RT: 9.984 min Scan# 1224
Delta R.T. 0.005 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion: 78 Resp: 1223

Ion	Ratio	Lower	Upper
78	100		
77	17.4	0.0	53.9
52	35.7	0.0	45.7

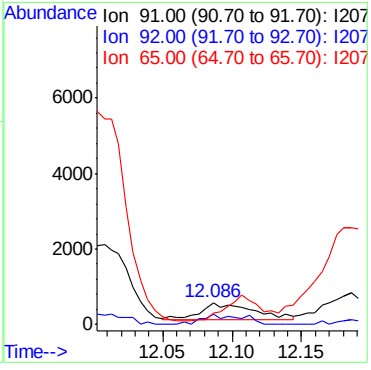


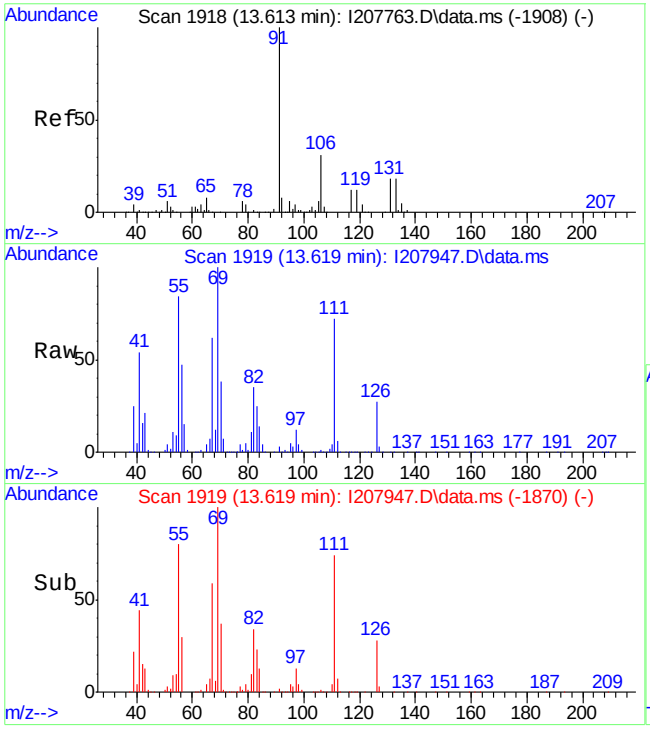


#73
toluene
Concen: 0.14 ug/L
RT: 12.086 min Scan# 1626
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion: 91 Resp: 1170

Ion	Ratio	Lower	Upper
91	100		
92	0.0	38.7	78.7#
65	113.8	0.0	30.8#

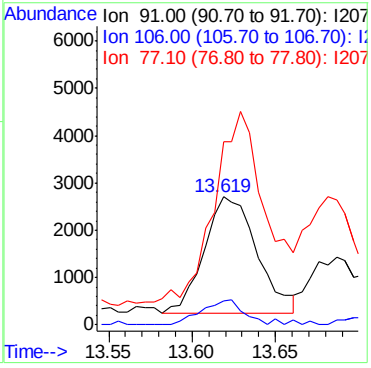


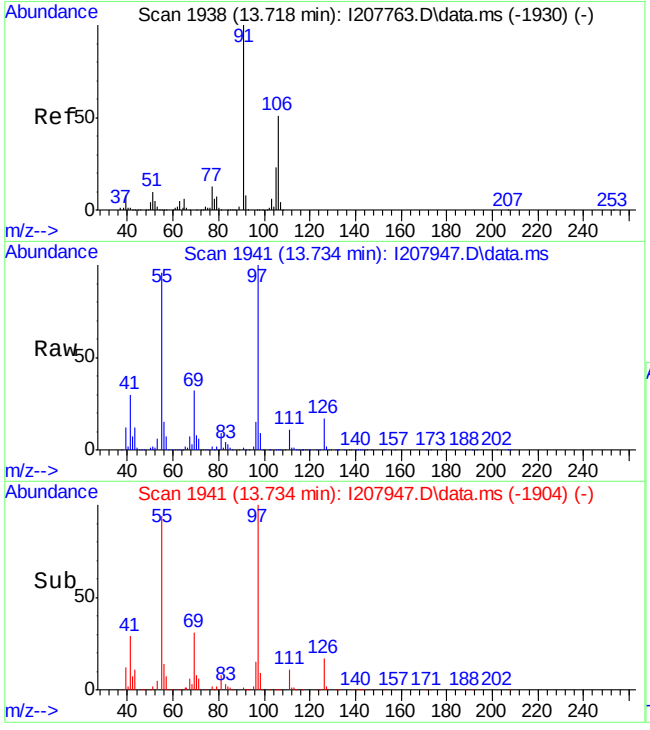


#89
ethylbenzene
Concen: 0.55 ug/L
RT: 13.619 min Scan# 1919
Delta R.T. 0.005 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion: 91 Resp: 5374

Ion	Ratio	Lower	Upper
91	100		
106	20.6	1.3	61.3
77	135.5	0.0	38.2#

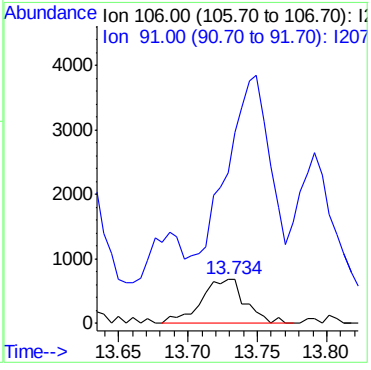


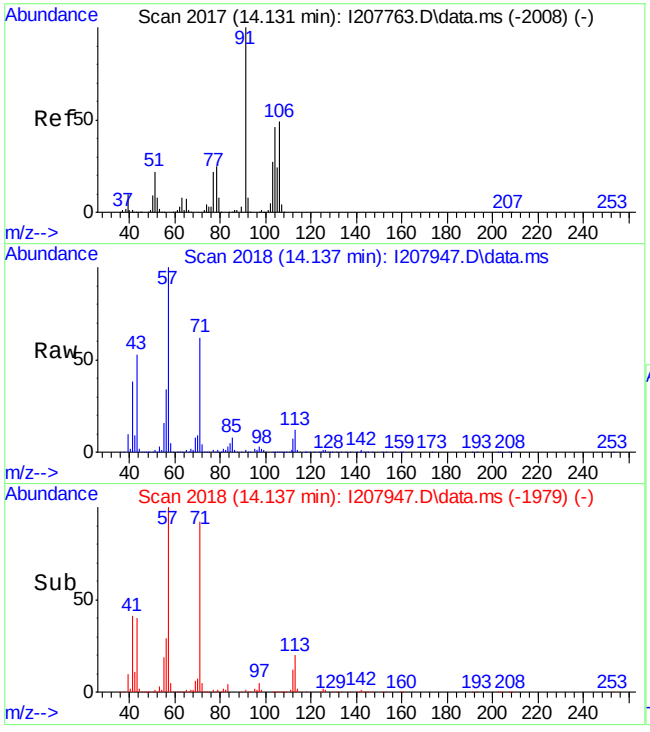


#90
m,p-xylene
Concen: 0.42 ug/L
RT: 13.734 min Scan# 1941
Delta R.T. 0.016 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:106 Resp: 1538

Ion	Ratio	Lower	Upper
106	100		
91	248.4	137.8	255.8

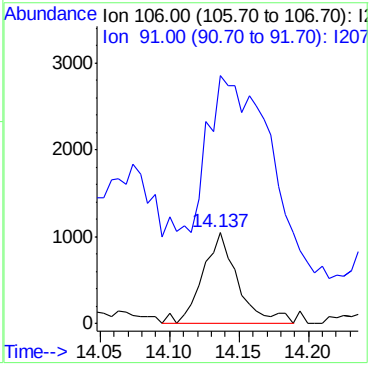


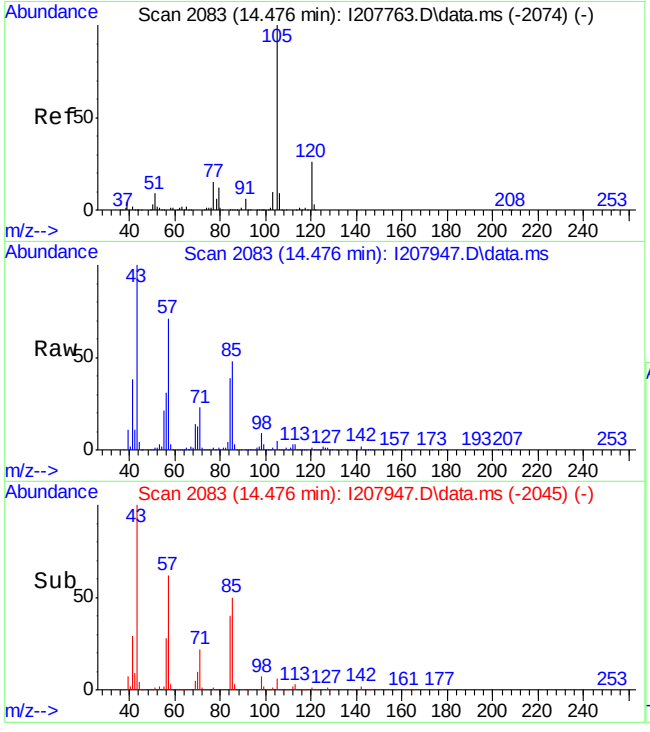


#91
o-xylene
Concen: 0.51 ug/L
RT: 14.137 min Scan# 2018
Delta R.T. 0.005 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:106 Resp: 1880

Ion	Ratio	Lower	Upper
106	100		
91	176.0	143.0	265.6

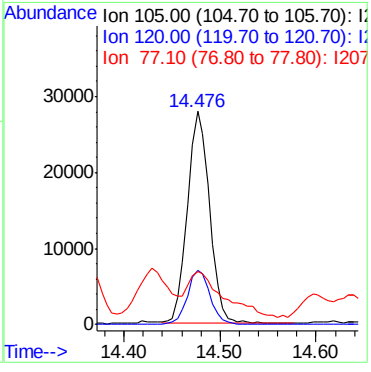


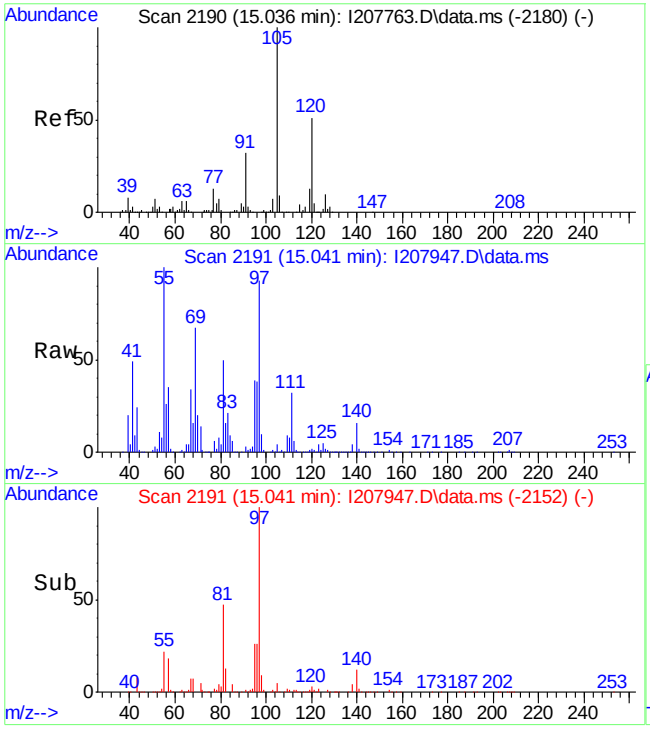


#96
isopropylbenzene
Concen: 3.80 ug/L
RT: 14.476 min Scan# 2083
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:105 Resp: 44356

Ion	Ratio	Lower	Upper
105	100		
120	25.5	0.0	55.7
77	19.4	0.0	44.6

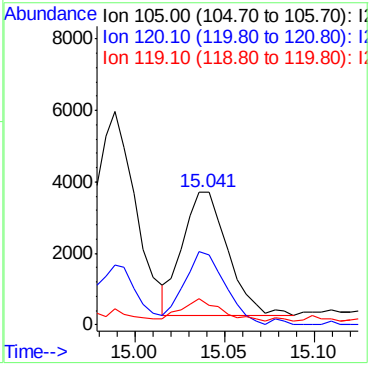


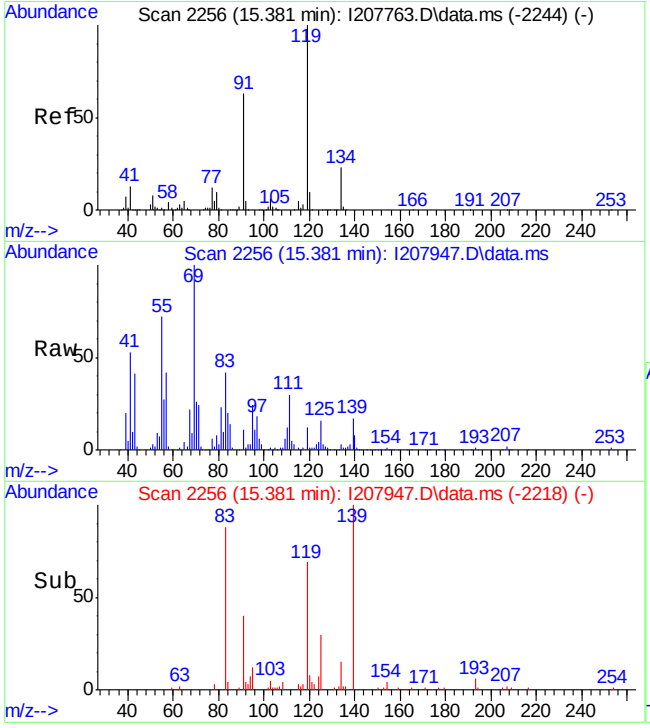


#105
1,3,5-trimethylbenzene
Concen: 0.64 ug/L m
RT: 15.041 min Scan# 2191
Delta R.T. 0.005 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:105 Resp: 6138

Ion	Ratio	Lower	Upper
105	100		
120	52.2	20.9	80.9
119	14.5	0.0	43.0

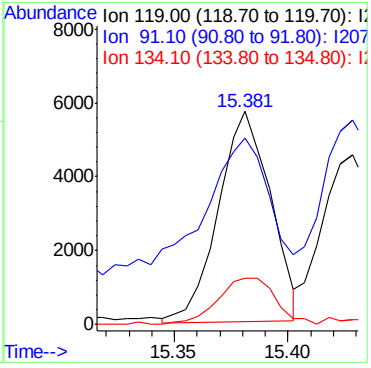


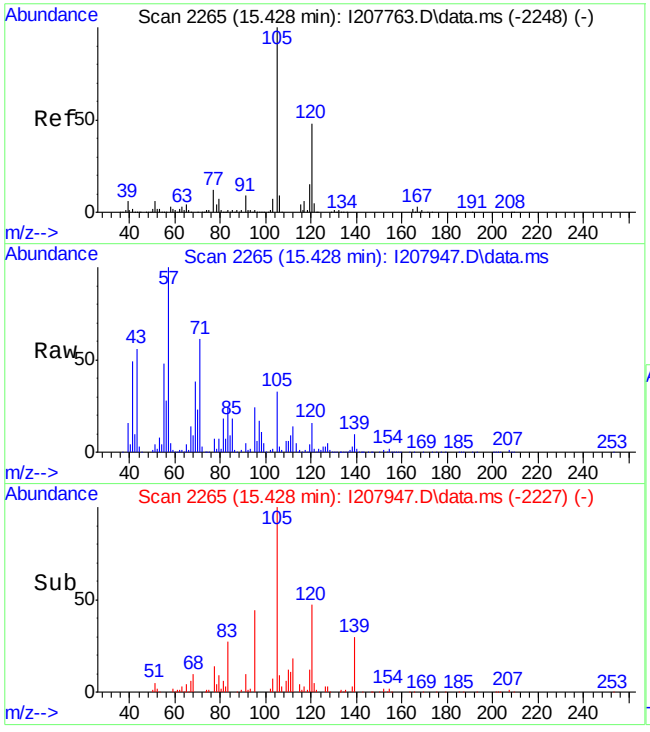


#106
tert-butylbenzene
Concen: 1.18 ug/L
RT: 15.381 min Scan# 2256
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:119 Resp: 9103

Ion	Ratio	Lower	Upper
119	100		
91	56.3	33.3	93.3
134	22.3	0.0	52.5

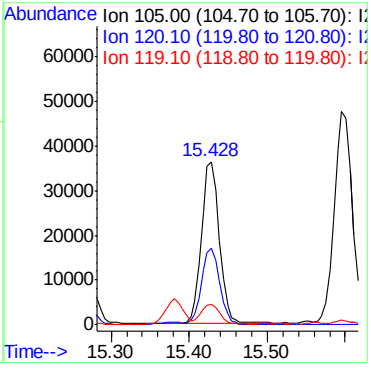


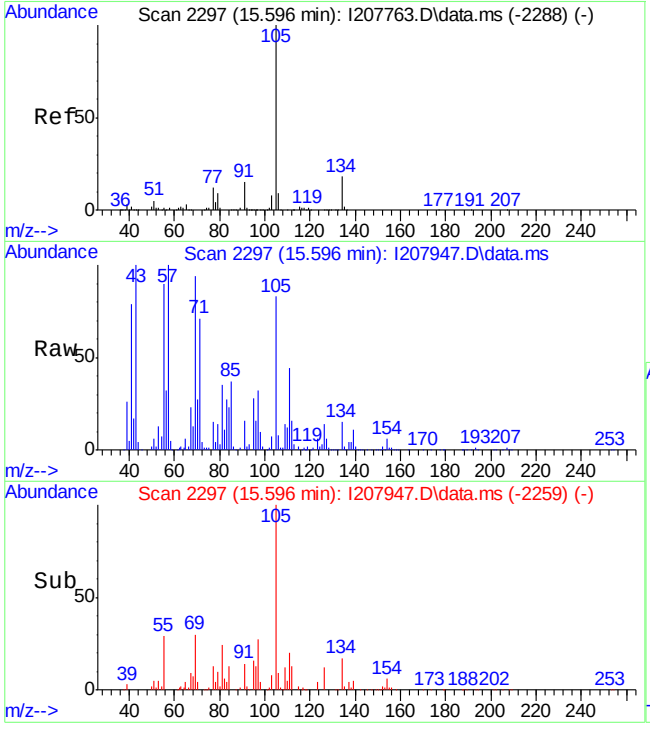


#108
1,2,4-trimethylbenzene
Concen: 6.06 ug/L
RT: 15.428 min Scan# 2265
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:105 Resp: 57716

Ion	Ratio	Lower	Upper
105	100		
120	46.6	17.9	77.9
119	12.0	0.0	44.8

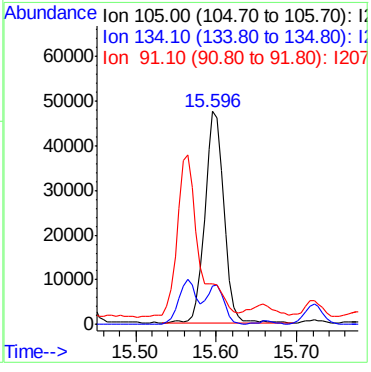


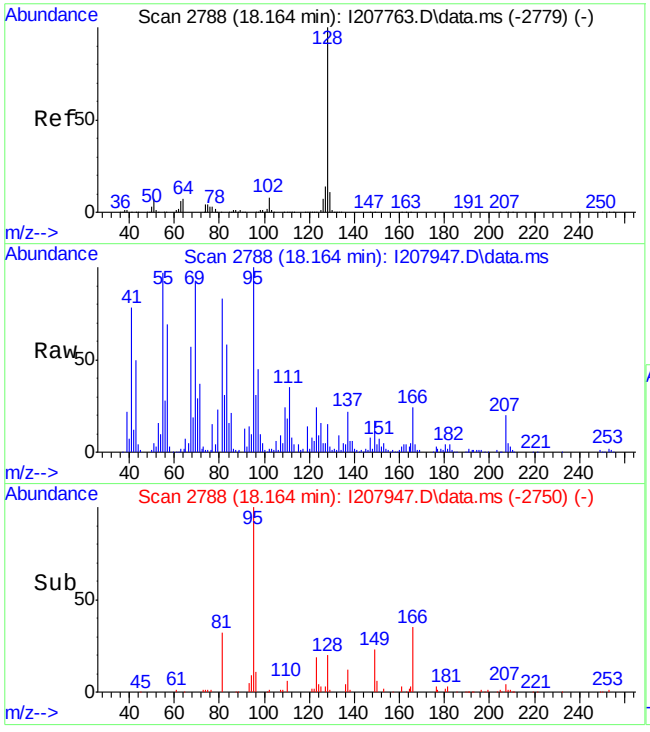


#109
sec-butylbenzene
Concen: 5.86 ug/L
RT: 15.596 min Scan# 2297
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:105 Resp: 77749

Ion	Ratio	Lower	Upper
105	100		
134	17.6	0.0	48.1
91	14.4	0.0	44.7

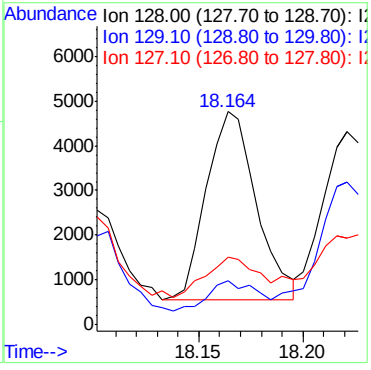




#121
naphthalene
Concen: 0.72 ug/L
RT: 18.164 min Scan# 2788
Delta R.T. 0.000 min
Lab File: I207947.D
Acq: 24 Sep 2015 5:18 pm

Tgt Ion:128 Resp: 7004

Ion	Ratio	Lower	Upper
128	100		
129	14.4	0.0	41.0
127	17.5	0.0	43.6



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 09/30/15 15:19

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8344\
Data File : I207987.D
Acq On : 25 Sep 2015 2:36 pm
Operator : SCOTTM
Sample : JC4005-13cf
Misc : MS91335,VI8344,4.9,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 28 09:27:06 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.196	65	65855	500.00	ug/L	0.00
5) pentafluorobenzene	9.440	168	197769	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	234972	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	204330	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	111707	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.461	113	73191	47.89	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 95.78%			
49) 1,2-dichloroethane-d4...	9.884	65	67213	55.89	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 111.78%			
80) toluene-d8 (s)	11.992	98	1947125	328.99	ug/L	-0.03
Spiked Amount 50.000	Range 77 - 125		Recovery = 657.98%#			
95) 4-bromofluorobenzene (s)	14.654	95	447441	232.47	ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 464.94%#			

Target Compounds						Qvalue
47) cyclohexane	9.633	84	103728	28.85	ug/L #	1
89) ethylbenzene	13.619	91	50320m	5.30	ug/L	
90) m,p-xylene	13.729	106	8768	2.42	ug/L #	49
91) o-xylene	14.137	106	18684	5.13	ug/L	97
96) isopropylbenzene	14.482	105	527474	51.79	ug/L	97
105) 1,3,5-trimethylbenzene	15.041	105	12369	1.47	ug/L	94
106) tert-butylbenzene	15.387	119	85544	12.72	ug/L	98
108) 1,2,4-trimethylbenzene	15.428	105	51632	6.21	ug/L	97
109) sec-butylbenzene	15.601	105	671146	57.97	ug/L	99
121) naphthalene	18.164	128	52996	6.26	ug/L	99

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

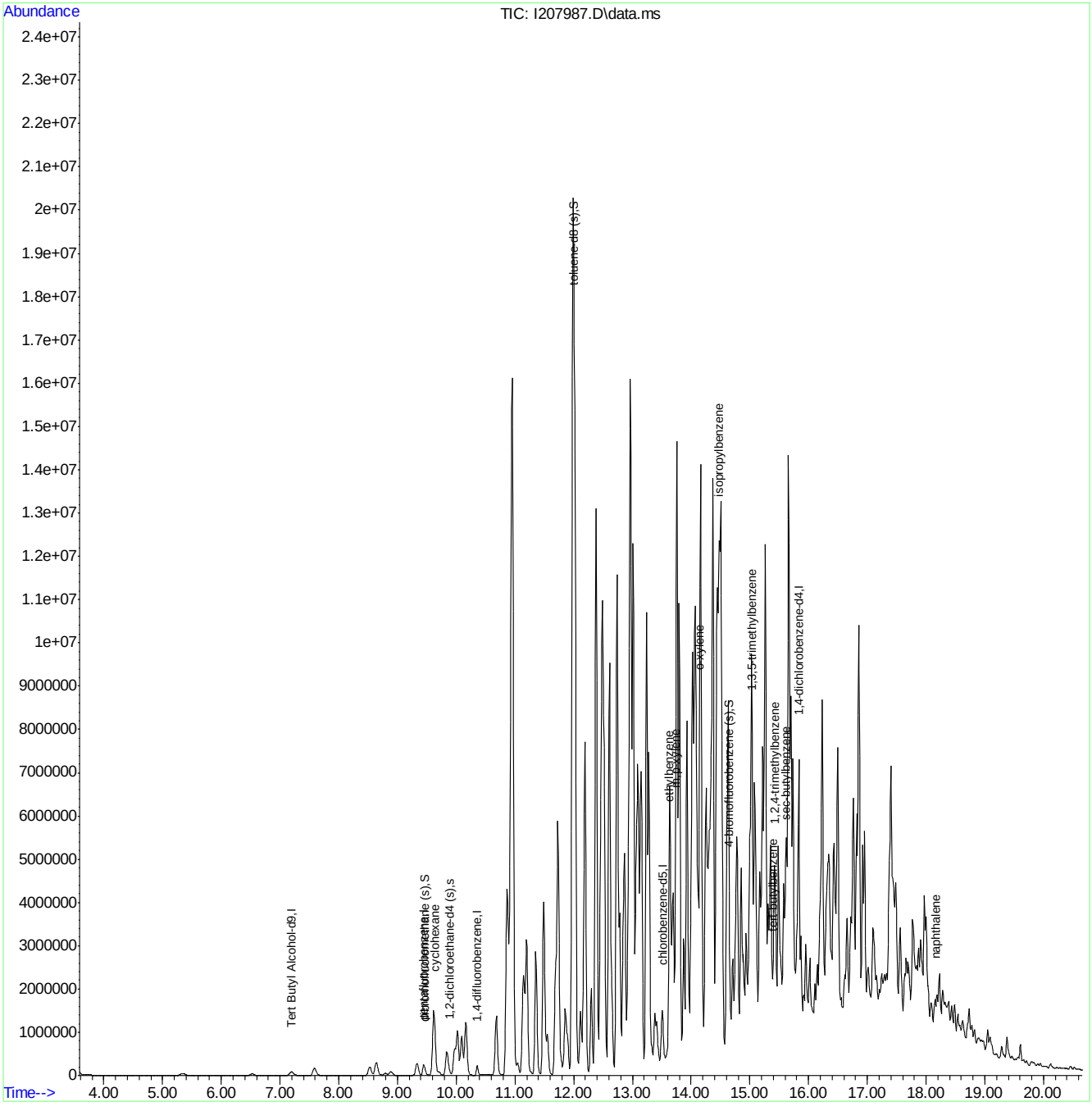
7.1.14

7

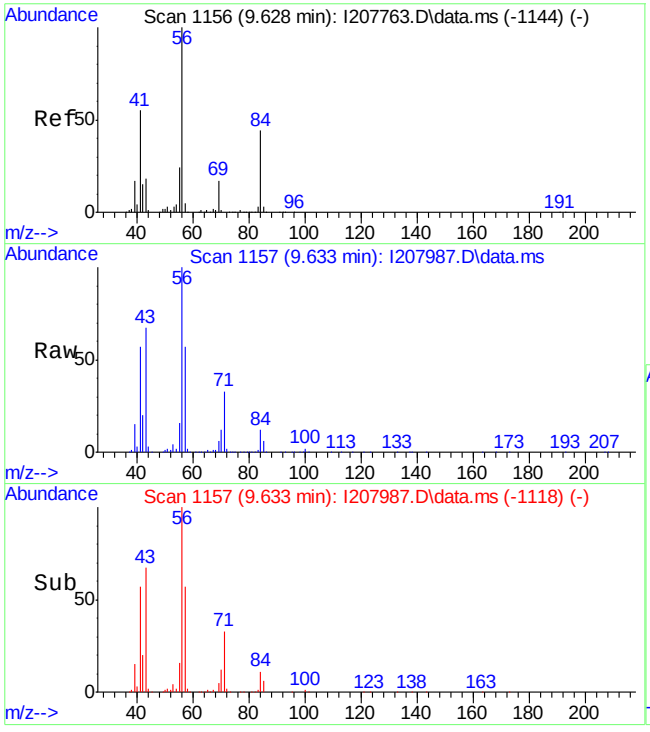
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8344\
Data File : I207987.D
Acq On : 25 Sep 2015 2:36 pm
Operator : SCOTTM
Sample : JC4005-13cf
Misc : MS91335,VI8344,4.9,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 28 09:27:06 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



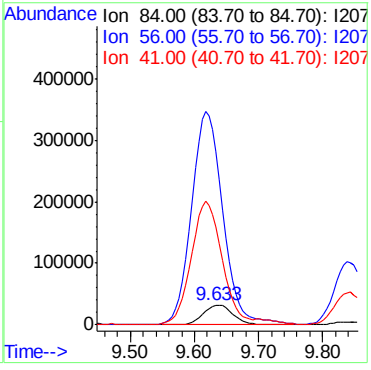
MI8335.M Mon Sep 28 09:27:18 2015 RPT1 Page: 2

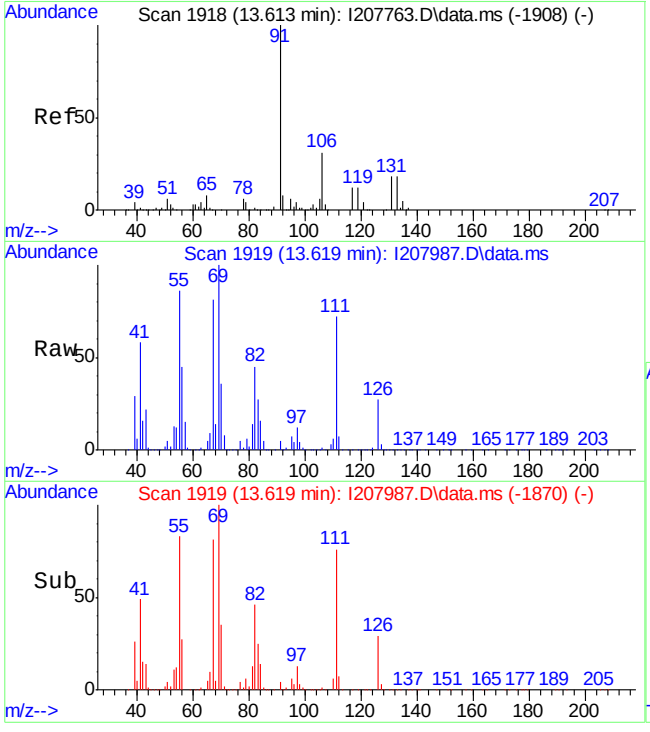


#47
cyclohexane
Concen: 28.85 ug/L
RT: 9.633 min Scan# 1157
Delta R.T. 0.005 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion: 84 Resp: 103728

Ion	Ratio	Lower	Upper
84	100		
56	859.3	199.0	259.0#
41	486.0	97.0	157.0#

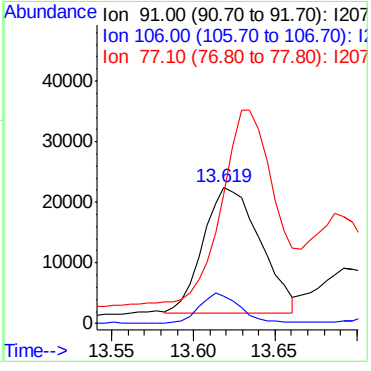


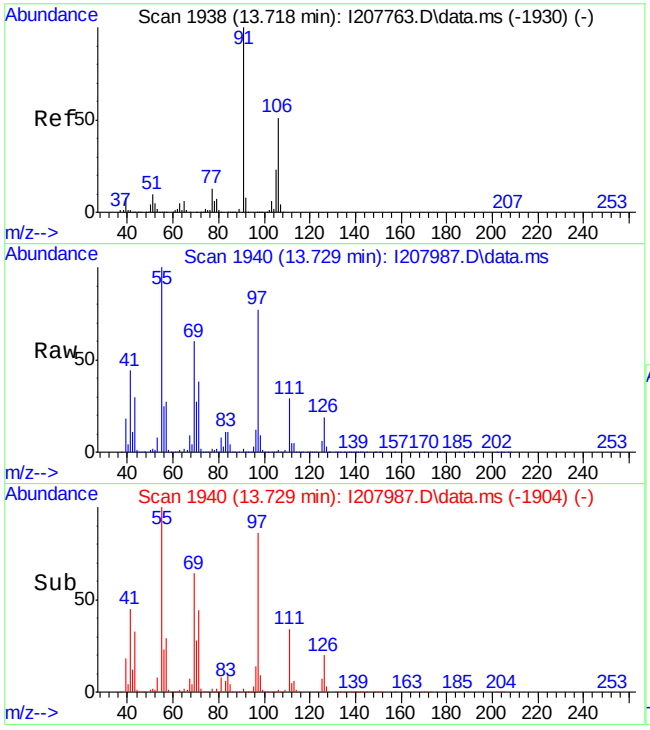


#89
ethylbenzene
Concen: 5.30 ug/L m
RT: 13.619 min Scan# 1919
Delta R.T. 0.005 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion: 91 Resp: 50320

Ion	Ratio	Lower	Upper
91	100		
106	20.3	1.3	61.3
77	94.7	0.0	38.2#

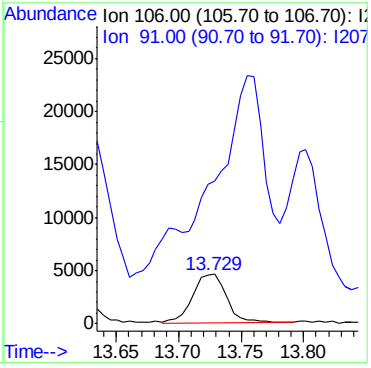


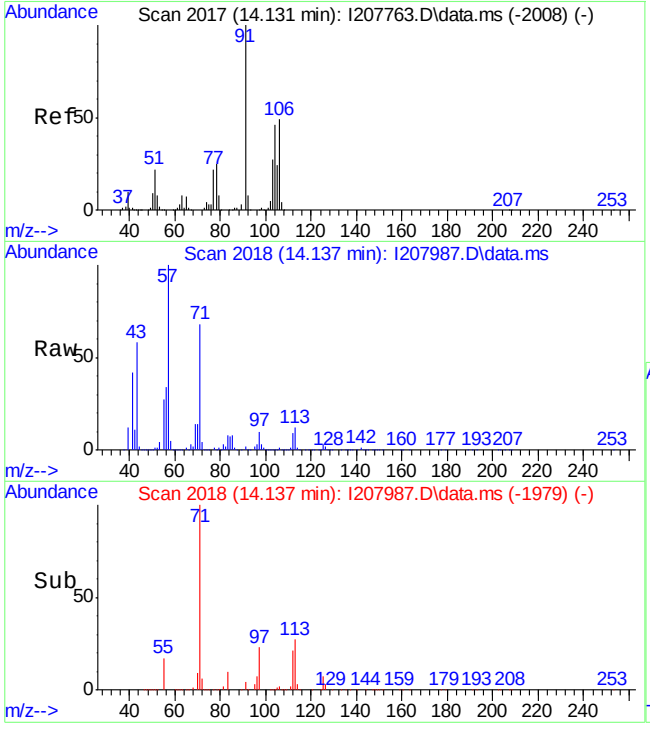


#90
m,p-xylene
Concen: 2.42 ug/L
RT: 13.729 min Scan# 1940
Delta R.T. 0.011 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:106 Resp: 8768

Ion	Ratio	Lower	Upper
106	100		
91	120.8	137.8	255.8#

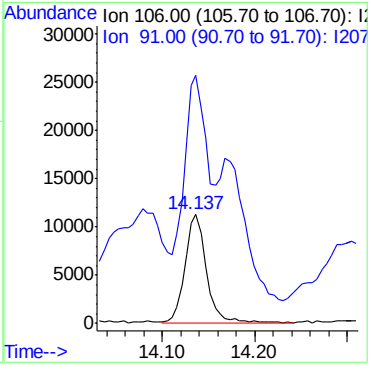




#91
o-xylene
Concen: 5.13 ug/L
RT: 14.137 min Scan# 2018
Delta R.T. 0.005 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:106 Resp: 18684

Ion	Ratio	Lower	Upper
106	100		
91	199.1	143.0	265.6



7.1.14

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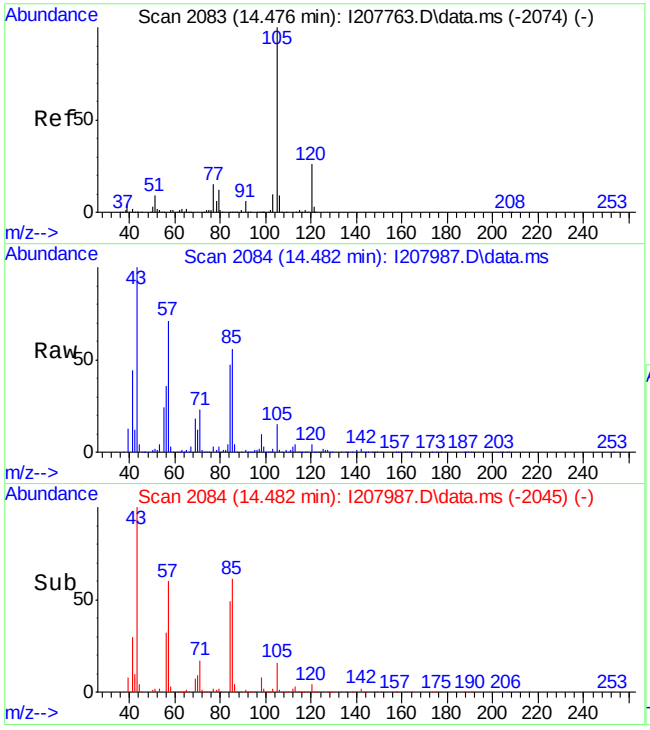
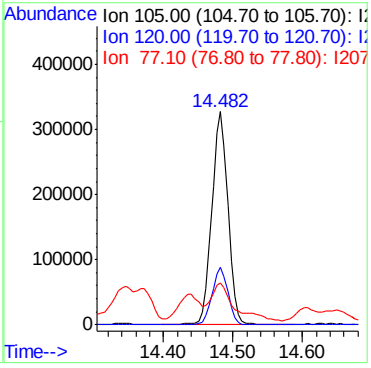
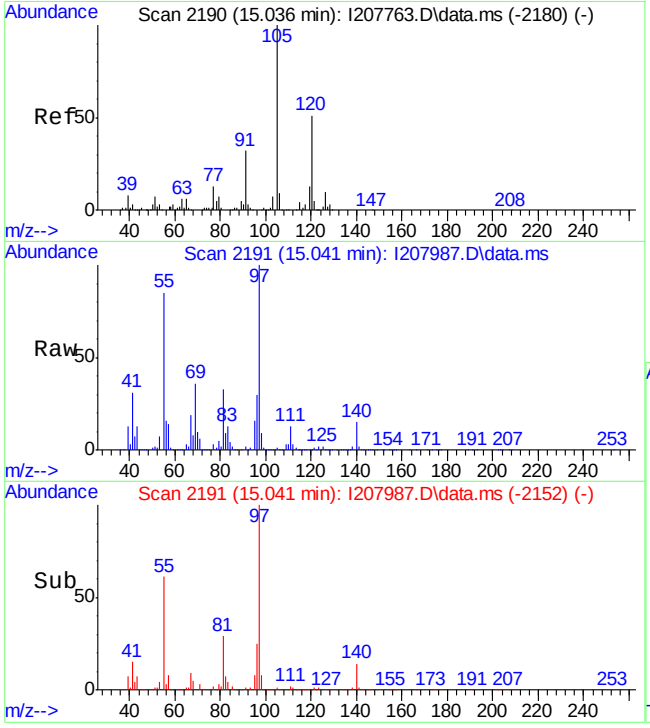


#96
isopropylbenzene
Concen: 51.79 ug/L
RT: 14.482 min Scan# 2084
Delta R.T. 0.006 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:105 Resp: 527474

Ion	Ratio	Lower	Upper
105	100		
120	26.8	0.0	55.7
77	16.7	0.0	44.6

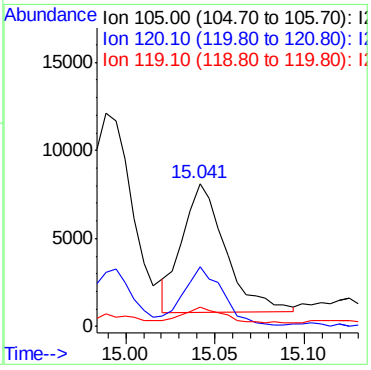




#105
1,3,5-trimethylbenzene
Concen: 1.47 ug/L
RT: 15.041 min Scan# 2191
Delta R.T. 0.005 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

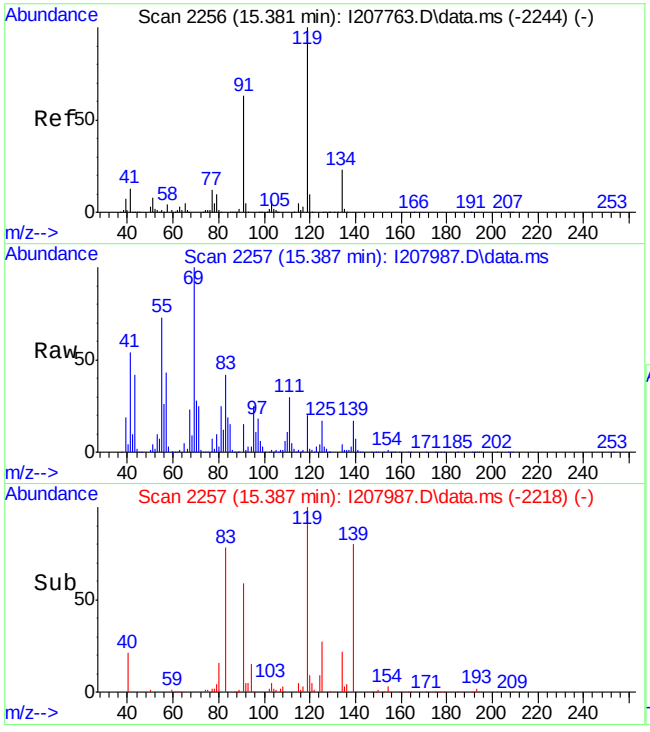
Tgt Ion:105 Resp: 12369

Ion	Ratio	Lower	Upper
105	100		
120	46.1	20.9	80.9
119	13.1	0.0	43.0



7.1.14

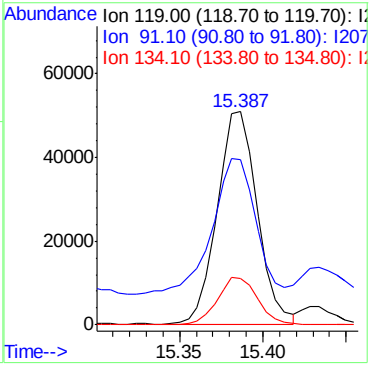
7

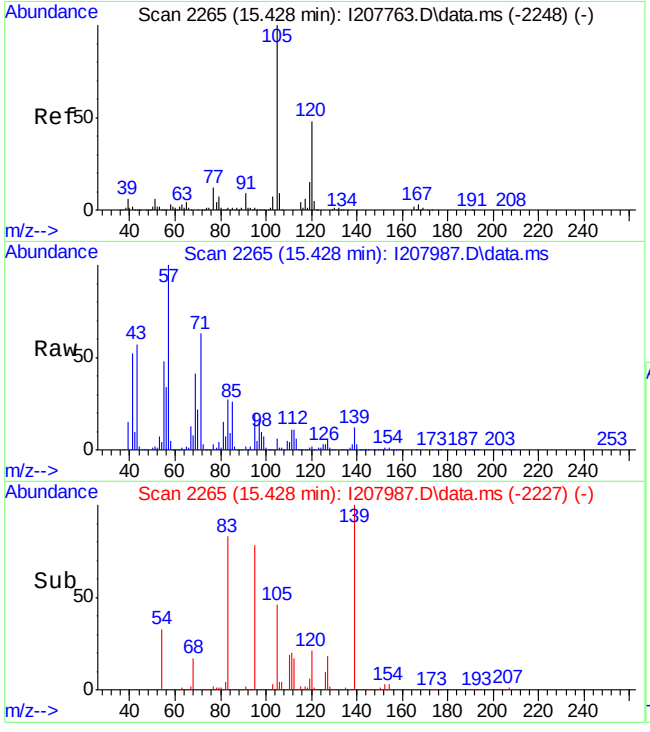


#106
tert-butylbenzene
Concen: 12.72 ug/L
RT: 15.387 min Scan# 2257
Delta R.T. 0.005 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:119 Resp: 85544

Ion	Ratio	Lower	Upper
119	100		
91	61.6	33.3	93.3
134	21.9	0.0	52.5

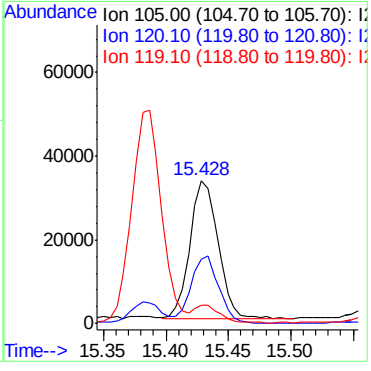


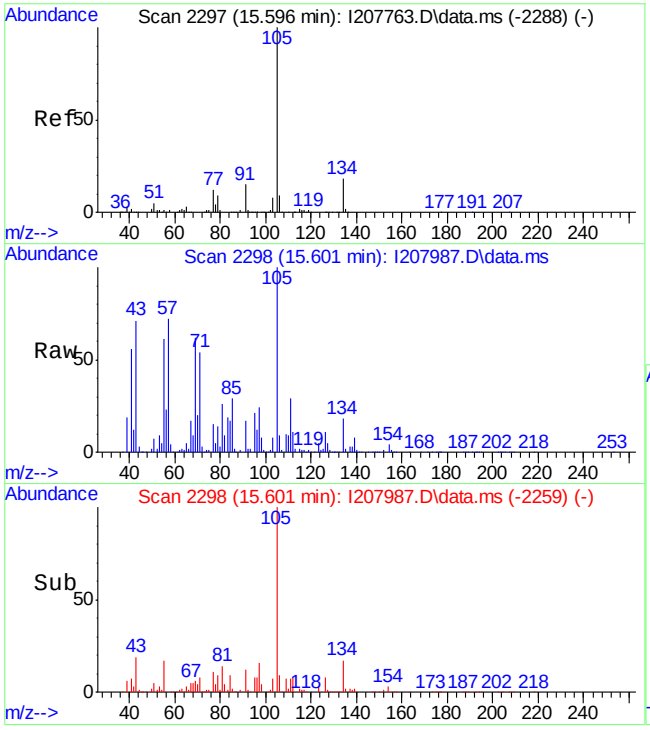


#108
1,2,4-trimethylbenzene
Concen: 6.21 ug/L
RT: 15.428 min Scan# 2265
Delta R.T. 0.000 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:105 Resp: 51632

Ion	Ratio	Lower	Upper
105	100		
120	46.4	17.9	77.9
119	12.6	0.0	44.8

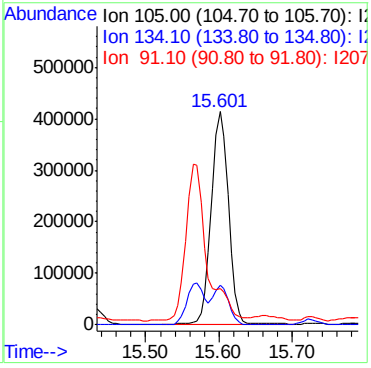


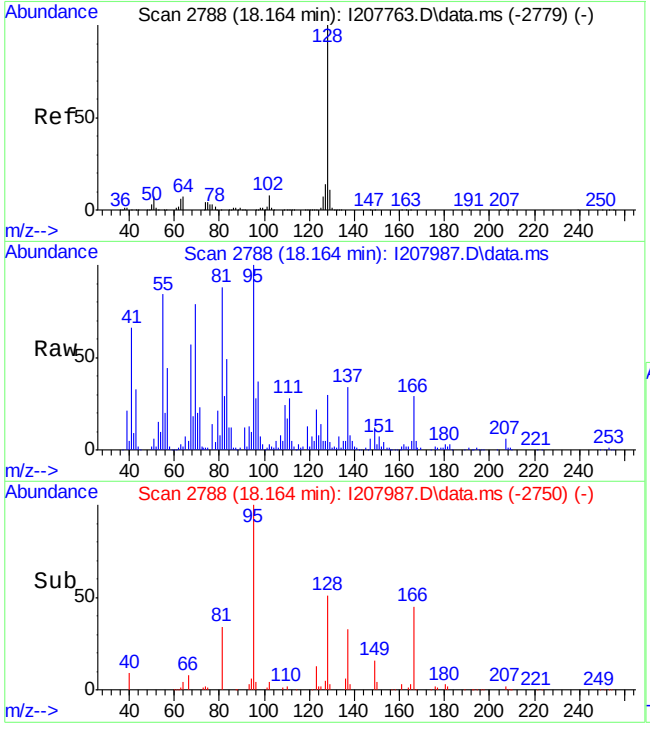


#109
sec-butylbenzene
Concen: 57.97 ug/L
RT: 15.601 min Scan# 2298
Delta R.T. 0.005 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:105 Resp: 671146

Ion	Ratio	Lower	Upper
105	100		
134	18.5	0.0	48.1
91	15.0	0.0	44.7

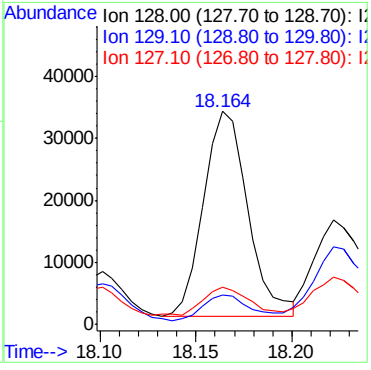




#121
naphthalene
Concen: 6.26 ug/L
RT: 18.164 min Scan# 2788
Delta R.T. 0.000 min
Lab File: I207987.D
Acq: 25 Sep 2015 2:36 pm

Tgt Ion:128 Resp: 52996

Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	41.0
127	13.0	0.0	43.6



7.1.14

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207948.D
Acq On : 24 Sep 2015 5:44 pm
Operator : SCOTTM
Sample : JC4005-14
Misc : MS91355,VI8342,5.3,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 25 10:17:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.186	65	79182	500.00	ug/L	-0.01
5) pentafluorobenzene	9.440	168	228650	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.360	114	267656	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	222507	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	121289	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.466	113	89510	50.65	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.30%			
49) 1,2-dichloroethane-d4...	9.884	65	71168	51.95	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 103.90%			
80) toluene-d8 (s)	12.013	98	308820	47.92	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 95.84%			
95) 4-bromofluorobenzene (s)	14.665	95	105866	50.66	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 101.32%			

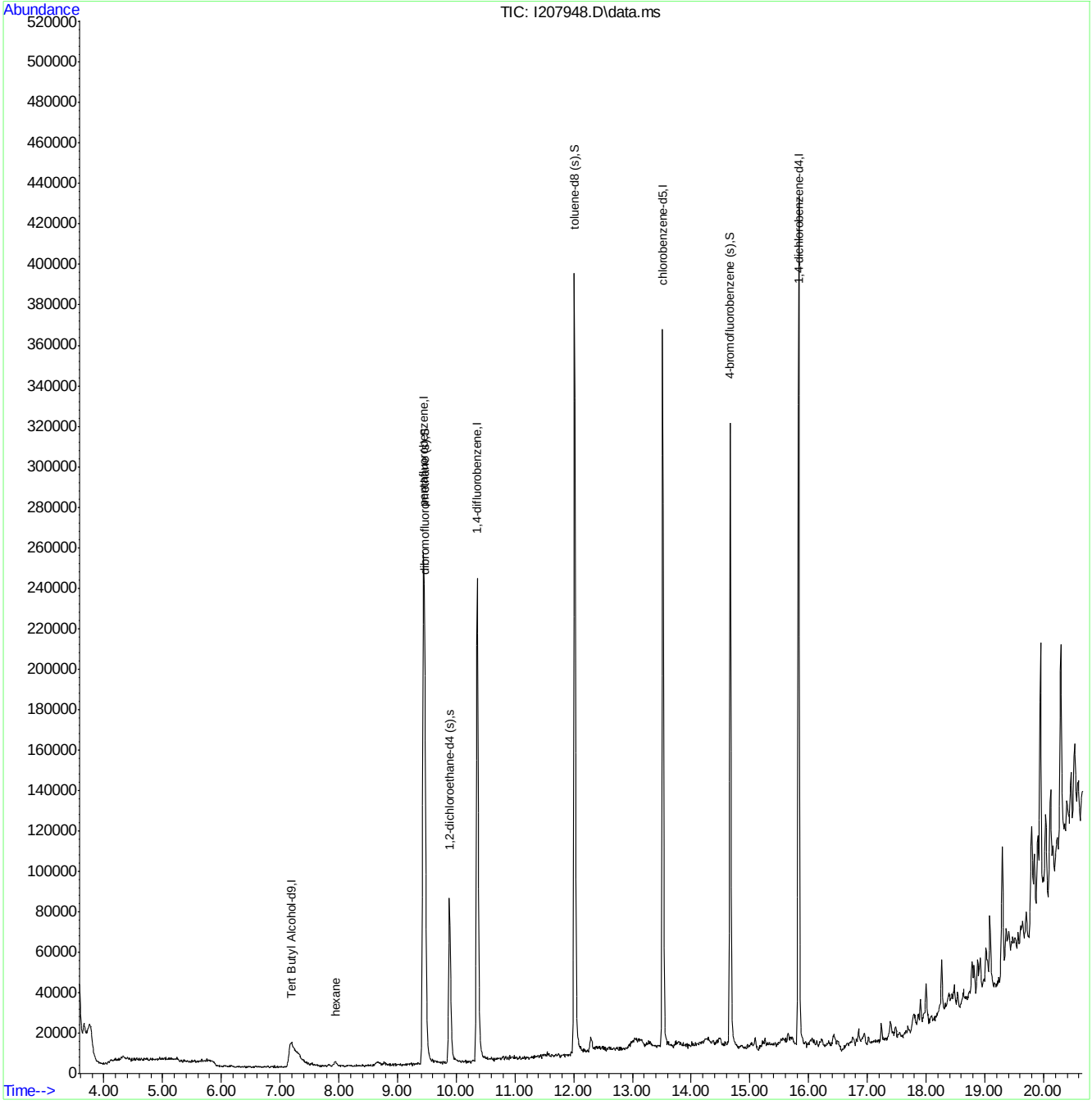
Target Compounds						Qvalue
29) hexane	7.939	57	1901	0.53	ug/L	86

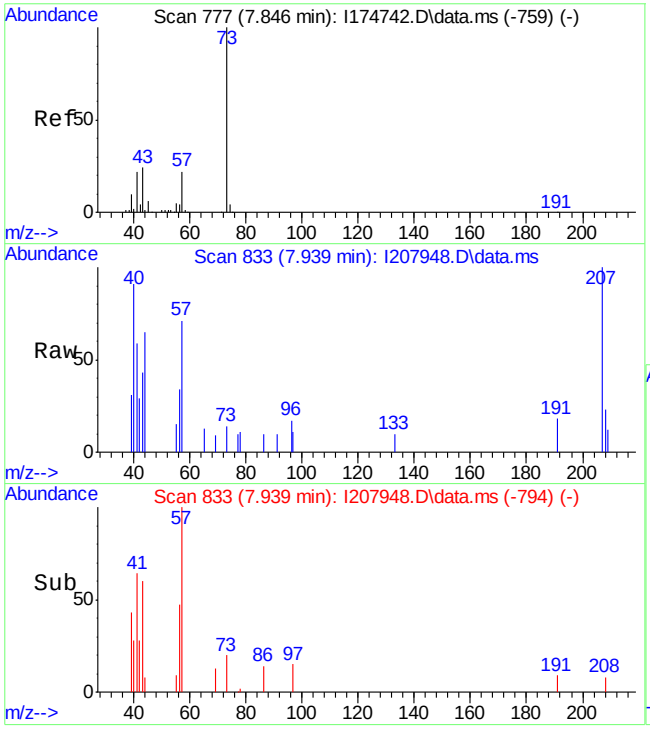
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207948.D
Acq On : 24 Sep 2015 5:44 pm
Operator : SCOTTM
Sample : JC4005-14
Misc : MS91355,VI8342,5.3,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Sep 25 10:17:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

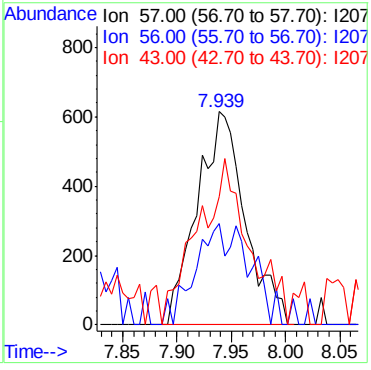




#29
hexane
Concen: 0.53 ug/L
RT: 7.939 min Scan# 833
Delta R.T. 0.005 min
Lab File: I207948.D
Acq: 24 Sep 2015 5:44 pm

Tgt Ion: 57 Resp: 1901

Ion	Ratio	Lower	Upper
57	100		
56	54.0	32.0	72.0
43	83.0	45.1	85.1



7.1.15

7

ACCUTEST LABORATORIES JC4005

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207949.D
Acq On : 24 Sep 2015 6:09 pm
Operator : SCOTTM
Sample : JC4005-15
Misc : MS91355,VI8342,4.7,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Sep 25 11:06:13 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.170	65	66045	500.00 ug/L	-0.03
5) pentafluorobenzene	9.440	168	223600	50.00 ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	265289	50.00 ug/L	0.00
79) chlorobenzene-d5	13.514	117	221131	50.00 ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.826	152	120272	50.00 ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.466	113	85311	49.37 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 98.74%		
49) 1,2-dichloroethane-d4...	9.885	65	67170	49.47 ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 98.94%		
80) toluene-d8 (s)	12.013	98	306346	47.83 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 95.66%		
95) 4-bromofluorobenzene (s)	14.665	95	102993	49.70 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 99.40%		

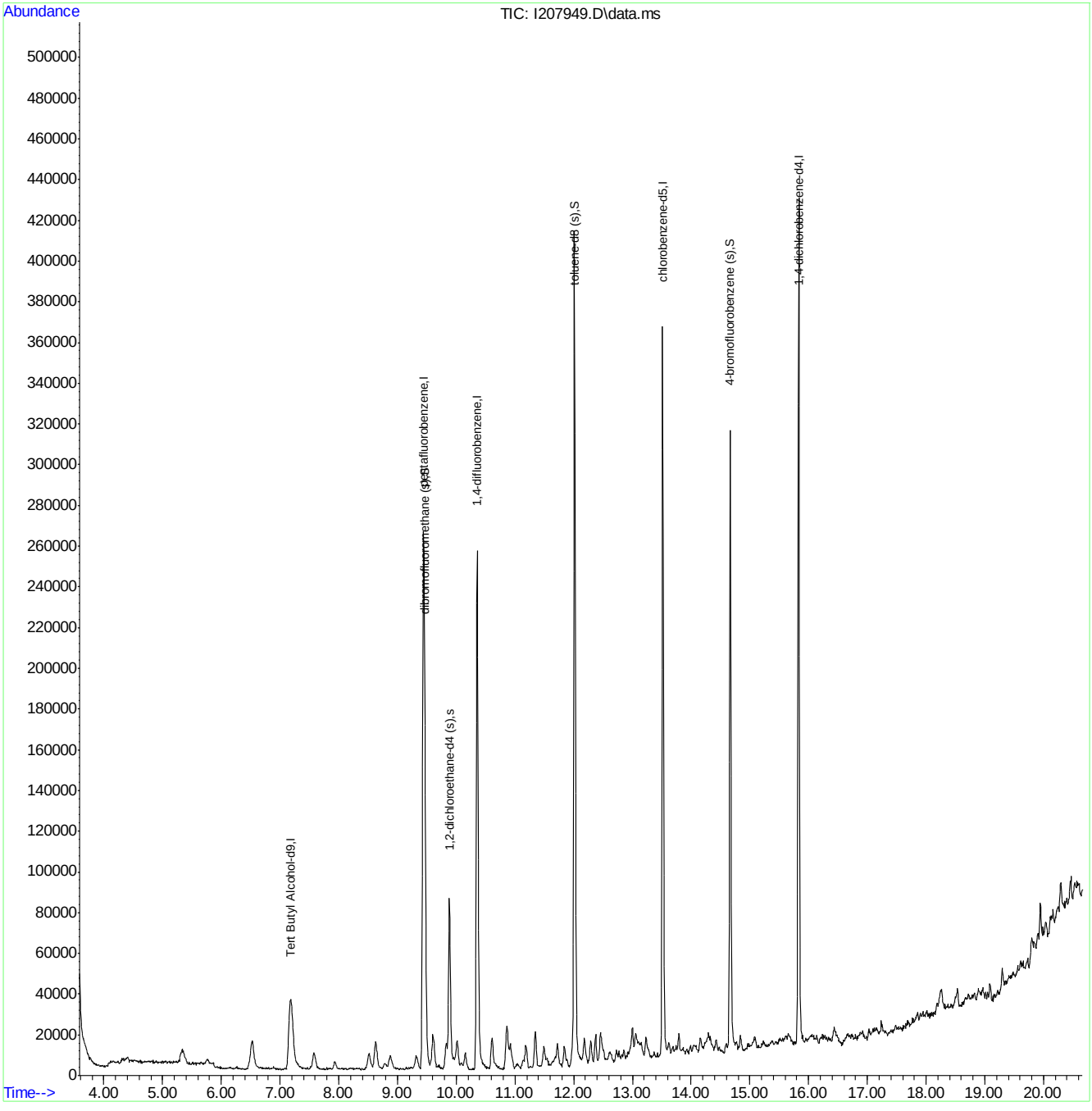
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207949.D
Acq On : 24 Sep 2015 6:09 pm
Operator : SCOTTM
Sample : JC4005-15
Misc : MS91355,VI8342,4.7,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Sep 25 11:06:13 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 3D113510.D
Acq On : 22 Sep 2015 11:10 am
Operator : XimenaC
Sample : mb
Misc : MS91500,V3D4860,5,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 22 14:25:17 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.178	65	99723	500.00	ug/L	0.00
4) pentafluorobenzene	9.396	168	181895	50.00	ug/L	0.00
58) 1,4-difluorobenzene	10.314	114	208379	50.00	ug/L	0.00
88) chlorobenzene-d5	13.475	117	180437	50.00	ug/L	0.00
104) 1,4-dichlorobenzene-d4	15.787	152	113398	50.00	ug/L	0.00

System Monitoring Compounds

50) dibromofluoromethane (s)	9.443	113	80298	50.21	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 100.42%			
51) 1,2-dichloroethane-d4 (s)	9.868	65	90500	54.01	ug/L	0.01
Spiked Amount 50.000	Range 73 - 122		Recovery = 108.02%			
80) toluene-d8 (s)	11.965	98	239720	50.84	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 101.68%			
106) 4-bromofluorobenzene (s)	14.634	95	87388	46.70	ug/L	0.01
Spiked Amount 50.000	Range 78 - 117		Recovery = 93.40%			

Target Compounds Qvalue

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

7.2.1

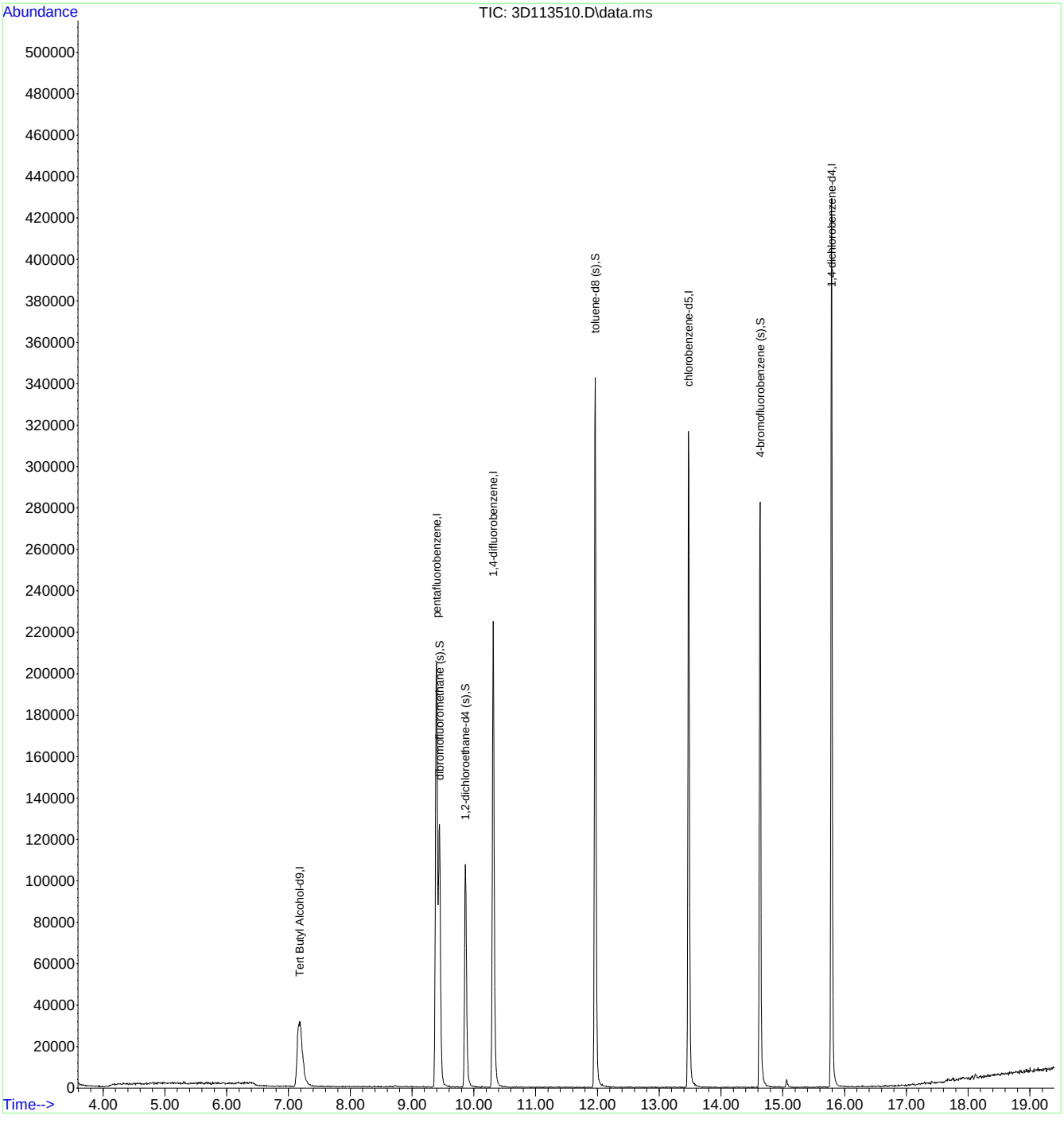
7

ACCUTEST LABORATORIES JC4005

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 3D113510.D
Acq On : 22 Sep 2015 11:10 am
Operator : XimenaC
Sample : mb
Misc : MS91500,V3D4860,5,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 22 14:25:17 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 3D113538.D
Acq On : 23 Sep 2015 10:15 am
Operator : XimenaC
Sample : mb
Misc : MS91500,V3D4861,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 23 15:21:44 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.173	65	95594	500.00	ug/L	0.00
4) pentafluorobenzene	9.391	168	173743	50.00	ug/L	0.00
58) 1,4-difluorobenzene	10.308	114	195859	50.00	ug/L	0.00
88) chlorobenzene-d5	13.475	117	166461	50.00	ug/L	0.00
104) 1,4-dichlorobenzene-d4	15.793	152	102923	50.00	ug/L	0.01

System Monitoring Compounds

50) dibromofluoromethane (s)	9.438	113	75556	49.46	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 98.92%			
51) 1,2-dichloroethane-d4 (s)	9.857	65	84003	52.48	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 104.96%			
80) toluene-d8 (s)	11.960	98	223513	50.43	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 100.86%			
106) 4-bromofluorobenzene (s)	14.634	95	80780	47.56	ug/L	0.01
Spiked Amount 50.000	Range 78 - 117		Recovery = 95.12%			

Target Compounds Qvalue

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

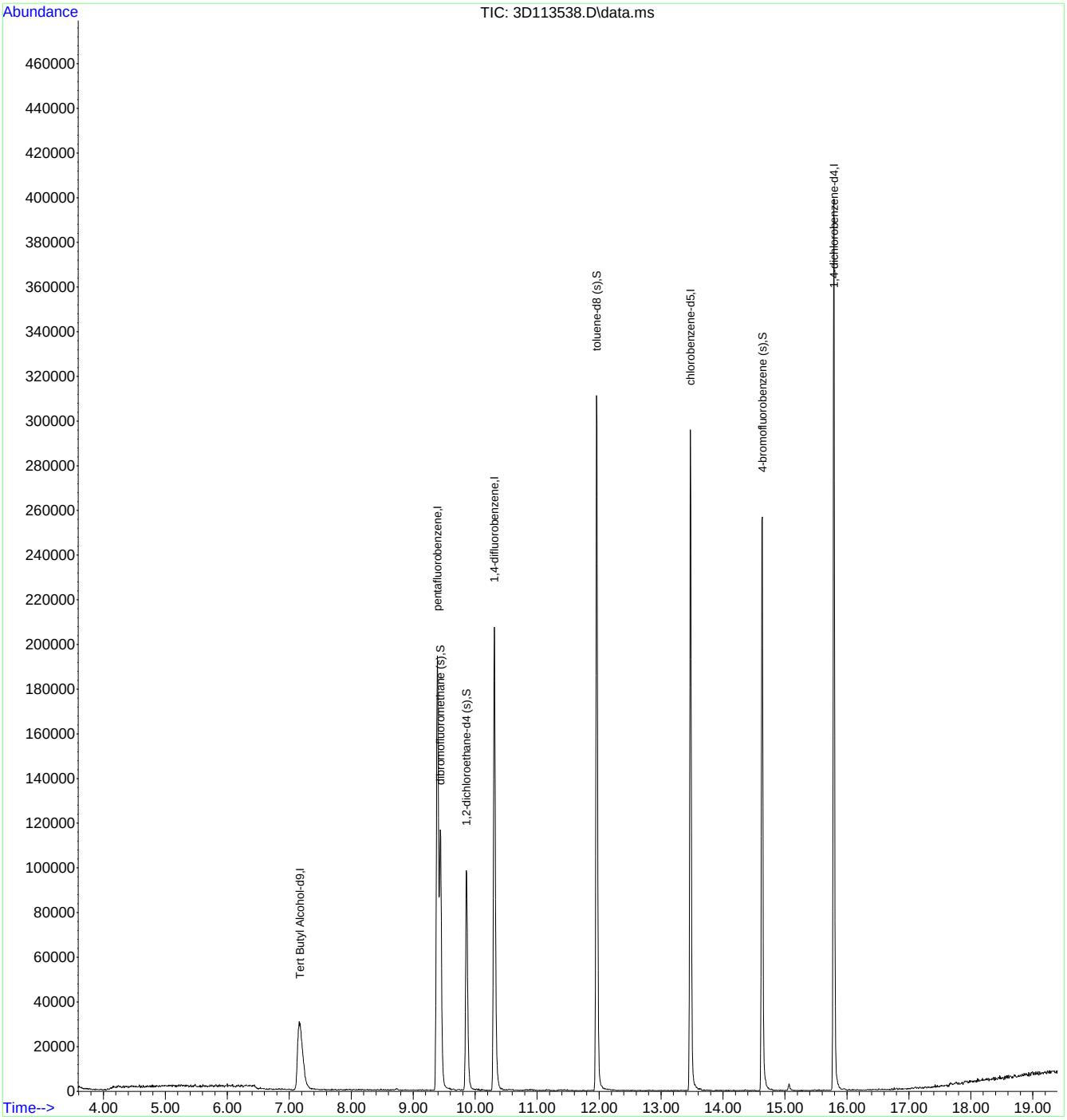
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 3D113538.D
Acq On : 23 Sep 2015 10:15 am
Operator : XimenaC
Sample : mb
Misc : MS91500,V3D4861,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 23 15:21:44 2015
Quant Method : C:\msdchem\1\METHODS\M3D4846.M
Quant Title : Method SW846 8260B, ZB 624 60m x 0.25mm x 1.4 um
QLast Update : Fri Sep 11 09:02:32 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8341\
Data File : I207904.D
Acq On : 23 Sep 2015 10:53 am
Operator : SCOTTM
Sample : MB1
Misc : MS91376,VI8341,,,,,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 23 14:29:19 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.175	65	61591	500.00	ug/L	-0.02
5) pentafluorobenzene	9.440	168	187493	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	222735	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	184565	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	102764	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.461	113	72334	49.92	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.84%			
49) 1,2-dichloroethane-d4...	9.884	65	58591	51.39	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.78%			
80) toluene-d8 (s)	12.018	98	256763	48.03	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.06%			
95) 4-bromofluorobenzene (s)	14.665	95	87021	49.15	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 98.30%			

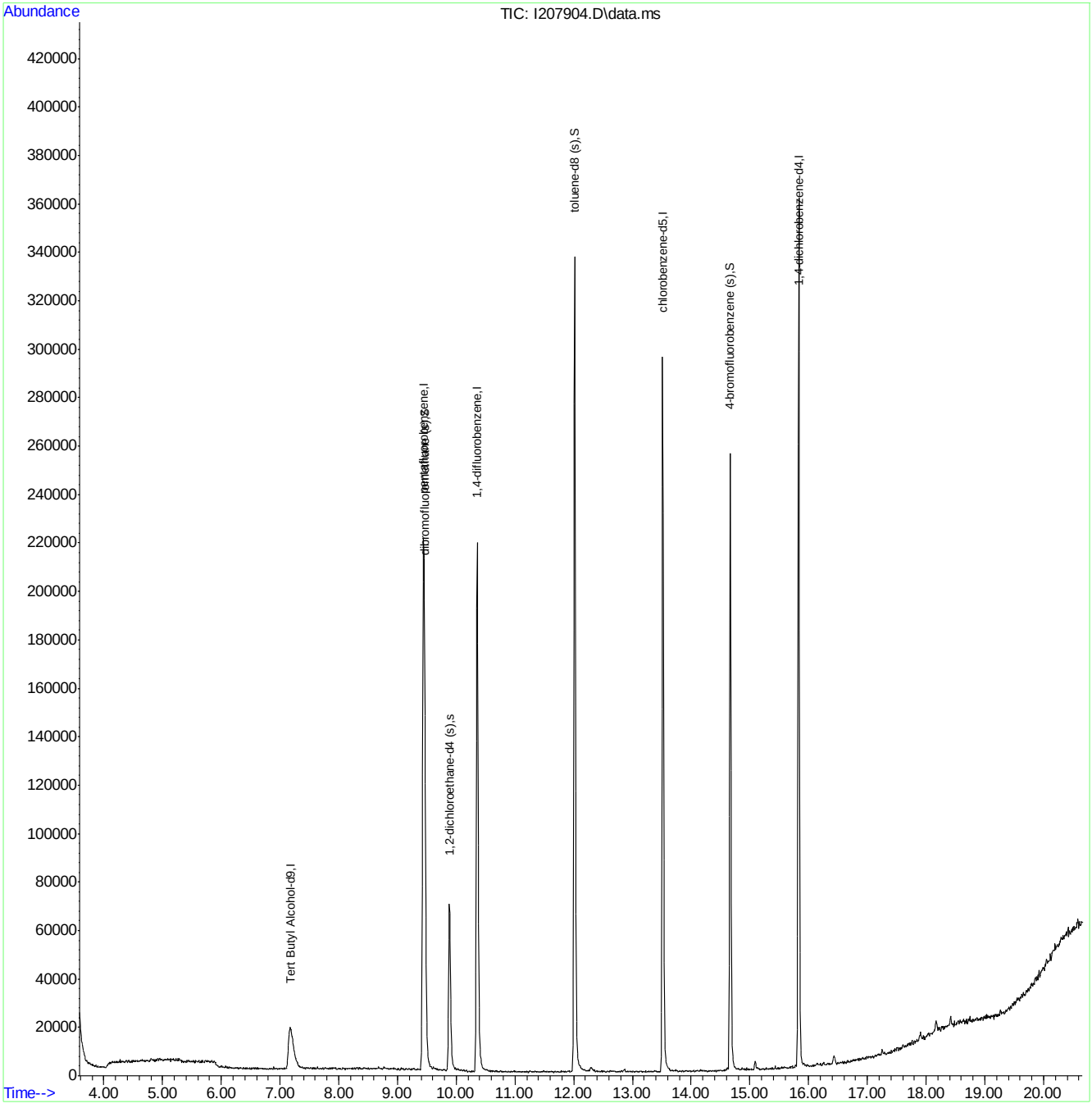
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8341\
Data File : I207904.D
Acq On : 23 Sep 2015 10:53 am
Operator : SCOTTM
Sample : MB1
Misc : MS91376,VI8341,,,,,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 23 14:29:19 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



MI8335.M Wed Sep 23 14:29:29 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207933.D
Acq On : 24 Sep 2015 10:51 am
Operator : SCOTTM
Sample : MB1
Misc : MS91628,VI8342,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 24 11:15:33 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.186	65	64609	500.00	ug/L	-0.01
5) pentafluorobenzene	9.440	168	196812	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.360	114	238157	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	193802	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	106233	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.466	113	76560	50.33	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 100.66%			
49) 1,2-dichloroethane-d4...	9.885	65	61199	50.21	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 100.42%			
80) toluene-d8 (s)	12.018	98	273708	48.76	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 97.52%			
95) 4-bromofluorobenzene (s)	14.665	95	90029	49.18	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 98.36%			

Target Compounds Qvalue

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

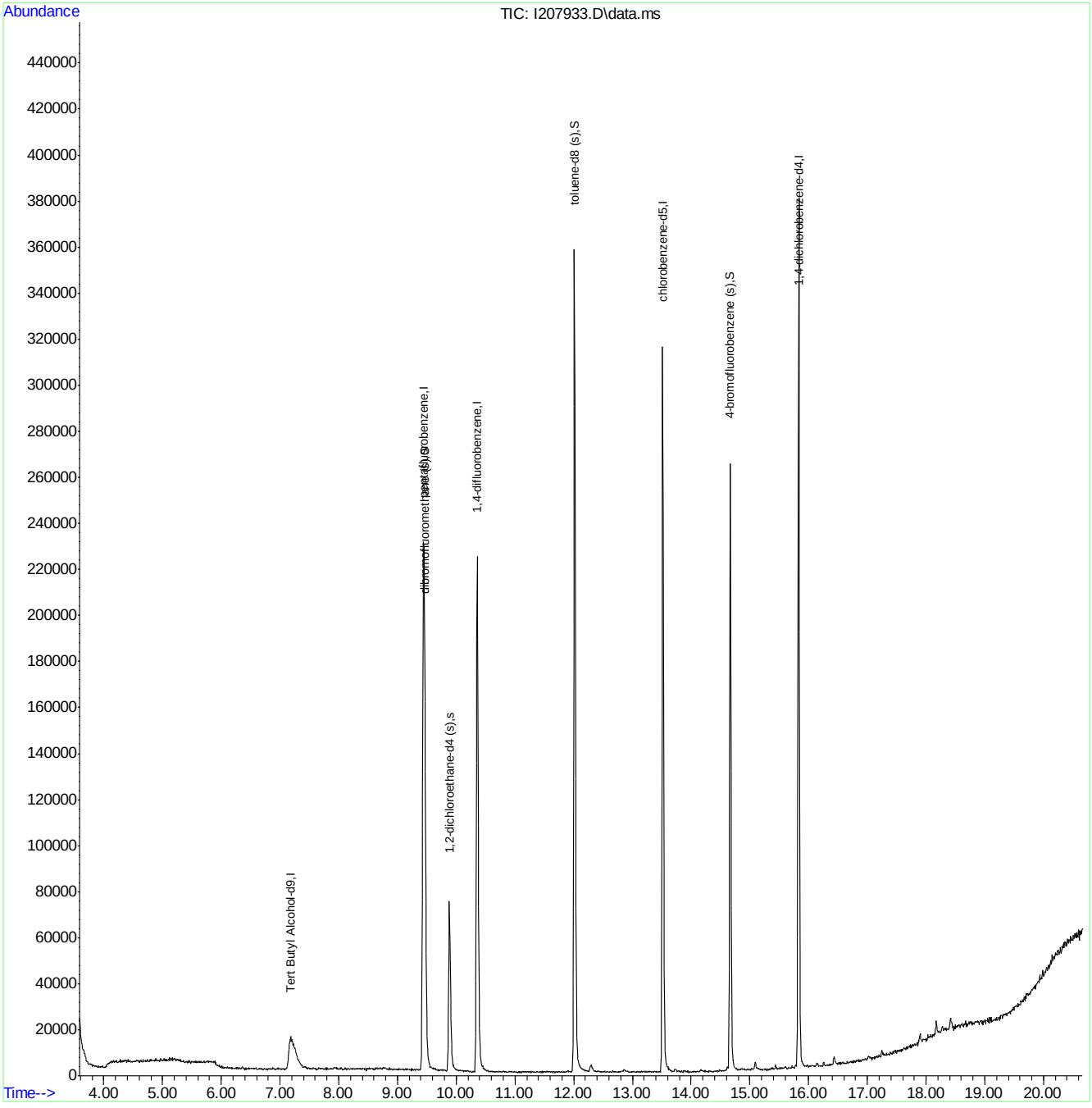
7.2.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8342\
Data File : I207933.D
Acq On : 24 Sep 2015 10:51 am
Operator : SCOTTM
Sample : MB1
Misc : MS91628,VI8342,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 24 11:15:33 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



MI8335.M Fri Sep 25 08:38:22 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8344\
Data File : I207984.D
Acq On : 25 Sep 2015 12:53 pm
Operator : SCOTTM
Sample : MB1
Misc : MS91631,VI8344,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 25 15:07:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.196	65	60479	500.00	ug/L	0.00
5) pentafluorobenzene	9.440	168	182383	50.00	ug/L	0.00
48) 1,4-difluorobenzene	10.355	114	218511	50.00	ug/L	0.00
79) chlorobenzene-d5	13.514	117	176745	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	15.831	152	97391	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.466	113	71565	50.77	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.54%			
49) 1,2-dichloroethane-d4...	9.885	65	57118	51.07	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.14%			
80) toluene-d8 (s)	12.013	98	252154	49.25	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.50%			
95) 4-bromofluorobenzene (s)	14.665	95	81591	48.62	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 97.24%			

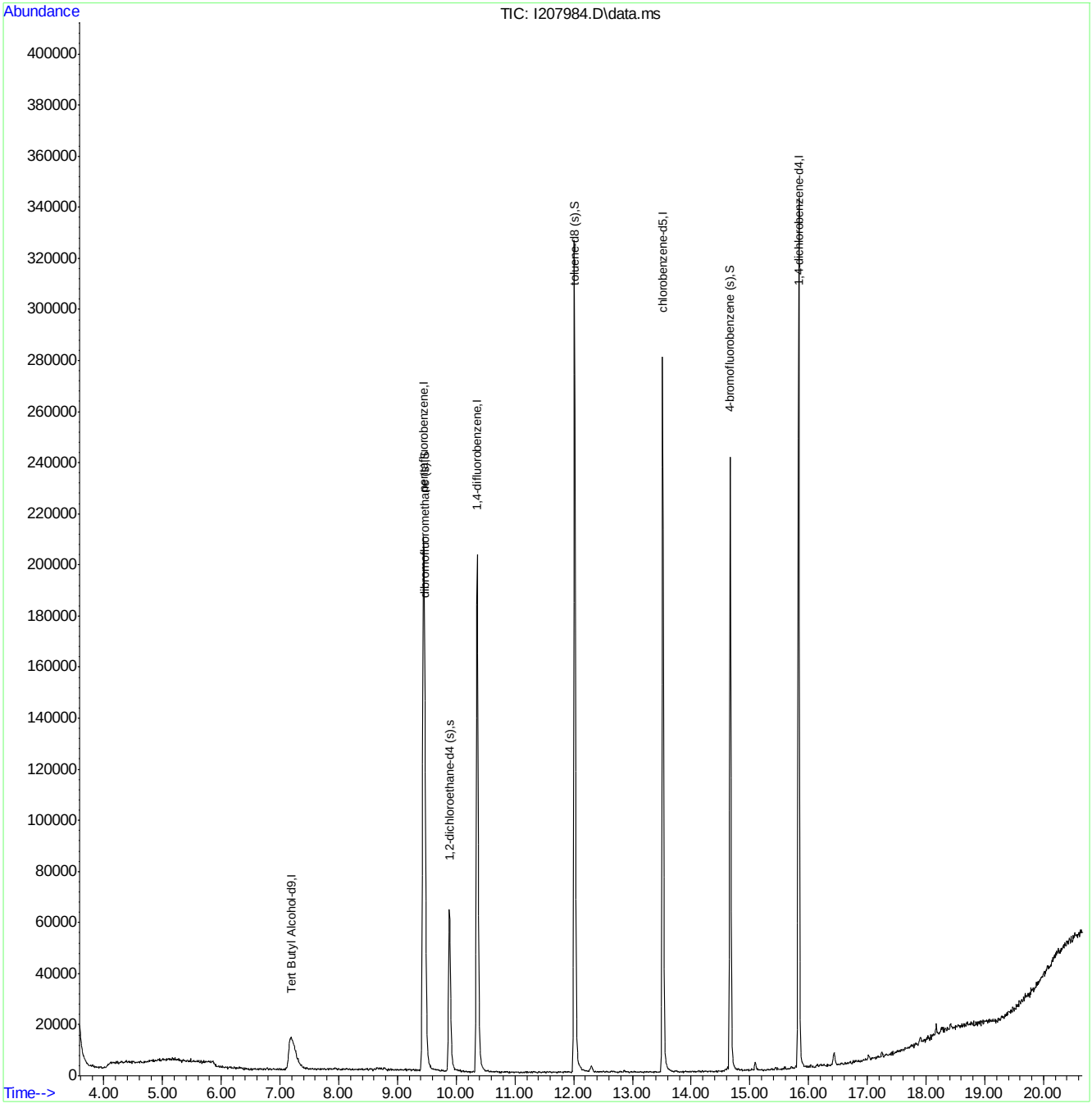
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI8344\
Data File : I207984.D
Acq On : 25 Sep 2015 12:53 pm
Operator : SCOTTM
Sample : MB1
Misc : MS91631,VI8344,,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 25 15:07:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\MI8335.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Sep 22 14:24:04 2015
Response via : Initial Calibration



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New Jersey
ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87287-MB1	P98825.D	1	09/17/15	SW	09/17/15	OP87287	EP4300

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-2

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	5.0	1.8	ug/l	
51-28-5	2,4-Dinitrophenol	ND	10	6.5	ug/l	
95-48-7	2-Methylphenol	ND	2.0	1.3	ug/l	
	3&4-Methylphenol	ND	2.0	1.1	ug/l	
100-02-7	4-Nitrophenol	ND	10	0.91	ug/l	
108-95-2	Phenol	ND	2.0	0.55	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.30	ug/l	
120-12-7	Anthracene	ND	1.0	0.19	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.31	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.22	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.27	ug/l	
218-01-9	Chrysene	ND	1.0	0.16	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.28	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.58	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.55	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.16	ug/l	
86-73-7	Fluorene	ND	1.0	0.27	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.29	ug/l	
91-20-3	Naphthalene	ND	1.0	0.27	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.19	ug/l	
129-00-0	Pyrene	ND	1.0	0.19	ug/l	
110-86-1	Pyridine	ND	2.0	0.29	ug/l	
91-22-5	Quinoline	ND	5.0	0.35	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	65%	14-88%
4165-62-2	Phenol-d5	43%	10-110%
118-79-6	2,4,6-Tribromophenol	93%	39-149%
4165-60-0	Nitrobenzene-d5	117%	32-128%

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87287-MB1	P98825.D	1	09/17/15	SW	09/17/15	OP87287	EP4300

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-2

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	96%	35-119%
1718-51-0	Terphenyl-d14	114%	10-126%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.63	4.6	ug/l	J
	Total TIC, Semi-Volatile		0	ug/l	

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87287-MB1	F150321.D	1	09/22/15	LK	09/17/15	OP87287	EF6319

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-2

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	5.0	1.8	ug/l	
51-28-5	2,4-Dinitrophenol	ND	10	6.5	ug/l	
95-48-7	2-Methylphenol	ND	2.0	1.3	ug/l	
	3&4-Methylphenol	ND	2.0	1.1	ug/l	
100-02-7	4-Nitrophenol	ND	10	0.91	ug/l	
108-95-2	Phenol	ND	2.0	0.55	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.30	ug/l	
120-12-7	Anthracene	ND	1.0	0.19	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.31	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.22	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.27	ug/l	
218-01-9	Chrysene	ND	1.0	0.16	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.28	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.58	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.55	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.16	ug/l	
86-73-7	Fluorene	ND	1.0	0.27	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.29	ug/l	
91-20-3	Naphthalene	ND	1.0	0.27	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.19	ug/l	
129-00-0	Pyrene	ND	1.0	0.19	ug/l	
110-86-1	Pyridine	ND	2.0	0.29	ug/l	
91-22-5	Quinoline	ND	5.0	0.35	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	67%	14-88%
4165-62-2	Phenol-d5	44%	10-110%
118-79-6	2,4,6-Tribromophenol	97%	39-149%
4165-60-0	Nitrobenzene-d5	105%	32-128%

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87287-MB1	F150321.D	1	09/22/15	LK	09/17/15	OP87287	EF6319

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-2

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	103%	35-119%
1718-51-0	Terphenyl-d14	105%	10-126%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Internal standard added for SIM te	5.01	4.4	ug/l	J
	Internal standard added for SIM te	6.39	5.3	ug/l	J
	Internal standard added for SIM te	7.86	4.5	ug/l	J
	unknown	8.13	6.8	ug/l	J
	Internal standard added for SIM test	11.43	4	ug/l	J
	Total TIC, Semi-Volatile		6.8	ug/l	J

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	M117988.D	1	09/18/15	AD	09/18/15	OP87313	EM4935

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	150	ug/kg	
95-48-7	2-Methylphenol	ND	67	48	ug/kg	
	3&4-Methylphenol	ND	67	32	ug/kg	
100-02-7	4-Nitrophenol	ND	330	57	ug/kg	
108-95-2	Phenol	ND	67	25	ug/kg	
83-32-9	Acenaphthene	ND	33	31	ug/kg	
120-12-7	Anthracene	ND	33	2.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	7.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.9	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	10	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	7.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.2	ug/kg	
218-01-9	Chrysene	ND	33	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	12	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	3.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	4.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	12	ug/kg	
206-44-0	Fluoranthene	ND	33	4.1	ug/kg	
86-73-7	Fluorene	ND	33	4.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	6.2	ug/kg	
91-20-3	Naphthalene	ND	33	5.3	ug/kg	
85-01-8	Phenanthrene	ND	33	3.7	ug/kg	
129-00-0	Pyrene	ND	33	4.2	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	86%	30-106%
4165-62-2	Phenol-d5	87%	30-106%
118-79-6	2,4,6-Tribromophenol	82%	24-140%
4165-60-0	Nitrobenzene-d5	90%	26-122%

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	M117988.D	1	09/18/15	AD	09/18/15	OP87313	EM4935

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	87%	36-112%
1718-51-0	Terphenyl-d14	96%	36-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.35	3700	ug/kg	J
	system artifact	2.42	220	ug/kg	J
	system artifact	3.38	140	ug/kg	J
	system artifact	3.44	150	ug/kg	J
	system artifact	3.50	280	ug/kg	J
	system artifact/aldol-condensation	3.54	660	ug/kg	J
	unknown	3.67	180	ug/kg	J
	Total TIC, Semi-Volatile		180	ug/kg	J

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	2P52516.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	150	ug/kg	
95-48-7	2-Methylphenol	ND	67	48	ug/kg	
	3&4-Methylphenol	ND	67	32	ug/kg	
100-02-7	4-Nitrophenol	ND	330	57	ug/kg	
108-95-2	Phenol	ND	67	25	ug/kg	
83-32-9	Acenaphthene	ND	33	31	ug/kg	
120-12-7	Anthracene	ND	33	2.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	7.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.9	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	10	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	7.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.2	ug/kg	
218-01-9	Chrysene	ND	33	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	12	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	3.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	4.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	12	ug/kg	
206-44-0	Fluoranthene	ND	33	4.1	ug/kg	
86-73-7	Fluorene	ND	33	4.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	6.2	ug/kg	
91-20-3	Naphthalene	ND	33	5.3	ug/kg	
85-01-8	Phenanthrene	ND	33	3.7	ug/kg	
129-00-0	Pyrene	ND	33	4.2	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	76%	30-106%
4165-62-2	Phenol-d5	80%	30-106%
118-79-6	2,4,6-Tribromophenol	86%	24-140%
4165-60-0	Nitrobenzene-d5	87%	26-122%

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	2P52516.D	1	09/19/15	SD	09/18/15	OP87313	E2P2265

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	93%	36-112%
1718-51-0	Terphenyl-d14	83%	36-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.53	3700	ug/kg	J
	system artifact	1.59	180	ug/kg	J
	system artifact	2.80	220	ug/kg	J
	system artifact/aldol-condensation	2.86	570	ug/kg	J
	system artifact	3.01	130	ug/kg	J
	Total TIC, Semi-Volatile		0	ug/kg	

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	3P46980.D	1	09/25/15	SD	09/18/15	OP87313	E3P2112

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	150	ug/kg	
95-48-7	2-Methylphenol	ND	67	48	ug/kg	
	3&4-Methylphenol	ND	67	32	ug/kg	
100-02-7	4-Nitrophenol	ND	330	57	ug/kg	
108-95-2	Phenol	ND	67	25	ug/kg	
83-32-9	Acenaphthene	ND	33	31	ug/kg	
120-12-7	Anthracene	ND	33	2.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	7.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.9	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	10	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	7.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.2	ug/kg	
218-01-9	Chrysene	ND	33	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	12	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	3.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	4.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	12	ug/kg	
206-44-0	Fluoranthene	ND	33	4.1	ug/kg	
86-73-7	Fluorene	ND	33	4.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	6.2	ug/kg	
91-20-3	Naphthalene	ND	33	5.3	ug/kg	
85-01-8	Phenanthrene	ND	33	3.7	ug/kg	
129-00-0	Pyrene	ND	33	4.2	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	57%	30-106%
4165-62-2	Phenol-d5	64%	30-106%
118-79-6	2,4,6-Tribromophenol	55%	24-140%
4165-60-0	Nitrobenzene-d5	91%	26-122%

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	3P46980.D	1	09/25/15	SD	09/18/15	OP87313	E3P2112

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	94%	36-112%
1718-51-0	Terphenyl-d14	99%	36-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.44	2200	ug/kg	J
	system artifact	3.57	210	ug/kg	J
	system artifact/aldol-condensation	3.63	640	ug/kg	J
	unknown	4.39	180	ug/kg	J
	system artifact	6.15	350	ug/kg	J
	system artifact	6.92	310	ug/kg	J
	system artifact	7.82	190	ug/kg	J
	system artifact	15.31	140	ug/kg	J
	system artifact	16.25	160	ug/kg	J
	system artifact	17.13	150	ug/kg	J
	Total TIC, Semi-Volatile		180	ug/kg	J

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	Z104546.D	1	09/26/15	SD	09/18/15	OP87313	EZ5224

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	150	ug/kg	
95-48-7	2-Methylphenol	ND	67	48	ug/kg	
	3&4-Methylphenol	ND	67	32	ug/kg	
100-02-7	4-Nitrophenol	ND	330	57	ug/kg	
108-95-2	Phenol	ND	67	25	ug/kg	
83-32-9	Acenaphthene	ND	33	31	ug/kg	
120-12-7	Anthracene	ND	33	2.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	7.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.9	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	10	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	7.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.2	ug/kg	
218-01-9	Chrysene	ND	33	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	12	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	3.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	4.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	12	ug/kg	
206-44-0	Fluoranthene	ND	33	4.1	ug/kg	
86-73-7	Fluorene	ND	33	4.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	6.2	ug/kg	
91-20-3	Naphthalene	ND	33	5.3	ug/kg	
85-01-8	Phenanthrene	ND	33	3.7	ug/kg	
129-00-0	Pyrene	ND	33	4.2	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	68%	30-106%
4165-62-2	Phenol-d5	77%	30-106%
118-79-6	2,4,6-Tribromophenol	63%	24-140%
4165-60-0	Nitrobenzene-d5	89%	26-122%

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MB1	Z104546.D	1	09/26/15	SD	09/18/15	OP87313	EZ5224

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	89%	36-112%
1718-51-0	Terphenyl-d14	94%	36-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.30	1800	ug/kg	J
	system artifact	3.42	170	ug/kg	J
	system artifact/aldol-condensation	3.50	490	ug/kg	J
	system artifact	4.29	180	ug/kg	J
	system artifact	5.99	330	ug/kg	J
	system artifact	6.72	260	ug/kg	J
	system artifact	7.55	160	ug/kg	J
	Total TIC, Semi-Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-BS1	M117989.D	1	09/18/15	AD	09/18/15	OP87313	EM4935

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1670	100	49-115
51-28-5	2,4-Dinitrophenol	3330	1810	54	30-127
95-48-7	2-Methylphenol	1670	1580	95	53-103
	3&4-Methylphenol	1670	1550	93	53-102
100-02-7	4-Nitrophenol	1670	1110	67	36-143
108-95-2	Phenol	1670	1550	93	45-106
83-32-9	Acenaphthene	1670	1500	90	60-108
120-12-7	Anthracene	1670	1450	87	59-109
56-55-3	Benzo(a)anthracene	1670	1380	83	52-113
50-32-8	Benzo(a)pyrene	1670	1430	86	56-122
205-99-2	Benzo(b)fluoranthene	1670	1410	85	53-119
191-24-2	Benzo(g,h,i)perylene	1670	1350	81	48-117
207-08-9	Benzo(k)fluoranthene	1670	1370	82	52-115
92-52-4	1,1'-Biphenyl	1670	1410	85	54-101
218-01-9	Chrysene	1670	1410	85	51-119
53-70-3	Dibenzo(a,h)anthracene	1670	1440	86	49-118
84-74-2	Di-n-butyl phthalate	1670	1500	90	56-117
84-66-2	Diethyl phthalate	1670	1420	85	54-112
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1560	94	45-130
206-44-0	Fluoranthene	1670	1430	86	58-110
86-73-7	Fluorene	1670	1440	86	59-108
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1360	82	48-120
91-57-6	2-Methylnaphthalene	1670	1410	85	48-104
91-20-3	Naphthalene	1670	1400	84	49-100
85-01-8	Phenanthrene	1670	1440	86	57-105
129-00-0	Pyrene	1670	1380	83	50-117
110-86-1	Pyridine	1670	1250	75	26-110
91-22-5	Quinoline	1670	1340	80	51-102

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	93%	30-106%
4165-62-2	Phenol-d5	90%	30-106%
118-79-6	2,4,6-Tribromophenol	86%	24-140%
4165-60-0	Nitrobenzene-d5	93%	26-122%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-BS1	M117989.D	1	09/18/15	AD	09/18/15	OP87313	EM4935

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	91%	36-112%
1718-51-0	Terphenyl-d14	95%	36-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-BS1	3P46981.D	1	09/25/15	SD	09/18/15	OP87313	E3P2112

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1590	95	49-115
51-28-5	2,4-Dinitrophenol	3330	2560	77	30-127
95-48-7	2-Methylphenol	1670	1460	88	53-103
	3&4-Methylphenol	1670	1370	82	53-102
100-02-7	4-Nitrophenol	1670	2820	169* [a]	36-143
108-95-2	Phenol	1670	1220	73	45-106
83-32-9	Acenaphthene	1670	1440	86	60-108
120-12-7	Anthracene	1670	1380	83	59-109
56-55-3	Benzo(a)anthracene	1670	1470	88	52-113
50-32-8	Benzo(a)pyrene	1670	1570	94	56-122
205-99-2	Benzo(b)fluoranthene	1670	1590	95	53-119
191-24-2	Benzo(g,h,i)perylene	1670	1120	67	48-117
207-08-9	Benzo(k)fluoranthene	1670	1380	83	52-115
92-52-4	1,1'-Biphenyl	1670	1330	80	54-101
218-01-9	Chrysene	1670	1290	77	51-119
53-70-3	Dibenzo(a,h)anthracene	1670	1280	77	49-118
84-74-2	Di-n-butyl phthalate	1670	1660	100	56-117
84-66-2	Diethyl phthalate	1670	1770	106	54-112
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1310	79	45-130
206-44-0	Fluoranthene	1670	1750	105	58-110
86-73-7	Fluorene	1670	1540	92	59-108
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1350	81	48-120
91-57-6	2-Methylnaphthalene	1670	1280	77	48-104
91-20-3	Naphthalene	1670	1230	74	49-100
85-01-8	Phenanthrene	1670	1380	83	57-105
129-00-0	Pyrene	1670	1380	83	50-117
110-86-1	Pyridine	1670	732	44	26-110
91-22-5	Quinoline	1670	1220	73	51-102

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	79%	30-106%
4165-62-2	Phenol-d5	78%	30-106%
118-79-6	2,4,6-Tribromophenol	89%	24-140%
4165-60-0	Nitrobenzene-d5	87%	26-122%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-BS1	3P46981.D	1	09/25/15	SD	09/18/15	OP87313	E3P2112

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	89%	36-112%
1718-51-0	Terphenyl-d14	97%	36-132%

(a) High percent recoveries and no associated positive found in the QC batch.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-BS1	Z104547.D	1	09/26/15	SD	09/18/15	OP87313	EZ5224

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1500	90	49-115
51-28-5	2,4-Dinitrophenol	3330	2560	77	30-127
95-48-7	2-Methylphenol	1670	1600	96	53-103
	3&4-Methylphenol	1670	1620	97	53-102
100-02-7	4-Nitrophenol	1670	1720	103	36-143
108-95-2	Phenol	1670	1380	83	45-106
83-32-9	Acenaphthene	1670	1460	88	60-108
120-12-7	Anthracene	1670	1440	86	59-109
56-55-3	Benzo(a)anthracene	1670	1440	86	52-113
50-32-8	Benzo(a)pyrene	1670	1570	94	56-122
205-99-2	Benzo(b)fluoranthene	1670	1500	90	53-119
191-24-2	Benzo(g,h,i)perylene	1670	1340	80	48-117
207-08-9	Benzo(k)fluoranthene	1670	1330	80	52-115
92-52-4	1,1'-Biphenyl	1670	1390	83	54-101
218-01-9	Chrysene	1670	1390	83	51-119
53-70-3	Dibenzo(a,h)anthracene	1670	1430	86	49-118
84-74-2	Di-n-butyl phthalate	1670	1640	98	56-117
84-66-2	Diethyl phthalate	1670	1560	94	54-112
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1480	89	45-130
206-44-0	Fluoranthene	1670	1510	91	58-110
86-73-7	Fluorene	1670	1480	89	59-108
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1460	88	48-120
91-57-6	2-Methylnaphthalene	1670	1270	76	48-104
91-20-3	Naphthalene	1670	1260	76	49-100
85-01-8	Phenanthrene	1670	1380	83	57-105
129-00-0	Pyrene	1670	1410	85	50-117
110-86-1	Pyridine	1670	1000	60	26-110
91-22-5	Quinoline	1670	1210	73	51-102

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	91%	30-106%
4165-62-2	Phenol-d5	88%	30-106%
118-79-6	2,4,6-Tribromophenol	101%	24-140%
4165-60-0	Nitrobenzene-d5	83%	26-122%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-BS1	Z104547.D	1	09/26/15	SD	09/18/15	OP87313	EZ5224

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	94%	36-112%
1718-51-0	Terphenyl-d14	95%	36-132%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87287-BS1	P98826.D	1	09/17/15	SW	09/17/15	OP87287	EP4300
OP87287-BSD	P98827.D	1	09/17/15	SW	09/17/15	OP87287	EP4300

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
105-67-9	2,4-Dimethylphenol	50	47.5	95	49.3	99	4	42-117/30
51-28-5	2,4-Dinitrophenol	100	70.7	71	77.3	77	9	37-132/30
95-48-7	2-Methylphenol	50	40.5	81	39.9	80	1	42-103/30
	3&4-Methylphenol	50	38.2	76	37.6	75	2	39-110/30
100-02-7	4-Nitrophenol	50	32.2	64	29.7	59	8	16-95/30
108-95-2	Phenol	50	25.4	51	26.1	52	3	10-110/30
83-32-9	Acenaphthene	50	42.8	86	44.7	89	4	54-112/30
120-12-7	Anthracene	50	41.8	84	43.6	87	4	58-112/30
56-55-3	Benzo(a)anthracene	50	40.9	82	43.2	86	5	44-120/30
50-32-8	Benzo(a)pyrene	50	41.3	83	41.5	83	0	41-127/30
205-99-2	Benzo(b)fluoranthene	50	43.9	88	44.4	89	1	41-129/30
191-24-2	Benzo(g,h,i)perylene	50	40.1	80	40.2	80	0	34-128/30
207-08-9	Benzo(k)fluoranthene	50	41.1	82	40.8	82	1	42-122/30
92-52-4	1,1'-Biphenyl	50	40.8	82	42.4	85	4	51-106/30
218-01-9	Chrysene	50	42.7	85	44.9	90	5	45-125/30
53-70-3	Dibenzo(a,h)anthracene	50	49.1	98	49.3	99	0	36-130/30
84-74-2	Di-n-butyl phthalate	50	42.5	85	44.5	89	5	45-123/30
84-66-2	Diethyl phthalate	50	41.4	83	42.5	85	3	23-130/30
117-81-7	bis(2-Ethylhexyl)phthalate	50	47.3	95	48.9	98	3	36-138/30
206-44-0	Fluoranthene	50	40.8	82	42.0	84	3	58-116/30
86-73-7	Fluorene	50	43.4	87	44.6	89	3	57-113/30
193-39-5	Indeno(1,2,3-cd)pyrene	50	44.0	88	44.7	89	2	34-128/30
91-57-6	2-Methylnaphthalene	50	44.7	89	46.6	93	4	45-107/30
91-20-3	Naphthalene	50	42.2	84	44.1	88	4	40-102/30
85-01-8	Phenanthrene	50	39.8	80	41.9	84	5	56-111/30
129-00-0	Pyrene	50	38.8	78	42.4	85	9	47-120/30
110-86-1	Pyridine	50	29.2	58	33.4	67	13	10-110/30
91-22-5	Quinoline	50	43.9	88	45.6	91	4	50-106/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	66%	61%	14-88%
4165-62-2	Phenol-d5	45%	46%	10-110%
118-79-6	2,4,6-Tribromophenol	82%	87%	39-149%
4165-60-0	Nitrobenzene-d5	104%	111%	32-128%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87287-BS1	P98826.D	1	09/17/15	SW	09/17/15	OP87287	EP4300
OP87287-BSD	P98827.D	1	09/17/15	SW	09/17/15	OP87287	EP4300

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
321-60-8	2-Fluorobiphenyl	88%	93%	35-119%
1718-51-0	Terphenyl-d14	106%	108%	10-126%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MS	M118010.D	1	09/19/15	AD	09/18/15	OP87313	EM4935
OP87313-MSD	M118011.D	1	09/19/15	AD	09/18/15	OP87313	EM4935
JC4005-3	M118009.D	1	09/19/15	AD	09/18/15	OP87313	EM4935

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	JC4005-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
105-67-9	2,4-Dimethylphenol	ND		2220	1780	80	2230	1630	73	9	23-133/34
51-28-5	2,4-Dinitrophenol	ND		4440	395	9* [a]	4470	274	6* [a]	36	10-110/51
95-48-7	2-Methylphenol	ND		2220	1720	78	2230	1590	71	8	32-111/34
	3&4-Methylphenol	ND		2220	1720	78	2230	1630	73	5	32-113/34
100-02-7	4-Nitrophenol	ND		2220	1530	69	2230	1360	61	12	14-154/39
108-95-2	Phenol	ND		2220	1670	75	2230	1500	67	11	25-112/33
83-32-9	Acenaphthene	61.5		2220	1580	68	2230	1490	64	6	34-125/36
120-12-7	Anthracene	150		2220	1560	64	2230	1600	65	3	31-131/41
56-55-3	Benzo(a)anthracene	162		2220	1490	60	2230	1520	61	2	23-136/43
50-32-8	Benzo(a)pyrene	109		2220	1490	62	2230	1470	61	1	22-144/42
205-99-2	Benzo(b)fluoranthene	73.6		2220	1460	63	2230	1360	58	7	18-145/43
191-24-2	Benzo(g,h,i)perylene	154		2220	1470	59	2230	1450	58	1	20-138/43
207-08-9	Benzo(k)fluoranthene	ND		2220	1410	64	2230	1220	55	14	27-129/43
92-52-4	1,1'-Biphenyl	210		2220	1520	59	2230	1590	62	5	33-116/32
218-01-9	Chrysene	242		2220	1540	59	2230	1620	62	5	21-142/43
53-70-3	Dibenzo(a,h)anthracene	27.6	J	2220	1500	66	2230	1360	60	10	25-135/41
84-74-2	Di-n-butyl phthalate	ND		2220	1570	71	2230	1440	64	9	32-131/34
84-66-2	Diethyl phthalate	ND		2220	1500	68	2230	1380	62	8	35-124/32
117-81-7	bis(2-Ethylhexyl)phthalate	218		2220	1830	73	2230	1610	62	13	25-146/35
206-44-0	Fluoranthene	158		2220	1550	63	2230	1610	65	4	15-143/46
86-73-7	Fluorene	210		2220	1550	60	2230	1630	64	5	30-129/37
193-39-5	Indeno(1,2,3-cd)pyrene	56.2		2220	1470	64	2230	1350	58	9	23-141/44
91-57-6	2-Methylnaphthalene	2490		2220	1870	0* [a]	2230	4210	77	77* [b]	21-125/33
91-20-3	Naphthalene	1020		2220	1670	29	2230	2440	64	37* [b]	24-118/35
85-01-8	Phenanthrene	1400		2220	1790	18	2230	3630	100	68* [b]	14-144/44
129-00-0	Pyrene	964		2220	1640	30	2230	2670	76	48* [b]	16-147/46
110-86-1	Pyridine	ND		2220	1230	55	2230	1220	55	1	10-110/43
91-22-5	Quinoline	ND		2220	1410	64	2230	1290	58	9	26-116/32

CAS No.	Surrogate Recoveries	MS	MSD	JC4005-3	Limits
367-12-4	2-Fluorophenol	78%	69%	68%	30-106%
4165-62-2	Phenol-d5	76%	69%	67%	30-106%
118-79-6	2,4,6-Tribromophenol	71%	63%	58%	24-140%
4165-60-0	Nitrobenzene-d5	76%	66%	66%	26-122%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87313-MS	M118010.D	1	09/19/15	AD	09/18/15	OP87313	EM4935
OP87313-MSD	M118011.D	1	09/19/15	AD	09/18/15	OP87313	EM4935
JC4005-3	M118009.D	1	09/19/15	AD	09/18/15	OP87313	EM4935

The QC reported here applies to the following samples: **Method:** SW846 8270D

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Surrogate Recoveries	MS	MSD	JC4005-3	Limits
321-60-8	2-Fluorobiphenyl	73%	67%	62%	36-112%
1718-51-0	Terphenyl-d14	75%	66%	66%	36-132%

(a) Outside control limits due to matrix interference.
(b) Analytical precision exceeds in-house control limits.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2252-DFTPP
Lab File ID: 2P52213.D
Instrument ID: GCMS2P
Injection Date: 09/08/15
Injection Time: 16:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	183250	36.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	226420	45.0		Pass
70	Less than 2.0% of mass 69	1293	0.26	(0.57) [a]	Pass
127	40.0 - 60.0% of mass 198	240435	47.8		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	503125	100.0		Pass
199	5.0 - 9.0% of mass 198	34237	6.80		Pass
275	10.0 - 30.0% of mass 198	123893	24.6		Pass
365	1.0 - 100.0% of mass 198	13012	2.59		Pass
441	Present, but less than mass 443	52296	10.4	(89.0) [b]	Pass
442	40.0 - 100.0% of mass 198	299776	59.6		Pass
443	17.0 - 23.0% of mass 442	58733	11.7	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2252-IC2252	2P52214.D	09/08/15	16:59	00:11	Initial cal 2.0
E2P2252-IC2252	2P52215.D	09/08/15	17:21	00:33	Initial cal 1.0
E2P2252-IC2252	2P52216.D	09/08/15	17:43	00:55	Initial cal 100
E2P2252-IC2252	2P52217.D	09/08/15	18:04	01:16	Initial cal 80
E2P2252-ICC2252	2P52218.D	09/08/15	18:25	01:37	Initial cal 50
E2P2252-IC2252	2P52219.D	09/08/15	18:46	01:58	Initial cal 25
E2P2252-IC2252	2P52220.D	09/08/15	19:08	02:20	Initial cal 10
E2P2252-IC2252	2P52221.D	09/08/15	19:29	02:41	Initial cal 5
E2P2252-ICV2252	2P52222.D	09/08/15	19:50	03:02	Initial cal verification 50
E2P2252-ICV2252	2P52223.D	09/08/15	20:11	03:23	Initial cal verification 50
E2P2252-ICV2252	2P52224.D	09/08/15	20:33	03:45	Initial cal verification 50
E2P2252-ICV2252	2P52225.D	09/08/15	20:54	04:06	Initial cal verification 50
E2P2252-ICV2252	2P52227.D	09/08/15	21:37	04:49	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2253-DFTPP
Lab File ID: 2P52229.D
Instrument ID: GCMS2P
Injection Date: 09/09/15
Injection Time: 12:33

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	185796	35.5		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	234646	44.8		Pass
70	Less than 2.0% of mass 69	988	0.19	(0.42) [a]	Pass
127	40.0 - 60.0% of mass 198	243485	46.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	523221	100.0		Pass
199	5.0 - 9.0% of mass 198	34171	6.53		Pass
275	10.0 - 30.0% of mass 198	137525	26.3		Pass
365	1.0 - 100.0% of mass 198	14855	2.84		Pass
441	Present, but less than mass 443	61563	11.8	(92.7) [b]	Pass
442	40.0 - 100.0% of mass 198	361365	69.1		Pass
443	17.0 - 23.0% of mass 442	66419	12.7	(18.4) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2253-ICV2252	2P52230.D	09/09/15	12:50	00:17	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2255-DFTPP
Lab File ID: 2P52265.D
Instrument ID: GCMS2P
Injection Date: 09/10/15
Injection Time: 09:54

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	238739	38.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	292595	47.1		Pass
70	Less than 2.0% of mass 69	1305	0.21	(0.45) [a]	Pass
127	40.0 - 60.0% of mass 198	298608	48.1		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	621205	100.0		Pass
199	5.0 - 9.0% of mass 198	41200	6.63		Pass
275	10.0 - 30.0% of mass 198	155104	25.0		Pass
365	1.0 - 100.0% of mass 198	16625	2.68		Pass
441	Present, but less than mass 443	62960	10.1	(87.6) [b]	Pass
442	40.0 - 100.0% of mass 198	377813	60.8		Pass
443	17.0 - 23.0% of mass 442	71859	11.6	(19.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2255-IC2255	2P52266.D	09/10/15	10:22	00:28	Initial cal 100
E2P2255-IC2255	2P52267.D	09/10/15	10:43	00:49	Initial cal 80
E2P2255-ICC2255	2P52268.D	09/10/15	11:04	01:10	Initial cal 50
E2P2255-IC2255	2P52269.D	09/10/15	11:25	01:31	Initial cal 25
E2P2255-IC2255	2P52270.D	09/10/15	11:47	01:53	Initial cal 10
E2P2255-IC2255	2P52271.D	09/10/15	12:08	02:14	Initial cal 5
E2P2255-IC2255	2P52272.D	09/10/15	12:29	02:35	Initial cal 2
E2P2255-IC2255	2P52273.D	09/10/15	12:51	02:57	Initial cal 1
E2P2255-ICV2255	2P52274.D	09/10/15	13:12	03:18	Initial cal verification 50
E2P2255-ICV2255	2P52275.D	09/10/15	13:33	03:39	Initial cal verification 50
E2P2255-ICV2255	2P52276.D	09/10/15	13:55	04:01	Initial cal verification 50
E2P2255-ICV2255	2P52278.D	09/10/15	14:42	04:48	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2265-DFTPP
Lab File ID: 2P52509.D
Instrument ID: GCMS2P
Injection Date: 09/18/15
Injection Time: 20:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	79882	41.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	104176	53.8		Pass
70	Less than 2.0% of mass 69	342	0.18	(0.33) [a]	Pass
127	40.0 - 60.0% of mass 198	98595	50.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	193520	100.0		Pass
199	5.0 - 9.0% of mass 198	13070	6.75		Pass
275	10.0 - 30.0% of mass 198	47227	24.4		Pass
365	1.0 - 100.0% of mass 198	5944	3.07		Pass
441	Present, but less than mass 443	23921	12.4	(90.5) [b]	Pass
442	40.0 - 100.0% of mass 198	141176	73.0		Pass
443	17.0 - 23.0% of mass 442	26423	13.7	(18.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2265-CC2252	2P52510.D	09/18/15	21:48	00:53	Continuing cal 50
E2P2265-CC2255	2P52511.D	09/18/15	22:09	01:14	Continuing cal 50
OP87217-MB1	2P52513.D	09/18/15	23:08	02:13	Method Blank
OP87217-BS1	2P52514.D	09/18/15	23:29	02:34	Blank Spike
OP87288-MB1	2P52515.D	09/18/15	23:50	02:55	Method Blank
OP87313-MB1	2P52516.D	09/19/15	00:11	03:16	Method Blank
OP87236-MB1	2P52534.D	09/19/15	00:32	03:37	Method Blank
ZZZZZZ	2P52535.D	09/19/15	00:53	03:58	(unrelated sample)
ZZZZZZ	2P52536.D	09/19/15	01:14	04:19	(unrelated sample)
ZZZZZZ	2P52537.D	09/19/15	01:35	04:40	(unrelated sample)
ZZZZZZ	2P52538.D	09/19/15	01:56	05:01	(unrelated sample)
ZZZZZZ	2P52539.D	09/19/15	02:18	05:23	(unrelated sample)
ZZZZZZ	2P52540.D	09/19/15	02:39	05:44	(unrelated sample)
ZZZZZZ	2P52517.D	09/19/15	03:00	06:05	(unrelated sample)
JC4005-4	2P52518.D	09/19/15	03:21	06:26	MHIC-387-2(5.0)
JC4005-14	2P52519.D	09/19/15	03:42	06:47	MHIC-387-12(2.0)
JC4005-15	2P52520.D	09/19/15	04:03	07:08	MHIC-387-13(2.0)
ZZZZZZ	2P52521.D	09/19/15	04:24	07:29	(unrelated sample)
JC4005-13	2P52522.D	09/19/15	04:46	07:51	MHIC-387-11(3.0)

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2265-DFTPP
Lab File ID: 2P52509.D
Instrument ID: GCMS2P
Injection Date: 09/18/15
Injection Time: 20:55

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JC4005-6	2P52523.D	09/19/15	05:07	08:12	MHIC-387-4(5.0)
JC2828-9AQ	2P52526.D	09/19/15	06:11	09:16	(used for QC only; not part of job JC4005)
ZZZZZZ	2P52527.D	09/19/15	06:32	09:37	(unrelated sample)
OP87217-MS	2P52528.D	09/19/15	06:53	09:58	Matrix Spike
OP87217-MSD	2P52529.D	09/19/15	07:14	10:19	Matrix Spike Duplicate
ZZZZZZ	2P52530.D	09/19/15	07:36	10:41	(unrelated sample)
OP87288-MS	2P52532.D	09/19/15	08:18	11:23	Matrix Spike
OP87288-MSD	2P52533.D	09/19/15	08:39	11:44	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2057-DFTPP
Lab File ID: 3P46010.D
Instrument ID: GCMS3P
Injection Date: 08/18/15
Injection Time: 14:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	32456	32.8		Pass
68	Less than 2.0% of mass 69	678	0.68	(1.60) [a]	Pass
69	Mass 69 relative abundance	42473	42.9		Pass
70	Less than 2.0% of mass 69	264	0.27	(0.62) [a]	Pass
127	40.0 - 60.0% of mass 198	54873	55.4		Pass
197	Less than 1.0% of mass 198	216	0.22		Pass
198	Base peak, 100% relative abundance	98997	100.0		Pass
199	5.0 - 9.0% of mass 198	6675	6.74		Pass
275	10.0 - 30.0% of mass 198	22942	23.2		Pass
365	1.0 - 100.0% of mass 198	2829	2.86		Pass
441	Present, but less than mass 443	10056	10.2	(79.6) [b]	Pass
442	40.0 - 100.0% of mass 198	66688	67.4		Pass
443	17.0 - 23.0% of mass 442	12640	12.8	(19.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3P2057-IC2057	3P46011.D	08/18/15	14:18	00:17	Initial cal 1
E3P2057-IC2057	3P46012.D	08/18/15	14:44	00:43	Initial cal 2
E3P2057-IC2057	3P46013.D	08/18/15	15:11	01:10	Initial cal 5
E3P2057-IC2057	3P46014.D	08/18/15	15:37	01:36	Initial cal 10
E3P2057-IC2057	3P46015.D	08/18/15	16:04	02:03	Initial cal 25
E3P2057-ICC2057	3P46016.D	08/18/15	16:30	02:29	Initial cal 50
E3P2057-IC2057	3P46017.D	08/18/15	16:57	02:56	Initial cal 80
E3P2057-IC2057	3P46018.D	08/18/15	17:24	03:23	Initial cal 100
E3P2057-ICV2056	3P46019.D	08/18/15	17:50	03:49	Initial cal verification 50
E3P2057-ICV2056	3P46020.D	08/18/15	18:17	04:16	Initial cal verification 50
E3P2057-ICV2056	3P46021.D	08/18/15	18:43	04:42	Initial cal verification 50
E3P2057-ICV2057	3P46021A.D	08/18/15	18:43	04:42	Initial cal verification 50
E3P2057-ICV2056	3P46022.D	08/18/15	19:10	05:09	Initial cal verification 50
E3P2057-ICV2057	3P46022A.D	08/18/15	19:10	05:09	Initial cal verification 50
E3P2057-ICV2056	3P46023.D	08/18/15	19:36	05:35	Initial cal verification 50
E3P2057-ICV2057	3P46024A.D	08/18/15	20:03	06:02	Initial cal verification 50
E3P2057-ICV2056	3P46024.D	08/18/15	20:03	06:02	Initial cal verification 50
E3P2057-ICV2057	3P46025.D	08/18/15	20:29	06:28	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2065-DFTPP
Lab File ID: 3P46148.D
Instrument ID: GCMS3P
Injection Date: 08/21/15
Injection Time: 17:16

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	23257	33.8		Pass
68	Less than 2.0% of mass 69	629	0.91	(1.84) [a]	Pass
69	Mass 69 relative abundance	34177	49.7		Pass
70	Less than 2.0% of mass 69	156	0.23	(0.46) [a]	Pass
127	40.0 - 60.0% of mass 198	35320	51.3		Pass
197	Less than 1.0% of mass 198	173	0.25		Pass
198	Base peak, 100% relative abundance	68829	100.0		Pass
199	5.0 - 9.0% of mass 198	4762	6.92		Pass
275	10.0 - 30.0% of mass 198	17378	25.2		Pass
365	1.0 - 100.0% of mass 198	2151	3.13		Pass
441	Present, but less than mass 443	8525	12.4	(78.4) [b]	Pass
442	40.0 - 100.0% of mass 198	58365	84.8		Pass
443	17.0 - 23.0% of mass 442	10874	15.8	(18.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3P2065-ICC2065	3P46149.D	08/21/15	17:39	00:23	Initial cal 50
E3P2065-IC2065	3P46150.D	08/21/15	18:07	00:51	Initial cal 100
E3P2065-IC2065	3P46151.D	08/21/15	18:36	01:20	Initial cal 1
E3P2065-IC2065	3P46152.D	08/21/15	19:04	01:48	Initial cal 80
E3P2065-IC2065	3P46153.D	08/21/15	19:33	02:17	Initial cal 25
E3P2065-IC2065	3P46154.D	08/21/15	20:02	02:46	Initial cal 10
E3P2065-IC2065	3P46155.D	08/21/15	20:30	03:14	Initial cal 5
E3P2065-IC2065	3P46156.D	08/21/15	20:59	03:43	Initial cal 2
E3P2065-ICV2065	3P46157.D	08/21/15	21:33	04:17	Initial cal verification 50
E3P2065-ICV2065	3P46158.D	08/21/15	22:05	04:49	Initial cal verification 50
E3P2065-ICV2065	3P46159.D	08/21/15	22:33	05:17	Initial cal verification 50
E3P2065-ICV2065	3P46160.D	08/21/15	23:01	05:45	Initial cal verification 50
E3P2065-ICV2065	3P46162.D	08/21/15	23:58	06:42	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2066-DFTPP
Lab File ID: 3P46163.D
Instrument ID: GCMS3P
Injection Date: 08/24/15
Injection Time: 09:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	28565	32.8		Pass
68	Less than 2.0% of mass 69	802	0.92	(1.91) [a]	Pass
69	Mass 69 relative abundance	42040	48.3		Pass
70	Less than 2.0% of mass 69	131	0.15	(0.31) [a]	Pass
127	40.0 - 60.0% of mass 198	44498	51.1		Pass
197	Less than 1.0% of mass 198	258	0.30		Pass
198	Base peak, 100% relative abundance	87117	100.0		Pass
199	5.0 - 9.0% of mass 198	5924	6.80		Pass
275	10.0 - 30.0% of mass 198	21694	24.9		Pass
365	1.0 - 100.0% of mass 198	2551	2.93		Pass
441	Present, but less than mass 443	10781	12.4	(80.7) [b]	Pass
442	40.0 - 100.0% of mass 198	71859	82.5		Pass
443	17.0 - 23.0% of mass 442	13361	15.3	(18.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3P2066-ICV2065	3P46164.D	08/24/15	09:14	00:13	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2112-DFTPP
Lab File ID: 3P46974.D
Instrument ID: GCMS3P
Injection Date: 09/25/15
Injection Time: 18:45

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	82234	36.9		Pass
68	Less than 2.0% of mass 69	1741	0.78	(1.64) [a]	Pass
69	Mass 69 relative abundance	106448	47.7		Pass
70	Less than 2.0% of mass 69	570	0.26	(0.54) [a]	Pass
127	40.0 - 60.0% of mass 198	123231	55.2		Pass
197	Less than 1.0% of mass 198	874	0.39		Pass
198	Base peak, 100% relative abundance	223147	100.0		Pass
199	5.0 - 9.0% of mass 198	15300	6.86		Pass
275	10.0 - 30.0% of mass 198	57208	25.6		Pass
365	1.0 - 100.0% of mass 198	9089	4.07		Pass
441	Present, but less than mass 443	22132	9.92	(81.4) [b]	Pass
442	40.0 - 100.0% of mass 198	145723	65.3		Pass
443	17.0 - 23.0% of mass 442	27195	12.2	(18.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3P2112-CC2065	3P46975.D	09/25/15	18:57	00:12	Continuing cal 50
E3P2112-CC2057	3P46976.D	09/25/15	19:24	00:39	Continuing cal 50
OP87481-MB1	3P46978.D	09/25/15	20:34	01:49	Method Blank
OP87481-BS1	3P46979.D	09/25/15	21:01	02:16	Blank Spike
OP87481-BS13	3P46984.D	09/25/15	21:27	02:42	Blank Spike
OP87313-MB1	3P46980.D	09/25/15	21:53	03:08	Method Blank
OP87313-BS1	3P46981.D	09/25/15	22:20	03:35	Blank Spike
ZZZZZZ	3P46985.D	09/25/15	23:38	04:53	(unrelated sample)
ZZZZZZ	3P46986.D	09/26/15	00:05	05:20	(unrelated sample)
ZZZZZZ	3P46987.D	09/26/15	00:31	05:46	(unrelated sample)
JC3755-1A	3P46988.D	09/26/15	00:57	06:12	(used for QC only; not part of job JC4005)
ZZZZZZ	3P46989.D	09/26/15	01:23	06:38	(unrelated sample)
ZZZZZZ	3P46990.D	09/26/15	01:49	07:04	(unrelated sample)
ZZZZZZ	3P46991.D	09/26/15	02:15	07:30	(unrelated sample)
ZZZZZZ	3P46992.D	09/26/15	02:42	07:57	(unrelated sample)
ZZZZZZ	3P46993.D	09/26/15	03:08	08:23	(unrelated sample)
ZZZZZZ	3P46994.D	09/26/15	03:34	08:49	(unrelated sample)
OP87481-MS	3P46995.D	09/26/15	04:00	09:15	Matrix Spike
OP87481-MSD	3P46996.D	09/26/15	04:26	09:41	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6287-DFTPP
Lab File ID: F149643.D
Instrument ID: GCMSF
Injection Date: 08/28/15
Injection Time: 20:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	45252	39.2		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	49703	43.0		Pass
70	Less than 2.0% of mass 69	118	0.10	(0.24) [a]	Pass
127	40.0 - 60.0% of mass 198	66874	57.9		Pass
197	Less than 1.0% of mass 198	513	0.44		Pass
198	Base peak, 100% relative abundance	115490	100.0		Pass
199	5.0 - 9.0% of mass 198	8097	7.01		Pass
275	10.0 - 30.0% of mass 198	22814	19.8		Pass
365	1.0 - 100.0% of mass 198	2216	1.92		Pass
441	Present, but less than mass 443	11248	9.74	(76.1) [b]	Pass
442	40.0 - 100.0% of mass 198	73316	63.5		Pass
443	17.0 - 23.0% of mass 442	14785	12.8	(20.2) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EF6287-ICC6287	F149644.D	08/28/15	21:01	00:13	Initial cal 50
EF6287-IC6287	F149645.D	08/28/15	21:30	00:42	Initial cal 25
EF6287-IC6287	F149646.D	08/28/15	21:59	01:11	Initial cal 100
EF6287-IC6287	F149647.D	08/28/15	22:28	01:40	Initial cal 80
EF6287-IC6287	F149648.D	08/28/15	22:56	02:08	Initial cal 10
EF6287-IC6287	F149649.D	08/28/15	23:25	02:37	Initial cal 5
EF6287-IC6287	F149650.D	08/28/15	23:54	03:06	Initial cal 2
EF6287-IC6287	F149651.D	08/29/15	00:23	03:35	Initial cal 1

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-DFTPP
Lab File ID: F149652.D
Instrument ID: GCMSF
Injection Date: 08/29/15
Injection Time: 00:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	47724	40.3		Pass
68	Less than 2.0% of mass 69	377	0.32	(0.74) [a]	Pass
69	Mass 69 relative abundance	50866	42.9		Pass
70	Less than 2.0% of mass 69	107	0.09	(0.21) [a]	Pass
127	40.0 - 60.0% of mass 198	69986	59.1		Pass
197	Less than 1.0% of mass 198	259	0.22		Pass
198	Base peak, 100% relative abundance	118472	100.0		Pass
199	5.0 - 9.0% of mass 198	7792	6.58		Pass
275	10.0 - 30.0% of mass 198	24692	20.8		Pass
365	1.0 - 100.0% of mass 198	2924	2.47		Pass
441	Present, but less than mass 443	13098	11.1	(80.9) [b]	Pass
442	40.0 - 100.0% of mass 198	83077	70.1		Pass
443	17.0 - 23.0% of mass 442	16181	13.7	(19.5) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EF6288-IC6288	F149653.D	08/29/15	01:00	00:12	Initial cal 100
EF6288-IC6288	F149654.D	08/29/15	01:29	00:41	Initial cal 80
EF6288-ICC6288	F149655.D	08/29/15	01:58	01:10	Initial cal 50
EF6288-IC6288	F149656.D	08/29/15	02:27	01:39	Initial cal 25
EF6288-IC6288	F149657.D	08/29/15	02:55	02:07	Initial cal 10
EF6288-IC6288	F149658.D	08/29/15	03:24	02:36	Initial cal 5
EF6288-IC6288	F149659.D	08/29/15	03:53	03:05	Initial cal 2
EF6288-IC6288	F149660.D	08/29/15	04:21	03:33	Initial cal 1
EF6288-ICV6287	F149662.D	08/29/15	05:19	04:31	Initial cal verification 50
EF6288-ICV6287	F149663.D	08/29/15	05:48	05:00	Initial cal verification 50
EF6288-ICV6288	F149663A.D	08/29/15	05:48	05:00	Initial cal verification 50
EF6288-ICV6288	F149664A.D	08/29/15	06:16	05:28	Initial cal verification 50
EF6288-ICV6287	F149664.D	08/29/15	06:16	05:28	Initial cal verification 50
EF6288-ICV6287	F149665.D	08/29/15	06:45	05:57	Initial cal verification 50
EF6288-ICV6288	F149666A.D	08/29/15	07:14	06:26	Initial cal verification 50
EF6288-ICV6287	F149666.D	08/29/15	07:14	06:26	Initial cal verification 50
EF6288-ICV6288	F149667.D	08/29/15	07:43	06:55	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6290-DFTPP
Lab File ID: F149677.D
Instrument ID: GCMSF
Injection Date: 08/29/15
Injection Time: 12:14

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	40132	35.2		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	46874	41.1		Pass
70	Less than 2.0% of mass 69	144	0.13	(0.31) [a]	Pass
127	40.0 - 60.0% of mass 198	67125	58.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	113957	100.0		Pass
199	5.0 - 9.0% of mass 198	7097	6.23		Pass
275	10.0 - 30.0% of mass 198	21764	19.1		Pass
365	1.0 - 100.0% of mass 198	2382	2.09		Pass
441	Present, but less than mass 443	11966	10.5	(83.8) [b]	Pass
442	40.0 - 100.0% of mass 198	75690	66.4		Pass
443	17.0 - 23.0% of mass 442	14271	12.5	(18.9) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EF6290-IC6290	F149678.D	08/29/15	12:26	00:12	Initial cal 100
EF6290-IC6290	F149679.D	08/29/15	12:55	00:41	Initial cal 80
EF6290-ICC6290	F149680.D	08/29/15	13:24	01:10	Initial cal 50
EF6290-IC6290	F149681.D	08/29/15	13:53	01:39	Initial cal 25
EF6290-IC6290	F149682.D	08/29/15	14:21	02:07	Initial cal 10
EF6290-IC6290	F149683.D	08/29/15	14:50	02:36	Initial cal 5
EF6290-IC6290	F149684.D	08/29/15	15:19	03:05	Initial cal 2
EF6290-ICV6290	F149687.D	08/29/15	16:45	04:31	Initial cal verification 50
EF6290-ICV6290	F149688.D	08/29/15	17:14	05:00	Initial cal verification 50
EF6290-ICV6290	F149690.D	08/29/15	18:12	05:58	Initial cal verification 50
EF6290-ICV6290	F149691.D	08/29/15	18:41	06:27	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6291-DFTPP
Lab File ID: F149692.D
Instrument ID: GCMSF
Injection Date: 08/31/15
Injection Time: 09:18

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	67805	39.7		Pass
68	Less than 2.0% of mass 69	265	0.16	(0.36) [a]	Pass
69	Mass 69 relative abundance	74341	43.5		Pass
70	Less than 2.0% of mass 69	232	0.14	(0.31) [a]	Pass
127	40.0 - 60.0% of mass 198	100037	58.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	170762	100.0		Pass
199	5.0 - 9.0% of mass 198	10323	6.05		Pass
275	10.0 - 30.0% of mass 198	30752	18.0		Pass
365	1.0 - 100.0% of mass 198	3466	2.03		Pass
441	Present, but less than mass 443	17128	10.0	(77.3) [b]	Pass
442	40.0 - 100.0% of mass 198	113280	66.3		Pass
443	17.0 - 23.0% of mass 442	22162	13.0	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EF6291-ICV6287	F149693.D	08/31/15	10:08	00:50	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6319-DFTPP
Lab File ID: F150313.D
Instrument ID: GCMSF
Injection Date: 09/22/15
Injection Time: 09:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	48471	43.2		Pass
68	Less than 2.0% of mass 69	321	0.29	(0.64) [a]	Pass
69	Mass 69 relative abundance	50284	44.8		Pass
70	Less than 2.0% of mass 69	312	0.28	(0.62) [a]	Pass
127	40.0 - 60.0% of mass 198	65592	58.5		Pass
197	Less than 1.0% of mass 198	279	0.25		Pass
198	Base peak, 100% relative abundance	112186	100.0		Pass
199	5.0 - 9.0% of mass 198	7763	6.92		Pass
275	10.0 - 30.0% of mass 198	22158	19.8		Pass
365	1.0 - 100.0% of mass 198	2541	2.26		Pass
441	Present, but less than mass 443	12065	10.8	(75.6) [b]	Pass
442	40.0 - 100.0% of mass 198	80517	71.8		Pass
443	17.0 - 23.0% of mass 442	15950	14.2	(19.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EF6319-CC6287	F150314.D	09/22/15	09:27	00:15	Continuing cal 50
EF6319-CC6288	F150315.D	09/22/15	09:57	00:45	Continuing cal 50
EF6319-CC6290	F150316.D	09/22/15	10:25	01:13	Continuing cal 50
OP87371-MB1	F150319.D	09/22/15	11:54	02:42	Method Blank
OP87371-BS1	F150320.D	09/22/15	12:23	03:11	Blank Spike
OP87287-MB1	F150321.D	09/22/15	12:52	03:40	Method Blank
OP87340-MB1	F150322.D	09/22/15	13:20	04:08	Method Blank
ZZZZZZ	F150323.D	09/22/15	13:49	04:37	(unrelated sample)
ZZZZZZ	F150324.D	09/22/15	14:18	05:06	(unrelated sample)
ZZZZZZ	F150325.D	09/22/15	14:47	05:35	(unrelated sample)
ZZZZZZ	F150326.D	09/22/15	15:15	06:03	(unrelated sample)
JC4142-1	F150327.D	09/22/15	15:44	06:32	(used for QC only; not part of job JC4005)
ZZZZZZ	F150328.D	09/22/15	16:12	07:00	(unrelated sample)
ZZZZZZ	F150329.D	09/22/15	16:41	07:29	(unrelated sample)
ZZZZZZ	F150330.D	09/22/15	17:10	07:58	(unrelated sample)
ZZZZZZ	F150331.D	09/22/15	17:39	08:27	(unrelated sample)
ZZZZZZ	F150332.D	09/22/15	18:07	08:55	(unrelated sample)
ZZZZZZ	F150333.D	09/22/15	18:36	09:24	(unrelated sample)
ZZZZZZ	F150334.D	09/22/15	19:05	09:53	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6319-DFTPP
Lab File ID: F150313.D
Instrument ID: GCMSF
Injection Date: 09/22/15
Injection Time: 09:12

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	F150335.D	09/22/15	19:34	10:22	(unrelated sample)
ZZZZZZ	F150336.D	09/22/15	20:03	10:51	(unrelated sample)
OP87371-MS	F150337.D	09/22/15	20:32	11:20	Matrix Spike
OP87371-MSD	F150338.D	09/22/15	21:01	11:49	Matrix Spike Duplicate
OP81174-MB1T	F150339.D	09/22/15	21:30	12:18	Method Blank
OP81174-BS1T	F150340.D	09/22/15	21:59	12:47	Blank Spike
OP81174-BS2T	F150341.D	09/22/15	22:28	13:16	Blank Spike
OP81174-BS3T	F150342.D	09/22/15	22:57	13:45	Blank Spike
OP81174-BS4T	F150343.D	09/22/15	23:25	14:13	Blank Spike
OP81174-MB1U	F150344.D	09/22/15	23:54	14:42	Method Blank
OP81174-BS1U	F150345.D	09/23/15	00:23	15:11	Blank Spike
OP81174-BS2U	F150346.D	09/23/15	00:52	15:40	Blank Spike
OP81174-BS3U	F150347.D	09/23/15	01:21	16:09	Blank Spike
OP81174-BS4U	F150348.D	09/23/15	01:50	16:38	Blank Spike

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4919-DFTPP
Lab File ID: M117651.D
Instrument ID: GCMSM
Injection Date: 09/08/15
Injection Time: 22:31

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	59174	50.2		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	70831	60.1		Pass
70	Less than 2.0% of mass 69	326	0.28	(0.46) [a]	Pass
127	40.0 - 60.0% of mass 198	67480	57.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	117816	100.0		Pass
199	5.0 - 9.0% of mass 198	8276	7.02		Pass
275	10.0 - 30.0% of mass 198	32143	27.3		Pass
365	1.0 - 100.0% of mass 198	4971	4.22		Pass
441	Present, but less than mass 443	15185	12.9	(70.5) [b]	Pass
442	40.0 - 100.0% of mass 198	111549	94.7		Pass
443	17.0 - 23.0% of mass 442	21537	18.3	(19.3) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM4919-IC4919	M117652.D	09/08/15	23:00	00:29	Initial cal 100
EM4919-IC4919	M117653.D	09/08/15	23:29	00:58	Initial cal 1
EM4919-IC4919	M117654.D	09/08/15	23:58	01:27	Initial cal 80
EM4919-IC4919	M117655.D	09/09/15	00:27	01:56	Initial cal 2
EM4919-ICC4919	M117656.D	09/09/15	00:55	02:24	Initial cal 50
EM4919-IC4919	M117657.D	09/09/15	01:24	02:53	Initial cal 25
EM4919-IC4919	M117658.D	09/09/15	01:53	03:22	Initial cal 10
EM4919-IC4919	M117659.D	09/09/15	02:21	03:50	Initial cal 5

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-DFTPP
Lab File ID: M117676.D
Instrument ID: GCMSM
Injection Date: 09/09/15
Injection Time: 09:58

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	62399	55.5		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	73378	65.3		Pass
70	Less than 2.0% of mass 69	236	0.21	(0.32) [a]	Pass
127	40.0 - 60.0% of mass 198	65378	58.2		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	112381	100.0		Pass
199	5.0 - 9.0% of mass 198	8883	7.90		Pass
275	10.0 - 30.0% of mass 198	28698	25.5		Pass
365	1.0 - 100.0% of mass 198	4318	3.84		Pass
441	Present, but less than mass 443	13176	11.7	(78.4) [b]	Pass
442	40.0 - 100.0% of mass 198	90213	80.3		Pass
443	17.0 - 23.0% of mass 442	16800	14.9	(18.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM4921-IC4921	M117677.D	09/09/15	10:11	00:13	Initial cal 100
EM4921-IC4921	M117678.D	09/09/15	10:40	00:42	Initial cal 80
EM4921-ICC4921	M117679.D	09/09/15	11:10	01:12	Initial cal 50
EM4921-IC4921	M117680.D	09/09/15	11:38	01:40	Initial cal 25
EM4921-IC4921	M117681.D	09/09/15	12:07	02:09	Initial cal 10
EM4921-IC4921	M117682.D	09/09/15	12:37	02:39	Initial cal 5
EM4921-IC4921	M117683.D	09/09/15	13:06	03:08	Initial cal 2
EM4921-IC4921	M117684.D	09/09/15	13:35	03:37	Initial cal 1
EM4921-ICV4919	M117686.D	09/09/15	14:33	04:35	Initial cal verification 50
EM4921-ICV4919	M117687.D	09/09/15	15:02	05:04	Initial cal verification 50
EM4921-ICV4921	M117687A.D	09/09/15	15:02	05:04	Initial cal verification 50
EM4921-ICV4921	M117688A.D	09/09/15	15:31	05:33	Initial cal verification 50
EM4921-ICV4919	M117688.D	09/09/15	15:31	05:33	Initial cal verification 50
EM4921-ICV4919	M117689.D	09/09/15	16:00	06:02	Initial cal verification 50
EM4921-ICV4921	M117690.D	09/09/15	16:29	06:31	Initial cal verification 50
EM4921-ICV4921	M117691.D	09/09/15	16:58	07:00	Initial cal verification 50
EM4921-ICV4919	M117692.D	09/09/15	17:27	07:29	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4922-DFTPP
Lab File ID: M117695.D
Instrument ID: GCMSM
Injection Date: 09/09/15
Injection Time: 19:15

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	59580	55.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	66983	62.2		Pass
70	Less than 2.0% of mass 69	792	0.74	(1.18) [a]	Pass
127	40.0 - 60.0% of mass 198	61232	56.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	107677	100.0		Pass
199	5.0 - 9.0% of mass 198	7959	7.39		Pass
275	10.0 - 30.0% of mass 198	28091	26.1		Pass
365	1.0 - 100.0% of mass 198	4513	4.19		Pass
441	Present, but less than mass 443	12561	11.7	(71.9) [b]	Pass
442	40.0 - 100.0% of mass 198	92008	85.4		Pass
443	17.0 - 23.0% of mass 442	17472	16.2	(19.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM4922-ICV4919	M117696.D	09/09/15	19:32	00:17	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4935-DFTPP
Lab File ID: M117983.D
Instrument ID: GCMSM
Injection Date: 09/18/15
Injection Time: 16:56

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	116305	52.0		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	136964	61.2		Pass
70	Less than 2.0% of mass 69	438	0.20	(0.32) [a]	Pass
127	40.0 - 60.0% of mass 198	122941	55.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	223680	100.0		Pass
199	5.0 - 9.0% of mass 198	13931	6.23		Pass
275	10.0 - 30.0% of mass 198	59216	26.5		Pass
365	1.0 - 100.0% of mass 198	7860	3.51		Pass
441	Present, but less than mass 443	28090	12.6	(74.5) [b]	Pass
442	40.0 - 100.0% of mass 198	189328	84.6		Pass
443	17.0 - 23.0% of mass 442	37692	16.9	(19.9) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM4935-CC4919	M117984.D	09/18/15	17:09	00:13	Continuing cal 50
EM4935-CC4921	M117986.D	09/18/15	18:11	01:15	Continuing cal 50
OP87313-MB1	M117988.D	09/18/15	19:08	02:12	Method Blank
OP87313-BS1	M117989.D	09/18/15	19:37	02:41	Blank Spike
ZZZZZZ	M117990.D	09/18/15	20:06	03:10	(unrelated sample)
ZZZZZZ	M117991.D	09/18/15	20:34	03:38	(unrelated sample)
ZZZZZZ	M117992.D	09/18/15	21:03	04:07	(unrelated sample)
JC4005-5	M117993.D	09/18/15	21:32	04:36	MHIC-387-3(5.0)
JC4005-7	M117994.D	09/18/15	22:01	05:05	MHIC-387-5(3.0)
JC4005-8	M117995.D	09/18/15	22:30	05:34	MHIC-387-6(3.0)
JC4005-9	M117996.D	09/18/15	22:58	06:02	MHIC-387-7(3.0)
JC4005-10	M117997.D	09/18/15	23:27	06:31	MHIC-387-8(3.0)
JC4005-12	M117998.D	09/18/15	23:56	07:00	MHIC-387-10(3.0)
JC4005-11	M117999.D	09/19/15	00:24	07:28	MHIC-387-9(3.0)
ZZZZZZ	M118003.D	09/19/15	00:53	07:57	(unrelated sample)
ZZZZZZ	M118004.D	09/19/15	01:22	08:26	(unrelated sample)
ZZZZZZ	M118005.D	09/19/15	01:50	08:54	(unrelated sample)
ZZZZZZ	M118006.D	09/19/15	02:19	09:23	(unrelated sample)
ZZZZZZ	M118007.D	09/19/15	02:48	09:52	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4935-DFTPP
Lab File ID: M117983.D
Instrument ID: GCMSM
Injection Date: 09/18/15
Injection Time: 16:56

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	M118008.D	09/19/15	03:17	10:21	(unrelated sample)
JC4005-3	M118009.D	09/19/15	03:45	10:49	MHIC-387-1(5.0)
OP87313-MS	M118010.D	09/19/15	04:14	11:18	Matrix Spike
OP87313-MSD	M118011.D	09/19/15	04:43	11:47	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4212-DFTPP
Lab File ID: P97217.D
Instrument ID: GCMSP
Injection Date: 07/14/15
Injection Time: 19:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	90559	33.3		Pass
68	Less than 2.0% of mass 69	238	0.09	(0.19) [a]	Pass
69	Mass 69 relative abundance	126266	46.5		Pass
70	Less than 2.0% of mass 69	908	0.33	(0.72) [a]	Pass
127	40.0 - 60.0% of mass 198	133920	49.3		Pass
197	Less than 1.0% of mass 198	390	0.14		Pass
198	Base peak, 100% relative abundance	271658	100.0		Pass
199	5.0 - 9.0% of mass 198	18704	6.89		Pass
275	10.0 - 30.0% of mass 198	52629	19.4		Pass
365	1.0 - 100.0% of mass 198	4730	1.74		Pass
441	Present, but less than mass 443	27820	10.2	(94.8) [b]	Pass
442	40.0 - 100.0% of mass 198	156317	57.5		Pass
443	17.0 - 23.0% of mass 442	29343	10.8	(18.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP4212-IC4212	P97218.D	07/14/15	20:07	00:18	Initial cal 100
EP4212-IC4212	P97219.D	07/14/15	20:36	00:47	Initial cal 1
EP4212-IC4212	P97220.D	07/14/15	21:05	01:16	Initial cal 80
EP4212-IC4212	P97221.D	07/14/15	21:34	01:45	Initial cal 2
EP4212-ICC4212	P97222.D	07/14/15	22:03	02:14	Initial cal 50
EP4212-IC4212	P97223.D	07/14/15	22:32	02:43	Initial cal 5
EP4212-IC4212	P97224.D	07/14/15	23:01	03:12	Initial cal 25
EP4212-IC4212	P97225.D	07/14/15	23:30	03:41	Initial cal 10

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4213-DFTPP
Lab File ID: P97226.D
Instrument ID: GCMSP
Injection Date: 07/14/15
Injection Time: 23:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	60914	36.8		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	73658	44.6		Pass
70	Less than 2.0% of mass 69	326	0.20	(0.44) [a]	Pass
127	40.0 - 60.0% of mass 198	81952	49.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	165314	100.0		Pass
199	5.0 - 9.0% of mass 198	10840	6.56		Pass
275	10.0 - 30.0% of mass 198	30392	18.4		Pass
365	1.0 - 100.0% of mass 198	3326	2.01		Pass
441	Present, but less than mass 443	10148	6.14	(76.6) [b]	Pass
442	40.0 - 100.0% of mass 198	75250	45.5		Pass
443	17.0 - 23.0% of mass 442	13256	8.02	(17.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP4213-IC4213	P97227.D	07/15/15	00:07	00:12	Initial cal 100
EP4213-IC4213	P97228.D	07/15/15	00:36	00:41	Initial cal 80
EP4213-ICC4213	P97229.D	07/15/15	01:05	01:10	Initial cal 50
EP4213-IC4213	P97230.D	07/15/15	01:33	01:38	Initial cal 25
EP4213-IC4213	P97231.D	07/15/15	02:02	02:07	Initial cal 10
EP4213-IC4213	P97232.D	07/15/15	02:31	02:36	Initial cal 5
EP4213-IC4213	P97233.D	07/15/15	03:00	03:05	Initial cal 2
EP4213-IC4213	P97234.D	07/15/15	03:29	03:34	Initial cal 1
EP4213-ICV4212	P97235.D	07/15/15	03:58	04:03	Initial cal verification 50
EP4213-ICV4212	P97236.D	07/15/15	04:26	04:31	Initial cal verification 50
EP4213-ICV4212	P97237.D	07/15/15	04:55	05:00	Initial cal verification 50
EP4213-ICV4212	P97238.D	07/15/15	05:24	05:29	Initial cal verification 50
EP4213-ICV4213	P97238A.D	07/15/15	05:24	05:29	Initial cal verification 50
EP4213-ICV4212	P97239.D	07/15/15	05:53	05:58	Initial cal verification 50
EP4213-ICV4213	P97239A.D	07/15/15	05:53	05:58	Initial cal verification 50
EP4213-ICV4213	P97240.D	07/15/15	06:22	06:27	Initial cal verification 50
EP4213-ICV4212	P97240A.D	07/15/15	06:22	06:27	Initial cal verification 50
EP4213-ICV4213	P97241.D	07/15/15	06:51	06:56	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4300-DFTPP
Lab File ID: P98821.D
Instrument ID: GCMSP
Injection Date: 09/17/15
Injection Time: 17:23

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	56751	38.1		Pass
68	Less than 2.0% of mass 69	260	0.17	(0.30) [a]	Pass
69	Mass 69 relative abundance	86308	58.0		Pass
70	Less than 2.0% of mass 69	362	0.24	(0.42) [a]	Pass
127	40.0 - 60.0% of mass 198	85392	57.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	148837	100.0		Pass
199	5.0 - 9.0% of mass 198	10151	6.82		Pass
275	10.0 - 30.0% of mass 198	29182	19.6		Pass
365	1.0 - 100.0% of mass 198	3280	2.20		Pass
441	Present, but less than mass 443	12235	8.22	(78.5) [b]	Pass
442	40.0 - 100.0% of mass 198	77749	52.2		Pass
443	17.0 - 23.0% of mass 442	15586	10.5	(20.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP4300-CC4212	P98822.D	09/17/15	17:43	00:20	Continuing cal 25
EP4300-CC4213	P98823.D	09/17/15	18:42	01:19	Continuing cal 25
OP87287-MB1	P98825.D	09/17/15	19:46	02:23	Method Blank
OP87287-BS1	P98826.D	09/17/15	20:15	02:52	Blank Spike
OP87287-BSD	P98827.D	09/17/15	20:43	03:20	Blank Spike Duplicate
ZZZZZZ	P98828.D	09/17/15	21:12	03:49	(unrelated sample)
ZZZZZZ	P98834.D	09/17/15	22:39	05:16	(unrelated sample)
ZZZZZZ	P98835.D	09/17/15	23:08	05:45	(unrelated sample)
JC4005-2	P98836.D	09/17/15	23:36	06:13	EB-20150916
ZZZZZZ	P98840.D	09/18/15	00:34	07:11	(unrelated sample)
ZZZZZZ	P98841.D	09/18/15	01:03	07:40	(unrelated sample)
ZZZZZZ	P98838.D	09/18/15	01:32	08:09	(unrelated sample)
ZZZZZZ	P98839.D	09/18/15	02:01	08:38	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5205-DFTPP
Lab File ID: Z104217.D
Instrument ID: GCMSZ
Injection Date: 09/09/15
Injection Time: 20:57

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	38049	40.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	49569	52.5		Pass
70	Less than 2.0% of mass 69	120	0.13	(0.24) [a]	Pass
127	40.0 - 60.0% of mass 198	48776	51.7		Pass
197	Less than 1.0% of mass 198	636	0.67		Pass
198	Base peak, 100% relative abundance	94341	100.0		Pass
199	5.0 - 9.0% of mass 198	6250	6.62		Pass
275	10.0 - 30.0% of mass 198	24481	25.9		Pass
365	1.0 - 100.0% of mass 198	2958	3.14		Pass
441	Present, but less than mass 443	11077	11.7	(82.1) [b]	Pass
442	40.0 - 100.0% of mass 198	67981	72.1		Pass
443	17.0 - 23.0% of mass 442	13490	14.3	(19.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EZ5205-IC5205	Z104218.D	09/09/15	21:17	00:20	Initial cal 100
EZ5205-IC5205	Z104219.D	09/09/15	21:48	00:51	Initial cal 80
EZ5205-ICC5205	Z104220.D	09/09/15	22:20	01:23	Initial cal 50
EZ5205-IC5205	Z104221.D	09/09/15	22:51	01:54	Initial cal 25
EZ5205-IC5205	Z104222.D	09/09/15	23:23	02:26	Initial cal 10
EZ5205-IC5205	Z104223.D	09/09/15	23:54	02:57	Initial cal 5
EZ5205-IC5205	Z104224.D	09/10/15	00:25	03:28	Initial cal 2
EZ5205-IC5205	Z104225.D	09/10/15	00:56	03:59	Initial cal 1
EZ5205-ICV5203	Z104226.D	09/10/15	01:28	04:31	Initial cal verification 50
EZ5205-ICV5203	Z104227.D	09/10/15	01:59	05:02	Initial cal verification 50
EZ5205-ICV5205	Z104228A.D	09/10/15	02:30	05:33	Initial cal verification 50
EZ5205-ICV5203	Z104228.D	09/10/15	02:30	05:33	Initial cal verification 50
EZ5205-ICV5205	Z104229A.D	09/10/15	03:01	06:04	Initial cal verification 50
EZ5205-ICV5203	Z104229.D	09/10/15	03:01	06:04	Initial cal verification 50
EZ5205-ICV5203	Z104230.D	09/10/15	03:33	06:36	Initial cal verification 50
EZ5205-ICV5205	Z104231.D	09/10/15	04:04	07:07	Initial cal verification 50
EZ5205-ICV5205	Z104232.D	09/10/15	04:35	07:38	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5210-DFTPP
Lab File ID: Z104271.D
Instrument ID: GCMSZ
Injection Date: 09/14/15
Injection Time: 09:00

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	34081	37.0		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	45561	49.5		Pass
70	Less than 2.0% of mass 69	270	0.29	(0.59) [a]	Pass
127	40.0 - 60.0% of mass 198	47510	51.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	92053	100.0		Pass
199	5.0 - 9.0% of mass 198	5855	6.36		Pass
275	10.0 - 30.0% of mass 198	23987	26.1		Pass
365	1.0 - 100.0% of mass 198	3032	3.29		Pass
441	Present, but less than mass 443	11412	12.4	(81.5) [b]	Pass
442	40.0 - 100.0% of mass 198	70437	76.5		Pass
443	17.0 - 23.0% of mass 442	14004	15.2	(19.9) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EZ5210-IC5210	Z104273.D	09/14/15	10:50	01:50	Initial cal 2
EZ5210-IC5210	Z104274.D	09/14/15	11:21	02:21	Initial cal 100
EZ5210-IC5210	Z104275.D	09/14/15	11:52	02:52	Initial cal 1
EZ5210-ICC5210	Z104276.D	09/14/15	12:23	03:23	Initial cal 50
EZ5210-IC5210	Z104277.D	09/14/15	12:54	03:54	Initial cal 25
EZ5210-IC5210	Z104278.D	09/14/15	13:25	04:25	Initial cal 80
EZ5210-IC5210	Z104279.D	09/14/15	13:56	04:56	Initial cal 10
EZ5210-IC5210	Z104280.D	09/14/15	14:27	05:27	Initial cal 5
EZ5210-ICV5210	Z104281.D	09/14/15	14:58	05:58	Initial cal verification 50
EZ5210-ICV5210	Z104282.D	09/14/15	15:29	06:29	Initial cal verification 50
EZ5210-ICV5210	Z104283.D	09/14/15	16:00	07:00	Initial cal verification 50
EZ5210-ICV5210	Z104285.D	09/14/15	17:02	08:02	Initial cal verification 50
EZ5210-ICV5210	Z104286.D	09/14/15	17:33	08:33	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5211-DFTPP
Lab File ID: Z104287.D
Instrument ID: GCMSZ
Injection Date: 09/15/15
Injection Time: 23:08

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	46918	43.8		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	61056	57.0		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	62405	58.3		Pass
197	Less than 1.0% of mass 198	161	0.15		Pass
198	Base peak, 100% relative abundance	107072	100.0		Pass
199	5.0 - 9.0% of mass 198	6761	6.31		Pass
275	10.0 - 30.0% of mass 198	29568	27.6		Pass
365	1.0 - 100.0% of mass 198	3008	2.81		Pass
441	Present, but less than mass 443	12031	11.2	(78.4) [b]	Pass
442	40.0 - 100.0% of mass 198	73880	69.0		Pass
443	17.0 - 23.0% of mass 442	15347	14.3	(20.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EZ5211-ICV5210	Z104288.D	09/15/15	23:24	00:16	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5224-DFTPP
Lab File ID: Z104540.D
Instrument ID: GCMSZ
Injection Date: 09/25/15
Injection Time: 22:36

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	44842	45.1		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	56015	56.4		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	57226	57.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	99389	100.0		Pass
199	5.0 - 9.0% of mass 198	6995	7.04		Pass
275	10.0 - 30.0% of mass 198	27998	28.2		Pass
365	1.0 - 100.0% of mass 198	3368	3.39		Pass
441	Present, but less than mass 443	10810	10.9	(81.1) [b]	Pass
442	40.0 - 100.0% of mass 198	69530	70.0		Pass
443	17.0 - 23.0% of mass 442	13335	13.4	(19.2) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EZ5224-CC5210	Z104541.D	09/25/15	22:53	00:17	Continuing cal 25
EZ5224-CC5205	Z104542.D	09/25/15	23:25	00:49	Continuing cal 25
OP87489-MB1	Z104544.D	09/26/15	00:27	01:51	Method Blank
OP87489-BS1	Z104545.D	09/26/15	00:58	02:22	Blank Spike
OP87313-MB1	Z104546.D	09/26/15	01:28	02:52	Method Blank
OP87313-BS1	Z104547.D	09/26/15	01:59	03:23	Blank Spike
ZZZZZZ	Z104548.D	09/26/15	02:30	03:54	(unrelated sample)
ZZZZZZ	Z104549.D	09/26/15	03:01	04:25	(unrelated sample)
ZZZZZZ	Z104550.D	09/26/15	03:31	04:55	(unrelated sample)
ZZZZZZ	Z104551.D	09/26/15	04:02	05:26	(unrelated sample)
ZZZZZZ	Z104553.D	09/26/15	05:03	06:27	(unrelated sample)
ZZZZZZ	Z104554.D	09/26/15	05:33	06:57	(unrelated sample)
ZZZZZZ	Z104555.D	09/26/15	06:04	07:28	(unrelated sample)
ZZZZZZ	Z104557.D	09/26/15	07:05	08:29	(unrelated sample)
ZZZZZZ	Z104558.D	09/26/15	07:35	08:59	(unrelated sample)
ZZZZZZ	Z104559.D	09/26/15	08:06	09:30	(unrelated sample)
ZZZZZZ	Z104561.D	09/26/15	09:07	10:31	(unrelated sample)
JC4573-1	Z104562.D	09/26/15	09:38	11:02	(used for QC only; not part of job JC4005)
OP87489-MS	Z104563.D	09/26/15	10:08	11:32	Matrix Spike

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E2P2265-CC2252	**Injection Date:**	09/18/15
Lab File ID:	2P52510.D	**Injection Time:**	21:48
Instrument ID:	GCMS2P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	651509	4.30	2234048	5.36	1365170	6.78	2259471	8.02	2439366	11.16	2505609	13.14
Upper Limit [a]	1303018	4.80	4468096	5.86	2730340	7.28	4518942	8.52	4878732	11.66	5011218	13.64
Lower Limit [b]	325755	3.80	1117024	4.86	682585	6.28	1129736	7.52	1219683	10.66	1252805	12.64

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP87217-MB1	647958	4.30	2105291	5.34	1268112	6.78	2119390	8.02	2299548	11.15	2315724	13.13
OP87217-BS1	548388	4.30	1736550	5.35	1073393	6.78	1791218	8.02	1899509	11.16	2026427	13.13
OP87288-MB1	696350	4.30	2310959	5.35	1365250	6.78	2315578	8.01	2466296	11.15	2403240	13.13
OP87313-MB1	724134	4.30	2319517	5.35	1351940	6.78	2327157	8.01	2749481	11.15	2513128	13.13
OP87236-MB1	625191	4.30	2037783	5.35	1170297	6.78	1966489	8.01	2046158	11.15	2091975	13.13
ZZZZZZ	606795	4.30	1887951	5.35	1099235	6.78	1835167	8.01	2178099	11.15	1961672	13.13
ZZZZZZ	607031	4.30	1888993	5.35	1114575	6.78	1860562	8.01	1997272	11.15	2072318	13.13
ZZZZZZ	605920	4.30	1867898	5.35	1105084	6.78	1807426	8.01	1903907	11.15	1697020	13.13
ZZZZZZ	608008	4.30	1847534	5.34	1091576	6.78	1813849	8.01	2189314	11.15	1970880	13.13
ZZZZZZ	562016	4.30	1683839	5.34	990059	6.78	1648108	8.01	1941848	11.15	1714938	13.12
ZZZZZZ	1205970	4.30	3631350	5.35	2192510	6.78	3633643	8.02	4391224	11.16	4057591	13.13
ZZZZZZ	595339	4.30	1776558	5.34	1079719	6.78	1647205	8.01	1687630	11.15	1722354	13.13
JC4005-4	617159	4.30	1910037	5.34	1099077	6.78	1795166	8.01	1847630	11.15	1581747	13.13
JC4005-14	599723	4.30	2108634	5.35	1175249	6.78	1777033	8.01	1867753	11.15	1686441	13.13
JC4005-15	677225	4.30	2328282	5.35	1276348	6.78	2182197	8.01	2190102	11.15	1944946	13.13
ZZZZZZ	516390	4.30	1553573	5.35	985591	6.78	1531243	8.02	1351453	11.19	1456034	13.21
JC4005-13	662665	4.30	2191032	5.36	1181733	6.79	1907181	8.03	1843402	11.17	1661491	13.15
JC4005-6	727059	4.30	2593177	5.35	1432869	6.78	2208466	8.02	2014186	11.17	1735026	13.15
JC2828-9AQ	648909	4.31	2375861	5.36	1375025	6.79	1966701	8.03	1807264	11.18	1515907	13.16
ZZZZZZ	445576	4.31	1632506	5.36	972208	6.79	1480359	8.03	1420422	11.17	1184137*	13.16
OP87217-MS	553348	4.31	1893966	5.36	1154453	6.79	1713678	8.03	1788647	11.19	1534187	13.16
OP87217-MSD	599008	4.31	1976281	5.36	1212001	6.79	1758429	8.03	1848778	11.19	1617747	13.16
ZZZZZZ	652370	4.31	2159395	5.36	1276240	6.79	1995750	8.03	1895685	11.19	1589026	13.17
OP87288-MS	581975	4.32	1911996	5.37	1059955	6.81	1554165	8.05	1454924	11.26	1349651	13.31
OP87288-MSD	587949	4.32	1917412	5.38	1063059	6.82	1530098	8.07	1441253	11.28	1318409	13.33

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E3P2112-CC2065	**Injection Date:**	09/25/15
Lab File ID:	3P46975.D	**Injection Time:**	18:57
Instrument ID:	GCMS3P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	180602	4.86	675308	5.78	417364	7.23	750411	9.17	864453	14.53	583510	17.60
Upper Limit [a]	361204	5.36	1350616	6.28	834728	7.73	1500822	9.67	1728906	15.03	1167020	18.10
Lower Limit [b]	90301	4.36	337654	5.28	208682	6.73	375206	8.67	432227	14.03	291755	17.10

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP87481-MB1	249938	4.85	1012546	5.77	607199	7.23	1060874	9.17	1156455	14.52	897046	17.59
OP87481-BS1	253570	4.86	1004320	5.77	603375	7.23	1083047	9.17	1230318	14.52	933695	17.59
OP87481-BS13	287834	4.86	1150889	5.77	686045	7.23	1213623	9.17	1360722	14.52	1080620	17.59
OP87313-MB1	232950	4.86	968374	5.77	550091	7.23	981178	9.17	1017697	14.52	756392	17.59
OP87313-BS1	180726	4.86	769008	5.78	418608	7.23	757408	9.17	972841	14.53	669613	17.60
ZZZZZZ	235884	4.86	982197	5.78	568169	7.24	861274	9.18	581163	14.54	518545	17.62
ZZZZZZ	200629	4.86	825787	5.78	507288	7.24	882109	9.18	553642	14.54	434300	17.62
ZZZZZZ	185345	4.86	764192	5.78	486005	7.24	788903	9.18	597740	14.54	436316	17.62
JC3755-1A	196590	4.86	808630	5.78	513252	7.24	817618	9.18	678540	14.54	488357	17.61
ZZZZZZ	213329	4.86	877605	5.78	550169	7.24	882252	9.18	777451	14.53	542500	17.61
ZZZZZZ	213645	4.86	888506	5.78	546679	7.23	873754	9.18	827692	14.53	543307	17.61
ZZZZZZ	203579	4.86	832801	5.78	511204	7.23	827113	9.17	788527	14.53	512919	17.61
ZZZZZZ	228799	4.86	920799	5.78	563411	7.23	900256	9.18	895036	14.53	587008	17.61
ZZZZZZ	190212	4.86	792755	5.78	483365	7.23	756751	9.17	767383	14.53	465717	17.61
ZZZZZZ	188696	4.86	784996	5.78	479787	7.23	751784	9.18	842470	14.53	539325	17.61
OP87481-MS	155575	4.86	645317	5.77	382652	7.23	617999	9.17	641851	14.52	407883	17.59
OP87481-MSD	154763	4.86	637896	5.77	393265	7.23	625023	9.17	686668	14.52	442880	17.59

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	EF6319-CC6287	**Injection Date:**	09/22/15
Lab File ID:	F150314.D	**Injection Time:**	09:27
Instrument ID:	GCMSF	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	223211	4.89	869876	5.81	550989	7.28	881483	9.24	835372	14.60	764742	17.65
Upper Limit [a]	446422	5.39	1739752	6.31	1101978	7.78	1762966	9.74	1670744	15.10	1529484	18.15
Lower Limit [b]	111606	4.39	434938	5.31	275495	6.78	440742	8.74	417686	14.10	382371	17.15

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP87371-MB1	247863	4.89	943003	5.81	558972	7.28	885140	9.24	825601	14.59	746110	17.65
OP87371-BS1	230925	4.89	980553	5.81	519065	7.28	815092	9.24	738232	14.59	632318	17.65
OP87287-MB1	226825	4.89	874905	5.81	520396	7.28	842022	9.24	766284	14.58	699695	17.64
OP87340-MB1	233081	4.89	905544	5.81	539333	7.28	841441	9.24	777971	14.58	699010	17.64
ZZZZZZ	223112	4.89	849272	5.81	527906	7.28	807320	9.24	800749	14.59	771131	17.65
ZZZZZZ	243115	4.89	935311	5.81	587177	7.28	898626	9.24	873541	14.59	811419	17.64
ZZZZZZ	245656	4.89	925757	5.81	569561	7.28	880405	9.24	824311	14.59	742036	17.64
ZZZZZZ	258861	4.89	980069	5.81	603672	7.28	936562	9.24	886360	14.58	862586	17.65
JC4142-1	225441	4.89	862365	5.81	494846	7.28	801448	9.24	721376	14.58	654213	17.65
ZZZZZZ	233391	4.89	827951	5.81	478828	7.28	742469	9.24	694499	14.59	636139	17.65
ZZZZZZ	235615	4.89	925967	5.81	555137	7.28	856266	9.24	775231	14.58	712938	17.64
ZZZZZZ	248945	4.89	954493	5.81	566041	7.28	888881	9.24	792486	14.58	732844	17.64
ZZZZZZ	245330	4.89	947830	5.81	546710	7.28	868846	9.24	788117	14.58	718309	17.64
ZZZZZZ	235044	4.89	893489	5.81	528697	7.28	836284	9.24	768194	14.58	702559	17.64
ZZZZZZ	235212	4.89	902554	5.81	528652	7.28	858000	9.24	773560	14.58	722003	17.64
ZZZZZZ	224717	4.89	837530	5.81	484181	7.28	771293	9.24	709073	14.58	657016	17.64
ZZZZZZ	214457	4.89	784775	5.81	447435	7.28	730857	9.24	710995	14.58	651806	17.64
ZZZZZZ	209440	4.89	757630	5.81	497685	7.28	784155	9.24	699848	14.59	635946	17.65
OP87371-MS	229698	4.89	961360	5.81	509841	7.28	792237	9.24	690540	14.59	579927	17.64
OP87371-MSD	231125	4.89	1000942	5.81	524395	7.28	838264	9.24	745520	14.59	622552	17.64
OP81174-MB1T	255908	4.89	978060	5.81	564009	7.28	890886	9.24	770859	14.58	659503	17.64
OP81174-BS1T	237074	4.89	986729	5.81	521923	7.28	822127	9.24	719287	14.59	605679	17.64
OP81174-BS2T	253866	4.89	1062088	5.81	555363	7.28	869387	9.24	751604	14.59	628195	17.64
OP81174-BS3T	250304	4.89	1034113	5.81	544618	7.28	830156	9.24	752931	14.59	627895	17.64
OP81174-BS4T	257848	4.89	1082268	5.81	575726	7.28	898282	9.24	769378	14.59	640346	17.65
OP81174-MB1U	255911	4.89	972411	5.81	567026	7.28	868167	9.24	752850	14.58	649362	17.64
OP81174-BS1U	235519	4.89	993712	5.81	527523	7.28	829207	9.24	744659	14.59	636474	17.65
OP81174-BS2U	259781	4.89	1076781	5.81	556305	7.28	852191	9.24	742540	14.59	613912	17.64
OP81174-BS3U	250138	4.89	1043525	5.81	559673	7.28	858148	9.24	755629	14.59	638486	17.64
OP81174-BS4U	240446	4.89	999699	5.81	537976	7.28	828759	9.24	709310	14.59	588909	17.64

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	EF6319-CC6287	**Injection Date:**	09/22/15
Lab File ID:	F150314.D	**Injection Time:**	09:27
Instrument ID:	GCMSF	**Method:**	SW846 8270D

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**

IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

8.6.3

8

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	EM4935-CC4919	**Injection Date:**	09/18/15
Lab File ID:	M117984.D	**Injection Time:**	17:09
Instrument ID:	GCMSM	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	218278	4.80	870321	5.96	512538	8.35	836535	11.00	923374	16.21	888037	18.85
Upper Limit [a]	436556	5.30	1740642	6.46	1025076	8.85	1673070	11.50	1846748	16.71	1776074	19.35
Lower Limit [b]	109139	4.30	435161	5.46	256269	7.85	418268	10.50	461687	15.71	444019	18.35

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP87313-MB1	275052	4.80	1030839	5.96	556044	8.34	867893	10.99	857945	16.20	827750	18.83
OP87313-BS1	277533	4.80	1018458	5.96	557660	8.35	868345	11.00	878166	16.20	830525	18.84
ZZZZZZ	237959	4.80	901677	5.96	497110	8.34	764152	10.99	764926	16.19	754760	18.83
ZZZZZZ	226856	4.80	865400	5.96	473425	8.34	723504	10.99	730953	16.19	711288	18.83
ZZZZZZ	272529	4.80	1017920	5.96	563587	8.34	875736	10.99	867699	16.19	845913	18.83
JC4005-5	261743	4.80	960816	5.96	522116	8.34	830142	10.99	816738	16.19	803226	18.83
JC4005-7	280267	4.80	1041928	5.96	562123	8.34	887556	10.99	874285	16.19	854996	18.83
JC4005-8	270645	4.80	1008210	5.96	546893	8.34	858096	10.99	835065	16.18	815915	18.83
JC4005-9	263085	4.80	950502	5.96	533722	8.34	845973	10.99	804912	16.18	809775	18.82
JC4005-10	280337	4.80	1024647	5.96	563487	8.34	884965	10.99	849674	16.18	827952	18.82
JC4005-12	285979	4.80	1044442	5.96	580670	8.34	924468	10.99	900310	16.18	893990	18.82
JC4005-11	264056	4.80	971427	5.96	554205	8.34	867524	10.99	828208	16.19	823043	18.83
ZZZZZZ	231708	4.80	882222	5.96	493336	8.34	783301	10.99	842048	16.18	809806	18.82
ZZZZZZ	225573	4.79	892628	5.96	493516	8.34	805599	10.99	836333	16.19	793062	18.82
ZZZZZZ	236626	4.80	903036	5.95	517666	8.34	869716	10.99	908517	16.19	884464	18.84
ZZZZZZ	247796	4.79	896326	5.96	519411	8.34	855991	10.99	853010	16.19	860925	18.83
ZZZZZZ	241977	4.80	906651	5.96	536075	8.34	878963	10.99	899838	16.20	878930	18.83
ZZZZZZ	240554	4.80	894752	5.96	530271	8.34	873180	10.99	888574	16.20	849617	18.83
JC4005-3	274312	4.80	1004365	5.96	590881	8.35	935491	11.00	954569	16.21	1035445	18.86
OP87313-MS	276929	4.80	1015280	5.96	569622	8.34	878439	11.00	907245	16.21	960815	18.85
OP87313-MSD	275745	4.80	1016775	5.96	582040	8.35	904417	11.00	978043	16.22	1035650	18.87

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	EP4300-CC4212	**Injection Date:**	09/17/15
Lab File ID:	P98822.D	**Injection Time:**	17:43
Instrument ID:	GCMSP	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	520867	4.11	1764816	5.85	1182825	8.55	1893446	10.89	1849178	15.55	1716258	18.09
Upper Limit [a]	1041734	4.61	3529632	6.35	2365650	9.05	3786892	11.39	3698356	16.05	3432516	18.59
Lower Limit [b]	260434	3.61	882408	5.35	591413	8.05	946723	10.39	924589	15.05	858129	17.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP87287-MB1	352046	4.12	1256577	5.84	787179	8.54	1182912	10.89	1204693	15.53	1115575	18.08
OP87287-BS1	384526	4.12	1314595	5.85	833962	8.55	1351791	10.89	1276386	15.54	1052346	18.08
OP87287-BSD	393780	4.12	1322366	5.85	844729	8.55	1341154	10.89	1225769	15.54	1046555	18.08
ZZZZZZ	411744	4.11	1474651	5.84	927470	8.54	1396988	10.89	1427489	15.53	1245946	18.08
ZZZZZZ	349185	4.12	1253818	5.85	809482	8.54	1266090	10.89	1300254	15.53	1187096	18.08
ZZZZZZ	325323	4.11	1203520	5.85	768032	8.54	1201140	10.89	1117846	15.53	1036543	18.08
JC4005-2	364198	4.11	1261162	5.84	804770	8.54	1254740	10.89	1273537	15.53	1163282	18.08
ZZZZZZ	338702	4.12	1168626	5.85	663972	8.54	1029572	10.89	1104558	15.53	1030948	18.08
ZZZZZZ	365043	4.12	1285477	5.85	780420	8.54	1162218	10.89	1086573	15.54	1000122	18.08
ZZZZZZ	277026	4.17	1271250	5.89	596653	8.55	924792*	10.89	989736	15.57	1028294	18.15
ZZZZZZ	275861	4.12	980771	5.85	569495*	8.55	782749*	10.91	678990*	15.56	587952*	18.10

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	EZ5224-CC5210	**Injection Date:**	09/25/15
Lab File ID:	Z104541.D	**Injection Time:**	22:53
Instrument ID:	GCMSZ	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	167083	4.73	678659	5.65	415120	7.06	692765	8.91	727284	14.12	633619	17.15
Upper Limit [a]	334166	5.23	1357318	6.15	830240	7.56	1385530	9.41	1454568	14.62	1267238	17.65
Lower Limit [b]	83542	4.23	339330	5.15	207560	6.56	346383	8.41	363642	13.62	316810	16.65

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP87489-MB1	157862	4.73	633485	5.65	383459	7.05	631098	8.90	663641	14.11	623878	17.14
OP87489-BS1	166013	4.73	766690	5.65	397908	7.06	658400	8.91	692265	14.12	590898	17.15
OP87313-MB1	183568	4.73	766088	5.65	446492	7.05	751910	8.90	747536	14.11	661460	17.14
OP87313-BS1	161088	4.73	744379	5.65	394906	7.06	652133	8.91	686352	14.12	574108	17.15
ZZZZZZ	217670	4.73	871910	5.65	479803	7.06	769744	8.91	583954	14.16	550266	17.21
ZZZZZZ	152501	4.74	613261	5.66	352595	7.06	561393	8.93	472446	14.17	445327	17.21
ZZZZZZ	132004	4.74	536801	5.66	311265	7.06	524979	8.92	389607	14.13	344471	17.17
ZZZZZZ	140988	4.74	584407	5.66	360881	7.06	594772	8.92	505971	14.13	391942	17.17
ZZZZZZ	147673	4.74	616407	5.66	368535	7.06	626245	8.91	576679	14.13	421705	17.16
ZZZZZZ	151637	4.74	644114	5.66	383372	7.06	641697	8.91	568439	14.12	437315	17.16
ZZZZZZ	165187	4.74	697801	5.66	415721	7.06	687322	8.91	656493	14.12	499443	17.16
ZZZZZZ	165406	4.74	667509	5.66	402912	7.06	668585	8.91	642187	14.12	514653	17.16
ZZZZZZ	124318	4.75	524049	5.66	361118	7.06	624529	8.92	564559	14.13	459849	17.16
ZZZZZZ	139119	4.74	555340	5.66	327805	7.07	553066	8.92	516942	14.13	421054	17.16
ZZZZZZ	173022	4.74	707877	5.66	426217	7.06	699112	8.91	666066	14.12	547566	17.16
JC4573-1	150607	4.74	614448	5.66	352836	7.06	609785	8.91	572790	14.12	476186	17.16
OP87489-MS	151465	4.74	686428	5.66	353492	7.06	586238	8.92	565388	14.13	452605	17.16

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Surrogate Recovery Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846 8270D **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
JC4005-2	P98836.D	59	40	84	113	94	109
OP87287-BS1	P98826.D	66	45	82	104	88	106
OP87287-BSD	P98827.D	61	46	87	111	93	108
OP87287-MB1	P98825.D	65	43	93	117	96	114
OP87287-MB1	F150321.D	67	44	97	105	103	105

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	14-88%
S2 = Phenol-d5	10-110%
S3 = 2,4,6-Tribromophenol	39-149%
S4 = Nitrobenzene-d5	32-128%
S5 = 2-Fluorobiphenyl	35-119%
S6 = Terphenyl-d14	10-126%

Semivolatile Surrogate Recovery Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846 8270D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
JC4005-3	M118009.D	68	67	58	66	62	66
JC4005-4	2P52518.D	81	80	88	100	95	94
JC4005-5	M117993.D	91	88	81	93	90	98
JC4005-6	2P52523.D	80	79	104	82	91	98
JC4005-7	M117994.D	81	80	77	84	81	89
JC4005-8	M117995.D	90	88	79	91	88	96
JC4005-9	M117996.D	79	79	75	79	79	87
JC4005-10	M117997.D	83	81	78	86	83	89
JC4005-11	M117999.D	81	80	76	82	78	84
JC4005-12	M117998.D	84	82	76	87	82	91
JC4005-13	2P52522.D	70	64	88	75	76	83
JC4005-14	2P52519.D	71	73	92	80	87	84
JC4005-15	2P52520.D	75	74	79	84	88	84
OP87313-BS1	M117989.D	93	90	86	93	91	95
OP87313-BS1	3P46981.D	79	78	89	87	89	97
OP87313-BS1	Z104547.D	91	88	101	83	94	95
OP87313-MB1	M117988.D	86	87	82	90	87	96
OP87313-MB1	2P52516.D	76	80	86	87	93	83
OP87313-MB1	3P46980.D	57	64	55	91	94	99
OP87313-MB1	Z104546.D	68	77	63	89	89	94
OP87313-MS	M118010.D	78	76	71	76	73	75
OP87313-MSD	M118011.D	69	69	63	66	67	66

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	30-106%
S2 = Phenol-d5	30-106%
S3 = 2,4,6-Tribromophenol	24-140%
S4 = Nitrobenzene-d5	26-122%
S5 = 2-Fluorobiphenyl	36-112%
S6 = Terphenyl-d14	36-132%

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2252-ICC2252
Lab FileID: 2P52218.D

Response Factor Report MS2P

Method : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 10:21:36 2015
Response via : Initial Calibration

Calibration Files
2 =2p52214a.D 5 =2p52221a.D 25 =2p52219a.D 80 =2p52217a.D
100 =2p52216a.D 50 =2p52218.D 1 =2p52215a.D 10 =2p52220.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.658	0.610	0.741	0.850	0.860	0.763	0.646	0.609	0.717	14.20
3) Pyridine	1.461	1.515	1.794	1.860	1.851	1.765	1.207	1.452	1.613	14.77
4) N-Nitrosodim	0.777	0.892	0.944	1.100	1.101	0.994	0.835	0.817	0.932	13.39
5) 2-Fluorophen	1.197	1.267	1.535	1.587	1.552	1.521	1.160	1.239	1.382	13.14
6) Indene	2.184	2.303	2.298	2.161	2.130	2.167	2.254	2.156	2.207	3.09
7) Cumene	3.104	3.260	3.541	3.518	3.382	3.431	3.122	3.111	3.309	5.56
8) Phenol-d5	1.449	1.578	1.779	1.681	1.614	1.692	1.438	1.569	1.600	7.40
9) Phenol	1.614	1.736	1.792	1.688	1.620	1.656	1.540	1.615	1.658	4.78
10) Aniline	1.766	1.974	2.123	1.751	1.659	2.042	1.786	1.807	1.863	8.72
11) bis(2-Chloro	1.107	1.175	1.125	1.081	1.049	1.041	1.112	1.031	1.090	4.51
12) 2-Chlorophen	1.402	1.511	1.472	1.343	1.274	1.351	1.463	1.387	1.400	5.60
13) Decane	1.200	1.181	1.194	1.134	1.118	1.137	1.315	1.138	1.177	5.40
14) 1,3-Dichloro	1.594	1.669	1.621	1.533	1.504	1.505	1.570	1.548	1.568	3.69
15) 1,4-Dichloro	1.494	1.612	1.552	1.497	1.451	1.467	1.623	1.487	1.523	4.30
16) Benzyl alcoh	0.688	0.738	0.756	0.715	0.704	0.707	0.686	0.709	0.713	3.36
17) 1,2-Dichloro	1.470	1.547	1.480	1.363	1.336	1.377	1.393	1.381	1.418	5.10
18) Acetophenone	1.554	1.782	1.718	1.648	1.651	1.623	1.538	1.630	1.643	4.85
19) 2-Methylphen	0.973	1.056	1.066	1.012	0.989	1.009	0.965	1.015	1.011	3.59
20) 2,2'-oxybis(	0.344	0.360	0.324	0.326	0.320	0.306	0.347	0.311	0.330	5.68
21) 3&4-Methylph	0.983	1.155	1.163	1.133	1.099	1.094	0.982	1.120	1.091	6.52
22) n-Nitroso-di	0.772	0.899	0.778	0.766	0.763	0.731	0.784	0.764	0.782	6.39
23) Hexachloroet	0.553	0.556	0.555	0.516	0.507	0.515	0.587	0.533	0.540	5.04
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.325	0.343	0.342	0.331	0.335	0.317	0.325	0.321	0.330	2.89
26) Nitrobenzene	0.335	0.349	0.347	0.329	0.331	0.326	0.350	0.324	0.337	3.16
27) Quinoline	0.678	0.802	0.801	0.792	0.795	0.764	0.715	0.739	0.761	6.04
28) Isophorone	0.532	0.609	0.614	0.608	0.611	0.584	0.554	0.568	0.585	5.29
29) 2-Nitropheno	0.204	0.230	0.230	0.228	0.217	0.220	0.216	0.208	0.219	4.45
30) 2,4-Dimethyl	0.236	0.302	0.365	0.340	0.342	0.342	0.266	0.310	0.313	14.01
31) Benzoic acid		0.181	0.240	0.238	0.253	0.244		0.198	0.226	12.94
32) bis(2-Chloro	0.354	0.381	0.359	0.360	0.363	0.341	0.357	0.340	0.357	3.64
33) 2,4-Dichloro	0.315	0.354	0.355	0.346	0.341	0.333	0.326	0.317	0.336	4.67
34) 2,6-Dichloro	0.303	0.328	0.329	0.309	0.303	0.307	0.293	0.298	0.309	4.26
35) 1,3,5-Trichl	0.394	0.399	0.404	0.376	0.359	0.383	0.392	0.382	0.386	3.71
36) 1,2,4-Trichl	0.360	0.382	0.374	0.342	0.334	0.344	0.369	0.352	0.357	4.74
37) 1,2,3-Trichl	0.342	0.359	0.353	0.323	0.317	0.332	0.359	0.336	0.340	4.66
38) Naphthalene	1.007	1.049	1.038	0.978	0.952	0.982	1.080	0.986	1.009	4.27
39) 4-Chloroanil	0.425	0.458	0.460	0.419	0.405	0.425	0.445	0.425	0.433	4.47
40) 2,3-Dichloro	0.377	0.452	0.441	0.418	0.409	0.407	0.387	0.417	0.413	6.05
41) Caprolactam	0.090	0.117	0.117	0.113	0.116	0.111	0.099	0.105	0.109	8.88
42) Hexachlorobu	0.193	0.212	0.210	0.196	0.191	0.194	0.208	0.196	0.200	4.22
43) 4-Chloro-3-m	0.281	0.318	0.338	0.337	0.330	0.325	0.273	0.300	0.313	8.10
44) 2-Methylnaph	0.594	0.662	0.648	0.629	0.601	0.605	0.607	0.590	0.617	4.29
45) 1-Methylnaph	0.616	0.702	0.701	0.653	0.619	0.649	0.654	0.661	0.657	4.87

Initial Calibration Summary

Job Number: JC4005 **Sample:** E2P2252-ICC2252
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2P52218.D
Project: Sunoco - Marcus Hook Facility, PA

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46) Dimethylnaph 0.625 0.698 0.687 0.620 0.603 0.630 0.630 0.644 0.642   5.19

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy       0.176 0.303 0.308 0.311 0.306       0.205 0.268  22.66
            ----- Linear regression -----  Coefficient =  0.9996
              Response Ratio = -0.03754 + 0.31839 *A

49) 2,4,6-Trichl 0.387 0.401 0.402 0.363 0.371 0.369 0.360 0.382 0.379   4.25
50) 2,4,5-Trichl 0.351 0.415 0.399 0.346 0.346 0.373 0.363 0.378 0.372   6.80
51) 2-Fluorobiph 1.309 1.394 1.279 1.092 1.091 1.158 1.367 1.242 1.242   9.48
52) 2-Chloronaph 1.169 1.181 1.110 0.964 0.960 1.011 1.208 1.099 1.088   9.06
53) Biphenyl     1.553 1.611 1.519 1.344 1.324 1.395 1.580 1.459 1.473   7.45
54) 2-Nitroanili 0.303 0.346 0.320 0.309 0.316 0.297 0.281 0.298 0.309   6.30
55) Dimethylphth 1.429 1.420 1.300 1.230 1.258 1.207 1.420 1.229 1.312   7.33
56) Acenaphthyle 1.816 1.983 1.915 1.672 1.693 1.767 1.843 1.823 1.814   5.78
57) 2,6-Dinitrot 0.243 0.303 0.304 0.286 0.304 0.288 0.272 0.286 0.286   7.24
58) 3-Nitroanili 0.306 0.367 0.347 0.335 0.350 0.329 0.312 0.322 0.333   6.19
59) Acenaphthene 1.107 1.168 1.143 1.039 1.054 1.077 1.128 1.085 1.100   4.05
60) 2,4-Dinitrop 0.045 0.094 0.162 0.193 0.204 0.173       0.105 0.140  42.29
         ----- Quadratic regression -----                Coefficient =  0.9997
              Response Ratio = -0.01653 + 0.15597 *A + 0.01027 *A^2

61) 4-Nitropheno 0.092 0.122 0.133 0.125 0.127 0.126 0.088 0.117 0.116  14.52
62) Dibenzofuran 1.595 1.736 1.636 1.539 1.542 1.540 1.635 1.522 1.593   4.60
63) 2,4-Dinitrot 0.324 0.420 0.406 0.366 0.371 0.375 0.320 0.369 0.369   9.41
64) 2,3,4,6-Tetr 0.276 0.329 0.353 0.342 0.354 0.342 0.291 0.315 0.325   8.93
65) Diethylphtha 1.157 1.368 1.266 1.180 1.188 1.177 1.159 1.184 1.210   5.99
66) Fluorene     1.267 1.404 1.349 1.110 1.086 1.216 1.319 1.291 1.255   8.92
67) 4-Chlorophen 0.633 0.702 0.639 0.562 0.538 0.583 0.641 0.611 0.614   8.49
68) 4-Nitroanili 0.265 0.357 0.337 0.316 0.328 0.305 0.269 0.311 0.311  10.18

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.116 0.140 0.142 0.149 0.140       0.112 0.133  11.40
71) n-Nitrosodip 0.540 0.559 0.530 0.461 0.463 0.491 0.523 0.524 0.511   7.03
72) 1,2-Diphenyl 0.639 0.652 0.624 0.597 0.609 0.574 0.655 0.598 0.618   4.69
73) 2,4,6-Tribro 0.096 0.101 0.116 0.109 0.114 0.113 0.096 0.099 0.106   7.98
74) 4-Bromopheny 0.231 0.249 0.238 0.233 0.241 0.231 0.238 0.222 0.235   3.42
75) Hexachlorobe 0.256 0.272 0.272 0.245 0.251 0.259 0.265 0.247 0.258   4.12
76) Pentachlorop 0.077 0.092 0.130 0.130 0.142 0.127       0.091 0.113  22.46
         ----- Quadratic regression -----                Coefficient =  0.9981
              Response Ratio = -0.00360 + 0.11311 *A + 0.00560 *A^2

77) Phenanthrene 1.071 1.130 1.058 0.932 0.951 0.998 1.134 1.035 1.039   7.24
78) Anthracene   1.056 1.158 1.115 0.948 0.955 1.029 1.049 1.057 1.046   6.83
79) Carbazole    0.991 1.144 1.114 0.985 0.995 1.033 1.049 1.038 1.044   5.58
80) Di-n-butylph 1.171 1.346 1.340 1.268 1.280 1.280 1.103 1.197 1.248   6.78
81) Fluoranthene 1.265 1.506 1.475 1.276 1.291 1.383 1.255 1.343 1.349   7.21
82) Octadecane   0.329 0.314 0.316 0.275 0.283 0.294 0.304 0.287 0.300   6.19

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.196 1.292 1.241 1.294 1.269 1.190 1.202 1.142 1.228   4.43
85) Terphenyl-d1 0.762 0.825 0.787 0.876 0.857 0.794 0.768 0.691 0.795   7.37
86) Butylbenzylp 0.452 0.530 0.559 0.642 0.639 0.558 0.436 0.461 0.535  15.05
87) Butyl steara 0.213 0.235 0.263 0.295 0.299 0.268 0.188 0.214 0.247  16.46
88) Benzo[a]anth 1.168 1.285 1.234 1.247 1.241 1.177 1.209 1.116 1.210   4.45
89) 3,3'-Dichlor 0.369 0.459 0.473 0.450 0.442 0.449 0.353 0.404 0.425  10.44
90) Chrysene     0.979 1.058 1.055 1.035 1.035 1.022 0.995 0.962 1.018   3.48
91) bis(2-Ethylh 0.560 0.658 0.675 0.772 0.764 0.685 0.551 0.568 0.654  13.47

92) I   Perylene-d12          ----------------ISTD---------------------
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8.8.1

8

Initial Calibration Summary

Job Number: JC4005 **Sample:** E2P2252-ICC2252
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2P52218.D
Project: Sunoco - Marcus Hook Facility, PA

93)	Di-n-octylph	1.064	1.250	1.256	1.469	1.369	1.262	0.960	1.058	1.211	14.15
94)	Benzo[b]fluo	1.223	1.304	1.180	1.191	1.167	1.143	1.260	1.093	1.195	5.58
95)	Benzo[k]fluo	1.163	1.267	1.034	0.974	0.899	0.931	1.092	1.051	1.051	11.63
96)	Benzo[a]pyre	1.092	1.191	1.117	1.122	1.088	1.049	1.031	0.985	1.084	5.81
97)	Indeno[1,2,3	1.261	1.444	1.315	1.349	1.352	1.191	1.248	1.167	1.291	7.12
98)	Dibenz(a,h)a	0.916	1.052	1.044	1.060	1.081	0.983	0.883	0.892	0.989	8.24
99)	Dibenz[a,h]a	1.055	1.173	1.057	1.027	1.026	0.963	1.021	0.971	1.037	6.25
100)	7,12-Dimethy	0.417	0.453	0.588	0.591	0.584	0.580	0.387	0.489	0.511	16.64
101)	Benzo[g,h,i]	1.039	1.182	1.141	1.128	1.151	1.040	1.029	1.014	1.091	6.08

(#) = Out of Range ### Number of calibration levels exceeded format ###

M2P2252.M Wed Sep 09 14:12:48 2015 RPT1

8.8.1

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2252-ICV2252
Lab FileID: 2P52222.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2252\2p52222.D          Vial: 10
Acq On    :  8 Sep 2015   7:50 pm                   Operator: ashleyd
Sample    : icv2252-50                              Inst    : MS2P
Misc      : op86912,e2p2252                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Sep 09 10:21:36 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	114	0.00	4.44
9	t	Phenol	1.658	1.755	-5.9	121	0.00	4.22
12	t	2-Chlorophenol	1.400	1.489	-6.4	126	0.00	4.29
19	t	2-Methylphenol	1.011	1.196	-18.3	136	0.00	4.71
21	t	3&4-Methylphenol	1.091	1.229	-12.6	129	0.00	4.84
24	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	5.50
29	t	2-Nitrophenol	0.219	0.230	-5.0	113	0.00	5.19
30	t	2,4-Dimethylphenol	0.313	0.382	-22.0	121	0.00	5.26
31	t	Benzoic acid	0.226	0.254	-12.4	113	0.00	5.43
33	t	2,4-Dichlorophenol	0.336	0.345	-2.7	112	0.00	5.41
34	t	2,6-Dichlorophenol	0.309	0.334	-8.1	118	0.00	5.58
43	t	4-Chloro-3-methylphenol	0.313	0.333	-6.4	111	-0.02	6.00
47	I	Acenaphthene-d10	1.000	1.000	0.0	122	0.00	6.93
		----------	AvgRF	CCRF	% Dev	----------		
49	t	2,4,6-Trichlorophenol	0.379	0.375	1.1	123	0.00	6.34
50	t	2,4,5-Trichlorophenol	0.372	0.390	-4.8	127	-0.01	6.37
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	43.234	13.5	92	0.00	7.02
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.116	0.127	-9.5	123	-0.01	7.11
64		2,3,4,6-Tetrachlorophenol	0.325	0.319	1.8	114	0.00	7.22
69	I	Phenanthrene-d10	1.000	1.000	0.0	118	0.00	8.19
70	t	4,6-Dinitro-2-methylpheno	0.133	0.124	6.8	104	-0.01	7.45
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	52.930	-5.9	116	0.00	8.04
		----------	AvgRF	CCRF	% Dev	----------		
83	I	Chrysene-d12	1.000	1.000	0.0	137	-0.01	11.39
92	I	Perylene-d12	1.000	1.000	0.0	118	0.00	13.39

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 2p52218.D  M2P2252.M        Wed Sep 09 14:06:09 2015   RPT1
```

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2252-ICV2252
Lab FileID: 2P52223.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2252\2p52223.D          Vial: 11
Acq On    :  8 Sep 2015   8:11 pm                   Operator: ashleyd
Sample    : icv2252-50                              Inst    : MS2P
Misc      : op86912,e2p2252                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Sep 09 10:21:36 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	117	0.00	4.45
3	t	Pyridine	1.613	1.637	-1.5	109	0.19	2.19
10		Aniline	1.863	1.987	-6.7	114	0.00	4.19
16	t	Benzyl alcohol	0.713	0.786	-10.2	130	0.00	4.59
24	I	Naphthalene-d8	1.000	1.000	0.0	106	0.00	5.50
39	t	4-Chloroaniline	0.433	0.430	0.7	107	0.00	5.58
44	t	2-Methylnaphthalene	0.617	0.590	4.4	103	0.00	6.09
47	I	Acenaphthene-d10	1.000	1.000	0.0	115	0.00	6.93
		----------	AvgRF	CCRF	% Dev	----------		
54	t	2-Nitroaniline	0.309	0.274	11.3	106	0.00	6.58
58	t	3-Nitroaniline	0.333	0.296	11.1	104	0.00	6.92
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.593	1.386	13.0	104	0.00	7.10
68	t	4-Nitroaniline	0.311	0.290	6.8	110	-0.01	7.42
69	I	Phenanthrene-d10	1.000	1.000	0.0	119	0.00	8.19
		----------	AvgRF	CCRF	% Dev	----------		
79	t	Carbazole	1.044	0.875	16.2	101	0.00	8.43
83	I	Chrysene-d12	1.000	1.000	0.0	132	-0.01	11.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52218.D M2P2252.M Wed Sep 09 14:06:11 2015 RPT1

8.8.3

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2252-ICV2252
Lab FileID: 2P52224.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2252\2p52224.D          Vial: 12
Acq On    :  8 Sep 2015   8:33 pm                   Operator: ashleyd
Sample    : icv2252-50                              Inst    : MS2P
Misc      : op86912,e2p2252                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Sep 09 10:21:36 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	116	0.00	4.44
5	S	2-Fluorophenol	1.382	1.396	-1.0	106	0.00	3.37
8	S	Phenol-d5	1.600	1.664	-4.0	114	0.00	4.21
24	I	Naphthalene-d8	1.000	1.000	0.0	121	0.00	5.49
25	S	Nitrobenzene-d5	0.330	0.343	-3.9	131	0.00	4.91
47	I	Acenaphthene-d10	1.000	1.000	0.0	122	0.00	6.93
		----------	AvgRF	CCRF	% Dev	----------		
51	S	2-Fluorobiphenyl	1.242	1.318	-6.1	139	0.00	6.38
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	125	-0.01	8.19
73	S	2,4,6-Tribromophenol	0.106	0.106	0.0	117	-0.01	7.58
		----------	AvgRF	CCRF	% Dev	----------		
83	I	Chrysene-d12	1.000	1.000	0.0	135	-0.01	11.39
85	S	Terphenyl-d14	0.795	0.797	-0.3	136	0.00	9.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52218.D M2P2252.M Wed Sep 09 14:06:13 2015 RPT1

8.8.4

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2252-ICV2252
Lab FileID: 2P52225.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2252\2p52225.D Vial: 13
Acq On : 8 Sep 2015 8:54 pm Operator: ashleyd
Sample : icv2252-50 Inst : MS2P
Misc : op86912,e2p2252 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 10:21:36 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	136	0.00	4.44
4	t	N-Nitrosodimethylamine	0.932	0.862	7.5	118	0.00	1.98
11	t	bis(2-Chloroethyl)ether	1.090	1.241	-13.9	162	0.00	4.23
14	t	1,3-Dichlorobenzene	1.568	1.598	-1.9	144	0.00	4.39
15	t	1,4-Dichlorobenzene	1.523	1.461	4.1	135	0.00	4.46
17	t	1,2-Dichlorobenzene	1.418	1.379	2.8	136	0.00	4.58
20	t	2,2'-oxybis(1-Chloropropa	0.330	0.346	-4.8	154	0.00	4.68
22	t	n-Nitroso-di-n-propylamin	0.782	0.786	-0.5	146	0.00	4.80
23	t	Hexachloroethane	0.540	0.516	4.4	136	0.00	4.85
24	I	Naphthalene-d8	1.000	1.000	0.0	130	0.00	5.50
26	t	Nitrobenzene	0.337	0.345	-2.4	138	0.00	4.92
28	t	Isophorone	0.585	0.627	-7.2	140	0.00	5.12
32	t	bis(2-Chloroethoxy)methan	0.357	0.410	-14.8	157	0.00	5.31
36	t	1,2,4-Trichlorobenzene	0.357	0.366	-2.5	139	0.00	5.45
38	t	Naphthalene	1.009	1.013	-0.4	134	0.00	5.51
42	t	Hexachlorobutadiene	0.200	0.205	-2.5	137	0.00	5.62
47	I	Acenaphthene-d10	1.000	1.000	0.0	133	0.00	6.94
		----------	True	Calc.	% Drift	----------		
48	t	Hexachlorocyclopentadiene	50.000	44.262	11.5	110	0.00	6.21
		----------	AvgRF	CCRF	% Dev	----------		
52	t	2-Chloronaphthalene	1.088	1.217	-11.9	160	0.00	6.48
55	t	Dimethylphthalate	1.312	1.346	-2.6	148	0.00	6.73
56	t	Acenaphthylene	1.814	1.742	4.0	131	0.00	6.82
57	t	2,6-Dinitrotoluene	0.286	0.296	-3.5	136	0.00	6.79
59	t	Acenaphthene	1.100	1.133	-3.0	140	0.00	6.96
		----------	AvgRF	CCRF	% Dev	----------		
63	t	2,4-Dinitrotoluene	0.369	0.412	-11.7	146	0.00	7.12
65	t	Diethylphthalate	1.210	1.345	-11.2	152	0.00	7.30
66	t	Fluorene	1.255	1.290	-2.8	141	0.00	7.38
67	t	4-Chlorophenyl-phenylethe	0.614	0.632	-2.9	144	0.00	7.38
69	I	Phenanthrene-d10	1.000	1.000	0.0	146	0.00	8.19
71	t	n-Nitrosodiphenylamine	0.511	0.474	7.2	141	0.00	7.49
72	t	1,2-Diphenylhydrazine	0.618	0.533	13.8	135	0.00	7.51
74	t	4-Bromophenyl-phenylether	0.235	0.238	-1.3	151	0.00	7.79
75	t	Hexachlorobenzene	0.258	0.233	9.7	131	0.00	7.86

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2252-ICV2252
Lab FileID: 2P52225.D

			AvgRF	CCRF	% Dev			
77	t	Phenanthrene	1.039	1.011	2.7	148	0.00	8.22
78	t	Anthracene	1.046	0.985	5.8	140	0.00	8.27
80	t	Di-n-butylphthalate	1.248	1.259	-0.9	144	0.00	8.80
81	t	Fluoranthene	1.349	1.353	-0.3	143	0.00	9.49
83	I	Chrysene-d12	1.000	1.000	0.0	127	0.00	11.41
84	t	Pyrene	1.228	1.349	-9.9	144	0.00	9.76
86	t	Butylbenzylphthalate	0.535	0.635	-18.7	145	0.00	10.66
88	t	Benzo[a]anthracene	1.210	1.296	-7.1	140	0.00	11.39
90	t	Chrysene	1.018	1.085	-6.6	135	0.01	11.45
91	t	bis(2-Ethylhexyl)phthalat	0.654	0.795	-21.6	148	0.00	11.52
92	I	Perylene-d12	1.000	1.000	0.0	112	0.00	13.39
93	t	Di-n-octylphthalate	1.211	1.565	-29.2	139	0.00	12.46
94	t	Benzo[b]fluoranthene	1.195	1.337	-11.9	132	0.00	12.89
95	t	Benzo[k]fluoranthene	1.051	1.138	-8.3	137	0.00	12.93
96	t	Benzo[a]pyrene	1.084	1.182	-9.0	127	0.00	13.32
97	t	Indeno[1,2,3-cd]pyrene	1.291	1.266	1.9	119	0.00	14.73
99	t	Dibenz[a,h]anthracene	1.037	0.974	6.1	114	0.00	14.75
101	t	Benzo[g,h,i]perylene	1.091	1.028	5.8	111	0.00	15.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52218.D M2P2252.M Wed Sep 09 14:06:15 2015 RPT1

8.8.5

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2252-ICV2252
Lab FileID: 2P52227.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2252\2p52227.D          Vial: 15
Acq On    :  8 Sep 2015   9:37 pm                   Operator: ashleyd
Sample    : icv2252-50                              Inst    : MS2P
Misc      : op86912,e2p2252                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Sep 09 10:21:36 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83 I	Chrysene-d12	1.000	1.000	0.0	112	-0.01	11.39
89 t	3,3'-Dichlorobenzidine	0.425	0.329	22.6	82	-0.01	11.37

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52218.D M2P2252.M Wed Sep 09 14:06:17 2015 RPT1

8.8.6

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2253-ICV2252
Lab FileID: 2P52230.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2253\2p52230.D          Vial: 2
Acq On    :  9 Sep 2015  12:50 pm                   Operator: ashleyd
Sample    : icv2252-50                              Inst    : MS2P
Misc      : op86912,e2p2253                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Sep 09 10:21:36 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	142	-0.01	4.43
2	t	1,4-Dioxane	0.717	0.698	2.6	130	0.02	1.69
6	t	Indene	2.207	2.137	3.2	140	-0.01	4.65
7	t	Cumene	3.309	2.954	10.7	122	0.00	3.76
13	t	Decane	1.177	1.115	5.3	139	0.00	4.32
18	t	Acetophenone	1.643	1.581	3.8	138	-0.02	4.77
24	I	Naphthalene-d8	1.000	1.000	0.0	151	-0.01	5.49
27	t	Quinoline	0.761	0.647	15.0	128	-0.02	5.78
40	t	2,3-Dichloroaniline	0.413	0.315	23.7	117	-0.01	6.31
41	t	Caprolactam	0.109	0.090	17.4	123	-0.05	5.85
45	t	1-Methylnaphthalene	0.657	0.558	15.1	130	-0.01	6.15
46	t	Dimethylnaphthalene	0.642	0.535	16.7	128	-0.02	6.58
47	I	Acenaphthene-d10	1.000	1.000	0.0	139	-0.02	6.92
		----------	AvgRF	CCRF	% Dev	----------		
53	t	Biphenyl	1.473	1.293	12.2	129	-0.02	6.45
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	125	-0.02	8.18
		----------	AvgRF	CCRF	% Dev	----------		
82	t	Octadecane	0.300	0.298	0.7	127	-0.01	8.10
83	I	Chrysene-d12	1.000	1.000	0.0	142	-0.03	11.37
92	I	Perylene-d12	1.000	1.000	0.0	112	-0.03	13.36
100	t	7,12-Dimethylbenz(a)anthr	0.511	0.200	60.9#	39#	-0.04	12.85

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52218.D M2P2252.M Wed Sep 09 14:10:42 2015 RPT1

8.8.7

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2255-ICC2255
Lab FileID: 2P52268.D

```
                          Response Factor Report  MS2P

  Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Thu Sep 10 14:27:40 2015
  Response via : Initial Calibration

  Calibration Files
  2   =2p52272a.D  5   =2p52271a.D  25  =2p52269a.D  80  =2p52267a.D
  100 =2p52266a.D  50  =2p52268a.D  1   =2p52273a.D  10  =2p52270a.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------

102) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.195 1.300 1.125 1.063 1.029 1.097 1.055 1.135 1.125   7.85

104) I   Naphthalene-d8       ----------------ISTD---------------------
105) Hydroquinone 0.217 0.374 0.331 0.350 0.325 0.337       0.320 0.322  15.46

106) I   Acenaphthene-d10     ----------------ISTD---------------------
107) Atrazine     0.201 0.232 0.188 0.178 0.163 0.186 0.177 0.189 0.189  10.84
108) 1,2,4,5-Tetr 0.715 0.762 0.623 0.557 0.536 0.601 0.682 0.652 0.641  12.10

109) I   Chrysene-d12         ----------------ISTD---------------------
110) Benzidine    0.661 0.719 0.568 0.515 0.472 0.573 0.630 0.522 0.582  14.18

111) I   Phenanthrene-d10     ----------------ISTD---------------------
112) 1-chloroocta 0.287 0.324 0.266 0.269 0.269 0.262 0.239 0.264 0.272   8.99
113) O-terphenyl  0.650 0.715 0.585 0.527 0.508 0.559 0.608 0.600 0.594  11.26
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2P2252.M         Thu Sep 10 16:16:30 2015   RPT1
```

8.8.8

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2255-ICV2255
Lab FileID: 2P52274.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\2P2255\2p52274.D          Vial: 10
  Acq On    : 10 Sep 2015   1:12 pm                   Operator: ashleyd
  Sample    : icv2255-50                              Inst    : MS2P
  Misc      : op86912,e2p2255                         Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M2P2252eph.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Thu Sep 10 14:27:40 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
106 I	Acenaphthene-d10a	1.000	1.000	0.0	70	0.00	6.92
108	1,2,4,5-Tetrachlorobenzen	0.641	0.668	-4.2	78	-0.01	6.21

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52268a.D M2P2252eph.M Thu Sep 10 16:10:12 2015 RPT1

8.8.9

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2255-ICV2255
Lab FileID: 2P52275.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2255\2p52275.D          Vial: 11
Acq On    : 10 Sep 2015   1:33 pm                   Operator: ashleyd
Sample    : icv2255-50                              Inst    : MS2P
Misc      : op86912,e2p2255                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252eph.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Sep 10 14:27:40 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102 I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	72	0.00	4.43
103	Benzaldehyde	1.125	1.046	7.0	69	0.00	4.07
106 I	Acenaphthene-d10a	1.000	1.000	0.0	68	-0.01	6.91
107	Atrazine	0.189	0.184	2.6	68	-0.02	7.94

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52268a.D M2P2252eph.M Thu Sep 10 16:10:14 2015 RPT1

8.8.10

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2255-ICV2255
Lab FileID: 2P52276.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2255\2p52276.D          Vial: 12
Acq On    : 10 Sep 2015   1:55 pm                   Operator: ashleyd
Sample    : icv2255-50                              Inst    : MS2P
Misc      : op86912,e2p2255                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252eph.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Sep 10 14:27:40 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
109 I	Chrysene-d12a	1.000	1.000	0.0	90	-0.02	11.37
110	Benzidine	0.582	0.575	1.2	90	-0.02	9.64

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52268a.D M2P2252eph.M Thu Sep 10 16:10:16 2015 RPT1

8.8.11

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E2P2255-ICV2255
Lab FileID: 2P52278.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2255\2p52278.D          Vial: 14
Acq On    : 10 Sep 2015   2:42 pm                   Operator: ashleyd
Sample    : icv2255-50                              Inst    : MS2P
Misc      : op86912,e2p2255                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252eph.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Sep 10 14:27:40 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
104 I	Naphthalene-d8a	1.000	1.000	0.0	82	0.00	5.48
105	Hydroquinone	0.322	0.389	-20.8	94	-0.02	5.90

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52268a.D M2P2252eph.M Fri Sep 11 09:10:38 2015 RPT1

8.8.12

8

Continuing Calibration Summary

Job Number: JC4005 **Sample:** E2P2265-CC2252
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2P52510.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2265\2p52510.D          Vial: 2
Acq On    : 18 Sep 2015   9:48 pm                   Operator: saraw
Sample    : cc2252-50                               Inst    : MS2P
Misc      : op86912,e2p2265                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Sep 21 15:15:55 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	116	0.00	4.30
2	t	1,4-Dioxane	0.717	0.638	11.0	97	-0.01	1.54
3	t	Pyridine	1.613	1.270	21.3#	84	-0.02	1.83
4	t	N-Nitrosodimethylamine	0.932	0.698	25.1#	82	-0.01	1.81
5	S	2-Fluorophenol	1.382	1.521	-10.1	116	0.00	3.23
6	t	Indene	2.207	2.199	0.4	118	0.00	4.52
7	t	Cumene	3.309	3.363	-1.6	114	0.00	3.62
8	S	Phenol-d5	1.600	1.722	-7.6	118	0.00	4.08
9	t	Phenol	1.658	1.674	-1.0	118	0.00	4.09
10		Aniline	1.863	1.937	-4.0	110	0.00	4.04
11	t	bis(2-Chloroethyl)ether	1.090	1.045	4.1	117	0.00	4.10
12	t	2-Chlorophenol	1.400	1.327	5.2	114	-0.01	4.15
13	t	Decane	1.177	1.194	-1.4	122	0.00	4.19
14	t	1,3-Dichlorobenzene	1.568	1.502	4.2	116	0.00	4.25
15	t	1,4-Dichlorobenzene	1.523	1.451	4.7	115	-0.01	4.31
16	t	Benzyl alcohol	0.713	0.707	0.8	116	0.00	4.45
17	t	1,2-Dichlorobenzene	1.418	1.372	3.2	116	0.00	4.44
18	t	Acetophenone	1.643	1.682	-2.4	120	0.00	4.65
19	t	2-Methylphenol	1.011	1.039	-2.8	120	0.00	4.58
20	t	2,2'-oxybis(1-Chloropropa	0.330	0.305	7.6	116	0.00	4.55
21	t	3&4-Methylphenol	1.091	1.141	-4.6	121	0.00	4.71
22	t	n-Nitroso-di-n-propylamin	0.782	0.772	1.3	123	0.00	4.67
23	t	Hexachloroethane	0.540	0.503	6.9	114	0.00	4.71
24	I	Naphthalene-d8	1.000	1.000	0.0	116	0.00	5.36
25	S	Nitrobenzene-d5	0.330	0.329	0.3	120	0.00	4.77
26	t	Nitrobenzene	0.337	0.339	-0.6	120	0.00	4.79
27	t	Quinoline	0.761	0.775	-1.8	117	0.00	5.66
28	t	Isophorone	0.585	0.616	-5.3	122	0.00	4.99
29	t	2-Nitrophenol	0.219	0.225	-2.7	118	0.00	5.06
30	t	2,4-Dimethylphenol	0.313	0.335	-7.0	113	0.00	5.13
31	t	Benzoic acid	0.226	0.217	4.0	102	0.02	5.31
32	t	bis(2-Chloroethoxy)methan	0.357	0.348	2.5	118	-0.01	5.17
33	t	2,4-Dichlorophenol	0.336	0.343	-2.1	119	0.00	5.28
34	t	2,6-Dichlorophenol	0.309	0.302	2.3	113	0.00	5.45
35		1,3,5-Trichlorobenzene	0.386	0.378	2.1	114	-0.01	5.06
36	t	1,2,4-Trichlorobenzene	0.357	0.339	5.0	114	-0.01	5.31
37		1,2,3-Trichlorobenzene	0.340	0.320	5.9	111	0.00	5.49
38	t	Naphthalene	1.009	0.970	3.9	114	0.00	5.37
39	t	4-Chloroaniline	0.433	0.420	3.0	114	0.00	5.44
40	t	2,3-Dichloroaniline	0.413	0.410	0.7	116	-0.01	6.18
41	t	Caprolactam	0.109	0.111	-1.8	115	0.01	5.77

Continuing Calibration Summary

Job Number: JC4005 **Sample:** E2P2265-CC2252
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2P52510.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.200	0.187	6.5	111	-0.01	5.48
43	t	4-Chloro-3-methylphenol	0.313	0.324	-3.5	115	0.00	5.88
44	t	2-Methylnaphthalene	0.617	0.599	2.9	114	-0.01	5.94
45	t	1-Methylnaphthalene	0.657	0.650	1.1	116	0.00	6.02
46	t	Dimethylnaphthalene	0.642	0.607	5.5	111	0.00	6.45
47	I	Acenaphthene-d10	1.000	1.000	0.0	112	-0.01	6.78
		----------	True	Calc.	% Drift	----------		
48	t	Hexachlorocyclopentadiene	100.000	94.278	5.7	105	0.00	6.07
		----------	AvgRF	CCRF	% Dev	----------		
49	t	2,4,6-Trichlorophenol	0.379	0.366	3.4	112	0.00	6.20
50	t	2,4,5-Trichlorophenol	0.372	0.362	2.7	109	-0.01	6.24
51	S	2-Fluorobiphenyl	1.242	1.158	6.8	112	0.00	6.24
52	t	2-Chloronaphthalene	1.088	0.978	10.1	109	-0.01	6.33
53	t	Biphenyl	1.473	1.348	8.5	109	0.00	6.32
54	t	2-Nitroaniline	0.309	0.300	2.9	114	0.00	6.44
55	t	Dimethylphthalate	1.312	1.150	12.3	107	0.00	6.59
56	t	Acenaphthylene	1.814	1.688	6.9	107	0.00	6.67
57	t	2,6-Dinitrotoluene	0.286	0.273	4.5	107	0.00	6.64
58	t	3-Nitroaniline	0.333	0.322	3.3	110	0.00	6.78
59	t	Acenaphthene	1.100	1.037	5.7	108	-0.01	6.81
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	100.959	-1.0	115	0.00	6.89
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.116	0.118	-1.7	106	-0.01	6.99
62	t	Dibenzofuran	1.593	1.472	7.6	108	-0.01	6.95
63	t	2,4-Dinitrotoluene	0.369	0.359	2.7	108	-0.01	6.98
64		2,3,4,6-Tetrachlorophenol	0.325	0.314	3.4	103	0.00	7.08
65	t	Diethylphthalate	1.210	1.104	8.8	105	-0.01	7.16
66	t	Fluorene	1.255	1.180	6.0	109	-0.01	7.23
67	t	4-Chlorophenyl-phenylethe	0.614	0.554	9.8	107	-0.01	7.23
68	t	4-Nitroaniline	0.311	0.285	8.4	105	0.00	7.29
69	I	Phenanthrene-d10	1.000	1.000	0.0	104	-0.01	8.02
70	t	4,6-Dinitro-2-methylpheno	0.133	0.144	-8.3	108	0.00	7.32
71	t	n-Nitrosodiphenylamine	0.511	0.492	3.7	104	0.00	7.35
72	t	1,2-Diphenylhydrazine	0.618	0.639	-3.4	116	-0.01	7.37
73	S	2,4,6-Tribromophenol	0.106	0.107	-0.9	98	0.00	7.44
74	t	4-Bromophenyl-phenylether	0.235	0.225	4.3	102	-0.01	7.63
75	t	Hexachlorobenzene	0.258	0.254	1.6	102	-0.01	7.70
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	100.000	102.936	-2.9	106	-0.01	7.89
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.039	0.996	4.1	104	-0.01	8.05
78	t	Anthracene	1.046	1.024	2.1	104	-0.01	8.09
79	t	Carbazole	1.044	1.049	-0.5	106	-0.01	8.26
80	t	Di-n-butylphthalate	1.248	1.256	-0.6	102	-0.02	8.61
81	t	Fluoranthene	1.349	1.363	-1.0	103	-0.01	9.28
82	t	Octadecane	0.300	0.302	-0.7	107	-0.01	7.95
83	I	Chrysene-d12	1.000	1.000	0.0	104	-0.02	11.16
84	t	Pyrene	1.228	1.213	1.2	106	-0.02	9.54
85	S	Terphenyl-d14	0.795	0.802	-0.9	105	-0.02	9.76
86	t	Butylbenzylphthalate	0.535	0.575	-7.5	107	-0.02	10.44

Continuing Calibration Summary

Job Number: JC4005 **Sample:** E2P2265-CC2252
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2P52510.D
Project: Sunoco - Marcus Hook Facility, PA

87		Butyl stearate	0.247	0.288	-16.6	112	-0.02	10.59
88	t	Benzo[a]anthracene	1.210	1.184	2.1	105	-0.01	11.15
89	t	3,3'-Dichlorobenzidine	0.425	0.429	-0.9	99	-0.02	11.15
90	t	Chrysene	1.018	1.016	0.2	103	-0.02	11.20
91	t	bis(2-Ethylhexyl)phthalat	0.654	0.702	-7.3	107	-0.02	11.30
92	I	Perylene-d12	1.000	1.000	0.0	97	-0.02	13.14
93	t	Di-n-octylphthalate	1.211	1.294	-6.9	100	-0.02	12.22
94	t	Benzo[b]fluoranthene	1.195	1.173	1.8	100	-0.02	12.65
95	t	Benzo[k]fluoranthene	1.051	0.951	9.5	99	-0.01	12.69
96	t	Benzo[a]pyrene	1.084	1.053	2.9	98	-0.01	13.07
97	t	Indeno[1,2,3-cd]pyrene	1.291	1.075	16.7	88	-0.02	14.45
98	t	Dibenz(a,h)acridine	0.989	0.860	13.0	85	-0.02	14.18
99	t	Dibenz[a,h]anthracene	1.037	0.880	15.1	89	-0.02	14.47
100	t	7,12-Dimethylbenz(a)anthr	0.511	0.567	-11.0	95	-0.02	12.63
101	t	Benzo[g,h,i]perylene	1.091	0.914	16.2	86	-0.02	14.77

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p52511.D M2P2252.M Mon Sep 21 15:41:04 2015 RPT1

8.8.13

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E2P2265-CC2255
Lab FileID: 2P52511.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2265\2p52511.D          Vial: 3
Acq On    : 18 Sep 2015  10:09 pm                   Operator: saraw
Sample    : cc2255-50                               Inst    : MS2P
Misc      : op86912,e2p2265                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2252.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Sep 21 15:15:55 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	86	0.00	4.30
103		Benzaldehyde	1.125	1.062	5.6	84	0.00	3.93
104	I	Naphthalene-d8a	1.000	1.000	0.0	85	0.00	5.35
105		Hydroquinone	0.322	0.322	0.0	81	0.00	5.78
106	I	Acenaphthene-d10a	1.000	1.000	0.0	88	0.00	6.78
107		Atrazine	0.189	0.181	4.2	85	0.00	7.80
108		1,2,4,5-Tetrachlorobenzen	0.641	0.595	7.2	87	0.00	6.08
109	I	Chrysene-d12a	1.000	1.000	0.0	94	0.00	11.16
110		Benzidine	0.582	0.543	6.7	89	0.00	9.46

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2p52511.D  M2P2252.M        Mon Sep 21 15:41:06 2015   RPT1
```

8.8.14

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2057-ICC2057
Lab FileID: 3P46016.D

```
                          Response Factor Report  MSGC3P

  Method       : C:\MSDCHEM\1\METHODS\M3P2056.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Tue Aug 18 17:53:43 2015
  Response via : Initial Calibration

  Calibration Files
  2   =3p46012.D  5   =3p46013.D   25  =3p46015.D  80  =3p46017.D
  100 =3p46018.D  50  =3p46016.D  1   =3p46011.D  10  =3p46014.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------

101) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
102) Benzaldehyde 1.172 1.262 1.204 1.168 1.136 1.200 1.202 1.211 1.194   3.09

103) I   Acenaphthene-d10a     ----------------ISTD---------------------
104) Atrazine     0.105 0.127 0.144 0.163 0.160 0.163 0.093 0.135 0.136  19.55
105) 1,2,4,5-Tetr 0.520 0.554 0.524 0.514 0.492 0.511 0.547 0.533 0.524   3.84

106) I   Chrysene-d12a         ----------------ISTD---------------------
107) Benzidine          0.482 0.673 0.596 0.600 0.666       0.528 0.591  12.76

108) I   Naphthalene-d8a       ----------------ISTD---------------------
109) Hydroquinone       0.180 0.234 0.273 0.283 0.291       0.220 0.247  17.44

110) I   Phenanthrene-d10a     ----------------ISTD---------------------
111) O-Terphenyl  0.491 0.540 0.514 0.515 0.496 0.518 0.485 0.525 0.511   3.62
112) 1-Chloroocta 0.226 0.292 0.321 0.323 0.316 0.335 0.209 0.305 0.291  16.22
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3P2056.M         Tue Aug 18 17:53:57 2015
```

8.8.15

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2057-ICV2057
Lab FileID: 3P46021A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2057\3p46021a.D        Vial: 12
Acq On    : 18 Aug 2015   6:43 pm                   Operator: alicjap
Sample    : icv2057-50                              Inst    : MSGC3P
Misc      : op86302,e3p2057                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2056.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Aug 18 17:53:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
103 I	Acenaphthene-d10a	1.000	1.000	0.0	106	0.00	7.38
105	1,2,4,5-Tetrachlorobenzen	0.524	0.491	6.3	102	0.00	6.56

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2056.M Tue Aug 18 21:38:51 2015

8.8.16

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2057-ICV2057
Lab FileID: 3P46022A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2057\3p46022a.D        Vial: 13
Acq On    : 18 Aug 2015   7:10 pm                   Operator: alicjap
Sample    : icv2057-50                              Inst    : MSGC3P
Misc      : op86302,e3p2057                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2056.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Aug 18 17:53:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
101 I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	102	0.00	4.97
102	Benzaldehyde	1.194	1.133	5.1	97	0.00	4.64
103 I	Acenaphthene-d10a	1.000	1.000	0.0	89	0.00	7.38
104	Atrazine	0.136	0.154	-13.2	84	0.00	8.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2056.M Tue Aug 18 21:38:55 2015

8.8.17

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2057-ICV2057
Lab FileID: 3P46024A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2057\3p46024a.D        Vial: 15
Acq On    : 18 Aug 2015   8:03 pm                   Operator: alicjap
Sample    : icv2057-50                              Inst    : MSGC3P
Misc      : op86302,e3p2057                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2056.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Aug 18 17:53:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
106 I	Chrysene-d12a	1.000	1.000	0.0	114	-0.01	14.74
107	Benzidine	0.591	0.962	-62.8#	165	-0.01	11.94

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2056.M Tue Aug 18 21:39:01 2015

8.8.18

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2057-ICV2057
Lab FileID: 3P46025.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2057\3p46025.D          Vial: 16
Acq On    : 18 Aug 2015   8:29 pm                    Operator: alicjap
Sample    : icv2057-50                               Inst    : MSGC3P
Misc      : op86302,e3p2057                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2056.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Aug 18 17:53:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
108 I	Naphthalene-d8a	1.000	1.000	0.0	96	0.00	5.89
109 t	Hydroquinone	0.247	0.308	-24.7	101	0.00	6.15

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2056.M Tue Aug 18 21:39:03 2015

8.8.19

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2065-ICC2065
Lab FileID: 3P46149.D

Response Factor Report MSGC3P

Method : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Fri Aug 21 23:19:15 2015
Response via : Initial Calibration

Calibration Files
2 =3p46156.D 5 =3p46155.D 25 =3p46153.D 80 =3p46152.D
100 =3p46150.D 50 =3p46149.D 1 =3p46151.D 10 =3p46154.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.799	0.856	0.882	0.958	0.945	1.007	1.171	0.866	0.935	12.37
3) Pyridine	2.116	2.247	2.345	2.482	2.449	2.472	2.218	2.215	2.318	5.99
4) N-Nitrosodim	0.789	0.836	0.864	0.914	0.913	0.920	0.855	0.820	0.864	5.63
5) 2-Fluorophen	1.540	1.671	1.692	1.794	1.768	1.753	1.633	1.653	1.688	4.93
6) Indene	2.783	2.911	2.685	2.543	2.518	2.646	2.955	2.822	2.733	5.93
7) Cumene	4.095	4.281	4.375	4.452	4.300	4.378	4.236	4.259	4.297	2.53
8) Phenol-d5	2.046	2.241	2.211	2.295	2.276	2.274	2.160	2.226	2.216	3.67
9) Phenol	2.396	2.563	2.526	2.586	2.524	2.516	2.489	2.557	2.520	2.32
10) Aniline	2.811	3.044	2.596	2.715	2.675	2.449	3.000	2.979	2.784	7.65
11) bis(2-Chloro	1.716	1.813	1.752	1.742	1.703	1.750	1.778	1.776	1.754	2.00
12) 2-Chlorophen	1.576	1.691	1.606	1.594	1.590	1.611	1.695	1.641	1.625	2.82
13) Decane	1.924	2.001	1.857	1.636	1.595	1.708	2.001	1.931	1.831	8.90
14) 1,3-Dichloro	1.613	1.727	1.618	1.560	1.543	1.590	1.598	1.616	1.608	3.43
15) 1,4-Dichloro	1.554	1.689	1.577	1.575	1.559	1.583	1.662	1.629	1.604	3.14
16) Benzyl alcoh	0.963	1.047	1.022	1.033	1.024	1.057	1.062	1.050	1.032	3.05
17) 1,2-Dichloro	1.486	1.560	1.462	1.431	1.415	1.457	1.549	1.508	1.483	3.55
18) Acetophenone	2.288	2.432	2.203	2.031	2.029	2.132	2.404	2.341	2.233	7.12
19) 2-Methylphen	1.339	1.443	1.334	1.312	1.286	1.333	1.425	1.389	1.358	4.09
20) 2,2'-oxybis(	2.430	2.541	2.230	1.868	1.796	2.032	2.615	2.436	2.244	13.94
21) 3&4-Methylph	1.437	1.508	1.409	1.344	1.341	1.398	1.567	1.485	1.436	5.53
22) n-Nitroso-di	1.264	1.402	1.261	1.114	1.106	1.186	1.401	1.339	1.259	9.34
23) Hexachloroet	0.529	0.538	0.516	0.522	0.521	0.525	0.585	0.529	0.533	4.13
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.447	0.494	0.473	0.453	0.457	0.470	0.444	0.492	0.466	4.16
26) Nitrobenzene	0.486	0.525	0.497	0.471	0.473	0.488	0.520	0.519	0.497	4.34
27) Quinoline	0.725	0.761	0.718	0.725	0.740	0.729	0.762	0.753	0.739	2.35
28) Isophorone	0.820	0.884	0.829	0.819	0.822	0.832	0.845	0.878	0.841	3.10
29) 2-Nitropheno	0.197	0.217	0.215	0.215	0.218	0.217	0.207	0.218	0.213	3.46
30) 2,4-Dimethyl	0.365	0.399	0.363	0.390	0.393	0.383	0.382	0.404	0.385	3.83
31) Benzoic acid	0.215	0.289	0.325	0.343	0.344	0.344	0.223	0.318	0.300	17.81
32) bis(2-Chloro	0.504	0.551	0.508	0.500	0.497	0.514	0.540	0.546	0.520	4.24
33) 2,4-Dichloro	0.277	0.308	0.299	0.298	0.301	0.307	0.293	0.314	0.300	3.75
34) 2,6-Dichloro	0.283	0.302	0.285	0.284	0.288	0.289	0.297	0.298	0.291	2.47
35) 1,3,5-Trichl	0.347	0.372	0.349	0.346	0.347	0.352	0.348	0.357	0.352	2.53
36) 1,2,4-Trichl	0.319	0.345	0.323	0.322	0.326	0.325	0.328	0.340	0.328	2.82
37) 1,2,3-Trichl	0.330	0.331	0.309	0.309	0.314	0.314	0.324	0.325	0.319	2.82
38) Naphthalene	1.049	1.118	1.051	1.022	1.030	1.050	1.100	1.093	1.064	3.26
39) 4-Chloroanil	0.456	0.492	0.450	0.455	0.456	0.447	0.490	0.486	0.466	4.14
40) 2,3-Dichloro	0.351	0.378	0.362	0.366	0.371	0.370	0.367	0.375	0.368	2.26
41) Caprolactam	0.124	0.136	0.129	0.131	0.133	0.133	0.133	0.132	0.131	2.68
42) Hexachlorobu	0.169	0.182	0.179	0.177	0.181	0.179	0.183	0.181	0.179	2.50
43) 4-Chloro-3-m	0.361	0.376	0.356	0.353	0.356	0.363	0.351	0.365	0.360	2.18
44) 2-Methylnaph	0.572	0.605	0.581	0.584	0.591	0.590	0.595	0.600	0.590	1.85
45) 1-Methylnaph	0.602	0.635	0.606	0.612	0.611	0.614	0.631	0.627	0.617	1.98

Initial Calibration Summary

Job Number: JC4005 **Sample:** E3P2065-ICC2065
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3P46149.D
Project: Sunoco - Marcus Hook Facility, PA

```
46) Dimethylnaph 0.606 0.646 0.625 0.620 0.628 0.625 0.639 0.636 0.628   1.94

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.285 0.343 0.366 0.401 0.414 0.390 0.304 0.370 0.359  12.76
49) 2,4,6-Trichl 0.367 0.384 0.374 0.370 0.387 0.373 0.361 0.394 0.376   3.00
50) 2,4,5-Trichl 0.370 0.393 0.372 0.363 0.381 0.369 0.366 0.398 0.376   3.40
51) 2-Fluorobiph 1.217 1.277 1.166 1.119 1.160 1.148 1.248 1.236 1.196   4.66
52) 2-Chloronaph 1.168 1.216 1.107 1.056 1.086 1.088 1.208 1.218 1.144   5.82
53) Biphenyl     1.553 1.629 1.501 1.445 1.473 1.488 1.590 1.619 1.537   4.57
54) 2-Nitroanili 0.451 0.501 0.472 0.450 0.466 0.461 0.509 0.502 0.476   5.01
55) Dimethylphth 1.270 1.335 1.240 1.190 1.249 1.222 1.294 1.347 1.269   4.29
56) Acenaphthyle 1.814 1.911 1.748 1.717 1.786 1.762 1.836 1.911 1.811   4.00
57) 2,6-Dinitrot 0.264 0.286 0.282 0.282 0.297 0.287 0.289 0.298 0.285   3.71
58) 3-Nitroanili 0.330 0.363 0.352 0.354 0.363 0.352 0.328 0.375 0.352   4.54
59) Acenaphthene 1.156 1.238 1.134 1.122 1.164 1.128 1.155 1.210 1.163   3.50
60) 2,4-Dinitrop 0.094 0.128 0.182 0.202 0.220 0.204       0.163 0.170  26.67
            ---- Quadratic regression ----  Coefficient =  0.9987
              Response Ratio = -0.00983 + 0.18109 *A + 0.00759 *A^2

61) 4-Nitropheno 0.178 0.201 0.208 0.206 0.214 0.208 0.216 0.216 0.206   5.96
62) Dibenzofuran 1.518 1.662 1.508 1.466 1.517 1.492 1.586 1.611 1.545   4.36
63) 2,4-Dinitrot 0.345 0.388 0.388 0.392 0.406 0.393 0.330 0.407 0.381   7.38
64) 2,3,4,6-Tetr 0.311 0.347 0.342 0.354 0.372 0.348 0.316 0.353 0.343   5.87
65) Diethylphtha 1.258 1.352 1.277 1.252 1.288 1.258 1.306 1.342 1.292   2.98
66) Fluorene     1.231 1.339 1.262 1.248 1.312 1.263 1.301 1.349 1.288   3.37
67) 4-Chlorophen 0.586 0.636 0.609 0.610 0.643 0.612 0.609 0.635 0.618   3.06
68) 4-Nitroanili 0.340 0.373 0.372 0.361 0.377 0.366 0.354 0.385 0.366   3.88

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.092 0.121 0.146 0.150 0.165 0.153       0.140 0.138  17.66
71) n-Nitrosodip 0.521 0.561 0.513 0.496 0.528 0.504 0.524 0.555 0.525   4.33
72) 1,2-Diphenyl 1.070 1.142 1.029 0.963 0.996 0.978 1.080 1.111 1.046   6.22
73) 2,4,6-Tribro 0.104 0.112 0.112 0.119 0.125 0.115 0.106 0.117 0.114   6.02
74) 4-Bromopheny 0.210 0.229 0.216 0.225 0.237 0.221 0.219 0.229 0.223   3.78
75) Hexachlorobe 0.233 0.249 0.238 0.249 0.264 0.241 0.244 0.256 0.247   4.03
76) Pentachlorop 0.129 0.155 0.162 0.178 0.189 0.170 0.132 0.163 0.160  13.06
77) Phenanthrene 1.137 1.190 1.082 1.069 1.144 1.075 1.153 1.164 1.127   4.02
78) Anthracene   1.104 1.194 1.082 1.070 1.132 1.080 1.146 1.210 1.127   4.72
79) Carbazole    1.056 1.125 1.056 1.043 1.099 1.041 1.081 1.134 1.079   3.39
80) Di-n-butylph 1.300 1.399 1.353 1.394 1.465 1.365 1.321 1.430 1.378   4.00
81) Fluoranthene 1.179 1.260 1.255 1.303 1.358 1.244 1.199 1.306 1.263   4.64
82) Octadecane   0.751 0.811 0.754 0.699 0.724 0.712 0.741 0.820 0.751   5.82

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.187 1.282 1.161 1.204 1.230 1.171 1.195 1.275 1.213   3.74
85) Terphenyl-d1 0.735 0.789 0.727 0.778 0.798 0.747 0.769 0.793 0.767   3.59
86) Butylbenzylp 0.545 0.589 0.559 0.606 0.605 0.567 0.566 0.599 0.580   4.03
87) Benzo[a]anth 1.122 1.195 1.085 1.166 1.171 1.088 1.230 1.189 1.156   4.52
88) 3,3'-Dichlor 0.388 0.428 0.410 0.444 0.442 0.412 0.426 0.445 0.424   4.78
89) Chrysene     0.987 1.058 0.954 0.999 0.994 0.954 1.036 1.064 1.006   4.27
90) bis(2-Ethylh 0.789 0.778 0.729 0.776 0.779 0.742 0.758 0.798 0.769   3.10

91) I   Perylene-d12          ----------------ISTD---------------------
92) Di-n-octylph 1.570 1.572 1.514 1.656 1.667 1.528 1.513 1.615 1.579   3.88
93) Benzo[b]fluo 1.219 1.312 1.232 1.382 1.391 1.244 1.269 1.321 1.296   5.11
94) Benzo[k]fluo 1.148 1.243 1.138 1.197 1.201 1.141 1.177 1.259 1.188   3.87
95) Benzo[a]pyre 1.060 1.138 1.046 1.169 1.166 1.062 1.137 1.144 1.115   4.53
96) Indeno[1,2,3 0.959 0.994 0.968 1.083 1.097 0.987 0.999 1.007 1.012   5.06
97) Dibenz(a,h)a 0.859 0.933 0.891 1.007 1.003 0.916 0.916 0.929 0.932   5.45
98) Dibenz[a,h]a 0.906 0.986 0.950 1.094 1.083 1.006 0.938 0.996 0.995   6.68
```

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2065-ICC2065
Lab FileID: 3P46149.D

```
 99) 7,12-Dimethy 0.457 0.518 0.517 0.616 0.625 0.552 0.476 0.560 0.540  11.20
100) Benzo[g,h,i] 0.984 0.993 0.949 1.055 1.048 0.973 0.987 0.995 0.998   3.61
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M3P2065.M         Sat Aug 22 00:32:41 2015
```

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2065-ICV2065
Lab FileID: 3P46157.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2065\3p46157.D          Vial: 10
Acq On    : 21 Aug 2015   9:33 pm                    Operator: saraw
Sample    : icv2065-50                               Inst    : MSGC3P
Misc      : op86506,e3p2065,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Aug 21 23:19:15 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	4.93
9	t	Phenol	2.520	2.069	17.9	108	0.00	4.66
12	t	2-Chlorophenol	1.625	1.454	10.5	118	0.00	4.78
19	t	2-Methylphenol	1.358	1.331	2.0	131	0.00	5.10
21	t	3&4-Methylphenol	1.436	1.352	5.8	127	0.00	5.21
24	I	Naphthalene-d8	1.000	1.000	0.0	124	0.00	5.85
29	t	2-Nitrophenol	0.213	0.196	8.0	112	0.00	5.57
30	t	2,4-Dimethylphenol	0.385	0.390	-1.3	127	0.00	5.59
31	t	Benzoic acid	0.300	0.303	-1.0	110	-0.01	5.67
33	t	2,4-Dichlorophenol	0.300	0.271	9.7	110	0.00	5.75
34	t	2,6-Dichlorophenol	0.291	0.267	8.2	115	0.00	5.90
43	t	4-Chloro-3-methylphenol	0.360	0.312	13.3	107	-0.01	6.24
47	I	Acenaphthene-d10	1.000	1.000	0.0	119	0.00	7.33
49	t	2,4,6-Trichlorophenol	0.376	0.324	13.8	104	0.00	6.61
50	t	2,4,5-Trichlorophenol	0.376	0.343	8.8	111	-0.01	6.64
		----------	True	Calc.	% Drift		----------	
60	t	2,4-Dinitrophenol	100.000	74.912	25.0	78	-0.01	7.38
		----------	AvgRF	CCRF	% Dev		----------	
61	t	4-Nitrophenol	0.206	0.179	13.1	102	-0.01	7.44
64		2,3,4,6-Tetrachlorophenol	0.343	0.279	18.7	96	0.00	7.69
69	I	Phenanthrene-d10	1.000	1.000	0.0	111	-0.01	9.30
70	t	4,6-Dinitro-2-methylpheno	0.138	0.113	18.1	82	-0.01	8.01
76	t	Pentachlorophenol	0.160	0.146	8.8	96	0.00	9.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2065.M Mon Aug 24 09:05:29 2015

8.8.21

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2065-ICV2065
Lab FileID: 3P46158.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2065\3p46158.D          Vial: 11
Acq On    : 21 Aug 2015  10:05 pm                    Operator: saraw
Sample    : icv2065-50                               Inst    : MSGC3P
Misc      : op86506,e3p2065,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Aug 21 23:19:15 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83 I	Chrysene-d12	1.000	1.000	0.0	136	-0.02	14.68
88 t	3,3'-Dichlorobenzidine	0.424	0.522	-23.1	172	0.00	14.68

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2065.M Mon Aug 24 09:05:32 2015

8.8.22

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2065-ICV2065
Lab FileID: 3P46159.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2065\3p46159.D          Vial: 12
Acq On    : 21 Aug 2015  10:33 pm                    Operator: saraw
Sample    : icv2065-50                               Inst    : MSGC3P
Misc      : op86506,e3p2065,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Aug 21 23:19:15 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	165	0.00	4.93
5	S	2-Fluorophenol	1.688	1.500	11.1	141	0.00	3.96
8	S	Phenol-d5	2.216	1.905	14.0	138	0.00	4.65
24	I	Naphthalene-d8	1.000	1.000	0.0	167	0.00	5.85
25	S	Nitrobenzene-d5	0.466	0.458	1.7	163	0.00	5.32
47	I	Acenaphthene-d10	1.000	1.000	0.0	153	0.00	7.33
51	S	2-Fluorobiphenyl	1.196	1.187	0.8	159	0.00	6.68
69	I	Phenanthrene-d10	1.000	1.000	0.0	151	-0.01	9.30
73	S	2,4,6-Tribromophenol	0.114	0.093	18.4	122	-0.01	8.26
83	I	Chrysene-d12	1.000	1.000	0.0	131	-0.02	14.68
85	S	Terphenyl-d14	0.767	0.767	0.0	134	0.00	12.42

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3p46016a.D M3P2065.M        Mon Aug 24 09:05:34 2015
```

8.8.23

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2065-ICV2065
Lab FileID: 3P46160.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\E3P2065\3p46160.D Vial: 13
Acq On : 21 Aug 2015 11:01 pm Operator: saraw
Sample : icv2065-50 Inst : MSGC3P
Misc : op86506,e3p2065, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Fri Aug 21 23:19:15 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	4.93
4	t	N-Nitrosodimethylamine	0.864	0.621	28.1	71	0.00	2.81
11	t	bis(2-Chloroethyl)ether	1.754	1.764	-0.6	107	0.00	4.72
14	t	1,3-Dichlorobenzene	1.608	1.575	2.1	105	0.00	4.89
15	t	1,4-Dichlorobenzene	1.604	1.543	3.8	103	0.00	4.94
17	t	1,2-Dichlorobenzene	1.483	1.430	3.6	104	0.00	5.05
20	t	2,2'-oxybis(1-Chloropropa	2.244	2.346	-4.5	122	0.00	5.11
22	t	n-Nitroso-di-n-propylamin	1.259	1.181	6.2	105	0.00	5.21
23	t	Hexachloroethane	0.533	0.523	1.9	105	0.00	5.30
24	I	Naphthalene-d8	1.000	1.000	0.0	102	0.00	5.85
26	t	Nitrobenzene	0.497	0.481	3.2	101	0.00	5.34
28	t	Isophorone	0.841	0.863	-2.6	106	0.00	5.50
32	t	bis(2-Chloroethoxy)methan	0.520	0.547	-5.2	109	0.00	5.65
36	t	1,2,4-Trichlorobenzene	0.328	0.322	1.8	101	0.00	5.80
38	t	Naphthalene	1.064	1.079	-1.4	105	0.00	5.86
42	t	Hexachlorobutadiene	0.179	0.181	-1.1	104	0.00	5.95
47	I	Acenaphthene-d10	1.000	1.000	0.0	95	0.00	7.33
48	t	Hexachlorocyclopentadiene	0.359	0.318	11.4	78	0.00	6.51
52	t	2-Chloronaphthalene	1.144	1.205	-5.3	105	0.00	6.79
55	t	Dimethylphthalate	1.269	1.252	1.3	97	0.00	7.03
56	t	Acenaphthylene	1.811	1.828	-0.9	98	0.00	7.18
57	t	2,6-Dinitrotoluene	0.285	0.273	4.2	90	0.00	7.09
59	t	Acenaphthene	1.163	1.243	-6.9	104	0.00	7.37
63	t	2,4-Dinitrotoluene	0.381	0.334	12.3	81	-0.01	7.52
65	t	Diethylphthalate	1.292	1.225	5.2	92	0.00	7.79
66	t	Fluorene	1.288	1.336	-3.7	100	0.00	7.95
67	t	4-Chlorophenyl-phenylethe	0.618	0.622	-0.6	96	0.00	7.94
69	I	Phenanthrene-d10	1.000	1.000	0.0	90	-0.01	9.30
71	t	n-Nitrosodiphenylamine	0.525	0.490	6.7	87	0.00	8.09
72	t	1,2-Diphenylhydrazine	1.046	0.998	4.6	92	0.00	8.15
74	t	4-Bromophenyl-phenylether	0.223	0.228	-2.2	93	0.00	8.61
75	t	Hexachlorobenzene	0.247	0.237	4.0	88	0.00	8.72
77	t	Phenanthrene	1.127	1.183	-5.0	99	-0.01	9.34
78	t	Anthracene	1.127	1.150	-2.0	96	-0.01	9.43
80	t	Di-n-butylphthalate	1.378	1.326	3.8	87	0.00	10.40
81	t	Fluoranthene	1.263	1.309	-3.6	94	-0.02	11.54
83	I	Chrysene-d12	1.000	1.000	0.0	87	-0.02	14.68
84	t	Pyrene	1.213	1.236	-1.9	92	-0.01	12.00

Initial Calibration Verification

Job Number: JC4005 **Sample:** E3P2065-ICV2065
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3P46160.D
Project: Sunoco - Marcus Hook Facility, PA

86	t	Butylbenzylphthalate	0.580	0.562	3.1	86	0.00	13.58
87	t	Benzo[a]anthracene	1.156	1.192	-3.1	95	-0.01	14.66
89	t	Chrysene	1.006	1.078	-7.2	98	-0.01	14.74
90	t	bis(2-Ethylhexyl)phthalat	0.769	0.733	4.7	86	0.00	14.99
91	I	Perylene-d12	1.000	1.000	0.0	87	-0.02	17.74
92	t	Di-n-octylphthalate	1.579	1.514	4.1	86	-0.01	16.44
93	t	Benzo[b]fluoranthene	1.296	1.269	2.1	89	-0.02	16.98
94	t	Benzo[k]fluoranthene	1.188	1.228	-3.4	94	-0.02	17.04
95	t	Benzo[a]pyrene	1.115	1.159	-3.9	95	-0.02	17.62
96	t	Indeno[1,2,3-cd]pyrene	1.012	1.112	-9.9	98	-0.02	19.69
98	t	Dibenz[a,h]anthracene	0.995	1.082	-8.7	94	-0.02	19.75
100	t	Benzo[g,h,i]perylene	0.998	1.126	-12.8	101	-0.02	20.13

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2065.M Mon Aug 24 09:05:36 2015

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2065-ICV2065
Lab FileID: 3P46162.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2065\3p46162.D          Vial: 15
Acq On    : 21 Aug 2015  11:58 pm                    Operator: saraw
Sample    : icv2065-50                               Inst    : MSGC3P
Misc      : op86506,e3p2065,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Aug 21 23:19:15 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	128	0.00	4.93
3	t	Pyridine	2.318	2.230	3.8	116	0.06	2.91
10		Aniline	2.784	2.757	1.0	144	0.00	4.69
16	t	Benzyl alcohol	1.032	1.012	1.9	123	0.00	5.02
24	I	Naphthalene-d8	1.000	1.000	0.0	137	0.00	5.85
39	t	4-Chloroaniline	0.466	0.428	8.2	131	0.00	5.90
44	t	2-Methylnaphthalene	0.590	0.530	10.2	123	0.00	6.38
47	I	Acenaphthene-d10	1.000	1.000	0.0	127	0.00	7.33
54	t	2-Nitroaniline	0.476	0.420	11.8	116	0.00	6.87
58	t	3-Nitroaniline	0.352	0.310	11.9	112	0.00	7.27
62	t	Dibenzofuran	1.545	1.369	11.4	117	0.00	7.55
68	t	4-Nitroaniline	0.366	0.283	22.7	98	-0.01	7.97
69	I	Phenanthrene-d10	1.000	1.000	0.0	122	-0.01	9.30
79	t	Carbazole	1.079	0.926	14.2	108	0.00	9.70

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3p46016a.D M3P2065.M        Mon Aug 24 09:05:38 2015
```

8.8.25

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2066-ICV2065
Lab FileID: 3P46164.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2066\3p46164.D          Vial: 2
Acq On    : 24 Aug 2015   9:14 am                    Operator: alicjap
Sample    : icv2065-50                               Inst    : MSGC3P
Misc      : op86506,e3p2066                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Aug 21 23:19:15 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	152	0.00	4.92
2	t	1,4-Dioxane	0.935	0.752	19.6	114	0.00	2.53
6	t	Indene	2.733	2.419	11.5	139	0.00	5.11
7	t	Cumene	4.297	3.902	9.2	135	0.00	4.34
13	t	Decane	1.831	1.585	13.4	141	0.00	4.80
18	t	Acetophenone	2.233	2.005	10.2	143	0.00	5.21
24	I	Naphthalene-d8	1.000	1.000	0.0	171	-0.01	5.84
27	t	Quinoline	0.739	0.560	24.2	131	-0.02	6.10
40	t	2,3-Dichloroaniline	0.368	0.247	32.9#	114	-0.01	6.60
41	t	Caprolactam	0.131	0.093	29.0	120	-0.03	6.13
45	t	1-Methylnaphthalene	0.617	0.457	25.9	127	0.00	6.46
46	t	Dimethylnaphthalene	0.628	0.454	27.7	124	0.00	6.91
47	I	Acenaphthene-d10	1.000	1.000	0.0	129	-0.01	7.32
53	t	Biphenyl	1.537	1.429	7.0	123	0.00	6.76
69	I	Phenanthrene-d10	1.000	1.000	0.0	118	-0.02	9.29
82	t	Octadecane	0.751	0.743	1.1	124	-0.01	9.17
91	I	Perylene-d12	1.000	1.000	0.0	107	-0.03	17.73
99	t	7,12-Dimethylbenz(a)anthr	0.540	0.299	44.6#	58	-0.04	16.98

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3p46016a.D M3P2065.M        Mon Aug 24 11:44:36 2015
```

8.8.26

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3P2112-CC2065
Lab FileID: 3P46975.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\E3P2112\3P46975.D Vial: 2
Acq On : 25 Sep 2015 6:57 pm Operator: sarad
Sample : cc2065-50 Inst : MSGC3P
Misc : op87435,e3p2112 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Fri Sep 25 17:30:01 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	124	-0.05	4.86
2	t	1,4-Dioxane	0.935	0.761	18.6	94	-0.07	2.46
3	t	Pyridine	2.318	1.839	20.7#	92	-0.09	2.79
4	t	N-Nitrosodimethylamine	0.864	1.372	-58.8#	185	-0.07	2.74
5	S	2-Fluorophenol	1.688	1.630	3.4	116	-0.05	3.90
6	t	Indene	2.733	2.709	0.9	127	-0.05	5.04
7	t	Cumene	4.297	4.707	-9.5	134	-0.05	4.27
8	S	Phenol-d5	2.216	2.097	5.4	115	-0.05	4.61
9	t	Phenol	2.520	2.287	9.2	113	-0.05	4.61
10		Aniline	2.784	2.362	15.2	120	-0.05	4.62
11	t	bis(2-Chloroethyl)ether	1.754	1.445	17.6	103	-0.05	4.65
12	t	2-Chlorophenol	1.625	1.568	3.5	121	-0.05	4.71
13	t	Decane	1.831	1.981	-8.2	144	-0.05	4.73
14	t	1,3-Dichlorobenzene	1.608	1.598	0.6	125	-0.05	4.81
15	t	1,4-Dichlorobenzene	1.604	1.599	0.3	126	-0.05	4.87
16	t	Benzyl alcohol	1.032	0.967	6.3	114	-0.05	4.96
17	t	1,2-Dichlorobenzene	1.483	1.467	1.1	125	-0.05	4.98
18	t	Acetophenone	2.233	2.295	-2.8	134	-0.05	5.15
19	t	2-Methylphenol	1.358	1.280	5.7	119	-0.05	5.04
20	t	2,2'-oxybis(1-Chloropropa	2.244	2.048	8.7	125	-0.05	5.04
21	t	3&4-Methylphenol	1.436	1.314	8.5	117	-0.05	5.15
22	t	n-Nitroso-di-n-propylamin	1.259	1.238	1.7	130	-0.05	5.14
23	t	Hexachloroethane	0.533	0.619	-16.1	146	-0.05	5.23
24	I	Naphthalene-d8	1.000	1.000	0.0	126	-0.05	5.78
25	S	Nitrobenzene-d5	0.466	0.489	-4.9	132	-0.05	5.26
26	t	Nitrobenzene	0.497	0.511	-2.8	132	-0.05	5.27
27	t	Quinoline	0.739	0.762	-3.1	132	-0.05	6.03
28	t	Isophorone	0.841	0.840	0.1	128	-0.05	5.44
29	t	2-Nitrophenol	0.213	0.222	-4.2	129	-0.05	5.50
30	t	2,4-Dimethylphenol	0.385	0.464	-20.5#	153	-0.05	5.53
31	t	Benzoic acid	0.300	0.346	-15.3	127	-0.03	5.62
32	t	bis(2-Chloroethoxy)methan	0.520	0.427	17.9	105	-0.05	5.58
33	t	2,4-Dichlorophenol	0.300	0.305	-1.7	126	-0.05	5.68
34	t	2,6-Dichlorophenol	0.291	0.291	0.0	127	-0.05	5.84
35		1,3,5-Trichlorobenzene	0.352	0.392	-11.4	141	-0.05	5.51
36	t	1,2,4-Trichlorobenzene	0.328	0.355	-8.2	138	-0.05	5.73
37		1,2,3-Trichlorobenzene	0.319	0.344	-7.8	139	-0.05	5.90
38	t	Naphthalene	1.064	1.070	-0.6	129	-0.06	5.79
39	t	4-Chloroaniline	0.466	0.430	7.7	122	-0.05	5.83
40	t	2,3-Dichloroaniline	0.368	0.403	-9.5	138	-0.06	6.53
41	t	Caprolactam	0.131	0.126	3.8	120	-0.04	6.10

Continuing Calibration Summary

Job Number: JC4005 **Sample:** E3P2112-CC2065
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3P46975.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.179	0.241	-34.6#	170	-0.06	5.87
43	t	4-Chloro-3-methylphenol	0.360	0.406	-12.8	141	-0.05	6.19
44	t	2-Methylnaphthalene	0.590	0.598	-1.4	128	-0.06	6.30
45	t	1-Methylnaphthalene	0.617	0.657	-6.5	135	-0.06	6.38
46	t	Dimethylnaphthalene	0.628	0.690	-9.9	140	-0.06	6.82
47	I	Acenaphthene-d10	1.000	1.000	0.0	135	-0.07	7.23
48	t	Hexachlorocyclopentadiene	0.359	0.444	-23.7#	153	-0.06	6.42
49	t	2,4,6-Trichlorophenol	0.376	0.396	-5.3	143	-0.06	6.53
50	t	2,4,5-Trichlorophenol	0.376	0.387	-2.9	141	-0.06	6.57
51	S	2-Fluorobiphenyl	1.196	1.173	1.9	137	-0.06	6.59
52	t	2-Chloronaphthalene	1.144	1.093	4.5	135	-0.06	6.70
53	t	Biphenyl	1.537	1.513	1.6	137	-0.06	6.68
54	t	2-Nitroaniline	0.476	0.526	-10.5	154	-0.06	6.79
55	t	Dimethylphthalate	1.269	1.306	-2.9	144	-0.06	6.94
56	t	Acenaphthylene	1.811	1.740	3.9	133	-0.06	7.09
57	t	2,6-Dinitrotoluene	0.285	0.302	-6.0	142	-0.06	7.01
58	t	3-Nitroaniline	0.352	0.326	7.4	124	-0.07	7.18
59	t	Acenaphthene	1.163	1.166	-0.3	139	-0.07	7.26
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	97.731	2.3	126	-0.07	7.30
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.206	0.382	-85.4#	247#	-0.05	7.39
62	t	Dibenzofuran	1.545	1.531	0.9	138	-0.07	7.45
63	t	2,4-Dinitrotoluene	0.381	0.447	-17.3	153	-0.07	7.43
64		2,3,4,6-Tetrachlorophenol	0.343	0.401	-16.9	155	-0.07	7.60
65	t	Diethylphthalate	1.292	1.515	-17.3	162	-0.07	7.69
66	t	Fluorene	1.288	1.370	-6.4	146	-0.07	7.85
67	t	4-Chlorophenyl-phenylethe	0.618	0.710	-14.9	156	-0.07	7.84
68	t	4-Nitroaniline	0.366	0.351	4.1	129	-0.07	7.88
69	I	Phenanthrene-d10	1.000	1.000	0.0	143	-0.09	9.17
70	t	4,6-Dinitro-2-methylpheno	0.138	0.157	-13.8	147	-0.07	7.92
71	t	n-Nitrosodiphenylamine	0.525	0.504	4.0	143	-0.07	7.99
72	t	1,2-Diphenylhydrazine	1.046	1.016	2.9	149	-0.07	8.04
73	S	2,4,6-Tribromophenol	0.114	0.114	0.0	143	-0.08	8.16
74	t	4-Bromophenyl-phenylether	0.223	0.243	-9.0	158	-0.09	8.49
75	t	Hexachlorobenzene	0.247	0.261	-5.7	155	-0.09	8.60
76	t	Pentachlorophenol	0.160	0.175	-9.4	148	-0.09	8.90
77	t	Phenanthrene	1.127	1.100	2.4	146	-0.09	9.21
78	t	Anthracene	1.127	1.106	1.9	147	-0.09	9.30
79	t	Carbazole	1.079	1.052	2.5	145	-0.09	9.58
80	t	Di-n-butylphthalate	1.378	1.514	-9.9	159	-0.10	10.26
81	t	Fluoranthene	1.263	1.474	-16.7	170	-0.11	11.40
82	t	Octadecane	0.751	0.652	13.2	131	-0.09	9.03
83	I	Chrysene-d12	1.000	1.000	0.0	150	-0.11	14.53
84	t	Pyrene	1.213	1.234	-1.7	158	-0.11	11.85
85	S	Terphenyl-d14	0.767	0.782	-2.0	157	-0.11	12.26
86	t	Butylbenzylphthalate	0.580	0.620	-6.9	164	-0.11	13.42
87	t	Benzo[a]anthracene	1.156	1.132	2.1	156	-0.11	14.51
88	t	3,3'-Dichlorobenzidine	0.424	0.385	9.2	140	-0.11	14.53
89	t	Chrysene	1.006	0.945	6.1	148	-0.11	14.58
90	t	bis(2-Ethylhexyl)phthalat	0.769	0.683	11.2	138	-0.11	14.82
91	I	Perylene-d12	1.000	1.000	0.0	119	-0.12	17.60
92	t	Di-n-octylphthalate	1.579	1.811	-14.7	142	-0.11	16.27
93	t	Benzo[b]fluoranthene	1.296	1.420	-9.6	136	-0.11	16.84

Continuing Calibration Summary

Job Number: JC4005 **Sample:** E3P2112-CC2065
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3P46975.D
Project: Sunoco - Marcus Hook Facility, PA

94	t	Benzo[k]fluoranthene	1.188	1.155	2.8	121	-0.11	16.90
95	t	Benzo[a]pyrene	1.115	1.157	-3.8	130	-0.12	17.48
96	t	Indeno[1,2,3-cd]pyrene	1.012	0.857	15.3	104	-0.11	19.57
97	t	Dibenz(a,h)acridine	0.932	0.866	7.1	113	-0.11	19.18
98	t	Dibenz[a,h]anthracene	0.995	0.866	13.0	103	-0.11	19.61
99	t	7,12-Dimethylbenz(a)anthr	0.540	0.646	-19.6	140	-0.11	16.84
100	t	Benzo[g,h,i]perylene	0.998	0.845	15.3	104	-0.11	20.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2065.M Fri Sep 25 21:02:38 2015

8.8.27

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3P2112-CC2057
Lab FileID: 3P46976.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\data\E3P2112\3P46976.D          Vial: 3
Acq On    : 25 Sep 2015   7:24 pm                    Operator: sarad
Sample    : cc2057-50                                Inst    : MSGC3P
Misc      : op87435,e3p2112                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3P2065.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Sep 25 17:30:01 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
101	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	90	-0.05	4.86
102		Benzaldehyde	1.194	1.195	-0.1	90	-0.05	4.54
103	I	Acenaphthene-d10a	1.000	1.000	0.0	109	-0.07	7.23
104		Atrazine	0.136	0.208	-52.9#	139	-0.08	8.75
105		1,2,4,5-Tetrachlorobenzen	0.524	0.590	-12.6	126	-0.06	6.44
106	I	Chrysene-d12a	1.000	1.000	0.0	139	-0.11	14.52
107		Benzidine	0.591	0.394	33.3#	83	-0.11	11.73
108	I	Naphthalene-d8a	1.000	1.000	0.0	96	-0.05	5.77
109	t	Hydroquinone	0.247	0.345	-39.7#	114	-0.04	6.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p46016a.D M3P2065.M Fri Sep 25 21:02:40 2015

8.8.28

8

Initial Calibration Summary

Job Number: JC4005 **Sample:** EF6287-ICC6287
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F149644.D
Project: Sunoco - Marcus Hook Facility, PA

Response Factor Report MSF

Method : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Sat Aug 29 16:24:02 2015
Response via : Initial Calibration

Calibration Files
2 =F149684A.D 5 =F149683A.D 25 =F149681A.D 80 =F149679A.D
100 =F149678A.D 50 =F149680A.D 10 =F149682A.D 1 =F149660A.D

Compound	2	5	25	80	100	50	10	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.537	0.594	0.527	0.541	0.535	0.514	0.551	0.636	0.554	7.29
3) Pyridine	1.264	1.430	1.353	1.372	1.350	1.286	1.280	1.216	1.319	5.23
4) N-Nitrosodim	0.572	0.609	0.565	0.578	0.564	0.564	0.511	0.476	0.555	7.50
5) 2-Fluorophen	1.181	1.318	1.291	1.324	1.304	1.260	1.244	1.180	1.263	4.57
6) Indene	2.379	2.548	2.456	2.337	2.254	2.317	2.347	2.386	2.378	3.79
7) Cumene	3.237	3.330	3.210	3.150	3.046	3.067	3.096	3.240	3.172	3.12
8) Phenol-d5	1.505	1.634	1.624	1.614	1.591	1.541	1.533	1.426	1.559	4.56
9) Phenol	1.695	1.755	1.761	1.843	1.787	1.661	1.553	1.722	1.722	5.12
10) Aniline	2.077	2.113	1.767	1.787	1.727	1.608	1.925	1.906	1.864	9.35
11) bis(2-Chloro	1.174	1.273	1.222	1.183	1.169	1.157	1.122	1.267	1.196	4.45
12) 2-Chlorophen	1.460	1.553	1.504	1.437	1.408	1.414	1.404	1.458	1.455	3.56
13) Decane	1.476	1.515	1.434	1.345	1.277	1.344	1.379	1.622	1.424	7.80
14) 1,3-Dichloro	1.615	1.683	1.598	1.541	1.510	1.510	1.532	1.734	1.590	5.24
15) 1,4-Dichloro	1.609	1.672	1.592	1.557	1.502	1.507	1.537	1.547	1.565	3.64
16) Benzyl alcoh	0.801	0.880	0.873	0.867	0.862	0.832	0.768	0.905	0.848	5.34
17) 1,2-Dichloro	1.463	1.547	1.505	1.414	1.381	1.409	1.432	1.634	1.473	5.76
18) Acetophenone	1.890	1.949	1.847	1.745	1.684	1.718	1.810	1.851	1.812	5.00
19) 2-Methylphen	1.140	1.172	1.153	1.139	1.136	1.108	1.084	1.099	1.129	2.60
20) 2,2'-oxybis(	0.484	0.497	0.457	0.432	0.430	0.432	0.432	0.469	0.454	5.88
21) 3&4-Methylph	1.163	1.318	1.238	1.234	1.207	1.187	1.179	1.078	1.200	5.75
22) n-Nitroso-di	0.907	0.927	0.863	0.803	0.778	0.799	0.787	0.858	0.840	6.77
23) Hexachloroet	0.467	0.524	0.499	0.478	0.471	0.466	0.446	0.480	0.479	4.96
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.334	0.366	0.357	0.320	0.322	0.346	0.334	0.349	0.341	4.83
26) Nitrobenzene	0.349	0.368	0.339	0.336	0.332	0.332	0.330	0.348	0.342	3.73
27) Quinoline	0.707	0.788	0.764	0.748	0.752	0.737	0.728	0.762	0.748	3.31
28) Isophorone	0.586	0.616	0.603	0.598	0.601	0.585	0.582	0.602	0.597	1.92
29) 2-Nitropheno	0.174	0.200	0.213	0.210	0.206	0.208	0.194	0.179	0.198	7.37
30) 2,4-Dimethyl	0.262	0.323	0.298	0.331	0.328	0.306	0.326	0.283	0.307	8.08
31) Benzoic acid		0.202	0.240	0.273	0.284	0.254	0.197		0.242	14.92
32) bis(2-Chloro	0.377	0.394	0.377	0.370	0.369	0.360	0.341	0.360	0.368	4.20
33) 2,4-Dichloro	0.277	0.312	0.306	0.303	0.302	0.299	0.284	0.284	0.296	4.17
34) 2,6-Dichloro	0.270	0.312	0.296	0.289	0.285	0.283	0.287	0.293	0.289	4.19
35) 1,3,5-Trichl	0.345	0.357	0.331	0.312	0.307	0.319	0.327	0.336	0.329	5.12
36) 1,2,4-Trichl	0.320	0.335	0.323	0.306	0.302	0.307	0.315	0.316	0.315	3.39
37) 1,2,3-Trichl	0.332	0.323	0.313	0.306	0.299	0.303	0.309	0.308	0.312	3.48
38) Naphthalene	1.097	1.147	1.069	1.040	1.029	1.025	1.051	1.201	1.082	5.80
39) 4-Chloroanil	0.462	0.487	0.443	0.432	0.432	0.418	0.426	0.467	0.446	5.32
40) 2,3-Dichloro	0.358	0.389	0.369	0.351	0.345	0.349	0.368	0.392	0.365	4.90
41) Caprolactam	0.159	0.164	0.166	0.167	0.172	0.163	0.147	0.145	0.160	5.97
42) Hexachlorobu	0.156	0.171	0.161	0.154	0.151	0.153	0.154	0.165	0.158	4.41
43) 4-Chloro-3-m	0.293	0.322	0.311	0.311	0.310	0.306	0.294	0.289	0.305	3.72
44) 2-Methylnaph	0.571	0.641	0.600	0.585	0.576	0.577	0.567	0.601	0.590	4.11
45) 1-Methylnaph	0.632	0.673	0.631	0.609	0.600	0.595	0.613	0.635	0.623	3.98

Initial Calibration Summary

Job Number: JC4005 **Sample:** EF6287-ICC6287
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F149644.D
Project: Sunoco - Marcus Hook Facility, PA

```
46) Dimethylnaph 0.647 0.697 0.662 0.645 0.642 0.638 0.630 0.633 0.649   3.32

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.268 0.319 0.314 0.301 0.299 0.303 0.302 0.276 0.298   5.91
49) 2,4,6-Trichl 0.321 0.389 0.356 0.333 0.332 0.331 0.344 0.339 0.343   6.20
50) 2,4,5-Trichl 0.348 0.381 0.361 0.343 0.358 0.345 0.340 0.330 0.351   4.51
51) 2-Fluorobiph 1.269 1.320 1.209 1.139 1.159 1.162 1.208 1.320 1.223   5.88
52) 2-Chloronaph 1.148 1.187 1.111 1.035 1.045 1.044 1.070 1.162 1.100   5.45
53) Biphenyl     1.495 1.572 1.441 1.358 1.386 1.364 1.437 1.562 1.452   5.79
54) 2-Nitroanili 0.269 0.323 0.312 0.302 0.314 0.300 0.276 0.295 0.299   6.24
55) Dimethylphth 1.253 1.352 1.268 1.190 1.208 1.186 1.137 1.308 1.238   5.73
56) Acenaphthyle 1.795 1.972 1.853 1.757 1.782 1.764 1.777 1.907 1.826   4.27
57) 2,6-Dinitrot 0.212 0.273 0.285 0.280 0.289 0.276 0.263 0.203 0.260  12.86
58) 3-Nitroanili 0.317 0.360 0.339 0.332 0.348 0.330 0.312 0.294 0.329   6.38
59) Acenaphthene 1.173 1.174 1.076 1.012 1.021 1.011 1.066 1.196 1.091   7.19
60) 2,4-Dinitrop 0.060 0.116 0.166 0.179 0.188 0.171 0.113       0.142  33.15
         ----- Quadratic regression -----                Coefficient =  0.9996
              Response Ratio = -0.01357 + 0.16201 *A + 0.00566 *A^2

61) 4-Nitropheno 0.137 0.150 0.163 0.165 0.171 0.161 0.149 0.141 0.154   7.96
62) Dibenzofuran 1.673 1.724 1.589 1.499 1.515 1.496 1.509 1.695 1.588   6.08
63) 2,4-Dinitrot 0.319 0.395 0.397 0.391 0.405 0.390 0.368 0.316 0.373   9.62
64) 2,3,4,6-Tetr 0.245 0.293 0.286 0.289 0.294 0.280 0.263 0.254 0.275   6.90
65) Diethylphtha 1.210 1.349 1.285 1.230 1.271 1.240 1.179 1.249 1.252   4.12
66) Fluorene     1.261 1.370 1.258 1.191 1.203 1.196 1.224 1.328 1.254   5.21
67) 4-Chlorophen 0.580 0.633 0.568 0.539 0.542 0.543 0.525 0.585 0.564   6.16
68) 4-Nitroanili 0.302 0.352 0.349 0.341 0.354 0.334 0.320 0.320 0.334   5.55

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.060 0.109 0.139 0.143 0.152 0.139 0.108       0.121  26.27
         ----- Quadratic regression -----                Coefficient =  0.9994
              Response Ratio = -0.00284 + 0.12927 *A + 0.00902 *A^2

71) n-Nitrosodip 0.549 0.569 0.557 0.523 0.553 0.534 0.533 0.538 0.544   2.76
72) 1,2-Diphenyl 0.672 0.714 0.678 0.649 0.674 0.658 0.652 0.658 0.669   3.15
73) 2,4,6-Tribro 0.087 0.099 0.095 0.092 0.096 0.092 0.092 0.088 0.093   4.19
74) 4-Bromopheny 0.181 0.202 0.198 0.182 0.188 0.185 0.187 0.195 0.190   3.99
75) Hexachlorobe 0.197 0.212 0.200 0.187 0.193 0.190 0.198 0.225 0.200   6.19
76) Pentachlorop 0.096 0.126 0.139 0.134 0.137 0.133 0.123 0.093 0.123  14.75
77) Phenanthrene 1.095 1.178 1.094 1.002 1.042 1.030 1.064 1.193 1.087   6.27
78) Anthracene   1.060 1.153 1.096 1.017 1.058 1.028 1.046 1.089 1.068   4.09
79) Carbazole    1.069 1.148 1.106 1.045 1.078 1.037 1.047 1.043 1.072   3.59
80) Di-n-butylph 1.171 1.375 1.390 1.329 1.381 1.333 1.221 1.144 1.293   7.70
81) Fluoranthene 1.075 1.191 1.169 1.104 1.130 1.086 1.093 1.086 1.117   3.81
82) Octadecane   0.489 0.541 0.524 0.494 0.515 0.501 0.512 0.497 0.509   3.41

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.206 1.338 1.307 1.328 1.357 1.280 1.193 1.194 1.275   5.35
85) Terphenyl-d1 0.736 0.827 0.798 0.833 0.854 0.790 0.703 0.757 0.787   6.59
86) Butylbenzylp 0.538 0.635 0.666 0.702 0.727 0.651 0.550 0.508 0.622  12.97
87) Butyl steara 0.288 0.362 0.385 0.398 0.414 0.378 0.333 0.269 0.353  14.79
88) Benzo[a]anth 1.087 1.185 1.137 1.180 1.196 1.117 1.040 1.205 1.143   5.13
89) 3,3'-Dichlor 0.331 0.392 0.407 0.423 0.423 0.390 0.376 0.324 0.383   9.92
90) Chrysene     1.046 1.127 1.059 1.096 1.110 1.036 1.036 1.088 1.075   3.29
91) bis(2-Ethylh 0.733 0.860 0.897 0.955 0.985 0.907 0.747 0.631 0.839  14.68

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.206 1.626 1.711 1.742 1.779 1.685 1.335 1.138 1.528  16.94
94) Benzo[b]fluo 1.110 1.262 1.238 1.237 1.239 1.178 1.074 1.132 1.184   6.00
95) Benzo[k]fluo 1.142 1.251 1.189 1.155 1.135 1.112 1.055 1.114 1.144   5.05
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** EF6287-ICC6287
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F149644.D
Project: Sunoco - Marcus Hook Facility, PA

```
 96) Benzo[a]pyre 0.928 1.094 1.088 1.098 1.107 1.057 0.964 0.997 1.042   6.66
 97) Indeno[1,2,3 0.885 0.983 1.062 1.082 1.104 1.027 0.884 0.817 0.980  10.87
 98) Dibenz(a,h)a 0.764 0.940 0.981 0.995 0.990 0.944 0.846 0.771 0.904  10.70
 99) Dibenz[a,h]a 0.877 1.076 1.055 1.102 1.108 1.067 0.925 0.901 1.014   9.45
100) 7,12-Dimethy 0.377 0.490 0.545 0.564 0.563 0.542 0.505 0.347 0.492  17.16
101) Benzo[g,h,i] 0.927 1.073 1.073 1.079 1.079 1.032 0.961 0.943 1.021   6.50
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MF6287.M          Mon Aug 31 17:29:36 2015   RT1
```

8.8.29

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EF6288-ICC6288
Lab FileID: F149655.D

```
                         Response Factor Report  MSF

  Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Sat Aug 29 16:24:02 2015
  Response via : Initial Calibration

  Calibration Files
  2   =F149684A.D  5   =F149683A.D  25  =F149681A.D  80  =F149679A.D
  100 =F149678A.D  50  =F149680A.D  10  =F149682A.D  1   =F149660A.D

   Compound         2     5     25    80    100   50    10    1     Avg %RSD
  ---------------------------------------------------------------------------
159) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
160) Benzaldehyde 1.042 1.165 1.084 1.036 1.002 1.060 1.109 1.038 1.067   4.81

161) I   Naphthalene-d8b       ----------------ISTD---------------------
162) Hydroquinone 0.178 0.306 0.326 0.355 0.352 0.344 0.307       0.310  19.75

163)     Acenaphthene-d10b     ----------------ISTD---------------------
164) 1,2,4,5-Tetr 0.517 0.536 0.478 0.470 0.463 0.478 0.501 0.509 0.494   5.21

165)     Phenanthrene-d10b     ----------------ISTD---------------------
166) Atrazine     0.173 0.201 0.191 0.195 0.193 0.198 0.188 0.185 0.191   4.58

167)     Chrysene-d12b         ----------------ISTD---------------------
168) Benzidine    0.718 0.900 0.861 0.596 0.578 0.747 0.814 0.555 0.721  18.51
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MF6287.M          Mon Aug 31 17:29:36 2015   RT1
```

8.8.30

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EF6288-ICV6287
Lab FileID: F149662.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149662.D          Vial: 11
Acq On    : 29 Aug 2015   5:19 am                   Operator: ashleyd
Sample    : icv6287-50                              Inst    : MSF
Misc      : op86576,ef6288                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	96	0.00	5.02
3	t	Pyridine	1.319	1.516	-14.9	113	0.06	2.99
10	t	Aniline	1.864	2.118	-13.6	126	0.00	4.77
16	t	Benzyl alcohol	0.848	0.897	-5.8	103	0.00	5.11
24	I	Naphthalene-d8	1.000	1.000	0.0	105	0.00	5.93
39	t	4-Chloroaniline	0.446	0.422	5.4	106	0.00	5.98
44	t	2-Methylnaphthalene	0.590	0.547	7.3	99	0.00	6.48
47	I	Acenaphthene-d10	1.000	1.000	0.0	101	0.00	7.45
54	t	2-Nitroaniline	0.299	0.279	6.7	94	0.00	6.98
58	t	3-Nitroaniline	0.329	0.288	12.5	89	0.00	7.38
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.588	1.427	10.1	97	0.00	7.67
68	t	4-Nitroaniline	0.334	0.281	15.9	85	0.00	8.09
69	I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00	9.46
		----------	AvgRF	CCRF	% Dev	----------		
79	t	Carbazole	1.072	0.932	13.1	92	0.00	9.86
83	I	Chrysene-d12	1.000	1.000	0.0	108	0.00	14.85
92	I	Perylene-d12	1.000	1.000	0.0	101	0.00	17.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:23:56 2015 RT1

8.8.31

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-ICV6288
Lab FileID: F149663A.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149663A.D          Vial: 12
Acq On    : 29 Aug 2015   5:48 am                    Operator: ashleyd
Sample    : icv6288-50                               Inst    : MSF
Misc      : op86576,ef6288                           Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
163	Acenaphthene-d10b	1.000	1.000	0.0	91	0.00	7.45
164	1,2,4,5-Tetrachlorobenzen	0.494	0.508	-2.8	97	0.00	6.61

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:23:58 2015 RT1

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EF6288-ICV6287
Lab FileID: F149663.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\EF6287\F149663.D Vial: 12
Acq On : 29 Aug 2015 5:48 am Operator: ashleyd
Sample : icv6287-50 Inst : MSF
Misc : op86576,ef6288 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	112	0.00	5.01
4	t	N-Nitrosodimethylamine	0.555	0.561	-1.1	112	0.00	2.90
11	t	bis(2-Chloroethyl)ether	1.196	1.259	-5.3	122	0.00	4.80
14	t	1,3-Dichlorobenzene	1.590	1.539	3.2	114	0.00	4.97
15	t	1,4-Dichlorobenzene	1.565	1.539	1.7	115	0.00	5.02
17	t	1,2-Dichlorobenzene	1.473	1.426	3.2	114	0.00	5.14
20	t	2,2'-oxybis(1-Chloropropa	0.454	0.471	-3.7	122	0.00	5.20
22		n-Nitroso-di-n-propylamin	0.840	0.784	6.7	110	0.00	5.29
23	t	Hexachloroethane	0.479	0.474	1.0	114	0.00	5.39
24	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	5.93
26	t	Nitrobenzene	0.342	0.331	3.2	108	0.00	5.42
28	t	Isophorone	0.597	0.619	-3.7	115	0.00	5.59
32	t	bis(2-Chloroethoxy)methan	0.368	0.390	-6.0	118	0.00	5.74
36	t	1,2,4-Trichlorobenzene	0.315	0.310	1.6	110	0.00	5.89
38	t	Naphthalene	1.082	1.076	0.6	114	0.00	5.95
42	t	Hexachlorobutadiene	0.158	0.162	-2.5	115	0.00	6.04
47	I	Acenaphthene-d10	1.000	1.000	0.0	101	0.00	7.45
48	t	Hexachlorocyclopentadiene	0.298	0.256	14.1	86	0.00	6.61
52	t	2-Chloronaphthalene	1.100	1.163	-5.7	112	0.00	6.90
55	t	Dimethylphthalate	1.238	1.242	-0.3	106	0.00	7.14
56	t	Acenaphthylene	1.826	1.866	-2.2	107	0.00	7.30
57	t	2,6-Dinitrotoluene	0.260	0.266	-2.3	97	0.00	7.20
59	t	Acenaphthene	1.091	1.159	-6.2	116	0.00	7.49
		----------	AvgRF	CCRF	% Dev	----------		
63	t	2,4-Dinitrotoluene	0.373	0.341	8.6	88	0.00	7.63
65	t	Diethylphthalate	1.252	1.253	-0.1	102	0.00	7.92
66	t	Fluorene	1.254	1.299	-3.6	110	0.00	8.09
67	t	4-Chlorophenyl-phenylethe	0.564	0.576	-2.1	107	0.00	8.08
69	I	Phenanthrene-d10	1.000	1.000	0.0	98	0.00	9.46
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.544	0.536	1.5	99	0.00	8.23
72	t	1,2-Diphenylhydrazine	0.669	0.673	-0.6	101	0.00	8.29
74	t	4-Bromophenyl-phenylether	0.190	0.195	-2.6	104	0.00	8.75
75	t	Hexachlorobenzene	0.200	0.199	0.5	103	0.00	8.86
77	t	Phenanthrene	1.087	1.138	-4.7	109	0.00	9.49
78	t	Anthracene	1.068	1.116	-4.5	107	0.00	9.58
80	t	Di-n-butylphthalate	1.293	1.333	-3.1	99	0.00	10.56

Initial Calibration Verification

Job Number: JC4005 **Sample:** EF6288-ICV6287
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F149663.D
Project: Sunoco - Marcus Hook Facility, PA

81	t	Fluoranthene	1.117	1.167	-4.5	106	0.00	11.72
83	I	Chrysene-d12	1.000	1.000	0.0	95	0.00	14.86
84	t	Pyrene	1.275	1.374	-7.8	102	0.00	12.18
86	t	Butylbenzylphthalate	0.622	0.663	-6.6	97	0.00	13.75
88	t	Benzo[a]anthracene	1.143	1.207	-5.6	103	0.00	14.84
90	t	Chrysene	1.075	1.153	-7.3	106	0.00	14.92
91	t	bis(2-Ethylhexyl)phthalat	0.839	0.899	-7.2	94	0.00	15.16
92	I	Perylene-d12	1.000	1.000	0.0	94	0.00	17.92
93	t	Di-n-octylphthalate	1.528	1.687	-10.4	94	0.00	16.60
94	t	Benzo[b]fluoranthene	1.184	1.209	-2.1	96	0.00	17.16
95	t	Benzo[k]fluoranthene	1.144	1.225	-7.1	103	-0.01	17.22
96	t	Benzo[a]pyrene	1.042	1.134	-8.8	100	0.00	17.81
97	t	Indeno[1,2,3-cd]pyrene	0.980	1.064	-8.6	97	0.00	19.87
99	t	Dibenz[a,h]anthracene	1.014	1.130	-11.4	99	0.00	19.92
101	t	Benzo[g,h,i]perylene	1.021	1.124	-10.1	102	0.00	20.32

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:23:57 2015 RT1

8.8.33

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EF6288-ICV6288
Lab FileID: F149664A.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149664A.D          Vial: 13
Acq On    : 29 Aug 2015   6:16 am                    Operator: ashleyd
Sample    : icv6288-50                               Inst    : MSF
Misc      : op86576,ef6288                           Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
159	I	1,4-Dichlorobenzene-d4b	1.000	1.000	0.0	103	0.00	5.01
160	t	Benzaldehyde	1.067	1.042	2.3	101	0.00	4.69
165		Phenanthrene-d10b	1.000	1.000	0.0	96	0.00	9.46
166		Atrazine	0.191	0.194	-1.6	95	0.00	9.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:24:00 2015 RT1

8.8.34

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-ICV6287
Lab FileID: F149664.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149664.D          Vial: 13
Acq On    : 29 Aug 2015   6:16 am                   Operator: ashleyd
Sample    : icv6287-50                              Inst    : MSF
Misc      : op86576,ef6288                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	116	0.00	5.01
2	t	1,4-Dioxane	0.554	0.457	17.5	103	0.00	2.63
6	t	Indene	2.378	2.276	4.3	114	0.00	5.20
7	t	Cumene	3.172	3.006	5.2	114	0.00	4.43
13	t	Decane	1.424	1.283	9.9	111	0.00	4.89
18	t	Acetophenone	1.812	1.711	5.6	116	0.00	5.29
24	I	Naphthalene-d8	1.000	1.000	0.0	131	0.00	5.93
26	t	Nitrobenzene	0.342	0.301	12.0	118	-0.13	5.29
27	t	Quinoline	0.748	0.599	19.9	106	0.00	6.19
40	t	2,3-Dichloroaniline	0.365	0.269	26.3	101	0.00	6.71
41	t	Caprolactam	0.160	0.125	21.9	100	-0.02	6.22
45	t	1-Methylnaphthalene	0.623	0.490	21.3	108	0.00	6.56
46	t	Dimethylnaphthalene	0.649	0.514	20.8	105	0.00	7.01
47	I	Acenaphthene-d10	1.000	1.000	0.0	108	0.00	7.45
53	t	Biphenyl	1.452	1.344	7.4	107	0.00	6.87
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	104	0.00	9.46
		----------	AvgRF	CCRF	% Dev	----------		
82	t	Octadecane	0.509	0.508	0.2	105	0.00	9.32
83	I	Chrysene-d12	1.000	1.000	0.0	104	-0.01	14.85
92	I	Perylene-d12	1.000	1.000	0.0	86	-0.01	17.91
100	t	7,12-Dimethylbenz(a)anthr	0.492	0.243	50.6#	38#	-0.02	17.17

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:23:59 2015 RT1

8.8.35

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-ICV6287
Lab FileID: F149665.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149665.D          Vial: 14
Acq On    : 29 Aug 2015   6:45 am                   Operator: ashleyd
Sample    : icv6287-50                              Inst    : MSF
Misc      : op86576,ef6288                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	115	0.00	5.01
5	S	2-Fluorophenol	1.263	1.235	2.2	113	0.00	4.03
8	S	Phenol-d5	1.559	1.503	3.6	113	0.00	4.73
24	I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	5.93
25	S	Nitrobenzene-d5	0.341	0.336	1.5	110	0.00	5.41
47	I	Acenaphthene-d10	1.000	1.000	0.0	105	0.00	7.45
51	S	2-Fluorobiphenyl	1.223	1.281	-4.7	116	0.00	6.77
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00	9.46
		----------	AvgRF	CCRF	% Dev	----------		
73	S	2,4,6-Tribromophenol	0.093	0.089	4.3	100	0.00	8.40
83	I	Chrysene-d12	1.000	1.000	0.0	100	-0.01	14.85
85	S	Terphenyl-d14	0.787	0.867	-10.2	109	0.00	12.59
92	I	Perylene-d12	1.000	1.000	0.0	100	0.00	17.92

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:24:01 2015 RT1

8.8.36

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-ICV6287
Lab FileID: F149666.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149666.D          Vial: 15
Acq On    : 29 Aug 2015   7:14 am                   Operator: ashleyd
Sample    : icv6287-50                              Inst    : MSF
Misc      : op86576,ef6288                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83 I	Chrysene-d12	1.000	1.000	0.0	102	-0.01	14.85
89 t	3,3'-Dichlorobenzidine	0.383	0.280	26.9	74	0.00	14.85

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:24:02 2015 RT1

8.8.37

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-ICV6288
Lab FileID: F149666A.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149666A.D          Vial: 15
Acq On    : 29 Aug 2015   7:14 am                    Operator: ashleyd
Sample    : icv6288-50                               Inst    : MSF
Misc      : op86576,ef6288                           Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
167	Chrysene-d12b	1.000	1.000	0.0	90	0.00	14.85
168	Benzidine	0.721	0.617	14.4	74	0.00	12.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:24:03 2015 RT1

8.8.38

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6288-ICV6288
Lab FileID: F149667.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149667.D          Vial: 16
Acq On    : 29 Aug 2015   7:43 am                   Operator: ashleyd
Sample    : icv6288-50                              Inst    : MSF
Misc      : op86576,ef6288                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
161	I	Naphthalene-d8b	1.000	1.000	0.0	84	0.00	5.93
162	t	Hydroquinone	0.310	0.410	-32.3#	100	0.00	6.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:02:29 2015 RT1

8.8.39

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EF6290-ICC6290
Lab FileID: F149680.D

```
                          Response Factor Report  MSF

  Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Sat Aug 29 16:24:02 2015
  Response via : Initial Calibration

  Calibration Files
  2   =F149684A.D  5   =F149683A.D  25  =F149681A.D  80  =F149679A.D
  100 =F149678A.D  50  =F149680A.D  10  =F149682A.D  1   =F149660A.D

   Compound         2     5     25    80    100   50    10    1     Avg %RSD
  ---------------------------------------------------------------------------
169) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
170) m-Toluidine  2.454 2.040 1.827 1.936 1.873 1.852 2.094       2.011  10.88

171) I   Naphthalene-d8       ----------------ISTD---------------------
172) 2-chloroanil 0.597 0.485 0.488 0.477 0.465 0.473 0.515       0.500   9.11
173) 3-chloroanil 0.537 0.437 0.443 0.445 0.432 0.438 0.486       0.460   8.40
174) Catechol           0.205 0.287 0.347 0.339 0.310 0.275       0.294  17.70
175) 1-chloro-2-n 0.189 0.163 0.164 0.168 0.162 0.164 0.177       0.170   5.91

176) I   Chrysene-d12c         ----------------ISTD---------------------
177) Bis(2-Ethylh 0.420 0.387 0.492 0.524 0.523 0.511 0.476       0.476  11.19
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MF6287.M          Mon Aug 31 17:29:36 2015   RT1
```

8.8.40

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6290-ICV6290
Lab FileID: F149687.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149687.D          Vial: 34
Acq On    : 29 Aug 2015   4:45 pm                   Operator: ashleyd
Sample    : icv6290-50                              Inst    : MSF
Misc      : op86576,ef6290                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
171	I	Naphthalene-d8c	1.000	1.000	0.0	90	0.00	5.93
172	t	2-chloroaniline	0.500	0.425	15.0	80	0.00	5.63
173	t	3-chloroaniline	0.460	0.387	15.9	79	0.00	5.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:36:30 2015 RT1

8.8.41

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6290-ICV6290
Lab FileID: F149688.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6287\F149688.D          Vial: 35
Acq On    : 29 Aug 2015   5:14 pm                   Operator: ashleyd
Sample    : icv6290-50                              Inst    : MSF
Misc      : op86576,ef6290                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
171	I	Naphthalene-d8c	1.000	1.000	0.0	98	0.00	5.93
175	t	1-chloro-2-nitrobenzene	0.170	0.150	11.8	89	0.00	6.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 16:36:31 2015 RT1

8.8.42

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6290-ICV6290
Lab FileID: F149690.D

Evaluate Continuing Calibration Report

```
  Data File : C:\MSDCHEM\1\DATA\EF6287\F149690.D          Vial: 37
  Acq On    : 29 Aug 2015   6:12 pm                   Operator: ashleyd
  Sample    : icv6290-50                              Inst    : MSF
  Misc      : op86576,ef6290                          Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Sat Aug 29 16:24:02 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
169 I	1,4-Dichlorobenzene-d4c	1.000	1.000	0.0	82	0.00	5.01
170 t	m-Toluidine	2.011	2.037	-1.3	90	0.00	5.35

```
    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     F149680A.D MF6287.M         Mon Aug 31 16:36:33 2015   RT1
```

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6290-ICV6290
Lab FileID: F149691.D

Evaluate Continuing Calibration Report

```
  Data File : C:\MSDCHEM\1\DATA\EF6287\F149691.D          Vial: 38
  Acq On    : 29 Aug 2015   6:41 pm                   Operator: ashleyd
  Sample    : icv6290-50                              Inst    : MSF
  Misc      : op86576,ef6290                          Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Sat Aug 29 16:24:02 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%

        Compound                   AvgRF   CCRF      %Dev Area%  Dev(min)R.T.
  ---------------------------------------------------------------------------
171 I   Naphthalene-d8c            1.000   1.000      0.0   93   0.00    5.93
174 t   Catechol                   0.294   0.301     -2.4   91   0.00    5.86
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     F149680A.D MF6287.M         Mon Aug 31 16:36:34 2015   RT1
```

8.8.44

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6291-ICV6287
Lab FileID: F149693.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6291\F149693.D          Vial: 2
Acq On    : 31 Aug 2015  10:08 am                   Operator: ashleyd
Sample    : icv6287-50                              Inst    : MSF
Misc      : op86576,ef6291                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Aug 29 16:24:02 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	77	0.00	5.01
9	t	Phenol	1.722	1.610	6.5	75	-0.01	4.73
12	t	2-Chlorophenol	1.455	1.368	6.0	75	-0.01	4.85
19	t	2-Methylphenol	1.129	1.186	-5.0	83	0.00	5.18
21	t	3&4-Methylphenol	1.200	1.256	-4.7	82	0.00	5.28
24	I	Naphthalene-d8	1.000	1.000	0.0	75	-0.01	5.93
29	t	2-Nitrophenol	0.198	0.192	3.0	69	0.00	5.65
30	t	2,4-Dimethylphenol	0.307	0.350	-14.0	85	0.00	5.67
31	t	Benzoic acid	0.242	0.242	0.0	71	0.00	5.73
33	t	2,4-Dichlorophenol	0.296	0.293	1.0	73	0.00	5.82
34		2,6-Dichlorophenol	0.289	0.294	-1.7	78	0.00	5.98
43	t	4-Chloro-3-methylphenol	0.305	0.297	2.6	72	-0.01	6.33
47	I	Acenaphthene-d10	1.000	1.000	0.0	72	0.00	7.44
49	t	2,4,6-Trichlorophenol	0.343	0.332	3.2	72	0.00	6.70
50	t	2,4,5-Trichlorophenol	0.351	0.352	-0.3	73	-0.01	6.73
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	35.524	28.9	46	0.00	7.49
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.154	0.151	1.9	67	0.00	7.54
64		2,3,4,6-Tetrachlorophenol	0.275	0.246	10.5	63	0.00	7.81
69	I	Phenanthrene-d10	1.000	1.000	0.0	67	-0.01	9.45
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	38.226	23.5	50	0.00	8.13
		----------	AvgRF	CCRF	% Dev	----------		
76	t	Pentachlorophenol	0.123	0.128	4.1	66	-0.01	9.15
83	I	Chrysene-d12	1.000	1.000	0.0	69	-0.02	14.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F149680A.D MF6287.M Mon Aug 31 17:15:26 2015 RT1

8.8.45

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EF6319-CC6287
Lab FileID: F150314.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\EF6319\F150314.D Vial: 2
Acq On : 22 Sep 2015 9:27 am Operator: linseyk
Sample : cc6287-50 Inst : MSF
Misc : op87378,ef6319,1000 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Mon Sep 21 15:43:51 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	68	-0.02	4.89
2	t	1,4-Dioxane	0.554	0.509	8.1	67	-0.02	2.49
3	t	Pyridine	1.319	1.297	1.7	69	-0.02	2.81
4	t	N-Nitrosodimethylamine	0.555	0.638	-15.0	77	-0.02	2.77
5	S	2-Fluorophenol	1.263	1.296	-2.6	70	-0.02	3.93
6	t	Indene	2.378	2.460	-3.4	72	-0.01	5.08
7	t	Cumene	3.172	3.203	-1.0	71	-0.02	4.30
8	S	Phenol-d5	1.559	1.678	-7.6	74	-0.02	4.63
9	t	Phenol	1.722	1.810	-5.1	74	-0.01	4.64
10	t	Aniline	1.864	1.817	2.5	77	-0.02	4.65
11	t	bis(2-Chloroethyl)ether	1.196	1.153	3.6	68	-0.01	4.69
12	t	2-Chlorophenol	1.455	1.432	1.6	69	-0.02	4.74
13	t	Decane	1.424	1.660	-16.6	84	-0.02	4.77
14	t	1,3-Dichlorobenzene	1.590	1.540	3.1	69	-0.01	4.85
15	t	1,4-Dichlorobenzene	1.565	1.550	1.0	70	-0.01	4.91
16	t	Benzyl alcohol	0.848	0.855	-0.8	70	-0.02	4.99
17	t	1,2-Dichlorobenzene	1.473	1.450	1.6	70	-0.01	5.02
18	t	Acetophenone	1.812	1.892	-4.4	75	-0.01	5.18
19	t	2-Methylphenol	1.129	1.161	-2.8	71	-0.02	5.08
20	t	2,2'-oxybis(1-Chloropropa	0.454	0.434	4.4	68	-0.02	5.08
21	t	3&4-Methylphenol	1.200	1.268	-5.7	73	-0.02	5.18
22		n-Nitroso-di-n-propylamin	0.840	0.855	-1.8	73	-0.02	5.18
23	t	Hexachloroethane	0.479	0.467	2.5	68	-0.02	5.26
24	I	Naphthalene-d8	1.000	1.000	0.0	70	-0.01	5.81
25	S	Nitrobenzene-d5	0.341	0.329	3.5	66	-0.02	5.29
26	t	Nitrobenzene	0.342	0.343	-0.3	72	-0.01	5.31
27	t	Quinoline	0.748	0.754	-0.8	71	-0.01	6.07
28	t	Isophorone	0.597	0.606	-1.5	72	-0.01	5.48
29	t	2-Nitrophenol	0.198	0.208	-5.1	70	-0.02	5.54
30	t	2,4-Dimethylphenol	0.307	0.338	-10.1	77	-0.02	5.56
31	t	Benzoic acid	0.242	0.257	-6.2	71	-0.02	5.65
32	t	bis(2-Chloroethoxy)methan	0.368	0.354	3.8	69	-0.01	5.62
33	t	2,4-Dichlorophenol	0.296	0.297	-0.3	70	-0.01	5.72
34		2,6-Dichlorophenol	0.289	0.285	1.4	71	-0.02	5.87
35		1,3,5-Trichlorobenzene	0.329	0.317	3.6	69	-0.01	5.55
36	t	1,2,4-Trichlorobenzene	0.315	0.296	6.0	67	-0.01	5.77
37		1,2,3-Trichlorobenzene	0.312	0.306	1.9	71	-0.02	5.93
38	t	Naphthalene	1.082	1.041	3.8	71	-0.01	5.83
39	t	4-Chloroaniline	0.446	0.414	7.2	69	-0.02	5.86
40	t	2,3-Dichloroaniline	0.365	0.363	0.5	73	-0.02	6.57
41	t	Caprolactam	0.160	0.191	-19.4	82	-0.01	6.13

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EF6319-CC6287
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F150314.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.158	0.154	2.5	71	-0.02	5.91
43	t	4-Chloro-3-methylphenol	0.305	0.313	-2.6	71	-0.02	6.22
44	t	2-Methylnaphthalene	0.590	0.564	4.4	68	-0.02	6.34
45	t	1-Methylnaphthalene	0.623	0.616	1.1	72	-0.02	6.42
46	t	Dimethylnaphthalene	0.649	0.648	0.2	71	-0.02	6.87
47	I	Acenaphthene-d10	1.000	1.000	0.0	72	-0.02	7.28
48	t	Hexachlorocyclopentadiene	0.298	0.254	14.8	60	-0.02	6.47
49	t	2,4,6-Trichlorophenol	0.343	0.328	4.4	71	-0.02	6.57
50	t	2,4,5-Trichlorophenol	0.351	0.341	2.8	71	-0.02	6.61
51	S	2-Fluorobiphenyl	1.223	1.138	7.0	70	-0.02	6.64
52	t	2-Chloronaphthalene	1.100	1.021	7.2	70	-0.02	6.75
53	t	Biphenyl	1.452	1.363	6.1	72	-0.02	6.72
54	t	2-Nitroaniline	0.299	0.311	-4.0	74	-0.02	6.83
55	t	Dimethylphthalate	1.238	1.136	8.2	69	-0.02	6.99
56	t	Acenaphthylene	1.826	1.744	4.5	71	-0.02	7.14
57	t	2,6-Dinitrotoluene	0.260	0.269	-3.5	70	-0.02	7.05
58	t	3-Nitroaniline	0.329	0.312	5.2	68	-0.02	7.23
59	t	Acenaphthene	1.091	1.014	7.1	72	-0.02	7.32
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	88.408	11.6	62	-0.02	7.34
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.154	0.174	-13.0	77	-0.02	7.42
62	t	Dibenzofuran	1.588	1.431	9.9	69	-0.02	7.51
63	t	2,4-Dinitrotoluene	0.373	0.381	-2.1	70	-0.02	7.47
64		2,3,4,6-Tetrachlorophenol	0.275	0.266	3.3	68	-0.02	7.65
65	t	Diethylphthalate	1.252	1.182	5.6	68	-0.02	7.75
66	t	Fluorene	1.254	1.193	4.9	71	-0.02	7.91
67	t	4-Chlorophenyl-phenylethe	0.564	0.510	9.6	67	-0.02	7.90
68	t	4-Nitroaniline	0.334	0.329	1.5	71	-0.02	7.93
69	I	Phenanthrene-d10	1.000	1.000	0.0	71	-0.03	9.24
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	46.738	6.5	66	-0.02	7.97
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.544	0.531	2.4	71	-0.02	8.05
72	t	1,2-Diphenylhydrazine	0.669	0.682	-1.9	74	-0.02	8.10
73	S	2,4,6-Tribromophenol	0.093	0.093	0.0	71	-0.02	8.22
74	t	4-Bromophenyl-phenylether	0.190	0.167	12.1	64	-0.03	8.55
75	t	Hexachlorobenzene	0.200	0.183	8.5	68	-0.02	8.67
76	t	Pentachlorophenol	0.123	0.123	0.0	65	-0.03	8.96
77	t	Phenanthrene	1.087	1.010	7.1	70	-0.03	9.28
78	t	Anthracene	1.068	1.039	2.7	72	-0.03	9.37
79	t	Carbazole	1.072	1.050	2.1	72	-0.03	9.64
80	t	Di-n-butylphthalate	1.293	1.285	0.6	68	-0.02	10.34
81	t	Fluoranthene	1.117	1.082	3.1	71	-0.03	11.48
82	t	Octadecane	0.509	0.564	-10.8	80	-0.03	9.11
83	I	Chrysene-d12	1.000	1.000	0.0	75	-0.03	14.60
84	t	Pyrene	1.275	1.184	7.1	70	-0.03	11.92
85	S	Terphenyl-d14	0.787	0.703	10.7	67	-0.03	12.34
86	t	Butylbenzylphthalate	0.622	0.601	3.4	70	-0.03	13.50
87		Butyl stearate	0.353	0.391	-10.8	78	-0.02	13.77
88	t	Benzo[a]anthracene	1.143	1.005	12.1	68	-0.03	14.57
89	t	3,3'-Dichlorobenzidine	0.383	0.351	8.4	68	-0.03	14.60
90	t	Chrysene	1.075	0.949	11.7	69	-0.03	14.65

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EF6319-CC6287
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F150314.D
Project: Sunoco - Marcus Hook Facility, PA

91	t	bis(2-Ethylhexyl)phthalat	0.839	0.781	6.9	65	-0.03	14.90
92	I	Perylene-d12	1.000	1.000	0.0	73	-0.03	17.65
93	t	Di-n-octylphthalate	1.528	1.522	0.4	66	-0.03	16.34
94	t	Benzo[b]fluoranthene	1.184	1.064	10.1	66	-0.03	16.89
95	t	Benzo[k]fluoranthene	1.144	0.963	15.8	63	-0.03	16.96
96	t	Benzo[a]pyrene	1.042	0.931	10.7	65	-0.03	17.53
97	t	Indeno[1,2,3-cd]pyrene	0.980	0.824	15.9	59	-0.03	19.60
98	t	Dibenz(a,h)acridine	0.904	0.809	10.5	63	-0.03	19.22
99	t	Dibenz[a,h]anthracene	1.014	0.872	14.0	60	-0.03	19.65
100	t	7,12-Dimethylbenz(a)anthr	0.492	0.494	-0.4	67	-0.03	16.91
101	t	Benzo[g,h,i]perylene	1.021	0.854	16.4	61	-0.03	20.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F150275.D MF6287.M Tue Sep 22 15:14:35 2015 RT1

8.8.46

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EF6319-CC6288
Lab FileID: F150315.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6319\F150315.D          Vial: 3
Acq On    : 22 Sep 2015   9:57 am                   Operator: linseyk
Sample    : cc6288-50                               Inst    : MSF
Misc      : op87378,ef6319,1000                     Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Sep 21 15:43:51 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4b	1.000	1.000	0.0	59	-0.02	4.89
103	t	Benzaldehyde	1.067	1.036	2.9	58	-0.12	4.57
104	I	Naphthalene-d8b	1.000	1.000	0.0	60	-0.02	5.81
105	t	Hydroquinone	0.310	0.375	-21.0#	66	-0.10	6.10
106		Acenaphthene-d10b	1.000	1.000	0.0	64	-0.02	7.28
107		1,2,4,5-Tetrachlorobenzen	0.494	0.455	7.9	61	-0.14	6.48
108		Phenanthrene-d10b	1.000	1.000	0.0	66	-0.03	9.24
109		Atrazine	0.191	0.187	2.1	62	-0.19	8.81
110		Chrysene-d12b	1.000	1.000	0.0	67	-0.04	14.59
111		Benzidine	0.721	0.503	30.2#	45#	-0.24	11.80

(#) = Out of Range SPCC's out = 0 CCC's out = 0
F150275.D MF6287.M Tue Sep 22 15:14:36 2015 RT1

8.8.47

8

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EF6319-CC6290
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** F150316.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EF6319\F150316.D          Vial: 4
Acq On    : 22 Sep 2015  10:25 am                   Operator: linseyk
Sample    : cc6290-50                               Inst    : MSF
Misc      : op87378,ef6319,1000                     Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MF6287AP9.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Sep 05 13:55:22 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
169	I	1,4-Dichlorobenzene-d4c	1.000	1.000	0.0	70	-0.09	4.89
170	t	m-Toluidine	2.011	1.907	5.2	72	-0.12	5.24
171	I	Naphthalene-d8c	1.000	1.000	0.0	73	-0.10	5.81
172	t	2-chloroaniline	0.500	0.407	18.6	63	-0.09	5.51
173	t	3-chloroaniline	0.460	0.388	15.7	65	-0.09	5.85
174	t	Catechol	0.294	0.293	0.3	69	-0.09	5.77
175	t	1-chloro-2-nitrobenzene	0.170	0.149	12.4	67	-0.10	6.06

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 F149775A.D MF6287AP9.M       Tue Sep 22 16:03:23 2015   RT1
```

8.8.48

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4919-ICC4919
Lab FileID: M117656.D

Response Factor Report Instrument #1

Method : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update : Wed Sep 09 08:51:18 2015
Response via : Initial Calibration

Calibration Files
2 =m117655.D 5 =m117659.D 100 =m117652.D 50 =m117656.D
1 =m117653.D 10 =m117658.D 80 =m117654.D 25 =m117657.D

Compound	2	5	100	50	1	10	80	25	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.693	0.747	0.679	0.693	0.804	0.702	0.689	0.660	0.708	6.48
3) Pyridine	1.968	2.041	1.839	1.878	2.447	1.820	1.854	1.854	1.962	10.67
4) N-Nitrosodim	0.995	0.972	0.882	0.841	1.157	0.837	0.881	0.815	0.923	12.38
5) 2-Fluorophen	1.443	1.428	1.409	1.435	1.556	1.384	1.420	1.379	1.432	3.86
6) Indene	2.828	2.915	2.593	2.650	2.753	2.594	2.648	2.605	2.698	4.47
7) Cumene	3.842	4.226	3.746	3.856	4.409	3.841	3.799	3.792	3.939	6.13
8) Phenol-d5	2.008	2.058	1.947	2.002	2.192	1.952	1.961	1.906	2.003	4.46
9) Phenol	2.207	2.353	2.185	2.198	2.461	2.071	2.229	2.097	2.225	5.76
10) Aniline	2.678	2.625	1.902	2.245	2.944	2.329	1.983	2.290	2.375	14.95
11) bis(2-Chloro	1.432	1.552	1.420	1.350	1.697	1.316	1.427	1.307	1.438	9.13
12) 2-Chlorophen	1.487	1.496	1.426	1.430	1.670	1.347	1.428	1.353	1.455	7.04
13) Decane	1.649	1.670	1.323	1.454	1.942	1.520	1.399	1.468	1.553	12.62
14) 1,3-Dichloro	1.591	1.653	1.507	1.516	1.814	1.526	1.560	1.493	1.582	6.77
15) 1,4-Dichloro	1.676	1.670	1.532	1.570	1.884	1.534	1.567	1.499	1.617	7.77
16) Benzyl alcoh	1.052	1.094	1.014	0.977	1.177	0.950	1.024	0.918	1.026	8.06
17) 1,2-Dichloro	1.566	1.574	1.422	1.446	1.705	1.441	1.458	1.423	1.504	6.74
18) Acetophenone	2.353	2.444	2.090	2.187	2.619	2.198	2.140	2.164	2.274	8.00
19) 2-Methylphen	1.389	1.423	1.343	1.344	1.507	1.328	1.354	1.300	1.374	4.77
20) 2,2'-oxybis(	0.426	0.450	0.431	0.415	0.612	0.401	0.435	0.400	0.446	15.49
21) 3&4-Methylph	1.413	1.508	1.426	1.438	1.663	1.413	1.453	1.405	1.465	5.91
22) n-Nitroso-di	1.431	1.405	1.162	1.162	1.632	1.228	1.176	1.202	1.300	13.23
23) Hexachloroet	0.572	0.600	0.535	0.529	0.621	0.520	0.542	0.517	0.554	7.01
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.532	0.520	0.465	0.464	0.564	0.474	0.476	0.457	0.494	8.01
26) Nitrobenzene	0.580	0.546	0.491	0.502	0.618	0.518	0.507	0.499	0.533	8.51
27) Quinoline	0.752	0.789	0.765	0.748	0.940	0.734	0.763	0.736	0.778	8.69
28) Isophorone	0.870	0.906	0.810	0.816	1.031	0.844	0.817	0.804	0.862	8.90
29) 2-Nitropheno	0.192	0.195	0.215	0.202	0.217	0.192	0.213	0.195	0.202	5.27
30) 2,4-Dimethyl	0.328	0.396	0.429	0.423	0.401	0.402	0.433	0.421	0.404	8.34
31) Benzoic acid		0.202	0.341	0.311		0.202	0.343	0.265	0.277	23.36
---- Quadratic regression ---- Coefficient = 0.9989										
Response Ratio = -0.02469 + 0.31180 *A + 0.01731 *A^2										
32) bis(2-Chloro	0.500	0.488	0.453	0.432	0.524	0.448	0.461	0.424	0.466	7.40
33) 2,4-Dichloro	0.291	0.326	0.301	0.303	0.322	0.287	0.308	0.293	0.304	4.67
34) 2,6-Dichloro	0.309	0.304	0.293	0.289	0.327	0.285	0.299	0.286	0.299	4.84
35) 1,3,5-Trichl	0.364	0.370	0.323	0.332	0.385	0.350	0.336	0.332	0.349	6.36
36) 1,2,4-Trichl	0.340	0.339	0.314	0.315	0.397	0.321	0.322	0.305	0.332	8.75
37) 1,2,3-Trichl	0.344	0.353	0.316	0.320	0.368	0.327	0.314	0.309	0.331	6.42
38) Naphthalene	1.143	1.175	1.075	1.066	1.299	1.060	1.089	1.046	1.119	7.61
39) 4-Chloroanil	0.463	0.491	0.427	0.436	0.551	0.451	0.440	0.429	0.461	9.13
40) 2,3-Dichloro	0.393	0.404	0.372	0.370	0.419	0.369	0.381	0.365	0.384	5.04
41) Caprolactam	0.183	0.196	0.191	0.191	0.232	0.188	0.189	0.185	0.195	8.12
42) Hexachlorobu	0.194	0.196	0.180	0.181	0.218	0.184	0.187	0.175	0.189	7.08

Initial Calibration Summary

Job Number: JC4005 **Sample:** EM4919-ICC4919
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** M117656.D
Project: Sunoco - Marcus Hook Facility, PA

```
43) 4-Chloro-3-m 0.379 0.400 0.392 0.384 0.408 0.368 0.400 0.370 0.388   3.83
44) 2-Methylnaph 0.632 0.642 0.607 0.588 0.685 0.582 0.623 0.566 0.616   6.24
45) 1-Methylnaph 0.747 0.773 0.733 0.731 0.838 0.730 0.730 0.715 0.750   5.29
46) Dimethylnaph 0.670 0.707 0.663 0.654 0.759 0.659 0.676 0.634 0.678   5.75

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.335 0.369 0.383 0.389 0.377 0.364 0.367 0.361 0.368   4.46
49) 2,4,6-Trichl 0.361 0.390 0.372 0.357 0.465 0.343 0.352 0.347 0.373  10.67
50) 2,4,5-Trichl 0.358 0.398 0.387 0.375 0.436 0.356 0.369 0.361 0.380   7.05
51) 2-Fluorobiph 1.327 1.409 1.286 1.256 1.568 1.272 1.222 1.241 1.323   8.71
52) 2-Chloronaph 1.171 1.253 1.136 1.128 1.406 1.116 1.077 1.093 1.172   9.27
53) Biphenyl     1.551 1.617 1.530 1.521 1.817 1.507 1.466 1.478 1.561   7.27
54) 2-Nitroanili 0.432 0.488 0.472 0.453 0.500 0.430 0.450 0.436 0.458   5.79
55) Dimethylphth 1.333 1.440 1.355 1.267 1.561 1.239 1.273 1.209 1.335   8.77
56) Acenaphthyle 1.925 1.996 1.903 1.849 2.227 1.800 1.822 1.793 1.914   7.52
57) 2,6-Dinitrot 0.256 0.270 0.303 0.293 0.296 0.263 0.285 0.267 0.279   6.18
58) 3-Nitroanili 0.308 0.343 0.364 0.337 0.379 0.306 0.340 0.316 0.337   7.79
59) Acenaphthene 1.229 1.238 1.166 1.155 1.419 1.136 1.118 1.110 1.196   8.49
60) 2,4-Dinitrop 0.049 0.073 0.215 0.166       0.079 0.187 0.122 0.127  49.94
            ---- Quadratic regression ----  Coefficient =  0.9991
              Response Ratio = -0.01184 + 0.10976 *A + 0.02128 *A^2

61) 4-Nitropheno 0.219 0.237 0.262 0.258 0.231 0.211 0.251 0.234 0.238   7.64
62) Dibenzofuran 1.730 1.781 1.614 1.547 1.827 1.526 1.545 1.518 1.636   7.63
63) 2,4-Dinitrot 0.340 0.390 0.417 0.399 0.413 0.367 0.393 0.384 0.388   6.46
64) 2,3,4,6-Tetr 0.286 0.340 0.342 0.333 0.342 0.328 0.325 0.311 0.326   5.88
65) Diethylphtha 1.385 1.482 1.377 1.287 1.494 1.253 1.313 1.243 1.354   7.16
66) Fluorene     1.325 1.436 1.359 1.318 1.553 1.286 1.280 1.264 1.353   7.20
67) 4-Chlorophen 0.685 0.656 0.628 0.596 0.736 0.602 0.603 0.563 0.634   8.87
68) 4-Nitroanili 0.322 0.342 0.364 0.330 0.385 0.323 0.346 0.314 0.341   7.00

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.081 0.169 0.140       0.088 0.152 0.118 0.125  28.41
            ---- Quadratic regression ----  Coefficient =  0.9995
              Response Ratio = -0.00484 + 0.11020 *A + 0.02390 *A^2

71) n-Nitrosodip 0.558 0.582 0.575 0.551 0.635 0.539 0.553 0.529 0.565   5.84
72) 1,2-Diphenyl 1.079 1.100 1.034 1.020 1.150 1.015 1.011 0.994 1.050   5.13
73) 2,4,6-Tribro 0.127 0.127 0.131 0.132 0.127 0.121 0.126 0.124 0.127   2.85
74) 4-Bromopheny 0.243 0.235 0.226 0.212 0.257 0.213 0.216 0.211 0.227   7.50
75) Hexachlorobe 0.254 0.255 0.241 0.239 0.278 0.240 0.233 0.236 0.247   6.08
76) Pentachlorop 0.143 0.156 0.184 0.171 0.143 0.155 0.176 0.165 0.162   9.32
77) Phenanthrene 1.214 1.190 1.170 1.116 1.291 1.099 1.108 1.103 1.161   5.88
78) Anthracene   1.210 1.231 1.177 1.152 1.358 1.120 1.138 1.121 1.188   6.70
79) Carbazole    1.138 1.163 1.155 1.108 1.276 1.083 1.093 1.072 1.136   5.78
80) Di-n-butylph 1.351 1.363 1.441 1.309 1.541 1.222 1.374 1.238 1.355   7.68
81) Fluoranthene 1.249 1.276 1.279 1.233 1.441 1.167 1.221 1.186 1.256   6.71
82) Octadecane   0.553 0.588 0.530 0.554 0.664 0.540 0.529 0.543 0.563   7.98

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.319 1.339 1.382 1.229 1.466 1.206 1.342 1.175 1.307   7.49
85) Butyl steara 0.324 0.356 0.374 0.352 0.410 0.312 0.375 0.335 0.355   8.92
86) Terphenyl-d1 0.826 0.825 0.848 0.725 0.874 0.681 0.831 0.710 0.790   9.20
87) Butylbenzylp 0.581 0.574 0.659 0.558 0.656 0.510 0.635 0.530 0.588   9.65
88) Benzo[a]anth 1.184 1.169 1.165 1.059 1.361 1.021 1.143 1.014 1.140   9.89
89) 3,3'-Dichlor 0.435 0.419 0.443 0.413 0.480 0.378 0.436 0.389 0.424   7.61
90) Chrysene     1.091 1.091 1.085 1.018 1.187 1.018 1.059 0.988 1.067   5.80
91) bis(2-Ethylh 0.758 0.771 0.906 0.749 0.949 0.669 0.872 0.711 0.798  12.42

92) I   Perylene-d12          ----------------ISTD---------------------
```

Initial Calibration Summary

Job Number: JC4005 **Sample:** EM4919-ICC4919
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** M117656.D
Project: Sunoco - Marcus Hook Facility, PA

93)	Di-n-octylph	1.277	1.291	1.606	1.362	1.572	1.091	1.594	1.264	1.382	13.66
94)	Benzo[b]fluo	1.171	1.234	1.347	1.181	1.371	1.056	1.265	1.136	1.220	8.70
95)	Benzo[k]fluo	1.176	1.204	1.075	1.111	1.301	1.027	1.186	1.051	1.141	8.06
96)	Benzo[a]pyre	1.050	1.077	1.089	1.040	1.300	0.942	1.101	0.994	1.074	9.80
97)	Indeno[1,2,3	1.020	0.975	1.102	0.966	1.190	0.811	1.097	0.903	1.008	12.03
98)	Dibenz(a,h)a	0.903	0.925	0.993	0.927	1.063	0.789	0.984	0.858	0.930	9.10
99)	Dibenz[a,h]a	0.952	1.027	1.095	1.017	1.141	0.876	1.094	0.951	1.019	8.77
100)	7,12-Dimethy	0.376	0.440	0.574	0.554	0.419	0.484	0.580	0.529	0.494	15.56
101)	Benzo[g,h,i]	1.012	1.006	1.065	1.001	1.205	0.858	1.056	0.931	1.017	9.97

(#) = Out of Range ### Number of calibration levels exceeded format ###

MM4919.M Wed Sep 09 08:51:28 2015 MSM

8.8.49

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4921-ICC4921
Lab FileID: M117679.D

```
                          Response Factor Report  Instrument #1

  Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
  Last Update  : Wed Sep 09 15:06:20 2015
  Response via : Initial Calibration

  Calibration Files
  2   =m117683.D  5   =m117682.D  100 =m117677.D  50  =m117679.D
  1   =m117684.D  10  =m117681.D  80  =m117678.D  25  =m117680.D

   Compound         2     5     100   50    1     10    80    25    Avg %RSD
  ---------------------------------------------------------------------------

102) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.365 1.431 1.152 1.295 1.299 1.328 1.224 1.278 1.297   6.54

104) I   Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.596 0.618 0.579 0.584 0.579 0.598 0.568 0.586 0.589   2.61
106) Atrazine     0.167 0.217 0.199 0.202 0.150 0.204 0.206 0.198 0.193  11.66

107) I   Chrysene-d12a         ----------------ISTD---------------------
108) Benzidine    0.553 0.688 0.468 0.619 0.447 0.650 0.498 0.689 0.576  17.06
109) 1-chloroocta 0.307 0.360 0.356 0.355 0.265 0.336 0.346 0.346 0.334   9.71

110) I   Phenanthrene-d10a     ----------------ISTD---------------------
111) o-terphenyl  0.582 0.612 0.570 0.564 0.538 0.583 0.581 0.566 0.575   3.67

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.228 0.381 0.424 0.437       0.393 0.440 0.412 0.388  18.99
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MM4919.M          Wed Sep 09 15:06:30 2015   MSM
```

8.8.50

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-ICV4919
Lab FileID: M117686.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\em4921\m117686.D          Vial: 11
Acq On    :  9 Sep 2015   2:33 pm                   Operator: alicjap
Sample    : icv4919-50                              Inst    : Instrument #1
Misc      : op86950,em4921                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update  : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00	4.86
3	t	Pyridine	1.962	2.173	-10.8	100	0.07	2.82
10	t	Aniline	2.375	2.734	-15.1	105	0.00	4.61
16	t	Benzyl alcohol	1.026	1.094	-6.6	97	0.00	4.96
24	I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	6.02
39	t	4-Chloroaniline	0.461	0.433	6.1	94	0.00	6.10
44	t	2-Methylnaphthalene	0.616	0.583	5.4	94	0.00	6.87
47	I	Acenaphthene-d10	1.000	1.000	0.0	97	-0.02	8.41
54	t	2-Nitroaniline	0.458	0.451	1.5	97	0.00	7.70
58	t	3-Nitroaniline	0.337	0.291	13.6	84	0.00	8.35
62	t	Dibenzofuran	1.636	1.502	8.2	95	0.00	8.76
68	t	4-Nitroaniline	0.341	0.283	17.0	83	0.00	9.39
69	I	Phenanthrene-d10	1.000	1.000	0.0	101	-0.02	11.05
79	t	Carbazole	1.136	0.950	16.4	86	0.00	11.53

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 m117679a.D MM4919.M         Wed Sep 09 15:21:29 2015   MSM
```

8.8.51

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-ICV4921
Lab FileID: M117687A.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\em4921\m117687a.D          Vial: 12
  Acq On    :  9 Sep 2015   3:02 pm                    Operator: alicjap
  Sample    : icv4921-50                               Inst    : Instrument #1
  Misc      : op86950,em4921                           Multiplr: 1.00
  MS Integration Params: RTEINT.P

  Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
  Last Update  : Wed Sep 09 15:06:20 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
104 I	Acenaphthene-d10a	1.000	1.000	0.0	85	0.00	8.41
105 I	1,2,4,5-Tetrachlorobenzen	0.589	0.639	-8.5	93	0.00	7.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Wed Sep 09 16:51:23 2015 MSM

8.8.52

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4921-ICV4919
Lab FileID: M117687.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\em4921\m117687.D Vial: 12
Acq On : 9 Sep 2015 3:02 pm Operator: alicjap
Sample : icv4919-50 Inst : Instrument #1
Misc : op86950,em4921 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	4.86
4	t	N-Nitrosodimethylamine	0.923	0.930	-0.8	113	0.00	2.71
11	t	bis(2-Chloroethyl)ether	1.438	1.522	-5.8	115	0.00	4.64
14	t	1,3-Dichlorobenzene	1.582	1.517	4.1	102	0.00	4.81
15	t	1,4-Dichlorobenzene	1.617	1.575	2.6	103	0.00	4.87
17	t	1,2-Dichlorobenzene	1.504	1.452	3.5	103	0.00	5.00
20	t	2,2'-oxybis(1-Chloropropa	0.446	0.451	-1.1	111	0.00	5.08
22	t	n-Nitroso-di-n-propylamin	1.300	1.222	6.0	108	0.00	5.18
23	t	Hexachloroethane	0.554	0.559	-0.9	108	0.00	5.28
24	I	Naphthalene-d8	1.000	1.000	0.0	97	0.00	6.03
26	t	Nitrobenzene	0.533	0.528	0.9	102	0.00	5.33
28	t	Isophorone	0.862	0.900	-4.4	107	0.00	5.55
32	t	bis(2-Chloroethoxy)methan	0.466	0.500	-7.3	112	0.00	5.75
36	t	1,2,4-Trichlorobenzene	0.332	0.329	0.9	101	0.00	5.96
38	t	Naphthalene	1.119	1.127	-0.7	102	0.00	6.05
42	t	Hexachlorobutadiene	0.189	0.204	-7.9	109	0.00	6.19
47	I	Acenaphthene-d10	1.000	1.000	0.0	93	-0.01	8.41
48	t	Hexachlorocyclopentadiene	0.368	0.330	10.3	80	0.00	7.10
52	t	2-Chloronaphthalene	1.172	1.201	-2.5	99	-0.01	7.54
55	t	Dimethylphthalate	1.335	1.345	-0.7	99	0.00	8.01
56	t	Acenaphthylene	1.914	1.923	-0.5	97	0.00	8.18
57	t	2,6-Dinitrotoluene	0.279	0.268	3.9	85	0.00	8.09
59	t	Acenaphthene	1.196	1.248	-4.3	100	0.00	8.47
63	t	2,4-Dinitrotoluene	0.388	0.335	13.7	78	0.00	8.74
65	t	Diethylphthalate	1.354	1.365	-0.8	98	0.00	9.21
66	t	Fluorene	1.353	1.422	-5.1	100	0.00	9.35
67	t	4-Chlorophenyl-phenylethe	0.634	0.678	-6.9	106	-0.01	9.37
69	I	Phenanthrene-d10	1.000	1.000	0.0	93	-0.02	11.05
71	t	n-Nitrosodiphenylamine	0.565	0.555	1.8	93	0.00	9.59
72	t	1,2-Diphenylhydrazine	1.050	1.059	-0.9	96	0.00	9.66
74	t	4-Bromophenyl-phenylether	0.227	0.240	-5.7	105	0.00	10.26
75	t	Hexachlorobenzene	0.247	0.247	0.0	96	0.00	10.35
77	t	Phenanthrene	1.161	1.177	-1.4	98	0.00	11.10
78	t	Anthracene	1.188	1.185	0.3	95	0.00	11.20
80	t	Di-n-butylphthalate	1.355	1.335	1.5	95	-0.01	12.34
81	t	Fluoranthene	1.256	1.291	-2.8	97	0.00	13.40
83	I	Chrysene-d12	1.000	1.000	0.0	88	-0.01	16.24
84	t	Pyrene	1.307	1.317	-0.8	95	0.00	13.83

Initial Calibration Verification

Job Number: JC4005 **Sample:** EM4921-ICV4919
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** M117687.D
Project: Sunoco - Marcus Hook Facility, PA

87	t	Butylbenzylphthalate	0.588	0.577	1.9	91	0.00	15.30
88	t	Benzo[a]anthracene	1.140	1.135	0.4	95	-0.01	16.22
89	t	3,3'-Dichlorobenzidine	0.424	0.333	21.5	71	0.00	16.25
90	t	Chrysene	1.067	1.086	-1.8	94	0.00	16.30
91	t	bis(2-Ethylhexyl)phthalat	0.798	0.787	1.4	93	-0.01	16.52
92	I	Perylene-d12	1.000	1.000	0.0	87	-0.02	18.86
93	t	Di-n-octylphthalate	1.382	1.420	-2.7	90	-0.02	17.74
94	t	Benzo[b]fluoranthene	1.220	1.185	2.9	87	0.00	18.22
95	t	Benzo[k]fluoranthene	1.141	1.209	-6.0	94	0.00	18.27
96	t	Benzo[a]pyrene	1.074	1.114	-3.7	93	0.00	18.76
97	t	Indeno[1,2,3-cd]pyrene	1.008	1.061	-5.3	95	0.00	20.63
99	t	Dibenz[a,h]anthracene	1.019	1.111	-9.0	95	0.00	20.69
101	t	Benzo[g,h,i]perylene	1.017	1.126	-10.7	98	0.00	21.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Wed Sep 09 15:29:02 2015 MSM

8.8.53

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-ICV4919
Lab FileID: M117688.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\em4921\m117688.D          Vial: 13
Acq On    :  9 Sep 2015   3:31 pm                   Operator: alicjap
Sample    : icv4919-50                              Inst    : Instrument #1
Misc      : op86950,em4921                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update  : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	4.85
2	t	1,4-Dioxane	0.708	0.551	22.2	80	0.00	2.43
6	t	Indene	2.698	2.196	18.6	84	0.00	5.07
7	t	Cumene	3.939	3.367	14.5	88	0.00	4.26
13	t	Decane	1.553	1.223	21.2	85	0.00	4.73
18	t	Acetophenone	2.274	1.873	17.6	87	0.00	5.18
24	I	Naphthalene-d8	1.000	1.000	0.0	99	0.00	6.02
27	t	Quinoline	0.778	0.604	22.4	79	0.00	6.41
40	t	2,3-Dichloroaniline	0.384	0.280	27.1	75	0.00	7.25
41	t	Caprolactam	0.195	0.148	24.1	77	0.00	6.47
45	t	1-Methylnaphthalene	0.750	0.589	21.5	79	0.00	7.00
46	t	Dimethylnaphthalene	0.678	0.536	20.9	81	0.00	7.76
47	I	Acenaphthene-d10	1.000	1.000	0.0	97	-0.02	8.41
53	t	Biphenyl	1.561	1.266	18.9	81	0.00	7.52
69	I	Phenanthrene-d10	1.000	1.000	0.0	96	-0.02	11.05
82	t	Octadecane	0.563	0.465	17.4	81	0.00	11.05

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 m117679a.D MM4919.M         Wed Sep 09 16:52:46 2015   MSM
```

8.8.54

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4921-ICV4921
Lab FileID: M117688A.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\em4921\m117688a.D          Vial: 13
  Acq On    :  9 Sep 2015   3:31 pm                    Operator: alicjap
  Sample    : icv4921-50                               Inst    : Instrument #1
  Misc      : op86950,em4921                           Multiplr: 1.00
  MS Integration Params: RTEINT.P

  Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
  Last Update  : Wed Sep 09 15:06:20 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	94	0.00	4.85
103	t	Benzaldehyde	1.297	1.090	16.0	79	0.00	4.52
104	I	Acenaphthene-d10a	1.000	1.000	0.0	88	0.00	8.41
106	t	Atrazine	0.193	0.158	18.1	69	0.01	10.63

```
    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     m117679a.D MM4919.M         Wed Sep 09 16:53:34 2015   MSM
```

8.8.55

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4921-ICV4919
Lab FileID: M117689.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\em4921\m117689.D          Vial: 14
Acq On    :  9 Sep 2015   4:00 pm                   Operator: alicjap
Sample    : icv4919-50                              Inst    : Instrument #1
Misc      : op86950,em4921                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update  : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	85	0.00	4.86
5	S	2-Fluorophenol	1.432	1.390	2.9	82	0.00	3.86
8	S	Phenol-d5	2.003	1.881	6.1	80	0.00	4.56
9								
24	I	Naphthalene-d8	1.000	1.000	0.0	80	0.00	6.02
25	S	Nitrobenzene-d5	0.494	0.517	-4.7	90	0.00	5.32
47	I	Acenaphthene-d10	1.000	1.000	0.0	79	-0.02	8.41
51	S	2-Fluorobiphenyl	1.323	1.374	-3.9	86	-0.01	7.38
69	I	Phenanthrene-d10	1.000	1.000	0.0	78	-0.02	11.05
73	S	2,4,6-Tribromophenol	0.127	0.118	7.1	70	-0.02	9.77
83	I	Chrysene-d12	1.000	1.000	0.0	71	-0.02	16.23
86	S	Terphenyl-d14	0.790	0.865	-9.5	85	0.00	14.24

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 m117679a.D MM4919.M         Wed Sep 09 16:56:49 2015   MSM
```

8.8.56

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-ICV4921
Lab FileID: M117690.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\em4921\m117690.D          Vial: 15
  Acq On    :  9 Sep 2015   4:29 pm                   Operator: alicjap
  Sample    : icv4921-50                              Inst    : Instrument #1
  Misc      : op86950,em4921                          Multiplr: 1.00
  MS Integration Params: RTEINT.P

  Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
  Last Update  : Wed Sep 09 15:06:20 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
107	I	Chrysene-d12a	1.000	1.000	0.0	93	0.00	16.24
108	t	Benzidine	0.576	0.551	4.3	83	0.00	13.73

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Wed Sep 09 17:01:32 2015 MSM

8.8.57

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-ICV4921
Lab FileID: M117691.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\em4921\m117691.D          Vial: 16
  Acq On    :  9 Sep 2015   4:58 pm                   Operator: alicjap
  Sample    : icv4921-50                              Inst    : Instrument #1
  Misc      : op86950,em4921                          Multiplr: 1.00
  MS Integration Params: RTEINT.P

  Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
  Last Update  : Wed Sep 09 15:06:20 2015
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
112 I	Naphthalene-d8a	1.000	1.000	0.0	77	0.00	6.02
113	Hydroquinone	0.388	0.509	-31.2#	90	0.01	6.47

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Wed Sep 09 18:11:16 2015 MSM

8.8.58

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EM4921-ICV4919
Lab FileID: M117692.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\em4921\m117692.D          Vial: 17
Acq On    :  9 Sep 2015   5:27 pm                   Operator: alicjap
Sample    : icv4919-50                              Inst    : Instrument #1
Misc      : op86950,em4921                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update  : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
92	I	Perylene-d12	1.000	1.000	0.0	85	-0.03	18.86
100	t	7,12-Dimethylbenz(a)anthr	0.494	0.502	-1.6	77	0.00	18.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Wed Sep 09 18:11:18 2015 MSM

8.8.59

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4922-ICV4919
Lab FileID: M117696.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\em4922\m117696.D          Vial: 2
Acq On    :  9 Sep 2015   7:32 pm                   Operator: sarad
Sample    : icv4919-50                              Inst    : Instrument #1
Misc      : op86950,em4922                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update  : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	84	-0.02	4.84
9	t	Phenol	2.225	1.982	10.9	76	-0.01	4.56
12	t	2-Chlorophenol	1.455	1.380	5.2	81	-0.02	4.68
19	t	2-Methylphenol	1.374	1.367	0.5	85	-0.02	5.03
21	t	3&4-Methylphenol	1.465	1.442	1.6	84	-0.02	5.16
24	I	Naphthalene-d8	1.000	1.000	0.0	82	-0.02	6.01
29	t	2-Nitrophenol	0.202	0.191	5.4	77	-0.02	5.61
30	t	2,4-Dimethylphenol	0.404	0.422	-4.5	81	-0.02	5.65
		----------	True	Calc.	% Drift	----------		
31	t	Benzoic acid	50.000	51.233	-2.5	85	0.03	5.75
		----------	AvgRF	CCRF	% Dev	----------		
33	t	2,4-Dichlorophenol	0.304	0.294	3.3	79	-0.02	5.85
34	t	2,6-Dichlorophenol	0.299	0.294	1.7	83	-0.02	6.09
43	t	4-Chloro-3-methylphenol	0.388	0.380	2.1	81	-0.03	6.65
47	I	Acenaphthene-d10	1.000	1.000	0.0	86	-0.03	8.39
49	t	2,4,6-Trichlorophenol	0.373	0.343	8.0	83	-0.02	7.24
50	t	2,4,5-Trichlorophenol	0.380	0.371	2.4	85	-0.03	7.28
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	53.957	-7.9	72	-0.03	8.50
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.238	0.250	-5.0	83	-0.02	8.64
64	t	2,3,4,6-Tetrachlorophenol	0.326	0.290	11.0	75	-0.03	8.95
69	I	Phenanthrene-d10	1.000	1.000	0.0	87	-0.04	11.03
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	43.495	13.0	71	-0.03	9.43
		----------	AvgRF	CCRF	% Dev	----------		
76	t	Pentachlorophenol	0.162	0.162	0.0	82	-0.03	10.70

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Wed Sep 09 19:58:23 2015 MSM

8.8.60

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4935-CC4919
Lab FileID: M117984.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\em4935\m117984.D Vial: 2
Acq On : 18 Sep 2015 5:09 pm Operator: ashleyd
Sample : cc4919-50 Inst : Instrument #1
Misc : op87204a,em4935 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update : Sat Sep 19 08:22:32 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	111	0.00	4.80
2	t	1,4-Dioxane	0.708	0.727	-2.7	117	0.00	2.35
3	t	Pyridine	1.962	2.042	-4.1	121	0.00	2.68
4	t	N-Nitrosodimethylamine	0.923	0.984	-6.6	130	0.00	2.64
5	S	2-Fluorophenol	1.432	1.526	-6.6	119	0.00	3.84
6	t	Indene	2.698	2.910	-7.9	122	0.00	5.01
7	t	Cumene	3.939	4.114	-4.4	119	0.00	4.19
8	S	Phenol-d5	2.003	2.189	-9.3	122	0.00	4.56
9	t	Phenol	2.225	2.483	-11.6	126	0.00	4.57
10	t	Aniline	2.375	2.287	3.7	113	0.00	4.55
11	t	bis(2-Chloroethyl)ether	1.438	1.475	-2.6	122	0.00	4.59
12	t	2-Chlorophenol	1.455	1.497	-2.9	117	0.00	4.65
13	t	Decane	1.553	1.818	-17.1	139	0.00	4.67
14	t	1,3-Dichlorobenzene	1.582	1.545	2.3	114	0.00	4.76
15	t	1,4-Dichlorobenzene	1.617	1.560	3.5	111	0.00	4.81
16	t	Benzyl alcohol	1.026	1.050	-2.3	120	0.00	4.92
17	t	1,2-Dichlorobenzene	1.504	1.451	3.5	112	0.00	4.94
18	t	Acetophenone	2.274	2.386	-4.9	122	0.00	5.13
19	t	2-Methylphenol	1.374	1.457	-6.0	121	0.00	5.03
20	t	2,2'-oxybis(1-Chloropropa	0.446	0.444	0.4	119	0.00	5.02
21	t	3&4-Methylphenol	1.465	1.589	-8.5	123	0.00	5.16
22	t	n-Nitroso-di-n-propylamin	1.300	1.374	-5.7	132	0.00	5.13
23	t	Hexachloroethane	0.554	0.533	3.8	112	0.00	5.22
24	I	Naphthalene-d8	1.000	1.000	0.0	116	0.00	5.96
25	S	Nitrobenzene-d5	0.494	0.493	0.2	123	0.00	5.26
26	t	Nitrobenzene	0.533	0.537	-0.8	124	0.00	5.28
27	t	Quinoline	0.778	0.773	0.6	120	0.00	6.36
28	t	Isophorone	0.862	0.881	-2.2	125	0.00	5.50
29	t	2-Nitrophenol	0.202	0.214	-5.9	123	0.00	5.58
30	t	2,4-Dimethylphenol	0.404	0.415	-2.7	114	0.00	5.64
		----------	True	Calc.	% Drift	----------		
31	t	Benzoic acid	50.000	17.361	65.3#	34	0.00	5.79
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.466	0.460	1.3	124	0.00	5.70
33	t	2,4-Dichlorophenol	0.304	0.295	3.0	113	0.00	5.84
34	t	2,6-Dichlorophenol	0.299	0.281	6.0	113	0.00	6.07
35	t	1,3,5-Trichlorobenzene	0.349	0.323	7.4	113	0.00	5.59
36	t	1,2,4-Trichlorobenzene	0.332	0.300	9.6	111	0.00	5.90
37	t	1,2,3-Trichlorobenzene	0.331	0.303	8.5	110	0.00	6.15

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EM4935-CC4919
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** M117984.D
Project: Sunoco - Marcus Hook Facility, PA

38	t	Naphthalene	1.119	1.080	3.5	118	0.00	5.99
39	t	4-Chloroaniline	0.461	0.434	5.9	115	0.00	6.05
40	t	2,3-Dichloroaniline	0.384	0.366	4.7	115	0.00	7.20
41	t	Caprolactam	0.195	0.226	-15.9	138	0.00	6.47
42	t	Hexachlorobutadiene	0.189	0.170	10.1	109	0.00	6.12
43	t	4-Chloro-3-methylphenol	0.388	0.403	-3.9	122	0.00	6.67
44	t	2-Methylnaphthalene	0.616	0.590	4.2	116	0.00	6.81
45	t	1-Methylnaphthalene	0.750	0.733	2.3	116	0.00	6.95
46	t	Dimethylnaphthalene	0.678	0.649	4.3	115	0.00	7.70
47	I	Acenaphthene-d10	1.000	1.000	0.0	116	0.00	8.35
48	t	Hexachlorocyclopentadiene	0.368	0.313	14.9	94	0.00	7.03
49	t	2,4,6-Trichlorophenol	0.373	0.345	7.5	112	0.00	7.22
50	t	2,4,5-Trichlorophenol	0.380	0.340	10.5	105	0.00	7.30
51	S	2-Fluorobiphenyl	1.323	1.198	9.4	111	0.00	7.32
52	t	2-Chloronaphthalene	1.172	1.095	6.6	113	0.00	7.49
53	t	Biphenyl	1.561	1.500	3.9	114	0.00	7.46
54	t	2-Nitroaniline	0.458	0.514	-12.2	132	0.00	7.66
55	t	Dimethylphthalate	1.335	1.243	6.9	114	0.00	7.94
56	t	Acenaphthylene	1.914	1.865	2.6	117	0.00	8.12
57	t	2,6-Dinitrotoluene	0.279	0.293	-5.0	116	0.00	8.03
58	t	3-Nitroaniline	0.337	0.340	-0.9	117	0.00	8.31
59	t	Acenaphthene	1.196	1.146	4.2	115	0.00	8.40
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	75.816	24.2#	76	0.00	8.50
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.238	0.198	16.8	89	0.00	8.72
62	t	Dibenzofuran	1.636	1.535	6.2	115	0.00	8.70
63	t	2,4-Dinitrotoluene	0.388	0.406	-4.6	118	0.00	8.71
64	t	2,3,4,6-Tetrachlorophenol	0.326	0.250	23.3#	87	0.00	8.95
65	t	Diethylphthalate	1.354	1.282	5.3	115	0.00	9.15
66	t	Fluorene	1.353	1.300	3.9	114	0.00	9.29
67	t	4-Chlorophenyl-phenylethe	0.634	0.567	10.6	110	0.00	9.31
68	t	4-Nitroaniline	0.341	0.341	0.0	120	0.00	9.37
69	I	Phenanthrene-d10	1.000	1.000	0.0	113	0.00	11.00
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	47.300	5.4	103	0.00	9.44
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.565	0.552	2.3	114	0.00	9.54
72	t	1,2-Diphenylhydrazine	1.050	1.125	-7.1	125	0.00	9.59
73	S	2,4,6-Tribromophenol	0.127	0.120	5.5	103	0.00	9.73
74	t	4-Bromophenyl-phenylether	0.227	0.211	7.0	113	0.00	10.19
75	t	Hexachlorobenzene	0.247	0.242	2.0	115	0.00	10.30
76	t	Pentachlorophenol	0.162	0.060	63.0#	40#	0.00	10.71
77	t	Phenanthrene	1.161	1.125	3.1	114	0.00	11.05
78	t	Anthracene	1.188	1.157	2.6	114	0.00	11.14
79	t	Carbazole	1.136	1.126	0.9	115	0.00	11.50
80	t	Di-n-butylphthalate	1.355	1.378	-1.7	119	0.00	12.28
81	t	Fluoranthene	1.256	1.232	1.9	113	0.00	13.35
82	t	Octadecane	0.563	0.688	-22.2#	141	0.00	10.97
83	I	Chrysene-d12	1.000	1.000	0.0	119	0.00	16.21
84	t	Pyrene	1.307	1.182	9.6	115	0.00	13.79
85		Butyl stearate	0.355	0.432	-21.7#	146	0.00	15.46
86	S	Terphenyl-d14	0.790	0.725	8.2	119	0.00	14.18

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EM4935-CC4919
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** M117984.D
Project: Sunoco - Marcus Hook Facility, PA

87	t	Butylbenzylphthalate	0.588	0.570	3.1	122	0.00	15.23
88	t	Benzo[a]anthracene	1.140	1.055	7.5	119	0.00	16.19
89	t	3,3'-Dichlorobenzidine	0.424	0.408	3.8	118	0.00	16.21
90	t	Chrysene	1.067	1.033	3.2	121	0.00	16.26
91	t	bis(2-Ethylhexyl)phthalat	0.798	0.779	2.4	124	0.00	16.45
92	I	Perylene-d12	1.000	1.000	0.0	120	0.00	18.85
93	t	Di-n-octylphthalate	1.382	1.396	-1.0	123	0.00	17.68
94	t	Benzo[b]fluoranthene	1.220	1.169	4.2	118	0.00	18.20
95	t	Benzo[k]fluoranthene	1.141	1.081	5.3	116	0.00	18.25
96	t	Benzo[a]pyrene	1.074	1.023	4.7	118	0.00	18.75
97	t	Indeno[1,2,3-cd]pyrene	1.008	0.982	2.6	122	0.00	20.63
98	t	Dibenz(a,h)acridine	0.930	0.910	2.2	117	0.00	20.23
99	t	Dibenz[a,h]anthracene	1.019	1.009	1.0	119	0.00	20.67
100	t	7,12-Dimethylbenz(a)anthr	0.494	0.545	-10.3	118	0.00	18.20
101	t	Benzo[g,h,i]perylene	1.017	0.969	4.7	116	0.00	21.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
m117679a.D MM4919.M Mon Sep 21 09:16:44 2015 MSM

8.8.61

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EM4935-CC4921
Lab FileID: M117986.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\em4935\m117986.D          Vial: 4
Acq On    : 18 Sep 2015   6:11 pm                   Operator: sarad
Sample    : cc4921-50                               Inst    : Instrument #1
Misc      : op87204a,em4935                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MM4919.M (RTE Integrator)
Title        : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
Last Update  : Wed Sep 09 15:06:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	105	-0.06	4.80
103	t	Benzaldehyde	1.297	1.279	1.4	104	-0.05	4.46
104	I	Acenaphthene-d10a	1.000	1.000	0.0	100	-0.06	8.34
105	I	1,2,4,5-Tetrachlorobenzen	0.589	0.544	7.6	93	-0.06	7.04
106	t	Atrazine	0.193	0.195	-1.0	97	-0.04	10.58
107	I	Chrysene-d12a	1.000	1.000	0.0	101	-0.04	16.20
108	t	Benzidine	0.576	0.431	25.2#	70	-0.04	13.69
109	I	Naphthalene-d8a	1.000	1.000	0.0	106	-0.06	5.96
110		Hydroquinone	0.388	0.427	-10.1	104	0.01	6.47

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 m117679a.D MM4919.M         Fri Sep 18 18:47:31 2015   MSM
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8.8.62

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4212-ICC4212
Lab FileID: P97222.D

Response Factor Report MSP

Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Jul 15 16:48:50 2015
Response via : Initial Calibration

Calibration Files
2 =P97221.D 5 =P97223.D 25 =P97224.D 80 =P97220.D
100 =P97218.D 50 =P97222.D 10 =P97225.D 1 =P97219.D

Compound	2	5	25	80	100	50	10	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.673	0.635	0.685	0.583	0.577	0.643	0.692	0.705	0.649	7.51
3) Pyridine	1.455	1.726	1.624	1.363	1.300	1.495	1.602	1.816	1.548	11.44
4) N-Nitrosodim	0.995	0.895	0.946	0.741	0.671	0.820	0.927	0.910	0.863	12.79
5) 2-Fluorophen	1.509	1.580	1.497	1.282	1.217	1.377	1.364	1.438	1.408	8.64
6) Indene	2.658	2.701	2.556	2.117	2.005	2.341	2.550	2.902	2.479	12.25
7) Cumene	4.171	4.122	3.828	2.819	2.532	3.304	3.971	4.370	3.640	18.60
8) Phenol-d5	1.973	2.078	1.992	1.667	1.614	1.846	1.946	1.950	1.883	8.67
9) Phenol	1.936	1.811	1.824	1.548	1.418	1.622	1.750	1.968	1.735	11.06
10) Aniline	2.492	2.352	2.195	1.720	1.597	2.044	2.025	2.631	2.132	16.88
11) bis(2-Chloro	1.455	1.485	1.436	1.207	1.162	1.300	1.429	1.499	1.372	9.54
12) 2-Chlorophen	1.569	1.351	1.381	1.187	1.141	1.288	1.358	1.348	1.328	9.81
13) Decane	1.219	1.205	1.188	0.929	0.878	1.080	1.240	1.224	1.120	12.79
14) 1,3-Dichloro	1.783	1.735	1.633	1.356	1.279	1.450	1.528	1.785	1.569	12.51
15) 1,4-Dichloro	1.660	1.615	1.567	1.334	1.254	1.448	1.547	1.551	1.497	9.42
16) Benzyl alcoh	1.039	0.899	0.974	0.862	0.806	0.883	0.901	1.162	0.941	12.12
17) 1,2-Dichloro	1.577	1.604	1.466	1.238	1.158	1.382	1.423	1.420	1.408	10.82
18) Acetophenone	2.714	2.338	2.242	1.779	1.681	1.979	2.157	2.354	2.155	15.59
19) 2-Methylphen	1.420	1.441	1.359	1.111	1.055	1.262	1.309	1.449	1.301	11.52
20) 2,2'-oxybis(	0.499	0.445	0.478	0.418	0.421	0.430	0.400	0.562	0.457	11.76
21) 3&4-Methylph	1.559	1.441	1.491	1.268	1.191	1.327	1.391	1.381	1.381	8.63
22) n-Nitroso-di	1.319	1.254	1.179	0.956	0.860	1.031	1.123	1.295	1.127	14.75
23) Hexachloroet	0.752	0.779	0.754	0.634	0.608	0.665	0.723	0.814	0.716	10.22
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.544	0.569	0.490	0.417	0.402	0.463	0.502	0.524	0.489	12.02
26) Nitrobenzene	0.538	0.534	0.521	0.412	0.389	0.462	0.518	0.700	0.509	18.80
27) Quinoline	0.877	0.852	0.795	0.676	0.666	0.746	0.780	0.871	0.783	10.60
28) Isophorone	0.807	0.896	0.841	0.668	0.640	0.749	0.871	0.866	0.792	12.20
29) 2-Nitropheno	0.186	0.219	0.233	0.207	0.204	0.217	0.210	0.171	0.206	9.53
30) 2,4-Dimethyl	0.399	0.445	0.461	0.378	0.363	0.432	0.419	0.446	0.418	8.37
31) Benzoic acid		0.214	0.288	0.320	0.320	0.316	0.248		0.284	15.57
32) bis(2-Chloro	0.578	0.554	0.481	0.415	0.410	0.449	0.505	0.527	0.490	12.72
33) 2,4-Dichloro	0.372	0.388	0.354	0.311	0.303	0.339	0.346	0.387	0.350	9.13
34) 2,6-Dichloro	0.406	0.382	0.350	0.303	0.294	0.321	0.336	0.332	0.340	11.21
35) 1,3,5-Trichl	0.448	0.490	0.441	0.364	0.356	0.407	0.434	0.613	0.444	18.29
36) 1,2,4-Trichl	0.469	0.468	0.419	0.357	0.351	0.399	0.445	0.462	0.421	11.44
37) 1,2,3-Trichl	0.456	0.460	0.399	0.342	0.319	0.361	0.415	0.552	0.413	18.31
38) Naphthalene	1.203	1.187	1.045	0.829	0.781	0.957	1.072	1.232	1.038	16.47
39) 4-Chloroanil	0.473	0.511	0.481	0.413	0.398	0.448	0.439	0.475	0.455	8.26
40) 2,3-Dichloro	0.457	0.477	0.433	0.383	0.366	0.414	0.424	0.521	0.434	11.57
41) Caprolactam	0.180	0.168	0.172	0.153	0.150	0.157	0.169	0.183	0.166	7.37
42) Hexachlorobu	0.281	0.303	0.270	0.233	0.220	0.250	0.271	0.280	0.264	10.39
43) 4-Chloro-3-m	0.363	0.415	0.408	0.345	0.332	0.369	0.404	0.429	0.383	9.31
44) 2-Methylnaph	0.646	0.650	0.609	0.498	0.483	0.554	0.601	0.662	0.588	11.79
45) 1-Methylnaph	0.773	0.836	0.768	0.639	0.609	0.699	0.798	0.854	0.747	11.99

Initial Calibration Summary

Job Number: JC4005 **Sample:** EP4212-ICC4212
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** P97222.D
Project: Sunoco - Marcus Hook Facility, PA

```
46) Dimethylnaph 0.788 0.797 0.739 0.626 0.587 0.673 0.730 0.756 0.712  10.65

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.437 0.474 0.484 0.408 0.387 0.459 0.427 0.344 0.428  10.97
49) 2,4,6-Trichl 0.454 0.413 0.416 0.379 0.366 0.393 0.438 0.442 0.413   7.60
50) 2,4,5-Trichl 0.416 0.462 0.498 0.419 0.400 0.436 0.433 0.431 0.437   6.99
51) 2-Fluorobiph 1.412 1.424 1.290 1.067 1.022 1.224 1.316 1.673 1.304  16.00
52) 2-Chloronaph 1.256 1.237 1.250 1.013 0.962 1.132 1.186 1.363 1.175  11.37
53) Biphenyl     1.599 1.683 1.555 1.193 1.117 1.409 1.506 1.726 1.473  14.97
54) 2-Nitroanili 0.343 0.385 0.417 0.344 0.326 0.378 0.403 0.317 0.364  10.06
55) Dimethylphth 1.634 1.623 1.555 1.230 1.171 1.405 1.488 1.711 1.477  13.21
56) Acenaphthyle 1.831 1.990 1.738 1.331 1.266 1.583 1.675 2.266 1.710  19.29
57) 2,6-Dinitrot 0.251 0.295 0.309 0.293 0.280 0.304 0.276 0.234 0.280   9.32
58) 3-Nitroanili 0.253 0.344 0.338 0.318 0.311 0.335 0.301 0.304 0.313   9.32
59) Acenaphthene 1.235 1.220 1.135 0.923 0.878 1.036 1.122 1.394 1.118  15.21
60) 2,4-Dinitrop 0.068 0.097 0.168 0.199 0.197 0.189 0.117       0.148  35.97
         ----- Quadratic regression -----                Coefficient =  0.9992
              Response Ratio = -0.02619 + 0.19421 *A + 0.00196 *A^2

61) 4-Nitropheno 0.175 0.280 0.320 0.284 0.265 0.302 0.251 0.226 0.263  17.48
62) Dibenzofuran 1.734 1.730 1.607 1.274 1.196 1.465 1.533 1.570 1.513  12.93
63) 2,4-Dinitrot 0.360 0.373 0.436 0.375 0.366 0.402 0.397 0.305 0.377  10.14
64) 2,3,4,6-Tetr 0.390 0.388 0.402 0.375 0.371 0.414 0.361 0.371 0.384   4.62
65) Diethylphtha 1.578 1.613 1.552 1.263 1.180 1.389 1.497 1.598 1.459  11.25
66) Fluorene     1.620 1.477 1.364 1.109 1.056 1.235 1.305 1.759 1.366  17.81
67) 4-Chlorophen 0.795 0.848 0.780 0.668 0.643 0.735 0.731 0.649 0.731  10.15
68) 4-Nitroanili 0.261 0.321 0.329 0.299 0.294 0.314 0.269 0.265 0.294   9.05

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.107 0.150 0.159 0.159 0.167 0.118       0.143  17.22
71) n-Nitrosodip 0.566 0.602 0.593 0.505 0.489 0.553 0.571 0.625 0.563   8.28
72) 1,2-Diphenyl 0.916 0.956 0.910 0.668 0.633 0.792 0.897 1.017 0.849  16.25
73) 2,4,6-Tribro 0.112 0.108 0.104 0.099 0.100 0.104 0.095 0.139 0.108  12.62
74) 4-Bromopheny 0.263 0.255 0.272 0.227 0.225 0.243 0.247 0.244 0.247   6.55
75) Hexachlorobe 0.239 0.238 0.240 0.207 0.207 0.216 0.215 0.253 0.227   7.71
76) Pentachlorop 0.142 0.147 0.166 0.155 0.154 0.158 0.144 0.146 0.152   5.48
77) Phenanthrene 1.342 1.222 1.132 0.857       0.999 1.097 1.566 1.174  19.79
78) Anthracene   1.294 1.283 1.158 0.889 0.844 1.029 1.156 1.529 1.148  19.72
79) Carbazole    1.164 1.172 1.107 0.852 0.810 0.994 1.105 1.282 1.061  15.41
80) Di-n-butylph 1.448 1.600 1.486 1.094 1.022 1.310 1.419 1.412 1.349  14.66
81) Fluoranthene 1.581 1.467 1.326 1.033 0.981 1.202 1.368 1.673 1.329  18.59
82) Octadecane   0.430 0.418 0.438 0.345 0.337 0.406 0.413 0.489 0.409  12.08

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.601 1.574 1.511 1.144 1.089 1.368 1.398 1.914 1.450  18.26
85) Terphenyl-d1 0.946 0.805 0.778 0.660 0.640 0.740 0.737       0.758  13.43
86) Butylbenzylp 0.623 0.685 0.749 0.622 0.603 0.716 0.662 0.554 0.652   9.76
87) Butyl steara 0.266 0.286 0.324 0.262 0.251 0.296 0.256 0.260 0.275   9.03
88) Benzo[a]anth 1.403 1.337 1.341 1.069 1.028 1.251 1.266 1.654 1.294  15.17
89) 3,3'-Dichlor 0.393 0.412 0.491 0.438 0.427 0.465 0.420 0.367 0.427   9.15
90) Chrysene     1.220 1.259 1.172 0.967 0.932 1.125 1.096 1.406 1.147  13.49
91) bis(2-Ethylh 0.727 0.865 0.951 0.777 0.742 0.873 0.820 0.692 0.806  10.82

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.135 1.604 1.780 1.248 1.204 1.714 1.486       1.453  17.86
94) Benzo[b]fluo 1.279 1.392 1.431 1.033 1.061 1.335 1.235 1.510 1.285  13.22
95) Benzo[k]fluo 1.420 1.344 1.308 0.948 0.862 1.223 1.212 1.474 1.224  17.74
96) Benzo[a]pyre 1.240 1.253 1.291 0.917 0.896 1.219 1.102 1.491 1.176  16.87
97) Indeno[1,2,3 1.021 1.014 1.074 0.878 0.861 1.086 0.889 1.060 0.985   9.56
98) Dibenz(a,h)a 0.669 0.775 0.988 0.766 0.744 0.985 0.780 0.723 0.804  14.72
```

8.8.63

8

Initial Calibration Summary

Job Number: JC4005 **Sample:** EP4212-ICC4212
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** P97222.D
Project: Sunoco - Marcus Hook Facility, PA

```
 99) Dibenz[a,h]a 0.913 0.979 1.033 0.811 0.799 1.022 0.874 0.947 0.922   9.68
100) 7,12-Dimethy 0.508 0.562 0.693 0.533 0.526 0.666 0.544 0.536 0.571  12.08
101) Benzo[g,h,i] 1.137 1.103 1.121 0.876 0.855 1.085 0.995 1.255 1.053  12.92

 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MP4212.M          Wed Jul 15 16:49:41 2015
```

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICC4213
Lab FileID: P97229.D

```
                          Response Factor Report  MSP

  Method       : C:\MSDCHEM\1\METHODS\MP4213.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Wed Jul 15 14:16:37 2015
  Response via : Initial Calibration

  Calibration Files
  2   =P97233.D   5   =P97232.D   25  =P97230.D   80  =P97228.D
  100 =P97227.D   50  =P97229.D   10  =P97231.D   1   =P97234.D

   Compound         2     5     25    80    100   50    10    1     Avg %RSD
  ---------------------------------------------------------------------------



159) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
160) Benzaldehyde 1.291 1.329 1.068 1.011 0.988 0.999 1.213 1.247 1.143  12.36

161) I   Phenanthrene-d10b     ----------------ISTD---------------------
162) Atrazine     0.201 0.205 0.245 0.212 0.210 0.227 0.223 0.183 0.213   8.74

163) I   Chrysene-d12b         ----------------ISTD---------------------
164) Benzidine    0.526 0.634 0.645 0.593 0.488 0.612 0.722       0.603  12.90

165) I   Naphthalene-d8b       ----------------ISTD---------------------
166) Hydroquinone             0.293 0.321 0.326 0.312 0.231       0.297  13.12

167) I   Acenaphthene-d10b     ----------------ISTD---------------------
168) 1,2,4,5-Tetr 0.588 0.709 0.626 0.573 0.557 0.589 0.656 0.691 0.624   9.05


 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MP4212.M          Wed Jul 15 14:18:08 2015
```

8.8.64

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4213-ICV4212
Lab FileID: P97235.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97235.D            Vial: 18
Acq On    : 15 Jul 2015   3:58 am                    Operator: sarad
Sample    : icv4212-50                               Inst    : MSP
Misc      : op85384,ep4213,1000                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 16:48:50 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	98	0.00	4.34
9	t	Phenol	1.735	1.646	5.1	99	0.00	3.90
12	t	2-Chlorophenol	1.328	1.230	7.4	93	0.00	4.09
19	t	2-Methylphenol	1.301	1.234	5.1	95	0.00	4.67
21	t	3&4-Methylphenol	1.381	1.234	10.6	91	0.00	4.88
24	I	Naphthalene-d8	1.000	1.000	0.0	96	0.00	6.09
29	t	2-Nitrophenol	0.206	0.197	4.4	87	0.00	5.54
30	t	2,4-Dimethylphenol	0.418	0.422	-1.0	93	0.00	5.63
31	t	Benzoic acid	0.284	0.261	8.1	79	0.01	5.81
33	t	2,4-Dichlorophenol	0.350	0.308	12.0	87	0.00	5.89
34		2,6-Dichlorophenol	0.340	0.314	7.6	94	0.00	6.23
43	t	4-Chloro-3-methylphenol	0.383	0.370	3.4	96	-0.01	7.00
47	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00	8.81
49	t	2,4,6-Trichlorophenol	0.413	0.376	9.0	98	0.00	7.64
50	t	2,4,5-Trichlorophenol	0.437	0.378	13.5	88	0.00	7.69
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	36.033	27.9	64	0.00	8.93
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.263	0.290	-10.3	98	0.00	9.09
64		2,3,4,6-Tetrachlorophenol	0.384	0.327	14.8	81	0.00	9.35
69	I	Phenanthrene-d10	1.000	1.000	0.0	106	0.00	11.17
70	t	4,6-Dinitro-2-methylpheno	0.143	0.111	22.4	71	0.00	9.79
76	t	Pentachlorophenol	0.152	0.134	11.8	90	0.00	10.89

8.8.65

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4213-ICV4212
Lab FileID: P97235.D

83	I	Chrysene-d12	1.000	1.000	0.0	107	0.00	15.86
92	I	Perylene-d12	1.000	1.000	0.0	101	0.00	18.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 16:50:33 2015

8.8.65

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4212
Lab FileID: P97236.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97236.D            Vial: 19
Acq On    : 15 Jul 2015   4:26 am                    Operator: sarad
Sample    : icv4212-50                               Inst    : MSP
Misc      : op85384,ep4213,1000                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00	4.35
3	t	Pyridine	1.548	1.540	0.5	88	0.00	2.05
10	t	Aniline	2.132	2.024	5.1	85	0.00	3.95
16	t	Benzyl alcohol	0.941	0.878	6.7	85	0.00	4.52
24	I	Naphthalene-d8	1.000	1.000	0.0	91	0.00	6.09
39	t	4-Chloroaniline	0.455	0.393	13.6	80	0.00	6.22
44	t	2-Methylnaphthalene	0.588	0.522	11.2	86	0.00	7.18
47	I	Acenaphthene-d10	1.000	1.000	0.0	86	0.00	8.81
54	t	2-Nitroaniline	0.364	0.389	-6.9	88	0.00	8.11
58	t	3-Nitroaniline	0.313	0.289	7.7	74	0.00	8.77
62	t	Dibenzofuran	1.513	1.447	4.4	85	0.00	9.14
68	t	4-Nitroaniline	0.294	0.273	7.1	75	-0.01	9.73
69	I	Phenanthrene-d10	1.000	1.000	0.0	89	0.00	11.16
79	t	Carbazole	1.061	0.856	19.3	77	0.00	11.58

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 P97229A.D  MP4212.M         Wed Jul 15 15:24:18 2015
```

8.8.66

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4212
Lab FileID: P97237.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97237.D            Vial: 20
Acq On    : 15 Jul 2015   4:55 am                    Operator: sarad
Sample    : icv4212-50                               Inst    : MSP
Misc      : op85384,ep4213,1000                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	4.34
5	S	2-Fluorophenol	1.408	1.228	12.8	83	0.00	2.93
8	S	Phenol-d5	1.883	1.600	15.0	81	0.00	3.89
24	I	Naphthalene-d8	1.000	1.000	0.0	96	0.00	6.09
25	S	Nitrobenzene-d5	0.489	0.486	0.6	101	0.00	5.06
47	I	Acenaphthene-d10	1.000	1.000	0.0	99	0.00	8.81
51	S	2-Fluorobiphenyl	1.304	1.159	11.1	94	0.00	7.78
69	I	Phenanthrene-d10	1.000	1.000	0.0	101	0.00	11.16
73	S	2,4,6-Tribromophenol	0.108	0.076	29.6	73	0.00	10.06
83	I	Chrysene-d12	1.000	1.000	0.0	101	0.00	15.86
85	S	Terphenyl-d14	0.758	0.768	-1.3	104	0.00	13.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:24:19 2015

8.8.67

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4213
Lab FileID: P97238A.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97238A.D          Vial: 21
Acq On    : 15 Jul 2015   5:24 am                   Operator: sarad
Sample    : icv4213-50                              Inst    : MSP
Misc      : op85384,ep4213,1000                     Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
167 I	Acenaphthene-d10b	1.000	1.000	0.0	93	0.00	8.81
168	1,2,4,5-Tetrachlorobenzen	0.624	0.600	3.8	95	0.00	7.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:36:29 2015

8.8.68

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4212
Lab FileID: P97238.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\EP4212\P97238.D Vial: 21
Acq On : 15 Jul 2015 5:24 am Operator: sarad
Sample : icv4212-50 Inst : MSP
Misc : op85384,ep4213,1000 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	4.34
4	t	N-Nitrosodimethylamine	0.863	0.846	2.0	96	0.00	1.95
11	t	bis(2-Chloroethyl)ether	1.372	1.215	11.4	87	0.00	4.01
14	t	1,3-Dichlorobenzene	1.569	1.430	8.9	92	0.00	4.27
15	t	1,4-Dichlorobenzene	1.497	1.426	4.7	92	0.00	4.36
17	t	1,2-Dichlorobenzene	1.408	1.391	1.2	94	0.00	4.56
20	t	2,2'-oxybis(1-Chloropropa	0.457	0.394	13.8	85	0.00	4.70
22		n-Nitroso-di-n-propylamin	1.127	1.005	10.8	91	0.00	4.88
23	t	Hexachloroethane	0.716	0.674	5.9	94	0.00	5.01
24	I	Naphthalene-d8	1.000	1.000	0.0	91	0.00	6.09
26	t	Nitrobenzene	0.509	0.471	7.5	93	0.00	5.09
28	t	Isophorone	0.792	0.771	2.7	93	0.00	5.43
32	t	bis(2-Chloroethoxy)methan	0.490	0.443	9.6	89	0.00	5.77
36	t	1,2,4-Trichlorobenzene	0.421	0.402	4.5	91	0.00	6.02
38	t	Naphthalene	1.038	0.938	9.6	89	0.00	6.12
42	t	Hexachlorobutadiene	0.264	0.267	-1.1	97	0.00	6.35
47	I	Acenaphthene-d10	1.000	1.000	0.0	96	0.00	8.81
48	t	Hexachlorocyclopentadiene	0.428	0.402	6.1	84	0.00	7.46
52	t	2-Chloronaphthalene	1.175	1.055	10.2	90	0.00	7.93
55	t	Dimethylphthalate	1.477	1.196	19.0	82	0.00	8.45
56	t	Acenaphthylene	1.710	1.309	23.5	80	0.00	8.58
57	t	2,6-Dinitrotoluene	0.280	0.252	10.0	80	0.00	8.52
59	t	Acenaphthene	1.118	1.007	9.9	94	0.00	8.86
63	t	2,4-Dinitrotoluene	0.377	0.330	12.5	79	0.00	9.15
65	t	Diethylphthalate	1.459	1.205	17.4	84	-0.01	9.59
66	t	Fluorene	1.366	1.126	17.6	88	0.00	9.68
67	t	4-Chlorophenyl-phenylethe	0.731	0.600	17.9	79	0.00	9.72
69	I	Phenanthrene-d10	1.000	1.000	0.0	94	0.00	11.16
71	t	n-Nitrosodiphenylamine	0.563	0.462	17.9	78	0.00	9.91
72	t	1,2-Diphenylhydrazine	0.849	0.748	11.9	89	0.00	9.97
74	t	4-Bromophenyl-phenylether	0.247	0.203	17.8	79	0.00	10.50
75	t	Hexachlorobenzene	0.227	0.192	15.4	83	0.00	10.57
77	t	Phenanthrene	1.174	0.968	17.5	91	0.00	11.21
78	t	Anthracene	1.148	0.966	15.9	88	0.00	11.29
80	t	Di-n-butylphthalate	1.349	1.124	16.7	81	0.00	12.27
81	t	Fluoranthene	1.329	1.127	15.2	88	0.00	13.22
83	I	Chrysene-d12	1.000	1.000	0.0	100	0.00	15.87

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4213-ICV4212
Lab FileID: P97238.D

84	t	Pyrene	1.450	1.187	18.1	87	0.00	13.61
86	t	Butylbenzylphthalate	0.652	0.553	15.2	77	0.00	14.96
88	t	Benzo[a]anthracene	1.294	1.102	14.8	88	0.00	15.85
90	t	Chrysene	1.147	1.015	11.5	90	0.00	15.92
91	t	bis(2-Ethylhexyl)phthalat	0.806	0.704	12.7	80	0.00	16.14
92	I	Perylene-d12	1.000	1.000	0.0	93	0.00	18.42
93	t	Di-n-octylphthalate	1.453	1.451	0.1	79	0.00	17.34
94	t	Benzo[b]fluoranthene	1.285	1.155	10.1	80	0.00	17.79
95	t	Benzo[k]fluoranthene	1.224	1.152	5.9	87	0.00	17.84
96	t	Benzo[a]pyrene	1.176	1.153	2.0	88	0.00	18.33
97	t	Indeno[1,2,3-cd]pyrene	0.985	1.021	-3.7	87	0.00	20.05
99	t	Dibenz[a,h]anthracene	0.922	0.913	1.0	83	0.00	20.09
101	t	Benzo[g,h,i]perylene	1.053	1.055	-0.2	90	0.00	20.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:24:20 2015

8.8.69

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4212
Lab FileID: P97239.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97239.D            Vial: 22
Acq On    : 15 Jul 2015   5:53 am                    Operator: sarad
Sample    : icv4212-50                               Inst    : MSP
Misc      : op85384,ep4213,1000                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	0.00	4.34
2	t	1,4-Dioxane	0.649	0.536	17.4	74	0.00	1.79
6	t	Indene	2.479	2.239	9.7	85	0.00	4.67
7	t	Cumene	3.640	3.218	11.6	87	0.00	3.44
13	t	Decane	1.120	1.061	5.3	87	0.00	4.17
18	t	Acetophenone	2.155	1.907	11.5	86	0.00	4.86
24	I	Naphthalene-d8	1.000	1.000	0.0	95	0.00	6.09
27	t	Quinoline	0.783	0.622	20.6	79	-0.02	6.61
40	t	2,3-Dichloroaniline	0.434	0.324	25.3	74	0.00	7.63
41	t	Caprolactam	0.166	0.138	16.9	83	-0.04	6.70
45	t	1-Methylnaphthalene	0.747	0.632	15.4	85	0.00	7.33
46	t	Dimethylnaphthalene	0.712	0.626	12.1	88	0.00	8.17
47	I	Acenaphthene-d10	1.000	1.000	0.0	92	0.00	8.81
53	t	Biphenyl	1.473	1.363	7.5	89	0.00	7.93
69	I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00	11.16
82	t	Octadecane	0.409	0.374	8.6	88	0.00	11.16
92	I	Perylene-d12	1.000	1.000	0.0	89	0.00	18.42
100	t	7,12-Dimethylbenz(a)anthr	0.571	0.377	34.0#	50	-0.02	17.80

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:24:21 2015

8.8.70

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4213
Lab FileID: P97239A.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97239A.D          Vial: 22
Acq On    : 15 Jul 2015   5:53 am                   Operator: sarad
Sample    : icv4213-50                              Inst    : MSP
Misc      : op85384,ep4213,1000                     Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
159	I	1,4-Dichlorobenzene-d4b	1.000	1.000	0.0	87	0.00	4.34
160		Benzaldehyde	1.143	1.084	5.2	94	0.00	3.81
161	I	Phenanthrene-d10b	1.000	1.000	0.0	94	0.00	11.16
162		Atrazine	0.213	0.221	-3.8	92	0.00	10.82

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:37:24 2015

8.8.71

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4213-ICV4212
Lab FileID: P97240A.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97240A.D          Vial: 23
Acq On    : 15 Jul 2015   6:22 am                   Operator: sarad
Sample    : icv4212-50                              Inst    : MSP
Misc      : op85384,ep4213,1000                     Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83	I	Chrysene-d12	1.000	1.000	0.0	111	0.00	15.86
89	t	3,3'-Dichlorobenzidine	0.427	0.519	-21.5	124	0.00	15.88

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:38:48 2015

8.8.72

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4213-ICV4213
Lab FileID: P97240.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97240.D          Vial: 23
Acq On    : 15 Jul 2015   6:22 am                  Operator: sarad
Sample    : icv4213-50                             Inst    : MSP
Misc      : op85384,ep4213,1000                    Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
163 I	Chrysene-d12b	1.000	1.000	0.0	106	0.00	15.86
164	Benzidine	0.603	1.023	-69.7#	177	0.00	13.52

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:38:11 2015

8.8.73

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EP4213-ICV4213
Lab FileID: P97241.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4212\P97241.D            Vial: 24
Acq On    : 15 Jul 2015   6:51 am                    Operator: sarad
Sample    : icv4213-50                               Inst    : MSP
Misc      : op85384,ep4213,1000                      Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Jul 15 14:22:17 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
165 I	Naphthalene-d8b	1.000	1.000	0.0	83	0.00	6.09
166	Hydroquinone	0.297	0.343	-15.5	91	0.00	6.77

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97229A.D MP4212.M Wed Jul 15 15:24:22 2015

8.8.74

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4300-CC4212
Lab FileID: P98822.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\EP4300\P98822.D Vial: 2
Acq On : 17 Sep 2015 5:43 pm Operator: sarad
Sample : cc4212-25 Inst : MSP
Misc : op87130,ep4300,1000 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 12:21:56 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	148	0.03	4.11
2	t	1,4-Dioxane	0.649	0.614	5.4	133	0.01	1.64
3	t	Pyridine	1.548	1.626	-5.0	148	0.02	1.83
4	t	N-Nitrosodimethylamine	0.863	0.876	-1.5	137	0.02	1.80
5	S	2-Fluorophenol	1.408	1.401	0.5	139	0.03	2.76
6	t	Indene	2.479	2.681	-8.1	155	0.03	4.44
7	t	Cumene	3.640	3.744	-2.9	145	0.02	3.22
8	S	Phenol-d5	1.883	2.004	-6.4	149	0.03	3.72
9	t	Phenol	1.735	2.058	-18.6	167	0.03	3.74
10	t	Aniline	2.132	2.204	-3.4	149	0.03	3.73
11	t	bis(2-Chloroethyl)ether	1.372	1.316	4.1	136	0.03	3.80
12	t	2-Chlorophenol	1.328	1.414	-6.5	152	0.03	3.87
13	t	Decane	1.120	1.099	1.9	137	0.03	3.94
14	t	1,3-Dichlorobenzene	1.569	1.573	-0.3	143	0.03	4.05
15	t	1,4-Dichlorobenzene	1.497	1.514	-1.1	143	0.03	4.14
16	t	Benzyl alcohol	0.941	0.969	-3.0	147	0.04	4.31
17	t	1,2-Dichlorobenzene	1.408	1.411	-0.2	143	0.03	4.33
18	t	Acetophenone	2.155	2.279	-5.8	151	0.03	4.64
19	t	2-Methylphenol	1.301	1.288	1.0	140	0.03	4.48
20	t	2,2'-oxybis(1-Chloropropa	0.457	0.458	-0.2	142	0.04	4.48
21	t	3&4-Methylphenol	1.381	1.409	-2.0	140	0.04	4.69
22		n-Nitroso-di-n-propylamin	1.127	1.192	-5.8	150	0.03	4.65
23	t	Hexachloroethane	0.716	0.611	14.7	120	0.03	4.76
24	I	Naphthalene-d8	1.000	1.000	0.0	143	0.03	5.85
25	S	Nitrobenzene-d5	0.489	0.591	-20.9#	173	0.03	4.84
26	t	Nitrobenzene	0.509	0.595	-16.9	163	0.03	4.86
27	t	Quinoline	0.783	0.838	-7.0	151	0.03	6.38
28	t	Isophorone	0.792	0.930	-17.4	158	0.03	5.20
29	t	2-Nitrophenol	0.206	0.236	-14.6	145	0.03	5.31
30	t	2,4-Dimethylphenol	0.418	0.486	-16.3	151	0.03	5.43
31	t	Benzoic acid	0.284	0.239	15.8	119	0.04	5.67
32	t	bis(2-Chloroethoxy)methan	0.490	0.487	0.6	145	0.03	5.54
33	t	2,4-Dichlorophenol	0.350	0.360	-2.9	146	0.04	5.69
34		2,6-Dichlorophenol	0.340	0.357	-5.0	146	0.03	6.00
35		1,3,5-Trichlorobenzene	0.444	0.395	11.0	128	0.03	5.33
36	t	1,2,4-Trichlorobenzene	0.421	0.378	10.2	129	0.03	5.78
37		1,2,3-Trichlorobenzene	0.413	0.375	9.2	135	0.03	6.10
38	t	Naphthalene	1.038	1.118	-7.7	153	0.03	5.88
39	t	4-Chloroaniline	0.455	0.505	-11.0	151	0.03	5.99
40	t	2,3-Dichloroaniline	0.434	0.458	-5.5	151	0.03	7.38
41	t	Caprolactam	0.166	0.178	-7.2	148	0.03	6.52

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EP4300-CC4212
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** P98822.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.264	0.243	8.0	128	0.03	6.10
43	t	4-Chloro-3-methylphenol	0.383	0.458	-19.6	161	0.04	6.81
44	t	2-Methylnaphthalene	0.588	0.636	-8.2	149	0.03	6.93
45	t	1-Methylnaphthalene	0.747	0.803	-7.5	150	0.03	7.07
46	t	Dimethylnaphthalene	0.712	0.745	-4.6	144	0.03	7.91
47	I	Acenaphthene-d10	1.000	1.000	0.0	156	0.04	8.55
48	t	Hexachlorocyclopentadiene	0.428	0.322	24.8#	103	0.03	7.20
49	t	2,4,6-Trichlorophenol	0.413	0.403	2.4	151	0.04	7.41
50	t	2,4,5-Trichlorophenol	0.437	0.405	7.3	127	0.05	7.48
51	S	2-Fluorobiphenyl	1.304	1.254	3.8	151	0.03	7.52
52	t	2-Chloronaphthalene	1.175	1.158	1.4	144	0.04	7.68
53	t	Biphenyl	1.473	1.465	0.5	147	0.04	7.67
54	t	2-Nitroaniline	0.364	0.519	-42.6#	194	0.04	7.88
55	t	Dimethylphthalate	1.477	1.330	10.0	133	0.03	8.20
56	t	Acenaphthylene	1.710	1.707	0.2	153	0.03	8.31
57	t	2,6-Dinitrotoluene	0.280	0.319	-13.9	160	0.05	8.28
58	t	3-Nitroaniline	0.313	0.354	-13.1	163	0.04	8.53
59	t	Acenaphthene	1.118	1.092	2.3	150	0.03	8.60
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	43.529	12.9	139	0.04	8.70
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.263	0.311	-18.3	151	0.05	8.93
62	t	Dibenzofuran	1.513	1.594	-5.4	154	0.03	8.87
63	t	2,4-Dinitrotoluene	0.377	0.454	-20.4#	162	0.04	8.91
64		2,3,4,6-Tetrachlorophenol	0.384	0.365	4.9	141	0.04	9.12
65	t	Diethylphthalate	1.459	1.366	6.4	137	0.03	9.33
66	t	Fluorene	1.366	1.341	1.8	153	0.03	9.41
67	t	4-Chlorophenyl-phenylethe	0.731	0.626	14.4	125	0.03	9.45
68	t	4-Nitroaniline	0.294	0.343	-16.7	162	0.04	9.51
69	I	Phenanthrene-d10	1.000	1.000	0.0	146	0.04	10.89
70	t	4,6-Dinitro-2-methylpheno	0.143	0.157	-9.8	153	0.02	9.56
71	t	n-Nitrosodiphenylamine	0.563	0.597	-6.0	147	0.03	9.65
72	t	1,2-Diphenylhydrazine	0.849	1.082	-27.4#	174	0.03	9.70
73	S	2,4,6-Tribromophenol	0.108	0.101	6.5	143	0.04	9.81
74	t	4-Bromophenyl-phenylether	0.247	0.239	3.2	129	0.03	10.22
75	t	Hexachlorobenzene	0.227	0.234	-3.1	142	0.04	10.30
76	t	Pentachlorophenol	0.152	0.152	0.0	134	0.04	10.65
77	t	Phenanthrene	1.174	1.094	6.8	141	0.04	10.93
78	t	Anthracene	1.148	1.155	-0.6	146	0.04	11.01
79	t	Carbazole	1.061	1.132	-6.7	150	0.04	11.31
80	t	Di-n-butylphthalate	1.349	1.333	1.2	131	0.03	11.98
81	t	Fluoranthene	1.329	1.308	1.6	144	0.04	12.91
82	t	Octadecane	0.409	0.484	-18.3	162	0.03	10.89
83	I	Chrysene-d12	1.000	1.000	0.0	160	0.05	15.55
84	t	Pyrene	1.450	1.339	7.7	141	0.05	13.30
85	S	Terphenyl-d14	0.758	0.822	-8.4	168	0.04	13.66
86	t	Butylbenzylphthalate	0.652	0.649	0.5	138	0.04	14.64
87		Butyl stearate	0.275	0.312	-13.5	154	0.04	14.87
88	t	Benzo[a]anthracene	1.294	1.215	6.1	145	0.05	15.52
89	t	3,3'-Dichlorobenzidine	0.427	0.447	-4.7	145	0.05	15.55
90	t	Chrysene	1.147	1.157	-0.9	158	0.05	15.59
91	t	bis(2-Ethylhexyl)phthalat	0.806	0.832	-3.2	140	0.03	15.80
92	I	Perylene-d12	1.000	1.000	0.0	169	0.05	18.09
93	t	Di-n-octylphthalate	1.453	1.474	-1.4	140	0.02	17.00

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EP4300-CC4212
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** P98822.D
Project: Sunoco - Marcus Hook Facility, PA

94	t	Benzo[b]fluoranthene	1.285	1.220	5.1	144	0.05	17.45
95	t	Benzo[k]fluoranthene	1.224	1.083	11.5	140	0.03	17.51
96	t	Benzo[a]pyrene	1.176	1.062	9.7	139	0.03	17.98
97	t	Indeno[1,2,3-cd]pyrene	0.985	0.949	3.7	150	-0.02	19.70
98	t	Dibenz(a,h)acridine	0.804	0.937	-16.5	161	0.03	19.39
99	t	Dibenz[a,h]anthracene	0.922	1.005	-9.0	165	0.03	19.74
100	t	7,12-Dimethylbenz(a)anthr	0.571	0.588	-3.0	144	0.02	17.47
101	t	Benzo[g,h,i]perylene	1.053	0.993	5.7	150	0.02	20.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97230A.D MP4212.M Fri Sep 18 08:26:59 2015

8.8.75

8

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EP4300-CC4213
Lab FileID: P98823.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\EP4300\P98823.D          Vial: 3
Acq On    : 17 Sep 2015   6:42 pm                   Operator: saraw
Sample    : cc4213-25                               Inst    : MSP
Misc      : op87130,ep4300,1000                     Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Sep 09 12:21:56 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  48%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4b	1.000	1.000	0.0	97	0.02	4.12
103		Benzaldehyde	1.143	1.191	-4.2	108	0.01	3.60
104	I	Phenanthrene-d10b	1.000	1.000	0.0	104	0.02	10.89
105		Atrazine	0.213	0.233	-9.4	99	0.02	10.56
106	I	Chrysene-d12b	1.000	1.000	0.0	122	0.02	15.54
107		Benzidine	0.603	0.596	1.2	113	0.04	13.21
108	I	Naphthalene-d8b	1.000	1.000	0.0	102	0.02	5.84
109		Hydroquinone	0.297	0.392	-32.0#	136	0.05	6.60
110	I	Acenaphthene-d10b	1.000	1.000	0.0	107	0.02	8.54
111		1,2,4,5-Tetrachlorobenzen	0.624	0.553	11.4	94	0.00	7.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
P97230A.D MP4212.M Fri Sep 18 08:27:00 2015

8.8.76

8

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5205-ICC5205
Lab FileID: Z104220.D

```
                         Response Factor Report  MSZ

  Method       : C:\MSDCHEM\1\METHODS\MZ5203.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Thu Sep 10 13:18:47 2015
  Response via : Initial Calibration

  Calibration Files
  100 =z104218.D  80  =z104219.D  50  =z104220.D  25  =z104221.D
  10  =z104222.D  5   =z104223.D  2   =z104224.D  1   =z104225.D

   Compound         100   80    50    25    10    5     2     1     Avg %RSD
  ---------------------------------------------------------------------------

102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.229 1.261 1.293 1.307 1.271 1.331 1.124 1.186 1.250   5.47

104)     Phenanthrene-d10a     ----------------ISTD---------------------
105) 1-chloroocta 0.337 0.338 0.332 0.322 0.313 0.316 0.250 0.228 0.305  13.77
106) o-terphenyl  0.606 0.602 0.599 0.578 0.560 0.587 0.558 0.525 0.577   4.79
107) Atrazine     0.112 0.114 0.109 0.103 0.095 0.096 0.071 0.083 0.098  15.20

108)     Chrysene-d12a         ----------------ISTD---------------------
109) Benzidine          0.443 0.547 0.652 0.632 0.694 0.450       0.570  18.74

110)     Acenaphthene-d10a     ----------------ISTD---------------------
111) 1,2,4,5-Tetr 0.497 0.508 0.499 0.480 0.471 0.489 0.461 0.482 0.486   3.25

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.382 0.370 0.350 0.332 0.297 0.248             0.329  15.17

 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MZ5203.M          Thu Sep 10 13:18:53 2015   RTE
```

8.8.77

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5205-ICV5205
Lab FileID: Z104228A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5205\z104228a.D          Vial: 12
Acq On    : 10 Sep 2015   2:30 am                    Operator: saraw
Sample    : icv5205-50                               Inst    : MSZ
Misc      : op86567,ez5205                           Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5203.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Sep 10 13:23:59 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
110	Acenaphthene-d10a	1.000	1.000	0.0	95	0.00	7.21
111	1,2,4,5-Tetrachlorobenzen	0.486	0.498	-2.5	95	0.00	6.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104228.D MZ5203.M Thu Sep 10 13:49:14 2015 RTE

8.8.78

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5205-ICV5205
Lab FileID: Z104229A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5205\z104229a.D          Vial: 13
Acq On    : 10 Sep 2015   3:01 am                    Operator: saraw
Sample    : icv5205-50                               Inst    : MSZ
Misc      : op86567,ez5205                           Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5203.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Sep 10 13:18:47 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	92	0.00	4.85
103	Benzaldehyde	1.250	1.126	9.9	80	0.00	4.54
104	Phenanthrene-d10a	1.000	1.000	0.0	86	0.00	9.12
107	Atrazine	0.098	0.090	8.2	71	0.01	8.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104220a.D MZ5203.M Thu Sep 10 16:57:19 2015 RTE

8.8.79

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EZ5205-ICV5205
Lab FileID: Z104231.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5205\z104231.D          Vial: 15
Acq On    : 10 Sep 2015   4:04 am                   Operator: saraw
Sample    : icv5205-50                              Inst    : MSZ
Misc      : op86567,ez5205                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5203.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Sep 10 13:23:59 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
108	Chrysene-d12a	1.000	1.000	0.0	97	-0.01	14.38
109	Benzidine	0.570	0.537	5.8	96	0.00	11.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104228.D MZ5203.M Thu Sep 10 13:59:49 2015 RTE

8.8.80

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5205-ICV5205
Lab FileID: Z104232.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5205\z104232.D          Vial: 16
Acq On    : 10 Sep 2015   4:35 am                   Operator: saraw
Sample    : icv5205-50                              Inst    : MSZ
Misc      : op86567,ez5205                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5203.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Sep 10 13:23:59 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
112 I	Naphthalene-d8a	1.000	1.000	0.0	86	0.00	5.77
113	Hydroquinone	0.329	0.412	-25.2	102	-0.03	6.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104228.D MZ5203.M Thu Sep 10 14:01:05 2015 RTE

8.8.81

8

Initial Calibration Summary

Job Number: JC4005 **Sample:** EZ5210-ICC5210
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z104276.D
Project: Sunoco - Marcus Hook Facility, PA

Response Factor Report MSZ

Method : C:\MSDCHEM\1\METHODS\MZ5210.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update : Wed Sep 16 16:40:22 2015
Response via : Initial Calibration

Calibration Files
100 =z104274.D 80 =z104219.D 50 =z104220.D 25 =z104221.D
10 =z104222.D 5 =z104223.D 2 =z104224.D 1 =z104225.D

Compound	100	80	50	25	10	5	2	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.702	0.727	0.733	0.701	0.614	0.620	0.654	0.774	0.691	8.19
3) Pyridine	1.598	1.547	1.378	1.526	1.665	1.665	1.679	1.687	1.593	6.69
4) N-Nitrosodim	1.072	1.002	1.012	0.986	0.889	0.969	1.010	0.930	0.984	5.66
5) 2-Fluorophen	1.620	1.553	1.636	1.503	1.382	1.404	1.381	1.333	1.476	7.96
6) Indene	3.021	2.820	2.935	2.754	2.620	2.681	2.591	2.758	2.772	5.38
7) Cumene	4.318	4.377	4.518	4.330	4.102	4.221	4.117	3.976	4.245	4.12
8) Phenol-d5	2.161	2.054	2.207	1.980	1.814	1.806	1.805	1.694	1.940	9.68
9) Phenol	2.480	2.323	2.384	2.190	2.106	2.235	2.167	2.045	2.241	6.51
10) Aniline	1.685	1.696	2.321	2.364	2.174	2.400	2.468	2.329	2.180	14.37
11) bis(2-Chloro	1.616	1.523	1.472	1.381	1.298	1.502	1.390	1.459	1.455	6.74
12) 2-Chlorophen	1.529	1.475	1.528	1.425	1.403	1.467	1.430	1.358	1.452	4.12
13) Decane	1.248	1.286	1.317	1.330	1.256	1.315	1.285	1.354	1.299	2.83
14) 1,3-Dichloro	1.636	1.613	1.658	1.571	1.512	1.559	1.494	1.555	1.575	3.66
15) 1,4-Dichloro	1.643	1.593	1.638	1.554	1.480	1.568	1.577	1.607	1.583	3.29
16) Benzyl alcoh	1.044	0.987	1.000	0.861	0.782	0.789	0.881	0.657	0.875	15.02
17) 1,2-Dichloro	1.663	1.555	1.553	1.465	1.435	1.472	1.463	1.425	1.504	5.35
18) Acetophenone	2.472	2.347	2.501	2.277	2.237	2.308	2.210	2.179	2.316	5.10
19) 2-Methylphen	1.298	1.260	1.369	1.232	1.219	1.206	1.190	1.297	1.259	4.74
20) 2,2'-oxybis(	0.537	0.512	0.499	0.470	0.434	0.493	0.447	0.494	0.486	7.00
21) 3&4-Methylph	1.486	1.395	1.488	1.354	1.250	1.345	1.274	1.175	1.346	8.23
22) n-Nitroso-di	1.315	1.288	1.317	1.195	1.172	1.241	1.129	1.315	1.246	5.91
23) Hexachloroet	0.547	0.543	0.556	0.538	0.490	0.517	0.503	0.451	0.518	6.85
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.451	0.448	0.452	0.438	0.421	0.437	0.433	0.423	0.438	2.75
26) Nitrobenzene	0.460	0.462	0.475	0.464	0.458	0.483	0.454	0.460	0.464	2.07
27) Quinoline	0.774	0.734	0.768	0.714	0.669	0.710	0.659	0.681	0.714	6.05
28) Isophorone	0.810	0.808	0.827	0.780	0.730	0.756	0.721	0.667	0.762	7.15
29) 2-Nitropheno	0.216	0.207	0.202	0.190	0.172	0.187	0.168	0.156	0.187	11.17
30) 2,4-Dimethyl	0.443	0.415	0.439	0.401	0.352	0.317	0.283		0.379	16.43
31) Benzoic Acid	0.336	0.313	0.304	0.235	0.181	0.162			0.255	28.73
---- Quadratic regression ---- Coefficient = 0.9989										
Response Ratio = -0.02162 + 0.27379 *A + 0.02763 *A^2										
32) bis(2-Chloro	0.443	0.440	0.423	0.407	0.389	0.438	0.416	0.456	0.427	5.16
33) 2,4-Dichloro	0.322	0.303	0.301	0.273	0.259	0.268	0.265	0.231	0.278	10.47
34) 2,6-Dichloro	0.330	0.303	0.292	0.275	0.260	0.275	0.244	0.223	0.275	12.31
35) 1,3,5-Trichl	0.371	0.353	0.355	0.350	0.323	0.358	0.331	0.344	0.348	4.40
36) 1,2,4-Trichl	0.333	0.325	0.324	0.316	0.298	0.334	0.286	0.311	0.316	5.31
37) 1,2,3-Trichl	0.330	0.311	0.319	0.305	0.306	0.307	0.284	0.305	0.308	4.27
38) Naphthalene	1.122	1.077	1.079	1.015	0.975	1.046	0.991	1.019	1.041	4.77
39) 4-Chloroanil	0.440	0.396	0.427	0.404	0.398	0.420	0.410	0.364	0.407	5.62
40) 2,3-Dichloro	0.416	0.372	0.378	0.355	0.344	0.346	0.332	0.336	0.360	7.74
41) Caprolactam		0.144	0.149	0.137	0.122	0.122	0.101	0.108	0.126	14.22
42) Hexachlorobu	0.185	0.179	0.180	0.178	0.165	0.184	0.171	0.184	0.178	3.89

Initial Calibration Summary

Job Number: JC4005 **Sample:** EZ5210-ICC5210
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z104276.D
Project: Sunoco - Marcus Hook Facility, PA

```
43) 4-Chloro-3-m 0.418 0.397 0.408 0.372 0.326 0.364             0.381   8.88
44) 2-Methylnaph 0.650 0.611 0.610 0.577 0.548 0.579 0.601 0.559 0.592   5.56
45) 1-Methylnaph 0.688 0.647 0.663 0.612 0.597 0.644 0.604 0.656 0.639   4.98
46) Dimethylnaph 0.756 0.694 0.703 0.643 0.601 0.640 0.622 0.658 0.665   7.55

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.384 0.372 0.376 0.350 0.293 0.282 0.236       0.328  17.51
49) 2,4,6-Trichl 0.390 0.356 0.361 0.335 0.299 0.324 0.299 0.267 0.329  12.21
50) 2,4,5-Trichl 0.380 0.353 0.355 0.326 0.318 0.309 0.312 0.272 0.328  10.24
51) 2-Fluorobiph 1.252 1.196 1.201 1.154 1.121 1.225 1.186 1.437 1.222   7.85
52) 2-Chloronaph 1.068 1.034 1.067 1.076 1.053 1.106 1.115 1.057 1.072   2.53
53) Biphenyl     1.544 1.495 1.509 1.505 1.455 1.472 1.474 1.543 1.500   2.17
54) 2-Nitroanili 0.436 0.434 0.438 0.437 0.398 0.419 0.429 0.317 0.414   9.94
55) Dimethylphth 1.332 1.294 1.267 1.251 1.175 1.284 1.226 1.299 1.266   3.86
56) Acenaphthyle 1.762 1.704 1.742 1.692 1.618 1.667 1.623 1.716 1.690   3.09
57) 2,6-Dinitrot 0.301 0.287 0.294 0.273 0.260 0.258 0.209 0.210 0.262  13.57
58) 3-Nitroanili 0.329 0.325 0.322 0.299 0.268 0.316 0.254 0.198 0.289  15.91
59) Acenaphthene 1.155 1.118 1.153 1.127 1.105 1.126 1.112 1.290 1.148   5.23
60) 2,4-Dinitrop 0.230 0.210 0.203 0.160 0.119 0.100 0.074       0.157  38.45
            ---- Quadratic regression ----  Coefficient =  0.9989
              Response Ratio = -0.01863 + 0.16879 *A + 0.01269 *A^2

61) 4-Nitropheno 0.269 0.259 0.275 0.244 0.217 0.224 0.206       0.242  11.15
62) Dibenzofuran 1.665 1.566 1.529 1.471 1.405 1.583 1.470 1.452 1.518   5.56
63) 2,4-Dinitrot 0.462 0.421 0.435 0.405 0.357 0.378 0.295       0.393  14.14
64) 2,3,4,6-Tetr 0.333 0.314 0.314 0.290 0.264 0.274 0.260 0.223 0.284  12.65
65) Diethylphtha 1.377 1.326 1.308 1.261 1.225 1.344 1.272 1.272 1.298   3.81
66) Fluorene     1.312 1.241 1.268 1.228 1.168 1.281 1.198 1.398 1.262   5.67
67) 4-Chlorophen 0.653 0.615 0.605 0.563 0.552 0.609 0.568 0.627 0.599   5.82
68) 4-Nitroanili 0.331 0.317 0.330 0.314 0.298 0.317 0.253 0.204 0.295  15.07

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.177 0.161 0.156 0.131 0.097 0.089             0.135  26.71
            ---- Quadratic regression ----  Coefficient =  0.9987
              Response Ratio = -0.00735 + 0.13291 *A + 0.01821 *A^2

71) n-Nitrosodip 0.556 0.521 0.545 0.521 0.493 0.514 0.519 0.510 0.522   3.79
72) 1,2-Diphenyl 0.952 0.942 0.985 0.949 0.922 0.969 0.864 0.806 0.924   6.47
73) 2,4,6-Tribro 0.113 0.108 0.109 0.099 0.084 0.086 0.076 0.120 0.099  15.81
74) 4-Bromopheny 0.231 0.208 0.213 0.195 0.192 0.212 0.198 0.210 0.207   6.02
75) Hexachlorobe 0.242 0.226 0.234 0.214 0.209 0.222 0.217 0.211 0.222   5.21
76) Pentachlorop 0.177 0.160 0.155 0.125 0.099 0.095 0.088       0.128  27.94
            ---- Quadratic regression ----  Coefficient =  0.9987
              Response Ratio = -0.00864 + 0.12430 *A + 0.01064 *A^2

77) Phenanthrene 1.178 1.101 1.120 1.065 1.049 1.091 1.090 1.337 1.129   8.20
78) Anthracene   1.163 1.093 1.138 1.081 1.026 1.072 1.007 1.214 1.099   6.32
79) Carbazole    1.130 1.060 1.109 1.034 0.988 1.035 0.963 1.031 1.044   5.35
80) Di-n-butylph 1.545 1.435 1.363 1.246 1.096 1.178 1.051 1.017 1.241  15.40
81) Fluoranthene 1.318 1.244 1.260 1.180 1.092 1.183 1.051 1.309 1.205   8.04
82) Octadecane   0.522 0.505 0.546 0.524 0.490 0.533 0.481 0.533 0.517   4.35

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.303 1.311 1.213 1.165 1.124 1.239 1.147 1.351 1.231   6.83
85) Butyl steara 0.348 0.344 0.330 0.286 0.233 0.255 0.216       0.287  19.00
86) Terphenyl-d1 0.871 0.862 0.776 0.725 0.680 0.792 0.722 0.986 0.802  12.49
87) Butylbenzylp       0.658 0.576 0.518 0.423 0.464 0.407       0.508  19.05
88) Benzo[a]anth 1.234 1.207 1.132 1.060 0.971 1.111 1.070 1.297 1.135   9.34
89) 3,3'-Dichlor 0.447 0.434 0.403 0.364 0.332 0.340 0.295 0.294 0.364  16.33
90) Chrysene     1.103 1.088 1.080 1.028 0.996 1.062 0.936 1.203 1.062   7.45
```

8.8.82

8

Initial Calibration Summary

Job Number: JC4005 **Sample:** EZ5210-ICC5210
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z104276.D
Project: Sunoco - Marcus Hook Facility, PA

```
 91) bis(2-Ethylh       0.889 0.767 0.671 0.556 0.619 0.523       0.671  20.48
             ---- Quadratic regression ----  Coefficient =  0.9999
               Response Ratio = -0.00301 + 0.56971 *A + 0.16022 *A^2


 92) I   Perylene-d12          ----------------ISTD---------------------
 93) Di-n-octylph       1.789 1.436 1.295 0.964 1.090 0.932       1.251  26.16
             ---- Quadratic regression ----  Coefficient =  0.9994
               Response Ratio = 0.00659 + 0.93113 *A + 0.42475 *A^2

 94) Benzo[b]fluo 1.465 1.422 1.265 1.231 1.130 1.236 1.174 1.440 1.295   9.95
 95) Benzo[k]fluo 1.239 1.248 1.125 1.097 1.012 1.183 1.139 1.411 1.182  10.18
 96) Benzo[a]pyre 1.193 1.180 1.072 1.026 0.937 1.020 0.904 1.060 1.049   9.77
 97) Indeno[1,2,3 1.217 1.180 1.023 0.989 0.871 1.015 0.940 1.094 1.041  11.23
 98) Dibenz(a,h)a 1.062 1.067 0.978 0.934 0.829 0.891 0.831 0.837 0.929  10.65
 99) Dibenz[a,h]a 1.190 1.181 1.064 1.010 0.888 1.036 0.938 1.116 1.053  10.27
100) 7,12-Dimethy 0.678 0.654 0.599 0.566 0.465 0.383             0.557  20.40
             ---- Quadratic regression ----  Coefficient =  0.9999
               Response Ratio = -0.02342 + 0.55944 *A + 0.05159 *A^2

101) Benzo[g,h,i] 1.113 1.109 1.047 1.022 0.939 1.009 0.958 1.104 1.038   6.56
 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MZ5210.M          Thu Sep 17 10:54:21 2015   RTE
```

8.8.82

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5210-ICV5210
Lab FileID: Z104281.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5210\z104281.D          Vial: 11
Acq On    : 14 Sep 2015   2:58 pm                   Operator: brittanp
Sample    : icv5210-50                              Inst    : MSZ
Misc      : op86567,ez5210                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Tue Sep 15 17:24:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	135	0.00	4.84
3	t	Pyridine	1.593	1.303	18.2	128	0.09	2.90
10	t	Aniline	2.180	2.017	7.5	117	0.00	4.62
16	t	Benzyl alcohol	0.875	0.924	-5.6	125	0.00	4.96
24	I	Naphthalene-d8	1.000	1.000	0.0	144	0.00	5.75
39	t	4-Chloroaniline	0.407	0.343	15.7	116	0.00	5.83
44	t	2-Methylnaphthalene	0.592	0.524	11.5	124	0.00	6.27
47	I	Acenaphthene-d10	1.000	1.000	0.0	142	0.00	7.19
54	t	2-Nitroaniline	0.414	0.370	10.6	120	0.00	6.79
58	t	3-Nitroaniline	0.289	0.260	10.0	115	0.00	7.18
62	t	Dibenzofuran	1.518	1.300	14.4	121	0.00	7.40
68	t	4-Nitroaniline	0.295	0.252	14.6	108	0.00	7.88
69	I	Phenanthrene-d10	1.000	1.000	0.0	144	0.00	9.09
79	t	Carbazole	1.044	0.844	19.2	110	0.00	9.52

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 z104276a.D MZ5210.M         Tue Sep 15 23:35:07 2015   RTE
```

8.8.83

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EZ5210-ICV5210
Lab FileID: Z104282.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5210\z104282.D          Vial: 12
Acq On    : 14 Sep 2015   3:29 pm                   Operator: brittanp
Sample    : icv5210-50                              Inst    : MSZ
Misc      : op86567,ez5210                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Wed Sep 16 16:40:22 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	154	0.00	4.83
9	t	Phenol	2.241	1.819	18.8	117	-0.01	4.64
12	t	2-Chlorophenol	1.452	1.380	5.0	139	-0.01	4.70
19	t	2-Methylphenol	1.259	1.266	-0.6	142	-0.01	5.05
21	t	3&4-Methylphenol	1.346	1.323	1.7	136	-0.01	5.16
24	I	Naphthalene-d8	1.000	1.000	0.0	143	0.00	5.75
29	t	2-Nitrophenol	0.187	0.179	4.3	127	0.00	5.49
30	t	2,4-Dimethylphenol	0.379	0.385	-1.6	126	-0.01	5.53
		----------	True	Calc.	% Drift	----------		
31		Benzoic Acid	50.000	37.124	25.8	103	-0.05	5.65
		----------	AvgRF	CCRF	% Dev	----------		
33	t	2,4-Dichlorophenol	0.278	0.261	6.1	124	-0.01	5.67
34		2,6-Dichlorophenol	0.275	0.262	4.7	128	0.00	5.83
43	t	4-Chloro-3-methylphenol	0.381	0.340	10.8	119	-0.02	6.18
47	I	Acenaphthene-d10	1.000	1.000	0.0	137	0.00	7.19
49	t	2,4,6-Trichlorophenol	0.329	0.312	5.2	118	-0.02	6.51
50	t	2,4,5-Trichlorophenol	0.328	0.319	2.7	123	-0.02	6.55
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	35.932	28.1	78	-0.02	7.26
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.242	0.213	12.0	106	-0.02	7.40
64		2,3,4,6-Tetrachlorophenol	0.284	0.257	9.5	112	-0.02	7.56
69	I	Phenanthrene-d10	1.000	1.000	0.0	134	-0.01	9.09
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	35.146	29.7	93	-0.03	7.86
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	43.945	12.1	96	-0.02	8.83

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 z104220a.D MZ5210.M          Thu Sep 17 11:03:27 2015   RTE
```

8.8.84

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EZ5210-ICV5210
Lab FileID: Z104283.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5210\z104283.D          Vial: 13
Acq On    : 14 Sep 2015   4:00 pm                   Operator: brittanp
Sample    : icv5210-50                              Inst    : MSZ
Misc      : op86567,ez5210                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Wed Sep 16 16:40:22 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	163	0.00	4.83
4	t	N-Nitrosodimethylamine	0.984	0.717	27.1	116	0.00	2.76
11	t	bis(2-Chloroethyl)ether	1.455	1.358	6.7	150	0.00	4.64
14	t	1,3-Dichlorobenzene	1.575	1.425	9.5	140	0.00	4.80
15	t	1,4-Dichlorobenzene	1.583	1.375	13.1	137	0.00	4.85
17	t	1,2-Dichlorobenzene	1.504	1.356	9.8	142	0.00	4.97
20	t	2,2'-oxybis(1-Chloropropa	0.486	0.429	11.7	140	0.00	5.03
22	t	n-Nitroso-di-n-propylamin	1.246	1.103	11.5	137	-0.02	5.12
23	t	Hexachloroethane	0.518	0.489	5.6	143	0.00	5.21
24	I	Naphthalene-d8	1.000	1.000	0.0	153	0.00	5.75
26	t	Nitrobenzene	0.464	0.416	10.3	134	-0.01	5.26
28	t	Isophorone	0.762	0.741	2.8	137	-0.02	5.42
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.427	0.413	3.3	149	0.00	5.57
36	t	1,2,4-Trichlorobenzene	0.316	0.297	6.0	141	0.00	5.71
38	t	Naphthalene	1.041	0.930	10.7	132	0.00	5.77
42	t	Hexachlorobutadiene	0.178	0.166	6.7	141	0.00	5.85
47	I	Acenaphthene-d10	1.000	1.000	0.0	140	0.00	7.19
48	t	Hexachlorocyclopentadiene	0.328	0.296	9.8	110	0.00	6.40
52	t	2-Chloronaphthalene	1.072	1.042	2.8	136	-0.01	6.67
55	t	Dimethylphthalate	1.266	1.187	6.2	131	-0.01	6.92
56	t	Acenaphthylene	1.690	1.439	14.9	115	0.00	7.06
57	t	2,6-Dinitrotoluene	0.262	0.245	6.5	116	-0.02	6.99
59	t	Acenaphthene	1.148	1.075	6.4	130	-0.01	7.22
		----------	AvgRF	CCRF	% Dev	----------		
63	t	2,4-Dinitrotoluene	0.393	0.331	15.8	106	-0.02	7.40
65	t	Diethylphthalate	1.298	1.205	7.2	129	-0.02	7.64
66	t	Fluorene	1.262	1.126	10.8	124	-0.01	7.79
67	t	4-Chlorophenyl-phenylethe	0.599	0.563	6.0	130	-0.01	7.78
69	I	Phenanthrene-d10	1.000	1.000	0.0	136	-0.01	9.09
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.522	0.476	8.8	119	-0.02	7.94
74	t	4-Bromophenyl-phenylether	0.207	0.195	5.8	125	-0.02	8.41
75	t	Hexachlorobenzene	0.222	0.201	9.5	117	-0.01	8.51
		----------	AvgRF	CCRF	% Dev	----------		

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5210-ICV5210
Lab FileID: Z104283.D

77	t	Phenanthrene	1.129	0.983	12.9	120	-0.02	9.13
78	t	Anthracene	1.099	0.976	11.2	117	-0.02	9.21
80	t	Di-n-butylphthalate	1.241	1.193	3.9	119	-0.01	10.13
81	t	Fluoranthene	1.205	1.043	13.4	113	-0.02	11.27
83	I	Chrysene-d12	1.000	1.000	0.0	120	-0.02	14.35
84	t	Pyrene	1.231	1.148	6.7	114	-0.02	11.72
87	t	Butylbenzylphthalate	0.508	0.544	-7.1	114	-0.02	13.25
88	t	Benzo[a]anthracene	1.135	1.026	9.6	109	-0.02	14.32
90	t	Chrysene	1.062	0.980	7.7	109	-0.03	14.40
		----------	True	Calc.	% Drift	----------		
91	t	bis(2-Ethylhexyl)phthalat	50.000	52.472	-4.9	113	-0.01	14.58
		----------	AvgRF	CCRF	% Dev	----------		
92	I	Perylene-d12	1.000	1.000	0.0	116	-0.02	17.38
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	50.000	47.283	5.4	114	-0.03	15.99
		----------	AvgRF	CCRF	% Dev	----------		
94	t	Benzo[b]fluoranthene	1.295	1.097	15.3	100	-0.06	16.61
95	t	Benzo[k]fluoranthene	1.182	1.035	12.4	107	-0.05	16.67
96	t	Benzo[a]pyrene	1.049	1.016	3.1	110	-0.03	17.25
97	t	Indeno[1,2,3-cd]pyrene	1.041	0.965	7.3	109	-0.04	19.29
99	t	Dibenz[a,h]anthracene	1.053	1.000	5.0	109	-0.04	19.34
		----------	AvgRF	CCRF	% Dev	----------		
101	t	Benzo[g,h,i]perylene	1.038	0.965	7.0	107	-0.04	19.73

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104220a.D MZ5210.M Thu Sep 17 11:03:29 2015 RTE

8.8.85

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: EZ5210-ICV5210
Lab FileID: Z104285.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5210\z104285.D          Vial: 15
Acq On    : 14 Sep 2015   5:02 pm                   Operator: brittanp
Sample    : icv5210-50                              Inst    : MSZ
Misc      : op86567,ez5210                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Tue Sep 15 17:24:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	133	0.00	4.83
5	S	2-Fluorophenol	1.476	1.444	2.2	118	0.00	3.91
8	S	Phenol-d5	1.940	1.781	8.2	108	0.00	4.62
24	I	Naphthalene-d8	1.000	1.000	0.0	128	0.00	5.75
25	S	Nitrobenzene-d5	0.438	0.455	-3.9	129	0.00	5.25
47	I	Acenaphthene-d10	1.000	1.000	0.0	117	0.00	7.19
51	S	2-Fluorobiphenyl	1.222	1.273	-4.2	124	0.00	6.56
69	I	Phenanthrene-d10	1.000	1.000	0.0	111	0.00	9.09
73	S	2,4,6-Tribromophenol	0.099	0.091	8.1	93	0.00	8.10
83	I	Chrysene-d12	1.000	1.000	0.0	97	-0.01	14.34
86	S	Terphenyl-d14	0.802	0.892	-11.2	111	0.00	12.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104276a.D MZ5210.M Tue Sep 15 23:35:13 2015 RTE

8.8.86

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EZ5210-ICV5210
Lab FileID: Z104286.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5210\z104286.D          Vial: 16
Acq On    : 14 Sep 2015   5:33 pm                   Operator: brittanp
Sample    : icv5210-50                              Inst    : MSZ
Misc      : op86567,ez5210                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Tue Sep 15 17:24:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83 I	Chrysene-d12	1.000	1.000	0.0	142	-0.01	14.34
89 t	3,3'-Dichlorobenzidine	0.364	0.266	26.9	94	0.00	14.38

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104276a.D MZ5210.M Tue Sep 15 23:35:15 2015 RTE

8.8.87

8

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EZ5211-ICV5210
Lab FileID: Z104288.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5211\z104288.D          Vial: 2
Acq On    : 15 Sep 2015  11:24 pm                   Operator: saraw
Sample    : icv5210-50                              Inst    : MSZ
Misc      : op86567,ez5211                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Wed Sep 16 09:26:27 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	153	-0.02	4.82
2		1,4-Dioxane	0.691	0.529	23.4	110	-0.01	2.45
6	t	Indene	2.772	2.492	10.1	130	-0.01	5.01
7	t	Cumene	4.245	3.859	9.1	130	-0.01	4.23
13	t	Decane	1.299	1.124	13.5	130	0.00	4.68
18	t	Acetophenone	2.316	2.043	11.8	125	-0.01	5.12
24	I	Naphthalene-d8	1.000	1.000	0.0	172	-0.02	5.74
27	t	Quinoline	0.714	0.550	23.0	123	-0.02	6.00
		----------	AvgRF	CCRF	% Dev	----------		
40	t	2,3-Dichloroaniline	0.360	0.245	31.9#	112	-0.02	6.50
41	t	Caprolactam	0.126	0.090	28.6	104	-0.04	6.05
45	t	1-Methylnaphthalene	0.639	0.484	24.3	125	-0.02	6.33
46	t	Dimethylnaphthalene	0.665	0.506	23.9	124	-0.02	6.76
47	I	Acenaphthene-d10	1.000	1.000	0.0	134	-0.02	7.17
53	t	Biphenyl	1.500	1.413	5.8	125	-0.02	6.63
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	131	-0.03	9.06
		----------	AvgRF	CCRF	% Dev	----------		
82	t	Octadecane	0.517	0.502	2.9	120	-0.03	8.86
83	I	Chrysene-d12	1.000	1.000	0.0	121	-0.05	14.30
		----------	AvgRF	CCRF	% Dev	----------		
92	I	Perylene-d12	1.000	1.000	0.0	94	-0.05	17.33
		----------	True	Calc.	% Drift	----------		
100	t	7,12-Dimethylbenz(a)anthr	50.000	19.177	61.6#	32	-0.06	16.57

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 z104220a.D MZ5210.M         Wed Sep 16 09:29:14 2015   RTE
```

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: EZ5224-CC5210
Lab FileID: Z104541.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\EZ5224\z104541.D Vial: 2
Acq On : 25 Sep 2015 10:53 pm Operator: sarad
Sample : cc5210-25 Inst : MSZ
Misc : op86567,ez5224 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MZ5210.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update : Fri Sep 25 12:37:38 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	82	-0.05	4.73
2		1,4-Dioxane	0.691	0.529	23.4#	62	-0.05	2.33
3	t	Pyridine	1.593	1.457	8.5	79	-0.05	2.67
4	t	N-Nitrosodimethylamine	0.984	0.822	16.5	69	-0.05	2.64
5	S	2-Fluorophenol	1.476	1.427	3.3	78	-0.05	3.81
6	t	Indene	2.772	2.715	2.1	81	-0.05	4.92
7	t	Cumene	4.245	4.023	5.2	77	-0.05	4.13
8	S	Phenol-d5	1.940	1.911	1.5	80	-0.05	4.53
9	t	Phenol	2.241	2.012	10.2	76	-0.05	4.54
10	t	Aniline	2.180	1.912	12.3	67	-0.04	4.52
11	t	bis(2-Chloroethyl)ether	1.455	1.413	2.9	84	-0.05	4.54
12	t	2-Chlorophenol	1.452	1.449	0.2	84	-0.05	4.60
13	t	Decane	1.299	1.204	7.3	75	-0.05	4.59
14	t	1,3-Dichlorobenzene	1.575	1.548	1.7	81	-0.04	4.69
15	t	1,4-Dichlorobenzene	1.583	1.545	2.4	82	-0.05	4.74
16	t	Benzyl alcohol	0.875	0.923	-5.5	88	-0.05	4.85
17	t	1,2-Dichlorobenzene	1.504	1.471	2.2	83	-0.05	4.86
18	t	Acetophenone	2.316	2.313	0.1	84	-0.05	5.03
19	t	2-Methylphenol	1.259	1.254	0.4	84	-0.05	4.96
20	t	2,2'-oxybis(1-Chloropropa	0.486	0.446	8.2	78	-0.04	4.92
21	t	3&4-Methylphenol	1.346	1.385	-2.9	84	-0.05	5.07
22	t	n-Nitroso-di-n-propylamin	1.246	1.206	3.2	83	-0.05	5.03
23	t	Hexachloroethane	0.518	0.553	-6.8	85	-0.05	5.10
24	I	Naphthalene-d8	1.000	1.000	0.0	84	-0.05	5.65
25	S	Nitrobenzene-d5	0.438	0.441	-0.7	85	-0.05	5.15
26	t	Nitrobenzene	0.464	0.454	2.2	83	-0.05	5.16
27	t	Quinoline	0.714	0.739	-3.5	87	-0.05	5.91
28	t	Isophorone	0.762	0.771	-1.2	83	-0.05	5.31
29	t	2-Nitrophenol	0.187	0.203	-8.6	90	-0.04	5.39
30	t	2,4-Dimethylphenol	0.379	0.369	2.6	78	-0.05	5.43
		----------	True	Calc.	% Drift		----------	
31		Benzoic Acid	25.000	27.663	-10.7	104	-0.06	5.53
		----------	AvgRF	CCRF	% Dev		----------	
32	t	bis(2-Chloroethoxy)methan	0.427	0.390	8.7	81	-0.04	5.47
33	t	2,4-Dichlorophenol	0.278	0.297	-6.8	92	-0.05	5.57
34		2,6-Dichlorophenol	0.275	0.290	-5.5	89	-0.05	5.73
35	t	1,3,5-Trichlorobenzene	0.348	0.354	-1.7	85	-0.05	5.38
36	t	1,2,4-Trichlorobenzene	0.316	0.323	-2.2	86	-0.05	5.61
37	t	1,2,3-Trichlorobenzene	0.308	0.317	-2.9	87	-0.05	5.77

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EZ5224-CC5210
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z104541.D
Project: Sunoco - Marcus Hook Facility, PA

38	t	Naphthalene	1.041	1.004	3.6	83	-0.05	5.67
39	t	4-Chloroaniline	0.407	0.403	1.0	84	-0.04	5.73
40	t	2,3-Dichloroaniline	0.360	0.369	-2.5	88	-0.06	6.40
41	t	Caprolactam	0.126	0.144	-14.3	88	-0.07	5.97
42	t	Hexachlorobutadiene	0.178	0.179	-0.6	85	-0.05	5.75
43	t	4-Chloro-3-methylphenol	0.381	0.400	-5.0	91	-0.05	6.09
44	t	2-Methylnaphthalene	0.592	0.581	1.9	85	-0.05	6.16
45	t	1-Methylnaphthalene	0.639	0.629	1.6	87	-0.05	6.24
46	t	Dimethylnaphthalene	0.665	0.663	0.3	87	-0.06	6.65
47	I	Acenaphthene-d10	1.000	1.000	0.0	88	-0.06	7.06
48	t	Hexachlorocyclopentadiene	0.328	0.276	15.9	69	-0.05	6.28
49	t	2,4,6-Trichlorophenol	0.329	0.347	-5.5	91	-0.05	6.40
50	t	2,4,5-Trichlorophenol	0.328	0.355	-8.2	96	-0.06	6.44
51	S	2-Fluorobiphenyl	1.222	1.171	4.2	90	-0.05	6.45
52	t	2-Chloronaphthalene	1.072	1.070	0.2	88	-0.06	6.55
53	t	Biphenyl	1.500	1.466	2.3	86	-0.05	6.53
54	t	2-Nitroaniline	0.414	0.447	-8.0	90	-0.06	6.66
55	t	Dimethylphthalate	1.266	1.267	-0.1	89	-0.05	6.79
56	t	Acenaphthylene	1.690	1.682	0.5	88	-0.06	6.92
57	t	2,6-Dinitrotoluene	0.262	0.286	-9.2	93	-0.06	6.86
58	t	3-Nitroaniline	0.289	0.315	-9.0	93	-0.06	7.04
59	t	Acenaphthene	1.148	1.110	3.3	87	-0.07	7.08
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	48.699	2.6	91	-0.07	7.13
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.242	0.277	-14.5	100	-0.07	7.27
62	t	Dibenzofuran	1.518	1.497	1.4	90	-0.06	7.26
63	t	2,4-Dinitrotoluene	0.393	0.416	-5.9	91	-0.07	7.26
64		2,3,4,6-Tetrachlorophenol	0.284	0.310	-9.2	94	-0.07	7.41
65	t	Diethylphthalate	1.298	1.294	0.3	91	-0.07	7.49
66	t	Fluorene	1.262	1.258	0.3	90	-0.07	7.64
67	t	4-Chlorophenyl-phenylethe	0.599	0.601	-0.3	94	-0.07	7.63
68	t	4-Nitroaniline	0.295	0.304	-3.1	86	-0.08	7.72
69	I	Phenanthrene-d10	1.000	1.000	0.0	89	-0.09	8.91
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	25.000	25.933	-3.7	95	-0.08	7.72
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.522	0.532	-1.9	91	-0.07	7.78
72	t	1,2-Diphenylhydrazine	0.924	0.946	-2.4	89	-0.07	7.82
73	S	2,4,6-Tribromophenol	0.099	0.113	-14.1	102	-0.03	7.94
74	t	4-Bromophenyl-phenylether	0.207	0.205	1.0	94	-0.08	8.25
75	t	Hexachlorobenzene	0.222	0.236	-6.3	99	-0.09	8.34
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	53.530	-7.1	101	-0.09	8.66
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.129	1.060	6.1	89	-0.09	8.95
78	t	Anthracene	1.099	1.081	1.6	89	-0.10	9.02
79	t	Carbazole	1.044	1.047	-0.3	90	-0.10	9.33
80	t	Di-n-butylphthalate	1.241	1.354	-9.1	97	-0.09	9.93
81	t	Fluoranthene	1.205	1.238	-2.7	94	-0.11	11.06
82	t	Octadecane	0.517	0.508	1.7	87	-0.08	8.71

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EZ5224-CC5210
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z104541.D
Project: Sunoco - Marcus Hook Facility, PA

83	I	Chrysene-d12	1.000	1.000	0.0	89	-0.13	14.12
84	t	Pyrene	1.231	1.202	2.4	92	-0.12	11.50
85		Butyl stearate	0.287	0.299	-4.2	93	-0.10	13.20
86	S	Terphenyl-d14	0.802	0.775	3.4	95	-0.11	11.89
87	t	Butylbenzylphthalate	0.508	0.579	-14.0	99	-0.11	13.02
88	t	Benzo[a]anthracene	1.135	1.102	2.9	92	-0.13	14.09
89	t	3,3'-Dichlorobenzidine	0.364	0.381	-4.7	93	-0.12	14.16
90	t	Chrysene	1.062	1.013	4.6	87	-0.13	14.17
		----------	True	Calc.	% Drift	----------		
91	t	bis(2-Ethylhexyl)phthalat	25.000	26.959	-7.8	96	-0.11	14.35
		----------	AvgRF	CCRF	% Dev	----------		
92	I	Perylene-d12	1.000	1.000	0.0	86	-0.13	17.15
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	25.000	29.650	-18.6	99	-0.11	15.76
		----------	AvgRF	CCRF	% Dev	----------		
94	t	Benzo[b]fluoranthene	1.295	1.263	2.5	88	-0.14	16.39
95	t	Benzo[k]fluoranthene	1.182	1.087	8.0	85	-0.07	16.44
96	t	Benzo[a]pyrene	1.049	1.065	-1.5	89	-0.14	17.02
97	t	Indeno[1,2,3-cd]pyrene	1.041	0.937	10.0	81	-0.14	19.06
98	t	Dibenz(a,h)acridine	0.929	0.945	-1.7	87	-0.14	18.70
99	t	Dibenz[a,h]anthracene	1.053	0.960	8.8	82	-0.14	19.11
		----------	True	Calc.	% Drift	----------		
100	t	7,12-Dimethylbenz(a)anthr	25.000	24.400	2.4	82	-0.14	16.39
		----------	AvgRF	CCRF	% Dev	----------		
101	t	Benzo[g,h,i]perylene	1.038	0.933	10.1	78	-0.15	19.50

(#) = Out of Range SPCC's out = 0 CCC's out = 0
z104441.D MZ5210.M Fri Sep 25 23:49:54 2015 RTE

8.8.89

8

Continuing Calibration Summary

Job Number: JC4005 **Sample:** EZ5224-CC5205
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Z104542.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EZ5224\z104542.D          Vial: 3
Acq On    : 25 Sep 2015  11:25 pm                   Operator: sarad
Sample    : cc5205-25                               Inst    : MSZ
Misc      : op86567,ez5224                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MZ5210.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Fri Sep 25 12:37:38 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	58	-0.05	4.73
103	Benzaldehyde	1.250	1.174	6.1	52	-0.08	4.42
104	Phenanthrene-d10a	1.000	1.000	0.0	64	-0.09	8.91
105	Atrazine	0.098	0.109	-11.2	68	-0.14	8.50
106	Chrysene-d12a	1.000	1.000	0.0	65	-0.13	14.11
107	Benzidine	0.570	0.420	26.3#	42#	-0.10	11.43
108	Acenaphthene-d10a	1.000	1.000	0.0	61	-0.07	7.05
109	1,2,4,5-Tetrachlorobenzen	0.486	0.484	0.4	62	-0.13	6.29
110 I	Naphthalene-d8a	1.000	1.000	0.0	59	-0.05	5.65
111	Hydroquinone	0.329	0.331	-0.6	59	-0.02	5.99

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 z104441.D  MZ5210.M         Fri Sep 25 23:49:56 2015   RTE
```

8.8.90

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\EP4300\P98836.D Vial: 16
Acq On : 17 Sep 2015 11:36 pm Operator: saraw
Sample : jc4005-2 Inst : MSP
Misc : op87287,ep4300,970 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 18 09:11:36 2015 Quant Results File: MP4212.RES

Quant Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 12:21:56 2015
Response via : Initial Calibration
DataAcq Meth : MP4212

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.11	152	364198	40.00	ppm	0.03
24) Naphthalene-d8	5.84	136	1261162	40.00	ppm	0.03
47) Acenaphthene-d10	8.54	164	804770	40.00	ppm	0.03
69) Phenanthrene-d10	10.89	188	1254740	40.00	ppm	0.03
83) Chrysene-d12	15.53	240	1273537	40.00	ppm	0.04
92) Perylene-d12	18.08	264	1163282	40.00	ppm	0.04
102) 1,4-Dichlorobenzene-d4b	4.11	152	364198	40.00	ppm	0.02
104) Phenanthrene-d10b	10.89	188	1254740	40.00	ppm	0.02
106) Chrysene-d12b	15.53	240	1273537	40.00	ppm	0.02
108) Naphthalene-d8b	5.84	136	1261162	40.00	ppm	0.02
110) Acenaphthene-d10b	8.54	164	804770	40.00	ppm	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	2.76	112	379555	29.60	ppm	0.03
Spiked Amount 50.000			Recovery = 59.20%			
8) Phenol-d5	3.72	99	343352	20.02	ppm	0.04
Spiked Amount 50.000			Recovery = 40.04%			
25) Nitrobenzene-d5	4.84	82	871004	56.52	ppm	0.03
Spiked Amount 50.000			Recovery = 113.04%			
51) 2-Fluorobiphenyl	7.52	172	1231598	46.96	ppm	0.03
Spiked Amount 50.000			Recovery = 93.92%			
73) 2,4,6-Tribromophenol	9.80	330	141511	41.95	ppm	0.03
Spiked Amount 50.000			Recovery = 83.90%			
85) Terphenyl-d14	13.66	244	1314757	54.48	ppm	0.04
Spiked Amount 50.000			Recovery = 108.96%			

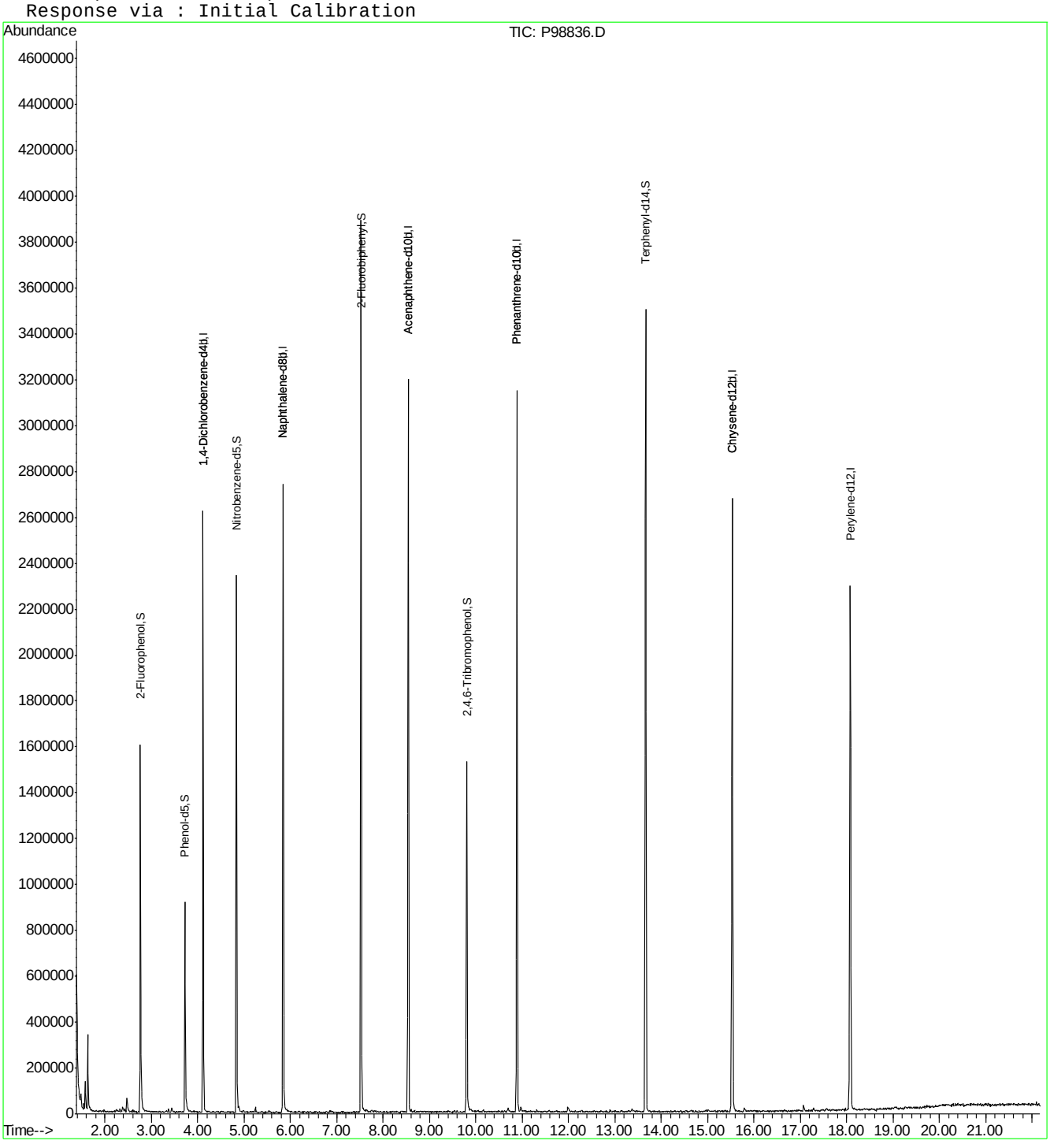
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\EP4300\P98836.D Vial: 16
Acq On : 17 Sep 2015 11:36 pm Operator: saraw
Sample : jc4005-2 Inst : MSP
Misc : op87287,ep4300,970 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 18 9:14 2015 Quant Results File: MP4212.RES

Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 12:21:56 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
09/21/15 10:12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m118009.D
Acq On : 19 Sep 2015 3:45 am
Operator : sarad
Sample : jc4005-3
Misc : op87313,em4935,30.1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Sep 19 08:39:42 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

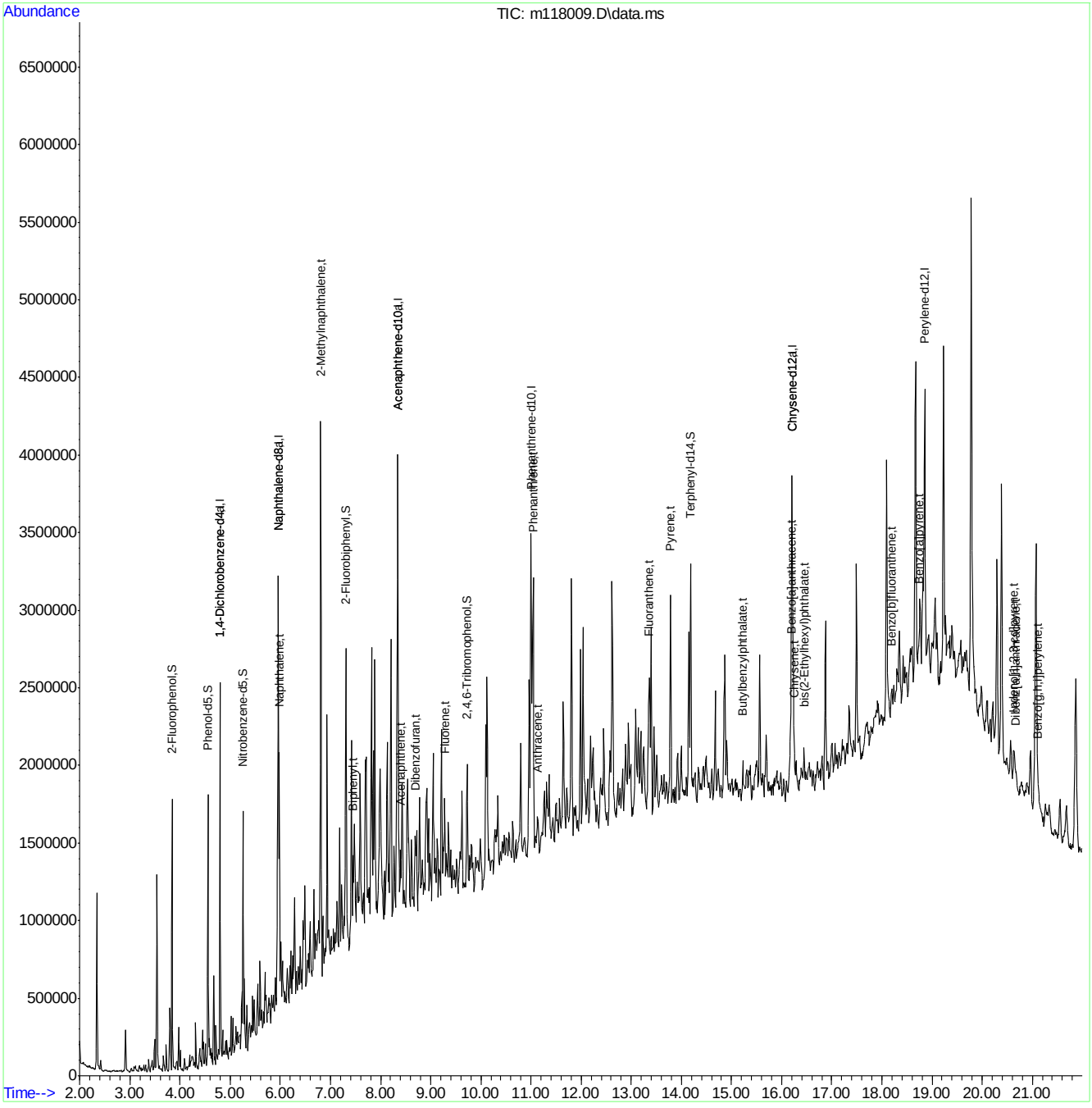
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.799	152	274312	40.00	ppm	0.00
24) Naphthalene-d8	5.958	136	1004365	40.00	ppm	0.00
47) Acenaphthene-d10	8.345	164	590881	40.00	ppm	0.00
69) Phenanthrene-d10	11.000	188	935491	40.00	ppm	0.00
83) Chrysene-d12	16.207	240	954569	40.00	ppm	0.00
92) Perylene-d12	18.856	264	1035445	40.00	ppm	0.01
102) 1,4-Dichlorobenzene-d4a	4.799	152	274312	40.00	ppm	0.00
104) Acenaphthene-d10a	8.345	164	590881	40.00	ppm	0.00
107) Chrysene-d12a	16.207	240	954569	40.00	ppm	0.00
109) Naphthalene-d8a	5.958	136	1004365	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.837	112	335822	34.20	ppm	0.00
Spiked Amount 50.000			Recovery	=	68.40%	
8) Phenol-d5	4.553	99	461576	33.60	ppm	-0.01
Spiked Amount 50.000			Recovery	=	67.20%	
25) Nitrobenzene-d5	5.258	82	406491	32.78	ppm	0.00
Spiked Amount 50.000			Recovery	=	65.56%	
51) 2-Fluorobiphenyl	7.309	172	603120	30.87	ppm	-0.01
Spiked Amount 50.000			Recovery	=	61.74%	
73) 2,4,6-Tribromophenol	9.729	330	85841	28.91	ppm	0.00
Spiked Amount 50.000			Recovery	=	57.82%	
86) Terphenyl-d14	14.183	244	625463	33.17	ppm	0.00
Spiked Amount 50.000			Recovery	=	66.34%	
Target Compounds						Qvalue
38) Naphthalene	5.979	128	640551	22.80	ppm	97
44) 2-Methylnaphthalene	6.807	141	860682	55.67	ppm	97
53) Biphenyl	7.453	154	108340	4.70	ppm	99
59) Acenaphthene	8.399	153	24326	1.38	ppm	97
62) Dibenzofuran	8.687	168	55295	2.29	ppm	83
66) Fluorene	9.280	166	93847	4.70	ppm	97
77) Phenanthrene	11.042	178	852200	31.38	ppm	99
78) Anthracene	11.133	178	93054	3.35	ppm	91
81) Fluoranthene	13.355	202	103972	3.54	ppm	96
84) Pyrene	13.782	202	673474	21.59	ppm	98
87) Butylbenzylphthalate	15.230	149	75195	5.36	ppm	99
88) Benzo[a]anthracene	16.186	228	98785	3.63	ppm	84
90) Chrysene	16.250	228	137750	5.41	ppm	94
91) bis(2-Ethylhexyl)phtha...	16.448	149	92958	4.88	ppm	97
94) Benzo[b]fluoranthene	18.194	252	52046	1.65	ppm	92
96) Benzo[a]pyrene	18.744	252	68143	2.45	ppm	89
97) Indeno[1,2,3-cd]pyrene	20.624	276	32838m	1.26	ppm	
99) Dibenz[a,h]anthracene	20.667	278	16311m	0.62	ppm	
101) Benzo[g,h,i]perylene	21.116	276	90908	3.45	ppm	96

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

Quantitation Report (QT Reviewed)

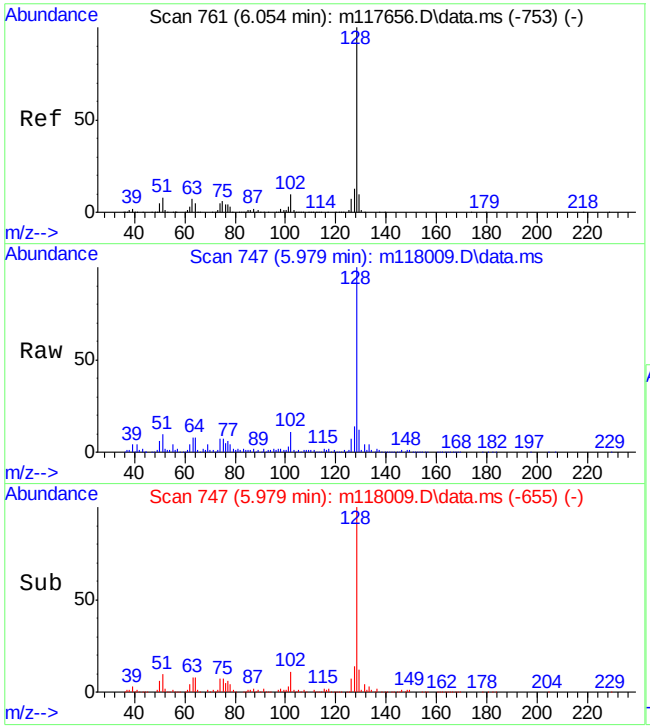
Data Path : C:\msdchem\1\DATA\em4935\
Data File : m118009.D
Acq On : 19 Sep 2015 3:45 am
Operator : sarad
Sample : jc4005-3
Misc : op87313,em4935,30.1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Sep 19 08:39:42 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



MM4919.M Sat Sep 19 08:39:46 2015 MSM

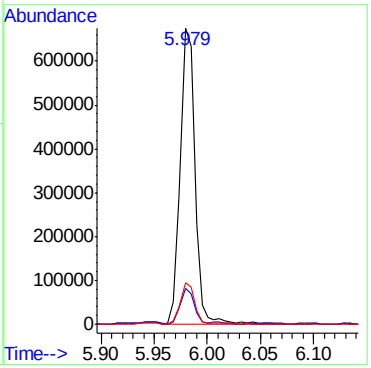
Page: 2

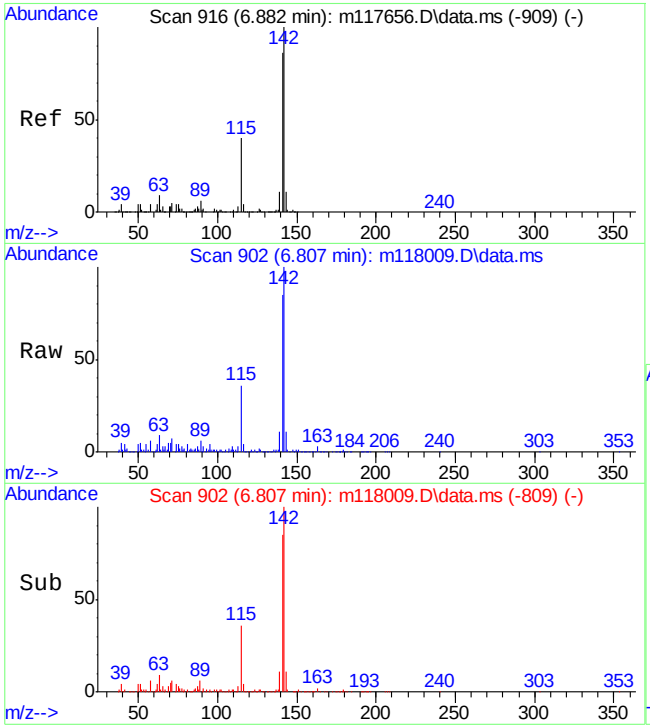


#38
Naphthalene
Concen: 22.80 ppm
RT: 5.979 min Scan# 747
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:128 Resp: 640551

Ion	Ratio	Lower	Upper
128	100		
129	11.9	0.0	40.4
127	13.9	0.0	43.1

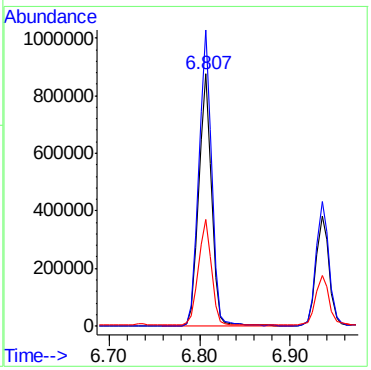




#44
2-Methylnaphthalene
Concen: 55.67 ppm
RT: 6.807 min Scan# 902
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

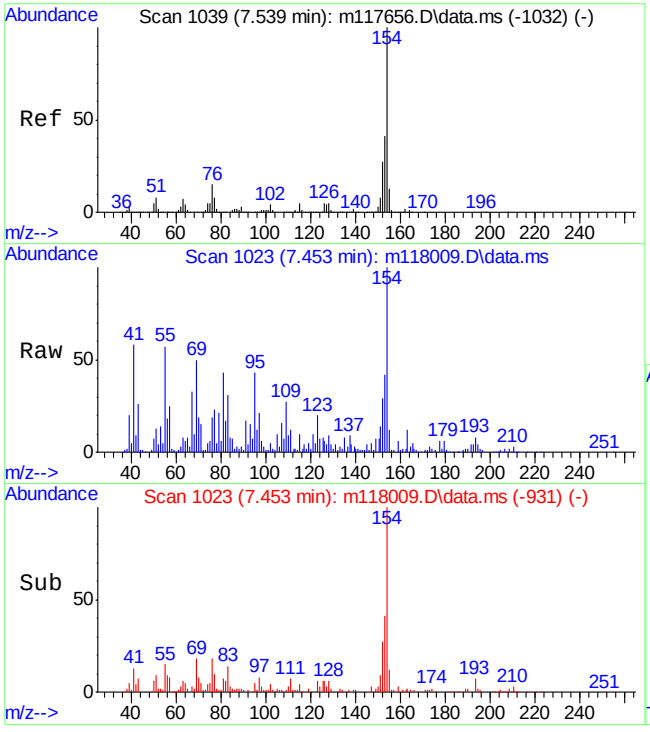
Tgt Ion:141 Resp: 860682

Ion	Ratio	Lower	Upper
141	100		
142	117.4	86.6	146.6
115	41.8	16.6	76.6



9.1.2

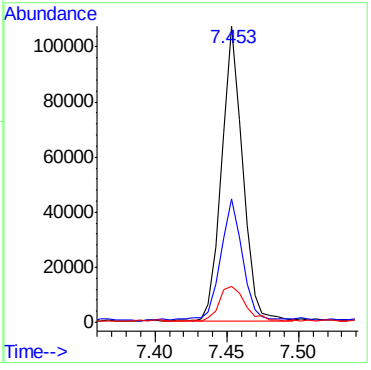
9

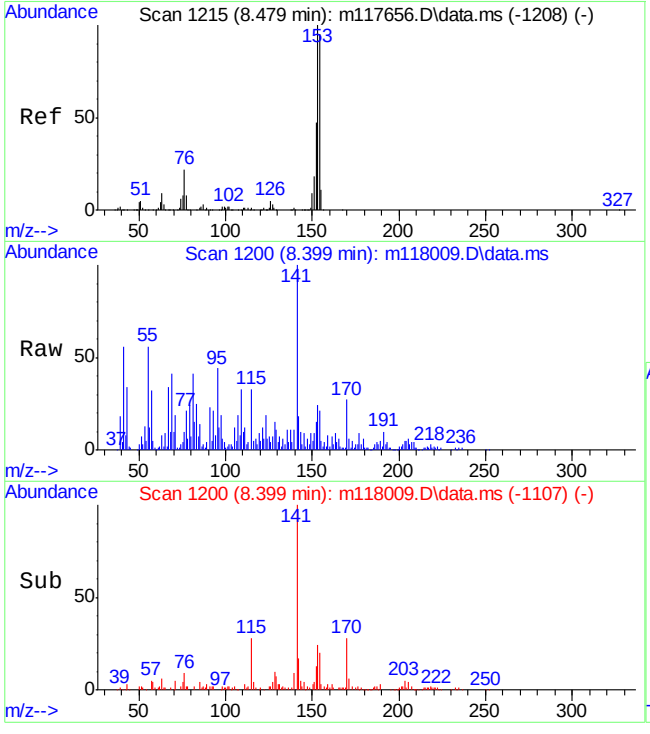


#53
Biphenyl
Concen: 4.70 ppm
RT: 7.453 min Scan# 1023
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:154 Resp: 108340

Ion	Ratio	Lower	Upper
154	100		
153	40.8	10.6	70.6
155	11.5	0.0	42.6

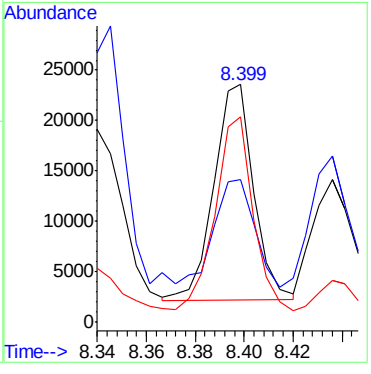




#59
Acenaphthene
Concen: 1.38 ppm
RT: 8.399 min Scan# 1200
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

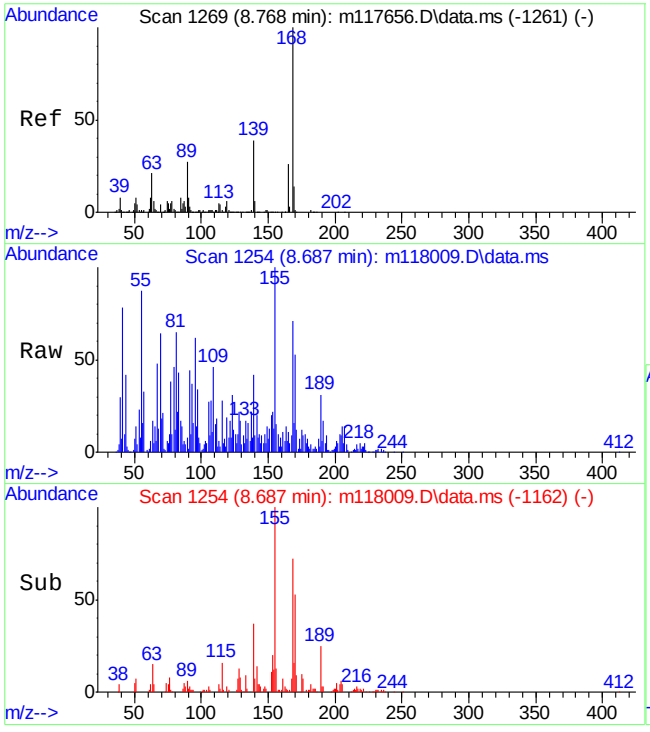
Tgt Ion:153 Resp: 24326

Ion	Ratio	Lower	Upper
153	100		
152	45.5	17.4	77.4
154	91.4	58.1	118.1



9.1.2

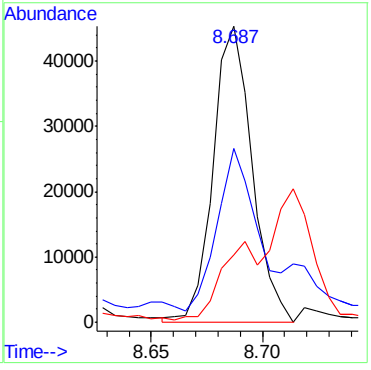
9

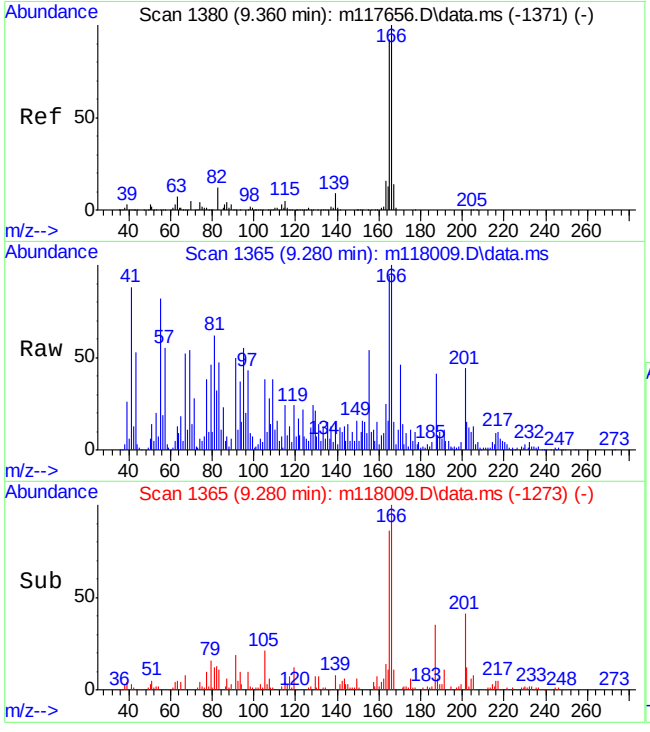


#62
Dibenzofuran
Concen: 2.29 ppm
RT: 8.687 min Scan# 1254
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:168 Resp: 55295

Ion	Ratio	Lower	Upper
168	100		
139	45.9	9.0	69.0
169	0.0	0.0	43.5

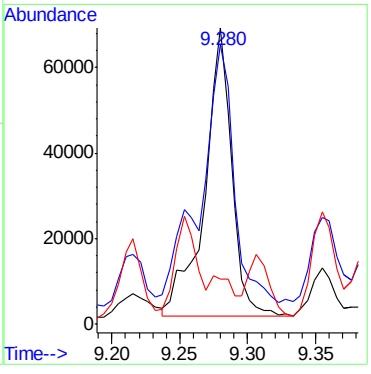


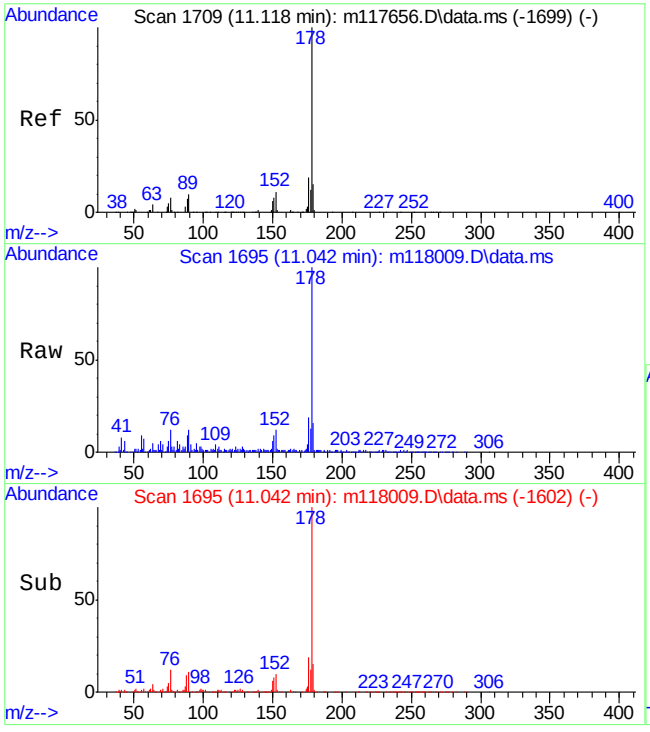


#66
Fluorene
Concen: 4.70 ppm
RT: 9.280 min Scan# 1365
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:166 Resp: 93847

Ion	Ratio	Lower	Upper
166	100		
165	89.0	61.9	121.9
167	11.9	0.0	43.6

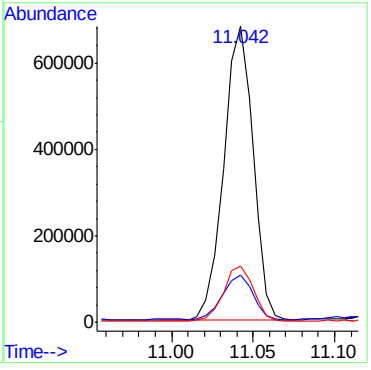


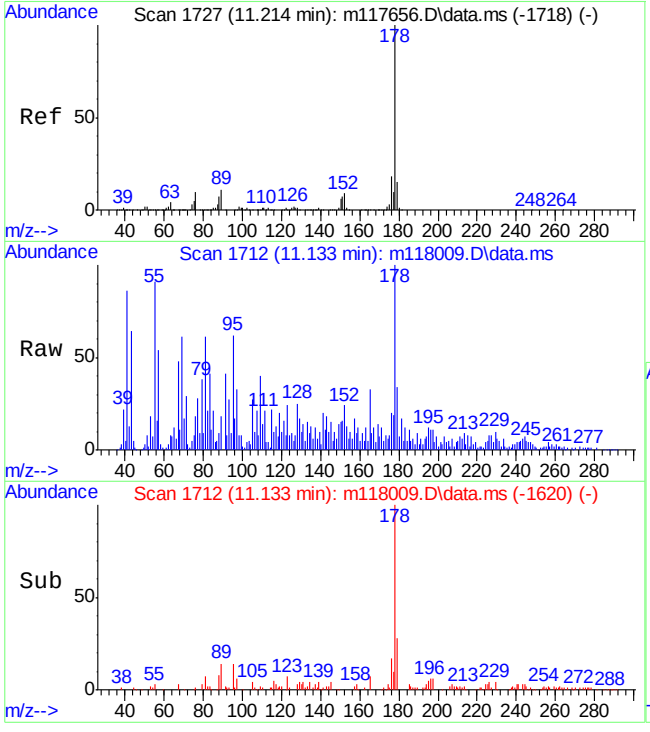


#77
Phenanthrene
Concen: 31.38 ppm
RT: 11.042 min Scan# 1695
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:178 Resp: 852200

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.1
176	18.6	0.0	48.9

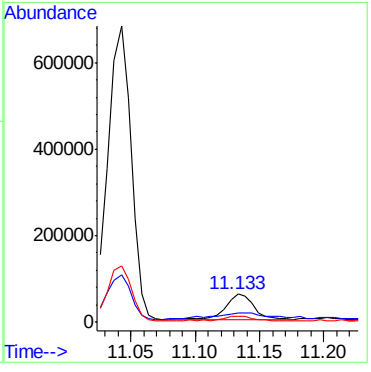


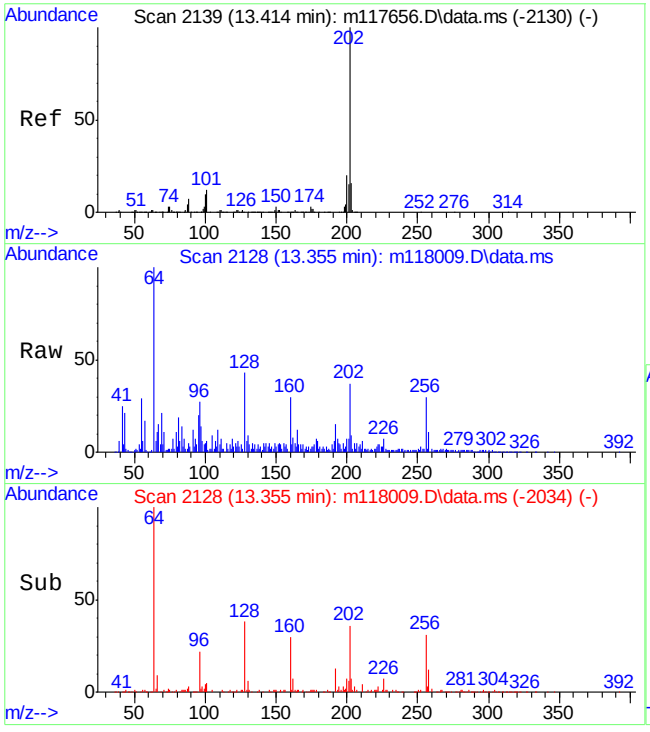


#78
Anthracene
Concen: 3.35 ppm
RT: 11.133 min Scan# 1712
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:178 Resp: 93054

Ion	Ratio	Lower	Upper
178	100		
179	22.7	0.0	44.9
176	17.0	0.0	47.7

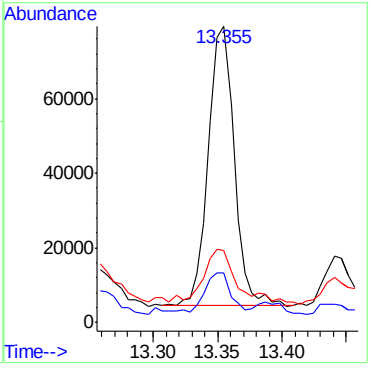


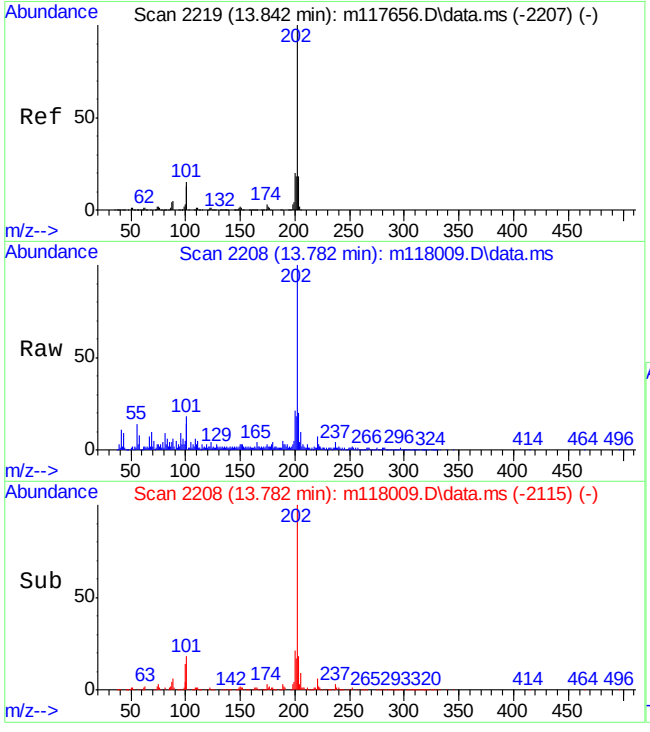


#81
Fluoranthene
Concen: 3.54 ppm
RT: 13.355 min Scan# 2128
Delta R.T. 0.001 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:202 Resp: 103972

Ion	Ratio	Lower	Upper
202	100		
101	14.1	0.0	41.9
203	17.9	0.0	46.5

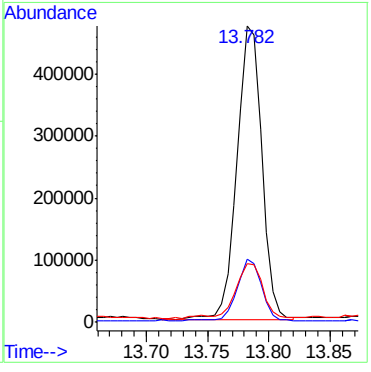




#84
Pyrene
Concen: 21.59 ppm
RT: 13.782 min Scan# 2208
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

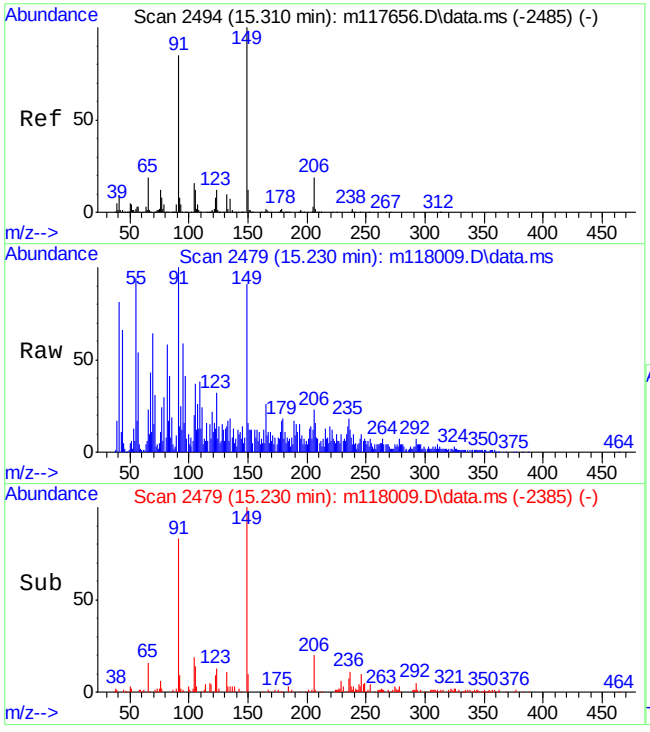
Tgt Ion:202 Resp: 673474

Ion	Ratio	Lower	Upper
202	100		
200	21.0	0.0	50.0
203	18.4	0.0	47.9



9.1.2

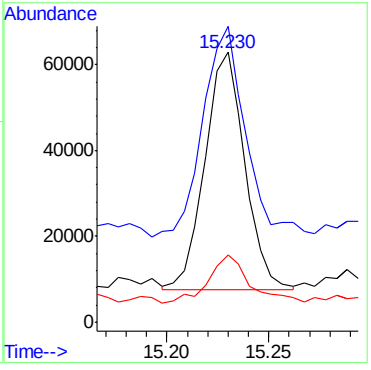
9

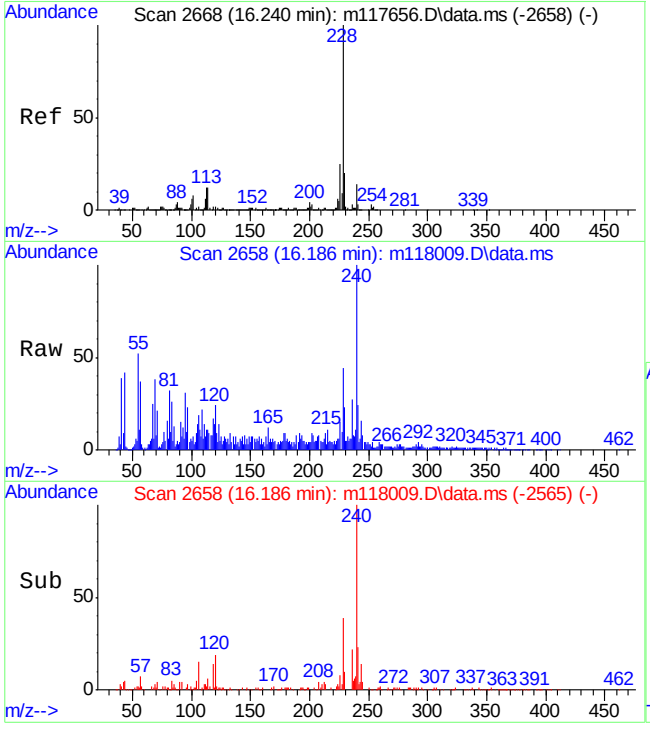


#87
Butylbenzylphthalate
Concen: 5.36 ppm
RT: 15.230 min Scan# 2479
Delta R.T. 0.001 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:149 Resp: 75195

Ion	Ratio	Lower	Upper
149	100		
91	85.7	54.9	114.9
206	19.2	0.0	49.0

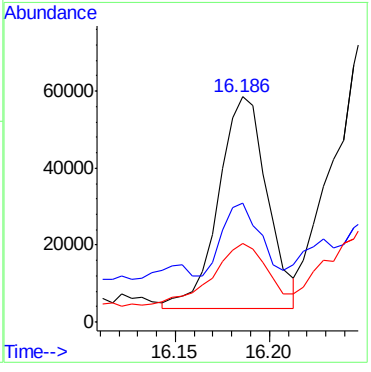




#88
Benzo[a]anthracene
Concen: 3.63 ppm
RT: 16.186 min Scan# 2658
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

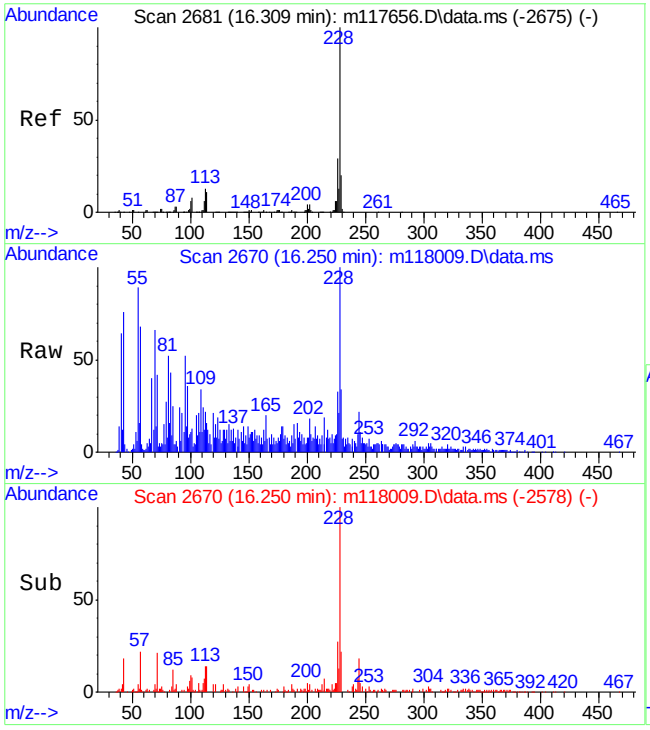
Tgt Ion:228 Resp: 98785

Ion	Ratio	Lower	Upper
228	100		
229	33.1	0.0	49.9
226	28.1	0.0	55.0



9.1.2

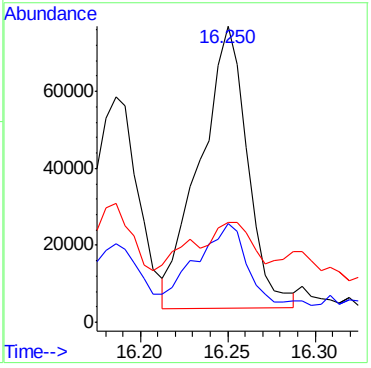
9

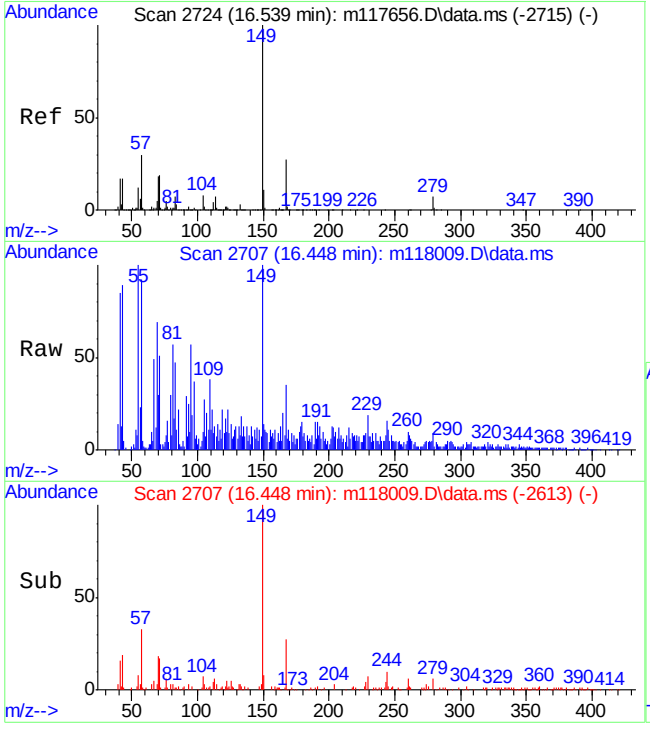


#90
Chrysene
Concen: 5.41 ppm
RT: 16.250 min Scan# 2670
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:228 Resp: 137750

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.7
229	13.9	0.0	49.5

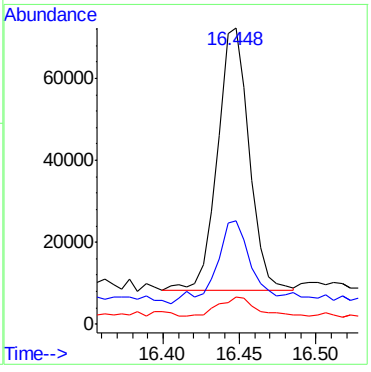


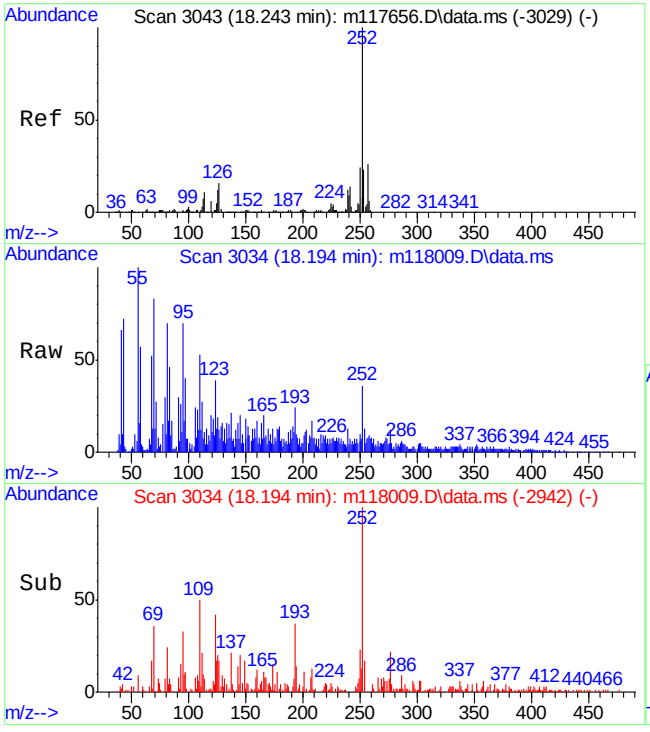


#91
bis(2-Ethylhexyl)phthalate
Concen: 4.88 ppm
RT: 16.448 min Scan# 2707
Delta R.T. 0.001 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:149 Resp: 92958

Ion	Ratio	Lower	Upper
149	100		
167	29.1	0.0	57.2
279	6.2	0.0	36.6

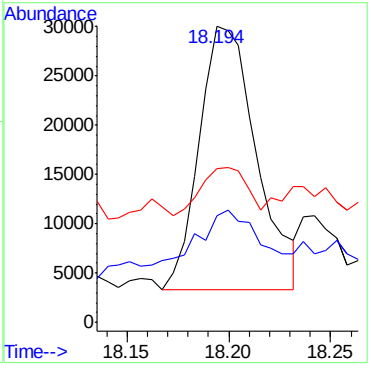


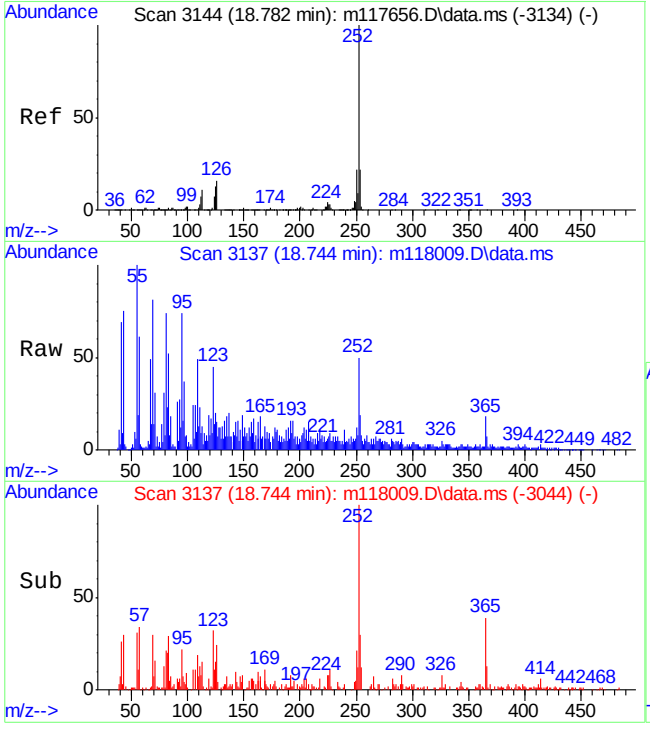


#94
Benzo[b]fluoranthene
Concen: 1.65 ppm
RT: 18.194 min Scan# 3034
Delta R.T. -0.010 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:252 Resp: 52046

Ion	Ratio	Lower	Upper
252	100		
253	17.1	0.0	52.3
125	11.7	0.0	41.1

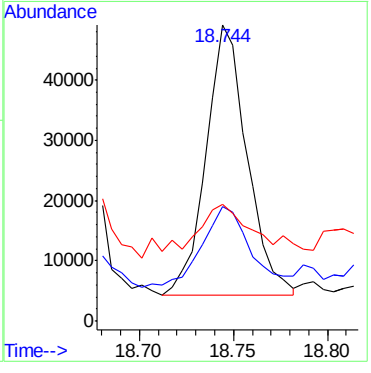




#96
Benzo[a]pyrene
Concen: 2.45 ppm
RT: 18.744 min Scan# 3137
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

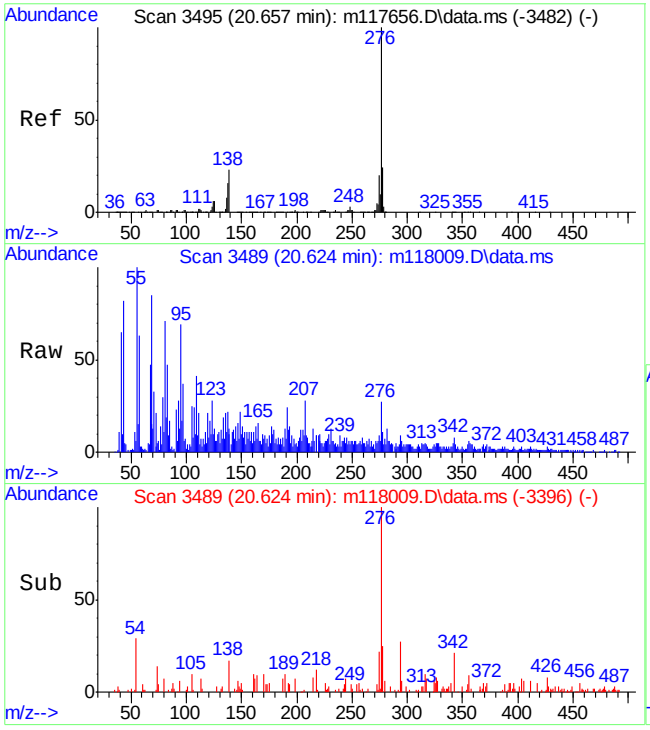
Tgt Ion:252 Resp: 68143

Ion	Ratio	Lower	Upper
252	100		
253	28.0	0.0	52.2
125	16.2	0.0	42.6



9.1.2

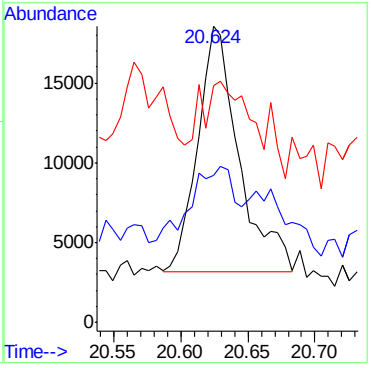
9

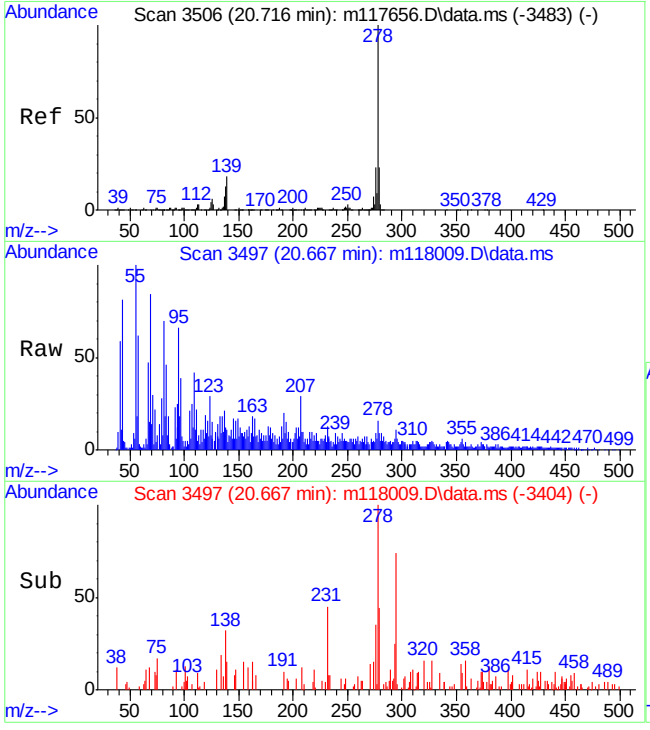


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.26 ppm m
RT: 20.624 min Scan# 3489
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:276 Resp: 32838

Ion	Ratio	Lower	Upper
276	100		
138	49.5	0.0	51.5
137	80.0	0.0	45.3#

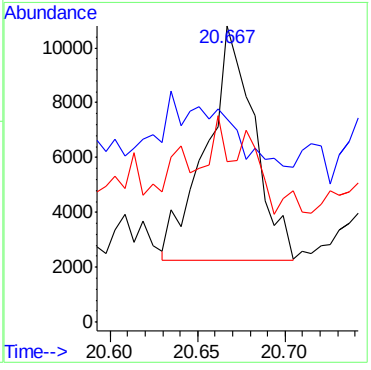




#99
Dibenz[a,h]anthracene
Concen: 0.62 ppm m
RT: 20.667 min Scan# 3497
Delta R.T. -0.005 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

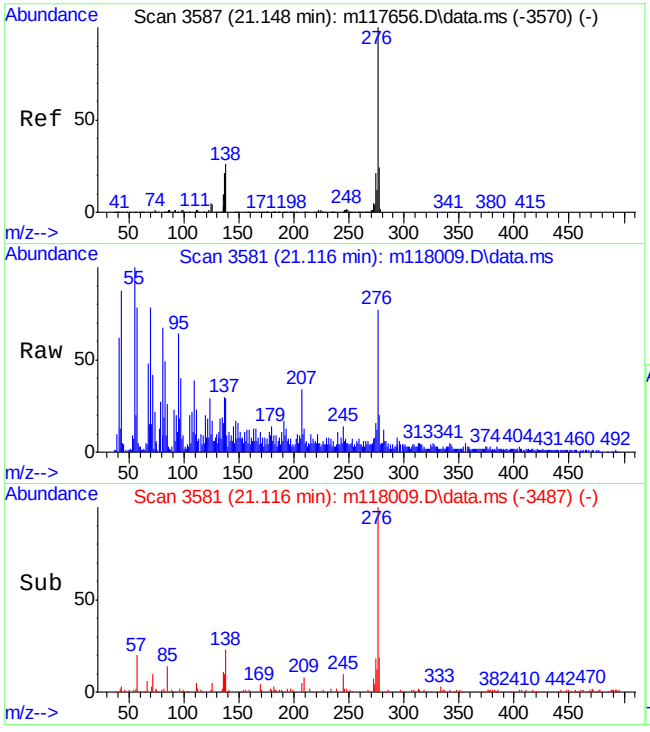
Tgt Ion:278 Resp: 16311

Ion	Ratio	Lower	Upper
278	100		
139	68.7	0.0	48.3#
279	54.3	0.0	53.4#



9.1.2

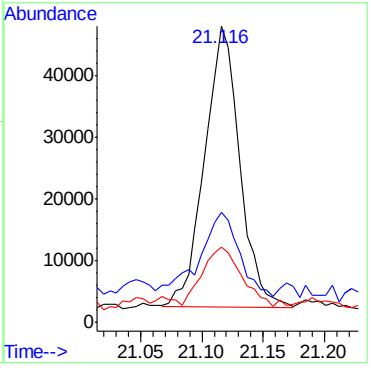
9



#101
Benzo[g,h,i]perylene
Concen: 3.45 ppm
RT: 21.116 min Scan# 3581
Delta R.T. 0.001 min
Lab File: m118009.D
Acq: 19 Sep 2015 3:45 am

Tgt Ion:276 Resp: 90908

Ion	Ratio	Lower	Upper
276	100		
138	26.3	0.0	56.3
277	19.2	0.0	53.6



9.1.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52518.D
Acq On : 19 Sep 2015 3:21 am
Operator : sarad
Sample : jc4005-4
Misc : op87313,e2p2265,30.4
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 21 15:31:30 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.296	152	617159	40.00	ppm	-0.01
24) Naphthalene-d8	5.345	136	1910037	40.00	ppm	-0.02
47) Acenaphthene-d10	6.778	164	1099077	40.00	ppm	-0.02
69) Phenanthrene-d10	8.014	188	1795166	40.00	ppm	-0.02
83) Chrysene-d12	11.148	240	1847630	40.00	ppm	-0.04
92) Perylene-d12	13.127	264	1581747	40.00	ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	4.296	152	617159	40.00	ppm	0.00
104) Naphthalene-d8a	5.345	136	1909987	40.00	ppm	0.00
106) Acenaphthene-d10a	6.778	164	1099077	40.00	ppm	0.00
109) Chrysene-d12a	11.148	240	1847630	40.00	ppm	-0.01
System Monitoring Compounds						
5) 2-Fluorophenol	3.232	112	861994	40.42	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery = 80.84%#			
8) Phenol-d5	4.088	99	988118	40.03	ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 80.06%#			
25) Nitrobenzene-d5	4.767	82	786367	49.90	ppm	-0.01
Spiked Amount 50.000	Range 19 - 61		Recovery = 99.80%#			
51) 2-Fluorobiphenyl	6.238	172	1619515	47.47	ppm	-0.01
Spiked Amount 50.000	Range 21 - 58		Recovery = 94.94%#			
73) 2,4,6-Tribromophenol	7.431	330	207974	43.91	ppm	-0.02
Spiked Amount 50.000	Range 12 - 68		Recovery = 87.82%#			
85) Terphenyl-d14	9.763	244	1718223	46.80	ppm	-0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 93.60%#			
Target Compounds						Qvalue
44) 2-Methylnaphthalene	5.933	141	14003	0.48	ppm	95

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

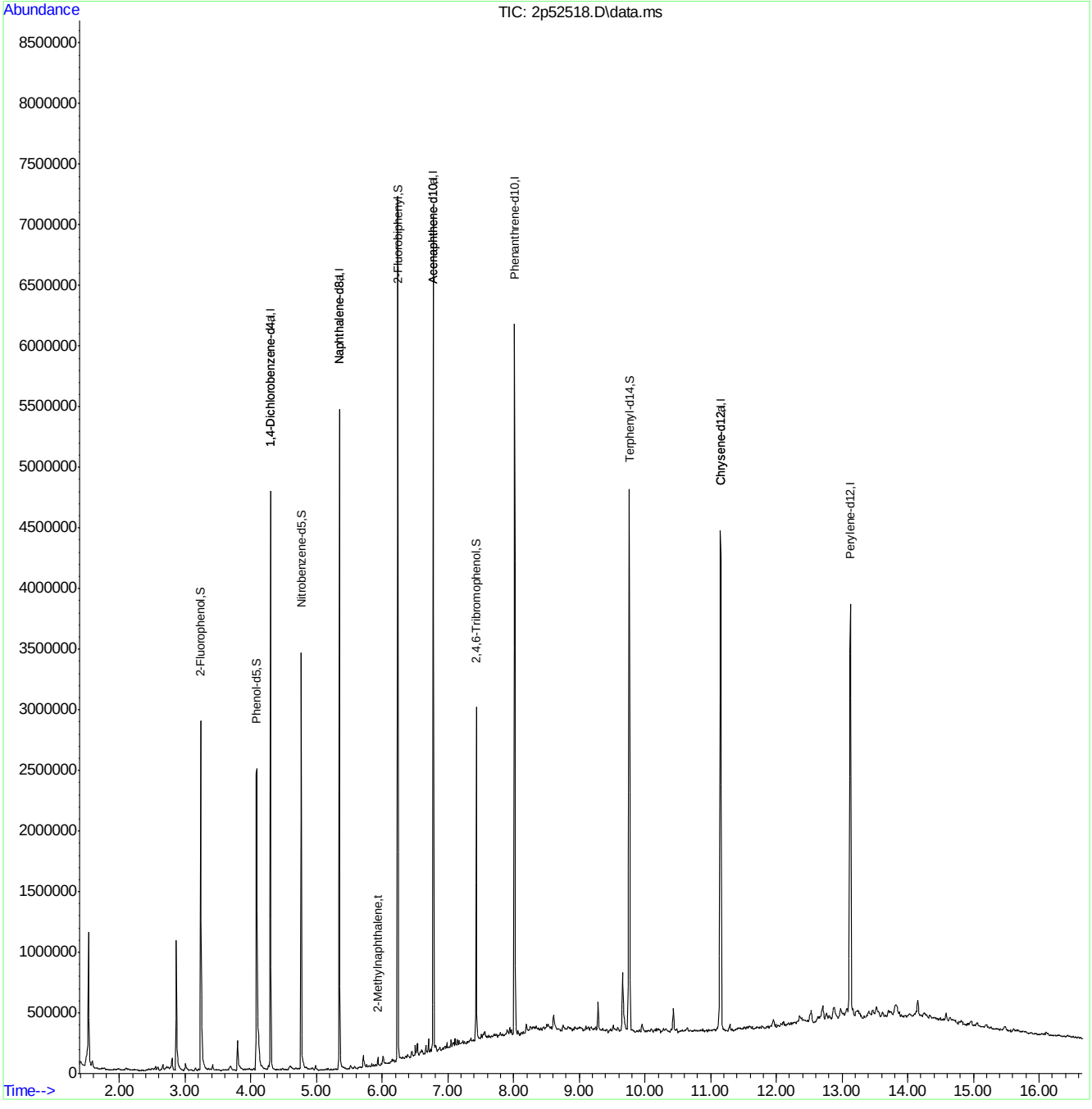
9.1.3

9

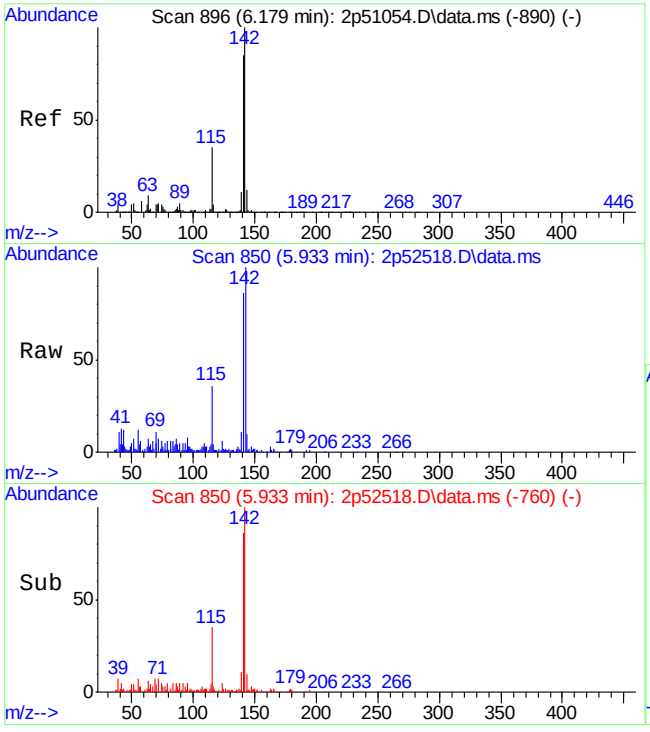
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52518.D
Acq On : 19 Sep 2015 3:21 am
Operator : sarad
Sample : jc4005-4
Misc : op87313,e2p2265,30.4
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 21 15:31:30 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration



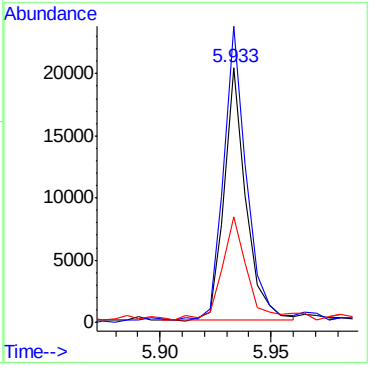
M2P2252.M Mon Sep 21 15:31:41 2015 RPT1 Page: 2



#44
2-Methylnaphthalene
Concen: 0.48 ppm
RT: 5.933 min Scan# 850
Delta R.T. -0.016 min
Lab File: 2p52518.D
Acq: 19 Sep 2015 3:21 am

Tgt Ion:141 Resp: 14003

Ion	Ratio	Lower	Upper
141	100		
142	115.7	90.1	150.1
115	39.0	5.0	65.0



9.1.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117993.D
Acq On : 18 Sep 2015 9:32 pm
Operator : sarad
Sample : jc4005-5
Misc : op87313,em4935,30.5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 19 08:13:18 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.798	152	261743	40.00 ppm	0.00
24) Naphthalene-d8	5.957	136	960816	40.00 ppm	0.00
47) Acenaphthene-d10	8.339	164	522116	40.00 ppm	-0.01
69) Phenanthrene-d10	10.989	188	830142	40.00 ppm	-0.02
83) Chrysene-d12	16.185	240	816738	40.00 ppm	-0.03
92) Perylene-d12	18.829	264	803226	40.00 ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.798	152	261743	40.00 ppm	0.00
104) Acenaphthene-d10a	8.339	164	522116	40.00 ppm	-0.01
107) Chrysene-d12a	16.185	240	816738	40.00 ppm	-0.03
109) Naphthalene-d8a	5.957	136	960816	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.837	112	425253	45.39 ppm	0.00
Spiked Amount 50.000			Recovery	= 90.78%	
8) Phenol-d5	4.553	99	576811	44.00 ppm	-0.01
Spiked Amount 50.000			Recovery	= 88.00%	
25) Nitrobenzene-d5	5.258	82	552680	46.58 ppm	0.00
Spiked Amount 50.000			Recovery	= 93.16%	
51) 2-Fluorobiphenyl	7.309	172	773404	44.79 ppm	-0.01
Spiked Amount 50.000			Recovery	= 89.58%	
73) 2,4,6-Tribromophenol	9.723	330	106731	40.51 ppm	-0.01
Spiked Amount 50.000			Recovery	= 81.02%	
86) Terphenyl-d14	14.177	244	786862	48.77 ppm	0.00
Spiked Amount 50.000			Recovery	= 97.54%	

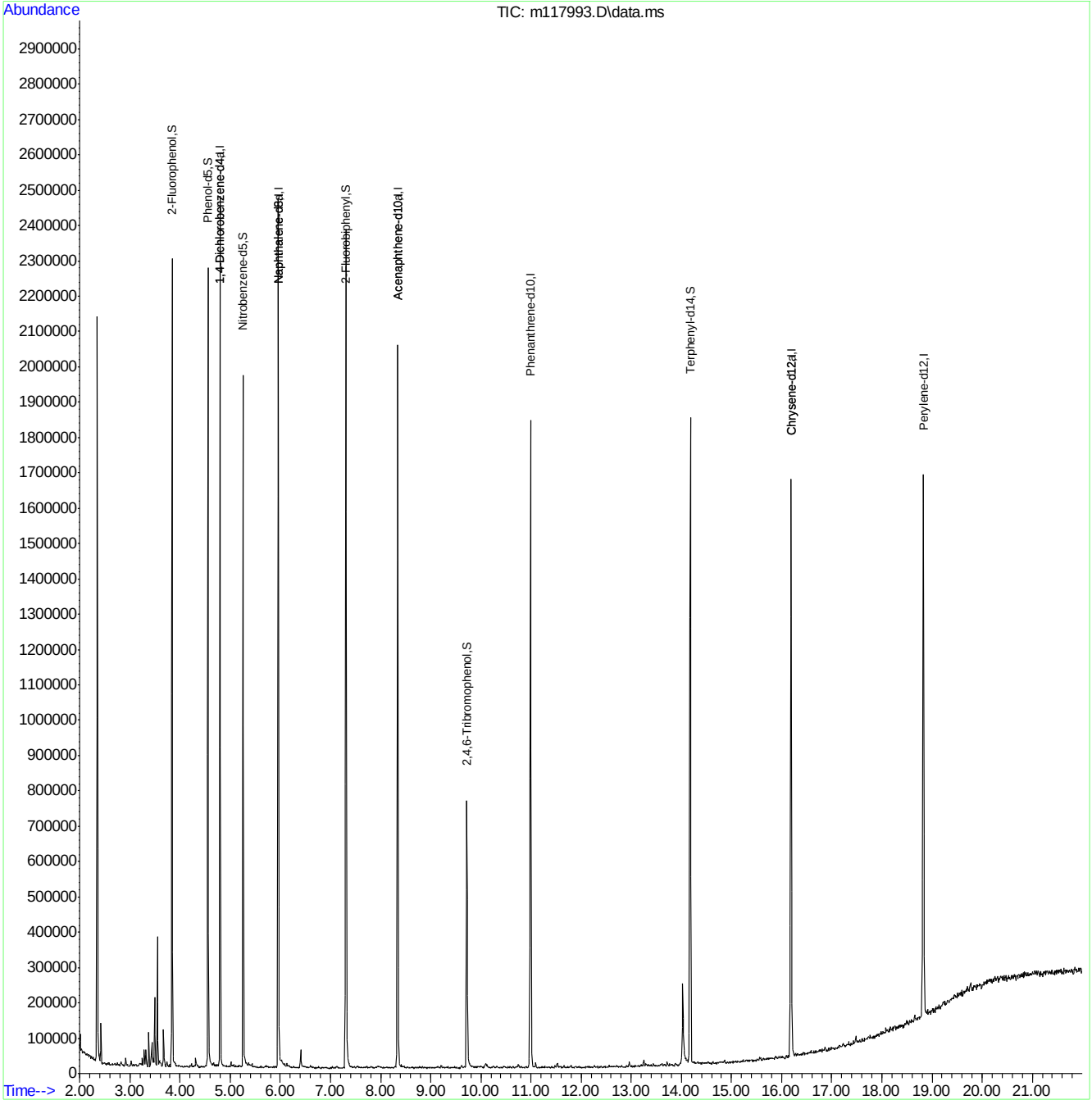
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117993.D
Acq On : 18 Sep 2015 9:32 pm
Operator : sarad
Sample : jc4005-5
Misc : op87313,em4935,30.5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 19 08:13:18 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52523.D
Acq On : 19 Sep 2015 5:07 am
Operator : sarad
Sample : jc4005-6
Misc : op87313,e2p2265,31.9
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 21 16:31:21 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Sep 17 16:36:14 2015
Response via : Initial Calibration

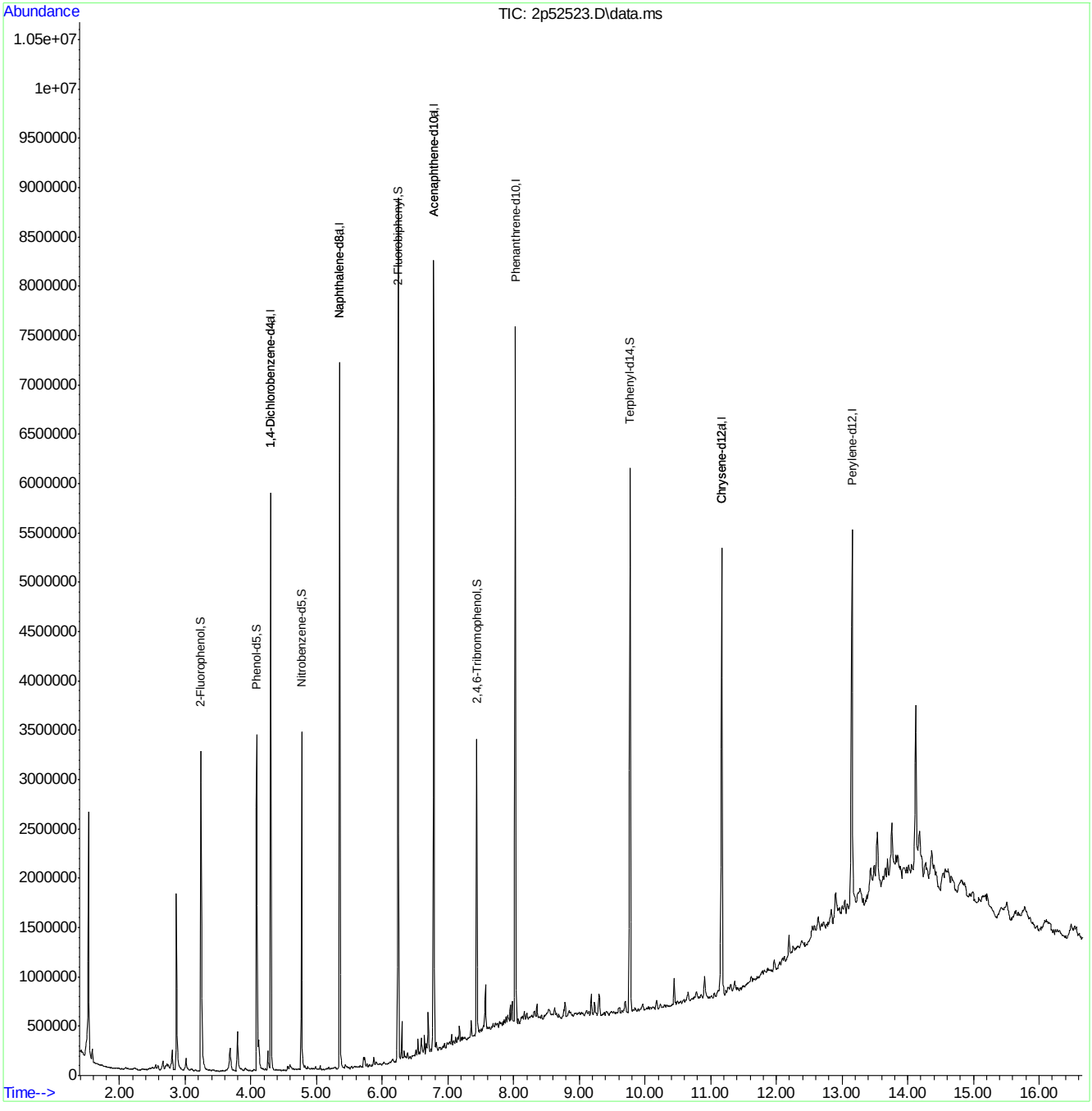
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.302	152	727059	40.00 ppm	-0.02
24) Naphthalene-d8	5.350	136	2593177	40.00 ppm	-0.02
47) Acenaphthene-d10	6.784	164	1432869	40.00 ppm	-0.02
69) Phenanthrene-d10	8.025	188	2208466	40.00 ppm	-0.02
83) Chrysene-d12	11.170	240	2014186	40.00 ppm	-0.02
92) Perylene-d12	13.154	264	1735026	40.00 ppm	-0.01
102) 1,4-Dichlorobenzene-d4a	4.302	152	727059	40.00 ppm	-0.02
104) Naphthalene-d8a	5.350	136	2593141	40.00 ppm	-0.02
106) Acenaphthene-d10a	6.784	164	1432869	40.00 ppm	-0.02
109) Chrysene-d12a	11.170	240	2014186	40.00 ppm	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	3.238	112	1004703	39.99 ppm	-0.03
Spiked Amount 50.000	Range 11 - 58		Recovery = 79.98%#		
8) Phenol-d5	4.088	99	1154518	39.70 ppm	-0.02
Spiked Amount 50.000	Range 10 - 59		Recovery = 79.40%#		
25) Nitrobenzene-d5	4.773	82	879434	41.11 ppm	-0.02
Spiked Amount 50.000	Range 19 - 61		Recovery = 82.22%#		
51) 2-Fluorobiphenyl	6.244	172	2019699	45.41 ppm	-0.02
Spiked Amount 50.000	Range 21 - 58		Recovery = 90.82%#		
73) 2,4,6-Tribromophenol	7.442	330	301711	51.77 ppm	-0.02
Spiked Amount 50.000	Range 12 - 68		Recovery = 103.54%#		
85) Terphenyl-d14	9.774	244	1960265	48.97 ppm	-0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 97.94%#		
Target Compounds					Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52523.D
Acq On : 19 Sep 2015 5:07 am
Operator : sarad
Sample : jc4005-6
Misc : op87313,e2p2265,31.9
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 21 16:31:21 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Sep 17 16:36:14 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117994.D
Acq On : 18 Sep 2015 10:01 pm
Operator : sarad
Sample : jc4005-7
Misc : op87313,em4935,30.5
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 19 08:15:18 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.798	152	280267	40.00	ppm	0.00
24) Naphthalene-d8	5.957	136	1041928	40.00	ppm	0.00
47) Acenaphthene-d10	8.339	164	562123	40.00	ppm	-0.01
69) Phenanthrene-d10	10.988	188	887556	40.00	ppm	-0.02
83) Chrysene-d12	16.185	240	874285	40.00	ppm	-0.03
92) Perylene-d12	18.829	264	854996	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.798	152	280267	40.00	ppm	0.00
104) Acenaphthene-d10a	8.339	164	562123	40.00	ppm	-0.01
107) Chrysene-d12a	16.185	240	874285	40.00	ppm	-0.03
109) Naphthalene-d8a	5.957	136	1041928	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.837	112	408592	40.73	ppm	0.00
Spiked Amount 50.000			Recovery = 81.46%			
8) Phenol-d5	4.552	99	561126	39.98	ppm	-0.01
Spiked Amount 50.000			Recovery = 79.96%			
25) Nitrobenzene-d5	5.257	82	541718	42.11	ppm	0.00
Spiked Amount 50.000			Recovery = 84.22%			
51) 2-Fluorobiphenyl	7.308	172	753535	40.54	ppm	-0.01
Spiked Amount 50.000			Recovery = 81.08%			
73) 2,4,6-Tribromophenol	9.723	330	108418	38.49	ppm	-0.01
Spiked Amount 50.000			Recovery = 76.98%			
86) Terphenyl-d14	14.172	244	765443	44.32	ppm	-0.01
Spiked Amount 50.000			Recovery = 88.64%			

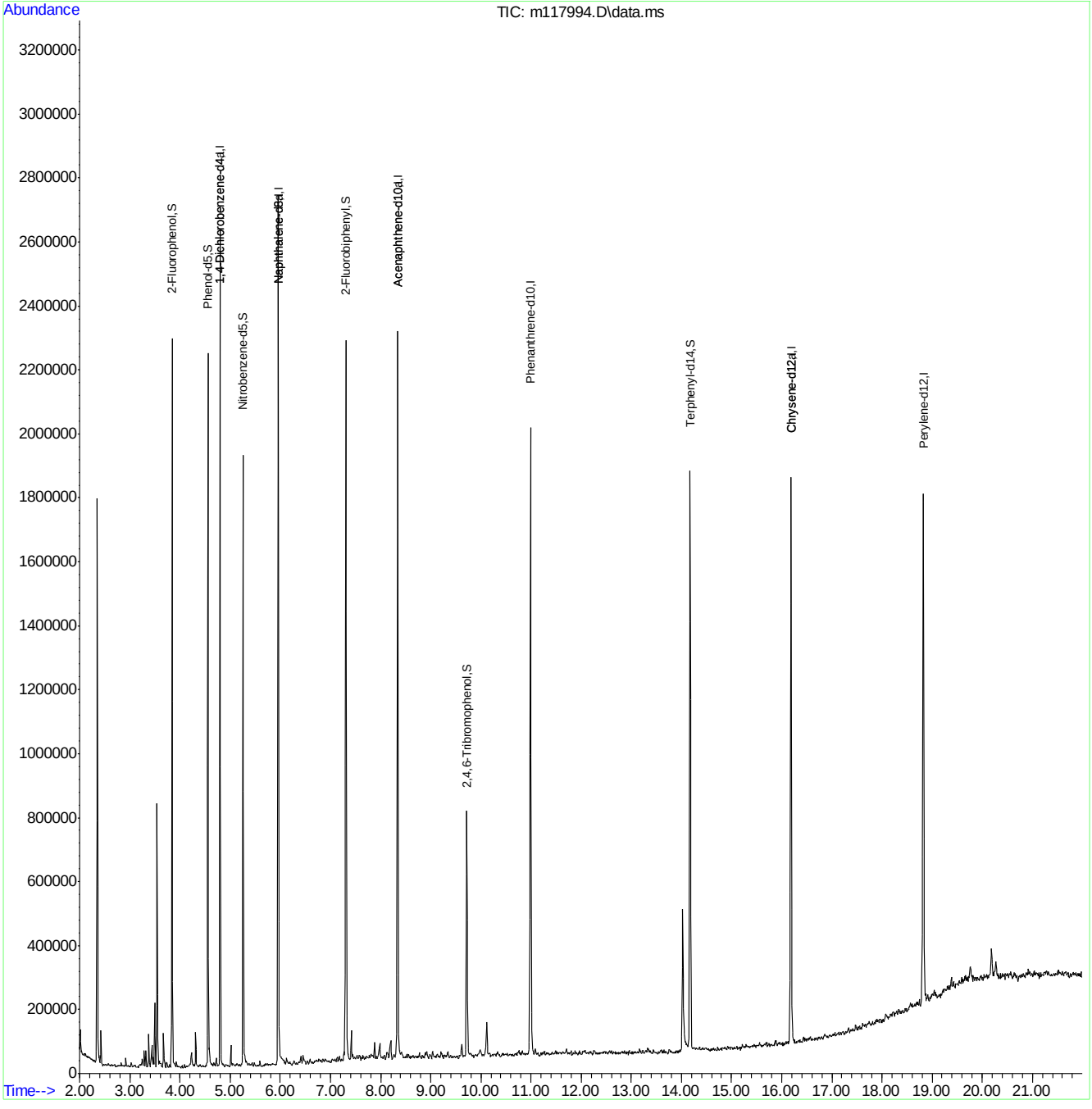
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117994.D
Acq On : 18 Sep 2015 10:01 pm
Operator : sarad
Sample : jc4005-7
Misc : op87313,em4935,30.5
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 19 08:15:18 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



MM4919.M Sat Sep 19 08:15:22 2015 MSM

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117995.D
Acq On : 18 Sep 2015 10:30 pm
Operator : sarad
Sample : jc4005-8
Misc : op87313,em4935,31.4
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 19 08:16:29 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.798	152	270645	40.00 ppm	0.00
24) Naphthalene-d8	5.957	136	1008210	40.00 ppm	0.00
47) Acenaphthene-d10	8.339	164	546893	40.00 ppm	-0.01
69) Phenanthrene-d10	10.988	188	858096	40.00 ppm	-0.02
83) Chrysene-d12	16.185	240	835065	40.00 ppm	-0.03
92) Perylene-d12	18.829	264	815915	40.00 ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.798	152	270645	40.00 ppm	0.00
104) Acenaphthene-d10a	8.339	164	546893	40.00 ppm	-0.01
107) Chrysene-d12a	16.185	240	835123	40.00 ppm	-0.03
109) Naphthalene-d8a	5.957	136	1008210	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.836	112	435720	44.97 ppm	0.00
Spiked Amount 50.000			Recovery	= 89.94%	
8) Phenol-d5	4.552	99	599393	44.22 ppm	-0.01
Spiked Amount 50.000			Recovery	= 88.44%	
25) Nitrobenzene-d5	5.257	82	566812	45.53 ppm	0.00
Spiked Amount 50.000			Recovery	= 91.06%	
51) 2-Fluorobiphenyl	7.308	172	798481	44.15 ppm	-0.01
Spiked Amount 50.000			Recovery	= 88.30%	
73) 2,4,6-Tribromophenol	9.722	330	107676	39.54 ppm	-0.01
Spiked Amount 50.000			Recovery	= 79.08%	
86) Terphenyl-d14	14.171	244	794753	48.18 ppm	-0.01
Spiked Amount 50.000			Recovery	= 96.36%	

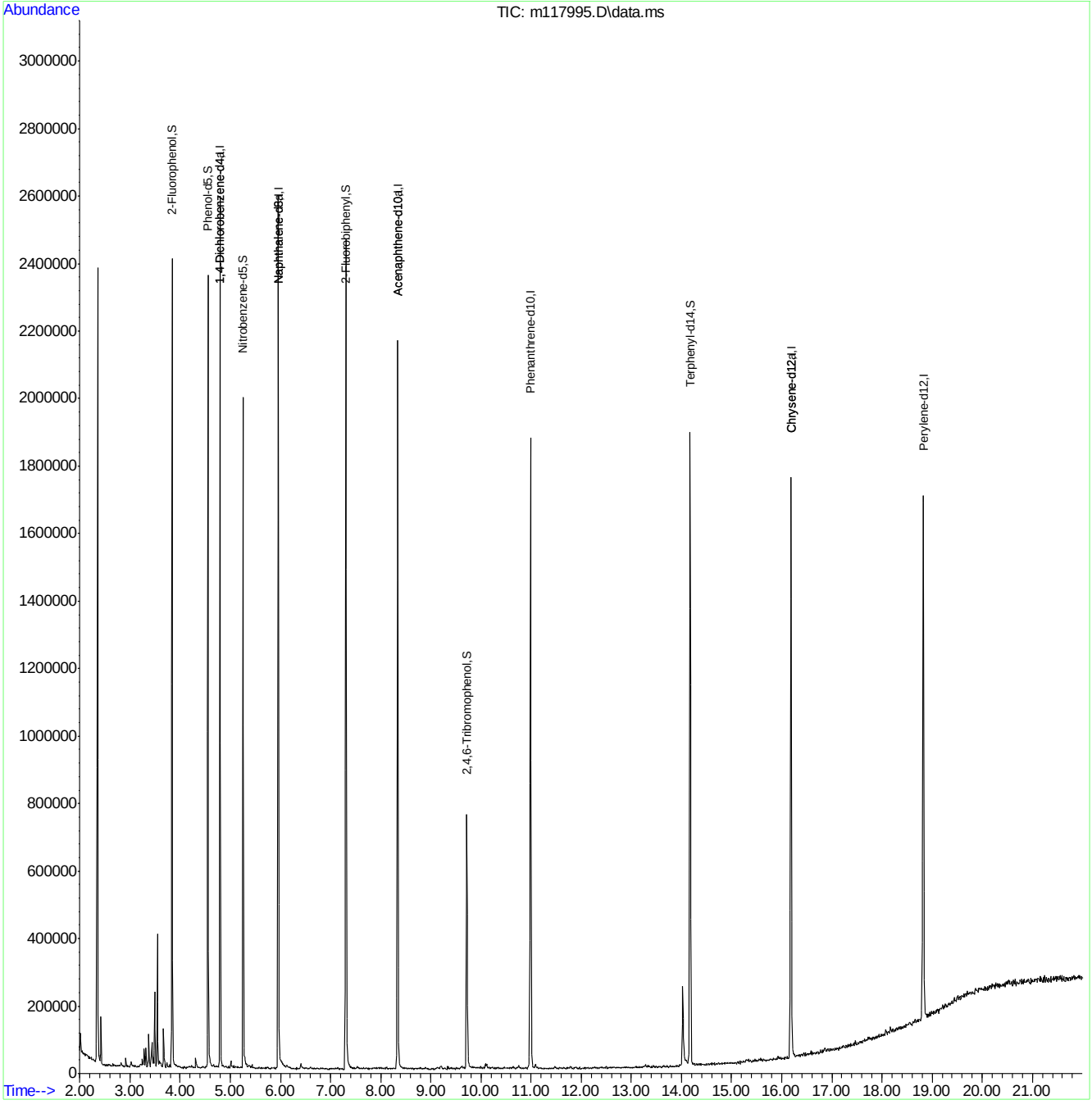
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117995.D
Acq On : 18 Sep 2015 10:30 pm
Operator : sarad
Sample : jc4005-8
Misc : op87313,em4935,31.4
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 19 08:16:29 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



MM4919.M Sat Sep 19 08:16:33 2015 MSM

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117996.D
Acq On : 18 Sep 2015 10:58 pm
Operator : sarad
Sample : jc4005-9
Misc : op87313,em4935,31.7
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 19 08:18:13 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.798	152	263085	40.00 ppm	0.00
24) Naphthalene-d8	5.957	136	950502	40.00 ppm	0.00
47) Acenaphthene-d10	8.339	164	533722	40.00 ppm	-0.01
69) Phenanthrene-d10	10.988	188	845973	40.00 ppm	-0.02
83) Chrysene-d12	16.185	240	804912	40.00 ppm	-0.03
92) Perylene-d12	18.823	264	809775	40.00 ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.798	152	263085	40.00 ppm	0.00
104) Acenaphthene-d10a	8.339	164	533722	40.00 ppm	-0.01
107) Chrysene-d12a	16.185	240	804912	40.00 ppm	-0.03
109) Naphthalene-d8a	5.957	136	950502	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.836	112	373425	39.65 ppm	0.00
Spiked Amount 50.000			Recovery	= 79.30%	
8) Phenol-d5	4.552	99	522607	39.66 ppm	-0.01
Spiked Amount 50.000			Recovery	= 79.32%	
25) Nitrobenzene-d5	5.257	82	464584	39.58 ppm	0.00
Spiked Amount 50.000			Recovery	= 79.16%	
51) 2-Fluorobiphenyl	7.308	172	698444	39.57 ppm	-0.01
Spiked Amount 50.000			Recovery	= 79.14%	
73) 2,4,6-Tribromophenol	9.722	330	100407	37.39 ppm	-0.01
Spiked Amount 50.000			Recovery	= 74.78%	
86) Terphenyl-d14	14.171	244	687751	43.26 ppm	-0.01
Spiked Amount 50.000			Recovery	= 86.52%	

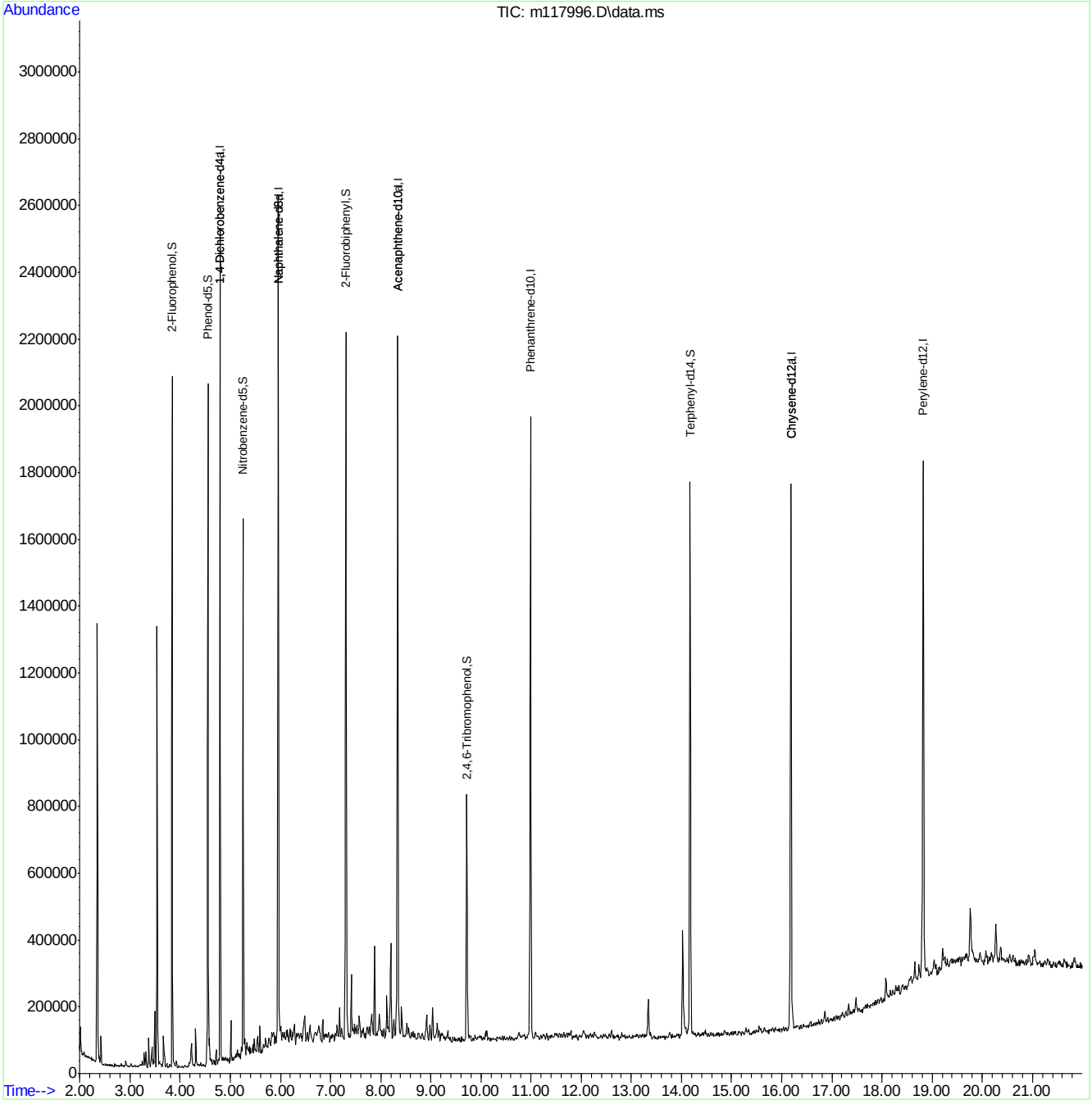
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117996.D
Acq On : 18 Sep 2015 10:58 pm
Operator : sarad
Sample : jc4005-9
Misc : op87313,em4935,31.7
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 19 08:18:13 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



MM4919.M Sat Sep 19 08:18:17 2015 MSM

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117997.D
Acq On : 18 Sep 2015 11:27 pm
Operator : sarad
Sample : jc4005-10
Misc : op87313,em4935,30.7
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 19 08:19:18 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.798	152	280337	40.00	ppm	0.00
24) Naphthalene-d8	5.957	136	1024647	40.00	ppm	0.00
47) Acenaphthene-d10	8.339	164	563487	40.00	ppm	-0.01
69) Phenanthrene-d10	10.988	188	884965	40.00	ppm	-0.02
83) Chrysene-d12	16.185	240	849674	40.00	ppm	-0.03
92) Perylene-d12	18.823	264	827952	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.798	152	280337	40.00	ppm	0.00
104) Acenaphthene-d10a	8.339	164	563487	40.00	ppm	-0.01
107) Chrysene-d12a	16.185	240	849674	40.00	ppm	-0.03
109) Naphthalene-d8a	5.957	136	1024647	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.836	112	415391	41.39	ppm	0.00
Spiked Amount 50.000			Recovery = 82.78%			
8) Phenol-d5	4.552	99	568640	40.50	ppm	-0.01
Spiked Amount 50.000			Recovery = 81.00%			
25) Nitrobenzene-d5	5.257	82	545266	43.10	ppm	0.00
Spiked Amount 50.000			Recovery = 86.20%			
51) 2-Fluorobiphenyl	7.308	172	774458	41.56	ppm	-0.01
Spiked Amount 50.000			Recovery = 83.12%			
73) 2,4,6-Tribromophenol	9.717	330	109795	39.09	ppm	-0.02
Spiked Amount 50.000			Recovery = 78.18%			
86) Terphenyl-d14	14.171	244	742777	44.26	ppm	-0.01
Spiked Amount 50.000			Recovery = 88.52%			

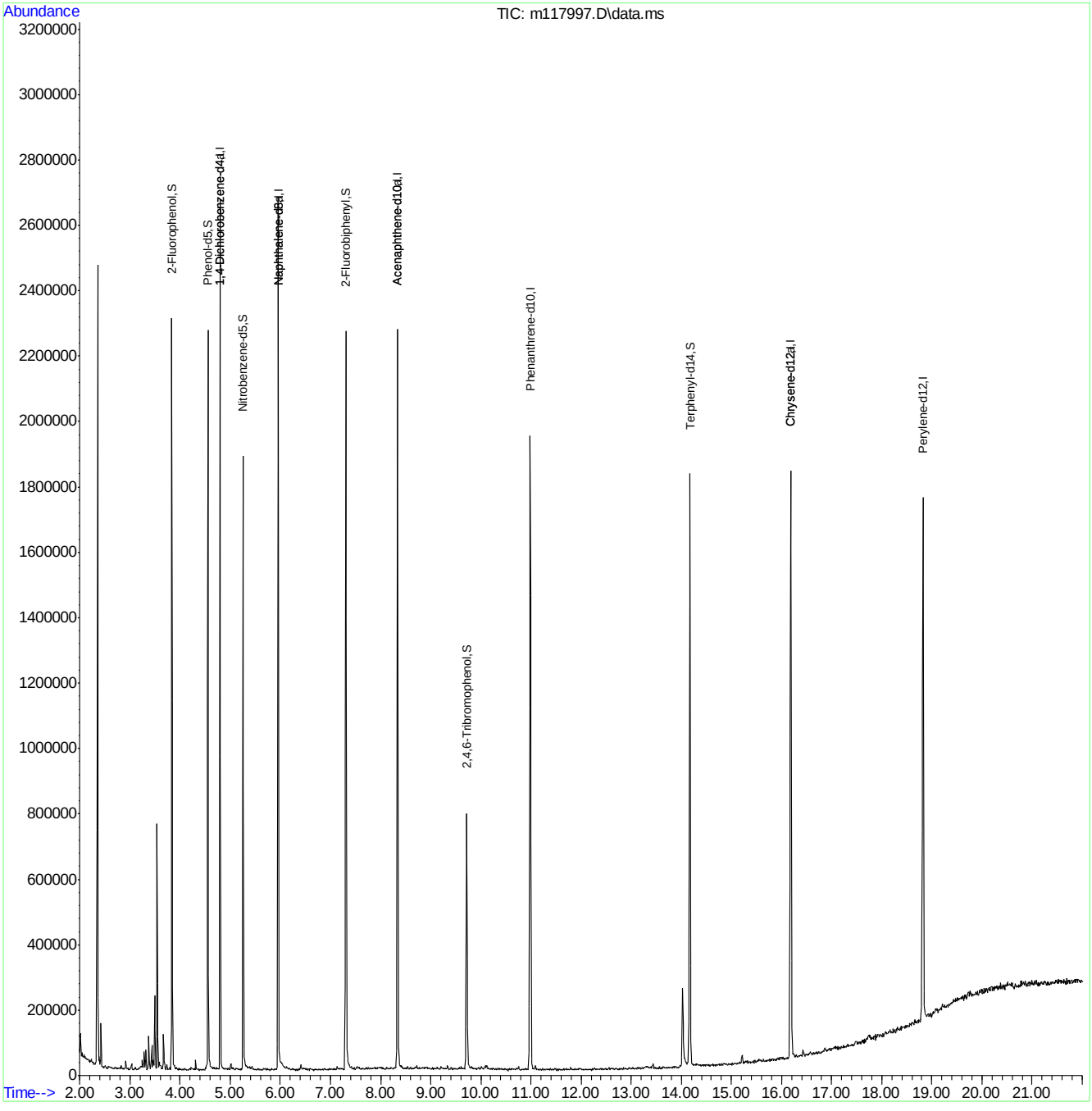
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117997.D
Acq On : 18 Sep 2015 11:27 pm
Operator : sarad
Sample : jc4005-10
Misc : op87313,em4935,30.7
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 19 08:19:18 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
09/21/15 10:12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117999.D
Acq On : 19 Sep 2015 12:24 am
Operator : sarad
Sample : jc4005-11
Misc : op87313,em4935,33.4
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 19 08:26:01 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Sat Sep 19 08:22:32 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.795	152	264056	40.00	ppm	0.00
24) Naphthalene-d8	5.959	136	971427	40.00	ppm	0.00
47) Acenaphthene-d10	8.342	164	554205	40.00	ppm	0.00
69) Phenanthrene-d10	10.991	188	867524	40.00	ppm	-0.01
83) Chrysene-d12	16.188	240	828208	40.00	ppm	-0.02
92) Perylene-d12	18.826	264	823043	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.795	152	264018	40.00	ppm	0.00
104) Acenaphthene-d10a	8.342	164	554205	40.00	ppm	0.00
107) Chrysene-d12a	16.188	240	828208	40.00	ppm	-0.02
109) Naphthalene-d8a	5.959	136	971427	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.834	112	383827	40.61	ppm	0.00
Spiked Amount 50.000			Recovery	=	81.22%	
8) Phenol-d5	4.549	99	528971	40.00	ppm	-0.01
Spiked Amount 50.000			Recovery	=	80.00%	
25) Nitrobenzene-d5	5.254	82	494716	41.24	ppm	0.00
Spiked Amount 50.000			Recovery	=	82.48%	
51) 2-Fluorobiphenyl	7.311	172	710499	38.77	ppm	0.00
Spiked Amount 50.000			Recovery	=	77.54%	
73) 2,4,6-Tribromophenol	9.720	330	104684	38.02	ppm	-0.01
Spiked Amount 50.000			Recovery	=	76.04%	
86) Terphenyl-d14	14.174	244	690150	42.19	ppm	0.00
Spiked Amount 50.000			Recovery	=	84.38%	
Target Compounds						Qvalue
30) 2,4-Dimethylphenol	5.602	107	34787m	3.55	ppm	
59) Acenaphthene	8.390	153	9377	0.57	ppm	87
66) Fluorene	9.276	166	24341	1.30	ppm	74
84) Pyrene	13.768	202	11831	0.44	ppm	84

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

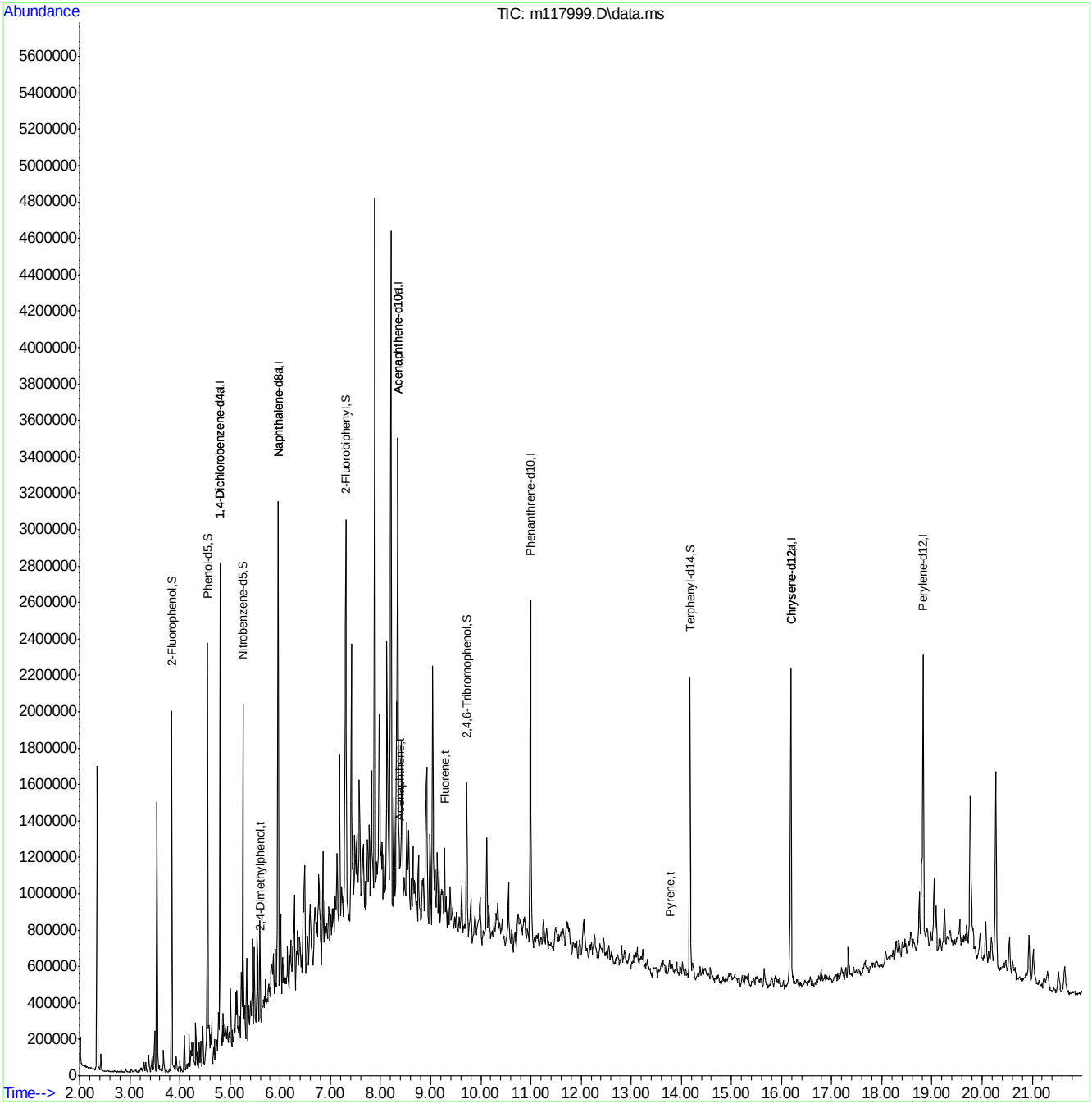
9.1.10

9

Quantitation Report (QT Reviewed)

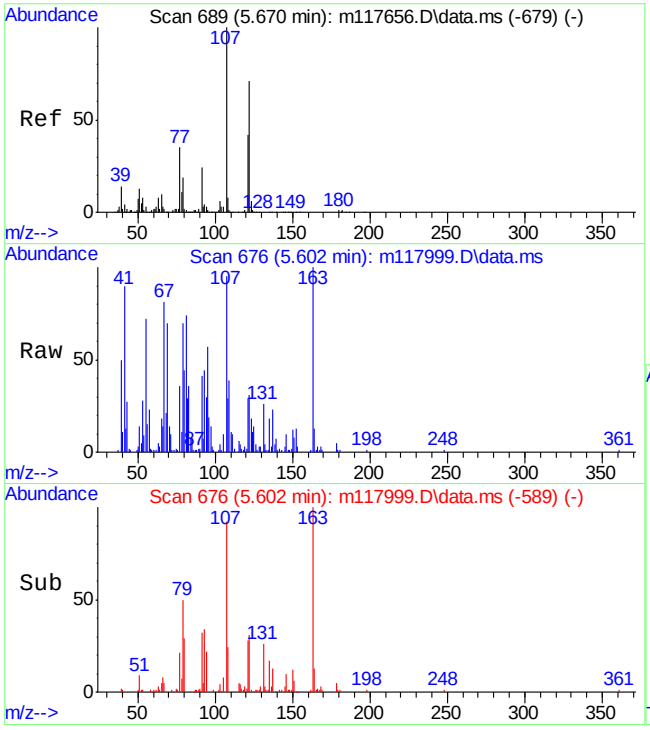
Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117999.D
Acq On : 19 Sep 2015 12:24 am
Operator : sarad
Sample : jc4005-11
Misc : op87313,em4935,33.4
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 19 08:26:01 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Sat Sep 19 08:22:32 2015
Response via : Initial Calibration



MM4919.M Sat Sep 19 08:26:08 2015 MSM

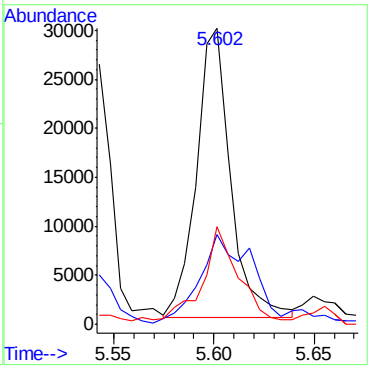
Page: 2

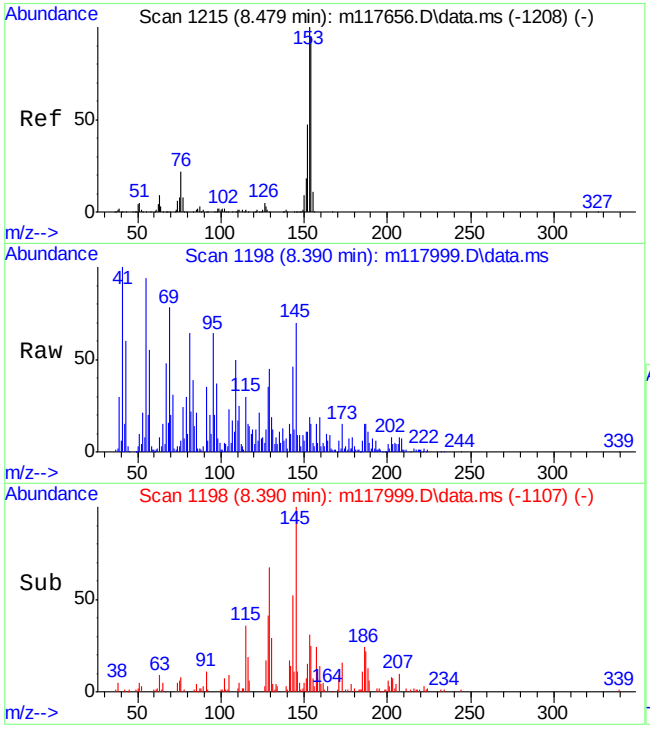


#30
2,4-Dimethylphenol
Concen: 3.55 ppm m
RT: 5.602 min Scan# 676
Delta R.T. -0.035 min
Lab File: m117999.D
Acq: 19 Sep 2015 12:24 am

Tgt Ion:107 Resp: 34787

Ion	Ratio	Lower	Upper
107	100		
121	30.3	12.4	72.4
122	33.0	38.1	98.1#

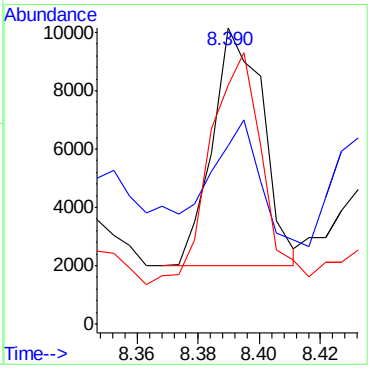


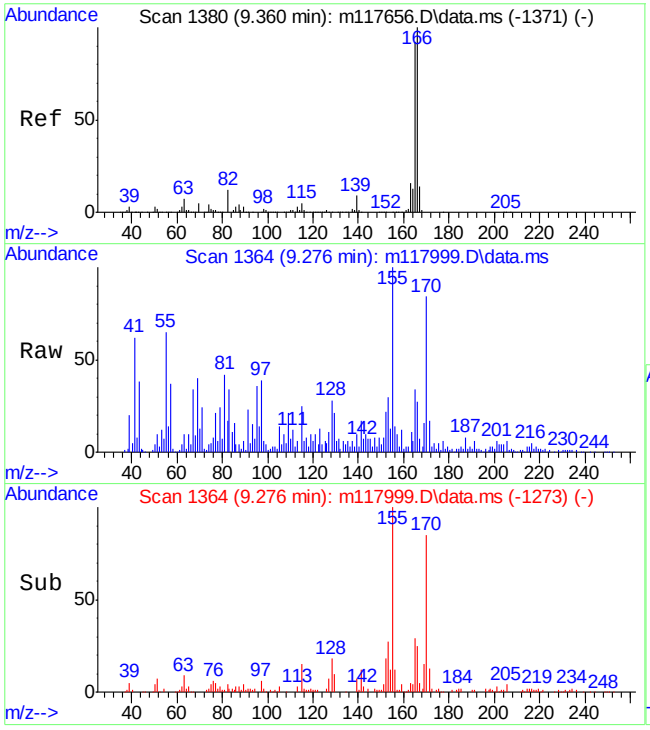


#59
Acenaphthene
Concen: 0.57 ppm
RT: 8.390 min Scan# 1198
Delta R.T. -0.014 min
Lab File: m117999.D
Acq: 19 Sep 2015 12:24 am

Tgt Ion:153 Resp: 9377

Ion	Ratio	Lower	Upper
153	100		
152	33.8	17.4	77.4
154	79.8	58.1	118.1

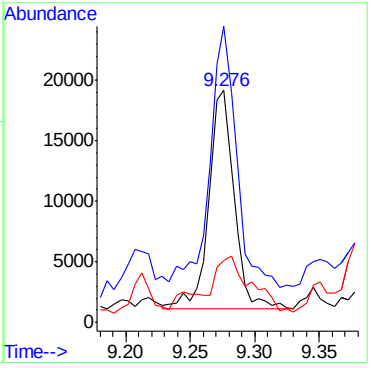


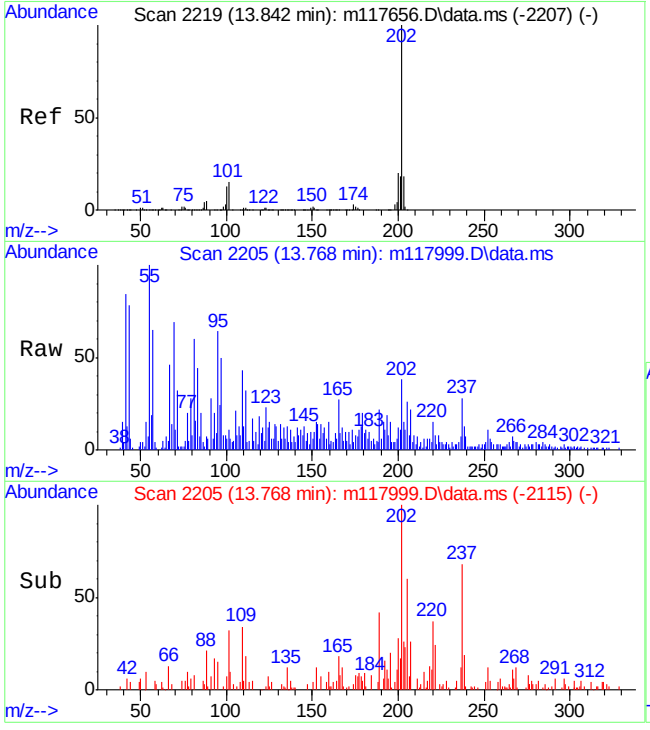


#66
Fluorene
Concen: 1.30 ppm
RT: 9.276 min Scan# 1364
Delta R.T. -0.014 min
Lab File: m117999.D
Acq: 19 Sep 2015 12:24 am

Tgt Ion:166 Resp: 24341

Ion	Ratio	Lower	Upper
166	100		
165	117.7	61.9	121.9
167	22.3	0.0	43.6

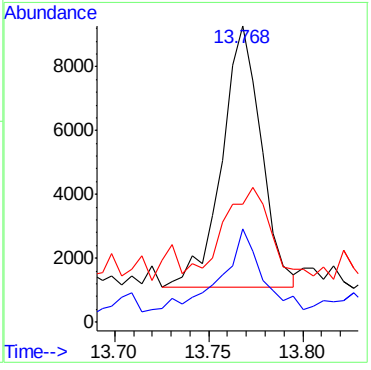




#84
Pyrene
Concen: 0.44 ppm
RT: 13.768 min Scan# 2205
Delta R.T. -0.019 min
Lab File: m117999.D
Acq: 19 Sep 2015 12:24 am

Tgt Ion:202 Resp: 11831

Ion	Ratio	Lower	Upper
202	100		
200	28.8	0.0	50.0
203	23.5	0.0	47.9



9.1.10

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117998.D
Acq On : 18 Sep 2015 11:56 pm
Operator : sarad
Sample : jc4005-12
Misc : op87313,em4935,30.7
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 19 08:20:31 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.797	152	285979	40.00	ppm	0.00
24) Naphthalene-d8	5.956	136	1044442	40.00	ppm	0.00
47) Acenaphthene-d10	8.338	164	580670	40.00	ppm	-0.01
69) Phenanthrene-d10	10.988	188	924468	40.00	ppm	-0.02
83) Chrysene-d12	16.184	240	900310	40.00	ppm	-0.03
92) Perylene-d12	18.823	264	893990	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.797	152	285979	40.00	ppm	0.00
104) Acenaphthene-d10a	8.338	164	580670	40.00	ppm	-0.01
107) Chrysene-d12a	16.184	240	901701	40.00	ppm	-0.03
109) Naphthalene-d8a	5.956	136	1044442	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.836	112	431499	42.15	ppm	0.00
Spiked Amount 50.000			Recovery = 84.30%			
8) Phenol-d5	4.552	99	585533	40.88	ppm	-0.01
Spiked Amount 50.000			Recovery = 81.76%			
25) Nitrobenzene-d5	5.257	82	560168	43.43	ppm	0.00
Spiked Amount 50.000			Recovery = 86.86%			
51) 2-Fluorobiphenyl	7.308	172	784498	40.85	ppm	-0.01
Spiked Amount 50.000			Recovery = 81.70%			
73) 2,4,6-Tribromophenol	9.716	330	111458	37.99	ppm	-0.02
Spiked Amount 50.000			Recovery = 75.98%			
86) Terphenyl-d14	14.171	244	810038	45.55	ppm	-0.01
Spiked Amount 50.000			Recovery = 91.10%			

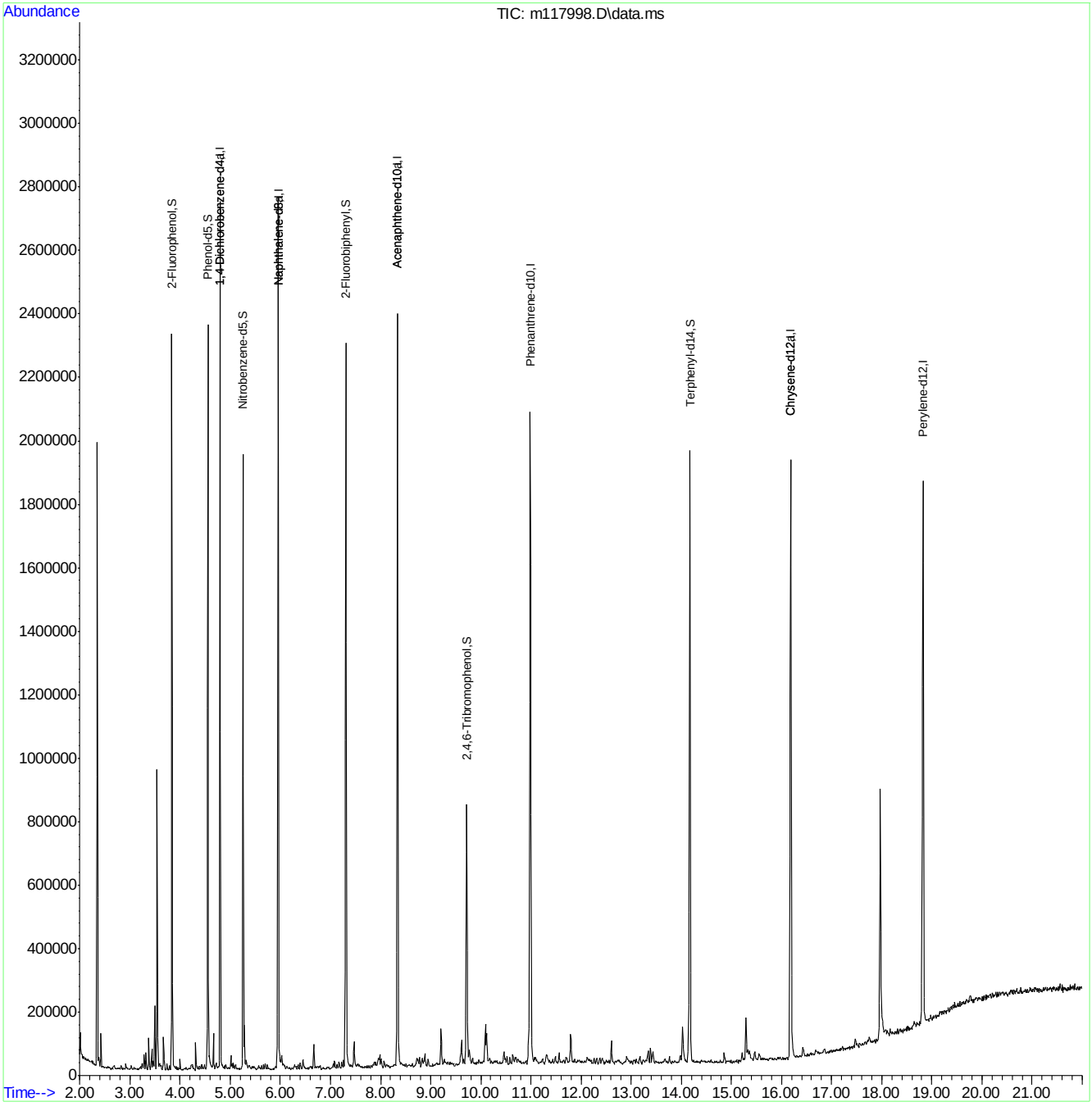
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117998.D
Acq On : 18 Sep 2015 11:56 pm
Operator : sarad
Sample : jc4005-12
Misc : op87313,em4935,30.7
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 19 08:20:31 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



MM4919.M Sat Sep 19 08:20:35 2015 MSM

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52522.D
Acq On : 19 Sep 2015 4:46 am
Operator : sarad
Sample : jc4005-13
Misc : op87313,e2p2265,30.0
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 21 16:30:03 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Sep 17 16:36:14 2015
Response via : Initial Calibration

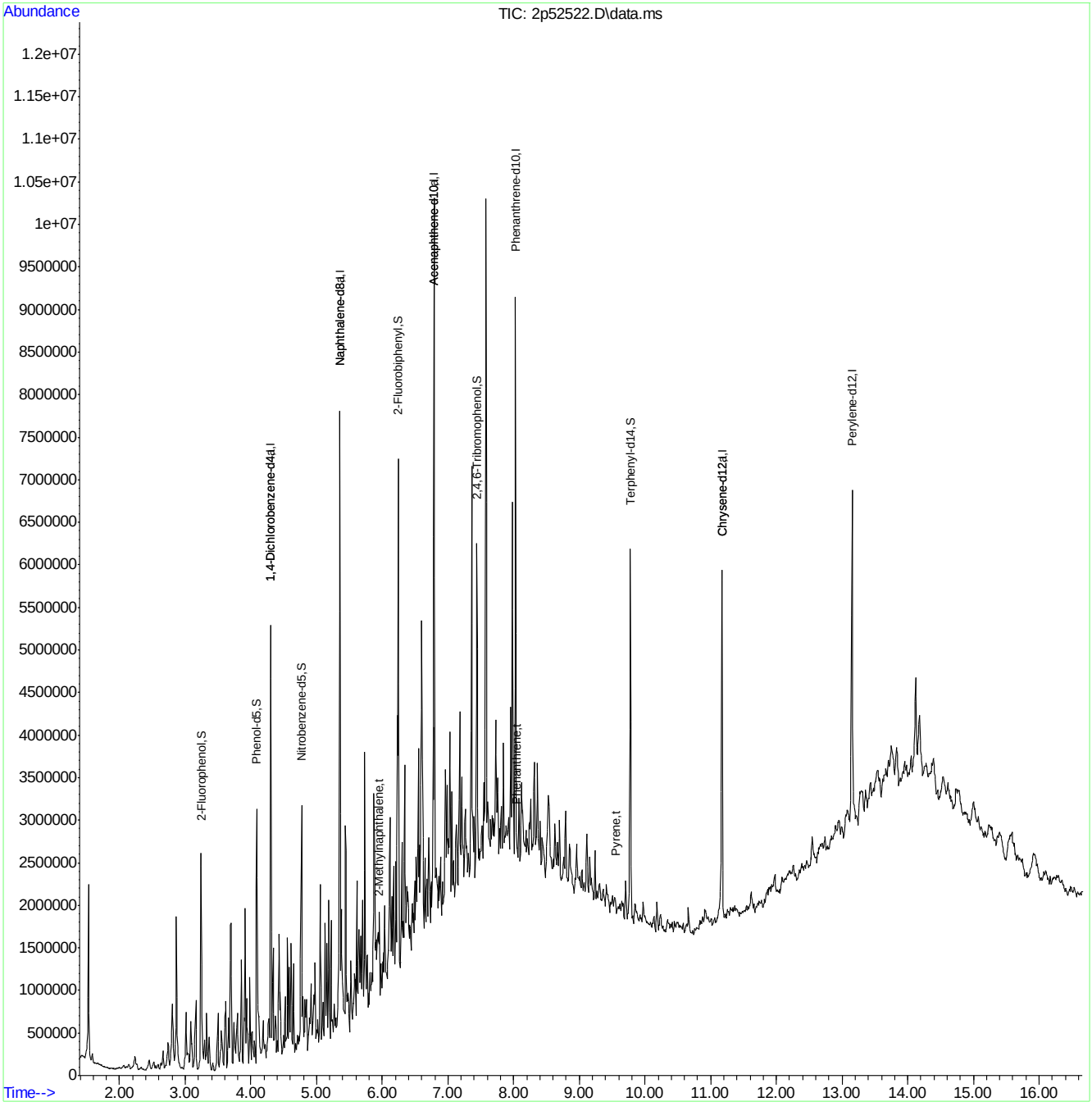
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.302	152	662665	40.00 ppm	-0.02
24) Naphthalene-d8	5.356	136	2191032	40.00 ppm	-0.02
47) Acenaphthene-d10	6.789	164	1181733	40.00 ppm	-0.02
69) Phenanthrene-d10	8.030	188	1907181	40.00 ppm	-0.01
83) Chrysene-d12	11.175	240	1843402	40.00 ppm	-0.02
92) Perylene-d12	13.154	264	1661491	40.00 ppm	-0.01
102) 1,4-Dichlorobenzene-d4a	4.302	152	662665	40.00 ppm	-0.02
104) Naphthalene-d8a	5.356	136	2191032	40.00 ppm	-0.02
106) Acenaphthene-d10a	6.789	164	1181733	40.00 ppm	-0.02
109) Chrysene-d12a	11.175	240	1843402	40.00 ppm	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	3.243	112	796645	34.79 ppm	-0.02
Spiked Amount 50.000	Range 11 - 58		Recovery	= 69.58%#	
8) Phenol-d5	4.088	99	850277	32.08 ppm	-0.02
Spiked Amount 50.000	Range 10 - 59		Recovery	= 64.16%#	
25) Nitrobenzene-d5	4.773	82	675148	37.35 ppm	-0.02
Spiked Amount 50.000	Range 19 - 61		Recovery	= 74.70%#	
51) 2-Fluorobiphenyl	6.243	172	1394121	38.01 ppm	-0.02
Spiked Amount 50.000	Range 21 - 58		Recovery	= 76.02%#	
73) 2,4,6-Tribromophenol	7.442	330	221785	44.07 ppm	-0.02
Spiked Amount 50.000	Range 12 - 68		Recovery	= 88.14%#	
85) Terphenyl-d14	9.779	244	1518224	41.44 ppm	-0.01
Spiked Amount 50.000	Range 16 - 65		Recovery	= 82.88%#	
Target Compounds					Qvalue
44) 2-Methylnaphthalene	5.944	141	61641	1.82 ppm	97
77) Phenanthrene	8.046	178	66236	1.34 ppm	96
84) Pyrene	9.554	202	37019	0.65 ppm	95

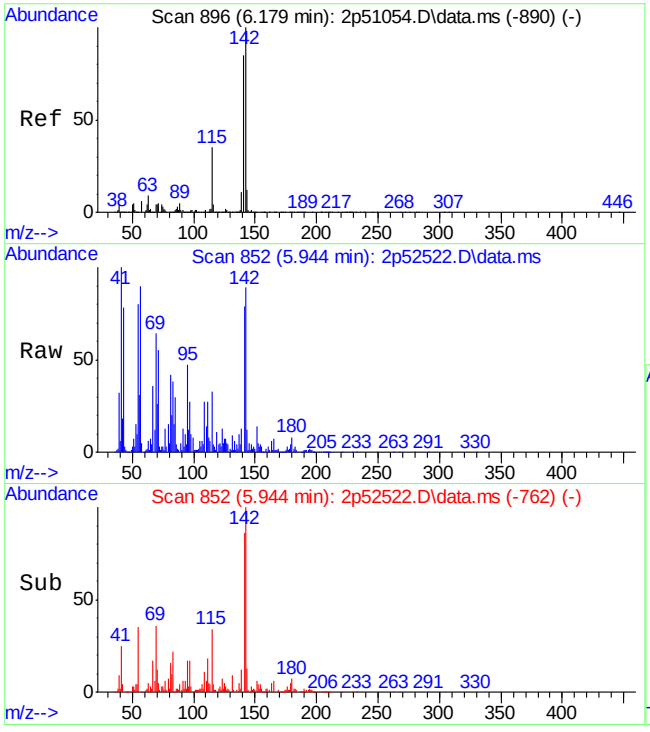
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52522.D
Acq On : 19 Sep 2015 4:46 am
Operator : sarad
Sample : jc4005-13
Misc : op87313,e2p2265,30.0
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 21 16:30:03 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Thu Sep 17 16:36:14 2015
Response via : Initial Calibration

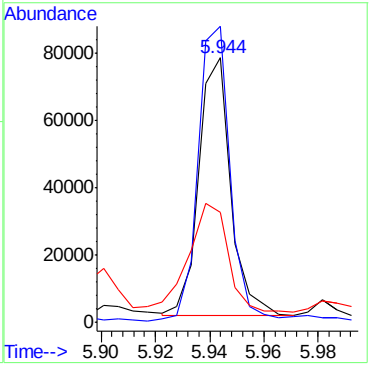


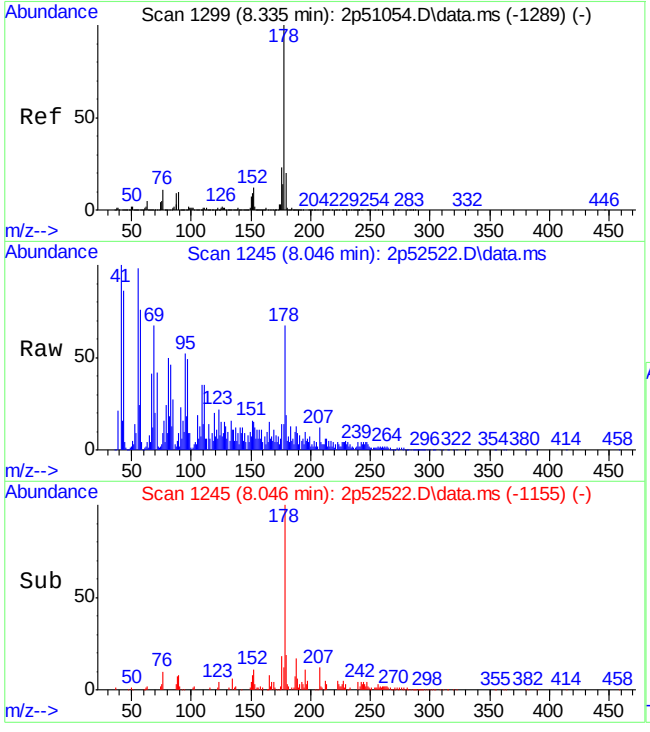


#44
2-Methylnaphthalene
Concen: 1.82 ppm
RT: 5.944 min Scan# 852
Delta R.T. -0.016 min
Lab File: 2p52522.D
Acq: 19 Sep 2015 4:46 am

Tgt Ion:141 Resp: 61641

Ion	Ratio	Lower	Upper
141	100		
142	113.8	86.8	146.8
115	37.0	4.7	64.7

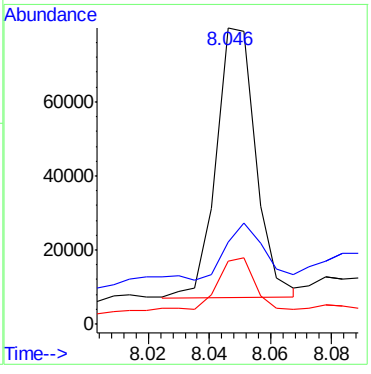


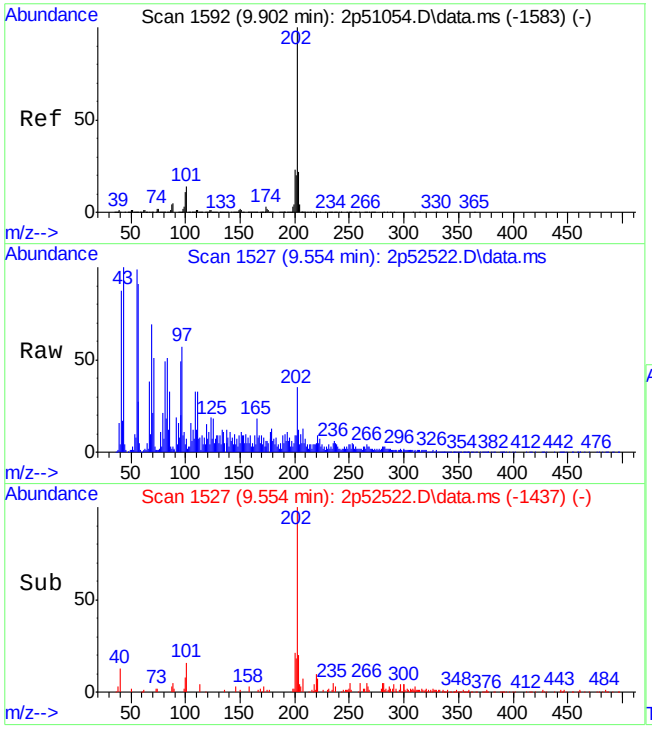


#77
Phenanthrene
Concen: 1.34 ppm
RT: 8.046 min Scan# 1245
Delta R.T. -0.016 min
Lab File: 2p52522.D
Acq: 19 Sep 2015 4:46 am

Tgt Ion:178 Resp: 66236

Ion	Ratio	Lower	Upper
178	100		
179	12.9	0.0	45.6
176	17.8	0.0	48.8

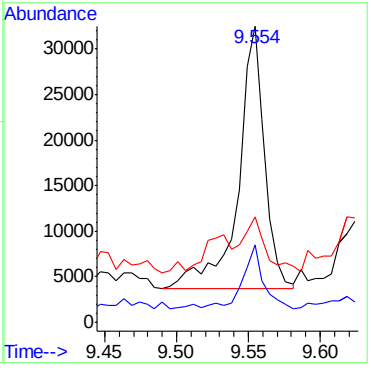




#84
Pyrene
Concen: 0.65 ppm
RT: 9.554 min Scan# 1527
Delta R.T. -0.016 min
Lab File: 2p52522.D
Acq: 19 Sep 2015 4:46 am

Tgt Ion:202 Resp: 37019

Ion	Ratio	Lower	Upper
202	100		
200	23.1	0.0	50.2
203	20.1	0.0	48.6



9.1.12

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52519.D
Acq On : 19 Sep 2015 3:42 am
Operator : sarad
Sample : jc4005-14
Misc : op87313,e2p2265,32.4
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 21 16:01:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration

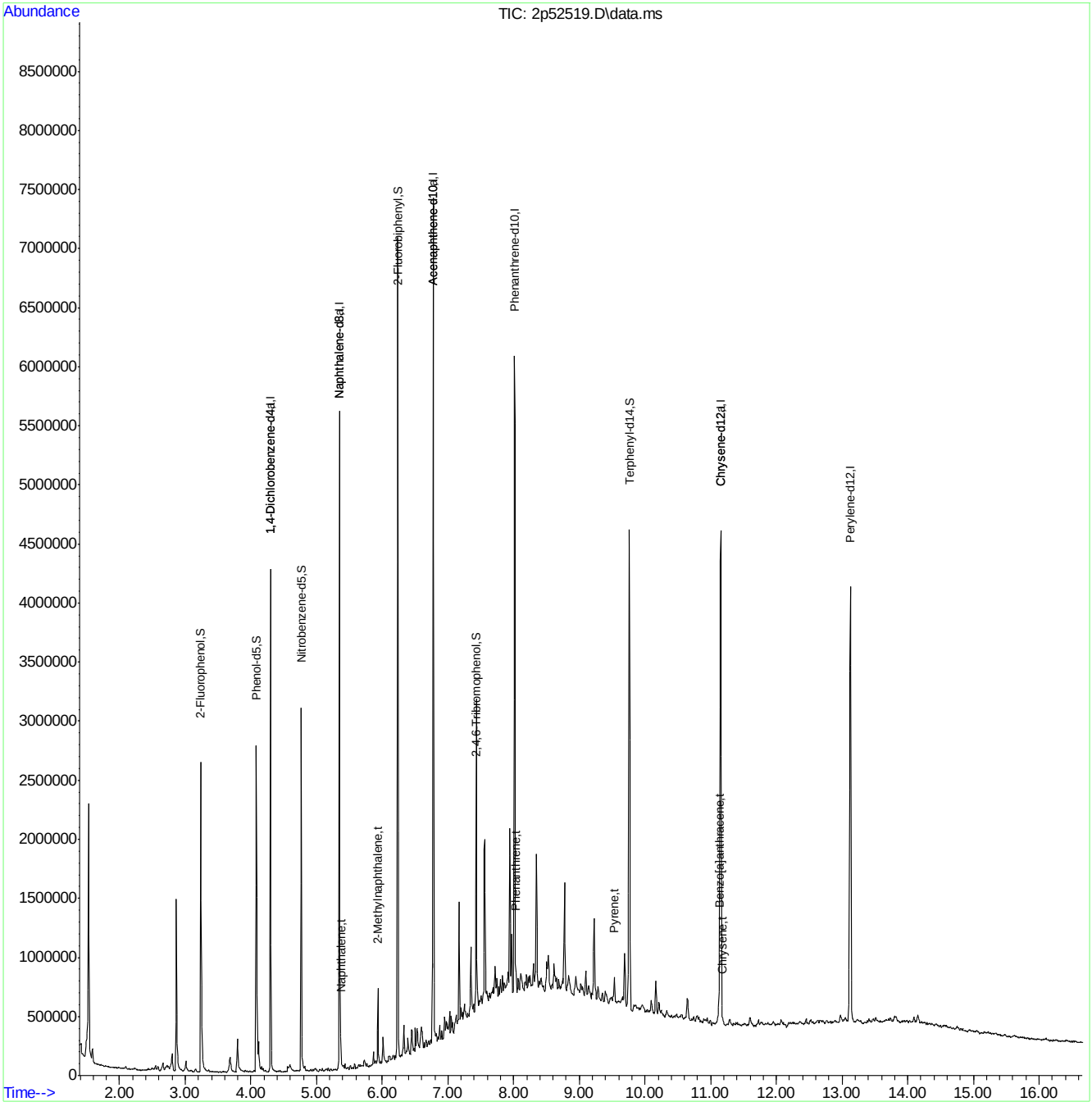
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.302	152	599723	40.00 ppm	0.00
24) Naphthalene-d8	5.350	136	2108634	40.00 ppm	-0.01
47) Acenaphthene-d10	6.778	164	1175249	40.00 ppm	-0.02
69) Phenanthrene-d10	8.014	188	1777033	40.00 ppm	-0.02
83) Chrysene-d12	11.153	240	1867753	40.00 ppm	-0.03
92) Perylene-d12	13.127	264	1686441	40.00 ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	4.302	152	599723	40.00 ppm	0.00
104) Naphthalene-d8a	5.350	136	2108634	40.00 ppm	0.00
106) Acenaphthene-d10a	6.778	164	1175249	40.00 ppm	0.00
109) Chrysene-d12a	11.153	240	1867753	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.237	112	739252	35.67 ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery	= 71.34%#	
8) Phenol-d5	4.083	99	876817	36.55 ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery	= 73.10%#	
25) Nitrobenzene-d5	4.767	82	699573	40.21 ppm	-0.01
Spiked Amount 50.000	Range 19 - 61		Recovery	= 80.42%#	
51) 2-Fluorobiphenyl	6.238	172	1590714	43.61 ppm	-0.01
Spiked Amount 50.000	Range 21 - 58		Recovery	= 87.22%#	
73) 2,4,6-Tribromophenol	7.436	330	214642	45.78 ppm	-0.01
Spiked Amount 50.000	Range 12 - 68		Recovery	= 91.56%#	
85) Terphenyl-d14	9.763	244	1557123	41.95 ppm	-0.02
Spiked Amount 50.000	Range 16 - 65		Recovery	= 83.90%#	
Target Compounds					Qvalue
38) Naphthalene	5.366	128	73679	1.39 ppm	99
44) 2-Methylnaphthalene	5.933	141	113256	3.48 ppm	96
77) Phenanthrene	8.035	178	102504	2.22 ppm	100
84) Pyrene	9.533	202	99935	1.74 ppm	98
88) Benzo[a]anthracene	11.132	228	24220	0.43 ppm	94
90) Chrysene	11.186	228	24257	0.51 ppm	99

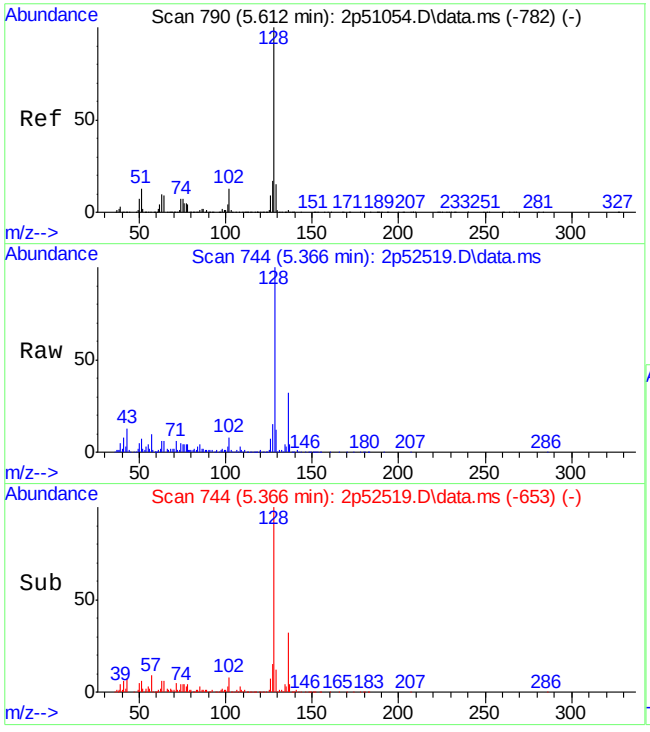
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52519.D
Acq On : 19 Sep 2015 3:42 am
Operator : sarad
Sample : jc4005-14
Misc : op87313,e2p2265,32.4
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 21 16:01:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration

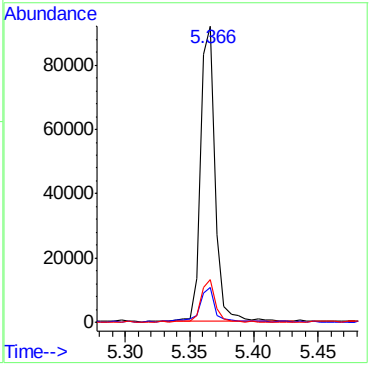


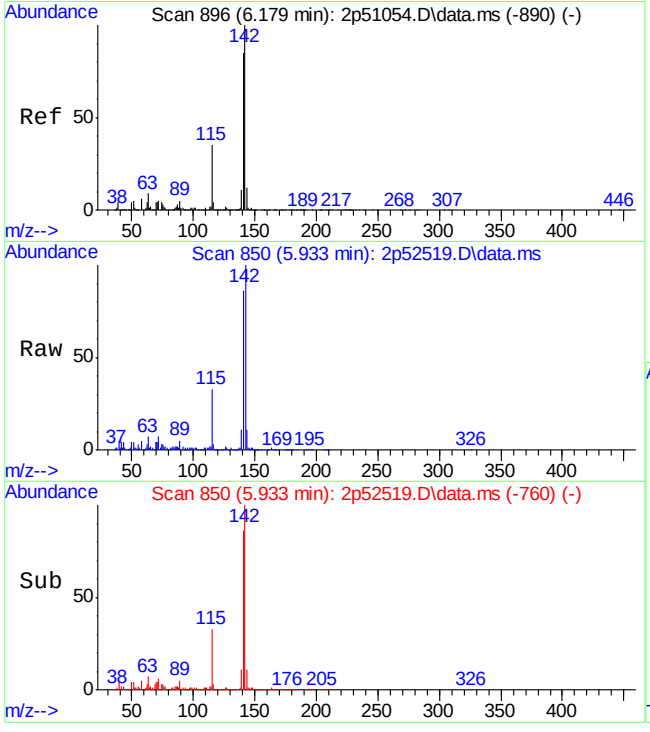


#38
Naphthalene
Concen: 1.39 ppm
RT: 5.366 min Scan# 744
Delta R.T. -0.011 min
Lab File: 2p52519.D
Acq: 19 Sep 2015 3:42 am

Tgt Ion:128 Resp: 73679

Ion	Ratio	Lower	Upper
128	100		
129	11.7	0.0	41.6
127	14.4	0.0	43.5

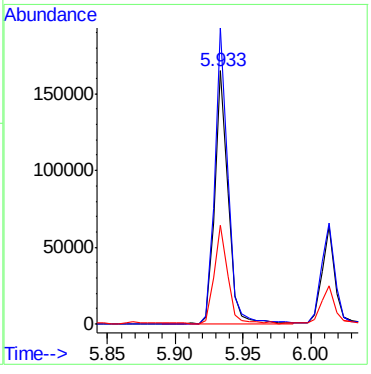


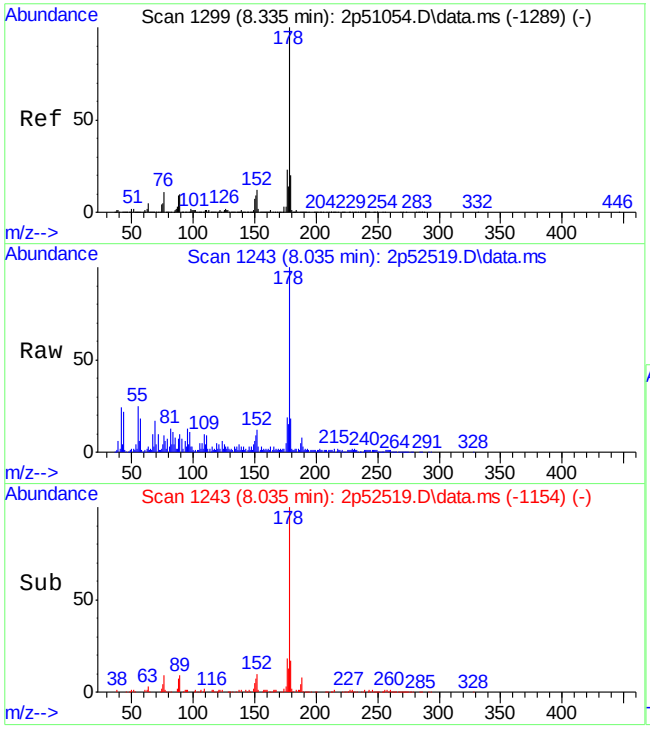


#44
2-Methylnaphthalene
Concen: 3.48 ppm
RT: 5.933 min Scan# 850
Delta R.T. -0.016 min
Lab File: 2p52519.D
Acq: 19 Sep 2015 3:42 am

Tgt Ion:141 Resp: 113256

Ion	Ratio	Lower	Upper
141	100		
142	117.0	90.1	150.1
115	38.5	5.0	65.0

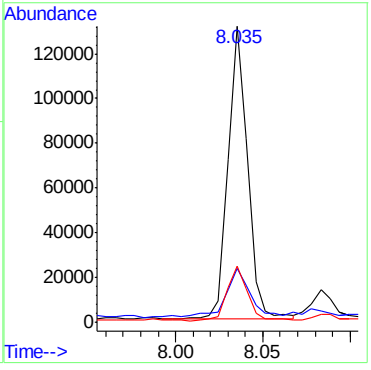


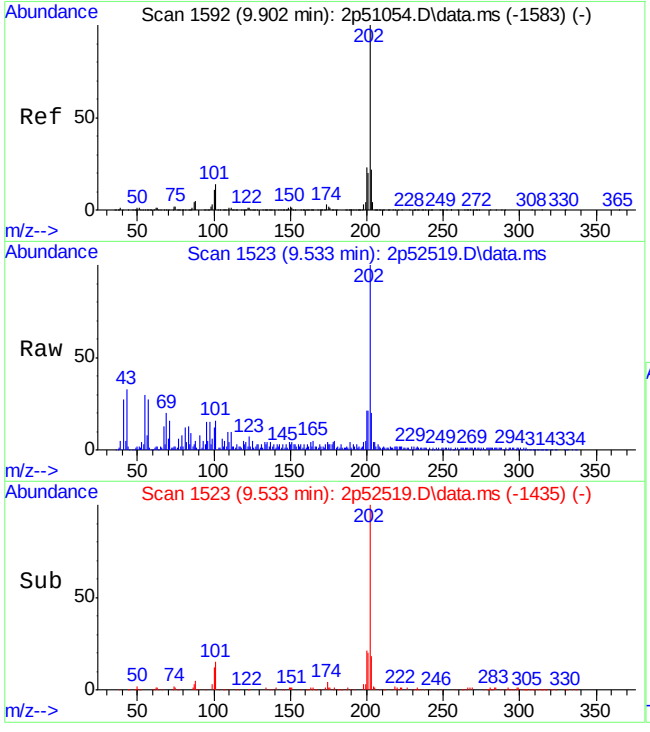


#77
Phenanthrene
Concen: 2.22 ppm
RT: 8.035 min Scan# 1243
Delta R.T. -0.021 min
Lab File: 2p52519.D
Acq: 19 Sep 2015 3:42 am

Tgt Ion:178 Resp: 102504

Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	45.9
176	18.4	0.0	48.7

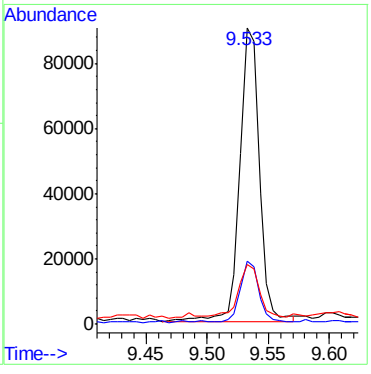


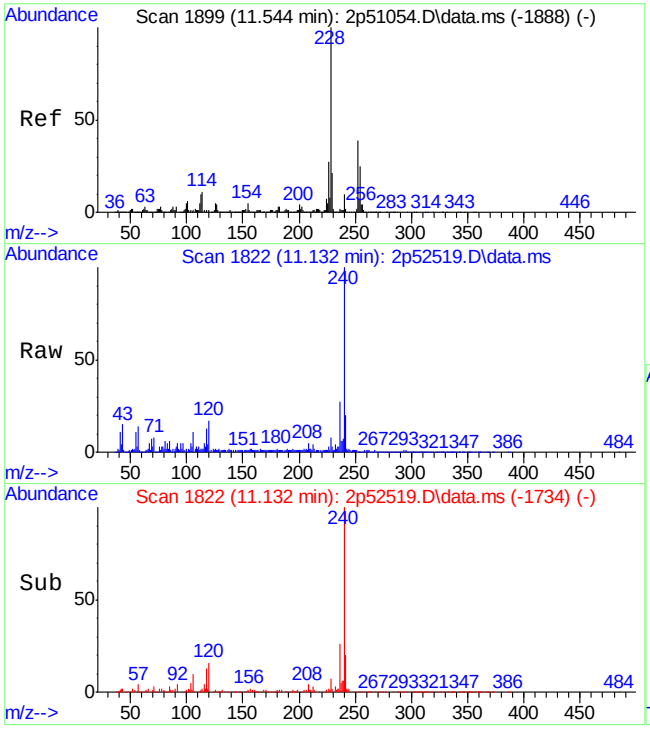


#84
Pyrene
Concen: 1.74 ppm
RT: 9.533 min Scan# 1523
Delta R.T. -0.027 min
Lab File: 2p52519.D
Acq: 19 Sep 2015 3:42 am

Tgt Ion:202 Resp: 99935

Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.0	50.9
203	17.4	0.0	48.8

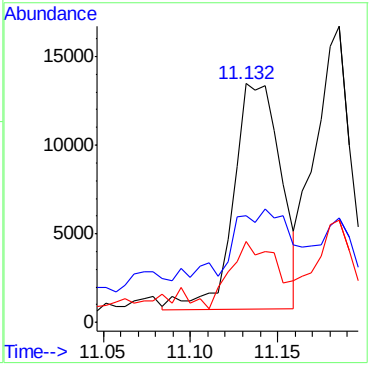


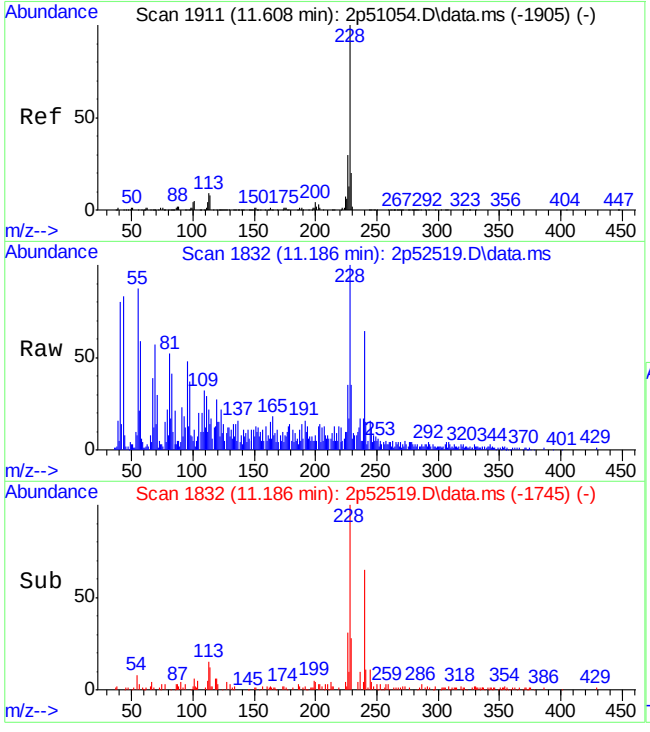


#88
Benzo[a]anthracene
Concen: 0.43 ppm
RT: 11.132 min Scan# 1822
Delta R.T. -0.027 min
Lab File: 2p52519.D
Acq: 19 Sep 2015 3:42 am

Tgt Ion:228 Resp: 24220

Ion	Ratio	Lower	Upper
228	100		
229	24.4	0.0	50.1
226	25.1	0.0	56.4

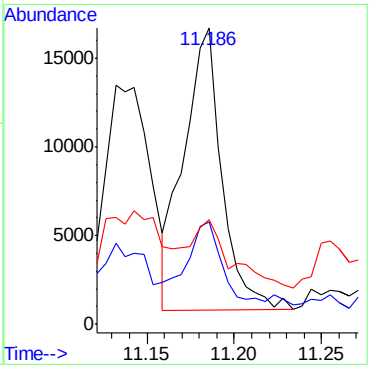




#90
Chrysene
Concen: 0.51 ppm
RT: 11.186 min Scan# 1832
Delta R.T. -0.032 min
Lab File: 2p52519.D
Acq: 19 Sep 2015 3:42 am

Tgt Ion:228 Resp: 24257

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	59.2
229	19.4	0.0	49.8



9.1.13

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52520.D
Acq On : 19 Sep 2015 4:03 am
Operator : sarad
Sample : jc4005-15
Misc : op87313,e2p2265,31.1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 21 16:11:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration

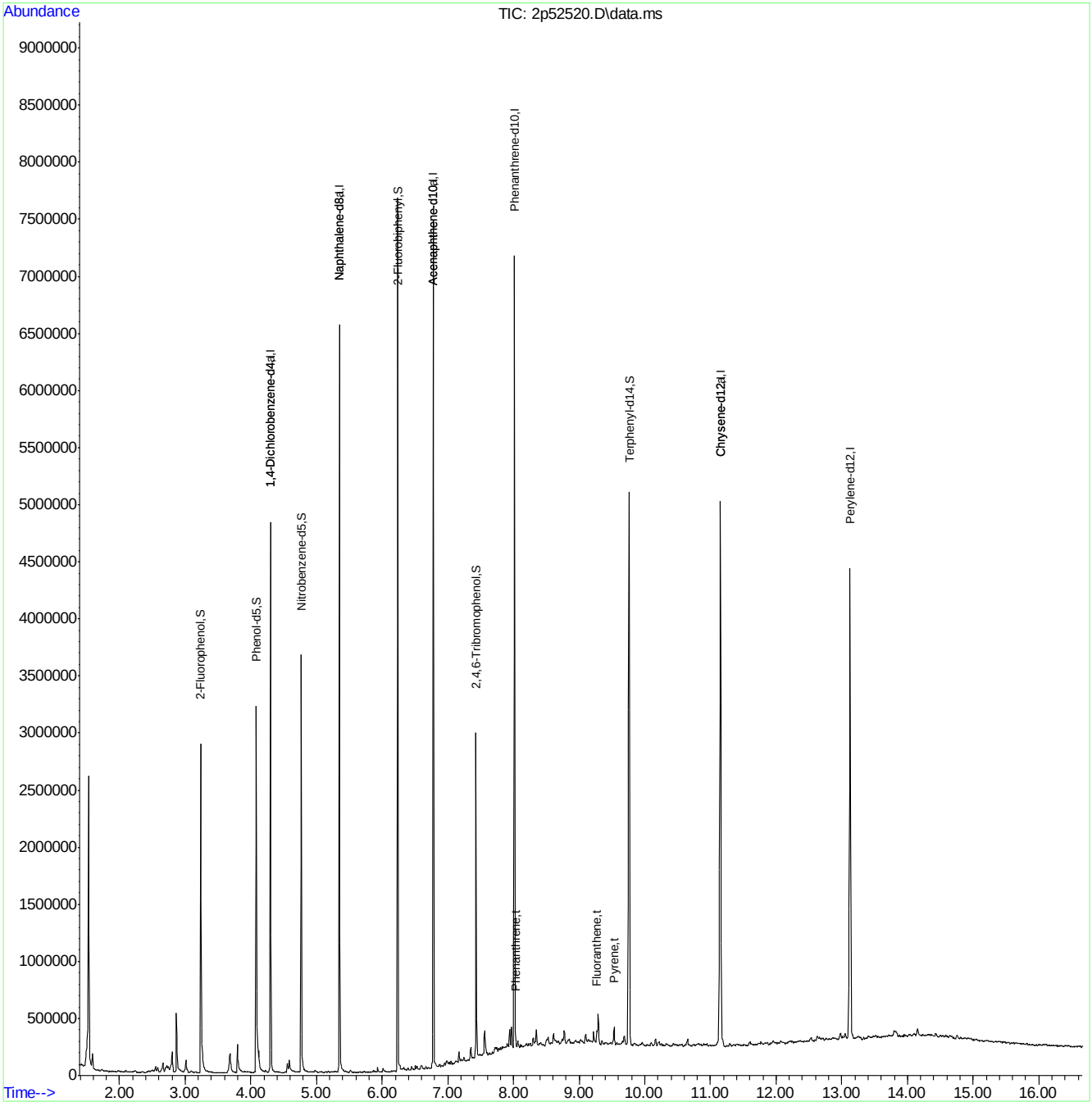
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.302	152	677225	40.00	ppm	0.00
24) Naphthalene-d8	5.350	136	2328282	40.00	ppm	-0.01
47) Acenaphthene-d10	6.778	164	1276348	40.00	ppm	-0.02
69) Phenanthrene-d10	8.014	188	2182197	40.00	ppm	-0.02
83) Chrysene-d12	11.153	240	2190102	40.00	ppm	-0.03
92) Perylene-d12	13.127	264	1944946	40.00	ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	4.302	152	677225	40.00	ppm	0.00
104) Naphthalene-d8a	5.350	136	2328282	40.00	ppm	0.00
106) Acenaphthene-d10a	6.778	164	1276348	40.00	ppm	0.00
109) Chrysene-d12a	11.153	240	2190102	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.237	112	878631	37.55	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery = 75.10%#			
8) Phenol-d5	4.082	99	1007810	37.20	ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 74.40%#			
25) Nitrobenzene-d5	4.767	82	811514	42.25	ppm	-0.01
Spiked Amount 50.000	Range 19 - 61		Recovery = 84.50%#			
51) 2-Fluorobiphenyl	6.238	172	1739454	43.91	ppm	-0.01
Spiked Amount 50.000	Range 21 - 58		Recovery = 87.82%#			
73) 2,4,6-Tribromophenol	7.431	330	227841	39.57	ppm	-0.02
Spiked Amount 50.000	Range 12 - 68		Recovery = 79.14%#			
85) Terphenyl-d14	9.763	244	1830452	42.06	ppm	-0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 84.12%#			
Target Compounds						Qvalue
77) Phenanthrene	8.035	178	33291	0.59	ppm	98
81) Fluoranthene	9.271	202	43993	0.60	ppm	95
84) Pyrene	9.533	202	62376	0.93	ppm	95

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

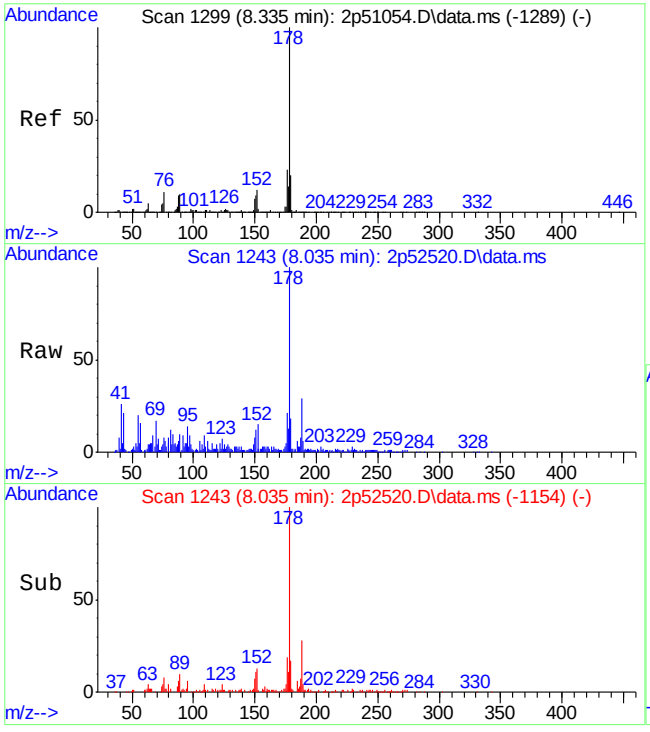
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52520.D
Acq On : 19 Sep 2015 4:03 am
Operator : sarad
Sample : jc4005-15
Misc : op87313,e2p2265,31.1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 21 16:11:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration



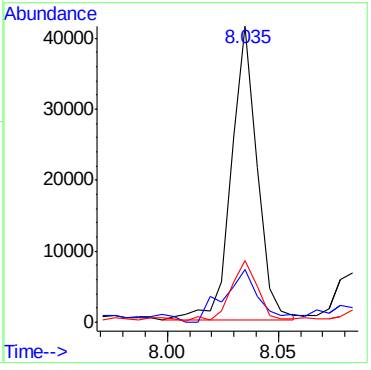
ACCUTEST LABORATORIES JC4005

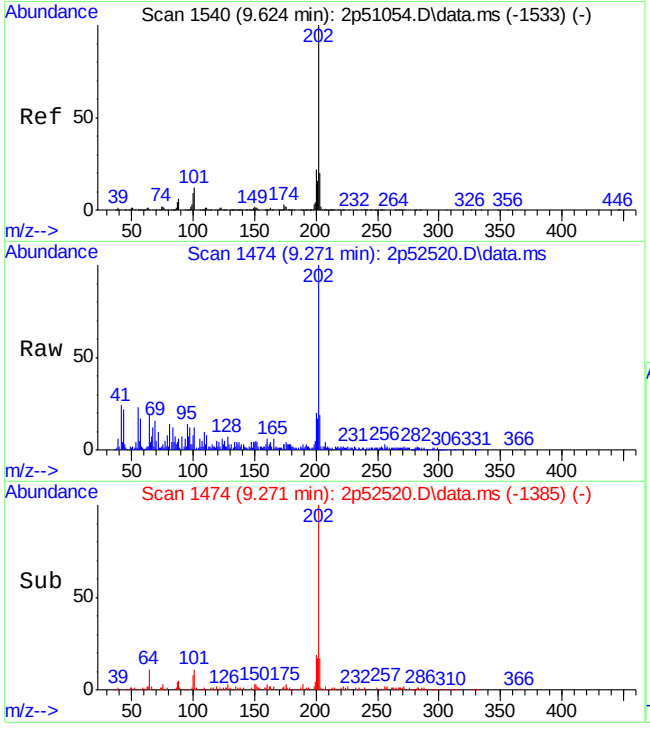


#77
Phenanthrene
Concen: 0.59 ppm
RT: 8.035 min Scan# 1243
Delta R.T. -0.021 min
Lab File: 2p52520.D
Acq: 19 Sep 2015 4:03 am

Tgt Ion:178 Resp: 33291

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	19.7	0.0	48.7

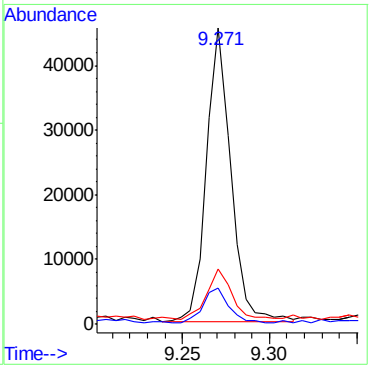


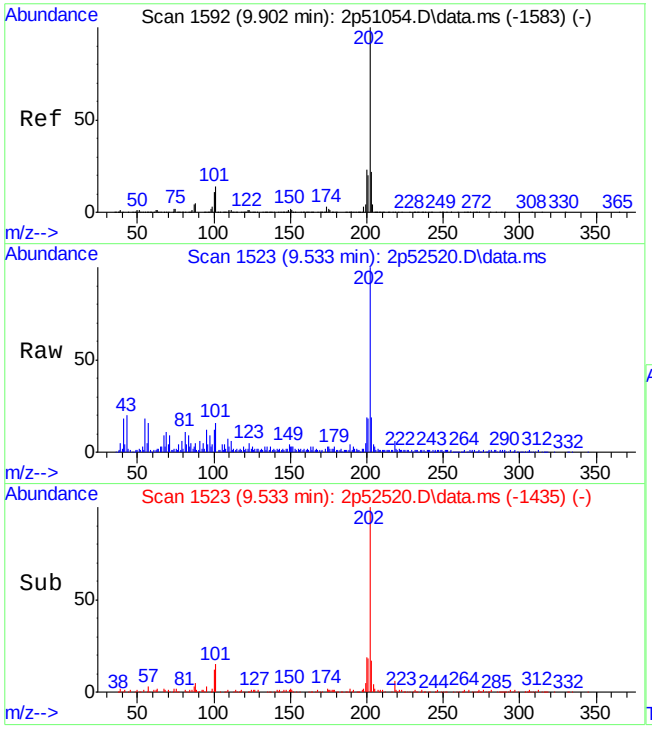


#81
Fluoranthene
Concen: 0.60 ppm
RT: 9.271 min Scan# 1474
Delta R.T. -0.021 min
Lab File: 2p52520.D
Acq: 19 Sep 2015 4:03 am

Tgt Ion:202 Resp: 43993

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	44.5
203	16.1	0.0	47.7

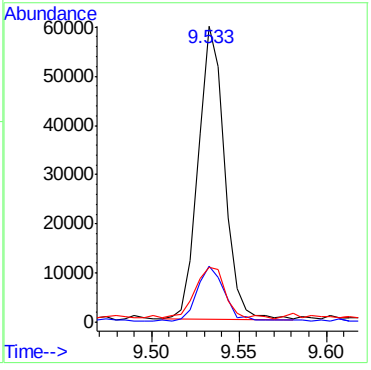




#84
Pyrene
Concen: 0.93 ppm
RT: 9.533 min Scan# 1523
Delta R.T. -0.027 min
Lab File: 2p52520.D
Acq: 19 Sep 2015 4:03 am

Tgt Ion:202 Resp: 62376

Ion	Ratio	Lower	Upper
202	100		
200	18.6	0.0	50.9
203	16.2	0.0	48.8



9.1.14

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52516.D
Acq On : 19 Sep 2015 12:11 am
Operator : sarad
Sample : op87313-mb1
Misc : op87313,e2p2265,30.0
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 21 15:26:34 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.302	152	724134	40.00	ppm	0.00
24) Naphthalene-d8	5.350	136	2319517	40.00	ppm	-0.01
47) Acenaphthene-d10	6.778	164	1351940	40.00	ppm	-0.02
69) Phenanthrene-d10	8.014	188	2327157	40.00	ppm	-0.02
83) Chrysene-d12	11.153	240	2749481	40.00	ppm	-0.03
92) Perylene-d12	13.127	264	2513128	40.00	ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	4.302	152	724134	40.00	ppm	0.00
104) Naphthalene-d8a	5.350	136	2319517	40.00	ppm	0.00
106) Acenaphthene-d10a	6.778	164	1351940	40.00	ppm	0.00
109) Chrysene-d12a	11.153	240	2749481	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.237	112	952478	38.06	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery = 76.12%#			
8) Phenol-d5	4.077	99	1151625	39.76	ppm	-0.01
Spiked Amount 50.000	Range 10 - 59		Recovery = 79.52%#			
25) Nitrobenzene-d5	4.767	82	836533	43.72	ppm	-0.01
Spiked Amount 50.000	Range 19 - 61		Recovery = 87.44%#			
51) 2-Fluorobiphenyl	6.238	172	1943089	46.31	ppm	-0.01
Spiked Amount 50.000	Range 21 - 58		Recovery = 92.62%#			
73) 2,4,6-Tribromophenol	7.431	330	265312	43.21	ppm	-0.02
Spiked Amount 50.000	Range 12 - 68		Recovery = 86.42%#			
85) Terphenyl-d14	9.763	244	2254017	41.25	ppm	-0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 82.50%#			

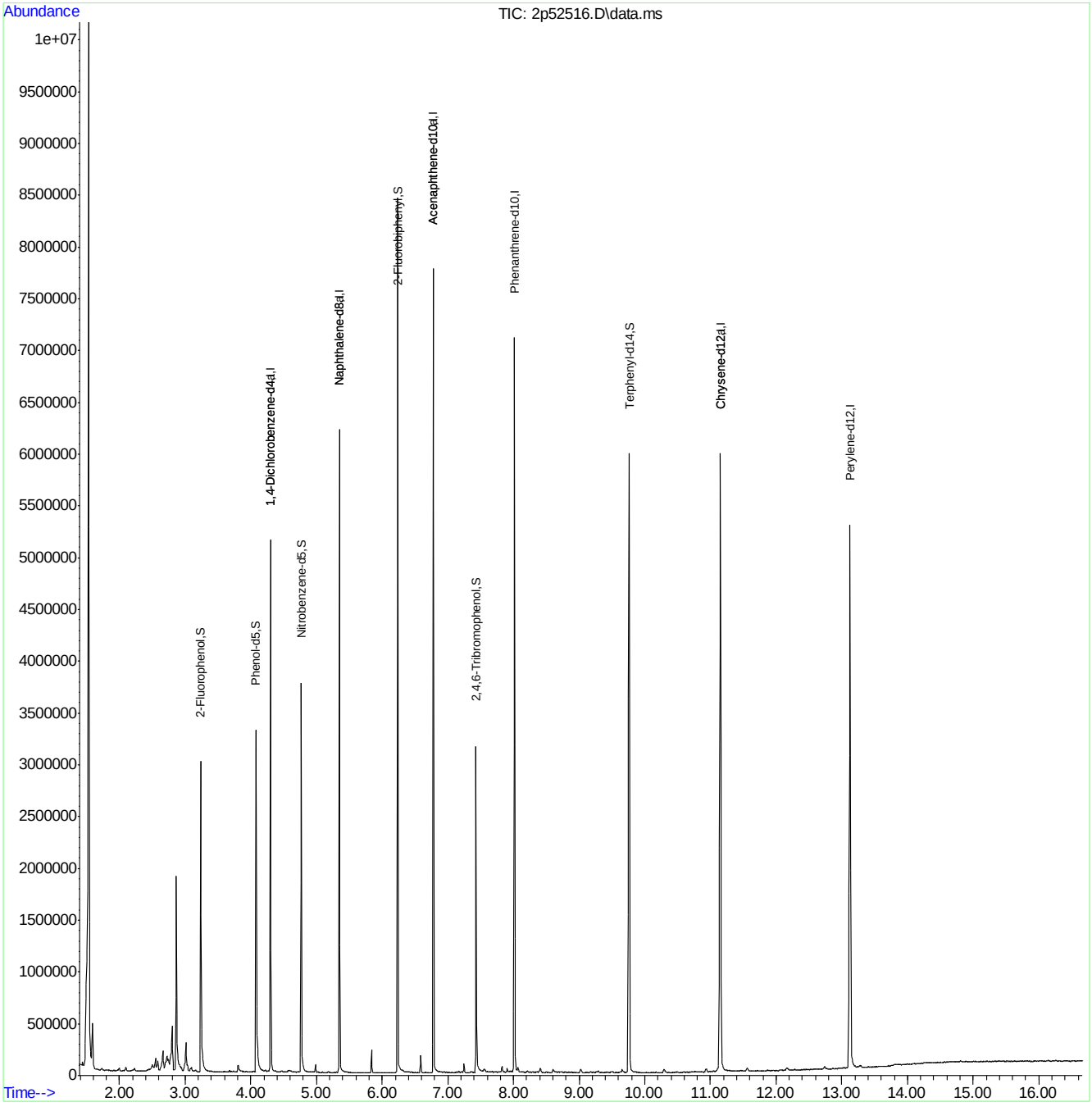
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2265\
Data File : 2p52516.D
Acq On : 19 Sep 2015 12:11 am
Operator : sarad
Sample : op87313-mb1
Misc : op87313,e2p2265,30.0
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 21 15:26:34 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2252.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Sep 21 15:15:55 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\E3P2112\
Data File : 3P46980.D
Acq On : 25 Sep 2015 9:53 pm
Operator : sarad
Sample : op87313-mb1
Misc : op87313,e3p2112,30.0
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 25 22:58:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3P2065.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Sep 23 13:29:10 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.857	152	232950	40.00 ppm	-0.05
24) Naphthalene-d8	5.772	136	968374	40.00 ppm	-0.06
47) Acenaphthene-d10	7.227	164	550091	40.00 ppm	-0.07
69) Phenanthrene-d10	9.168	188	981178	40.00 ppm	-0.10
83) Chrysene-d12	14.517	240	1017697	40.00 ppm	-0.12
91) Perylene-d12	17.593	264	756392	40.00 ppm	-0.12
101) 1,4-Dichlorobenzene-d4a	4.857	152	232950	40.00 ppm	-0.05
103) Acenaphthene-d10a	7.227	164	550120	40.00 ppm	-0.07
106) Chrysene-d12a	14.517	240	1017697	40.00 ppm	-0.11
108) Naphthalene-d8a	5.772	136	968374	40.00 ppm	-0.05
System Monitoring Compounds					
5) 2-Fluorophenol	3.905	112	280715	28.56 ppm	-0.05
Spiked Amount 50.000			Recovery	= 57.12%	
8) Phenol-d5	4.606	99	415660	32.21 ppm	-0.05
Spiked Amount 50.000			Recovery	= 64.42%	
25) Nitrobenzene-d5	5.259	82	514052	45.56 ppm	-0.05
Spiked Amount 50.000			Recovery	= 91.12%	
51) 2-Fluorobiphenyl	6.590	172	776748	47.21 ppm	-0.06
Spiked Amount 50.000			Recovery	= 94.42%	
73) 2,4,6-Tribromophenol	8.152	330	75957	27.27 ppm	-0.09
Spiked Amount 50.000			Recovery	= 54.54%	
85) Terphenyl-d14	12.260	244	961834	49.29 ppm	-0.11
Spiked Amount 50.000			Recovery	= 98.58%	

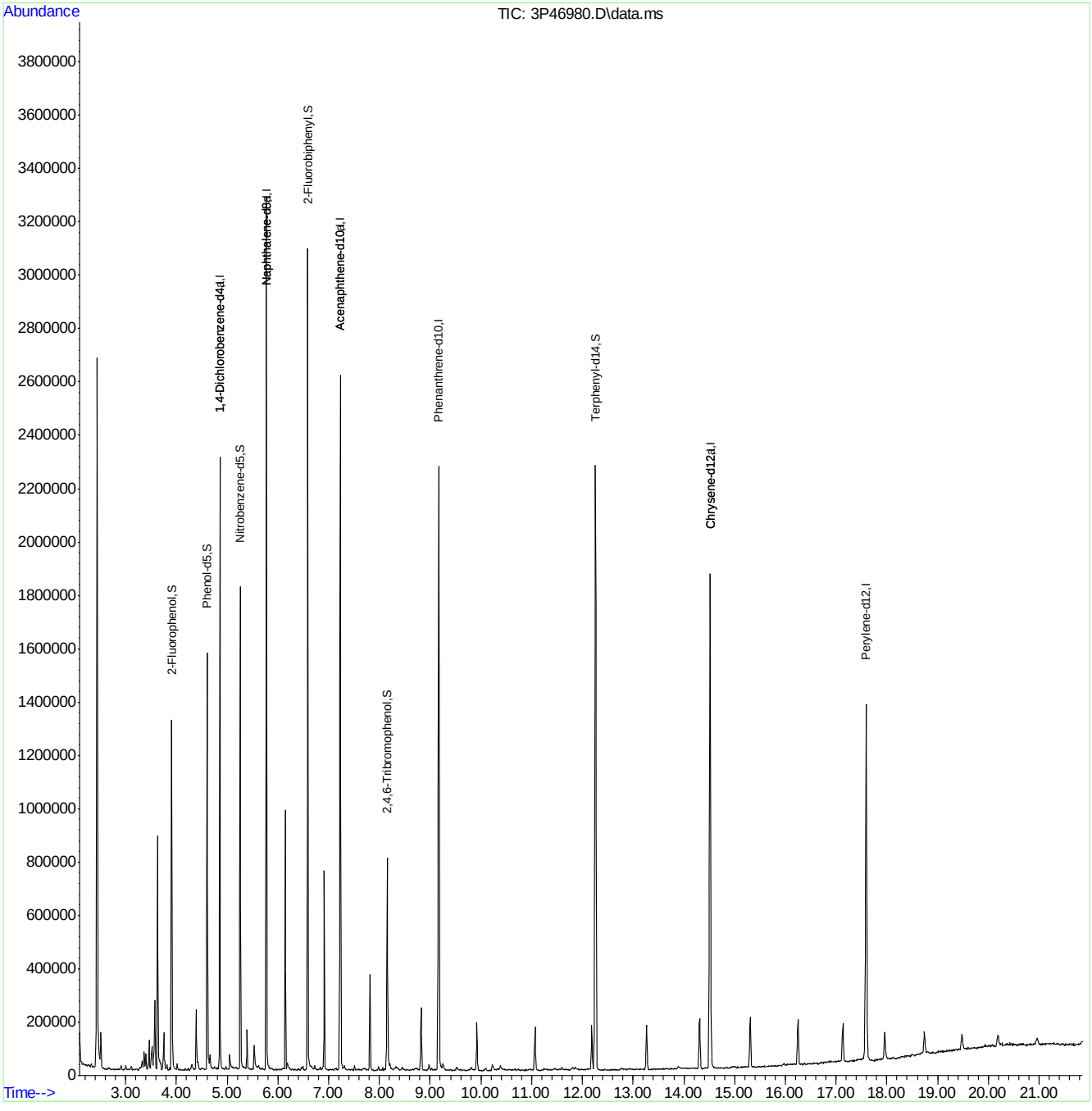
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\E3P2112\
Data File : 3P46980.D
Acq On : 25 Sep 2015 9:53 pm
Operator : sarad
Sample : op87313-mb1
Misc : op87313,e3p2112,30.0
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 25 22:58:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3P2065.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Sep 23 13:29:10 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\EF6319\F150321.D Vial: 9
Acq On : 22 Sep 2015 12:52 pm Operator: linseyk
Sample : op87287-mb1 Inst : MSF
Misc : op87287,ef6319,1000 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Sep 22 13:14:10 2015 Quant Results File: MF6287.RES

Quant Method : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Mon Sep 21 15:43:51 2015
Response via : Initial Calibration
DataAcq Meth : MF6287

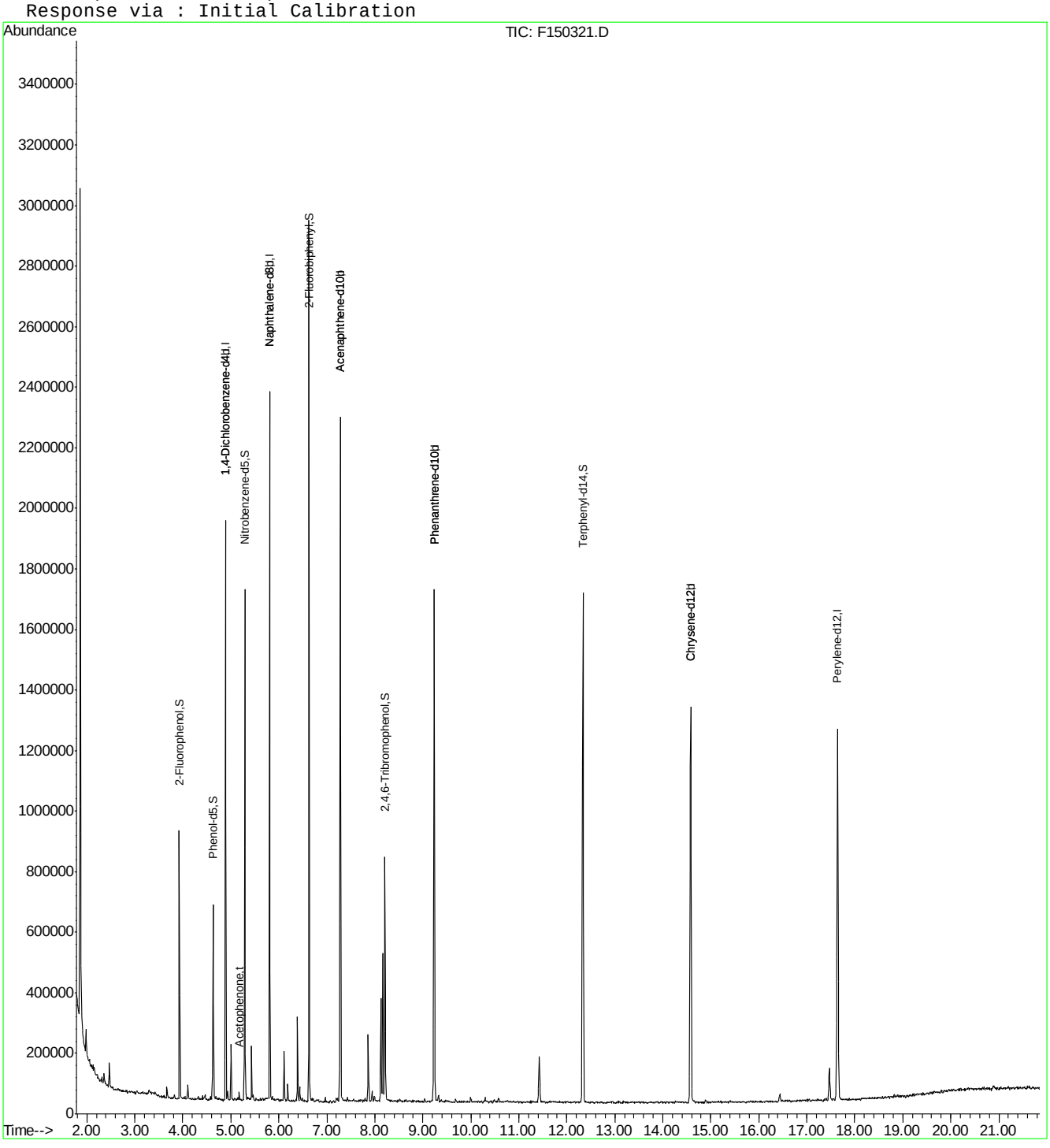
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.89	152	226825	40.00	ppm	-0.02
24) Naphthalene-d8	5.81	136	874905	40.00	ppm	-0.02
47) Acenaphthene-d10	7.28	164	520396	40.00	ppm	-0.02
69) Phenanthrene-d10	9.24	188	842022	40.00	ppm	-0.03
83) Chrysene-d12	14.58	240	766284	40.00	ppm	-0.04
92) Perylene-d12	17.64	264	699695	40.00	ppm	-0.04
102) 1,4-Dichlorobenzene-d4b	4.89	152	226825	40.00	ppm	-0.02
104) Naphthalene-d8b	5.81	136	874905	40.00	ppm	-0.02
106) Acenaphthene-d10b	7.28	164	520396	40.00	ppm	-0.02
108) Phenanthrene-d10b	9.24	188	842022	40.00	ppm	-0.03
110) Chrysene-d12b	14.58	240	766284	40.00	ppm	-0.04
System Monitoring Compounds						
5) 2-Fluorophenol	3.93	112	240879	33.64	ppm	-0.01
Spiked Amount 50.000			Recovery	=	67.28%	
8) Phenol-d5	4.63	99	193051	21.84	ppm	-0.02
Spiked Amount 50.000			Recovery	=	43.68%	
25) Nitrobenzene-d5	5.29	82	389876	52.28	ppm	-0.02
Spiked Amount 50.000			Recovery	=	104.56%	
51) 2-Fluorobiphenyl	6.63	172	819989	51.52	ppm	-0.02
Spiked Amount 50.000			Recovery	=	103.04%	
73) 2,4,6-Tribromophenol	8.21	330	94799	48.64	ppm	-0.03
Spiked Amount 50.000			Recovery	=	97.28%	
85) Terphenyl-d14	12.34	244	794649	52.69	ppm	-0.03
Spiked Amount 50.000			Recovery	=	105.38%	
Target Compounds						Qvalue
18) Acetophenone	5.18	105	6926	0.67	ppm	83

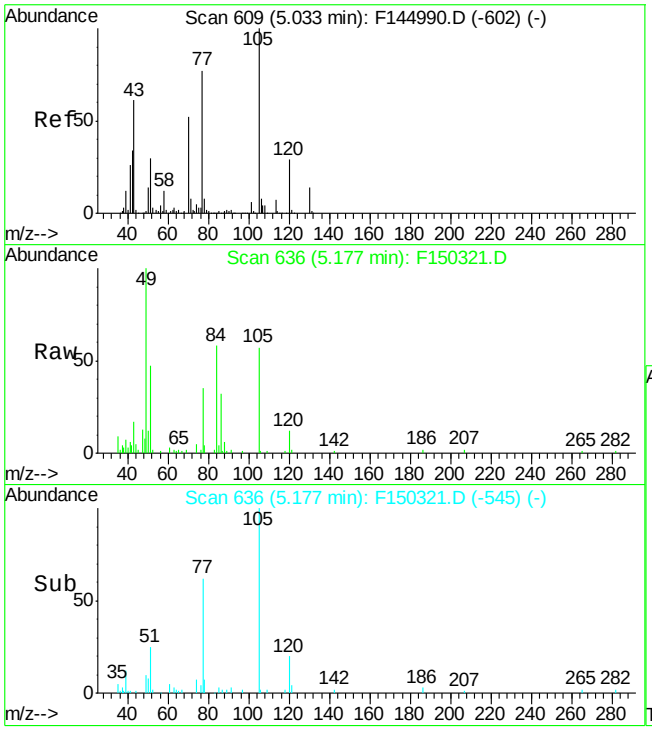
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\EF6319\F150321.D Vial: 9
Acq On : 22 Sep 2015 12:52 pm Operator: linseyk
Sample : op87287-mb1 Inst : MSF
Misc : op87287,ef6319,1000 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Sep 22 16:10 2015 Quant Results File: MF6287.RES

Method : C:\MSDCHEM\1\METHODS\MF6287.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Mon Sep 21 15:43:51 2015
Response via : Initial Calibration

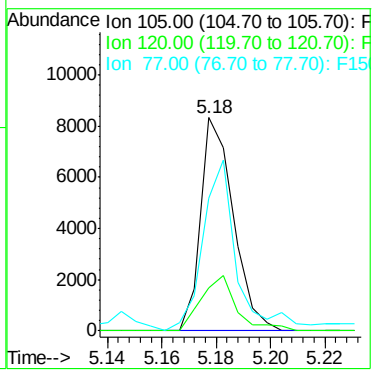




#18
Acetophenone
Concen: 0.67 ppm
RT: 5.18 min Scan# 636
Delta R.T. -0.02 min
Lab File: F150321.D
Acq: 22 Sep 2015 12:52 pm

Tgt Ion:105 Resp: 6926

Ion	Ratio	Lower	Upper
105	100		
120	20.3	0.2	60.2
77	60.3	44.8	104.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117988.D
Acq On : 18 Sep 2015 7:08 pm
Operator : sarad
Sample : op87313-mb1
Misc : op87313,em4935,30.0
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 18 19:41:46 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.798	152	275052	40.00 ppm	0.00
24) Naphthalene-d8	5.957	136	1030839	40.00 ppm	0.00
47) Acenaphthene-d10	8.345	164	556044	40.00 ppm	0.00
69) Phenanthrene-d10	10.994	188	867893	40.00 ppm	-0.01
83) Chrysene-d12	16.196	240	857945	40.00 ppm	-0.02
92) Perylene-d12	18.835	264	827750	40.00 ppm	-0.01
102) 1,4-Dichlorobenzene-d4a	4.798	152	275052	40.00 ppm	0.00
104) Acenaphthene-d10a	8.345	164	556044	40.00 ppm	0.00
107) Chrysene-d12a	16.196	240	857945	40.00 ppm	-0.02
109) Naphthalene-d8a	5.957	136	1030839	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.837	112	424817	43.15 ppm	0.00
Spiked Amount 50.000			Recovery	= 86.30%	
8) Phenol-d5	4.558	99	599510	43.52 ppm	0.00
Spiked Amount 50.000			Recovery	= 87.04%	
25) Nitrobenzene-d5	5.258	82	570430	44.81 ppm	0.00
Spiked Amount 50.000			Recovery	= 89.62%	
51) 2-Fluorobiphenyl	7.309	172	802376	43.64 ppm	-0.01
Spiked Amount 50.000			Recovery	= 87.28%	
73) 2,4,6-Tribromophenol	9.728	330	112304	40.77 ppm	0.00
Spiked Amount 50.000			Recovery	= 81.54%	
86) Terphenyl-d14	14.177	244	813331	47.99 ppm	0.00
Spiked Amount 50.000			Recovery	= 95.98%	

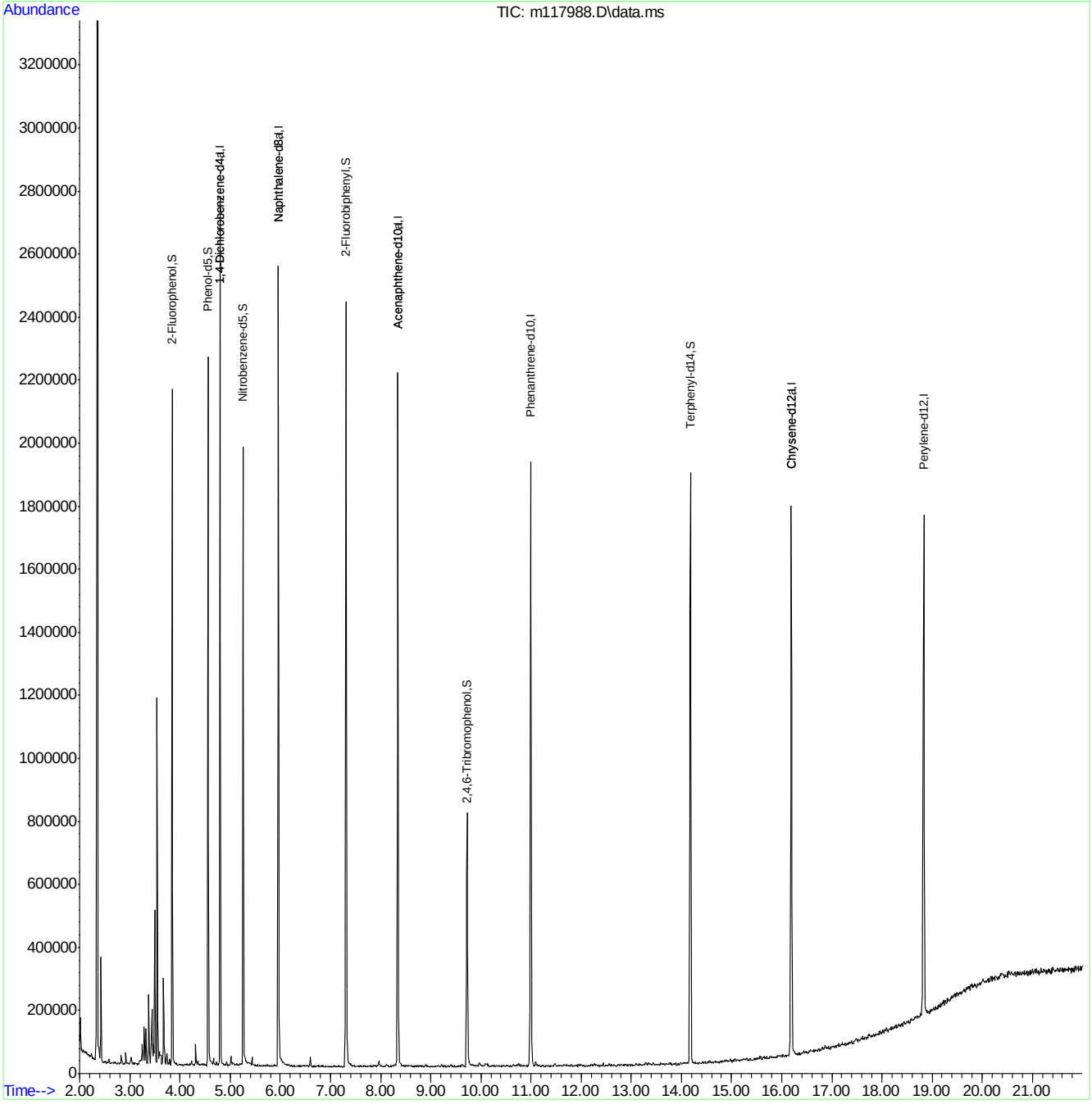
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\em4935\
Data File : m117988.D
Acq On : 18 Sep 2015 7:08 pm
Operator : sarad
Sample : op87313-mb1
Misc : op87313,em4935,30.0
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 18 19:41:46 2015
Quant Method : C:\msdchem\1\METHODS\MM4919.M
Quant Title : Semi Volatile GC/MS, rtx-5ms 30mx0.25mmx0.25um
QLast Update : Fri Sep 18 19:37:23 2015
Response via : Initial Calibration



Quantitation Report (QT/LSC Reviewed)

Data File : C:\MSDCHEM\1\DATA\EP4300\P98825.D Vial: 5
Acq On : 17 Sep 2015 7:46 pm Operator: saraw
Sample : op87287-mb1 Inst : MSP
Misc : op87287,ep4300,1000 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 17 20:08:25 2015 Quant Results File: MP4212.RES

Quant Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 12:21:56 2015
Response via : Initial Calibration
DataAcq Meth : MP4212

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.12	152	352046	40.00	ppm	0.03
24) Naphthalene-d8	5.84	136	1256577	40.00	ppm	0.03
47) Acenaphthene-d10	8.54	164	787179	40.00	ppm	0.03
69) Phenanthrene-d10	10.89	188	1182912	40.00	ppm	0.03
83) Chrysene-d12	15.53	240	1204693	40.00	ppm	0.04
92) Perylene-d12	18.08	264	1115575	40.00	ppm	0.04
102) 1,4-Dichlorobenzene-d4b	4.12	152	352046	40.00	ppm	0.02
104) Phenanthrene-d10b	10.89	188	1182912	40.00	ppm	0.02
106) Chrysene-d12b	15.53	240	1204693	40.00	ppm	0.02
108) Naphthalene-d8b	5.84	136	1256577	40.00	ppm	0.02
110) Acenaphthene-d10b	8.54	164	787179	40.00	ppm	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	2.76	112	405404	32.71	ppm	0.03
Spiked Amount 50.000			Recovery = 65.42%			
8) Phenol-d5	3.73	99	359132	21.67	ppm	0.04
Spiked Amount 50.000			Recovery = 43.34%			
25) Nitrobenzene-d5	4.84	82	897729	58.47	ppm	0.03
Spiked Amount 50.000			Recovery = 116.94%			
51) 2-Fluorobiphenyl	7.52	172	1228164	47.88	ppm	0.03
Spiked Amount 50.000			Recovery = 95.76%			
73) 2,4,6-Tribromophenol	9.80	330	147128	46.26	ppm	0.03
Spiked Amount 50.000			Recovery = 92.52%			
85) Terphenyl-d14	13.67	244	1296280	56.78	ppm	0.05
Spiked Amount 50.000			Recovery = 113.56%			

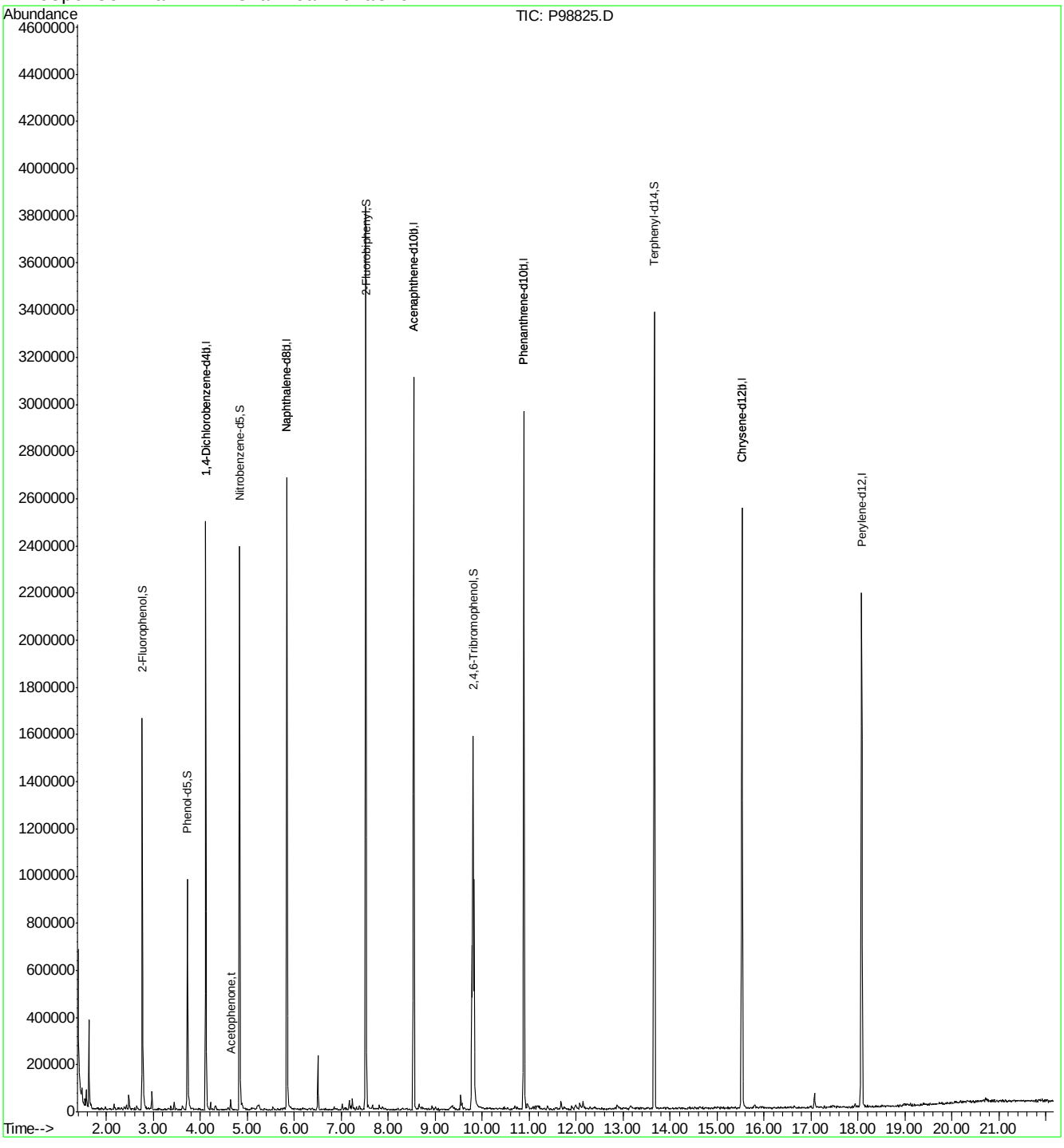
Target Compounds						Qvalue
18) Acetophenone	4.64	105	11652	0.61	ppm #	67

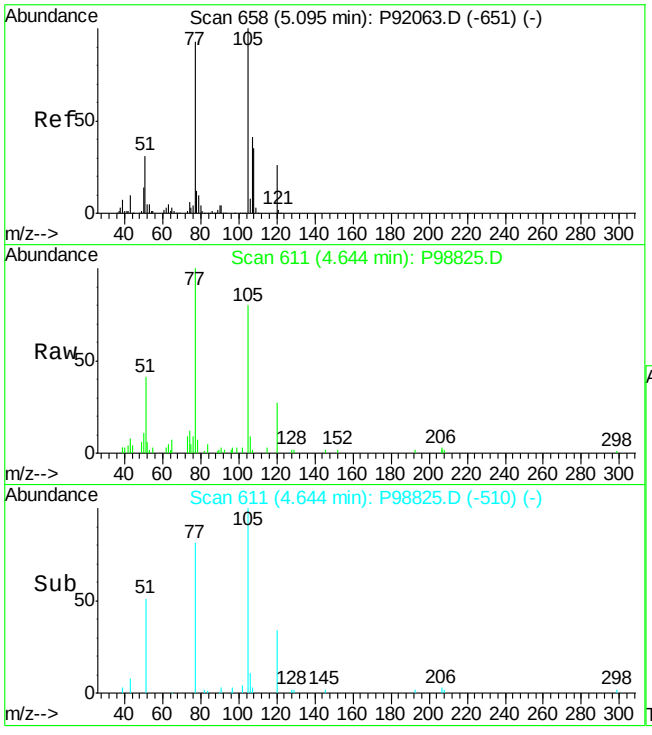
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT/LSC Reviewed)

Data File : C:\MSDCHEM\1\DATA\EP4300\P98825.D Vial: 5
Acq On : 17 Sep 2015 7:46 pm Operator: saraw
Sample : op87287-mb1 Inst : MSP
Misc : op87287,ep4300,1000 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 18 10:10 2015 Quant Results File: MP4212.RES

Method : C:\MSDCHEM\1\METHODS\MP4212.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Sep 09 12:21:56 2015
Response via : Initial Calibration

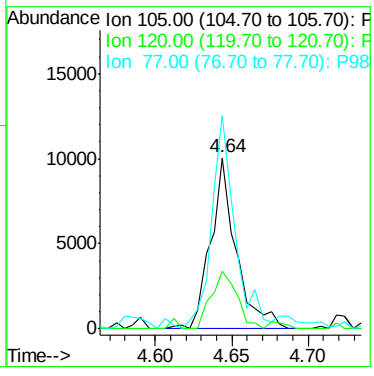




#18
Acetophenone
Concen: 0.61 ppm
RT: 4.64 min Scan# 611
Delta R.T. 0.04 min
Lab File: P98825.D
Acq: 17 Sep 2015 7:46 pm

Tgt Ion:105 Resp: 11652

Ion	Ratio	Lower	Upper
105	100		
120	33.7	0.0	55.3
77	119.5	55.2	115.2#



9.2.5

9

ACCUTEST LABORATORIES JC4005

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EZ5224\
Data File : z104546.D
Acq On : 26 Sep 2015 1:28 am
Operator : sarad
Sample : op87313-mb1
Misc : op87313,ez5224,30.0
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 28 11:17:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\MZ5210.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Fri Sep 25 12:37:38 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.731	152	183568	40.00 ppm	-0.05
24) Naphthalene-d8	5.650	136	766088	40.00 ppm	-0.05
47) Acenaphthene-d10	7.050	164	446492	40.00 ppm	-0.07
69) Phenanthrene-d10	8.904	188	751910	40.00 ppm	-0.10
83) Chrysene-d12	14.112	240	747536	40.00 ppm	-0.13
92) Perylene-d12	17.142	264	661460	40.00 ppm	-0.14
102) 1,4-Dichlorobenzene-d4a	4.731	152	183568	40.00 ppm	-0.05
104) Phenanthrene-d10a	8.904	188	751910	40.00 ppm	-0.10
106) Chrysene-d12a	14.112	240	747536	40.00 ppm	-0.13
108) Acenaphthene-d10a	7.050	164	446492	40.00 ppm	-0.07
110) Naphthalene-d8a	5.650	136	766088	40.00 ppm	-0.05
112) Chrysene-d12b	14.112	240	747536	40.00 ppm	-0.13
System Monitoring Compounds					
5) 2-Fluorophenol	3.813	112	231296	34.14 ppm	-0.05
Spiked Amount 50.000			Recovery	= 68.28%	
8) Phenol-d5	4.528	99	344231	38.66 ppm	-0.05
Spiked Amount 50.000			Recovery	= 77.32%	
25) Nitrobenzene-d5	5.148	82	374828	44.69 ppm	-0.05
Spiked Amount 50.000			Recovery	= 89.38%	
51) 2-Fluorobiphenyl	6.441	172	605356	44.39 ppm	-0.06
Spiked Amount 50.000			Recovery	= 88.78%	
73) 2,4,6-Tribromophenol	7.937	330	58555	31.31 ppm	-0.04
Spiked Amount 50.000			Recovery	= 62.62%	
86) Terphenyl-d14	11.890	244	704904	47.05 ppm	-0.11
Spiked Amount 50.000			Recovery	= 94.10%	

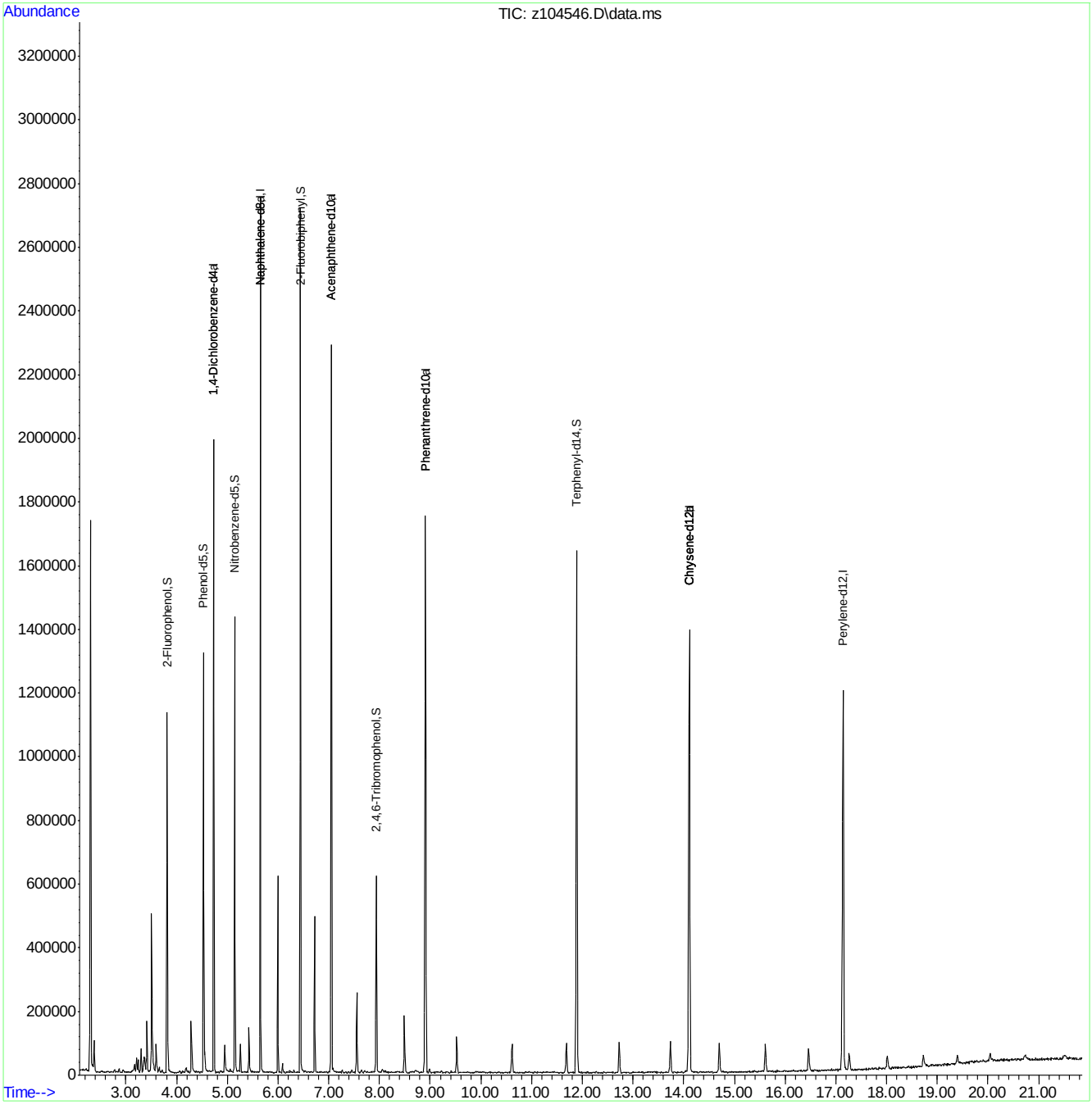
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EZ5224\
Data File : z104546.D
Acq On : 26 Sep 2015 1:28 am
Operator : sarad
Sample : op87313-mb1
Misc : op87313,ez5224,30.0
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 28 11:17:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\MZ5210.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Fri Sep 25 12:37:38 2015
Response via : Initial Calibration



MZ5210.M Mon Sep 28 11:17:30 2015 RTE

ACCUTEST LABORATORIES JC4005

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87273-MB1	7G15135.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550

The QC reported here applies to the following samples: **Method:** SW846-8011

JC4005-1, JC4005-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.0086	ug/l	

CAS No.	Surrogate Recoveries		Limits
3017-95-6	2-Bromo-1-chloropropane	87%	17-143%
3017-95-6	2-Bromo-1-chloropropane	94%	17-143%

Blank Spike Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87273-BS1	7G15136.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550

The QC reported here applies to the following samples: **Method:** SW846-8011

JC4005-1, JC4005-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.5	0.46	92	40-161

CAS No.	Surrogate Recoveries	BSP	Limits
3017-95-6	2-Bromo-1-chloropropane	88%	17-143%
3017-95-6	2-Bromo-1-chloropropane	98%	17-143%

10.2.1

10

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87273-MS	7G15137.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550
OP87273-MSD	7G15138.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550
JC3890-1	7G15139.D	1	09/18/15	VDT	09/17/15	OP87273	G7G550

The QC reported here applies to the following samples: **Method:** SW846-8011

JC4005-1, JC4005-2

CAS No.	Compound	JC3890-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		0.478	0.44	92	0.463	0.35	76	23	47-167/25

CAS No.	Surrogate Recoveries	MS	MSD	JC3890-1	Limits
3017-95-6	2-Bromo-1-chloropropane	86%	75%	71%	17-143%
3017-95-6	2-Bromo-1-chloropropane	94%	82%	75%	17-143%

10.3.1

10

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846-8011 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JC4005-1	7G15149.D	71	74
JC4005-2	7G15150.D	68	70
OP87273-BS1	7G15136.D	88	98
OP87273-MB1	7G15135.D	87	94
OP87273-MS	7G15137.D	86	94
OP87273-MSD	7G15138.D	75	82

Surrogate Compounds	Recovery Limits
S1 = 2-Bromo-1-chloropropane	17-143%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	G7G550-CC456	**Injection Date:**	09/18/15
Lab File ID:	7G15133.D	**Injection Time:**	11:54
Instrument ID:	GC7G	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	1.71	2.16

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP87273-MB1	7G15135.D	09/18/15	13:02	1.71	2.16
OP87273-BS1	7G15136.D	09/18/15	13:21	1.71	2.16
OP87273-MS	7G15137.D	09/18/15	13:39	1.71	2.16
OP87273-MSD	7G15138.D	09/18/15	13:58	1.71	2.16
JC3890-1	7G15139.D	09/18/15	14:17	1.71	2.16
ZZZZZZ	7G15140.D	09/18/15	14:35	1.71	2.16
ZZZZZZ	7G15141.D	09/18/15	14:54	1.70	2.16
ZZZZZZ	7G15142.D	09/18/15	15:13	1.70	2.16
ZZZZZZ	7G15143.D	09/18/15	15:31	1.70	2.16

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	G7G550-CC456	**Injection Date:**	09/18/15
Lab File ID:	7G15144.D	**Injection Time:**	15:50
Instrument ID:	GC7G	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	1.70	2.16

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
ZZZZZZ	7G15146.D	09/18/15	16:27	1.70	2.16
ZZZZZZ	7G15147.D	09/18/15	16:46	1.71	2.16
ZZZZZZ	7G15148.D	09/18/15	17:05	1.71	2.16
JC4005-1	7G15149.D	09/18/15	17:23	1.70	2.16
JC4005-2	7G15150.D	09/18/15	17:42	1.70	2.16

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: G7G456-ICC456
Lab FileID: 7G12654.D

Response Factor Report HP G1530A

Method : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Tue Apr 21 13:59:46 2015
Response via : Initial Calibration

Calibration Files
2 =7G12653.D 1 =7G12654.D 0.5 =7G12655.D 0.2 =7G12656.D
0.1 =7G12657.D 0.02 =7G12658.D

	Compound	2	1	0.5	0.2	0.1	0.02	Avg	%RSD
1) S	2-Bromo-1-Chloropro	4.141	4.447	4.711	5.055	5.282		4.727 E5	9.68
2)	1,2-Dibromoethane	2.327	2.520	2.532	2.608	2.551	2.876	2.569 E6	6.92
3)	1,2,3-Trichloroprop	2.453	2.585	2.495	2.063	2.317		2.383 E5	8.52
4)	1,2-Dibromo-3-Chlor	3.713	3.674	3.533	3.659	3.472	3.137	3.531 E6	6.05

Signal #2

1) S	2-Bromo-1-Chloropro	2.498	2.742	2.797	3.112	3.105		2.851 E5	9.15
2)	1,2-Dibromoethane	1.273	1.368	1.400	1.396	1.380	0.943	1.293 E6	13.77
3)	1,2,3-Trichloroprop	1.716	1.774	1.731	1.511	1.542		1.655 E5	7.22
4)	1,2-Dibromo-3-Chlor	2.687	2.677	2.513	2.436	2.484	2.656	2.576 E6	4.29

(#) = Out of Range

7G504M456.M Tue Apr 21 14:13:58 2015

Initial Calibration Verification

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: G7G456-ICV456
Lab FileID: 7G12659.D

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\7g456\7G12659.D\ECD1A.CH   Vial: 8
Signal #2 : C:\msdchem\1\DATA\7g456\7G12659.D\ECD2B.CH
Acq On    : 21 Apr 2015   1:54 pm                    Operator: vinced
Sample    : icv456-1.0                               Inst    : HP G1530A
Misc      : op83050,g7g456,35,,,2,1                  Multiplr: 1.00
IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
Title        : GC/ECD- EDB
Last Update  : Tue Apr 21 13:59:46 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  15%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	472.704	437.888 E3	7.4	98	0.00	2.25- 2.31
2	1,2-Dibromoethane	2.569	2.797 E6	-8.9	111	0.00	2.46- 2.52
3	1,2,3-Trichloropropane	238.263	279.477 E3	-17.3#	108	0.00	4.05- 4.11
4	1,2-Dibromo-3-Chloropr	3.531	3.948 E6	-11.8	107	0.00	5.74- 5.80

***** Signal #2 *****

1 S	2-Bromo-1-Chloropropan	285.093	275.777 E3	3.3	101	0.00	1.80- 1.86
2	1,2-Dibromoethane	1.293	1.605 E6	-24.1#	117	0.00	2.19- 2.25
3	1,2,3-Trichloropropane	165.500	188.336 E3	-13.8	106	0.00	3.71- 3.77
4	1,2-Dibromo-3-Chloropr	2.576	2.799 E6	-8.7	105	0.00	5.61- 5.67

(#) = Out of Range SPCC's out = 0 CCC's out = 0
7G12654.D 7G504M456.M Tue Apr 21 14:13:44 2015

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: G7G550-CC456
Lab FileID: 7G15133.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g550\7G15133.D\ECD1A.CH   Vial: 3
 Signal #2 : C:\msdchem\1\DATA\7g550\7G15133.D\ECD2B.CH
 Acq On    : 18 Sep 2015  11:54 am                    Operator: vinced
 Sample    : cc456-1.0                                Inst    : HP G1530A
 Misc      : op87184,g7g550,38.5,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:32:11 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 491.322 E3  -3.9  110   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.659 E6  -3.5  105  -0.01    2.34- 2.40
 3     1,2,3-Trichloropropane 238.263 244.337 E3  -2.5   95   0.00    3.95- 4.01
 4     1,2-Dibromo-3-Chloropr   3.531   4.428 E6 -25.4# 121  -0.01    5.65- 5.71

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 263.870 E3   7.4   96   0.00    1.68- 1.74
 2     1,2-Dibromoethane        1.293   1.322 E6  -2.2   97  -0.01    2.05- 2.11
 3     1,2,3-Trichloropropane 165.500 196.689 E3 -18.8# 111  -0.01    3.60- 3.66
 4     1,2-Dibromo-3-Chloropr   2.576   2.498 E6   3.0   93  -0.01    5.53- 5.59
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12654.D  7G504M456.M       Tue Sep 22 14:24:09 2015
```

10.6.3

10

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: G7G550-CC456
Lab FileID: 7G15144.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g550\7G15144.D\ECD1A.CH   Vial: 2
 Signal #2 : C:\msdchem\1\DATA\7g550\7G15144.D\ECD2B.CH
 Acq On    : 18 Sep 2015   3:50 pm                    Operator: vinced
 Sample    : cc456-0.5                                Inst    : HP G1530A
 Misc      : op87273,g7g550,37.2,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:32:11 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 504.904 E3  -6.8  107   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.428 E6   5.5   96   0.00    2.35- 2.41
 3     1,2,3-Trichloropropane 238.263 205.719 E3  13.7   82   0.00    3.96- 4.02
 4     1,2-Dibromo-3-Chloropr   3.531   3.976 E6 -12.6  113   0.00    5.67- 5.73

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 293.352 E3  -2.9  105   0.00    1.67- 1.73
 2     1,2-Dibromoethane        1.293   1.334 E6  -3.2   95   0.00    2.05- 2.11
 3     1,2,3-Trichloropropane 165.500 165.831 E3  -0.2   96   0.00    3.60- 3.66
 4     1,2-Dibromo-3-Chloropr   2.576   2.280 E6  11.5   91   0.00    5.53- 5.59
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12655.D  7G504M456.M       Tue Sep 22 14:24:28 2015
```

10.6.4

10

Continuing Calibration Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: G7G550-CC456
Lab FileID: 7G15151.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g550\7G15151.D\ECD1A.CH   Vial: 3
 Signal #2 : C:\msdchem\1\DATA\7g550\7G15151.D\ECD2B.CH
 Acq On    : 18 Sep 2015   6:01 pm                    Operator: vinced
 Sample    : cc456-1.0                                Inst    : HP G1530A
 Misc      : op87273,g7g550,36.2,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:32:11 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 473.726 E3  -0.2  107   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.480 E6   3.5   98   0.00    2.35- 2.41
 3     1,2,3-Trichloropropane 238.263 230.981 E3   3.1   89   0.00    3.96- 4.02
 4     1,2-Dibromo-3-Chloropr   3.531   4.076 E6 -15.4# 111   0.00    5.66- 5.72

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 264.044 E3   7.4   96   0.00    1.68- 1.74
 2     1,2-Dibromoethane        1.293   1.282 E6   0.9   94   0.00    2.06- 2.12
 3     1,2,3-Trichloropropane 165.500 174.361 E3  -5.4   98   0.00    3.60- 3.66
 4     1,2-Dibromo-3-Chloropr   2.576   2.453 E6   4.8   92   0.00    5.53- 5.59
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12654.D  7G504M456.M       Tue Sep 22 14:24:11 2015
```

10.6.5

10

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g550\
Data File : 7G15149.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 18 Sep 2015 5:23 pm
Operator : vinced
Sample : jc4005-1
Misc : op87273,g7g550,36.2,,,2,1
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 14:20:47 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.157	1.705	3518377	2029957	7.443	7.120
Spiked Amount 10.000			Recovery	=	74.43%	71.20%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.1

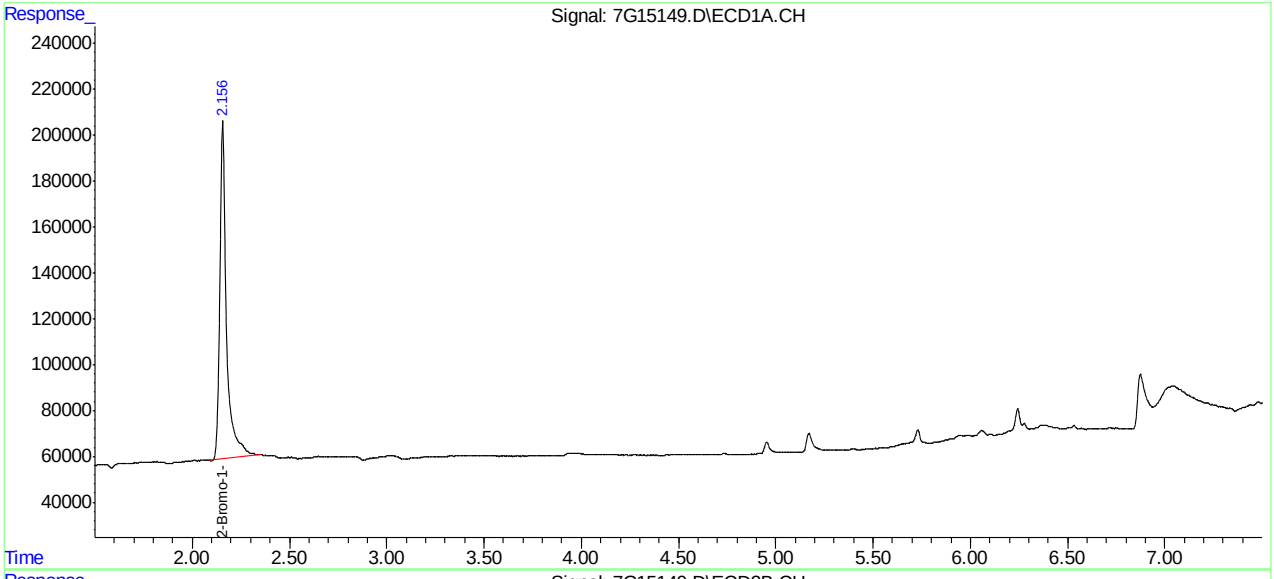
11

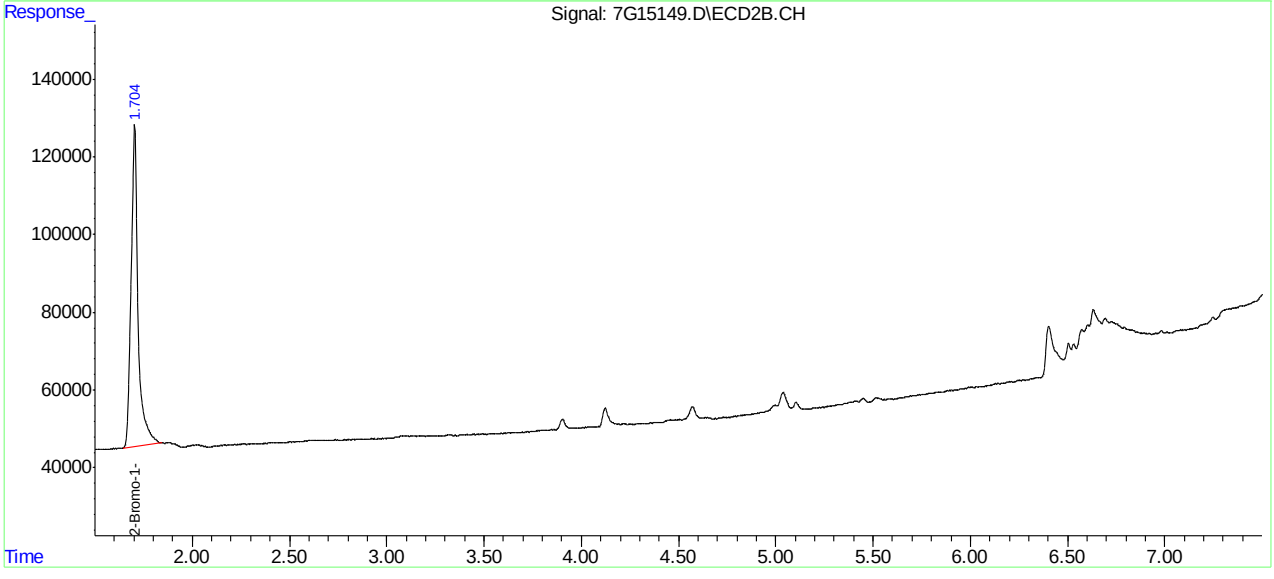
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g550\
Data File : 7G15149.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 18 Sep 2015 5:23 pm
Operator : vinced
Sample : jc4005-1
Misc : op87273,g7g550,36.2,,,2,1
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 14:20:47 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g550\
Data File : 7G15150.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 18 Sep 2015 5:42 pm
Operator : vinced
Sample : jc4005-2
Misc : op87273,g7g550,34.6,,,2,1
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 14:20:58 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.157	1.704	3318547	1932121	7.020	6.777
Spiked Amount 10.000			Recovery	=	70.20%	67.77%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.2

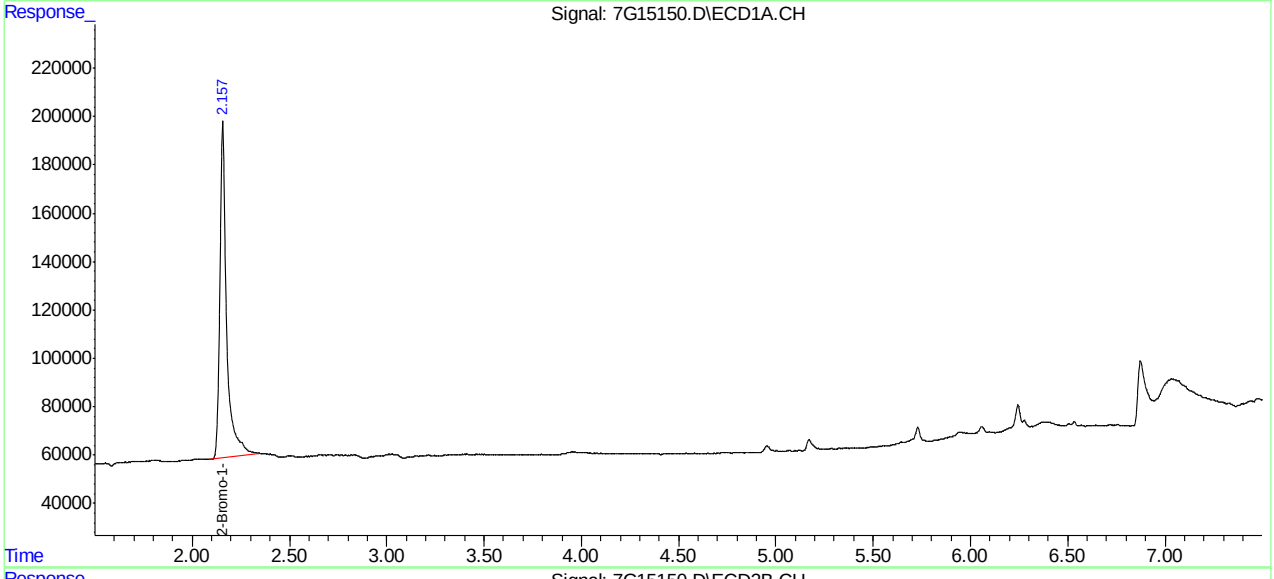
11

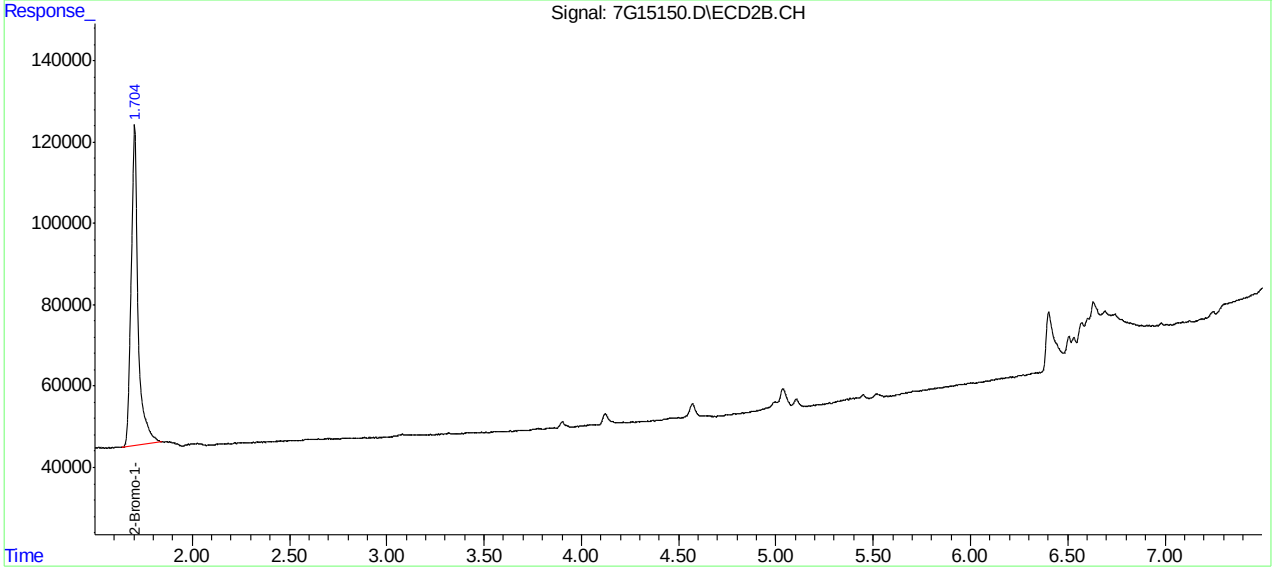
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g550\
Data File : 7G15150.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 18 Sep 2015 5:42 pm
Operator : vinced
Sample : jc4005-2
Misc : op87273,g7g550,34.6,,,2,1
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 14:20:58 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g550\
Data File : 7G15135.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 18 Sep 2015 1:02 pm
Operator : vinced
Sample : op87273-mb1
Misc : op87273,g7g550,35.0,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 18 17:08:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	2.158	1.706	4420927	2479071	9.352	8.696
Spiked Amount 10.000			Recovery	=	93.52%	86.96%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.2.1

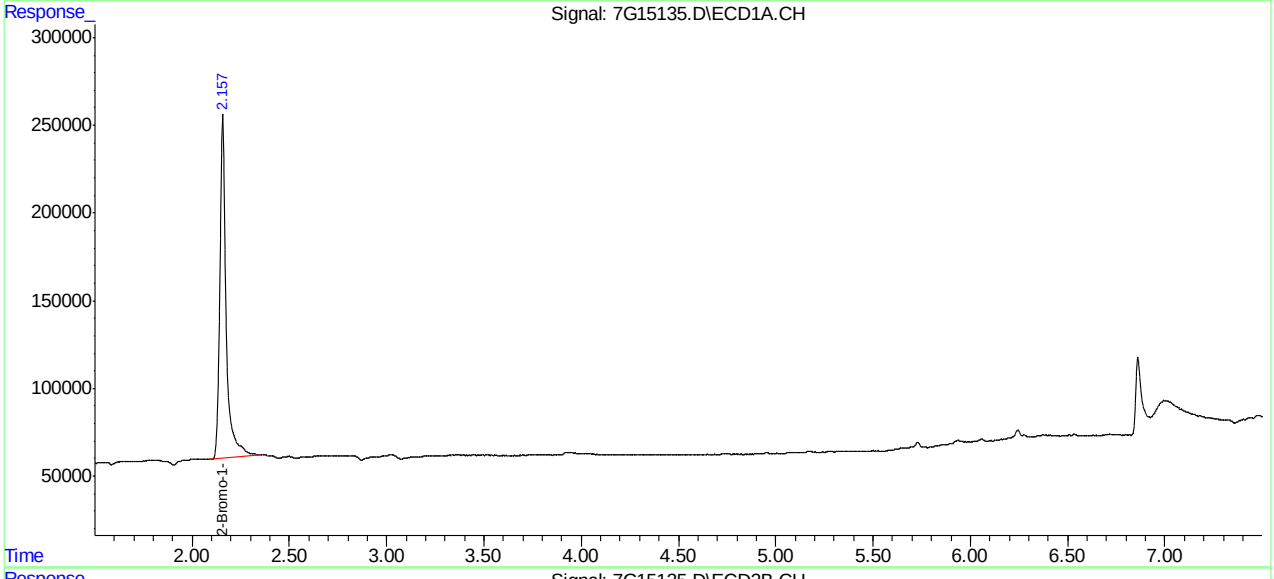
11

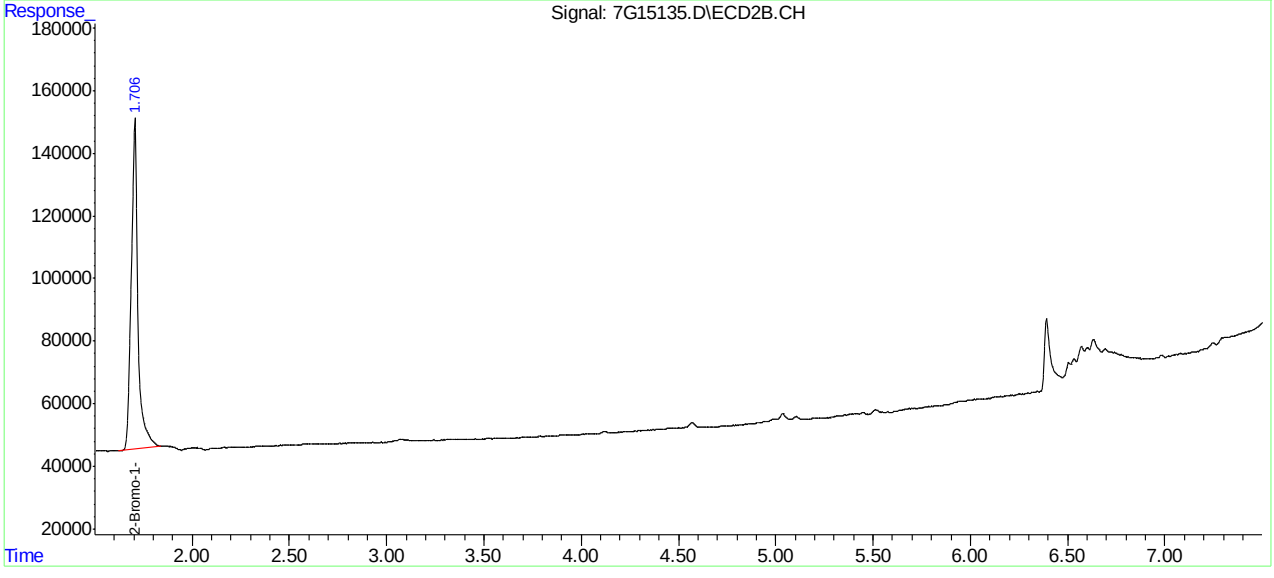
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g550\
Data File : 7G15135.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 18 Sep 2015 1:02 pm
Operator : vinced
Sample : op87273-mb1
Misc : op87273,g7g550,35.0,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 18 17:08:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





New Jersey
ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37585
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:21	MA37585-STD1	1		STDA
11:27	MA37585-STD2	1		STDB
11:33	ZZZZZZ	1		
11:38	ZZZZZZ	1		
11:44	MA37585-ICV1	1		
11:50	MA37585-ICB1	1		
11:56	MA37585-CCV1	1		
12:02	MA37585-CCB1	1		
12:08	MA37585-CRI1	1		
12:14	MA37585-CRIA1	1		Not needed
12:20	MA37585-CRID1	1		See rerun
12:26	MA37585-ICSA1	1		
12:31	MA37585-ICSAB1	1		
12:37	MA37585-HSTD1	1		
12:43	MA37585-HSTD2	1		
12:49	ZZZZZZ	1		
12:55	ZZZZZZ	1		
13:00	ZZZZZZ	1		
13:06	MA37585-CCV2	1		
13:12	MA37585-CCB2	1		
13:20	ZZZZZZ	1		
13:25	MA37585-CRID2	1		
13:31	ZZZZZZ	1		
13:38	ZZZZZZ	1		
13:44	ZZZZZZ	1		
13:49	ZZZZZZ	1		
13:55	MA37585-CCV3	1		
14:03	MA37585-CCB3	1		
14:09	MP89073-MB1	1		
14:15	MP89073-B1	1		
14:21	MP89073-S1	1		
14:26	MP89073-S2	1		
14:32	JC3901-9F	1		(sample used for QC only; not part of login JC4005)

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37585
Parameters: Co,Pb,Ni,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	14:38	MP89073-SD1	5		
---------->	Last reportable sample/prep for job JC4005				
	14:44	MP89032-B3	1		
	14:50	ZZZZZZ	5		
	14:56	ZZZZZZ	1		
	15:01	MA37585-CCV4	1		
	15:09	MA37585-CCB4	1		
	15:15	ZZZZZZ	1		
	15:21	MP89032-MB3	1		
	15:27	MA37585-ICSA2	1		
	15:33	MA37585-ICSAB2	1		
	15:38	ZZZZZZ	100		
	15:44	MP89032-S1	1		
	15:50	ZZZZZZ	1		
	15:56	ZZZZZZ	1		
	16:02	ZZZZZZ	1		
	16:08	MA37585-CCV5	1		
	16:16	MA37585-CCB5	1		
---------->	Last reportable CCB for job JC4005				
	16:21	ZZZZZZ	1		
	16:26	MP89088-B1	1		
	16:32	MP89088-MB1	1		
	16:36	MA37585-CRID3	1		
	16:41	MA37585-CRI2	1		
	16:52	MA37585-CCV6	1		
	17:00	MA37585-CCB6	1		
	17:06	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37585
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:21	MA37585-STD1	4411 R	100190 R	7466 R	6607 R
11:27	MA37585-STD2	3953	90103	7274	5378
11:33	ZZZZZZ	4107	93233	7332	5660
11:38	ZZZZZZ	4412	100540	7488	6598
11:44	MA37585-ICV1	4103	93407	7342	5665
11:50	MA37585-ICB1	4407	100570	7527	6590
11:56	MA37585-CCV1	4114	92991	7366	5667
12:02	MA37585-CCB1	4423	100050	7491	6596
12:08	MA37585-CRI1	4338	98288	7469	6385
12:14	MA37585-CRIA1	No results reported for the elements associated with this internal standard.			
12:20	MA37585-CRID1	No results reported for the elements associated with this internal standard.			
12:26	MA37585-ICSA1	3623	82779	6988	4819
12:31	MA37585-ICSAB1	3622	82843	6970	4825
12:37	MA37585-HSTD1	4261	98273	7553	6267
12:43	MA37585-HSTD2	3734	85190	7063	4883
12:49	ZZZZZZ	4282	98083	7483	6317
12:55	ZZZZZZ	4289	100150	7565	6536
13:00	ZZZZZZ	4140	94091	7339	5742
13:06	MA37585-CCV2	4131	92967	7360	5675
13:12	MA37585-CCB2	4428	100580	7521	6589
13:20	ZZZZZZ	4193	94817	7355	5817
13:25	MA37585-CRID2	4417	99886	7512	6552
13:31	ZZZZZZ	4446	100450	7572	6646
13:38	ZZZZZZ	4390	100690	7774	6385
13:44	ZZZZZZ	4110	94022	7441	5925
13:49	ZZZZZZ	4313	98664	7540	6298
13:55	MA37585-CCV3	4146	93425	7408	5678
14:03	MA37585-CCB3	4444	100930	7522	6599
14:09	MP89073-MB1	4461	101800	7595	6641
14:15	MP89073-B1	4245	96240	7540	5902
14:21	MP89073-S1	3921	89548	7323	5260
14:26	MP89073-S2	3910	89583	7294	5250
14:32	JC3901-9F	3925	90069	7354	5402

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37585
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:38	MP89073-SD1	4252	96437	7485	6141
14:44	MP89032-B3	4237	95117	7427	5851
14:50	ZZZZZZ	4370	98612	7504	6306
14:56	ZZZZZZ	4392	98486	7609	6046
15:01	MA37585-CCV4	4174	93632	7408	5708
15:09	MA37585-CCB4	4471	100820	7609	6638
15:15	ZZZZZZ	4457	100680	7552	6627
15:21	MP89032-MB3	4501	101840	7699	6623
15:27	MA37585-ICSA2	3679	83076	7038	4856
15:33	MA37585-ICSAB2	3689	83194	7036	4873
15:38	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:44	MP89032-S1	No results reported for the elements associated with this internal standard.			
15:50	ZZZZZZ	4482	100440	7681	6506
15:56	ZZZZZZ	3516	79533	7092	4658
16:02	ZZZZZZ	3510	79622	7067	4638
16:08	MA37585-CCV5	4193	94510	7477	5726
16:16	MA37585-CCB5	4502	101870	7627	6677
16:21	ZZZZZZ	3510	80071	7086	4642
16:26	MP89088-B1	4299	97641	7639	5969
16:32	MP89088-MB1	4519	102990	7700	6725
16:36	MA37585-CRID3	4493	102000	7622	6637
16:41	MA37585-CRI2	4433	99737	7543	6478
16:52	MA37585-CCV6	4211	94521	7425	5749
17:00	MA37585-CCB6	4510	101740	7587	6682
17:06	ZZZZZZ	4555	103030	7682	6752

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37585 Units: ug/l

Time:			11:50		12:02		13:12		14:03	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	20								
Antimony	6.0	1.6								
Arsenic	3.0	1.4	anr							
Barium	200	.4								
Beryllium	1.0	.2								
Bismuth	20	1.5								
Boron	100	.9								
Cadmium	3.0	.4								
Calcium	5000	25	anr							
Chromium	10	.8	anr							
Cobalt	50	.3	0.40	<50	0.60	<50	0.90	<50	0.20	<50
Copper	10	.8	anr							
Iron	100	10	anr							
Lead	3.0	1	1.0	<3.0	0.70	<3.0	1.1	<3.0	0.10	<3.0
Lithium	20	1.9								
Magnesium	5000	44	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.5	0.50	<10	0.50	<10	0.90	<10	0.20	<10
Palladium	50	1.8	anr							
Potassium	10000	48	anr							
Selenium	10	2.7								
Silicon	200	8.9								
Silver	10	.8								
Sodium	10000	29	anr							
Sulfur	50	4.4								
Strontium	10	.2								
Thallium	2.0	1.5	anr							
Tin	10	1								
Titanium	10	.6								
Tungsten	50	2.8								
Vanadium	50	.5	0.10	<50	0.60	<50	1.1	<50	0.30	<50
Zinc	20	2.3	0.60	<20	0.80	<20	1.1	<20	0.70	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37585 Units: ug/l

Time:			11:50		12:02		13:12		14:03	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37585 Units: ug/l

Time:			15:09		16:16	
Sample ID:			CCB4		CCB5	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	20				
Antimony	6.0	1.6				
Arsenic	3.0	1.4	anr			
Barium	200	.4				
Beryllium	1.0	.2				
Bismuth	20	1.5				
Boron	100	.9				
Cadmium	3.0	.4				
Calcium	5000	25	anr			
Chromium	10	.8	anr			
Cobalt	50	.3	0.80	<50	0.70	<50
Copper	10	.8	anr			
Iron	100	10	anr			
Lead	3.0	1	0.30	<3.0	0.90	<3.0
Lithium	20	1.9				
Magnesium	5000	44	anr			
Manganese	15	.2	anr			
Molybdenum	20	.4				
Nickel	10	.5	0.60	<10	1.1	<10
Palladium	50	1.8	anr			
Potassium	10000	48	anr			
Selenium	10	2.7				
Silicon	200	8.9				
Silver	10	.8				
Sodium	10000	29	anr			
Sulfur	50	4.4				
Strontium	10	.2				
Thallium	2.0	1.5	anr			
Tin	10	1				
Titanium	10	.6				
Tungsten	50	2.8				
Vanadium	50	.5	0.80	<50	1.0	<50
Zinc	20	2.3	0.80	<20	0.90	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37585 Units: ug/l

Time:			15:09		16:16	
Sample ID:			CCB4		CCB5	
Metal	RL	IDL	raw	final	raw	final
Zirconium	10	.4				

(*) Outside of QC limits
(anr) Analyte not requested

12.1.2
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37585 Units: ug/l

Time:		11:44			11:56			13:06	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium									
Beryllium									
Bismuth									
Boron									
Cadmium									
Calcium	anr								
Chromium	anr								
Cobalt	2000	1980	99.0	2000	2020	101.0	2000	2010	100.5
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	2020	101.0	2000	2020	101.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	1990	99.5	2000	2020	101.0	2000	2020	101.0
Palladium	anr								
Potassium	anr								
Selenium									
Silicon									
Silver									
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2000	100.0	2000	2010	100.5	2000	2010	100.5
Zinc	2000	2030	101.5	2000	2020	101.0	2000	2010	100.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37585 Units: ug/l

Time:		11:44			11:56			13:06	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.1.3
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37585 Units: ug/l

Time:		13:55			15:01			16:08	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium									
Beryllium									
Bismuth									
Boron									
Cadmium									
Calcium	anr								
Chromium	anr								
Cobalt	2000	2010	100.5	2000	2000	100.0	2000	1990	99.5
Copper	anr								
Iron	anr								
Lead	2000	2020	101.0	2000	2020	101.0	2000	2000	100.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2020	101.0	2000	2020	101.0	2000	2010	100.5
Palladium	anr								
Potassium	anr								
Selenium									
Silicon									
Silver									
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2010	100.5	2000	2000	100.0	2000	1990	99.5
Zinc	2000	2000	100.0	2000	1990	99.5	2000	1980	99.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37585 Units: ug/l

Time:		13:55			15:01			16:08	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.1.3
12

HIGH STANDARD CHECK SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37585 Units: ug/l

Time:		12:37			12:43	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium	anr					
Cobalt	5000	5120	102.4			
Copper	anr					
Iron						
Lead	5000	5260	105.2			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	5000	5140	102.8			
Palladium	anr					
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	5000	5080	101.6			
Zinc	5000	5220	104.4			

HIGH STANDARD CHECK SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37585 Units: ug/l

Time:		12:37			12:43	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37585 Units: ug/l

Time:				12:08		13:25	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100				
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0				
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0				
Calcium	5000	2000	1000	anr			
Chromium	10		2.0	anr			
Cobalt	50		3.0	49.8	99.6	3.0	100.0
Copper	10		2.0	anr			
Iron	100	500		anr			
Lead	3.0	20	2.5	3.6	120.0	2.9	116.0
Lithium	20						
Magnesium	5000	2000	100	anr			
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	10.2	102.0	4.1	102.5
Palladium	50			anr			
Potassium	5000		2000	anr			
Selenium	10	20	5.0				
Silicon	200						
Silver	5.0		2.0				
Sodium	5000		1000	anr			
Sulfur	50						
Strontium	10						
Thallium	10		2.0	anr			
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0	51.4	102.8	2.4	120.0
Zinc	20		10	22.5	112.5	12.3	123.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37585 Units: ug/l

Time:				12:08		13:25	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37585 Units: ug/l

Time:			12:26		12:31		15:27		15:33	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	527000	105.4	514000	102.8	521000	104.2	508000	101.6
Antimony		1000	0.80		1080	108.0	1.4		1060	106.0
Arsenic		1000	1.4		1030	103.0	2.0		1010	101.0
Barium		500	-0.40		511	102.2	-0.50		505	101.0
Beryllium		500	1.0		518	103.6	0.80		511	102.2
Bismuth		500	-1.3		493	98.6	-1.1		478	95.6
Boron			0.50		8.7		0.50		9.0	
Cadmium		1000	2.8		1020	102.0	2.8		1010	101.0
Calcium	400000	400000	384000	96.0	382000	95.5	377000	94.3	376000	94.0
Chromium		500	0.90		504	100.8	0.70		502	100.4
Cobalt		500	4.6		497	99.4	4.5		492	98.4
Copper		500	4.5		503	100.6	4.4		500	100.0
Iron	200000	200000	185000	92.5	185000	92.5	180000	90.0	181000	90.5
Lead		1000	-2.7		956	95.6	-1.5		947	94.7
Lithium		500	-24		572	114.4	-22		565	113.0
Magnesium	500000	500000	497000	99.4	482000	96.4	485000	97.0	472000	94.4
Manganese		500	-4.5		503	100.6	-5.0		502	100.4
Molybdenum		500	-1.6		503	100.6	-1.6		492	98.4
Nickel		1000	1.0		962	96.2	1.0		958	95.8
Palladium		500	1.6		549	109.8	3.3		546	109.2
Potassium			-32		-39		-24		-18	
Selenium		1000	2.2		1080	108.0	-1.9		1050	105.0
Silicon			16.0		11.7		15.2		11.6	
Silver		1000	-0.50		1010	101.0	-2.5		999	99.9
Sodium			-29		-19		28.0		40.8	
Sulfur		500	45.4		554	110.8	48.2		546	109.2
Strontium			6.6		6.4		6.5		6.5	
Thallium		1000	-1.5		961	96.1	-2.5		945	94.5
Tin			-4.7		-4.2		-4.7		-4.8	
Titanium			3.1		3.7		2.8		3.2	
Tungsten		500	8.5		521	104.2	8.5		508	101.6
Vanadium		500	0.40		506	101.2	0.0		504	100.8
Zinc		1000	0.70		986	98.6	0.60		970	97.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SC091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37585 Units: ug/l

Time:			12:26		12:31		15:27		15:33	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	12.7		501	100.2	11.3		498	99.6

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:16	MA37588-STD1	1		STDA
11:22	MA37588-STD2	1		STDB
11:28	ZZZZZZ	1		
11:34	ZZZZZZ	1		
11:40	MA37588-ICV1	1		
11:51	MA37588-ICV2	1		
12:01	MA37588-ICB1	1		
12:06	MA37588-ICCV1	1		
12:23	MA37588-CCB1	1		
12:27	MA37588-CRI1	1		
12:33	MA37588-CRID1	1		
12:39	MA37588-CRIA1	1		
12:46	MA37588-ICSA1	1		
12:52	MA37588-ICSAB1	1		
12:57	MA37588-HSTD1	1		
13:03	MA37588-HSTD2	1		
13:09	ZZZZZZ	1		
13:15	ZZZZZZ	1		
13:21	ZZZZZZ	1		
13:27	MA37588-CCV1	1		
13:33	MA37588-CCB2	1		
13:39	ZZZZZZ	5		
13:45	MP89077-MB1	1		
13:51	MP89077-B1	1		
13:57	MP89077-S1	1		
14:03	MP89077-S2	1		
14:09	JC3239-1	1		(sample used for QC only; not part of login JC4005)
14:15	MP89077-SD1	5		
14:21	ZZZZZZ	1		
14:26	ZZZZZZ	1		
14:32	MA37588-CCV2	1		
14:38	MA37588-CCB3	1		
14:44	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:50	ZZZZZZ	1		
14:56	ZZZZZZ	1		
15:02	ZZZZZZ	1		
15:08	ZZZZZZ	1		
15:14	ZZZZZZ	1		
15:20	ZZZZZZ	1		
15:26	ZZZZZZ	1		
15:40	ZZZZZZ	1		
15:46	MA37588-CCV3	1		
15:51	MA37588-CCB4	1		
15:58	ZZZZZZ	3		
16:03	ZZZZZZ	3		
16:09	ZZZZZZ	1		
16:15	ZZZZZZ	5		
16:21	ZZZZZZ	1		
16:27	ZZZZZZ	1		
16:33	ZZZZZZ	2		
16:39	ZZZZZZ	1		
16:45	ZZZZZZ	1		
16:51	ZZZZZZ	1		
16:57	MA37588-CCV4	1		
17:02	MA37588-CCB5	1		
17:09	ZZZZZZ	1		
17:14	ZZZZZZ	1		
17:20	ZZZZZZ	1		
17:26	ZZZZZZ	1		
17:32	ZZZZZZ	5		
17:38	ZZZZZZ	1		
17:44	ZZZZZZ	5		
17:50	ZZZZZZ	2		
17:56	MP89080-MB1	5		
18:02	MA37588-CCV5	1		
18:08	MA37588-CCB6	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:14	MP89080-B1	5		
18:20	MP89080-S1	1		
18:26	MP89080-S2	1		
18:31	JC3943-1A	1		(sample used for QC only; not part of login JC4005)
18:37	MP89080-SD1	5		
18:43	ZZZZZZ	1		
18:50	ZZZZZZ	1		
18:56	ZZZZZZ	1		
19:02	ZZZZZZ	1		
19:08	MA37588-CCV6	1		
19:13	MA37588-CCB7	1		
19:20	ZZZZZZ	1		
19:26	ZZZZZZ	1		
19:32	ZZZZZZ	1		
19:38	ZZZZZZ	1		
19:44	ZZZZZZ	1		
19:50	ZZZZZZ	1		
19:56	ZZZZZZ	1		
20:02	ZZZZZZ	1		
20:08	ZZZZZZ	1		
20:14	MA37588-CCV7	1		
20:20	MA37588-CCB8	1		
20:26	MA37588-CRI2	1		
20:32	MA37588-CRID2	1		
20:39	MA37588-CRIA2	1		
20:45	MA37588-ICSA2	1		
20:51	MA37588-ICSAB2	1		
20:57	ZZZZZZ	1		
21:03	ZZZZZZ	1		
21:09	MA37588-CCV8	1		
21:15	MA37588-CCB9	1		
21:21	ZZZZZZ	1		
21:27	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	21:33	ZZZZZZ	1		
	21:39	JC4005-2	1		
---------->	Last reportable sample/prep for job JC4005				
	21:45	ZZZZZZ	1		
	21:51	ZZZZZZ	1		
	21:58	ZZZZZZ	3		
	22:03	MP89066-B1	1		
	22:09	MP89066-MB1	1		
	22:15	MA37588-CCV9	1		
	22:21	MA37588-CCB10	1		
	22:27	MP89066-S1	1		
	22:33	MP89066-S2	1		
	22:39	JC3980-20	1		(sample used for QC only; not part of login JC4005)
	22:45	MP89066-SD1	5		
	22:51	ZZZZZZ	1		
	22:57	ZZZZZZ	1		
	23:02	ZZZZZZ	1		
	23:08	ZZZZZZ	1		
	23:14	ZZZZZZ	1		
	23:20	MA37588-CCV10	1		
	23:26	MA37588-CCB11	1		
	23:32	ZZZZZZ	1		
	23:38	ZZZZZZ	1		
	23:44	ZZZZZZ	1		
	23:50	ZZZZZZ	1		
	23:56	ZZZZZZ	1		
	00:01	ZZZZZZ	1		
	00:07	ZZZZZZ	1		
	00:13	ZZZZZZ	1		
	00:19	ZZZZZZ	1		
	00:25	MA37588-CCV11	1		
	00:31	MA37588-CCB12	1		
	00:37	ZZZZZZ	1		
	00:43	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:49	ZZZZZZ	1		
00:54	ZZZZZZ	1		
01:00	ZZZZZZ	1		
01:06	MP89078-B1	1		
01:12	MP89078-MB1	1		
01:18	MP89078-S1	1		
01:24	MP89078-S2	1		
01:30	JC3896-4A	1		(sample used for QC only; not part of login JC4005)
01:36	MA37588-CCV12	1		
01:42	MA37588-CCB13	1		
01:48	MP89078-SD1	5		
01:54	ZZZZZZ	1		
02:00	ZZZZZZ	1		
02:05	ZZZZZZ	1		
02:11	ZZZZZZ	1		
02:17	ZZZZZZ	1		
02:23	ZZZZZZ	1		
02:29	ZZZZZZ	1		
02:35	ZZZZZZ	1		
02:41	ZZZZZZ	1		
02:47	MA37588-CCV13	1		
02:53	MA37588-CCB14	1		
02:59	ZZZZZZ	1		
03:05	ZZZZZZ	1		
03:11	ZZZZZZ	1		
03:17	ZZZZZZ	1		
03:23	ZZZZZZ	1		
03:29	ZZZZZZ	1		
03:35	ZZZZZZ	1		
03:41	ZZZZZZ	1		
03:46	ZZZZZZ	1		
03:52	ZZZZZZ	1		
03:58	MA37588-CCV14	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	04:04	MA37588-CCB15	1		
	04:10	MA37588-CRI3	1		
	04:16	MA37588-CRID3	1		
	04:22	MA37588-CRIA3	1		
	04:29	MA37588-CCV15	1		
	04:34	MA37588-CCB16	1		
---------->	Last reportable CCB for job JC4005				
	04:41	ZZZZZZ	1		
	04:47	ZZZZZZ	1		
	04:53	ZZZZZZ	1		
	04:59	ZZZZZZ	1		
	05:05	ZZZZZZ	1		
	05:11	ZZZZZZ	1		
	05:17	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:16	MA37588-STD1	2064 R	35502 R	9757 R	6638 R
11:22	MA37588-STD2	1900	32195	9424	5639
11:28	ZZZZZZ	1953	33269	9548	5841
11:34	ZZZZZZ	2052	35455	9721	6594
11:40	MA37588-ICV1	No results reported for the elements associated with this internal standard.			
11:51	MA37588-ICV2	1963	33508	9646	5891
12:01	MA37588-ICB1	2065	35666	9754	6635
12:06	MA37588-ICCV1	1967	33451	9644	5892
12:23	MA37588-CCB1	2057	35522	9736	6640
12:27	MA37588-CRI1	2020	34873	9760	6408
12:33	MA37588-CRID1	2040	35379	9675	6551
12:39	MA37588-CRIA1	2022	35372	9731	6486
12:46	MA37588-ICSA1	1791	30316	9148	5175
12:52	MA37588-ICSAB1	1775	30353	9253	5145
12:57	MA37588-HSTD1	2003	34540	9823	6345
13:03	MA37588-HSTD2	1811	30902	9333	5182
13:09	ZZZZZZ	2007	34554	9646	6535
13:15	ZZZZZZ	1970	33717	9679	6017
13:21	ZZZZZZ	2004	35598	9489	6555
13:27	MA37588-CCV1	1944	33265	9585	5810
13:33	MA37588-CCB2	2051	35602	9503	6577
13:39	ZZZZZZ	2029	35153	9656	6480
13:45	MP89077-MB1	2028	35518	9812	6527
13:51	MP89077-B1	1954	33766	9660	5970
13:57	MP89077-S1	1963	34023	10088	5682
14:03	MP89077-S2	1961	33990	10073	5727
14:09	JC3239-1	2026	34784	10171	5945
14:15	MP89077-SD1	2006	34917	9810	6185
14:21	ZZZZZZ	2107	36293	10357	6147
14:26	ZZZZZZ	1969	34260	10069	5747
14:32	MA37588-CCV2	1928	32869	9549	5782
14:38	MA37588-CCB3	2040	35458	9664	6563
14:44	ZZZZZZ	1948	34172	9983	5990

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:50	ZZZZZZ	1981	34357	10089	5857
14:56	ZZZZZZ	1915	33156	9873	5598
15:02	ZZZZZZ	1873	33090	9744	6032
15:08	ZZZZZZ	2004	34922	10114	6045
15:14	ZZZZZZ	1992	34756	10010	6027
15:20	ZZZZZZ	2143	36901	10762	5933
15:26	ZZZZZZ	2040	35389	10241	6015
15:40	ZZZZZZ	2000	34617	10155	5694
15:46	MA37588-CCV3	1912	32860	9416	5717
15:51	MA37588-CCB4	2031	35367	9735	6515
15:58	ZZZZZZ	1949	33792	9678	6100
16:03	ZZZZZZ	2009	34653	9750	6214
16:09	ZZZZZZ	2011	34698	9922	6154
16:15	ZZZZZZ	2025	35062	9692	6295
16:21	ZZZZZZ	2088	35438	10259	5965
16:27	ZZZZZZ	1886	32477	9675	5304
16:33	ZZZZZZ	2052	35019	9967	6086
16:39	ZZZZZZ	1994	34676	9923	6229
16:45	ZZZZZZ	1988	34459	10029	6072
16:51	ZZZZZZ	2033	34999	10092	6046
16:57	MA37588-CCV4	1928	33007	9484	5762
17:02	MA37588-CCB5	2026	35450	9682	6505
17:09	ZZZZZZ	1952	33961	9863	5844
17:14	ZZZZZZ	2128	36310	10457	5994
17:20	ZZZZZZ	2015	35473	9680	6473
17:26	ZZZZZZ	2517	42772	12452	6017
17:32	ZZZZZZ	2106	35950	10053	6188
17:38	ZZZZZZ	2688 !a	45366	13271 !a	6006
17:44	ZZZZZZ	2174	999999 !	10388	6232
17:50	ZZZZZZ	2048	34963	9856	6355
17:56	MP89080-MB1	2046	35399	9598	6539
18:02	MA37588-CCV5	1955	33185	9411	5812
18:08	MA37588-CCB6	2024	35439	9658	6467

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:14	MP89080-B1	2018	34854	9555	6291
18:20	MP89080-S1	1944	33689	9626	5880
18:26	MP89080-S2	1934	33748	9698	5863
18:31	JC3943-1A	2020	34930	9782	6374
18:37	MP89080-SD1	2057	35299	9615	6541
18:43	ZZZZZZ	2049	35705	9723	6539
18:50	ZZZZZZ	1913	32963	9462	5810
18:56	ZZZZZZ	1886	33009	9541	5690
19:02	ZZZZZZ	1941	33244	9493	5892
19:08	MA37588-CCV6	1972	33202	9500	5864
19:13	MA37588-CCB7	2078	35392	9569	6634
19:20	ZZZZZZ	1740	29522	9169	5025
19:26	ZZZZZZ	1739	29406	9104	5012
19:32	ZZZZZZ	1763	29758	9144	5049
19:38	ZZZZZZ	1767	29795	9094	5059
19:44	ZZZZZZ	2083	35713	9208	6642
19:50	ZZZZZZ	2088	36049	9641	6665
19:56	ZZZZZZ	1828	30743	9267	5279
20:02	ZZZZZZ	1836	29396	9424	5285
20:08	ZZZZZZ	1838	30958	9247	5326
20:14	MA37588-CCV7	1992	33891	9527	5904
20:20	MA37588-CCB8	2108	35973	9715	6709
20:26	MA37588-CRI2	2080	35529	9579	6512
20:32	MA37588-CRID2	2094	36074	9695	6632
20:39	MA37588-CRIA2	2113	35456	9294	6667
20:45	MA37588-ICSA2	1856	30601	8978	5284
20:51	MA37588-ICSAB2	1859	30622	9058	5314
20:57	ZZZZZZ	2069	35845	9439	6687
21:03	ZZZZZZ	2113	36081	9545	6696
21:09	MA37588-CCV8	2020	33910	9433	5968
21:15	MA37588-CCB9	2135	35729	9584	6765
21:21	ZZZZZZ	1863	31017	9251	5341
21:27	ZZZZZZ	2066	34813	9566	6284

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:33	ZZZZZZ	1870	31905	9322	5402
21:39	JC4005-2	2135	36539	9663	6780
21:45	ZZZZZZ	2118	36568	9700	6764
21:51	ZZZZZZ	1878	31519	9454	5379
21:58	ZZZZZZ	2365	39658	10929	6377
22:03	MP89066-B1	2046	34877	9664	6173
22:09	MP89066-MB1	2133	36840	9846	6768
22:15	MA37588-CCV9	2059	34651	9607	6092
22:21	MA37588-CCB10	2140	36784	9817	6826
22:27	MP89066-S1	2094	35212	9939	6063
22:33	MP89066-S2	2100	35193	9925	6101
22:39	JC3980-20	2188	37169	10621	6315
22:45	MP89066-SD1	2187	37245	10039	6708
22:51	ZZZZZZ	2148	36916	10482	6298
22:57	ZZZZZZ	2230	37134	10537	6276
23:02	ZZZZZZ	2127	36078	10169	6262
23:08	ZZZZZZ	2181	36745	10272	6389
23:14	ZZZZZZ	2234	38093	10589	6403
23:20	MA37588-CCV10	2088	35470	9873	6168
23:26	MA37588-CCB11	2218	37843	9968	7037
23:32	ZZZZZZ	2207	36970	10365	6431
23:38	ZZZZZZ	2249	37585	10454	6510
23:44	ZZZZZZ	2143	36499	10273	6327
23:50	ZZZZZZ	2163	36665	10183	6476
23:56	ZZZZZZ	2197	37130	10392	6619
00:01	ZZZZZZ	2220	37620	10610	6498
00:07	ZZZZZZ	2279	38503	10710	6525
00:13	ZZZZZZ	2259	37985	10728	6377
00:19	ZZZZZZ	2261	37571	10886	6211
00:25	MA37588-CCV11	2117	36023	10028	6257
00:31	MA37588-CCB12	2227	37782	9979	7063
00:37	ZZZZZZ	2220	37606	10643	6493
00:43	ZZZZZZ	2310	38850	10982	6498

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
00:49	ZZZZZZ	2269	37911	10774	6400
00:54	ZZZZZZ	2338	39729	11008	6614
01:00	ZZZZZZ	2299	38562	10947	6513
01:06	MP89078-B1	2148	36907	10330	6490
01:12	MP89078-MB1	2212	38742	10459	7037
01:18	MP89078-S1	2230	37730	10734	6353
01:24	MP89078-S2	2231	37806	10766	6380
01:30	JC3896-4A	2322	39941	10923	6820
01:36	MA37588-CCV12	2166	36634	10235	6397
01:42	MA37588-CCB13	2258	39285	10567	7167
01:48	MP89078-SD1	2300	39264	10450	7130
01:54	ZZZZZZ	2118	37109	10443	6718
02:00	ZZZZZZ	2178	38115	10729	6954
02:05	ZZZZZZ	2318	39329	10976	6682
02:11	ZZZZZZ	2248	38159	10657	6771
02:17	ZZZZZZ	2174	37360	10586	6478
02:23	ZZZZZZ	2260	39075	10780	6737
02:29	ZZZZZZ	2317	39985	10947	6898
02:35	ZZZZZZ	2324	39766	10872	6922
02:41	ZZZZZZ	2273	39152	10963	6700
02:47	MA37588-CCV13	2184	36883	10291	6445
02:53	MA37588-CCB14	2309	39926	10501	7336
02:59	ZZZZZZ	2364	40341	11292	6794
03:05	ZZZZZZ	2372	40778	11358	6807
03:11	ZZZZZZ	2301	40005	11066	6912
03:17	ZZZZZZ	2302	39631	11015	6736
03:23	ZZZZZZ	2286	39068	10819	6591
03:29	ZZZZZZ	2280	39484	10978	6621
03:35	ZZZZZZ	2306	39390	10882	6750
03:41	ZZZZZZ	2280	39675	11064	6659
03:46	ZZZZZZ	2353	40590	11186	7063
03:52	ZZZZZZ	2352	40255	11112	7021
03:58	MA37588-CCV14	2193	37463	10467	6475

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37588
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
04:04	MA37588-CCB15	2338	40594	10769	7418
04:10	MA37588-CRI3	2318	39575	10627	7231
04:16	MA37588-CRID3	2355	40546	10858	7442
04:22	MA37588-CRIA3	2345	40320	10741	7417
04:29	MA37588-CCV15	2216	37871	10606	6543
04:34	MA37588-CCB16	2346	40887	10957	7438
04:41	ZZZZZZ	2399	38275	11137	6540
04:47	ZZZZZZ	2365	40326	10987	7463
04:53	ZZZZZZ	2372	40791	10789	7526
04:59	ZZZZZZ	2367	40865	10930	7471
05:05	ZZZZZZ	2368	40889	10817	7484
05:11	ZZZZZZ	2369	40800	10793	7516
05:17	ZZZZZZ	2390	40607	10881	7539

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			12:01		12:23		13:33		14:38	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.23	anr							
Beryllium	1.0	.22	anr							
Bismuth	20	.8								
Boron	100	.9								
Cadmium	3.0	.23	anr							
Calcium	5000	21	anr							
Chromium	10	.5	anr							
Cobalt	50	.31	0.0	<50	0.10	<50	-0.10	<50	0.20	<50
Copper	10	.65	anr							
Iron	100	5.4	anr							
Lead	3.0	.91	-0.50	<3.0	0.20	<3.0	0.20	<3.0	0.80	<3.0
Lithium	20	1.3								
Magnesium	5000	29	anr							
Manganese	15	.18	anr							
Molybdenum	20	.27								
Nickel	10	.41	-0.10	<10	-0.10	<10	0.10	<10	0.10	<10
Palladium	50	2.7								
Potassium	10000	50	anr							
Selenium	10	2.4	anr							
Silicon	200	3.7								
Silver	10	.48	anr							
Sodium	10000	13	anr							
Sulfur	50	3.2								
Strontium	10	.18								
Thallium	2.0	2	anr							
Tin	10	.96								
Titanium	10	.55								
Tungsten	50	1.3								
Vanadium	50	.43	0.0	<50	0.10	<50	0.50	<50	0.40	<50
Zinc	20	2.9	0.20	<20	0.20	<20	0.20	<20	0.30	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			12:01		12:23		13:33		14:38	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.37								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			15:51		17:02		18:08		19:13	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.23	anr							
Beryllium	1.0	.22	anr							
Bismuth	20	.8								
Boron	100	.9								
Cadmium	3.0	.23	anr							
Calcium	5000	21	anr							
Chromium	10	.5	anr							
Cobalt	50	.31	0.20	<50	0.20	<50	0.30	<50	0.30	<50
Copper	10	.65	anr							
Iron	100	5.4	anr							
Lead	3.0	.91	0.20	<3.0	-0.10	<3.0	0.30	<3.0	0.0	<3.0
Lithium	20	1.3								
Magnesium	5000	29	anr							
Manganese	15	.18	anr							
Molybdenum	20	.27								
Nickel	10	.41	0.20	<10	0.20	<10	0.20	<10	0.20	<10
Palladium	50	2.7								
Potassium	10000	50	anr							
Selenium	10	2.4	anr							
Silicon	200	3.7								
Silver	10	.48	anr							
Sodium	10000	13	anr							
Sulfur	50	3.2								
Strontium	10	.18								
Thallium	2.0	2	anr							
Tin	10	.96								
Titanium	10	.55								
Tungsten	50	1.3								
Vanadium	50	.43	0.50	<50	0.40	<50	0.60	<50	0.30	<50
Zinc	20	2.9	0.30	<20	0.40	<20	0.50	<20	0.30	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			15:51		17:02		18:08		19:13	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.37								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			20:20		21:15		22:21		23:26	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.23	anr							
Beryllium	1.0	.22	anr							
Bismuth	20	.8								
Boron	100	.9								
Cadmium	3.0	.23	anr							
Calcium	5000	21	anr							
Chromium	10	.5	anr							
Cobalt	50	.31	0.20	<50	0.20	<50	0.40	<50	0.20	<50
Copper	10	.65	anr							
Iron	100	5.4	anr							
Lead	3.0	.91	1.0	<3.0	0.50	<3.0	0.20	<3.0	0.60	<3.0
Lithium	20	1.3								
Magnesium	5000	29	anr							
Manganese	15	.18	anr							
Molybdenum	20	.27								
Nickel	10	.41	0.20	<10	0.20	<10	0.30	<10	0.20	<10
Palladium	50	2.7								
Potassium	10000	50	anr							
Selenium	10	2.4	anr							
Silicon	200	3.7								
Silver	10	.48	anr							
Sodium	10000	13	anr							
Sulfur	50	3.2								
Strontium	10	.18								
Thallium	2.0	2	anr							
Tin	10	.96								
Titanium	10	.55								
Tungsten	50	1.3								
Vanadium	50	.43	0.30	<50	0.40	<50	0.40	<50	0.60	<50
Zinc	20	2.9	0.30	<20	0.50	<20	0.70	<20	0.70	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			20:20		21:15		22:21		23:26	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.37								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			00:31		01:42		02:53		04:04	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	11	anr							
Antimony	6.0	1	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.23	anr							
Beryllium	1.0	.22	anr							
Bismuth	20	.8								
Boron	100	.9								
Cadmium	3.0	.23	anr							
Calcium	5000	21	anr							
Chromium	10	.5	anr							
Cobalt	50	.31	0.40	<50	0.10	<50	0.0	<50	0.10	<50
Copper	10	.65	anr							
Iron	100	5.4	anr							
Lead	3.0	.91	0.80	<3.0	1.0	<3.0	0.40	<3.0	0.0	<3.0
Lithium	20	1.3								
Magnesium	5000	29	anr							
Manganese	15	.18	anr							
Molybdenum	20	.27								
Nickel	10	.41	0.40	<10	0.10	<10	0.0	<10	0.10	<10
Palladium	50	2.7								
Potassium	10000	50	anr							
Selenium	10	2.4	anr							
Silicon	200	3.7								
Silver	10	.48	anr							
Sodium	10000	13	anr							
Sulfur	50	3.2								
Strontium	10	.18								
Thallium	2.0	2	anr							
Tin	10	.96								
Titanium	10	.55								
Tungsten	50	1.3								
Vanadium	50	.43	0.30	<50	0.20	<50	0.20	<50	0.40	<50
Zinc	20	2.9	0.70	<20	0.50	<20	0.30	<20	0.40	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			00:31		01:42		02:53		04:04	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.37								

(*) Outside of QC limits
(anr) Analyte not requested

12.2.2
12

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			04:34	
Sample ID:			CCB16	
Metal	RL	IDL	raw	final
Aluminum	200	11	anr	
Antimony	6.0	1	anr	
Arsenic	3.0	1.1	anr	
Barium	200	.23	anr	
Beryllium	1.0	.22	anr	
Bismuth	20	.8		
Boron	100	.9		
Cadmium	3.0	.23	anr	
Calcium	5000	21	anr	
Chromium	10	.5	anr	
Cobalt	50	.31	0.20	<50
Copper	10	.65	anr	
Iron	100	5.4	anr	
Lead	3.0	.91	0.50	<3.0
Lithium	20	1.3		
Magnesium	5000	29	anr	
Manganese	15	.18	anr	
Molybdenum	20	.27		
Nickel	10	.41	0.30	<10
Palladium	50	2.7		
Potassium	10000	50	anr	
Selenium	10	2.4	anr	
Silicon	200	3.7		
Silver	10	.48	anr	
Sodium	10000	13	anr	
Sulfur	50	3.2		
Strontium	10	.18		
Thallium	2.0	2	anr	
Tin	10	.96		
Titanium	10	.55		
Tungsten	50	1.3		
Vanadium	50	.43	0.30	<50
Zinc	20	2.9	0.50	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37588 Units: ug/l

Time:			04:34	
Sample ID:			CCB16	
Metal	RL	IDL	raw	final
Zirconium	10	.37		

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		12:06	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	2000	2000	100.0
Copper	anr		
Iron	anr		
Lead	2000	2010	100.5
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	2000	2020	101.0
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	1990	99.5
Zinc	2000	2020	101.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		12:06	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		11:51			13:27			14:32	
Sample ID:	ICV	ICV2		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1960	98.0	2000	2040	102.0	2000	2050	102.5
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	2050	102.5	2000	2050	102.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	1980	99.0	2000	2060	103.0	2000	2060	103.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1980	99.0	2000	2010	100.5	2000	2040	102.0
Zinc	2000	2020	101.0	2000	2060	103.0	2000	2060	103.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		11:51			13:27			14:32	
Sample ID:	ICV	ICV2		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.2.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		15:46			16:57			18:02	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	2070	103.5	2000	2050	102.5	2000	2050	102.5
Copper	anr								
Iron	anr								
Lead	2000	2090	104.5	2000	2060	103.0	2000	2070	103.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2090	104.5	2000	2070	103.5	2000	2080	104.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2030	101.5	2000	2020	101.0	2000	2020	101.0
Zinc	2000	2100	105.0	2000	2070	103.5	2000	2080	104.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		15:46			16:57			18:02	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.2.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		19:08			20:14			21:09	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	2050	102.5	2000	2050	102.5	2000	2030	101.5
Copper	anr								
Iron	anr								
Lead	2000	2070	103.5	2000	2070	103.5	2000	2050	102.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2070	103.5	2000	2080	104.0	2000	2060	103.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2030	101.5	2000	1990	99.5	2000	2000	100.0
Zinc	2000	2090	104.5	2000	2090	104.5	2000	2080	104.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		19:08			20:14			21:09	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		22:15			23:20			00:25	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1990	99.5	2000	1950	97.5	2000	1920	96.0
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	1970	98.5	2000	1940	97.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2020	101.0	2000	1980	99.0	2000	1950	97.5
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1950	97.5	2000	1900	95.0	2000	1860	93.0
Zinc	2000	2040	102.0	2000	1990	99.5	2000	1950	97.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		22:15			23:20			00:25	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		01:36			02:47			03:58	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1860	93.0	2000	1850	92.5	2000	1860	93.0
Copper	anr								
Iron	anr								
Lead	2000	1880	94.0	2000	1880	94.0	2000	1880	94.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	1890	94.5	2000	1880	94.0	2000	1890	94.5
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1820	91.0	2000	1820	91.0	2000	1790	89.5*(a)
Zinc	2000	1890	94.5	2000	1870	93.5	2000	1890	94.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		01:36			02:47			03:58	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested
(a) No samples reported for this element in the area bracketed by this QC.

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		04:29	
Sample ID:	CCV	CCV15	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	2000	1820	91.0
Copper	anr		
Iron	anr		
Lead	2000	1840	92.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	2000	1850	92.5
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	1770	88.5*(a)
Zinc	2000	1840	92.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		04:29	
Sample ID:	CCV	CCV15	
Metal	True	Results	% Rec
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested
(a) No samples reported for this element in the area bracketed by this QC.

12.2.4
12

HIGH STANDARD CHECK SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		12:57			13:03	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	5000	5090	101.8			
Copper	anr					
Iron						
Lead	5000	5160	103.2			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	5000	5110	102.2			
Palladium						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	5000	5170	103.4			
Zinc	5000	5260	105.2			

HIGH STANDARD CHECK SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37588 Units: ug/l

Time:		12:57			13:03	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

12.2.5

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37588 Units: ug/l

Time:				12:27		12:33		12:39	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	48.5	97.0	3.0	100.0		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.4	80.0	2.0	80.0	21.4	107.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	9.7	97.0	3.7	92.5		
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	49.4	98.8	1.9	95.0		
Zinc	20		10	21.7	108.5	11.2	112.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37588 Units: ug/l

Time:				12:27		12:33		12:39	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

12.2.6

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37588 Units: ug/l

Time:				20:26		20:32		20:39	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID2		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	49.1	98.2	2.9	96.7		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.5	116.7	2.6	104.0	21.3	106.5
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	9.6	96.0	3.9	97.5		
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	48.6	97.2	1.9	95.0		
Zinc	20		10	22.1	110.5	11.3	113.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37588 Units: ug/l

Time:				20:26		20:32		20:39	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID2		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

12.2.6
12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37588 Units: ug/l

Time:				04:10		04:16		04:22	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID3		CRIA3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	43.3	86.6	2.7	90.0		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.4	113.3	2.2	88.0	18.9	94.5
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	8.7	87.0	3.5	87.5		
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	42.9	85.8	1.6	80.0		
Zinc	20		10	19.6	98.0	9.8	98.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37588 Units: ug/l

Time:				04:10		04:16		04:22	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID3		CRIA3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

12.2.6

12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37588 Units: ug/l

Time:			12:46		12:52		20:45		20:51	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	519000	103.8	501000	100.2	507000	101.4	495000	99.0
Antimony		1000	-0.20		1080	108.0	-3.5		1040	104.0
Arsenic		1000	4.9		1010	101.0	3.6		974	97.4
Barium		500	0.30		487	97.4	0.10		475	95.0
Beryllium		500	0.0		483	96.6	0.0		484	96.8
Bismuth		500	10.7		508	101.6	11.0		483	96.6
Boron			-6.3		2.8		-4.8		2.4	
Cadmium		1000	2.7		1020	102.0	2.3		990	99.0
Calcium	400000	400000	368000	92.0	366000	91.5	373000	93.3	369000	92.3
Chromium		500	3.5		481	96.2	3.6		492	98.4
Cobalt		500	3.2		484	96.8	3.8		483	96.6
Copper		500	-2.7		496	99.2	-3.9		476	95.2
Iron	200000	200000	184000	92.0	182000	91.0	184000	92.0	182000	91.0
Lead		1000	4.4		940	94.0	0.50		944	94.4
Lithium		500	42.8*		588	117.6	40.4*		568	113.6
Magnesium	500000	500000	522000	104.4	497000	99.4	529000	105.8	509000	101.8
Manganese		500	1.2		489	97.8	0.60		497	99.4
Molybdenum		500	0.70		487	97.4	0.70		476	95.2
Nickel		1000	3.0		953	95.3	2.6		958	95.8
Palladium		500	-39		515	103.0	-40		503	100.6
Potassium			-17		-69		8.5		-81	
Selenium		1000	0.30		1060	106.0	6.4		1030	103.0
Silicon			-30		-37		-29		-36	
Silver		1000	9.1		1050	105.0	8.0		1040	104.0
Sodium			57.1		51.7		120		98.0	
Sulfur		500	30.3		530	106.0	30.3		514	102.8
Strontium			5.6		5.3		4.9		4.8	
Thallium		1000	-0.10		981	98.1	1.6		955	95.5
Tin			2.7		3.1		2.8		2.5	
Titanium			2.8		6.7		2.6		6.4	
Tungsten		500	20.3		515	103.0	20.9		505	101.0
Vanadium		500	3.2		479	95.8	3.7		481	96.2
Zinc		1000	-1.6		941	94.1	-1.3		956	95.6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB091815M1.ICP Date Analyzed: 09/18/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37588 Units: ug/l

Time:			12:46		12:52		20:45		20:51	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	-5.4		481	96.2	-5.9		483	96.6

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:00	MA37607-STD1	1		STDA
10:06	MA37607-STD2	1		STDB
10:12	ZZZZZZ	1		
10:18	ZZZZZZ	1		
10:36	MA37607-ICV1	1		
10:47	MA37607-ICB1	1		
10:51	MA37607-ICCV1	1		
11:08	MA37607-CCB1	1		
11:13	MA37607-CRI1	1		
11:19	MA37607-CRID1	1		
11:25	MA37607-CRIA1	1		
11:31	MA37607-ICSA1	1		
11:37	MA37607-ICSAB1	1		
11:46	MA37607-HSTD1	1		
11:52	MA37607-HSTD2	1		
11:58	ZZZZZZ	1		
12:04	ZZZZZZ	1		
12:10	ZZZZZZ	1		
12:17	MA37607-CCV1	1		
12:22	MA37607-CCB2	1		
12:29	MA37607-CRI2	1		
12:35	MP89121-MB1	1		
12:41	MP89121-B1	1		
12:47	ZZZZZZ	1		
12:53	MP89121-S1	1		
13:01	MP89121-S2	1		
13:07	JC4200-6	1		(sample used for QC only; not part of login JC4005)
13:13	MP89121-SD1	5		
13:19	MP89150-B1	5		
13:25	MA37607-CCV2	1		
13:31	MA37607-CCB3	1		
13:37	MP89150-MB1	5		
13:43	MP89150-S1	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:49	MP89150-S2	5		
13:55	JC4292-1A	5		(sample used for QC only; not part of login JC4005)
14:01	MP89150-SD1	25		
14:07	ZZZZZZ	5		
14:13	ZZZZZZ	1		
14:19	ZZZZZZ	1		
14:25	JC4005-3	1		
14:31	MA37607-CCV3	1		
14:37	MA37607-CCB4	1		
14:43	JC4005-4	1		
14:49	JC4005-5	1		
14:55	JC4005-6	1		
15:02	JC4005-7	1		
15:08	JC4005-8	1		
15:14	JC4005-9	1		
15:20	JC4005-10	1		
15:26	JC4005-11	1		
15:32	JC4005-12	1		
15:38	MA37607-CCV4	1		
15:44	MA37607-CCB5	1		
15:50	JC4005-13	1		
15:56	JC4005-14	1		
16:02	JC4005-15	1		
16:08	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:20	ZZZZZZ	1		
16:26	ZZZZZZ	1		
16:32	MP89149-B1	5		
16:38	MP89149-MB1	5		
16:44	MA37607-CCV5	1		
16:50	MA37607-CCB6	1		
16:56	JC4005-13	2		not needed
---------->	Last reportable sample/prep for job JC4005			
17:02	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:08	MP89149-S1	5		
17:15	MP89149-S2	5		
17:21	JC4062-1A	5		(sample used for QC only; not part of login JC4005)
17:27	MP89149-SD1	25		
17:33	ZZZZZZ	5		
17:39	ZZZZZZ	5		
17:45	ZZZZZZ	5		
17:52	MA37607-CCV6	1		
17:57	MA37607-CCB7	1		
18:04	ZZZZZZ	5		
18:10	ZZZZZZ	5		
18:16	ZZZZZZ	5		
18:22	ZZZZZZ	1		
18:28	MP89086-S1	2		
18:34	MP89086-S2	2		
18:40	JC3903-4	2		(sample used for QC only; not part of login JC4005)
18:46	MP89086-SD1	10		
18:52	ZZZZZZ	1		
18:58	MA37607-CCV7	1		
19:04	MA37607-CCB8	1		
19:10	MA37607-CRI3	1		
19:17	MA37607-CRID2	1		
19:23	MA37607-CRIA2	1		
19:29	MA37607-ICSA2	1		
19:35	MA37607-ICSAB2	1		
19:41	ZZZZZZ	1		
19:48	ZZZZZZ	1		
19:54	MA37607-CCV8	1		
20:00	MA37607-CCB9	1		
---------->	Last reportable CCB for job JC4005			
20:06	MA37607-CRID3	1		
20:12	ZZZZZZ	1		
20:18	ZZZZZZ	1		
20:24	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:30	ZZZZZZ	1		
20:37	ZZZZZZ	1		
20:43	ZZZZZZ	1		
20:49	ZZZZZZ	1		
20:55	ZZZZZZ	1		
21:01	MA37607-CCV9	1		
21:07	MA37607-CCB10	1		
21:14	ZZZZZZ	3		
21:20	MP89156-B1	1		
21:26	MP89156-MB1	1		
21:32	MP89156-S1	1		
21:38	MP89156-S2	1		
21:43	JC4105-2	1		(sample used for QC only; not part of login JC4005)
21:50	MP89156-SD1	5		
21:56	ZZZZZZ	1		
22:02	ZZZZZZ	1		
22:08	MA37607-CCV10	1		
22:14	MA37607-CCB11	1		
22:20	ZZZZZZ	1		
22:26	ZZZZZZ	1		
22:32	ZZZZZZ	1		
22:38	ZZZZZZ	1		
22:44	ZZZZZZ	1		
22:51	ZZZZZZ	1		
22:57	ZZZZZZ	1		
23:03	MP89147-B1	1		
23:09	MP89147-MB1	1		
23:15	MA37607-CCV11	1		
23:21	MA37607-CCB12	1		
23:27	MP89147-S1	1		MN high
23:33	MP89147-S2	1		MN high
23:39	JC4204-1	1		(sample used for QC only; not part of login JC4005)
23:45	MP89147-SD1	5		MN high

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:51	ZZZZZZ	1		
23:58	ZZZZZZ	1		
00:04	ZZZZZZ	1		
00:10	ZZZZZZ	1		
00:16	ZZZZZZ	1		
00:23	MA37607-CCV12	1		
00:29	MA37607-CCB13	1		
00:35	ZZZZZZ	1		
00:41	ZZZZZZ	1		
00:47	ZZZZZZ	1		
00:53	ZZZZZZ	1		
00:59	MP89015-B3	1		
01:05	MP89015-MB3	1		
01:11	ZZZZZZ	1		
01:18	ZZZZZZ	1		
01:24	ZZZZZZ	1		
01:30	MA37607-CCV13	1		
01:36	MA37607-CCB14	1		
01:42	MA37607-CRI4	1		
01:48	MA37607-CRID4	1		
01:54	MA37607-CRIA3	1		
02:00	MA37607-ICSA3	1		
02:07	MA37607-ICSAB3	1		
02:13	MA37607-CCV14	1		
02:19	MA37607-CCB15	1		
02:25	MP89163-MB1	1		
02:31	MP89163-B1	1		
02:37	MP89163-S1	1		
02:43	MP89163-S2	1		
02:49	JC4268-1A	1		(sample used for QC only; not part of login JC4005)
02:55	MP89163-SD1	5		
03:01	ZZZZZZ	1		
03:07	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
03:13	ZZZZZZ	1		
03:19	MA37607-CCV15	1		
03:25	MA37607-CCB16	1		
03:31	MP89181-MB1	1		
03:37	MP89181-B1	1		
03:43	MP89181-S1	1		
03:49	MP89181-S2	1		
03:55	JC3417-19R	1		(sample used for QC only; not part of login JC4005)
04:01	MP89181-SD1	5		
04:07	ZZZZZZ	1		
04:13	ZZZZZZ	1		
04:19	MP89180-B1	5		
04:26	MA37607-CCV16	1		
04:31	MA37607-CCB17	1		
04:38	MP89180-MB1	5		
04:44	MP89180-S1	5		
04:50	MP89180-S2	5		
04:56	JC4239-2	5		(sample used for QC only; not part of login JC4005)
05:02	MP89180-SD1	25		
05:08	ZZZZZZ	5		
05:15	MA37607-CCV17	1		
05:20	MA37607-CCB18	1		
05:27	MA37607-CRI5	1		
05:33	MA37607-CRID5	1		
05:39	MA37607-CRIA4	1		
05:45	MA37607-CCV18	1		
05:51	MA37607-CCB19	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:00	MA37607-STD1	1918 R	111630 R	18133 R	5297 R
10:06	MA37607-STD2	1805	106450	17856	4447
10:12	ZZZZZZ	1887	109370	17822	4711
10:18	ZZZZZZ	1913	113470	18378	5311
10:36	MA37607-ICV1	1857	110160	18437	4723
10:47	MA37607-ICB1	1922	114380	18428	5354
10:51	MA37607-ICCV1	1886	110650	18287	4775
11:08	MA37607-CCB1	1954	114620	18361	5411
11:13	MA37607-CRI1	No results reported for the elements associated with this internal standard.			
11:19	MA37607-CRID1	1956	114630	18428	5375
11:25	MA37607-CRIA1	1961	114690	18397	5382
11:31	MA37607-ICSA1	1744	102700	17932	4150
11:37	MA37607-ICSAB1	1748	102670	17541	4158
11:46	MA37607-HSTD1	1954	114070	18371	5226
11:52	MA37607-HSTD2	1803	104860	17735	4240
11:58	ZZZZZZ	1947	113530	18234	5327
12:04	ZZZZZZ	1932	115030	18363	5381
12:10	ZZZZZZ	1982	115390	18482	5453
12:17	MA37607-CCV1	1930	112020	18339	4831
12:22	MA37607-CCB2	1980	115380	18409	5451
12:29	MA37607-CRI2	1958	114630	18307	5299
12:35	MP89121-MB1	1970	115140	18517	5424
12:41	MP89121-B1	1937	112720	18411	4968
12:47	ZZZZZZ	2049	118160	19583	5003
12:53	MP89121-S1	1958	113070	18919	4878
13:01	MP89121-S2	1940	112270	18949	4855
13:07	JC4200-6	2010	115510	19183	5165
13:13	MP89121-SD1	2008	115870	18821	5378
13:19	MP89150-B1	1979	114480	18628	5299
13:25	MA37607-CCV2	1934	111260	18499	4835
13:31	MA37607-CCB3	1999	115160	18473	5469
13:37	MP89150-MB1	1998	114880	18562	5477
13:43	MP89150-S1	1939	112000	18386	5045

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:49	MP89150-S2	1944	112080	18374	5051
13:55	JC4292-1A	1935	112140	18442	5090
14:01	MP89150-SD1	1978	114260	18530	5351
14:07	ZZZZZZ	1963	113870	18542	5280
14:13	ZZZZZZ	1931	111850	18932	4844
14:19	ZZZZZZ	1923	112330	18942	4816
14:25	JC4005-3	1874	109650	18650	4535
14:31	MA37607-CCV3	1920	111510	18380	4789
14:37	MA37607-CCB4	2013	115150	18385	5486
14:43	JC4005-4	2037	114560	19253	4916
14:49	JC4005-5	2015	115220	19085	5006
14:55	JC4005-6	2034	115410	19270	5033
15:02	JC4005-7	2036	116080	19196	5022
15:08	JC4005-8	2080	118150	19385	5003
15:14	JC4005-9	2024	116130	19094	4966
15:20	JC4005-10	2074	116980	19172	5053
15:26	JC4005-11	2058	116680	19230	4941
15:32	JC4005-12	2080	117680	19548	4906
15:38	MA37607-CCV4	1956	111750	18355	4864
15:44	MA37607-CCB5	2011	115860	18183	5484
15:50	JC4005-13	2035	117740	19580	4899
15:56	JC4005-14	2035	116780	19417	4967
16:02	JC4005-15	2032	116630	19205	4945
16:08	ZZZZZZ	2004	115140	18873	5186
16:14	ZZZZZZ	2012	115400	18878	5179
16:20	ZZZZZZ	2035	116050	18701	5185
16:26	ZZZZZZ	2041	117460	19403	4903
16:32	MP89149-B1	1889	108540	18042	4639
16:38	MP89149-MB1	1871	108390	17861	4685
16:44	MA37607-CCV5	1942	111460	18242	4831
16:50	MA37607-CCB6	1995	115140	18357	5442
16:56	JC4005-13	2030	116110	18907	5054
17:02	ZZZZZZ	2027	117060	19289	4951

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:08	MP89149-S1	1890	108640	18030	4655
17:15	MP89149-S2	1885	108640	18177	4657
17:21	JC4062-1A	1870	108060	18103	4683
17:27	MP89149-SD1	1934	112090	18661	5105
17:33	ZZZZZZ	1860	107480	18229	4643
17:39	ZZZZZZ	1835	106430	17940	4523
17:45	ZZZZZZ	1869	108000	18084	4685
17:52	MA37607-CCV6	1941	110970	18450	4838
17:57	MA37607-CCB7	2001	114750	18300	5453
18:04	ZZZZZZ	1862	107710	18180	4647
18:10	ZZZZZZ	1880	108770	18122	4734
18:16	ZZZZZZ	1849	107040	17976	4565
18:22	ZZZZZZ	1982	115300	18508	5433
18:28	MP89086-S1	1915	111370	18554	4762
18:34	MP89086-S2	1897	110940	18482	4714
18:40	JC3903-4	1904	110810	18384	4713
18:46	MP89086-SD1	1974	113480	18270	5138
18:52	ZZZZZZ	1995	114960	18509	5460
18:58	MA37607-CCV7	1939	111060	18155	4829
19:04	MA37607-CCB8	1993	114870	18185	5437
19:10	MA37607-CRI3	1976	113980	18211	5300
19:17	MA37607-CRID2	1990	113670	18655	5407
19:23	MA37607-CRIA2	1999	114980	18343	5426
19:29	MA37607-ICSA2	1767	102230	17705	4171
19:35	MA37607-ICSAB2	1770	102450	17840	4178
19:41	ZZZZZZ	1997	114730	18121	5422
19:48	ZZZZZZ	2000	115120	18330	5433
19:54	MA37607-CCV8	1912	110980	18244	4762
20:00	MA37607-CCB9	2001	114270	18224	5438
20:06	MA37607-CRID3	2000	114560	18196	5420
20:12	ZZZZZZ	1990	114720	18213	5395
20:18	ZZZZZZ	1995	114550	18183	5423
20:24	ZZZZZZ	1986	114210	18160	5417

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:30	ZZZZZZ	1825	107010	17608	4574
20:37	ZZZZZZ	1986	114740	18311	5403
20:43	ZZZZZZ	2021	111260	19122	4769
20:49	ZZZZZZ	1807	106660	17596	4596
20:55	ZZZZZZ	2005	114990	18347	5453
21:01	MA37607-CCV9	1943	111650	18248	4833
21:07	MA37607-CCB10	2020	115440	18265	5479
21:14	ZZZZZZ	1906	111440	18486	4906
21:20	MP89156-B1	1969	113050	18545	5025
21:26	MP89156-MB1	2002	115450	18651	5508
21:32	MP89156-S1	1949	112200	18575	4955
21:38	MP89156-S2	1937	111980	18527	4922
21:43	JC4105-2	1966	113750	18592	5279
21:50	MP89156-SD1	1989	114600	18363	5396
21:56	ZZZZZZ	1984	114450	18517	5309
22:02	ZZZZZZ	1998	114510	18601	5379
22:08	MA37607-CCV10	1941	110860	18115	4817
22:14	MA37607-CCB11	2005	114960	18173	5433
22:20	ZZZZZZ	1990	114460	18459	5310
22:26	ZZZZZZ	1957	113240	18525	5145
22:32	ZZZZZZ	1499	85728	16207	3358 !
22:38	ZZZZZZ	1762	999999 !a	17705	4248
22:44	ZZZZZZ	1858	109300	18472	4656
22:51	ZZZZZZ	1893	104920	18545	5016
22:57	ZZZZZZ	1683	98113	17118	3967
23:03	MP89147-B1	1973	112860	18519	5026
23:09	MP89147-MB1	2025	116040	18470	5552
23:15	MA37607-CCV11	1946	111180	18087	4819
23:21	MA37607-CCB12	2011	114990	18251	5448
23:27	MP89147-S1	1848	107250	17953	4481
23:33	MP89147-S2	1857	107120	17919	4508
23:39	JC4204-1	1823	106220	17815	4507
23:45	MP89147-SD1	1932	112130	18068	5059

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:51	ZZZZZZ	1870	109220	18168	4705
23:58	ZZZZZZ	1877	109120	18144	4693
00:04	ZZZZZZ	1838	107030	18019	4497
00:10	ZZZZZZ	1813	105650	17776	4442
00:16	ZZZZZZ	1821	105520	17671	4446
00:23	MA37607-CCV12	1948	111420	18089	4827
00:29	MA37607-CCB13	2028	115440	18058	5479
00:35	ZZZZZZ	1832	106230	17733	4476
00:41	ZZZZZZ	1823	105660	17862	4466
00:47	ZZZZZZ	1815	105710	17750	4457
00:53	ZZZZZZ	1820	105630	17633	4454
00:59	MP89015-B3	1977	113250	18067	5023
01:05	MP89015-MB3	2020	116010	18241	5504
01:11	ZZZZZZ	1973	113790	18278	5233
01:18	ZZZZZZ	1783	103270	17492	4268
01:24	ZZZZZZ	1943	113340	18466	5123
01:30	MA37607-CCV13	1953	111450	17918	4834
01:36	MA37607-CCB14	2031	116020	18034	5483
01:42	MA37607-CRI4	2011	114960	17883	5348
01:48	MA37607-CRID4	2028	116060	18161	5448
01:54	MA37607-CRIA3	2027	115510	18019	5447
02:00	MA37607-ICSA3	1806	102880	17346	4217
02:07	MA37607-ICSAB3	1806	103300	17323	4225
02:13	MA37607-CCV14	1984	112210	17958	4886
02:19	MA37607-CCB15	2035	116000	18059	5493
02:25	MP89163-MB1	2015	116010	18168	5468
02:31	MP89163-B1	1978	112990	18009	5000
02:37	MP89163-S1	2034	115920	19100	4766
02:43	MP89163-S2	1977	113810	18816	4607
02:49	JC4268-1A	2082	117480	19192	5005
02:55	MP89163-SD1	2055	116520	18370	5298
03:01	ZZZZZZ	2043	116160	18510	5293
03:07	ZZZZZZ	2088	120830	19053	5078

INTERNAL STANDARD SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37607
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
03:13	ZZZZZZ	2085	117870	19109	4949
03:19	MA37607-CCV15	1985	112180	17885	4880
03:25	MA37607-CCB16	2048	116080	17976	5514
03:31	MP89181-MB1	2034	116000	18079	5509
03:37	MP89181-B1	1995	113600	17994	5026
03:43	MP89181-S1	1908	109230	17786	4616
03:49	MP89181-S2	1910	109040	17678	4615
03:55	JC3417-19R	1896	109160	17683	4755
04:01	MP89181-SD1	2002	114000	17936	5225
04:07	ZZZZZZ	1987	113870	18004	5183
04:13	ZZZZZZ	1934	110680	17837	4869
04:19	MP89180-B1	1957	110460	17683	4769
04:26	MA37607-CCV16	2008	112650	17750	4915
04:31	MA37607-CCB17	2071	116400	17768	5540
04:38	MP89180-MB1	1943	109880	17607	4798
04:44	MP89180-S1	1959	109770	17617	4707
04:50	MP89180-S2	1956	109760	17636	4704
04:56	JC4239-2	1939	109190	17545	4731
05:02	MP89180-SD1	2032	114260	17834	5201
05:08	ZZZZZZ	1956	109740	17729	4790
05:15	MA37607-CCV17	2017	113070	17752	4934
05:20	MA37607-CCB18	2094	116700	18060	5588
05:27	MA37607-CRI5	2075	115710	17725	5442
05:33	MA37607-CRID5	2098	116530	17681	5568
05:39	MA37607-CRIA4	2098	116070	17880	5563
05:45	MA37607-CCV18	2039	112880	17642	4961
05:51	MA37607-CCB19	2101	116830	17831	5586

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37607 Units: ug/l

Time:			10:47		11:08		12:22		13:31	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.1	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	1.7	anr							
Barium	200	.15	anr							
Beryllium	1.0	.087	anr							
Bismuth	20	1.1								
Boron	100	10								
Cadmium	3.0	.19	anr							
Calcium	5000	19	anr							
Chromium	10	.56	anr							
Cobalt	50	.24	0.0	<50	0.10	<50	0.0	<50	0.0	<50
Copper	10	.59	anr							
Iron	100	3.1	anr							
Lead	3.0	1.4	-0.70	<3.0	0.10	<3.0	-0.40	<3.0	0.60	<3.0
Lithium	20	.59								
Magnesium	5000	34	anr							
Manganese	15	.16	anr							
Molybdenum	20	.42								
Nickel	10	.71	0.0	<10	-0.30	<10	-0.40	<10	-0.20	<10
Palladium	50	1.4								
Potassium	10000	27	anr							
Selenium	10	2.8	anr							
Silicon	200	6.7								
Silver	10	.47	anr							
Sodium	10000	11	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.7	anr							
Tin	10	1.1								
Titanium	10	.39								
Tungsten	50	2.2								
Vanadium	50	.35	0.20	<50	0.50	<50	0.20	<50	0.20	<50
Zinc	20	2.4	-0.10	<20	0.0	<20	0.10	<20	0.20	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37607 Units: ug/l

Time:			10:47		11:08		12:22		13:31	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.27								

(*) Outside of QC limits
(anr) Analyte not requested

12.3.2
12

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37607 Units: ug/l

Time:			14:37		15:44		16:50		17:57	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.1	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	1.7	anr							
Barium	200	.15	anr							
Beryllium	1.0	.087	anr							
Bismuth	20	1.1								
Boron	100	10								
Cadmium	3.0	.19	anr							
Calcium	5000	19	anr							
Chromium	10	.56	anr							
Cobalt	50	.24	0.0	<50	0.10	<50	0.10	<50	0.0	<50
Copper	10	.59	anr							
Iron	100	3.1	anr							
Lead	3.0	1.4	-0.70	<3.0	-0.70	<3.0	0.30	<3.0	-0.50	<3.0
Lithium	20	.59								
Magnesium	5000	34	anr							
Manganese	15	.16	anr							
Molybdenum	20	.42								
Nickel	10	.71	-0.30	<10	-0.30	<10	-0.10	<10	-0.10	<10
Palladium	50	1.4								
Potassium	10000	27	anr							
Selenium	10	2.8	anr							
Silicon	200	6.7								
Silver	10	.47	anr							
Sodium	10000	11	anr							
Sulfur	50	3.2								
Strontium	10	.1								
Thallium	2.0	1.7	anr							
Tin	10	1.1								
Titanium	10	.39								
Tungsten	50	2.2								
Vanadium	50	.35	0.10	<50	0.20	<50	0.50	<50	0.20	<50
Zinc	20	2.4	0.0	<20	0.0	<20	0.0	<20	0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37607 Units: ug/l

Time:			14:37		15:44		16:50		17:57	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.27								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37607 Units: ug/l

Time:			19:04		20:00	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	7.1	anr			
Antimony	6.0	1.1	anr			
Arsenic	3.0	1.7	anr			
Barium	200	.15	anr			
Beryllium	1.0	.087	anr			
Bismuth	20	1.1				
Boron	100	10				
Cadmium	3.0	.19	anr			
Calcium	5000	19	anr			
Chromium	10	.56	anr			
Cobalt	50	.24	0.0	<50	0.0	<50
Copper	10	.59	anr			
Iron	100	3.1	anr			
Lead	3.0	1.4	-0.40	<3.0	-0.70	<3.0
Lithium	20	.59				
Magnesium	5000	34	anr			
Manganese	15	.16	anr			
Molybdenum	20	.42				
Nickel	10	.71	-0.10	<10	-0.10	<10
Palladium	50	1.4				
Potassium	10000	27	anr			
Selenium	10	2.8	anr			
Silicon	200	6.7				
Silver	10	.47	anr			
Sodium	10000	11	anr			
Sulfur	50	3.2				
Strontium	10	.1				
Thallium	2.0	1.7	anr			
Tin	10	1.1				
Titanium	10	.39				
Tungsten	50	2.2				
Vanadium	50	.35	0.50	<50	0.10	<50
Zinc	20	2.4	0.10	<20	0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37607 Units: ug/l

Time:			19:04		20:00	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Zirconium	10	.27				

(*) Outside of QC limits
(anr) Analyte not requested

12.3.2
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		10:51	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	2000	1930	96.5
Copper	anr		
Iron	anr		
Lead	2000	1980	99.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	2000	1960	98.0
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	2000	100.0
Zinc	2000	1980	99.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		10:51	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

12.3.3

12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		10:36			12:17			13:25	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1900	95.0	2000	1940	97.0	2000	1940	97.0
Copper	anr								
Iron	anr								
Lead	2000	1970	98.5	2000	2010	100.5	2000	2010	100.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	1930	96.5	2000	1980	99.0	2000	1980	99.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1980	99.0	2000	1990	99.5	2000	2010	100.5
Zinc	2000	1980	99.0	2000	1980	99.0	2000	1990	99.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		10:36			12:17			13:25	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.3.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		14:31			15:38			16:44	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1970	98.5	2000	1940	97.0	2000	1940	97.0
Copper	anr								
Iron	anr								
Lead	2000	2050	102.5	2000	2030	101.5	2000	2040	102.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2020	101.0	2000	1990	99.5	2000	2000	100.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2000	100.0	2000	2000	100.0	2000	2000	100.0
Zinc	2000	2020	101.0	2000	1980	99.0	2000	1980	99.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		14:31			15:38			16:44	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.3.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		17:52			18:58			19:54	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1940	97.0	2000	1940	97.0	2000	1980	99.0
Copper	anr								
Iron	anr								
Lead	2000	2020	101.0	2000	2030	101.5	2000	2060	103.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	1990	99.5	2000	2000	100.0	2000	2030	101.5
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2010	100.5	2000	2010	100.5	2000	2020	101.0
Zinc	2000	1990	99.5	2000	1990	99.5	2000	2030	101.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		17:52			18:58			19:54	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

12.3.4
12

HIGH STANDARD CHECK SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		11:46			11:52	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	5000	4950	99.0			
Copper	anr					
Iron						
Lead	5000	5090	101.8			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	5000	4980	99.6			
Palladium						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	5000	5160	103.2			
Zinc	5000	5240	104.8			

HIGH STANDARD CHECK SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37607 Units: ug/l

Time:		11:46			11:52	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37607 Units: ug/l

Time:				11:19		11:25		12:29	
Sample ID:	CRI	CRIA	CRID	CRID1		CRIA1		CRI2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	2.9	96.7			47.5	95.0
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5	2.0	80.0	21.7	108.5	2.5	83.3
Lithium	20								
Magnesium	5000	2000	100						
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	3.7	92.5			9.4	94.0
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	2.3	115.0			50.3	100.6
Zinc	20		10	11.6	116.0			21.5	107.5

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37607 Units: ug/l

Time:				11:19		11:25		12:29	
Sample ID:	CRI	CRIA	CRID	CRID1		CRIA1		CRI2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

12.3.6

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37607 Units: ug/l

Time:				19:10		19:17		19:23	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID2		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	47.8	95.6	2.9	96.7		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.9	96.7	3.1	124.0	20.8	104.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	9.6	96.0	3.7	92.5		
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	50.9	101.8	2.3	115.0		
Zinc	20		10	21.8	109.0	11.8	118.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37607 Units: ug/l

Time:				19:10		19:17		19:23	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID2		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

12.3.6

12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37607 Units: ug/l

Time:			11:31		11:37		19:29		19:35	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	516000	103.2	520000	104.0	521000	104.2	510000	102.0
Antimony		1000	-7.2		1090	109.0	-5.7		1090	109.0
Arsenic		1000	-1.0		983	98.3	-1.0		974	97.4
Barium		500	-0.60		507	101.4	-0.40		506	101.2
Beryllium		500	0.0		514	102.8	0.0		507	101.4
Bismuth		500	-12		490	98.0	-12		486	97.2
Boron			2.2		-0.40		2.0		1.5	
Cadmium		1000	1.6		1040	104.0	1.5		1040	104.0
Calcium	400000	400000	379000	94.8	395000	98.8	375000	93.8	374000	93.5
Chromium		500	1.7		497	99.4	1.6		502	100.4
Cobalt		500	1.4		482	96.4	1.5		484	96.8
Copper		500	3.1		519	103.8	2.4		524	104.8
Iron	200000	200000	182000	91.0	189000	94.5	179000	89.5	180000	90.0
Lead		1000	-3.4		957	95.7	-4.1		970	97.0
Lithium		500	15.4		558	111.6	14.9		562	112.4
Magnesium	500000	500000	519000	103.8	528000	105.6	518000	103.6	508000	101.6
Manganese		500	4.0		493	98.6	3.2		507	101.4
Molybdenum		500	-3.1		485	97.0	-3.1		482	96.4
Nickel		1000	-2.3		955	95.5	-2.4		971	97.1
Palladium		500	-12		555	111.0	-13		569	113.8
Potassium			180		168		173		191	
Selenium		1000	4.5		1040	104.0	1.9		1040	104.0
Silicon			1.8		0.30		3.2		0.10	
Silver		1000	8.3		1020	102.0	7.4		1030	103.0
Sodium			-41		-34		-39		-30	
Sulfur		500	2.7		497	99.4	1.5		495	99.0
Strontium			7.0		6.8		7.5		7.5	
Thallium		1000	-1.0		960	96.0	0.20		965	96.5
Tin			-2.5		-3.3		-3.9		-3.0	
Titanium			-0.30		0.10		0.0		-0.10	
Tungsten		500	3.9		505	101.0	2.2		505	101.0
Vanadium		500	-1.6		488	97.6	-0.80		497	99.4
Zinc		1000	2.4		955	95.5	2.3		961	96.1

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SD092215M1.ICP Date Analyzed: 09/22/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37607 Units: ug/l

Time:			11:31		11:37		19:29		19:35	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	5.5		476	95.2	4.7		479	95.8

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	20	33		
Antimony	6.0	1.6	3		
Arsenic	3.0	1.4	2		
Barium	200	.4	.8		
Beryllium	1.0	.2	.35		
Bismuth	20	1.5	4.2		
Boron	100	.9	4.4		
Cadmium	3.0	.4	.28		
Calcium	5000	25	23		
Chromium	10	.8	.77		
Cobalt	50	.3	.54	-0.10	<50
Copper	10	.8	1.9		
Iron	100	10	21		
Lead	3.0	1	2.3	0.30	<3.0
Lithium	20	1.9	3.8		
Magnesium	5000	44	49		
Manganese	15	.2	.18		
Molybdenum	20	.4	.85		
Nickel	10	.5	.79	0.0	<10
Palladium	50	1.8	4.5		
Potassium	10000	48	65		
Selenium	10	2.7	3.3		
Silicon	200	8.9	22		
Silver	10	.8	1.3		
Sodium	10000	29	35		
Sulfur	50	4.4	7.2		
Strontium	10	.2	.36		
Thallium	2.0	1.5	1.7		
Tin	10	1	1.9		
Titanium	10	.6	.86		
Tungsten	50	2.8	5.6		
Vanadium	50	.5	.7	0.0	<50
Zinc	20	2.3	4.9	0.40	<20

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	RL	IDL	MDL	MB raw	final
Zirconium	10	.4	.71		

Associated samples MP89073: JC4005-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	JC3901-9F Original	MS	Spikelot MPSPK1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium	anr				
Chromium	anr				
Cobalt	0.0	2020	2000	101.0	75-125
Copper	anr				
Iron	anr				
Lead	0.0	2000	2000	100.0	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	0.60	2020	2000	101.0	75-125
Palladium					
Potassium	anr				
Selenium					
Silicon					
Silver					
Sodium	anr				
Sulfur					
Strontium					
Thallium	anr				
Tin					
Titanium					
Tungsten					
Vanadium	0.60	2060	2000	103.0	75-125
Zinc	0.0	1980	2000	99.0	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073 | Methods: SW846 6010C
Matrix Type: AQUEOUS | Units: ug/l

Prep Date: 09/17/15

Metal	JC3901-9F Original MS	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP89073: JC4005-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	JC3901-9F Original	MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium	anr					
Chromium	anr					
Cobalt	0.0	2020	2000	101.0	0.0	20
Copper	anr					
Iron	anr					
Lead	0.0	1990	2000	99.5	0.5	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	0.60	2020	2000	101.0	0.0	20
Palladium						
Potassium	anr					
Selenium						
Silicon						
Silver						
Sodium	anr					
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	0.60	2050	2000	102.5	0.5	20
Zinc	0.0	1980	2000	99.0	0.0	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 09/17/15

Metal	JC3901-9F Original MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP89073: JC4005-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium	anr			
Chromium	anr			
Cobalt	1980	2000	99.0	80-120
Copper	anr			
Iron	anr			
Lead	2010	2000	100.5	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	1990	2000	99.5	80-120
Palladium				
Potassium	anr			
Selenium				
Silicon				
Silver				
Sodium	anr			
Sulfur				
Strontium				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	1990	2000	99.5	80-120
Zinc	1960	2000	98.0	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP89073: JC4005-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/17/15

Metal	JC3901-9F Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium	anr			
Chromium	anr			
Cobalt	0.00	0.00	NC	0-10
Copper	anr			
Iron	anr			
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	0.600	4.00	566.7(a)	0-10
Palladium				
Potassium	anr			
Selenium				
Silicon				
Silver				
Sodium	anr			
Sulfur				
Strontium				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	0.600	0.00	100.0(a)	0-10
Zinc	0.00	0.00	NC	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89073 | Methods: SW846 6010C
Matrix Type: AQUEOUS | Units: ug/l

Prep Date: 09/17/15

Metal	JC3901-9F Original	SDL 1:5	%DIF	QC Limits
Zirconium				

Associated samples MP89073: JC4005-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/21/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.71	3.2		
Antimony	2.0	.11	.31		
Arsenic	2.0	.17	.14		
Barium	20	.015	.054		
Beryllium	0.20	.0087	.041		
Bismuth	2.0	.11	.37		
Boron	10	1	.43		
Cadmium	0.50	.019	.051		
Calcium	500	1.9	2.7		
Chromium	1.0	.056	.099		
Cobalt	5.0	.024	.04	0.040	<5.0
Copper	2.5	.059	.14		
Iron	50	.31	3.3		
Lead	2.0	.14	.24	0.030	<2.0
Lithium	2.0	.059	.33		
Magnesium	500	3.4	9		
Manganese	1.5	.016	.036		
Molybdenum	2.0	.042	.15		
Nickel	4.0	.071	.096	0.060	<4.0
Palladium	5.0	.14	.37		
Potassium	1000	2.7	7.4		
Selenium	2.0	.28	.25		
Silicon	20	.67	1.7		
Silver	0.50	.047	.18		
Sodium	1000	1.1	1.5		
Strontium	1.0	.01	.034		
Sulfur	5.0	.32	.7		
Thallium	1.0	.17	.19		
Tin	5.0	.11	1.1		
Titanium	1.0	.039	.21		
Tungsten	5.0	.22	.43		
Vanadium	5.0	.035	.075	0.050	<5.0
Zinc	5.0	.24	.77	0.41	<5.0

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/21/15

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.027	.11		

Associated samples MP89121: JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/21/15

Metal	JC4200-6 Original	MS	Spikelot MPSPK1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt	1.6	189	206	91.0	75-125
Copper					
Iron					
Lead	26.4	219	206	93.5	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	6.2	197	206	92.6	75-125
Palladium					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium	anr				
Tin					
Titanium					
Tungsten					
Vanadium	14.2	209	206	94.6	75-125
Zinc	54.5	249	206	94.4	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/21/15

Metal	JC4200-6 Original MS	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP89121: JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/21/15

Metal	JC4200-6 Original	MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt	1.6	188	206	90.5	0.5	20
Copper						
Iron						
Lead	26.4	217	206	92.5	0.9	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	6.2	196	206	92.1	0.5	20
Palladium						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	14.2	208	206	94.1	0.5	20
Zinc	54.5	247	206	93.5	0.8	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 09/21/15

Metal	JC4200-6 Original MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP89121: JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 09/21/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt	181	198	91.4	80-120
Copper				
Iron				
Lead	188	198	94.9	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	185	198	93.4	80-120
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	188	198	94.9	80-120
Zinc	188	198	94.9	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date: 09/21/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP89121: JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 09/21/15

Metal	JC4200-6 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt	16.1	15.7	2.5	0-10
Copper				
Iron				
Lead	259	260	0.2	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	60.7	58.3	4.0	0-10
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	139	139	0.1	0-10
Zinc	535	549	2.7	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JC4005
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP89121 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date: 09/21/15

Metal	JC4200-6 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP89121: JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

New Jersey

ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JC4005-3 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-1(5.0)

Wet Weight (Total)	31.07	g
Tare Weight	22.29	g
Dry Weight (Total)	28.82	g
Solids, Percent	74.4	%

Sample: JC4005-4 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-2(5.0)

Wet Weight (Total)	31.09	g
Tare Weight	21.91	g
Dry Weight (Total)	28.39	g
Solids, Percent	70.6	%

Sample: JC4005-5 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-3(5.0)

Wet Weight (Total)	29.86	g
Tare Weight	22.02	g
Dry Weight (Total)	28.27	g
Solids, Percent	79.7	%

Sample: JC4005-6 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-4(5.0)

Wet Weight (Total)	34.29	g
Tare Weight	25	g
Dry Weight (Total)	31.86	g
Solids, Percent	73.8	%

Sample: JC4005-7 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-5(3.0)

Wet Weight (Total)	27.74	g
Tare Weight	19.98	g
Dry Weight (Total)	26.62	g
Solids, Percent	85.6	%

Sample: JC4005-8 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-6(3.0)

Wet Weight (Total)	29.8	g
Tare Weight	22.33	g
Dry Weight (Total)	28.72	g
Solids, Percent	85.5	%

Percent Solids Raw Data Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JC4005-9 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-7(3.0)

Wet Weight (Total)	30.61	g
Tare Weight	22.71	g
Dry Weight (Total)	29.14	g
Solids, Percent	81.4	%

Sample: JC4005-10 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-8(3.0)

Wet Weight (Total)	34.71	g
Tare Weight	25.08	g
Dry Weight (Total)	33.42	g
Solids, Percent	86.6	%

Sample: JC4005-11 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-9(3.0)

Wet Weight (Total)	33.71	g
Tare Weight	25.84	g
Dry Weight (Total)	32.39	g
Solids, Percent	83.2	%

Sample: JC4005-12 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-10(3.0)

Wet Weight (Total)	39.07	g
Tare Weight	29.86	g
Dry Weight (Total)	37.72	g
Solids, Percent	85.3	%

Sample: JC4005-13 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-11(3.0)

Wet Weight (Total)	29.05	g
Tare Weight	21.27	g
Dry Weight (Total)	27.67	g
Solids, Percent	82.3	%

Sample: JC4005-14 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-12(2.0)

Wet Weight (Total)	35.6	g
Tare Weight	28.46	g
Dry Weight (Total)	34.45	g
Solids, Percent	83.9	%

Percent Solids Raw Data Summary

Job Number: JC4005
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JC4005-15 **Analyzed:** 18-SEP-15 by KP **Method:** SM2540 G-97
ClientID: MHIC-387-13(2.0)

Wet Weight (Total)	32.76	g
Tare Weight	25.74	g
Dry Weight (Total)	31.9	g
Solids, Percent	87.7	%

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

NE

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # JC4005

Client / Reporting Information

Company Name: Accutest Laboratories
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: mariem E-mail: mariem@accutest.com
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): DH Phone:

Project Information

Project Name: Sunoco - Marcus Hook Facility, PA
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	EnCore	V8011EDB	LAB USE ONLY
3	MHIC-387-1(5.0-7.0)		9/16/15	9:25:00 AM	DH	SO										X	sub
4	MHIC-387-2(5.0-7.0)		9/16/15	9:45:00 AM	DH	SO	1					1				X	sub
5	MHIC-387-3(5.0-7.0)		9/16/15	10:15:00 AM	DH	SO	1					1				X	sub
6	MHIC-387-4(5.0-7.0)		9/16/15	10:45:00 AM	DH	SO	1					1				X	sub
7	MHIC-387-5(3.0-5.0)		9/16/15	11:05:00 AM	DH	SO	1					1				X	sub
8	MHIC-387-6(3.0-5.0)		9/16/15	11:15:00 AM	DH	SO	1					1				X	sub
9	MHIC-387-7(3.0-5.0)		9/16/15	11:25:00 AM	DH	SO	1					1				X	sub
10	MHIC-387-8(3.0-5.0)		9/16/15	11:35:00 AM	DH	SO	1					1				X	sub
11	MHIC-387-9(3.0-5.0)		9/16/15	11:45:00 AM	DH	SO	1					1				X	sub
12	MHIC-387-10(3.0-5.0)		9/16/15	11:55:00 AM	DH	SO	1					1				X	sub
13	MHIC-387-11(3.0-5.0)		9/16/15	12:05:00 PM	DH	SO	1					1				X	sub
14	MHIC-387-12(2.0-4.0)		9/16/15	12:15:00 PM	DH	SO	1					1				X	sub

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 9/30/2015

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other REDT2

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

loc 2C

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	9/17/15 1700	1 FedEx	2		2
3 FEDX	9-17-15	3	4		4
5		5			

Custody Seal # 934 [ ] Intact [ ] Not intact Preserved where applicable [ ] On Ice [X] Cooler Temp. 0.3°C

14.1 14

JC4005: Chain of Custody
Page 1 of 3
Accutest Labs of New England, Inc.

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL 732-329-0200 FAX 732-329-3499/3480
www.accutest.com

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JC4005

Client / Reporting Information

Company Name: Accutest Laboratories
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: mariem E-mail: mariem@accutest.com
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): DH Phone:

Project Information

Project Name: Sunoco - Marcus Hook Facility, PA
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	VB011EDB										LAB USE ONLY
15	MHIC-387-13(2.0-4.0)		9/16/15	12:25:00 PM	DH	SO	1					1				X										sub

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 9/30/2015

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other REDT2

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions: lw 2c

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	9/17/15 1700	1 FED EX	2		2
3 FEDX	9-18-15 530	3	4		4
5		5			

Custody Seal # 934 [ ] Intact [ ] Not intact Preserved where applicable [ ] On Ice [X] Cooler Temp. 0.5°C

14.1 14

JC4005: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JC4005 **Client:** ACNJ **Project:** SUB

Date / Time Received: 9/18/2015 9:30:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (0.3/0.3);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	G1;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(508) 481-6200
495 Technology Center West, Bldg One
F: (508) 481-7753
Marlborough, MA 01752
www/accutest.com

JC4005: Chain of Custody
Page 3 of 3

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JC4005

SECORPAE: Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213401428

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC4005-3	Collected: 16-SEP-15 09:25 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-1(5.0)						
JC4005-3	SW846 8011	24-SEP-15 16:50	NK	21-SEP-15	FT	V8011EDB
JC4005-4	Collected: 16-SEP-15 09:45 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-2(5.0)						
JC4005-4	SW846 8011	24-SEP-15 17:18	NK	21-SEP-15	FT	V8011EDB
JC4005-5	Collected: 16-SEP-15 10:15 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-3(5.0)						
JC4005-5	SW846 8011	24-SEP-15 18:14	NK	21-SEP-15	FT	V8011EDB
JC4005-6	Collected: 16-SEP-15 10:45 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-4(5.0)						
JC4005-6	SW846 8011	24-SEP-15 18:42	NK	21-SEP-15	FT	V8011EDB
JC4005-7	Collected: 16-SEP-15 11:05 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-5(3.0)						
JC4005-7	SW846 8011	24-SEP-15 19:10	NK	21-SEP-15	FT	V8011EDB
JC4005-8	Collected: 16-SEP-15 11:15 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-6(3.0)						
JC4005-8	SW846 8011	24-SEP-15 19:38	NK	21-SEP-15	FT	V8011EDB
JC4005-9	Collected: 16-SEP-15 11:25 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-7(3.0)						
JC4005-9	SW846 8011	24-SEP-15 20:06	NK	21-SEP-15	FT	V8011EDB
JC4005-10	Collected: 16-SEP-15 11:35 By: DH		Received: 16-SEP-15 By: SAP			
MHIC-387-8(3.0)						
JC4005-10	SW846 8011	24-SEP-15 20:34	NK	21-SEP-15	FT	V8011EDB

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JC4005

SECORPAE: Sunoco - Marcus Hook Facility, PA
Project No: MHIC-AST-387 Closure/213401428

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC4005-11 Collected: 16-SEP-15 11:45 By: DH Received: 16-SEP-15 By: SAP MHIC-387-9(3.0)						
JC4005-11	SW846 8011	24-SEP-15 21:02	NK	21-SEP-15	FT	V8011EDB
JC4005-12 Collected: 16-SEP-15 11:55 By: DH Received: 16-SEP-15 By: SAP MHIC-387-10(3.0)						
JC4005-12	SW846 8011	24-SEP-15 21:31	NK	21-SEP-15	FT	V8011EDB
JC4005-13 Collected: 16-SEP-15 12:05 By: DH Received: 16-SEP-15 By: SAP MHIC-387-11(3.0)						
JC4005-13	SW846 8011	24-SEP-15 21:59	NK	21-SEP-15	FT	V8011EDB
JC4005-14 Collected: 16-SEP-15 12:15 By: DH Received: 16-SEP-15 By: SAP MHIC-387-12(2.0)						
JC4005-14	SW846 8011	24-SEP-15 22:27	NK	21-SEP-15	FT	V8011EDB
JC4005-15 Collected: 16-SEP-15 12:25 By: DH Received: 16-SEP-15 By: SAP MHIC-387-13(2.0)						
JC4005-15	SW846 8011	24-SEP-15 23:24	NK	21-SEP-15	FT	V8011EDB

Accutest Internal Chain of Custody

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Received: 09/16/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC4005-3.1	Walk In Ref #5	Forrest Thompson	09/21/15 21:27	Retrieve from Storage
JC4005-3.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:28	Return to Storage
JC4005-4.1	Walk In Ref #5	Forrest Thompson	09/21/15 21:27	Retrieve from Storage
JC4005-4.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:28	Return to Storage
JC4005-5.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-5.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-6.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-6.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-7.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-7.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-8.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-8.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-9.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-9.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-10.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-10.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-11.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-11.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-12.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-12.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-13.1	Walk In Ref #5	Forrest Thompson	09/21/15 14:42	Retrieve from Storage
JC4005-13.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:27	Return to Storage
JC4005-14.1	Walk In Ref #5	Forrest Thompson	09/21/15 21:27	Retrieve from Storage
JC4005-14.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:28	Return to Storage
JC4005-15.1	Walk In Ref #5	Forrest Thompson	09/21/15 21:27	Retrieve from Storage
JC4005-15.1	Forrest Thompson	Walk In Ref #5	09/21/15 21:28	Return to Storage

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44699-MB	BB64709.D	1	09/24/15	NK	09/21/15	OP44699	GBB3489

The QC reported here applies to the following samples: **Method:** SW846 8011

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.4	0.41	ug/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	Bromofluorobenzene (S)	139%	70-170%
460-00-4	Bromofluorobenzene (S)	105%	70-170%

Blank Spike Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44699-BS	BB64710.D	1	09/24/15	NK	09/21/15	OP44699	GBB3489

The QC reported here applies to the following samples: **Method:** SW846 8011

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	33.3	36.7	110	59-133

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	121%	70-170%
460-00-4	Bromofluorobenzene (S)	114%	70-170%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44699-MS	BB64765.D	1	09/25/15	NK	09/21/15	OP44699	GBB3489
OP44699-MSD	BB64766.D	1	09/25/15	NK	09/21/15	OP44699	GBB3489
JC3798-4	BB64768.D	1	09/25/15	NK	09/21/15	OP44699	GBB3489

The QC reported here applies to the following samples: **Method:** SW846 8011

JC4005-3, JC4005-4, JC4005-5, JC4005-6, JC4005-7, JC4005-8, JC4005-9, JC4005-10, JC4005-11, JC4005-12, JC4005-13, JC4005-14, JC4005-15

CAS No.	Compound	JC3798-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		78.5	99.8	127	76.5	81.1	106	21	74-147/30

CAS No.	Surrogate Recoveries	MS	MSD	JC3798-4	Limits
460-00-4	Bromofluorobenzene (S)	155%	108%	99%	70-170%
460-00-4	Bromofluorobenzene (S)	124%	101%	98%	70-170%

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Method: SW846 8011 **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JC4005-3	BB64717.D	129	118
JC4005-4	BB64718.D	169	114
JC4005-5	BB64720.D	145	119
JC4005-6	BB64721.D	142	108
JC4005-7	BB64722.D	136	106
JC4005-8	BB64723.D	135	123
JC4005-9	BB64724.D	133	128
JC4005-10	BB64725.D	147	119
JC4005-11	BB64726.D	109	120
JC4005-12	BB64727.D	130	124
JC4005-13	BB64728.D	116	129
JC4005-14	BB64729.D	138	115
JC4005-15	BB64731.D	140	112
OP44699-BS	BB64710.D	121	114
OP44699-MB	BB64709.D	139	105
OP44699-MS	BB64765.D	155	124
OP44699-MSD	BB64766.D	108	101

Surrogate Compounds	Recovery Limits
S1 = Bromofluorobenzene (S)	70-170%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3489-ICC3489	**Injection Date:**	09/24/15
Lab File ID:	BB64706.D	**Injection Time:**	11:44
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	6.77	6.25

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP44699-MB	BB64709.D	09/24/15	13:07	6.78	6.24
OP44699-BS	BB64710.D	09/24/15	13:35	6.77	6.25
OP44714-MB	BB64711.D	09/24/15	14:03	6.78	6.24
OP44714-BS	BB64712.D	09/24/15	14:30	6.78	6.25
OP44715-MB	BB64713.D	09/24/15	14:58	6.78	6.24
OP44715-BS	BB64714.D	09/24/15	15:26	6.78	6.24
ZZZZZZ	BB64715.D	09/24/15	15:54	6.79	6.24
ZZZZZZ	BB64716.D	09/24/15	16:22	6.78	6.24
JC4005-3	BB64717.D	09/24/15	16:50	6.77	6.25
JC4005-4	BB64718.D	09/24/15	17:18	6.77	6.24

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3489-CC3489	**Injection Date:**	09/24/15
Lab File ID:	BB64719.D	**Injection Time:**	17:46
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	6.77	6.25

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JC4005-5	BB64720.D	09/24/15	18:14	6.78	6.24
JC4005-6	BB64721.D	09/24/15	18:42	6.78	6.24
JC4005-7	BB64722.D	09/24/15	19:10	6.77	6.24
JC4005-8	BB64723.D	09/24/15	19:38	6.78	6.24
JC4005-9	BB64724.D	09/24/15	20:06	6.77	6.25
JC4005-10	BB64725.D	09/24/15	20:34	6.76	6.25
JC4005-11	BB64726.D	09/24/15	21:02	6.77	6.25
JC4005-12	BB64727.D	09/24/15	21:31	6.77	6.24
JC4005-13	BB64728.D	09/24/15	21:59	6.77	6.24
JC4005-14	BB64729.D	09/24/15	22:27	6.77	6.24

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3489-CC3489	**Injection Date:**	09/24/15
Lab File ID:	BB64730.D	**Injection Time:**	22:56
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	6.77	6.23

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JC4005-15	BB64731.D	09/24/15	23:24	6.76	6.24
OP44714-MS	BB64732.D	09/24/15	23:52	6.77	6.24
OP44714-MSD	BB64733.D	09/25/15	00:20	6.77	6.24
ZZZZZZ	BB64734.D	09/25/15	00:48	6.77	6.24
ZZZZZZ	BB64735.D	09/25/15	01:17	6.78	6.24
MC41500-4	BB64736.D	09/25/15	01:45	6.78	6.24
ZZZZZZ	BB64737.D	09/25/15	02:12	6.78	6.24
ZZZZZZ	BB64738.D	09/25/15	02:40	6.77	6.24
ZZZZZZ	BB64739.D	09/25/15	03:08	6.77	6.24
ZZZZZZ	BB64740.D	09/25/15	03:36	6.78	6.24

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3489-CC3489	**Injection Date:**	09/25/15
Lab File ID:	BB64763.D	**Injection Time:**	14:51
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	6.74	6.24

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
ZZZZZZ	BB64764.D	09/25/15	15:19	6.74	6.23
OP44699-MS	BB64765.D	09/25/15	15:46	6.74	6.23
OP44699-MSD	BB64766.D	09/25/15	16:14	6.74	6.23
ZZZZZZ	BB64767.D	09/25/15	16:42	6.74	6.23
JC3798-4	BB64768.D	09/25/15	17:10	6.73	6.22
ZZZZZZ	BB64769.D	09/25/15	17:38	6.73	6.25
ZZZZZZ	BB64770.D	09/25/15	18:06	6.72	6.25
GBB3489-ECC3489	BB64771.D	09/25/15	18:34	6.72	6.24

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Sample: GBB3489-ICC3489
Lab FileID: BB64706.D

```
                         Response Factor Report  GCBB

  Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
  Title        : v8011edb soil
  Last Update  : Mon Sep 28 08:25:34 2015
  Response via : Initial Calibration

  Calibration Files
  1   =BB64707.d   2   =BB64706.d   3   =BB64705.d   4   =BB64704.d
  5      =BB64703.d    6      =BB64702.d

        Compound              1     2     3     4     5     6     Avg    %RSD
  ---------------------------------------------------------------------------
  1)     1,2-Dibromoethane   8.380 7.706 9.626 8.172 8.059 9.569 8.585 E5   9.48
  2) s   4-Bromofluorobenzen 5.027 4.810 5.732 5.813 5.150 8.034 5.761 E4  20.52
          ----- Quadratic regression -----                Coefficient =  0.9950
               Response Ratio = 115845.04304 + 50927.75271 *A + -8.57754 *A^2

  3)     1,2-Dibromo-3-chlor 1.645 1.275 1.460 1.297 1.206 1.456 1.390 E6  11.59
          ----- Quadratic regression -----                Coefficient =  0.9970
               Response Ratio = 240697.22575 + 1183910.74817 *A + 8933.51663 *A^2


Signal #2

  1)     1,2-Dibromoethane   6.412 6.731 5.566 5.461 4.886 6.028 5.847 E6  11.56
          ----- Quadratic regression -----                Coefficient =  0.9960
               Response Ratio = -1243614.48047 + 6127298.23382 *A + 7337.36229 *A^2

  2) s   4-Bromofluorobenzen 4.186 4.993 4.188 4.192 3.948 4.214 4.287 E5   8.40
          ----- Quadratic regression -----                Coefficient =  0.9935
               Response Ratio = -664086.08912 + 489425.48493 *A + -295.95228 *A^2

  3)     1,2-Dibromo-3-chlor 1.023 1.123 1.098 1.124 1.062 1.245 1.112 E7   6.79
 ---------------------------------------------------------------------------
 (#) = Out of Range

           EDS150924.M        Mon Sep 28 08:26:39 2015
```

15.6.1

15

Initial Calibration Verification

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Sample: GBB3489-ICV3489
Lab FileID: BB64708.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...24\BB64708.d\ECD1B.CH Vial: 82
 Signal #2 : C:\msdchem\1\DATA\BB150924\BB64708.d\ECD2A.CH
 Acq On    : 24-Sep-15, 12:39:39                      Operator: nickk
 Sample    : icv3489-20,edb soil                      Inst    : GCBB
 Misc      : op44699,gbb3489,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Sep 28 08:25:34 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      858.536 847.321 E3   1.3  110   0.00    3.13- 3.19

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000 102.259     -2.3  109   0.00    6.21- 6.27
 3     1,2-Dibromo-3-chloropr  20.000  21.617     -8.1  118   0.00   10.24-10.30

*****  Signal #2   *****

 1     1,2-Dibromoethane       20.000  21.821     -9.1  101   0.01    3.93- 3.99
 2 s   4-Bromofluorobenzene   100.000 106.980     -7.0   97   0.00    6.75- 6.81

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  11.124  11.044 E6   0.7   98   0.00   11.29-11.35
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB64706.d  EDS150924.M       Mon Sep 28 08:26:30 2015
```

15.6.2

15

Continuing Calibration Summary

Job Number: JC4005 **Sample:** GBB3489-CC3489
Account: ALNJ Accutest New Jersey **Lab FileID:** BB64719.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...24\BB64719.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB150924\BB64719.d\ECD2A.CH
 Acq On    : 24-Sep-15, 17:46:20                      Operator: nickk
 Sample    : cc3489-20,edb soil                       Inst    : GCBB
 Misc      : op44699,gbb3489,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Sep 28 08:25:34 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      858.536 772.234 E3  10.1  100   0.00    3.14- 3.20

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  85.601     14.4   92   0.00    6.22- 6.28
 3     1,2-Dibromo-3-chloropr  20.000  18.510      7.4   99   0.00   10.24-10.30

*****  Signal #2   *****

 1     1,2-Dibromoethane       20.000  22.114    -10.6  102   0.00    3.91- 3.97
 2 s   4-Bromofluorobenzene   100.000 121.104    -21.1# 109   0.00    6.74- 6.80

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  11.124  13.565 E6 -21.9# 121#  0.00   11.29-11.35
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB64706.d  EDS150924.M       Mon Sep 28 08:34:43 2015
```

Continuing Calibration Summary

Job Number: JC4005 **Sample:** GBB3489-CC3489
Account: ALNJ Accutest New Jersey **Lab FileID:** BB64730.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...24\BB64730.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB150924\BB64730.d\ECD2A.CH
 Acq On    : 24-Sep-15, 22:56:10                      Operator: nickk
 Sample    : cc3489-20,edb soil                       Inst    : GCBB
 Misc      : op44699,gbb3489,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Sep 28 08:25:34 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      858.536 780.163 E3   9.1  101  -0.02    3.12- 3.18

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  89.078     10.9   95  -0.01    6.20- 6.26
 3     1,2-Dibromo-3-chloropr  20.000  21.241     -6.2  115   0.00   10.24-10.30

*****  Signal #2   *****

 1     1,2-Dibromoethane       20.000  22.420    -12.1  104   0.00    3.92- 3.98
 2 s   4-Bromofluorobenzene   100.000 113.737    -13.7  102   0.00    6.74- 6.80

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  11.124  13.516 E6 -21.5# 120#  0.00   11.29-11.35
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB64706.d  EDS150924.M       Mon Sep 28 08:33:52 2015
```

15.6.4

15

Continuing Calibration Summary

Job Number: JC4005 **Sample:** GBB3489-CC3489
Account: ALNJ Accutest New Jersey **Lab FileID:** BB64741.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...24\BB64741.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB150924\BB64741.d\ECD2A.CH
 Acq On    : 25-Sep-15, 04:04:22                      Operator: nickk
 Sample    : cc3489-20,edb soil                       Inst    : GCBB
 Misc      : op44699,gbb3489,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Sep 28 08:25:34 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      858.536 846.340 E3   1.4  110  -0.01    3.12- 3.18

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  93.882      6.1  100   0.00    6.21- 6.27
 3     1,2-Dibromo-3-chloropr  20.000  24.106    -20.5# 133   0.00   10.24-10.30

*****  Signal #2   *****

 1     1,2-Dibromoethane       20.000  22.987    -14.9  107   0.00    3.93- 3.99
 2 s   4-Bromofluorobenzene   100.000 124.359    -24.4# 111   0.00    6.74- 6.80

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  11.124  16.144 E6 -45.1# 144#  0.00   11.29-11.35
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB64706.d  EDS150924.M       Mon Sep 28 08:33:22 2015
```

15.6.5

15

Continuing Calibration Summary

Job Number: JC4005 **Sample:** GBB3489-CC3489
Account: ALNJ Accutest New Jersey **Lab FileID:** BB64763.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...24\BB64763.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB150924\BB64763.d\ECD2A.CH
 Acq On    : 25-Sep-15, 14:51:47                      Operator: nickk
 Sample    : cc3489-20,edb soil                       Inst    : GCBB
 Misc      : op44699,gbb3489,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Sep 28 08:25:34 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      858.536 914.859 E3  -6.6  119#  0.06    3.20- 3.26

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  99.916      0.1  106   0.00    6.21- 6.27
 3     1,2-Dibromo-3-chloropr  20.000  24.589    -22.9# 136  -0.03   10.21-10.27

*****  Signal #2   *****

 1     1,2-Dibromoethane       20.000  23.611    -18.1# 110  -0.05    3.87- 3.93
 2 s   4-Bromofluorobenzene   100.000 124.430    -24.4# 111  -0.03    6.71- 6.77

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  11.124  18.206 E6 -63.7# 162# -0.01   11.28-11.34
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB64706.d  EDS150924.M       Mon Sep 28 08:30:41 2015
```

15.6.6

15

Continuing Calibration Summary

Job Number: JC4005
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Sample: GBB3489-ECC3489
Lab FileID: BB64771.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...24\BB64771.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB150924\BB64771.d\ECD2A.CH
 Acq On    : 25-Sep-15, 18:34:29                      Operator: nickk
 Sample    : ecc3489-20,edb soil                      Inst    : GCBB
 Misc      : op44699,gbb3489,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150924.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Sep 28 08:25:34 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane      858.536 802.605 E3   6.5  104   0.05    3.18- 3.24

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  82.706     17.3#  89   0.00    6.21- 6.27
 3     1,2-Dibromo-3-chloropr  20.000  20.787     -3.9  113  -0.03   10.22-10.28

*****  Signal #2   *****

 1     1,2-Dibromoethane       20.000  18.172      9.1   84  -0.12    3.80- 3.86
 2 s   4-Bromofluorobenzene   100.000  80.413     19.6#  74  -0.05    6.69- 6.75

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  11.124  12.146 E6  -9.2  108   0.00   11.29-11.35
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB64706.d  EDS150924.M       Mon Sep 28 08:29:43 2015
```

15.6.7

15

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64717.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 16:50:07
Operator  : nickk
Sample    : jc4005-3,op44699
Misc      : op44699,gbb3489,30.45,,,50,,s
ALS Vial  : 9 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:37:43 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.246	6.772	3103136	29693003	59.249	64.545
Spiked Amount	50.000	Range	60 - 140	Recovery	= 118.50%	129.09%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

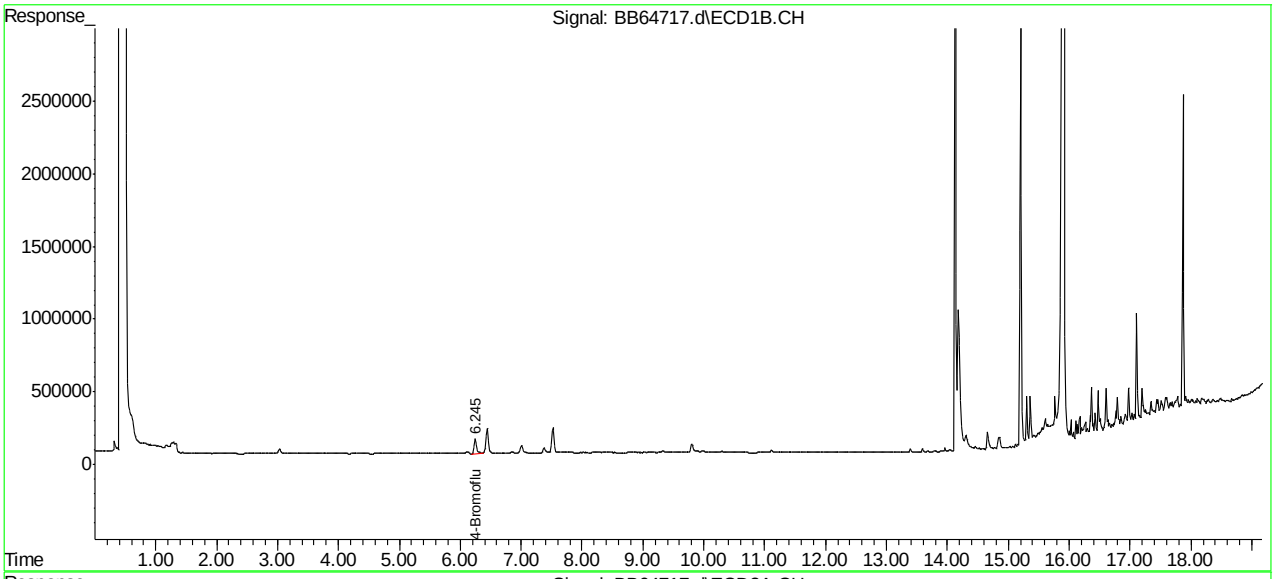
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

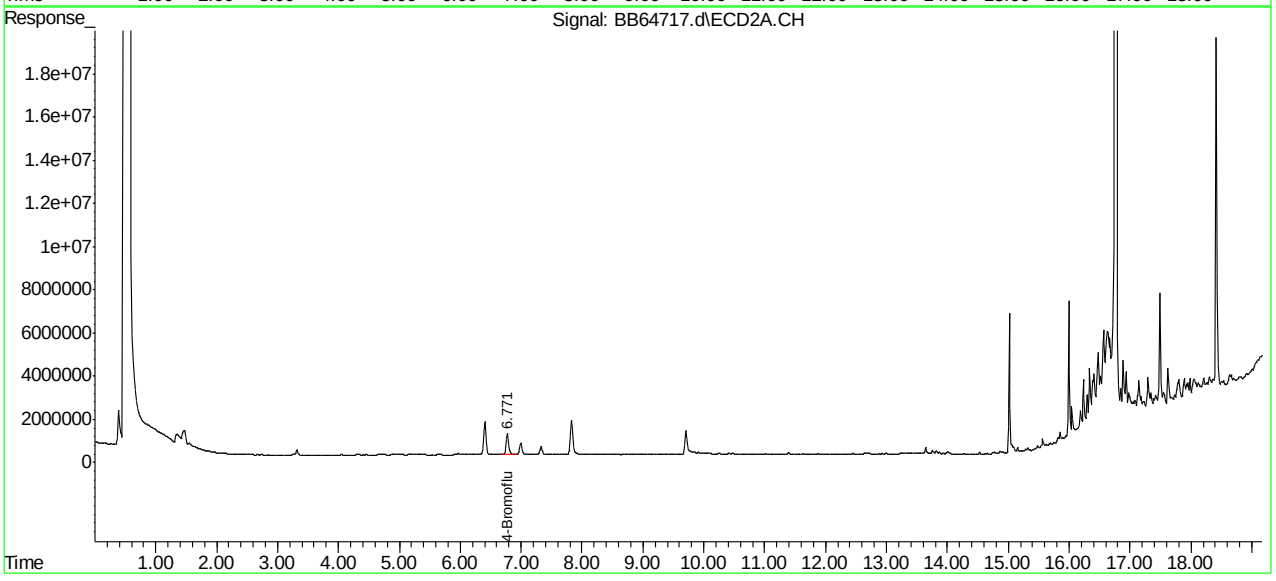
Quantitation Report (QT Reviewed)

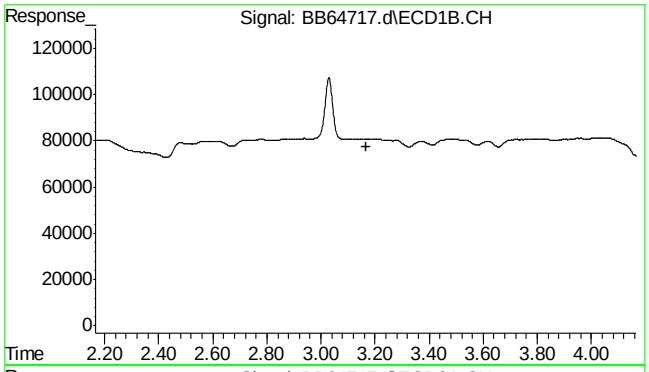
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64717.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 16:50:07
Operator : nickk
Sample : jc4005-3,op44699
Misc : op44699,gbb3489,30.45,,,50,,s
ALS Vial : 9 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:37:43 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

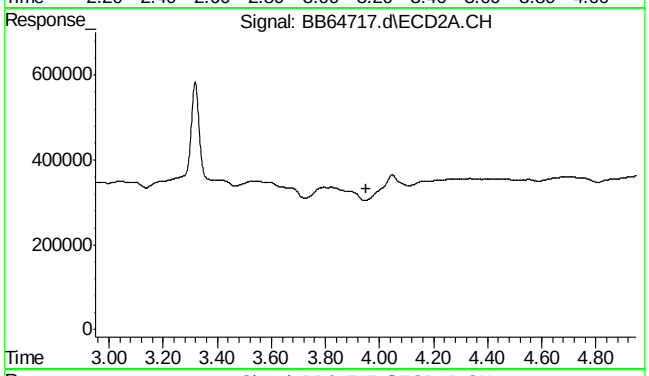






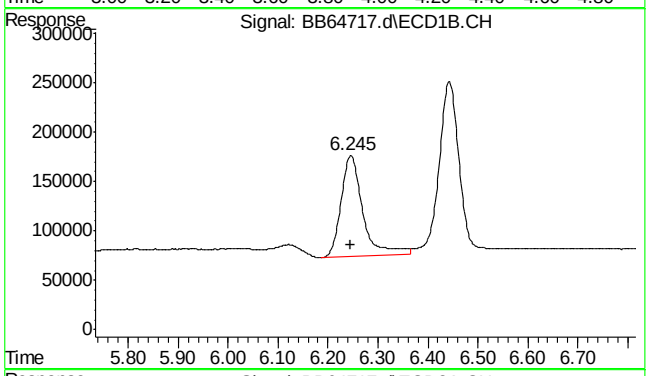
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



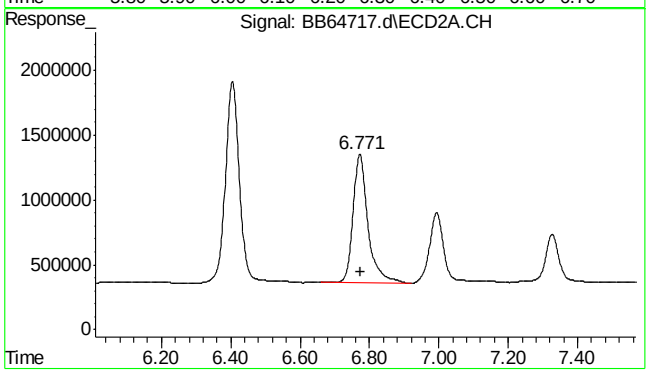
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



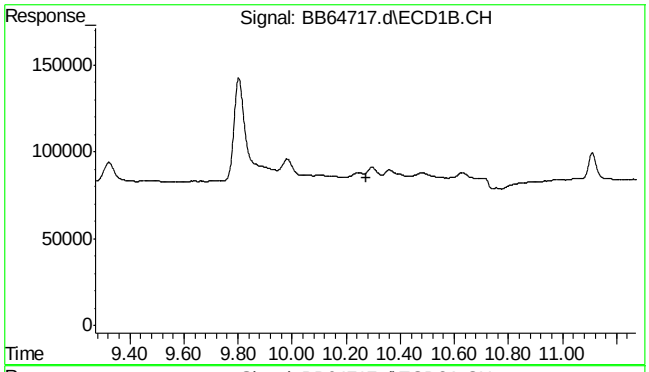
#2 4-Bromofluorobenzene

R.T.: 6.246 min
Delta R.T.: 0.000 min
Response: 3103136
Conc: 59.25 ug/L



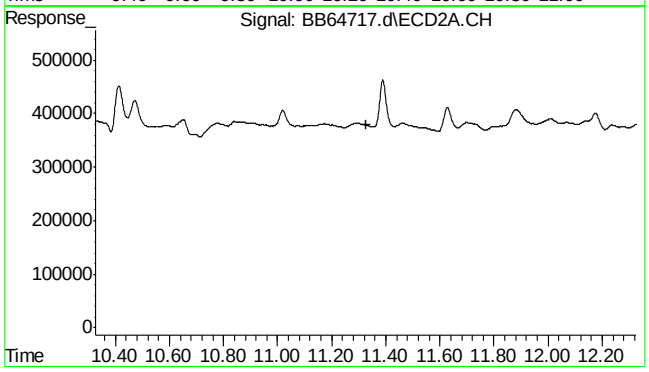
#2 4-Bromofluorobenzene

R.T.: 6.772 min
Delta R.T.: -0.001 min
Response: 29693003
Conc: 64.55 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64718.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 17:18:17
Operator  : nickk
Sample    : jc4005-4,op44699
Misc      : op44699,gbb3489,30.12,,,50,,s
ALS Vial  : 10 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:37:56 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.244     6.766   2991421 38613347   57.011    84.578 #
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  114.02%   169.16%#

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

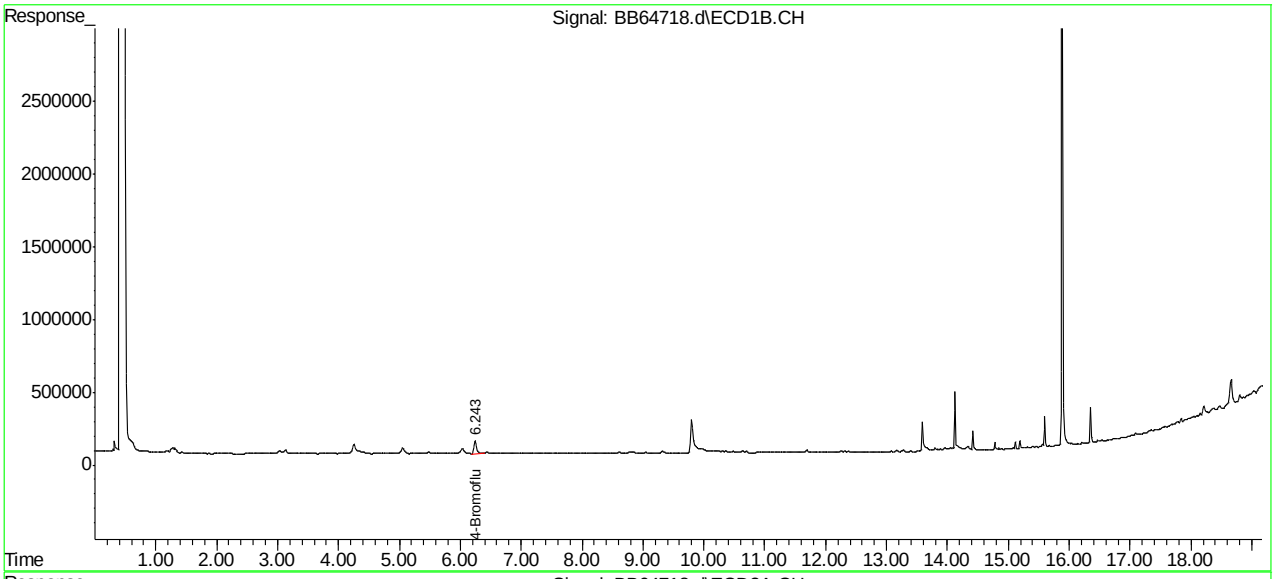
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

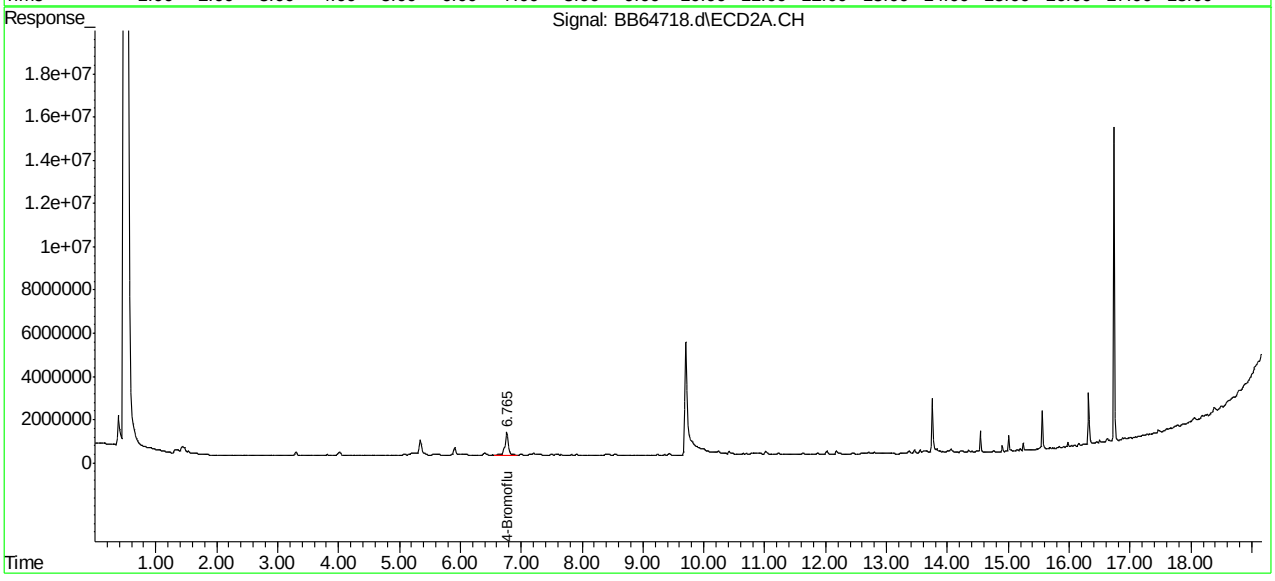
Quantitation Report (QT Reviewed)

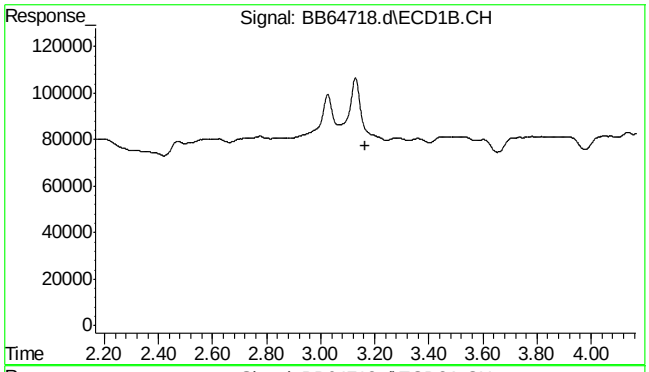
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64718.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 17:18:17
Operator : nickk
Sample : jc4005-4,op44699
Misc : op44699,gbb3489,30.12,,,50,,s
ALS Vial : 10 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:37:56 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

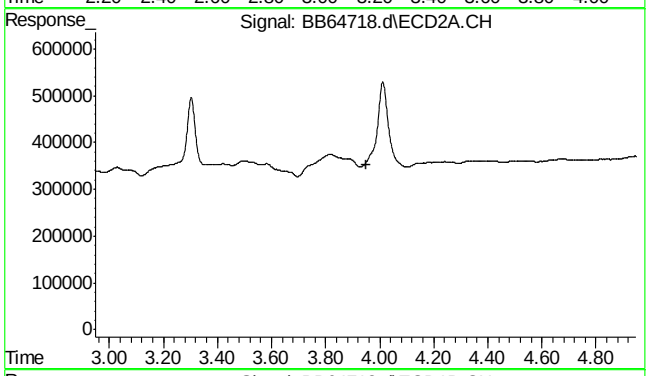






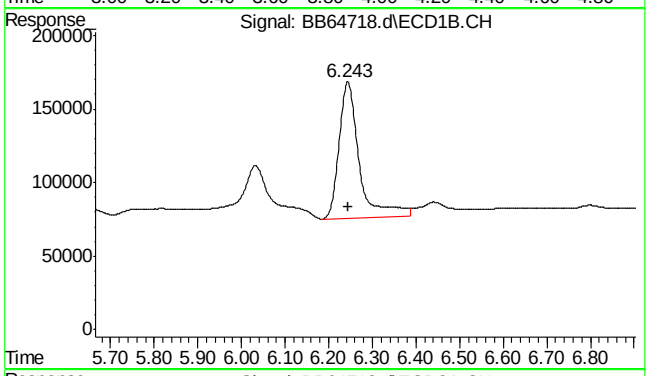
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



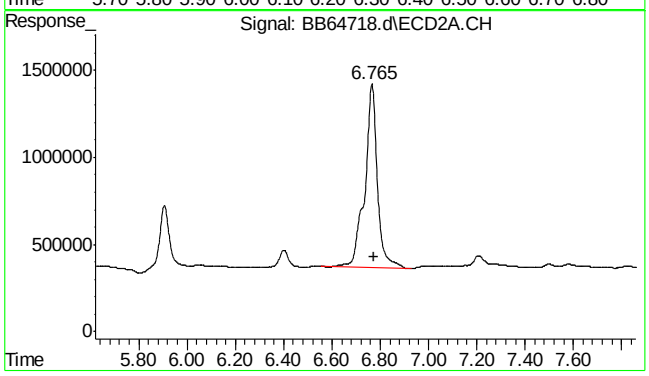
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



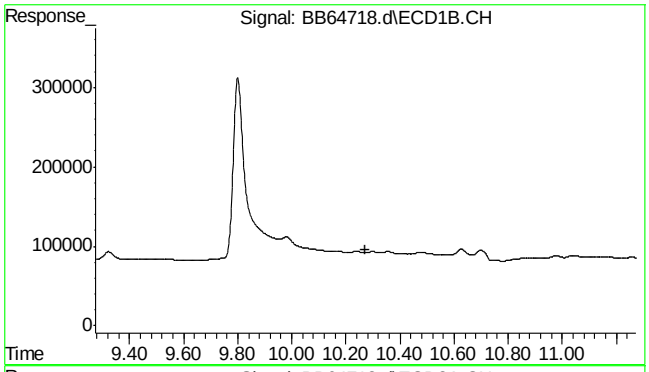
#2 4-Bromofluorobenzene

R.T.: 6.244 min
Delta R.T.: 0.000 min
Response: 2991421
Conc: 57.01 ug/L



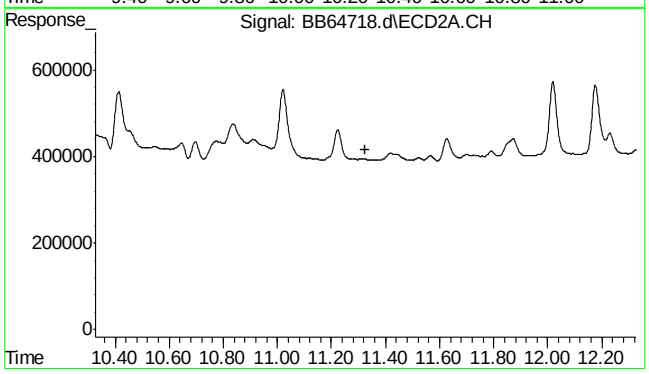
#2 4-Bromofluorobenzene

R.T.: 6.766 min
Delta R.T.: -0.007 min
Response: 38613347
Conc: 84.58 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64720.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 18:14:12
Operator  : nickk
Sample    : jc4005-5,op44699
Misc      : op44699,gbb3489,30.14,,,50,,s
ALS Vial  : 11 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:06 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.243	6.783	3125973	33239784	59.706	72.447
Spiked Amount	50.000	Range	60 - 140	Recovery	= 119.41%	144.89%#
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

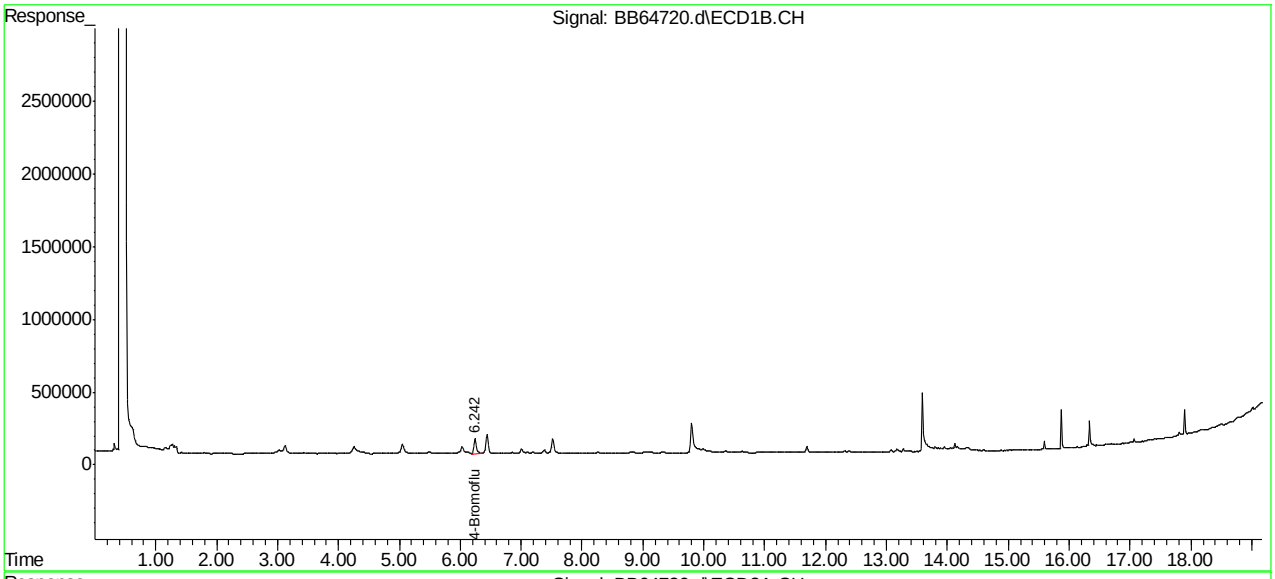
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

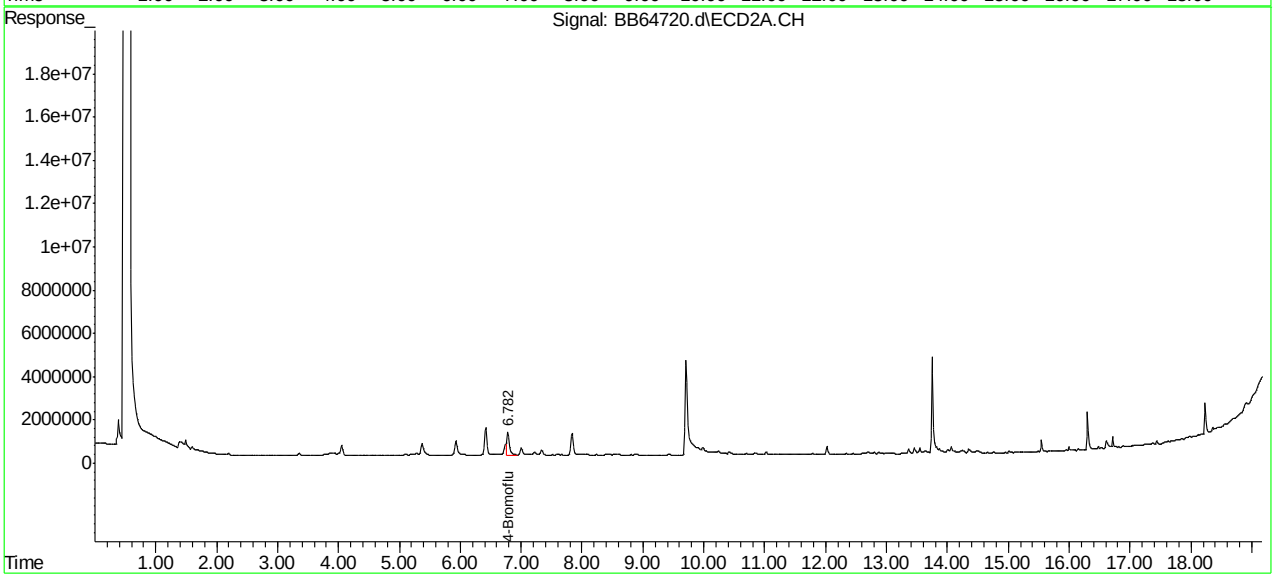
Quantitation Report (QT Reviewed)

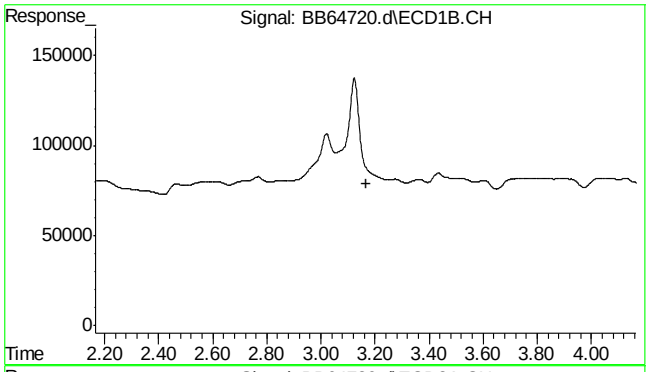
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64720.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 18:14:12
Operator : nickk
Sample : jc4005-5,op44699
Misc : op44699,gbb3489,30.14,,,50,,s
ALS Vial : 11 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:06 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

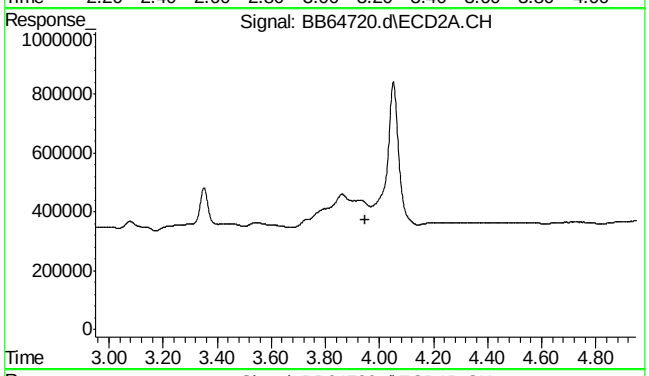






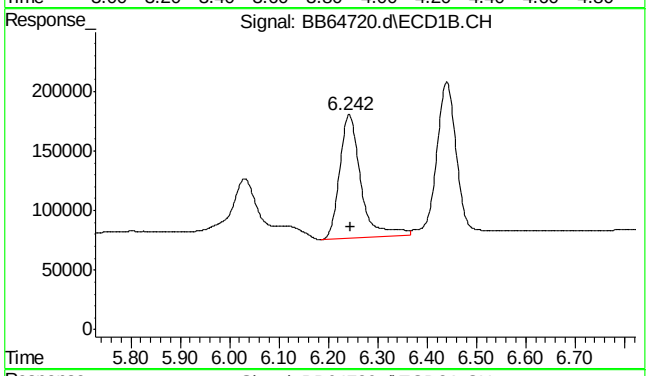
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



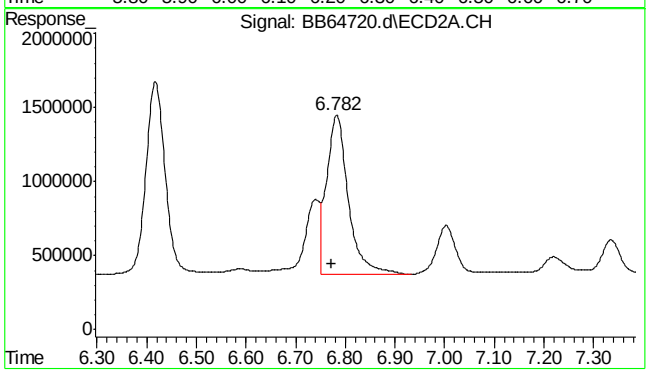
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



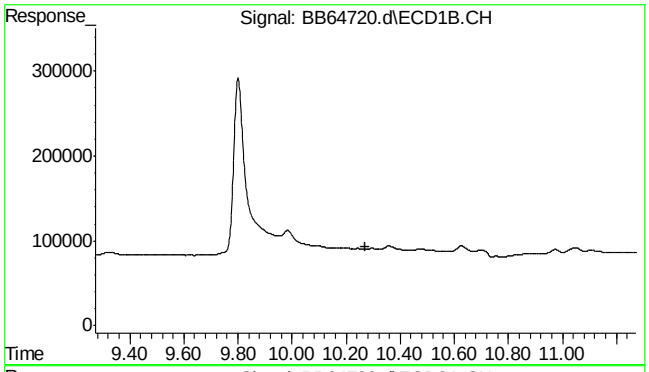
#2 4-Bromofluorobenzene

R.T.: 6.243 min
Delta R.T.: -0.002 min
Response: 3125973
Conc: 59.71 ug/L



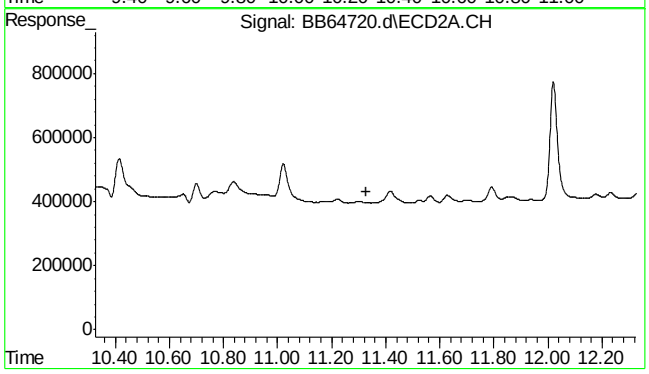
#2 4-Bromofluorobenzene

R.T.: 6.783 min
Delta R.T.: 0.010 min
Response: 33239784
Conc: 72.45 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64721.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 18:42:16 (#1); 24-Sep-15, 18:42:15 (#2)
Operator  : nickk
Sample    : jc4005-6,op44699
Misc      : op44699,gbb3489,30.39,,,50,,s
ALS Vial  : 12 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:22 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.242     6.782   2841318 32687696   54.008    71.211 #
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  108.02%   142.42%#

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

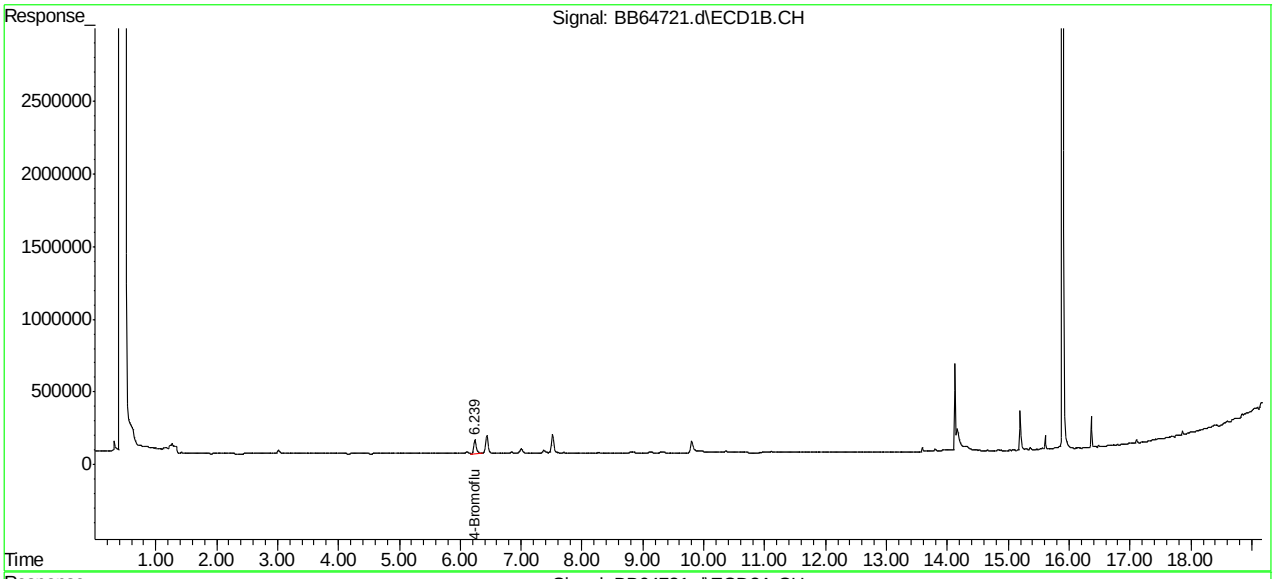
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

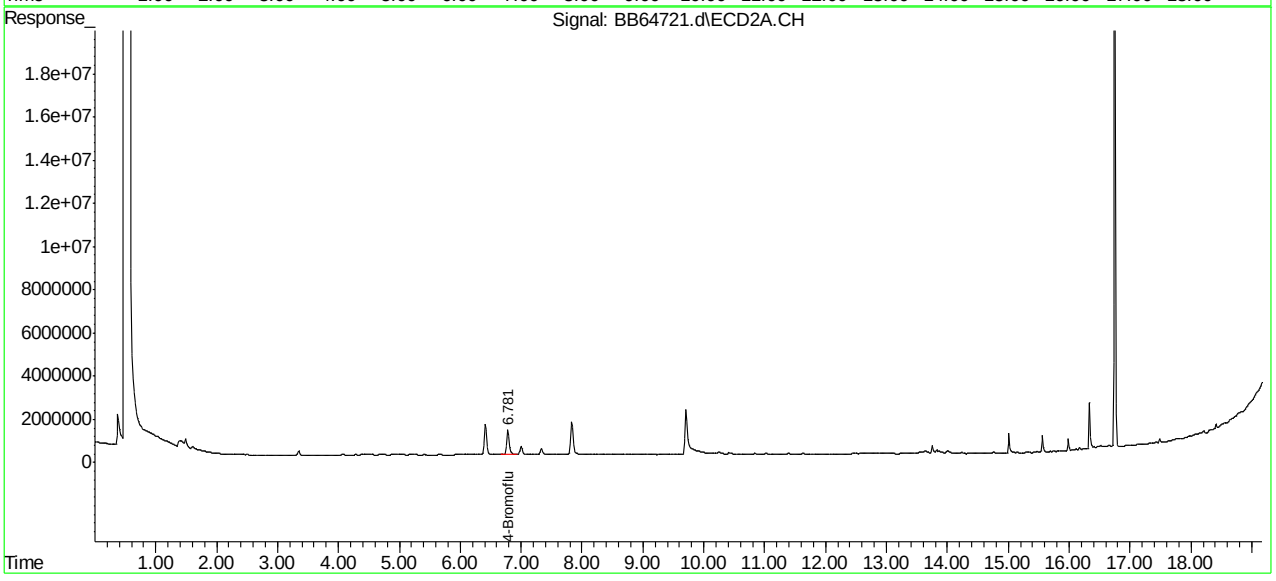
Quantitation Report (QT Reviewed)

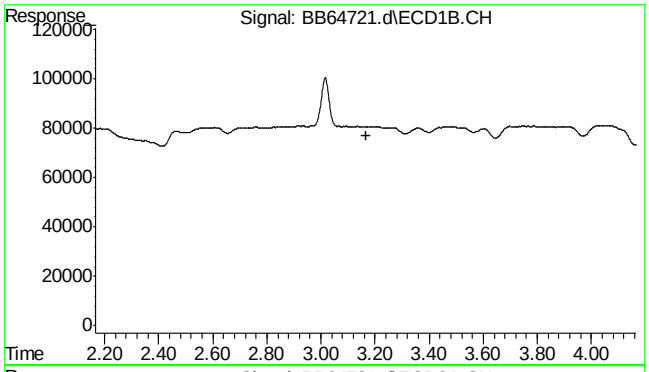
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64721.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 18:42:16 (#1); 24-Sep-15, 18:42:15 (#2)
Operator : nickk
Sample : jc4005-6,op44699
Misc : op44699,gbb3489,30.39,,,50,,s
ALS Vial : 12 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:22 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

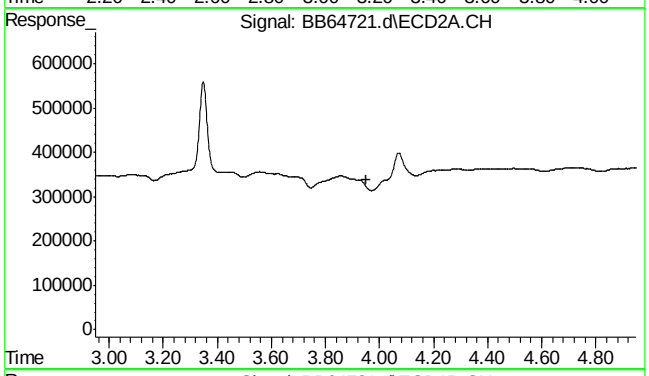






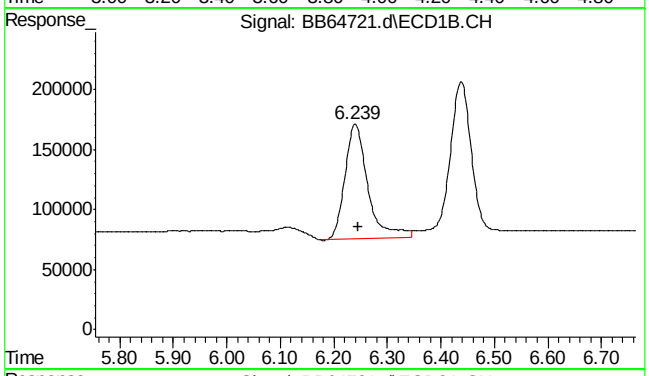
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



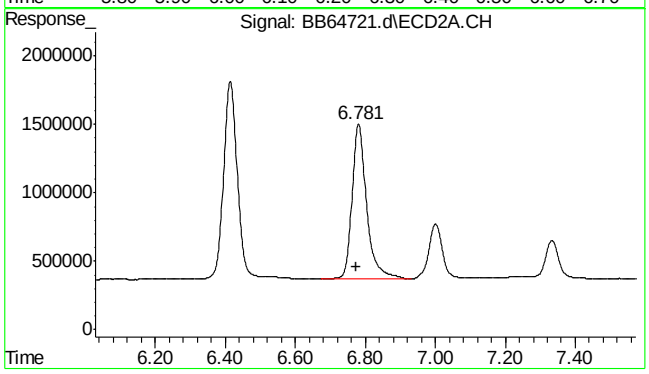
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



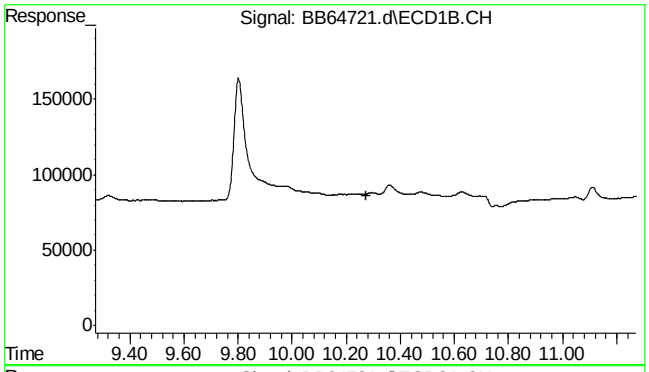
#2 4-Bromofluorobenzene

R.T.: 6.242 min
Delta R.T.: -0.003 min
Response: 2841318
Conc: 54.01 ug/L



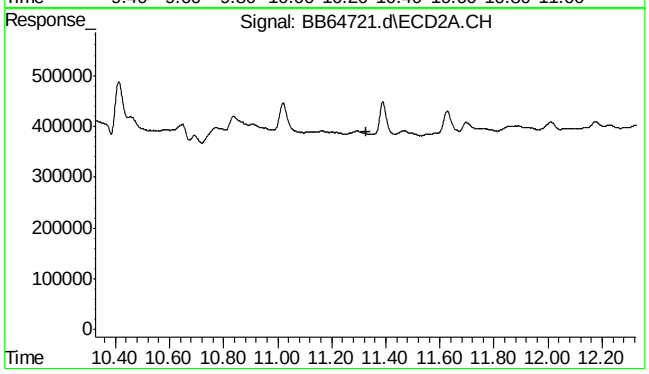
#2 4-Bromofluorobenzene

R.T.: 6.782 min
Delta R.T.: 0.009 min
Response: 32687696
Conc: 71.21 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64722.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 19:10:18
Operator  : nickk
Sample    : jc4005-7,op44699
Misc      : op44699,gbb3489,30.65,,,50,,s
ALS Vial  : 13 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:29 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.244     6.767   2788087 31229723   52.943    67.959 #
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  105.89%   135.92%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

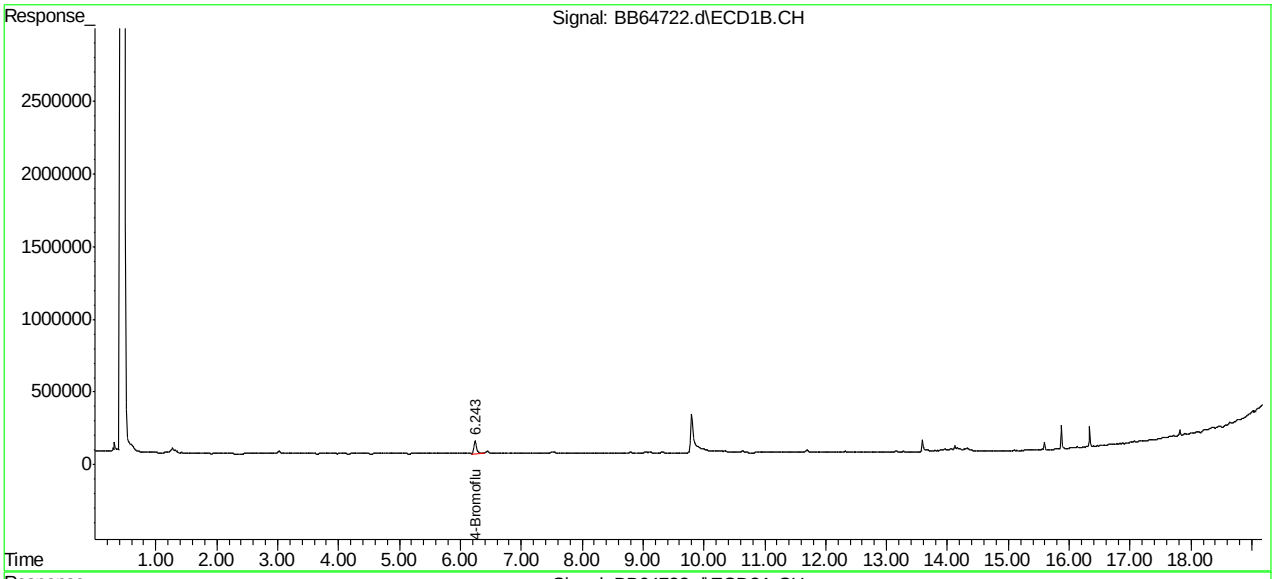
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

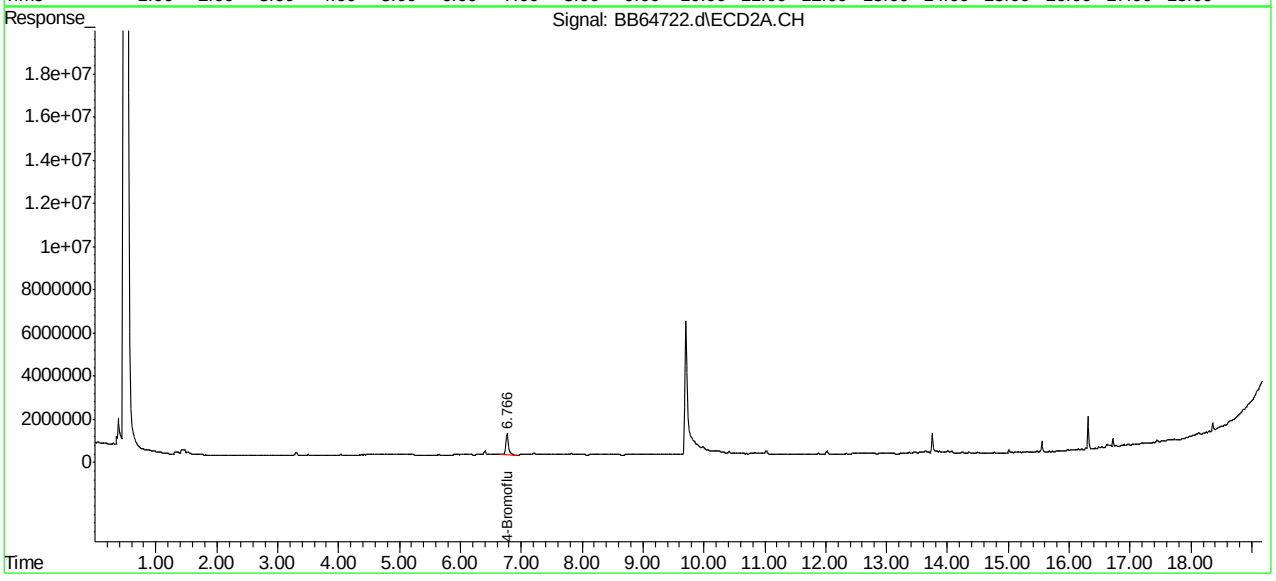
Quantitation Report (QT Reviewed)

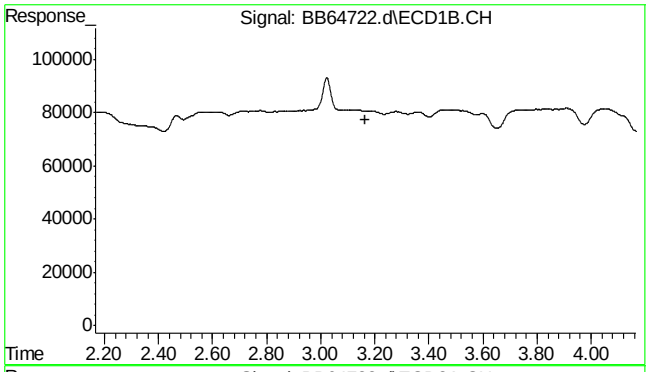
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64722.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 19:10:18
Operator : nickk
Sample : jc4005-7,op44699
Misc : op44699,gbb3489,30.65,,,50,,s
ALS Vial : 13 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:29 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

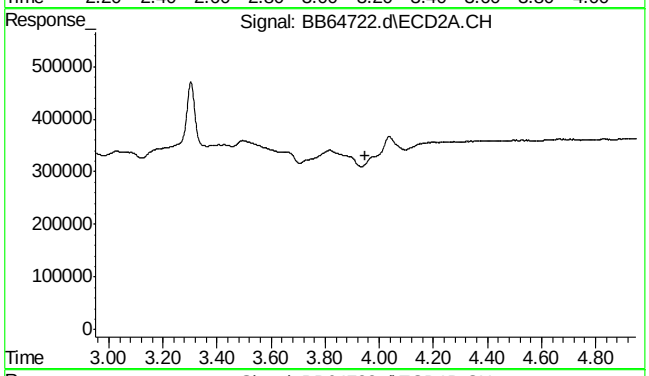






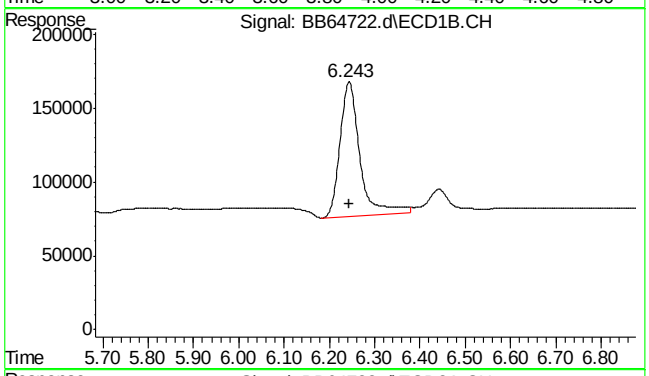
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



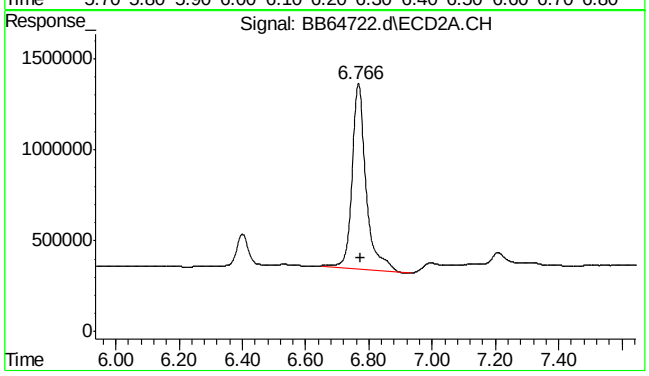
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



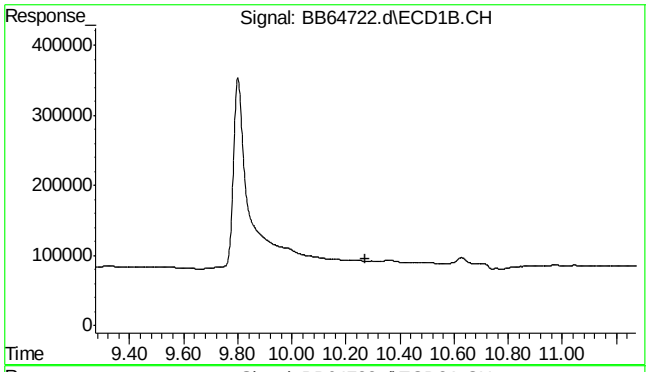
#2 4-Bromofluorobenzene

R.T.: 6.244 min
Delta R.T.: -0.001 min
Response: 2788087
Conc: 52.94 ug/L



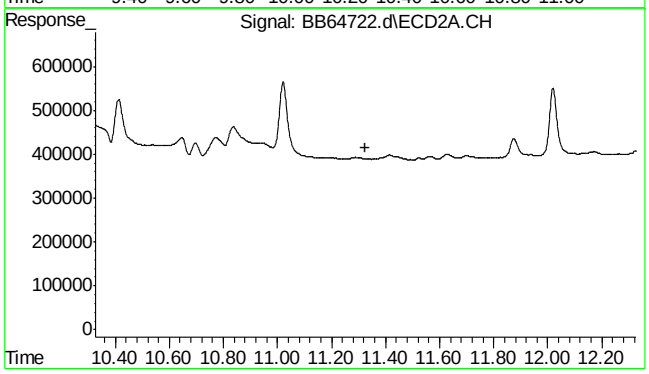
#2 4-Bromofluorobenzene

R.T.: 6.767 min
Delta R.T.: -0.006 min
Response: 31229723
Conc: 67.96 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64723.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 19:38:02
Operator  : nickk
Sample    : jc4005-8,op44699
Misc      : op44699,gbb3489,30.25,,,50,,s
ALS Vial  : 14 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:40 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.236	6.784	3224560	31019463	61.682	67.491
Spiked Amount 50.000	Range 60 - 140	Recovery = 123.36%	134.98%			
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

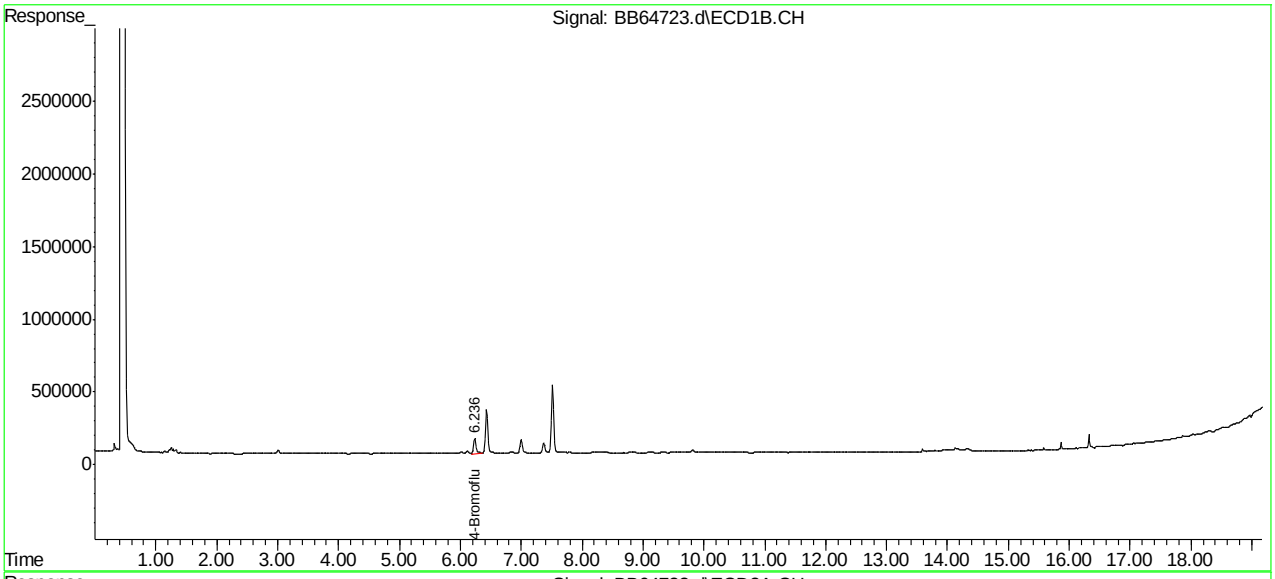
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

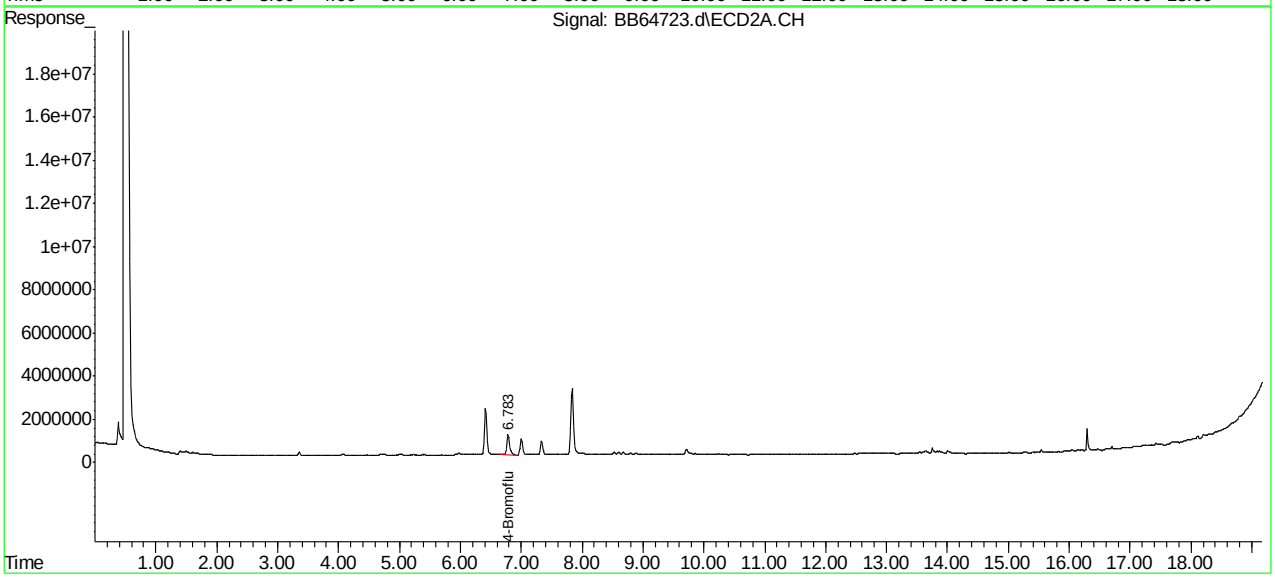
Quantitation Report (QT Reviewed)

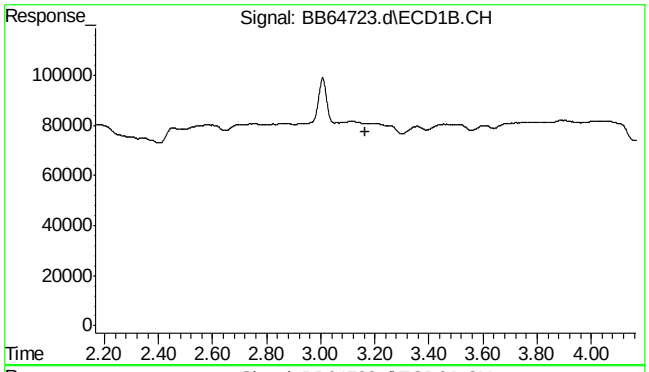
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64723.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 19:38:02
Operator : nickk
Sample : jc4005-8,op44699
Misc : op44699,gbb3489,30.25,,,50,,s
ALS Vial : 14 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:40 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

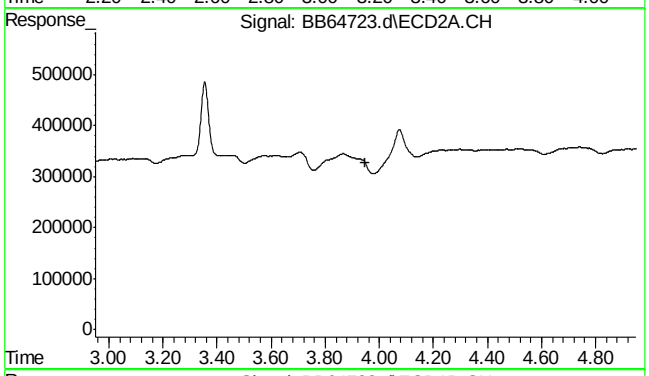






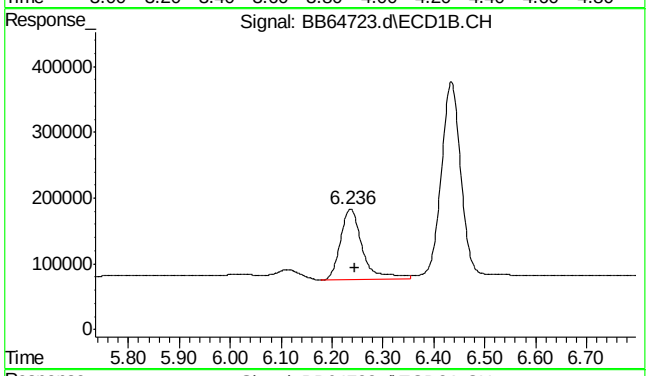
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



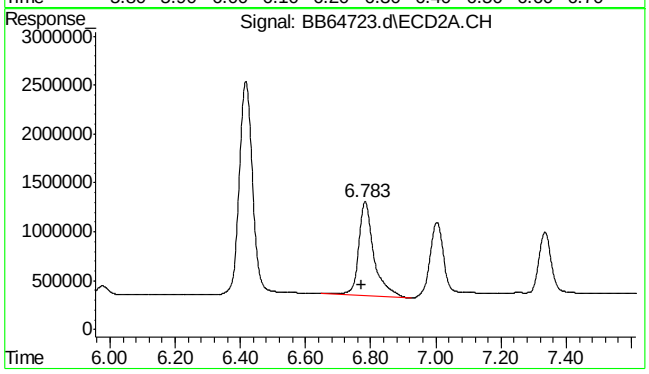
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



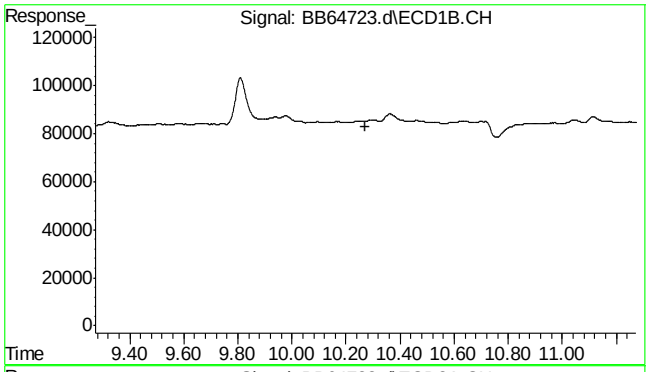
#2 4-Bromofluorobenzene

R.T.: 6.236 min
Delta R.T.: -0.009 min
Response: 3224560
Conc: 61.68 ug/L



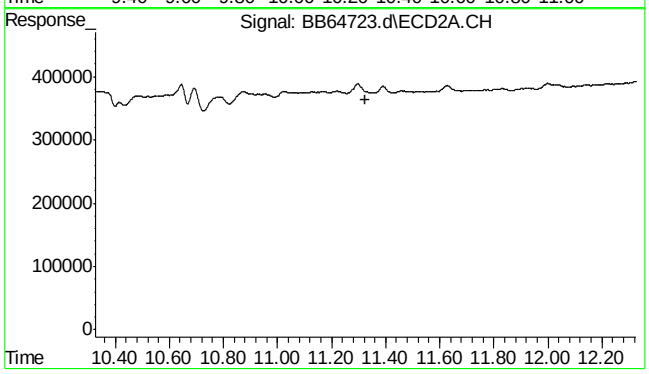
#2 4-Bromofluorobenzene

R.T.: 6.784 min
Delta R.T.: 0.011 min
Response: 31019463
Conc: 67.49 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64724.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 20:06:20
Operator : nickk
Sample : jc4005-9,op44699
Misc : op44699,gbb3489,30.50,,,50,,s
ALS Vial : 15 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:46 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.246	6.768	3337587	30562864	63.950	66.475
Spiked Amount	50.000	Range	60 - 140	Recovery	= 127.90%	132.95%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

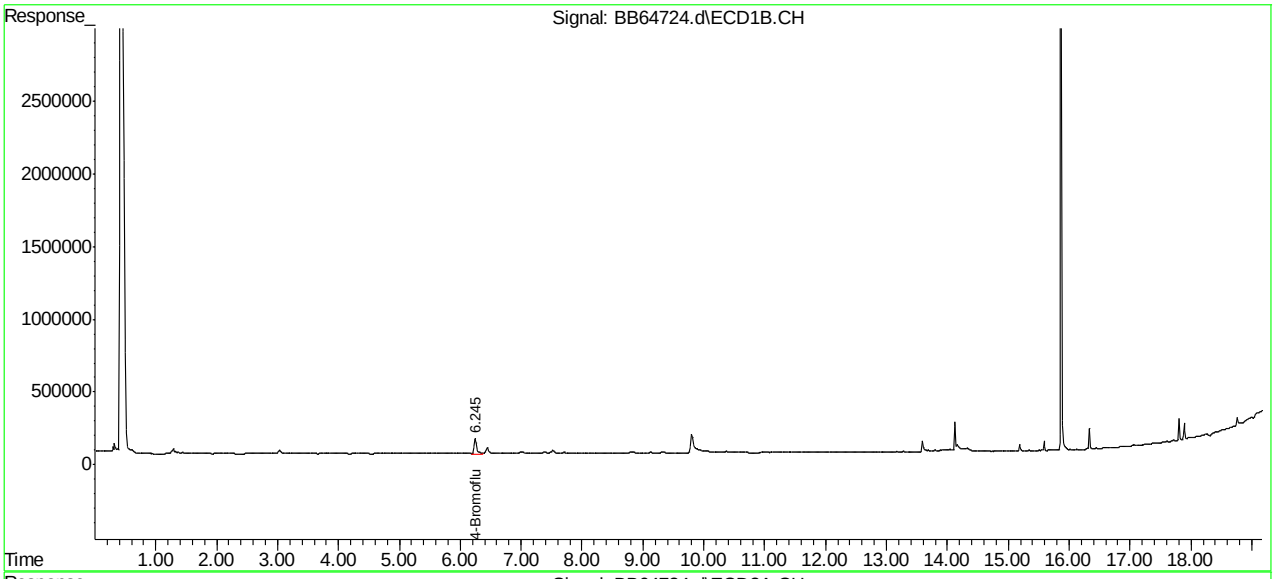
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

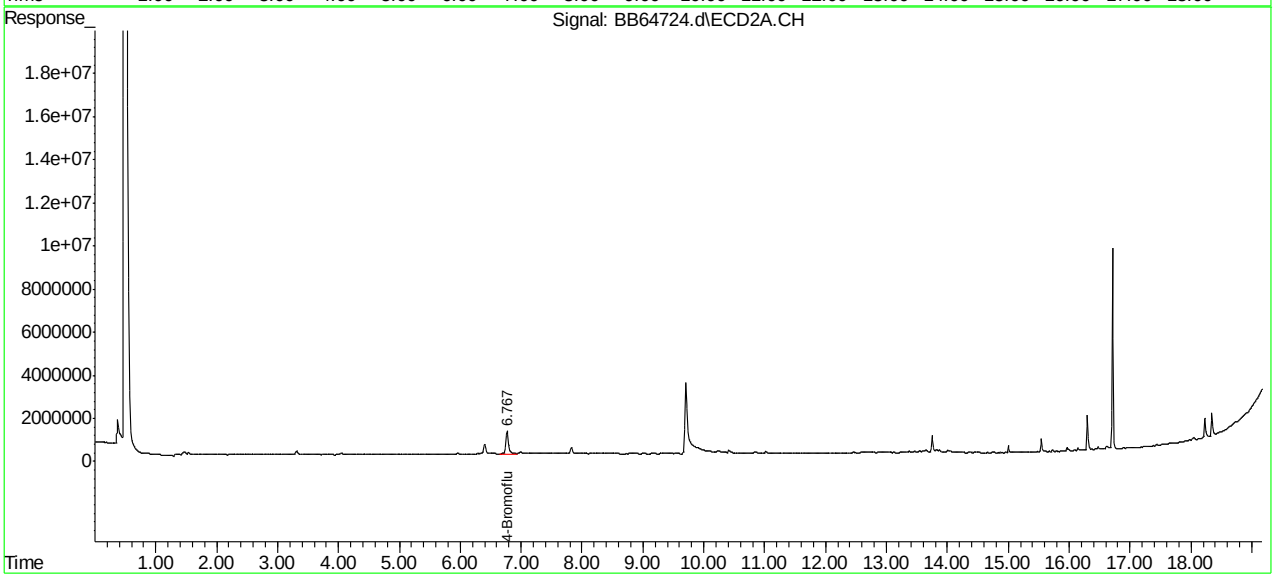
Quantitation Report (QT Reviewed)

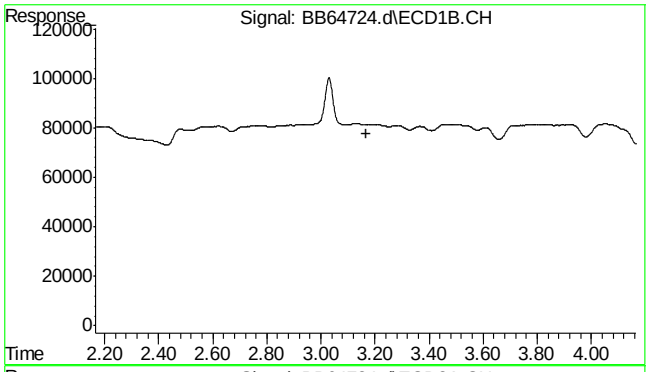
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64724.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 20:06:20
Operator : nickk
Sample : jc4005-9,op44699
Misc : op44699,gbb3489,30.50,,,50,,s
ALS Vial : 15 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:46 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

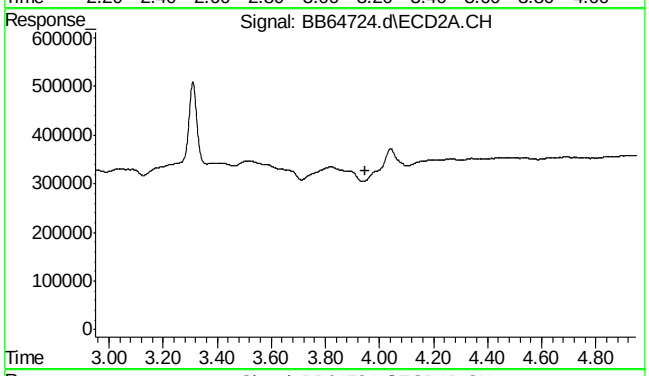






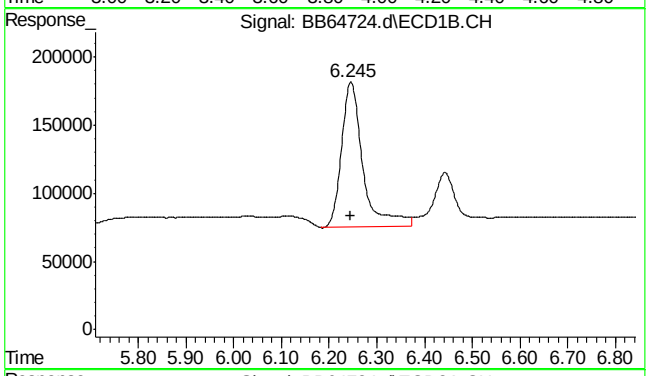
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



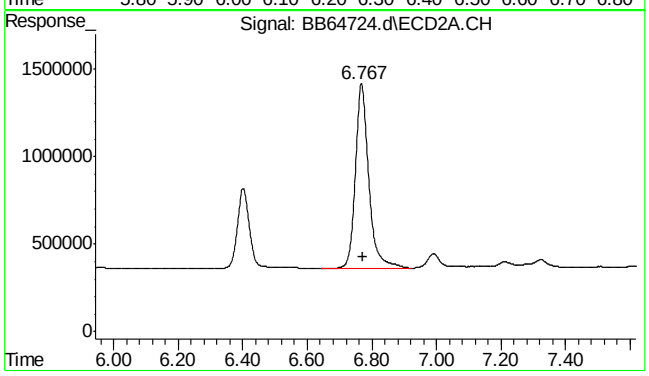
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



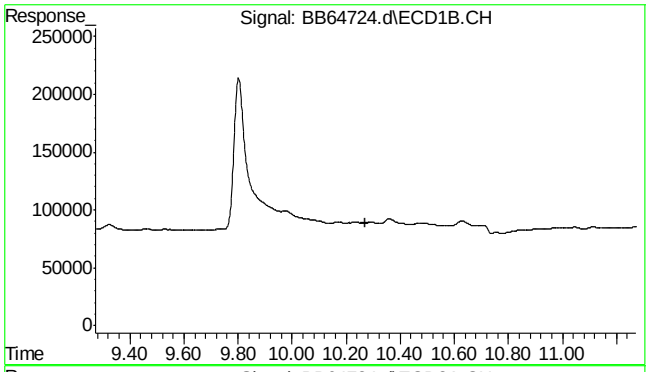
#2 4-Bromofluorobenzene

R.T.: 6.246 min
Delta R.T.: 0.000 min
Response: 3337587
Conc: 63.95 ug/L



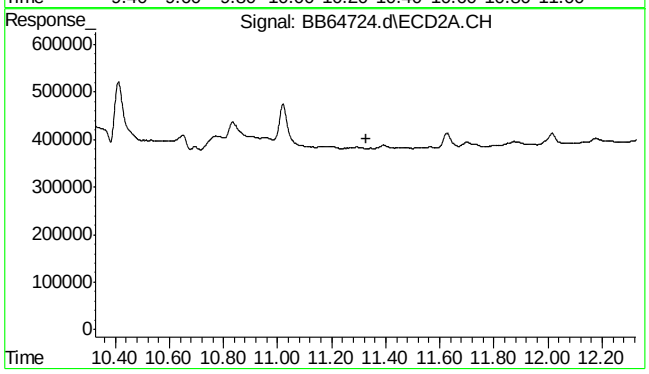
#2 4-Bromofluorobenzene

R.T.: 6.768 min
Delta R.T.: -0.005 min
Response: 30562864
Conc: 66.48 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64725.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 20:34:40
Operator  : nickk
Sample    : jc4005-10,op44699
Misc      : op44699,gbb3489,30.53,,,50,,s
ALS Vial  : 16 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:59 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.248	6.765	3127724	33651203	59.741	73.368
Spiked Amount 50.000	Range	60 - 140	Recovery	=	119.48%	146.74%#
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

16.1.8

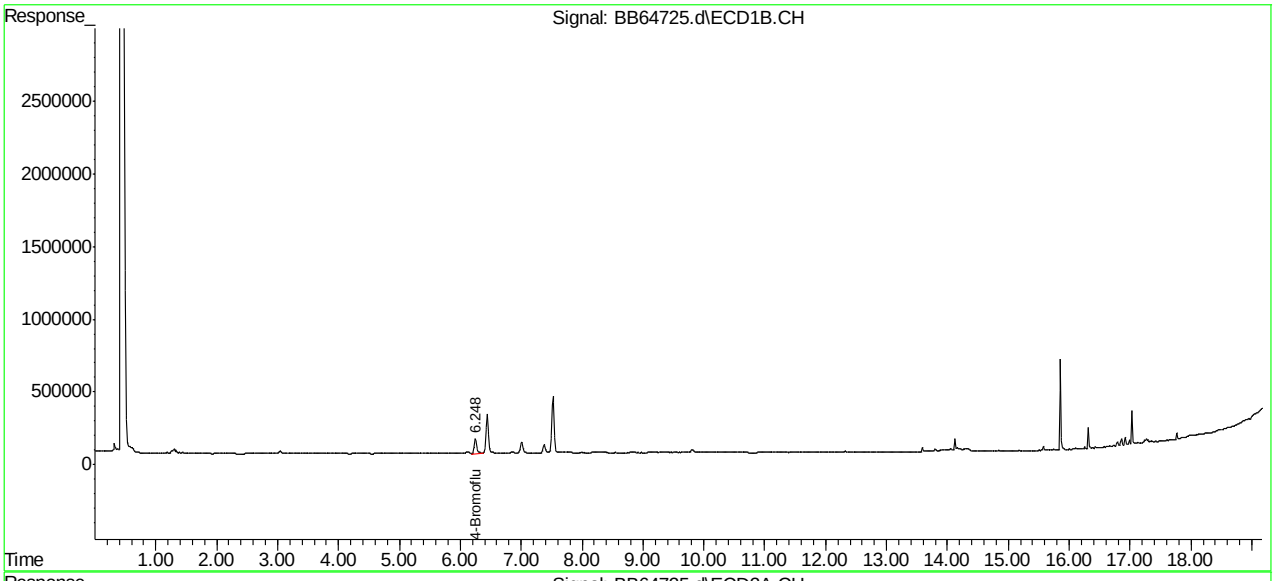
16

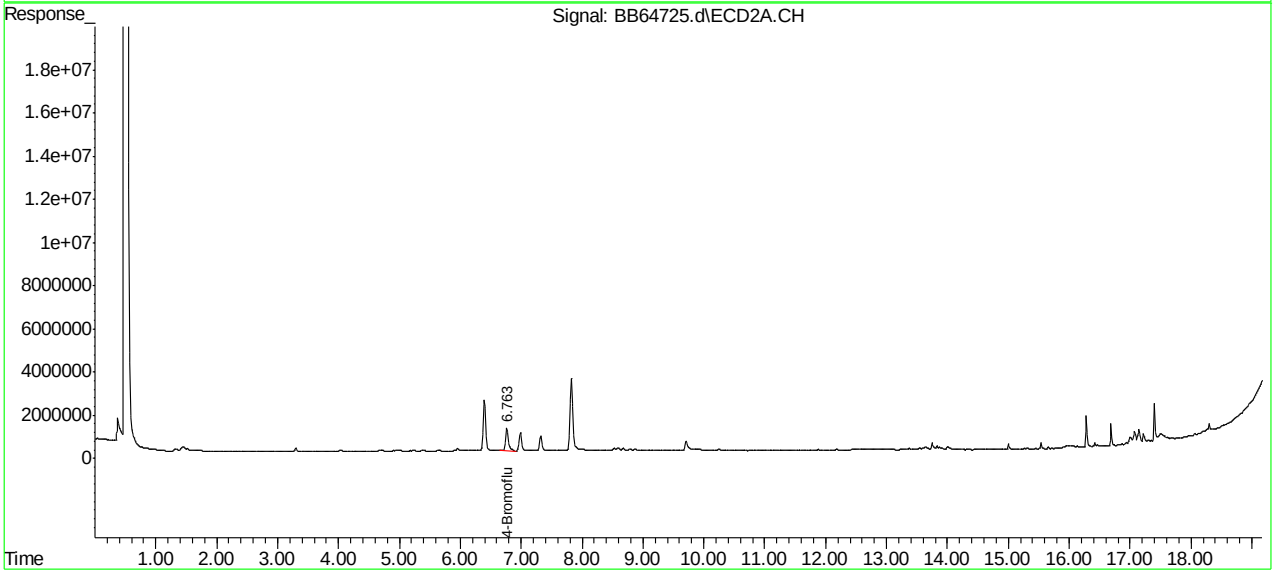
Quantitation Report (QT Reviewed)

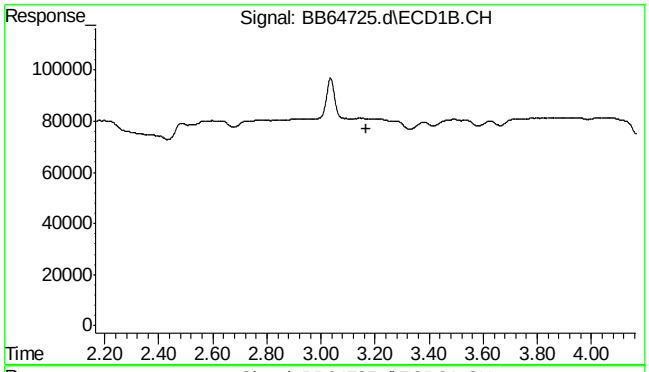
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64725.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 20:34:40
Operator : nickk
Sample : jc4005-10,op44699
Misc : op44699,gbb3489,30.53,,,50,,s
ALS Vial : 16 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:38:59 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

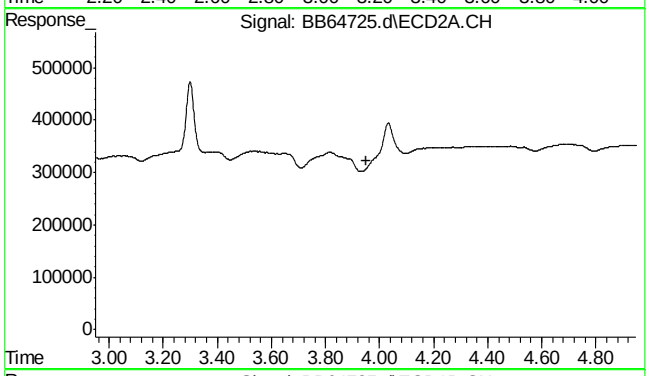






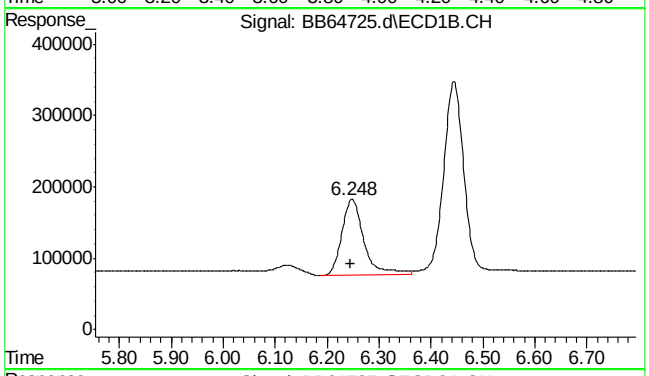
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



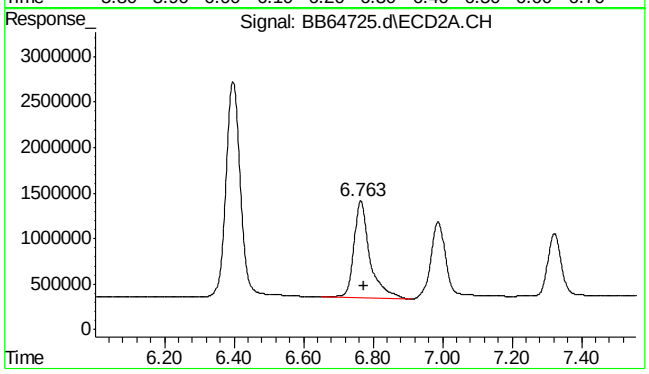
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



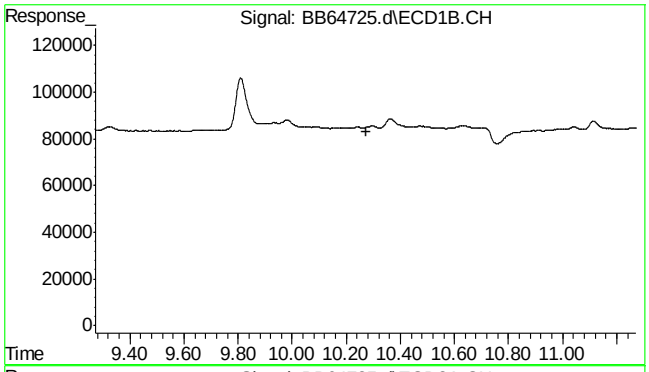
#2 4-Bromofluorobenzene

R.T.: 6.248 min
Delta R.T.: 0.003 min
Response: 3127724
Conc: 59.74 ug/L



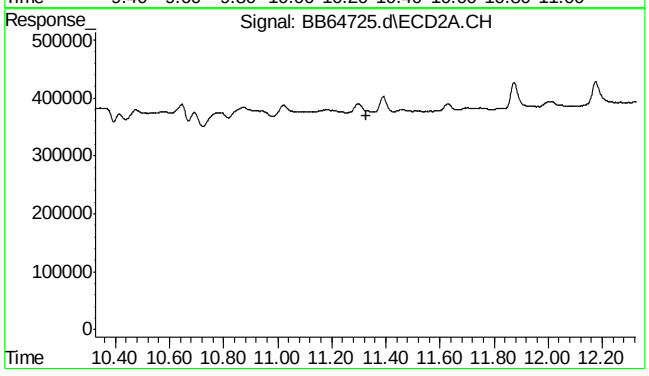
#2 4-Bromofluorobenzene

R.T.: 6.765 min
Delta R.T.: -0.008 min
Response: 33651203
Conc: 73.37 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

16.1.8

16

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64726.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 21:02:52
Operator : nickk
Sample : jc4005-11,op44699
Misc : op44699,gbb3489,30.64,,,50,,s
ALS Vial : 17 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:07 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.245	6.767	3133843	25153543	59.864	54.550
Spiked Amount	50.000	Range	60 - 140	Recovery	= 119.73%	109.10%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

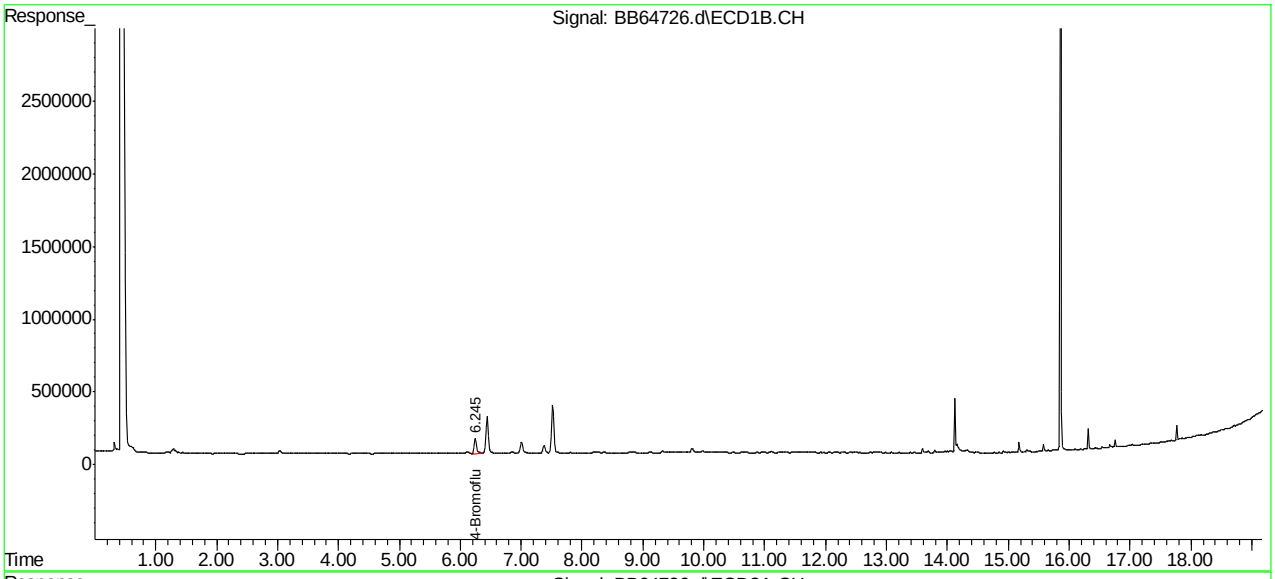
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

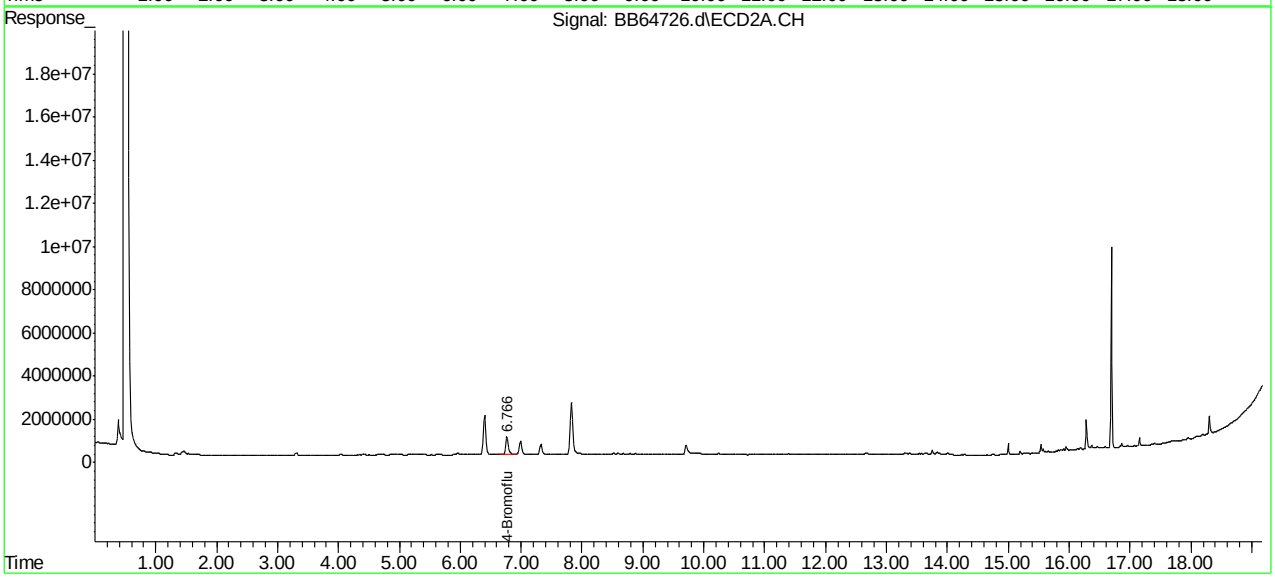
Quantitation Report (QT Reviewed)

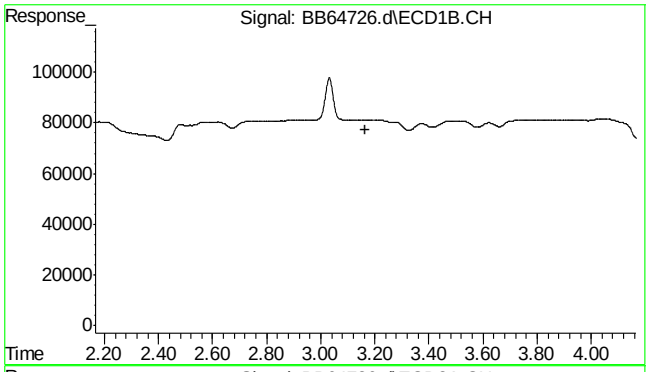
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64726.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 21:02:52
Operator : nickk
Sample : jc4005-11,op44699
Misc : op44699,gbb3489,30.64,,,50,,s
ALS Vial : 17 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:07 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

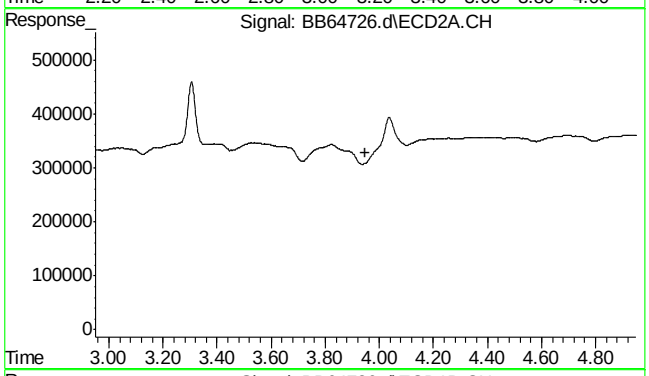






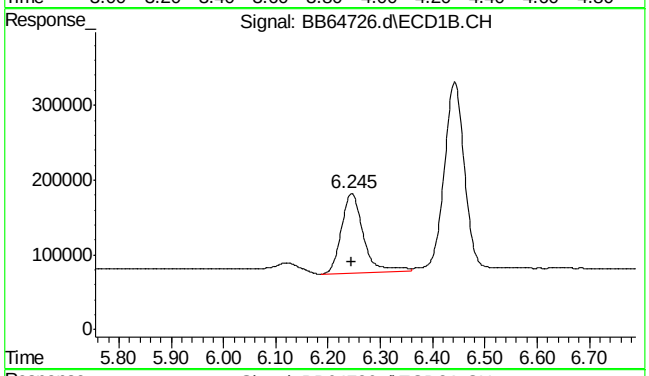
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



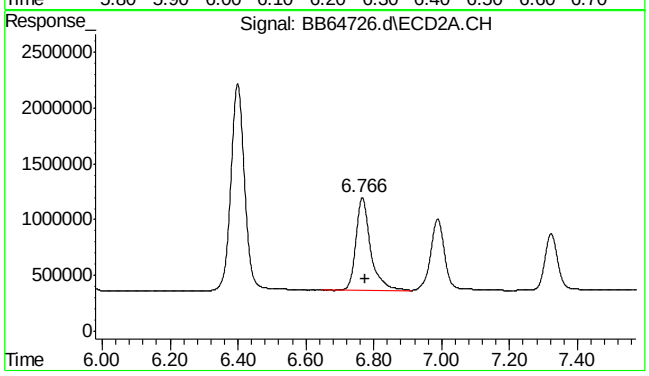
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



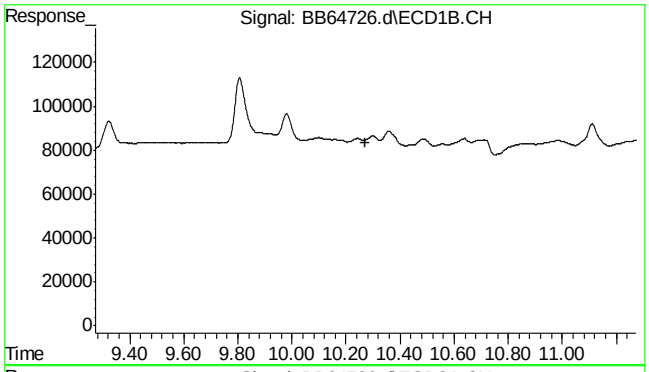
#2 4-Bromofluorobenzene

R.T.: 6.245 min
Delta R.T.: 0.000 min
Response: 3133843
Conc: 59.86 ug/L



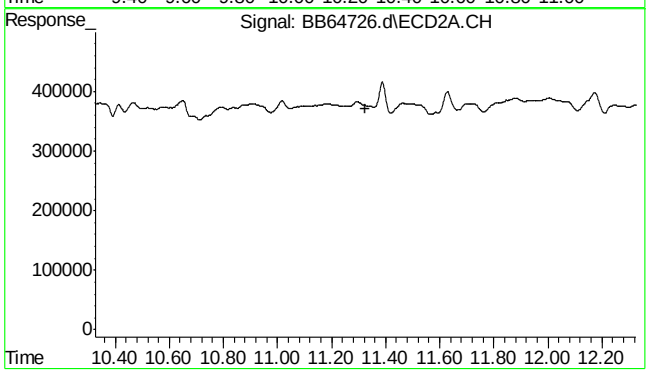
#2 4-Bromofluorobenzene

R.T.: 6.767 min
Delta R.T.: -0.006 min
Response: 25153543
Conc: 54.55 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

16.1.9

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Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64727.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 21:31:13
Operator  : nickk
Sample    : jc4005-12,op44699
Misc      : op44699,gbb3489,30.52,,,50,,s
ALS Vial  : 18 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:16 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.244	6.770	3243105	29889066	62.054	64.980
Spiked Amount	50.000	Range	60 - 140	Recovery	= 124.11%	129.96%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

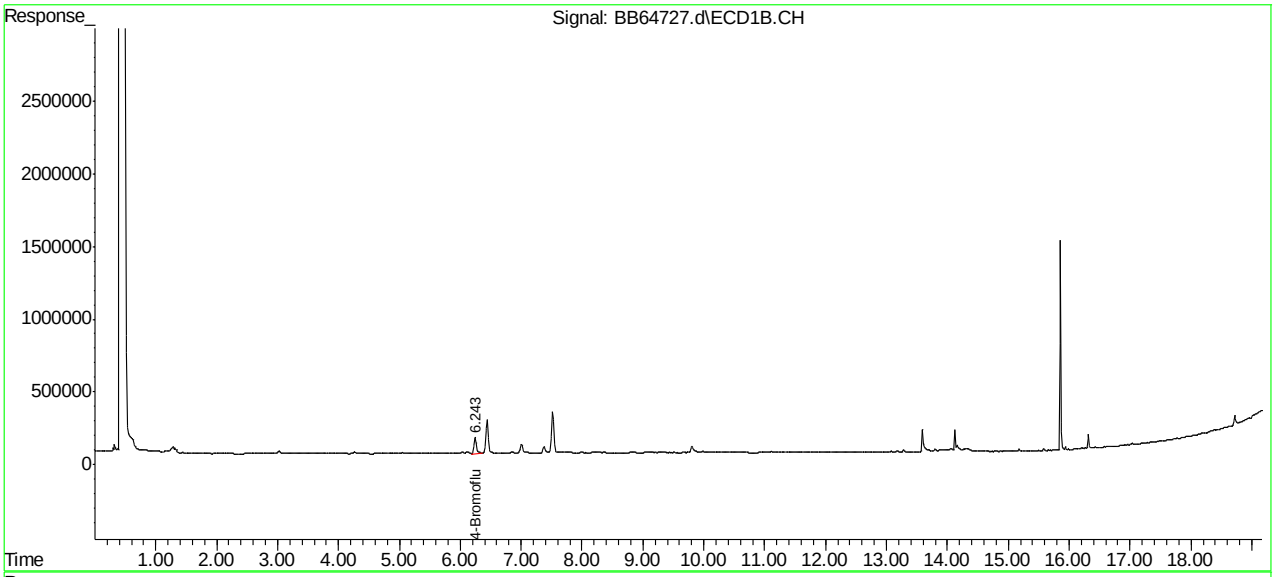
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

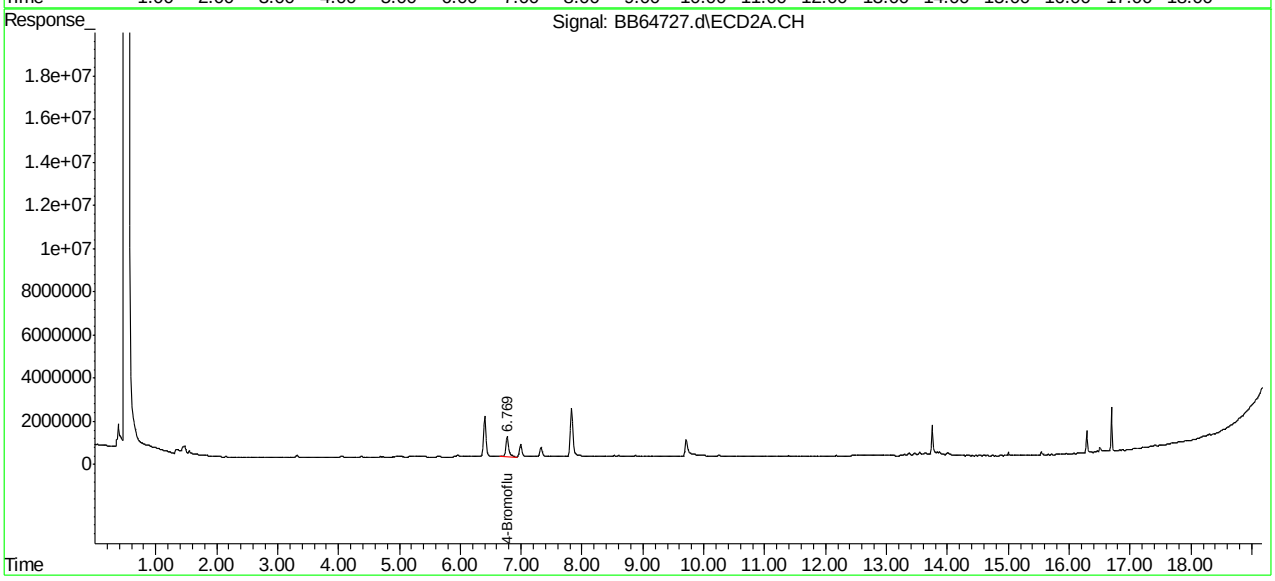
Quantitation Report (QT Reviewed)

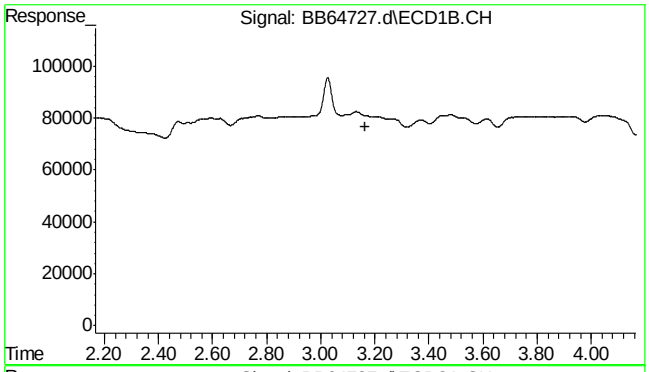
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64727.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 21:31:13
Operator : nickk
Sample : jc4005-12,op44699
Misc : op44699,gbb3489,30.52,,,50,,s
ALS Vial : 18 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:16 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

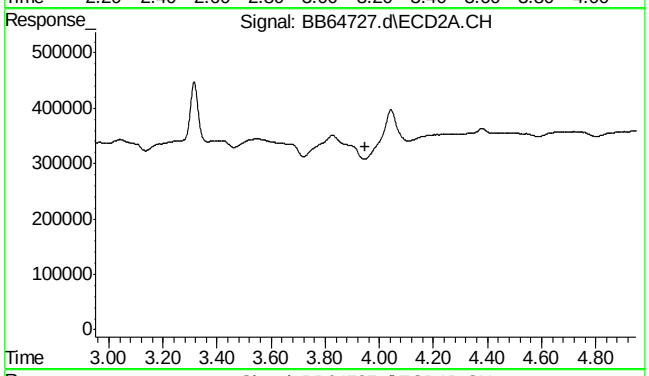






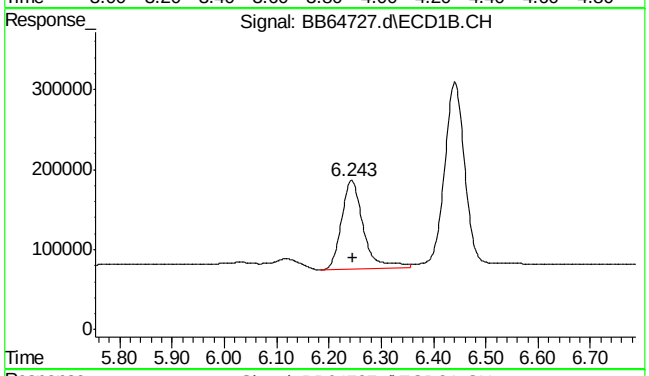
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



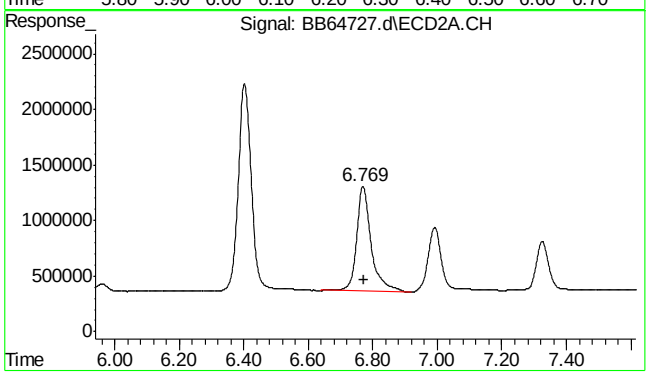
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



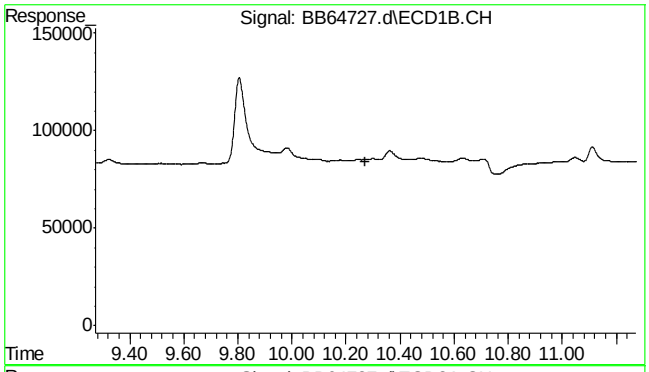
#2 4-Bromofluorobenzene

R.T.: 6.244 min
Delta R.T.: -0.001 min
Response: 3243105
Conc: 62.05 ug/L



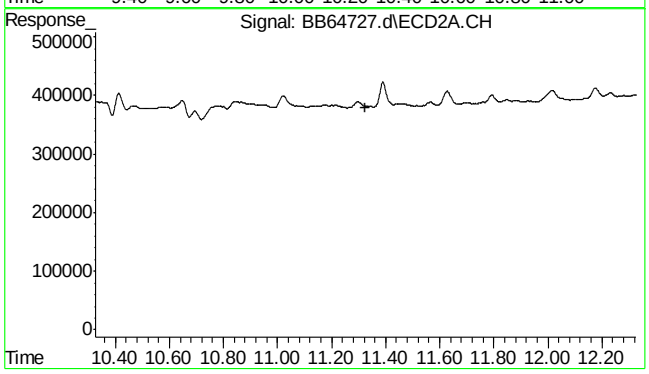
#2 4-Bromofluorobenzene

R.T.: 6.770 min
Delta R.T.: -0.003 min
Response: 29889066
Conc: 64.98 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64728.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 21:59:30
Operator : nickk
Sample : jc4005-13,op44699
Misc : op44699,gbb3489,30.43,,,50,,s
ALS Vial : 19 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:22 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.244	6.769	3365520	26654712	64.510	57.841
Spiked Amount	50.000	Range	60 - 140	Recovery	= 129.02%	115.68%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

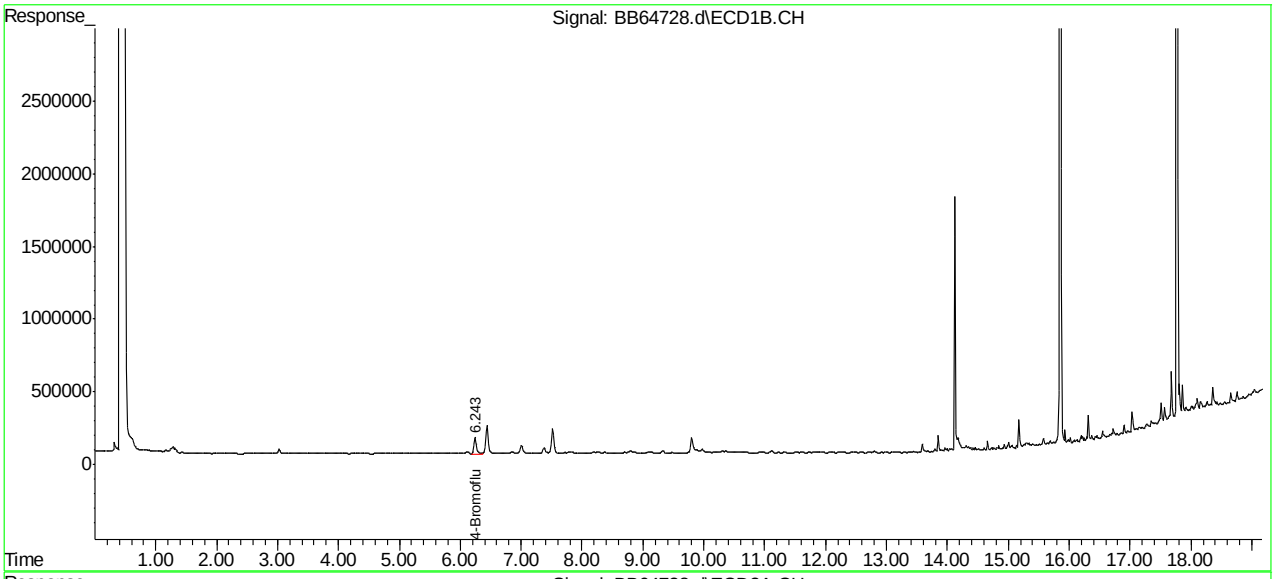
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

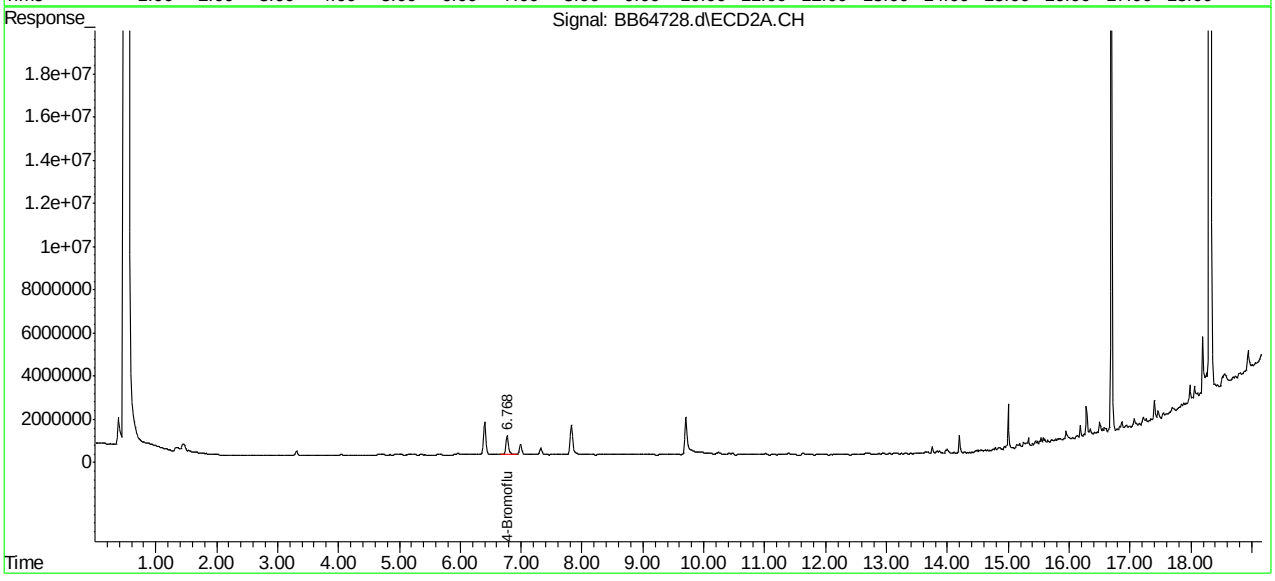
Quantitation Report (QT Reviewed)

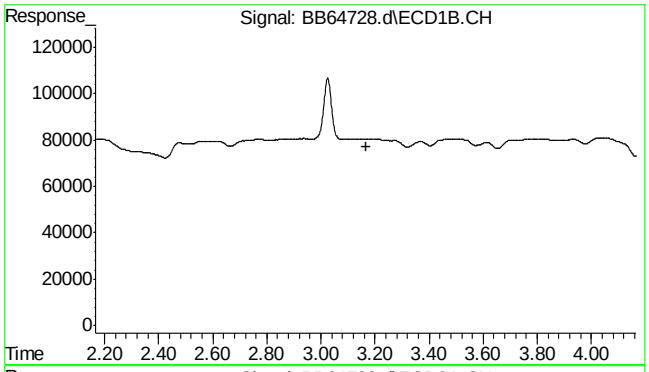
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64728.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 21:59:30
Operator : nickk
Sample : jc4005-13,op44699
Misc : op44699,gbb3489,30.43,,,50,,s
ALS Vial : 19 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:22 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

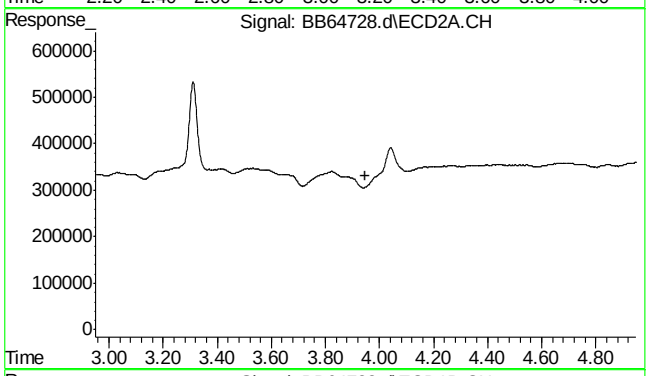






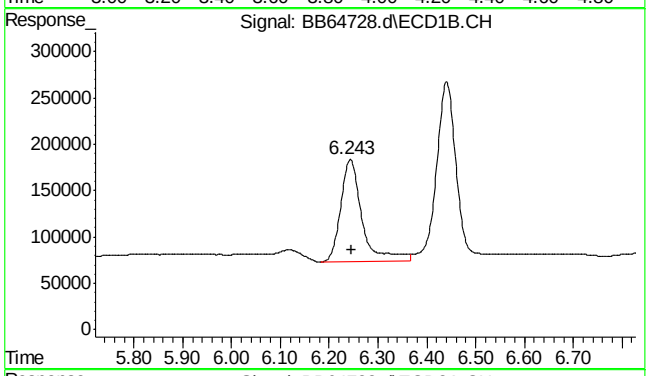
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



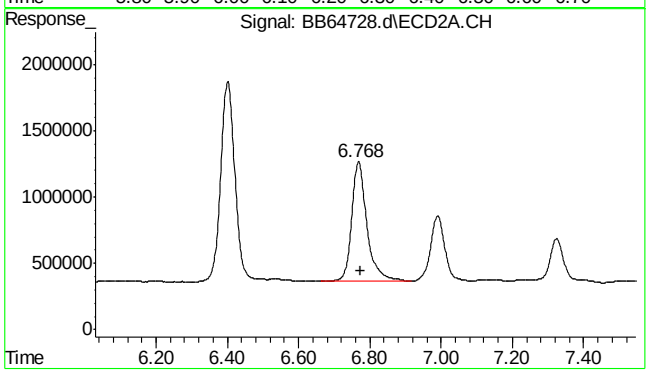
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

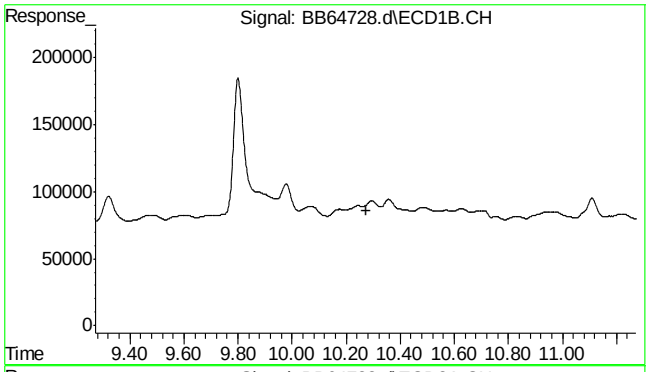
R.T.: 6.244 min
Delta R.T.: -0.002 min
Response: 3365520
Conc: 64.51 ug/L



#2 4-Bromofluorobenzene

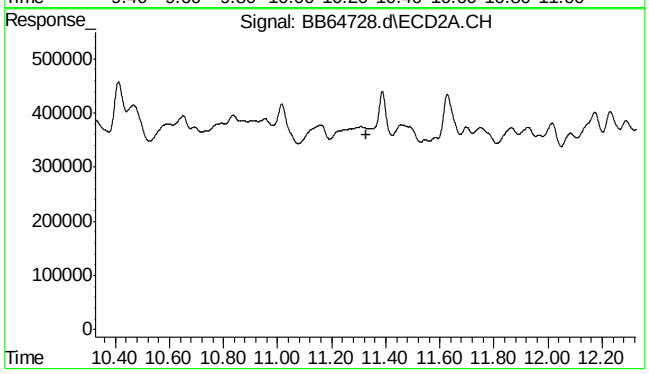
R.T.: 6.769 min
Delta R.T.: -0.004 min
Response: 26654712
Conc: 57.84 ug/L

16.1.11
16



#3 1,2-Dibromo-3-chloropropane

```
      R.T.:    0.000 min
Exp R.T.  :   10.272 min
  Response:         0
      Conc:   N.D.
```



#3 1,2-Dibromo-3-chloropropane

```
      R.T.:    0.000 min
Exp R.T.  :   11.326 min
  Response:         0
      Conc:   N.D.
```

16.1.11

16

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64729.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 22:27:50
Operator  : nickk
Sample    : jc4005-14,op44699
Misc      : op44699,gbb3489,30.51,,,50,,s
ALS Vial  : 20 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:31 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.236	6.774	3004581	31766101	57.275	69.154
Spiked Amount 50.000	Range	60 - 140	Recovery	=	114.55%	138.31%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

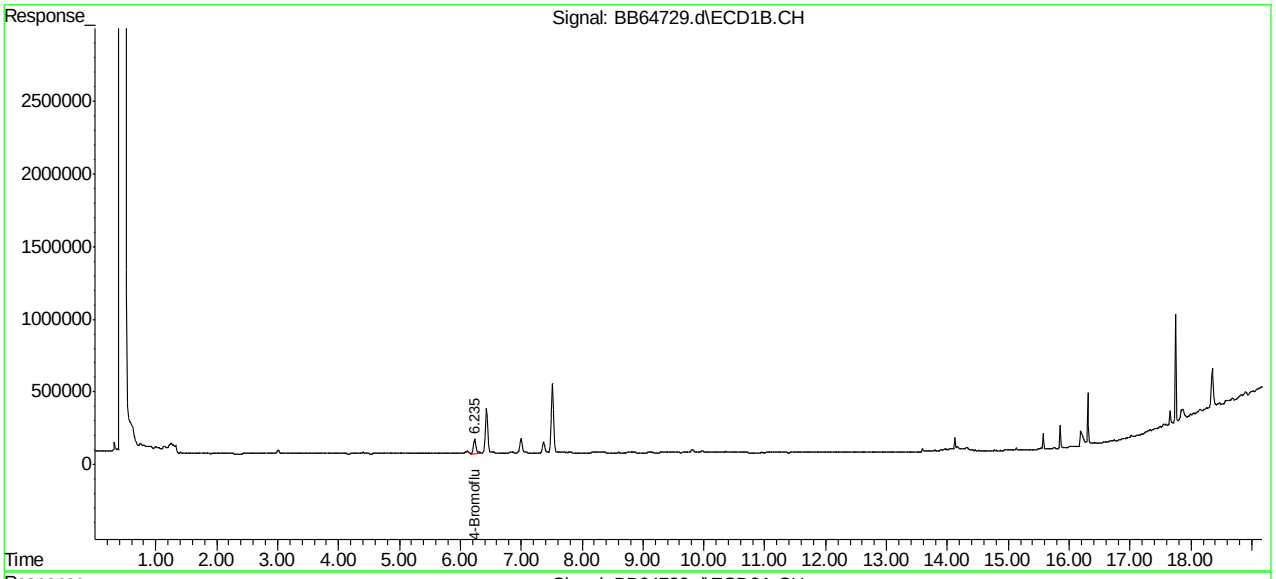
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

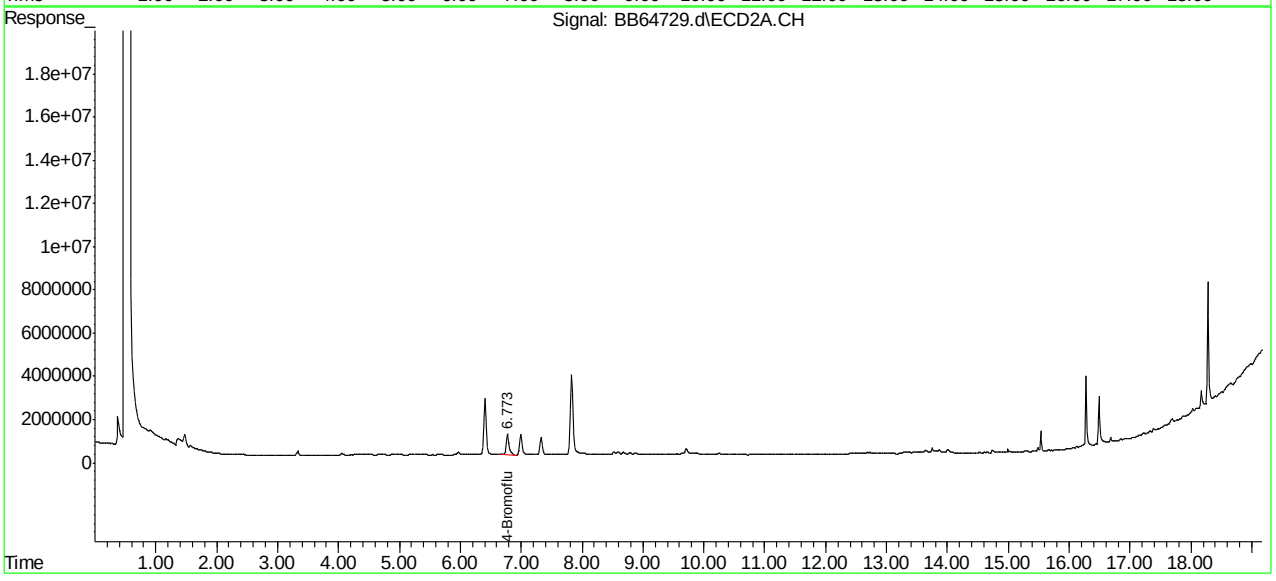
Quantitation Report (QT Reviewed)

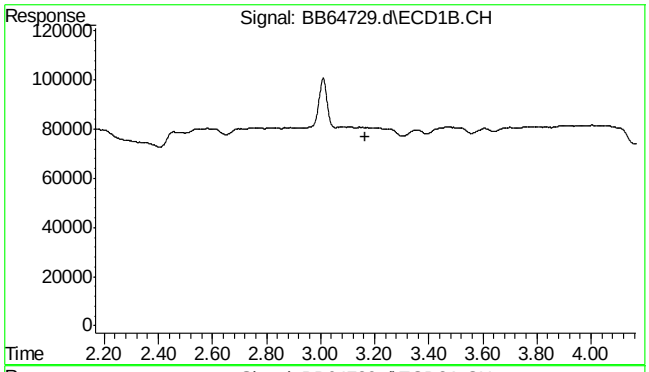
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64729.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 22:27:50
Operator : nickk
Sample : jc4005-14,op44699
Misc : op44699,gbb3489,30.51,,,50,,s
ALS Vial : 20 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:31 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

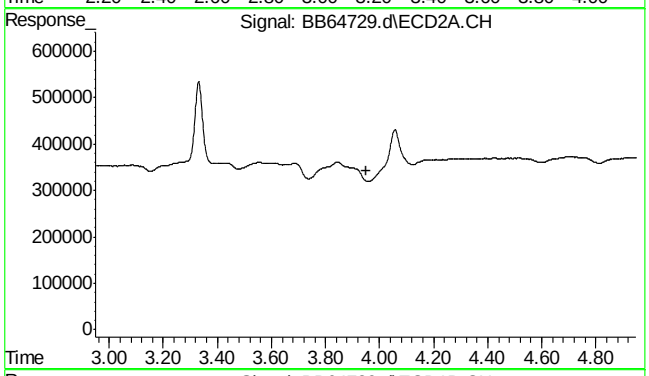






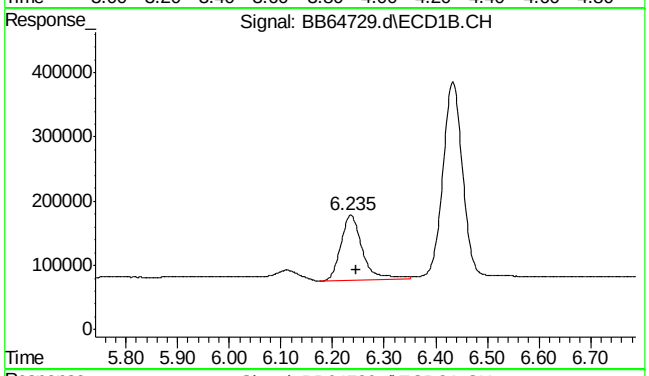
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



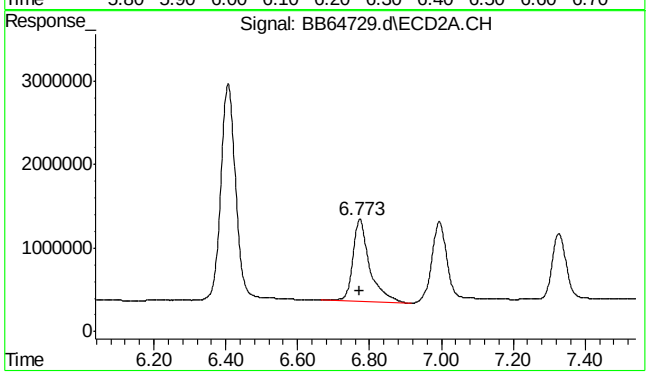
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

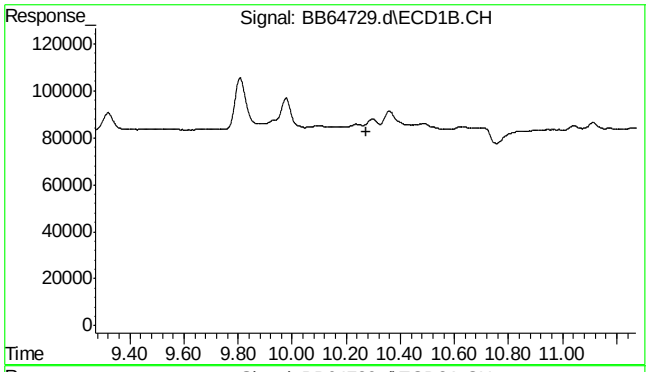
R.T.: 6.236 min
Delta R.T.: -0.009 min
Response: 3004581
Conc: 57.27 ug/L



#2 4-Bromofluorobenzene

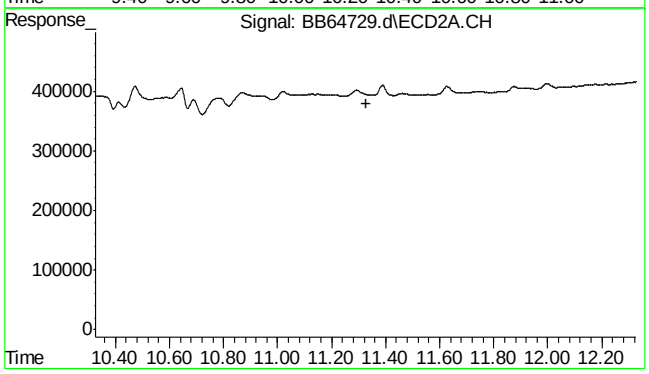
R.T.: 6.774 min
Delta R.T.: 0.000 min
Response: 31766101
Conc: 69.15 ug/L

16.1.12 16



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64731.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 23:24:25
Operator  : nickk
Sample    : jc4005-15,op44699
Misc      : op44699,gbb3489,30.64,,,50,,s
ALS Vial  : 21 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:42 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.240	6.764	2941581	32128659	56.014	69.962
Spiked Amount 50.000	Range	60 - 140	Recovery	=	112.03%	139.92%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

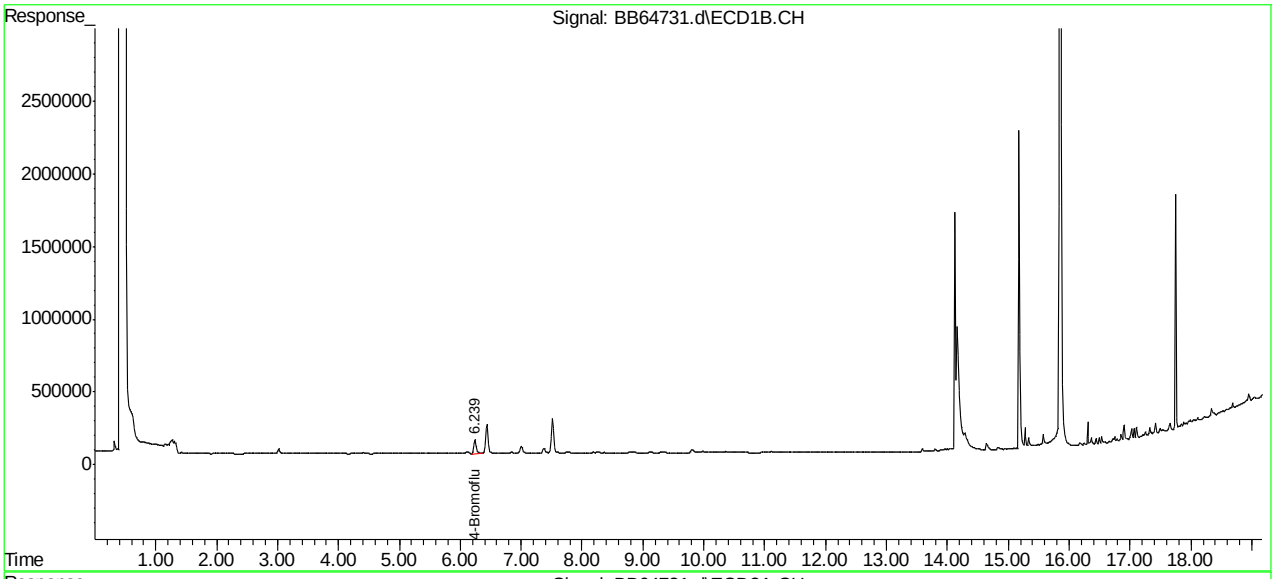
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

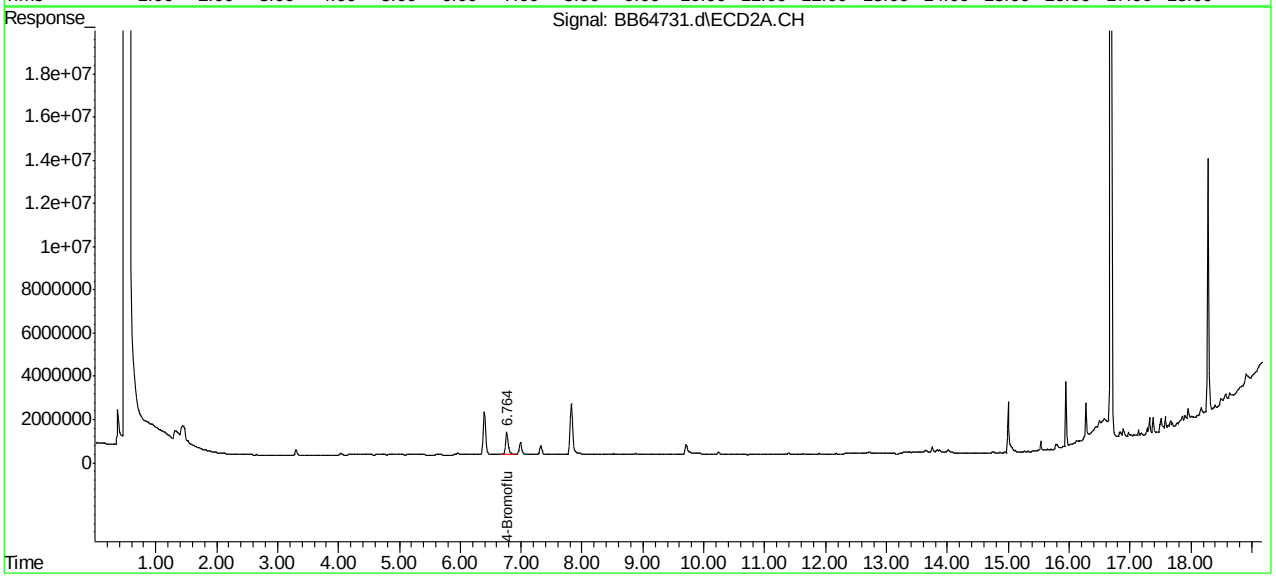
Quantitation Report (QT Reviewed)

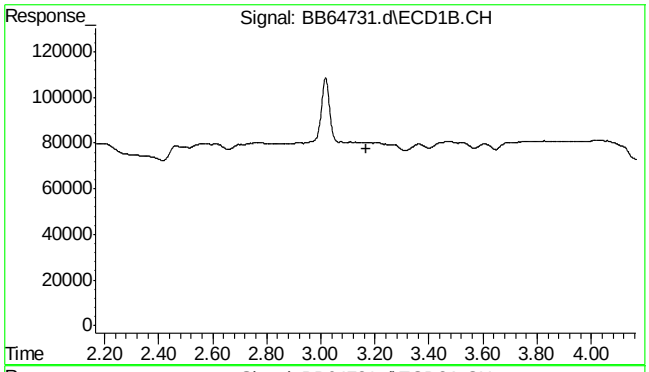
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64731.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 23:24:25
Operator : nickk
Sample : jc4005-15,op44699
Misc : op44699,gbb3489,30.64,,,50,,s
ALS Vial : 21 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:39:42 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

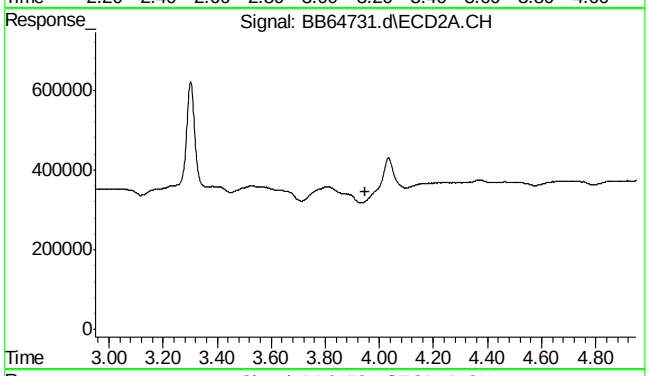






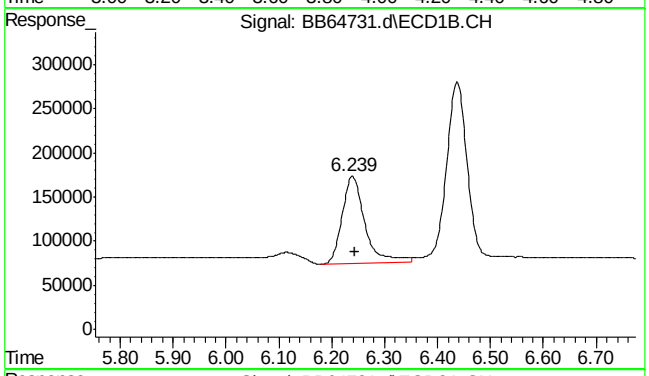
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



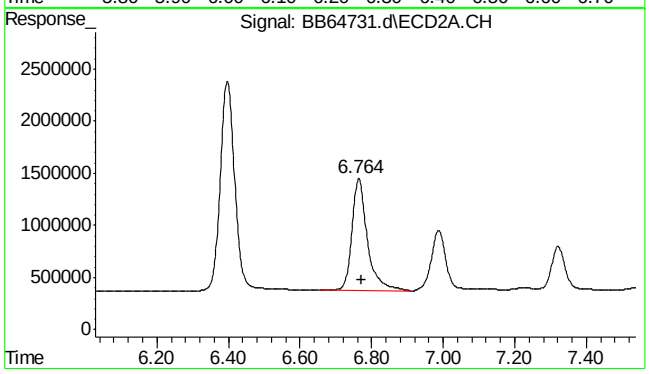
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



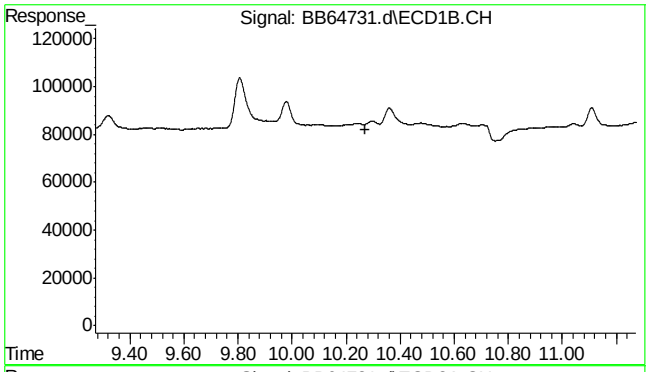
#2 4-Bromofluorobenzene

R.T.: 6.240 min
Delta R.T.: -0.005 min
Response: 2941581
Conc: 56.01 ug/L



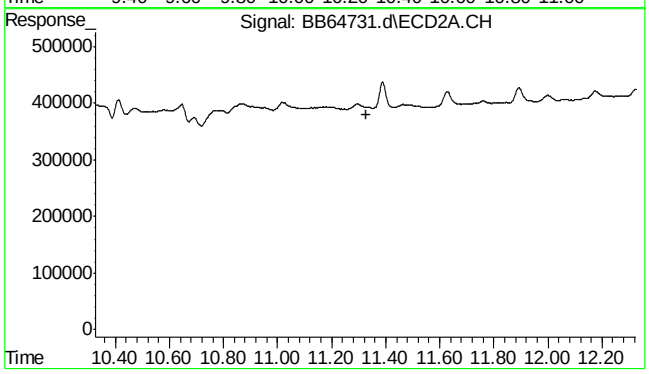
#2 4-Bromofluorobenzene

R.T.: 6.764 min
Delta R.T.: -0.009 min
Response: 32128659
Conc: 69.96 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64709.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 24-Sep-15, 13:07:31
Operator  : nickk
Sample    : op44699-mb
Misc      : op44699,gbb3489,30.64,,,50,,s
ALS Vial  : 1 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:35:09 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title  : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                   Signal #2 Phase:
Signal #1 Info  :                   Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.243     6.783   2756528 31918515   52.312    69.493 #
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  104.62%   138.99%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

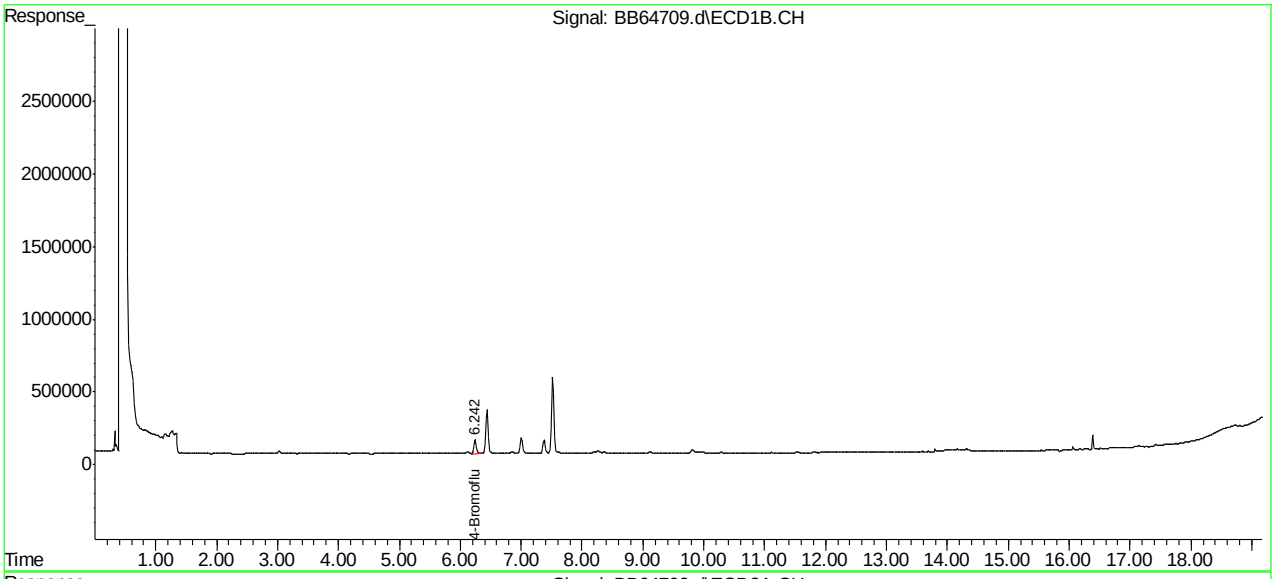
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

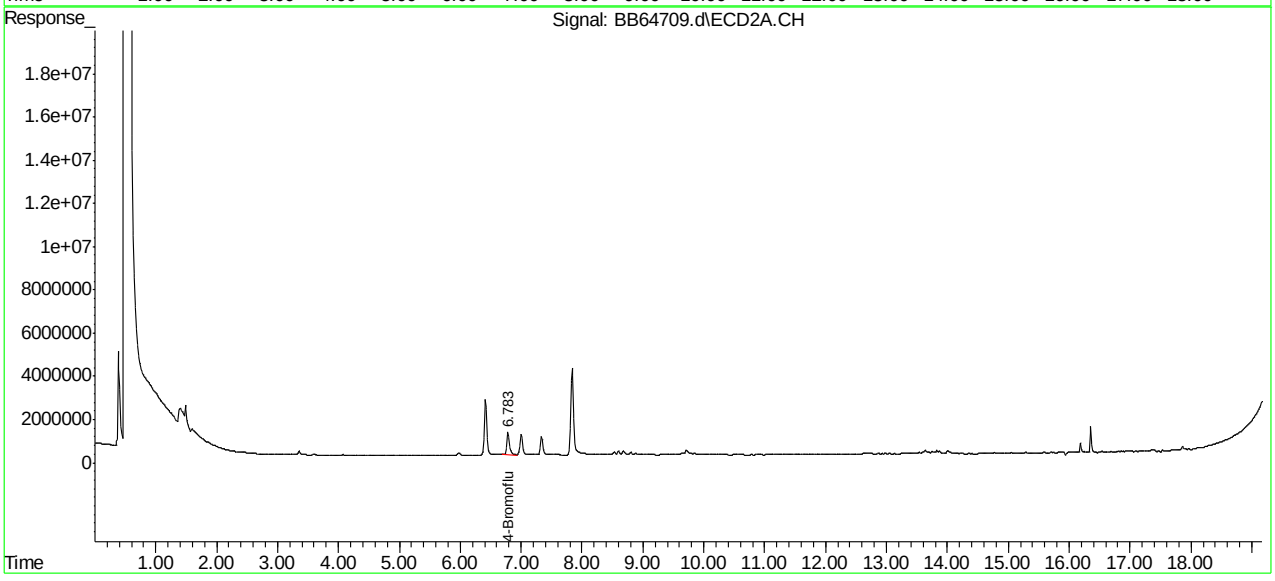
Quantitation Report (QT Reviewed)

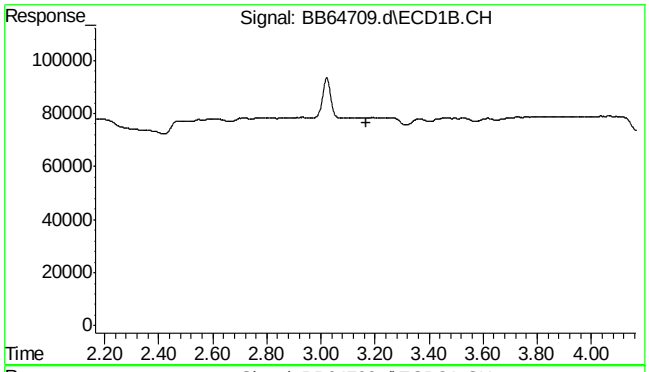
Data Path : C:\msdchem\1\DATA\BB150924\
Data File : BB64709.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 24-Sep-15, 13:07:31
Operator : nickk
Sample : op44699-mb
Misc : op44699,gbb3489,30.64,,,50,,s
ALS Vial : 1 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 28 08:35:09 2015
Quant Method : C:\msdchem\1\METHODS\EDS150924.M
Quant Title : v8011edb soil
QLast Update : Mon Sep 28 08:25:34 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

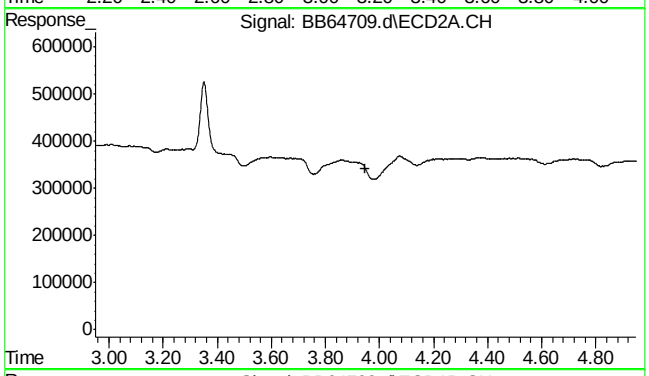






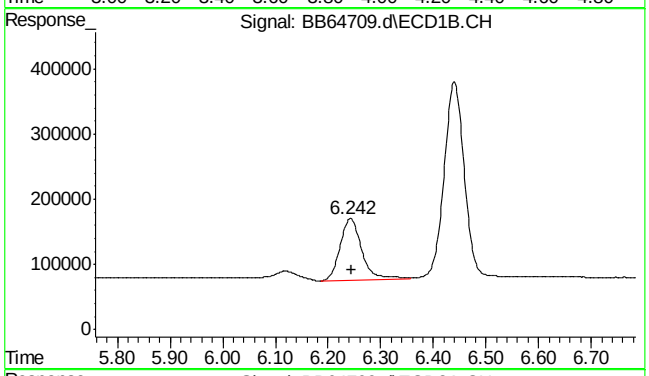
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.166 min
Response: 0
Conc: N.D.



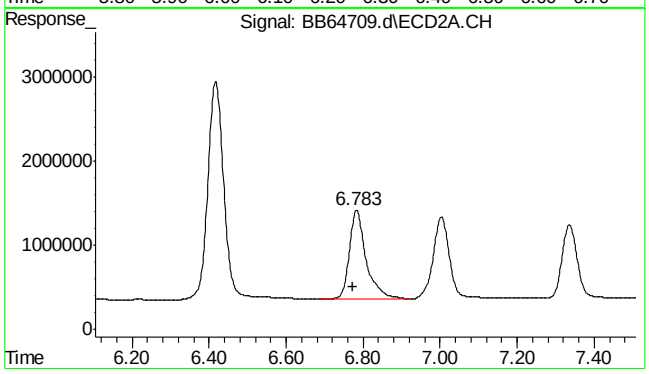
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.949 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.243 min
Delta R.T.: -0.002 min
Response: 2756528
Conc: 52.31 ug/L

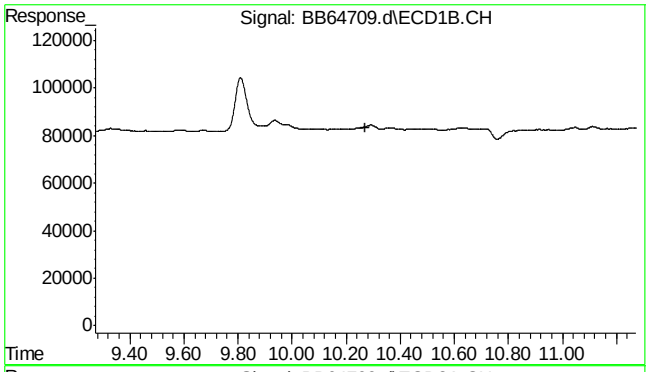


#2 4-Bromofluorobenzene

R.T.: 6.783 min
Delta R.T.: 0.010 min
Response: 31918515
Conc: 69.49 ug/L

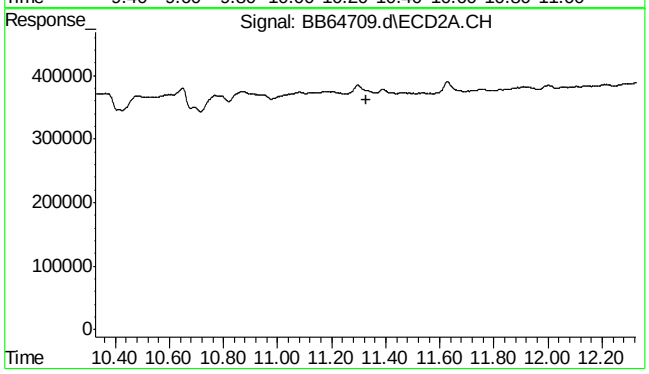
16.2.1

16



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.272 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.326 min
Response: 0
Conc: N.D.

16.2.1

16