New Jersey
ACCUTEST LABORATORIES

Reissue #1
08/25/15

Technical Report for

Stantec Consulting Services Inc.

MHIC AOI 5 Demo Characterization

Accutest Job Number: JB99970A

Sampling Date: 07/24/15

Report to:

Stantec Consulting Services Inc.
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West Chester, PA 19380
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EDD@stantec.com
ATTN: Jennifer Menges

Total number of pages in report: **366**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Marie Meidhof 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TN, TX, VA, WV, DoD ELAP (L-A-B L2248)

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August 25, 2015

Jennifer Menges
Stantec Consulting Services Inc.
1060 Andrew Drive Suite 140
West Chester, PA 19380

RE: Accutest Job # JB99970A

Dear Ms. Menges:

The final report for Accutest job number JB99970A has been edited to reflect corrections to the final results. These edits have been incorporated into the revised report attached.

Phenanthrene and Di-n-butyl Phthalate were inadvertently not reported initially for these samples; this data has been retrieved and is now included in the 8270 Semivolatile analysis for these samples.

Our apologies for any inconvenience the above issue may have caused you. Please contact me at 732-355-4552 if I may be of further assistance in this matter, or if you have any further questions regarding this data report.

Sincerely,

Accutest Laboratories

Marie Meidhof
Project Manager

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Sample Summary

Stantec Consulting Services Inc.

Job No: JB99970A

MHIC AOI 5 Demo Characterization

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB99970-4	07/24/15	12:25	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-6_0-2_20150724
JB99970-5	07/24/15	12:40	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-6_6-7_20150724
JB99970-6	07/24/15	11:20	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-7_0-2_20150724
JB99970-7	07/24/15	11:50	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-7_6-8_20150724
JB99970-8	07/24/15	13:10	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-5_0-2_20150724
JB99970-9	07/24/15	13:40	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-5_9-9.5_20150724
JB99970-10	07/24/15	14:00	DH/CD	07/24/15	SO	Soil	AOI-5-BH-15-10_0-2_20150724

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**	JB99970A
Site:	MHIC AOI 5 Demo Characterization	**Report Date**	8/7/2015 12:39:56 PM

On 07/24/2015, 7 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a maximum corrected temperature of 1.3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB99970A 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: SO **Batch ID:** VE9987

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB99889-6MS, JB99889-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB99970-9: Diluted due to high concentration of non-target compound and matrix interference. Sample received outside the holding time.
- JB99970-9 for 1,2-Dichloroethane-D4: Outside control limits due to matrix interference.

Matrix: SO **Batch ID:** VE9988

- The data for SW846 8260C meets quality control requirements.
- JB99970-9: Confirmation run for surrogate recoveries.

Matrix: SO **Batch ID:** VX6744

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB99970-1MS, JB99970-2DUP were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP85890

- All samples were extracted within the recommended method holding time.
- Sample(s) JB99970-1MS, JB99970-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Duplicate Recovery(s) for 2,4-Dimethylphenol are outside control limits. Outside control limits due to matrix interference.
- JB99970-6: Elevated detection limit due to high final volume of viscous extract.
- JB99970-8: Confirmation run for surrogate recoveries.
- OP85890-BS1 for bis(2-Ethylhexyl)phthalate: Outside of in house control limits.

Matrix: SO **Batch ID:** OP86000

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC309-3MS, JC309-3MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for 2,4-Dinitrophenol, 4-Nitrophenol, bis(2-Ethylhexyl)phthalate are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 2,4-Dinitrophenol, 4-Nitrophenol, bis(2-Ethylhexyl)phthalate are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for Anthracene, Fluoranthene are outside control limits for sample OP86000-MSD. Analytical precision exceeds in-house control limits.
- JB99970-8 for 2,4,6-Tribromophenol: Outside control limits due to matrix interference. Confirmed by re-extraction.

Metals By Method SW846 6010C

Matrix: SO **Batch ID:** MP87962

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB99498-88MS, JB99498-88MSD, JB99498-88SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Cobalt are outside control limits for sample MP87962-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method SM2540 G-97

Matrix: SO **Batch ID:** GN29620

- 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

Summary of Hits

Job Number: JB99970A
Account: Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Collected: 07/24/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB99970-4	**AOI-5-BH-15-6_0-2_20150724**					
Benzene		0.00025 J	0.00046	0.00012	mg/kg	SW846 8260C
Hexane		0.0010 J	0.0046	0.00036	mg/kg	SW846 8260C
Fluoranthene		0.0228 J	0.034	0.012	mg/kg	SW846 8270D
Phenanthrene		0.0161 J	0.034	0.0072	mg/kg	SW846 8270D
Pyrene		0.0180 J	0.034	0.0077	mg/kg	SW846 8270D
Cobalt		11.8	5.3	0.042	mg/kg	SW846 6010C
Lead		2.7	2.1	0.25	mg/kg	SW846 6010C
Nickel		33.6	4.2	0.10	mg/kg	SW846 6010C
Vanadium		52.4	5.3	0.079	mg/kg	SW846 6010C
Zinc		52.9	5.3	0.81	mg/kg	SW846 6010C
JB99970-5	**AOI-5-BH-15-6_6-7_20150724**					
Benzene		0.0012	0.00052	0.00014	mg/kg	SW846 8260C
Hexane		0.0013 J	0.0052	0.00040	mg/kg	SW846 8260C
Cobalt		0.42 B	5.7	0.046	mg/kg	SW846 6010C
Lead		0.92 B	2.3	0.27	mg/kg	SW846 6010C
Nickel		3.6 B	4.6	0.11	mg/kg	SW846 6010C
Vanadium		10.6	5.7	0.086	mg/kg	SW846 6010C
Zinc		4.1 B	5.7	0.88	mg/kg	SW846 6010C
JB99970-6	**AOI-5-BH-15-7_0-2_20150724**					
Benzene		0.00015 J	0.00058	0.00015	mg/kg	SW846 8260C
Hexane		0.0010 J	0.0058	0.00045	mg/kg	SW846 8260C
Acenaphthene [a]		0.0787 J	0.18	0.037	mg/kg	SW846 8270D
Anthracene [a]		0.200	0.18	0.041	mg/kg	SW846 8270D
Benzo(a)anthracene [a]		0.605	0.18	0.035	mg/kg	SW846 8270D
Benzo(a)pyrene [a]		0.636	0.18	0.044	mg/kg	SW846 8270D
Benzo(b)fluoranthene [a]		0.627	0.18	0.036	mg/kg	SW846 8270D
Benzo(g,h,i)perylene [a]		0.306	0.18	0.060	mg/kg	SW846 8270D
Benzo(k)fluoranthene [a]		0.226	0.18	0.058	mg/kg	SW846 8270D
Chrysene [a]		0.825	0.18	0.045	mg/kg	SW846 8270D
Fluoranthene [a]		1.05	0.18	0.063	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene [a]		0.268	0.18	0.058	mg/kg	SW846 8270D
Phenanthrene [a]		0.689	0.18	0.039	mg/kg	SW846 8270D
Pyrene [a]		1.00	0.18	0.041	mg/kg	SW846 8270D
Cobalt		47.8	5.6	0.045	mg/kg	SW846 6010C
Lead		657	4.5	0.53	mg/kg	SW846 6010C
Nickel		764	4.5	0.11	mg/kg	SW846 6010C
Vanadium		1940	5.6	0.084	mg/kg	SW846 6010C
Zinc		1110	11	1.7	mg/kg	SW846 6010C

Summary of Hits

Job Number: JB99970A
Account: Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Collected: 07/24/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB99970-7	**AOI-5-BH-15-7_6-8_20150724**					
Benzene		0.0012	0.00048	0.00013	mg/kg	SW846 8260C
Toluene		0.00031 J	0.00096	0.00020	mg/kg	SW846 8260C
Hexane		0.00096 J	0.0048	0.00037	mg/kg	SW846 8260C
Cobalt		25.0	5.9	0.047	mg/kg	SW846 6010C
Lead		11.3	2.4	0.28	mg/kg	SW846 6010C
Nickel		29.3	4.7	0.11	mg/kg	SW846 6010C
Vanadium		45.4	5.9	0.089	mg/kg	SW846 6010C
Zinc		58.5	5.9	0.91	mg/kg	SW846 6010C
JB99970-8	**AOI-5-BH-15-5_0-2_20150724**					
Benzene		0.0030	0.00064	0.00017	mg/kg	SW846 8260C
Toluene		0.0015	0.0013	0.00027	mg/kg	SW846 8260C
Ethylbenzene		0.0058	0.0013	0.00021	mg/kg	SW846 8260C
Xylene (total)		0.0343	0.0013	0.00035	mg/kg	SW846 8260C
Methyl Tert Butyl Ether		0.00039 J	0.0013	0.00020	mg/kg	SW846 8260C
Cyclohexane		0.0014 J	0.0026	0.00040	mg/kg	SW846 8260C
Hexane		0.0016 J	0.0064	0.00049	mg/kg	SW846 8260C
Isopropylbenzene		0.00054 J	0.0026	0.00014	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene		0.0014 J	0.0026	0.00025	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene		0.0013 J	0.0026	0.00024	mg/kg	SW846 8260C
Phenol		0.0908	0.074	0.024	mg/kg	SW846 8270D
Acenaphthene		0.0647	0.037	0.0075	mg/kg	SW846 8270D
Anthracene		0.101	0.037	0.0083	mg/kg	SW846 8270D
Benzo(a)anthracene		0.551	0.037	0.0072	mg/kg	SW846 8270D
Benzo(a)pyrene		0.480	0.037	0.0090	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.659	0.037	0.0073	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.317	0.037	0.012	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.266	0.037	0.012	mg/kg	SW846 8270D
Chrysene		0.623	0.037	0.0092	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0860	0.037	0.0090	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		1.61	0.074	0.012	mg/kg	SW846 8270D
Fluoranthene		1.37	0.037	0.013	mg/kg	SW846 8270D
Fluorene		0.0409	0.037	0.028	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.321	0.037	0.012	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0554 J	0.074	0.0086	mg/kg	SW846 8270D
Naphthalene		0.0273 J	0.037	0.0055	mg/kg	SW846 8270D
Phenanthrene		0.613	0.037	0.0079	mg/kg	SW846 8270D
Pyrene		1.13	0.037	0.0084	mg/kg	SW846 8270D
Cobalt		23.4	5.7	0.046	mg/kg	SW846 6010C
Lead		209	2.3	0.27	mg/kg	SW846 6010C
Nickel		294	4.6	0.11	mg/kg	SW846 6010C
Vanadium		843	5.7	0.086	mg/kg	SW846 6010C

Summary of Hits

Job Number: JB99970A
Account: Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Collected: 07/24/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Zinc		757	5.7	0.88	mg/kg	SW846 6010C
JB99970-9	**AOI-5-BH-15-5_9-9.5_20150724**					
Acenaphthene		0.197	0.037	0.0075	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0385	0.037	0.0071	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0298 J	0.037	0.0089	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0243 J	0.037	0.012	mg/kg	SW846 8270D
Chrysene		0.0535	0.037	0.0091	mg/kg	SW846 8270D
Fluoranthene		0.0307 J	0.037	0.013	mg/kg	SW846 8270D
Fluorene		0.259	0.037	0.028	mg/kg	SW846 8270D
Pyrene		0.169	0.037	0.0084	mg/kg	SW846 8270D
Cobalt		17.0	5.6	0.045	mg/kg	SW846 6010C
Lead		7.7	2.2	0.27	mg/kg	SW846 6010C
Nickel		25.4	4.5	0.11	mg/kg	SW846 6010C
Vanadium		332	56	0.84	mg/kg	SW846 6010C
Zinc		35.7	5.6	0.86	mg/kg	SW846 6010C
JB99970-10	**AOI-5-BH-15-10_0-2_20150724**					
Benzene		0.0054	0.00063	0.00017	mg/kg	SW846 8260C
Toluene		0.00045 J	0.0013	0.00026	mg/kg	SW846 8260C
Ethylbenzene		0.00041 J	0.0013	0.00021	mg/kg	SW846 8260C
Xylene (total)		0.0043	0.0013	0.00035	mg/kg	SW846 8260C
Hexane		0.0015 J	0.0063	0.00049	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene		0.00032 J	0.0025	0.00024	mg/kg	SW846 8260C
Acenaphthene		0.0173 J	0.036	0.0073	mg/kg	SW846 8270D
Anthracene		0.0351 J	0.036	0.0081	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0915	0.036	0.0070	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0708	0.036	0.0087	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0898	0.036	0.0071	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0519	0.036	0.012	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0265 J	0.036	0.012	mg/kg	SW846 8270D
Chrysene		0.124	0.036	0.0089	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0155 J	0.036	0.0087	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.145	0.072	0.012	mg/kg	SW846 8270D
Fluoranthene		0.186	0.036	0.013	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0364	0.036	0.012	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0171 J	0.072	0.0083	mg/kg	SW846 8270D
Phenanthrene		0.115	0.036	0.0077	mg/kg	SW846 8270D
Pyrene		0.183	0.036	0.0082	mg/kg	SW846 8270D
Cobalt		21.2	5.4	0.043	mg/kg	SW846 6010C
Lead		143	2.2	0.26	mg/kg	SW846 6010C
Nickel		273	4.3	0.10	mg/kg	SW846 6010C
Vanadium		1050	5.4	0.081	mg/kg	SW846 6010C

Summary of Hits

Job Number: JB99970A
Account: Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Collected: 07/24/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Zinc		329	5.4	0.83	mg/kg	SW846 6010C

(a) Elevated detection limit due to high final volume of viscous extract.

New Jersey

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI-5-BH-15-6_0-2_20150724		
Lab Sample ID:	JB99970-4	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	93.3
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156674.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

	Initial Weight
Run #1	5.8 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.00025	0.00046	0.00012	mg/kg	J
108-88-3	Toluene	ND	0.00092	0.00019	mg/kg	
100-41-4	Ethylbenzene	ND	0.00092	0.00015	mg/kg	
1330-20-7	Xylene (total)	ND	0.00092	0.00025	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00092	0.00014	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0018	0.00016	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0018	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00029	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00092	0.00012	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00012	mg/kg	
110-54-3	Hexane	0.0010	0.0046	0.00036	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0018	0.000098	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0018	0.00018	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0018	0.00018	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	106%		68-124%
2037-26-5	Toluene-D8	103%		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:	AOI-5-BH-15-6_0-2_20150724		
Lab Sample ID:	JB99970-4	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.3
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51024.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
Run #2							

	Initial Weight	Final Volume
Run #1	31.6 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.17	0.074	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.14	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.044	mg/kg	
	3&4-Methylphenol	ND	0.068	0.038	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.10	mg/kg	
108-95-2	Phenol	ND	0.068	0.022	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.0069	mg/kg	
120-12-7	Anthracene	ND	0.034	0.0076	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.034	0.0065	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.034	0.0082	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.034	0.0067	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.034	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.034	0.011	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.068	0.0067	mg/kg	
218-01-9	Chrysene	ND	0.034	0.0083	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.034	0.0082	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0091	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0081	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.068	0.011	mg/kg	
206-44-0	Fluoranthene	0.0228	0.034	0.012	mg/kg	J
86-73-7	Fluorene	ND	0.034	0.026	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.034	0.011	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.068	0.0078	mg/kg	
91-20-3	Naphthalene	ND	0.034	0.0050	mg/kg	
85-01-8	Phenanthrene	0.0161	0.034	0.0072	mg/kg	J
129-00-0	Pyrene	0.0180	0.034	0.0077	mg/kg	J
110-86-1	Pyridine	ND	0.068	0.017	mg/kg	
91-22-5	Quinoline	ND	0.17	0.011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		22-121%

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:	AOI-5-BH-15-6_0-2_20150724		
Lab Sample ID:	JB99970-4	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.3
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		27-119%
118-79-6	2,4,6-Tribromophenol	100%		17-158%
4165-60-0	Nitrobenzene-d5	89%		33-127%
321-60-8	2-Fluorobiphenyl	94%		41-121%
1718-51-0	Terphenyl-d14	100%		44-137%

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:	AOI-5-BH-15-6_0-2_20150724		
Lab Sample ID:	JB99970-4	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	93.3
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	11.8	5.3	0.042	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Lead	2.7	2.1	0.25	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Nickel	33.6	4.2	0.10	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	52.4	5.3	0.079	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Zinc	52.9	5.3	0.81	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37224
(2) Prep QC Batch: MP87962

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:	AOI-5-BH-15-6_6-7_20150724		
Lab Sample ID:	JB99970-5	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	90.9
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156675.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

	Initial Weight
Run #1	5.3 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0012	0.00052	0.00014	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00022	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	0.00018	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	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00014	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00014	mg/kg	
110-54-3	Hexane	0.0013	0.0052	0.00040	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0021	0.00011	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	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	105%		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:	AOI-5-BH-15-6_6-7_20150724		
Lab Sample ID:	JB99970-5	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	90.9
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51015.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
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	0.077	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.15	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.046	mg/kg	
	3&4-Methylphenol	ND	0.071	0.039	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.11	mg/kg	
108-95-2	Phenol	ND	0.071	0.023	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.0071	mg/kg	
120-12-7	Anthracene	ND	0.035	0.0079	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.035	0.0068	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.035	0.0085	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.035	0.0070	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.035	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.035	0.011	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.071	0.0070	mg/kg	
218-01-9	Chrysene	ND	0.035	0.0087	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.035	0.0085	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0094	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0085	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.071	0.011	mg/kg	
206-44-0	Fluoranthene	ND	0.035	0.012	mg/kg	
86-73-7	Fluorene	ND	0.035	0.027	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.035	0.011	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.071	0.0081	mg/kg	
91-20-3	Naphthalene	ND	0.035	0.0052	mg/kg	
85-01-8	Phenanthrene	ND	0.035	0.0075	mg/kg	
129-00-0	Pyrene	ND	0.035	0.0080	mg/kg	
110-86-1	Pyridine	ND	0.071	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%		22-121%

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:	AOI-5-BH-15-6_6-7_20150724		
Lab Sample ID:	JB99970-5	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	90.9
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%		27-119%
118-79-6	2,4,6-Tribromophenol	89%		17-158%
4165-60-0	Nitrobenzene-d5	78%		33-127%
321-60-8	2-Fluorobiphenyl	83%		41-121%
1718-51-0	Terphenyl-d14	89%		44-137%

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:	AOI-5-BH-15-6_6-7_20150724		
Lab Sample ID:	JB99970-5	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	90.9
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	0.42 B	5.7	0.046	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Lead	0.92 B	2.3	0.27	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Nickel	3.6 B	4.6	0.11	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	10.6	5.7	0.086	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Zinc	4.1 B	5.7	0.88	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37224
(2) Prep QC Batch: MP87962

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:	AOI-5-BH-15-7_0-2_20150724		
Lab Sample ID:	JB99970-6	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	86.7
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156676.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.00015	0.00058	0.00015	mg/kg	J
108-88-3	Toluene	ND	0.0012	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	0.00032	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	0.00018	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0023	0.00020	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0023	0.00024	mg/kg	
110-82-7	Cyclohexane	ND	0.0023	0.00036	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0012	0.00015	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00015	mg/kg	
110-54-3	Hexane	0.0010	0.0058	0.00045	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0023	0.00012	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0023	0.00023	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0023	0.00022	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	103%		68-124%
2037-26-5	Toluene-D8	104%		77-125%
460-00-4	4-Bromofluorobenzene	107%		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:	AOI-5-BH-15-7_0-2_20150724		
Lab Sample ID:	JB99970-6	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	86.7
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2P51025.D	1	07/30/15	AD	07/29/15	OP85890	E2P2191
Run #2							

	Initial Weight	Final Volume
Run #1	31.6 g	5.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.91	0.40	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.91	0.76	mg/kg	
95-48-7	2-Methylphenol	ND	0.37	0.24	mg/kg	
	3&4-Methylphenol	ND	0.37	0.20	mg/kg	
100-02-7	4-Nitrophenol	ND	1.8	0.56	mg/kg	
108-95-2	Phenol	ND	0.37	0.12	mg/kg	
83-32-9	Acenaphthene	0.0787	0.18	0.037	mg/kg	J
120-12-7	Anthracene	0.200	0.18	0.041	mg/kg	
56-55-3	Benzo(a)anthracene	0.605	0.18	0.035	mg/kg	
50-32-8	Benzo(a)pyrene	0.636	0.18	0.044	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.627	0.18	0.036	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.306	0.18	0.060	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.226	0.18	0.058	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.37	0.036	mg/kg	
218-01-9	Chrysene	0.825	0.18	0.045	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.18	0.044	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.37	0.049	mg/kg	
84-66-2	Diethyl phthalate	ND	0.37	0.044	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.37	0.059	mg/kg	
206-44-0	Fluoranthene	1.05	0.18	0.063	mg/kg	
86-73-7	Fluorene	ND	0.18	0.14	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.268	0.18	0.058	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.37	0.042	mg/kg	
91-20-3	Naphthalene	ND	0.18	0.027	mg/kg	
85-01-8	Phenanthrene	0.689	0.18	0.039	mg/kg	
129-00-0	Pyrene	1.00	0.18	0.041	mg/kg	
110-86-1	Pyridine	ND	0.37	0.091	mg/kg	
91-22-5	Quinoline	ND	0.91	0.060	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	44%		22-121%

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:	AOI-5-BH-15-7_0-2_20150724		
Lab Sample ID:	JB99970-6	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	86.7
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	53%		27-119%
118-79-6	2,4,6-Tribromophenol	92%		17-158%
4165-60-0	Nitrobenzene-d5	76%		33-127%
321-60-8	2-Fluorobiphenyl	90%		41-121%
1718-51-0	Terphenyl-d14	89%		44-137%

(a) Elevated detection limit due to high final volume of viscous extract.

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:	AOI-5-BH-15-7_0-2_20150724		
Lab Sample ID:	JB99970-6	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	86.7
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	47.8	5.6	0.045	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]
Lead	657	4.5	0.53	mg/kg	2	07/28/15	08/03/15	ND	SW846 6010C [2]	SW846 3050B [3]
Nickel	764	4.5	0.11	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]
Vanadium	1940	5.6	0.084	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]
Zinc	1110	11	1.7	mg/kg	2	07/28/15	08/03/15	ND	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA37224
(2) Instrument QC Batch: MA37237
(3) Prep QC Batch: MP87962

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:	AOI-5-BH-15-7_6-8_20150724		
Lab Sample ID:	JB99970-7	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	82.9
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156683.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

	Initial Weight
Run #1	6.3 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0012	0.00048	0.00013	mg/kg	
108-88-3	Toluene	0.00031	0.00096	0.00020	mg/kg	J
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	
106-93-4	1,2-Dibromoethane	ND	0.00096	0.00013	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00013	mg/kg	
110-54-3	Hexane	0.00096	0.0048	0.00037	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0019	0.00010	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	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	104%		77-125%
460-00-4	4-Bromofluorobenzene	107%		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:	AOI-5-BH-15-7_6-8_20150724		
Lab Sample ID:	JB99970-7	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.9
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51016.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.20	0.085	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.078	0.051	mg/kg	
	3&4-Methylphenol	ND	0.078	0.043	mg/kg	
100-02-7	4-Nitrophenol	ND	0.39	0.12	mg/kg	
108-95-2	Phenol	ND	0.078	0.025	mg/kg	
83-32-9	Acenaphthene	ND	0.039	0.0079	mg/kg	
120-12-7	Anthracene	ND	0.039	0.0087	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.039	0.0075	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.039	0.0094	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.039	0.0077	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.039	0.013	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.039	0.012	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.078	0.0077	mg/kg	
218-01-9	Chrysene	ND	0.039	0.0096	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.039	0.0094	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.078	0.010	mg/kg	
84-66-2	Diethyl phthalate	ND	0.078	0.0094	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.078	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.039	0.014	mg/kg	
86-73-7	Fluorene	ND	0.039	0.030	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.039	0.012	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.078	0.0090	mg/kg	
91-20-3	Naphthalene	ND	0.039	0.0058	mg/kg	
85-01-8	Phenanthrene	ND	0.039	0.0083	mg/kg	
129-00-0	Pyrene	ND	0.039	0.0088	mg/kg	
110-86-1	Pyridine	ND	0.078	0.019	mg/kg	
91-22-5	Quinoline	ND	0.20	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%		22-121%

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:	AOI-5-BH-15-7_6-8_20150724		
Lab Sample ID:	JB99970-7	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.9
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	54%		27-119%
118-79-6	2,4,6-Tribromophenol	90%		17-158%
4165-60-0	Nitrobenzene-d5	71%		33-127%
321-60-8	2-Fluorobiphenyl	80%		41-121%
1718-51-0	Terphenyl-d14	85%		44-137%

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:	AOI-5-BH-15-7_6-8_20150724		
Lab Sample ID:	JB99970-7	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	82.9
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	25.0	5.9	0.047	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Lead	11.3	2.4	0.28	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Nickel	29.3	4.7	0.11	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	45.4	5.9	0.089	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Zinc	58.5	5.9	0.91	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37224
(2) Prep QC Batch: MP87962

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:	AOI-5-BH-15-5_0-2_20150724		
Lab Sample ID:	JB99970-8	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	87.0
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156684.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

	Initial Weight
Run #1	4.5 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0030	0.00064	0.00017	mg/kg	
108-88-3	Toluene	0.0015	0.0013	0.00027	mg/kg	
100-41-4	Ethylbenzene	0.0058	0.0013	0.00021	mg/kg	
1330-20-7	Xylene (total)	0.0343	0.0013	0.00035	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.00039	0.0013	0.00020	mg/kg	J
135-98-8	sec-Butylbenzene	ND	0.0026	0.00022	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0026	0.00027	mg/kg	
110-82-7	Cyclohexane	0.0014	0.0026	0.00040	mg/kg	J
106-93-4	1,2-Dibromoethane	ND	0.0013	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0013	0.00017	mg/kg	
110-54-3	Hexane	0.0016	0.0064	0.00049	mg/kg	J
98-82-8	Isopropylbenzene	0.00054	0.0026	0.00014	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0014	0.0026	0.00025	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	0.0013	0.0026	0.00024	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%		70-122%
17060-07-0	1,2-Dichloroethane-D4	102%		68-124%
2037-26-5	Toluene-D8	105%		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:	AOI-5-BH-15-5_0-2_20150724		
Lab Sample ID:	JB99970-8	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	87.0
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E74565.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236
Run #2 [a]	2P51026.D	1	07/30/15	AD	07/29/15	OP85890	E2P2191

	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2	30.6 g	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.081	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.074	0.049	mg/kg	
	3&4-Methylphenol	ND	0.074	0.041	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.11	mg/kg	
108-95-2	Phenol	0.0908	0.074	0.024	mg/kg	
83-32-9	Acenaphthene	0.0647	0.037	0.0075	mg/kg	
120-12-7	Anthracene	0.101	0.037	0.0083	mg/kg	
56-55-3	Benzo(a)anthracene	0.551	0.037	0.0072	mg/kg	
50-32-8	Benzo(a)pyrene	0.480	0.037	0.0090	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.659	0.037	0.0073	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.317	0.037	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.266	0.037	0.012	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.074	0.0074	mg/kg	
218-01-9	Chrysene	0.623	0.037	0.0092	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0860	0.037	0.0090	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.074	0.0099	mg/kg	
84-66-2	Diethyl phthalate	ND	0.074	0.0089	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	1.61	0.074	0.012	mg/kg	
206-44-0	Fluoranthene	1.37	0.037	0.013	mg/kg	
86-73-7	Fluorene	0.0409	0.037	0.028	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.321	0.037	0.012	mg/kg	
91-57-6	2-Methylnaphthalene	0.0554	0.074	0.0086	mg/kg	J
91-20-3	Naphthalene	0.0273	0.037	0.0055	mg/kg	J
85-01-8	Phenanthrene	0.613	0.037	0.0079	mg/kg	
129-00-0	Pyrene	1.13	0.037	0.0084	mg/kg	
110-86-1	Pyridine	ND	0.074	0.018	mg/kg	
91-22-5	Quinoline	ND	0.19	0.012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%	19% [b]	22-121%

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:	AOI-5-BH-15-5_0-2_20150724		
Lab Sample ID:	JB99970-8	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	87.0
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	81%	48%	27-119%
118-79-6	2,4,6-Tribromophenol	15% [c]	2% [b]	17-158%
4165-60-0	Nitrobenzene-d5	102%	85%	33-127%
321-60-8	2-Fluorobiphenyl	88%	90%	41-121%
1718-51-0	Terphenyl-d14	102%	81%	44-137%

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

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:	AOI-5-BH-15-5_0-2_20150724		
Lab Sample ID:	JB99970-8	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	87.0
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	23.4	5.7	0.046	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Lead	209	2.3	0.27	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Nickel	294	4.6	0.11	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	843	5.7	0.086	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Zinc	757	5.7	0.88	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37224
(2) Prep QC Batch: MP87962

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:	AOI-5-BH-15-5_9-9.5_20150724		
Lab Sample ID:	JB99970-9	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	86.1
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E227924.D	1	07/30/15	TDN	n/a	n/a	VE9987
Run #2 [b]	E227958.D	1	07/31/15	TDN	n/a	n/a	VE9988

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.1 g	10.0 ml	100 ul
Run #2	6.1 g	10.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.052	0.014	mg/kg	
108-88-3	Toluene	ND	0.10	0.021	mg/kg	
100-41-4	Ethylbenzene	ND	0.10	0.017	mg/kg	
1330-20-7	Xylene (total)	ND	0.10	0.028	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.10	0.016	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.21	0.018	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.21	0.022	mg/kg	
110-82-7	Cyclohexane	ND	0.21	0.033	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.10	0.014	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.10	0.014	mg/kg	
110-54-3	Hexane	ND	0.52	0.040	mg/kg	
98-82-8	Isopropylbenzene	ND	0.21	0.011	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.21	0.021	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.21	0.020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	94%	70-122%
17060-07-0	1,2-Dichloroethane-D4	138% [d]	136% [c]	68-124%
2037-26-5	Toluene-D8	102%	98%	77-125%
460-00-4	4-Bromofluorobenzene	99%	97%	72-130%

(a) Diluted due to high concentration of non-target compound.
(b) Confirmation run for surrogate recoveries.
(c) Outside control limits due to matrix interference.
(d) 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:	AOI-5-BH-15-5_9-9.5_20150724		
Lab Sample ID:	JB99970-9	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	86.1
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51027.D	1	07/30/15	AD	07/29/15	OP85890	E2P2191
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	0.18	0.081	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.15	mg/kg	
95-48-7	2-Methylphenol	ND	0.074	0.048	mg/kg	
	3&4-Methylphenol	ND	0.074	0.041	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.11	mg/kg	
108-95-2	Phenol	ND	0.074	0.024	mg/kg	
83-32-9	Acenaphthene	0.197	0.037	0.0075	mg/kg	
120-12-7	Anthracene	ND	0.037	0.0083	mg/kg	
56-55-3	Benzo(a)anthracene	0.0385	0.037	0.0071	mg/kg	
50-32-8	Benzo(a)pyrene	0.0298	0.037	0.0089	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.037	0.0073	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0243	0.037	0.012	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.037	0.012	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.074	0.0073	mg/kg	
218-01-9	Chrysene	0.0535	0.037	0.0091	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.037	0.0089	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.074	0.0099	mg/kg	
84-66-2	Diethyl phthalate	ND	0.074	0.0089	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.074	0.012	mg/kg	
206-44-0	Fluoranthene	0.0307	0.037	0.013	mg/kg	J
86-73-7	Fluorene	0.259	0.037	0.028	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.037	0.012	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.074	0.0085	mg/kg	
91-20-3	Naphthalene	ND	0.037	0.0055	mg/kg	
85-01-8	Phenanthrene	ND	0.037	0.0079	mg/kg	
129-00-0	Pyrene	0.169	0.037	0.0084	mg/kg	
110-86-1	Pyridine	ND	0.074	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%		22-121%

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:	AOI-5-BH-15-5_9-9.5_20150724		
Lab Sample ID:	JB99970-9	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	86.1
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	55%		27-119%
118-79-6	2,4,6-Tribromophenol	110%		17-158%
4165-60-0	Nitrobenzene-d5	79%		33-127%
321-60-8	2-Fluorobiphenyl	98%		41-121%
1718-51-0	Terphenyl-d14	101%		44-137%

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:	AOI-5-BH-15-5_9-9.5_20150724		
Lab Sample ID:	JB99970-9	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	86.1
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	17.0	5.6	0.045	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]
Lead	7.7	2.2	0.27	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]
Nickel	25.4	4.5	0.11	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]
Vanadium	332	56	0.84	mg/kg	10	07/28/15	08/03/15	ND	SW846 6010C [2]	SW846 3050B [3]
Zinc	35.7	5.6	0.86	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA37224
(2) Instrument QC Batch: MA37237
(3) Prep QC Batch: MP87962

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:	AOI-5-BH-15-10_0-2_20150724		
Lab Sample ID:	JB99970-10	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8260C	**Percent Solids:**	92.0
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156685.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

	Initial Weight
Run #1	4.3 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0054	0.00063	0.00017	mg/kg	
108-88-3	Toluene	0.00045	0.0013	0.00026	mg/kg	J
100-41-4	Ethylbenzene	0.00041	0.0013	0.00021	mg/kg	J
1330-20-7	Xylene (total)	0.0043	0.0013	0.00035	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0013	0.00019	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0025	0.00021	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0025	0.00027	mg/kg	
110-82-7	Cyclohexane	ND	0.0025	0.00040	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0013	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0013	0.00017	mg/kg	
110-54-3	Hexane	0.0015	0.0063	0.00049	mg/kg	J
98-82-8	Isopropylbenzene	ND	0.0025	0.00013	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0025	0.00025	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.00032	0.0025	0.00024	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		70-122%
17060-07-0	1,2-Dichloroethane-D4	102%		68-124%
2037-26-5	Toluene-D8	103%		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:	AOI-5-BH-15-10_0-2_20150724		
Lab Sample ID:	JB99970-10	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.0
Project:	MHIC AOI 5 Demo Characterization		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E74566.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236
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	0.18	0.079	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.15	mg/kg	
95-48-7	2-Methylphenol	ND	0.072	0.047	mg/kg	
	3&4-Methylphenol	ND	0.072	0.040	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.11	mg/kg	
108-95-2	Phenol	ND	0.072	0.023	mg/kg	
83-32-9	Acenaphthene	0.0173	0.036	0.0073	mg/kg	J
120-12-7	Anthracene	0.0351	0.036	0.0081	mg/kg	J
56-55-3	Benzo(a)anthracene	0.0915	0.036	0.0070	mg/kg	
50-32-8	Benzo(a)pyrene	0.0708	0.036	0.0087	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0898	0.036	0.0071	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0519	0.036	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0265	0.036	0.012	mg/kg	J
92-52-4	1,1'-Biphenyl	ND	0.072	0.0072	mg/kg	
218-01-9	Chrysene	0.124	0.036	0.0089	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0155	0.036	0.0087	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.072	0.0097	mg/kg	
84-66-2	Diethyl phthalate	ND	0.072	0.0087	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.145	0.072	0.012	mg/kg	
206-44-0	Fluoranthene	0.186	0.036	0.013	mg/kg	
86-73-7	Fluorene	ND	0.036	0.027	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0364	0.036	0.012	mg/kg	
91-57-6	2-Methylnaphthalene	0.0171	0.072	0.0083	mg/kg	J
91-20-3	Naphthalene	ND	0.036	0.0054	mg/kg	
85-01-8	Phenanthrene	0.115	0.036	0.0077	mg/kg	
129-00-0	Pyrene	0.183	0.036	0.0082	mg/kg	
110-86-1	Pyridine	ND	0.072	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	71%		22-121%

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:	AOI-5-BH-15-10_0-2_20150724		
Lab Sample ID:	JB99970-10	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.0
Project:	MHIC AOI 5 Demo Characterization		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	84%		27-119%
118-79-6	2,4,6-Tribromophenol	24%		17-158%
4165-60-0	Nitrobenzene-d5	102%		33-127%
321-60-8	2-Fluorobiphenyl	87%		41-121%
1718-51-0	Terphenyl-d14	101%		44-137%

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:	AOI-5-BH-15-10_0-2_20150724		
Lab Sample ID:	JB99970-10	**Date Sampled:**	07/24/15
Matrix:	SO - Soil	**Date Received:**	07/24/15
		Percent Solids:	92.0
Project:	MHIC AOI 5 Demo Characterization		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	21.2	5.4	0.043	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Lead	143	2.2	0.26	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Nickel	273	4.3	0.10	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	1050	5.4	0.081	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]
Zinc	329	5.4	0.83	mg/kg	1	07/28/15	07/31/15	MS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37224
(2) Prep QC Batch: MP87962

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

SLL
STB/SSTB

CHAIN OF CUSTODY

PAGE 1 OF 1

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 #: JB99970

Client / Reporting Information

Company Name: StantecCorp
Street Address: 1060 Andrew Dr
City / State / Zip: West Chester, Pa
Project Contact: Jennifer Menges
E-mail: Jennifer.Menges@stantec.com
Phone #: 610-840-2500
Fax #: 610-840-2501
Sampler(s) Name(s): D. Hopkins, C. Dubinski
Phone #:

Project Information

Project Name: MHIC Tanks 616-619
Street:
City: Marcus Hook
State: Pa
Project #:
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	VOCs via EPA 5035 8260B/C-LD (short)	VOCs via 5035 8260B/C-LD (short) (Equipment)	Metals via 5035 6010B/C-LD (short)	SVOCs via 5035 8270C/D-LD (short)	VOCs via EPA Method 8260 (long)	SVOCs via EPA method 8270 (long)	Metals by method 6010/6020 (long)			LAB USE ONLY
1	MH-617-6-5		7/24/15	0840	DH CD	Soil	6					3	2	1		X	X	X	X						B3
2	MH-619-6-5			0900												X	X	X	X						E7T2
3	MH-618-1-3			0925												X	X	X	X						14K6
4	AOI-5-BH-15-6-0-2-20150724			1225																X	X	X			40107
5	AOI-5-BH-15-6-6-7-20150724			1240																X	X	X			P65
6	AOI-5-BH-15-7-0-2-20150724			1120																X	X	X			V730
7	AOI-5-BH-15-7-6-8-20150724			1150																X	X	X			
8	AOI-5-BH-15-5-0-2-20150724			1310																X	X	X			
9	AOI-5-BH-15-5-9-9.5-20150724			1340																X	X	X			
10	AOI-5-BH-15-10-0-2-20150724			1400																X	X	X			
11	TB-20150724			—		TB	3	2					1				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

DI. slurry voc vials frozen storage
Date: 7/24/15 Time: 21:14 Initials: JK

INITIAL ASSESSMENT
LABEL VERIFICATION

Turnaround Time (Business days)

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

Approved By (Accutest PM): / Date:

Rec'd at Exton Service Center 7/24/15 1600

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"
- [ ] NJ Data of Known Quality Protocol Reporting
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [x] EDD Format EQUIS
- [ ] Other

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

Comments / Special Instructions

* See constituents of concern for soil list attached, "short" is short list and "long" with long list

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	7/24/15 1515	1	2	7/24/15 1600	2
Relinquished by Sampler: 3	7/24/15 1810	3	4		4
Relinquished by: 5		5	Custody Seal #	Intact / Not intact	Preserved where applicable / On Ice / Cooler Temp. 1.6 C/G

5.1 5

JB99970A: Chain of Custody
Page 1 of 8

ACCUTEST LABORATORIES

JOB NUMBER: JB99970

NABS? Y / N Circle. Circle either DIH2O or NaHSO4.

SAMPLE #	MeOH VIAL	DIH2O / NaHSO4	DIH2O / NaHSO4	
1	1696	1902	1904	
2	1685	3739	3730	
3	1683	1896	1918	
4	1177	1946	3726	
5	1680	1941	1942	
6	1693	1916	1917	
7	1705	1939	1950	
8	1709	1891	1914	
9	1700	1948	3728	
10	1684	1938	3729	
11		101		

5.1 5

JB99970A: Chain of Custody

Page 2 of 8

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB99970 **Client:** **Project:**

Date / Time Received: 7/24/2015 6:10:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (1.6);

Cooler Temps (Corrected) °C: Cooler 1: (1.3);

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

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB99970A: Chain of Custody
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JB99970

Comprehensive COC List for Sunoco Characterizations (Sept. 2013)

VOCs by EPA Method 8260	CAS No.
Benzene	71-43-2
Butylbenzene, sec-	135-98-8
Butylbenzene, tert-	98-06-6
Cumene	98-82-8
Cyclohexane	110-82-7
Dichloroethane, 1,2-	107-06-2
Ethylbenzene	100-41-4
Hexane	110-54-3
Methyl tert butyl ether	1634-04-4
Toluene	108-88-3
Trimethylbenzene, 1,2,4-	95-63-6
Trimethylbenzene, 1,3,5-	108-67-8
Xylenes	1330-20-7

EDB by EPA Method 8011	CAS No.
Ethylene Dibromide	106-93-4

Metals by Method 6010/6020	CAS No.
Cobalt	7440-48-4
Lead	7439-92-1
Nickel	7440-02-0
Vanadium	7440-62-2
Zinc	7440-66-6

SVOCs by EPA Method 8270	CAS No.
Acenaphthene	83-32-9
Anthracene	120-12-7
Benzo(a)anthracene	56-55-3
Benzo(a)pyrene	50-32-8
Benzo(b)fluroranthene	205-99-2
Benzo(g,h,i)perylene	191-24-2
Benzo(k)fluoranthene	207-08-9
Biphenyl, 1,1-	92-52-4
Bis(2-ethylhexyl) phthalate	117-81-7
Chrysene	218-01-9
Cresol, m- (3-methylphenol)	108-39-4
Cresol, o- (2-methylphenol)	95-48-7
Cresol, p- (4-methylphenol)	106-44-5
Dibenz(a,h)anthracene	53-70-3
Diethyl phthalate	84-66-2
Dimethylphenol, 2,4-	105-67-9
Dibutyl phthalate, n-	84-74-2
Dinitrophenol, 2,4-	51-28-5
Fluoranthene	206-44-0
Fluorene	86-73-7
Indeno(1,2,3-cd)pyrene	193-39-5
Methylnaphthalene, 2-	91-57-6
Naphthalene	91-20-3
Nitrophenol, 4-	100-02-7
Phenanthrene	85-01-8
Phenol	108-95-2
Pyrene	129-00-0
Pyridine	110-86-1
Quinoline	91-22-5

List from PADEP SERO Crude Oil Parameters for Corrective Action (CDB | SERO | PA DEP | 9 Aug 2013) combined with PADEP Petroleum Shortlist (leaded and unleaded gasoline and No. 2, 4, 5, 6 Fuel Oils).

JB99970

Constituents of Concern for Soil
~~Sunoco Philadelphia Refinery~~
~~Philadelph~~ia, Pennsylvania
Marcus Hook

METALS	CAS No.	Method
Lead (total)	7439-92-1	SW846 6010B/C-LD

VOLATILE ORGANIC COMPOUNDS	CAS No.	Method
1,2-Dichloroethane ✓	107-06-2	SW846 8260B/C-LD
1,2,4-Trimethylbenzene ✓	95-63-6	
1,3,5-Trimethylbenzene ✓	108-67-8	
Benzene ✓	71-43-2	
Cumene ✓	98-82-8	
Ethylbenzene ✓	100-41-4	
Methyl tertiary butyl ether ✓	1634-04-4	
Toluene ✓	108-88-3	
Xylenes (total) ✓	1330-20-7	
Ethylene dibromide ✓	106-93-4	SW846 8011-LD

SEMI-VOLATILE ORGANIC COMPOUNDS	CAS No.	Method
Anthracene ✓	120-12-7	SW846 8270C/D-LD
Benzo(a)anthracene ✓	56-55-3	
Benzo (g,h,i) perylene ✓	191-24-2	
Benzo(a)pyrene ✓	50-32-8	
Benzo(b)fluoranthene ✓	205-99-2	
Chrysene ✓	218-01-9	
Fluorene ✓	86-73-7	
Naphthalene** ✓	91-20-3	
Phenanthrene ✓	85-01-8	
Pyrene ✓	129-00-0	

**For tank investigations, Naphthalene is to be run using analytical method SW846 8260 and should be appropriately marked on the chain of custody.

Notes:

As indicated by the "LD", all samples are to be analyzed using the lowest dilution possible.

ACCUTEST LABORATORIES

Job Change Order: JB99970

Requested Date:	7/31/2015	**Received Date:**	7/24/2015
Account Name:	Stantec Consulting Services Inc.	**Due Date:**	8/7/2015
Project Description:	MHIC-Tank 616-619, Marcus Hook, PA	**Deliverable:**	REDT2
CSR:	mariem	**TAT (Days):**	14

==========

Sample #: JB99970-4 to 10

Dept:

Change:

Please delete V8011EDB <subbed to ALSE> and add VMS+EDB. Please also move these samples to A job and revise project to SECORPAE65299.

==========

Above Changes Per: J. DeBoer

Date/Time: 7/31/2015 5:31:22 PM

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

ACCUTEST LABORATORIES

Job Change Order: JB99970

Requested Date:	8/14/2015	**Received Date:**	7/24/2015
Account Name:	Stantec Consulting Services Inc.	**Due Date:**	8/7/2015
Project Description:	MHIC-Tank 616-619, Marcus Hook, PA	**Deliverable:**	REDT2
CSR:	mariem	**TAT (Days):**	14

==========

Sample #: JB99970-1 to 3

Dept:

Change:
Please delete Naphthalene from the 8270 data.

==========

==========

Sample #: JB99970-1 to 3, 11

Dept:

Change:
Please add VMS+NAP; please add to the original report.

==========

Above Changes Per: L. Votta

Date/Time: 8/14/2015 12:27:48 PM

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

ACCUTEST LABORATORIES

Job Change Order: JB99970A

Requested Date:	8/14/2015	**Received Date:**	7/24/2015
Account Name:	Stantec Consulting Services Inc.	**Due Date:**	8/7/2015
Project Description:	MHIC AOI 5 Demo Characterization	**Deliverable:**	REDT2
CSR:	mariem	**TAT (Days):**	14

==========

Sample #: JB99970A-4 to 10

Dept:

Change:

Please add Phenanthrene and Di-n-butyl Phthalate to the 8270 data reported for these samples. The project specific list is also being updated.

==========

Above Changes Per: L. Votta

Date/Time: 8/14/2015 12:30:38 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: JB99970A

MHIC AOI 5 Demo Characterization

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB99970-4 Collected: 24-JUL-15 12:25 By: DH/CD Received: 24-JUL-15 By: AS AOI-5-BH-15-6_0-2_20150724						
JB99970-4	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-4	SW846 8270D	29-JUL-15 23:57	AD	29-JUL-15	AQ	AB8270SL2
JB99970-4	SW846 6010C	31-JUL-15 11:38	MS	28-JUL-15	AA	CO,NI,PB,V,ZN
JB99970-4	SW846 8260C	03-AUG-15 15:04	PR			V8260SL2
JB99970-5 Collected: 24-JUL-15 12:40 By: DH/CD Received: 24-JUL-15 By: AS AOI-5-BH-15-6_6-7_20150724						
JB99970-5	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-5	SW846 8270D	29-JUL-15 20:45	AD	29-JUL-15	AQ	AB8270SL2
JB99970-5	SW846 6010C	31-JUL-15 11:44	MS	28-JUL-15	AA	CO,NI,PB,V,ZN
JB99970-5	SW846 8260C	03-AUG-15 15:38	PR			V8260SL2
JB99970-6 Collected: 24-JUL-15 11:20 By: DH/CD Received: 24-JUL-15 By: AS AOI-5-BH-15-7_0-2_20150724						
JB99970-6	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-6	SW846 8270D	30-JUL-15 00:18	AD	29-JUL-15	AQ	AB8270SL2
JB99970-6	SW846 6010C	31-JUL-15 11:50	MS	28-JUL-15	AA	CO,NI,V
JB99970-6	SW846 6010C	03-AUG-15 15:05	ND	28-JUL-15	AA	PB,ZN
JB99970-6	SW846 8260C	03-AUG-15 16:08	PR			V8260SL2
JB99970-7 Collected: 24-JUL-15 11:50 By: DH/CD Received: 24-JUL-15 By: AS AOI-5-BH-15-7_6-8_20150724						
JB99970-7	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-7	SW846 8270D	29-JUL-15 21:06	AD	29-JUL-15	AQ	AB8270SL2
JB99970-7	SW846 6010C	31-JUL-15 11:56	MS	28-JUL-15	AA	CO,NI,PB,V,ZN
JB99970-7	SW846 8260C	03-AUG-15 19:37	PR			V8260SL2
JB99970-8 Collected: 24-JUL-15 13:10 By: DH/CD Received: 24-JUL-15 By: AS AOI-5-BH-15-5_0-2_20150724						
JB99970-8	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-8	SW846 8270D	30-JUL-15 00:39	AD	29-JUL-15	AQ	AB8270SL2
JB99970-8	SW846 6010C	31-JUL-15 12:02	MS	28-JUL-15	AA	CO,NI,PB,V,ZN
JB99970-8	SW846 8260C	03-AUG-15 20:07	PR			V8260SL2

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB99970A

MHIC AOI 5 Demo Characterization

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB99970-8	SW846 8270D	04-AUG-15 04:10	SW	01-AUG-15	HK	AB8270SL2
JB99970-9	Collected: 24-JUL-15 13:40 By: DH/CD		Received: 24-JUL-15 By: AS			
AOI-5-BH-15-5_9-9.5_20150724						
JB99970-9	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-9	SW846 8270D	30-JUL-15 01:01	AD	29-JUL-15	AQ	AB8270SL2
JB99970-9	SW846 8260C	30-JUL-15 16:33	TDN			V8260SL2
JB99970-9	SW846 6010C	31-JUL-15 12:08	MS	28-JUL-15	AA	CO,NI,PB,ZN
JB99970-9	SW846 8260C	31-JUL-15 14:28	TDN			V8260SL2
JB99970-9	SW846 6010C	03-AUG-15 15:10	ND	28-JUL-15	AA	V
JB99970-10	Collected: 24-JUL-15 14:00 By: DH/CD		Received: 24-JUL-15 By: AS			
AOI-5-BH-15-10_0-2_20150724						
JB99970-10	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-10	SW846 6010C	31-JUL-15 12:14	MS	28-JUL-15	AA	CO,NI,PB,V,ZN
JB99970-10	SW846 8260C	03-AUG-15 20:37	PR			V8260SL2
JB99970-10	SW846 8270D	04-AUG-15 04:35	SW	01-AUG-15	HK	AB8270SL2

Accutest Internal Chain of Custody

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-4.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-4.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-4.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-4.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-4.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-4.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-4.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-4.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-4.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-4.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-4.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-4.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-4.1
JB99970-4.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-4.1
JB99970-4.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-4.1
JB99970-4.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-4.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-4.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-4.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-4.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-4.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-4.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-4.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-4.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-4.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-4.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-4.5	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-4.5	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-4.5	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-4.5	Payal Rana		08/04/15 08:43	Depleted
JB99970-5.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-5.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-5.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-5.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-5.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-5.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-5.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-5.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-5.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-5.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-5.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-5.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-5.1
JB99970-5.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-5.1
JB99970-5.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-5.1
JB99970-5.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-5.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-5.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-5.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-5.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-5.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-5.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-5.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-5.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-5.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-5.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-5.6	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-5.6	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-5.6	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-5.6	Payal Rana		08/04/15 08:43	Depleted
JB99970-6.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-6.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-6.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-6.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-6.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-6.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-6.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-6.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-6.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-6.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-6.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-6.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-6.1
JB99970-6.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-6.1
JB99970-6.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-6.1
JB99970-6.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-6.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-6.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-6.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-6.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-6.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-6.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-6.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-6.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-6.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-6.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-6.5	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-6.5	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-6.5	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-6.5	Payal Rana		08/04/15 08:43	Depleted
JB99970-7.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-7.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-7.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-7.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-7.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-7.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-7.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-7.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-7.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-7.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-7.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-7.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-7.1
JB99970-7.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-7.1
JB99970-7.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-7.1
JB99970-7.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-7.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-7.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-7.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-7.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-7.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-7.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-7.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-7.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-7.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-7.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-7.5	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-7.5	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-7.5	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-7.5	Payal Rana		08/04/15 08:43	Depleted
JB99970-8.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-8.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-8.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-8.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-8.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-8.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-8.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-8.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-8.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-8.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-8.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-8.1	Secured Storage	Ana Maria Moreta	08/01/15 05:59	Retrieve from Storage
JB99970-8.1	Ana Maria Moreta	Harpreet Kaur	08/01/15 09:58	Custody Transfer
JB99970-8.1	Harpreet Kaur	Secured Storage	08/01/15 18:57	Return to Storage
JB99970-8.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-8.1
JB99970-8.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-8.1
JB99970-8.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-8.1
JB99970-8.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-8.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-8.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-8.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-8.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-8.1.3	Harpreet Kaur	Organics Prep	08/01/15 09:58	Extract from JB99970-8.1
JB99970-8.1.3	Organics Prep	Harpreet Kaur	08/01/15 18:57	Extract from JB99970-8.1
JB99970-8.1.3	Harpreet Kaur	Extract Storage	08/01/15 18:57	Return to Storage
JB99970-8.1.3	Extract Storage	Ashley Noble	08/03/15 15:07	Retrieve from Storage
JB99970-8.1.3	Ashley Noble	GCMS3E	08/03/15 15:07	Load on Instrument
JB99970-8.1.3	GCMS3E	Ashley Noble	08/04/15 10:18	Unload from Instrument
JB99970-8.1.3	Ashley Noble	Extract Freezer	08/04/15 10:18	Return to Storage
JB99970-8.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-8.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-8.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-8.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-8.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-8.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-8.5	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-8.5	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-8.5	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-8.5	Payal Rana		08/04/15 08:43	Depleted
JB99970-9.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-9.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-9.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-9.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-9.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-9.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-9.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-9.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-9.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-9.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-9.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-9.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-9.1
JB99970-9.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-9.1
JB99970-9.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-9.1
JB99970-9.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-9.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-9.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-9.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-9.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-9.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-9.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-9.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-9.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-9.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-9.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-9.4	Secured Storage	Thien Nguyen	07/30/15 09:29	Retrieve from Storage
JB99970-9.4	Thien Nguyen	Secured Storage	07/30/15 09:29	Return to Storage
JB99970-10.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-10.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-10.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-10.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-10.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-10.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-10.1	Secured Staging Area	Ariel Alcala	07/28/15 12:30	Retrieve from Storage
JB99970-10.1	Ariel Alcala	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-10.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-10.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-10.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-10.1	Secured Storage	Ana Maria Moreta	08/01/15 05:59	Retrieve from Storage
JB99970-10.1	Ana Maria Moreta	Harpreet Kaur	08/01/15 09:58	Custody Transfer
JB99970-10.1	Harpreet Kaur	Secured Storage	08/01/15 18:57	Return to Storage
JB99970-10.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-10.1
JB99970-10.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-10.1
JB99970-10.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-10.1
JB99970-10.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-10.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-10.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-10.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-10.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-10.1.3	Harpreet Kaur	Organics Prep	08/01/15 09:58	Extract from JB99970-10.1
JB99970-10.1.3	Organics Prep	Harpreet Kaur	08/01/15 18:57	Extract from JB99970-10.1
JB99970-10.1.3	Harpreet Kaur	Extract Storage	08/01/15 18:57	Return to Storage
JB99970-10.1.3	Extract Storage	Ashley Noble	08/03/15 15:07	Retrieve from Storage
JB99970-10.1.3	Ashley Noble	GCMS3E	08/03/15 15:07	Load on Instrument
JB99970-10.1.3	GCMS3E	Ashley Noble	08/04/15 10:18	Unload from Instrument
JB99970-10.1.3	Ashley Noble	Extract Freezer	08/04/15 10:18	Return to Storage
JB99970-10.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-10.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-10.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-10.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-10.3	Secured Storage	Bernadette Vassilatos	07/29/15 11:14	Retrieve from Storage
JB99970-10.3	Bernadette Vassilatos		07/29/15 11:14	Subcontract
JB99970-10.6	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-10.6	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-10.6	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-10.6	Payal Rana		08/04/15 08:43	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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE9987-MB1	E227909.D	1	07/30/15	TDN	n/a	n/a	VE9987

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

JB99970-9

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	25	6.7	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	8.5	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	11	ug/kg	
110-82-7	Cyclohexane	ND	100	16	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	6.6	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	6.7	ug/kg	
100-41-4	Ethylbenzene	ND	50	8.2	ug/kg	
110-54-3	Hexane	ND	250	19	ug/kg	
98-82-8	Isopropylbenzene	ND	100	5.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	7.7	ug/kg	
108-88-3	Toluene	ND	50	10	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	10	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	9.6	ug/kg	
1330-20-7	Xylene (total)	ND	50	14	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	99%	70-122%
17060-07-0	1,2-Dichloroethane-D4	104%	68-124%
2037-26-5	Toluene-D8	98%	77-125%
460-00-4	4-Bromofluorobenzene	102%	72-130%

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

Method Blank Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX6744-MB	X156668.D	1	08/03/15	PR	n/a	n/a	VX6744

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

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-10

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	
106-93-4	1,2-Dibromoethane	ND	1.0	0.13	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	
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	98%	70-122%
17060-07-0	1,2-Dichloroethane-D4	98%	68-124%
2037-26-5	Toluene-D8	107%	77-125%
460-00-4	4-Bromofluorobenzene	99%	72-130%

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

Blank Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE9987-BS	E227910.D	1	07/30/15	TDN	n/a	n/a	VE9987

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

JB99970-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2570	103	77-122
135-98-8	sec-Butylbenzene	2500	2790	112	70-125
98-06-6	tert-Butylbenzene	2500	2850	114	70-126
110-82-7	Cyclohexane	2500	2610	104	66-131
106-93-4	1,2-Dibromoethane	2500	2540	102	83-125
107-06-2	1,2-Dichloroethane	2500	2940	118	77-140
100-41-4	Ethylbenzene	2500	2610	104	75-121
110-54-3	Hexane	2500	3190	128	37-137
98-82-8	Isopropylbenzene	2500	2760	110	70-126
1634-04-4	Methyl Tert Butyl Ether	5000	4470	89	77-121
108-88-3	Toluene	2500	2470	99	75-123
95-63-6	1,2,4-Trimethylbenzene	2500	2910	116	75-126
108-67-8	1,3,5-Trimethylbenzene	2500	2780	111	72-124
1330-20-7	Xylene (total)	7500	7990	107	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	100%	77-125%
460-00-4	4-Bromofluorobenzene	103%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX6744-BS	X156669.D	1	08/03/15	PR	n/a	n/a	VX6744

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

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	40.6	81	77-122
135-98-8	sec-Butylbenzene	50	43.4	87	70-125
98-06-6	tert-Butylbenzene	50	43.3	87	70-126
110-82-7	Cyclohexane	50	45.0	90	66-131
106-93-4	1,2-Dibromoethane	50	45.2	90	83-125
107-06-2	1,2-Dichloroethane	50	45.7	91	77-140
100-41-4	Ethylbenzene	50	42.2	84	75-121
110-54-3	Hexane	50	36.4	73	37-137
98-82-8	Isopropylbenzene	50	43.6	87	70-126
1634-04-4	Methyl Tert Butyl Ether	100	85.7	86	77-121
108-88-3	Toluene	50	47.1	94	75-123
95-63-6	1,2,4-Trimethylbenzene	50	47.2	94	75-126
108-67-8	1,3,5-Trimethylbenzene	50	43.6	87	72-124
1330-20-7	Xylene (total)	150	131	87	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	102%	77-125%
460-00-4	4-Bromofluorobenzene	100%	72-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB99970-1MS	X156678.D	1	08/03/15	PR	n/a	n/a	VX6744
JB99970-1	X156672.D	1	08/03/15	PR	n/a	n/a	VX6744

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

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-10

CAS No.	Compound	JB99970-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	0.50	J	58.6	47.1	80	48-136
135-98-8	sec-Butylbenzene	ND		58.6	51.5	88	23-151
98-06-6	tert-Butylbenzene	ND		58.6	48.9	83	30-149
110-82-7	Cyclohexane	ND		58.6	52.0	89	22-154
106-93-4	1,2-Dibromoethane	ND		58.6	42.9	73	46-139
107-06-2	1,2-Dichloroethane	ND		58.6	44.2	75	56-140
100-41-4	Ethylbenzene	ND		58.6	49.6	85	34-145
110-54-3	Hexane	ND		58.6	44.8	76	10-157
98-82-8	Isopropylbenzene	ND		58.6	52.0	89	36-145
1634-04-4	Methyl Tert Butyl Ether	ND		58.6	43.6	74	54-129
108-88-3	Toluene	ND		58.6	49.8	85	40-141
95-63-6	1,2,4-Trimethylbenzene	ND		58.6	52.3	89	23-152
108-67-8	1,3,5-Trimethylbenzene	ND		58.6	51.6	88	26-150
1330-20-7	Xylene (total)	ND		176	150	85	34-146

CAS No.	Surrogate Recoveries	MS	JB99970-1	Limits
1868-53-7	Dibromofluoromethane	96%	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	91%	103%	68-124%
2037-26-5	Toluene-D8	106%	105%	77-125%
460-00-4	4-Bromofluorobenzene	100%	100%	72-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB99889-6MS	E227914.D	1	07/30/15	TDN	n/a	n/a	VE9987
JB99889-6MSD	E227915.D	1	07/30/15	TDN	n/a	n/a	VE9987
JB99889-6	E227912.D	1	07/30/15	TDN	n/a	n/a	VE9987

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

JB99970-9

CAS No.	Compound	JB99889-6 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	81.8		3540	3200	88	3540	3170	87	1	48-136/30
135-98-8	sec-Butylbenzene	642		3540	4040	96	3540	3990	95	1	23-151/34
98-06-6	tert-Butylbenzene	ND		3540	3610	102	3540	3630	103	1	30-149/34
110-82-7	Cyclohexane	300		3540	3070	78	3540	2930	74	5	22-154/33
106-93-4	1,2-Dibromoethane	ND		3540	3210	91	3540	3220	91	0	46-139/24
107-06-2	1,2-Dichloroethane	ND		3540	3720	105	3540	3700	104	1	56-140/24
100-41-4	Ethylbenzene	6730		3540	9610	81	3540	9690	84	1	34-145/29
110-54-3	Hexane	1900		3540	4850	83	3540	4830	83	0	10-157/33
98-82-8	Isopropylbenzene	1080		3540	4400	94	3540	4350	92	1	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		3540	3150	89	3540	3140	89	0	54-129/25
108-88-3	Toluene	563		3540	3650	87	3540	3610	86	1	40-141/30
95-63-6	1,2,4-Trimethylbenzene	21300	E	3540	24300	85	3540	24500	90	1	23-152/31
108-67-8	1,3,5-Trimethylbenzene	5770		3540	9430	103	3540	9470	104	0	26-150/32
1330-20-7	Xylene (total)	21700		10600	30400	82	10600	30800	86	1	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JB99889-6	Limits
1868-53-7	Dibromofluoromethane	100%	101%	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	109%	106%	108%	68-124%
2037-26-5	Toluene-D8	102%	102%	101%	77-125%
460-00-4	4-Bromofluorobenzene	100%	100%	98%	72-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB99970-2DUP	X156680.D	1	08/03/15	PR	n/a	n/a	VX6744
JB99970-2	X156673.D	1	08/03/15	PR	n/a	n/a	VX6744

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

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-10

CAS No.	Compound	JB99970-2 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	1.5		2.8		60* [a]	17
135-98-8	sec-Butylbenzene	ND		ND		nc	30
98-06-6	tert-Butylbenzene	ND		ND		nc	30
110-82-7	Cyclohexane	ND		ND		nc	30
106-93-4	1,2-Dibromoethane	ND		ND		nc	30
107-06-2	1,2-Dichloroethane	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	23
110-54-3	Hexane	ND		ND		nc	30
98-82-8	Isopropylbenzene	ND		ND		nc	22
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	30
108-88-3	Toluene	1.9		0.51	J	115* [a]	22
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	21

CAS No.	Surrogate Recoveries	DUP	JB99970-2	Limits
1868-53-7	Dibromofluoromethane	100%	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	103%	68-124%
2037-26-5	Toluene-D8	104%	105%	77-125%
460-00-4	4-Bromofluorobenzene	100%	101%	72-130%

(a) High RPD due to possible sample analyzed from different vials.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: VE9972-BFB
Lab File ID: E227496.D
Instrument ID: GCMSE
Injection Date: 07/15/15
Injection Time: 09:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	13969	19.7		Pass
75	30.0 - 60.0% of mass 95	34989	49.3		Pass
95	Base peak, 100% relative abundance	70928	100.0		Pass
96	5.0 - 9.0% of mass 95	4943	6.97		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	58954	83.1		Pass
175	5.0 - 9.0% of mass 174	4442	6.26	(7.53) [a]	Pass
176	95.0 - 101.0% of mass 174	56789	80.1	(96.3) [a]	Pass
177	5.0 - 9.0% of mass 176	3975	5.60	(7.00) [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
VE9972-IC9972	E227497.D	07/15/15	09:55	00:38	Initial cal 0.2
VE9972-IC9972	E227498.D	07/15/15	10:26	01:09	Initial cal 0.5
VE9972-IC9972	E227499.D	07/15/15	10:56	01:39	Initial cal 1
VE9972-IC9972	E227501.D	07/15/15	11:57	02:40	Initial cal 4
VE9972-IC9972	E227502.D	07/15/15	12:28	03:11	Initial cal 8
VE9972-IC9972	E227503.D	07/15/15	12:59	03:42	Initial cal 20
VE9972-ICC9972	E227504.D	07/15/15	13:30	04:13	Initial cal 50
VE9972-IC9972	E227505.D	07/15/15	14:01	04:44	Initial cal 100
VE9972-IC9972	E227506.D	07/15/15	14:31	05:14	Initial cal 200
VE9972-IC9972	E227510.D	07/15/15	16:34	07:17	Initial cal 2
VE9972-ICV9972	E227511.D	07/15/15	17:05	07:48	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: VE9987-BFB
Lab File ID: E227905.D
Instrument ID: GCMSE
Injection Date: 07/30/15
Injection Time: 06:42

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	18480	22.8		Pass
75	30.0 - 60.0% of mass 95	43256	53.5		Pass
95	Base peak, 100% relative abundance	80885	100.0		Pass
96	5.0 - 9.0% of mass 95	5457	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	67984	84.1		Pass
175	5.0 - 9.0% of mass 174	5483	6.78	(8.07) [a]	Pass
176	95.0 - 101.0% of mass 174	65738	81.3	(96.7) [a]	Pass
177	5.0 - 9.0% of mass 176	4424	5.47	(6.73) [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
VE9987-CC9972	E227907.D	07/30/15	07:53	01:11	Continuing cal 20
VE9987-MB1	E227909.D	07/30/15	08:54	02:12	Method Blank
ZZZZZZ	E227909.D	07/30/15	08:54	02:12	(unrelated sample)
VE9987-BS	E227910.D	07/30/15	09:25	02:43	Blank Spike
JB99889-6	E227912.D	07/30/15	10:26	03:44	(used for QC only; not part of job JB99970A)
ZZZZZZ	E227913.D	07/30/15	10:57	04:15	(unrelated sample)
JB99889-6MS	E227914.D	07/30/15	11:27	04:45	Matrix Spike
JB99889-6MSD	E227915.D	07/30/15	11:58	05:16	Matrix Spike Duplicate
ZZZZZZ	E227917.D	07/30/15	12:59	06:17	(unrelated sample)
ZZZZZZ	E227918.D	07/30/15	13:29	06:47	(unrelated sample)
ZZZZZZ	E227919.D	07/30/15	14:00	07:18	(unrelated sample)
ZZZZZZ	E227920.D	07/30/15	14:31	07:49	(unrelated sample)
ZZZZZZ	E227921.D	07/30/15	15:01	08:19	(unrelated sample)
ZZZZZZ	E227923.D	07/30/15	16:02	09:20	(unrelated sample)
JB99970-9	E227924.D	07/30/15	16:33	09:51	AOI-5-BH-15-5_9-9.5_20150724
ZZZZZZ	E227927.D	07/30/15	18:05	11:23	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: VE9988-BFB
Lab File ID: E227947.D
Instrument ID: GCMSE
Injection Date: 07/31/15
Injection Time: 08:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	20581	22.4		Pass
75	30.0 - 60.0% of mass 95	48354	52.7		Pass
95	Base peak, 100% relative abundance	91786	100.0		Pass
96	5.0 - 9.0% of mass 95	6461	7.04		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	78413	85.4		Pass
175	5.0 - 9.0% of mass 174	6044	6.58	(7.71) [a]	Pass
176	95.0 - 101.0% of mass 174	77338	84.3	(98.6) [a]	Pass
177	5.0 - 9.0% of mass 176	4896	5.33	(6.33) [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
VE9988-CC9972	E227948.D	07/31/15	09:20	00:31	Continuing cal 50
VE9988-MB1	E227950.D	07/31/15	10:23	01:34	Method Blank
VE9988-BS	E227951.D	07/31/15	10:54	02:05	Blank Spike
ZZZZZZ	E227953.D	07/31/15	11:55	03:06	(unrelated sample)
JB99969-17	E227955.D	07/31/15	12:56	04:07	(used for QC only; not part of job JB99970A)
ZZZZZZ	E227956.D	07/31/15	13:27	04:38	(unrelated sample)
ZZZZZZ	E227957.D	07/31/15	13:57	05:08	(unrelated sample)
JB99970-9	E227958.D	07/31/15	14:28	05:39	AOI-5-BH-15-5_9-9.5_20150724
ZZZZZZ	E227959.D	07/31/15	14:58	06:09	(unrelated sample)
ZZZZZZ	E227961.D	07/31/15	16:00	07:11	(unrelated sample)
ZZZZZZ	E227961A.D	07/31/15	16:31	07:42	(unrelated sample)
JB99969-17MS	E227962.D	07/31/15	17:01	08:12	Matrix Spike
JB99969-17MSD	E227963.D	07/31/15	17:32	08:43	Matrix Spike Duplicate
ZZZZZZ	E227965.D	07/31/15	18:33	09:44	(unrelated sample)
ZZZZZZ	E227966.D	07/31/15	19:04	10:15	(unrelated sample)
ZZZZZZ	E227967.D	07/31/15	19:34	10:45	(unrelated sample)
ZZZZZZ	E227968.D	07/31/15	20:05	11:16	(unrelated sample)
ZZZZZZ	E227969.D	07/31/15	20:36	11:47	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: VX6733-BFB
Lab File ID: X156367.D
Instrument ID: GCMSX
Injection Date: 07/22/15
Injection Time: 17:33

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8712	16.3		Pass
75	30.0 - 60.0% of mass 95	23274	43.7		Pass
95	Base peak, 100% relative abundance	53296	100.0		Pass
96	5.0 - 9.0% of mass 95	3641	6.83		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	53581	100.5		Pass
175	5.0 - 9.0% of mass 174	4260	7.99	(7.95) [a]	Pass
176	95.0 - 101.0% of mass 174	51648	96.9	(96.4) [a]	Pass
177	5.0 - 9.0% of mass 176	3494	6.56	(6.77) [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
VX6733-IC6733	X156368.D	07/22/15	18:26	00:53	Initial cal 0.2
VX6733-IC6733	X156369.D	07/22/15	18:56	01:23	Initial cal 0.5
VX6733-IC6733	X156370.D	07/22/15	19:27	01:54	Initial cal 1
VX6733-IC6733	X156371.D	07/22/15	19:57	02:24	Initial cal 2
VX6733-IC6733	X156372.D	07/22/15	20:26	02:53	Initial cal 4
VX6733-IC6733	X156373.D	07/22/15	20:56	03:23	Initial cal 8
VX6733-IC6733	X156374.D	07/22/15	21:26	03:53	Initial cal 20
VX6733-ICC6733	X156375.D	07/22/15	21:56	04:23	Initial cal 50
VX6733-IC6733	X156376.D	07/22/15	22:26	04:53	Initial cal 100
VX6733-IC6733	X156377.D	07/22/15	22:55	05:22	Initial cal 200
VX6733-ICV6733	X156380.D	07/23/15	00:25	06:52	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: VX6744-BFB
Lab File ID: X156665.D
Instrument ID: GCMSX
Injection Date: 08/03/15
Injection Time: 08:42

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10828	17.8		Pass
75	30.0 - 60.0% of mass 95	27770	45.6		Pass
95	Base peak, 100% relative abundance	60834	100.0		Pass
96	5.0 - 9.0% of mass 95	3983	6.55		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	61306	100.8		Pass
175	5.0 - 9.0% of mass 174	4880	8.02	(7.96) [a]	Pass
176	95.0 - 101.0% of mass 174	59333	97.5	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	3879	6.38	(6.54) [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
VX6744-CC6733	X156666.D	08/03/15	09:25	00:43	Continuing cal 20
VX6744-MB	X156668.D	08/03/15	10:36	01:54	Method Blank
VX6744-BS	X156669.D	08/03/15	11:42	03:00	Blank Spike
ZZZZZZ	X156671.D	08/03/15	12:42	04:00	(unrelated sample)
JB99970-1	X156672.D	08/03/15	14:04	05:22	(used for QC only; not part of job JB99970A)
JB99970-2	X156673.D	08/03/15	14:34	05:52	(used for QC only; not part of job JB99970A)
JB99970-4	X156674.D	08/03/15	15:04	06:22	AOI-5-BH-15-6_0-2_20150724
JB99970-5	X156675.D	08/03/15	15:38	06:56	AOI-5-BH-15-6_6-7_20150724
JB99970-6	X156676.D	08/03/15	16:08	07:26	AOI-5-BH-15-7_0-2_20150724
ZZZZZZ	X156677.D	08/03/15	16:38	07:56	(unrelated sample)
JB99970-1MS	X156678.D	08/03/15	17:08	08:26	Matrix Spike
JB99970-2DUP	X156680.D	08/03/15	18:08	09:26	Duplicate
ZZZZZZ	X156681.D	08/03/15	18:38	09:56	(unrelated sample)
ZZZZZZ	X156682.D	08/03/15	19:07	10:25	(unrelated sample)
JB99970-7	X156683.D	08/03/15	19:37	10:55	AOI-5-BH-15-7_6-8_20150724
JB99970-8	X156684.D	08/03/15	20:07	11:25	AOI-5-BH-15-5_0-2_20150724
JB99970-10	X156685.D	08/03/15	20:37	11:55	AOI-5-BH-15-10_0-2_20150724

Volatile Internal Standard Area Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Check Std:	VE9987-CC9972	**Injection Date:**	07/30/15
Lab File ID:	E227907.D	**Injection Time:**	07:53
Instrument ID:	GCMSE	**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	114140	7.92	243186	10.12	323513	11.05	296065	14.38	175434	16.94
Upper Limit [a]	228280	8.42	486372	10.62	647026	11.55	592130	14.88	350868	17.44
Lower Limit [b]	57070	7.42	121593	9.62	161757	10.55	148033	13.88	87717	16.44

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE9987-MB1	120021	7.94	244627	10.12	332314	11.04	292596	14.38	176914	16.94
ZZZZZZ	120021	7.94	244627	10.12	332314	11.04	292596	14.38	176914	16.94
VE9987-BS	128033	7.93	247357	10.12	342817	11.05	306892	14.38	186063	16.94
JB99889-6	124388	7.96	238188	10.12	331960	11.04	305309	14.38	192120	16.94
ZZZZZZ	133033	7.96	256374	10.12	352871	11.05	321099	14.38	191742	16.94
JB99889-6MS	139596	7.95	260825	10.12	362357	11.04	333904	14.38	206307	16.94
JB99889-6MSD	145368	7.94	272503	10.12	376109	11.05	341887	14.38	212922	16.94
ZZZZZZ	141191	7.96	255237	10.12	355922	11.04	340009	14.38	225864	16.94
ZZZZZZ	147631	7.96	270875	10.12	366469	11.04	330226	14.38	203923	16.94
ZZZZZZ	144307	7.95	266046	10.12	358884	11.05	312346	14.38	191189	16.94
ZZZZZZ	140902	7.95	258037	10.12	347302	11.05	318015	14.38	193910	16.94
ZZZZZZ	141711	7.96	255592	10.12	350407	11.05	328508	14.38	222065	16.94
ZZZZZZ	150220	7.94	267607	10.12	357096	11.04	319334	14.38	191144	16.94
JB99970-9 [c]	140268	7.95	262305	10.12	366785	11.05	328231	14.38	211475	16.94
ZZZZZZ	148632	7.95	298232	10.12	490541	11.06	350056	14.38	203084	16.94

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) Diluted due to high concentration of non-target compound.

Volatile Internal Standard Area Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Check Std:	VE9988-CC9972	**Injection Date:**	07/31/15
Lab File ID:	E227948.D	**Injection Time:**	09:20
Instrument ID:	GCMSE	**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	143843	7.92	270259	10.12	361023	11.05	319510	14.38	193364	16.94
Upper Limit [a]	287686	8.42	540518	10.62	722046	11.55	639020	14.88	386728	17.44
Lower Limit [b]	71922	7.42	135130	9.62	180512	10.55	159755	13.88	96682	16.44

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE9988-MB1	140364	7.94	261423	10.12	344834	11.04	308863	14.38	183964	16.94
VE9988-BS	147113	7.93	274356	10.12	372838	11.05	327583	14.38	201284	16.94
ZZZZZZ	140725	7.95	264817	10.12	351703	11.04	310577	14.38	183022	16.94
JB99969-17	135161	7.94	248010	10.12	328230	11.04	286438	14.38	174322	16.94
ZZZZZZ	140974	7.92	260719	10.12	343927	11.05	319595	14.38	193964	16.94
ZZZZZZ	158111	7.96	265480	10.12	353977	11.05	323813	14.38	199475	16.94
JB99970-9 [c]	135579	7.96	269725	10.12	372097	11.04	323264	14.38	214574	16.94
ZZZZZZ	145786	7.94	282973	10.12	379793	11.04	347834	14.38	230312	16.94
ZZZZZZ	152812	7.92	301410	10.12	399833	11.05	353051	14.38	219348	16.94
ZZZZZZ	152512	7.95	286902	10.12	385722	11.04	358501	14.38	241723	16.94
JB99969-17MS	160177	7.95	292302	10.12	392611	11.04	345938	14.38	215828	16.94
JB99969-17MSD	163495	7.95	305916	10.12	407372	11.04	359830	14.38	220269	16.94
ZZZZZZ	154066	7.95	286298	10.12	382279	11.05	347837	14.38	212402	16.94
ZZZZZZ	174428	7.96	298449	10.12	407144	11.04	381378	14.38	261306	16.94
ZZZZZZ	169293	7.94	307556	10.12	408722	11.05	363579	14.38	227643	16.94
ZZZZZZ	162404	7.93	303286	10.12	409850	11.05	348193	14.38	213398	16.94
ZZZZZZ	157707	7.93	287662	10.12	390798	11.04	350781	14.38	211678	16.94

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 Internal Standard Area Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Check Std:	VX6744-CC6733	**Injection Date:**	08/03/15
Lab File ID:	X156666.D	**Injection Time:**	09:25
Instrument ID:	GCMSX	**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	95488	7.48	249638	10.20	284104	11.37	252133	15.58	144311	18.33
Upper Limit [a]	190976	7.98	499276	10.70	568208	11.87	504266	16.08	288622	18.83
Lower Limit [b]	47744	6.98	124819	9.70	142052	10.87	126067	15.08	72156	17.83

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VX6744-MB	98985	7.49	263761	10.20	292384	11.38	271178	15.59	163676	18.33
VX6744-BS	103892	7.48	252962	10.20	293137	11.37	257534	15.58	150893	18.33
ZZZZZZ	120677	7.49	281843	10.21	316946	11.38	286916	15.59	169832	18.34
JB99970-1	115846	7.49	277200	10.20	316008	11.37	280972	15.59	167094	18.34
JB99970-2	103486	7.49	275135	10.21	312733	11.38	285029	15.59	169234	18.34
JB99970-4	104171	7.49	264152	10.21	303226	11.38	266404	15.59	157005	18.34
JB99970-5	104576	7.49	268729	10.21	310839	11.38	281295	15.59	162296	18.34
JB99970-6	113906	7.49	272589	10.21	312120	11.38	272128	15.59	145227	18.34
ZZZZZZ	113871	7.49	275769	10.21	316062	11.38	272804	15.59	162635	18.34
JB99970-1MS	73997	7.50	254014	10.21	287534	11.38	255852	15.59	150629	18.34
JB99970-2DUP	108784	7.49	272075	10.21	305614	11.38	275337	15.59	164739	18.34
ZZZZZZ	114270	7.49	272114	10.21	307267	11.38	278365	15.59	164067	18.34
ZZZZZZ	118677	7.49	279086	10.21	324266	11.38	286479	15.59	164609	18.34
JB99970-7	101310	7.49	267604	10.21	295565	11.38	265408	15.59	149621	18.34
JB99970-8	113885	7.49	285374	10.20	329986	11.38	296068	15.59	175861	18.34
JB99970-10	111162	7.49	271336	10.21	307597	11.38	267503	15.59	157676	18.34

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 Surrogate Recovery Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

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
JB99970-4	X156674.D	101	106	103	101
JB99970-5	X156675.D	99	103	105	102
JB99970-6	X156676.D	99	103	104	107
JB99970-7	X156683.D	99	103	104	107
JB99970-8	X156684.D	85	102	105	102
JB99970-9	E227958.D	94	136* [a]	98	97
JB99970-9	E227924.D	97	138* [b]	102	99
JB99970-10	X156685.D	93	102	103	101
JB99889-6MS	E227914.D	100	109	102	100
JB99889-6MSD	E227915.D	101	106	102	100
JB99970-1MS	X156678.D	96	91	106	100
JB99970-2DUP	X156680.D	100	103	104	100
VE9987-BS	E227910.D	101	105	100	103
VE9987-MB1	E227909.D	99	104	98	102
VX6744-BS	X156669.D	100	103	102	100
VX6744-MB	X156668.D	98	98	107	99

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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9972-ICC9972
Lab FileID: E227504.D

Response Factor Report MSE

```
Method       : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)
Title        : SW846  8260C,ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration

Calibration Files
4   =E227501.D   2   =E227510.D   20  =E227503.D   50  =E227504.D
100 =E227505.D   1   =E227499.D   200 =E227506.D   0.5 =E227498.D
8   =E227502.D   0.2 =E227497.D       =                =

Compound
        4     2     20    50    100   1     200   0.5   8     0.2    Avg   %RSD
-------------------------------------------------------------------------------

1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.084 0.078 0.099 0.103 0.101       0.101       0.095        0.094   10.15
3)  tertiary butyl alcohol
     1.195 1.063 1.229 1.295 1.238       1.198       1.227        1.206    5.92

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  chlorodifluoromethane
     0.943 0.823 0.930 0.889 0.901 0.889 0.834 0.941 0.939        0.899    5.04
6)  dichlorodifluoromethane
     0.991 0.824 1.043 1.023 1.005 0.773 0.960       0.998        0.952   10.37
7)  chloromethane
     1.030 1.015 1.038 1.006 1.016 1.235 0.964 1.484 1.038        1.092   15.16
8)  vinyl chloride
     1.037 0.992 1.048 0.976 0.965 0.981 0.914 1.022 1.043        0.998    4.42
9)  1,3-Butadiene
                                                                 0.000#  -1.00
10)  bromomethane
     0.750 0.578 0.675 0.585 0.571                   0.684        0.641   11.49
11)  chloroethane
     0.449 0.424 0.465 0.441 0.445 0.435 0.394 0.404 0.468        0.436    5.74
12)  vinyl bromide
                                                                 0.000#  -1.00
13)  trichlorofluoromethane
     1.016 0.929 1.053 1.008 1.011 0.927 0.974       1.037        0.994    4.75
14)  pentane
                                                                 0.000#  -1.00
15)  ethyl ether
     0.302 0.265 0.315 0.294 0.292 0.309 0.289       0.277        0.293    5.57
16)  2-chloropropane
     1.269 1.163 1.315 1.233 1.203 1.293 1.161 1.264 1.274        1.242    4.47
17)  acrolein
     0.114 0.112 0.128 0.120 0.122 0.118 0.118 0.110 0.120        0.118    4.51
18)  1,1-dichloroethene
     1.005 0.840 1.077 1.018 0.996 0.944 0.960 0.925 1.024 0.925  0.971    6.89
19)  acetone
     0.036       0.055 0.053 0.053       0.052       0.049        0.050   13.76
20)  allyl chloride
     0.345 0.294 0.351 0.344 0.328       0.336       0.347        0.335    5.91
21)  acetonitrile
     0.052 0.064 0.061 0.056 0.055       0.052       0.058        0.057    8.15
22)  iodomethane
     1.062 0.921 1.179 1.107 1.104 0.974 1.085 1.030 1.128        1.066    7.50
23)  iso-butyl alcohol
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9972-ICC9972
Lab FileID: E227504.D

	0.006	0.004	0.007	0.007	0.007		0.007		0.007		0.007#	18.00
24)	carbon disulfide											
	2.339	1.986	2.450	2.327	2.284	2.206	2.207	2.172	2.377	2.685	2.303	8.07
25)	methylene chloride											
	0.698	0.614	0.739	0.681	0.675	0.711	0.653	0.670	0.705	0.825	0.697	8.09
26)	1-chloropropane											
	1.768		1.346	1.207	1.149		1.107		1.490		1.345	18.65
27)	methyl acetate											
	0.396	0.405	0.436	0.399	0.395	0.420	0.384		0.403		0.405	4.08
28)	methyl tert butyl ether											
	1.855	1.680	2.041	1.892	1.897	1.840	1.857	2.059	1.964	2.248	1.933	8.00
29)	trans-1,2-dichloroethene											
	0.895	0.815	0.972	0.908	0.891	0.842	0.868	0.855	0.931	0.827	0.881	5.54
30)	di-isopropyl ether											
	1.831	1.640	2.006	1.913	1.914	1.831	1.853	1.862	1.892	2.360	1.910	9.61
31)	ethyl tert-butyl ether											
	1.818	1.590	2.043	1.934	1.958	1.809	1.891	1.760	1.930	1.945	1.868	6.87
32)	2-butanone											
	0.049		0.061	0.057	0.059		0.060		0.055		0.057	7.61
33)	1,1-dichloroethane											
	1.017	0.894	1.119	1.055	1.034	0.966	1.022	0.938	1.057	1.121	1.022	7.16
34)	chloroprene											
	0.727	0.618	0.760	0.740	0.740	0.693	0.738	0.656	0.741		0.712	6.66
35)	acrylonitrile											
	0.205	0.192	0.227	0.215	0.212	0.192	0.206	0.171	0.213		0.204	8.08
36)	vinyl acetate											
	0.067		0.078	0.077	0.076		0.075		0.069		0.074	6.35
37)	ethyl acetate											
	0.060	0.057	0.074	0.071	0.069		0.069		0.065		0.067	9.31
38)	2,2-dichloropropane											
	1.017	0.886	1.041	0.985	0.950	0.985	0.918	1.066	1.003		0.984	5.85
39)	cis-1,2-dichloroethene											
	0.622	0.551	0.648	0.598	0.590	0.692	0.586	0.810	0.618	0.676	0.639	11.55
40)	methyl acrylate											
	0.499	0.491	0.581	0.553	0.549		0.546		0.532		0.536	5.90
41)	propionitrile											
	0.077	0.073	0.083	0.080	0.080	0.068	0.079	0.070	0.079		0.077	6.75
42)	bromochloromethane											
	0.270	0.235	0.294	0.278	0.278	0.232	0.279	0.219	0.277		0.262	10.06
43)	tetrahydrofuran											
	0.058		0.071	0.068	0.068		0.069		0.062		0.066	7.76
44)	chloroform											
	0.938	0.867	0.998	0.933	0.926	0.893	0.926	0.916	0.943	1.053	0.939	5.58
45)	t-butyl formate											
	0.540	0.452	0.585	0.567	0.579	0.476	0.566		0.545		0.539	9.09
46)	Iso-octane											
	1.857	1.535	2.180	2.189	2.207	1.470	2.144		1.923		1.938	15.42
47)	dibromofluoromethane (s)											
	0.446	0.453	0.452	0.455	0.459	0.442	0.456	0.444	0.449	0.447	0.450	1.26
48)	1,2-dichloroethane-d4 (s)											
	0.551	0.552	0.560	0.585	0.565	0.535	0.566	0.539	0.554	0.535	0.554	2.83
49)	freon 113											
	0.397	0.306	0.433	0.417	0.398	0.320	0.386		0.416		0.384	12.07
50)	methacrylonitrile											
	0.188	0.167	0.206	0.199	0.197	0.140	0.200		0.188		0.186	11.74
51)	1,1,1-trichloroethane											
	0.943	0.788	0.987	0.949	0.940	0.860	0.933	0.786	0.956	0.880	0.902	7.86
52)	Cyclohexane											
	0.941	0.713	1.016	0.973	0.951	0.724	0.940		0.943		0.900	12.78
53)	tert-amyl methyl ether											

Initial Calibration Summary

Job Number: JB99970A **Sample:** VE9972-ICC9972
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E227504.D
Project: MHIC AOI 5 Demo Characterization

```
      1.720 1.616 1.926 1.806 1.846 1.766 1.802 1.878 1.812        1.797    5.05

54) I   1,4-difluorobenzene   ----------------ISTD--------------------
55)  tert amyl alcohol
                                                                   0.000#  -1.00
56)  epichlorohydrin
      0.031 0.029 0.036 0.036 0.036 0.025 0.036 0.025 0.035        0.032   14.76
57)  n-butyl alcohol
      0.010 0.010 0.012 0.012 0.012       0.012       0.011        0.011   10.01
58)  tert-amyl ethyl ether
                                                                   0.000#  -1.00
59)  carbon tetrachloride
      0.565 0.456 0.600 0.572 0.558 0.497 0.561 0.460 0.580        0.539    9.96
60)  1,1-dichloropropene
      0.485 0.423 0.514 0.493 0.472 0.452 0.478 0.436 0.500        0.472    6.39
61)  hexane
      0.366 0.276 0.396 0.375 0.356 0.277 0.349       0.366        0.345   12.91
62)  benzene
      1.500 1.337 1.578 1.464 1.431 1.423 1.412 1.471 1.513 1.925  1.505   10.71
63)  heptane
      0.216 0.172 0.238 0.234 0.220 0.161 0.214       0.215        0.209   13.26
64)  isopropyl acetate
      0.212       0.153 0.137 0.136       0.133       0.169        0.157   19.26
65)  1,2-dichloroethane
      0.492 0.468 0.531 0.496 0.480 0.458 0.479 0.475 0.511        0.488    4.59
66)  ethyl acrylate
                                                                   0.000#  -1.00
67)  trichloroethene
      0.360 0.332 0.389 0.369 0.363 0.328 0.366 0.328 0.366        0.356    6.00
68)  2-nitropropane
                                                                   0.000#  -1.00
69)  2-chloroethyl vinyl ether
      0.184 0.165 0.214 0.211 0.205 0.169 0.203 0.186 0.202        0.193    9.29
70)  methylcyclohexane
      0.637 0.514 0.695 0.674 0.661 0.562 0.648       0.641        0.629    9.63
71)  methyl methacrylate
      0.073 0.065 0.084 0.084 0.083       0.085       0.075        0.078    9.86
72)  1,2-dichloropropane
      0.371 0.330 0.400 0.380 0.371 0.339 0.369 0.387 0.380        0.370    6.04
73)  dibromomethane
      0.224 0.211 0.250 0.233 0.234 0.211 0.235 0.176 0.235        0.223    9.61
74)  bromodichloromethane
      0.481 0.428 0.532 0.514 0.514 0.473 0.520 0.447 0.503 0.483  0.490    6.82
75)  cis-1,3-dichloropropene
      0.561 0.520 0.618 0.595 0.596 0.524 0.604 0.512 0.573 0.544  0.565    6.79
76)  toluene-d8 (s)
      1.175 1.160 1.184 1.201 1.219 1.169 1.217 1.165 1.204 1.140  1.183    2.21
77)  4-methyl-2-pentanone
      0.140 0.126 0.163 0.153 0.155 0.122 0.156       0.143        0.145   10.30
78)  toluene
      0.866 0.767 0.909 0.877 0.862 0.836 0.876 0.981 0.878 1.159  0.901   11.67
79)  3-methyl-1-butanol
      0.016 0.016 0.020 0.020 0.020       0.020       0.018        0.019   10.97
80)  trans-1,3-dichloropropene
      0.525 0.469 0.570 0.557 0.544 0.476 0.540 0.430 0.525        0.515    9.03
81)  ethyl methacrylate
      0.385 0.367 0.475 0.465 0.452 0.344 0.457 0.319 0.432        0.411   14.11
82)  1,1,2-trichloroethane
      0.252 0.248 0.282 0.273 0.269 0.221 0.268 0.196 0.270        0.253   11.08
83)  2-hexanone
```

```
       0.015       0.023 0.025 0.024       0.025       0.021        0.022   16.84

 84) I   chlorobenzene-d5      ----------------ISTD--------------------
 85)  cyclohexanone
       0.036 0.034 0.040 0.034 0.027 0.045 0.025       0.032        0.034   19.18
 86)  tetrachloroethene
       0.410 0.373 0.418 0.408 0.402 0.383 0.412 0.376 0.408        0.399    4.23
 87)  1,3-dichloropropane
       0.587 0.533 0.622 0.588 0.567 0.509 0.569 0.566 0.588        0.570    5.78
 88)  butyl acetate
       0.243 0.209 0.265 0.247 0.240 0.212 0.236       0.261        0.239    8.43
 89)  3,3-dimethyl-1-butanol
       0.042 0.041 0.050 0.049 0.054 0.041 0.055 0.039 0.045        0.046   12.93
 90)  dibromochloromethane
       0.386 0.357 0.422 0.410 0.414 0.368 0.429 0.359 0.401        0.394    7.02
 91)  1,2-dibromoethane
       0.342 0.328 0.376 0.360 0.355 0.313 0.360 0.311 0.355        0.344    6.50
 92)  n-butyl ether
       1.803 1.607 1.980 1.861 1.808 1.638 1.778 1.598 1.856        1.770    7.37
 93)  chlorobenzene
       1.077 0.972 1.142 1.083 1.059 1.007 1.070 0.987 1.092 1.172  1.066    6.00
 94)  1,1,1,2-tetrachloroethane
       0.425 0.377 0.477 0.446 0.454 0.430 0.461 0.391 0.441 0.431  0.433    7.03
 95)  ethylbenzene
       1.928 1.731 2.046 1.912 1.857 1.832 1.862 1.827 1.973 2.386  1.935    9.33
 96)  m,p-xylene
       0.714 0.617 0.766 0.711 0.698 0.677 0.710 0.678 0.737 0.814  0.712    7.51
 97)  o-xylene
       0.732 0.652 0.798 0.755 0.751 0.702 0.756 0.709 0.763 0.821  0.744    6.52
 98)  butyl acrylate
                                                                    0.000#  -1.00
 99)  styrene
       1.156 0.987 1.287 1.226 1.195 1.102 1.207 1.030 1.200 1.141  1.153    7.94
100)  bromoform
       0.273 0.259 0.318 0.303 0.305 0.266 0.318 0.245 0.289        0.286    9.33

101) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
102)  isopropylbenzene
       3.211 2.864 3.544 3.408 3.406 2.955 3.287 3.012 3.363 3.533  3.258    7.40
103)  4-bromofluorobenzene (s)
       0.896 0.902 0.892 0.891 0.876 0.891 0.843 0.895 0.901 0.895  0.888    1.95
104)  cis-1,4-dichloro-2-butene
                                                                    0.000#  -1.00
105)  bromobenzene
       0.814 0.795 0.893 0.835 0.821 0.793 0.809 0.847 0.859 0.912  0.838    4.82
106)  1,1,2,2-tetrachloroethane
       0.914 0.892 1.007 0.952 0.930 0.842 0.892 0.859 0.955 1.030  0.927    6.53
107)  trans-1,4-dichloro-2-butene
       0.258 0.218 0.298 0.275 0.274 0.212 0.266       0.275        0.260   11.48
108)  1,2,3-trichloropropane
       0.245 0.238 0.257 0.237 0.229 0.157 0.219       0.241        0.228   13.42
109)  n-propylbenzene
       3.889 3.410 4.197 3.938 3.844 3.517 3.664 3.788 3.992 4.408  3.865    7.72
110)  p-ethyltoluene
                                                                    0.000#  -1.00
111)  2-chlorotoluene
       0.799 0.730 0.874 0.814 0.803 0.772 0.789 0.784 0.837 0.734  0.794    5.49
112)  4-chlorotoluene
       2.406 2.188 2.608 2.467 2.388 2.308 2.342 2.455 2.500 3.235  2.490   11.47
113)  1,3,5-trimethylbenzene
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9972-ICC9972
Lab FileID: E227504.D

```
       2.776 2.492 3.049 2.927 2.958 2.626 2.873 2.565 2.872 2.787  2.793    6.48
114)  tert-butylbenzene
       0.522 0.453 0.600 0.591 0.613 0.510 0.619 0.499 0.558 0.520  0.548   10.25
115)  pentachloroethane
       0.494 0.457 0.577 0.553 0.578 0.455 0.587 0.453 0.511        0.518   10.93
116)  1,2,4-trimethylbenzene
       2.785 2.428 3.100 2.927 2.885 2.586 2.816 2.660 2.884 2.926  2.800    6.95
117)  sec-butylbenzene
       3.765 3.263 4.102 4.019 4.028 3.398 3.963 3.419 3.899 3.933  3.779    8.07
118)  1,3-dichlorobenzene
       1.724 1.567 1.850 1.728 1.709 1.594 1.721 1.722 1.732 1.929  1.728    6.08
119)  p-isopropyltoluene
       3.146 2.797 3.490 3.354 3.367 2.911 3.314 3.100 3.256 3.404  3.214    6.97
120)  1,4-dichlorobenzene
       1.738 1.674 1.869 1.748 1.729 1.707 1.741 1.744 1.776 2.231  1.796    8.97
121)  benzyl chloride
       1.738 1.614 1.975 1.859 1.844 1.848 1.788 2.052 1.819        1.838    6.89
122)  p-diethylbenzene
                                                                    0.000#  -1.00
123)  1,2-dichlorobenzene
       1.735 1.583 1.876 1.764 1.750 1.667 1.742 1.700 1.731 1.792  1.734    4.43
124)  n-butylbenzene
       1.701 1.491 1.864 1.787 1.755 1.518 1.713 1.489 1.740 1.922  1.698    8.99
125)  1,2,4,5-tetramethylbenzene
                                                                    0.000#  -1.00
126)  1,2-dibromo-3-chloropropane
       0.205 0.187 0.235 0.227 0.234 0.203 0.237       0.213        0.218    8.45
127)  1,3,5-trichlorobenzene
       1.501 1.394 1.671 1.581 1.602 1.389 1.612 1.389 1.563 1.848  1.555    9.33
128)  1,2,4-trichlorobenzene
       1.302 1.238 1.468 1.420 1.467 1.224 1.451 1.190 1.336        1.344    8.28
129)  hexachlorobutadiene
       0.669 0.643 0.718 0.707 0.711 0.559 0.713 0.623 0.692        0.671    7.97
130)  naphthalene
       2.877 2.993 3.311 3.206 3.311 2.837 3.227 2.979 2.980        3.080    6.00
131)  1,2,3-trichlorobenzene
       1.201 1.260 1.345 1.290 1.335 1.154 1.306 1.258 1.220        1.263    5.02
132)  hexachloroethane
       0.528 0.477 0.596 0.611 0.645 0.504 0.667 0.599 0.559        0.576   11.13
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          ME9972.M          Wed Jul 15 17:32:29 2015   RPT1
```

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9972-ICV9972
Lab FileID: E227511.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E227511.D Vial: 16
Acq On : 15 Jul 2015 5:05 pm Operator: ThienN
Sample : icv9972-50 Inst : MSE
Misc : MS87801,VE9972,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)
Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Jul 15 17:24:08 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 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		Tert Butyl Alcohol-d9	1.000	1.000	0.0	99	0.02	7.96
2	M	1,4-dioxane	0.094	0.104	-10.6	100	0.00	11.80
3	M	tertiary butyl alcohol	1.206	1.333	-10.5	102	-0.01	8.06
4	I	pentafluorobenzene	1.000	1.000	0.0	97	0.00	10.12
5	M	chlorodifluoromethane	0.899	0.759	15.6	83	0.00	4.39
6	M	dichlorodifluoromethane	0.952	0.976	-2.5	92	0.00	4.37
7	M	chloromethane	1.092	0.998	8.6	96	0.00	4.74
8	M	vinyl chloride	0.998	0.964	3.4	96	0.00	5.04
9		1,3-Butadiene		----------NA----------				
10	M	bromomethane	0.641	0.583	9.0	97	0.00	5.72
11	M	chloroethane	0.436	0.441	-1.1	97	0.00	5.89
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.994	0.987	0.7	95	0.00	6.37
14	M	pentane		----------NA----------				
15	M	ethyl ether	0.293	0.296	-1.0	97	0.00	6.78
16	m	2-chloropropane	1.242	1.383	-11.4	109	0.00	7.01
17	M	acrolein	0.118	0.125	-5.9	101	0.00	7.09
18	M	1,1-dichloroethene	0.971	0.995	-2.5	95	0.00	7.23
19	M	acetone	0.050	0.053	-6.0	98	0.00	7.32
20	M	allyl chloride	0.335	0.380	-13.4	107	0.00	7.78
21	M	acetonitrile	0.057	0.059	-3.5	103	0.00	7.78
22	M	iodomethane	1.066	1.096	-2.8	96	0.00	7.55
23	M	iso-butyl alcohol	0.007	0.007#	0.0	98	0.00	10.42
24	M	carbon disulfide	2.303	2.344	-1.8	98	0.00	7.66
25	M	methylene chloride	0.697	0.686	1.6	98	0.00	7.98
26	m	1-chloropropane	1.345	1.251	7.0	100	0.00	8.00
27	M	methyl acetate	0.405	0.398	1.7	97	0.00	7.74
28	M	methyl tert butyl ether	1.933	1.835	5.1	94	0.00	8.27
29	M	trans-1,2-dichloroethene	0.881	0.898	-1.9	96	0.00	8.34
30	M	di-isopropyl ether	1.910	1.962	-2.7	99	0.00	8.84
31	M	ethyl tert-butyl ether	1.868	1.968	-5.4	99	0.00	9.31
32	M	2-butanone	0.057	0.062	-8.8	104	0.00	9.61
33	M	1,1-dichloroethane	1.022	1.086	-6.3	100	0.00	8.91
34	M	chloroprene	0.712	0.717	-0.7	94	0.00	9.00
35	M	acrylonitrile	0.204	0.219	-7.4	99	0.00	8.31
36	M	vinyl acetate	0.074	0.087	-17.6	109	0.00	8.87
37	M	ethyl acetate	0.067	0.074	-10.4	101	0.00	9.60
38	M	2,2-dichloropropane	0.984	0.994	-1.0	98	0.00	9.64
39	M	cis-1,2-dichloroethene	0.639	0.604	5.5	98	0.00	9.64
40	m	methyl acrylate	0.536	0.557	-3.9	98	0.00	9.69
41	M	propionitrile	0.077	0.079	-2.6	96	0.00	9.73

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9972-ICV9972
Lab FileID: E227511.D

42	M	bromochloromethane	0.262	0.279	-6.5	97	0.00	9.96
43	M	tetrahydrofuran	0.066	0.071	-7.6	101	0.00	9.99
44	M	chloroform	0.939	0.956	-1.8	99	0.00	10.01
45	m	t-butyl formate	0.539	0.615	-14.1	105	0.00	10.03
46	M	Iso-octane	1.938	2.130	-9.9	94	0.00	10.64
47	S	dibromofluoromethane (s)	0.450	0.458	-1.8	97	0.00	10.21
48	S	1,2-dichloroethane-d4 (s)	0.554	0.591	-6.7	98	0.00	10.63
49	M	freon 113	0.384	0.432	-12.5	100	0.00	7.18
50	M	methacrylonitrile	0.186	0.202	-8.6	98	0.00	9.90
51	M	1,1,1-trichloroethane	0.902	0.957	-6.1	98	0.00	10.26
52		Cyclohexane	0.900	0.956	-6.2	95	0.00	10.31
53	M	tert-amyl methyl ether	1.797	1.826	-1.6	98	0.00	10.69
54	I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	11.05
55	M	tert amyl alcohol		----------NA----------				
56	M	epichlorohydrin	0.032	0.039	-21.9	109	0.00	12.35
57	M	n-butyl alcohol	0.011	0.013	-18.2	104	0.00	11.18
58	M	tert-amyl ethyl ether		----------NA----------				
59	M	carbon tetrachloride	0.539	0.559	-3.7	96	0.00	10.45
60	M	1,1-dichloropropene	0.472	0.507	-7.4	101	0.00	10.42
61	M	hexane	0.345	0.365	-5.8	96	0.00	8.59
62	M	benzene	1.505	1.488	1.1	100	0.00	10.69
63	M	heptane	0.209	0.229	-9.6	96	0.00	10.80
64	M	isopropyl acetate	0.157	0.139	11.5	100	0.00	10.58
65	M	1,2-dichloroethane	0.488	0.498	-2.0	99	0.00	10.72
66		ethyl acrylate		----------NA----------				
67	M	trichloroethene	0.356	0.378	-6.2	101	0.00	11.40
68	M	2-nitropropane		----------NA----------				
69	M	2-chloroethyl vinyl ether	0.193	0.219	-13.5	102	0.00	12.20
70	M	methylcyclohexane	0.629	0.656	-4.3	96	0.00	11.60
71	M	methyl methacrylate	0.078	0.084	-7.7	98	0.00	11.65
72	M	1,2-dichloropropane	0.370	0.385	-4.1	100	0.00	11.68
73	M	dibromomethane	0.223	0.235	-5.4	99	0.00	11.86
74	M	bromodichloromethane	0.490	0.513	-4.7	98	0.00	11.98
75	M	cis-1,3-dichloropropene	0.565	0.588	-4.1	97	0.00	12.44
76	S	toluene-d8 (s)	1.183	1.171	1.0	96	0.00	12.73
77	M	4-methyl-2-pentanone	0.145	0.152	-4.8	98	0.00	12.52
78	M	toluene	0.901	0.849	5.8	95	0.00	12.81
79	M	3-methyl-1-butanol	0.019	0.021	-10.5	104	0.00	12.54
80	M	trans-1,3-dichloropropene	0.515	0.506	1.7	89	0.00	13.03
81	M	ethyl methacrylate	0.411	0.437	-6.3	92	0.00	12.99
82	M	1,1,2-trichloroethane	0.253	0.261	-3.2	94	0.00	13.27
83	M	2-hexanone	0.022	0.023	-4.5	94	0.00	13.43
84	I	chlorobenzene-d5	1.000	1.000	0.0	93	0.00	14.38
85	M	cyclohexanone	0.034	0.029	14.7	78	0.00	15.64
86	M	tetrachloroethene	0.399	0.413	-3.5	94	0.00	13.44
87	M	1,3-dichloropropane	0.570	0.579	-1.6	92	0.00	13.47
88	M	butyl acetate	0.239	0.263	-10.0	99	0.00	13.49
89	m	3,3-dimethyl-1-butanol	0.046	0.054	-17.4	103	0.00	13.61
90	M	dibromochloromethane	0.394	0.413	-4.8	94	0.00	13.76
91	M	1,2-dibromoethane	0.344	0.358	-4.1	93	0.00	13.93
92	M	n-butyl ether	1.770	1.879	-6.2	94	0.00	14.26
93	M	chlorobenzene	1.066	1.085	-1.8	93	0.00	14.41
94	M	1,1,1,2-tetrachloroethane	0.433	0.456	-5.3	95	0.00	14.48
95	M	ethylbenzene	1.935	1.922	0.7	94	0.00	14.45
96	M	m,p-xylene	0.712	0.716	-0.6	94	0.00	14.56
97	M	o-xylene	0.744	0.772	-3.8	95	0.00	15.04
98	M	butyl acrylate		----------NA----------				
99	M	styrene	1.153	1.246	-8.1	95	0.00	15.05

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9972-ICV9972
Lab FileID: E227511.D

100	M	bromoform	0.286	0.311	-8.7	96	0.00	15.38
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	99	0.00	16.95
102	M	isopropylbenzene	3.258	3.278	-0.6	95	0.00	15.40
103	S	4-bromofluorobenzene (s)	0.888	0.852	4.1	94	0.00	15.65
104		cis-1,4-dichloro-2-butene		----------NA----------				
105	M	bromobenzene	0.838	0.816	2.6	96	0.00	15.88
106	M	1,1,2,2-tetrachloroethane	0.927	0.894	3.6	92	0.00	15.77
107	M	trans-1,4-dichloro-2-bute	0.260	0.273	-5.0	98	0.00	15.81
108	M	1,2,3-trichloropropane	0.228	0.224	1.8	93	0.00	15.86
109	M	n-propylbenzene	3.865	4.059	-5.0	102	0.00	15.86
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.794	0.788	0.8	95	0.00	16.04
112	M	4-chlorotoluene	2.490	2.405	3.4	96	0.00	16.15
113	M	1,3,5-trimethylbenzene	2.793	2.825	-1.1	95	0.00	16.02
114	M	tert-butylbenzene	0.548	0.581	-6.0	97	0.00	16.41
115	M	pentachloroethane	0.518	0.548	-5.8	98	0.00	16.53
116	M	1,2,4-trimethylbenzene	2.800	2.976	-6.3	100	0.00	16.46
117	M	sec-butylbenzene	3.779	3.899	-3.2	96	0.00	16.65
118	M	1,3-dichlorobenzene	1.728	1.710	1.0	97	0.00	16.88
119	M	p-isopropyltoluene	3.214	3.335	-3.8	98	0.00	16.77
120	M	1,4-dichlorobenzene	1.796	1.748	2.7	99	0.00	16.98
121		benzyl chloride	1.838	1.938	-5.4	103	0.00	17.11
122	M	p-diethylbenzene		----------NA----------				
123	M	1,2-dichlorobenzene	1.734	1.776	-2.4	99	0.00	17.42
124	M	n-butylbenzene	1.698	1.831	-7.8	101	0.00	17.23
125	M	1,2,4,5-tetramethylbenzen		----------NA----------				
126	M	1,2-dibromo-3-chloropropa	0.218	0.229	-5.0	100	0.00	18.28
127	m	1,3,5-trichlorobenzene	1.555	1.615	-3.9	101	0.00	18.46
128	M	1,2,4-trichlorobenzene	1.344	1.420	-5.7	98	0.00	19.20
129	M	hexachlorobutadiene	0.671	0.686	-2.2	96	0.00	19.30
130	M	naphthalene	3.080	3.127	-1.5	96	0.00	19.52
131	M	1,2,3-trichlorobenzene	1.263	1.287	-1.9	98	0.00	19.81
132	M	hexachloroethane	0.576	0.619	-7.5	100	0.00	17.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E227504.D ME9972.M Wed Jul 15 17:32:10 2015 RPT1

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: VE9987-CC9972
Lab FileID: E227907.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E227907.D Vial: 3
Acq On : 30 Jul 2015 7:53 am Operator: ThienN
Sample : CC9972-20 Inst : MSE
Misc : MS88475,VE9987,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)
Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Jul 15 17:24:08 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 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		Tert Butyl Alcohol-d9	1.000	1.000	0.0	83	-0.02	7.92
2	M	1,4-dioxane	0.094	0.084	10.6	71	0.00	11.79
3	M	tertiary butyl alcohol	1.206	1.302	-8.0	88	-0.03	8.04
4	I	pentafluorobenzene	1.000	1.000	0.0	115	0.00	10.12
5	M	chlorodifluoromethane	0.899	1.020	-13.5	126	0.00	4.39
6	M	dichlorodifluoromethane	0.952	1.026	-7.8	113	0.00	4.37
7	M	chloromethane	1.092	1.115	-2.1	124	0.00	4.75
8	M	vinyl chloride	0.998	1.041	-4.3	114	0.00	5.03
9		1,3-Butadiene		----------NA----------				
10	M	bromomethane	0.641	0.598	6.7	102	0.00	5.72
11	M	chloroethane	0.436	0.465	-6.7	115	0.00	5.90
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.994	1.087	-9.4	119	0.01	6.39
14	M	pentane		----------NA----------				
15	M	ethyl ether	0.293	0.298	-1.7	109	0.00	6.78
16	m	2-chloropropane	1.242	1.370	-10.3	120	0.00	7.00
17	M	acrolein	0.118	0.112	5.1	100	-0.01	7.08
18	M	1,1-dichloroethene	0.971	1.039	-7.0	111	0.00	7.23
19	M	acetone	0.050	0.045	10.0	94	0.00	7.31
20	M	allyl chloride	0.335	0.328	2.1	108	-0.01	7.76
21	M	acetonitrile	0.057	0.057	0.0	107	0.00	7.77
22	M	iodomethane	1.066	1.085	-1.8	106	-0.01	7.53
23	M	iso-butyl alcohol	0.007	0.007#	0.0	111	0.00	10.42
24	M	carbon disulfide	2.303	2.230	3.2	105	0.00	7.66
25	M	methylene chloride	0.697	0.659	5.5	103	-0.01	7.97
26	m	1-chloropropane	1.345	1.356	-0.8	116	0.00	7.99
27	M	methyl acetate	0.405	0.409	-1.0	108	0.00	7.75
28	M	methyl tert butyl ether	1.933	1.906	1.4	107	0.00	8.26
29	M	trans-1,2-dichloroethene	0.881	0.946	-7.4	112	0.00	8.33
30	M	di-isopropyl ether	1.910	2.120	-11.0	122	0.00	8.84
31	M	ethyl tert-butyl ether	1.868	1.966	-5.2	111	0.00	9.31
32	M	2-butanone	0.057	0.056	1.8	105	0.00	9.60
33	M	1,1-dichloroethane	1.022	1.102	-7.8	113	0.00	8.91
34	M	chloroprene	0.712	0.847	-19.0	128	0.00	9.00
35	M	acrylonitrile	0.204	0.208	-2.0	106	0.00	8.31
36	M	vinyl acetate	0.074	0.081	-9.5	118	0.00	8.87
37	M	ethyl acetate	0.067	0.068	-1.5	104	0.00	9.60
38	M	2,2-dichloropropane	0.984	1.112	-13.0	123	0.00	9.64
39	M	cis-1,2-dichloroethene	0.639	0.597	6.6	106	0.00	9.64
40	m	methyl acrylate	0.536	0.526	1.9	104	0.00	9.68
41	M	propionitrile	0.077	0.073	5.2	101	0.00	9.73

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9987-CC9972
Lab FileID: E227907.D

42	M	bromochloromethane	0.262	0.287	-9.5	112	0.00	9.96
43	M	tetrahydrofuran	0.066	0.062	6.1	100	0.00	9.99
44	M	chloroform	0.939	1.014	-8.0	117	0.00	10.00
45	m	t-butyl formate	0.539	0.572	-6.1	113	0.00	10.02
46	M	Iso-octane	1.938	2.069	-6.8	109	0.00	10.64
47	S	dibromofluoromethane (s)	0.450	0.458	-1.8	117	0.00	10.21
48	S	1,2-dichloroethane-d4 (s)	0.554	0.579	-4.5	119	0.00	10.63
49	M	freon 113	0.384	0.433	-12.8	115	0.00	7.19
50	M	methacrylonitrile	0.186	0.181	2.7	101	0.00	9.90
51	M	1,1,1-trichloroethane	0.902	0.980	-8.6	114	0.00	10.25
52		Cyclohexane	0.900	0.938	-4.2	106	0.00	10.31
53	M	tert-amyl methyl ether	1.797	1.760	2.1	105	0.00	10.69
54	I	1,4-difluorobenzene	1.000	1.000	0.0	109	0.00	11.05
55	M	tert amyl alcohol		----------NA----------				
56	M	epichlorohydrin	0.032	0.033	-3.1	101	0.00	12.35
57	M	n-butyl alcohol	0.011	0.008#	27.3#	79	0.00	11.17
58	M	tert-amyl ethyl ether		----------NA----------				
59	M	carbon tetrachloride	0.539	0.647	-20.0#	118	0.00	10.44
60	M	1,1-dichloropropene	0.472	0.560	-18.6	119	0.00	10.42
61	M	hexane	0.345	0.465	-34.8#	128	0.00	8.59
62	M	benzene	1.505	1.599	-6.2	111	0.00	10.69
63	M	heptane	0.209	0.265	-26.8#	122	0.00	10.80
64	M	isopropyl acetate	0.157	0.151	3.8	108	0.00	10.58
65	M	1,2-dichloroethane	0.488	0.598	-22.5#	123	0.00	10.72
66		ethyl acrylate		----------NA----------				
67	M	trichloroethene	0.356	0.395	-11.0	111	0.00	11.39
68	M	2-nitropropane		----------NA----------				
69	M	2-chloroethyl vinyl ether	0.193	0.213	-10.4	109	0.00	12.19
70	M	methylcyclohexane	0.629	0.702	-11.6	111	0.00	11.60
71	M	methyl methacrylate	0.078	0.078	0.0	102	0.00	11.64
72	M	1,2-dichloropropane	0.370	0.411	-11.1	112	0.00	11.68
73	M	dibromomethane	0.223	0.248	-11.2	109	0.00	11.85
74	M	bromodichloromethane	0.490	0.541	-10.4	111	0.00	11.97
75	M	cis-1,3-dichloropropene	0.565	0.649	-14.9	115	0.00	12.43
76	S	toluene-d8 (s)	1.183	1.195	-1.0	110	0.00	12.73
77	M	4-methyl-2-pentanone	0.145	0.151	-4.1	101	0.00	12.52
78	M	toluene	0.901	0.923	-2.4	111	0.00	12.81
79	M	3-methyl-1-butanol	0.019	0.015	21.1#	84	0.00	12.54
80	M	trans-1,3-dichloropropene	0.515	0.595	-15.5	114	0.00	13.03
81	M	ethyl methacrylate	0.411	0.444	-8.0	102	0.00	12.98
82	M	1,1,2-trichloroethane	0.253	0.273	-7.9	106	0.00	13.27
83	M	2-hexanone	0.022	0.025	-13.6	115	0.00	13.43
84	I	chlorobenzene-d5	1.000	1.000	0.0	110	0.00	14.38
85	M	cyclohexanone	0.034	0.048	-41.2#	132	0.00	15.64
86	M	tetrachloroethene	0.399	0.435	-9.0	114	0.00	13.43
87	M	1,3-dichloropropane	0.570	0.614	-7.7	109	0.00	13.47
88	M	butyl acetate	0.239	0.259	-8.4	108	0.00	13.48
89	m	3,3-dimethyl-1-butanol	0.046	0.041	10.9	90	0.00	13.61
90	M	dibromochloromethane	0.394	0.424	-7.6	111	0.00	13.76
91	M	1,2-dibromoethane	0.344	0.353	-2.6	103	0.00	13.93
92	M	n-butyl ether	1.770	2.039	-15.2	113	0.00	14.25
93	M	chlorobenzene	1.066	1.148	-7.7	111	0.00	14.41
94	M	1,1,1,2-tetrachloroethane	0.433	0.471	-8.8	109	0.00	14.47
95	M	ethylbenzene	1.935	2.060	-6.5	111	0.00	14.45
96	M	m,p-xylene	0.712	0.758	-6.5	109	0.00	14.56
97	M	o-xylene	0.744	0.792	-6.5	109	0.00	15.03
98	M	butyl acrylate		----------NA----------				
99	M	styrene	1.153	1.248	-8.2	107	0.00	15.04

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9987-CC9972
Lab FileID: E227907.D

100	M	bromoform	0.286	0.294	-2.8	102	0.00	15.37
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	16.94
102	M	isopropylbenzene	3.258	3.721	-14.2	112	0.00	15.40
103	S	4-bromofluorobenzene (s)	0.888	0.921	-3.7	110	0.00	15.65
104		cis-1,4-dichloro-2-butene		----------NA----------				
105	M	bromobenzene	0.838	0.908	-8.4	108	0.00	15.88
106	M	1,1,2,2-tetrachloroethane	0.927	0.923	0.4	98	0.00	15.77
107	M	trans-1,4-dichloro-2-bute	0.260	0.298	-14.6	106	0.00	15.81
108	M	1,2,3-trichloropropane	0.228	0.241	-5.7	100	0.00	15.87
109	M	n-propylbenzene	3.865	4.267	-10.4	108	0.00	15.86
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.794	0.879	-10.7	107	0.00	16.04
112	M	4-chlorotoluene	2.490	2.659	-6.8	109	0.00	16.15
113	M	1,3,5-trimethylbenzene	2.793	3.206	-14.8	112	0.00	16.02
114	M	tert-butylbenzene	0.548	0.633	-15.5	112	0.00	16.40
115	M	pentachloroethane	0.518	0.598	-15.4	110	0.00	16.53
116	M	1,2,4-trimethylbenzene	2.800	3.207	-14.5	110	0.00	16.46
117	M	sec-butylbenzene	3.779	4.298	-13.7	111	0.00	16.64
118	M	1,3-dichlorobenzene	1.728	1.855	-7.3	107	0.00	16.88
119	M	p-isopropyltoluene	3.214	3.673	-14.3	112	0.00	16.77
120	M	1,4-dichlorobenzene	1.796	1.879	-4.6	107	0.00	16.97
121		benzyl chloride	1.838	1.945	-5.8	105	0.00	17.11
122	M	p-diethylbenzene		----------NA----------				
123	M	1,2-dichlorobenzene	1.734	1.835	-5.8	104	0.00	17.41
124	M	n-butylbenzene	1.698	1.876	-10.5	107	0.00	17.23
125	M	1,2,4,5-tetramethylbenzen		----------NA----------				
126	M	1,2-dibromo-3-chloropropa	0.218	0.187	14.2	85	0.00	18.28
127	m	1,3,5-trichlorobenzene	1.555	1.638	-5.3	104	0.00	18.45
128	M	1,2,4-trichlorobenzene	1.344	1.384	-3.0	100	0.00	19.20
129	M	hexachlorobutadiene	0.671	0.693	-3.3	103	0.00	19.30
130	M	naphthalene	3.080	2.681	13.0	86	0.00	19.52
131	M	1,2,3-trichlorobenzene	1.263	1.168	7.5	92	0.00	19.80
132	M	hexachloroethane	0.576	0.636	-10.4	114	0.00	17.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E227503.D ME9972.M Thu Jul 30 12:53:41 2015 RPT1

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9988-CC9972
Lab FileID: E227948.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E227948.D Vial: 2
Acq On : 31 Jul 2015 9:20 am Operator: ThienN
Sample : cc9972-50 Inst : MSE
Misc : MS88817,VE9988,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)
Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Jul 15 17:24:08 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 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		Tert Butyl Alcohol-d9	1.000	1.000	0.0	101	-0.02	7.92
2	M	1,4-dioxane	0.094	0.094	0.0	93	0.00	11.79
3	M	tertiary butyl alcohol	1.206	1.421	-17.8	111	-0.02	8.05
4	I	pentafluorobenzene	1.000	1.000	0.0	123	0.00	10.12
5	M	chlorodifluoromethane	0.899	1.025	-14.0	142	0.00	4.39
6	M	dichlorodifluoromethane	0.952	1.170	-22.9#	141	0.00	4.37
7	M	chloromethane	1.092	1.141	-4.5	139	0.02	4.76
8	M	vinyl chloride	0.998	1.055	-5.7	133	0.00	5.04
9		1,3-Butadiene		----------NA----------				
10	M	bromomethane	0.641	0.577	10.0	121	0.00	5.72
11	M	chloroethane	0.436	0.455	-4.4	127	0.00	5.89
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.994	1.112	-11.9	136	0.00	6.38
14	M	pentane		----------NA----------				
15	M	ethyl ether	0.293	0.275	6.1	115	-0.01	6.77
16	m	2-chloropropane	1.242	1.282	-3.2	128	-0.01	7.00
17	M	acrolein	0.118	0.109	7.6	112	-0.01	7.08
18	M	1,1-dichloroethene	0.971	0.987	-1.6	119	0.00	7.23
19	M	acetone	0.050	0.045	10.0	105	-0.01	7.31
20	M	allyl chloride	0.335	0.296	11.6	106	0.00	7.77
21	M	acetonitrile	0.057	0.059	-3.5	129	0.00	7.77
22	M	iodomethane	1.066	1.035	2.9	115	0.00	7.54
23	M	iso-butyl alcohol	0.007	0.007#	0.0	124	0.00	10.42
24	M	carbon disulfide	2.303	2.122	7.9	112	0.00	7.66
25	M	methylene chloride	0.697	0.609	12.6	110	0.00	7.97
26	m	1-chloropropane	1.345	1.237	8.0	126	0.00	8.00
27	M	methyl acetate	0.405	0.429	-5.9	132	0.00	7.74
28	M	methyl tert butyl ether	1.933	1.757	9.1	114	0.00	8.26
29	M	trans-1,2-dichloroethene	0.881	0.868	1.5	118	0.00	8.33
30	M	di-isopropyl ether	1.910	2.087	-9.3	134	0.00	8.84
31	M	ethyl tert-butyl ether	1.868	1.978	-5.9	126	0.00	9.30
32	M	2-butanone	0.057	0.052	8.8	112	0.00	9.61
33	M	1,1-dichloroethane	1.022	1.019	0.3	119	0.00	8.91
34	M	chloroprene	0.712	0.858	-20.5#	143	0.00	9.00
35	M	acrylonitrile	0.204	0.194	4.9	111	0.00	8.31
36	M	vinyl acetate	0.074	0.077	-4.1	122	0.00	8.87
37	M	ethyl acetate	0.067	0.066	1.5	115	0.00	9.60
38	M	2,2-dichloropropane	0.984	1.029	-4.6	128	0.00	9.64
39	M	cis-1,2-dichloroethene	0.639	0.568	11.1	117	0.00	9.64
40	m	methyl acrylate	0.536	0.504	6.0	112	0.00	9.68
41	M	propionitrile	0.077	0.072	6.5	110	0.00	9.73

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9988-CC9972
Lab FileID: E227948.D

42	M	bromochloromethane	0.262	0.266	-1.5	118	0.00	9.96
43	M	tetrahydrofuran	0.066	0.062	6.1	112	0.00	9.99
44	M	chloroform	0.939	0.931	0.9	123	0.00	10.00
45	m	t-butyl formate	0.539	0.583	-8.2	126	0.00	10.02
46	M	Iso-octane	1.938	2.340	-20.7#	131	0.00	10.64
47	S	dibromofluoromethane (s)	0.450	0.440	2.2	119	0.00	10.21
48	S	1,2-dichloroethane-d4 (s)	0.554	0.570	-2.9	120	0.00	10.63
49	M	freon 113	0.384	0.469	-22.1#	138	0.00	7.18
50	M	methacrylonitrile	0.186	0.181	2.7	112	0.00	9.89
51	M	1,1,1-trichloroethane	0.902	0.945	-4.8	123	0.00	10.25
52		Cyclohexane	0.900	0.937	-4.1	118	0.00	10.31
53	M	tert-amyl methyl ether	1.797	1.758	2.2	120	0.00	10.69
54	I	1,4-difluorobenzene	1.000	1.000	0.0	116	0.00	11.05
55	M	tert amyl alcohol		----------NA----------				
56	M	epichlorohydrin	0.032	0.035	-9.4	113	0.00	12.35
57	M	n-butyl alcohol	0.011	0.010	9.1	101	0.00	11.17
58	M	tert-amyl ethyl ether		----------NA----------				
59	M	carbon tetrachloride	0.539	0.609	-13.0	123	0.00	10.45
60	M	1,1-dichloropropene	0.472	0.529	-12.1	125	0.00	10.42
61	M	hexane	0.345	0.482	-39.7#	149	0.00	8.59
62	M	benzene	1.505	1.492	0.9	118	0.00	10.69
63	M	heptane	0.209	0.276	-32.1#	137	0.00	10.80
64	M	isopropyl acetate	0.157	0.137	12.7	116	0.00	10.58
65	M	1,2-dichloroethane	0.488	0.544	-11.5	127	0.00	10.72
66		ethyl acrylate		----------NA----------				
67	M	trichloroethene	0.356	0.377	-5.9	118	0.00	11.40
68	M	2-nitropropane		----------NA----------				
69	M	2-chloroethyl vinyl ether	0.193	0.207	-7.3	114	0.00	12.20
70	M	methylcyclohexane	0.629	0.748	-18.9	129	0.00	11.60
71	M	methyl methacrylate	0.078	0.078	0.0	107	0.00	11.65
72	M	1,2-dichloropropane	0.370	0.382	-3.2	117	0.00	11.68
73	M	dibromomethane	0.223	0.228	-2.2	114	0.00	11.85
74	M	bromodichloromethane	0.490	0.520	-6.1	117	0.00	11.98
75	M	cis-1,3-dichloropropene	0.565	0.600	-6.2	117	0.00	12.44
76	S	toluene-d8 (s)	1.183	1.179	0.3	114	0.00	12.73
77	M	4-methyl-2-pentanone	0.145	0.140	3.4	107	0.00	12.52
78	M	toluene	0.901	0.874	3.0	115	0.00	12.81
79	M	3-methyl-1-butanol	0.019	0.017	10.5	101	0.00	12.54
80	M	trans-1,3-dichloropropene	0.515	0.548	-6.4	114	0.00	13.03
81	M	ethyl methacrylate	0.411	0.418	-1.7	104	0.00	12.99
82	M	1,1,2-trichloroethane	0.253	0.252	0.4	107	0.00	13.27
83	M	2-hexanone	0.022	0.022	0.0	104	0.00	13.43
84	I	chlorobenzene-d5	1.000	1.000	0.0	111	0.00	14.38
85	M	cyclohexanone	0.034	0.022	35.3#	71	0.00	15.64
86	M	tetrachloroethene	0.399	0.441	-10.5	120	0.00	13.43
87	M	1,3-dichloropropane	0.570	0.583	-2.3	110	0.00	13.47
88	M	butyl acetate	0.239	0.258	-7.9	116	0.00	13.48
89	m	3,3-dimethyl-1-butanol	0.046	0.049	-6.5	112	0.00	13.61
90	M	dibromochloromethane	0.394	0.414	-5.1	112	0.00	13.76
91	M	1,2-dibromoethane	0.344	0.342	0.6	106	0.00	13.93
92	M	n-butyl ether	1.770	1.971	-11.4	118	0.00	14.26
93	M	chlorobenzene	1.066	1.096	-2.8	112	0.00	14.41
94	M	1,1,1,2-tetrachloroethane	0.433	0.468	-8.1	117	0.00	14.48
95	M	ethylbenzene	1.935	1.966	-1.6	114	0.00	14.45
96	M	m,p-xylene	0.712	0.732	-2.8	114	0.00	14.56
97	M	o-xylene	0.744	0.774	-4.0	114	0.00	15.03
98	M	butyl acrylate		----------NA----------				
99	M	styrene	1.153	1.213	-5.2	110	0.00	15.05

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VE9988-CC9972
Lab FileID: E227948.D

100	M	bromoform	0.286	0.289	-1.0	106	0.00	15.38
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	110	0.00	16.94
102	M	isopropylbenzene	3.258	3.556	-9.1	115	0.00	15.40
103	S	4-bromofluorobenzene (s)	0.888	0.895	-0.8	111	0.00	15.65
104		cis-1,4-dichloro-2-butene		----------NA----------				
105	M	bromobenzene	0.838	0.854	-1.9	113	0.00	15.88
106	M	1,1,2,2-tetrachloroethane	0.927	0.849	8.4	98	0.00	15.77
107	M	trans-1,4-dichloro-2-bute	0.260	0.280	-7.7	112	0.00	15.81
108	M	1,2,3-trichloropropane	0.228	0.221	3.1	103	0.00	15.86
109	M	n-propylbenzene	3.865	4.008	-3.7	112	0.00	15.86
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.794	0.825	-3.9	112	0.00	16.04
112	M	4-chlorotoluene	2.490	2.473	0.7	111	0.00	16.15
113	M	1,3,5-trimethylbenzene	2.793	3.046	-9.1	115	0.00	16.02
114	M	tert-butylbenzene	0.548	0.629	-14.8	117	0.00	16.41
115	M	pentachloroethane	0.518	0.586	-13.1	117	0.00	16.53
116	M	1,2,4-trimethylbenzene	2.800	3.011	-7.5	114	0.00	16.46
117	M	sec-butylbenzene	3.779	4.154	-9.9	114	0.00	16.65
118	M	1,3-dichlorobenzene	1.728	1.731	-0.2	111	0.00	16.88
119	M	p-isopropyltoluene	3.214	3.508	-9.1	115	0.00	16.77
120	M	1,4-dichlorobenzene	1.796	1.748	2.7	110	0.00	16.98
121		benzyl chloride	1.838	1.906	-3.7	113	0.00	17.11
122	M	p-diethylbenzene		----------NA----------				
123	M	1,2-dichlorobenzene	1.734	1.736	-0.1	109	0.00	17.42
124	M	n-butylbenzene	1.698	1.789	-5.4	111	0.00	17.23
125	M	1,2,4,5-tetramethylbenzen		----------NA----------				
126	M	1,2-dibromo-3-chloropropa	0.218	0.187	14.2	91	0.00	18.28
127	m	1,3,5-trichlorobenzene	1.555	1.626	-4.6	113	0.00	18.46
128	M	1,2,4-trichlorobenzene	1.344	1.367	-1.7	106	0.00	19.20
129	M	hexachlorobutadiene	0.671	0.754	-12.4	118	0.00	19.30
130	M	naphthalene	3.080	2.541	17.5	87	0.00	19.52
131	M	1,2,3-trichlorobenzene	1.263	1.145	9.3	98	0.00	19.80
132	M	hexachloroethane	0.576	0.632	-9.7	114	0.00	17.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E227504.D ME9972.M Fri Jul 31 12:06:51 2015 RPT1

6.9.4

6

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICC6733
Lab FileID: X156375.D

Response Factor Report ACC-VOA-M

```
Method       : C:\MSDCHEM\1\METHODS\MX6733.M (RTE Integrator)
Title        : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Calibration Files
1   =x156370.D   2   =x156371.D   100 =x156376.D   50  =x156375.D
20  =x156374.D   200 =x156377.D   8   =x156373.D   4   =x156372.D
0.5 =x156369.D   0.2 =x156368.D       =                =

Compound
        1     2     100   50    20    200   8     4     0.5   0.2    Avg   %RSD
-------------------------------------------------------------------------------

1) I   tert butyl alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
     1.337 1.406 1.153 1.124 1.189 1.135 1.276 1.192              1.226    8.38
3)  1,4-dioxane
                 0.089 0.083 0.088 0.093 0.089 0.081              0.087    4.85

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  chlorotrifluoroethene
                                                                  0.000   -1.00
6)  chlorodifluoromethane
     0.653 0.703 0.743 0.746 0.748 0.712 0.708 0.724              0.717    4.41
7)  dichlorodifluoromethane
     0.854 0.909 0.902 0.918 0.885 0.897 0.919 0.752 0.888        0.880    5.91
8)  chloromethane
     1.010 0.829 0.720 0.679 0.681 0.735 0.697 0.667 0.906        0.769   15.62
9)  vinyl chloride
     0.966 0.764 0.763 0.722 0.706 0.778 0.741 0.661 0.796        0.767   11.11
10)  bromomethane
            0.557 0.412 0.403 0.420 0.382 0.451 0.478             0.443   13.40
11)  chloroethane
     0.402 0.298 0.267 0.265 0.277 0.250 0.293 0.269 0.265        0.287   15.82
12)  vinyl bromide
                                                                  0.000   -1.00
13)  trichlorofluoromethane
     0.802 0.715 0.698 0.696 0.696 0.696 0.736 0.629              0.709    6.83
14)  1,3-butadiene
                                                                  0.000   -1.00
15)  pentane
                                                                  0.000   -1.00
16)  ethyl ether
     0.169 0.163 0.166 0.162 0.168 0.163 0.186 0.165              0.168    4.65
17)  acrolein
     0.050 0.052 0.039 0.045 0.046 0.048 0.049 0.049              0.047    8.12
18)  1,1-dichloroethene
     0.494 0.583 0.529 0.534 0.540 0.508 0.602 0.559 0.578        0.547    6.58
19)  acetone
                 0.024 0.030 0.022 0.022 0.032                    0.026   17.41
20)  allyl chloride
     0.167 0.153 0.188 0.188 0.192 0.185 0.214 0.206              0.187   10.49
21)  acetonitrile
                 0.026 0.026 0.025 0.025 0.028                    0.026    4.37
22)  iodomethane
     0.807 0.788 0.788 0.779 0.780 0.764 0.881 0.816 0.896        0.811    5.77
23)  iso-butyl alcohol
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICC6733
Lab FileID: X156375.D

```
      0.020 0.020 0.014 0.014 0.016 0.014 0.019 0.018              0.017   16.22
24)  carbon disulfide
      1.642 1.543 1.375 1.394 1.411 1.324 1.608 1.542 1.972        1.534   12.89
25)  methylene chloride
      0.548 0.476 0.384 0.388 0.388 0.370 0.457 0.438              0.431   14.14
26)  methyl acetate
            0.274 0.182 0.185 0.191 0.178 0.210 0.219              0.206   16.56
27)  methyl tert butyl ether
      1.320 1.279 1.127 1.121 1.142 1.098 1.302 1.178 1.564 1.176  1.231   11.52
28)  trans-1,2-dichloroethene
      0.548 0.581 0.498 0.506 0.525 0.478 0.576 0.552 0.692        0.551   11.53
29)  di-isopropyl ether
      1.242 1.386 1.318 1.301 1.314 1.284 1.356 1.344 1.346 1.681  1.357    8.89
30)  2-butanone
                  0.030 0.030 0.030 0.028 0.034                    0.030    7.15
31)  1,1-dichloroethane
      0.640 0.683 0.628 0.635 0.667 0.600 0.735 0.655 0.873        0.680   12.04
32)  chloroprene
      0.427 0.469 0.462 0.458 0.476 0.446 0.451 0.488 0.448        0.458    3.92
33)  acrylonitrile
      0.079 0.094 0.086 0.085 0.091 0.084 0.102 0.088              0.089    7.99
34)  vinyl acetate
                  0.043 0.042 0.039 0.042 0.037 0.031              0.039   11.87
35)  ethyl tert-butyl ether
      1.203 1.259 1.281 1.236 1.249 1.265 1.287 1.230 1.142 1.335  1.248    4.16
36)  ethyl acetate
                  0.035 0.035 0.035 0.034 0.032 0.024              0.033   13.12
37)  2,2-dichloropropane
      0.760 0.732 0.641 0.650 0.659 0.617 0.729 0.697 0.991        0.720   15.63
38)  cis-1,2-dichloroethene
      0.489 0.474 0.391 0.391 0.404 0.377 0.442 0.432 0.635        0.448   17.84
39)  methyl acrylate
                                                                   0.000   -1.00
40)  propionitrile
      0.026 0.033 0.034 0.033 0.035 0.034 0.039 0.033              0.034   10.19
41)  tert-Butyl Formate
      0.269 0.294 0.295 0.290 0.291 0.295 0.310 0.300              0.293    3.93
42)  bromochloromethane
      0.181 0.211 0.188 0.186 0.189 0.186 0.206 0.190              0.192    5.49
43)  tetrahydrofuran
            0.127 0.091 0.092 0.103 0.090 0.120 0.115              0.105   14.53
44)  chloroform
      0.684 0.658 0.584 0.579 0.604 0.567 0.656 0.628 0.813 0.751  0.652   12.16
45)  dibromofluoromethane (s)
      0.366 0.362 0.360 0.358 0.366 0.357 0.368 0.366 0.362 0.359  0.363    1.09
46)  1,2-dichloroethane-d4 (s)
      0.296 0.295 0.293 0.291 0.296 0.293 0.302 0.300 0.298 0.293  0.296    1.14
47)  freon 113
            0.309 0.355 0.362 0.369 0.345 0.339 0.348              0.347    5.63
48)  methacrylonitrile
            0.087 0.093 0.089 0.097 0.093 0.101 0.095              0.094    4.90
49)  1,1,1-trichloroethane
      0.658 0.629 0.605 0.605 0.617 0.596 0.664 0.640 0.766        0.642    8.10
50)  cyclohexane
      0.694 0.686 0.624 0.637 0.644 0.624 0.692 0.660 0.656        0.657    4.22
51)  tert amyl alcohol
                                                                   0.000   -1.00
52)  iso-octane
      1.305 1.278 1.559 1.498 1.455 1.582 1.279 1.344 1.235        1.393    9.48
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICC6733
Lab FileID: X156375.D

```
53) I   1,4-difluorobenzene   ----------------ISTD--------------------
54)  epichlorohydrin
            0.023 0.018 0.018 0.019 0.018 0.020 0.019              0.019    9.14
55)  n-butyl alcohol
      0.008 0.009 0.007 0.007 0.008 0.008 0.008 0.007 0.012        0.008   17.13
56)  carbon tetrachloride
      0.483 0.497 0.459 0.461 0.475 0.439 0.518 0.492 0.483        0.478    4.92
57)  1,1-dichloropropene
      0.401 0.396 0.365 0.365 0.382 0.355 0.400 0.381 0.431        0.386    6.08
58)  hexane
      0.479 0.424 0.371 0.376 0.394 0.357 0.365 0.407              0.397   10.16
59)  benzene
      1.338 1.310 1.095 1.100 1.158 1.055 1.256 1.234 1.681 1.474  1.270   15.22
60)  tert-amyl methyl ether
      0.978 1.031 0.930 0.927 0.970 0.910 1.011 1.038 1.099 1.452  1.035   15.26
61)  heptane
      0.199 0.209 0.206 0.208 0.222 0.200 0.190 0.196 0.168        0.200    7.49
62)  isopropyl acetate
      0.656 0.672 0.614 0.595 0.613 0.609 0.636 0.626 0.692        0.635    5.11
63)  1,2-dichloroethane
      0.305 0.342 0.283 0.288 0.309 0.274 0.343 0.324 0.355        0.314    9.21
64)  trichloroethene
      0.335 0.322 0.309 0.305 0.318 0.308 0.339 0.318 0.417        0.330   10.52
65)  ethyl acrylate
                                                                   0.000   -1.00
66)  tert amyl ethyl ether
                                                                   0.000   -1.00
67)  2-nitropropane
            0.070 0.059 0.058 0.064 0.058 0.071 0.065              0.063    8.71
68)  2-chloroethyl vinyl ether
      0.068 0.073 0.072 0.070 0.070 0.074 0.072 0.069 0.069        0.071    2.88
69)  methyl methacrylate
            0.139 0.130 0.129 0.137 0.128 0.153 0.126              0.134    6.98
70)  1,2-dichloropropane
      0.319 0.319 0.289 0.286 0.293 0.284 0.327 0.296 0.314        0.303    5.49
71)  dibromomethane
      0.154 0.176 0.149 0.145 0.155 0.146 0.164 0.156 0.172        0.158    7.03
72)  methylcyclohexane
      0.532 0.529 0.596 0.602 0.597 0.583 0.547 0.568 0.486        0.560    6.99
73)  bromodichloromethane
      0.385 0.386 0.367 0.357 0.365 0.361 0.396 0.387 0.437        0.383    6.45
74)  cis-1,3-dichloropropene
      0.466 0.463 0.437 0.440 0.450 0.435 0.483 0.460 0.477        0.457    3.78
75)  toluene-d8 (s)
      1.113 1.113 1.120 1.132 1.125 1.111 1.130 1.112 1.100 1.099  1.116    1.00
76)  4-methyl-2-pentanone
            0.088 0.085 0.085 0.090 0.086 0.093 0.074              0.086    7.19
77)  toluene
      0.810 0.756 0.682 0.677 0.707 0.670 0.751 0.733 0.847 0.899  0.753   10.22
78)  3-methyl-1-butanol
      0.015 0.016 0.012 0.012 0.012 0.012 0.013 0.012              0.013   12.83
79)  trans-1,3-dichloropropene
      0.427 0.407 0.367 0.365 0.375 0.359 0.402 0.367 0.395        0.385    6.10
80)  ethyl methacrylate
      0.312 0.288 0.277 0.275 0.280 0.275 0.303 0.278 0.284        0.286    4.60
81)  1,1,2-trichloroethane
      0.187 0.185 0.177 0.179 0.179 0.175 0.195 0.180 0.178        0.182    3.47
82)  2-hexanone
            0.070 0.072 0.075 0.078 0.071 0.081 0.064              0.073    7.90
```

Initial Calibration Summary

Job Number: JB99970A **Sample:** VX6733-ICC6733
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** X156375.D
Project: MHIC AOI 5 Demo Characterization

```
 83) I   chlorobenzene-d5      ----------------ISTD--------------------
 84)  3,3-Dimethyl-1-butanol
       0.043 0.047 0.040 0.037 0.039 0.041 0.039 0.037              0.040    8.13
 85)  tetrachloroethene
       0.378 0.334 0.317 0.309 0.315 0.317 0.330 0.333 0.416        0.339   10.45
 86)  1,3-dichloropropane
       0.465 0.460 0.411 0.398 0.422 0.404 0.452 0.427 0.431        0.430    5.64
 87)  butyl acetate
       0.208 0.232 0.177 0.164 0.179 0.180 0.176 0.181              0.187   11.65
 88)  dibromochloromethane
       0.360 0.369 0.344 0.329 0.343 0.346 0.366 0.334 0.359        0.350    4.07
 89)  1,2-dibromoethane
       0.306 0.288 0.258 0.249 0.261 0.260 0.277 0.265 0.311        0.275    8.07
 90)  n-butyl ether
       1.856 1.738 1.613 1.562 1.607 1.595 1.697 1.632 1.670        1.663    5.44
 91)  chlorobenzene
       1.133 1.067 0.947 0.909 0.936 0.926 1.006 0.972 1.050 1.138  1.008    8.39
 92)  1,1,1,2-tetrachloroethane
       0.431 0.468 0.430 0.410 0.432 0.424 0.448 0.439 0.459        0.438    4.07
 93)  ethylbenzene
       1.909 1.694 1.552 1.515 1.587 1.507 1.683 1.622 1.865 2.063  1.700   11.01
 94)  m,p-xylene
       0.743 0.662 0.612 0.597 0.622 0.596 0.659 0.650 0.725 0.780  0.665    9.67
 95)  o-xylene
       0.746 0.713 0.683 0.663 0.671 0.680 0.713 0.665 0.759 0.659  0.695    5.15
 96)  styrene
       1.172 1.098 1.027 1.002 1.036 0.999 1.102 1.015 1.189 1.307  1.095    9.25
 97)  bromoform
       0.244 0.252 0.238 0.229 0.235 0.247 0.244 0.222 0.228        0.238    4.26

 98) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
 99)  isopropylbenzene
       3.430 3.180 3.159 3.067 3.071 3.053 3.131 2.949 3.295 3.201  3.154    4.31
100)  cis-1,4-dichloro-2-butene
                                                                    0.000   -1.00
101)  Cyclohexanone
       0.147 0.131 0.106 0.114 0.104 0.089 0.105 0.109              0.113   15.88
102)  4-bromofluorobenzene (s)
       0.816 0.817 0.818 0.814 0.806 0.794 0.802 0.797 0.809 0.817  0.809    1.09
103)  bromobenzene
       0.949 0.827 0.775 0.756 0.764 0.752 0.807 0.780 0.954        0.818    9.68
104)  1,1,2,2-tetrachloroethane
       0.776 0.712 0.642 0.621 0.657 0.628 0.673 0.618 0.899        0.692   13.41
105)  trans-1,4-dichloro-2-butene
       0.169 0.161 0.154 0.149 0.165 0.147 0.170 0.154              0.159    5.54
106)  1,2,3-trichloropropane
       0.176 0.157 0.145 0.147 0.152 0.138 0.162 0.137              0.152    8.62
107)  n-propylbenzene
       3.926 3.579 3.183 3.157 3.232 3.027 3.390 3.198 3.787        3.387    9.16
108)  4-ethyltoluene
                                                                    0.000   -1.00
109)  2-chlorotoluene
       0.845 0.775 0.755 0.740 0.744 0.732 0.781 0.713 0.916        0.778    8.24
110)  4-chlorotoluene
       2.668 2.203 1.938 1.909 1.972 1.897 2.071 2.069 2.691        2.157   14.43
111)  1,3,5-trimethylbenzene
       2.946 2.729 2.597 2.552 2.578 2.534 2.621 2.511 2.738        2.645    5.22
112)  tert-butylbenzene
       2.634 2.382 2.513 2.379 2.373 2.546 2.351 2.244 2.402        2.425    4.86
113)  pentachloroethane
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICC6733
Lab FileID: X156375.D

```
       0.699 0.594 0.644 0.610 0.619 0.647 0.603 0.543 0.685        0.627    7.63
114)  1,2,4-trimethylbenzene
       2.827 2.620 2.517 2.488 2.514 2.449 2.628 2.417 2.890        2.595    6.38
115)  1,2,3-trimethylbenzene
                                                                    0.000   -1.00
116)  sec-butylbenzene
       4.253 3.796 3.734 3.618 3.632 3.689 3.693 3.442 4.001        3.762    6.31
117)  1,3-dichlorobenzene
       1.853 1.719 1.525 1.478 1.539 1.487 1.633 1.564 1.856        1.628    9.11
118)  p-isopropyltoluene
       3.782 3.266 3.106 3.025 3.023 3.082 3.163 2.990 3.375        3.201    7.84
119)  1,4-dichlorobenzene
       2.002 1.682 1.496 1.461 1.543 1.470 1.600 1.542 2.174        1.663   15.26
120)  1,2-dichlorobenzene
       1.892 1.711 1.554 1.502 1.545 1.536 1.651 1.554 2.075        1.669   11.68
121)  benzyl chloride
       1.708 1.457 1.209 1.153 1.269 1.178 1.341 1.330              1.331   13.69
122)  1,4-diethylbenzene
                                                                    0.000   -1.00
123)  n-butylbenzene
       1.620 1.574 1.485 1.456 1.499 1.479 1.545 1.487 1.729        1.542    5.69
124)  1,2,4,5-tetramethylbenzene
                                                                    0.000   -1.00
125)  1,2-dibromo-3-chloropropane
       0.230 0.218 0.187 0.181 0.187 0.192 0.192 0.189              0.197    8.81
126)  1,3,5-trichlorobenzene
       1.841 1.777 1.695 1.620 1.658 1.751 1.720 1.642 2.143        1.761    9.05
127)  hexachlorobutadiene
       0.931 0.922 0.897 0.889 0.897 0.946 0.901 0.867 1.148        0.933    8.98
128)  naphthalene
       4.349 3.870 3.387 3.273 3.407 3.433 3.524 3.414              3.582    9.95
129)  1,2,4-trichlorobenzene
       1.923 1.848 1.702 1.626 1.657 1.748 1.740 1.673 2.296        1.801   11.55
130)  1,2,3-trichlorobenzene
       2.115 2.002 1.806 1.773 1.784 1.840 1.853 1.791 2.696        1.962   15.19
131)  hexachloroethane
       0.532 0.537 0.659 0.592 0.579 0.698 0.524 0.503 0.519        0.572   11.83
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MX6733.M          Thu Jul 23 09:22:07 2015   GCMSX
```

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICV6733
Lab FileID: X156380.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\X156380.D Vial: 14
Acq On : 23 Jul 2015 12:25 am Operator: payalr
Sample : icv6733-50 Inst : ACC-VOA-M
Misc : MS88309,VX6733,5.0,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MX6733.M (RTE Integrator)
Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Jul 23 09:18:59 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	102	0.00	7.50
2		tertiary butyl alcohol	1.226	1.079	12.0	98	0.00	7.63
3		1,4-dioxane	0.087	0.086	1.1	106	0.00	12.35
4	I	pentafluorobenzene	1.000	1.000	0.0	105	0.00	10.20
5	m	chlorotrifluoroethene		----------NA----------				
6		chlorodifluoromethane	0.717	0.648	9.6	91	0.00	3.82
7		dichlorodifluoromethane	0.880	0.707	19.7	81	0.00	3.82
8		chloromethane	0.769	0.623	19.0	96	0.00	4.13
9		vinyl chloride	0.767	0.667	13.0	97	0.00	4.40
10		bromomethane	0.443	0.395	10.8	103	0.01	5.09
11		chloroethane	0.287	0.291	-1.4	115	0.00	5.27
12		vinyl bromide		----------NA----------				
13		trichlorofluoromethane	0.709	0.609	14.1	92	0.00	5.75
14		1,3-butadiene		----------NA----------				
15		pentane		----------NA----------				
16		ethyl ether	0.168	0.159	5.4	103	0.00	6.21
17		acrolein	0.047	0.044	6.4	101	0.00	6.53
18		1,1-dichloroethene	0.547	0.501	8.4	98	0.00	6.67
19		acetone	0.026	0.029	-11.5	102	0.00	6.79
20		allyl chloride	0.187	0.200	-7.0	112	0.00	7.29
21		acetonitrile	0.026	0.025	3.8	103	0.00	7.30
22		iodomethane	0.811	0.751	7.4	101	0.00	7.00
23		iso-butyl alcohol	0.017	0.014	17.6	105	0.00	10.61
24		carbon disulfide	1.534	1.373	10.5	103	0.00	7.12
25		methylene chloride	0.431	0.374	13.2	101	0.00	7.52
26		methyl acetate	0.206	0.170	17.5	96	0.00	7.28
27		methyl tert butyl ether	1.231	1.053	14.5	98	0.00	7.86
28		trans-1,2-dichloroethene	0.551	0.472	14.3	98	0.00	7.93
29		di-isopropyl ether	1.357	1.279	5.7	103	0.00	8.57
30		2-butanone	0.030	0.029	3.3	101	0.00	9.54
31		1,1-dichloroethane	0.680	0.619	9.0	102	0.00	8.63
32		chloroprene	0.458	0.453	1.1	104	0.00	8.74
33		acrylonitrile	0.089	0.083	6.7	103	0.00	7.94
34		vinyl acetate	0.039	0.042	-7.7	107	0.00	8.62
35		ethyl tert-butyl ether	1.248	1.213	2.8	103	0.00	9.14
36		ethyl acetate	0.033	0.031	6.1	93	0.00	9.53
37		2,2-dichloropropane	0.720	0.621	13.7	100	0.00	9.53
38		cis-1,2-dichloroethene	0.448	0.374	16.5	100	0.00	9.54
39		methyl acrylate		----------NA----------				
40		propionitrile	0.034	0.031	8.8	97	0.00	9.69
41		tert-Butyl Formate	0.293	0.297	-1.4	107	-0.01	10.03

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICV6733
Lab FileID: X156380.D

42		bromochloromethane	0.192	0.176	8.3	99	0.00	9.94
43		tetrahydrofuran	0.105	0.087	17.1	99	0.00	9.98
44		chloroform	0.652	0.564	13.5	102	0.00	10.02
45	S	dibromofluoromethane (s)	0.363	0.359	1.1	105	0.00	10.27
46	S	1,2-dichloroethane-d4 (s)	0.296	0.287	3.0	103	0.00	10.81
47		freon 113	0.347	0.359	-3.5	104	0.00	6.62
48		methacrylonitrile	0.094	0.087	7.4	102	0.00	9.89
49		1,1,1-trichloroethane	0.642	0.584	9.0	101	0.00	10.30
50		cyclohexane	0.657	0.605	7.9	100	0.00	10.36
51	m	tert amyl alcohol		----------NA----------				
52	m	iso-octane	1.393	1.398	-0.4	98	0.00	10.83
53	I	1,4-difluorobenzene	1.000	1.000	0.0	104	0.00	11.38
54		epichlorohydrin	0.019	0.019	0.0	110	0.00	13.10
55		n-butyl alcohol	0.008	0.007	12.5	102	0.00	11.60
56		carbon tetrachloride	0.478	0.449	6.1	101	0.00	10.55
57		1,1-dichloropropene	0.386	0.359	7.0	102	0.00	10.53
58		hexane	0.397	0.309	22.2	85	0.00	8.25
59		benzene	1.270	1.065	16.1	101	0.00	10.87
60		tert-amyl methyl ether	1.035	0.935	9.7	105	0.00	10.91
61		heptane	0.200	0.208	-4.0	104	0.00	11.06
62		isopropyl acetate	0.635	0.611	3.8	107	0.00	10.81
63		1,2-dichloroethane	0.314	0.279	11.1	101	0.00	10.93
64		trichloroethene	0.330	0.293	11.2	100	0.00	11.81
65	m	ethyl acrylate		----------NA----------				
66	m	tert amyl ethyl ether		----------NA----------				
67		2-nitropropane	0.063	0.057	9.5	103	0.00	12.92
68		2-chloroethyl vinyl ether	0.071	0.080	-12.7	119	0.00	12.92
69		methyl methacrylate	0.134	0.126	6.0	102	0.00	12.20
70		1,2-dichloropropane	0.303	0.279	7.9	102	0.00	12.18
71		dibromomethane	0.158	0.140	11.4	100	0.00	12.40
72		methylcyclohexane	0.560	0.577	-3.0	100	0.00	12.06
73		bromodichloromethane	0.383	0.347	9.4	101	0.00	12.59
74		cis-1,3-dichloropropene	0.457	0.424	7.2	100	0.00	13.20
75	S	toluene-d8 (s)	1.116	1.150	-3.0	106	0.00	13.56
76		4-methyl-2-pentanone	0.086	0.082	4.7	100	0.00	13.34
77		toluene	0.753	0.651	13.5	100	0.00	13.66
78		3-methyl-1-butanol	0.013	0.011	15.4	101	0.00	13.40
79		trans-1,3-dichloropropene	0.385	0.345	10.4	98	0.00	13.97
80		ethyl methacrylate	0.286	0.264	7.7	100	0.00	13.96
81		1,1,2-trichloroethane	0.182	0.172	5.5	100	0.00	14.25
82		2-hexanone	0.073	0.074	-1.4	102	0.00	14.50
83	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	15.59
84		3,3-Dimethyl-1-butanol	0.040	0.032	20.0	93	0.00	14.75
85		tetrachloroethene	0.339	0.296	12.7	102	0.00	14.43
86		1,3-dichloropropane	0.430	0.380	11.6	102	0.00	14.50
87		butyl acetate	0.187	0.147	21.4	96	0.00	14.75
88		dibromochloromethane	0.350	0.314	10.3	102	0.00	14.84
89		1,2-dibromoethane	0.275	0.238	13.5	102	0.00	15.03
90	m	n-butyl ether	1.663	1.452	12.7	99	0.00	15.53
91		chlorobenzene	1.008	0.882	12.5	104	0.00	15.63
92		1,1,1,2-tetrachloroethane	0.438	0.380	13.2	99	0.00	15.72
93		ethylbenzene	1.700	1.434	15.6	101	0.00	15.70
94		m,p-xylene	0.665	0.569	14.4	102	0.00	15.84
95		o-xylene	0.695	0.638	8.2	103	0.00	16.39
96		styrene	1.095	0.968	11.6	103	0.00	16.41
97		bromoform	0.238	0.220	7.6	103	0.00	16.75
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	109	0.00	18.33

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6733-ICV6733
Lab FileID: X156380.D

99		isopropylbenzene	3.154	2.789	11.6	100	0.00	16.82
100		cis-1,4-dichloro-2-butene		----------NA----------				
101		Cyclohexanone	0.113	0.104	8.0	100	0.00	17.05
102	S	4-bromofluorobenzene (s)	0.809	0.809	0.0	109	0.00	17.07
103		bromobenzene	0.818	0.719	12.1	104	0.00	17.28
104		1,1,2,2-tetrachloroethane	0.692	0.568	17.9	100	0.00	17.23
105		trans-1,4-dichloro-2-bute	0.159	0.140	11.9	103	0.00	17.28
106		1,2,3-trichloropropane	0.152	0.133	12.5	99	0.00	17.30
107		n-propylbenzene	3.387	3.077	9.2	107	0.00	17.30
108	m	4-ethyltoluene		----------NA----------				
109		2-chlorotoluene	0.778	0.691	11.2	102	0.00	17.46
110		4-chlorotoluene	2.157	1.799	16.6	103	0.00	17.58
111		1,3,5-trimethylbenzene	2.645	2.356	10.9	101	0.00	17.47
112		tert-butylbenzene	2.425	2.154	11.2	99	0.00	17.85
113		pentachloroethane	0.627	0.548	12.6	98	0.00	17.95
114		1,2,4-trimethylbenzene	2.595	2.412	7.1	106	0.00	17.90
115	m	1,2,3-trimethylbenzene		----------NA----------				
116		sec-butylbenzene	3.762	3.294	12.4	100	0.00	18.08
117		1,3-dichlorobenzene	1.628	1.411	13.3	105	0.00	18.28
118		p-isopropyltoluene	3.201	2.845	11.1	103	0.00	18.20
119		1,4-dichlorobenzene	1.663	1.401	15.8	105	0.00	18.36
120		1,2-dichlorobenzene	1.669	1.469	12.0	107	0.00	18.75
121		benzyl chloride	1.331	1.144	14.0	109	0.00	18.49
122	m	1,4-diethylbenzene		----------NA----------				
123		n-butylbenzene	1.542	1.384	10.2	104	0.00	18.62
124	m	1,2,4,5-tetramethylbenzen		----------NA----------				
125		1,2-dibromo-3-chloropropa	0.197	0.173	12.2	105	0.00	19.49
126		1,3,5-trichlorobenzene	1.761	1.547	12.2	105	0.00	19.63
127		hexachlorobutadiene	0.933	0.807	13.5	99	0.00	20.30
128		naphthalene	3.582	3.033	15.3	101	0.00	20.47
129		1,2,4-trichlorobenzene	1.801	1.531	15.0	103	0.00	20.21
130	m	1,2,3-trichlorobenzene	1.962	1.616	17.6	100	0.00	20.69
131		hexachloroethane	0.572	0.542	5.2	100	0.00	18.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
x156375.D MX6733.M Thu Jul 23 09:22:42 2015 GCMSX

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6744-CC6733
Lab FileID: X156666.D

Evaluate Continuing Calibration Report

```
Data File : C:\MSDCHEM\1\DATA\X156666.D                    Vial: 2
Acq On    :  3 Aug 2015   9:25 am                     Operator: payalr
Sample    : cc6733-20                                 Inst    : ACC-VOA-M
Misc      : MS88976,VX6744,5.0,,,,1                   Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MX6733.M (RTE Integrator)
Title        : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Jul 23 09:18:59 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	123	-0.02	7.48
2		tertiary butyl alcohol	1.226	1.264	-3.1	131	-0.02	7.61
3		1,4-dioxane	0.087	0.098	-12.6	137	0.00	12.34
4	I	pentafluorobenzene	1.000	1.000	0.0	122	0.00	10.20
5	m	chlorotrifluoroethene		----------NA----------				
6		chlorodifluoromethane	0.717	0.800	-11.6	130	-0.01	3.81
7		dichlorodifluoromethane	0.880	1.085	-23.3#	149	-0.03	3.79
8		chloromethane	0.769	0.688	10.5	123	-0.01	4.12
9		vinyl chloride	0.767	0.730	4.8	126	-0.01	4.39
10		bromomethane	0.443	0.399	9.9	116	0.00	5.08
11		chloroethane	0.287	0.280	2.4	123	0.00	5.27
12		vinyl bromide		----------NA----------				
13		trichlorofluoromethane	0.709	0.747	-5.4	131	-0.02	5.73
14		1,3-butadiene		----------NA----------				
15		pentane		----------NA----------				
16		ethyl ether	0.168	0.159	5.4	115	0.00	6.20
17		acrolein	0.047	0.039	17.0	104	0.00	6.53
18		1,1-dichloroethene	0.547	0.550	-0.5	124	0.00	6.66
19		acetone	0.026	0.026	0.0	141	0.00	6.79
20		allyl chloride	0.187	0.179	4.3	114	0.00	7.28
21		acetonitrile	0.026	0.027	-3.8	128	0.00	7.30
22		iodomethane	0.811	0.735	9.4	115	0.00	6.98
23		iso-butyl alcohol	0.017	0.015	11.8	116	0.00	10.61
24		carbon disulfide	1.534	1.415	7.8	122	0.00	7.10
25		methylene chloride	0.431	0.387	10.2	121	0.00	7.51
26		methyl acetate	0.206	0.185	10.2	118	0.00	7.28
27		methyl tert butyl ether	1.231	1.049	14.8	112	0.00	7.86
28		trans-1,2-dichloroethene	0.551	0.507	8.0	118	-0.01	7.92
29		di-isopropyl ether	1.357	1.285	5.3	119	-0.01	8.56
30		2-butanone	0.030	0.027	10.0	109	0.00	9.54
31		1,1-dichloroethane	0.680	0.617	9.3	113	0.00	8.62
32		chloroprene	0.458	0.460	-0.4	118	0.00	8.73
33		acrylonitrile	0.089	0.088	1.1	118	0.00	7.94
34		vinyl acetate	0.039	0.040	-2.6	126	0.00	8.61
35		ethyl tert-butyl ether	1.248	1.202	3.7	117	0.00	9.13
36		ethyl acetate	0.033	0.034	-3.0	119	0.00	9.53
37		2,2-dichloropropane	0.720	0.666	7.5	123	-0.01	9.52
38		cis-1,2-dichloroethene	0.448	0.367	18.1	111	0.00	9.54
39		methyl acrylate		----------NA----------				
40		propionitrile	0.034	0.034	0.0	118	0.00	9.68
41		tert-Butyl Formate	0.293	0.303	-3.4	127	-0.01	10.03

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6744-CC6733
Lab FileID: X156666.D

42		bromochloromethane	0.192	0.171	10.9	111	0.00	9.93
43		tetrahydrofuran	0.105	0.093	11.4	111	0.00	9.97
44		chloroform	0.652	0.560	14.1	113	0.00	10.01
45	S	dibromofluoromethane (s)	0.363	0.351	3.3	117	0.00	10.27
46	S	1,2-dichloroethane-d4 (s)	0.296	0.289	2.4	119	0.00	10.80
47		freon 113	0.347	0.349	-0.6	115	-0.02	6.61
48		methacrylonitrile	0.094	0.088	6.4	111	0.00	9.89
49		1,1,1-trichloroethane	0.642	0.595	7.3	117	0.00	10.30
50		cyclohexane	0.657	0.629	4.3	119	-0.01	10.35
51	m	tert amyl alcohol		----------NA----------				
52	m	iso-octane	1.393	1.254	10.0	105	-0.01	10.82
53	I	1,4-difluorobenzene	1.000	1.000	0.0	121	0.00	11.37
54		epichlorohydrin	0.019	0.021	-10.5	135	0.00	13.09
55		n-butyl alcohol	0.008	0.007	12.5	115	0.00	11.59
56		carbon tetrachloride	0.478	0.472	1.3	120	0.00	10.54
57		1,1-dichloropropene	0.386	0.352	8.8	111	0.00	10.52
58		hexane	0.397	0.341	14.1	104	-0.01	8.23
59		benzene	1.270	1.060	16.5	110	0.00	10.87
60		tert-amyl methyl ether	1.035	0.914	11.7	114	0.00	10.90
61		heptane	0.200	0.197	1.5	107	0.00	11.06
62		isopropyl acetate	0.635	0.599	5.7	118	0.00	10.80
63		1,2-dichloroethane	0.314	0.276	12.1	108	0.00	10.92
64		trichloroethene	0.330	0.301	8.8	114	0.00	11.81
65	m	ethyl acrylate		----------NA----------				
66	m	tert amyl ethyl ether		----------NA----------				
67		2-nitropropane	0.063	0.070	-11.1	133	0.00	12.92
68		2-chloroethyl vinyl ether	0.071	0.090	-26.8#	155	0.00	12.92
69		methyl methacrylate	0.134	0.130	3.0	115	0.00	12.20
70		1,2-dichloropropane	0.303	0.277	8.6	114	0.00	12.18
71		dibromomethane	0.158	0.143	9.5	111	0.00	12.40
72		methylcyclohexane	0.560	0.554	1.1	112	0.00	12.05
73		bromodichloromethane	0.383	0.347	9.4	115	0.00	12.58
74		cis-1,3-dichloropropene	0.457	0.436	4.6	117	0.00	13.19
75	S	toluene-d8 (s)	1.116	1.181	-5.8	127	0.00	13.56
76		4-methyl-2-pentanone	0.086	0.086	0.0	115	0.00	13.34
77		toluene	0.753	0.837	-11.2	143	0.00	13.65
78		3-methyl-1-butanol	0.013	0.012	7.7	120	0.00	13.40
79		trans-1,3-dichloropropene	0.385	0.389	-1.0	125	0.00	13.97
80		ethyl methacrylate	0.286	0.282	1.4	121	0.00	13.96
81		1,1,2-trichloroethane	0.182	0.186	-2.2	125	0.00	14.25
82		2-hexanone	0.073	0.080	-9.6	124	0.00	14.50
83	I	chlorobenzene-d5	1.000	1.000	0.0	127	0.00	15.58
84		3,3-Dimethyl-1-butanol	0.040	0.036	10.0	118	0.00	14.74
85		tetrachloroethene	0.339	0.305	10.0	123	0.00	14.42
86		1,3-dichloropropane	0.430	0.403	6.3	122	0.00	14.50
87		butyl acetate	0.187	0.166	11.2	118	0.00	14.75
88		dibromochloromethane	0.350	0.325	7.1	121	0.00	14.84
89		1,2-dibromoethane	0.275	0.245	10.9	120	0.00	15.03
90	m	n-butyl ether	1.663	1.583	4.8	126	0.00	15.53
91		chlorobenzene	1.008	0.897	11.0	122	0.00	15.63
92		1,1,1,2-tetrachloroethane	0.438	0.372	15.1	110	0.00	15.72
93		ethylbenzene	1.700	1.558	8.4	125	0.00	15.70
94		m,p-xylene	0.665	0.615	7.5	126	0.00	15.84
95		o-xylene	0.695	0.647	6.9	123	0.00	16.39
96		styrene	1.095	0.998	8.9	123	0.00	16.41
97		bromoform	0.238	0.233	2.1	126	0.00	16.75
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	124	0.00	18.33

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: VX6744-CC6733
Lab FileID: X156666.D

99		isopropylbenzene	3.154	3.059	3.0	124	0.00	16.81
100		cis-1,4-dichloro-2-butene		----------NA----------				
101		Cyclohexanone	0.113	0.116	-2.7	139	0.00	17.05
102	S	4-bromofluorobenzene (s)	0.809	0.818	-1.1	126	0.00	17.07
103		bromobenzene	0.818	0.751	8.2	122	0.00	17.29
104		1,1,2,2-tetrachloroethane	0.692	0.634	8.4	120	0.00	17.23
105		trans-1,4-dichloro-2-bute	0.159	0.167	-5.0	126	0.00	17.28
106		1,2,3-trichloropropane	0.152	0.154	-1.3	126	0.00	17.30
107		n-propylbenzene	3.387	3.334	1.6	128	0.00	17.30
108	m	4-ethyltoluene		----------NA----------				
109		2-chlorotoluene	0.778	0.742	4.6	124	0.00	17.46
110		4-chlorotoluene	2.157	1.996	7.5	126	0.00	17.58
111		1,3,5-trimethylbenzene	2.645	2.538	4.0	123	0.00	17.47
112		tert-butylbenzene	2.425	2.208	8.9	116	0.00	17.85
113		pentachloroethane	0.627	0.517	17.5	104	0.00	17.95
114		1,2,4-trimethylbenzene	2.595	2.514	3.1	124	0.00	17.90
115	m	1,2,3-trimethylbenzene		----------NA----------				
116		sec-butylbenzene	3.762	3.565	5.2	122	0.00	18.07
117		1,3-dichlorobenzene	1.628	1.538	5.5	124	0.00	18.28
118		p-isopropyltoluene	3.201	3.080	3.8	127	0.00	18.20
119		1,4-dichlorobenzene	1.663	1.491	10.3	120	0.00	18.36
120		1,2-dichlorobenzene	1.669	1.506	9.8	121	0.00	18.75
121		benzyl chloride	1.331	1.358	-2.0	133	0.00	18.49
122	m	1,4-diethylbenzene		----------NA----------				
123		n-butylbenzene	1.542	1.541	0.1	128	0.00	18.62
124	m	1,2,4,5-tetramethylbenzen		----------NA----------				
125		1,2-dibromo-3-chloropropa	0.197	0.176	10.7	117	0.00	19.49
126		1,3,5-trichlorobenzene	1.761	1.628	7.6	122	0.00	19.63
127		hexachlorobutadiene	0.933	0.873	6.4	121	0.00	20.30
128		naphthalene	3.582	3.134	12.5	114	0.00	20.47
129		1,2,4-trichlorobenzene	1.801	1.588	11.8	119	0.00	20.21
130	m	1,2,3-trichlorobenzene	1.962	1.633	16.8	114	0.00	20.69
131		hexachloroethane	0.572	0.526	8.0	113	0.00	18.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
x156374.D MX6733.M Mon Aug 03 14:57:16 2015 GCMSX

6.9.7

6

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : x156674.D
Acq On : 3 Aug 2015 3:04 pm
Operator : payalr
Sample : jb99970-4
Misc : MS88814,VX6744,5.8,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 04 08:26:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	104171	500.00	ug/L	-0.01
4) pentafluorobenzene	10.21	168	264152	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	303226	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	266404	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	157005	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	10.27	113	96536	50.40	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 100.80%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	82534	52.83	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 105.66%			
75) toluene-d8 (s)	13.56	98	347675	51.39	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 102.78%			
102) 4-bromofluorobenzene (s)	17.07	95	128772	50.70	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 101.40%			

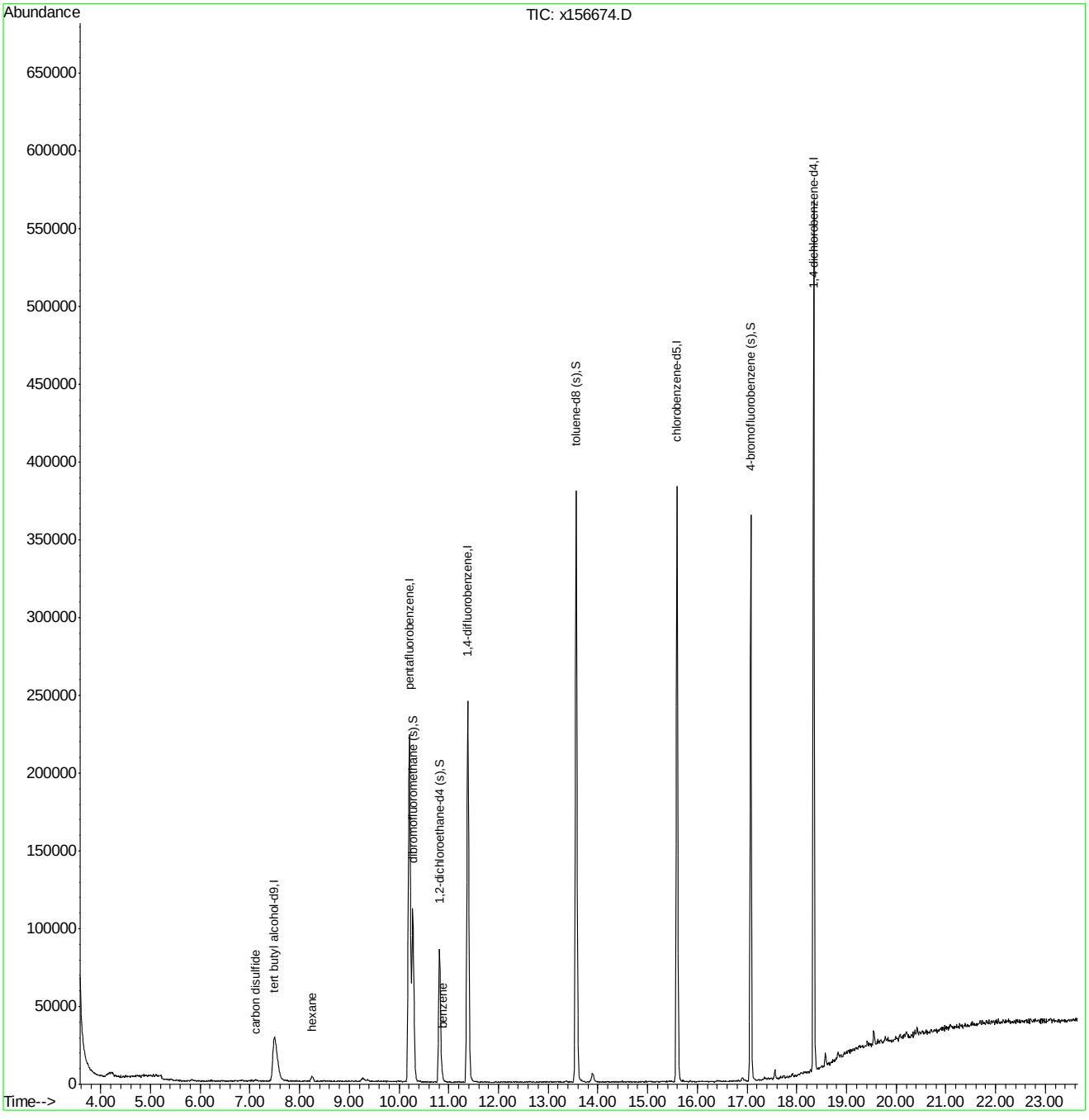
Target Compounds						Qvalue
24) carbon disulfide	7.11	76	2296	0.28	ug/L	79
58) hexane	8.25	57	2598	1.08	ug/L	86
59) benzene	10.88	78	2061	0.27	ug/L	88

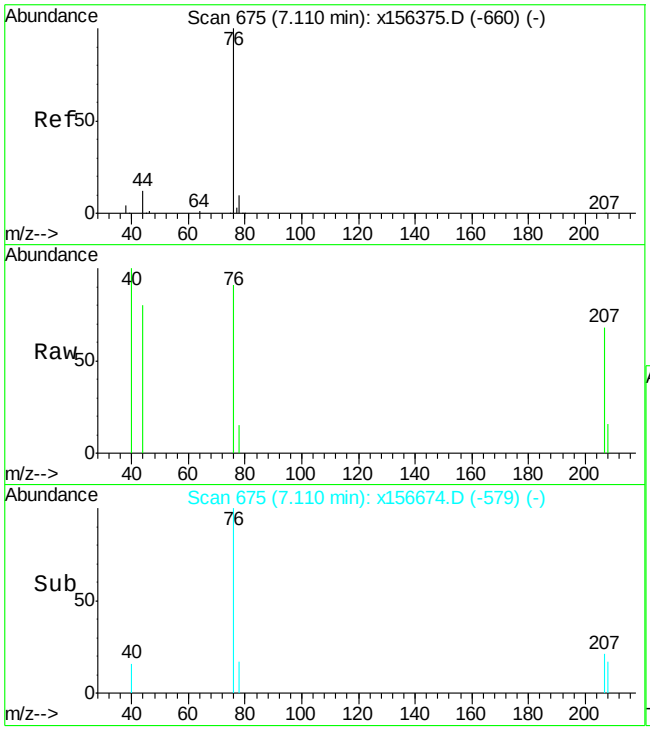
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : x156674.D
Acq On : 3 Aug 2015 3:04 pm
Operator : payalr
Sample : jb99970-4
Misc : MS88814,VX6744,5.8,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 04 08:26:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

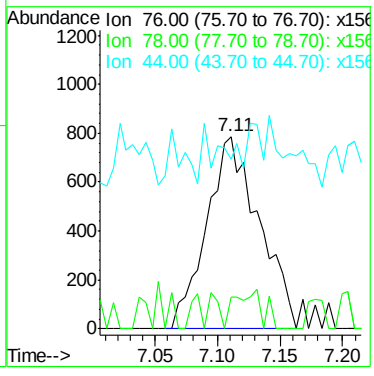


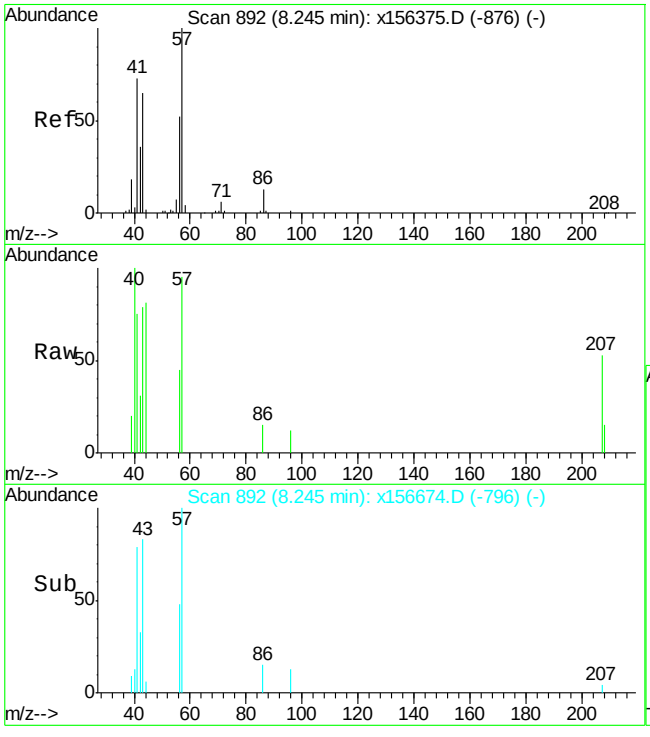


#24
carbon disulfide
Concen: 0.28 ug/L
RT: 7.11 min Scan# 675
Delta R.T. 0.00 min
Lab File: x156674.D
Acq: 3 Aug 2015 3:04 pm

Tgt Ion: 76 Resp: 2296

Ion	Ratio	Lower	Upper
76	100		
78	16.6	0.0	39.6
44	3.6	0.0	42.2

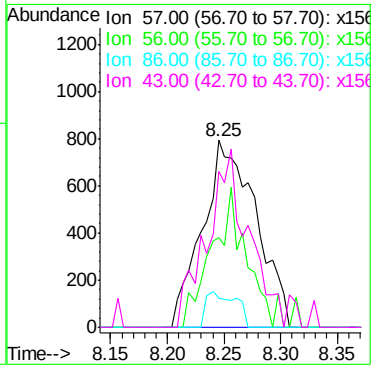


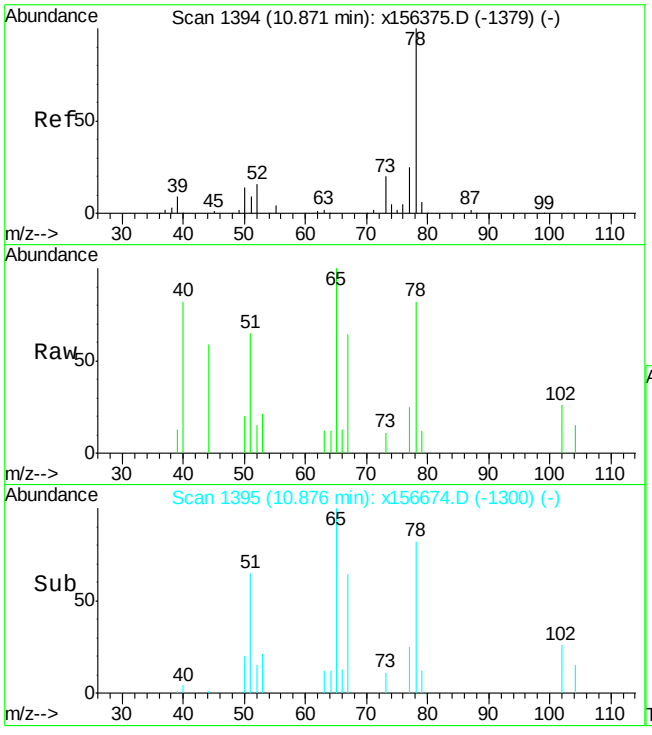


#58
hexane
Concen: 1.08 ug/L
RT: 8.25 min Scan# 892
Delta R.T. 0.00 min
Lab File: x156674.D
Acq: 3 Aug 2015 3:04 pm

Tgt Ion: 57 Resp: 2598

Ion	Ratio	Lower	Upper
57	100		
56	48.0	21.7	81.7
86	15.4	0.0	43.3
43	83.2	35.1	95.1

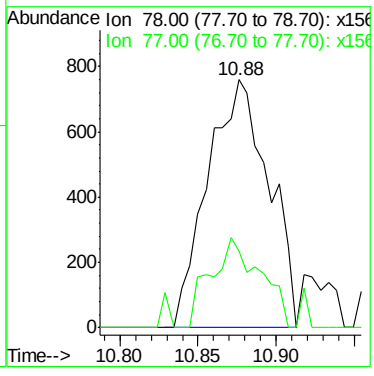




#59
benzene
Concen: 0.27 ug/L
RT: 10.88 min Scan# 1395
Delta R.T. 0.01 min
Lab File: x156674.D
Acq: 3 Aug 2015 3:04 pm

Tgt Ion: 78 Resp: 2061

Ion	Ratio	Lower	Upper
78	100		
77	30.7	0.0	54.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156675.D
Acq On : 3 Aug 2015 3:38 pm
Operator : payalr
Sample : jb99970-5
Misc : MS88814,VX6744,5.3,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 04 08:28:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	104576	500.00	ug/L	-0.01
4) pentafluorobenzene	10.21	168	268729	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	310839	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	281295	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	162296	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	10.27	113	96934	49.74	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.48%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	82036	51.62	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 103.24%			
75) toluene-d8 (s)	13.56	98	363251	52.38	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 104.76%			
102) 4-bromofluorobenzene (s)	17.07	95	133595	50.88	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 101.76%			

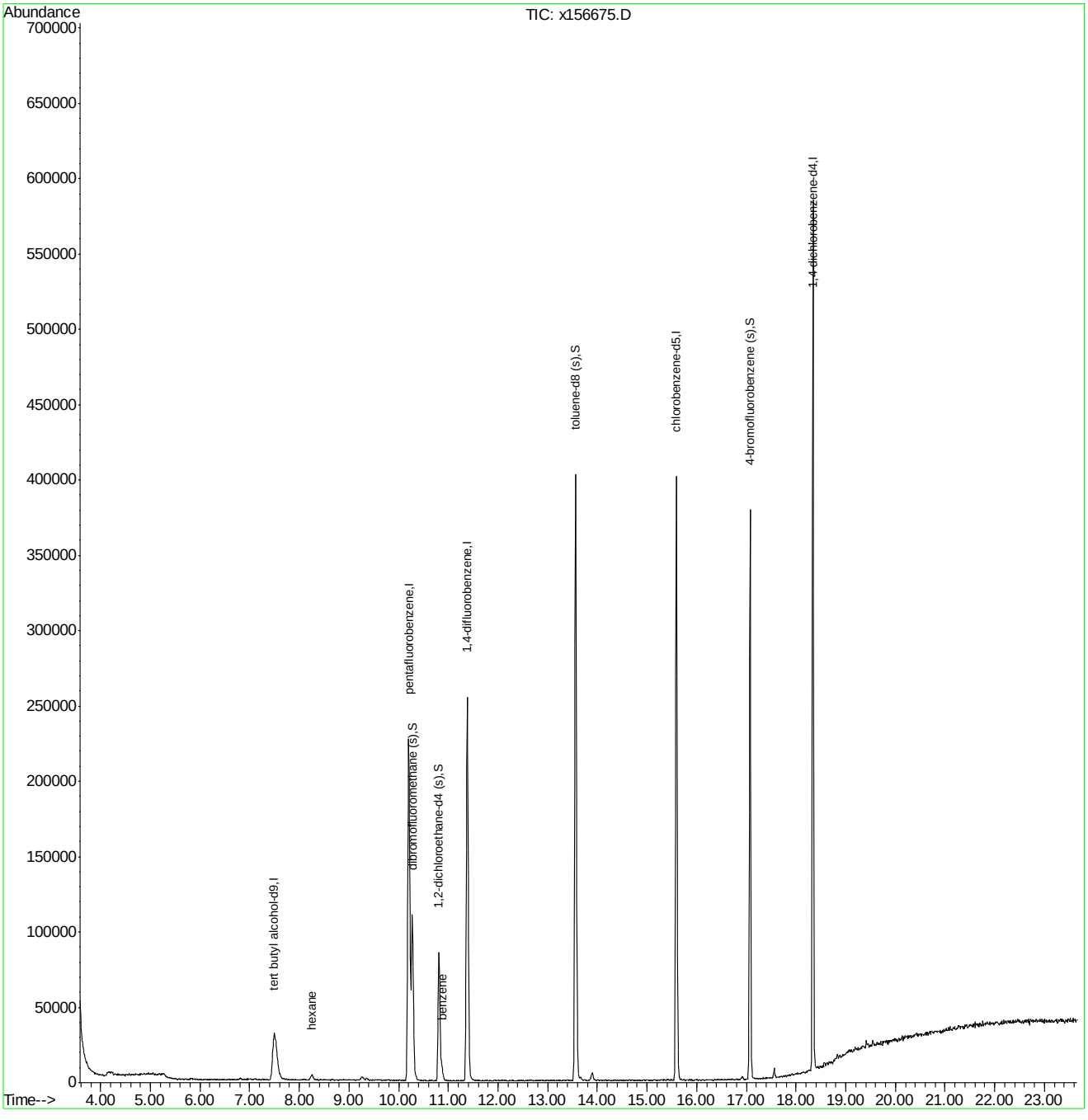
Target Compounds						Qvalue
58) hexane	8.25	57	2998	1.22	ug/L	87
59) benzene	10.87	78	8863	1.12	ug/L	100

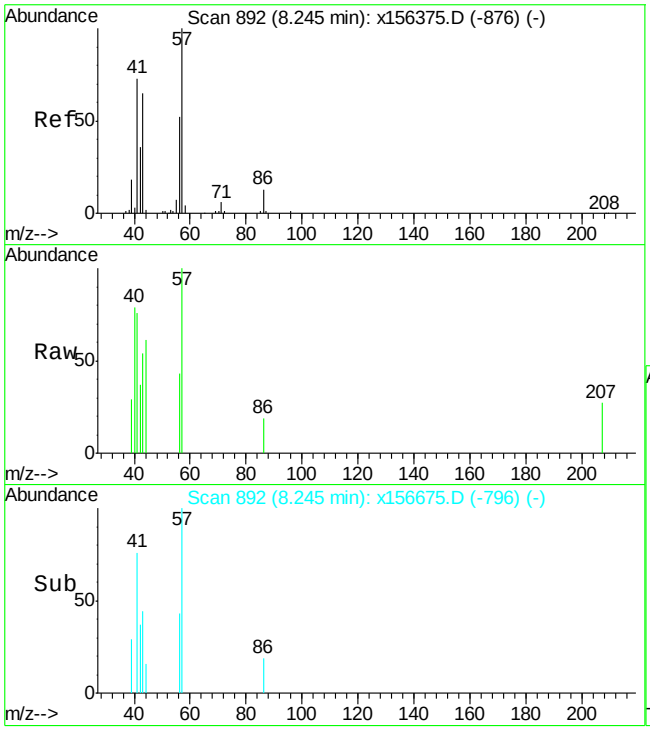
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156675.D
Acq On : 3 Aug 2015 3:38 pm
Operator : payalr
Sample : jb99970-5
Misc : MS88814,VX6744,5.3,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 04 08:28:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

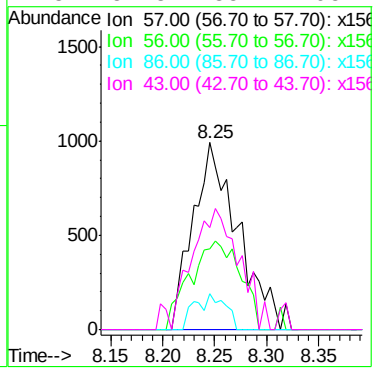


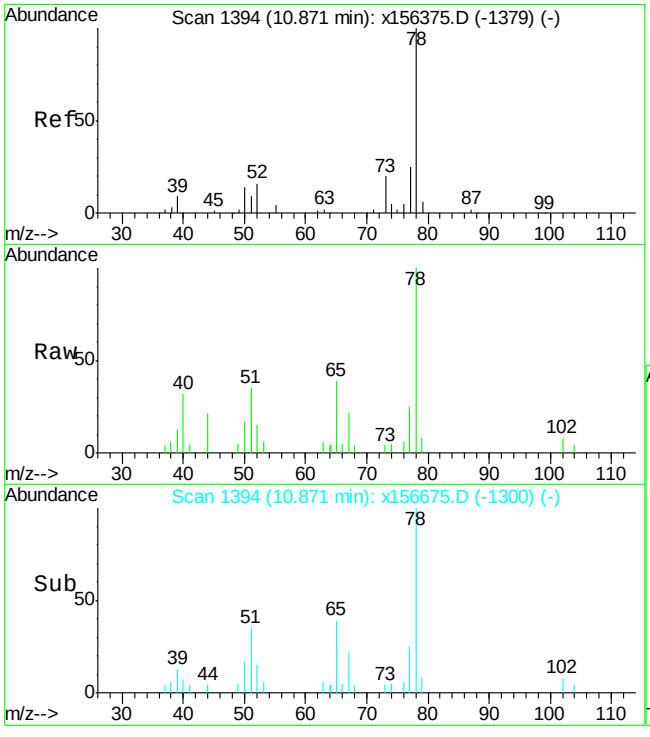


#58
hexane
Concen: 1.22 ug/L
RT: 8.25 min Scan# 892
Delta R.T. 0.00 min
Lab File: x156675.D
Acq: 3 Aug 2015 3:38 pm

Tgt Ion: 57 Resp: 2998

Ion	Ratio	Lower	Upper
57	100		
56	42.8	21.7	81.7
86	19.2	0.0	43.3
43	54.3	35.1	95.1

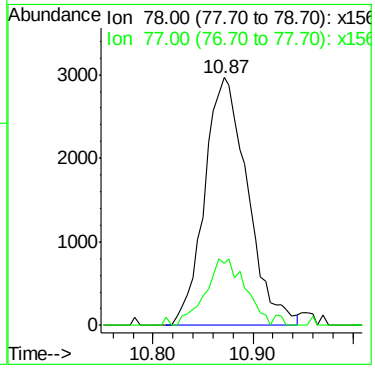




#59
benzene
Concen: 1.12 ug/L
RT: 10.87 min Scan# 1394
Delta R.T. 0.00 min
Lab File: x156675.D
Acq: 3 Aug 2015 3:38 pm

Tgt Ion: 78 Resp: 8863

Ion	Ratio	Lower	Upper
78	100		
77	24.9	0.0	54.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156676.D
Acq On : 3 Aug 2015 4:08 pm
Operator : payalr
Sample : jb99970-6
Misc : MS88814,VX6744,5.0,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 07 13:12:52 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	113906	500.00	ug/L	0.00
4) pentafluorobenzene	10.21	168	272589	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	312120	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	272128	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	145227	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	10.27	113	98073	49.61	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.22%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	82779	51.35	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.70%			
75) toluene-d8 (s)	13.56	98	361105	51.85	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 103.70%			
102) 4-bromofluorobenzene (s)	17.07	95	125291	53.33	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 106.66%			

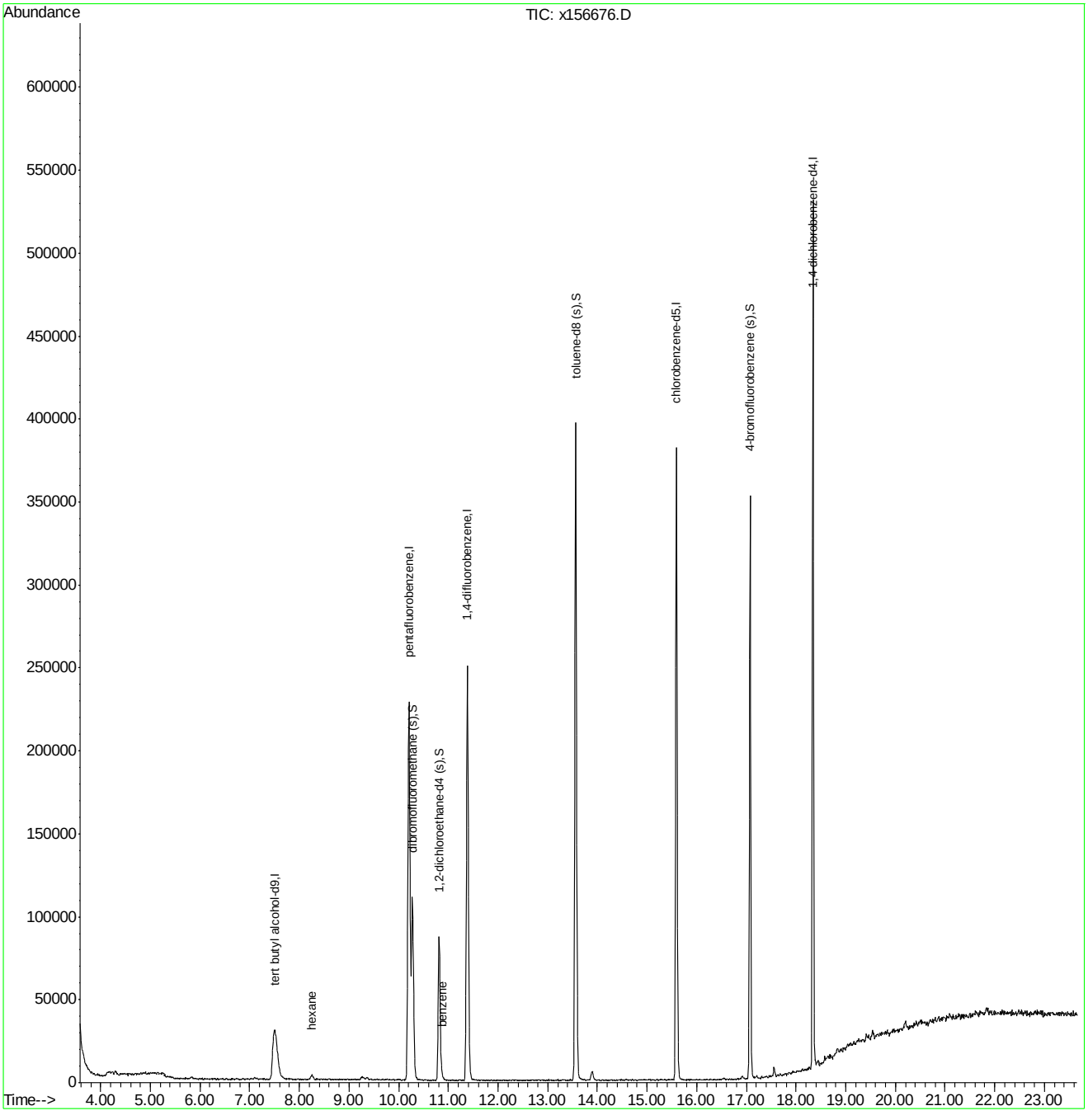
Target Compounds						Qvalue
58) hexane	8.26	57	2230	0.90	ug/L	82
59) benzene	10.88	78	1060	0.13	ug/L	66

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156676.D
Acq On : 3 Aug 2015 4:08 pm
Operator : payalr
Sample : jb99970-6
Misc : MS88814,VX6744,5.0,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 07 13:12:52 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration



MX6733.M Fri Aug 07 13:12:59 2015 GCMSX

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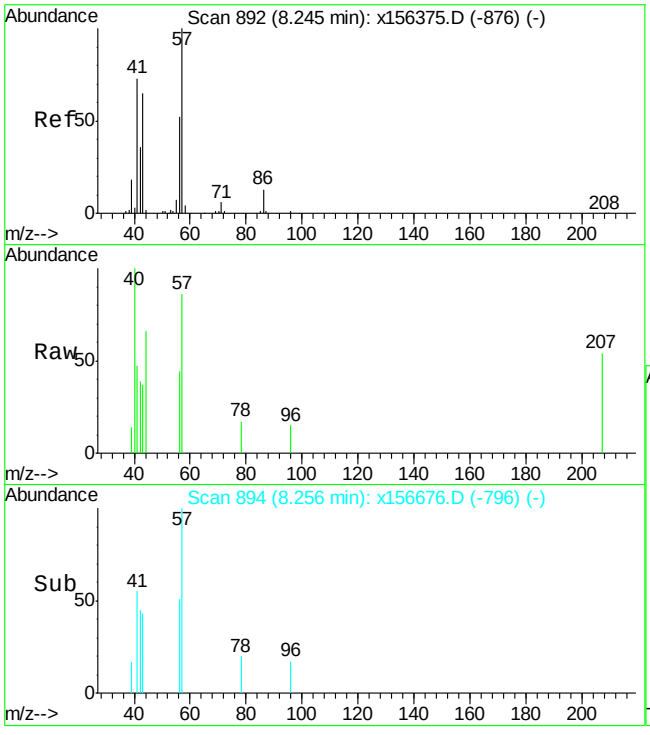
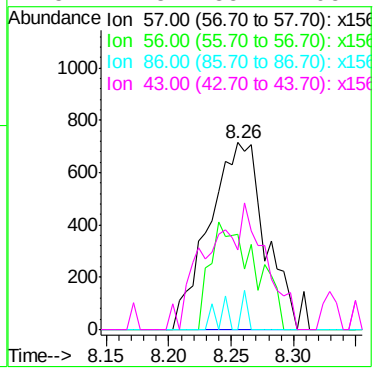
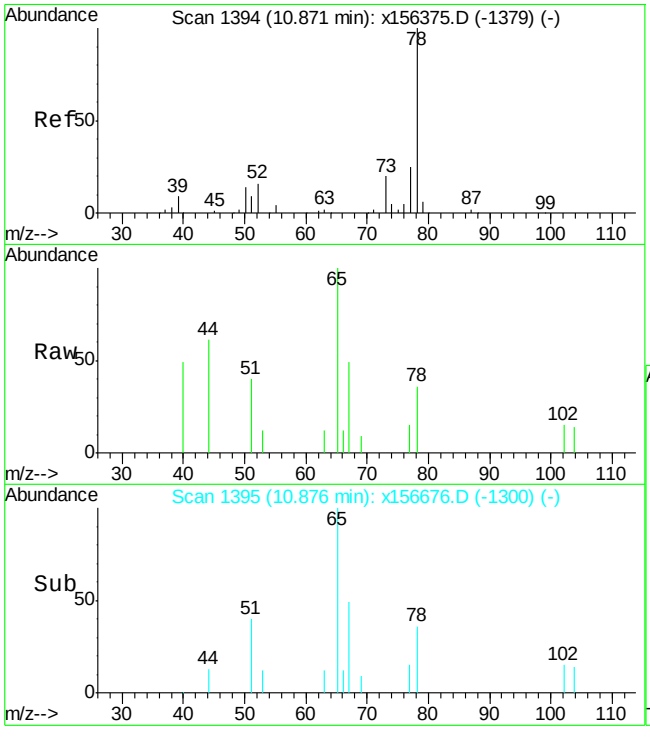


#58
hexane
Concen: 0.90 ug/L
RT: 8.26 min Scan# 894
Delta R.T. 0.01 min
Lab File: x156676.D
Acq: 3 Aug 2015 4:08 pm

Tgt Ion: 57 Resp: 2230

Ion	Ratio	Lower	Upper
57	100		
56	51.0	21.7	81.7
86	0.0	0.0	43.3
43	42.8	35.1	95.1

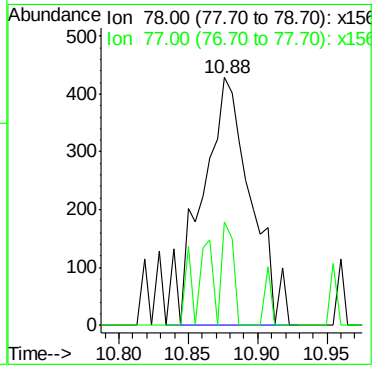




#59
benzene
Concen: 0.13 ug/L
RT: 10.88 min Scan# 1395
Delta R.T. 0.01 min
Lab File: x156676.D
Acq: 3 Aug 2015 4:08 pm

Tgt Ion: 78 Resp: 1060

Ion	Ratio	Lower	Upper
78	100		
77	41.6	0.0	54.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156683.D
Acq On : 3 Aug 2015 7:37 pm
Operator : payalr
Sample : jb99970-7
Misc : MS88814,VX6744,6.3,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 08:42:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	101310	500.00	ug/L	-0.01
4) pentafluorobenzene	10.21	168	267604	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	295565	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	265408	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	149621	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	10.27	113	96143	49.54	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.08%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	81433	51.45	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.90%			
75) toluene-d8 (s)	13.56	98	342672	51.96	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 103.92%			
102) 4-bromofluorobenzene (s)	17.07	95	129901	53.66	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 107.32%			

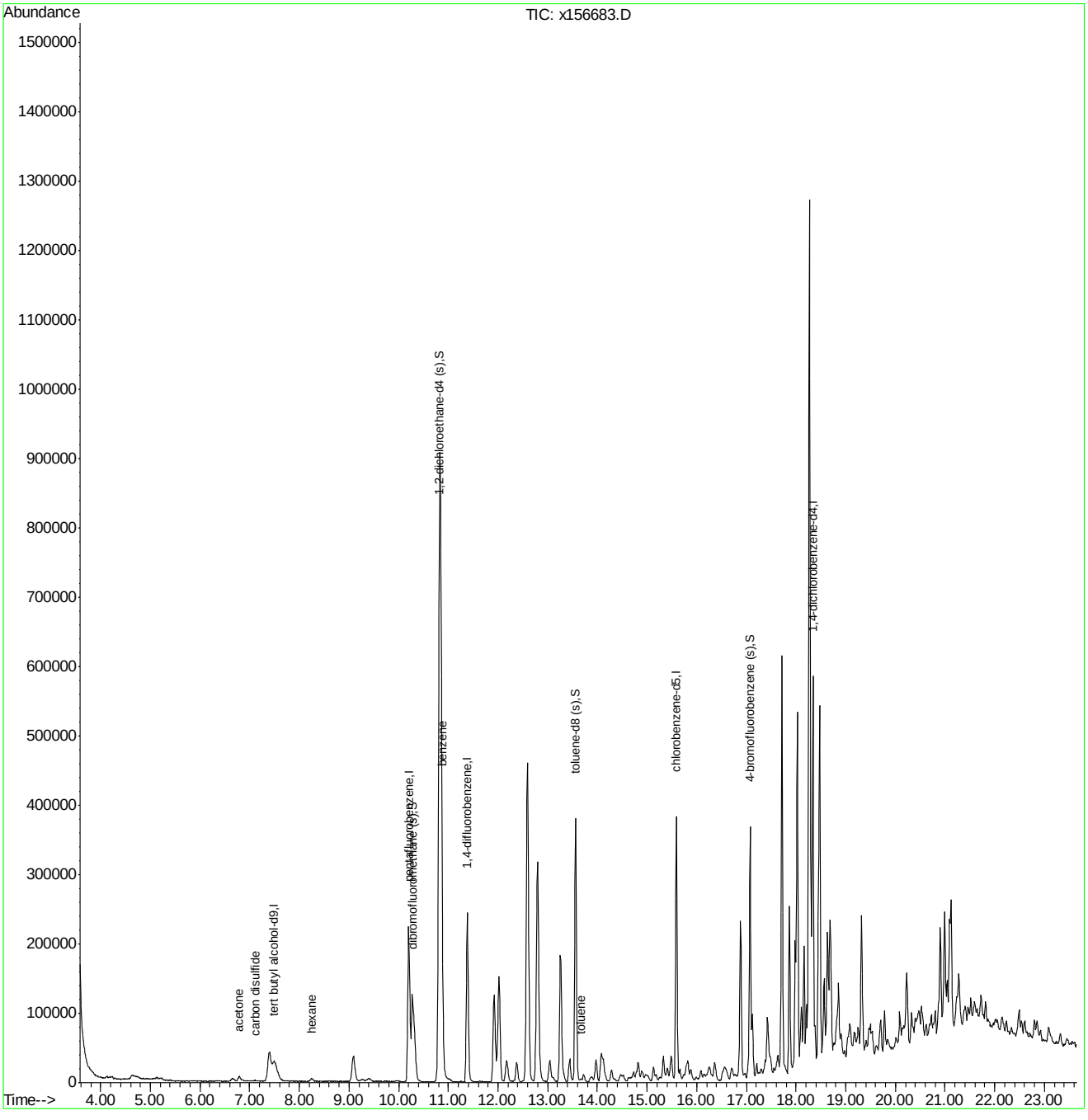
Target Compounds						Qvalue
19) acetone	6.78	58	5795	41.43	ug/L	88
24) carbon disulfide	7.12	76	3635	0.44	ug/L	83
58) hexane	8.26	57	2355	1.00	ug/L #	64
59) benzene	10.88	78	9645	1.28	ug/L	87
77) toluene	13.66	92	1463	0.33	ug/L	93

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156683.D
Acq On : 3 Aug 2015 7:37 pm
Operator : payalr
Sample : jb99970-7
Misc : MS88814,VX6744,6.3,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 08:42:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration



MX6733.M Tue Aug 04 08:42:31 2015 GCMSX

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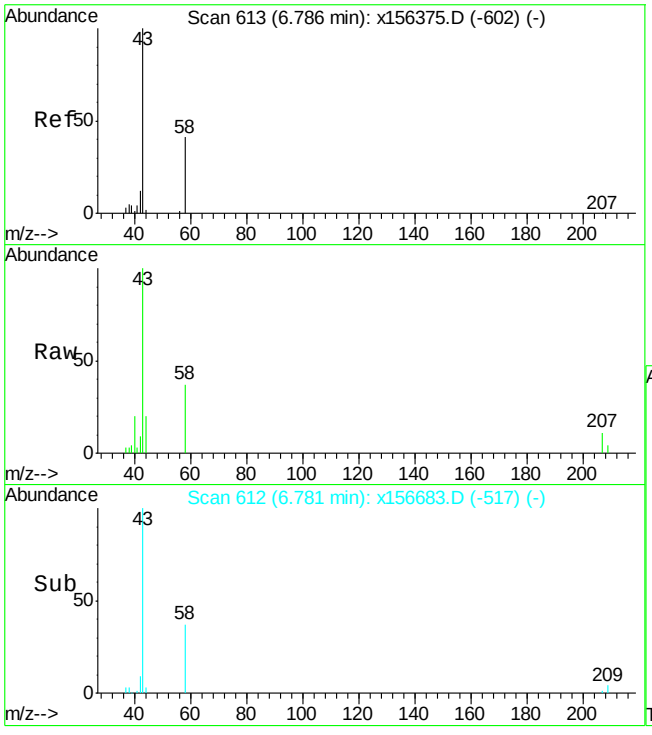
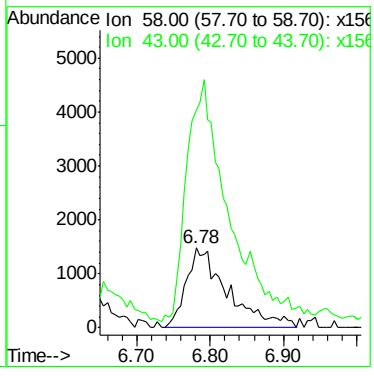
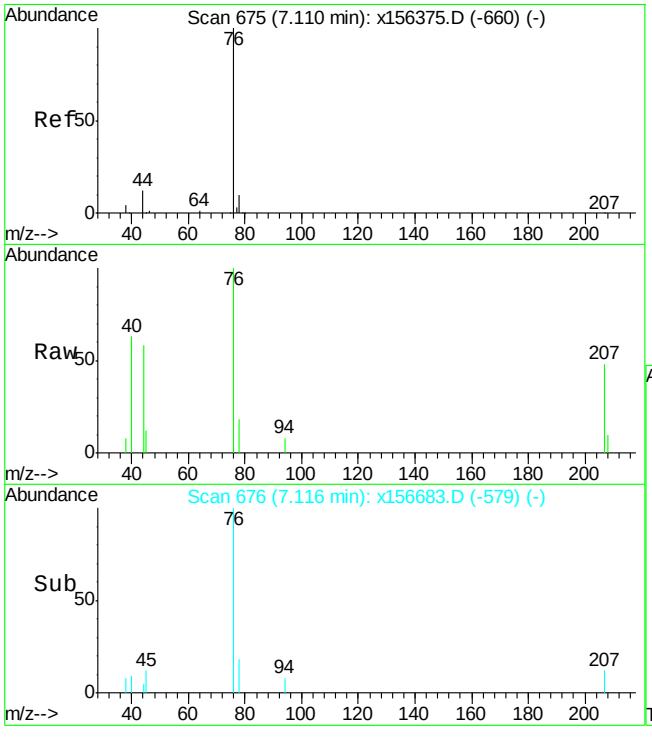


#19
acetone
Concen: 41.43 ug/L
RT: 6.78 min Scan# 612
Delta R.T. -0.01 min
Lab File: x156683.D
Acq: 3 Aug 2015 7:37 pm

Tgt Ion: 58 Resp: 5795

Ion	Ratio	Lower	Upper
58	100		
43	272.7	222.2	282.2

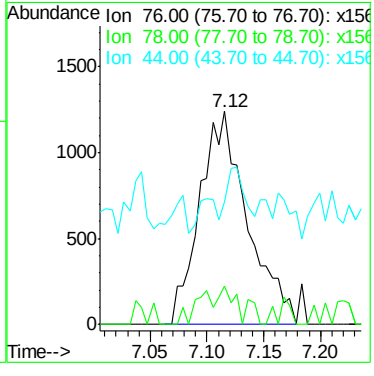


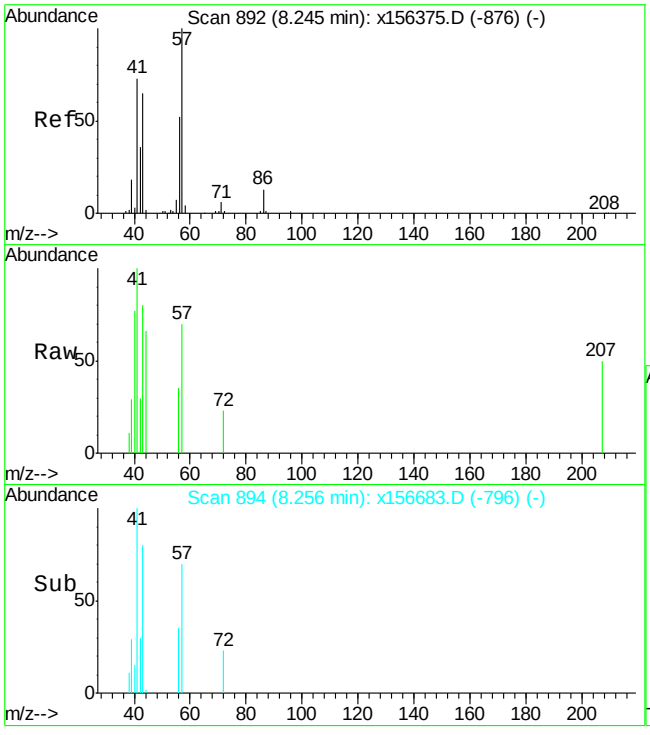


#24
carbon disulfide
Concen: 0.44 ug/L
RT: 7.12 min Scan# 676
Delta R.T. 0.01 min
Lab File: x156683.D
Acq: 3 Aug 2015 7:37 pm

Tgt Ion: 76 Resp: 3635

Ion	Ratio	Lower	Upper
76	100		
78	18.1	0.0	39.6
44	7.5	0.0	42.2

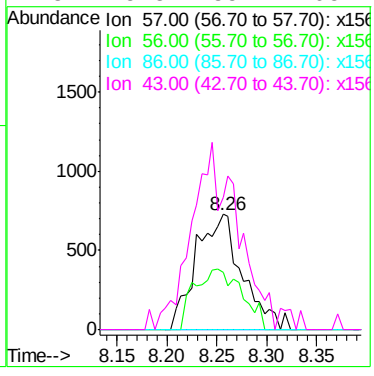


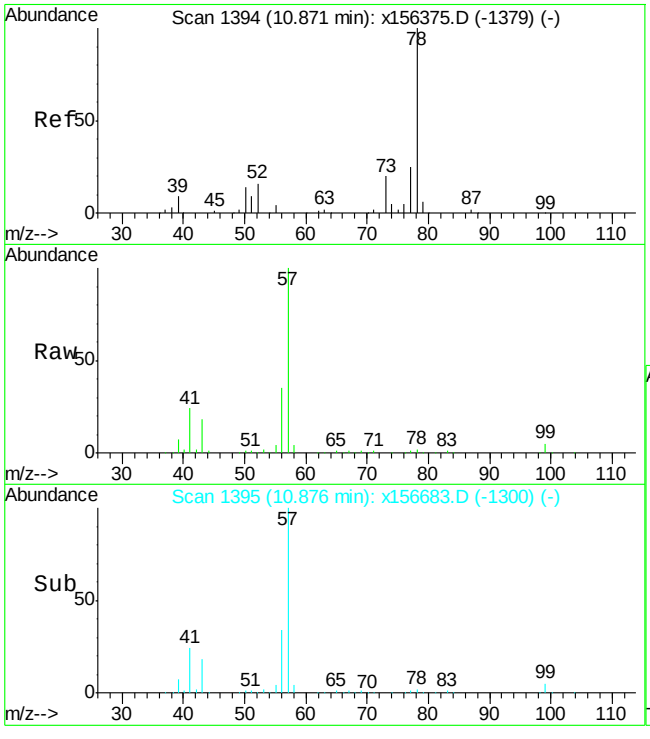


#58
hexane
Concen: 1.00 ug/L
RT: 8.26 min Scan# 894
Delta R.T. 0.01 min
Lab File: x156683.D
Acq: 3 Aug 2015 7:37 pm

Tgt Ion: 57 Resp: 2355

Ion	Ratio	Lower	Upper
57	100		
56	50.1	21.7	81.7
86	0.0	0.0	43.3
43	115.3	35.1	95.1#

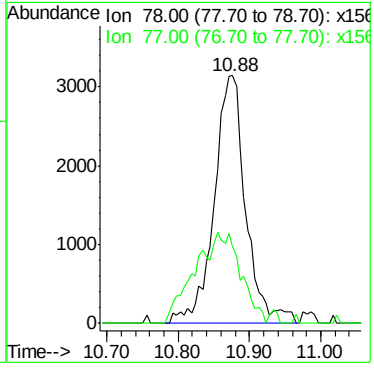


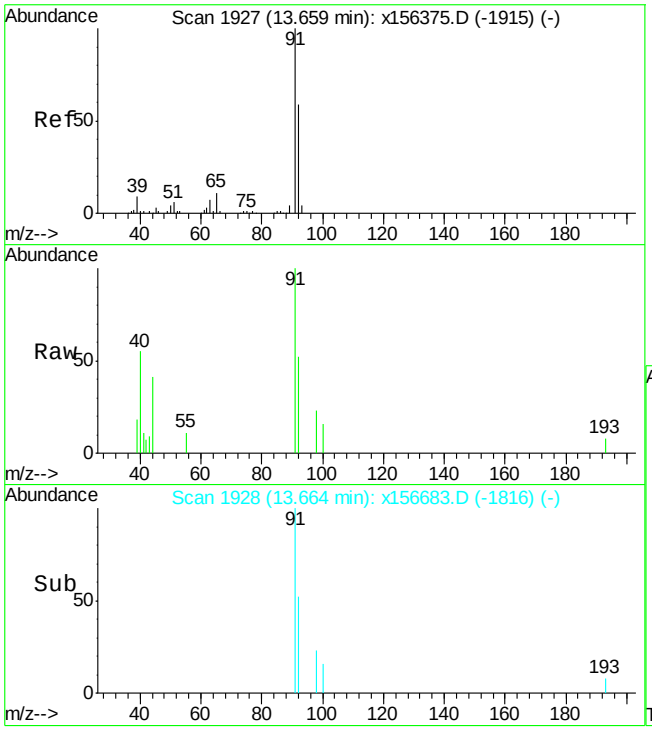


#59
benzene
Concen: 1.28 ug/L
RT: 10.88 min Scan# 1395
Delta R.T. 0.01 min
Lab File: x156683.D
Acq: 3 Aug 2015 7:37 pm

Tgt Ion: 78 Resp: 9645

Ion	Ratio	Lower	Upper
78	100		
77	31.2	0.0	54.7

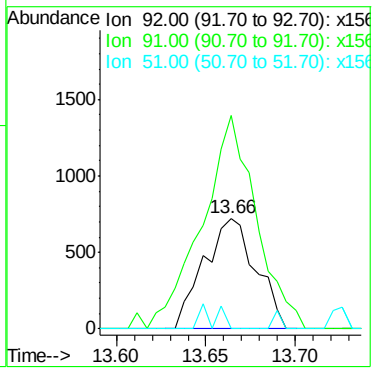




#77
toluene
Concen: 0.33 ug/L
RT: 13.66 min Scan# 1928
Delta R.T. 0.01 min
Lab File: x156683.D
Acq: 3 Aug 2015 7:37 pm

Tgt Ion: 92 Resp: 1463

Ion	Ratio	Lower	Upper
92	100		
91	176.0	138.6	198.6
51	0.0	0.0	39.9



7.1.4

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat
08/07/15 13:54

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156684.D
Acq On : 3 Aug 2015 8:07 pm
Operator : payalr
Sample : jb99970-8
Misc : MS88814,VX6744,4.5,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 04 08:44:27 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	113885	500.00	ug/L	-0.01
4) pentafluorobenzene	10.20	168	285374	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	329986	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	296068	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	175861	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	10.27	113	87834	42.44	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 84.88%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	85934	50.92	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 101.84%			
75) toluene-d8 (s)	13.56	98	384765	52.26	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 104.52%			
102) 4-bromofluorobenzene (s)	17.07	95	144530	50.80	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 101.60%			

Target Compounds

						Qvalue
18) 1,1-dichloroethene	6.69	61	5912	1.89	ug/L	90
19) acetone	6.79	58	5588m	37.46	ug/L	
24) carbon disulfide	7.11	76	15347	1.75	ug/L	93
27) methyl tert butyl ether	7.87	73	2135	0.30	ug/L #	1
50) cyclohexane	10.37	84	4034	1.08	ug/L #	34
58) hexane	8.25	57	3375	1.29	ug/L	93
59) benzene	10.87	78	19839	2.37	ug/L	98
72) methylcyclohexane	12.06	83	18726	5.07	ug/L	99
77) toluene	13.66	92	5973	1.20	ug/L	97
93) ethylbenzene	15.70	91	45608	4.53	ug/L	99
94) m,p-xylene	15.84	106	67595	17.18	ug/L	96
95) o-xylene	16.39	106	39895	9.69	ug/L	89
99) isopropylbenzene	16.82	105	4725	0.43	ug/L	96
111) 1,3,5-trimethylbenzene	17.48	105	9293	1.00	ug/L	99
114) 1,2,4-trimethylbenzene	17.91	105	10178	1.12	ug/L	94

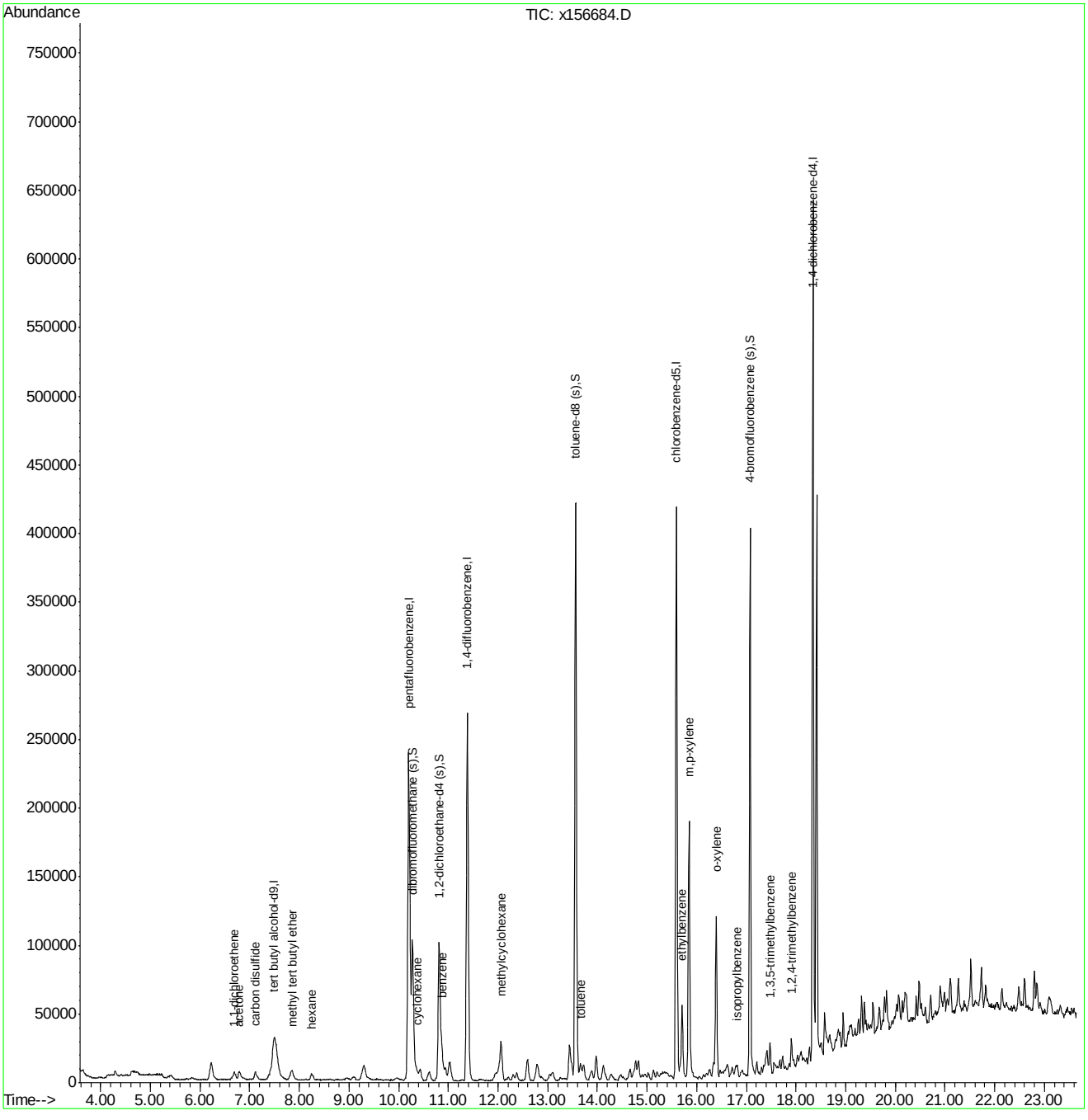
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.5
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156684.D
Acq On : 3 Aug 2015 8:07 pm
Operator : payalr
Sample : jb99970-8
Misc : MS88814,VX6744,4.5,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 04 08:44:27 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration



MX6733.M Tue Aug 04 08:44:32 2015 GCMSX

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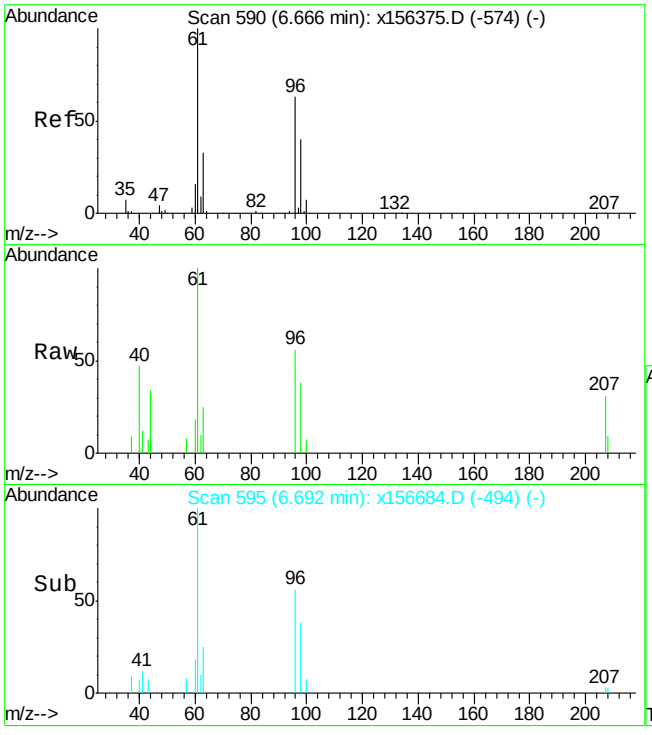
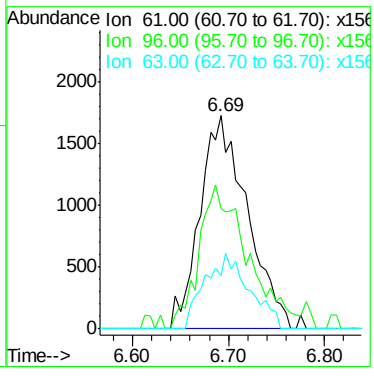
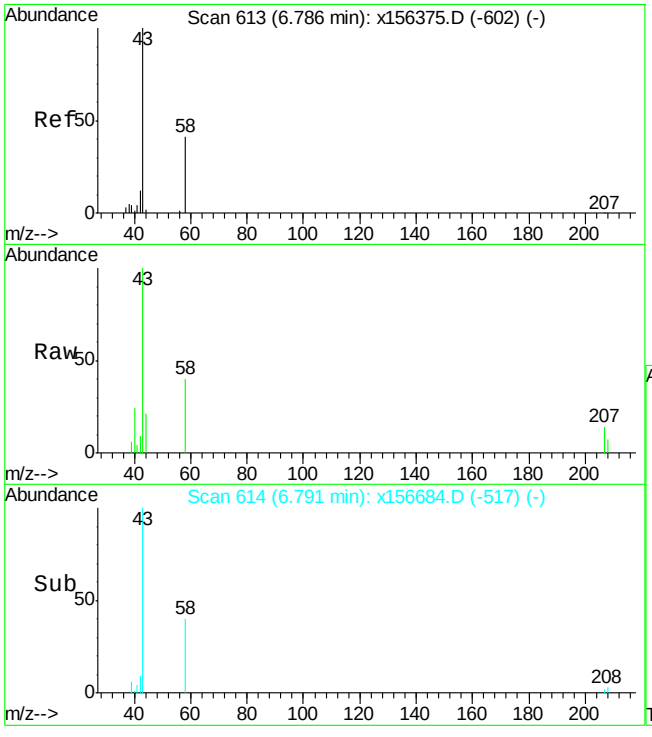


#18
1,1-dichloroethene
Concen: 1.89 ug/L
RT: 6.69 min Scan# 595
Delta R.T. 0.03 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 61 Resp: 5912

Ion	Ratio	Lower	Upper
61	100		
96	56.4	33.2	93.2
63	25.0	2.7	62.7

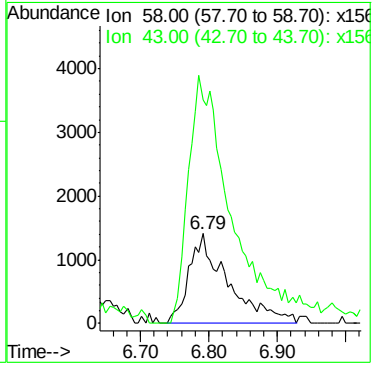


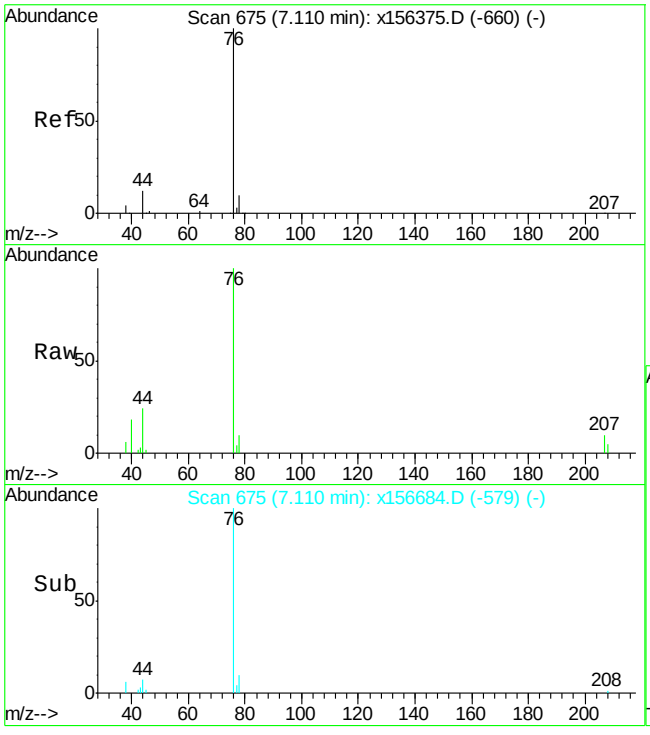


#19
acetone
Concen: 37.46 ug/L m
RT: 6.79 min Scan# 614
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 58 Resp: 5588

Ion	Ratio	Lower	Upper
58	100		
43	248.8	222.2	282.2

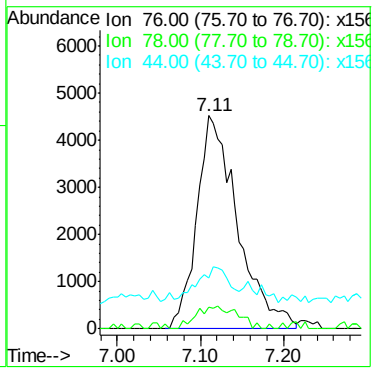


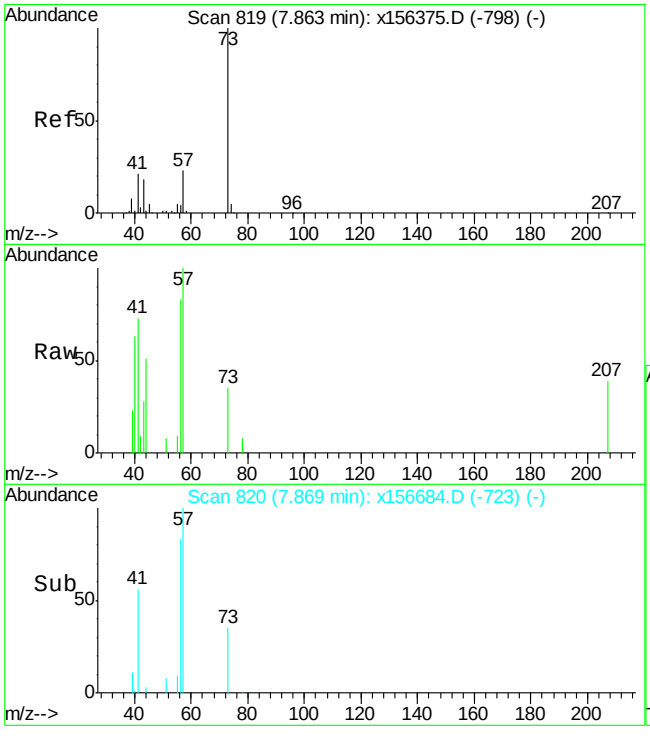


#24
carbon disulfide
Concen: 1.75 ug/L
RT: 7.11 min Scan# 675
Delta R.T. -0.00 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 76 Resp: 15347

Ion	Ratio	Lower	Upper
76	100		
78	7.2	0.0	39.6
44	9.6	0.0	42.2

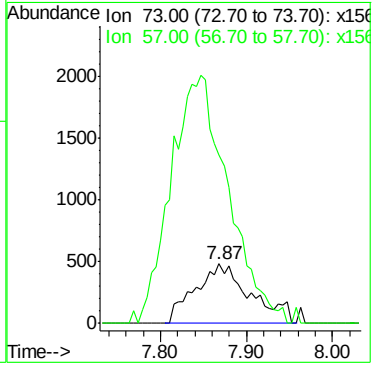


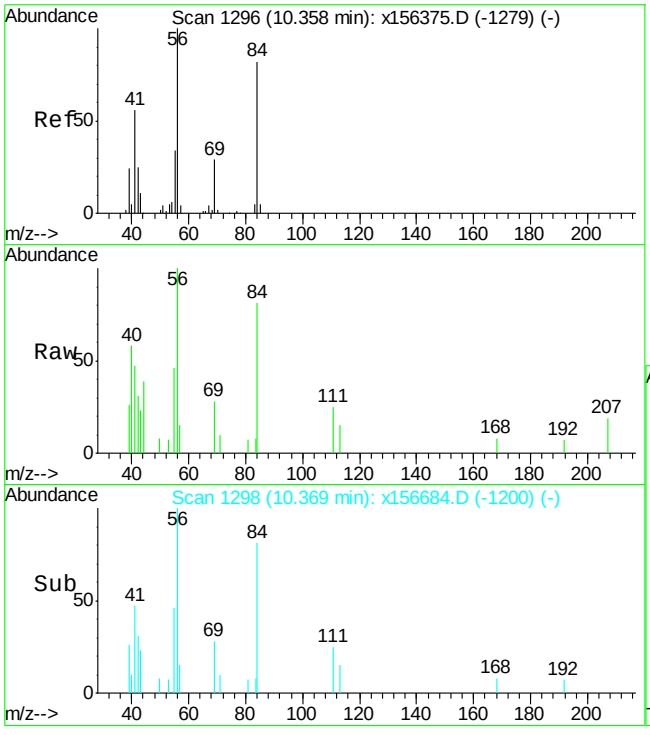


#27
methyl tert butyl ether
Concen: 0.30 ug/L
RT: 7.87 min Scan# 820
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 73 Resp: 2135

Ion	Ratio	Lower	Upper
73	100		
57	431.9	0.0	53.2#

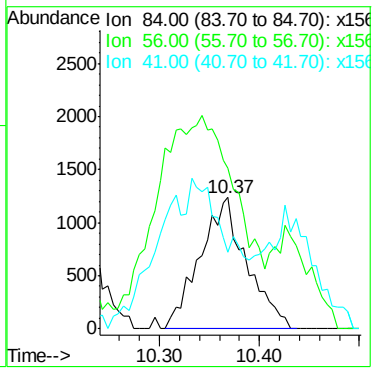


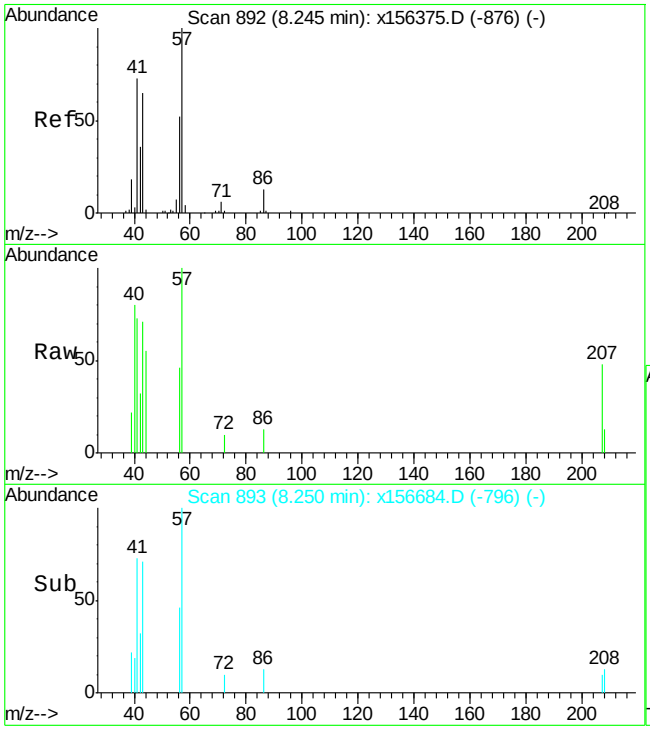


#50
cyclohexane
Concen: 1.08 ug/L
RT: 10.37 min Scan# 1298
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 84 Resp: 4034

Ion	Ratio	Lower	Upper
84	100		
56	59.1	84.8	157.4#
41	0.0	47.5	88.3#

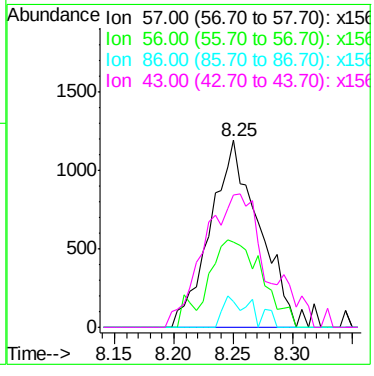


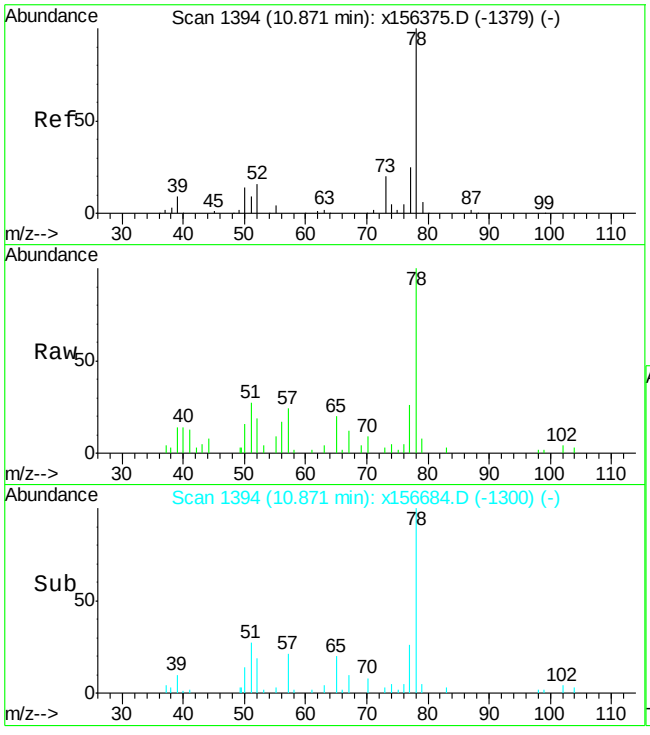


#58
hexane
Concen: 1.29 ug/L
RT: 8.25 min Scan# 893
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 57 Resp: 3375

Ion	Ratio	Lower	Upper
57	100		
56	45.5	21.7	81.7
86	13.5	0.0	43.3
43	71.0	35.1	95.1

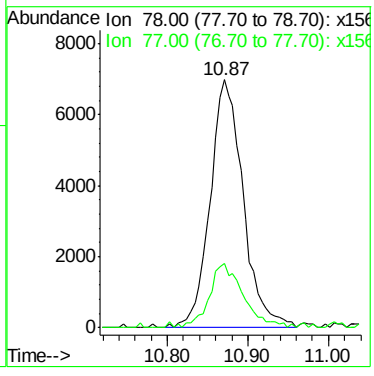


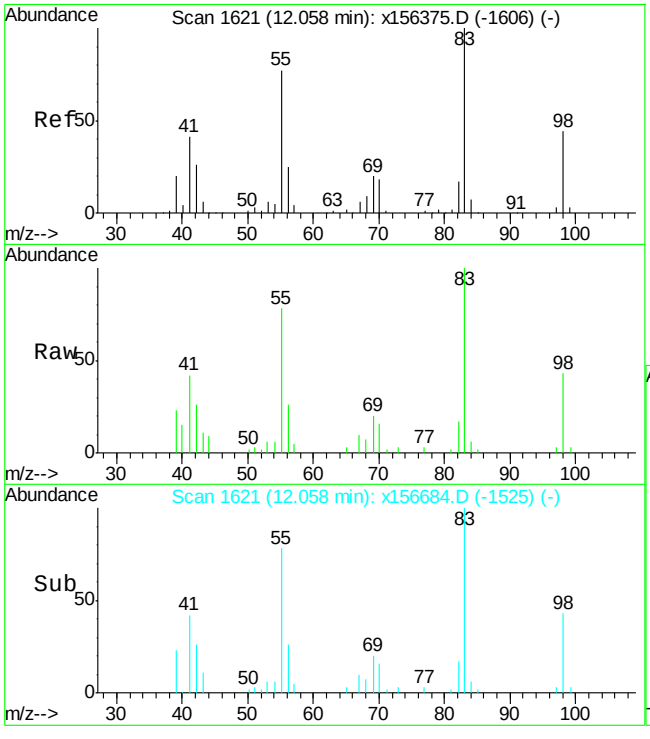


#59
benzene
Concen: 2.37 ug/L
RT: 10.87 min Scan# 1394
Delta R.T. -0.00 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 78 Resp: 19839

Ion	Ratio	Lower	Upper
78	100		
77	25.9	0.0	54.7

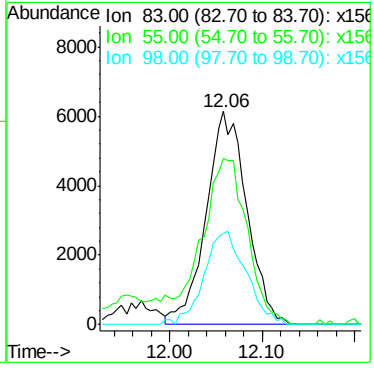


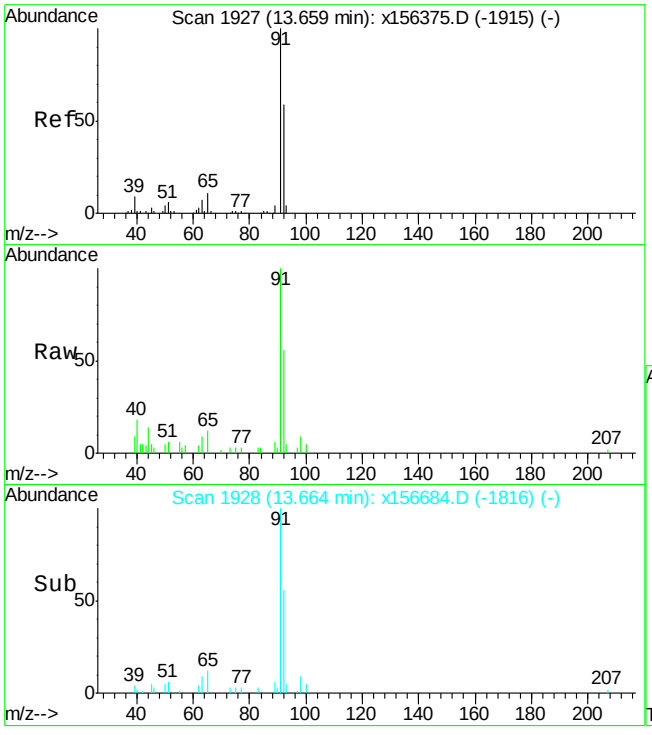


#72
methylcyclohexane
Concen: 5.07 ug/L
RT: 12.06 min Scan# 1621
Delta R.T. -0.00 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 83 Resp: 18726

Ion	Ratio	Lower	Upper
83	100		
55	77.8	46.7	106.7
98	42.6	13.7	73.7

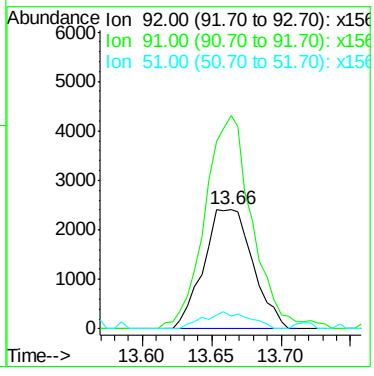


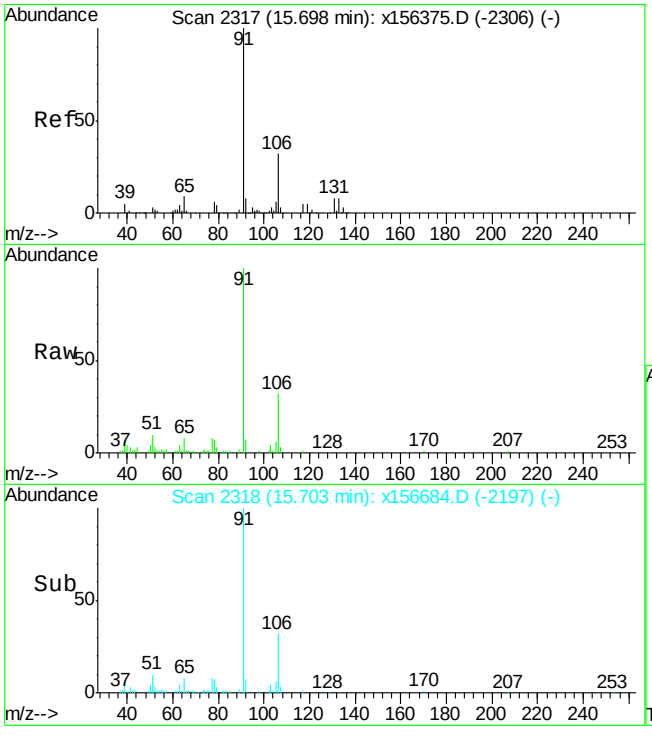


#77
toluene
Concen: 1.20 ug/L
RT: 13.66 min Scan# 1928
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 92 Resp: 5973

Ion	Ratio	Lower	Upper
92	100		
91	173.4	138.6	198.6
51	10.6	0.0	39.9

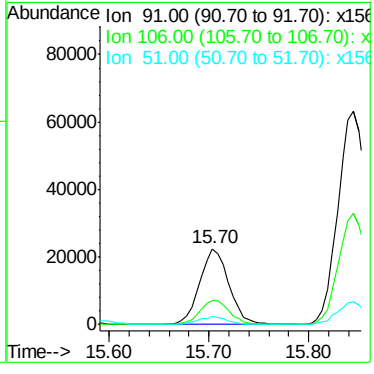


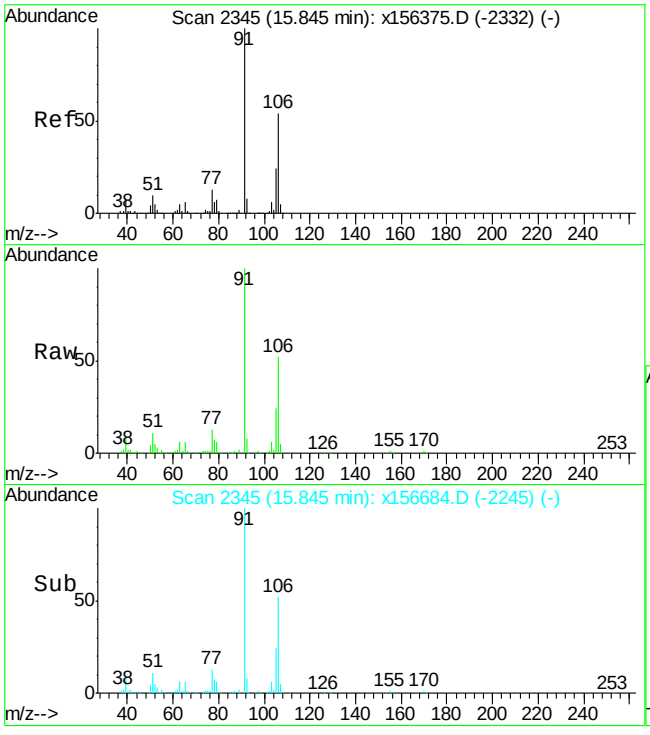


#93
ethylbenzene
Concen: 4.53 ug/L
RT: 15.70 min Scan# 2318
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion: 91 Resp: 45608

Ion	Ratio	Lower	Upper
91	100		
106	31.7	1.8	61.8
51	10.4	0.0	39.7

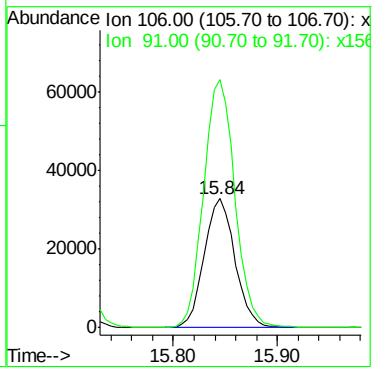


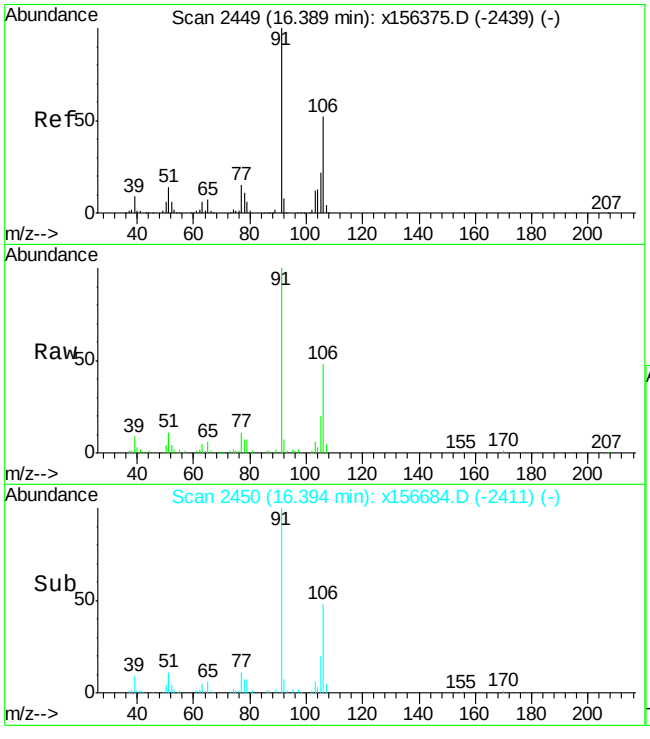


#94
m,p-xylene
Concen: 17.18 ug/L
RT: 15.84 min Scan# 2345
Delta R.T. 0.00 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion:106 Resp: 67595

Ion	Ratio	Lower	Upper
106	100		
91	192.0	155.8	215.8

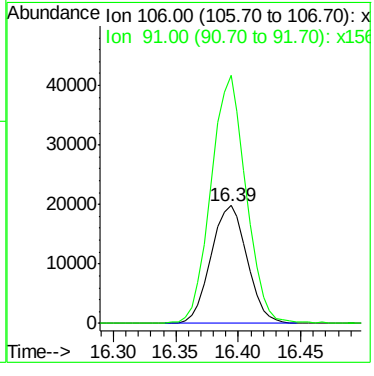


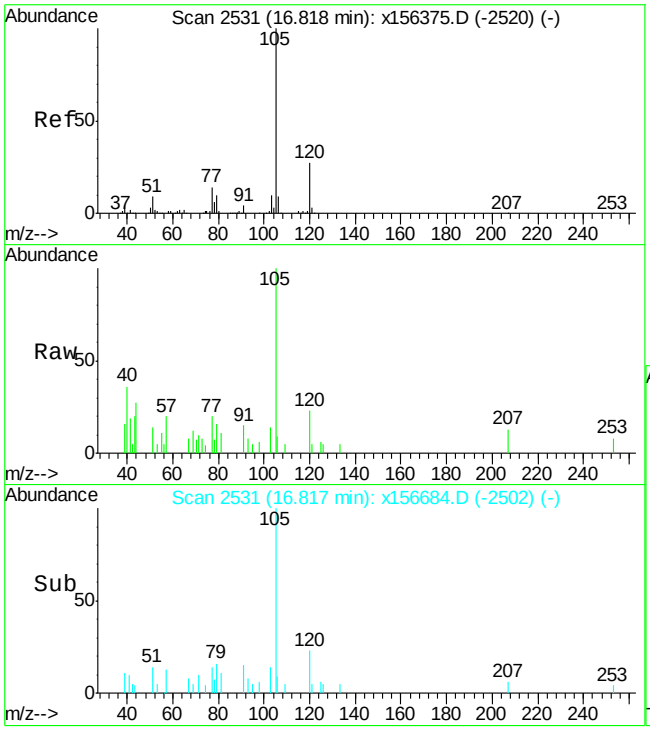


#95
o-xylene
Concen: 9.69 ug/L
RT: 16.39 min Scan# 2450
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion:106 Resp: 39895

Ion	Ratio	Lower	Upper
106	100		
91	210.4	164.1	224.1

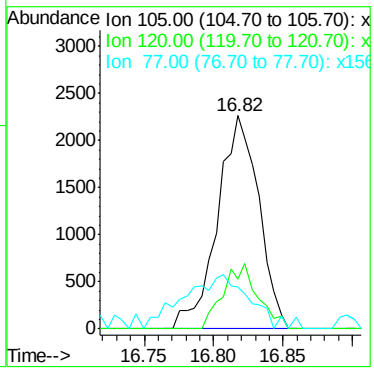


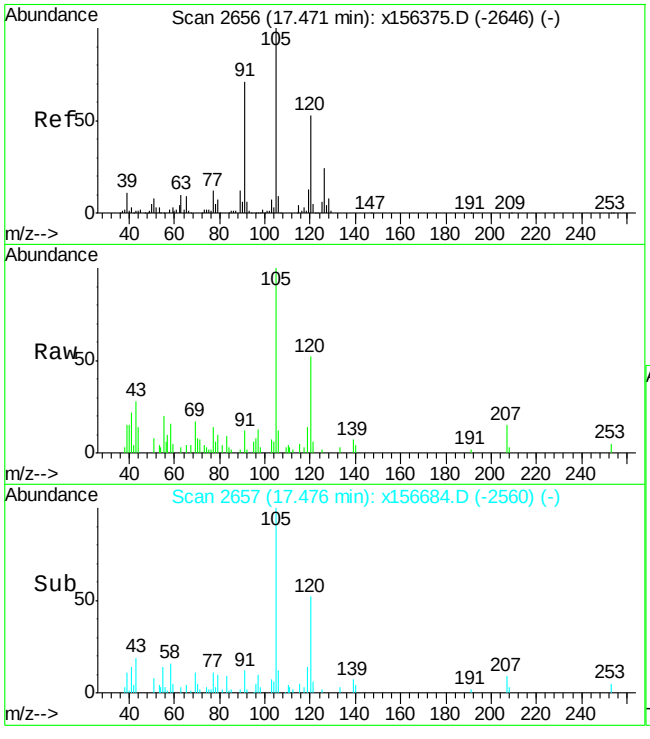


#99
isopropylbenzene
Concen: 0.43 ug/L
RT: 16.82 min Scan# 2531
Delta R.T. -0.00 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion:105 Resp: 4725

Ion	Ratio	Lower	Upper
105	100		
120	23.2	0.0	56.6
77	14.3	0.0	44.2

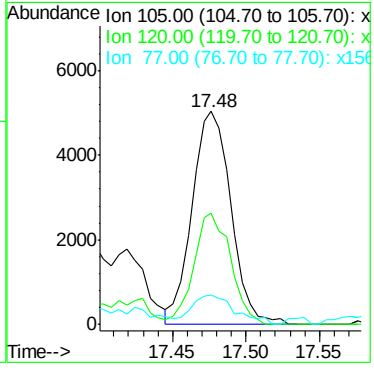


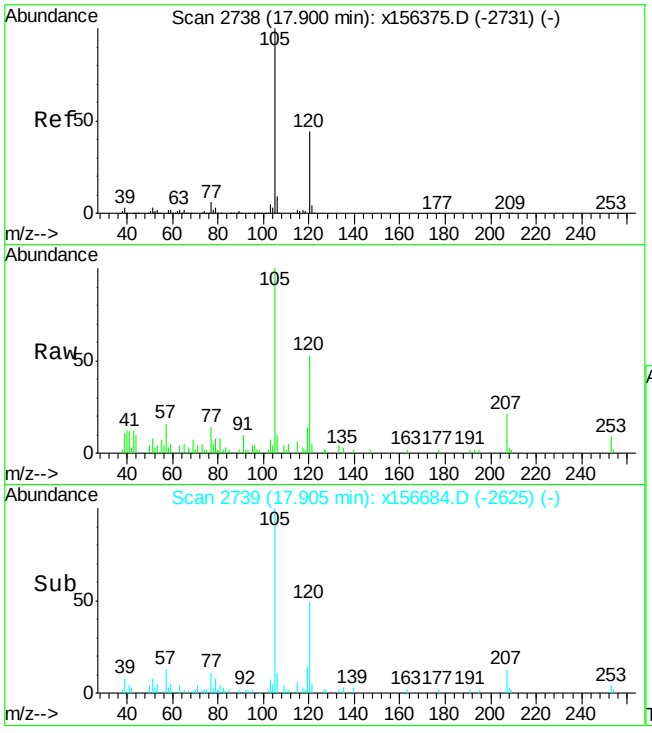


#111
1,3,5-trimethylbenzene
Concen: 1.00 ug/L
RT: 17.48 min Scan# 2657
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion:105 Resp: 9293

Ion	Ratio	Lower	Upper
105	100		
120	52.4	22.6	82.6
77	11.0	0.0	41.9

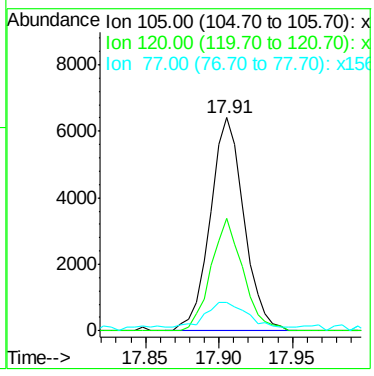




#114
1,2,4-trimethylbenzene
Concen: 1.12 ug/L
RT: 17.91 min Scan# 2739
Delta R.T. 0.01 min
Lab File: x156684.D
Acq: 3 Aug 2015 8:07 pm

Tgt Ion:105 Resp: 10178

Ion	Ratio	Lower	Upper
105	100		
120	52.5	18.3	78.3
77	12.0	0.0	41.0



7.1.5

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E227924.D
Acq On : 30 Jul 2015 4:33 pm
Operator : ThienN
Sample : jb99970-9
Misc : MS88814,VE9987,6.1,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 31 15:43:11 2015
Quant Method : C:\msdchem\1\METHODS\ME9972.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.947	65	140268	500.00	ug/L	0.00
4) pentafluorobenzene	10.118	168	262305	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.049	114	366785	50.00	ug/L	0.00
84) chlorobenzene-d5	14.375	117	328231	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.943	152	211475	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	10.207	113	114806	48.59	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 97.18%			
48) 1,2-dichloroethane-d4 (s)	10.630	65	201118	69.16	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 138.32%#			
76) toluene-d8 (s)	12.728	98	441779	50.89	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 101.78%			
103) 4-bromofluorobenzene (s)	15.651	95	186300	49.59	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 99.18%			

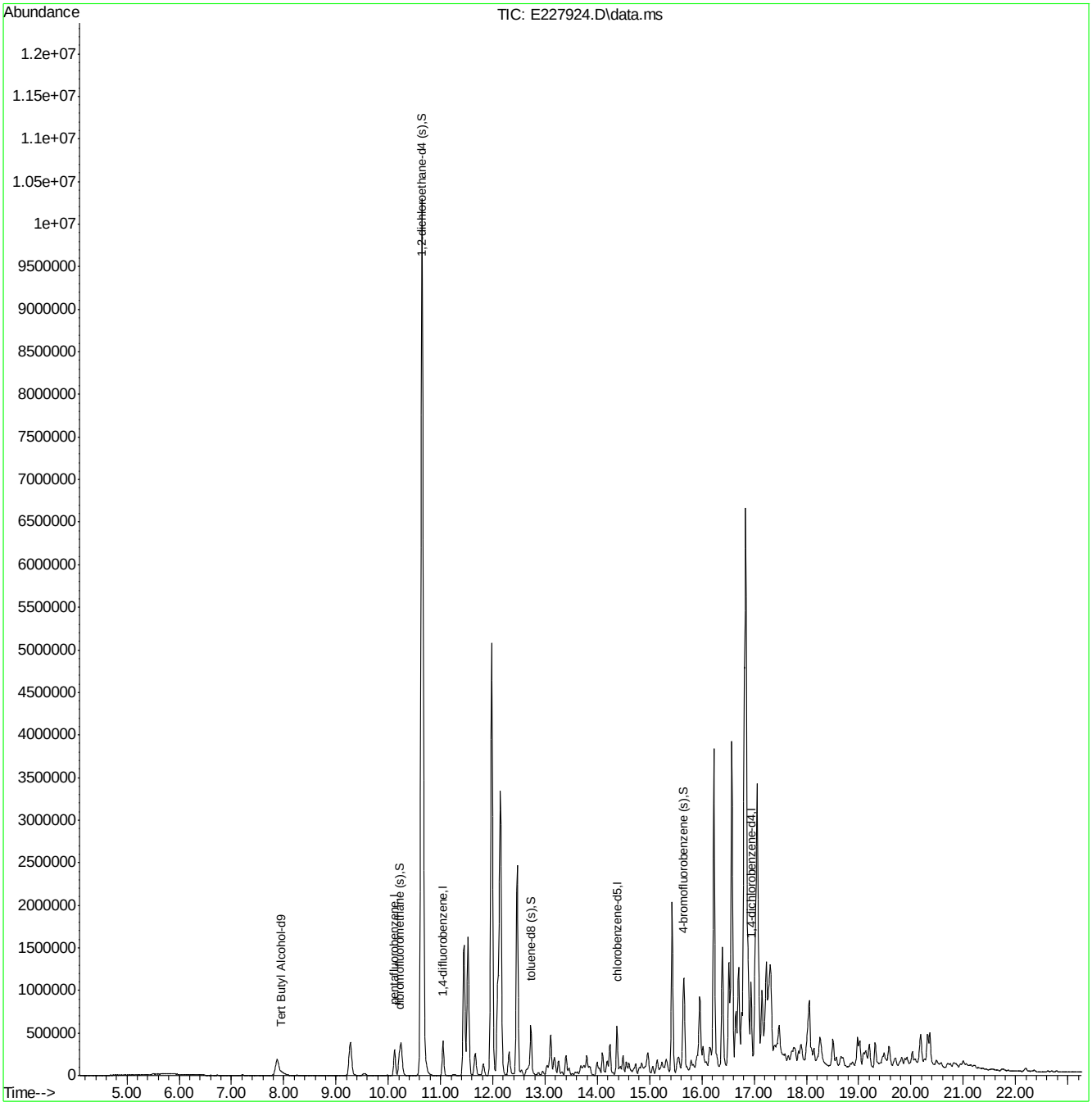
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E227924.D
Acq On : 30 Jul 2015 4:33 pm
Operator : ThienN
Sample : jb99970-9
Misc : MS88814,VE9987,6.1,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 31 15:43:11 2015
Quant Method : C:\msdchem\1\METHODS\ME9972.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E227958.D
Acq On : 31 Jul 2015 2:28 pm
Operator : ThienN
Sample : jb99970-9cfs
Misc : MS88814,VE9988,6.1,,100,10,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 31 15:43:45 2015
Quant Method : C:\msdchem\1\METHODS\ME9972.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.963	65	135579	500.00	ug/L	0.02
4) pentafluorobenzene	10.118	168	269725	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.044	114	372097	50.00	ug/L	0.00
84) chlorobenzene-d5	14.375	117	323264	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.943	152	214574	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	10.207	113	114516	47.14	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 94.28%			
48) 1,2-dichloroethane-d4 (s)	10.630	65	203773	68.15	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 136.30%#			
76) toluene-d8 (s)	12.728	98	432843	49.15	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.30%			
103) 4-bromofluorobenzene (s)	15.651	95	184443	48.39	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 96.78%			

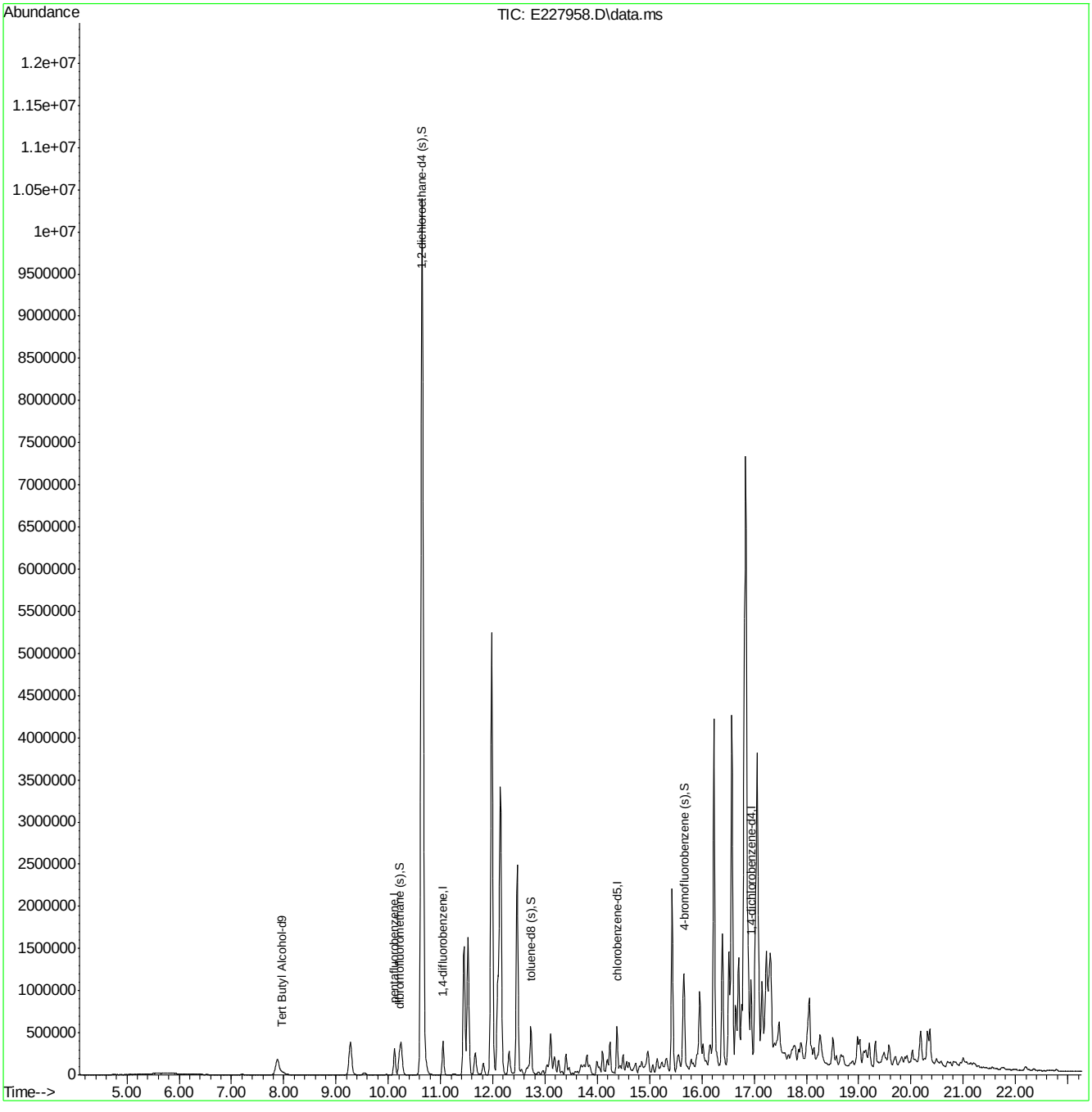
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E227958.D
Acq On : 31 Jul 2015 2:28 pm
Operator : ThienN
Sample : jb99970-9cfs
Misc : MS88814,VE9988,6.1,,100,10,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 31 15:43:45 2015
Quant Method : C:\msdchem\1\METHODS\ME9972.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat
08/07/15 13:54

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156685.D
Acq On : 3 Aug 2015 8:37 pm
Operator : payalr
Sample : jb99970-10
Misc : MS88814,VX6744,4.3,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 07 13:16:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	111162	500.00	ug/L	0.00
4) pentafluorobenzene	10.21	168	271336	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	307597	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	267503	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	157676	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	10.27	113	91100	46.30	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 92.60%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	81944	51.07	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.14%			
75) toluene-d8 (s)	13.56	98	352057	51.30	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 102.60%			
102) 4-bromofluorobenzene (s)	17.07	95	128530	50.39	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 100.78%			

Target Compounds						Qvalue
19) acetone	6.80	58	1951m	13.76	ug/L	
24) carbon disulfide	7.11	76	3322	0.40	ug/L	91
58) hexane	8.25	57	2955	1.21	ug/L	90
59) benzene	10.87	78	33415	4.28	ug/L	93
77) toluene	13.65	92	1639	0.35	ug/L	86
93) ethylbenzene	15.71	91	2934	0.32	ug/L	92
94) m,p-xylene	15.84	106	4741	1.33	ug/L	96
95) o-xylene	16.39	106	7550	2.03	ug/L	89
111) 1,3,5-trimethylbenzene	17.48	105	2098	0.25	ug/L	82

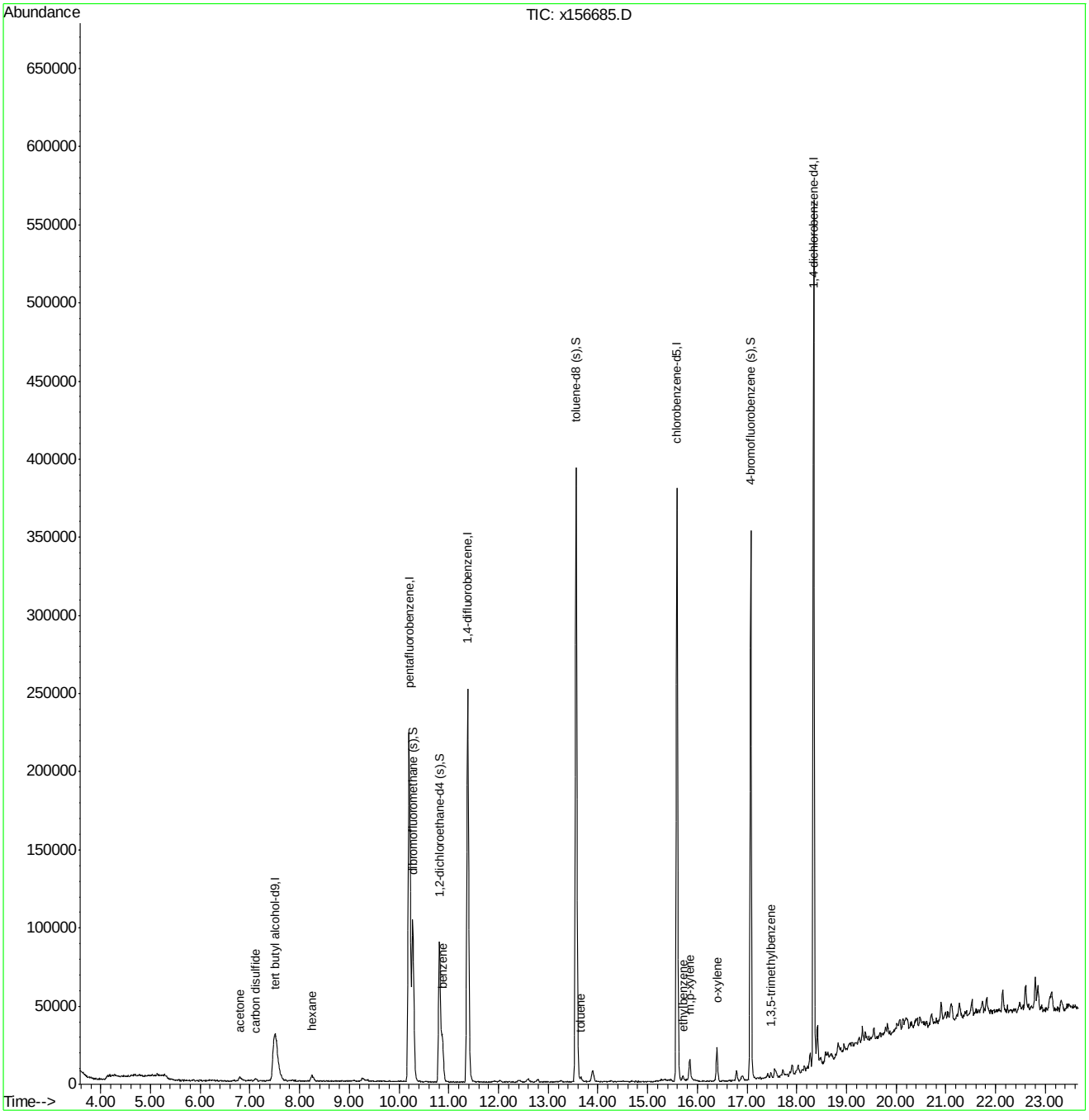
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.8
7

Quantitation Report (QT Reviewed)

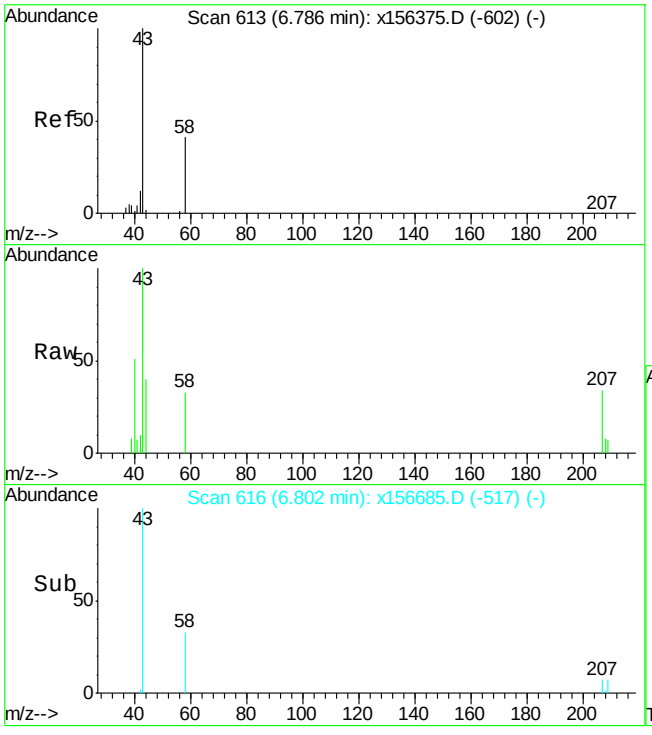
Data Path : C:\msdchem\1\data\
Data File : x156685.D
Acq On : 3 Aug 2015 8:37 pm
Operator : payalr
Sample : jb99970-10
Misc : MS88814,VX6744,4.3,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 07 13:16:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration



MX6733.M Fri Aug 07 13:16:49 2015 GCMSX

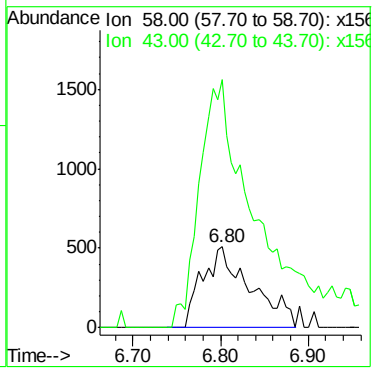
Page: 2

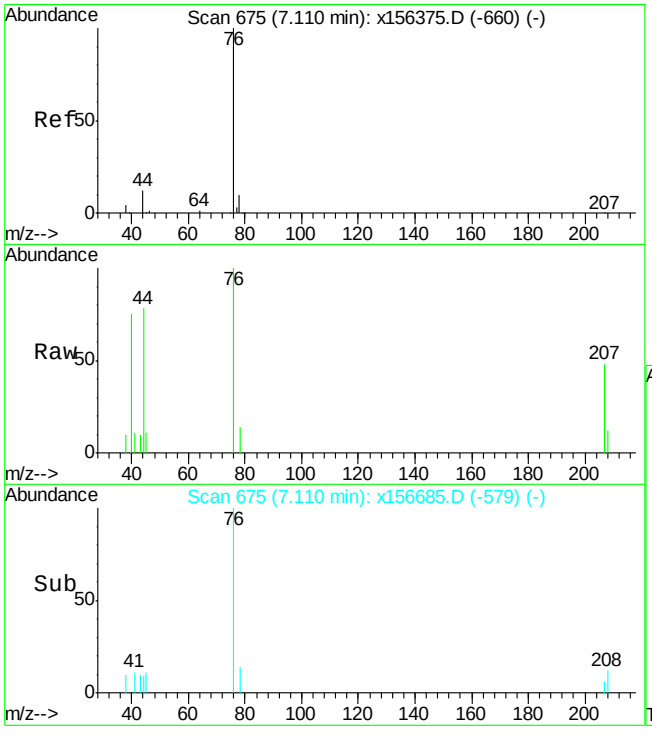


#19
acetone
Concen: 13.76 ug/L m
RT: 6.80 min Scan# 616
Delta R.T. 0.02 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion: 58 Resp: 1951

Ion	Ratio	Lower	Upper
58	100		
43	307.1	222.2	282.2#

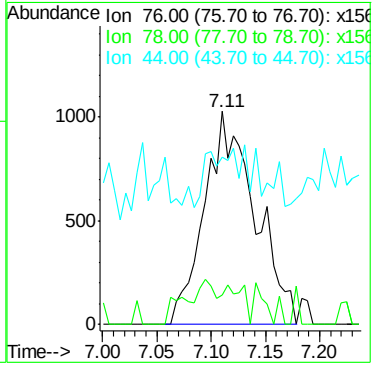


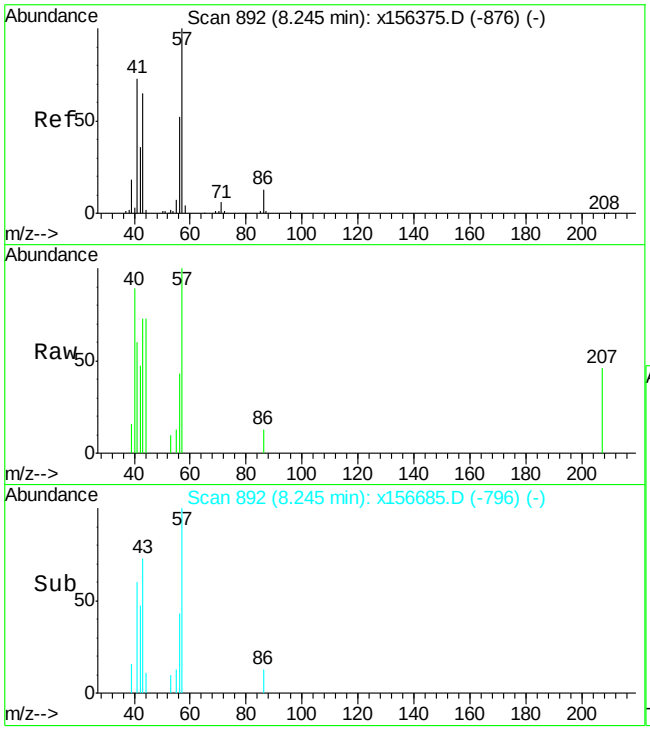


#24
carbon disulfide
Concen: 0.40 ug/L
RT: 7.11 min Scan# 675
Delta R.T. -0.00 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion: 76 Resp: 3322

Ion	Ratio	Lower	Upper
76	100		
78	4.8	0.0	39.6
44	9.6	0.0	42.2

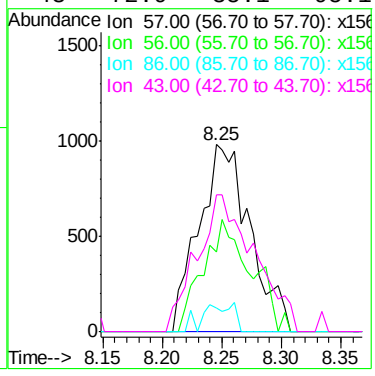


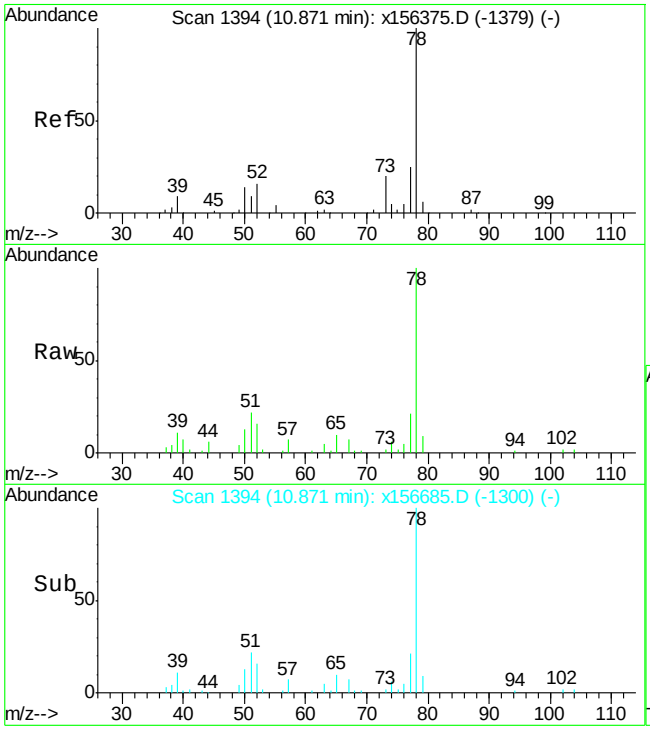


#58
hexane
Concen: 1.21 ug/L
RT: 8.25 min Scan# 892
Delta R.T. -0.00 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion: 57 Resp: 2955

Ion	Ratio	Lower	Upper
57	100		
56	42.7	21.7	81.7
86	12.6	0.0	43.3
43	72.9	35.1	95.1

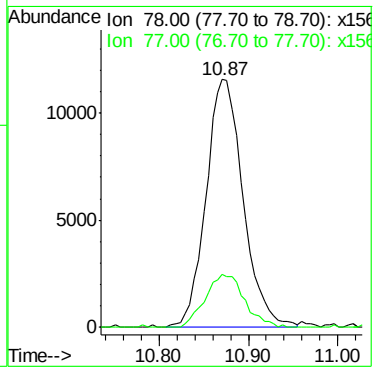




#59
benzene
Concen: 4.28 ug/L
RT: 10.87 min Scan# 1394
Delta R.T. -0.00 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

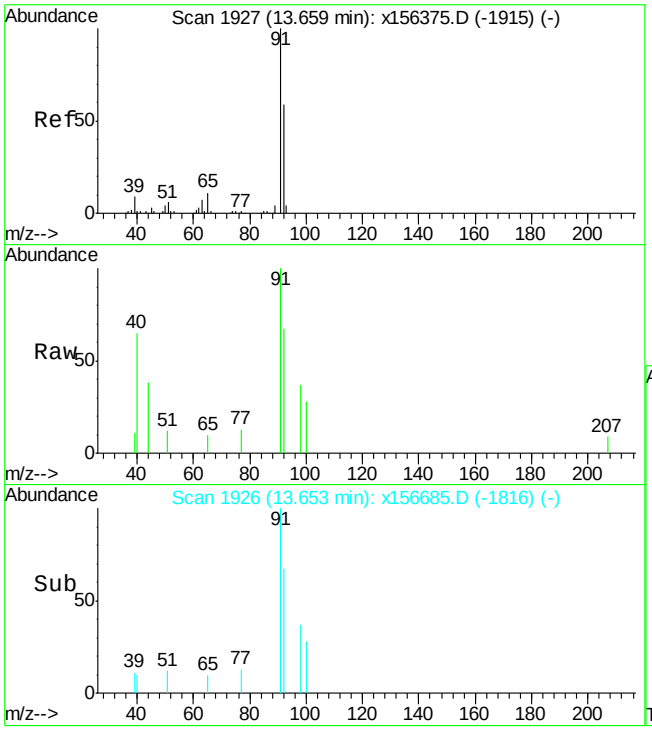
Tgt Ion: 78 Resp: 33415

Ion	Ratio	Lower	Upper
78	100		
77	21.2	0.0	54.7



7.1.8

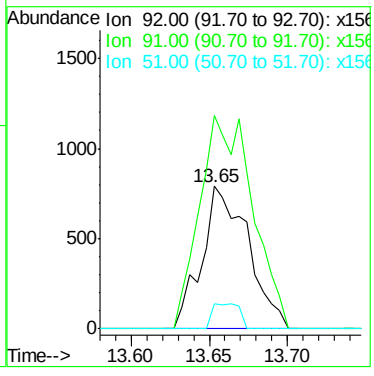
7

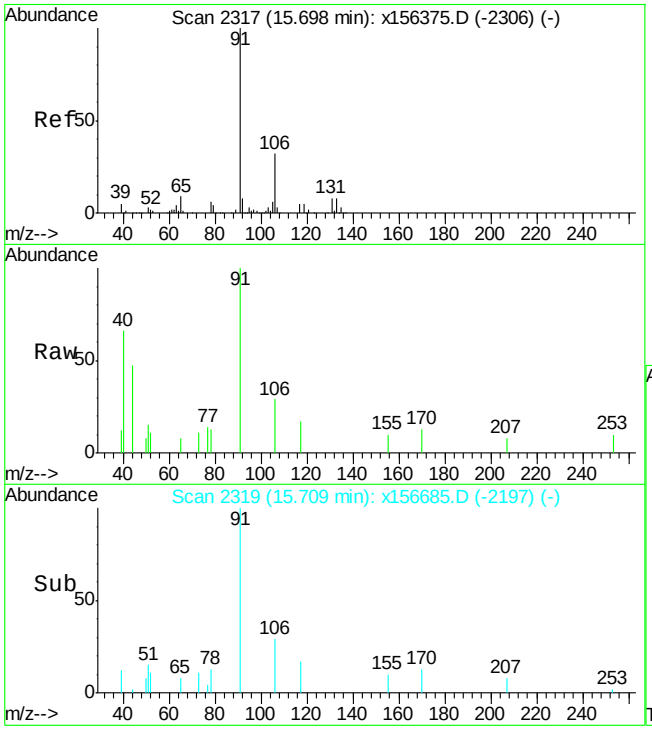


#77
toluene
Concen: 0.35 ug/L
RT: 13.65 min Scan# 1926
Delta R.T. -0.01 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion: 92 Resp: 1639

Ion	Ratio	Lower	Upper
92	100		
91	149.6	138.6	198.6
51	17.6	0.0	39.9

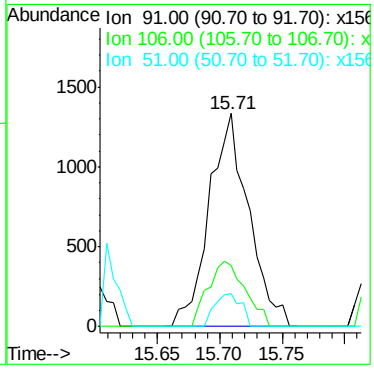




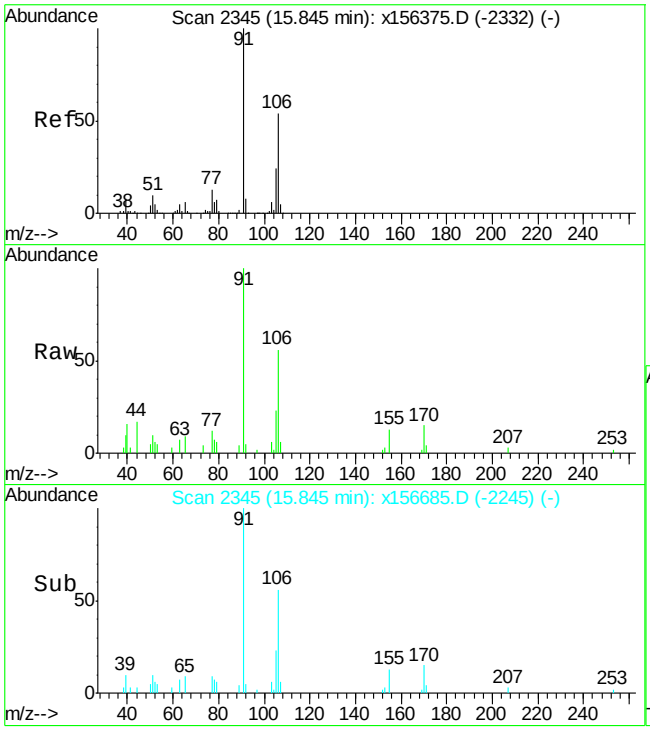
#93
ethylbenzene
Concen: 0.32 ug/L
RT: 15.71 min Scan# 2319
Delta R.T. 0.01 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion: 91 Resp: 2934

Ion	Ratio	Lower	Upper
91	100		
106	28.7	1.8	61.8
51	15.4	0.0	39.7



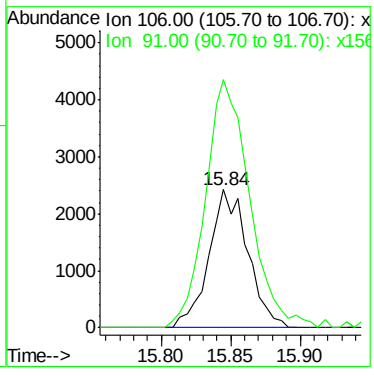
7.1.8

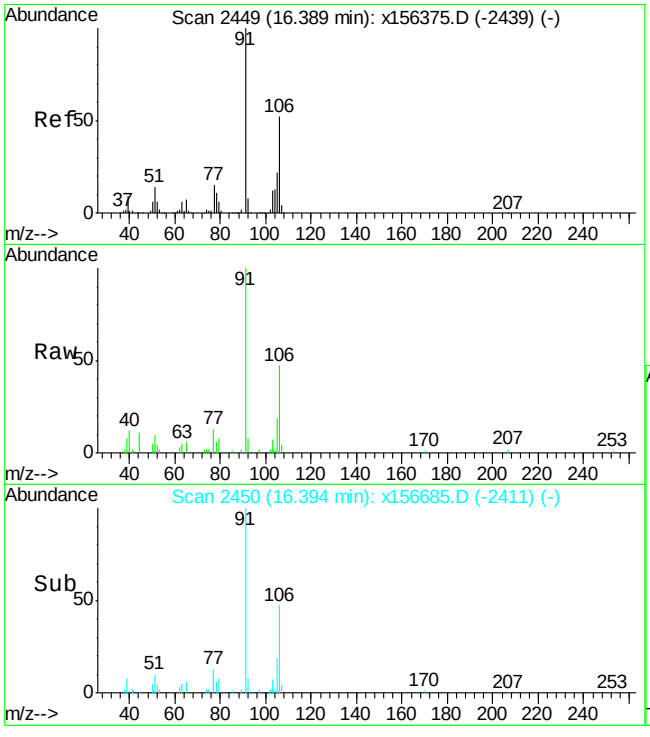


#94
m,p-xylene
Concen: 1.33 ug/L
RT: 15.84 min Scan# 2345
Delta R.T. 0.00 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion:106 Resp: 4741

Ion	Ratio	Lower	Upper
106	100		
91	179.7	155.8	215.8

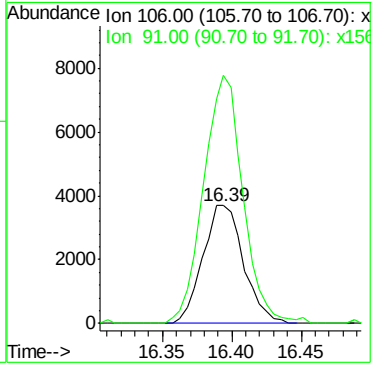


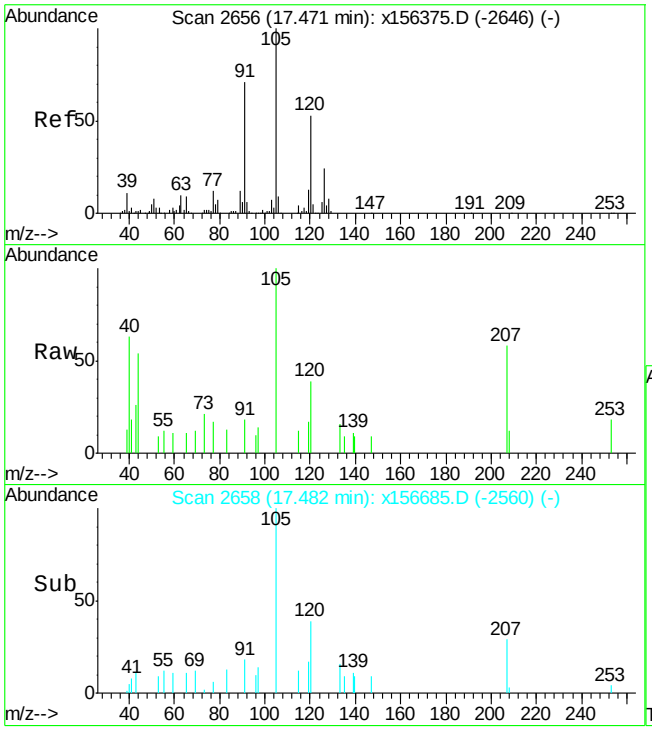


#95
o-xylene
Concen: 2.03 ug/L
RT: 16.39 min Scan# 2450
Delta R.T. 0.01 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion:106 Resp: 7550

Ion	Ratio	Lower	Upper
106	100		
91	210.6	164.1	224.1

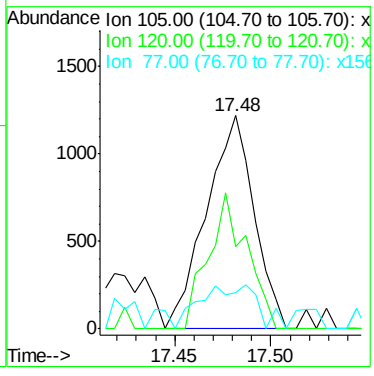




#111
1,3,5-trimethylbenzene
Concen: 0.25 ug/L
RT: 17.48 min Scan# 2658
Delta R.T. 0.01 min
Lab File: x156685.D
Acq: 3 Aug 2015 8:37 pm

Tgt Ion:105 Resp: 2098

Ion	Ratio	Lower	Upper
105	100		
120	38.7	22.6	82.6
77	8.4	0.0	41.9



7.1.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E227909.D
Acq On : 30 Jul 2015 8:54 am
Operator : ThienN
Sample : mb1
Misc : MS85727,VE9987,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 12:55:16 2015
Quant Method : C:\msdchem\1\METHODS\ME9972.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.937	65	120021	500.00	ug/L	0.00
4) pentafluorobenzene	10.118	168	244627	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.044	114	332314	50.00	ug/L	0.00
84) chlorobenzene-d5	14.376	117	292596	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.944	152	176914	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	10.207	113	109605	49.74	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.48%			
48) 1,2-dichloroethane-d4 (s)	10.631	65	140895	51.95	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 103.90%			
76) toluene-d8 (s)	12.733	98	386775	49.17	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.34%			
103) 4-bromofluorobenzene (s)	15.652	95	160697	51.13	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 102.26%			

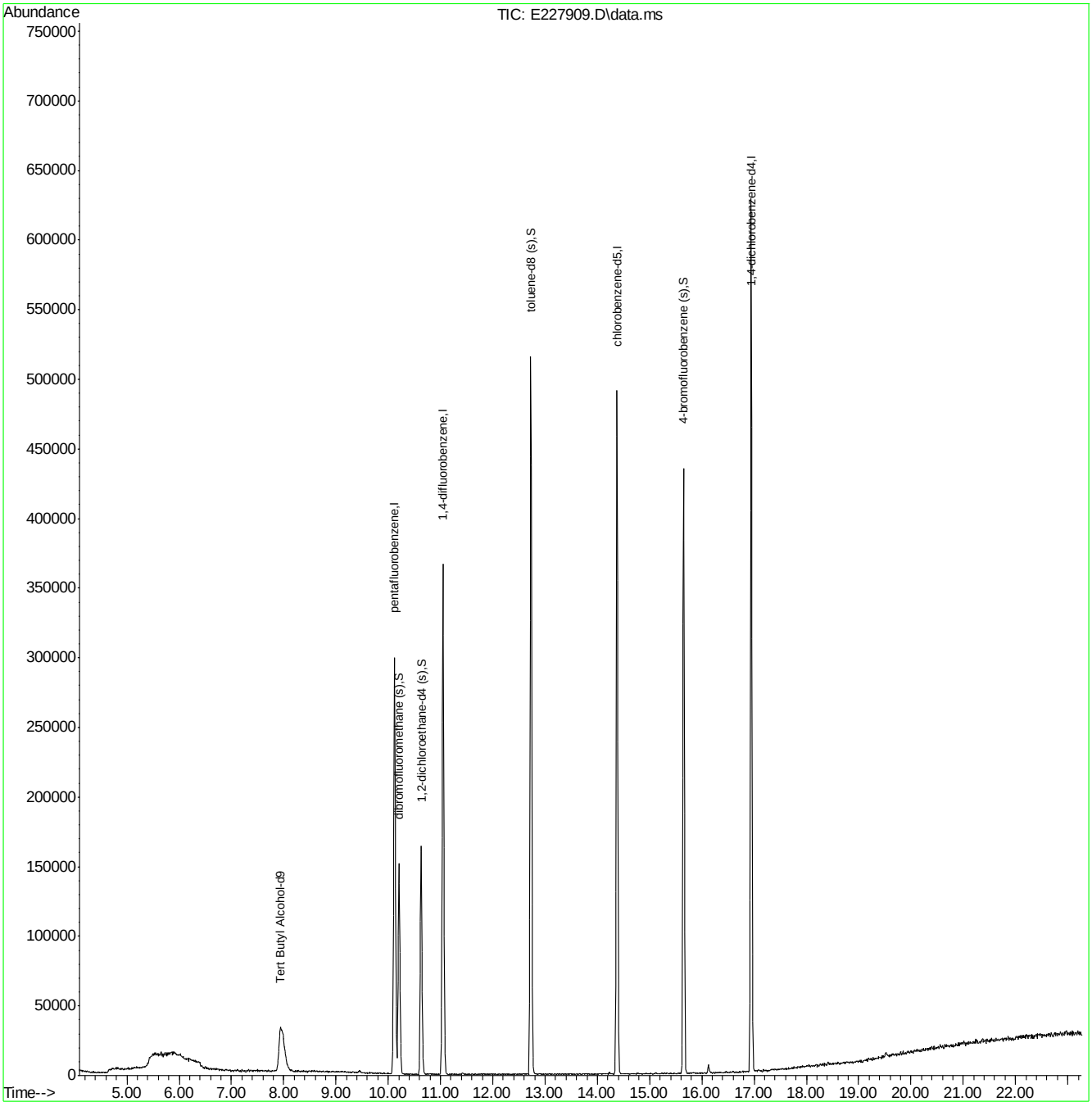
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E227909.D
Acq On : 30 Jul 2015 8:54 am
Operator : ThienN
Sample : mb1
Misc : MS85727,VE9987,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 12:55:16 2015
Quant Method : C:\msdchem\1\METHODS\ME9972.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jul 15 17:24:08 2015
Response via : Initial Calibration



ACCUTEST LABORATORIES JB99970A

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156668.D
Acq On : 3 Aug 2015 10:36 am
Operator : payalr
Sample : mb
Misc : MS88848,VX6744,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 14:58:57 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	98985	500.00	ug/L	-0.01
4) pentafluorobenzene	10.20	168	263761	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	292384	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	271178	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.33	152	163676	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	10.27	113	93652	48.96	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 97.92%			
46) 1,2-dichloroethane-d4 (s)	10.81	65	76474	49.03	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 98.06%			
75) toluene-d8 (s)	13.56	98	349166	53.52	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 107.04%			
102) 4-bromofluorobenzene (s)	17.07	95	131433	49.63	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 99.26%			

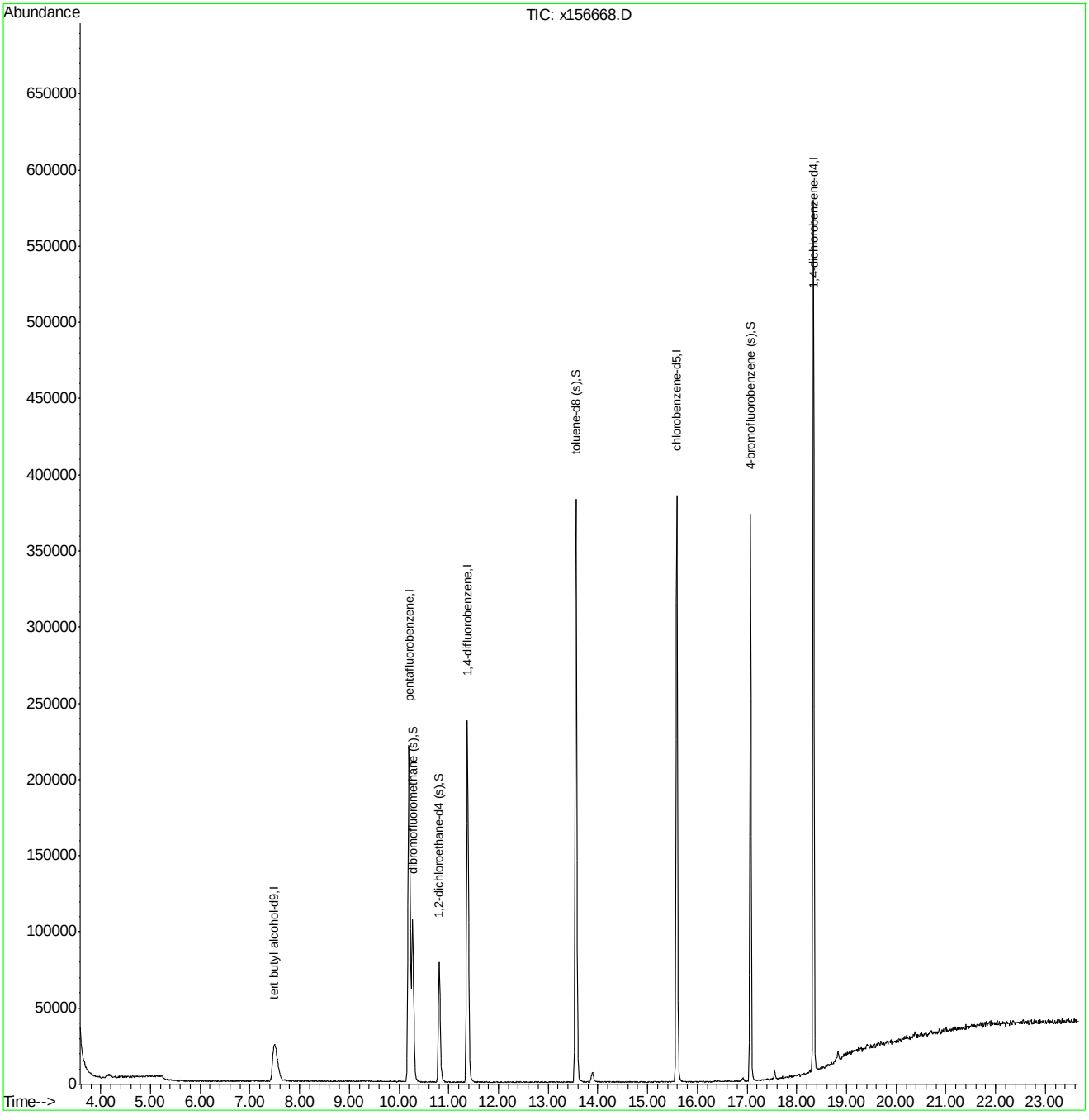
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : x156668.D
Acq On : 3 Aug 2015 10:36 am
Operator : payalr
Sample : mb
Misc : MS88848,VX6744,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 14:58:57 2015
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Jul 23 09:18:59 2015
Response via : Initial Calibration



MX6733.M Mon Aug 03 14:59:32 2015 GCMSX

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ACCUTEST LABORATORIES JB99970A

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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-MB1	2P51008.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-9

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	73	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	140	ug/kg	
95-48-7	2-Methylphenol	ND	67	44	ug/kg	
	3&4-Methylphenol	ND	67	37	ug/kg	
100-02-7	4-Nitrophenol	ND	330	100	ug/kg	
108-95-2	Phenol	ND	67	22	ug/kg	
83-32-9	Acenaphthene	ND	33	6.7	ug/kg	
120-12-7	Anthracene	ND	33	7.5	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	8.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	11	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.6	ug/kg	
218-01-9	Chrysene	ND	33	8.2	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	8.0	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	8.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	8.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	11	ug/kg	
206-44-0	Fluoranthene	ND	33	12	ug/kg	
86-73-7	Fluorene	ND	33	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	11	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	7.7	ug/kg	
91-20-3	Naphthalene	ND	33	4.9	ug/kg	
85-01-8	Phenanthrene	ND	33	7.1	ug/kg	
129-00-0	Pyrene	ND	33	7.5	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	11	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	64%	22-121%
4165-62-2	Phenol-d5	68%	27-119%
118-79-6	2,4,6-Tribromophenol	104%	17-158%
4165-60-0	Nitrobenzene-d5	93%	33-127%

Method Blank Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-MB1	2P51008.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-9

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	95%	41-121%
1718-51-0	Terphenyl-d14	108%	44-137%

Method Blank Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP86000-MB1	3E74517.D	1	08/03/15	AN	08/01/15	OP86000	E3E3235

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-8, JB99970-10

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	73	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	140	ug/kg	
95-48-7	2-Methylphenol	ND	67	44	ug/kg	
	3&4-Methylphenol	ND	67	37	ug/kg	
100-02-7	4-Nitrophenol	ND	330	100	ug/kg	
108-95-2	Phenol	ND	67	22	ug/kg	
83-32-9	Acenaphthene	ND	33	6.7	ug/kg	
120-12-7	Anthracene	ND	33	7.5	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	8.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	11	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.6	ug/kg	
218-01-9	Chrysene	ND	33	8.2	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	8.0	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	8.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	8.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	11	ug/kg	
206-44-0	Fluoranthene	ND	33	12	ug/kg	
86-73-7	Fluorene	ND	33	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	11	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	7.7	ug/kg	
91-20-3	Naphthalene	ND	33	4.9	ug/kg	
85-01-8	Phenanthrene	ND	33	7.1	ug/kg	
129-00-0	Pyrene	ND	33	7.5	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	11	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	74%	22-121%
4165-62-2	Phenol-d5	76%	27-119%
118-79-6	2,4,6-Tribromophenol	73%	17-158%
4165-60-0	Nitrobenzene-d5	76%	33-127%

Method Blank Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP86000-MB1	3E74517.D	1	08/03/15	AN	08/01/15	OP86000	E3E3235

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-8, JB99970-10

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	84%	41-121%
1718-51-0	Terphenyl-d14	109%	44-137%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.25	1300	ug/kg	J
	system artifact/aldol-condensation	3.45	370	ug/kg	J
	Total TIC, Semi-Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-BS1	2P51009.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1360	82	53-140
51-28-5	2,4-Dinitrophenol	3330	3390	102	38-145
95-48-7	2-Methylphenol	1670	1060	64	55-116
	3&4-Methylphenol	1670	1090	65	55-114
100-02-7	4-Nitrophenol	1670	1480	89	37-171
108-95-2	Phenol	1670	968	58	50-114
83-32-9	Acenaphthene	1670	1320	79	58-123
120-12-7	Anthracene	1670	1140	68	58-123
56-55-3	Benzo(a)anthracene	1670	1250	75	56-119
50-32-8	Benzo(a)pyrene	1670	1310	79	55-129
205-99-2	Benzo(b)fluoranthene	1670	1210	73	54-130
191-24-2	Benzo(g,h,i)perylene	1670	1160	70	49-130
207-08-9	Benzo(k)fluoranthene	1670	1180	71	53-124
92-52-4	1,1'-Biphenyl	1670	1290	77	59-121
218-01-9	Chrysene	1670	1290	77	58-125
53-70-3	Dibenzo(a,h)anthracene	1670	1220	73	52-128
84-74-2	Di-n-butyl phthalate	1670	1070	64	59-146
84-66-2	Diethyl phthalate	1670	1180	71	56-132
117-81-7	bis(2-Ethylhexyl)phthalate	1670	922	55* [a]	60-142
206-44-0	Fluoranthene	1670	1320	79	58-125
86-73-7	Fluorene	1670	1340	80	58-124
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1290	77	50-129
91-57-6	2-Methylnaphthalene	1670	1340	80	50-111
91-20-3	Naphthalene	1670	1180	71	48-116
85-01-8	Phenanthrene	1670	1100	66	55-120
129-00-0	Pyrene	1670	1190	71	55-123
110-86-1	Pyridine	1670	779	47	27-103
91-22-5	Quinoline	1670	1180	71	56-125

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	64%	22-121%
4165-62-2	Phenol-d5	64%	27-119%
118-79-6	2,4,6-Tribromophenol	93%	17-158%
4165-60-0	Nitrobenzene-d5	86%	33-127%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-BS1	2P51009.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-9

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	86%	41-121%
1718-51-0	Terphenyl-d14	103%	44-137%

(a) Outside of in house control limits.

8.2.1

8

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP86000-BS1	3E74516.D	1	08/03/15	AN	08/01/15	OP86000	E3E3235

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-8, JB99970-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1310	79	53-140
51-28-5	2,4-Dinitrophenol	3330	2570	77	38-145
95-48-7	2-Methylphenol	1670	1320	79	55-116
	3&4-Methylphenol	1670	1320	79	55-114
100-02-7	4-Nitrophenol	1670	1200	72	37-171
108-95-2	Phenol	1670	1240	74	50-114
83-32-9	Acenaphthene	1670	1390	83	58-123
120-12-7	Anthracene	1670	1360	82	58-123
56-55-3	Benzo(a)anthracene	1670	1270	76	56-119
50-32-8	Benzo(a)pyrene	1670	1410	85	55-129
205-99-2	Benzo(b)fluoranthene	1670	1250	75	54-130
191-24-2	Benzo(g,h,i)perylene	1670	1300	78	49-130
207-08-9	Benzo(k)fluoranthene	1670	1290	77	53-124
92-52-4	1,1'-Biphenyl	1670	1350	81	59-121
218-01-9	Chrysene	1670	1320	79	58-125
53-70-3	Dibenzo(a,h)anthracene	1670	1270	76	52-128
84-74-2	Di-n-butyl phthalate	1670	1240	74	59-146
84-66-2	Diethyl phthalate	1670	1170	70	56-132
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1390	83	60-142
206-44-0	Fluoranthene	1670	1260	76	58-125
86-73-7	Fluorene	1670	1330	80	58-124
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1290	77	50-129
91-57-6	2-Methylnaphthalene	1670	1430	86	50-111
91-20-3	Naphthalene	1670	1370	82	48-116
85-01-8	Phenanthrene	1670	1290	77	55-120
129-00-0	Pyrene	1670	1370	82	55-123
110-86-1	Pyridine	1670	1110	67	27-103
91-22-5	Quinoline	1670	1330	80	56-125

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	75%	22-121%
4165-62-2	Phenol-d5	76%	27-119%
118-79-6	2,4,6-Tribromophenol	74%	17-158%
4165-60-0	Nitrobenzene-d5	76%	33-127%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP86000-BS1	3E74516.D	1	08/03/15	AN	08/01/15	OP86000	E3E3235

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-8, JB99970-10

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	85%	41-121%
1718-51-0	Terphenyl-d14	99%	44-137%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-MS	2P51010.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
OP85890-MSD	2P51011.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
JB99970-1	2P51012.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-9

CAS No.	Compound	JB99970-1 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		2230	756	34	2230	675	30* [a]	11	32-153/36
51-28-5	2,4-Dinitrophenol	ND		4450	2460	55	4450	2350	53	5	10-138/52
95-48-7	2-Methylphenol	ND		2230	1090	49	2230	1070	48	2	34-129/36
	3&4-Methylphenol	ND		2230	995	45	2230	938	42	6	35-129/35
100-02-7	4-Nitrophenol	ND		2230	2120	95	2230	2220	100	5	15-178/41
108-95-2	Phenol	ND		2230	1320	59	2230	1310	59	1	29-126/36
83-32-9	Acenaphthene	ND		2230	1880	84	2230	1940	87	3	32-140/36
120-12-7	Anthracene	ND		2230	1670	75	2230	1710	77	2	32-142/38
56-55-3	Benzo(a)anthracene	ND		2230	1800	81	2230	1910	86	6	30-139/42
50-32-8	Benzo(a)pyrene	ND		2230	1950	88	2230	1980	89	2	32-145/42
205-99-2	Benzo(b)fluoranthene	ND		2230	1780	80	2230	1830	82	3	30-147/43
191-24-2	Benzo(g,h,i)perylene	ND		2230	1720	77	2230	1860	84	8	27-148/41
207-08-9	Benzo(k)fluoranthene	ND		2230	1770	79	2230	1810	81	2	32-138/41
92-52-4	1,1'-Biphenyl	ND		2230	1750	79	2230	1820	82	4	41-133/35
218-01-9	Chrysene	ND		2230	1840	83	2230	1950	88	6	31-144/42
53-70-3	Dibenzo(a,h)anthracene	ND		2230	1760	79	2230	1920	86	9	35-141/39
84-74-2	Di-n-butyl phthalate	ND		2230	1530	69	2230	1560	70	2	42-153/37
84-66-2	Diethyl phthalate	ND		2230	1730	78	2230	1780	80	3	45-136/35
117-81-7	bis(2-Ethylhexyl)phthalate	ND		2230	1350	61	2230	1380	62	2	42-161/38
206-44-0	Fluoranthene	ND		2230	1900	85	2230	1960	88	3	27-146/42
86-73-7	Fluorene	ND		2230	1930	87	2230	1960	88	2	37-138/39
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2230	1860	84	2230	2000	90	7	28-151/41
91-57-6	2-Methylnaphthalene	ND		2230	1900	85	2230	1940	87	2	30-123/36
91-20-3	Naphthalene	ND		2230	1770	79	2230	1830	82	3	29-125/38
85-01-8	Phenanthrene	ND		2230	1590	71	2230	1630	73	2	28-142/42
129-00-0	Pyrene	ND		2230	1720	77	2230	1780	80	3	27-150/42
110-86-1	Pyridine	ND		2230	1260	57	2230	1290	58	2	10-110/43
91-22-5	Quinoline	ND		2230	1690	76	2230	1720	77	2	27-140/36

CAS No.	Surrogate Recoveries	MS	MSD	JB99970-1	Limits
367-12-4	2-Fluorophenol	63%	65%		22-121%
4165-62-2	Phenol-d5	64%	63%		27-119%
118-79-6	2,4,6-Tribromophenol	91%	93%		17-158%
4165-60-0	Nitrobenzene-d5	89%	93%	93%	33-127%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-MS	2P51010.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
OP85890-MSD	2P51011.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
JB99970-1	2P51012.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-9

CAS No.	Surrogate Recoveries	MS	MSD	JB99970-1	Limits
321-60-8	2-Fluorobiphenyl	90%	92%	99%	41-121%
1718-51-0	Terphenyl-d14	106%	110%	96%	44-137%

(a) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP86000-MS	3E74570.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236
OP86000-MSD	3E74571.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236
JC309-3	3E74568.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-8, JB99970-10

CAS No.	Compound	JC309-3 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		2510	2200	88	2490	2050	82	7	32-153/36
51-28-5	2,4-Dinitrophenol	ND		5030	ND	0* [a]	4980	ND	0* [a]	nc	10-138/52
95-48-7	2-Methylphenol	ND		2510	2050	82	2490	1920	77	7	34-129/36
	3&4-Methylphenol	ND		2510	2090	83	2490	1960	79	6	35-129/35
100-02-7	4-Nitrophenol	ND		2510	ND	0* [a]	2490	ND	0* [a]	nc	15-178/41
108-95-2	Phenol	ND		2510	2020	80	2490	1910	77	6	29-126/36
83-32-9	Acenaphthene	184		2510	2060	75	2490	1910	69	8	32-140/36
120-12-7	Anthracene	389		2510	1520	45	2490	2300	77	41* [b]	32-142/38
56-55-3	Benzo(a)anthracene	1270		2510	3060	71	2490	3230	79	5	30-139/42
50-32-8	Benzo(a)pyrene	1180		2510	2650	58	2490	2680	60	1	32-145/42
205-99-2	Benzo(b)fluoranthene	682		2510	2350	66	2490	2290	65	3	30-147/43
191-24-2	Benzo(g,h,i)perylene	1190		2510	2730	61	2490	2580	56	6	27-148/41
207-08-9	Benzo(k)fluoranthene	179		2510	1750	63	2490	1660	60	5	32-138/41
92-52-4	1,1'-Biphenyl	ND		2510	1870	74	2490	1640	66	13	41-133/35
218-01-9	Chrysene	2040		2510	3580	61	2490	3820	72	6	31-144/42
53-70-3	Dibenzo(a,h)anthracene	233		2510	1840	64	2490	1610	55	13	35-141/39
84-74-2	Di-n-butyl phthalate	ND		2510	1940	77	2490	1570	63	21	42-153/37
84-66-2	Diethyl phthalate	ND		2510	1560	62	2490	1430	57	9	45-136/35
117-81-7	bis(2-Ethylhexyl)phthalate	2050		2510	2600	22* [a]	2490	2160	4* [a]	18	42-161/38
206-44-0	Fluoranthene	1160		2510	1880	29	2490	4420	131	81* [b]	27-146/42
86-73-7	Fluorene	380		2510	2100	68	2490	1910	61	9	37-138/39
193-39-5	Indeno(1,2,3-cd)pyrene	456		2510	2320	74	2490	2130	67	9	28-151/41
91-57-6	2-Methylnaphthalene	122		2510	2210	83	2490	2020	76	9	30-123/36
91-20-3	Naphthalene	50.7		2510	1960	76	2490	1780	69	10	29-125/38
85-01-8	Phenanthrene	1950		2510	2580	25* [a]	2490	4350	96	51* [b]	28-142/42
129-00-0	Pyrene	3890		2510	5380	59	2490	5730	74	6	27-150/42
110-86-1	Pyridine	ND		2510	1950	78	2490	1670	67	15	10-110/43
91-22-5	Quinoline	ND		2510	1850	74	2490	1650	66	11	27-140/36

CAS No.	Surrogate Recoveries	MS	MSD	JC309-3	Limits
367-12-4	2-Fluorophenol	72%	67%	75%	22-121%
4165-62-2	Phenol-d5	86%	83%	89%	27-119%
118-79-6	2,4,6-Tribromophenol	56%	76%	89%	17-158%
4165-60-0	Nitrobenzene-d5	74%	60%	75%	33-127%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP86000-MS	3E74570.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236
OP86000-MSD	3E74571.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236
JC309-3	3E74568.D	1	08/04/15	SW	08/01/15	OP86000	E3E3236

The QC reported here applies to the following samples: **Method:** SW846 8270D

JB99970-8, JB99970-10

CAS No.	Surrogate Recoveries	MS	MSD	JC309-3	Limits
321-60-8	2-Fluorobiphenyl	84%	78%	85%	41-121%
1718-51-0	Terphenyl-d14	106%	102%	91%	44-137%

(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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E2P2153-DFTPP
Lab File ID: 2P50232.D
Instrument ID: GCMS2P
Injection Date: 07/02/15
Injection Time: 10:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	113881	36.7		Pass
68	Less than 2.0% of mass 69	1174	0.38	(0.87) [a]	Pass
69	Mass 69 relative abundance	134467	43.3		Pass
70	Less than 2.0% of mass 69	881	0.28	(0.66) [a]	Pass
127	40.0 - 60.0% of mass 198	151672	48.8		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	310659	100.0		Pass
199	5.0 - 9.0% of mass 198	21954	7.07		Pass
275	10.0 - 30.0% of mass 198	66709	21.5		Pass
365	1.0 - 100.0% of mass 198	7849	2.53		Pass
441	Present, but less than mass 443	35416	11.4	(83.2) [b]	Pass
442	40.0 - 100.0% of mass 198	220629	71.0		Pass
443	17.0 - 23.0% of mass 442	42549	13.7	(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
E2P2153-IC2153	2P50233.D	07/02/15	10:31	00:19	Initial cal 2
E2P2153-IC2153	2P50234.D	07/02/15	11:04	00:52	Initial cal 100
E2P2153-IC2153	2P50235.D	07/02/15	11:55	01:43	Initial cal 1
E2P2153-IC2153	2P50236.D	07/02/15	12:28	02:16	Initial cal 80
E2P2153-ICC2153	2P50237.D	07/02/15	12:49	02:37	Initial cal 50
E2P2153-IC2153	2P50238.D	07/02/15	13:10	02:58	Initial cal 25
E2P2153-IC2153	2P50239.D	07/02/15	13:31	03:19	Initial cal 10
E2P2153-IC2153	2P50240.D	07/02/15	13:52	03:40	Initial cal 5

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E2P2154-DFTPP
Lab File ID: 2P50241.D
Instrument ID: GCMS2P
Injection Date: 07/02/15
Injection Time: 14:10

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	123299	37.3		Pass
68	Less than 2.0% of mass 69	359	0.11	(0.24) [a]	Pass
69	Mass 69 relative abundance	150362	45.4		Pass
70	Less than 2.0% of mass 69	887	0.27	(0.59) [a]	Pass
127	40.0 - 60.0% of mass 198	167557	50.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	330840	100.0		Pass
199	5.0 - 9.0% of mass 198	20968	6.34		Pass
275	10.0 - 30.0% of mass 198	72037	21.8		Pass
365	1.0 - 100.0% of mass 198	9256	2.80		Pass
441	Present, but less than mass 443	37253	11.3	(82.1) [b]	Pass
442	40.0 - 100.0% of mass 198	238955	72.2		Pass
443	17.0 - 23.0% of mass 442	45397	13.7	(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
E2P2154-IC2154	2P50242.D	07/02/15	14:44	00:34	Initial cal 100
E2P2154-IC2154	2P50243.D	07/02/15	15:05	00:55	Initial cal 80
E2P2154-IC2154	2P50244.D	07/02/15	15:26	01:16	Initial cal 25
E2P2154-IC2154	2P50245.D	07/02/15	15:47	01:37	Initial cal 10
E2P2154-ICC2154	2P50246.D	07/02/15	16:08	01:58	Initial cal 50
E2P2154-IC2154	2P50247.D	07/02/15	16:29	02:19	Initial cal 2
E2P2154-IC2154	2P50248.D	07/02/15	16:50	02:40	Initial cal 5
E2P2154-IC2154	2P50249.D	07/02/15	17:11	03:01	Initial cal 1
E2P2154-ICV2153	2P50251.D	07/02/15	17:53	03:43	Initial cal verification 50
E2P2154-ICV2154	2P50252A.D	07/02/15	18:14	04:04	Initial cal verification 50
E2P2154-ICV2153	2P50252.D	07/02/15	18:14	04:04	Initial cal verification 50
E2P2154-ICV2153	2P50254.D	07/02/15	18:56	04:46	Initial cal verification 50
E2P2154-ICV2154	2P50255.D	07/02/15	19:17	05:07	Initial cal verification 50
E2P2154-ICV2154	2P50256A.D	07/02/15	19:38	05:28	Initial cal verification 50
E2P2154-ICV2153	2P50256.D	07/02/15	19:38	05:28	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E2P2156-DFTPP
Lab File ID: 2P50260.D
Instrument ID: GCMS2P
Injection Date: 07/06/15
Injection Time: 07:26

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	199677	37.5		Pass
68	Less than 2.0% of mass 69	1367	0.26	(0.56) [a]	Pass
69	Mass 69 relative abundance	242120	45.5		Pass
70	Less than 2.0% of mass 69	410	0.08	(0.17) [a]	Pass
127	40.0 - 60.0% of mass 198	266971	50.2		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	532288	100.0		Pass
199	5.0 - 9.0% of mass 198	35884	6.74		Pass
275	10.0 - 30.0% of mass 198	116493	21.9		Pass
365	1.0 - 100.0% of mass 198	13547	2.55		Pass
441	Present, but less than mass 443	56571	10.6	(79.1) [b]	Pass
442	40.0 - 100.0% of mass 198	363925	68.4		Pass
443	17.0 - 23.0% of mass 442	71533	13.4	(19.7) [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
E2P2156-ICV2154	2P50261A.D	07/06/15	07:39	00:13	Initial cal verification 50
E2P2156-ICV2153	2P50261.D	07/06/15	07:39	00:13	Initial cal verification 50
E2P2156-ICV2153	2P50262.D	07/06/15	08:05	00:39	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E2P2191-DFTPP
Lab File ID: 2P51004.D
Instrument ID: GCMS2P
Injection Date: 07/29/15
Injection Time: 16:33

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	227883	44.9		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	272542	53.7		Pass
70	Less than 2.0% of mass 69	2270	0.45	(0.83) [a]	Pass
127	40.0 - 60.0% of mass 198	239596	47.2		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	507947	100.0		Pass
199	5.0 - 9.0% of mass 198	36701	7.23		Pass
275	10.0 - 30.0% of mass 198	127699	25.1		Pass
365	1.0 - 100.0% of mass 198	15971	3.14		Pass
441	Present, but less than mass 443	68264	13.4	(86.4) [b]	Pass
442	40.0 - 100.0% of mass 198	422699	83.2		Pass
443	17.0 - 23.0% of mass 442	78981	15.5	(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
E2P2191-CC2153	2P51005.D	07/29/15	16:45	00:12	Continuing cal 25
OP85839-MB1	2P51007.D	07/29/15	17:33	01:00	Method Blank
OP85890-MB1	2P51008.D	07/29/15	17:54	01:21	Method Blank
OP85890-BS1	2P51009.D	07/29/15	18:37	02:04	Blank Spike
OP85890-MS	2P51010.D	07/29/15	18:59	02:26	Matrix Spike
OP85890-MSD	2P51011.D	07/29/15	19:20	02:47	Matrix Spike Duplicate
JB99970-1	2P51012.D	07/29/15	19:41	03:08	(used for QC only; not part of job JB99970A)
ZZZZZZ	2P51013.D	07/29/15	20:03	03:30	(unrelated sample)
ZZZZZZ	2P51014.D	07/29/15	20:24	03:51	(unrelated sample)
JB99970-5	2P51015.D	07/29/15	20:45	04:12	AOI-5-BH-15-6_6-7_20150724
JB99970-7	2P51016.D	07/29/15	21:06	04:33	AOI-5-BH-15-7_6-8_20150724
ZZZZZZ	2P51017.D	07/29/15	21:28	04:55	(unrelated sample)
ZZZZZZ	2P51018.D	07/29/15	21:49	05:16	(unrelated sample)
ZZZZZZ	2P51019.D	07/29/15	22:10	05:37	(unrelated sample)
ZZZZZZ	2P51020.D	07/29/15	22:32	05:59	(unrelated sample)
ZZZZZZ	2P51021.D	07/29/15	22:53	06:20	(unrelated sample)
ZZZZZZ	2P51022.D	07/29/15	23:14	06:41	(unrelated sample)
ZZZZZZ	2P51023.D	07/29/15	23:36	07:03	(unrelated sample)
JB99970-4	2P51024.D	07/29/15	23:57	07:24	AOI-5-BH-15-6_0-2_20150724

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E2P2191-DFTPP
Lab File ID: 2P51004.D
Instrument ID: GCMS2P
Injection Date: 07/29/15
Injection Time: 16:33

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JB99970-6	2P51025.D	07/30/15	00:18	07:45	AOI-5-BH-15-7_0-2_20150724
JB99970-8	2P51026.D	07/30/15	00:39	08:06	AOI-5-BH-15-5_0-2_20150724
JB99970-9	2P51027.D	07/30/15	01:01	08:28	AOI-5-BH-15-5_9-9.5_20150724

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3197-DFTPP
Lab File ID: 3E73653.D
Instrument ID: GCMS3E
Injection Date: 07/09/15
Injection Time: 10:30

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	121331	39.0		Pass
68	Less than 2.0% of mass 69	2227	0.72	(1.73) [a]	Pass
69	Mass 69 relative abundance	128902	41.4		Pass
70	Less than 2.0% of mass 69	946	0.30	(0.73) [a]	Pass
127	40.0 - 60.0% of mass 198	186224	59.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	311104	100.0		Pass
199	5.0 - 9.0% of mass 198	20956	6.74		Pass
275	10.0 - 30.0% of mass 198	76109	24.5		Pass
365	1.0 - 100.0% of mass 198	11778	3.79		Pass
441	Present, but less than mass 443	35675	11.5	(77.9) [b]	Pass
442	40.0 - 100.0% of mass 198	240000	77.1		Pass
443	17.0 - 23.0% of mass 442	45768	14.7	(19.1) [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
E3E3197-IC3197	3E73654.D	07/09/15	10:48	00:18	Initial cal 2
E3E3197-IC3197	3E73655.D	07/09/15	11:16	00:46	Initial cal 100
E3E3197-IC3197	3E73656.D	07/09/15	11:52	01:22	Initial cal 1
E3E3197-IC3197	3E73657.D	07/09/15	12:20	01:50	Initial cal 80
E3E3197-ICC3197	3E73658.D	07/09/15	12:46	02:16	Initial cal 50
E3E3197-IC3197	3E73659.D	07/09/15	13:12	02:42	Initial cal 25
E3E3197-IC3197	3E73660.D	07/09/15	13:37	03:07	Initial cal 10
E3E3197-IC3197	3E73661.D	07/09/15	14:03	03:33	Initial cal 5

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-DFTPP
Lab File ID: 3E73662.D
Instrument ID: GCMS3E
Injection Date: 07/09/15
Injection Time: 14:54

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	102760	33.1		Pass
68	Less than 2.0% of mass 69	1887	0.61	(1.68) [a]	Pass
69	Mass 69 relative abundance	112378	36.2		Pass
70	Less than 2.0% of mass 69	573	0.18	(0.51) [a]	Pass
127	40.0 - 60.0% of mass 198	165013	53.2		Pass
197	Less than 1.0% of mass 198	2088	0.67		Pass
198	Base peak, 100% relative abundance	310373	100.0		Pass
199	5.0 - 9.0% of mass 198	20612	6.64		Pass
275	10.0 - 30.0% of mass 198	81741	26.3		Pass
365	1.0 - 100.0% of mass 198	10940	3.52		Pass
441	Present, but less than mass 443	38304	12.3	(77.4) [b]	Pass
442	40.0 - 100.0% of mass 198	266282	85.8		Pass
443	17.0 - 23.0% of mass 442	49517	16.0	(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
E3E3198-IC3198	3E73663.D	07/09/15	15:05	00:11	Initial cal 100
E3E3198-IC3198	3E73664.D	07/09/15	15:30	00:36	Initial cal 80
E3E3198-ICC3198	3E73665.D	07/09/15	15:56	01:02	Initial cal 50
E3E3198-IC3198	3E73666.D	07/09/15	16:22	01:28	Initial cal 25
E3E3198-IC3198	3E73667.D	07/09/15	16:48	01:54	Initial cal 10
E3E3198-IC3198	3E73668.D	07/09/15	17:13	02:19	Initial cal 5
E3E3198-IC3198	3E73669.D	07/09/15	17:39	02:45	Initial cal 2
E3E3198-IC3198	3E73670.D	07/09/15	18:05	03:11	Initial cal 1
E3E3198-ICV3197	3E73671.D	07/09/15	18:52	03:58	Initial cal verification 50
E3E3198-ICV3197	3E73672.D	07/09/15	19:18	04:24	Initial cal verification 50
E3E3198-ICV3198	3E73673A.D	07/09/15	19:43	04:49	Initial cal verification 50
E3E3198-ICV3197	3E73673.D	07/09/15	19:43	04:49	Initial cal verification 50
E3E3198-ICV3198	3E73674A.D	07/09/15	20:09	05:15	Initial cal verification 50
E3E3198-ICV3197	3E73674.D	07/09/15	20:09	05:15	Initial cal verification 50
E3E3198-ICV3197	3E73675.D	07/09/15	20:35	05:41	Initial cal verification 50
E3E3198-ICV3198	3E73676A.D	07/09/15	21:00	06:06	Initial cal verification 50
E3E3198-ICV3197	3E73676.D	07/09/15	21:00	06:06	Initial cal verification 50
E3E3198-ICV3198	3E73677.D	07/09/15	21:26	06:32	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3235-DFTPP
Lab File ID: 3E74512.D
Instrument ID: GCMS3E
Injection Date: 08/03/15
Injection Time: 11:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	201603	36.2		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	205733	36.9		Pass
70	Less than 2.0% of mass 69	1114	0.20	(0.54) [a]	Pass
127	40.0 - 60.0% of mass 198	305576	54.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	557087	100.0		Pass
199	5.0 - 9.0% of mass 198	37990	6.82		Pass
275	10.0 - 30.0% of mass 198	153906	27.6		Pass
365	1.0 - 100.0% of mass 198	18686	3.35		Pass
441	Present, but less than mass 443	15778	2.83	(17.8) [b]	Pass
442	40.0 - 100.0% of mass 198	444330	79.8		Pass
443	17.0 - 23.0% of mass 442	88802	15.9	(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
E3E3235-CC3197	3E74513.D	08/03/15	12:07	00:19	Continuing cal 25
E3E3235-CC3198	3E74514.D	08/03/15	12:33	00:45	Continuing cal 25
OP86000-BS1	3E74516.D	08/03/15	13:59	02:11	Blank Spike
OP86000-MB1	3E74517.D	08/03/15	14:44	02:56	Method Blank
ZZZZZZ	3E74537.D	08/03/15	16:02	04:14	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3236-DFTPP
Lab File ID: 3E74548.D
Instrument ID: GCMS3E
Injection Date: 08/03/15
Injection Time: 20:47

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	173136	49.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	178235	50.9		Pass
70	Less than 2.0% of mass 69	652	0.19	(0.37) [a]	Pass
127	40.0 - 60.0% of mass 198	172815	49.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	350421	100.0		Pass
199	5.0 - 9.0% of mass 198	24138	6.89		Pass
275	10.0 - 30.0% of mass 198	103757	29.6		Pass
365	1.0 - 100.0% of mass 198	11890	3.39		Pass
441	Present, but less than mass 443	49006	14.0	(92.5) [b]	Pass
442	40.0 - 100.0% of mass 198	268085	76.5		Pass
443	17.0 - 23.0% of mass 442	52955	15.1	(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
E3E3236-CC3197	3E74549.D	08/03/15	21:10	00:23	Continuing cal 50
E3E3236-CC3198	3E74550.D	08/03/15	21:39	00:52	Continuing cal 50
ZZZZZZ	3E74552.D	08/03/15	22:34	01:47	(unrelated sample)
ZZZZZZ	3E74553.D	08/03/15	23:00	02:13	(unrelated sample)
ZZZZZZ	3E74554.D	08/03/15	23:26	02:39	(unrelated sample)
ZZZZZZ	3E74555.D	08/03/15	23:51	03:04	(unrelated sample)
ZZZZZZ	3E74556.D	08/04/15	00:17	03:30	(unrelated sample)
ZZZZZZ	3E74557.D	08/04/15	00:43	03:56	(unrelated sample)
ZZZZZZ	3E74558.D	08/04/15	01:09	04:22	(unrelated sample)
ZZZZZZ	3E74559.D	08/04/15	01:35	04:48	(unrelated sample)
ZZZZZZ	3E74560.D	08/04/15	02:01	05:14	(unrelated sample)
ZZZZZZ	3E74561.D	08/04/15	02:26	05:39	(unrelated sample)
ZZZZZZ	3E74562.D	08/04/15	02:52	06:05	(unrelated sample)
ZZZZZZ	3E74563.D	08/04/15	03:18	06:31	(unrelated sample)
ZZZZZZ	3E74564.D	08/04/15	03:44	06:57	(unrelated sample)
ZZZZZZ	3E74564R.D	08/04/15	03:44	06:57	(unrelated sample)
JB99970-8	3E74565.D	08/04/15	04:10	07:23	AOI-5-BH-15-5_0-2_20150724
JB99970-10	3E74566.D	08/04/15	04:35	07:48	AOI-5-BH-15-10_0-2_20150724
ZZZZZZ	3E74567.D	08/04/15	05:01	08:14	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample:	E3E3236-DFTPP	**Injection Date:**	08/03/15
Lab File ID:	3E74548.D	**Injection Time:**	20:47
Instrument ID:	GCMS3E		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JC309-3	3E74568.D	08/04/15	05:27	08:40	(used for QC only; not part of job JB99970A)
OP86000-MS	3E74570.D	08/04/15	06:18	09:31	Matrix Spike
OP86000-MSD	3E74571.D	08/04/15	06:44	09:57	Matrix Spike Duplicate

Semivolatile Internal Standard Area Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Check Std:	E2P2191-CC2153	**Injection Date:**	07/29/15
Lab File ID:	2P51005.D	**Injection Time:**	16:45
Instrument ID:	GCMS2P	**Method:**	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	1355268	4.56	4523811	5.61	2866951	7.06	5382704	8.33	5688521	11.60	4911224	13.59
Upper Limit [a]	2710536	5.06	9047622	6.11	5733902	7.56	10765408	8.83	11377042	12.10	9822448	14.09
Lower Limit [b]	677634	4.06	2261906	5.11	1433476	6.56	2691352	7.83	2844261	11.10	2455612	13.09

Lab Sample ID	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT
OP85839-MB1	2192413	4.56	7182008	5.61	4969055	7.06	8070282	8.33	10267595	11.59	9760303	13.59
OP85890-MB1	1399128	4.56	4942182	5.61	3122031	7.05	5645619	8.33	6273796	11.59	5278010	13.59
OP85890-BS1	1487445	4.56	4876630	5.61	3057432	7.06	5684926	8.33	5632549	11.59	5583739	13.59
OP85890-MS	1407690	4.56	4647339	5.61	2960074	7.06	5537928	8.33	5521533	11.59	5104138	13.59
OP85890-MSD	1405330	4.56	4588847	5.61	2845232	7.06	5249771	8.33	5178558	11.59	5200170	13.59
JB99970-1	1507946	4.56	5369065	5.61	3232518	7.05	5764958	8.33	6197070	11.58	5480680	13.58
ZZZZZZ	1336780	4.56	4667281	5.61	2862541	7.05	5097906	8.33	5240175	11.58	4503314	13.58
ZZZZZZ	1470656	4.56	5215252	5.61	3179070	7.05	5523089	8.33	5877756	11.58	5295054	13.58
JB99970-5	1436062	4.56	5056700	5.61	3167139	7.05	5943714	8.33	6663023	11.59	5655160	13.59
JB99970-7	1302804	4.56	4386560	5.61	2727492	7.05	4945462	8.33	5578798	11.58	4771402	13.58
ZZZZZZ	1472618	4.56	5022629	5.61	2893953	7.05	5002571	8.33	5302956	11.58	4520685	13.58
ZZZZZZ	1553881	4.56	5330604	5.61	3232168	7.05	5781632	8.33	5981792	11.59	5080355	13.58
ZZZZZZ	1515626	4.56	5260931	5.61	3302521	7.05	5938337	8.33	6408337	11.58	5314715	13.58
ZZZZZZ	1369833	4.56	4842392	5.61	3143334	7.05	5098652	8.33	6464471	11.59	5902233	13.58
ZZZZZZ	1619534	4.56	5920505	5.61	3713648	7.05	6803611	8.33	7343174	11.59	6158702	13.59
ZZZZZZ	1524690	4.56	5343370	5.61	3230359	7.05	5780783	8.33	5950546	11.58	5047124	13.58
ZZZZZZ	1525818	4.56	5209633	5.61	3593890	7.05	6449784	8.33	7171662	11.59	6015150	13.59
JB99970-4	1707426	4.56	5874012	5.61	3602815	7.05	6265918	8.33	5892721	11.59	4840622	13.59
JB99970-6 [c]	1742849	4.56	5762909	5.61	3379189	7.05	5537717	8.33	5045728	11.60	4938733	13.61
JB99970-8 [d]	1544855	4.56	5097883	5.61	2604363	7.06	4164361	8.34	4048695	11.60	3762185	13.60
JB99970-9	1429517	4.56	4845023	5.62	2943229	7.07	5116233	8.35	5111095	11.61	4482058	13.61

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.
(c) Elevated detection limit due to high final volume of viscous extract.
(d) Confirmation run for surrogate recoveries.

Semivolatile Internal Standard Area Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Check Std:	E3E3235-CC3197	**Injection Date:**	08/03/15
Lab File ID:	3E74513.D	**Injection Time:**	12:07
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	973106	4.70	3775703	5.80	2219145	7.87	3306556	10.05	3147681	14.25	3338166	16.38
Upper Limit [a]	1946212	5.20	7551406	6.30	4438290	8.37	6613112	10.55	6295362	14.75	6676332	16.88
Lower Limit [b]	486553	4.20	1887852	5.30	1109573	7.37	1653278	9.55	1573841	13.75	1669083	15.88

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
OP86000-BS1	998459	4.70	3758153	5.80	1938161	7.87	2688991	10.05	2397055	14.25	2481885	16.38
OP86000-MB1	1103368	4.70	4137097	5.79	2279939	7.87	3248449	10.05	2797679	14.25	2941172	16.38
ZZZZZZ	928098	4.71	3576623	5.81	1961208	7.89	2795052	10.08	1893674	14.30	1711891	16.47

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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Check Std:	E3E3236-CC3197	**Injection Date:**	08/03/15
Lab File ID:	3E74549.D	**Injection Time:**	21:10
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	549786	4.70	1965380	5.80	1181742	7.88	1904465	10.06	2366094	14.27	2130354	16.40
Upper Limit [a]	1099572	5.20	3930760	6.30	2363484	8.38	3808930	10.56	4732188	14.77	4260708	16.90
Lower Limit [b]	274893	4.20	982690	5.30	590871	7.38	952233	9.56	1183047	13.77	1065177	15.90

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
ZZZZZZ	495024	4.69	1824404	5.79	1125707	7.87	1861292	10.05	2221446	14.25	2108460	16.38
ZZZZZZ	540787	4.69	1984920	5.79	1183925	7.87	1908584	10.05	2025321	14.25	2156694	16.38
ZZZZZZ	563566	4.69	2048656	5.79	1238901	7.87	1952290	10.05	1959626	14.25	2140527	16.38
ZZZZZZ	436994	4.69	1637027	5.79	996441	7.87	1653586	10.05	1733155	14.25	1989751	16.38
ZZZZZZ	484650	4.69	1770921	5.79	1062842	7.87	1703236	10.05	1756120	14.25	2046315	16.38
ZZZZZZ	548390	4.69	2002870	5.79	1192691	7.87	1886813	10.05	1868417	14.25	2117946	16.37
ZZZZZZ	556164	4.69	2028521	5.79	1205471	7.87	1901719	10.05	1891096	14.24	2202941	16.37
ZZZZZZ	531682	4.69	1899282	5.79	1123897	7.87	1780641	10.05	1725339	14.24	2044648	16.37
ZZZZZZ	521568	4.69	1873943	5.79	1100506	7.87	1756573	10.04	1643933	14.24	1923054	16.37
ZZZZZZ	492711	4.69	1802876	5.79	1076379	7.87	1700290	10.05	1598139	14.24	1908452	16.37
ZZZZZZ	511384	4.69	1832055	5.79	1099724	7.87	1761735	10.05	1687380	14.24	1990491	16.37
ZZZZZZ	476659	4.69	1759768	5.79	1038466	7.87	1711085	10.05	1677482	14.24	1934349	16.37
ZZZZZZ	592418	4.69	2124416	5.79	1235681	7.87	1960963	10.04	1766378	14.24	2083526	16.38
ZZZZZZ	592418	4.69	2124416	5.79	1235681	7.87	1960963	10.04	1766378	14.24	2083526	16.38
JB99970-8	500954	4.69	1790387	5.79	1039378	7.87	1514746	10.05	1366503	14.25	1570882	16.38
JB99970-10	516191	4.69	1860618	5.79	1080743	7.87	1684037	10.05	1546925	14.25	1695079	16.38
ZZZZZZ	443879	4.69	1610114	5.79	876655	7.88	1007006	10.09	1356687	14.36	1346811	16.48
JC309-3	407690	4.70	1500271	5.80	857181	7.88	1047648	10.08	1260823	14.34	1273680	16.48
OP86000-MS	424344	4.71	1554754	5.80	867853	7.89	1493291	10.04	1347549	14.38	1447976	16.51
OP86000-MSD	429540	4.71	1631912	5.81	892994	7.89	1092341	10.11	1526912	14.42	1670562	16.55

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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

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
JB99970-4	2P51024.D	61	63	100	89	94	100
JB99970-5	2P51015.D	53	57	89	78	83	89
JB99970-6	2P51025.D	44	53	92	76	90	89
JB99970-7	2P51016.D	51	54	90	71	80	85
JB99970-8	3E74565.D	55	81	15* [a]	102	88	102
JB99970-8	2P51026.D	19* [b]	48	2* [b]	85	90	81
JB99970-9	2P51027.D	53	55	110	79	98	101
JB99970-10	3E74566.D	71	84	24	102	87	101
OP85890-BS1	2P51009.D	64	64	93	86	86	103
OP85890-MB1	2P51008.D	64	68	104	93	95	108
OP85890-MS	2P51010.D	63	64	91	89	90	106
OP85890-MSD	2P51011.D	65	63	93	93	92	110
OP86000-BS1	3E74516.D	75	76	74	76	85	99
OP86000-MB1	3E74517.D	74	76	73	76	84	109
OP86000-MS	3E74570.D	72	86	56	74	84	106
OP86000-MSD	3E74571.D	67	83	76	60	78	102

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	22-121%
S2 = Phenol-d5	27-119%
S3 = 2,4,6-Tribromophenol	17-158%
S4 = Nitrobenzene-d5	33-127%
S5 = 2-Fluorobiphenyl	41-121%
S6 = Terphenyl-d14	44-137%

(a) Outside control limits due to matrix interference. Confirmed by re-extraction.
(b) Outside control limits due to matrix interference.

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2153-ICC2153
Lab FileID: 2P50237.D

Response Factor Report MS2P

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Thu Jul 02 17:43:45 2015
Response via : Initial Calibration

Calibration Files
2 =2p50233.D 5 =2p50240.D 25 =2p50238.D 80 =2p50236.D
100 =2p50234.D 50 =2p50237.D 1 =2p50235.D 10 =2p50239.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.555	0.621	0.567	0.591	0.613	0.566	0.713	0.571	0.600	8.60
3) Pyridine	1.407	1.540	1.470	1.454	1.469	1.448	1.584	1.458	1.479	3.81
4) N-Nitrosodim	0.866	0.912	0.918	0.949	0.947	0.915	0.905	0.926	0.917	2.86
5) 2-Fluorophen	1.375	1.476	1.452	1.495	1.423	1.450	1.369	1.388	1.428	3.32
6) Indene	2.319	2.461	2.264	2.105	2.035	2.150	2.422	2.266	2.253	6.64
7) Cumene	3.069	3.366	3.229	3.019	2.970	3.115	3.228	3.177	3.147	4.11
8) Phenol-d5	1.519	1.706	1.683	1.686	1.621	1.692	1.601	1.622	1.641	3.84
9) Phenol	1.766	1.880	1.796	1.587	1.550	1.671	1.776	1.798	1.728	6.60
10) Aniline	1.996	2.159	1.921	1.708	1.663	1.801	2.027	1.948	1.903	8.83
11) bis(2-Chloro	1.290	1.344	1.231	1.172	1.118	1.167	1.324	1.247	1.237	6.50
12) 2-Chlorophen	1.396	1.475	1.332	1.225	1.190	1.245	1.416	1.351	1.329	7.59
13) Decane	1.916	1.973	1.777	1.509	1.480	1.614	1.926	1.806	1.750	11.04
14) 1,3-Dichloro	1.660	1.718	1.535	1.463	1.415	1.467	1.638	1.563	1.558	6.90
15) 1,4-Dichloro	1.554	1.630	1.453	1.384	1.355	1.400	1.590	1.483	1.481	6.84
16) Benzyl alcoh	0.740	0.798	0.778	0.768	0.742	0.763	0.705	0.750	0.755	3.72
17) 1,2-Dichloro	1.527	1.583	1.390	1.239	1.207	1.275	1.525	1.472	1.402	10.40
18) Acetophenone	1.854	1.882	1.716	1.660	1.603	1.665	1.847	1.693	1.740	6.07
19) 2-Methylphen	1.179	1.223	1.115	1.000	0.977	1.037	1.158	1.137	1.103	8.06
20) 2,2'-oxybis(	0.444	0.430	0.383	0.338	0.337	0.351	0.442	0.390	0.389	11.65
21) 3&4-Methylph	1.182	1.305	1.163	1.079	1.041	1.100	1.252	1.195	1.165	7.63
22) n-Nitroso-di	1.022	1.013	0.884	0.767	0.748	0.805	1.000	0.907	0.893	12.51
23) Hexachloroet	0.550	0.563	0.517	0.505	0.503	0.512	0.532	0.521	0.525	4.13
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.366	0.362	0.345	0.333	0.334	0.333	0.371	0.339	0.348	4.61
26) Nitrobenzene	0.387	0.375	0.347	0.328	0.323	0.331	0.367	0.347	0.351	6.71
27) Quinoline	0.752	0.756	0.716	0.717	0.703	0.715	0.781	0.703	0.730	3.94
28) Isophorone	0.651	0.686	0.649	0.646	0.630	0.652	0.656	0.623	0.649	2.91
29) 2-Nitropheno	0.184	0.187	0.196	0.204	0.198	0.200	0.170	0.173	0.189	6.69
30) 2,4-Dimethyl	0.341	0.345	0.333	0.317	0.311	0.321	0.337	0.318	0.328	3.82
31) Benzoic acid		0.116	0.191	0.264	0.242	0.229		0.125	0.195	31.92
----- Quadratic regression ----- Coefficient = 0.9938										
Response Ratio = -0.03236 + 0.26697 *A + -0.00182 *A^2										
32) bis(2-Chloro	0.433	0.442	0.408	0.401	0.387	0.398	0.420	0.414	0.413	4.45
33) 2,4-Dichloro	0.270	0.313	0.304	0.297	0.286	0.294	0.284	0.297	0.293	4.46
34) 2,6-Dichloro	0.280	0.296	0.282	0.271	0.261	0.270	0.294	0.276	0.279	4.23
35) 1,3,5-Trichl	0.370	0.384	0.359	0.334	0.327	0.340	0.386	0.360	0.357	6.24
36) 1,2,4-Trichl	0.346	0.370	0.331	0.330	0.317	0.325	0.363	0.336	0.340	5.49
37) 1,2,3-Trichl	0.340	0.344	0.311	0.292	0.284	0.298	0.350	0.314	0.317	8.01
38) Naphthalene	0.999	1.002	0.922	0.775	0.781	0.865	1.013	0.945	0.913	10.58
39) 4-Chloroanil	0.408	0.464	0.432	0.421	0.411	0.420	0.385	0.427	0.421	5.35
40) 2,3-Dichloro	0.408	0.420	0.368	0.373	0.360	0.369	0.425	0.378	0.388	6.66
41) Caprolactam	0.108	0.107	0.102	0.109	0.105	0.105	0.089	0.100	0.103	6.14
42) Hexachlorobu	0.184	0.193	0.177	0.175	0.170	0.175	0.175	0.175	0.178	4.04

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2153-ICC2153
Lab FileID: 2P50237.D

```
43) 4-Chloro-3-m 0.313 0.295 0.298 0.301 0.293 0.299 0.290 0.284 0.297   2.87
44) 2-Methylnaph 0.581 0.600 0.563 0.542 0.525 0.541 0.573 0.552 0.560   4.39
45) 1-Methylnaph 0.641 0.653 0.598 0.563 0.553 0.581 0.658 0.600 0.606   6.72
46) Dimethylnaph 0.647 0.643 0.571 0.552 0.538 0.566 0.682 0.580 0.597   8.78

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.244 0.269 0.309 0.341 0.337 0.337 0.214 0.273 0.290  16.47
49) 2,4,6-Trichl 0.324 0.328 0.335 0.328 0.329 0.323 0.327 0.325 0.327   1.15
50) 2,4,5-Trichl 0.370 0.406 0.384 0.377 0.383 0.379 0.398 0.399 0.387   3.24
51) 2-Fluorobiph 1.329 1.264 1.113 1.042 1.036 1.047 1.476 1.180 1.186  13.48
52) 2-Chloronaph 1.149 1.218 1.042 0.937 0.950 0.968 1.174 1.135 1.072  10.37
53) Biphenyl     1.447 1.519 1.334 1.152 1.184 1.315 1.568 1.439 1.370  10.99
54) 2-Nitroanili 0.344 0.317 0.330 0.330 0.338 0.332 0.324 0.302 0.327   4.02
55) Dimethylphth 1.321 1.423 1.278 1.274 1.259 1.281 1.435 1.346 1.327   5.19
56) Acenaphthyle 1.956 2.010 1.741 1.383 1.423 1.622 2.183 1.814 1.766  15.98
57) 2,6-Dinitrot 0.223 0.248 0.255 0.264 0.268 0.260 0.221 0.246 0.248   7.27
58) 3-Nitroanili 0.278 0.306 0.310 0.321 0.325 0.318 0.267 0.295 0.303   6.89
59) Acenaphthene 1.104 1.089 0.972 0.959 0.964 0.961 1.234 1.037 1.040   9.42
60) 2,4-Dinitrop 0.034 0.049 0.098 0.150 0.151 0.134       0.059 0.096  51.70
         ----- Quadratic regression -----                Coefficient =  0.9980
              Response Ratio = -0.02330 + 0.12356 *A + 0.00694 *A^2

61) 4-Nitropheno 0.122 0.135 0.133 0.169 0.172 0.165 0.093 0.130 0.140  19.45
62) Dibenzofuran 1.499 1.527 1.386 1.180 1.241 1.302 1.489 1.472 1.387   9.47
63) 2,4-Dinitrot 0.272 0.320 0.341 0.361 0.360 0.361 0.231 0.316 0.320  14.73
64) 2,3,4,6-Tetr 0.236 0.263 0.278 0.312 0.308 0.298 0.232 0.260 0.273  11.34
65) Diethylphtha 1.389 1.434 1.327 1.274 1.290 1.304 1.439 1.363 1.352   4.74
66) Fluorene     1.358 1.324 1.157 1.058 1.069 1.098 1.538 1.211 1.227  13.74
67) 4-Chlorophen 0.595 0.646 0.578 0.571 0.566 0.572 0.617 0.608 0.594   4.71
68) 4-Nitroanili 0.290 0.320 0.296 0.301 0.303 0.299 0.260 0.314 0.298   6.06

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.053 0.066 0.102 0.125 0.123 0.118       0.074 0.094  31.27
         ----- Quadratic regression -----                Coefficient =  0.9989
              Response Ratio = -0.00786 + 0.12015 *A + 0.00283 *A^2

71) n-Nitrosodip 0.575 0.597 0.540 0.531 0.521 0.535 0.569 0.561 0.554   4.69
72) 1,2-Diphenyl 0.832 0.845 0.770 0.672 0.678 0.712 0.821 0.772 0.763   9.03
73) 2,4,6-Tribro 0.110 0.095 0.093 0.099 0.098 0.097 0.121 0.088 0.100  10.62
74) 4-Bromopheny 0.223 0.223 0.220 0.225 0.222 0.220 0.222 0.210 0.221   2.18
75) Hexachlorobe 0.225 0.238 0.214 0.220 0.216 0.216 0.233 0.215 0.222   4.09
76) Pentachlorop 0.022 0.069 0.109 0.135 0.132 0.127       0.071 0.095  44.36
         ----- Quadratic regression -----                Coefficient =  0.9987
              Response Ratio = -0.02034 + 0.13191 *A + 0.00124 *A^2

77) Phenanthrene 1.162 1.103 0.984 0.916 0.971 0.964 1.336 1.018 1.057  13.08
78) Anthracene   1.248 1.154 1.044 0.928 0.935 0.996 1.358 1.053 1.089  14.04
79) Carbazole    1.178 1.152 1.065 1.009 1.003 1.049 1.227 1.083 1.096   7.46
80) Di-n-butylph 1.539 1.607 1.546 1.197 1.278 1.492 1.485 1.501 1.456   9.75
81) Fluoranthene 1.317 1.312 1.172 1.154 1.153 1.204 1.502 1.187 1.250   9.69
82) Octadecane   0.501 0.457 0.432 0.350 0.360 0.391 0.506 0.428 0.428  13.77

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.495 1.380 1.260 1.231 1.237 1.241 1.678 1.250 1.346  12.11
85) Terphenyl-d1 0.862 0.719 0.658 0.719 0.703 0.679 1.031 0.639 0.751  17.55
86) Butylbenzylp 0.704 0.701 0.736 0.789 0.769 0.777 0.644 0.681 0.725   7.05
87) Butyl steara 0.476 0.431 0.473 0.453 0.456 0.471 0.390 0.414 0.446   7.00
88) Benzo[a]anth 1.326 1.235 1.137 1.172 1.152 1.147 1.517 1.091 1.222  11.37
89) 3,3'-Dichlor 0.392 0.405 0.420 0.444 0.434 0.433 0.401 0.384 0.414   5.30
90) Chrysene     1.078 1.002 0.946 0.967 0.960 0.951 1.213 0.936 1.007   9.45
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2153-ICC2153
Lab FileID: 2P50237.D

```
 91) bis(2-Ethylh 0.960 0.867 0.924 0.945 0.953 0.960 0.836 0.845 0.911   5.85

 92) I   Perylene-d12          ----------------ISTD---------------------
 93) Di-n-octylph 1.790 1.668 1.808 1.483 1.584 1.861 1.633 1.583 1.676   7.84
 94) Benzo[b]fluo 1.245 1.319 1.193 1.120 1.126 1.151 1.490 1.151 1.224  10.36
 95) Benzo[k]fluo 1.182 1.132 0.976 0.793 0.800 0.964 1.405 1.000 1.032  19.78
 96) Benzo[a]pyre 1.096 1.104 1.022 0.934 0.931 1.030 1.315 0.978 1.051  11.89
 97) Indeno[1,2,3 1.001 1.001 0.942 0.912 0.868 0.973 1.183 0.900 0.972  10.02
 98) Dibenz(a,h)a 0.846 0.903 0.856 0.818 0.801 0.886 0.904 0.819 0.854   4.70
 99) Dibenz[a,h]a 0.979 0.999 0.909 0.815 0.814 0.891 1.148 0.892 0.931  11.81
100) 7,12-Dimethy 0.539 0.567 0.536 0.488 0.493 0.532 0.575 0.506 0.529   6.06
101) Benzo[g,h,i] 1.017 1.041 0.929 0.863 0.863 0.950 1.160 0.908 0.966  10.51

 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M2P2153.M         Mon Jul 06 07:25:37 2015   RPT1
```

8.7.1

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2154-ICV2153
Lab FileID: 2P50251.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2154\2p50251.D          Vial: 19
Acq On    :  2 Jul 2015   5:53 pm                   Operator: samtap
Sample    : icv2153-50                              Inst    : MS2P
Misc      : op85151,e2p2154                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Jul 02 17:43:45 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	94	0.00	4.71
3	t	Pyridine	1.479	1.584	-7.1	103	0.07	2.42
10		Aniline	1.903	1.910	-0.4	100	0.00	4.44
16	t	Benzyl alcohol	0.755	0.751	0.5	93	0.00	4.83
24	I	Naphthalene-d8	1.000	1.000	0.0	98	0.00	5.76
39	t	4-Chloroaniline	0.421	0.395	6.2	92	0.00	5.82
44	t	2-Methylnaphthalene	0.560	0.504	10.0	91	0.00	6.35
47	I	Acenaphthene-d10	1.000	1.000	0.0	88	0.00	7.20
54	t	2-Nitroaniline	0.327	0.322	1.5	86	0.00	6.83
58	t	3-Nitroaniline	0.303	0.318	-5.0	88	0.00	7.16
62	t	Dibenzofuran	1.387	1.412	-1.8	96	0.00	7.37
68	t	4-Nitroaniline	0.298	0.305	-2.3	90	-0.01	7.67
69	I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00	8.50
79	t	Carbazole	1.096	0.957	12.7	86	0.00	8.74
83	I	Chrysene-d12	1.000	1.000	0.0	95	-0.01	11.78
92	I	Perylene-d12	1.000	1.000	0.0	88	0.00	13.79

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2p50246a.D M2P2153.M        Mon Jul 06 08:05:37 2015   RPT1
```

8.7.2

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2154-ICV2153
Lab FileID: 2P50252.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2154\2p50252.D Vial: 20
Acq On : 2 Jul 2015 6:14 pm Operator: samtap
Sample : icv2153-50 Inst : MS2P
Misc : op85151,e2p2154 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Thu Jul 02 17:43:45 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	76	0.00	4.70
4	t	N-Nitrosodimethylamine	0.917	0.802	12.5	67	-0.02	2.30
11	t	bis(2-Chloroethyl)ether	1.237	1.198	3.2	78	0.00	4.49
14	t	1,3-Dichlorobenzene	1.558	1.545	0.8	80	0.00	4.66
15	t	1,4-Dichlorobenzene	1.481	1.395	5.8	76	0.00	4.72
17	t	1,2-Dichlorobenzene	1.402	1.402	0.0	84	0.00	4.85
20	t	2,2'-oxybis(1-Chloropropa	0.389	0.352	9.5	76	0.00	4.94
22	t	n-Nitroso-di-n-propylamin	0.893	0.767	14.1	72	0.00	5.05
23	t	Hexachloroethane	0.525	0.506	3.6	75	0.00	5.13
24	I	Naphthalene-d8	1.000	1.000	0.0	72	0.00	5.76
26	t	Nitrobenzene	0.351	0.326	7.1	71	0.00	5.18
28	t	Isophorone	0.649	0.649	0.0	71	0.00	5.38
32	t	bis(2-Chloroethoxy)methan	0.413	0.391	5.3	70	0.00	5.56
36	t	1,2,4-Trichlorobenzene	0.340	0.335	1.5	74	0.00	5.71
38	t	Naphthalene	0.913	0.894	2.1	74	0.00	5.77
42	t	Hexachlorobutadiene	0.178	0.177	0.6	73	0.00	5.89
47	I	Acenaphthene-d10	1.000	1.000	0.0	69	0.00	7.20
48	t	Hexachlorocyclopentadiene	0.290	0.282	2.8	58	0.00	6.48
52	t	2-Chloronaphthalene	1.072	1.113	-3.8	79	0.00	6.74
55	t	Dimethylphthalate	1.327	1.202	9.4	64	0.00	6.98
56	t	Acenaphthylene	1.766	1.505	14.8	64	0.00	7.08
57	t	2,6-Dinitrotoluene	0.248	0.228	8.1	60	0.00	7.02
59	t	Acenaphthene	1.040	1.004	3.5	72	0.00	7.23
63	t	2,4-Dinitrotoluene	0.320	0.280	12.5	53	0.00	7.36
65	t	Diethylphthalate	1.352	1.177	12.9	62	0.00	7.56
66	t	Fluorene	1.227	1.105	9.9	69	0.00	7.65
67	t	4-Chlorophenyl-phenylethe	0.594	0.494	16.8	59	0.00	7.65
69	I	Phenanthrene-d10	1.000	1.000	0.0	72	0.00	8.50
71	t	n-Nitrosodiphenylamine	0.554	0.463	16.4	62	0.00	7.75
72	t	1,2-Diphenylhydrazine	0.763	0.654	14.3	66	0.00	7.78
74	t	4-Bromophenyl-phenylether	0.221	0.183	17.2	60	0.00	8.08
75	t	Hexachlorobenzene	0.222	0.194	12.6	65	0.00	8.14
77	t	Phenanthrene	1.057	0.928	12.2	69	0.00	8.52
78	t	Anthracene	1.089	0.931	14.5	67	0.00	8.57
80	t	Di-n-butylphthalate	1.456	1.274	12.5	61	0.00	9.13
81	t	Fluoranthene	1.250	1.113	11.0	66	0.00	9.84
83	I	Chrysene-d12	1.000	1.000	0.0	66	0.00	11.79
84	t	Pyrene	1.346	1.263	6.2	67	0.00	10.12
86	t	Butylbenzylphthalate	0.725	0.660	9.0	56	0.00	11.05
88	t	Benzo[a]anthracene	1.222	1.123	8.1	65	0.00	11.77
90	t	Chrysene	1.007	0.981	2.6	68	-0.01	11.82
91	t	bis(2-Ethylhexyl)phthalat	0.911	0.798	12.4	55	0.00	11.93

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E2P2154-ICV2153
Lab FileID: 2P50252.D

92	I	Perylene-d12	1.000	1.000	0.0	64	-0.01	13.78
93	t	Di-n-octylphthalate	1.676	1.615	3.6	55	0.00	12.87
94	t	Benzo[b]fluoranthene	1.224	1.132	7.5	63	0.00	13.28
95	t	Benzo[k]fluoranthene	1.032	1.057	-2.4	70	-0.01	13.32
96	t	Benzo[a]pyrene	1.051	1.118	-6.4	69	-0.01	13.70
97	t	Indeno[1,2,3-cd]pyrene	0.972	1.015	-4.4	67	-0.01	15.19
99	t	Dibenz[a,h]anthracene	0.931	0.951	-2.1	68	-0.01	15.22
101	t	Benzo[g,h,i]perylene	0.966	1.044	-8.1	70	-0.01	15.58

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p50246a.D M2P2153.M Mon Jul 06 08:11:21 2015 RPT1

8.7.3

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2154-ICV2153
Lab FileID: 2P50254.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2154\2p50254.D          Vial: 22
Acq On    :  2 Jul 2015   6:56 pm                   Operator: samtap
Sample    : icv2153-50                              Inst    : MS2P
Misc      : op85151,e2p2154                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Jul 02 17:43:45 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	99	0.00	4.70
5	S	2-Fluorophenol	1.428	1.328	7.0	91	0.00	3.61
8	S	Phenol-d5	1.641	1.491	9.1	87	0.00	4.42
24	I	Naphthalene-d8	1.000	1.000	0.0	98	0.00	5.76
25	S	Nitrobenzene-d5	0.348	0.353	-1.4	104	0.00	5.16
47	I	Acenaphthene-d10	1.000	1.000	0.0	92	0.00	7.20
51	S	2-Fluorobiphenyl	1.186	1.245	-5.0	109	0.00	6.65
69	I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00	8.50
73	S	2,4,6-Tribromophenol	0.100	0.082	18.0	80	0.00	7.86
83	I	Chrysene-d12	1.000	1.000	0.0	103	-0.01	11.78
85	S	Terphenyl-d14	0.751	0.734	2.3	112	0.00	10.35
92	I	Perylene-d12	1.000	1.000	0.0	100	-0.01	13.78

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2p50246a.D M2P2153.M        Mon Jul 06 08:22:28 2015   RPT1
```

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2154-ICV2153
Lab FileID: 2P50256.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2154\2p50256.D          Vial: 24
Acq On    :  2 Jul 2015   7:38 pm                   Operator: samtap
Sample    : icv2153-50                              Inst    : MS2P
Misc      : op85151,e2p2154                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Jul 02 17:43:45 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	96	-0.01	11.78
89	t	3,3'-Dichlorobenzidine	0.414	0.432	-4.3	96	0.00	11.77

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p50246a.D M2P2153.M Mon Jul 06 08:27:01 2015 RPT1

8.7.5
8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2156-ICV2153
Lab FileID: 2P50261.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2156\2p50261.D          Vial: 2
Acq On    :  6 Jul 2015   7:39 am                   Operator: samtap
Sample    : icv2153-50                              Inst    : MS2P
Misc      : op85151,e2p2156                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Jul 02 17:43:45 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	113	-0.03	4.68
2	t	1,4-Dioxane	0.600	0.530	11.7	106	-0.03	1.99
6	t	Indene	2.253	1.960	13.0	103	-0.03	4.90
7	t	Cumene	3.147	2.639	16.1	96	-0.03	4.02
13	t	Decane	1.750	1.428	18.4	100	-0.03	4.56
18	t	Acetophenone	1.740	1.537	11.7	105	-0.03	5.01
24	I	Naphthalene-d8	1.000	1.000	0.0	112	-0.03	5.73
27	t	Quinoline	0.730	0.629	13.8	99	-0.03	6.02
40	t	2,3-Dichloroaniline	0.388	0.308	20.6	94	-0.03	6.55
41	t	Caprolactam	0.103	0.091	11.7	97	-0.06	6.07
45	t	1-Methylnaphthalene	0.606	0.523	13.7	101	-0.03	6.40
46	t	Dimethylnaphthalene	0.597	0.521	12.7	103	-0.03	6.83
47	I	Acenaphthene-d10	1.000	1.000	0.0	108	-0.03	7.17
53	t	Biphenyl	1.370	1.237	9.7	102	-0.03	6.70
69	I	Phenanthrene-d10	1.000	1.000	0.0	103	-0.04	8.46
82	t	Octadecane	0.428	0.332	22.4	88	-0.03	8.38
83	I	Chrysene-d12	1.000	1.000	0.0	112	-0.05	11.74
92	I	Perylene-d12	1.000	1.000	0.0	102	-0.05	13.74
100	t	7,12-Dimethylbenz(a)anthr	0.529	0.423	20.0	81	-0.06	13.24

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p50246a.D M2P2153.M Mon Jul 06 09:19:35 2015 RPT1

8.7.6

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2156-ICV2153
Lab FileID: 2P50262.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2P2156\2p50262.D          Vial: 3
Acq On    :  6 Jul 2015   8:05 am                   Operator: samtap
Sample    : icv2153-50                              Inst    : MS2P
Misc      : op85151,e2p2156                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Thu Jul 02 17:43:45 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	81	-0.03	4.68
9	t	Phenol	1.728	1.541	10.8	75	-0.03	4.40
12	t	2-Chlorophenol	1.329	1.325	0.3	87	-0.03	4.51
19	t	2-Methylphenol	1.103	1.135	-2.9	89	-0.03	4.90
21	t	3&4-Methylphenol	1.165	1.178	-1.1	87	-0.03	5.03
24	I	Naphthalene-d8	1.000	1.000	0.0	83	-0.03	5.73
29	t	2-Nitrophenol	0.189	0.189	0.0	78	-0.03	5.42
30	t	2,4-Dimethylphenol	0.328	0.311	5.2	80	-0.03	5.47
31	t	Benzoic acid	50.000	36.060	27.9	60	-0.03	5.56
33	t	2,4-Dichlorophenol	0.293	0.283	3.4	79	-0.03	5.62
34	t	2,6-Dichlorophenol	0.279	0.284	-1.8	87	-0.03	5.80
43	t	4-Chloro-3-methylphenol	0.297	0.280	5.7	77	-0.04	6.20
47	I	Acenaphthene-d10	1.000	1.000	0.0	89	-0.03	7.17
49	t	2,4,6-Trichlorophenol	0.327	0.322	1.5	89	-0.03	6.55
50	t	2,4,5-Trichlorophenol	0.387	0.337	12.9	79	-0.03	6.59
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	48.344	3.3	72	-0.03	7.22
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.140	0.151	-7.9	81	-0.03	7.29
64		2,3,4,6-Tetrachlorophenol	0.273	0.259	5.1	77	-0.03	7.45
69	I	Phenanthrene-d10	1.000	1.000	0.0	91	-0.04	8.46
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	44.910	10.2	81	-0.04	7.67
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	45.918	8.2	76	-0.04	8.29
83	I	Chrysene-d12	1.000	1.000	0.0	106	-0.05	11.74
92	I	Perylene-d12	1.000	1.000	0.0	98	-0.05	13.74

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p50246a.D M2P2153.M Mon Jul 06 09:26:50 2015 RPT1

8.7.7

8

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2191-CC2153
Lab FileID: 2P51005.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2191\2p51005.D Vial: 2
Acq On : 29 Jul 2015 4:45 pm Operator: ashleyd
Sample : cc2153-25 Inst : MS2P
Misc : op85840,e2p2191 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Tue Jul 28 11:13:29 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	118	0.00	4.56
2	t	1,4-Dioxane	0.600	0.383	36.2#	80	0.00	1.84
3	t	Pyridine	1.479	0.994	32.8#	80	0.01	2.18
4	t	N-Nitrosodimethylamine	0.917	0.635	30.8#	81	0.00	2.15
5	S	2-Fluorophenol	1.428	1.165	18.4	94	0.00	3.52
6	t	Indene	2.253	2.101	6.7	109	0.00	4.77
7	t	Cumene	3.147	3.064	2.6	112	0.00	3.88
8	S	Phenol-d5	1.641	1.408	14.2	98	0.00	4.33
9	t	Phenol	1.728	1.427	17.4	94	0.00	4.34
10		Aniline	1.903	1.415	25.6#	87	0.00	4.30
11	t	bis(2-Chloroethyl)ether	1.237	1.149	7.1	110	0.00	4.34
12	t	2-Chlorophenol	1.329	1.153	13.2	102	0.00	4.41
13	t	Decane	1.750	1.627	7.0	108	0.00	4.44
14	t	1,3-Dichlorobenzene	1.558	1.452	6.8	111	0.00	4.51
15	t	1,4-Dichlorobenzene	1.481	1.350	8.8	109	0.00	4.57
16	t	Benzyl alcohol	0.755	0.668	11.5	101	0.00	4.70
17	t	1,2-Dichlorobenzene	1.402	1.319	5.9	112	0.00	4.70
18	t	Acetophenone	1.740	1.720	1.1	118	0.00	4.90
19	t	2-Methylphenol	1.103	0.971	12.0	103	-0.01	4.83
20	t	2,2'-oxybis(1-Chloropropa	0.389	0.364	6.4	112	0.00	4.79
21	t	3&4-Methylphenol	1.165	1.092	6.3	111	0.00	4.95
22	t	n-Nitroso-di-n-propylamin	0.893	0.927	-3.8	123	-0.01	4.91
23	t	Hexachloroethane	0.525	0.606	-15.4	138	0.00	4.98
24	I	Naphthalene-d8	1.000	1.000	0.0	110	0.00	5.61
25	S	Nitrobenzene-d5	0.348	0.373	-7.2	119	0.00	5.02
26	t	Nitrobenzene	0.351	0.379	-8.0	120	0.00	5.04
27	t	Quinoline	0.730	0.711	2.6	110	0.00	5.91
28	t	Isophorone	0.649	0.653	-0.6	111	0.00	5.23
29	t	2-Nitrophenol	0.189	0.217	-14.8	122	0.00	5.30
30	t	2,4-Dimethylphenol	0.328	0.311	5.2	103	0.00	5.37
		----------	True	Calc.	% Drift	----------		
31	t	Benzoic acid	25.000	30.418	-21.7#	157	-0.03	5.50
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.413	0.414	-0.2	112	0.00	5.42
33	t	2,4-Dichlorophenol	0.293	0.326	-11.3	118	0.00	5.53
34	t	2,6-Dichlorophenol	0.279	0.310	-11.1	121	0.00	5.70
35		1,3,5-Trichlorobenzene	0.357	0.425	-19.0	131	0.00	5.31
36	t	1,2,4-Trichlorobenzene	0.340	0.393	-15.6	131	0.00	5.57
37		1,2,3-Trichlorobenzene	0.317	0.372	-17.4	132	0.00	5.75

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2191-CC2153
Lab FileID: 2P51005.D

38	t	Naphthalene	0.913	0.913	0.0	109	0.00	5.63
39	t	4-Chloroaniline	0.421	0.398	5.5	102	0.00	5.69
40	t	2,3-Dichloroaniline	0.388	0.410	-5.7	123	0.00	6.44
41	t	Caprolactam	0.103	0.105	-1.9	114	-0.03	5.98
42	t	Hexachlorobutadiene	0.178	0.257	-44.4#	161	0.00	5.74
43	t	4-Chloro-3-methylphenol	0.297	0.325	-9.4	120	0.00	6.13
44	t	2-Methylnaphthalene	0.560	0.607	-8.4	119	0.00	6.20
45	t	1-Methylnaphthalene	0.606	0.646	-6.6	119	0.00	6.28
46	t	Dimethylnaphthalene	0.597	0.661	-10.7	128	0.00	6.71
47	I	Acenaphthene-d10	1.000	1.000	0.0	121	0.00	7.06
48	t	Hexachlorocyclopentadiene	0.290	0.291	-0.3	114	0.00	6.33
49	t	2,4,6-Trichlorophenol	0.327	0.417	-27.5#	150	0.00	6.46
50	t	2,4,5-Trichlorophenol	0.387	0.448	-15.8	141	0.00	6.51
51	S	2-Fluorobiphenyl	1.186	1.314	-10.8	142	0.00	6.50
52	t	2-Chloronaphthalene	1.072	1.071	0.1	124	0.00	6.60
53	t	Biphenyl	1.370	1.463	-6.8	132	0.00	6.58
54	t	2-Nitroaniline	0.327	0.402	-22.9#	147	0.00	6.70
55	t	Dimethylphthalate	1.327	1.440	-8.5	136	0.00	6.84
56	t	Acenaphthylene	1.766	1.779	-0.7	123	0.00	6.94
57	t	2,6-Dinitrotoluene	0.248	0.310	-25.0#	147	0.00	6.89
58	t	3-Nitroaniline	0.303	0.310	-2.3	120	0.00	7.04
59	t	Acenaphthene	1.040	1.041	-0.1	129	0.00	7.08
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	76.680	-53.4#	235	0.00	7.13
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.140	0.159	-13.6	144	0.00	7.25
62	t	Dibenzofuran	1.387	1.595	-15.0	139	0.00	7.22
63	t	2,4-Dinitrotoluene	0.320	0.416	-30.0#	147	0.00	7.23
64		2,3,4,6-Tetrachlorophenol	0.273	0.376	-37.7#	163	0.00	7.35
65	t	Diethylphthalate	1.352	1.432	-5.9	130	0.00	7.41
66	t	Fluorene	1.227	1.280	-4.3	133	0.00	7.51
67	t	4-Chlorophenyl-phenylethe	0.594	0.775	-30.5#	162	0.00	7.50
68	t	4-Nitroaniline	0.298	0.285	4.4	116	0.00	7.54
69	I	Phenanthrene-d10	1.000	1.000	0.0	149	0.00	8.33
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	25.000	31.856	-27.4#	209	0.00	7.57
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.554	0.504	9.0	139	0.00	7.61
72	t	1,2-Diphenylhydrazine	0.763	0.625	18.1	121	0.00	7.63
73	S	2,4,6-Tribromophenol	0.100	0.114	-14.0	183	0.00	7.71
74	t	4-Bromophenyl-phenylether	0.221	0.258	-16.7	175	0.00	7.92
75	t	Hexachlorobenzene	0.222	0.251	-13.1	175	0.00	7.99
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	58.044	-16.1	190	0.00	8.18
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.057	0.941	11.0	142	0.00	8.36
78	t	Anthracene	1.089	0.977	10.3	139	0.00	8.40
79	t	Carbazole	1.096	0.984	10.2	138	0.00	8.58
80	t	Di-n-butylphthalate	1.456	1.354	7.0	130	0.01	8.95
81	t	Fluoranthene	1.250	1.261	-0.9	160	0.01	9.66
82	t	Octadecane	0.428	0.453	-5.8	156	0.00	8.24

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E2P2191-CC2153
Lab FileID: 2P51005.D

83	I	Chrysene-d12	1.000	1.000	0.0	171	0.02	11.60
84	t	Pyrene	1.346	1.199	10.9	163	0.01	9.93
85	S	Terphenyl-d14	0.751	0.774	-3.1	201#	0.01	10.15
86	t	Butylbenzylphthalate	0.725	0.568	21.7#	132	0.02	10.85
87		Butyl stearate	0.446	0.352	21.1#	127	0.02	10.99
88	t	Benzo[a]anthracene	1.222	1.145	6.3	172	0.02	11.58
89	t	3,3'-Dichlorobenzidine	0.414	0.428	-3.4	174	0.01	11.58
90	t	Chrysene	1.007	0.966	4.1	174	0.01	11.63
91	t	bis(2-Ethylhexyl)phthalat	0.911	0.749	17.8	138	0.02	11.72
92	I	Perylene-d12	1.000	1.000	0.0	156	0.02	13.59
93	t	Di-n-octylphthalate	1.676	1.504	10.3	130	0.02	12.65
94	t	Benzo[b]fluoranthene	1.224	1.197	2.2	156	0.02	13.10
95	t	Benzo[k]fluoranthene	1.032	1.050	-1.7	168	0.01	13.13
96	t	Benzo[a]pyrene	1.051	1.036	1.4	158	0.02	13.51
97	t	Indeno[1,2,3-cd]pyrene	0.972	0.969	0.3	160	0.02	14.96
98	t	Dibenz(a,h)acridine	0.854	0.841	1.5	153	0.02	14.65
99	t	Dibenz[a,h]anthracene	0.931	0.883	5.2	151	0.02	14.98
100	t	7,12-Dimethylbenz(a)anthr	0.529	0.549	-3.8	160	0.02	13.08
101	t	Benzo[g,h,i]perylene	0.966	0.874	9.5	147	0.02	15.33

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p50733.D M2P2153.M Thu Jul 30 18:50:04 2015 RPT1

8.7.8

8

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3197-ICC3197
Lab FileID: 3E73658.D

Response Factor Report MS3E

Method : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 14:45:35 2015
Last Update : Thu Jul 09 14:45:35 2015
Response via : Initial Calibration

Calibration Files
2 =3E73654.D 5 =3E73661.D 25 =3E73659.D 80 =3E73657.D
100 =3E73655.D 50 =3E73658.D 1 =3E73656.D 10 =3E73660.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.636	0.574	0.543	0.523	0.522	0.536	0.571	0.549	0.557	6.70
3) Pyridine	1.403	1.509	1.400	1.326	1.348	1.389	1.548	1.406	1.416	5.34
4) N-Nitrosodim	0.900	0.918	0.874	0.832	0.841	0.863	0.903	0.865	0.874	3.47
5) 2-Fluorophen	1.218	1.339	1.302	1.310	1.324	1.314	1.293	1.293	1.299	2.80
6) Indene	2.459	2.711	2.501	2.328	2.323	2.466	2.613	2.520	2.490	5.27
7) Cumene	3.246	3.467	3.255	3.106	3.123	3.239	3.342	3.213	3.249	3.56
8) Phenol-d5	1.421	1.515	1.516	1.541	1.551	1.566	1.541	1.456	1.513	3.31
9) Phenol	1.605	1.712	1.714	1.697	1.709	1.723	1.592	1.662	1.677	3.08
10) Aniline	1.937	2.095	2.005	1.789	1.804	2.026	1.987	1.965	1.951	5.44
11) bis(2-Chloro	1.346	1.391	1.334	1.304	1.297	1.343	1.394	1.328	1.342	2.66
12) 2-Chlorophen	1.319	1.440	1.425	1.382	1.389	1.438	1.404	1.377	1.397	2.86
13) Decane	1.472	1.481	1.397	1.273	1.258	1.405	1.530	1.423	1.405	6.87
14) 1,3-Dichloro	1.593	1.721	1.567	1.525	1.534	1.562	1.732	1.565	1.600	5.06
15) 1,4-Dichloro	1.550	1.734	1.583	1.507	1.510	1.569	1.706	1.619	1.597	5.29
16) Benzyl alcoh	0.677	0.767	0.796	0.783	0.781	0.810	0.726	0.749	0.761	5.67
17) 1,2-Dichloro	1.488	1.603	1.459	1.367	1.363	1.452	1.529	1.491	1.469	5.43
18) Acetophenone	1.828	1.936	1.803	1.652	1.640	1.784	1.917	1.825	1.798	5.99
19) 2-Methylphen	1.049	1.171	1.181	1.101	1.093	1.189	0.999	1.159	1.118	6.18
20) 2,2'-oxybis(	0.560	0.571	0.522	0.489	0.488	0.518	0.603	0.528	0.535	7.53
21) 3&4-Methylph	1.058	1.200	1.224	1.184	1.186	1.245	1.035	1.196	1.166	6.58
22) n-Nitroso-di	0.911	0.996	0.963	0.852	0.850	0.935	0.977	0.948	0.929	5.87
23) Hexachloroet	0.429	0.522	0.454	0.427	0.424	0.449	0.454	0.480	0.455	7.23
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.313	0.319	0.316	0.332	0.336	0.338	0.344	0.301	0.325	4.57
26) Nitrobenzene	0.328	0.354	0.344	0.347	0.355	0.356	0.340	0.334	0.345	3.02
27) Quinoline	0.636	0.706	0.681	0.664	0.658	0.685	0.660	0.671	0.670	3.13
28) Isophorone	0.549	0.591	0.591	0.603	0.607	0.609	0.552	0.576	0.585	4.02
29) 2-Nitropheno	0.166	0.193	0.192	0.201	0.204	0.201	0.164	0.185	0.188	8.20
30) 2,4-Dimethyl	0.272	0.291	0.315	0.307	0.314	0.323	0.275	0.284	0.298	6.62
31) Benzoic acid		0.166	0.220	0.258	0.263	0.249		0.181	0.223	18.56
32) bis(2-Chloro	0.381	0.418	0.395	0.393	0.392	0.404	0.372	0.384	0.392	3.56
33) 2,4-Dichloro	0.224	0.247	0.256	0.267	0.267	0.263	0.228	0.243	0.249	6.80
34) 2,6-Dichloro	0.238	0.264	0.252	0.251	0.250	0.256	0.219	0.248	0.247	5.48
35) 1,3,5-Trichl	0.312	0.350	0.306	0.304	0.302	0.311	0.339	0.312	0.317	5.53
36) 1,2,4-Trichl	0.300	0.323	0.286	0.279	0.273	0.286	0.311	0.289	0.293	5.74
37) 1,2,3-Trichl	0.293	0.314	0.276	0.255	0.255	0.271	0.296	0.285	0.280	7.28
38) Naphthalene	1.027	1.059	0.994	0.965	0.971	0.996	1.068	0.998	1.010	3.78
39) 4-Chloroanil	0.371	0.415	0.414	0.409	0.409	0.429	0.355	0.398	0.400	6.17
40) 2,3-Dichloro	0.334	0.345	0.326	0.315	0.316	0.332	0.335	0.328	0.329	3.04
41) Caprolactam	0.108	0.131	0.133	0.137	0.137	0.138	0.114	0.130	0.128	8.74
42) Hexachlorobu	0.155	0.160	0.147	0.135	0.135	0.141	0.159	0.149	0.148	6.73
43) 4-Chloro-3-m	0.243	0.257	0.263	0.262	0.267	0.271	0.264	0.252	0.260	3.49
44) 2-Methylnaph	0.554	0.575	0.551	0.535	0.539	0.558	0.547	0.544	0.550	2.30
45) 1-Methylnaph	0.604	0.643	0.604	0.580	0.577	0.604	0.631	0.600	0.605	3.72

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E3E3197-ICC3197
Lab FileID: 3E73658.D

```
46) Dimethylnaph 0.609 0.659 0.603 0.563 0.558 0.593 0.639 0.612 0.605   5.69

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.213 0.252 0.289 0.297 0.318 0.297 0.201 0.258 0.266  15.84
49) 2,4,6-Trichl 0.274 0.302 0.308 0.310 0.311 0.307 0.291 0.294 0.300   4.30
50) 2,4,5-Trichl 0.279 0.354 0.350 0.333 0.340 0.355 0.316 0.330 0.332   7.58
51) 2-Fluorobiph 1.291 1.294 1.197 1.164 1.183 1.183 1.484 1.176 1.246   8.73
52) 2-Chloronaph 1.060 1.148 1.086 1.035 1.034 1.071 1.070 1.073 1.072   3.35
53) Biphenyl     1.479 1.550 1.512 1.485 1.512 1.511 1.501 1.459 1.501   1.82
54) 2-Nitroanili 0.229 0.257 0.295 0.319 0.331 0.319 0.258 0.269 0.285  12.81
55) Dimethylphth 1.217 1.365 1.320 1.272 1.307 1.318 1.276 1.288 1.295   3.35
56) Acenaphthyle 1.687 1.849 1.777 1.748 1.767 1.796 1.947 1.739 1.789   4.43
57) 2,6-Dinitrot 0.204 0.264 0.282 0.282 0.285 0.286 0.221 0.266 0.261  12.07
58) 3-Nitroanili 0.225 0.303 0.332 0.334 0.342 0.338 0.239 0.313 0.303  15.20
59) Acenaphthene 1.133 1.198 1.123 1.092 1.114 1.121 1.356 1.093 1.154   7.64
60) 2,4-Dinitrop 0.035 0.068 0.128 0.162 0.171 0.151 0.041 0.092 0.106  51.34
         ----- Quadratic regression -----                Coefficient =  0.9996
              Response Ratio = -0.01316 + 0.13266 *A + 0.00829 *A^2

61) 4-Nitropheno             0.133 0.156 0.168 0.153       0.101 0.142  18.56
62) Dibenzofuran 1.410 1.540 1.425 1.395 1.405 1.431 1.484 1.426 1.439   3.37
63) 2,4-Dinitrot 0.292 0.357 0.382 0.376 0.393 0.385 0.270 0.354 0.351  13.04
64) 2,3,4,6-Tetr 0.195 0.265 0.261 0.265 0.267 0.272 0.228 0.256 0.251  10.56
65) Diethylphtha 1.201 1.323 1.321 1.301 1.348 1.340 1.194 1.281 1.289   4.66
66) Fluorene     1.266 1.286 1.208 1.188 1.213 1.219 1.452 1.194 1.253   6.96
67) 4-Chlorophen 0.572 0.616 0.560 0.526 0.531 0.550 0.587 0.567 0.564   5.20
68) 4-Nitroanili 0.249 0.308 0.342 0.338 0.346 0.347 0.215 0.312 0.307  16.12

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.090 0.130 0.147 0.145 0.140       0.106 0.126  18.59
71) n-Nitrosodip 0.554 0.627 0.610 0.614 0.613 0.621 0.572 0.593 0.600   4.27
72) 1,2-Diphenyl 0.703 0.754 0.787 0.820 0.829 0.829 0.691 0.754 0.771   7.10
73) 2,4,6-Tribro 0.115 0.126 0.124 0.125 0.124 0.124 0.143 0.119 0.125   6.35
74) 4-Bromopheny 0.201 0.232 0.224 0.223 0.223 0.225 0.224 0.222 0.222   4.00
75) Hexachlorobe 0.239 0.254 0.234 0.230 0.227 0.234 0.248 0.237 0.238   3.73
76) Pentachlorop 0.086 0.124 0.145 0.151 0.153 0.149       0.132 0.134  17.81
77) Phenanthrene 1.232 1.181 1.074 1.082 1.087 1.104 1.450 1.099 1.164  11.03
78) Anthracene   1.165 1.192 1.105 1.080 1.086 1.124 1.373 1.109 1.154   8.33
79) Carbazole    1.071 1.131 1.097 1.111 1.104 1.114 1.135 1.084 1.106   1.97
80) Di-n-butylph 1.229 1.418 1.474 1.558 1.587 1.556 1.252 1.382 1.432   9.64
81) Fluoranthene 1.135 1.149 1.103 1.143 1.160 1.143 1.380 1.070 1.160   8.05
82) Octadecane   0.454 0.484 0.520 0.532 0.540 0.543 0.494 0.487 0.507   6.33

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.239 1.270 1.163 1.178 1.168 1.187 1.493 1.185 1.235   8.93
85) Terphenyl-d1 0.842 0.746 0.666 0.677 0.661 0.686       0.691 0.710   9.10
86) Butylbenzylp 0.537 0.603 0.666 0.713 0.723 0.701 0.542 0.620 0.638  11.64
87) Butyl steara 0.249 0.305 0.341 0.369 0.374 0.368 0.256 0.319 0.323  15.44
88) Benzo[a]anth 1.203 1.133 1.045 1.061 1.066 1.067 1.467 1.075 1.140  12.45
89) 3,3'-Dichlor 0.372 0.406 0.411 0.421 0.413 0.420 0.393 0.396 0.404   4.04
90) Chrysene     1.112 1.082 0.965 0.934 0.925 0.970 1.352 0.996 1.042  13.62
91) bis(2-Ethylh 0.716 0.837 0.891 0.907 0.916 0.928 0.754 0.851 0.850   9.19

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.183 1.382 1.583 1.558 1.619 1.744 1.239 1.392 1.463  13.36
94) Benzo[b]fluo 1.249 1.231 1.176 1.079 1.127 1.218 1.378 1.113 1.196   7.96
95) Benzo[k]fluo 1.123 1.160 1.079 0.897 0.871 1.100 1.346 1.053 1.079  13.90
96) Benzo[a]pyre 1.039 1.057 1.027 0.906 0.909 1.058 1.190 0.975 1.020   9.03
97) Indeno[1,2,3 1.061 1.082 1.055 1.016 1.036 1.156 1.264 1.033 1.088   7.62
98) Dibenz(a,h)a 0.920 0.995 0.990 0.916 0.929 1.050 1.018 0.928 0.968   5.32
```

8.7.9

8

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3197-ICC3197
Lab FileID: 3E73658.D

```
 99) Dibenz[a,h]a 1.121 1.150 1.075 0.937 0.940 1.117 1.347 1.036 1.090  12.03
100) 7,12-Dimethy 0.473 0.529 0.571 0.505 0.516 0.589 0.501 0.497 0.523   7.53
101) Benzo[g,h,i] 1.055 1.065 1.014 0.899 0.909 1.061 1.230 0.966 1.025  10.34
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M3E3197.M         Thu Jul 09 14:46:12 2015   MS3E
```

Initial Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICC3198
Lab FileID: 3E73665.D

```
                          Response Factor Report  MS3E

  Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
  Last Update  : Thu Jul 09 22:07:52 2015
  Response via : Initial Calibration

  Calibration Files
  2   =3E73669.D  5   =3E73668.D  25  =3E73666.D  80  =3E73664.D
  100 =3E73663.D  50  =3E73665.D  1   =3E73670.D  10  =3E73667.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------
102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 0.982 1.070 1.045 1.031 1.007 1.061 1.017 1.068 1.035   3.07

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.444 0.451 0.439 0.448 0.447 0.451 0.455 0.465 0.450   1.73

106)     Phenanthrene-d10a     ----------------ISTD---------------------
107) Atrazine     0.079 0.094 0.099 0.101 0.098 0.101 0.089 0.100 0.095   8.25
108) o-Terphenyl  0.477 0.525 0.510 0.506 0.495 0.513 0.473 0.516 0.502   3.71
109) 1-Chloroocta 0.203 0.240 0.266 0.265 0.259 0.272 0.193 0.258 0.245  12.32

110) I   Chrysene-d12a         ----------------ISTD---------------------
111) benzidine    0.474 0.617 0.735 0.671 0.555 0.743 0.439 0.683 0.615  18.77

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone             0.275 0.303 0.296 0.297       0.239 0.282   9.27
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3E3197.M         Thu Jul 09 22:40:29 2015   MS3E
```

8.7.10

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3197
Lab FileID: 3E73671.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E3198\3E73671.D Vial: 10
Acq On : 9 Jul 2015 6:52 pm Operator: ashleyn
Sample : icv3197-50 Inst : MS3E
Misc : op85299,e3e3198, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update : Thu Jul 09 22:07:52 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	184	0.00	4.87
9	t	Phenol	1.677	1.361	18.8	145	0.00	4.59
12	t	2-Chlorophenol	1.397	1.236	11.5	158	0.00	4.71
19	t	2-Methylphenol	1.118	1.040	7.0	161	0.00	5.06
21	t	3&4-Methylphenol	1.166	1.076	7.7	159	0.00	5.19
24	I	Naphthalene-d8	1.000	1.000	0.0	180	0.00	6.00
29	t	2-Nitrophenol	0.188	0.181	3.7	163	0.00	5.63
30	t	2,4-Dimethylphenol	0.298	0.276	7.4	154	0.00	5.66
31	t	Benzoic acid	0.223	0.173	22.4	126	0.00	5.76
33	t	2,4-Dichlorophenol	0.249	0.248	0.4	170	0.00	5.85
34	t	2,6-Dichlorophenol	0.247	0.261	-5.7	184	0.00	6.08
43	t	4-Chloro-3-methylphenol	0.260	0.238	8.5	159	-0.01	6.58
47	I	Acenaphthene-d10	1.000	1.000	0.0	187	0.00	8.11
49	t	2,4,6-Trichlorophenol	0.300	0.296	1.3	180	0.00	7.11
50	t	2,4,5-Trichlorophenol	0.332	0.330	0.6	174	0.00	7.16
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	35.124	29.7	108	0.00	8.19
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.142	0.110	22.5	134	0.00	8.31
64		2,3,4,6-Tetrachlorophenol	0.251	0.240	4.4	165	0.00	8.58
69	I	Phenanthrene-d10	1.000	1.000	0.0	186	0.00	10.31
70	t	4,6-Dinitro-2-methylpheno	0.126	0.103	18.3	137	0.00	8.97
76	t	Pentachlorophenol	0.134	0.140	-4.5	174	0.00	10.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:04 2015 MS3E

8.7.11

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization
Sample: E3E3198-ICV3197
Lab FileID: 3E73672.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3198\3E73672.D          Vial: 11
Acq On    :  9 Jul 2015   7:18 pm                    Operator: ashleyn
Sample    : icv3197-50                               Inst    : MS3E
Misc      : op85299,e3e3198,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update  : Thu Jul 09 22:07:52 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	157	0.00	4.87
3	t	Pyridine	1.416	1.442	-1.8	163	0.11	2.87
10		Aniline	1.951	1.900	2.6	147	0.00	4.62
16	t	Benzyl alcohol	0.761	0.808	-6.2	156	0.00	4.98
24	I	Naphthalene-d8	1.000	1.000	0.0	166	0.00	5.99
39	t	4-Chloroaniline	0.400	0.400	0.0	155	0.00	6.06
44	t	2-Methylnaphthalene	0.550	0.552	-0.4	164	0.00	6.77
47	I	Acenaphthene-d10	1.000	1.000	0.0	179	0.00	8.11
54	t	2-Nitroaniline	0.285	0.240	15.8	135	0.00	7.49
58	t	3-Nitroaniline	0.303	0.285	5.9	151	0.00	8.05
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.439	1.382	4.0	173	0.00	8.40
68	t	4-Nitroaniline	0.307	0.266	13.4	138	0.00	8.93
69	I	Phenanthrene-d10	1.000	1.000	0.0	181	0.00	10.30
79	t	Carbazole	1.106	0.937	15.3	152	0.00	10.69
83	I	Chrysene-d12	1.000	1.000	0.0	174	0.00	14.50
92	I	Perylene-d12	1.000	1.000	0.0	159	0.00	16.62

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3E73665a.D M3E3197.M        Thu Jul 09 22:29:05 2015   MS3E
```

8.7.12

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3198
Lab FileID: 3E73673A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3198\3E73673a.D         Vial: 12
Acq On    :  9 Jul 2015   7:43 pm                    Operator: ashleyn
Sample    : icv3198-50                               Inst    : MS3E
Misc      : op85299,e3e3198,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update  : Thu Jul 09 22:07:52 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	Acenaphthene-d10a	1.000	1.000	0.0	112	0.00	8.11
105	1,2,4,5-Tetrachlorobenzen	0.450	0.442	1.8	110	0.00	6.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:09 2015 MS3E

8.7.13

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3197
Lab FileID: 3E73673.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E3198\3E73673.D Vial: 12
Acq On : 9 Jul 2015 7:43 pm Operator: ashleyn
Sample : icv3197-50 Inst : MS3E
Misc : op85299,e3e3198, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update : Thu Jul 09 22:07:52 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	166	0.00	4.87
4	t	N-Nitrosodimethylamine	0.874	0.769	12.0	148	0.02	2.74
11	t	bis(2-Chloroethyl)ether	1.342	1.198	10.7	148	0.00	4.66
14	t	1,3-Dichlorobenzene	1.600	1.500	6.3	159	0.00	4.83
15	t	1,4-Dichlorobenzene	1.597	1.491	6.6	158	0.00	4.89
17	t	1,2-Dichlorobenzene	1.469	1.420	3.3	162	0.00	5.01
20	t	2,2'-oxybis(1-Chloropropa	0.535	0.454	15.1	146	0.00	5.09
22	t	n-Nitroso-di-n-propylamin	0.929	0.794	14.5	141	0.00	5.19
23	t	Hexachloroethane	0.455	0.447	1.8	165	0.00	5.29
24	I	Naphthalene-d8	1.000	1.000	0.0	164	0.00	6.00
26	t	Nitrobenzene	0.345	0.319	7.5	146	0.00	5.34
28	t	Isophorone	0.585	0.583	0.3	157	0.00	5.55
32	t	bis(2-Chloroethoxy)methan	0.392	0.368	6.1	149	0.00	5.74
36	t	1,2,4-Trichlorobenzene	0.293	0.285	2.7	163	0.00	5.94
38	t	Naphthalene	1.010	0.971	3.9	160	0.00	6.02
42	t	Hexachlorobutadiene	0.148	0.140	5.4	163	0.00	6.16
47	I	Acenaphthene-d10	1.000	1.000	0.0	160	0.00	8.11
48	t	Hexachlorocyclopentadiene	0.266	0.248	6.8	134	0.00	6.97
52	t	2-Chloronaphthalene	1.072	1.051	2.0	157	0.00	7.36
55	t	Dimethylphthalate	1.295	1.152	11.0	140	0.00	7.75
56	t	Acenaphthylene	1.789	1.582	11.6	141	0.00	7.91
57	t	2,6-Dinitrotoluene	0.261	0.248	5.0	139	0.00	7.82
59	t	Acenaphthene	1.154	1.112	3.6	159	0.00	8.16
		----------	AvgRF	CCRF	% Dev	----------		
63	t	2,4-Dinitrotoluene	0.351	0.305	13.1	127	0.00	8.38
65	t	Diethylphthalate	1.289	1.097	14.9	131	0.00	8.76
66	t	Fluorene	1.253	1.157	7.7	152	0.00	8.89
67	t	4-Chlorophenyl-phenylethe	0.564	0.483	14.4	141	0.00	8.91
69	I	Phenanthrene-d10	1.000	1.000	0.0	155	0.00	10.31
71	t	n-Nitrosodiphenylamine	0.600	0.552	8.0	138	0.00	9.08
72	t	1,2-Diphenylhydrazine	0.771	0.735	4.7	137	0.00	9.14
74	t	4-Bromophenyl-phenylether	0.222	0.198	10.8	136	0.00	9.64
75	t	Hexachlorobenzene	0.238	0.223	6.3	148	0.00	9.73
77	t	Phenanthrene	1.164	1.033	11.3	145	0.00	10.34
78	t	Anthracene	1.154	1.049	9.1	145	0.00	10.42
80	t	Di-n-butylphthalate	1.432	1.238	13.5	123	0.00	11.31
81	t	Fluoranthene	1.160	1.034	10.9	140	0.00	12.22

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3197
Lab FileID: 3E73673.D

83	I	Chrysene-d12	1.000	1.000	0.0	139	0.00	14.51
84	t	Pyrene	1.235	1.189	3.7	139	0.00	12.56
86	t	Butylbenzylphthalate	0.638	0.601	5.8	119	0.00	13.70
88	t	Benzo[a]anthracene	1.140	1.031	9.6	134	0.00	14.49
90	t	Chrysene	1.042	0.993	4.7	142	0.00	14.55
91	t	bis(2-Ethylhexyl)phthalat	0.850	0.779	8.4	117	0.00	14.66
92	I	Perylene-d12	1.000	1.000	0.0	132	0.00	16.63
93	t	Di-n-octylphthalate	1.463	1.522	-4.0	115	0.00	15.64
94	t	Benzo[b]fluoranthene	1.196	1.137	4.9	123	0.00	16.10
95	t	Benzo[k]fluoranthene	1.079	1.119	-3.7	134	0.00	16.14
96	t	Benzo[a]pyrene	1.020	1.079	-5.8	135	0.00	16.55
97	t	Indeno[1,2,3-cd]pyrene	1.088	1.088	0.0	124	0.00	18.27
99	t	Dibenz[a,h]anthracene	1.090	1.089	0.1	129	0.00	18.31
101	t	Benzo[g,h,i]perylene	1.025	1.032	-0.7	128	0.00	18.75

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:07 2015 MS3E

8.7.14

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3198
Lab FileID: 3E73674A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3198\3E73674a.D         Vial: 13
Acq On    :  9 Jul 2015   8:09 pm                    Operator: ashleyn
Sample    : icv3198-50                               Inst    : MS3E
Misc      : op85299,e3e3198,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update  : Thu Jul 09 22:07:52 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	129	0.00	4.87
103	Benzaldehyde	1.035	1.042	-0.7	126	0.00	4.53
106	Phenanthrene-d10a	1.000	1.000	0.0	107	0.00	10.31
107	Atrazine	0.095	0.106	-11.6	112	0.00	9.93

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:12 2015 MS3E

8.7.15

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3197
Lab FileID: 3E73674.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3198\3E73674.D          Vial: 13
Acq On    :  9 Jul 2015   8:09 pm                    Operator: ashleyn
Sample    : icv3197-50                               Inst    : MS3E
Misc      : op85299,e3e3198,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update  : Thu Jul 09 22:07:52 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	166	0.00	4.87
2	t	1,4-Dioxane	0.557	0.490	12.0	152	0.02	2.46
6	t	Indene	2.490	2.359	5.3	159	0.00	5.08
7	t	Cumene	3.249	2.941	9.5	151	0.00	4.28
13	t	Decane	1.405	1.194	15.0	141	0.00	4.75
18	t	Acetophenone	1.798	1.656	7.9	154	0.00	5.19
24	I	Naphthalene-d8	1.000	1.000	0.0	192	0.00	5.99
27	t	Quinoline	0.670	0.557	16.9	156	0.00	6.36
40	t	2,3-Dichloroaniline	0.329	0.240	27.1	139	0.00	7.11
41	t	Caprolactam	0.128	0.096	25.0	133	-0.03	6.41
45	t	1-Methylnaphthalene	0.605	0.478	21.0	152	0.00	6.89
46	t	Dimethylnaphthalene	0.605	0.488	19.3	158	0.00	7.55
47	I	Acenaphthene-d10	1.000	1.000	0.0	165	0.00	8.11
53	t	Biphenyl	1.501	1.419	5.5	155	0.00	7.34
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	167	0.00	10.31
82	t	Octadecane	0.507	0.449	11.4	138	0.00	10.25
83	I	Chrysene-d12	1.000	1.000	0.0	153	0.00	14.50
92	I	Perylene-d12	1.000	1.000	0.0	142	0.00	16.63
100	t	7,12-Dimethylbenz(a)anthr	0.523	0.325	37.9#	79	-0.01	16.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:10 2015 MS3E

8.7.16

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3197
Lab FileID: 3E73675.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3198\3E73675.D          Vial: 14
Acq On    :  9 Jul 2015   8:35 pm                    Operator: ashleyn
Sample    : icv3197-50                               Inst    : MS3E
Misc      : op85299,e3e3198,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update  : Thu Jul 09 22:07:52 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	172	0.00	4.87
5	S	2-Fluorophenol	1.299	1.159	10.8	152	0.00	3.89
8	S	Phenol-d5	1.513	1.256	17.0	138	0.00	4.59
24	I	Naphthalene-d8	1.000	1.000	0.0	175	0.00	5.99
25	S	Nitrobenzene-d5	0.325	0.298	8.3	154	0.00	5.32
47	I	Acenaphthene-d10	1.000	1.000	0.0	183	0.00	8.11
51	S	2-Fluorobiphenyl	1.246	1.195	4.1	185	0.00	7.22
		----------	AvgRF	CCRF	% Dev	----------		
69	I	Phenanthrene-d10	1.000	1.000	0.0	194	0.00	10.31
73	S	2,4,6-Tribromophenol	0.125	0.094	24.8	148	0.00	9.25
83	I	Chrysene-d12	1.000	1.000	0.0	169	0.00	14.50
85	S	Terphenyl-d14	0.710	0.795	-12.0	196	0.00	12.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:13 2015 MS3E

8.7.17

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3198
Lab FileID: 3E73676A.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\E3E3198\3E73676a.D         Vial: 15
  Acq On    :  9 Jul 2015   9:00 pm                    Operator: ashleyn
  Sample    : icv3198-50                               Inst    : MS3E
  Misc      : op85299,e3e3198,                         Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
  Last Update  : Thu Jul 09 22:07:52 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 I	Chrysene-d12a	1.000	1.000	0.0	98	0.00	14.50
111 T	benzidine	0.615	1.029	-67.3#	136	0.00	12.46

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:16 2015 MS3E

8.7.18

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3197
Lab FileID: 3E73676.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3198\3E73676.D          Vial: 15
Acq On    :  9 Jul 2015   9:00 pm                    Operator: ashleyn
Sample    : icv3197-50                               Inst    : MS3E
Misc      : op85299,e3e3198,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
Last Update  : Thu Jul 09 22:07:52 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	146	0.00	14.50
89 t	3,3'-Dichlorobenzidine	0.404	0.518	-28.2	180	0.00	14.49

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:15 2015 MS3E

8.7.19

8

Initial Calibration Verification

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3198-ICV3198
Lab FileID: 3E73677.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\E3E3198\3E73677.D          Vial: 16
  Acq On    :  9 Jul 2015   9:26 pm                    Operator: ashleyn
  Sample    : icv3198-50                               Inst    : MS3E
  Misc      : op85299,e3e3198,                         Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuThu Jul 09 22:07:52 2015
  Last Update  : Thu Jul 09 22:07:52 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	96	0.00	5.99
113 T	Hydroquinone	0.282	0.332	-17.7	108	0.00	6.40

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73665a.D M3E3197.M Thu Jul 09 22:29:17 2015 MS3E

8.7.20

8

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3235-CC3197
Lab FileID: 3E74513.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E3235\3E74513.D Vial: 2
Acq On : 3 Aug 2015 12:07 pm Operator: ashleyn
Sample : cc3197-25 Inst : MS3E
Misc : op85970,e3e3235, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Jul 22 10:26:36 2015
Last Update : Wed Jul 22 10:26:36 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	118	-0.05	4.70
2	t	1,4-Dioxane	0.557	0.519	6.8	113	-0.07	2.26
3	t	Pyridine	1.416	1.237	12.6	104	-0.06	2.59
4	t	N-Nitrosodimethylamine	0.874	0.760	13.0	103	-0.05	2.56
5	S	2-Fluorophenol	1.299	1.187	8.6	108	-0.06	3.74
6	t	Indene	2.490	2.470	0.8	116	-0.05	4.90
7	t	Cumene	3.249	2.958	9.0	107	-0.05	4.11
8	S	Phenol-d5	1.513	1.469	2.9	114	-0.06	4.45
9	t	Phenol	1.677	1.584	5.5	109	-0.06	4.46
10		Aniline	1.951	1.488	23.7#	87	-0.05	4.46
11	t	bis(2-Chloroethyl)ether	1.342	1.140	15.1	101	-0.05	4.50
12	t	2-Chlorophenol	1.397	1.414	-1.2	117	-0.05	4.56
13	t	Decane	1.405	1.227	12.7	104	-0.05	4.58
14	t	1,3-Dichlorobenzene	1.600	1.571	1.8	118	-0.05	4.66
15	t	1,4-Dichlorobenzene	1.597	1.599	-0.1	119	-0.05	4.72
16	t	Benzyl alcohol	0.761	0.801	-5.3	119	-0.05	4.81
17	t	1,2-Dichlorobenzene	1.469	1.460	0.6	118	-0.05	4.83
18	t	Acetophenone	1.798	1.724	4.1	113	-0.05	5.02
19	t	2-Methylphenol	1.118	1.167	-4.4	116	-0.06	4.91
20	t	2,2'-oxybis(1-Chloropropa	0.535	0.505	5.6	114	-0.05	4.91
21	t	3&4-Methylphenol	1.166	1.273	-9.2	123	-0.06	5.04
22	t	n-Nitroso-di-n-propylamin	0.929	0.818	11.9	100	-0.05	5.02
23	t	Hexachloroethane	0.455	0.460	-1.1	119	-0.05	5.11
24	I	Naphthalene-d8	1.000	1.000	0.0	117	-0.06	5.80
25	S	Nitrobenzene-d5	0.325	0.294	9.5	109	-0.05	5.14
26	t	Nitrobenzene	0.345	0.299	13.3	102	-0.05	5.16
27	t	Quinoline	0.670	0.728	-8.7	125	-0.06	6.16
28	t	Isophorone	0.585	0.531	9.2	105	-0.05	5.36
29	t	2-Nitrophenol	0.188	0.208	-10.6	128	-0.05	5.44
30	t	2,4-Dimethylphenol	0.298	0.265	11.1	99	-0.06	5.48
31	t	Benzoic acid	0.223	0.248	-11.2	133	-0.07	5.59
32	t	bis(2-Chloroethoxy)methan	0.392	0.351	10.5	104	-0.06	5.55
33	t	2,4-Dichlorophenol	0.249	0.283	-13.7	130	-0.06	5.67
34	t	2,6-Dichlorophenol	0.247	0.282	-14.2	132	-0.06	5.88
35		1,3,5-Trichlorobenzene	0.317	0.311	1.9	119	-0.09	5.45
36	t	1,2,4-Trichlorobenzene	0.293	0.295	-0.7	121	-0.05	5.74
37		1,2,3-Trichlorobenzene	0.280	0.290	-3.6	124	-0.06	5.96
38	t	Naphthalene	1.010	1.038	-2.8	123	-0.06	5.82
39	t	4-Chloroaniline	0.400	0.420	-5.0	119	-0.06	5.87
40	t	2,3-Dichloroaniline	0.329	0.361	-9.7	130	-0.06	6.89
41	t	Caprolactam	0.128	0.127	0.8	112	-0.05	6.24

Continuing Calibration Summary

Job Number: JB99970A **Sample:** E3E3235-CC3197
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E74513.D
Project: MHIC AOI 5 Demo Characterization

42	t	Hexachlorobutadiene	0.148	0.136	8.1	109	-0.06	5.94
43	t	4-Chloro-3-methylphenol	0.260	0.271	-4.2	121	-0.07	6.41
44	t	2-Methylnaphthalene	0.550	0.584	-6.2	124	-0.06	6.55
45	t	1-Methylnaphthalene	0.605	0.643	-6.3	125	-0.06	6.67
46	t	Dimethylnaphthalene	0.605	0.651	-7.6	127	-0.06	7.32
47	I	Acenaphthene-d10	1.000	1.000	0.0	128	-0.07	7.87
48	t	Hexachlorocyclopentadiene	0.266	0.171	35.7#	76	-0.07	6.74
49	t	2,4,6-Trichlorophenol	0.300	0.312	-4.0	130	-0.06	6.90
50	t	2,4,5-Trichlorophenol	0.332	0.347	-4.5	127	-0.06	6.96
51	S	2-Fluorobiphenyl	1.246	1.178	5.5	126	-0.06	6.99
52	t	2-Chloronaphthalene	1.072	1.068	0.4	126	-0.06	7.14
53	t	Biphenyl	1.501	1.484	1.1	126	-0.06	7.12
54	t	2-Nitroaniline	0.285	0.250	12.3	109	-0.07	7.28
55	t	Dimethylphthalate	1.295	1.289	0.5	125	-0.06	7.52
56	t	Acenaphthylene	1.789	1.799	-0.6	130	-0.06	7.68
57	t	2,6-Dinitrotoluene	0.261	0.291	-11.5	133	-0.06	7.60
58	t	3-Nitroaniline	0.303	0.338	-11.6	130	-0.07	7.83
59	t	Acenaphthene	1.154	1.089	5.6	124	-0.07	7.91
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	55.321	-10.6	149	-0.06	7.99
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.142	0.122	14.1	118	-0.09	8.14
62	t	Dibenzofuran	1.439	1.480	-2.8	133	-0.07	8.16
63	t	2,4-Dinitrotoluene	0.351	0.387	-10.3	130	-0.06	8.17
64		2,3,4,6-Tetrachlorophenol	0.251	0.256	-2.0	126	-0.07	8.36
65	t	Diethylphthalate	1.289	1.271	1.4	123	-0.07	8.52
66	t	Fluorene	1.253	1.227	2.1	130	-0.07	8.65
67	t	4-Chlorophenyl-phenylethe	0.564	0.569	-0.9	130	-0.07	8.66
68	t	4-Nitroaniline	0.307	0.334	-8.8	125	-0.07	8.71
69	I	Phenanthrene-d10	1.000	1.000	0.0	128	-0.07	10.05
70	t	4,6-Dinitro-2-methylpheno	0.126	0.141	-11.9	139	-0.05	8.77
71	t	n-Nitrosodiphenylamine	0.600	0.631	-5.2	133	-0.07	8.85
72	t	1,2-Diphenylhydrazine	0.771	0.665	13.7	109	-0.07	8.89
73	S	2,4,6-Tribromophenol	0.125	0.109	12.8	113	-0.07	9.01
74	t	4-Bromophenyl-phenylether	0.222	0.215	3.2	123	-0.07	9.39
75	t	Hexachlorobenzene	0.238	0.216	9.2	118	-0.06	9.49
76	t	Pentachlorophenol	0.134	0.127	5.2	112	-0.07	9.80
77	t	Phenanthrene	1.164	1.108	4.8	132	-0.07	10.09
78	t	Anthracene	1.154	1.113	3.6	129	-0.07	10.17
79	t	Carbazole	1.106	1.112	-0.5	130	-0.07	10.44
80	t	Di-n-butylphthalate	1.432	1.448	-1.1	126	-0.07	11.05
81	t	Fluoranthene	1.160	1.085	6.5	126	-0.07	11.96
82	t	Octadecane	0.507	0.433	14.6	107	-0.07	9.99
83	I	Chrysene-d12	1.000	1.000	0.0	123	-0.06	14.25
84	t	Pyrene	1.235	1.196	3.2	127	-0.07	12.31
85	S	Terphenyl-d14	0.710	0.658	7.3	122	-0.07	12.61
86	t	Butylbenzylphthalate	0.638	0.663	-3.9	123	-0.07	13.43
87		Butyl stearate	0.323	0.310	4.0	112	0.09	13.60
88	t	Benzo[a]anthracene	1.140	1.062	6.8	125	-0.06	14.24
89	t	3,3'-Dichlorobenzidine	0.404	0.419	-3.7	126	-0.07	14.23
90	t	Chrysene	1.042	0.970	6.9	124	-0.06	14.29
91	t	bis(2-Ethylhexyl)phthalat	0.850	0.937	-10.2	130	-0.07	14.39
92	I	Perylene-d12	1.000	1.000	0.0	134	-0.05	16.38
93	t	Di-n-octylphthalate	1.463	1.571	-7.4	132	-0.07	15.38

Continuing Calibration Summary

Job Number: JB99970A
Sample: E3E3235-CC3197
Account: SECORPAE Stantec Consulting Services Inc.
Lab FileID: 3E74513.D
Project: MHIC AOI 5 Demo Characterization

94	t	Benzo[b]fluoranthene	1.196	1.186	0.8	135	-0.06	15.85
95	t	Benzo[k]fluoranthene	1.079	1.089	-0.9	135	-0.06	15.89
96	t	Benzo[a]pyrene	1.020	1.013	0.7	132	-0.06	16.30
97	t	Indeno[1,2,3-cd]pyrene	1.088	1.121	-3.0	142	-0.07	17.93
98	t	Dibenz(a,h)acridine	0.968	0.966	0.2	130	-0.13	17.57
99	t	Dibenz[a,h]anthracene	1.090	1.044	4.2	130	-0.08	17.96
100	t	7,12-Dimethylbenz(a)anthr	0.523	0.547	-4.6	128	-0.07	15.85
101	t	Benzo[g,h,i]perylene	1.025	1.047	-2.1	138	-0.07	18.38

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73816.D M3E3197.M Tue Aug 04 08:40:55 2015 MS3E

8.7.21

8

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3235-CC3198
Lab FileID: 3E74514.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E3235\3E74514.D Vial: 3
Acq On : 3 Aug 2015 12:33 pm Operator: ashleyn
Sample : cc3198-25 Inst : MS3E
Misc : op85970,e3e3235, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Jul 22 10:26:36 2015
Last Update : Wed Jul 22 10:26:36 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	97	-0.05	4.70
103	Benzaldehyde	1.035	0.930	10.1	86	-0.05	4.37
104	Acenaphthene-d10a	1.000	1.000	0.0	99	-0.07	7.87
105	1,2,4,5-Tetrachlorobenzen	0.450	0.396	12.0	89	-0.06	6.75
106	Phenanthrene-d10a	1.000	1.000	0.0	94	-0.07	10.05
107	Atrazine	0.095	0.103	-8.4	97	-0.07	9.69
108 I	Chrysene-d12a	1.000	1.000	0.0	93	-0.07	14.25
109 T	benzidine	0.615	0.682	-10.9	86	-0.07	12.21
110 I	Naphthalene-d8a	1.000	1.000	0.0	100	-0.06	5.79
111 T	Hydroquinone	0.282	0.288	-2.1	105	-0.09	6.24

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73816.D M3E3197.M Tue Aug 04 08:41:13 2015 MS3E

8.7.22

8

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3236-CC3197
Lab FileID: 3E74549.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E3236\3E74549.D Vial: 2
Acq On : 3 Aug 2015 9:10 pm Operator: saraw
Sample : cc3197-50 Inst : MS3E
Misc : op85970,e3e3236, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 10:30:39 2015
Last Update : Tue Aug 04 10:30:39 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	72	-0.05	4.70
2	t	1,4-Dioxane	0.557	0.635	-14.0	85	-0.08	2.25
3	t	Pyridine	1.416	1.633	-15.3	84	-0.07	2.58
4	t	N-Nitrosodimethylamine	0.874	1.030	-17.8	86	-0.06	2.54
5	S	2-Fluorophenol	1.299	1.258	3.2	69	-0.06	3.74
6	t	Indene	2.490	2.526	-1.4	74	-0.05	4.90
7	t	Cumene	3.249	3.336	-2.7	74	-0.05	4.10
8	S	Phenol-d5	1.513	1.692	-11.8	78	-0.06	4.45
9	t	Phenol	1.677	1.891	-12.8	79	-0.06	4.46
10		Aniline	1.951	1.738	10.9	62	-0.05	4.45
11	t	bis(2-Chloroethyl)ether	1.342	1.374	-2.4	73	-0.05	4.50
12	t	2-Chlorophenol	1.397	1.357	2.9	68	-0.05	4.56
13	t	Decane	1.405	1.797	-27.9#	92	-0.05	4.58
14	t	1,3-Dichlorobenzene	1.600	1.522	4.9	70	-0.05	4.66
15	t	1,4-Dichlorobenzene	1.597	1.562	2.2	72	-0.05	4.72
16	t	Benzyl alcohol	0.761	0.851	-11.8	75	-0.05	4.81
17	t	1,2-Dichlorobenzene	1.469	1.441	1.9	71	-0.05	4.83
18	t	Acetophenone	1.798	1.904	-5.9	77	-0.05	5.02
19	t	2-Methylphenol	1.118	1.230	-10.0	74	-0.06	4.91
20	t	2,2'-oxybis(1-Chloropropa	0.535	0.498	6.9	69	-0.05	4.91
21	t	3&4-Methylphenol	1.166	1.331	-14.2	77	-0.06	5.04
22	t	n-Nitroso-di-n-propylamin	0.929	1.115	-20.0#	86	-0.05	5.02
23	t	Hexachloroethane	0.455	0.529	-16.3	85	-0.05	5.11
24	I	Naphthalene-d8	1.000	1.000	0.0	68	-0.06	5.80
25	S	Nitrobenzene-d5	0.325	0.396	-21.8#	80	-0.05	5.14
26	t	Nitrobenzene	0.345	0.434	-25.8#	83	-0.05	5.16
27	t	Quinoline	0.670	0.718	-7.2	71	-0.06	6.16
28	t	Isophorone	0.585	0.711	-21.5#	79	-0.05	5.36
29	t	2-Nitrophenol	0.188	0.215	-14.4	73	-0.05	5.44
30	t	2,4-Dimethylphenol	0.298	0.322	-8.1	68	-0.06	5.49
31	t	Benzoic acid	0.223	0.306	-37.2#	84	-0.04	5.62
32	t	bis(2-Chloroethoxy)methan	0.392	0.448	-14.3	76	-0.06	5.55
33	t	2,4-Dichlorophenol	0.249	0.308	-23.7#	80	-0.06	5.67
34	t	2,6-Dichlorophenol	0.247	0.299	-21.1#	80	-0.06	5.89
35		1,3,5-Trichlorobenzene	0.317	0.359	-13.2	78	-0.09	5.45
36	t	1,2,4-Trichlorobenzene	0.293	0.339	-15.7	81	-0.05	5.74
37		1,2,3-Trichlorobenzene	0.280	0.326	-16.4	82	-0.05	5.97
38	t	Naphthalene	1.010	1.049	-3.9	72	-0.06	5.82
39	t	4-Chloroaniline	0.400	0.407	-1.7	65	-0.06	5.87
40	t	2,3-Dichloroaniline	0.329	0.370	-12.5	76	-0.06	6.89
41	t	Caprolactam	0.128	0.194	-51.6#	96	-0.03	6.26

Continuing Calibration Summary

Job Number: JB99970A **Sample:** E3E3236-CC3197
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E74549.D
Project: MHIC AOI 5 Demo Characterization

42	t	Hexachlorobutadiene	0.148	0.188	-27.0#	90	-0.06	5.94
43	t	4-Chloro-3-methylphenol	0.260	0.300	-15.4	75	-0.06	6.42
44	t	2-Methylnaphthalene	0.550	0.595	-8.2	73	-0.06	6.56
45	t	1-Methylnaphthalene	0.605	0.653	-7.9	74	-0.06	6.67
46	t	Dimethylnaphthalene	0.605	0.658	-8.8	75	-0.06	7.33
47	I	Acenaphthene-d10	1.000	1.000	0.0	77	-0.06	7.88
48	t	Hexachlorocyclopentadiene	0.266	0.283	-6.4	74	-0.07	6.74
49	t	2,4,6-Trichlorophenol	0.300	0.368	-22.7#	92	-0.06	6.91
50	t	2,4,5-Trichlorophenol	0.332	0.395	-19.0	86	-0.05	6.97
51	S	2-Fluorobiphenyl	1.246	1.235	0.9	80	-0.06	6.99
52	t	2-Chloronaphthalene	1.072	1.088	-1.5	78	-0.06	7.14
53	t	Biphenyl	1.501	1.488	0.9	76	-0.06	7.12
54	t	2-Nitroaniline	0.285	0.370	-29.8#	89	-0.06	7.28
55	t	Dimethylphthalate	1.295	1.317	-1.7	77	-0.06	7.52
56	t	Acenaphthylene	1.789	1.727	3.5	74	-0.06	7.68
57	t	2,6-Dinitrotoluene	0.261	0.295	-13.0	79	-0.06	7.60
58	t	3-Nitroaniline	0.303	0.311	-2.6	71	-0.06	7.84
59	t	Acenaphthene	1.154	1.106	4.2	76	-0.06	7.93
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	134.597	-34.6#	107	-0.04	8.01
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.142	0.150	-5.6	75	-0.06	8.16
62	t	Dibenzofuran	1.439	1.504	-4.5	81	-0.06	8.17
63	t	2,4-Dinitrotoluene	0.351	0.393	-12.0	79	-0.05	8.18
64		2,3,4,6-Tetrachlorophenol	0.251	0.331	-31.9#	94	-0.06	8.37
65	t	Diethylphthalate	1.289	1.245	3.4	72	-0.06	8.52
66	t	Fluorene	1.253	1.240	1.0	78	-0.06	8.66
67	t	4-Chlorophenyl-phenylethe	0.564	0.685	-21.5#	96	-0.06	8.67
68	t	4-Nitroaniline	0.307	0.312	-1.6	69	-0.06	8.72
69	I	Phenanthrene-d10	1.000	1.000	0.0	85	-0.06	10.06
70	t	4,6-Dinitro-2-methylpheno	0.126	0.167	-32.5#	102	-0.04	8.78
71	t	n-Nitrosodiphenylamine	0.600	0.589	1.8	81	-0.06	8.85
72	t	1,2-Diphenylhydrazine	0.771	0.824	-6.9	85	-0.06	8.90
73	S	2,4,6-Tribromophenol	0.125	0.129	-3.2	89	-0.06	9.02
74	t	4-Bromophenyl-phenylether	0.222	0.254	-14.4	96	-0.06	9.40
75	t	Hexachlorobenzene	0.238	0.251	-5.5	91	-0.05	9.50
76	t	Pentachlorophenol	0.134	0.158	-17.9	90	-0.05	9.82
77	t	Phenanthrene	1.164	1.069	8.2	82	-0.06	10.10
78	t	Anthracene	1.154	1.081	6.3	82	-0.06	10.18
79	t	Carbazole	1.106	1.039	6.1	79	-0.06	10.46
80	t	Di-n-butylphthalate	1.432	1.307	8.7	71	-0.06	11.06
81	t	Fluoranthene	1.160	1.232	-6.2	92	-0.05	11.97
82	t	Octadecane	0.507	0.579	-14.2	91	-0.06	10.00
83	I	Chrysene-d12	1.000	1.000	0.0	107	-0.05	14.27
84	t	Pyrene	1.235	1.023	17.2	92	-0.05	12.32
85	S	Terphenyl-d14	0.710	0.612	13.8	95	-0.06	12.62
86	t	Butylbenzylphthalate	0.638	0.529	17.1	81	-0.06	13.45
87		Butyl stearate	0.323	0.349	-8.0	101	0.10	13.61
88	t	Benzo[a]anthracene	1.140	1.107	2.9	111	-0.04	14.26
89	t	3,3'-Dichlorobenzidine	0.404	0.435	-7.7	111	-0.06	14.25
90	t	Chrysene	1.042	0.987	5.3	109	-0.04	14.31
91	t	bis(2-Ethylhexyl)phthalat	0.850	0.732	13.9	84	-0.06	14.40
92	I	Perylene-d12	1.000	1.000	0.0	102	-0.04	16.40
93	t	Di-n-octylphthalate	1.463	1.447	1.1	84	-0.06	15.39

Continuing Calibration Summary

Job Number: JB99970A
Sample: E3E3236-CC3197
Account: SECORPAE Stantec Consulting Services Inc.
Lab FileID: 3E74549.D
Project: MHIC AOI 5 Demo Characterization

94	t	Benzo[b]fluoranthene	1.196	1.317	-10.1	110	-0.03	15.88
95	t	Benzo[k]fluoranthene	1.079	1.123	-4.1	104	-0.04	15.92
96	t	Benzo[a]pyrene	1.020	1.068	-4.7	103	-0.03	16.32
97	t	Indeno[1,2,3-cd]pyrene	1.088	1.263	-16.1	111	-0.03	17.98
98	t	Dibenz(a,h)acridine	0.968	0.958	1.0	93	-0.10	17.60
99	t	Dibenz[a,h]anthracene	1.090	1.011	7.2	92	-0.04	18.00
100	t	7,12-Dimethylbenz(a)anthr	0.523	0.627	-19.9	108	-0.05	15.87
101	t	Benzo[g,h,i]perylene	1.025	0.993	3.1	95	-0.03	18.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73970.D M3E3197.M Tue Aug 04 10:32:22 2015 MS3E

8.7.23

8

Continuing Calibration Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: E3E3236-CC3198
Lab FileID: 3E74550.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E3236\3E74550.D          Vial: 3
Acq On    :  3 Aug 2015   9:39 pm                    Operator: saraw
Sample    : cc3198-50                                Inst    : MS3E
Misc      : op85970,e3e3236,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E3197.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 10:30:39 2015
Last Update  : Tue Aug 04 10:30:39 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	52	-0.05	4.70
103		Benzaldehyde	1.035	0.911	12.0	45#	-0.05	4.37
104		Acenaphthene-d10a	1.000	1.000	0.0	54	-0.07	7.87
105		1,2,4,5-Tetrachlorobenzen	0.450	0.502	-11.6	60	-0.06	6.76
106		Phenanthrene-d10a	1.000	1.000	0.0	58	-0.06	10.06
107		Atrazine	0.095	0.116	-22.1#	66	-0.06	9.70
108	I	Chrysene-d12a	1.000	1.000	0.0	78	-0.06	14.26
109	T	benzidine	0.615	0.380	38.2#	40#	-0.06	12.22
110	I	Naphthalene-d8a	1.000	1.000	0.0	51	-0.06	5.79
111	T	Hydroquinone	0.282	0.306	-8.5	53	-0.08	6.25

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E73970.D M3E3197.M Tue Aug 04 10:33:50 2015 MS3E

8.7.24

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51024.D
Acq On : 29 Jul 2015 11:57 pm
Operator : ashleyd
Sample : jb99970-4
Misc : op85890,e2p2191,31.6
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 30 16:59:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

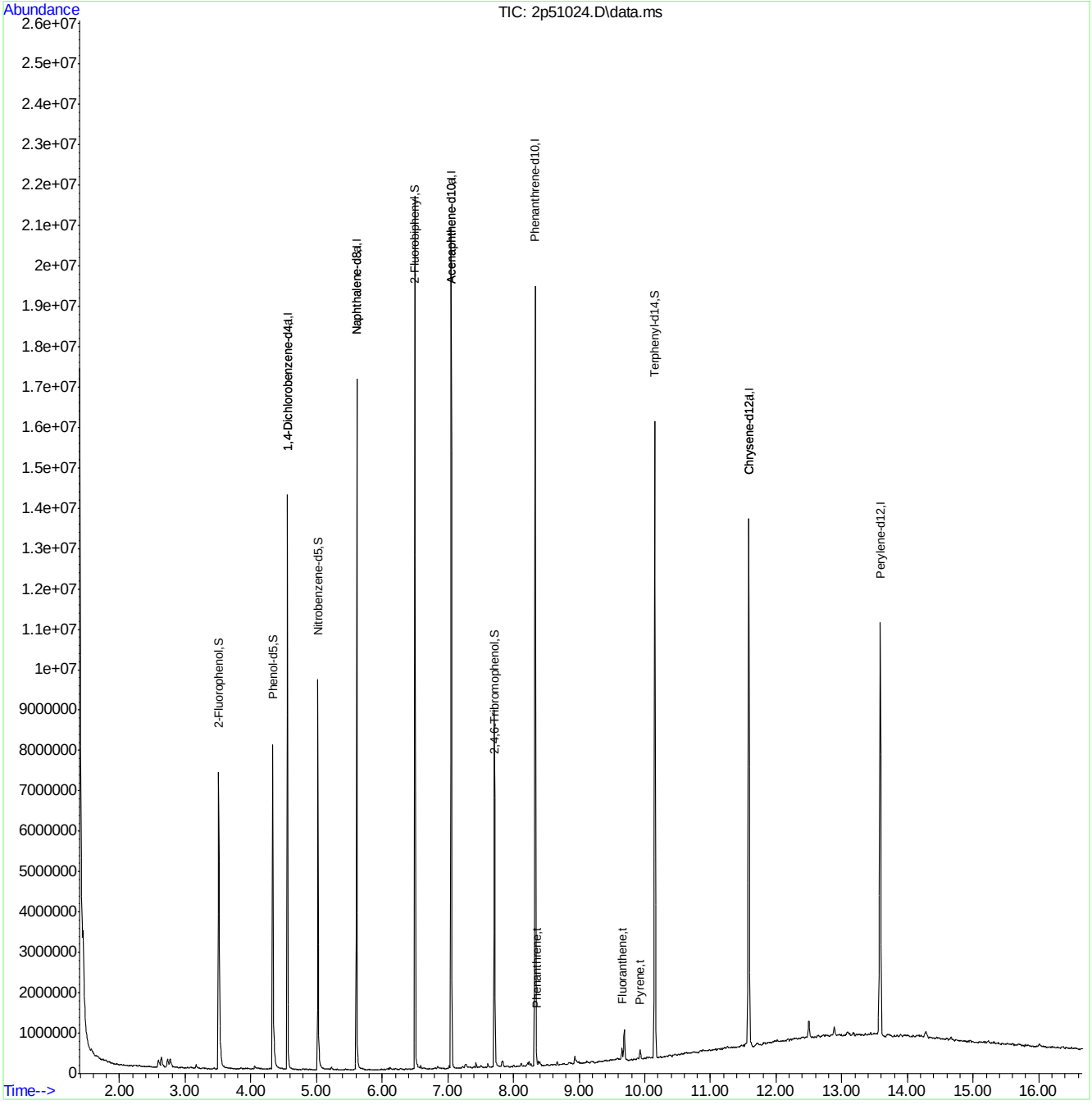
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.559	152	1707426	40.00	ppm	0.00
24) Naphthalene-d8	5.612	136	5874012	40.00	ppm	0.00
47) Acenaphthene-d10	7.051	164	3602815	40.00	ppm	0.00
69) Phenanthrene-d10	8.329	188	6265918	40.00	ppm	0.00
83) Chrysene-d12	11.587	240	5892721	40.00	ppm	0.00
92) Perylene-d12	13.587	264	4840622	40.00	ppm	0.02
102) 1,4-Dichlorobenzene-d4a	4.559	152	1707426	40.00	ppm	0.00
104) Naphthalene-d8a	5.612	136	5874012	40.00	ppm	# 0.00
106) Acenaphthene-d10a	7.051	164	3602815	40.00	ppm	0.00
109) Chrysene-d12a	11.587	240	5892721	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.510	112	1844829	30.26	ppm	-0.01
Spiked Amount 50.000	Range 11 - 58		Recovery = 60.52%#			
8) Phenol-d5	4.334	99	2216494	31.64	ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 63.28%#			
25) Nitrobenzene-d5	5.024	82	2264930	44.34	ppm	0.00
Spiked Amount 50.000	Range 19 - 61		Recovery = 88.68%#			
51) 2-Fluorobiphenyl	6.500	172	5020587	47.01	ppm	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 94.02%#			
73) 2,4,6-Tribromophenol	7.714	330	779280	49.79	ppm	0.00
Spiked Amount 50.000	Range 12 - 68		Recovery = 99.58%#			
85) Terphenyl-d14	10.153	244	5544855	50.10	ppm	0.01
Spiked Amount 50.000	Range 16 - 65		Recovery = 100.20%#			
Target Compounds						Qvalue
77) Phenanthrene	8.351	178	78584	0.47	ppm	98
81) Fluoranthene	9.651	202	131436	0.67	ppm	94
84) Pyrene	9.929	202	105144	0.53	ppm	94

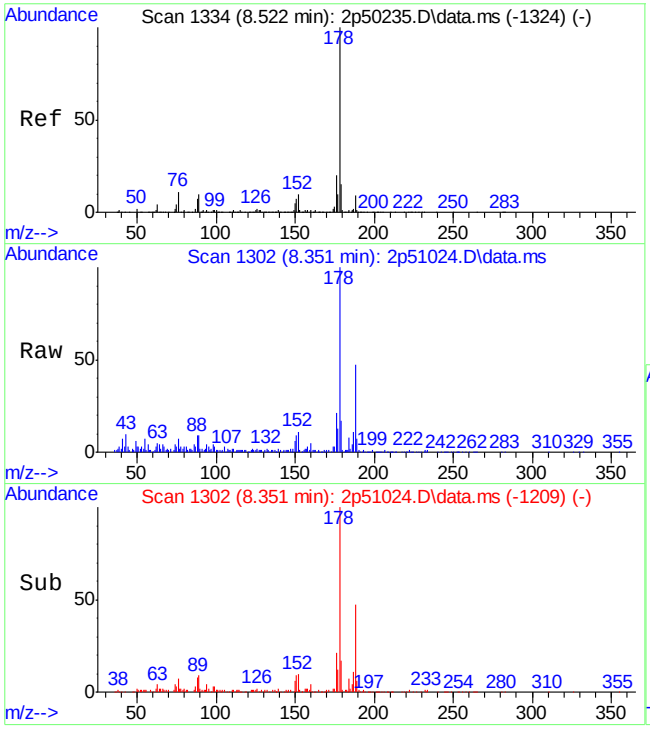
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51024.D
Acq On : 29 Jul 2015 11:57 pm
Operator : ashleyd
Sample : jb99970-4
Misc : op85890,e2p2191,31.6
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 30 16:59:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

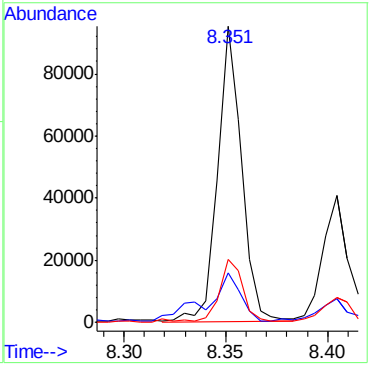


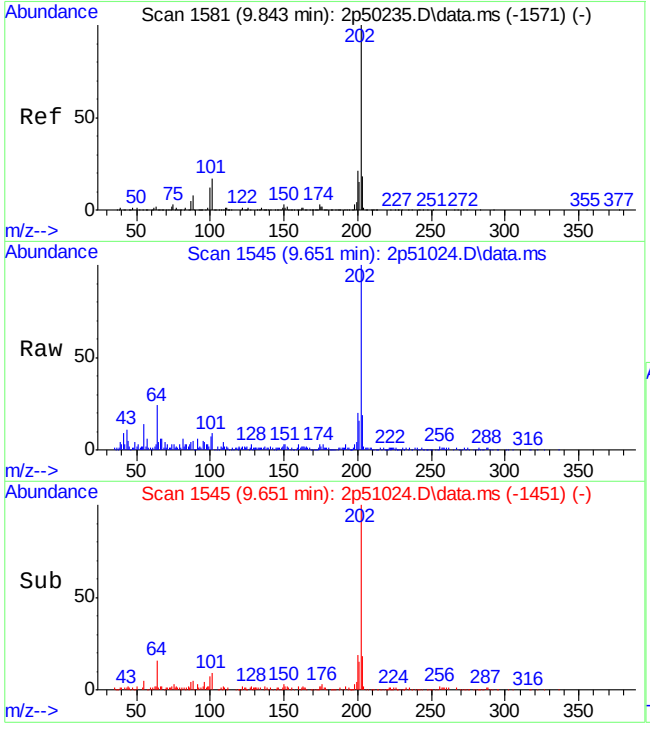


#77
Phenanthrene
Concen: 0.47 ppm
RT: 8.351 min Scan# 1302
Delta R.T. 0.000 min
Lab File: 2p51024.D
Acq: 29 Jul 2015 11:57 pm

Tgt Ion:178 Resp: 78584

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.7
176	20.5	0.0	45.4

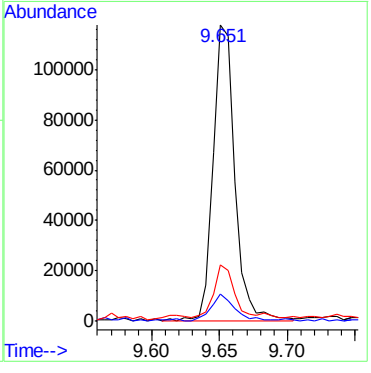


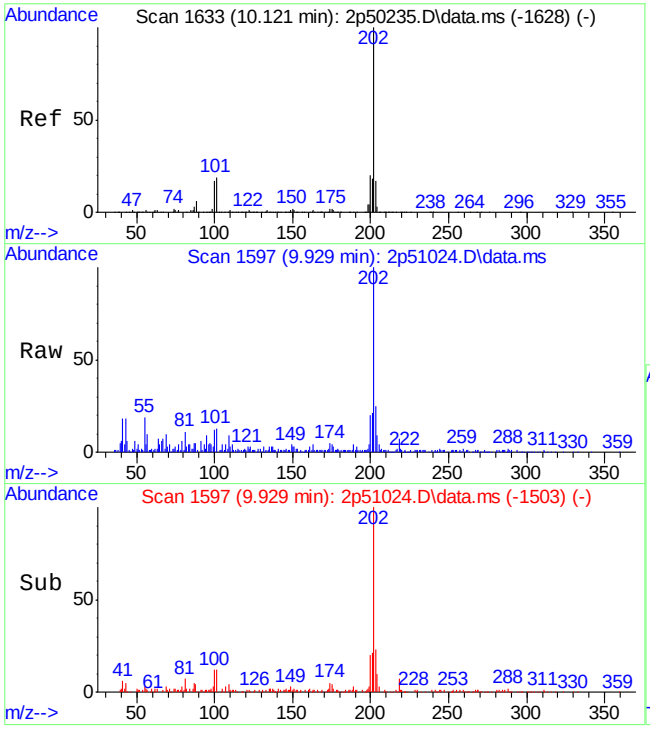


#81
Fluoranthene
Concen: 0.67 ppm
RT: 9.651 min Scan# 1545
Delta R.T. 0.005 min
Lab File: 2p51024.D
Acq: 29 Jul 2015 11:57 pm

Tgt Ion:202 Resp: 131436

Ion	Ratio	Lower	Upper
202	100		
101	8.7	0.0	43.7
203	17.8	0.0	47.9

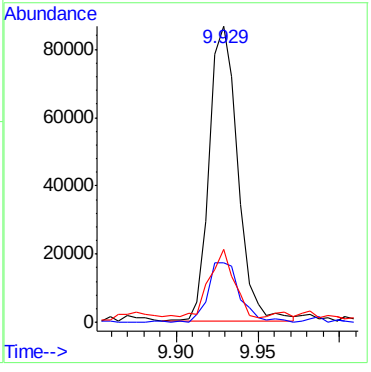




#84
Pyrene
Concen: 0.53 ppm
RT: 9.929 min Scan# 1597
Delta R.T. 0.005 min
Lab File: 2p51024.D
Acq: 29 Jul 2015 11:57 pm

Tgt Ion:202 Resp: 105144

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.6
203	23.0	0.0	48.4



9.1.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51015.D
Acq On : 29 Jul 2015 8:45 pm
Operator : ashleyd
Sample : jb99970-5
Misc : op85890,e2p2191,31.1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 30 15:57:36 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.559	152	1436062	40.00 ppm	0.00
24) Naphthalene-d8	5.612	136	5056700	40.00 ppm	0.00
47) Acenaphthene-d10	7.051	164	3167139	40.00 ppm	0.00
69) Phenanthrene-d10	8.329	188	5943714	40.00 ppm	0.00
83) Chrysene-d12	11.587	240	6663023	40.00 ppm	0.00
92) Perylene-d12	13.587	264	5655160	40.00 ppm	0.02
102) 1,4-Dichlorobenzene-d4a	4.559	152	1436062	40.00 ppm	0.00
104) Naphthalene-d8a	5.612	136	5056700	40.00 ppm	# 0.00
106) Acenaphthene-d10a	7.051	164	3167139	40.00 ppm	0.00
109) Chrysene-d12a	11.587	240	6664909	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.510	112	1347631	26.28 ppm	-0.01
Spiked Amount 50.000	Range 11 - 58		Recovery = 52.56%		
8) Phenol-d5	4.334	99	1669454	28.33 ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 56.66%		
25) Nitrobenzene-d5	5.024	82	1710184	38.89 ppm	0.00
Spiked Amount 50.000	Range 19 - 61		Recovery = 77.78%#		
51) 2-Fluorobiphenyl	6.500	172	3914729	41.69 ppm	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 83.38%#		
73) 2,4,6-Tribromophenol	7.714	330	662309	44.61 ppm	0.00
Spiked Amount 50.000	Range 12 - 68		Recovery = 89.22%#		
85) Terphenyl-d14	10.153	244	5577654	44.57 ppm	0.01
Spiked Amount 50.000	Range 16 - 65		Recovery = 89.14%#		
Target Compounds					Qvalue

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

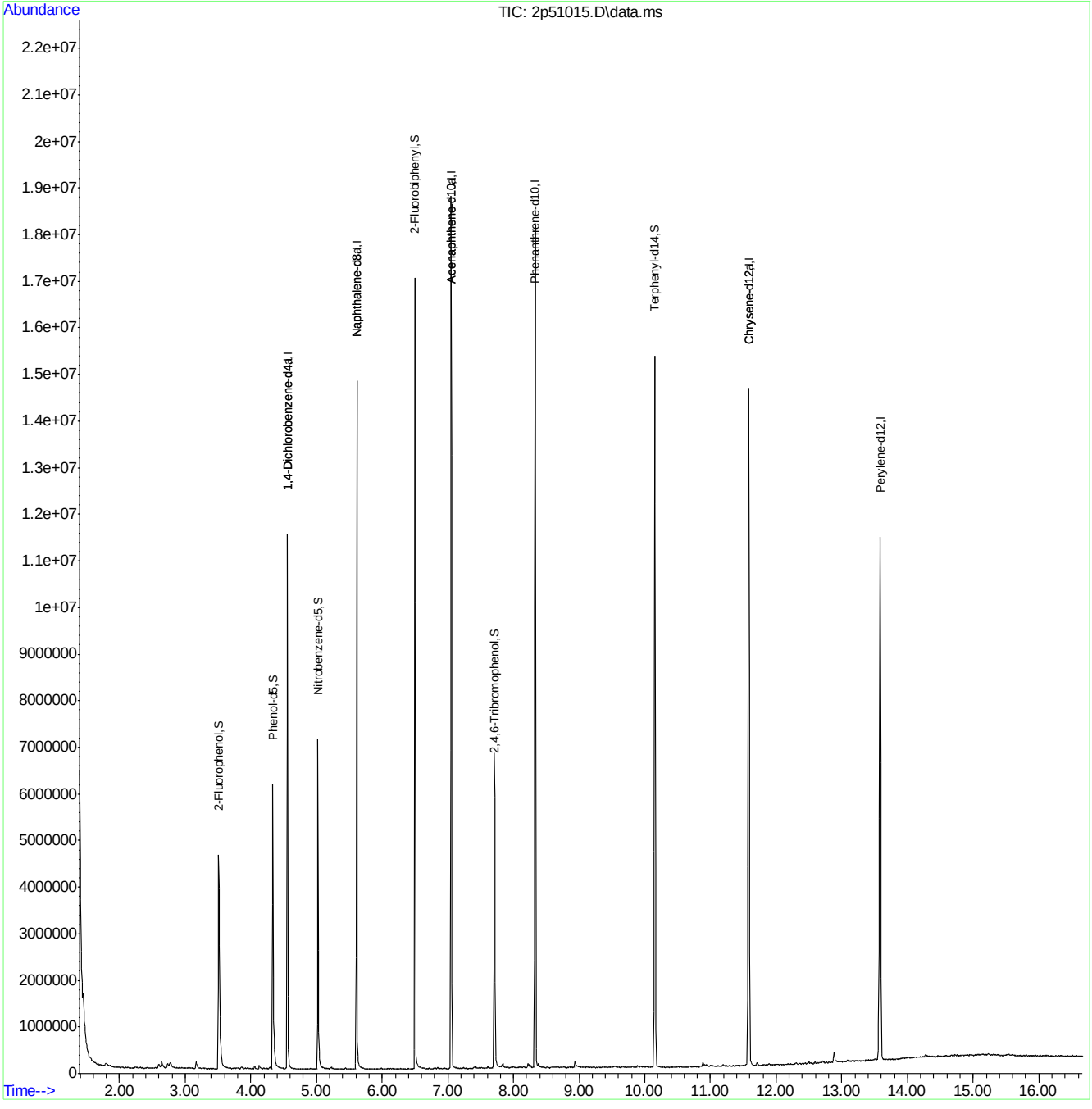
9.1.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51015.D
Acq On : 29 Jul 2015 8:45 pm
Operator : ashleyd
Sample : jb99970-5
Misc : op85890,e2p2191,31.1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 30 15:57:36 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51025.D
Acq On : 30 Jul 2015 12:18 am
Operator : ashleyd
Sample : jb99970-6
Misc : op85890,e2p2191,31.6,,,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 30 17:21:43 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

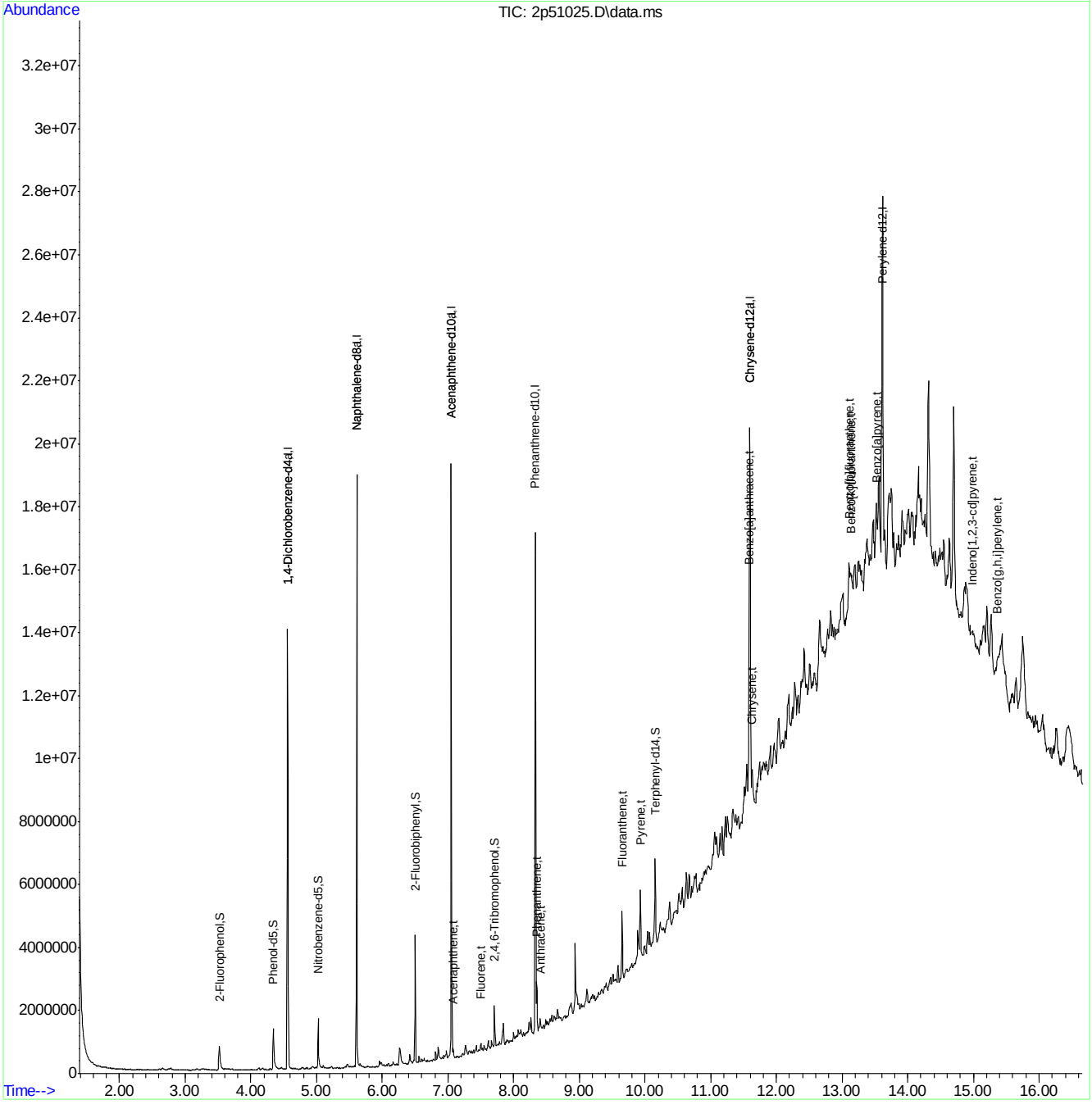
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.559	152	1742849	40.00	ppm	0.00
24) Naphthalene-d8	5.612	136	5762909	40.00	ppm	0.00
47) Acenaphthene-d10	7.051	164	3379189	40.00	ppm	0.00
69) Phenanthrene-d10	8.329	188	5537717	40.00	ppm	0.00
83) Chrysene-d12	11.597	240	5045728	40.00	ppm	0.02
92) Perylene-d12	13.614	264	4938733	40.00	ppm	0.04
102) 1,4-Dichlorobenzene-d4a	4.559	152	1742849	40.00	ppm	0.00
104) Naphthalene-d8a	5.612	136	5762909	40.00	ppm	# 0.00
106) Acenaphthene-d10a	7.051	164	3379189	40.00	ppm	0.00
109) Chrysene-d12a	11.597	240	5045728	40.00	ppm	0.02
System Monitoring Compounds						
5) 2-Fluorophenol	3.521	112	274828	4.42	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery	=	8.84%#	
8) Phenol-d5	4.339	99	380718	5.32	ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery	=	10.64%	
25) Nitrobenzene-d5	5.024	82	383184	7.65	ppm	0.00
Spiked Amount 50.000	Range 19 - 61		Recovery	=	15.30%#	
51) 2-Fluorobiphenyl	6.500	172	897737	8.96	ppm	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery	=	17.92%#	
73) 2,4,6-Tribromophenol	7.714	330	126666	9.16	ppm	0.00
Spiked Amount 50.000	Range 12 - 68		Recovery	=	18.32%	
85) Terphenyl-d14	10.153	244	847439	8.94	ppm	0.01
Spiked Amount 50.000	Range 16 - 65		Recovery	=	17.88%	
Target Compounds						Qvalue
59) Acenaphthene	7.078	153	37869	0.43	ppm	96
66) Fluorene	7.500	166	43684	0.42	ppm	96
77) Phenanthrene	8.351	178	552471	3.78	ppm	99
78) Anthracene	8.404	178	165518	1.10	ppm	95
81) Fluoranthene	9.656	202	994150	5.74	ppm	94
84) Pyrene	9.929	202	930980	5.48	ppm	94
88) Benzo[a]anthracene	11.587	228	510837	3.31	ppm	94
90) Chrysene	11.630	228	573925	4.52	ppm	92
94) Benzo[b]fluoranthene	13.106	252	519392	3.44	ppm	86
95) Benzo[k]fluoranthene	13.138	252	157436	1.24	ppm	85
96) Benzo[a]pyrene	13.534	252	452524	3.49	ppm	90
97) Indeno[1,2,3-cd]pyrene	14.988	276	176182	1.47	ppm	72
101) Benzo[g,h,i]perylene	15.363	276	199776	1.67	ppm	83

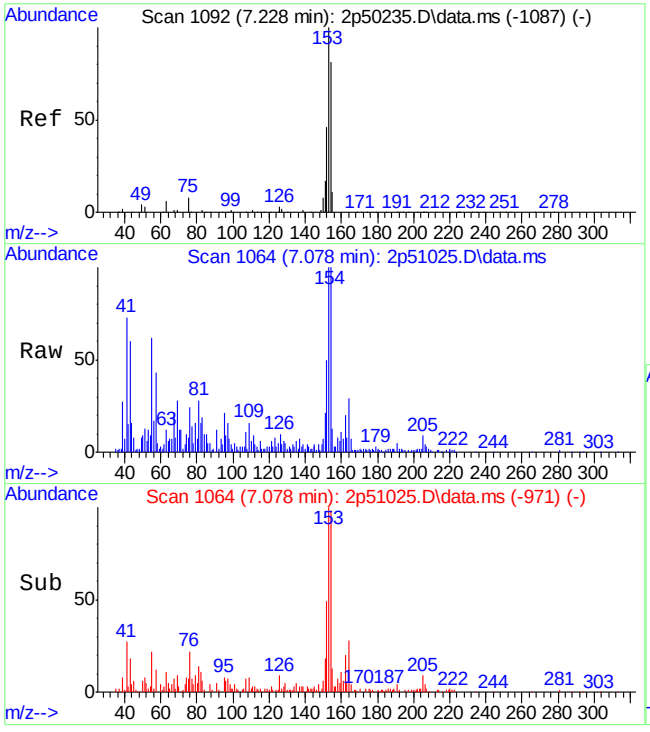
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51025.D
Acq On : 30 Jul 2015 12:18 am
Operator : ashleyd
Sample : jb99970-6
Misc : op85890,e2p2191,31.6,,,5,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 30 17:21:43 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

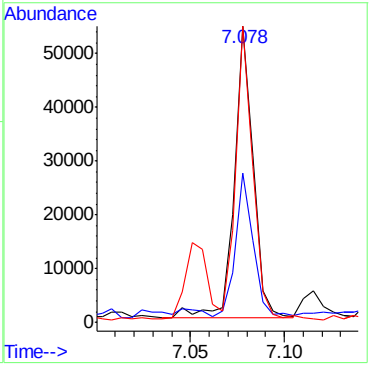


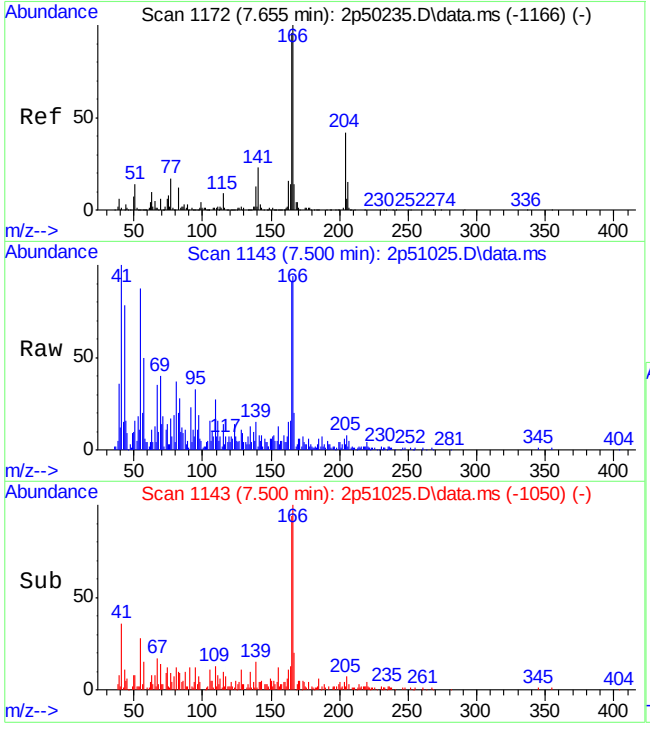


#59
Acenaphthene
Concen: 0.43 ppm
RT: 7.078 min Scan# 1064
Delta R.T. 0.000 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:153 Resp: 37869

Ion	Ratio	Lower	Upper
153	100		
152	48.4	17.7	77.7
154	100.1	64.6	124.6

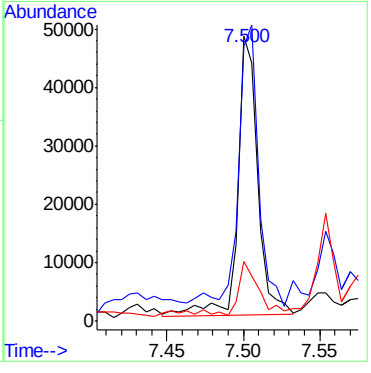


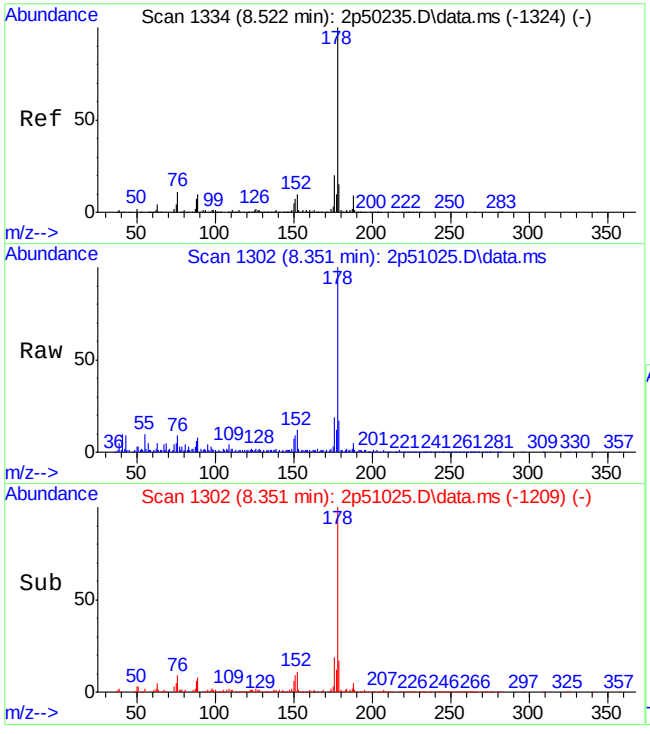


#66
Fluorene
Concen: 0.42 ppm
RT: 7.500 min Scan# 1143
Delta R.T. 0.000 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:166 Resp: 43684

Ion	Ratio	Lower	Upper
166	100		
165	87.0	60.0	120.0
167	17.9	0.0	43.8

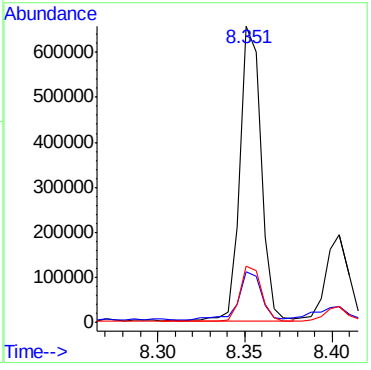


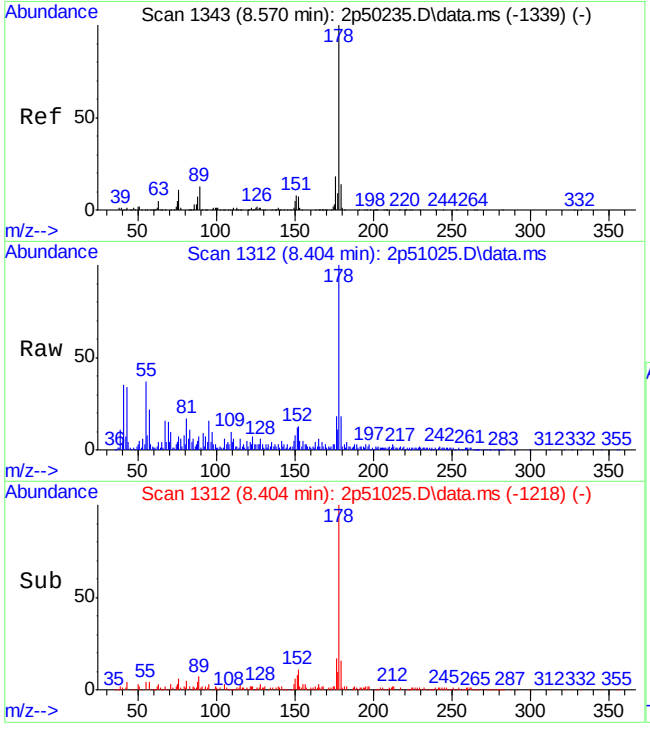


#77
Phenanthrene
Concen: 3.78 ppm
RT: 8.351 min Scan# 1302
Delta R.T. 0.000 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:178 Resp: 552471

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	45.7
176	18.7	0.0	49.4

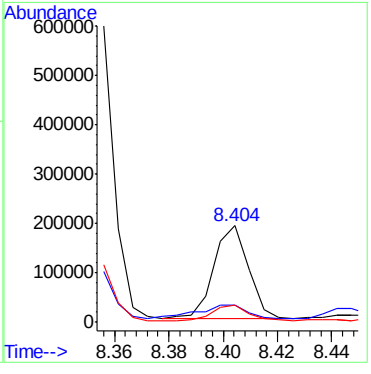


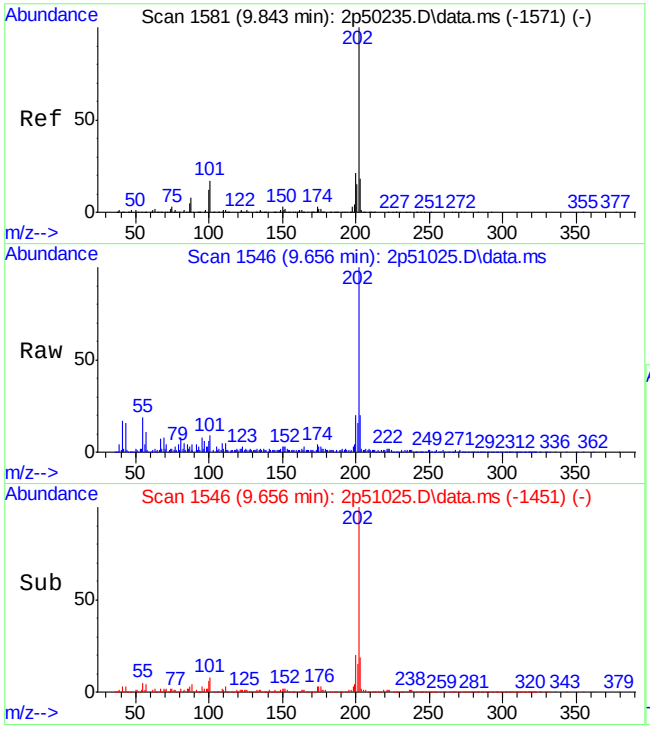


#78
Anthracene
Concen: 1.10 ppm
RT: 8.404 min Scan# 1312
Delta R.T. 0.005 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:178 Resp: 165518

Ion	Ratio	Lower	Upper
178	100		
179	13.9	0.0	46.0
176	16.7	0.0	49.0

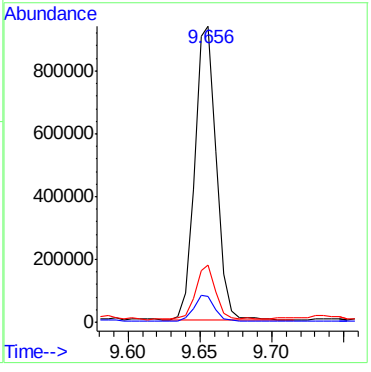


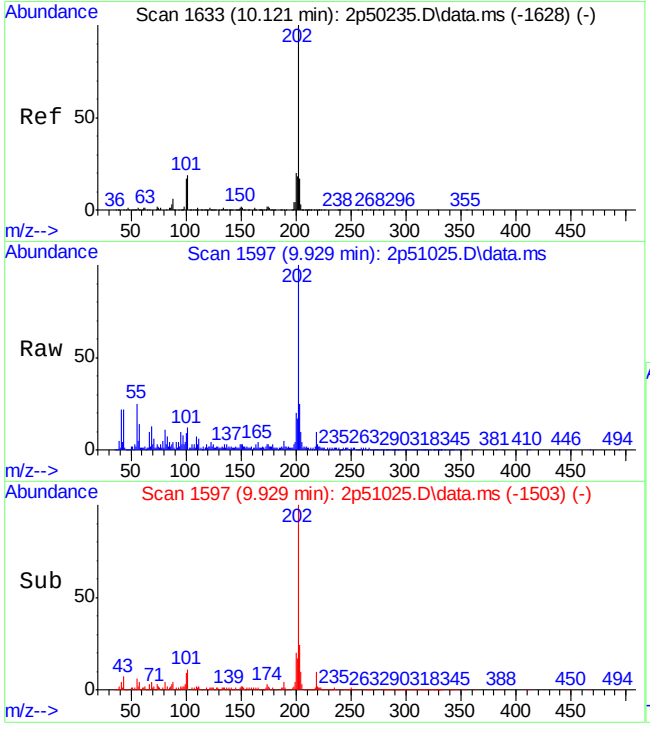


#81
Fluoranthene
Concen: 5.74 ppm
RT: 9.656 min Scan# 1546
Delta R.T. 0.011 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:202 Resp: 994150

Ion	Ratio	Lower	Upper
202	100		
101	8.4	0.0	43.7
203	18.3	0.0	47.9

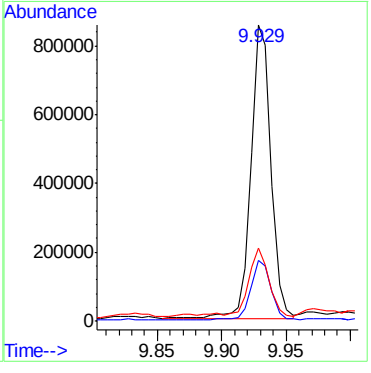


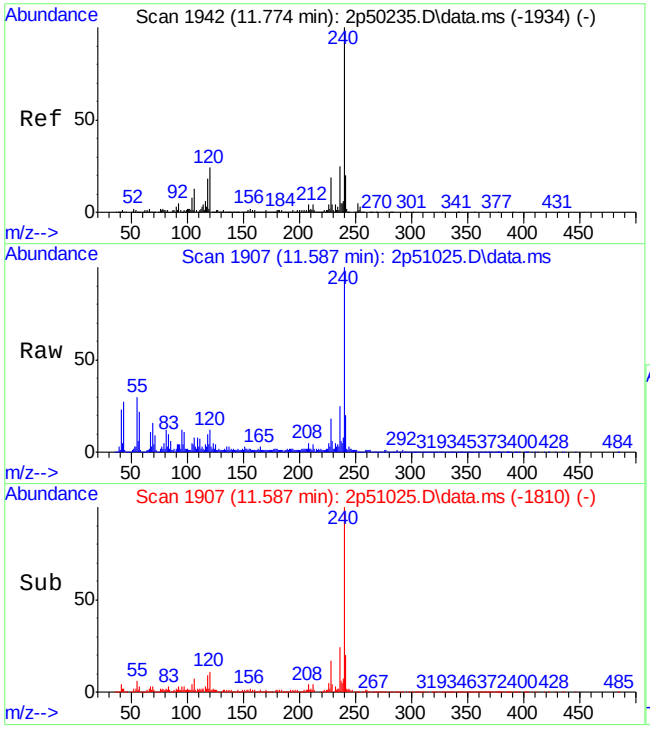


#84
Pyrene
Concen: 5.48 ppm
RT: 9.929 min Scan# 1597
Delta R.T. 0.005 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:202 Resp: 930980

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.6
203	23.5	0.0	48.4

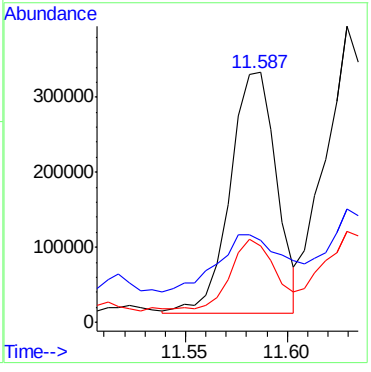


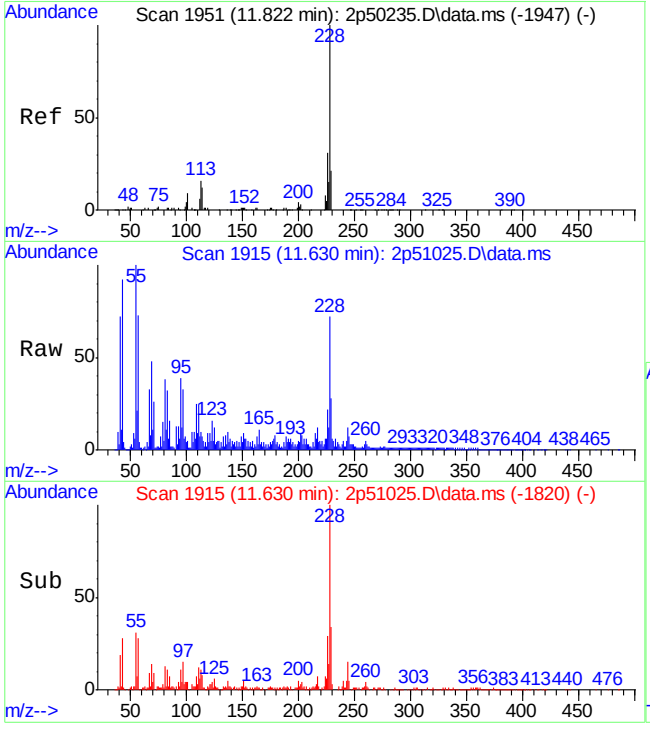


#88
Benzo[a]anthracene
Concen: 3.31 ppm
RT: 11.587 min Scan# 1907
Delta R.T. 0.021 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:228 Resp: 510837

Ion	Ratio	Lower	Upper
228	100		
229	16.5	0.0	49.6
226	25.0	0.0	57.6

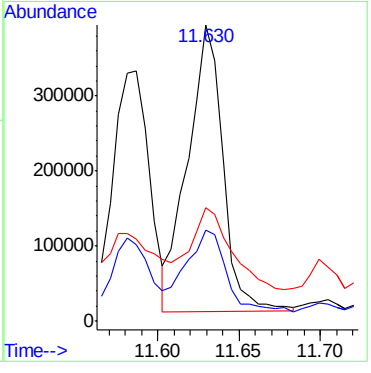


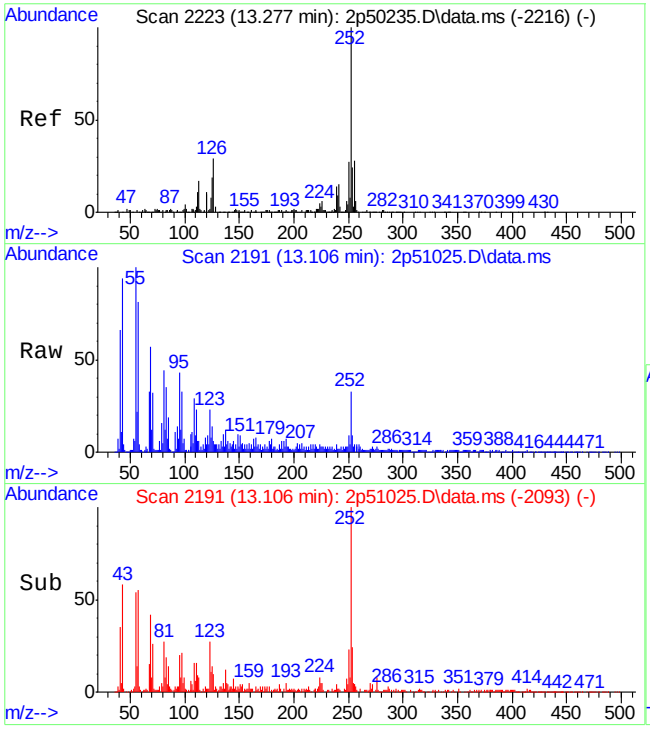


#90
Chrysene
Concen: 4.52 ppm
RT: 11.630 min Scan# 1915
Delta R.T. 0.011 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:228 Resp: 573925

Ion	Ratio	Lower	Upper
228	100		
226	27.2	0.0	59.9
229	25.5	0.0	50.0

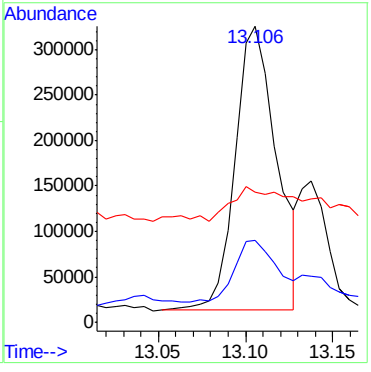


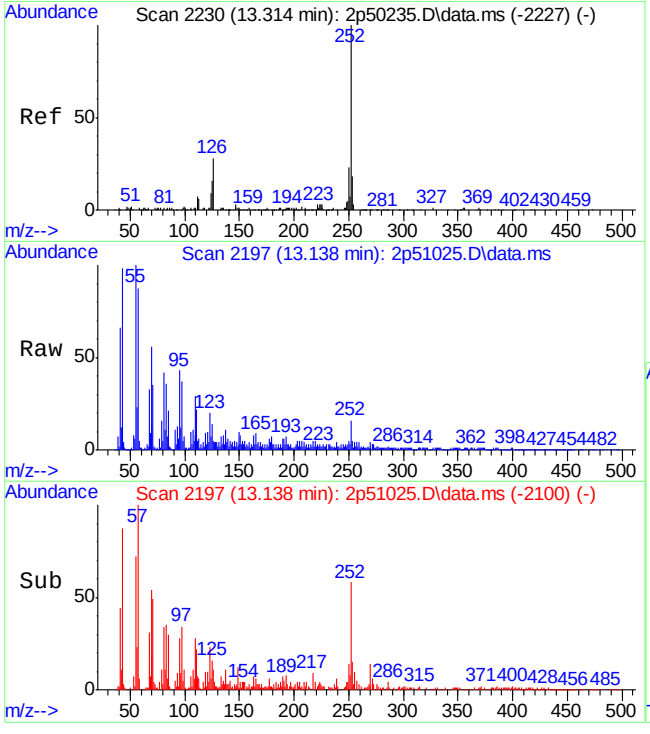


#94
Benzo[b]fluoranthene
Concen: 3.44 ppm
RT: 13.106 min Scan# 2191
Delta R.T. 0.027 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:252 Resp: 519392

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	54.6
125	6.2	0.0	47.6

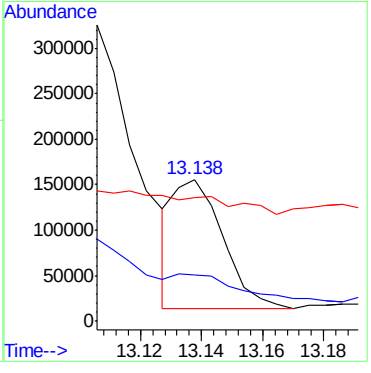




#95
Benzo[k]fluoranthene
Concen: 1.24 ppm
RT: 13.138 min Scan# 2197
Delta R.T. 0.021 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

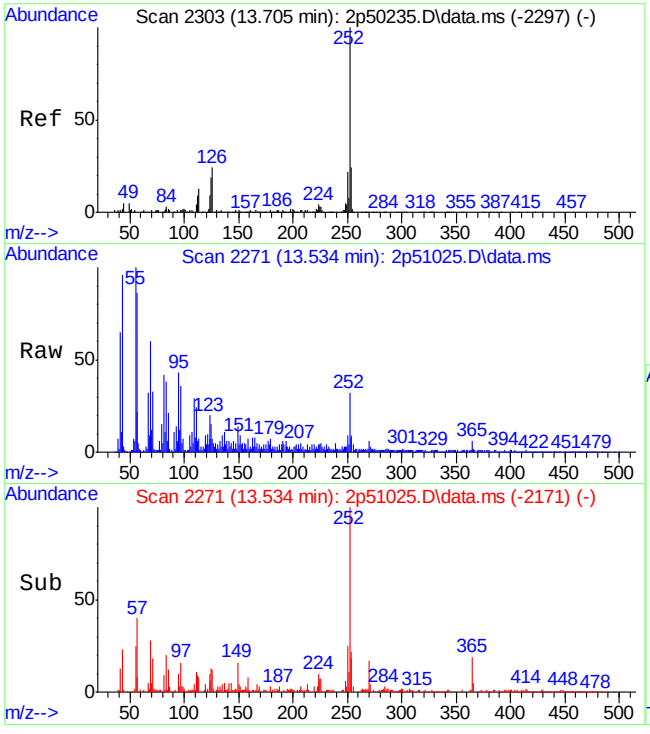
Tgt Ion:252 Resp: 157436

Ion	Ratio	Lower	Upper
252	100		
253	18.2	0.0	51.9
125	4.8	0.0	45.8



9.1.3

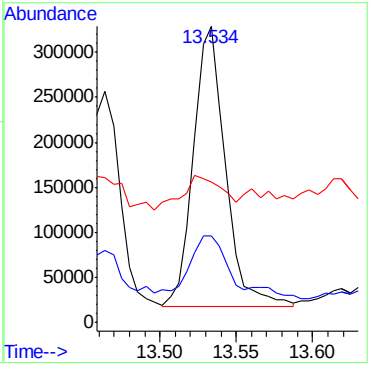
9

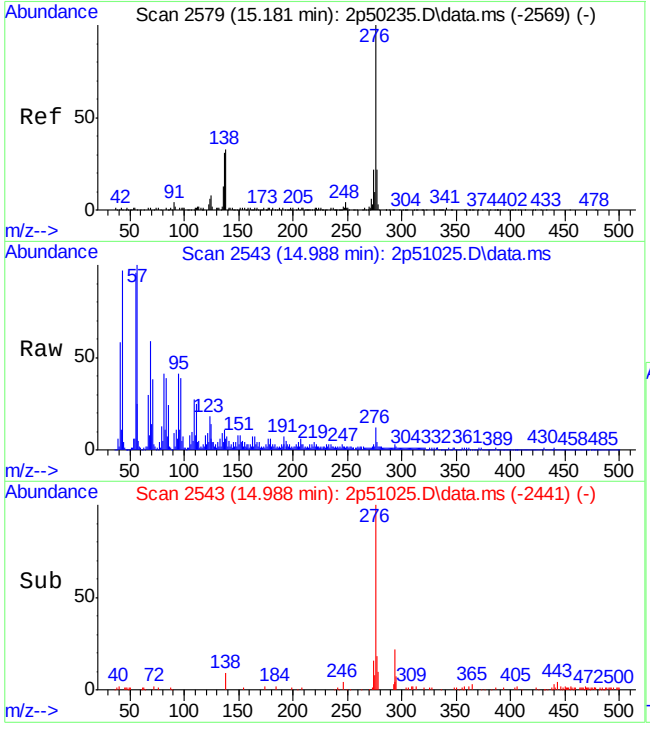


#96
Benzo[a]pyrene
Concen: 3.49 ppm
RT: 13.534 min Scan# 2271
Delta R.T. 0.037 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:252 Resp: 452524

Ion	Ratio	Lower	Upper
252	100		
253	20.5	0.0	51.5
125	6.7	0.0	45.4

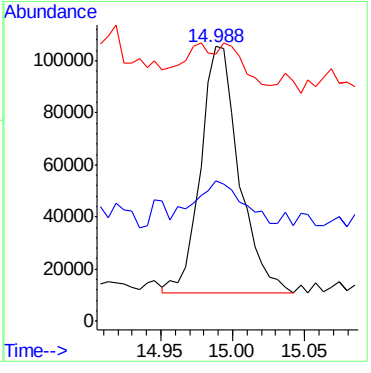


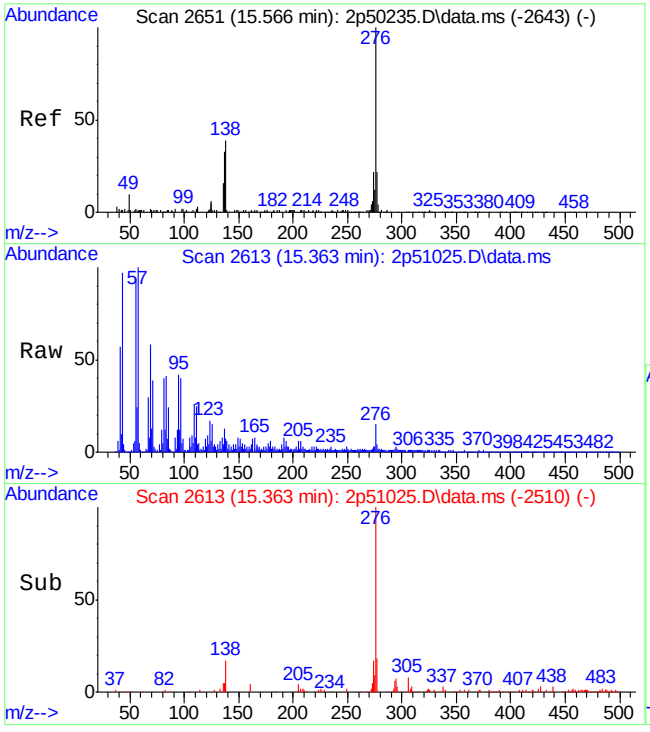


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.47 ppm
RT: 14.988 min Scan# 2543
Delta R.T. 0.048 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:276 Resp: 176182

Ion	Ratio	Lower	Upper
276	100		
138	13.5	0.0	59.5
137	8.8	0.0	51.5

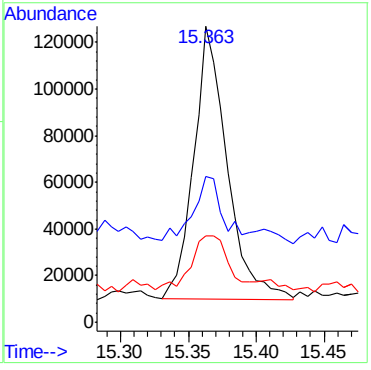




#101
Benzo[g,h,i]perylene
Concen: 1.67 ppm
RT: 15.363 min Scan# 2613
Delta R.T. 0.053 min
Lab File: 2p51025.D
Acq: 30 Jul 2015 12:18 am

Tgt Ion:276 Resp: 199776

Ion	Ratio	Lower	Upper
276	100		
138	23.9	7.3	67.3
277	19.1	0.0	53.6



9.1.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51016.D
Acq On : 29 Jul 2015 9:06 pm
Operator : ashleyd
Sample : jb99970-7
Misc : op85890,e2p2191,30.9
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 30 16:01:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

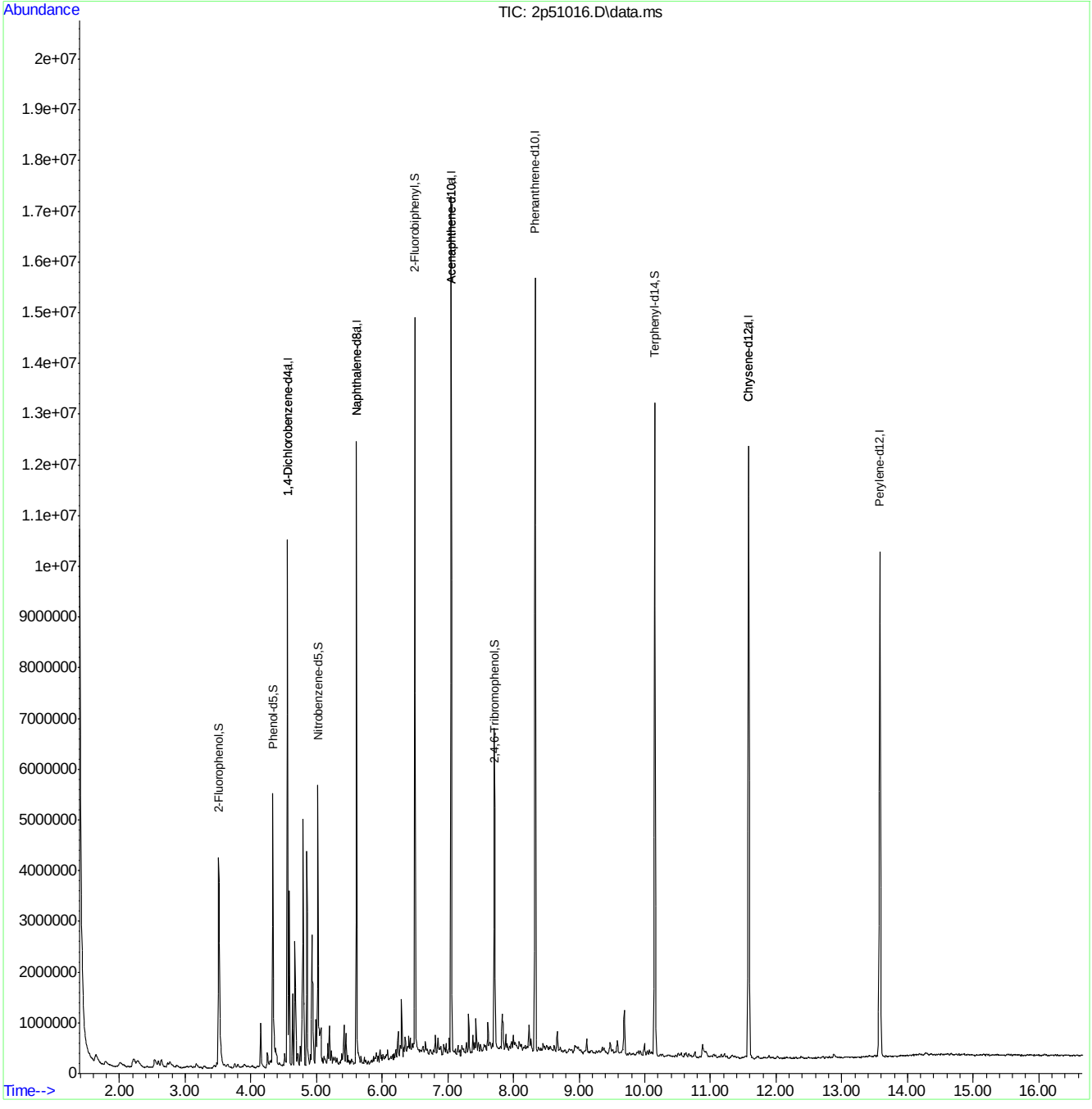
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.559	152	1302804	40.00 ppm	0.00
24) Naphthalene-d8	5.612	136	4386560	40.00 ppm	0.00
47) Acenaphthene-d10	7.051	164	2727492	40.00 ppm	0.00
69) Phenanthrene-d10	8.329	188	4945462	40.00 ppm	0.00
83) Chrysene-d12	11.581	240	5578798	40.00 ppm	0.00
92) Perylene-d12	13.582	264	4771402	40.00 ppm	0.01
102) 1,4-Dichlorobenzene-d4a	4.559	152	1302804	40.00 ppm	0.00
104) Naphthalene-d8a	5.612	136	4386560	40.00 ppm	# 0.00
106) Acenaphthene-d10a	7.051	164	2727492	40.00 ppm	0.00
109) Chrysene-d12a	11.581	240	5578437	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.510	112	1193019	25.64 ppm	-0.01
Spiked Amount 50.000	Range 11 - 58		Recovery = 51.28%		
8) Phenol-d5	4.334	99	1454860	27.21 ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 54.42%		
25) Nitrobenzene-d5	5.024	82	1347119	35.31 ppm	0.00
Spiked Amount 50.000	Range 19 - 61		Recovery = 70.62%#		
51) 2-Fluorobiphenyl	6.500	172	3227847	39.92 ppm	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 79.84%#		
73) 2,4,6-Tribromophenol	7.714	330	556115	45.02 ppm	0.00
Spiked Amount 50.000	Range 12 - 68		Recovery = 90.04%#		
85) Terphenyl-d14	10.153	244	4474022	42.70 ppm	0.01
Spiked Amount 50.000	Range 16 - 65		Recovery = 85.40%#		
Target Compounds					Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51016.D
Acq On : 29 Jul 2015 9:06 pm
Operator : ashleyd
Sample : jb99970-7
Misc : op85890,e2p2191,30.9
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 30 16:01:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
08/06/15 10:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3236\
Data File : 3E74565.D
Acq On : 4 Aug 2015 4:10 am
Operator : saraw
Sample : jb99970-8
Misc : op86000,e3e3236,30.9
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 04 11:22:23 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 08:13:15 2015
QLast Update : Tue Aug 04 08:13:15 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.695	152	500954	40.00	ppm	0.00
24) Naphthalene-d8	5.786	136	1790387	40.00	ppm	-0.01
47) Acenaphthene-d10	7.866	164	1039378	40.00	ppm	-0.01
69) Phenanthrene-d10	10.049	188	1514746	40.00	ppm	-0.02
83) Chrysene-d12	14.247	240	1366503	40.00	ppm	-0.02
92) Perylene-d12	16.381	264	1570882	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.695	152	500954	40.00	ppm	0.00
104) Acenaphthene-d10a	7.866	164	1039378	40.00	ppm	-0.01
106) Phenanthrene-d10a	10.049	188	1514746	40.00	ppm	-0.02
108) Chrysene-d12a	14.247	240	1366503	40.00	ppm	-0.02
110) Naphthalene-d8a	5.786	136	1790387	40.00	ppm	-0.01
112) Chrysene-d12b	14.247	240	1366503	40.00	ppm	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	3.753	112	446706	27.46	ppm	0.01
Spiked Amount 50.000			Recovery = 54.92%			
8) Phenol-d5	4.454	99	771761	40.72	ppm	0.00
Spiked Amount 50.000			Recovery = 81.44%			
25) Nitrobenzene-d5	5.139	82	739593	50.85	ppm	0.00
Spiked Amount 50.000			Recovery = 101.70%			
51) 2-Fluorobiphenyl	6.984	172	1430058	44.16	ppm	-0.01
Spiked Amount 50.000			Recovery = 88.32%			
73) 2,4,6-Tribromophenol	9.006	330	36405	7.70	ppm	-0.02
Spiked Amount 50.000			Recovery = 15.40%			
85) Terphenyl-d14	12.605	244	1242331	51.24	ppm	-0.02
Spiked Amount 50.000			Recovery = 102.48%			

Target Compounds						Qvalue
9) Phenol	4.465	94	51268	2.44	ppm	66
18) Acetophenone	5.010	105	99512	4.42	ppm	83
38) Naphthalene	5.807	128	33157	0.73	ppm	93
44) 2-Methylnaphthalene	6.545	141	36673	1.49	ppm	90
59) Acenaphthene	7.909	153	52169	1.74	ppm	92
62) Dibenzofuran	8.150	168	27966	0.75	ppm	84
66) Fluorene	8.642	166	35811	1.10	ppm	86
77) Phenanthrene	10.081	178	726115	16.48	ppm	99
78) Anthracene	10.161	178	118195	2.70	ppm	99
79) Carbazole	10.439	167	71888	1.72	ppm	96
81) Fluoranthene	11.958	202	1622909	36.94	ppm	98
84) Pyrene	12.306	202	1285859	30.47	ppm	94
86) Butylbenzylphthalate	13.429	149	91392	4.19	ppm	84
88) Benzo[a]anthracene	14.231	228	577026	14.82	ppm	99
90) Chrysene	14.285	228	596676	16.76	ppm	96
91) bis(2-Ethylhexyl)phtha...	14.365	149	1254451	43.19	ppm	94
94) Benzo[b]fluoranthene	15.852	252	832749m	17.72	ppm	
95) Benzo[k]fluoranthene	15.884	252	302486	7.14	ppm	90
96) Benzo[a]pyrene	16.296	252	516766	12.90	ppm	96
97) Indeno[1,2,3-cd]pyrene	17.933	276	368903	8.63	ppm	95
99) Dibenz[a,h]anthracene	17.959	278	99001	2.31	ppm	96
101) Benzo[g,h,i]perylene	18.382	276	343540	8.54	ppm	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3236\
Data File : 3E74565.D
Acq On : 4 Aug 2015 4:10 am
Operator : saraw
Sample : jb99970-8
Misc : op86000,e3e3236,30.9
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 04 11:22:23 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 08:13:15 2015
QLast Update : Tue Aug 04 08:13:15 2015
Response via : Initial Calibration

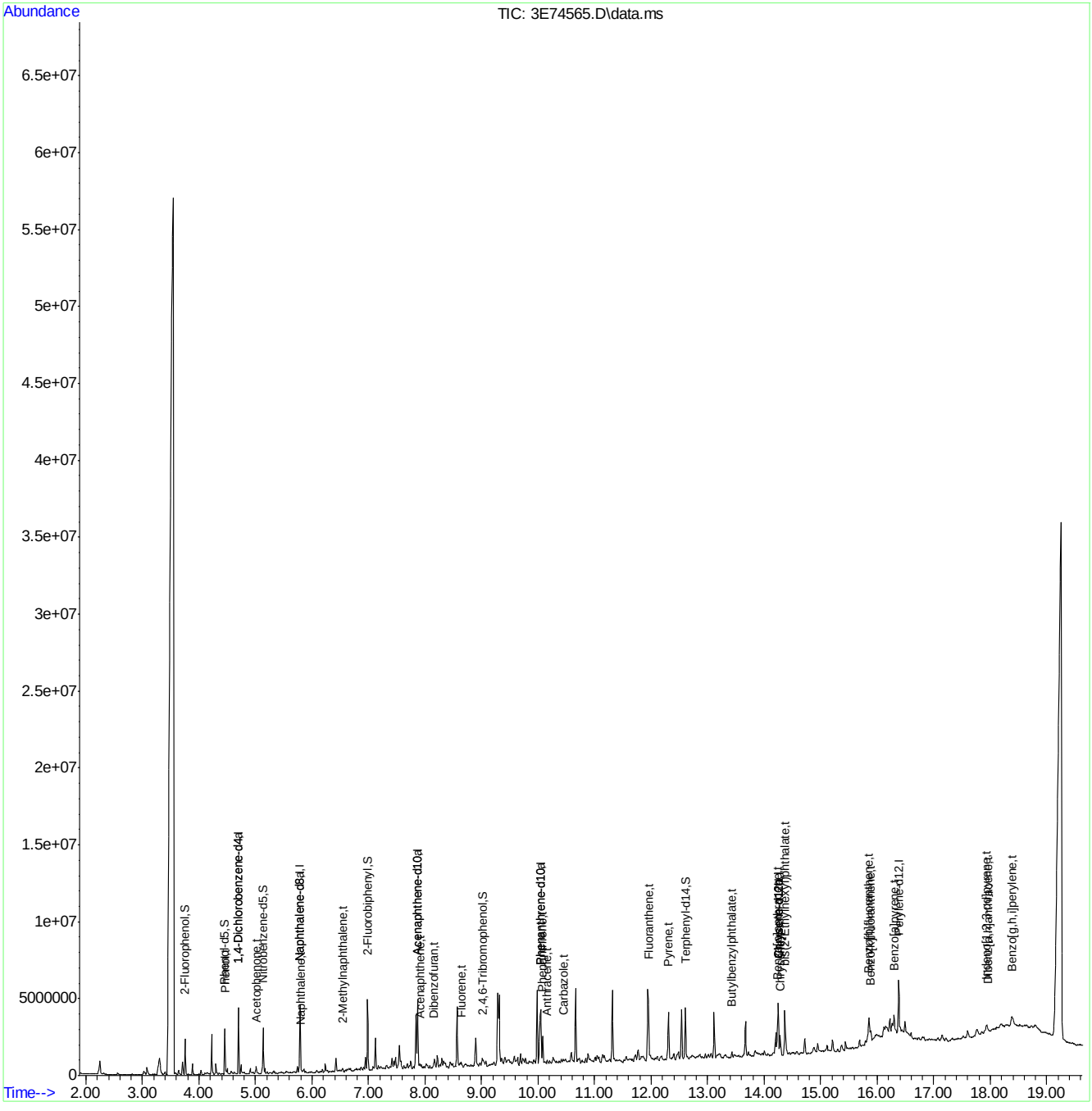
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

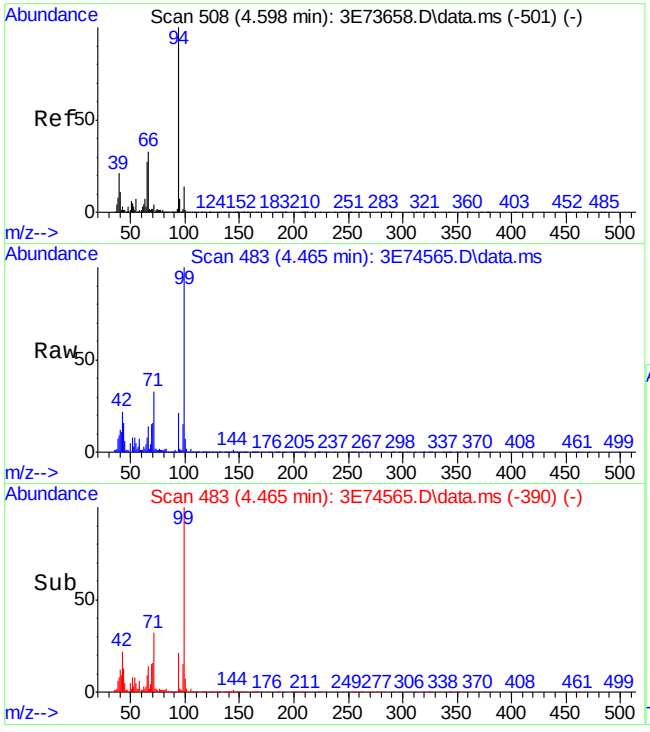
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3236\
Data File : 3E74565.D
Acq On : 4 Aug 2015 4:10 am
Operator : saraw
Sample : jb99970-8
Misc : op86000,e3e3236,30.9
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 04 11:22:23 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 08:13:15 2015
QLast Update : Tue Aug 04 08:13:15 2015
Response via : Initial Calibration

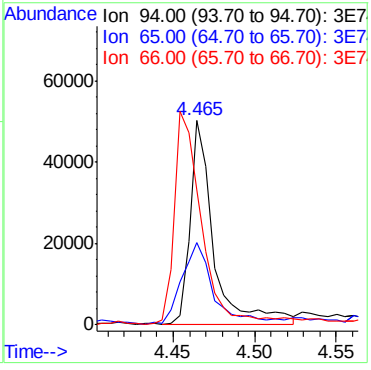


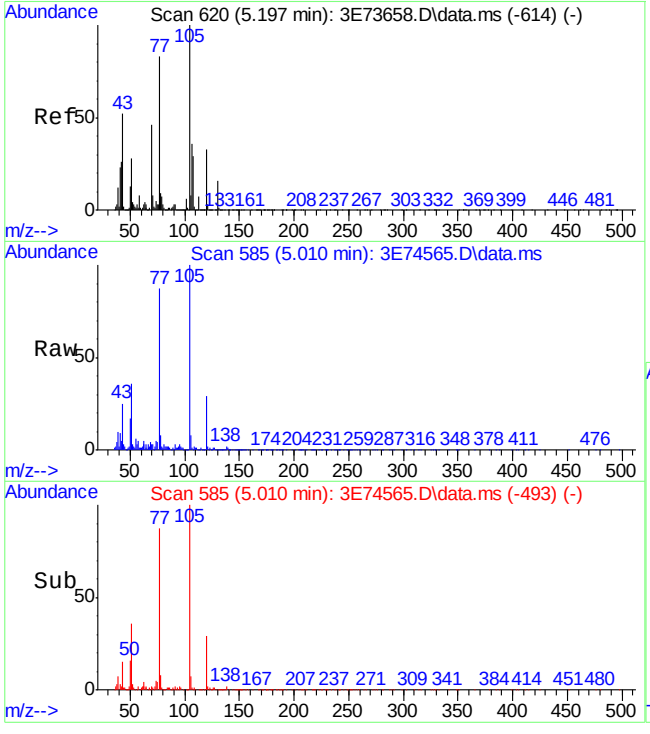


#9
Phenol
Concen: 2.44 ppm
RT: 4.465 min Scan# 483
Delta R.T. -0.000 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion: 94 Resp: 51268

Ion	Ratio	Lower	Upper
94	100		
65	38.4	0.0	58.3
66	64.8	7.6	67.6

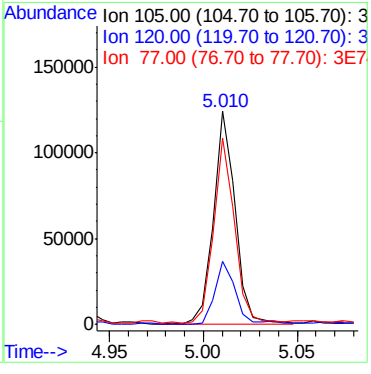




#18
Acetophenone
Concen: 4.42 ppm
RT: 5.010 min Scan# 585
Delta R.T. -0.005 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

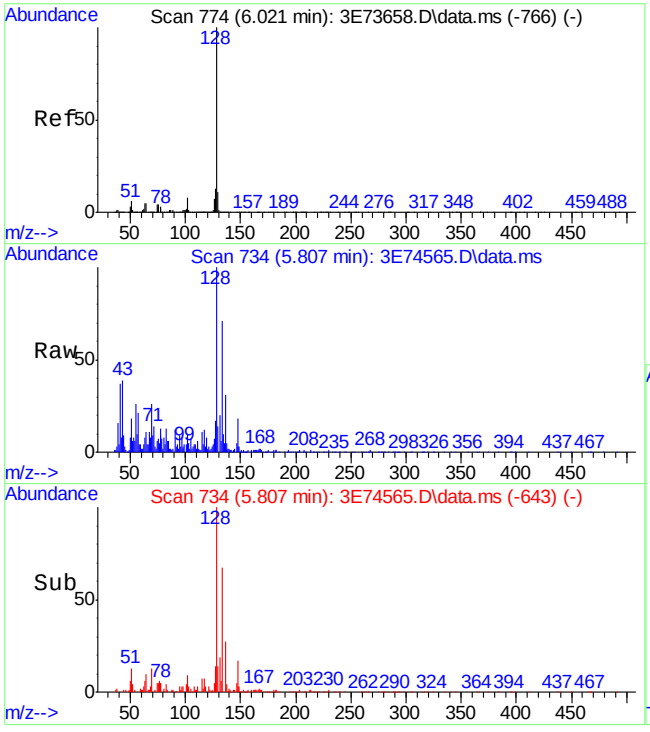
Tgt Ion:105 Resp: 99512

Ion	Ratio	Lower	Upper
105	100		
120	29.2	3.0	63.0
77	86.4	38.7	98.7



9.1.5

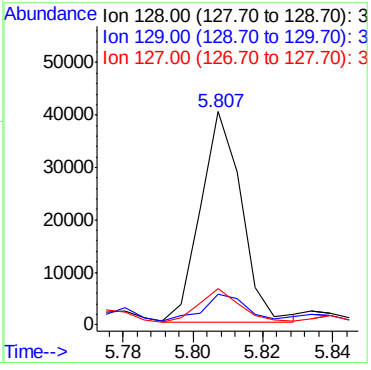
9

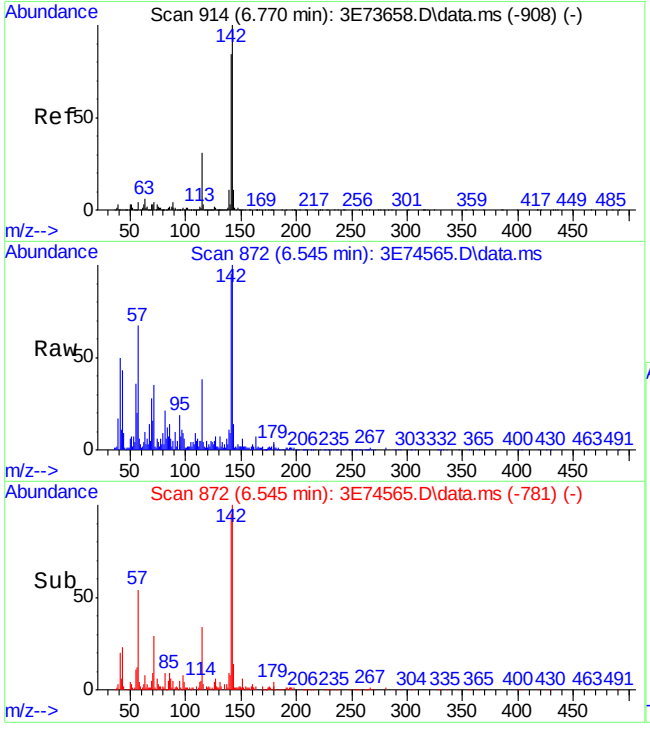


#38
Naphthalene
Concen: 0.73 ppm
RT: 5.807 min Scan# 734
Delta R.T. -0.011 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:128 Resp: 33157

Ion	Ratio	Lower	Upper
128	100		
129	11.8	0.0	40.3
127	15.9	0.0	42.5

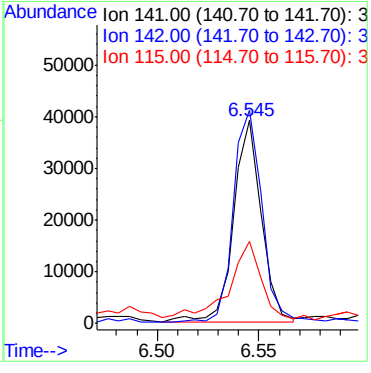


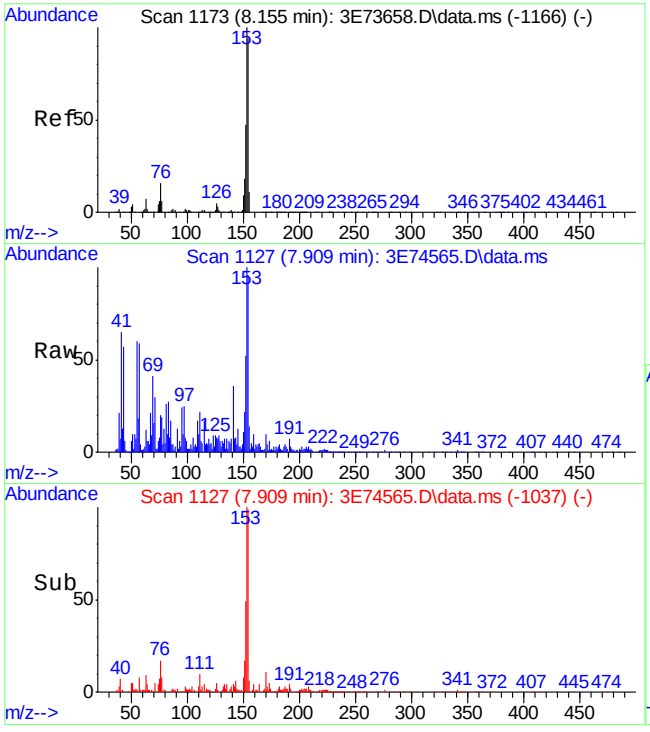


#44
2-Methylnaphthalene
Concen: 1.49 ppm
RT: 6.545 min Scan# 872
Delta R.T. -0.011 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:141 Resp: 36673

Ion	Ratio	Lower	Upper
141	100		
142	104.7	87.9	147.9
115	38.2	5.5	65.5

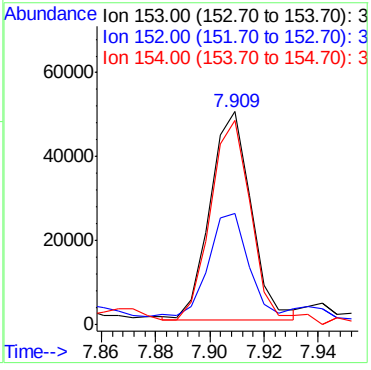


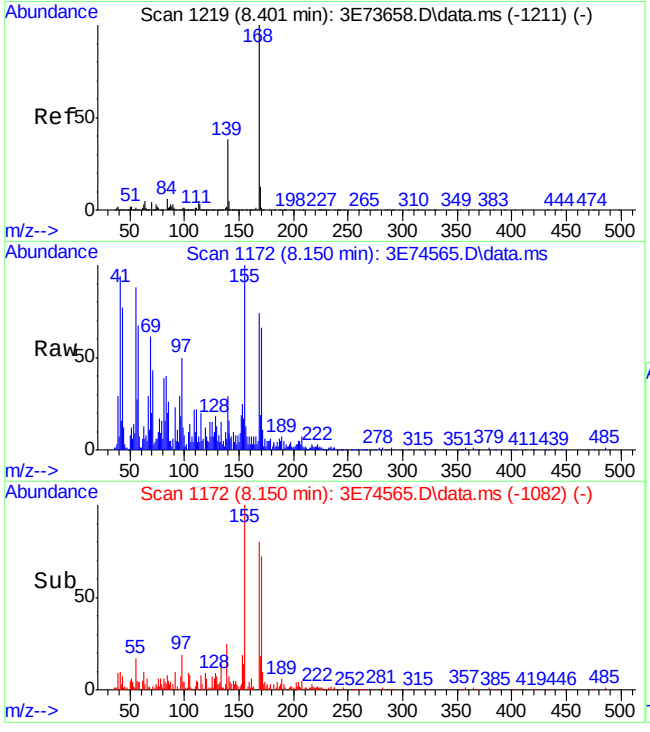


#59
Acenaphthene
Concen: 1.74 ppm
RT: 7.909 min Scan# 1127
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:153 Resp: 52169

Ion	Ratio	Lower	Upper
153	100		
152	48.8	17.0	77.0
154	98.0	57.9	117.9

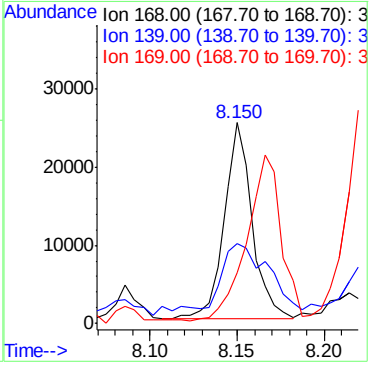




#62
Dibenzofuran
Concen: 0.75 ppm
RT: 8.150 min Scan# 1172
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:168 Resp: 27966

Ion	Ratio	Lower	Upper
168	100		
139	30.9	13.2	73.2
169	14.3	0.0	42.6



9.1.5

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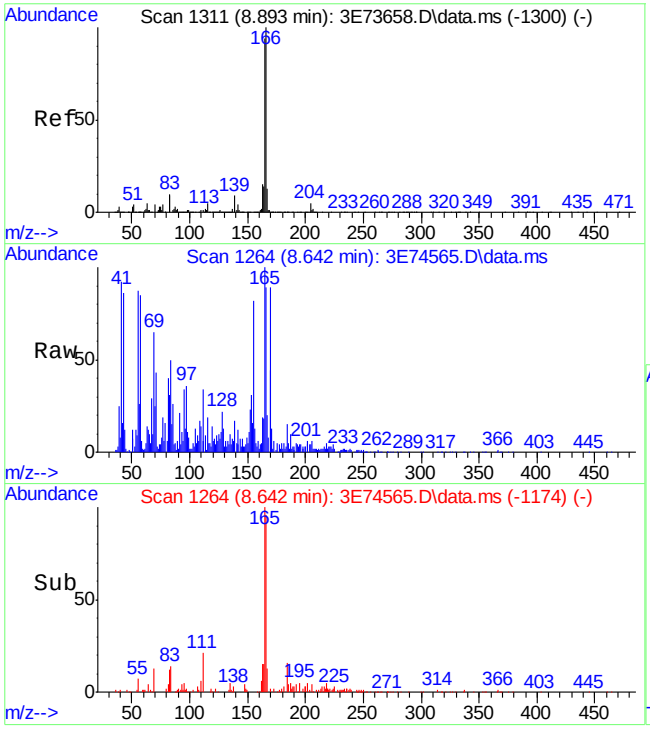
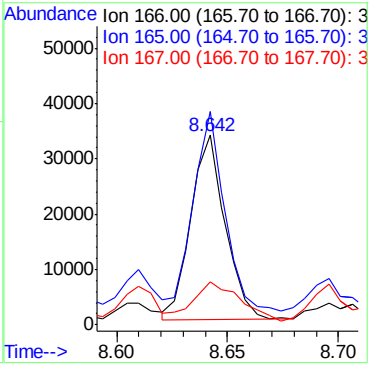
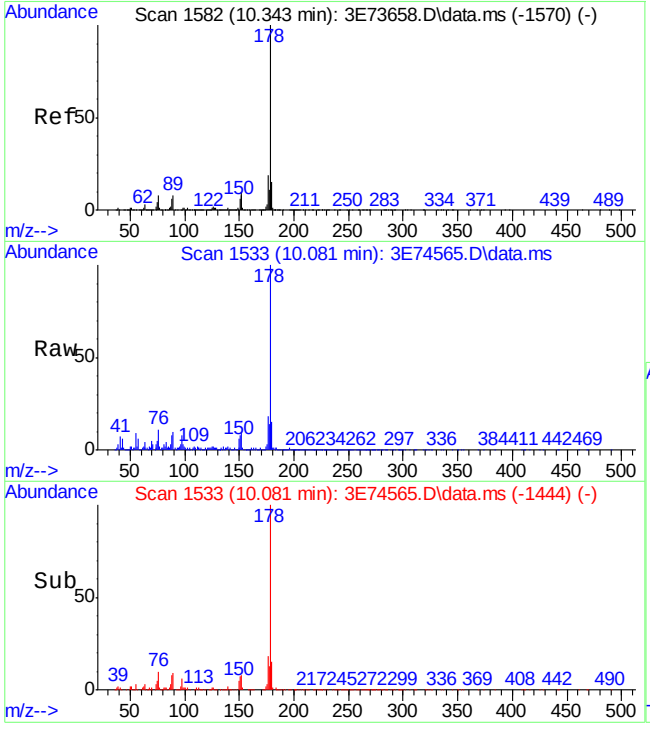


#66
Fluorene
Concen: 1.10 ppm
RT: 8.642 min Scan# 1264
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:166 Resp: 35811

Ion	Ratio	Lower	Upper
166	100		
165	106.4	63.3	123.3
167	18.4	0.0	42.7

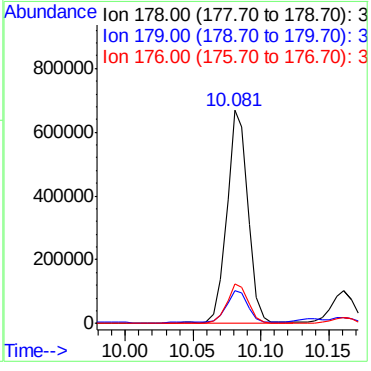




#77
Phenanthrene
Concen: 16.48 ppm
RT: 10.081 min Scan# 1533
Delta R.T. -0.022 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:178 Resp: 726115

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.1
176	18.2	0.0	48.5



9.1.5

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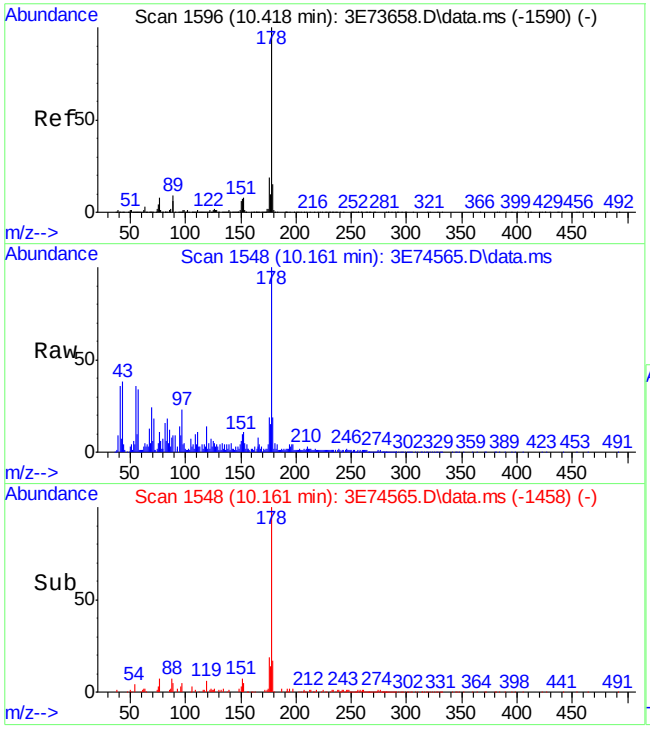
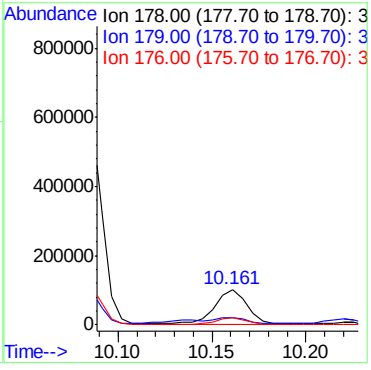
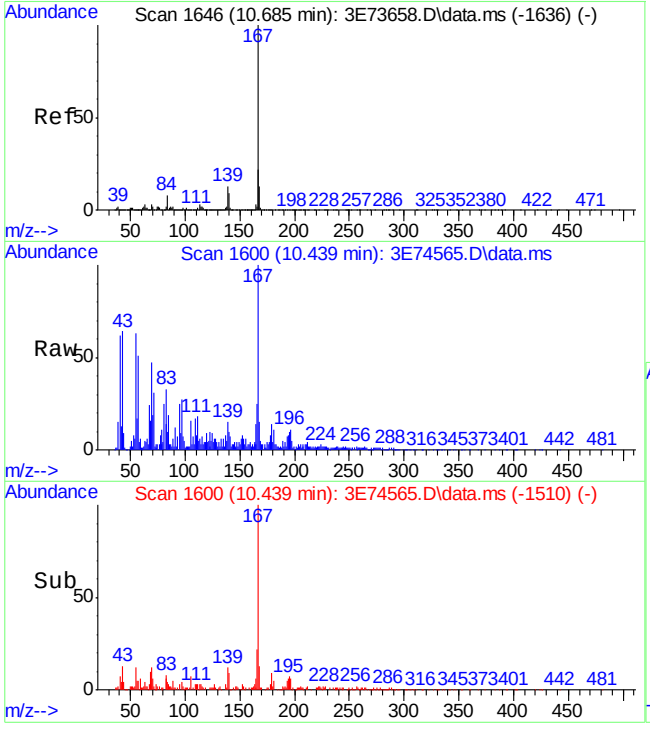


#78
Anthracene
Concen: 2.70 ppm
RT: 10.161 min Scan# 1548
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:178 Resp: 118195

Ion	Ratio	Lower	Upper
178	100		
179	14.1	0.0	45.4
176	18.4	0.0	48.4

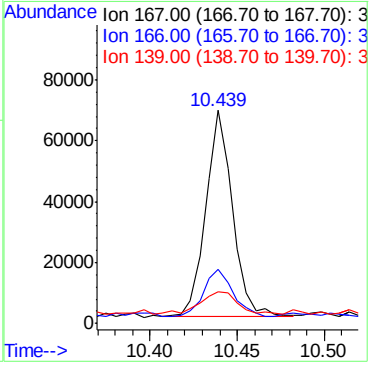


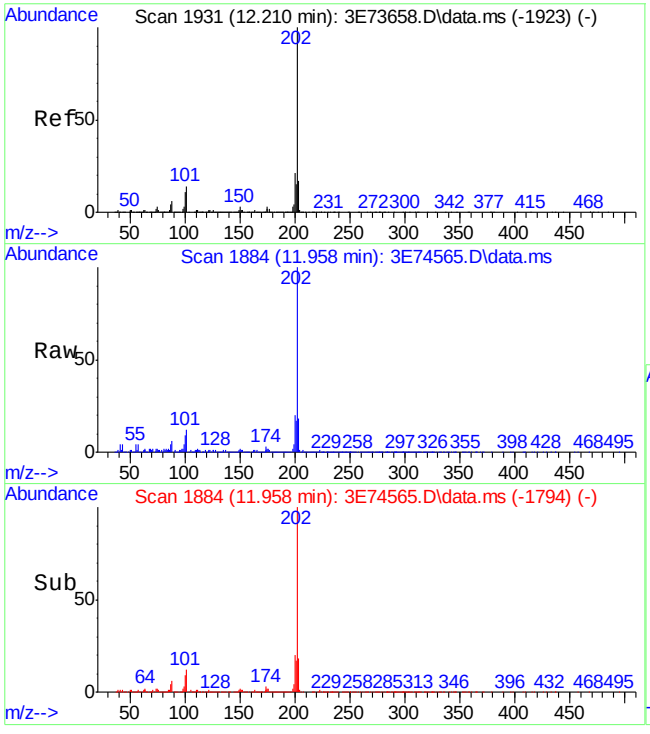


#79
Carbazole
Concen: 1.72 ppm
RT: 10.439 min Scan# 1600
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:167 Resp: 71888

Ion	Ratio	Lower	Upper
167	100		
166	22.0	0.0	52.1
139	9.4	0.0	43.5

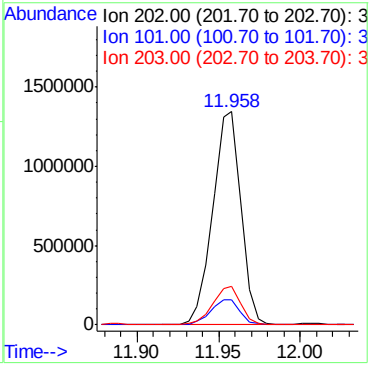


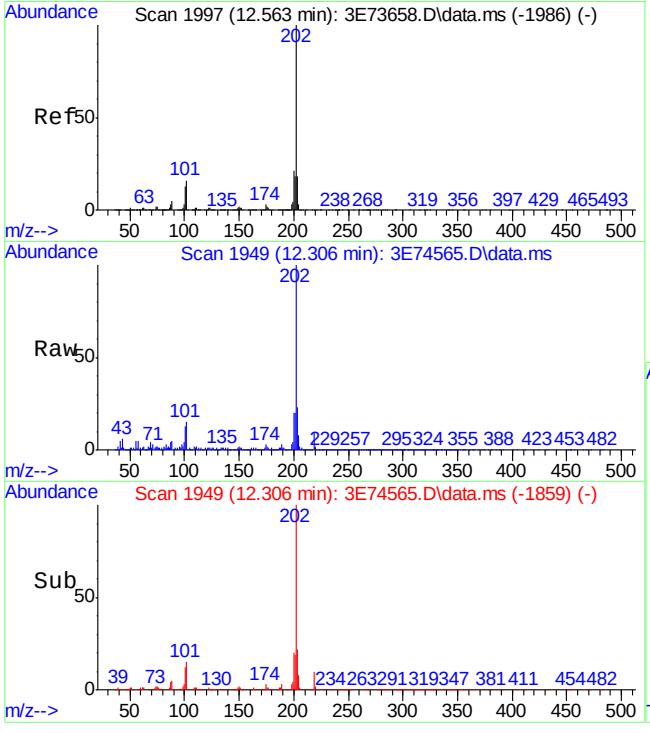


#81
Fluoranthene
Concen: 36.94 ppm
RT: 11.958 min Scan# 1884
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:202 Resp: 1622909

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	42.2
203	17.7	0.0	47.0

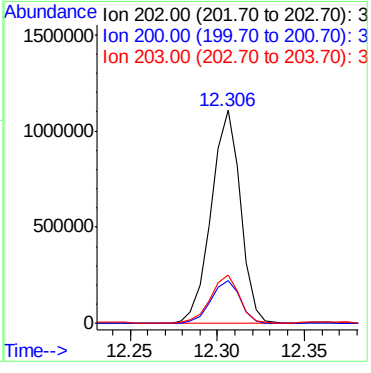


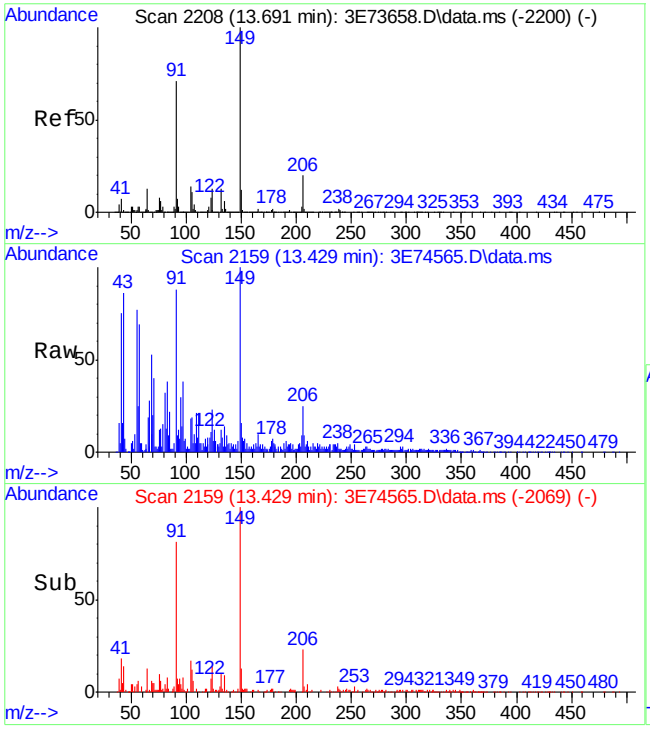


#84
Pyrene
Concen: 30.47 ppm
RT: 12.306 min Scan# 1949
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:202 Resp: 1285859

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.6
203	22.3	0.0	47.7

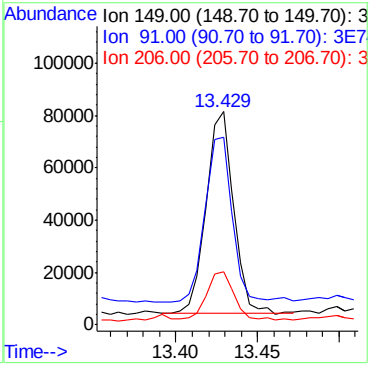


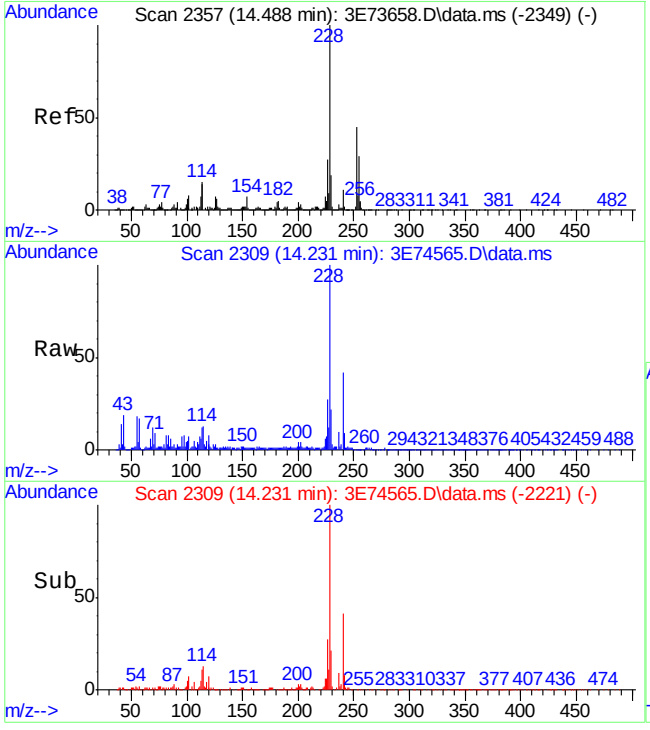


#86
Butylbenzylphthalate
Concen: 4.19 ppm
RT: 13.429 min Scan# 2159
Delta R.T. -0.016 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:149 Resp: 91392

Ion	Ratio	Lower	Upper
149	100		
91	81.6	36.4	96.4
206	22.3	0.0	49.2

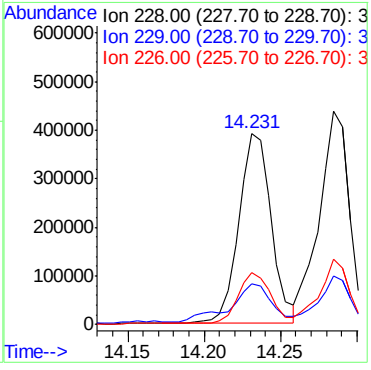




#88
Benzo[a]anthracene
Concen: 14.82 ppm
RT: 14.231 min Scan# 2309
Delta R.T. -0.027 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

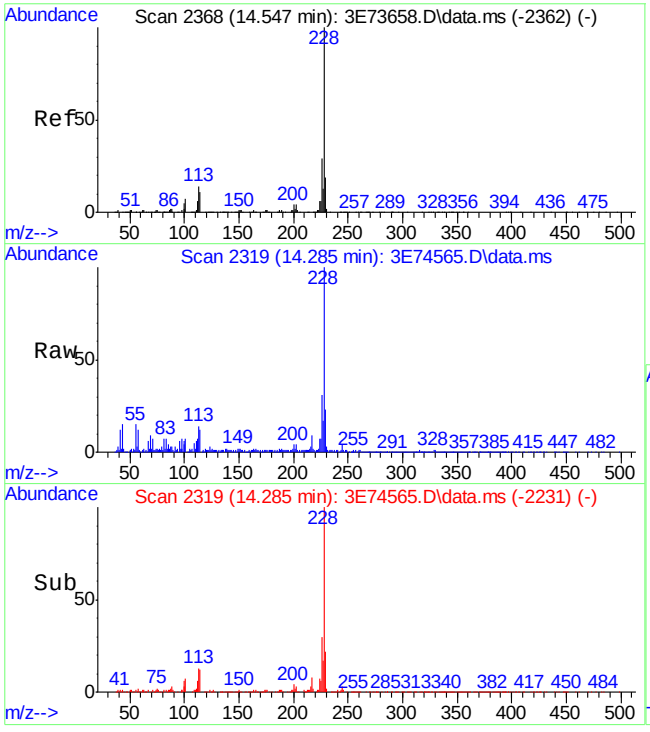
Tgt Ion:228 Resp: 577026

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	49.7
226	26.3	0.0	57.2



9.1.5

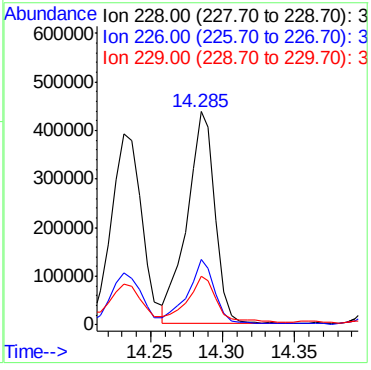
9

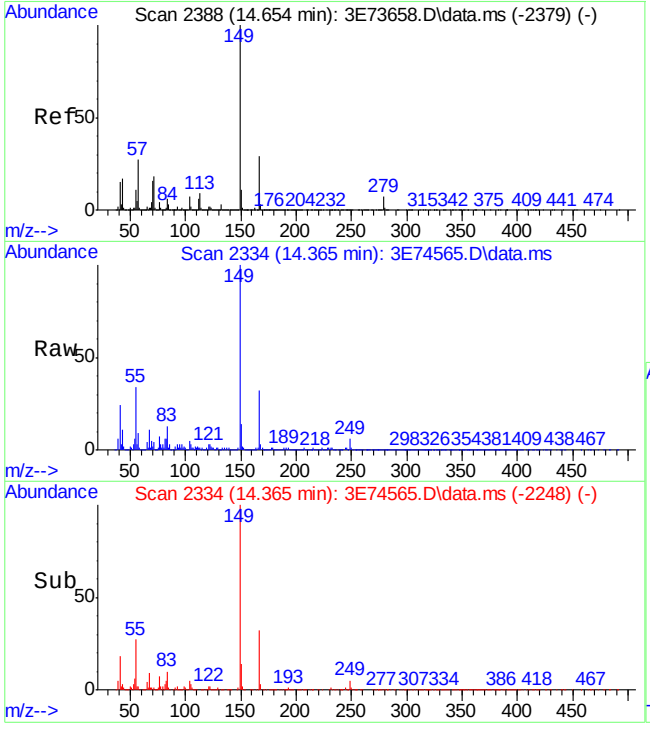


#90
Chrysene
Concen: 16.76 ppm
RT: 14.285 min Scan# 2319
Delta R.T. -0.027 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:228 Resp: 596676

Ion	Ratio	Lower	Upper
228	100		
226	30.2	0.0	58.5
229	21.5	0.0	49.1

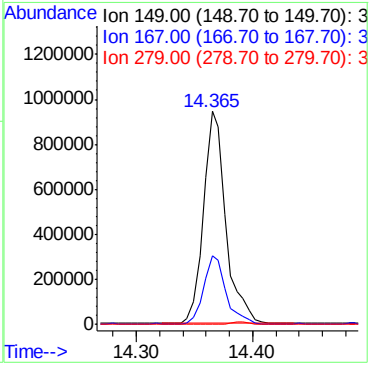


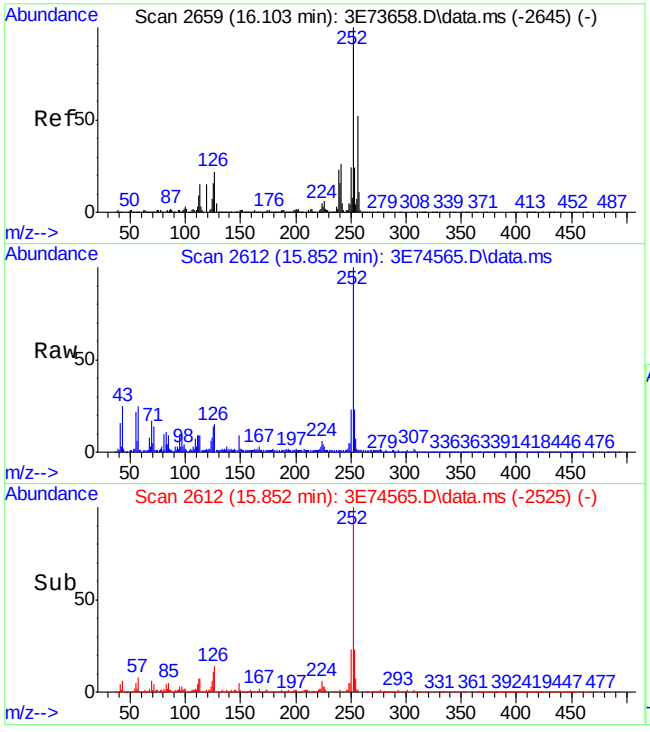


#91
bis(2-Ethylhexyl)phthalate
Concen: 43.19 ppm
RT: 14.365 min Scan# 2334
Delta R.T. -0.038 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:149 Resp: 1254451

Ion	Ratio	Lower	Upper
149	100		
167	32.1	1.3	61.3
279	0.0	0.0	38.2

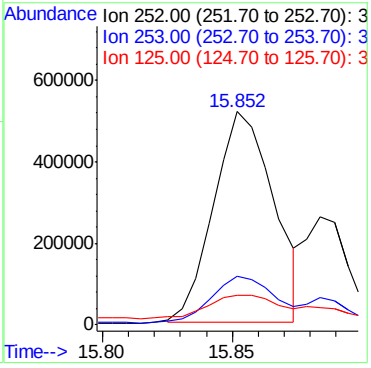


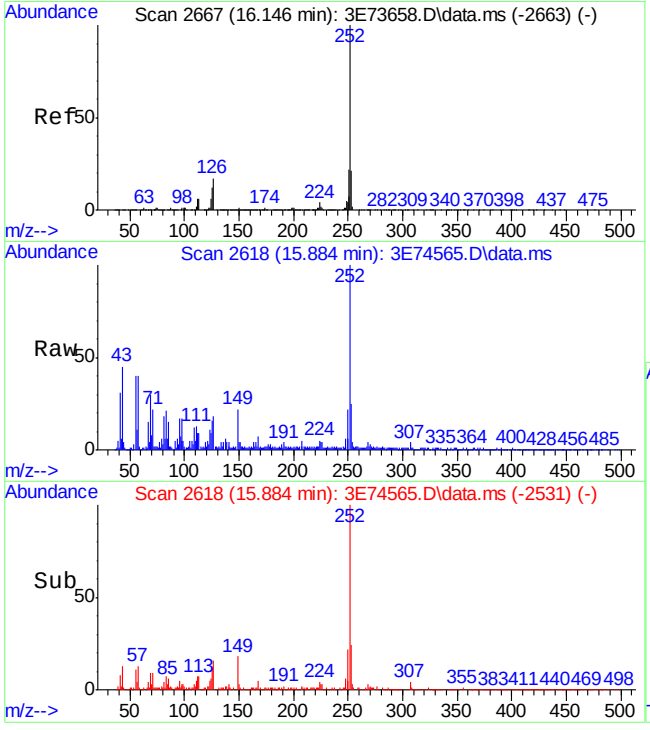


#94
Benzo[b]fluoranthene
Concen: 17.72 ppm m
RT: 15.852 min Scan# 2612
Delta R.T. -0.032 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:252 Resp: 832749

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	53.1
125	13.8	0.0	43.8

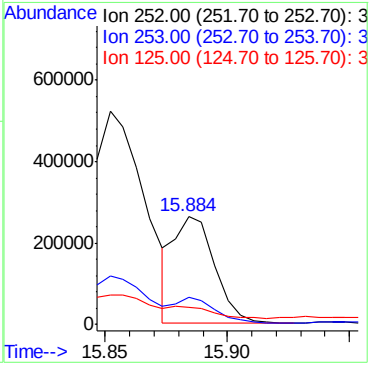




#95
Benzo[k]fluoranthene
Concen: 7.14 ppm
RT: 15.884 min Scan# 2618
Delta R.T. -0.032 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:252 Resp: 302486

Ion	Ratio	Lower	Upper
252	100		
253	25.1	0.0	50.6
125	8.5	0.0	42.1



9.1.5

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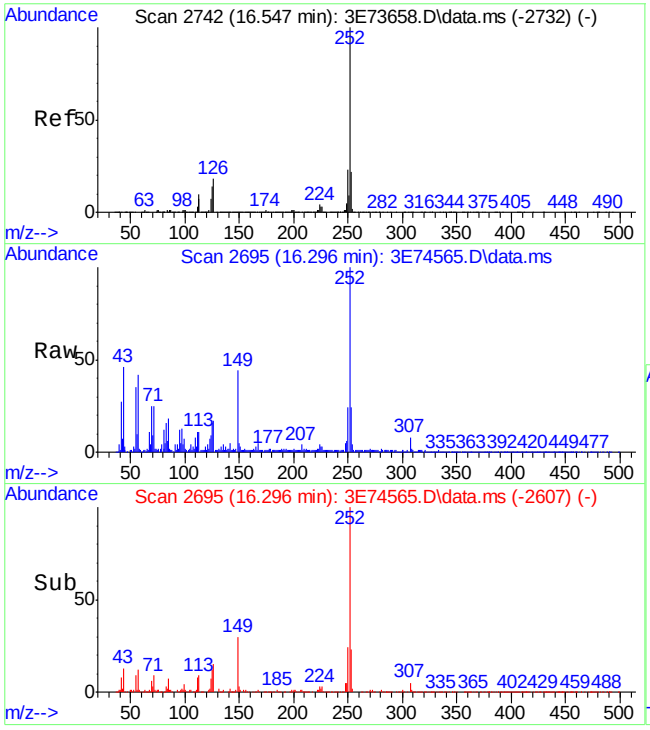
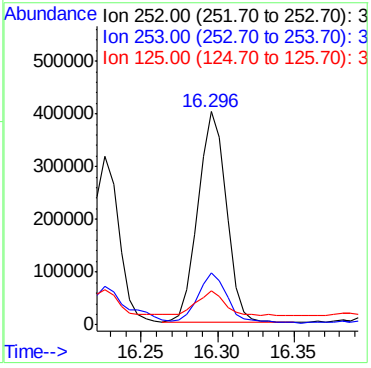
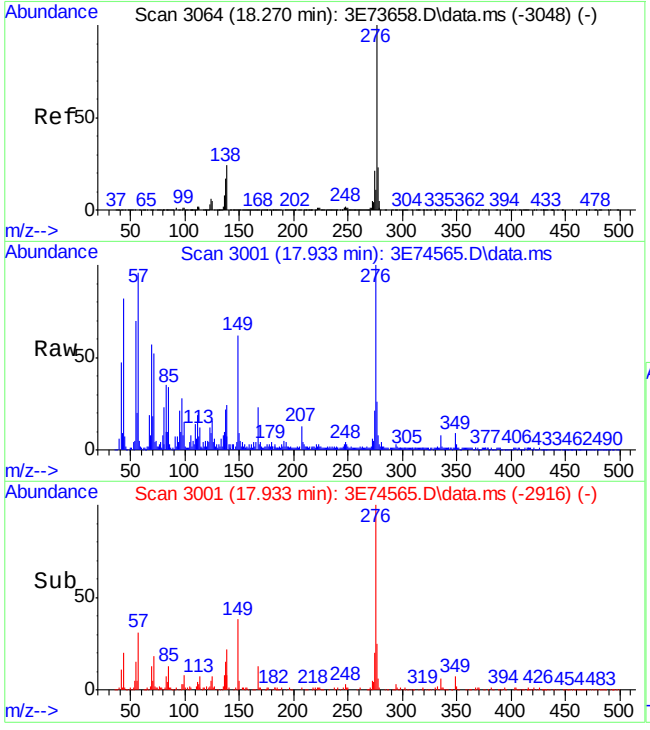


#96
Benzo[a]pyrene
Concen: 12.90 ppm
RT: 16.296 min Scan# 2695
Delta R.T. -0.027 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:252 Resp: 516766

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	51.1
125	11.5	0.0	43.3

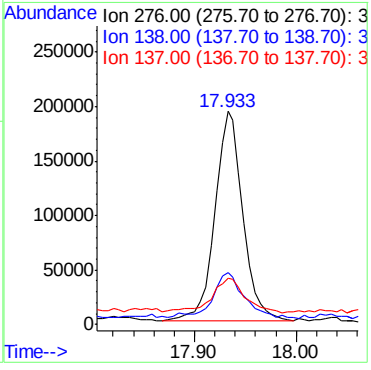


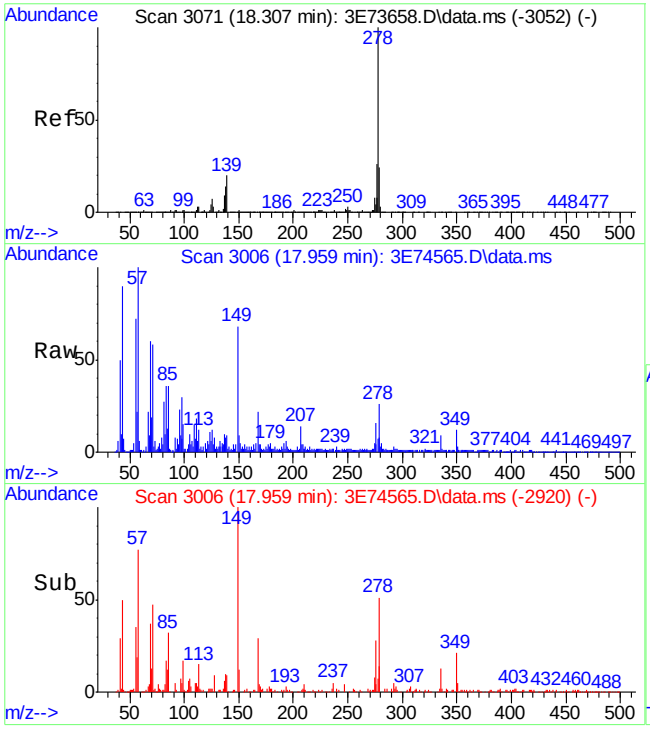


#97
Indeno[1,2,3-cd]pyrene
Concen: 8.63 ppm
RT: 17.933 min Scan# 3001
Delta R.T. -0.043 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:276 Resp: 368903

Ion	Ratio	Lower	Upper
276	100		
138	20.8	0.0	48.0
137	16.2	0.0	45.0

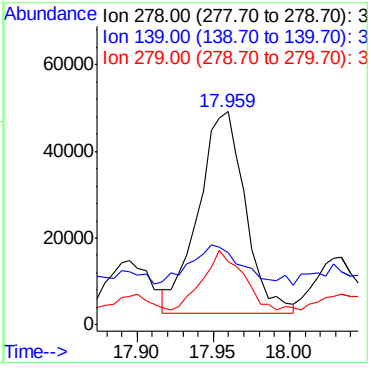


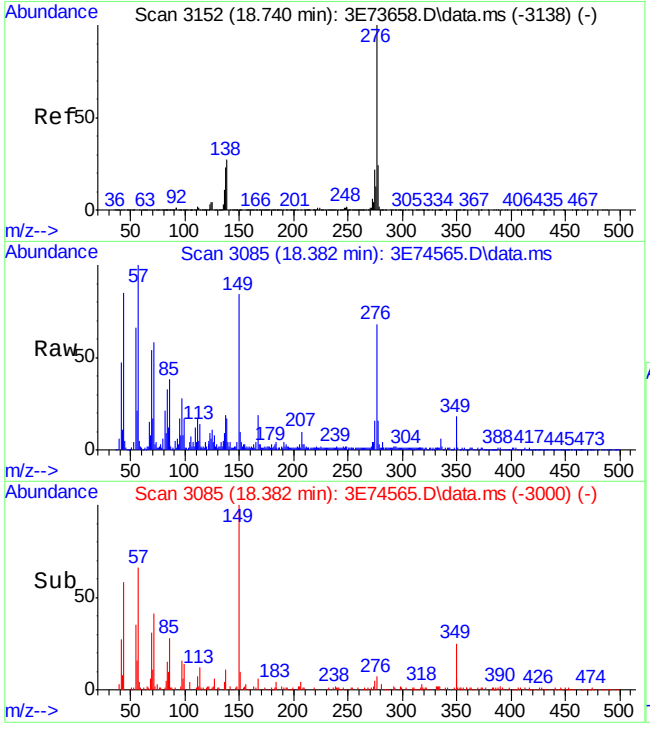


#99
Dibenz[a,h]anthracene
Concen: 2.31 ppm
RT: 17.959 min Scan# 3006
Delta R.T. -0.038 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:278 Resp: 99001

Ion	Ratio	Lower	Upper
278	100		
139	16.8	0.0	47.8
279	25.2	0.0	52.6

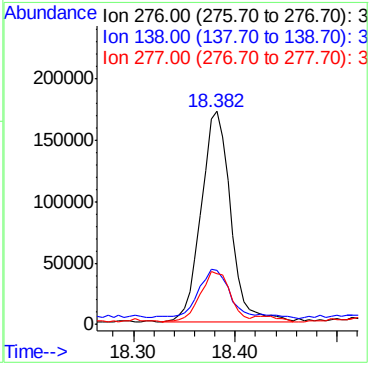




#101
Benzo[g,h,i]perylene
Concen: 8.54 ppm
RT: 18.382 min Scan# 3085
Delta R.T. -0.043 min
Lab File: 3E74565.D
Acq: 4 Aug 2015 4:10 am

Tgt Ion:276 Resp: 343540

Ion	Ratio	Lower	Upper
276	100		
138	22.1	0.0	54.3
277	23.0	0.0	52.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51026.D
Acq On : 30 Jul 2015 12:39 am
Operator : ashleyd
Sample : jb99970-8
Misc : op85890,e2p2191,30.6
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 30 18:03:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

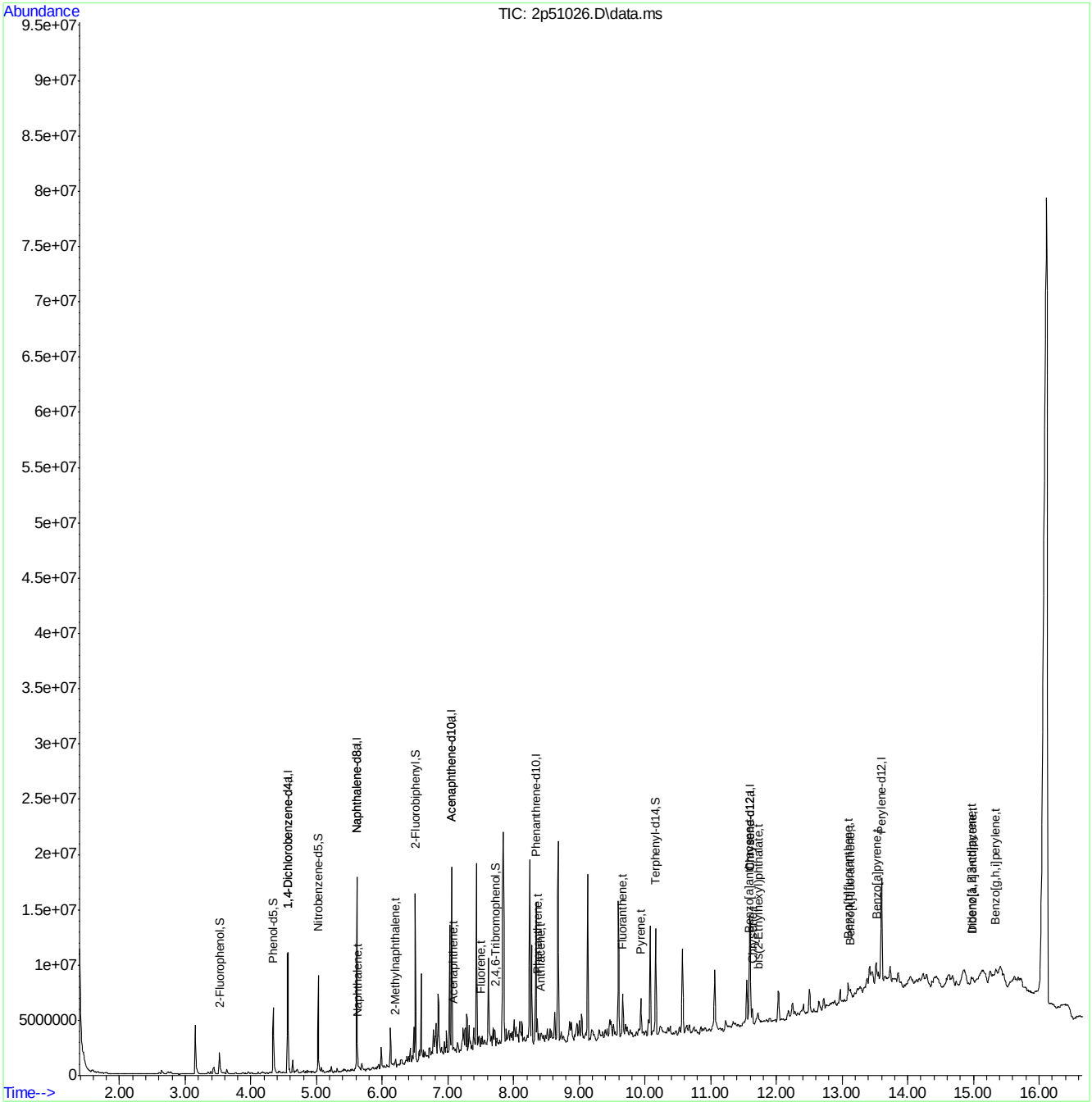
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.564	152	1544855	40.00	ppm	0.00
24) Naphthalene-d8	5.612	136	5097883	40.00	ppm	0.00
47) Acenaphthene-d10	7.056	164	2604363	40.00	ppm	0.00
69) Phenanthrene-d10	8.340	188	4164361	40.00	ppm	0.01
83) Chrysene-d12	11.597	240	4048695	40.00	ppm	0.02
92) Perylene-d12	13.603	264	3762185	40.00	ppm	0.03
102) 1,4-Dichlorobenzene-d4a	4.564	152	1544855	40.00	ppm	0.00
104) Naphthalene-d8a	5.612	136	5097883	40.00	ppm	0.00
106) Acenaphthene-d10a	7.056	164	2604363	40.00	ppm	0.00
109) Chrysene-d12a	11.597	240	4048695	40.00	ppm	0.02
System Monitoring Compounds						
5) 2-Fluorophenol	3.521	112	534516	9.69	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery	=	19.38%	
8) Phenol-d5	4.339	99	1515423	23.91	ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery	=	47.82%	
25) Nitrobenzene-d5	5.024	82	1880021	42.40	ppm	0.00
Spiked Amount 50.000	Range 19 - 61		Recovery	=	84.80%#	
51) 2-Fluorobiphenyl	6.506	172	3461152	44.83	ppm	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery	=	89.66%#	
73) 2,4,6-Tribromophenol	7.720	330	9622	0.92	ppm	0.00
Spiked Amount 50.000	Range 12 - 68		Recovery	=	1.84%#	
85) Terphenyl-d14	10.164	244	3064027	40.29	ppm	0.02
Spiked Amount 50.000	Range 16 - 65		Recovery	=	80.58%#	
Target Compounds						Qvalue
38) Naphthalene	5.628	128	46988	0.40	ppm	92
44) 2-Methylnaphthalene	6.201	141	69644	0.98	ppm	91
59) Acenaphthene	7.083	153	64329	0.95	ppm	94
66) Fluorene	7.506	166	67154	0.84	ppm	75
77) Phenanthrene	8.361	178	829679	7.54	ppm	99
78) Anthracene	8.410	178	111734	0.99	ppm	94
81) Fluoranthene	9.661	202	1588028	12.20	ppm	92
84) Pyrene	9.939	202	1320459	9.69	ppm	98
88) Benzo[a]anthracene	11.587	228	614347	4.97	ppm	99
90) Chrysene	11.635	228	655579	6.43	ppm	96
91) bis(2-Ethylhexyl)phtha...	11.720	149	316203	3.43	ppm	96
94) Benzo[b]fluoranthene	13.095	252	650826	5.65	ppm	88
95) Benzo[k]fluoranthene	13.127	252	235758	2.43	ppm	87
96) Benzo[a]pyrene	13.523	252	440041	4.45	ppm	94
97) Indeno[1,2,3-cd]pyrene	14.967	276	274962	3.01	ppm	77
99) Dibenz[a,h]anthracene	14.988	278	74634	0.85	ppm	88
101) Benzo[g,h,i]perylene	15.341	276	296979	3.27	ppm	78

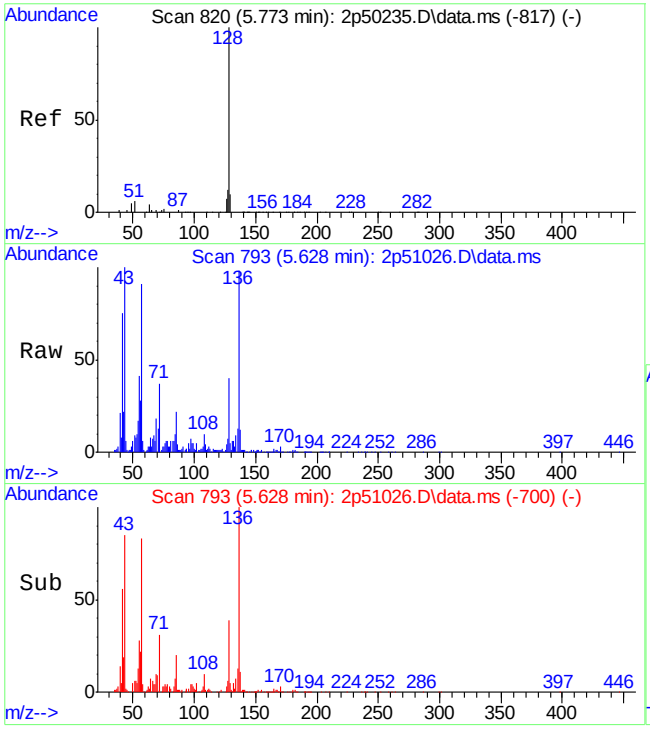
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51026.D
Acq On : 30 Jul 2015 12:39 am
Operator : ashleyd
Sample : jb99970-8
Misc : op85890,e2p2191,30.6
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 30 18:03:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

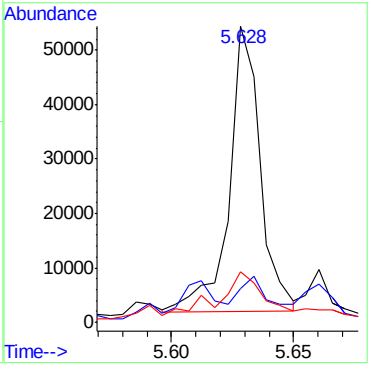


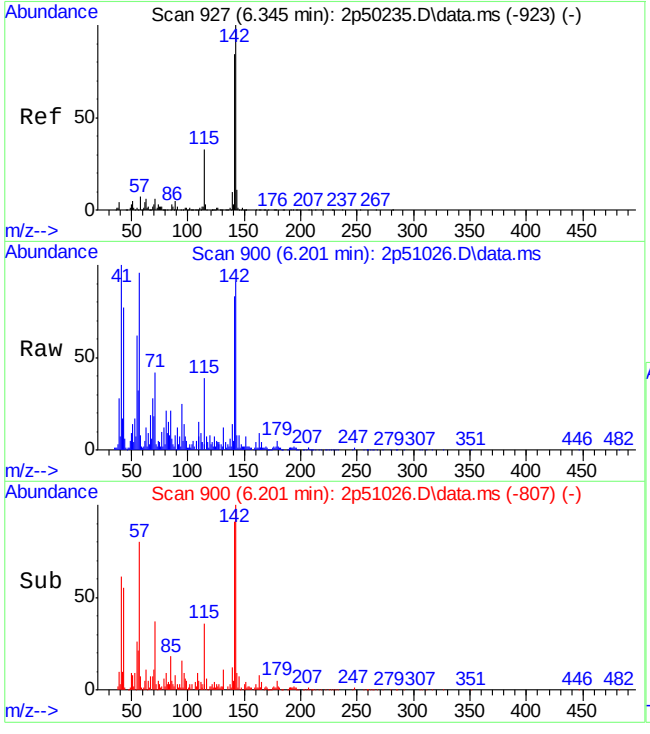


#38
Naphthalene
Concen: 0.40 ppm
RT: 5.628 min Scan# 793
Delta R.T. -0.000 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:128 Resp: 46988

Ion	Ratio	Lower	Upper
128	100		
129	7.3	0.0	41.8
127	15.0	0.0	43.3

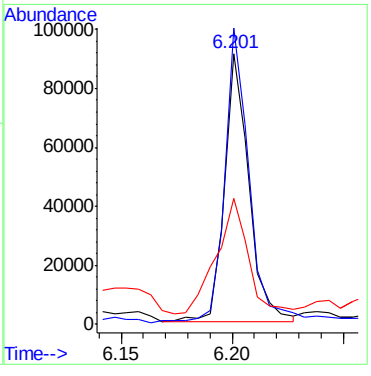




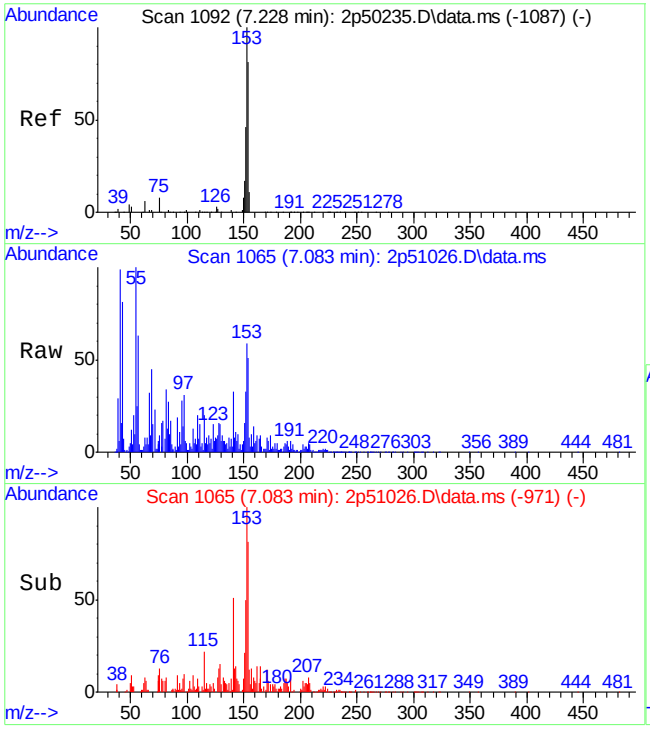
#44
2-Methylnaphthalene
Concen: 0.98 ppm
RT: 6.201 min Scan# 900
Delta R.T. -0.000 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:141 Resp: 69644

Ion	Ratio	Lower	Upper
141	100		
142	108.5	89.6	149.6
115	42.0	8.6	68.6



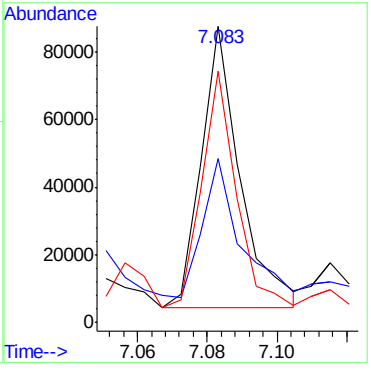
9.1.6

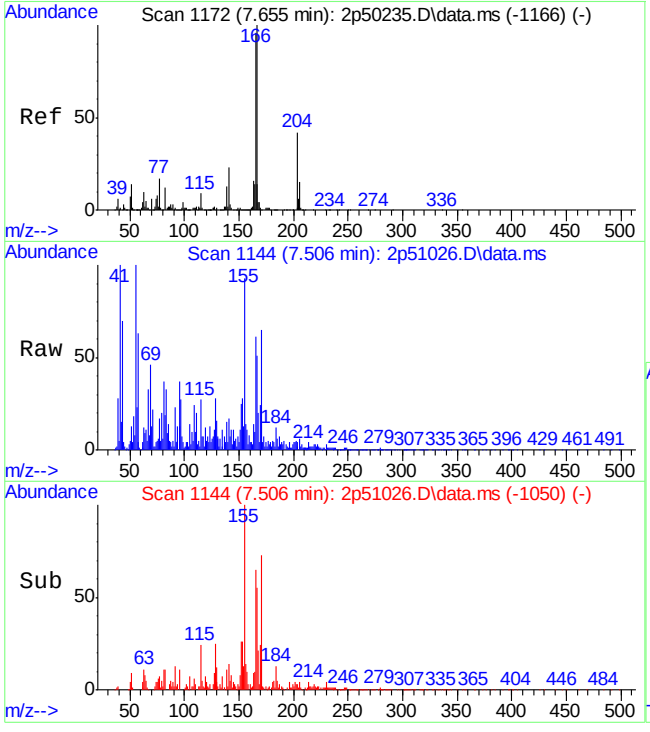


#59
Acenaphthene
Concen: 0.95 ppm
RT: 7.083 min Scan# 1065
Delta R.T. 0.005 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:153 Resp: 64329

Ion	Ratio	Lower	Upper
153	100		
152	49.3	17.7	77.7
154	86.4	64.6	124.6

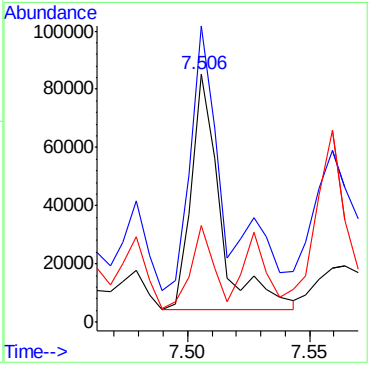


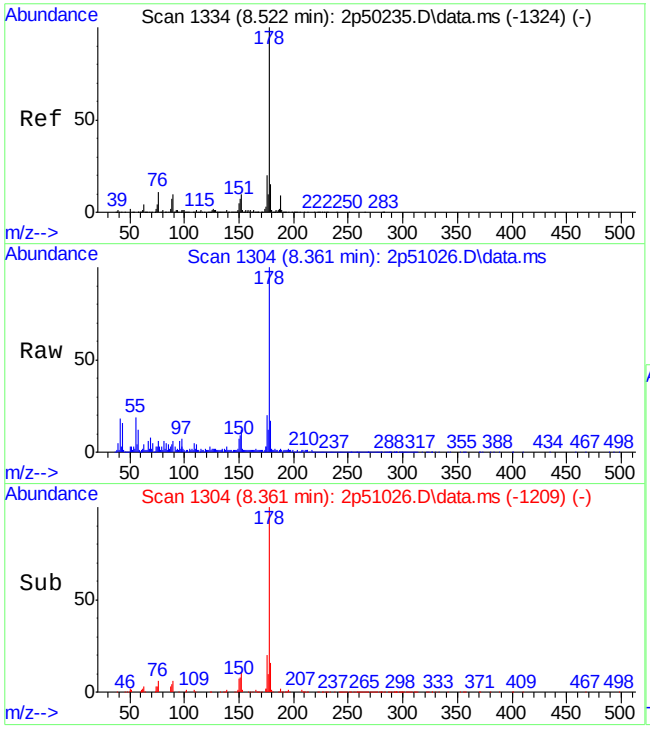


#66
Fluorene
Concen: 0.84 ppm
RT: 7.506 min Scan# 1144
Delta R.T. 0.005 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:166 Resp: 67154

Ion	Ratio	Lower	Upper
166	100		
165	110.4	60.0	120.0
167	31.6	0.0	43.8

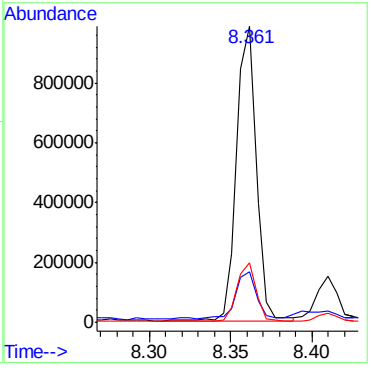


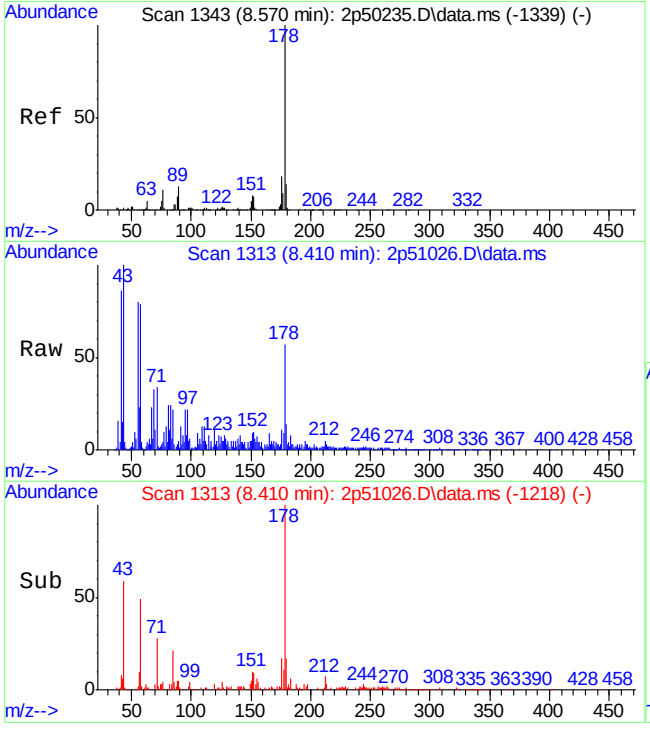


#77
Phenanthrene
Concen: 7.54 ppm
RT: 8.361 min Scan# 1304
Delta R.T. 0.011 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:178 Resp: 829679

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.7
176	19.9	0.0	49.4

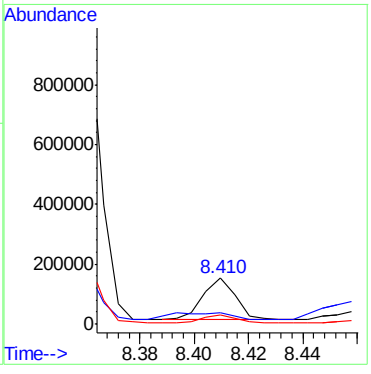




#78
Anthracene
Concen: 0.99 ppm
RT: 8.410 min Scan# 1313
Delta R.T. 0.011 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

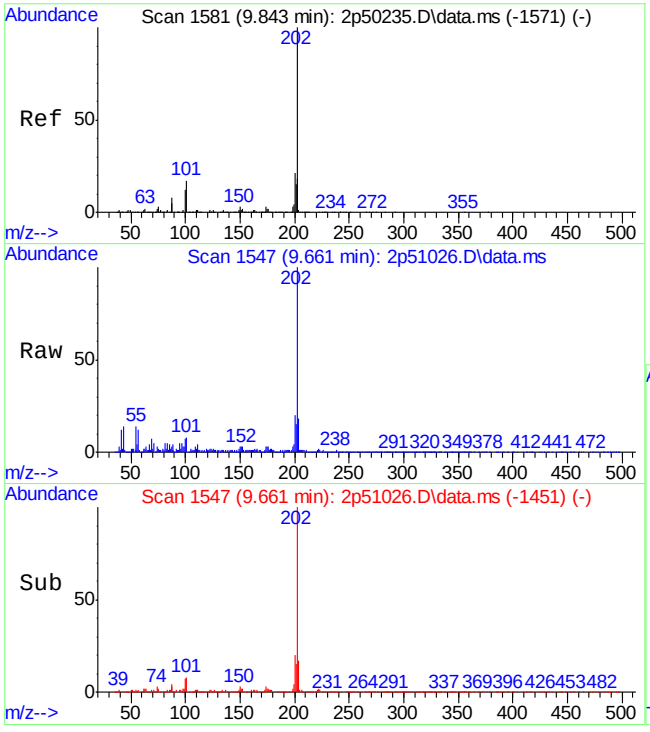
Tgt Ion:178 Resp: 111734

Ion	Ratio	Lower	Upper
178	100		
179	11.2	0.0	46.0
176	18.2	0.0	49.0



9.1.6

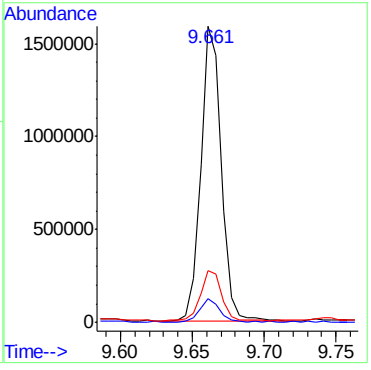
9

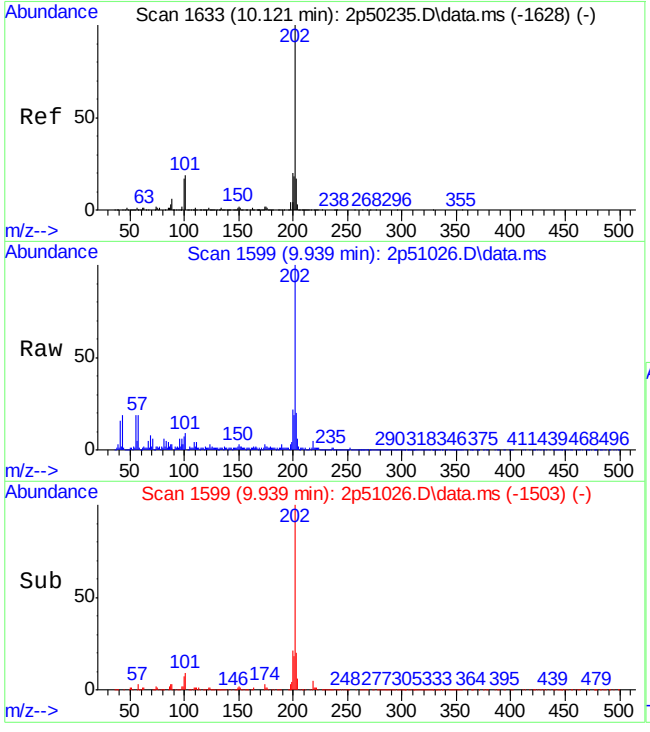


#81
Fluoranthene
Concen: 12.20 ppm
RT: 9.661 min Scan# 1547
Delta R.T. 0.016 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:202 Resp: 1588028

Ion	Ratio	Lower	Upper
202	100		
101	7.8	0.0	43.7
203	16.9	0.0	47.9

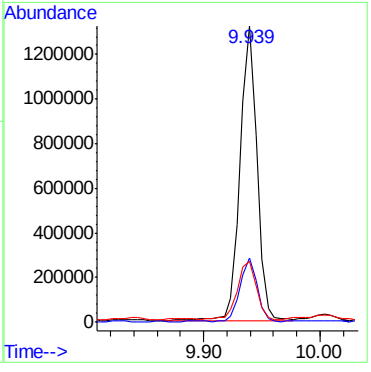




#84
Pyrene
Concen: 9.69 ppm
RT: 9.939 min Scan# 1599
Delta R.T. 0.016 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

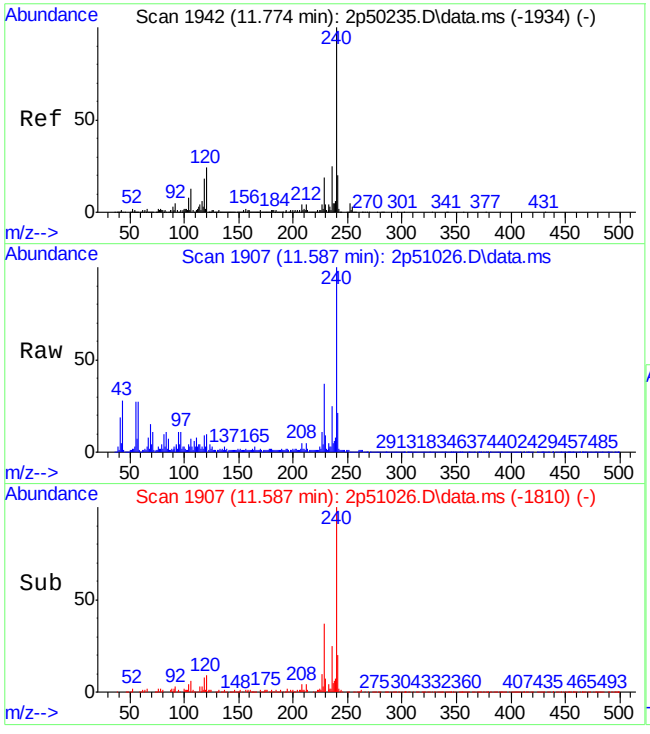
Tgt Ion:202 Resp: 1320459

Ion	Ratio	Lower	Upper
202	100		
200	21.4	0.0	50.6
203	19.2	0.0	48.4



9.1.6

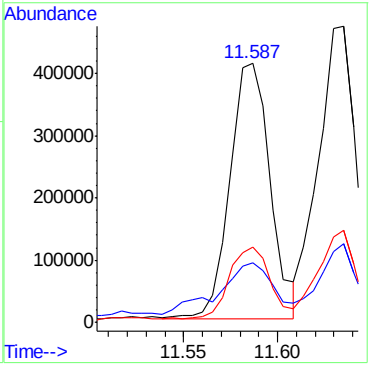
9

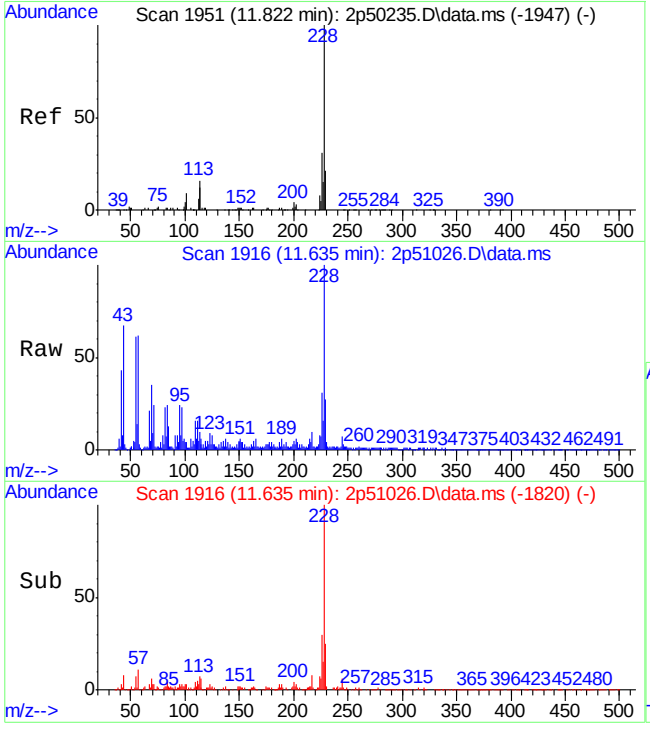


#88
Benzo[a]anthracene
Concen: 4.97 ppm
RT: 11.587 min Scan# 1907
Delta R.T. 0.021 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:228 Resp: 614347

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	49.6
226	28.3	0.0	57.6

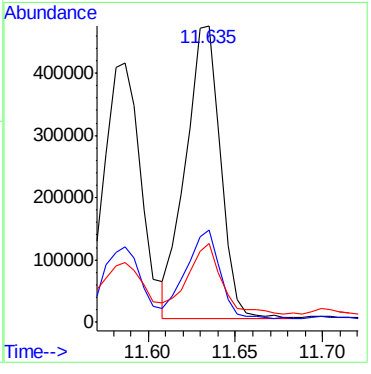




#90
Chrysene
Concen: 6.43 ppm
RT: 11.635 min Scan# 1916
Delta R.T. 0.016 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

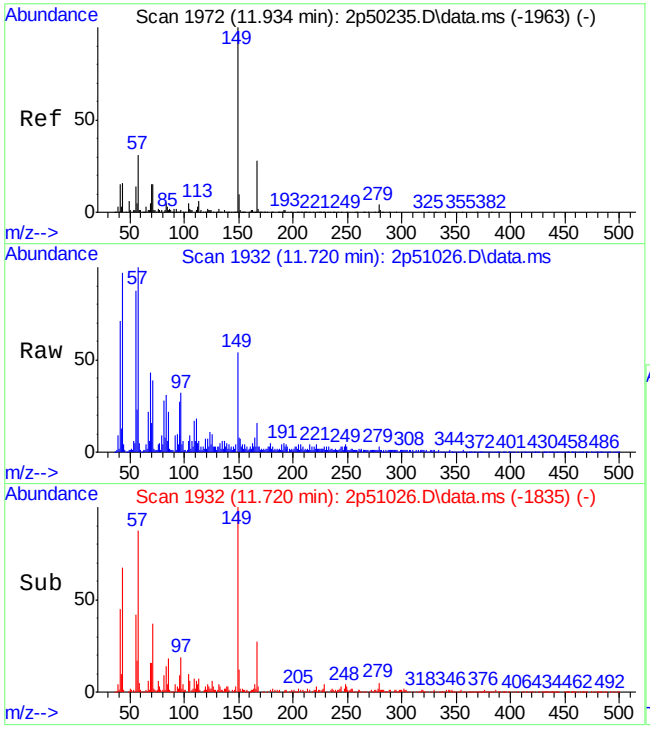
Tgt Ion:228 Resp: 655579

Ion	Ratio	Lower	Upper
228	100		
226	30.5	0.0	59.9
229	23.5	0.0	50.0



9.1.6

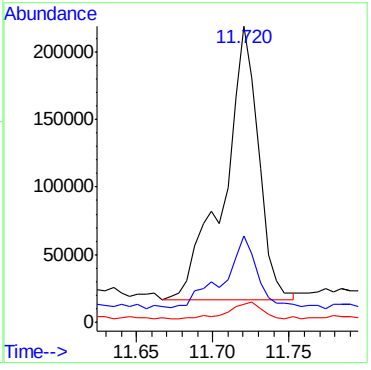
9

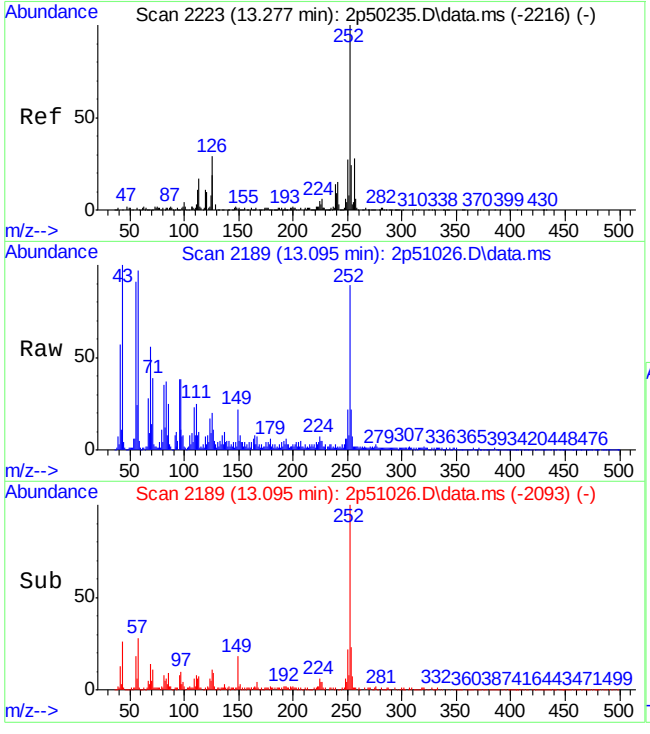


#91
bis(2-Ethylhexyl)phthalate
Concen: 3.43 ppm
RT: 11.720 min Scan# 1932
Delta R.T. 0.021 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:149 Resp: 316203

Ion	Ratio	Lower	Upper
149	100		
167	25.8	0.0	57.6
279	4.7	0.0	33.5

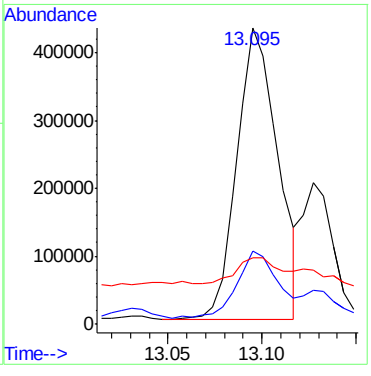




#94
Benzo[b]fluoranthene
Concen: 5.65 ppm
RT: 13.095 min Scan# 2189
Delta R.T. 0.016 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

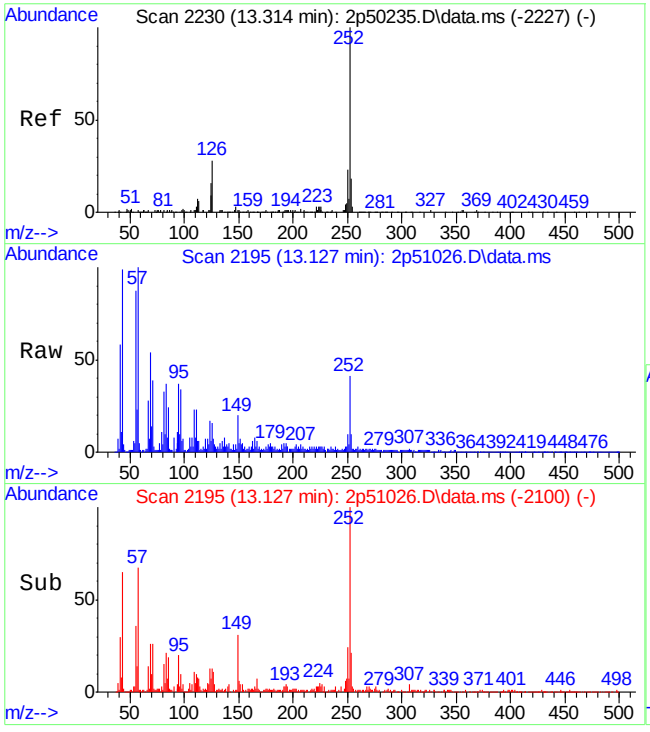
Tgt Ion:252 Resp: 650826

Ion	Ratio	Lower	Upper
252	100		
253	22.6	0.0	54.6
125	7.8	0.0	47.6



9.1.6

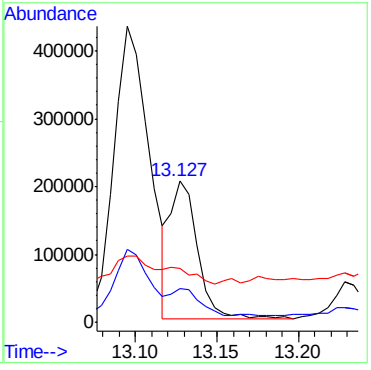
9

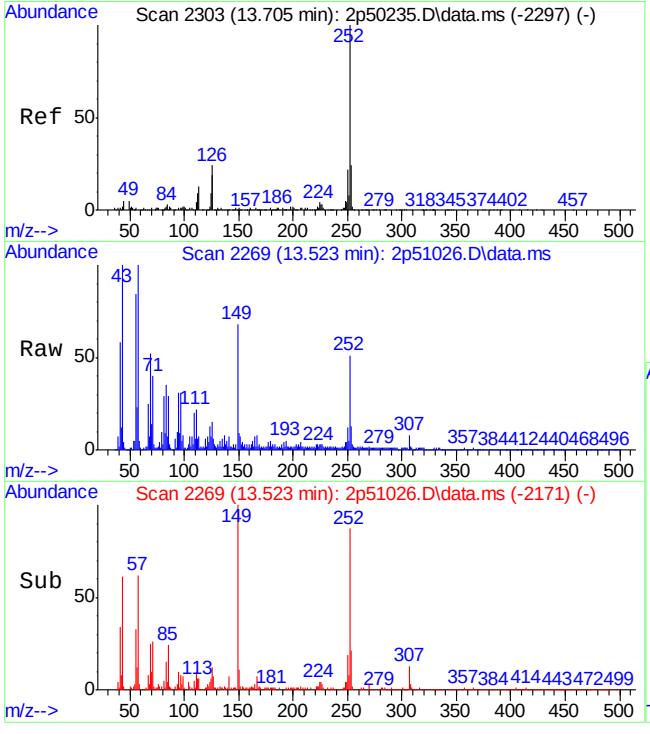


#95
Benzo[k]fluoranthene
Concen: 2.43 ppm
RT: 13.127 min Scan# 2195
Delta R.T. 0.011 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:252 Resp: 235758

Ion	Ratio	Lower	Upper
252	100		
253	18.2	0.0	51.9
125	6.9	0.0	45.8

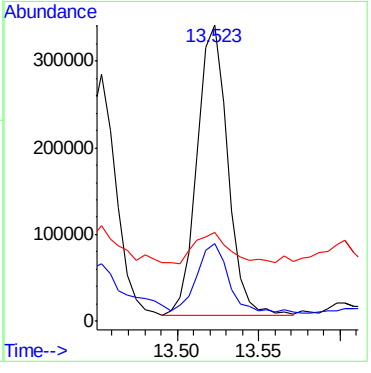




#96
Benzo[a]pyrene
Concen: 4.45 ppm
RT: 13.523 min Scan# 2269
Delta R.T. 0.027 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

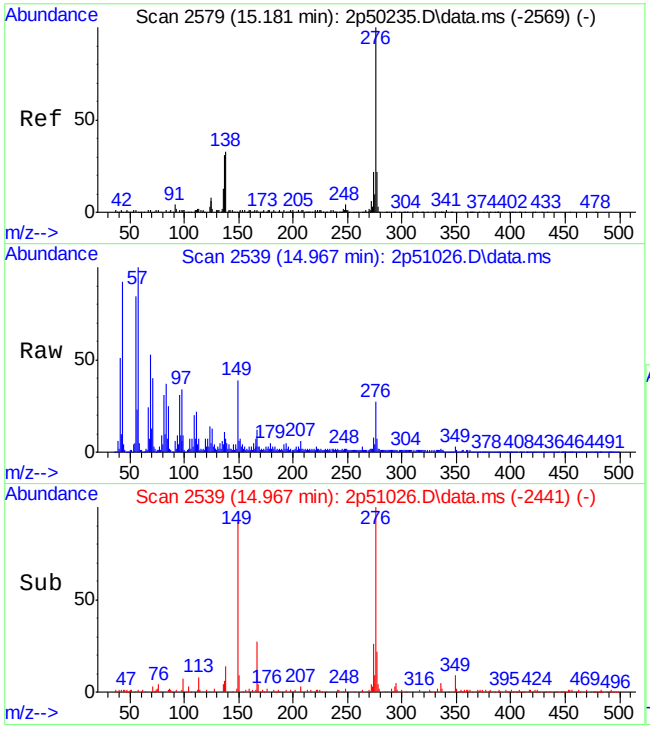
Tgt Ion:252 Resp: 440041

Ion	Ratio	Lower	Upper
252	100		
253	22.5	0.0	51.5
125	10.1	0.0	45.4



9.1.6

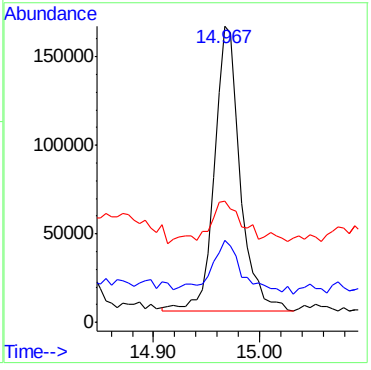
9

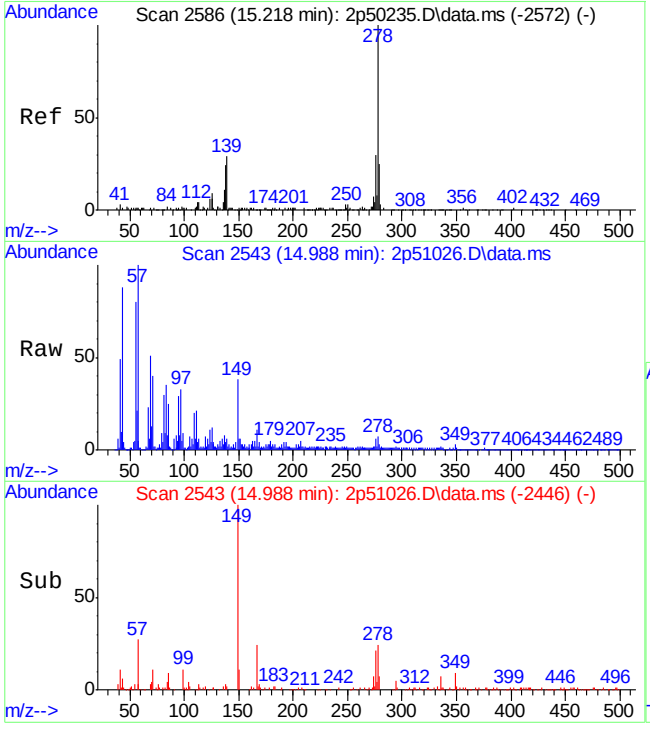


#97
Indeno[1,2,3-cd]pyrene
Concen: 3.01 ppm
RT: 14.967 min Scan# 2539
Delta R.T. 0.027 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:276 Resp: 274962

Ion	Ratio	Lower	Upper
276	100		
138	16.7	0.0	59.5
137	10.8	0.0	51.5

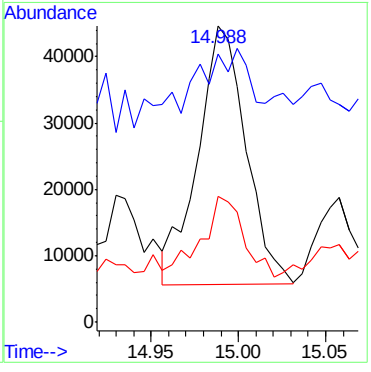




#99
Dibenz[a,h]anthracene
Concen: 0.85 ppm
RT: 14.988 min Scan# 2543
Delta R.T. 0.021 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

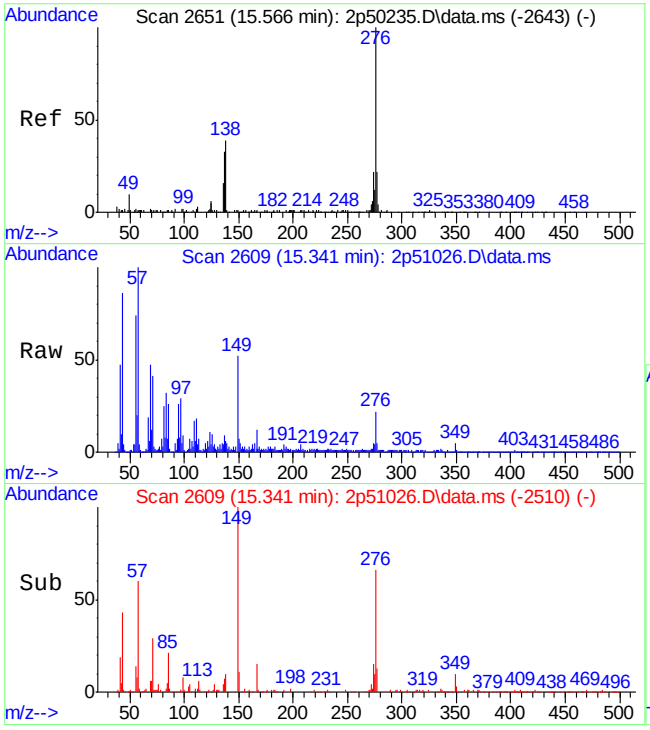
Tgt Ion:278 Resp: 74634

Ion	Ratio	Lower	Upper
278	100		
139	20.9	0.0	57.4
279	29.8	0.0	54.2



9.1.6

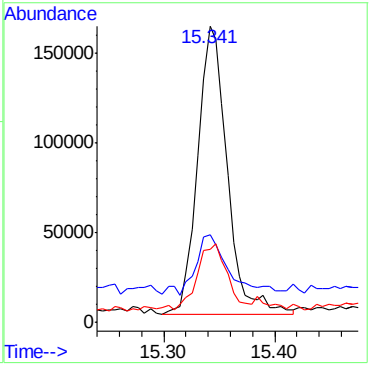
9



#101
Benzo[g,h,i]perylene
Concen: 3.27 ppm
RT: 15.341 min Scan# 2609
Delta R.T. 0.032 min
Lab File: 2p51026.D
Acq: 30 Jul 2015 12:39 am

Tgt Ion:276 Resp: 296979

Ion	Ratio	Lower	Upper
276	100		
138	19.2	7.3	67.3
277	19.6	0.0	53.6



9.1.6

Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
07/31/15 11:41

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51027.D
Acq On : 30 Jul 2015 1:01 am
Operator : ashleyd
Sample : jb99970-9
Misc : op85890,e2p2191,31.4
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 30 17:56:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.564	152	1429517	40.00	ppm	0.00
24) Naphthalene-d8	5.618	136	4845023	40.00	ppm	0.00
47) Acenaphthene-d10	7.067	164	2943229	40.00	ppm	0.02
69) Phenanthrene-d10	8.351	188	5116233	40.00	ppm	0.02
83) Chrysene-d12	11.613	240	5111095	40.00	ppm	0.03
92) Perylene-d12	13.614	264	4482058	40.00	ppm	0.04
102) 1,4-Dichlorobenzene-d4a	4.564	152	1429517	40.00	ppm	0.00
104) Naphthalene-d8a	5.618	136	4845023	40.00	ppm	0.00
106) Acenaphthene-d10a	7.067	164	2943229	40.00	ppm	0.02
109) Chrysene-d12a	11.613	240	5111003	40.00	ppm	0.03
System Monitoring Compounds						
5) 2-Fluorophenol	3.516	112	1358588	26.61	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery = 53.22%			
8) Phenol-d5	4.339	99	1607426	27.40	ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 54.80%			
25) Nitrobenzene-d5	5.035	82	1672088	39.68	ppm	0.00
Spiked Amount 50.000	Range 19 - 61		Recovery = 79.36%#			
51) 2-Fluorobiphenyl	6.516	172	4272111	48.96	ppm	0.02
Spiked Amount 50.000	Range 21 - 58		Recovery = 97.92%#			
73) 2,4,6-Tribromophenol	7.730	330	705990	55.24	ppm	0.02
Spiked Amount 50.000	Range 12 - 68		Recovery = 110.48%#			
85) Terphenyl-d14	10.180	244	4856129	50.58	ppm	0.04
Spiked Amount 50.000	Range 16 - 65		Recovery = 101.16%#			
Target Compounds						Qvalue
59) Acenaphthene	7.094	153	406767	5.32	ppm	91
66) Fluorene	7.516	166	631571	7.00	ppm	84
81) Fluoranthene	9.677	202	132639	0.83	ppm	88
84) Pyrene	9.950	202	788248	4.58	ppm	96
88) Benzo[a]anthracene	11.603	228	162404	1.04	ppm	84
90) Chrysene	11.646	228	186129m	1.45	ppm	
96) Benzo[a]pyrene	13.528	252	94866	0.81	ppm	89
101) Benzo[g,h,i]perylene	15.347	276	70991	0.66	ppm	72

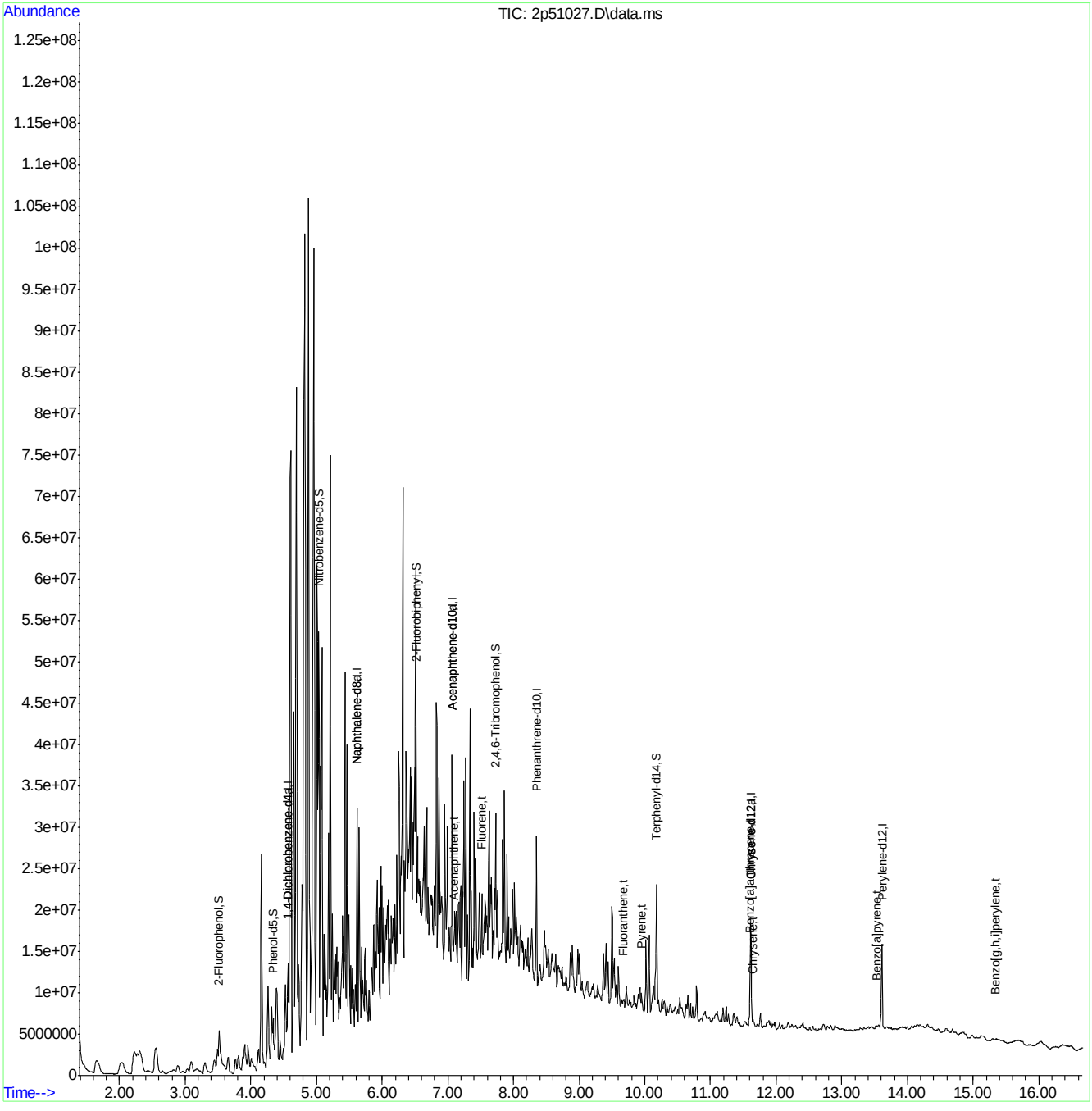
(#) = qualifier out of range (m) = manual integration (+) = signals summed

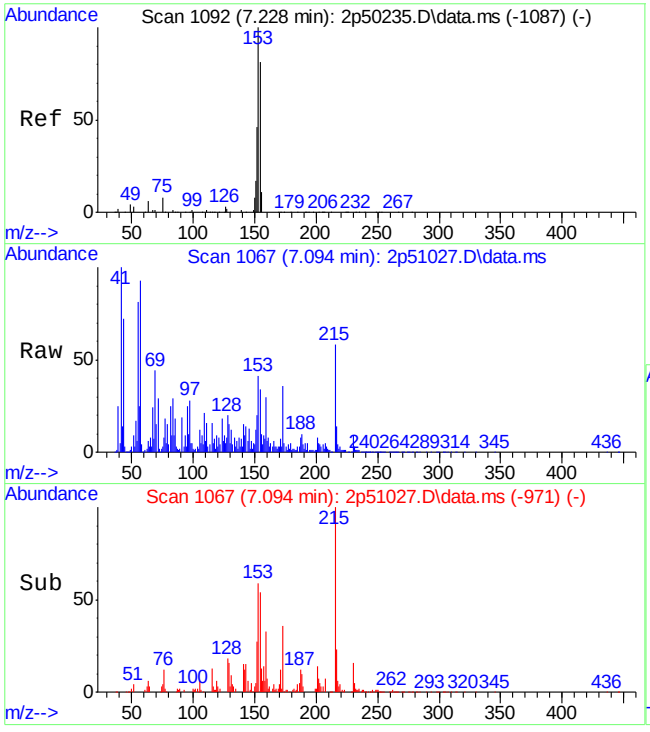
9.1.7
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51027.D
Acq On : 30 Jul 2015 1:01 am
Operator : ashleyd
Sample : jb99970-9
Misc : op85890,e2p2191,31.4
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 30 17:56:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

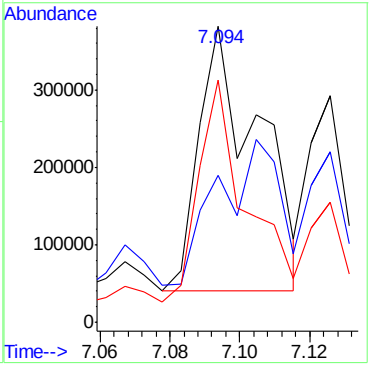


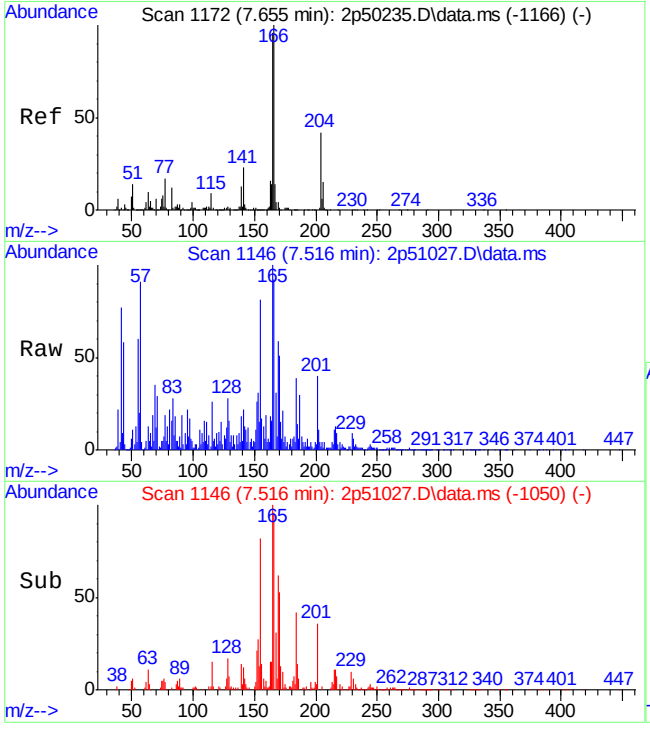


#59
Acenaphthene
Concen: 5.32 ppm
RT: 7.094 min Scan# 1067
Delta R.T. 0.016 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:153 Resp: 406767

Ion	Ratio	Lower	Upper
153	100		
152	39.3	17.7	77.7
154	88.0	64.6	124.6

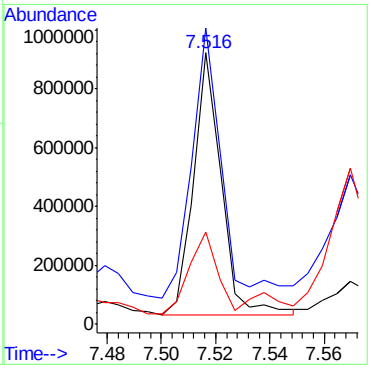


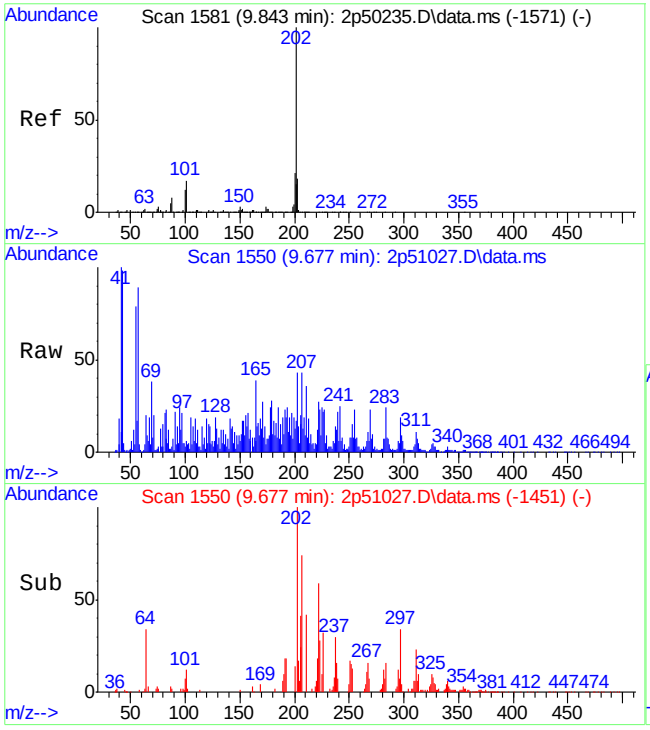


#66
Fluorene
Concen: 7.00 ppm
RT: 7.516 min Scan# 1146
Delta R.T. 0.016 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:166 Resp: 631571

Ion	Ratio	Lower	Upper
166	100		
165	101.8	60.0	120.0
167	30.0	0.0	43.8

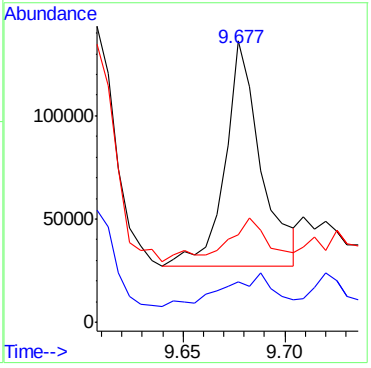


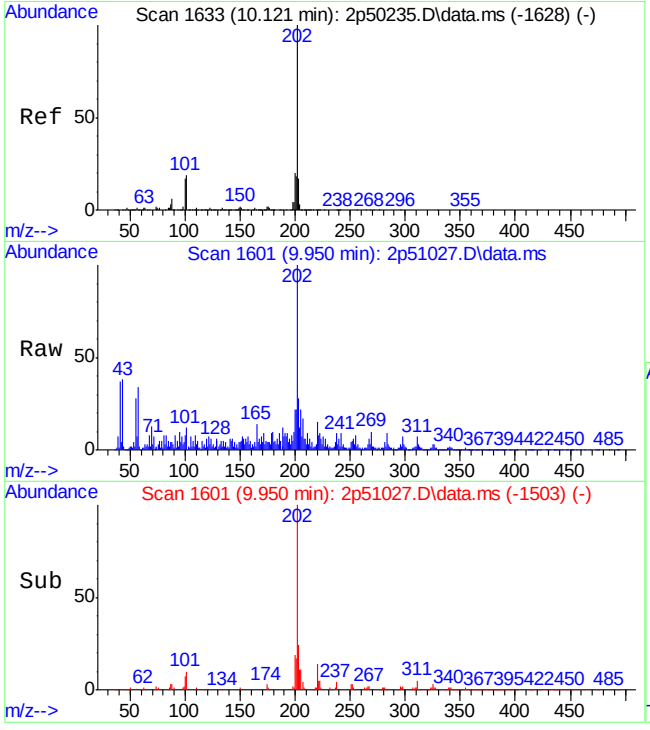


#81
Fluoranthene
Concen: 0.83 ppm
RT: 9.677 min Scan# 1550
Delta R.T. 0.032 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:202 Resp: 132639

Ion	Ratio	Lower	Upper
202	100		
101	10.4	0.0	43.7
203	11.3	0.0	47.9

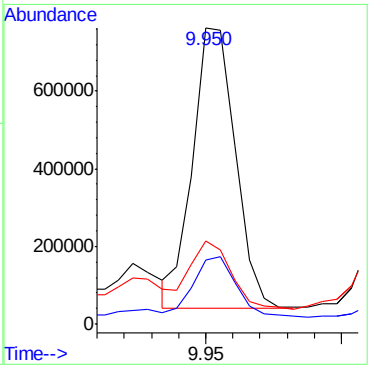


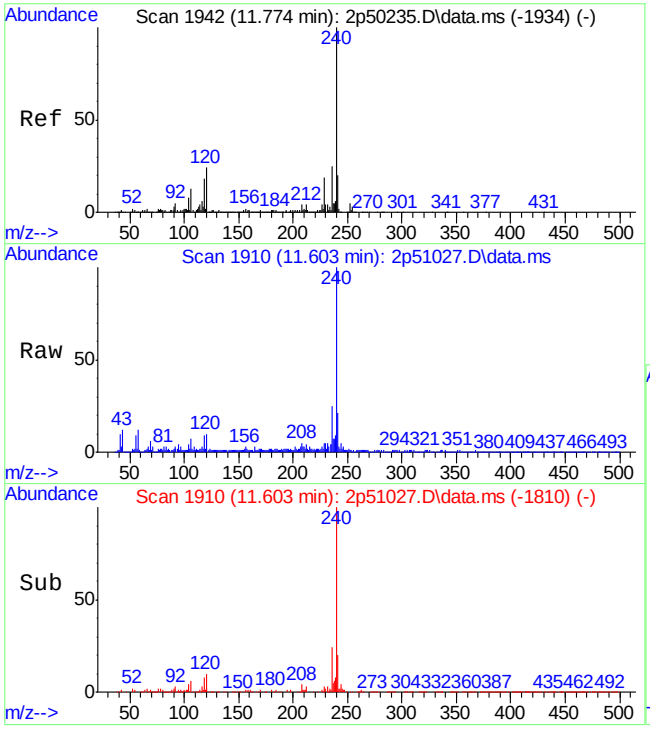


#84
Pyrene
Concen: 4.58 ppm
RT: 9.950 min Scan# 1601
Delta R.T. 0.027 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:202 Resp: 788248

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.6
203	21.8	0.0	48.4

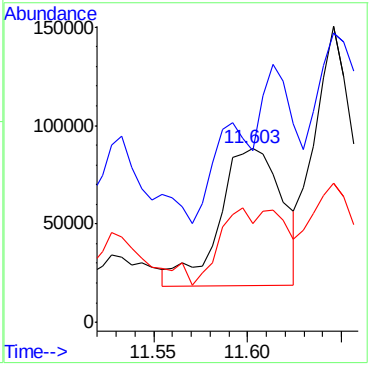


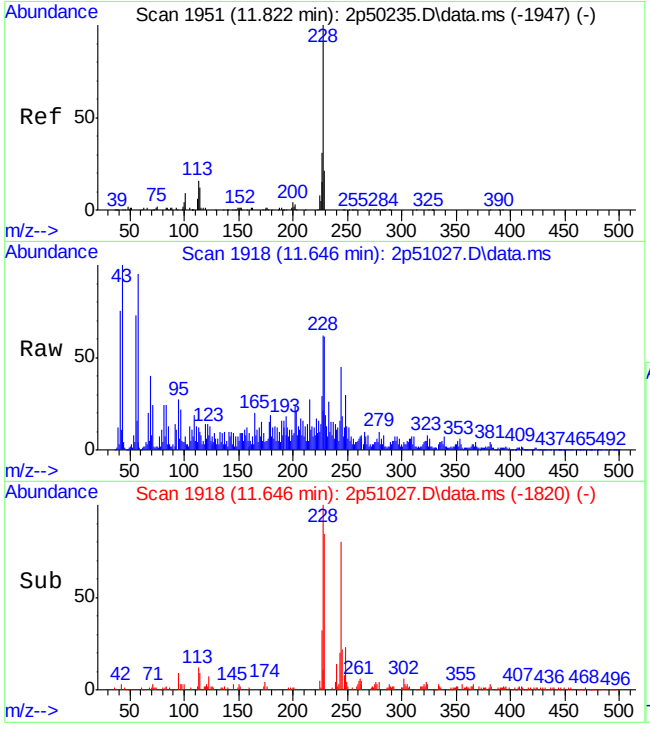


#88
Benzo[a]anthracene
Concen: 1.04 ppm
RT: 11.603 min Scan# 1910
Delta R.T. 0.037 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:228 Resp: 162404

Ion	Ratio	Lower	Upper
228	100		
229	9.0	0.0	49.6
226	33.1	0.0	57.6

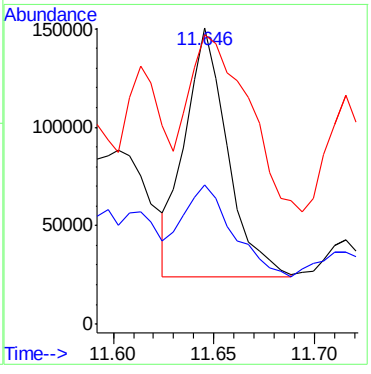




#90
Chrysene
Concen: 1.45 ppm m
RT: 11.646 min Scan# 1918
Delta R.T. 0.027 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

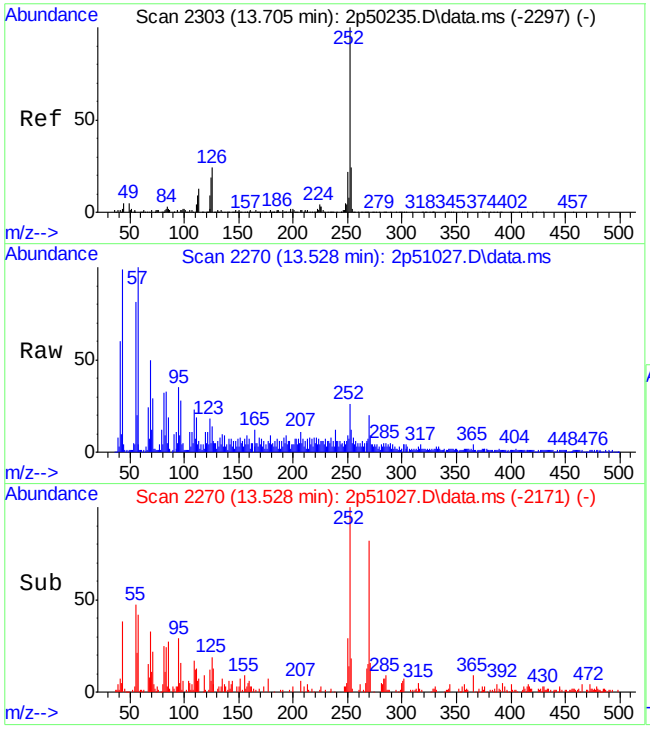
Tgt Ion:228 Resp: 186129

Ion	Ratio	Lower	Upper
228	100		
226	47.0	0.0	59.9
229	97.9	0.0	50.0#



9.1.7

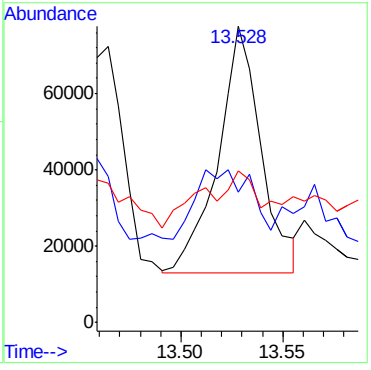
9

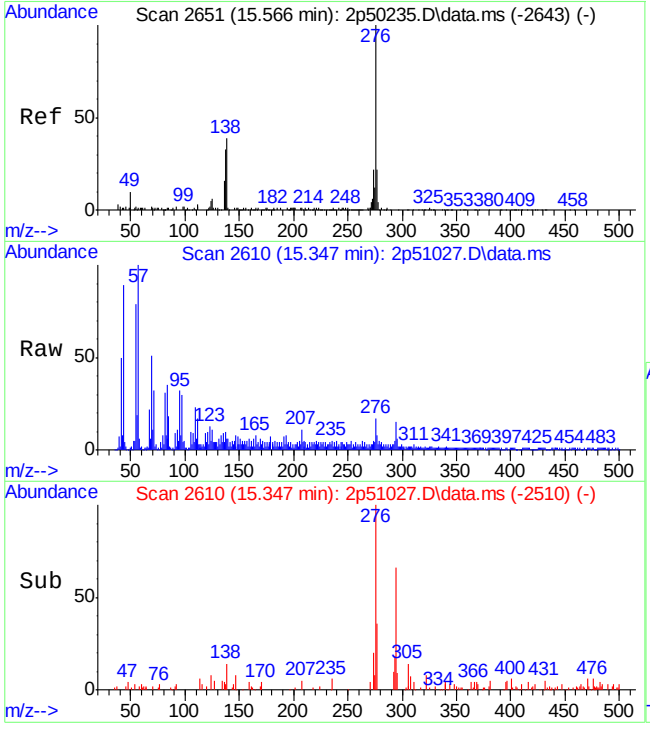


#96
Benzo[a]pyrene
Concen: 0.81 ppm
RT: 13.528 min Scan# 2270
Delta R.T. 0.032 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:252 Resp: 94866

Ion	Ratio	Lower	Upper
252	100		
253	14.9	0.0	51.5
125	18.4	0.0	45.4

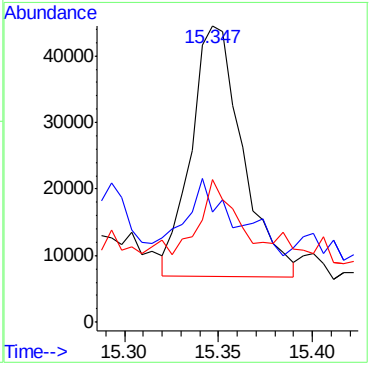




#101
Benzo[g,h,i]perylene
Concen: 0.66 ppm
RT: 15.347 min Scan# 2610
Delta R.T. 0.037 min
Lab File: 2p51027.D
Acq: 30 Jul 2015 1:01 am

Tgt Ion:276 Resp: 70991

Ion	Ratio	Lower	Upper
276	100		
138	13.2	7.3	67.3
277	28.0	0.0	53.6



9.1.7

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3236\
Data File : 3E74566.D
Acq On : 4 Aug 2015 4:35 am
Operator : saraw
Sample : jb99970-10
Misc : op86000,e3e3236,30.0
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 11:25:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 08:13:15 2015
QLast Update : Tue Aug 04 08:13:15 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.695	152	516191	40.00	ppm	0.00
24) Naphthalene-d8	5.791	136	1860618	40.00	ppm	0.00
47) Acenaphthene-d10	7.866	164	1080743	40.00	ppm	-0.01
69) Phenanthrene-d10	10.049	188	1684037	40.00	ppm	-0.02
83) Chrysene-d12	14.247	240	1546925	40.00	ppm	-0.02
92) Perylene-d12	16.382	264	1695079	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	4.695	152	516191	40.00	ppm	0.00
104) Acenaphthene-d10a	7.866	164	1080743	40.00	ppm	-0.01
106) Phenanthrene-d10a	10.049	188	1684037	40.00	ppm	-0.02
108) Chrysene-d12a	14.247	240	1546925	40.00	ppm	-0.02
110) Naphthalene-d8a	5.791	136	1860618	40.00	ppm	0.00
112) Chrysene-d12b	14.247	240	1546925	40.00	ppm	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	3.748	112	591856	35.30	ppm	0.00
Spiked Amount 50.000			Recovery = 70.60%			
8) Phenol-d5	4.459	99	819483	41.97	ppm	0.00
Spiked Amount 50.000			Recovery = 83.94%			
25) Nitrobenzene-d5	5.139	82	771059	51.01	ppm	0.00
Spiked Amount 50.000			Recovery = 102.02%			
51) 2-Fluorobiphenyl	6.984	172	1471849	43.71	ppm	-0.01
Spiked Amount 50.000			Recovery = 87.42%			
73) 2,4,6-Tribromophenol	9.006	330	62773	11.94	ppm	-0.02
Spiked Amount 50.000			Recovery = 23.88%			
85) Terphenyl-d14	12.605	244	1392334	50.73	ppm	-0.02
Spiked Amount 50.000			Recovery = 101.46%			

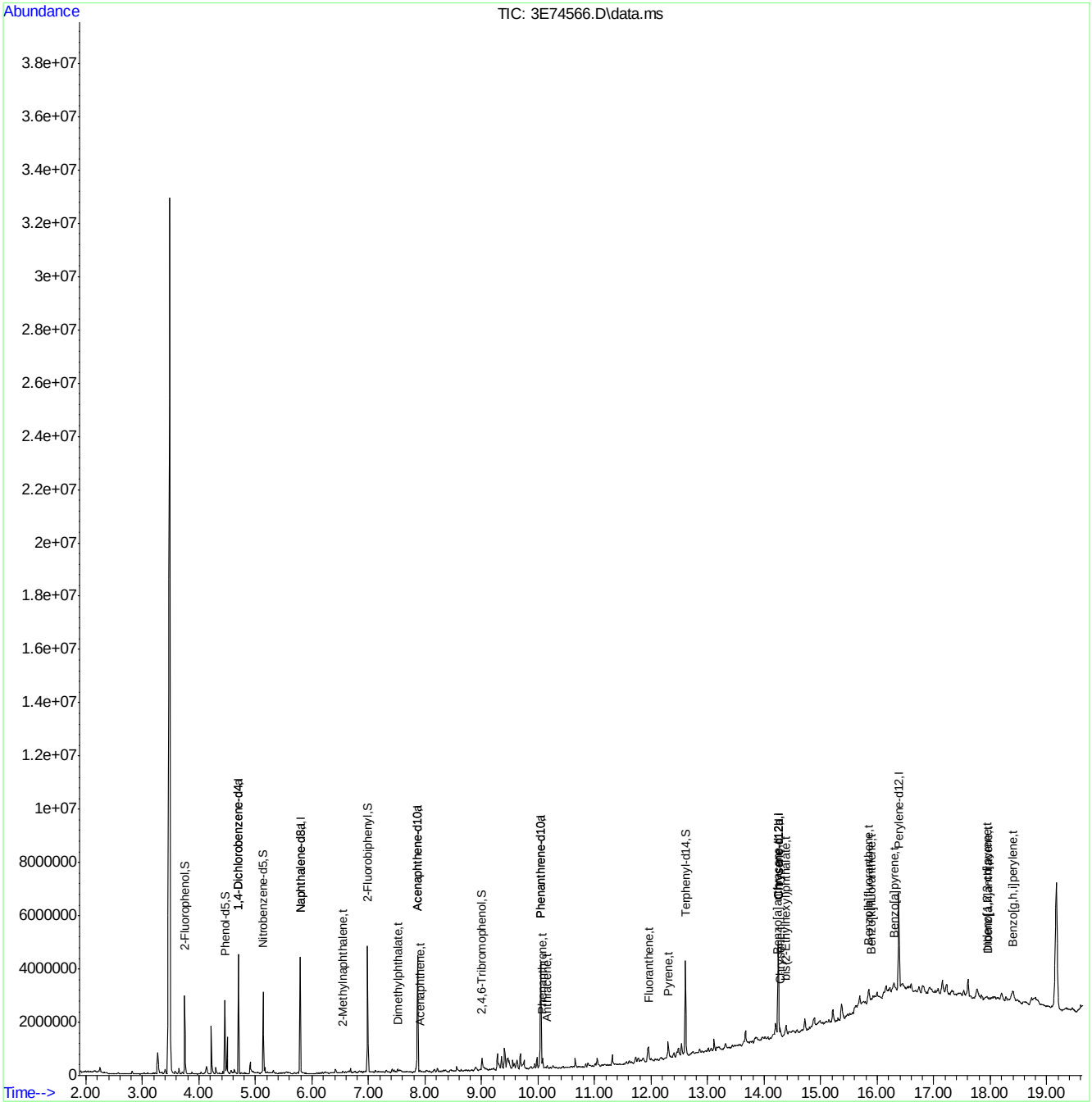
Target Compounds						Qvalue
44) 2-Methylnaphthalene	6.545	141	12091	0.47	ppm	94
55) Dimethylphthalate	7.513	163	49402	1.41	ppm	97
59) Acenaphthene	7.909	153	14865	0.48	ppm	90
77) Phenanthrene	10.081	178	155941	3.18	ppm	98
78) Anthracene	10.161	178	47070	0.97	ppm	99
81) Fluoranthene	11.953	202	250637	5.13	ppm	98
84) Pyrene	12.301	202	240955	5.04	ppm	94
88) Benzo[a]anthracene	14.231	228	111289	2.52	ppm	92
90) Chrysene	14.285	228	138251	3.43	ppm	97
91) bis(2-Ethylhexyl)phtha...	14.392	149	131312	3.99	ppm	89
94) Benzo[b]fluoranthene	15.852	252	125626	2.48	ppm	96
95) Benzo[k]fluoranthene	15.889	252	33486	0.73	ppm	82
96) Benzo[a]pyrene	16.296	252	84506	1.95	ppm	94
97) Indeno[1,2,3-cd]pyrene	17.938	276	46375	1.01	ppm	84
99) Dibenz[a,h]anthracene	17.959	278	19743	0.43	ppm	85
101) Benzo[g,h,i]perylene	18.387	276	62179	1.43	ppm	87

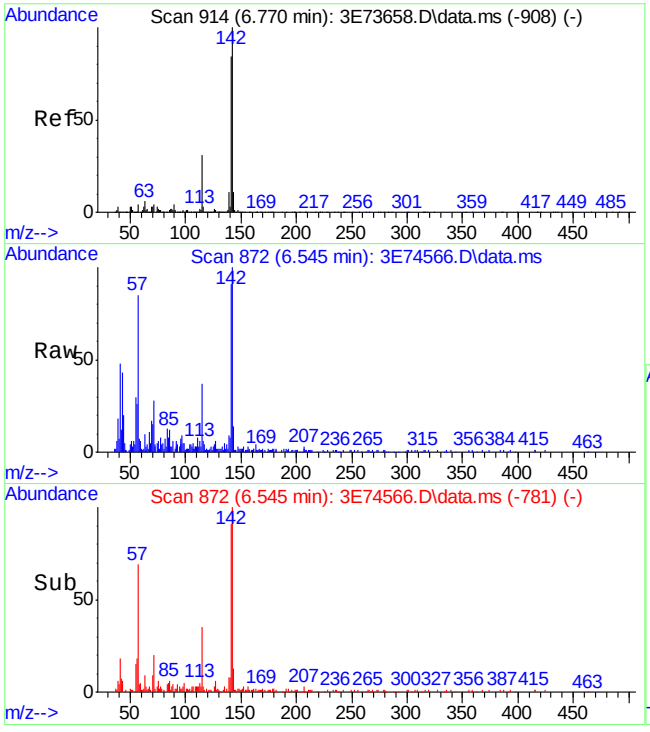
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3236\
Data File : 3E74566.D
Acq On : 4 Aug 2015 4:35 am
Operator : saraw
Sample : jb99970-10
Misc : op86000,e3e3236,30.0
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 11:25:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuTue Aug 04 08:13:15 2015
QLast Update : Tue Aug 04 08:13:15 2015
Response via : Initial Calibration

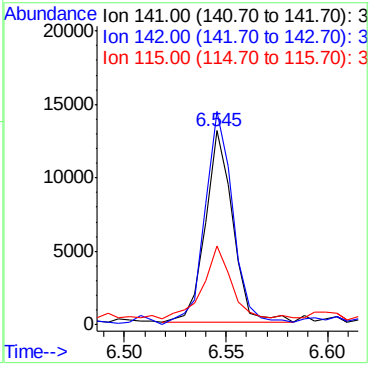


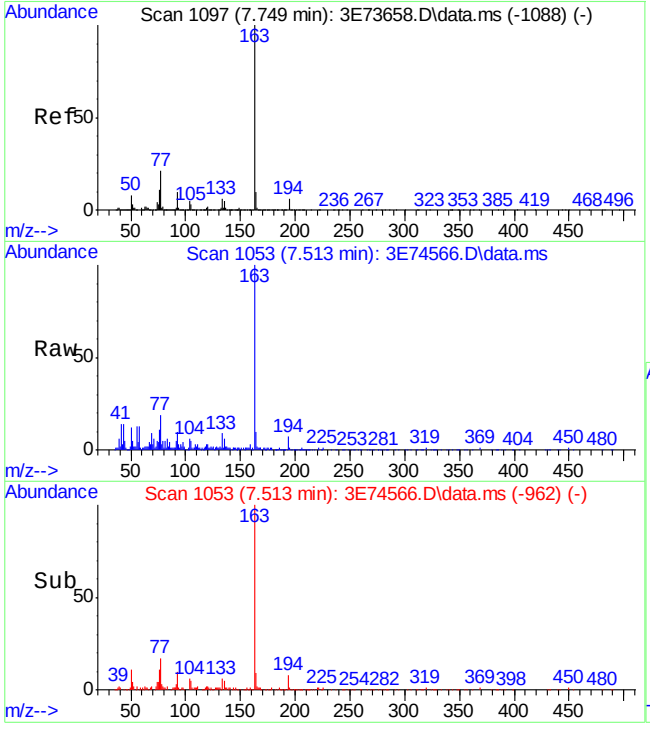


#44
2-Methylnaphthalene
Concen: 0.47 ppm
RT: 6.545 min Scan# 872
Delta R.T. -0.011 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:141 Resp: 12091

Ion	Ratio	Lower	Upper
141	100		
142	110.0	87.9	147.9
115	37.7	5.5	65.5

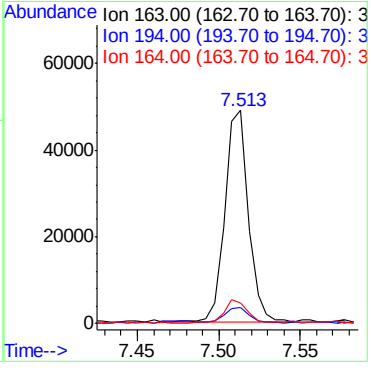




#55
Dimethylphthalate
Concen: 1.41 ppm
RT: 7.513 min Scan# 1053
Delta R.T. -0.011 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:163 Resp: 49402

Ion	Ratio	Lower	Upper
163	100		
194	6.4	0.0	35.9
164	8.7	0.0	40.2



9.1.8

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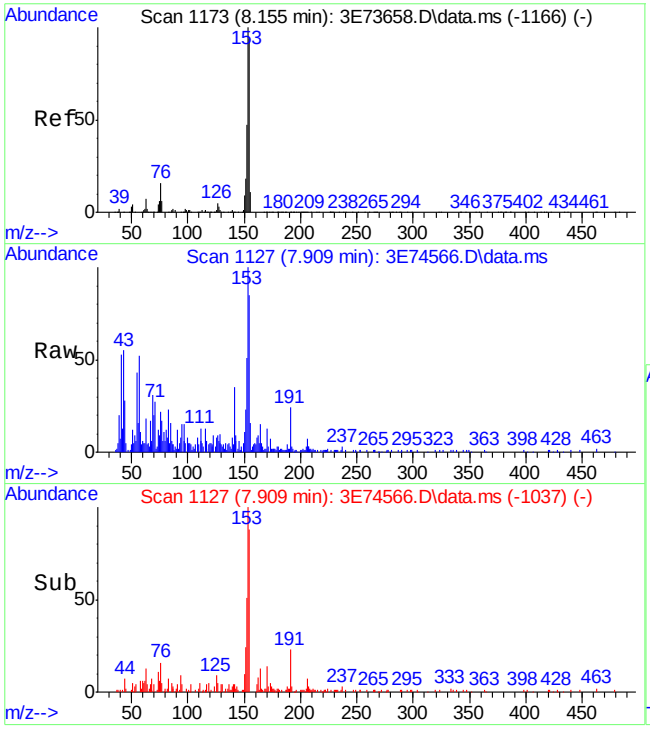
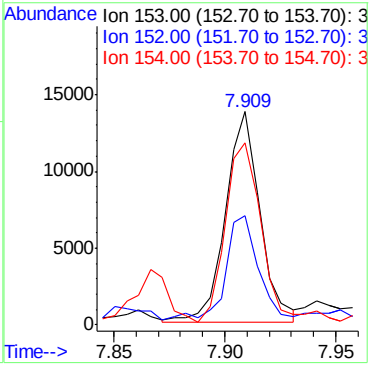
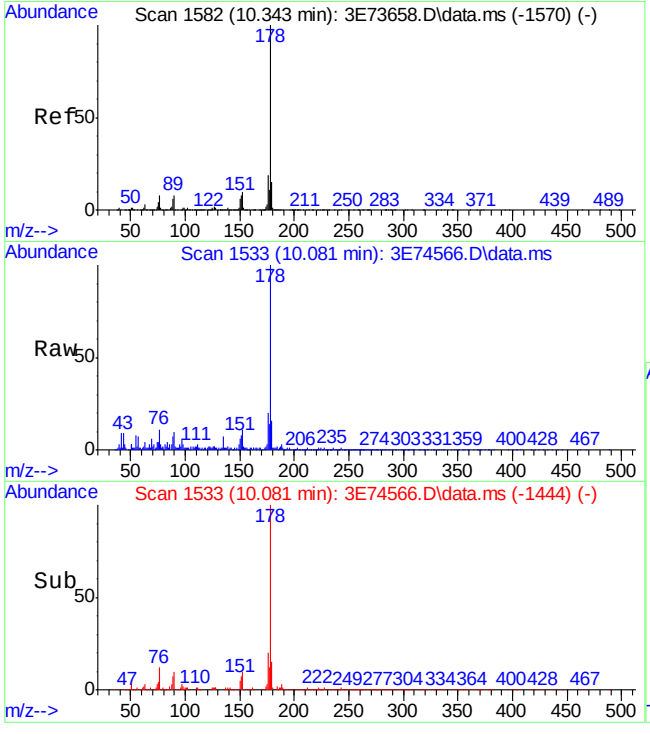


#59
Acenaphthene
Concen: 0.48 ppm
RT: 7.909 min Scan# 1127
Delta R.T. -0.016 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:153 Resp: 14865

Ion	Ratio	Lower	Upper
153	100		
152	50.3	17.0	77.0
154	75.4	57.9	117.9

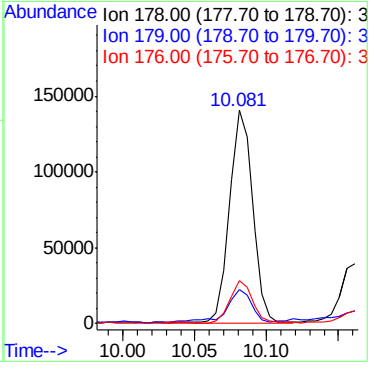


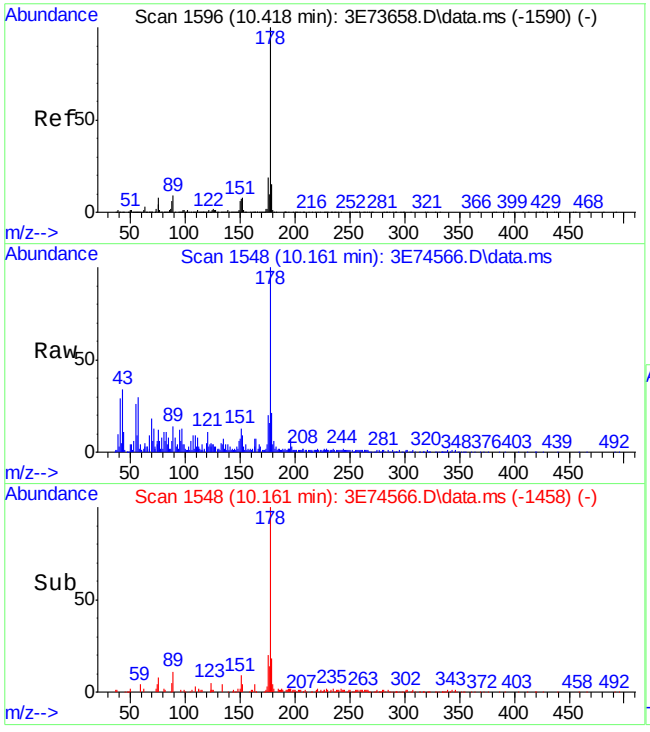


#77
Phenanthrene
Concen: 3.18 ppm
RT: 10.081 min Scan# 1533
Delta R.T. -0.021 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:178 Resp: 155941

Ion	Ratio	Lower	Upper
178	100		
179	14.6	0.0	45.1
176	20.0	0.0	48.5

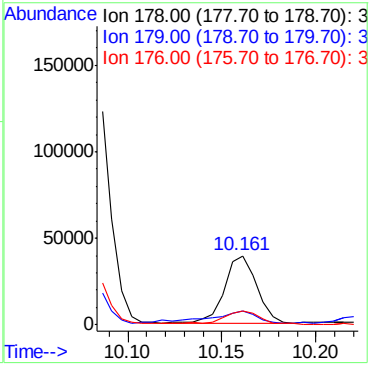


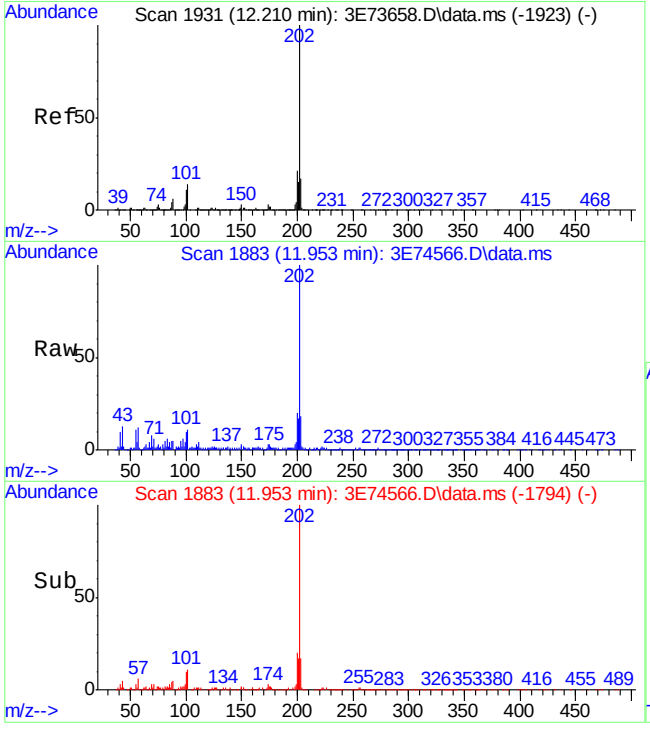


#78
Anthracene
Concen: 0.97 ppm
RT: 10.161 min Scan# 1548
Delta R.T. -0.016 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:178 Resp: 47070

Ion	Ratio	Lower	Upper
178	100		
179	16.1	0.0	45.4
176	18.8	0.0	48.4

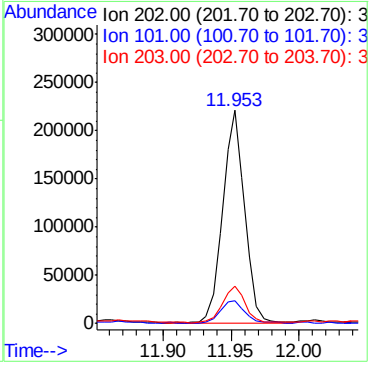


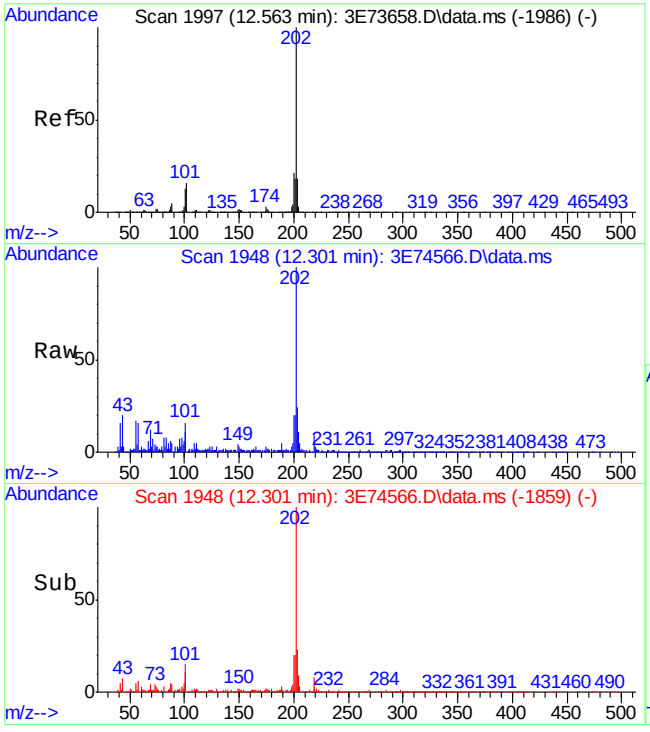


#81
Fluoranthene
Concen: 5.13 ppm
RT: 11.953 min Scan# 1883
Delta R.T. -0.022 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:202 Resp: 250637

Ion	Ratio	Lower	Upper
202	100		
101	10.4	0.0	42.2
203	17.3	0.0	47.0

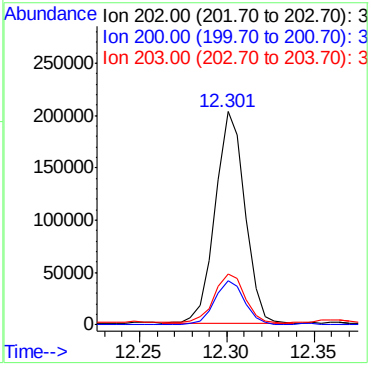


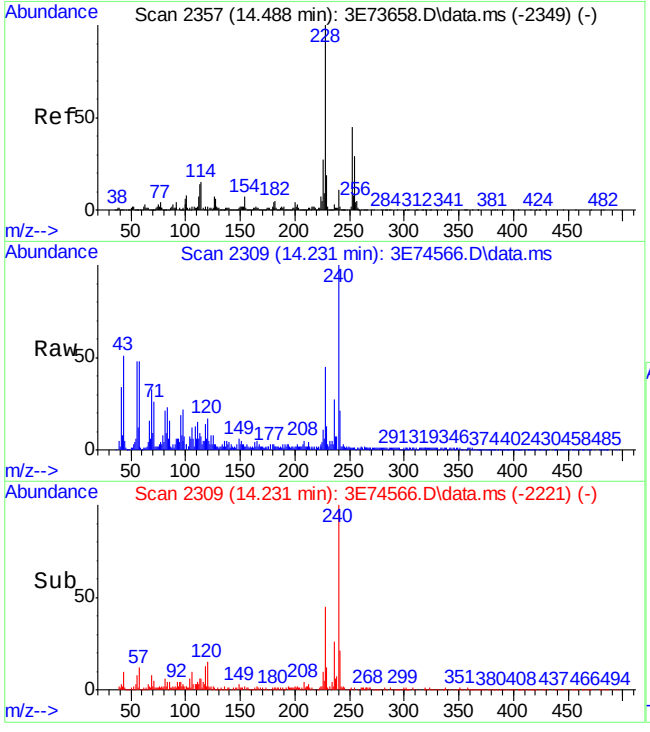


#84
Pyrene
Concen: 5.04 ppm
RT: 12.301 min Scan# 1948
Delta R.T. -0.021 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:202 Resp: 240955

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.6
203	22.8	0.0	47.7

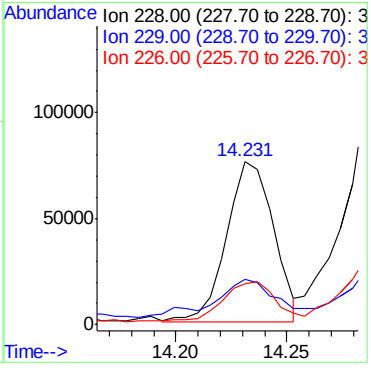




#88
Benzo[a]anthracene
Concen: 2.52 ppm
RT: 14.231 min Scan# 2309
Delta R.T. -0.027 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

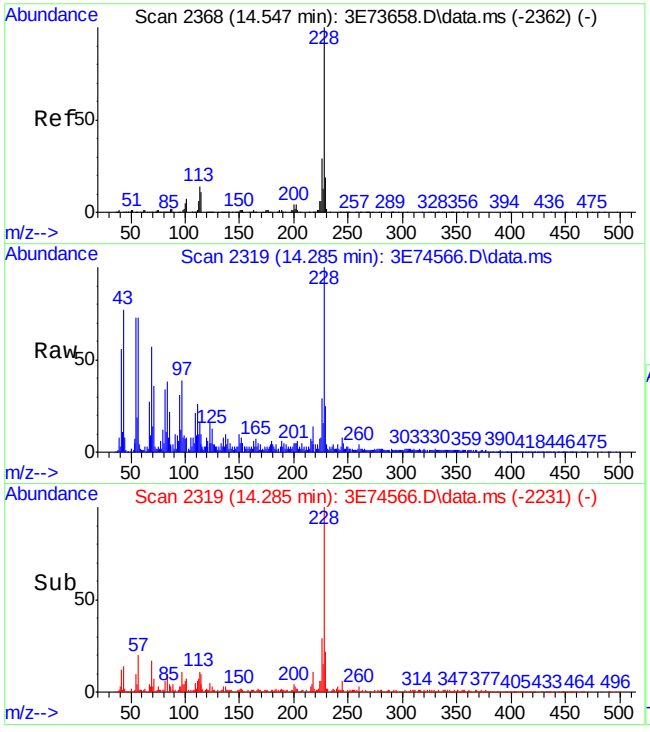
Tgt Ion:228 Resp: 111289

Ion	Ratio	Lower	Upper
228	100		
229	21.8	0.0	49.7
226	22.0	0.0	57.2



9.1.8

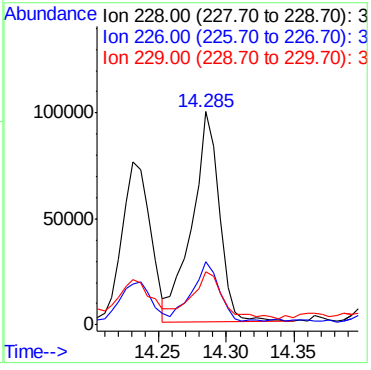
9

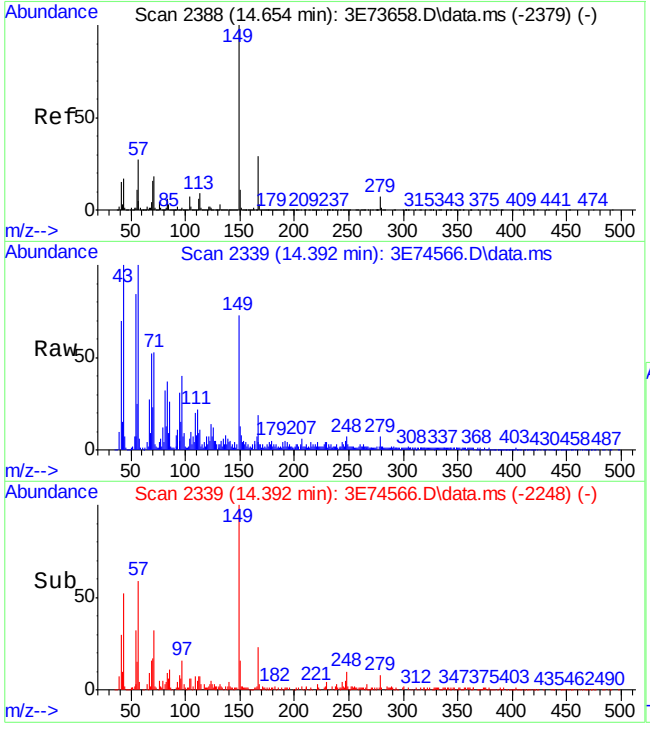


#90
Chrysene
Concen: 3.43 ppm
RT: 14.285 min Scan# 2319
Delta R.T. -0.027 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:228 Resp: 138251

Ion	Ratio	Lower	Upper
228	100		
226	27.6	0.0	58.5
229	21.1	0.0	49.1

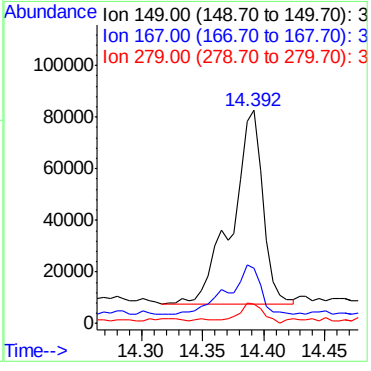




#91
bis(2-Ethylhexyl)phthalate
Concen: 3.99 ppm
RT: 14.392 min Scan# 2339
Delta R.T. -0.011 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

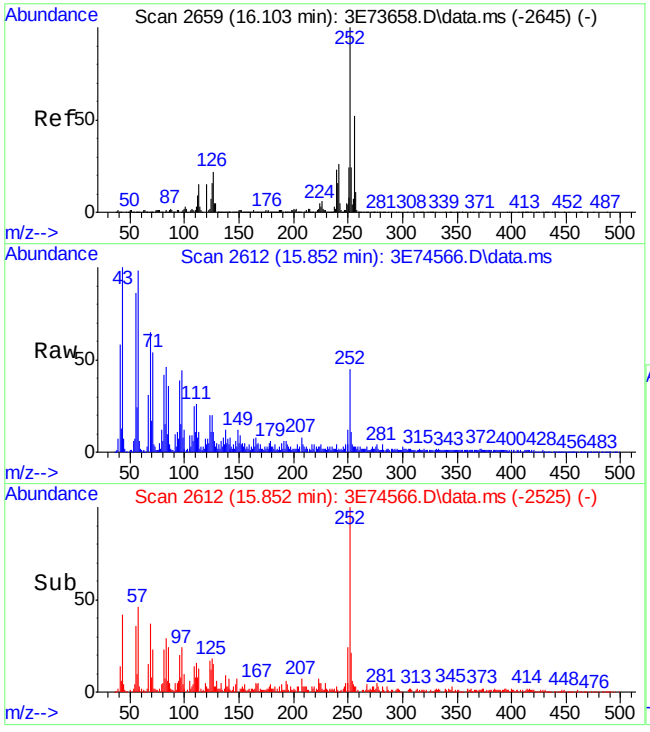
Tgt Ion:149 Resp: 131312

Ion	Ratio	Lower	Upper
149	100		
167	24.2	1.3	61.3
279	7.3	0.0	38.2



9.1.8

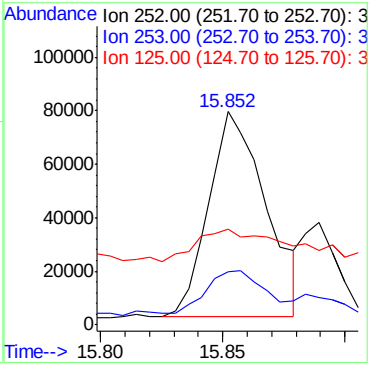
9

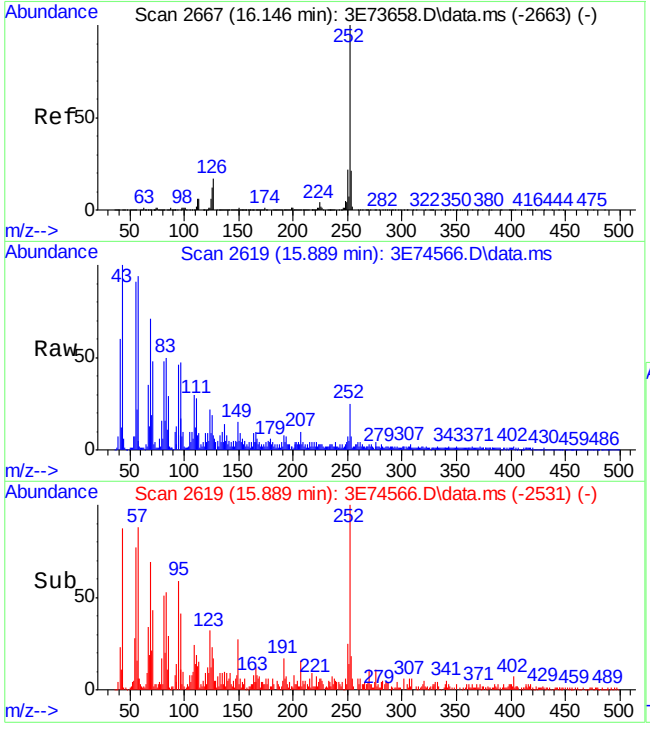


#94
Benzo[b]fluoranthene
Concen: 2.48 ppm
RT: 15.852 min Scan# 2612
Delta R.T. -0.032 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:252 Resp: 125626

Ion	Ratio	Lower	Upper
252	100		
253	20.6	0.0	53.1
125	14.3	0.0	43.8

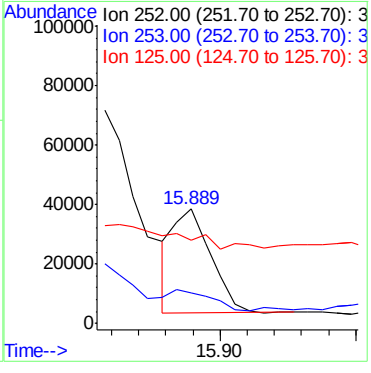




#95
Benzo[k]fluoranthene
Concen: 0.73 ppm
RT: 15.889 min Scan# 2619
Delta R.T. -0.027 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

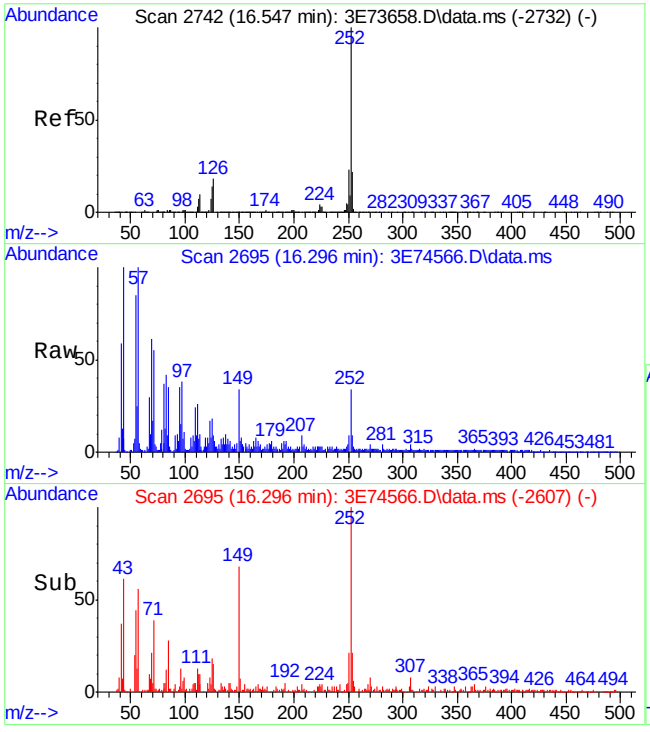
Tgt Ion:252 Resp: 33486

Ion	Ratio	Lower	Upper
252	100		
253	15.8	0.0	50.6
125	0.0	0.0	42.1



9.1.8

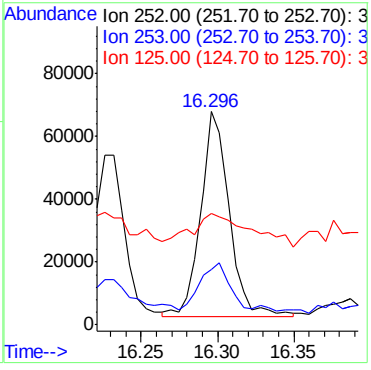
9

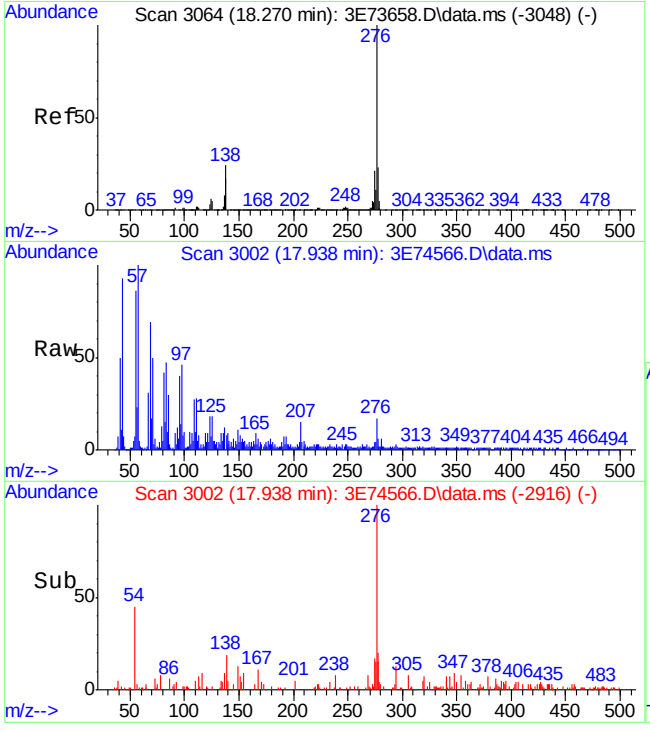


#96
Benzo[a]pyrene
Concen: 1.95 ppm
RT: 16.296 min Scan# 2695
Delta R.T. -0.027 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:252 Resp: 84506

Ion	Ratio	Lower	Upper
252	100		
253	18.6	0.0	51.1
125	15.7	0.0	43.3

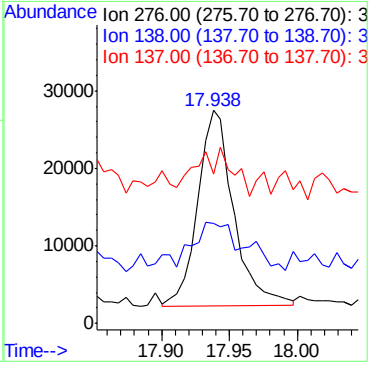


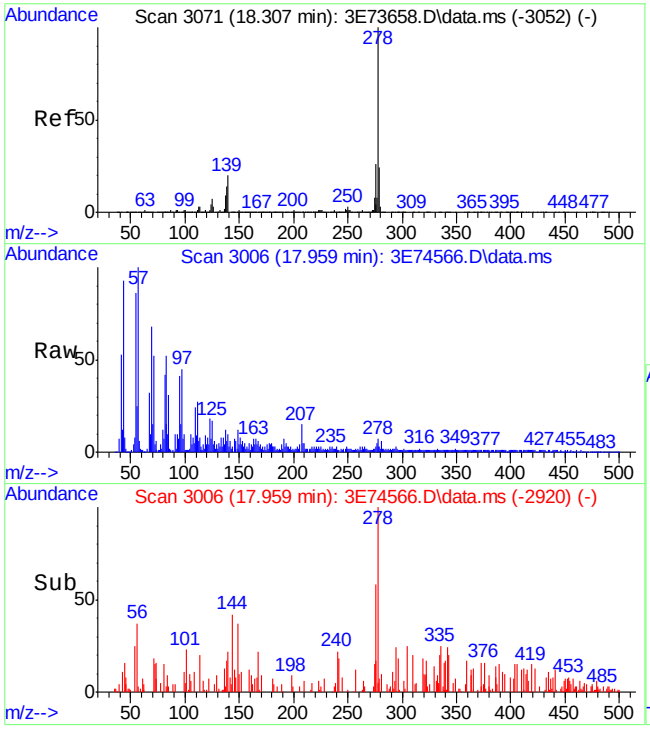


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.01 ppm
RT: 17.938 min Scan# 3002
Delta R.T. -0.038 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:276 Resp: 46375

Ion	Ratio	Lower	Upper
276	100		
138	15.8	0.0	48.0
137	3.2	0.0	45.0

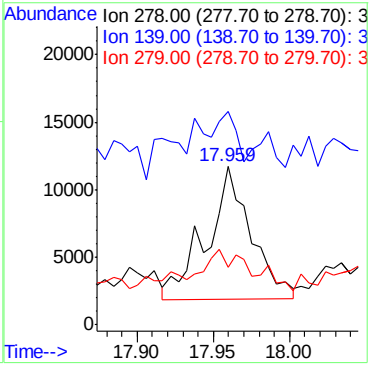


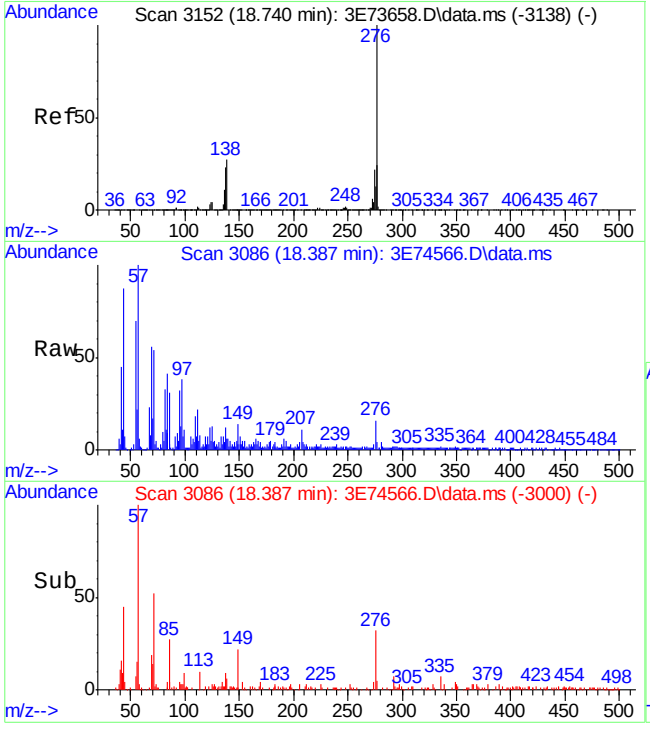


#99
Dibenz[a,h]anthracene
Concen: 0.43 ppm
RT: 17.959 min Scan# 3006
Delta R.T. -0.038 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:278 Resp: 19743

Ion	Ratio	Lower	Upper
278	100		
139	24.5	0.0	47.8
279	15.5	0.0	52.6

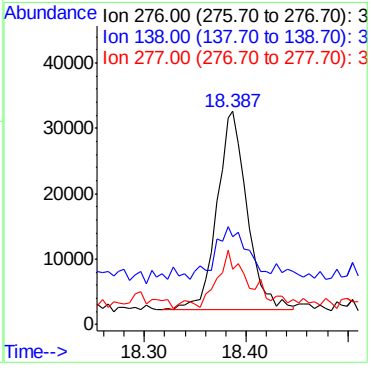




#101
Benzo[g,h,i]perylene
Concen: 1.43 ppm
RT: 18.387 min Scan# 3086
Delta R.T. -0.038 min
Lab File: 3E74566.D
Acq: 4 Aug 2015 4:35 am

Tgt Ion:276 Resp: 62179

Ion	Ratio	Lower	Upper
276	100		
138	18.5	0.0	54.3
277	15.5	0.0	52.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51008.D
Acq On : 29 Jul 2015 5:54 pm
Operator : ashleyd
Sample : op85890-mb1
Misc : op85890,e2p2191,30.0
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 15:35:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.559	152	1399128	40.00 ppm	0.00
24) Naphthalene-d8	5.607	136	4942182	40.00 ppm	0.00
47) Acenaphthene-d10	7.051	164	3122031	40.00 ppm	0.00
69) Phenanthrene-d10	8.329	188	5645619	40.00 ppm	0.00
83) Chrysene-d12	11.587	240	6273796	40.00 ppm	0.00
92) Perylene-d12	13.587	264	5278010	40.00 ppm	0.02
102) 1,4-Dichlorobenzene-d4a	4.559	152	1399128	40.00 ppm	0.00
104) Naphthalene-d8a	5.607	136	4942182	40.00 ppm	0.00
106) Acenaphthene-d10a	7.051	164	3122031	40.00 ppm	0.00
109) Chrysene-d12a	11.587	240	6273796	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.516	112	1594244	31.91 ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery	= 63.82%#	
8) Phenol-d5	4.334	99	1965426	34.23 ppm	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery	= 68.46%#	
25) Nitrobenzene-d5	5.019	82	1994322	46.40 ppm	-0.01
Spiked Amount 50.000	Range 19 - 61		Recovery	= 92.80%#	
51) 2-Fluorobiphenyl	6.500	172	4401758	47.56 ppm	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery	= 95.12%#	
73) 2,4,6-Tribromophenol	7.714	330	730812	51.82 ppm	0.00
Spiked Amount 50.000	Range 12 - 68		Recovery	= 103.64%#	
85) Terphenyl-d14	10.153	244	6385911	54.19 ppm	0.01
Spiked Amount 50.000	Range 16 - 65		Recovery	= 108.38%#	

Target Compounds Qvalue

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

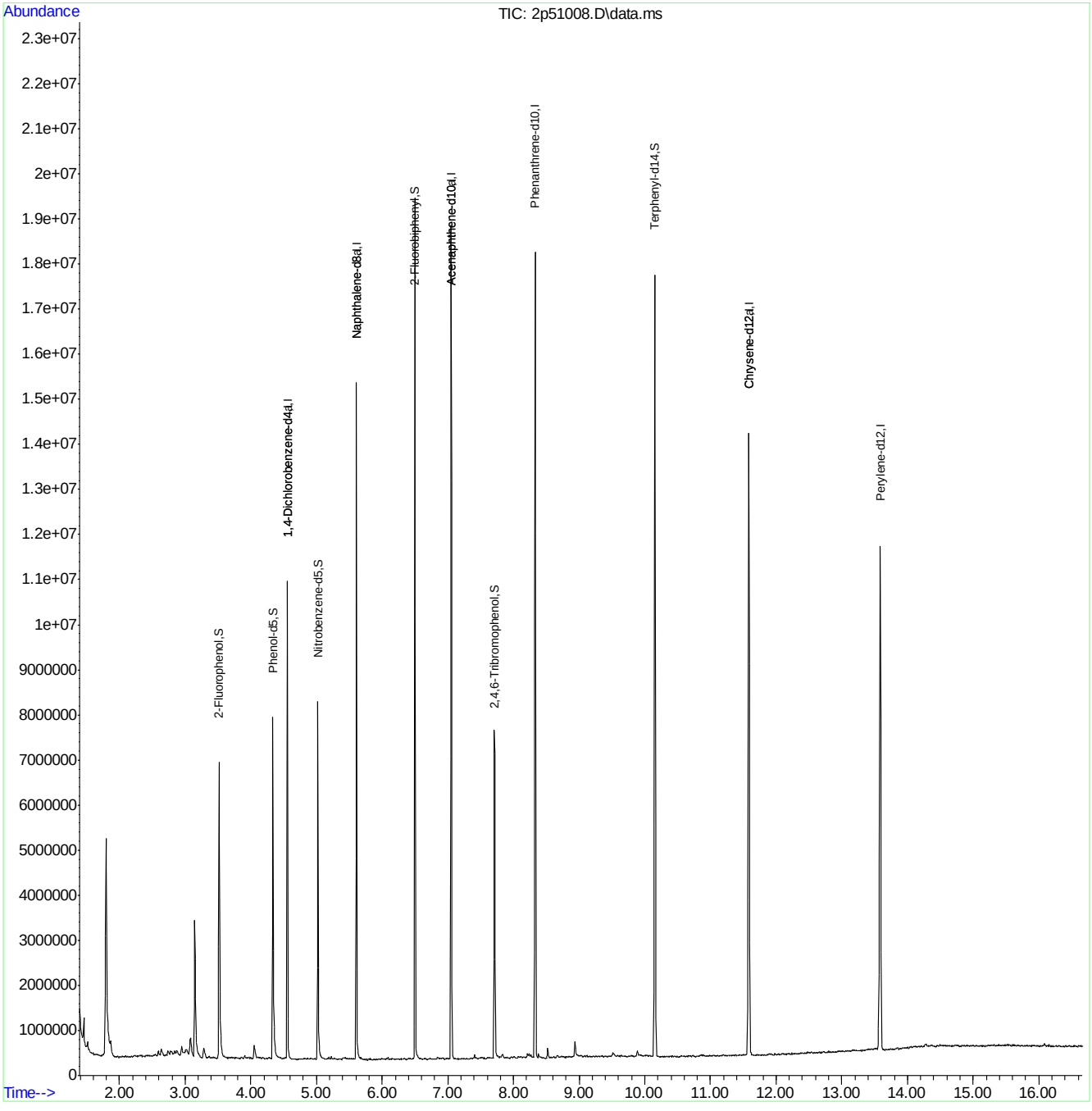
9.2.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\
Data File : 2p51008.D
Acq On : 29 Jul 2015 5:54 pm
Operator : ashleyd
Sample : op85890-mb1
Misc : op85890,e2p2191,30.0
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 15:35:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Tue Jul 28 11:13:30 2015
Response via : Initial Calibration



M2P2153.M Thu Jul 30 15:36:01 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3235\
Data File : 3E74517.D
Acq On : 3 Aug 2015 2:44 pm
Operator : ashleyn
Sample : op86000-mb1
Misc : op86000,e3e3235,30.0
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 16:45:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Aug 03 16:31:46 2015
QLast Update : Mon Aug 03 16:31:46 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.700	152	1103368	40.00 ppm	0.03
24) Naphthalene-d8	5.791	136	4137097	40.00 ppm	0.03
47) Acenaphthene-d10	7.872	164	2279939	40.00 ppm	0.04
69) Phenanthrene-d10	10.054	188	3248449	40.00 ppm	0.04
83) Chrysene-d12	14.248	240	2797679	40.00 ppm	0.04
92) Perylene-d12	16.376	264	2941172	40.00 ppm	0.05
102) 1,4-Dichlorobenzene-d4a	4.700	152	1103368	40.00 ppm	0.03
104) Acenaphthene-d10a	7.872	164	2279939	40.00 ppm	0.04
106) Phenanthrene-d10a	10.054	188	3248449	40.00 ppm	0.04
108) Chrysene-d12a	14.248	240	2797679	40.00 ppm	0.04
110) Naphthalene-d8a	5.791	136	4137097	40.00 ppm	0.03
112) Chrysene-d12b	14.248	240	2797679	40.00 ppm	0.04

System Monitoring Compounds					
5) 2-Fluorophenol	3.743	112	1324459	36.96 ppm	0.03
Spiked Amount 50.000			Recovery	= 73.92%	
8) Phenol-d5	4.454	99	1575891	37.75 ppm	0.02
Spiked Amount 50.000			Recovery	= 75.50%	
25) Nitrobenzene-d5	5.144	82	1281771	38.14 ppm	0.03
Spiked Amount 50.000			Recovery	= 76.28%	
51) 2-Fluorobiphenyl	6.989	172	2996751	42.18 ppm	0.03
Spiked Amount 50.000			Recovery	= 84.36%	
73) 2,4,6-Tribromophenol	9.006	330	371072	36.59 ppm	0.04
Spiked Amount 50.000			Recovery	= 73.18%	
85) Terphenyl-d14	12.611	244	2711350	54.62 ppm	0.05
Spiked Amount 50.000			Recovery	= 109.24%	

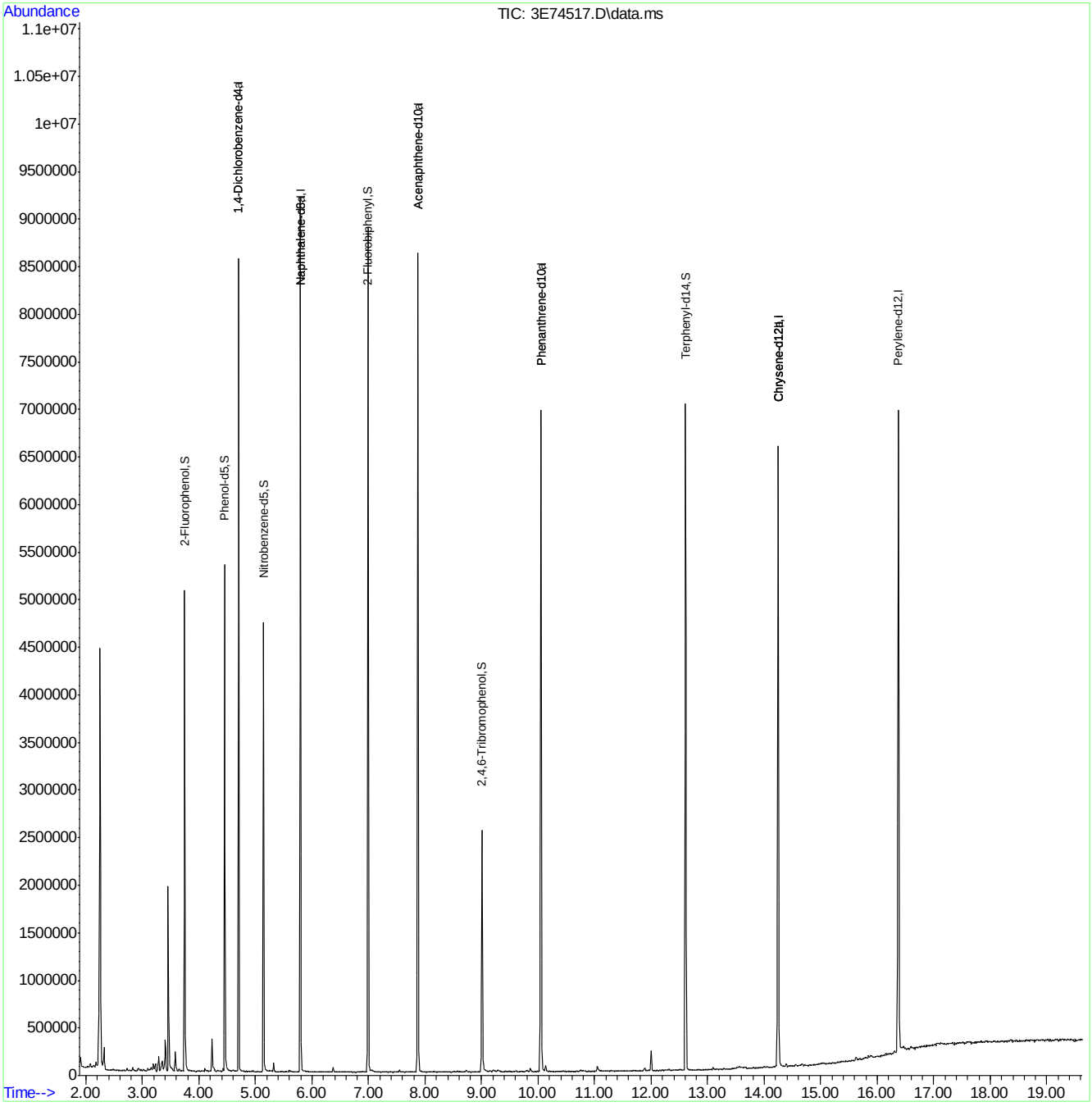
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E3235\
Data File : 3E74517.D
Acq On : 3 Aug 2015 2:44 pm
Operator : ashleyn
Sample : op86000-mb1
Misc : op86000,e3e3235,30.0
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 16:45:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E3197.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Aug 03 16:31:46 2015
QLast Update : Mon Aug 03 16:31:46 2015
Response via : Initial Calibration



M3E3197.M Mon Aug 03 16:45:47 2015 MS3E

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ACCUTEST LABORATORIES
JB99970A

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37201
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:37	MA37201-STD1	1		STDA
09:40	MA37201-STD2	1		STDB
09:43	ZZZZZZ	1		
09:46	ZZZZZZ	1		
09:49	MA37201-ICV1	1		
09:52	MA37201-ICB1	1		
09:55	MA37201-CCV1	1		
09:58	MA37201-CCB1	1		
10:01	MA37201-CRI1	1		
10:04	MA37201-CRID1	1		
10:07	MA37201-CRIA1	1		
10:10	MA37201-ICSA1	1		
10:14	MA37201-ICSAB1	1		
10:17	ZZZZZZ	1		
10:20	ZZZZZZ	1		
10:23	ZZZZZZ	1		
10:26	MA37201-CCV2	1		
10:29	MA37201-CCB2	1		
10:32	ZZZZZZ	1		
10:35	MP87955-LC1	1		
10:38	MP87955-PS1	1		
10:41	ZZZZZZ	1		
10:44	ZZZZZZ	1		
10:48	ZZZZZZ	1		
10:51	ZZZZZZ	1		
10:54	MP87928-S1	1		
10:57	MP87928-S2	1		
11:00	MA37201-CCV3	1		
11:03	MA37201-CCB3	1		
11:06	JB99945-1	1		(sample used for QC only; not part of login JB99970A)
11:09	MP87928-SD1	5		
11:12	ZZZZZZ	1		
11:15	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37201
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:18	ZZZZZZ	1		
11:21	ZZZZZZ	1		
11:24	ZZZZZZ	1		
11:27	ZZZZZZ	1		
11:30	ZZZZZZ	1		
11:33	MA37201-CCV4	1		
11:36	MA37201-CCB4	1		
11:39	ZZZZZZ	1		
11:43	ZZZZZZ	1		
11:46	ZZZZZZ	1		
11:49	ZZZZZZ	1		
11:52	ZZZZZZ	1		
11:55	ZZZZZZ	1		
11:58	ZZZZZZ	1		
12:01	MP87962-MB1	1		
12:04	MP87962-B1	1		
12:07	MA37201-CCV5	1		
12:10	MA37201-CCB5	1		
12:13	ZZZZZZ	1		
12:16	ZZZZZZ	1		
12:20	ZZZZZZ	2		
12:23	MP87962-S1	1		
12:26	MP87962-S2	1		
12:29	JB99498-88	1		(sample used for QC only; not part of login JB99970A)
12:32	MP87962-SD1	5		
---------->	Last reportable sample/prep for job JB99970A			
12:35	ZZZZZZ	1		
12:38	MP87913-MB2	1		
12:41	ZZZZZZ	1		
12:44	MA37201-CCV6	1		
12:47	MA37201-CCB6	1		
12:50	ZZZZZZ	1		
12:54	ZZZZZZ	1		
12:57	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37201
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:00	ZZZZZZ	1		
13:04	ZZZZZZ	1		
13:07	ZZZZZZ	1		
13:11	MP87913-B2	1		
13:13	MP87913-S3	3		
13:16	MP87913-S4	3		
13:20	MA37201-CCV7	1		
13:22	MA37201-CCB7	1		
13:26	JB99823-8F	3		(sample used for QC only; not part of login JB99970A)
13:29	MP87913-SD2	15		
13:33	MA37201-CRI2	1		
13:36	MA37201-CRID2	1		
13:39	MA37201-CRIA2	1		
13:42	MA37201-ICSA2	1		
13:45	MA37201-ICSAB2	1		
13:49	MA37201-CCV8	1		
13:51	MA37201-CCB8	1		
---------->	Last reportable CCB for job JB99970A			
13:55	ZZZZZZ	1		
13:58	ZZZZZZ	1		
14:01	ZZZZZZ	1		
14:04	ZZZZZZ	1		
14:07	ZZZZZZ	1		
14:11	ZZZZZZ	1		
14:14	ZZZZZZ	1		
14:17	ZZZZZZ	1		
14:20	ZZZZZZ	1		
14:23	ZZZZZZ	1		
14:27	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37201
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
09:37	MA37201-STD1	2394 R	78468 R	18557 R	5852 R
09:40	MA37201-STD2	2223	73400	18402	5051
09:43	ZZZZZZ	2340	77725	19277	5347
09:46	ZZZZZZ	2405	80073	19216	5865
09:49	MA37201-ICV1	2273	74893	18879	5218
09:52	MA37201-ICB1	2404	79919	19278	5854
09:55	MA37201-CCV1	2271	74574	18866	5206
09:58	MA37201-CCB1	2396	80021	18986	5843
10:01	MA37201-CRI1	2397	80803	19632	5757
10:04	MA37201-CRID1	2474	81564	19322	5963
10:07	MA37201-CRIA1	2453	80339	19532	5944
10:10	MA37201-ICSA1	2093	68094	18510	4611
10:14	MA37201-ICSAB1	2125	68925	18546	4640
10:17	ZZZZZZ	2373	78586	19405	5802
10:20	ZZZZZZ	2378	79869	19152	5843
10:23	ZZZZZZ	2362	79225	19184	5814
10:26	MA37201-CCV2	2267	75056	19172	5209
10:29	MA37201-CCB2	2395	79783	19341	5834
10:32	ZZZZZZ	2413	81086	19975	5938
10:35	MP87955-LC1	2385	79828	20792	5354
10:38	MP87955-PS1	2211	72479	19521	4963
10:41	ZZZZZZ	2266	75503	20196	5102
10:44	ZZZZZZ	2274	75239	20537	5074
10:48	ZZZZZZ	2263	74736	20168	5005
10:51	ZZZZZZ	2336	79170	20121	5794
10:54	MP87928-S1	2089	70616	19502	4544
10:57	MP87928-S2	2107	71397	19588	4578
11:00	MA37201-CCV3	2217	73433	19232	5106
11:03	MA37201-CCB3	2353	78076	19323	5744
11:06	JB99945-1	2116	71534	19648	4614
11:09	MP87928-SD1	2242	75285	19473	5198
11:12	ZZZZZZ	2190	73058	19885	4863
11:15	ZZZZZZ	2319	76509	20083	5293

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37201
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:18	ZZZZZZ	2265	75172	19882	5073
11:21	ZZZZZZ	2316	76498	20199	5220
11:24	ZZZZZZ	2216	72813	19578	4878
11:27	ZZZZZZ	2165	72506	19949	4853
11:30	ZZZZZZ	2207	72727	19952	4864
11:33	MA37201-CCV4	2208	72758	19171	5086
11:36	MA37201-CCB4	2342	77990	19264	5702
11:39	ZZZZZZ	2354	77530	20502	5212
11:43	ZZZZZZ	2219	73868	19726	4986
11:46	ZZZZZZ	2339	76857	20334	5255
11:49	ZZZZZZ	2187	73396	19814	5015
11:52	ZZZZZZ	2244	75158	20184	5062
11:55	ZZZZZZ	2174	72503	19894	4783
11:58	ZZZZZZ	2345	78655	20095	5775
12:01	MP87962-MB1	2354	79395	20140	5828
12:04	MP87962-B1	2273	74908	19841	5287
12:07	MA37201-CCV5	2199	73124	19320	5097
12:10	MA37201-CCB5	2331	77962	19552	5715
12:13	ZZZZZZ	2012	68504	19446	4322
12:16	ZZZZZZ	2111	70054	18487	4828
12:20	ZZZZZZ	2100	69915	19325	4626
12:23	MP87962-S1	2226	73819	19730	5166
12:26	MP87962-S2	2227	74116	19588	5174
12:29	JB99498-88	2372	77446	19924	5553
12:32	MP87962-SD1	2333	77097	19423	5640
12:35	ZZZZZZ	2295	77393	19579	5669
12:38	MP87913-MB2	2317	77124	19655	5657
12:41	ZZZZZZ	2162	72517	18916	4980
12:44	MA37201-CCV6	2188	72527	19002	5042
12:47	MA37201-CCB6	2350	77680	19333	5669
12:50	ZZZZZZ	2163	73196	19138	5418
12:54	ZZZZZZ	2221	74850	19257	5467
12:57	ZZZZZZ	2347	77020	19232	5635

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
Analyst: AP Run ID: MA37201
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:00	ZZZZZZ	2325	77352	19378	5676
13:04	ZZZZZZ	1882	61701	17719	4160
13:07	ZZZZZZ	2015	65961	18236	4434
13:11	MP87913-B2	2224	74202	19477	5223
13:13	MP87913-S3	2156	71468	19065	4937
13:16	MP87913-S4	2162	71149	18994	4937
13:20	MA37201-CCV7	2199	72448	19054	5068
13:22	MA37201-CCB7	2329	77201	19348	5681
13:26	JB99823-8F	2164	71981	19328	5031
13:29	MP87913-SD2	2260	75306	19413	5432
13:33	MA37201-CRI2	2281	75474	19214	5473
13:36	MA37201-CRID2	2304	76921	19137	5632
13:39	MA37201-CRIA2	2314	77076	19294	5644
13:42	MA37201-ICSA2	1984	65373	18324	4435
13:45	MA37201-ICSAB2	2006	65375	18406	4450
13:49	MA37201-CCV8	2203	72393	19033	5078
13:51	MA37201-CCB8	2363	77396	19404	5704
13:55	ZZZZZZ	2337	76731	19310	5661
13:58	ZZZZZZ	2308	77197	19379	5663
14:01	ZZZZZZ	2313	77061	19460	5637
14:04	ZZZZZZ	2306	77289	19371	5659
14:07	ZZZZZZ	2313	76904	19564	5670
14:11	ZZZZZZ	2341	77614	19452	5717
14:14	ZZZZZZ	2283	75935	19354	5610
14:17	ZZZZZZ	2308	72436	20055	5045
14:20	ZZZZZZ	2096	69765	18646	4840
14:23	ZZZZZZ	2098	69523	18703	4827
14:27	ZZZZZZ	2313	77374	19278	5675

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:			09:52		09:58		10:29		11:03	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	10	anr							
Antimony	6.0	2.4	anr							
Arsenic	3.0	2.5	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	2.7								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	4.5	anr							
Chromium	10	.9	anr							
Cobalt	50	.4	-0.20	<50	-0.20	<50	-0.20	<50	0.0	<50
Copper	10	1.1	anr							
Iron	100	1.7	anr							
Lead	3.0	1.7	-0.60	<3.0	0.10	<3.0	-0.10	<3.0	1.4	<3.0
Lithium	20	1.5								
Magnesium	5000	21	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.5	0.40	<10	-0.30	<10	-0.30	<10	-0.20	<10
Palladium	50	2								
Potassium	10000	29	anr							
Selenium	10	2.6	anr							
Silicon	200	1.9								
Silver	10	.8	anr							
Sodium	10000	9.4	anr							
Sulfur	50	4.1								
Strontium	10	.1								
Thallium	2.0	1.9	anr							
Tin	10	1.3								
Titanium	10	1.1								
Tungsten	50	1.9								
Vanadium	50	.7	0.0	<50	0.20	<50	0.30	<50	0.0	<50
Zinc	20	.3	0.20	<20	0.20	<20	0.30	<20	0.20	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:			09:52		09:58		10:29		11:03	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.3								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:			11:36		12:10		12:47		13:22	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	10	anr							
Antimony	6.0	2.4	anr							
Arsenic	3.0	2.5	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	2.7								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	4.5	anr							
Chromium	10	.9	anr							
Cobalt	50	.4	-0.60	<50	0.0	<50	-0.40	<50	-0.30	<50
Copper	10	1.1	anr							
Iron	100	1.7	anr							
Lead	3.0	1.7	-1.5	<3.0	0.20	<3.0	-0.10	<3.0	0.50	<3.0
Lithium	20	1.5								
Magnesium	5000	21	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.5	0.0	<10	0.30	<10	-0.30	<10	-0.40	<10
Palladium	50	2								
Potassium	10000	29	anr							
Selenium	10	2.6	anr							
Silicon	200	1.9								
Silver	10	.8	anr							
Sodium	10000	9.4	anr							
Sulfur	50	4.1								
Strontium	10	.1								
Thallium	2.0	1.9	anr							
Tin	10	1.3								
Titanium	10	1.1								
Tungsten	50	1.9								
Vanadium	50	.7	-0.10	<50	-0.20	<50	0.0	<50	0.20	<50
Zinc	20	.3	0.20	<20	0.20	<20	0.10	<20	0.0	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:			11:36		12:10		12:47		13:22	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.3								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:			13:51	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final
Aluminum	200	10	anr	
Antimony	6.0	2.4	anr	
Arsenic	3.0	2.5	anr	
Barium	200	.2	anr	
Beryllium	1.0	.1	anr	
Bismuth	20	2.7		
Boron	100	2		
Cadmium	3.0	.4	anr	
Calcium	5000	4.5	anr	
Chromium	10	.9	anr	
Cobalt	50	.4	-0.20	<50
Copper	10	1.1	anr	
Iron	100	1.7	anr	
Lead	3.0	1.7	0.50	<3.0
Lithium	20	1.5		
Magnesium	5000	21	anr	
Manganese	15	.1	anr	
Molybdenum	20	.6		
Nickel	10	.5	0.50	<10
Palladium	50	2		
Potassium	10000	29	anr	
Selenium	10	2.6	anr	
Silicon	200	1.9		
Silver	10	.8	anr	
Sodium	10000	9.4	anr	
Sulfur	50	4.1		
Strontium	10	.1		
Thallium	2.0	1.9	anr	
Tin	10	1.3		
Titanium	10	1.1		
Tungsten	50	1.9		
Vanadium	50	.7	-0.10	<50
Zinc	20	.3	0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:			13:51	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final
Zirconium	10	.3		

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37201 Units: ug/l

Time:		09:49			09:55			10:26	
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	2050	102.5	2000	2050	102.5	2000	2070	103.5
Copper	anr								
Iron	anr								
Lead	2000	2070	103.5	2000	2070	103.5	2000	2100	105.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2060	103.0	2000	2050	102.5	2000	2080	104.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2050	102.5	2000	2050	102.5	2000	2040	102.0
Zinc	2000	2070	103.5	2000	2070	103.5	2000	2100	105.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37201 Units: ug/l

Time:		09:49			09:55			10:26	
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

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37201 Units: ug/l

Time:		11:00			11:33			12:07	
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	2110	105.5	2000	2120	106.0	2000	2120	106.0
Copper	anr								
Iron	anr								
Lead	2000	2130	106.5	2000	2130	106.5	2000	2140	107.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2120	106.0	2000	2120	106.0	2000	2120	106.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2090	104.5	2000	2100	105.0	2000	2100	105.0
Zinc	2000	2130	106.5	2000	2140	107.0	2000	2150	107.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37201 Units: ug/l

Time:		11:00			11:33			12:07	
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

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37201 Units: ug/l

Time:		12:44			13:20			13:49	
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	2150	107.5	2000	2150	107.5	2000	2150	107.5
Copper	anr								
Iron	anr								
Lead	2000	2180	109.0	2000	2180	109.0	2000	2170	108.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	2000	2160	108.0	2000	2160	108.0	2000	2160	108.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2120	106.0	2000	2120	106.0	2000	2120	106.0
Zinc	2000	2190	109.5	2000	2200	110.0	2000	2200	110.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37201 Units: ug/l

Time:		12:44			13:20			13:49	
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

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:				10:01		10:04		10:07	
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	52.2	104.4	2.8	93.3		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.2	73.3	2.7	108.0	19.7	98.5
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	10.4	104.0	4.2	105.0		
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	51.5	103.0	2.2	110.0		
Zinc	20		10	23.5	117.5	11.2	112.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:				10:01		10:04		10:07	
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

10.1.4
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:				13:33		13:36		13:39	
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	56.4	112.8	3.3	110.0		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.7	123.3	2.9	116.0	22.5	112.5
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	10.9	109.0	3.8	95.0		
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	55.6	111.2	2.3	115.0		
Zinc	20		10	24.7	123.5	12.0	120.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:				13:33		13:36		13:39	
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

10.1.4
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37201 Units: ug/l

Time:			10:10		10:14		13:42		13:45	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	499000	99.8	488000	97.6	509000	101.8	501000	100.2
Antimony		1000	-5.5		1010	101.0	-2.4		1090	109.0
Arsenic		1000	-1.7		977	97.7	-3.6		1060	106.0
Barium		500	-1.0		483	96.6	-0.80		491	98.2
Beryllium		500	-0.10		488	97.6	-0.10		508	101.6
Bismuth		500	11.0		502	100.4	10.9		540	108.0
Boron			-6.2		-2.5		-5.6		-4.3	
Cadmium		1000	3.0		985	98.5	2.0		1070	107.0
Calcium	400000	400000	368000	92.0	364000	91.0	387000	96.8	382000	95.5
Chromium		500	1.3		487	97.4	1.4		520	104.0
Cobalt		500	1.0		487	97.4	1.3		520	104.0
Copper		500	0.10		509	101.8	0.60		541	108.2
Iron	200000	200000	183000	91.5	178000	89.0	194000	97.0	189000	94.5
Lead		1000	4.1		948	94.8	2.4		1020	102.0
Lithium		500	21.1		515	103.0	21.9		504	100.8
Magnesium	500000	500000	495000	99.0	484000	96.8	526000	105.2	512000	102.4
Manganese		500	0.40		493	98.6	0.70		525	105.0
Molybdenum		500	0.80		471	94.2	0.80		507	101.4
Nickel		1000	4.0		958	95.8	4.4		1020	102.0
Palladium		500	33.6		552	110.4	35.6		586	117.2
Potassium			181		173		189		158	
Selenium		1000	-0.30		1010	101.0	5.1		1090	109.0
Silicon			14.5		12.2		15.1		15.6	
Silver		1000	5.4		1050	105.0	8.4		1110	111.0
Sodium			4.4		17.4		36.0		47.9	
Sulfur		500	18.2		500	100.0	13.2		545	109.0
Strontium			3.8		3.7		3.3		3.2	
Thallium		1000	2.6		933	93.3	1.5		994	99.4
Tin			-5.5		-5.1		-4.6		-6.1	
Titanium			1.8		1.9		2.5		1.8	
Tungsten		500	1.7		491	98.2	10.1		534	106.8
Vanadium		500	0.10		487	97.4	-0.90		516	103.2
Zinc		1000	-1.8		941	94.1	-2.0		1030	103.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37201 Units: ug/l

Time:			10:10		10:14		13:42		13:45	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	-3.9		436	87.2	-4.2		463	92.6

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:31	MA37224-STD1	1		STDA
09:37	MA37224-STD2	1		STDB
09:43	ZZZZZZ	1		
09:48	ZZZZZZ	1		
09:55	MA37224-ICV1	1		
10:05	MA37224-ICB1	1		
10:10	MA37224-ICCV1	1		
10:19	MA37224-CCB1	1		
10:25	MA37224-CRI1	1		
10:31	MA37224-CRID1	1		
10:37	MA37224-CRIA1	1		
10:43	MA37224-ICSA1	1		
10:49	MA37224-ICSAB1	1		
10:55	ZZZZZZ	1		
11:02	ZZZZZZ	1		
11:08	ZZZZZZ	1		
11:14	MA37224-CCV1	1		
11:19	MA37224-CCB2	1		
11:26	MA37224-CRID2	1		
11:32	ZZZZZZ	1		
11:38	JB99970-4	1		
11:44	JB99970-5	1		
11:50	JB99970-6	1		FE high
11:56	JB99970-7	1		
12:02	JB99970-8	1		
12:08	JB99970-9	1		MN high
12:14	JB99970-10	1		
---------->	Last reportable sample/prep for job JB99970A			
12:20	MA37224-CCV2	1		
12:26	MA37224-CCB3	1		
12:32	MP88011-MB1	1		
12:38	MP88011-MB2	1		
12:44	MP88011-B1	1		
12:50	MP88011-B2	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:56	MP88011-S1	1		
13:02	MP88011-S2	1		
13:08	JB99742-1F	1		(sample used for QC only; not part of login JB99970A)
13:14	MP88011-SD1	5		
13:20	ZZZZZZ	1		
13:26	MA37224-CCV3	1		
13:32	MA37224-CCB4	1		
13:38	ZZZZZZ	1		
13:44	ZZZZZZ	1		
13:50	ZZZZZZ	1		
13:56	ZZZZZZ	1		
14:02	ZZZZZZ	1		
14:08	ZZZZZZ	1		
14:14	ZZZZZZ	1		
14:20	ZZZZZZ	1		
14:26	MP88029-MB1	1		
14:32	MA37224-CCV4	1		
14:38	MA37224-CCB5	1		
14:44	MP88029-B1	1		
14:50	MP88029-S1	1		
14:56	MP88029-S2	1		
15:02	JB96920-1UR	1		(sample used for QC only; not part of login JB99970A)
15:08	MP88029-SD1	5		
15:14	ZZZZZZ	1		
15:20	ZZZZZZ	1		
15:26	ZZZZZZ	1		
15:32	ZZZZZZ	1		
15:38	MA37224-CCV5	1		
15:44	MA37224-CCB6	1		
15:50	ZZZZZZ	1		
15:56	ZZZZZZ	1		
16:02	MP88016-MB1	1		
16:08	MP88016-B1	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:14	MP88016-S1	1		
16:32	MP88016-S2	1		
16:38	JB99969-7	1		(sample used for QC only; not part of login JB99970A)
16:44	MP88016-SD1	5		
16:50	ZZZZZZ	1		
16:56	MA37224-CCV6	1		
17:01	MA37224-CCB7	1		
17:08	MP88016-B1	1		
17:13	ZZZZZZ	1		
17:19	ZZZZZZ	1		
17:25	ZZZZZZ	1		
17:31	ZZZZZZ	1		
17:37	ZZZZZZ	1		
17:43	ZZZZZZ	1		
17:49	ZZZZZZ	1		
17:55	ZZZZZZ	1		
18:01	MA37224-CCV7	1		
18:07	MA37224-CCB8	1		
18:13	MA37224-CRI2	1		
18:19	MA37224-CRID3	1		
18:25	MA37224-CRIA2	1		
18:32	MA37224-ICSA2	1		
18:38	MA37224-ICSAB2	1		
18:44	MA37224-CCV8	1		
18:50	MA37224-CCB9	1		
---------->	Last reportable CCB for job JB99970A			
18:56	ZZZZZZ	1		
19:02	ZZZZZZ	1		
19:08	ZZZZZZ	1		
19:14	ZZZZZZ	1		
19:20	ZZZZZZ	1		
19:26	ZZZZZZ	1		
19:32	ZZZZZZ	1		
19:38	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:44	ZZZZZZ	1		
19:50	MA37224-CCV9	1		
19:56	MA37224-CCB10	1		
20:02	ZZZZZZ	1		
20:08	MP88021-MB1	1		
20:14	MP88021-MB2	1		
20:20	MP88021-B1	1		
20:26	MP88021-B2	1		
20:31	MP88021-S1	1		
20:37	MP88021-S2	1		
20:43	D73230-1A	1		(sample used for QC only; not part of login JB99970A)
20:49	MP88021-SD1	5		
20:55	MA37224-CCV10	1		
21:01	MA37224-CCB11	1		
21:07	ZZZZZZ	1		
21:13	ZZZZZZ	1		
21:19	MP88021-B2	1		
21:25	ZZZZZZ	5		
21:31	ZZZZZZ	5		
21:37	MP88057-S1	5		
21:43	MP88057-S2	5		
21:49	MP88057-SD1	25		
21:55	ZZZZZZ	5		
22:01	MA37224-CCV11	1		
22:07	MA37224-CCB12	1		
22:13	MP88057-S1	5		
22:21	ZZZZZZ	1		
22:29	MA37224-CRI3	1		
22:35	MA37224-CRID4	1		
22:41	MA37224-CRIA3	1		
22:47	MA37224-CCV12	1		
22:53	MA37224-CCB13	1		
22:59	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:05	ZZZZZZ	1		
23:11	ZZZZZZ	1		
23:17	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:30	ZZZZZZ	1		
23:36	ZZZZZZ	1		
23:42	ZZZZZZ	1		
23:48	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
09:31	MA37224-STD1	1704 R	42297 R	18386 R	6515 R
09:37	MA37224-STD2	1573	38559	18014	5724
09:43	ZZZZZZ	1609	39711	18103	5899
09:48	ZZZZZZ	1680	42460	18494	6478
09:55	MA37224-ICV1	1615	39405	18084	5939
10:05	MA37224-ICB1	1716	42432	18311	6543
10:10	MA37224-ICCV1	1620	39391	17765	5915
10:19	MA37224-CCB1	1672	41920	18364	6430
10:25	MA37224-CRI1	1663	41043	18106	6330
10:31	MA37224-CRID1	No results reported for the elements associated with this internal standard.			
10:37	MA37224-CRIA1	1700	41701	18037	6447
10:43	MA37224-ICSA1	1470	35585	17016	5223
10:49	MA37224-ICSAB1	1475	35805	17097	5238
10:55	ZZZZZZ	1676	40953	17769	6468
11:02	ZZZZZZ	1682	41884	18098	6483
11:08	ZZZZZZ	1692	41924	18055	6433
11:14	MA37224-CCV1	1584	38953	17801	5812
11:19	MA37224-CCB2	1679	41892	18357	6431
11:26	MA37224-CRID2	1707	41661	18058	6475
11:32	ZZZZZZ	1668	41519	18126	6415
11:38	JB99970-4	1602	39027	18112	5719
11:44	JB99970-5	1719	42059	17761	6431
11:50	JB99970-6	1513	37729	17441	5852
11:56	JB99970-7	1734	41898	18933	6226
12:02	JB99970-8	1518	37181	17235	5608
12:08	JB99970-9	1676	40179	17870	6065
12:14	JB99970-10	1512	36946	16937	5545
12:20	MA37224-CCV2	1590	38598	17117	5776
12:26	MA37224-CCB3	1693	41144	17443	6376
12:32	MP88011-MB1	1671	41081	17757	6370
12:38	MP88011-MB2	1600	40880	18293	6241
12:44	MP88011-B1	1547	38792	17952	5829
12:50	MP88011-B2	1575	38796	17763	5909

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:56	MP88011-S1	1502	37170	17425	5499
13:02	MP88011-S2	1483	36876	17470	5446
13:08	JB99742-1F	1525	37721	17425	5648
13:14	MP88011-SD1	1596	39888	17870	6071
13:20	ZZZZZZ	1537	37385	17531	5580
13:26	MA37224-CCV3	1582	38152	17067	5749
13:32	MA37224-CCB4	1642	40821	17356	6254
13:38	ZZZZZZ	1572	37419	17227	5646
13:44	ZZZZZZ	1573	37522	16916	5663
13:50	ZZZZZZ	1579	37327	16822	5625
13:56	ZZZZZZ	1571	37340	16874	5615
14:02	ZZZZZZ	1499	37496	17020	5474
14:08	ZZZZZZ	1546	37663	17060	5511
14:14	ZZZZZZ	1452	36287	16735	5370
14:20	ZZZZZZ	1492	36686	17368	5455
14:26	MP88029-MB1	1575	40306	18646	6065
14:32	MA37224-CCV4	1534	37900	17395	5650
14:38	MA37224-CCB5	1651	40717	17709	6267
14:44	MP88029-B1	1559	38418	17395	5810
14:50	MP88029-S1	1546	38134	17425	5735
14:56	MP88029-S2	1542	38246	17591	5710
15:02	JB96920-1UR	1591	39830	17856	6057
15:08	MP88029-SD1	1616	40483	17779	6172
15:14	ZZZZZZ	1580	39243	17536	6022
15:20	ZZZZZZ	1568	41251	17782	6024
15:26	ZZZZZZ	1556	39540	17726	5937
15:32	ZZZZZZ	1563	38594	17801	5945
15:38	MA37224-CCV5	1524	37890	17362	5597
15:44	MA37224-CCB6	1625	40544	17911	6203
15:50	ZZZZZZ	1580	39125	18436	5974
15:56	ZZZZZZ	1584	39615	17733	5990
16:02	MP88016-MB1	1607	40159	17681	6151
16:08	MP88016-B1	No results reported for the elements associated with this internal standard.			

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:14	MP88016-S1	1525	37881	17530	5696
16:32	MP88016-S2	1526	38040	17368	5696
16:38	JB99969-7	1562	39385	17952	5976
16:44	MP88016-SD1	1612	40242	17942	6185
16:50	ZZZZZZ	1581	39477	18709	5776
16:56	MA37224-CCV6	1520	38053	17575	5619
17:01	MA37224-CCB7	1616	40772	18106	6236
17:08	MP88016-B1	1513	38150	18240	5727
17:13	ZZZZZZ	1591	40245	18813	5817
17:19	ZZZZZZ	1564	39594	18578	5813
17:25	ZZZZZZ	1572	39794	18364	5805
17:31	ZZZZZZ	1583	39498	18347	6006
17:37	ZZZZZZ	1591	39843	18626	5777
17:43	ZZZZZZ	1463	37227	17668	5434
17:49	ZZZZZZ	1474	37345	17691	5314
17:55	ZZZZZZ	1449	36976	17774	5234
18:01	MA37224-CCV7	1516	37645	17613	5608
18:07	MA37224-CCB8	1633	41083	18119	6275
18:13	MA37224-CRI2	1632	40393	17603	6157
18:19	MA37224-CRID3	1642	40681	17772	6225
18:25	MA37224-CRIA2	1655	40882	17651	6293
18:32	MA37224-ICSA2	1422	35637	16853	5077
18:38	MA37224-ICSAB2	1422	35000	16729	5074
18:44	MA37224-CCV8	1554	38292	17390	5692
18:50	MA37224-CCB9	1629	40829	17216	6209
18:56	ZZZZZZ	1409	36454	17655	5058
19:02	ZZZZZZ	1507	38719	18158	5536
19:08	ZZZZZZ	1470	37397	17998	5433
19:14	ZZZZZZ	1601	40798	19402	5978
19:20	ZZZZZZ	1653	42876	19389	5828
19:26	ZZZZZZ	1659	41454	19236	5891
19:32	ZZZZZZ	1578	40304	18905	5919
19:38	ZZZZZZ	1522	38958	18482	5681

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
19:44	ZZZZZZ	1577	40260	18857	5948
19:50	MA37224-CCV9	1548	38691	17869	5705
19:56	MA37224-CCB10	1643	41439	18343	6335
20:02	ZZZZZZ	1605	40090	18673	6067
20:08	MP88021-MB1	1660	40535	18265	6335
20:14	MP88021-MB2	1665	41460	18273	6309
20:20	MP88021-B1	1625	39565	17239	5972
20:26	MP88021-B2	No results reported for the elements associated with this internal standard.			
20:31	MP88021-S1	1601	39722	18096	5943
20:37	MP88021-S2	1605	39756	18087	5948
20:43	D73230-1A	1682	41911	18371	6421
20:49	MP88021-SD1	1685	41864	18080	6383
20:55	MA37224-CCV10	1584	39263	17661	5810
21:01	MA37224-CCB11	1702	42161	18488	6427
21:07	ZZZZZZ	1603	40951	18246	5983
21:13	ZZZZZZ	1655	41699	18408	6293
21:19	MP88021-B2	1613	40466	18082	5996
21:25	ZZZZZZ	1672	41592	18189	6276
21:31	ZZZZZZ	1714	42335	18167	6453
21:37	MP88057-S1	No results reported for the elements associated with this internal standard.			
21:43	MP88057-S2	1581	38829	18011	5619
21:49	MP88057-SD1	1676	40541	17867	6168
21:55	ZZZZZZ	1748	41567	17408	6408
22:01	MA37224-CCV11	1680	39751	17310	6005
22:07	MA37224-CCB12	1757	42672	17852	6553
22:13	MP88057-S1	1612	38751	17808	5676
22:21	ZZZZZZ	1745	42953	17939	6528
22:29	MA37224-CRI3	1779	41852	17525	6524
22:35	MA37224-CRID4	1782	42460	17647	6569
22:41	MA37224-CRIA3	1797	42441	17354	6586
22:47	MA37224-CCV12	1696	39930	17253	6048
22:53	MA37224-CCB13	1767	42656	17741	6556
22:59	ZZZZZZ	1790	42414	17308	6566

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
Analyst: MS Run ID: MA37224
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:05	ZZZZZZ	1789	42806	17630	6632
23:11	ZZZZZZ	1771	42517	17647	6530
23:17	ZZZZZZ	1791	42111	17953	6616
23:23	ZZZZZZ	1797	42920	17839	6589
23:30	ZZZZZZ	1775	43145	17722	6569
23:36	ZZZZZZ	1778	39794	18302	6118
23:42	ZZZZZZ	1633	38267	16852	5794
23:48	ZZZZZZ	1625	38772	17038	5802

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37224 Units: ug/l

Time:			10:05		10:19		11:19		12:26	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	14								
Antimony	6.0	1.1								
Arsenic	3.0	.96	anr							
Barium	200	.3	anr							
Beryllium	1.0	.18								
Bismuth	20	1.5								
Boron	100	2.2								
Cadmium	3.0	.35	anr							
Calcium	2000	28								
Chromium	10	.4	anr							
Cobalt	50	.28	0.20	<50	0.0	<50	0.10	<50	0.30	<50
Copper	10	.57								
Iron	100	7.2								
Lead	3.0	.98	0.10	<3.0	-0.30	<3.0	0.30	<3.0	0.20	<3.0
Lithium	20	2.7								
Magnesium	2000	29								
Manganese	15	.23	anr							
Molybdenum	20	.39								
Nickel	10	.3	-0.20	<10	-0.20	<10	-0.10	<10	-0.10	<10
Palladium	50	1.7								
Potassium	2000	58								
Selenium	10	1.9	anr							
Silicon	200	3.5								
Silver	10	.53	anr							
Sodium	2000	18								
Sulfur	50	2.5								
Strontium	10	.23								
Thallium	2.0	1.8								
Tin	10	.88								
Titanium	10	.45								
Tungsten	50	1.5								
Vanadium	50	.37	-0.20	<50	-0.10	<50	0.10	<50	0.20	<50
Zinc	20	1.9	1.1	<20	1.2	<20	0.60	<20	0.60	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37224 Units: ug/l

Time:			10:05		10:19		11:19		12:26	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.23								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37224 Units: ug/l

Time:			13:32		14:38		15:44		17:01	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	14								
Antimony	6.0	1.1								
Arsenic	3.0	.96	anr							
Barium	200	.3	anr							
Beryllium	1.0	.18								
Bismuth	20	1.5								
Boron	100	2.2								
Cadmium	3.0	.35	anr							
Calcium	2000	28								
Chromium	10	.4	anr							
Cobalt	50	.28	0.10	<50	0.0	<50	0.0	<50	0.10	<50
Copper	10	.57								
Iron	100	7.2								
Lead	3.0	.98	-0.50	<3.0	0.20	<100	-0.10	<100	0.70	<3.0
Lithium	20	2.7								
Magnesium	2000	29								
Manganese	15	.23	anr							
Molybdenum	20	.39								
Nickel	10	.3	0.20	<10	-0.10	<10	0.0	<10	-0.20	<10
Palladium	50	1.7								
Potassium	2000	58								
Selenium	10	1.9	anr							
Silicon	200	3.5								
Silver	10	.53	anr							
Sodium	2000	18								
Sulfur	50	2.5								
Strontium	10	.23								
Thallium	2.0	1.8								
Tin	10	.88								
Titanium	10	.45								
Tungsten	50	1.5								
Vanadium	50	.37	0.10	<50	0.0	<50	0.0	<50	0.10	<50
Zinc	20	1.9	0.80	<20	0.70	<20	0.60	<20	0.40	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37224 Units: ug/l

Time:			13:32		14:38		15:44		17:01	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.23								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37224 Units: ug/l

Time:			18:07		18:50	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	14				
Antimony	6.0	1.1				
Arsenic	3.0	.96	anr			
Barium	200	.3	anr			
Beryllium	1.0	.18				
Bismuth	20	1.5				
Boron	100	2.2				
Cadmium	3.0	.35	anr			
Calcium	2000	28				
Chromium	10	.4	anr			
Cobalt	50	.28	0.20	<50	0.40	<50
Copper	10	.57				
Iron	100	7.2				
Lead	3.0	.98	-0.60	<3.0	0.70	<3.0
Lithium	20	2.7				
Magnesium	2000	29				
Manganese	15	.23	anr			
Molybdenum	20	.39				
Nickel	10	.3	-0.10	<10	0.40	<10
Palladium	50	1.7				
Potassium	2000	58				
Selenium	10	1.9	anr			
Silicon	200	3.5				
Silver	10	.53	anr			
Sodium	2000	18				
Sulfur	50	2.5				
Strontium	10	.23				
Thallium	2.0	1.8				
Tin	10	.88				
Titanium	10	.45				
Tungsten	50	1.5				
Vanadium	50	.37	0.30	<50	0.90	<50
Zinc	20	1.9	0.40	<20	0.80	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37224 Units: ug/l

Time:			18:07		18:50	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Zirconium	10	.23				

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		10:10	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium			
Chromium	anr		
Cobalt	2000	2040	102.0
Copper			
Iron			
Lead	2000	2070	103.5
Lithium			
Magnesium			
Manganese	anr		
Molybdenum			
Nickel	2000	2070	103.5
Palladium			
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium			
Sulfur			
Strontium			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium	2000	2040	102.0
Zinc	2000	2090	104.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		10:10	
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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		09:55			11:14			12:20	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	2000	2010	100.5	2000	2060	103.0	2000	2120	106.0
Copper									
Iron									
Lead	2000	2040	102.0	2000	2080	104.0	2000	2140	107.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	2000	2060	103.0	2000	2090	104.5	2000	2150	107.5
Palladium									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	2000	2050	102.5	2000	2050	102.5	2000	2090	104.5
Zinc	2000	2080	104.0	2000	2110	105.5	2000	2190	109.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		09:55			11:14			12:20	
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

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		13:26			14:32			15:38	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	2000	2110	105.5	2000	2090	104.5	2000	2130	106.5
Copper									
Iron									
Lead	2000	2140	107.0	2000	2110	105.5	2000	2140	107.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	2000	2140	107.0	2000	2120	106.0	2000	2160	108.0
Palladium									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	2000	2110	105.5	2000	2080	104.0	2000	2100	105.0
Zinc	2000	2190	109.5	2000	2140	107.0	2000	2170	108.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		13:26			14:32			15:38	
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

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		16:56			18:01			18:44	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	2000	2110	105.5	2000	2130	106.5	2000	2130	106.5
Copper									
Iron									
Lead	2000	2130	106.5	2000	2150	107.5	2000	2140	107.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	2000	2140	107.0	2000	2150	107.5	2000	2150	107.5
Palladium									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	2000	2080	104.0	2000	2140	107.0	2000	2120	106.0
Zinc	2000	2140	107.0	2000	2160	108.0	2000	2170	108.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37224 Units: ug/l

Time:		16:56			18:01			18:44	
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

10.2.4
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37224 Units: ug/l

Time:				10:25		10:37		11:26	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
Metal	True	True	True	Results	% Rec	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	anr					
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000						
Chromium	10		2.0	anr					
Cobalt	50		3.0	53.0	106.0			3.0	100.0
Copper	10		2.0						
Iron	100	500							
Lead	3.0	20	2.5	2.3	76.7	21.1	105.5	2.2	88.0
Lithium	20								
Magnesium	5000	2000	100						
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	10.5	105.0			4.2	105.0
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000						
Sulfur	50								
Strontium	10								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	54.0	108.0			2.2	110.0
Zinc	20		10	23.6	118.0			11.3	113.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37224 Units: ug/l

Time:				10:25		10:37		11:26	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37224 Units: ug/l

Time:				18:13		18:19		18:25	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID3		CRIA2	
Metal	True	True	True	Results	% Rec	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	anr					
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000						
Chromium	10		2.0	anr					
Cobalt	50		3.0	55.2	110.4	3.3	110.0		
Copper	10		2.0						
Iron	100	500							
Lead	3.0	20	2.5	2.7	90.0	2.6	104.0	21.2	106.0
Lithium	20								
Magnesium	5000	2000	100						
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	10.8	108.0	4.3	107.5		
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000						
Sulfur	50								
Strontium	10								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	55.2	110.4	2.1	105.0		
Zinc	20		10	24.6	123.0	11.7	117.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37224 Units: ug/l

Time:				18:13		18:19		18:25	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID3		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

10.2.5
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37224 Units: ug/l

Time:			10:43		10:49		18:32		18:38	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	508000	101.6	502000	100.4	514000	102.8	511000	102.2
Antimony		1000	1.0		1050	105.0	-0.30		1090	109.0
Arsenic		1000	0.20		1030	103.0	1.2		1070	107.0
Barium		500	-0.30		507	101.4	-0.20		518	103.6
Beryllium		500	0.0		502	100.4	0.0		520	104.0
Bismuth		500	3.8		508	101.6	4.3		528	105.6
Boron			-1.5		-9.7		-4.6		-9.6	
Cadmium		1000	-2.6		1050	105.0	-2.5		1090	109.0
Calcium	400000	400000	381000	95.3	377000	94.3	385000	96.3	390000	97.5
Chromium		500	1.4		505	101.0	1.2		516	103.2
Cobalt		500	0.0		494	98.8	0.10		515	103.0
Copper		500	7.2		523	104.6	7.7		533	106.6
Iron	200000	200000	187000	93.5	182000	91.0	190000	95.0	187000	93.5
Lead		1000	3.4		957	95.7	5.4		996	99.6
Lithium		500	3.7		514	102.8	3.4		534	106.8
Magnesium	500000	500000	531000	106.2	514000	102.8	540000	108.0	533000	106.6
Manganese		500	-1.7		510	102.0	-2.3		519	103.8
Molybdenum		500	0.10		482	96.4	-0.60		500	100.0
Nickel		1000	-0.10		982	98.2	0.20		1020	102.0
Palladium		500	-15		533	106.6	-13		543	108.6
Potassium			-3.1		2.3		-9.2		-5.9	
Selenium		1000	-4.7		1050	105.0	-4.8		1080	108.0
Silicon			-17		-21		-19		-24	
Silver		1000	3.4		1050	105.0	4.0		1080	108.0
Sodium			27.4		27.5		15.4		19.7	
Sulfur		500	35.0		530	106.0	34.7		551	110.2
Strontium			5.0		4.9		5.1		4.9	
Thallium		1000	-3.1		921	92.1	-3.8		954	95.4
Tin			1.0		1.1		3.0		3.1	
Titanium			2.1		5.3		2.0		5.7	
Tungsten		500	15.3		516	103.2	18.3		540	108.0
Vanadium		500	1.7		495	99.0	1.6		512	102.4
Zinc		1000	-4.0		962	96.2	-4.0		1000	100.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SB073115M1.ICP Date Analyzed: 07/31/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37224 Units: ug/l

Time:			10:43		10:49		18:32		18:38	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	-1.3		457	91.4	-1.5		480	96.0

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:33	MA37237-STD1	1		STDA
10:39	MA37237-STD2	1		STDB
10:44	ZZZZZZ	1		
10:50	ZZZZZZ	1		
10:56	ZZZZZZ	1		
11:02	MA37237-ICV1	1		
11:21	MA37237-ICB1	1		
11:27	MA37237-ICCV1	1		
11:40	MA37237-CCB1	1		
11:46	MA37237-CRI1	1		
11:52	MA37237-CRID1	1		See rerun.
11:58	MA37237-CRIA1	1		
12:03	MA37237-ICSA1	1		
12:09	MA37237-ICSAB1	1		
12:15	ZZZZZZ	1		
12:21	ZZZZZZ	1		
12:27	ZZZZZZ	1		
12:33	MA37237-CCV1	1		
12:38	MA37237-CCB2	1		
12:44	MA37237-CRID2	1		
12:50	ZZZZZZ	1		
12:56	ZZZZZZ	1		
13:02	ZZZZZZ	1		
13:08	ZZZZZZ	1		
13:14	ZZZZZZ	1		
13:19	ZZZZZZ	1		
13:25	ZZZZZZ	1		
13:31	ZZZZZZ	1		
13:37	MA37237-CCV2	1		
13:43	MA37237-CCB3	1		
13:49	ZZZZZZ	2		
13:54	MP88009-MB1	1		
14:00	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	14:06	MP88039-MB2	1		
	14:12	ZZZZZZ	1		
	14:18	ZZZZZZ	1		
	14:24	ZZZZZZ	1		
	14:29	ZZZZZZ	1		
	14:35	ZZZZZZ	1		
	14:41	MA37237-CCV3	1		
	14:47	MA37237-CCB4	1		
	14:53	MA37237-CRID3	1		
	14:59	ZZZZZZ	1		
	15:05	JB99970-6	2		
	15:10	JB99970-9	10		
---------->	Last reportable sample/prep for job JB99970A				
	15:16	ZZZZZZ	1		
	15:22	ZZZZZZ	10		
	15:28	ZZZZZZ	2		
	15:34	ZZZZZZ	2		
	15:40	ZZZZZZ	1		
	15:46	MA37237-CCV4	1		
	15:51	MA37237-CCB5	1		
	15:57	ZZZZZZ	5		
	16:03	ZZZZZZ	1		
	16:09	ZZZZZZ	3		
	16:15	ZZZZZZ	2		
	16:21	ZZZZZZ	1		
	16:27	MP88075-B1	1		
	16:32	MP88075-MB1	1		
	16:38	MP88075-S1	1		
	16:44	MP88075-S2	1		
	16:50	MA37237-CCV5	1		
	16:55	MA37237-CCB6	1		
	17:01	JC395-6A	1		(sample used for QC only; not part of login JB99970A)
	17:07	MP88075-SD1	5		
	17:13	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	17:18	ZZZZZZ	1		
	17:24	ZZZZZZ	1		
	17:30	ZZZZZZ	1		
	17:36	ZZZZZZ	1		
	17:41	ZZZZZZ	1		
	17:47	ZZZZZZ	1		
	17:53	MA37237-CCV6	1		
	17:59	MA37237-CCB7	1		
	18:05	ZZZZZZ	1		
	18:10	ZZZZZZ	1		
	18:16	ZZZZZZ	1		
	18:22	ZZZZZZ	1		
	18:28	ZZZZZZ	1		
	18:33	ZZZZZZ	1		
	18:39	ZZZZZZ	1		
	18:45	ZZZZZZ	1		
	18:51	ZZZZZZ	1		
	18:57	MA37237-CCV7	1		
	19:02	MA37237-CCB8	1		
	19:08	MA37237-CRID4	1		TLNJ out.
	19:14	MA37237-CRI2	1		
	19:20	MA37237-CRIA2	1		
	19:26	MA37237-ICSA2	1		
	19:32	MA37237-ICSAB2	1		
	19:37	MA37237-CCV8	1		
	19:43	MA37237-CCB9	1		
---------->	Last reportable CCB for job JB99970A				
	19:49	MP88099-MB1	1		Tl out.
	19:55	MP88099-B1	1		
	20:01	MP88099-B2	1		
	20:06	MP88099-B3	1		Sulfur out.
	20:12	MP88099-B4	1		
	20:18	MA37237-CCV9	1		
	20:24	MA37237-CCB10	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:29	ZZZZZZ	1		
20:35	ZZZZZZ	1		
20:41	ZZZZZZ	1		
20:47	MP88071A-B1	1		
20:53	MP88071A-MB1	1		
20:58	MP88071A-S1	1		
21:04	MP88071A-S2	1		
21:10	JC260-4A	1		(sample used for QC only; not part of login JB99970A)
21:16	MP88071A-SD1	5		
21:21	MA37237-CCV10	1		
21:27	MA37237-CCB11	1		
21:33	ZZZZZZ	1		
21:39	ZZZZZZ	1		
21:45	ZZZZZZ	1		
21:50	ZZZZZZ	1		
21:56	ZZZZZZ	1		
22:02	ZZZZZZ	1		
22:08	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:20	ZZZZZZ	1		
22:25	MA37237-CCV11	1		
22:31	MA37237-CCB12	1		
22:37	ZZZZZZ	1		
22:43	ZZZZZZ	1		
22:49	ZZZZZZ	1		
22:54	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:06	ZZZZZZ	1		
23:12	ZZZZZZ	1		
23:18	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:29	MA37237-CCV12	1		
23:35	MA37237-CCB13	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:41	MA37237-CRID5	1		TLNJ out.
23:47	MA37237-CRI3	1		
23:52	MA37237-CRIA3	1		
23:58	ZZZZZZ	1		
00:04	MA37237-CCV13	1		
00:10	MA37237-CCB14	1		
00:16	ZZZZZZ	1		
00:22	ZZZZZZ	1		
00:28	ZZZZZZ	1		
00:34	ZZZZZZ	1		
00:40	ZZZZZZ	1		
00:45	ZZZZZZ	1		
00:51	ZZZZZZ	1		
00:57	ZZZZZZ	1		
01:03	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:33	MA37237-STD1	4652 R	102270 R	8820 R	7591 R
10:39	MA37237-STD2	4223	93325	8712	6304
10:44	ZZZZZZ	4382	96600	8831	6627
10:50	ZZZZZZ	4646	103610	8876	7592
10:56	ZZZZZZ	4560	101070	8676	7376
11:02	MA37237-ICV1	4366	95929	8629	6640
11:21	MA37237-ICB1	4606	100990	8765	7523
11:27	MA37237-ICCV1	4340	93776	8611	6600
11:40	MA37237-CCB1	4599	101080	8560	7527
11:46	MA37237-CRI1	4513	99510	8592	7308
11:52	MA37237-CRID1	No results reported for the elements associated with this internal standard.			
11:58	MA37237-CRIA1	4535	99670	8532	7414
12:03	MA37237-ICSA1	3827	85262	8329	5610
12:09	MA37237-ICSAB1	3841	83743	8188	5622
12:15	ZZZZZZ	4430	97984	8612	7156
12:21	ZZZZZZ	4482	99771	8410	7449
12:27	ZZZZZZ	4605	100940	8601	7568
12:33	MA37237-CCV1	4302	93545	8372	6529
12:38	MA37237-CCB2	4534	99306	8263	7416
12:44	MA37237-CRID2	4514	98878	8371	7361
12:50	ZZZZZZ	4529	99730	8525	7479
12:56	ZZZZZZ	4484	98288	8870	6849
13:02	ZZZZZZ	4251	93627	7975	7127
13:08	ZZZZZZ	4152	91568	8190	6470
13:14	ZZZZZZ	4134	91555	8056	6616
13:19	ZZZZZZ	4149	90789	8223	6558
13:25	ZZZZZZ	4277	93773	8020	7126
13:31	ZZZZZZ	4812	104360	9313	6872
13:37	MA37237-CCV2	4312	93872	8347	6539
13:43	MA37237-CCB3	4505	98622	8253	7387
13:49	ZZZZZZ	4424	97061	8638	7035
13:54	MP88009-MB1	4450	97673	8298	7363
14:00	ZZZZZZ	4527	99900	8386	7412

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:06	MP88039-MB2	4517	98934	8245	7385
14:12	ZZZZZZ	4560	99359	8410	7489
14:18	ZZZZZZ	4078	89220	8145	6144
14:24	ZZZZZZ	4285	93926	8406	6442
14:29	ZZZZZZ	4225	91949	8486	6552
14:35	ZZZZZZ	4563	99681	999999 !	7457
14:41	MA37237-CCV3	4322	93884	8250	6557
14:47	MA37237-CCB4	4554	98772	8369	7442
14:53	MA37237-CRID3	4557	98895	8355	7413
14:59	ZZZZZZ	4545	99873	8417	7518
15:05	JB99970-6	4200	93354	8527	6560
15:10	JB99970-9	4566	99497	8459	7259
15:16	ZZZZZZ	4596	100950	8485	7518
15:22	ZZZZZZ	3967	86099	7982	5941
15:28	ZZZZZZ	4030	86769	8110	6084
15:34	ZZZZZZ	3985	87007	8154	6033
15:40	ZZZZZZ	4511	100130	8441	7402
15:46	MA37237-CCV4	4273	92834	8042	6499
15:51	MA37237-CCB5	4540	99169	8441	7418
15:57	ZZZZZZ	4002	87409	8000	6007
16:03	ZZZZZZ	4477	97804	8242	7401
16:09	ZZZZZZ	4226	92737	8334	6182
16:15	ZZZZZZ	4218	92850	8504	6102
16:21	ZZZZZZ	4273	95211	8695	6494
16:27	MP88075-B1	4337	96457	8525	6750
16:32	MP88075-MB1	4574	101990	8728	7591
16:38	MP88075-S1	4450	99001	9082	6528
16:44	MP88075-S2	4461	98862	9088	6536
16:50	MA37237-CCV5	4340	95227	8485	6592
16:55	MA37237-CCB6	4572	101030	8653	7501
17:01	JC395-6A	4507	99433	9230	6762
17:07	MP88075-SD1	4564	101120	8869	7247
17:13	ZZZZZZ	4233	95781	8657	6844

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:18	ZZZZZZ	4104	92978	8456	6511
17:24	ZZZZZZ	4175	95107	8625	6656
17:30	ZZZZZZ	4269	96174	8785	6765
17:36	ZZZZZZ	4230	96801	8764	6745
17:41	ZZZZZZ	4293	97132	8808	6757
17:47	ZZZZZZ	4335	96814	8696	6852
17:53	MA37237-CCV6	4321	95357	8618	6610
17:59	MA37237-CCB7	4608	102230	8683	7576
18:05	ZZZZZZ	4362	96617	8588	6841
18:10	ZZZZZZ	4484	95431	8581	6949
18:16	ZZZZZZ	4510	97865	8617	6800
18:22	ZZZZZZ	4600	100650	8944	6855
18:28	ZZZZZZ	4613	99426	8796	6789
18:33	ZZZZZZ	4433	97022	8430	6739
18:39	ZZZZZZ	4522	97644	8682	6756
18:45	ZZZZZZ	4457	97573	8468	6880
18:51	ZZZZZZ	4557	98532	8455	7006
18:57	MA37237-CCV7	4403	95423	8331	6649
19:02	MA37237-CCB8	4699	102390	8430	7618
19:08	MA37237-CRID4	4687	102010	8472	7574
19:14	MA37237-CRI2	4636	100710	8352	7438
19:20	MA37237-CRIA2	4653	99750	8247	7510
19:26	MA37237-ICSA2	3981	85536	7942	5779
19:32	MA37237-ICSAB2	3906	84748	8011	5689
19:37	MA37237-CCV8	4429	94881	8224	6653
19:43	MA37237-CCB9	4715	102480	8480	7626
19:49	MP88099-MB1	4647	100180	8270	7548
19:55	MP88099-B1	4270	92714	8064	6628
20:01	MP88099-B2	4211	91287	7816	6547
20:06	MP88099-B3	4194	90740	7708	6524
20:12	MP88099-B4	4204	91397	7774	6546
20:18	MA37237-CCV9	4450	96214	8242	6703
20:24	MA37237-CCB10	4669	101280	8277	7575

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:29	ZZZZZZ	4489	97646	8485	6739
20:35	ZZZZZZ	4722	101530	8795	6759
20:41	ZZZZZZ	4546	97465	8314	6948
20:47	MP88071A-B1	4495	97369	8295	6893
20:53	MP88071A-MB1	4710	102000	8399	7664
20:58	MP88071A-S1	4371	95234	8112	6495
21:04	MP88071A-S2	4368	93976	8149	6503
21:10	JC260-4A	4441	95825	8177	6680
21:16	MP88071A-SD1	4623	99584	8170	7358
21:21	MA37237-CCV10	4438	95753	8219	6709
21:27	MA37237-CCB11	4660	100830	8146	7578
21:33	ZZZZZZ	4282	93084	8070	6587
21:39	ZZZZZZ	4479	97530	8227	6916
21:45	ZZZZZZ	4424	95990	8155	6747
21:50	ZZZZZZ	4441	96518	8189	6729
21:56	ZZZZZZ	4424	95955	8171	6817
22:02	ZZZZZZ	4494	97375	8234	7014
22:08	ZZZZZZ	4532	97601	8237	7141
22:14	ZZZZZZ	4426	95829	8099	6896
22:20	ZZZZZZ	No results reported for the elements associated with this internal standard.			
22:25	MA37237-CCV11	4470	95751	8278	6748
22:31	MA37237-CCB12	4736	102110	8330	7692
22:37	ZZZZZZ	4394	96551	8338	6877
22:43	ZZZZZZ	4470	97578	8256	6918
22:49	ZZZZZZ	4374	95039	8135	6738
22:54	ZZZZZZ	4460	96843	8172	6900
23:00	ZZZZZZ	4370	94909	8075	6700
23:06	ZZZZZZ	4510	97470	8319	6807
23:12	ZZZZZZ	4302	94174	8176	6608
23:18	ZZZZZZ	4686	101700	8360	7617
23:23	ZZZZZZ	4803	103030	8246	7793
23:29	MA37237-CCV12	4429	94600	8177	6702
23:35	MA37237-CCB13	4702	100770	8198	7639

INTERNAL STANDARD SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA37237
Parameters: Pb,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:41	MA37237-CRID5	4680	100570	8266	7591
23:47	MA37237-CRI3	4631	99659	8103	7450
23:52	MA37237-CRIA3	4557	100750	7867	7416
23:58	ZZZZZZ	4695	102370	8297	7600
00:04	MA37237-CCV13	4522	97229	8316	6830
00:10	MA37237-CCB14	4713	101140	8182	7666
00:16	ZZZZZZ	4516	92873	8412	6934
00:22	ZZZZZZ	4733	102100	8309	7673
00:28	ZZZZZZ	4757	102050	8285	7724
00:34	ZZZZZZ	4698	100690	8121	7694
00:40	ZZZZZZ	4746	101950	8200	7700
00:45	ZZZZZZ	4671	99939	8080	7624
00:51	ZZZZZZ	4249	92024	7901	6398
00:57	ZZZZZZ	4198	90606	7823	6129
01:03	ZZZZZZ	4676	100060	8142	7808

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37237 Units: ug/l

Time:			11:21		11:40		12:38		13:43	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	22	anr							
Antimony	6.0	2.2	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.5	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	2.7								
Boron	100	.8	anr							
Cadmium	3.0	.3	anr							
Calcium	5000	28	anr							
Chromium	10	.5	anr							
Cobalt	50	.4	anr							
Copper	10	1.1	anr							
Iron	100	21	anr							
Lead	3.0	1.1	0.40	<3.0	0.50	<3.0	0.70	<3.0	-0.20	<3.0
Lithium	20	2.9								
Magnesium	5000	52	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4	anr							
Nickel	10	.5	anr							
Palladium	50	2.7								
Potassium	10000	57	anr							
Selenium	10	2.1	anr							
Silicon	200	9								
Silver	10	.8	anr							
Sodium	10000	28	anr							
Sulfur	50	4.4	anr							
Strontium	10	.3								
Thallium	2.0	1.4	anr							
Tin	10	.9								
Titanium	10	.9								
Tungsten	50	1.1								
Vanadium	50	.5	-0.50	<50	-0.50	<50	-0.10	<50	-0.30	<50
Zinc	20	1.8	0.10	<20	0.10	<20	0.20	<20	0.20	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37237 Units: ug/l

Time:			11:21		11:40		12:38		13:43	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37237 Units: ug/l

Time:			14:47		15:51		16:55		17:59	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	22	anr							
Antimony	6.0	2.2	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.5	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	2.7								
Boron	100	.8	anr							
Cadmium	3.0	.3	anr							
Calcium	5000	28	anr							
Chromium	10	.5	anr							
Cobalt	50	.4	anr							
Copper	10	1.1	anr							
Iron	100	21	anr							
Lead	3.0	1.1	0.0	<3.0	1.2	<3.0	0.60	<3.0	0.60	<3.0
Lithium	20	2.9								
Magnesium	5000	52	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4	anr							
Nickel	10	.5	anr							
Palladium	50	2.7								
Potassium	10000	57	anr							
Selenium	10	2.1	anr							
Silicon	200	9								
Silver	10	.8	anr							
Sodium	10000	28	anr							
Sulfur	50	4.4	anr							
Strontium	10	.3								
Thallium	2.0	1.4	anr							
Tin	10	.9								
Titanium	10	.9								
Tungsten	50	1.1								
Vanadium	50	.5	-0.30	<50	0.0	<50	-0.30	<50	-0.20	<50
Zinc	20	1.8	0.0	<20	0.20	<20	0.70	<20	0.60	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37237 Units: ug/l

Time:			14:47		15:51		16:55		17:59	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37237 Units: ug/l

Time:			19:02		19:43	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	22	anr			
Antimony	6.0	2.2	anr			
Arsenic	3.0	1.1	anr			
Barium	200	.5	anr			
Beryllium	1.0	.2	anr			
Bismuth	20	2.7				
Boron	100	.8	anr			
Cadmium	3.0	.3	anr			
Calcium	5000	28	anr			
Chromium	10	.5	anr			
Cobalt	50	.4	anr			
Copper	10	1.1	anr			
Iron	100	21	anr			
Lead	3.0	1.1	1.1	<3.0	0.90	<3.0
Lithium	20	2.9				
Magnesium	5000	52	anr			
Manganese	15	.2	anr			
Molybdenum	20	.4	anr			
Nickel	10	.5	anr			
Palladium	50	2.7				
Potassium	10000	57	anr			
Selenium	10	2.1	anr			
Silicon	200	9				
Silver	10	.8	anr			
Sodium	10000	28	anr			
Sulfur	50	4.4	anr			
Strontium	10	.3				
Thallium	2.0	1.4	anr			
Tin	10	.9				
Titanium	10	.9				
Tungsten	50	1.1				
Vanadium	50	.5	-0.10	<50	-0.20	<50
Zinc	20	1.8	0.30	<20	0.20	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37237 Units: ug/l

Time:			19:02		19:43	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Zirconium	10	.5				

(*) Outside of QC limits
(anr) Analyte not requested

10.3.2
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		11:27	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron	anr		
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	2000	100.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum	anr		
Nickel	anr		
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur	anr		
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	2020	101.0
Zinc	2000	2020	101.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		11:27	
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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		11:02			12:33			13:37	
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	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	2020	101.0	2000	2020	101.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1970	98.5	2000	2000	100.0	2000	2000	100.0
Zinc	2000	2020	101.0	2000	2070	103.5	2000	2070	103.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		11:02			12:33			13:37	
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

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		14:41			15:46			16:50	
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	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2020	101.0	2000	2030	101.5	2000	2020	101.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2000	100.0	2000	2020	101.0	2000	2000	100.0
Zinc	2000	2090	104.5	2000	2100	105.0	2000	2070	103.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		14:41			15:46			16:50	
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

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		17:53			18:57			19:37	
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	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	1990	99.5	2000	2000	100.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1990	99.5	2000	1980	99.0	2000	1980	99.0
Zinc	2000	2060	103.0	2000	2070	103.5	2000	2080	104.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA37237 Units: ug/l

Time:		17:53			18:57			19:37	
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

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37237 Units: ug/l

Time:				11:46		11:58		12:44	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
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	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.2	106.7	21.8	109.0	3.1	124.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	anr					
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			anr					
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	48.8	97.6			1.4	70.0
Zinc	20		10	22.6	113.0			11.9	119.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37237 Units: ug/l

Time:				11:46		11:58		12:44	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37237 Units: ug/l

Time:				14:53		19:08		19:14	
Sample ID:	CRI	CRIA	CRID	CRID3		CRID4		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	anr					
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5	3.1	124.0	3.5	140.0*(a	3.4	113.3
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	anr					
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	1.9	95.0	1.6	80.0	47.7	95.4
Zinc	20		10	11.9	119.0	11.9	119.0	23.1	115.5

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37237 Units: ug/l

Time:				14:53		19:08		19:14	
Sample ID:	CRI	CRIA	CRID	CRID3		CRID4		CRI2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested
(a) No samples reported for this element at this RL in the area bracketed by this QC.

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37237 Units: ug/l

Time:				19:20	
Sample ID:	CRI	CRIA	CRID	CRIA2	
Metal	True	True	True	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		
Beryllium	2.0		1.0		
Bismuth	20				
Boron	100		10		
Cadmium	3.0		1.0		
Calcium	5000	2000	1000	anr	
Chromium	10		2.0		
Cobalt	50		3.0		
Copper	10		2.0		
Iron	100	500		anr	
Lead	3.0	20	2.5	21.5	107.5
Lithium	20				
Magnesium	5000	2000	100	anr	
Manganese	15		3.0		
Molybdenum	20				
Nickel	10		4.0		
Palladium	50				
Potassium	5000		2000		
Selenium	10	20	5.0	anr	
Silicon	200				
Silver	5.0		2.0		
Sodium	5000		1000		
Sulfur	50				
Strontium	10				
Thallium	10		2.0		
Tin	10				
Titanium	10				
Tungsten	50				
Vanadium	50		2.0		
Zinc	20		10		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA37237 Units: ug/l

Time:				19:20	
Sample ID:	CRI	CRIA	CRID	CRIA2	
Metal	True	True	True	Results	% Rec
Zirconium	10				

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37237 Units: ug/l

Time:			12:03		12:09		19:26		19:32	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	497000	99.4	495000	99.0	474000	94.8	489000	97.8
Antimony		1000	1.8		1030	103.0	2.6		992	99.2
Arsenic		1000	-0.20		1030	103.0	0.30		1020	102.0
Barium		500	-1.0		489	97.8	-1.2		483	96.6
Beryllium		500	0.80		498	99.6	0.60		486	97.2
Bismuth		500	-6.7		476	95.2	-9.6		449	89.8
Boron			-2.3		9.4		-2.1		8.4	
Cadmium		1000	-0.10		992	99.2	-0.40		955	95.5
Calcium	400000	400000	366000	91.5	372000	93.0	359000	89.8	366000	91.5
Chromium		500	1.2		504	100.8	1.2		509	101.8
Cobalt		500	-2.2		485	97.0	-2.5		487	97.4
Copper		500	4.9		483	96.6	1.1		455	91.0
Iron	200000	200000	181000	90.5	179000	89.5	172000	86.0	176000	88.0
Lead		1000	2.6		963	96.3	-4.5		966	96.6
Lithium		500	3.5		518	103.6	4.5		508	101.6
Magnesium	500000	500000	484000	96.8	482000	96.4	469000	93.8	478000	95.6
Manganese		500	-4.6		498	99.6	-4.5		500	100.0
Molybdenum		500	0.90		484	96.8	-1.1		482	96.4
Nickel		1000	-0.40		953	95.3	0.10		961	96.1
Palladium		500	34.2		527	105.4	33.6		493	98.6
Potassium			170		186		96.1		112	
Selenium		1000	8.6		1030	103.0	9.5		996	99.6
Silicon			10.3		6.5		9.3		5.4	
Silver		1000	-0.80		1040	104.0	-1.9		1000	100.0
Sodium			-86		-98		-67		-51	
Sulfur		500	23.1		488	97.6	10.4		462	92.4
Strontium			4.9		4.5		3.6		4.6	
Thallium		1000	-1.2		964	96.4	0.80		954	95.4
Tin			-4.7		-4.2		-4.6		-5.1	
Titanium			2.4		2.2		1.2		3.2	
Tungsten		500	8.2		512	102.4	7.7		511	102.2
Vanadium		500	-0.70		485	97.0	-0.50		489	97.8
Zinc		1000	-2.9		988	98.8	-2.7		1010	101.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

File ID: SC080315M1.ICP Date Analyzed: 08/03/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37237 Units: ug/l

Time:			12:03		12:09		19:26		19:32	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	-7.1		476	95.2	-6.0		476	95.2

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	47	.98	3.1		
Antimony	1.9	.23	.29		
Arsenic	1.9	.24	.13		
Barium	19	.019	.051		
Beryllium	0.19	.0095	.039		
Bismuth	1.9	.26	.35		
Boron	9.5	.19	.41		
Cadmium	0.47	.038	.048		
Calcium	470	.43	2.6		
Chromium	0.95	.085	.094		
Cobalt	4.7	.038	.038	-0.038	<4.7
Copper	2.4	.1	.13		
Iron	47	.16	3.1		
Lead	1.9	.16	.23	0.038	<1.9
Lithium	1.9	.14	.31		
Magnesium	470	2	8.5		
Manganese	1.4	.0095	.034		
Molybdenum	1.9	.057	.14		
Nickel	3.8	.047	.091	-0.047	<3.8
Palladium	4.7	.19	.35		
Potassium	950	2.8	7		
Selenium	1.9	.25	.24		
Silicon	19	.18	1.6		
Silver	0.47	.076	.17		
Sodium	950	.89	1.4		
Strontium	0.95	.0095	.032		
Sulfur	4.7	.39	.66		
Thallium	0.95	.18	.18		
Tin	4.7	.12	1.1		
Titanium	0.95	.1	.2		
Tungsten	4.7	.18	.41		
Vanadium	4.7	.066	.071	0.028	<4.7
Zinc	4.7	.028	.73	0.74	<4.7

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	RL	IDL	MDL	MB raw	final
Zirconium	1.9	.028	.1		

Associated samples MP87962: JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-9, JB99970-10

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MS		Spikelot MPSPK1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt	0.36	209	207	101.0	75-125
Copper					
Iron					
Lead	2.7	214	207	102.3	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	1.8	211	207	101.3	75-125
Palladium					
Potassium					
Selenium					
Silicon					
Silver	anr				
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium	3.8	208	207	98.8	75-125
Zinc	24.7	235	207	101.8	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MS	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP87962: JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-9, JB99970-10

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original	MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	0.36	206	208	99.0	1.4	20
Copper						
Iron						
Lead	2.7	211	208	100.3	1.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	1.8	208	208	99.3	1.4	20
Palladium						
Potassium						
Selenium						
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	3.8	205	208	96.9	1.5	20
Zinc	24.7	231	208	99.4	1.7	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP87962: JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-9, JB99970-10

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: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	181	196	92.3	80-120
Copper				
Iron				
Lead	184	196	93.8	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	182	196	92.8	80-120
Palladium				
Potassium				
Selenium				
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	180	196	91.8	80-120
Zinc	183	196	93.3	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP87962: JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-9, JB99970-10

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/28/15

Metal	JB99498-88 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	3.30	2.10	36.4 (a)	0-10
Copper				
Iron				
Lead	25.0	22.8	8.8	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	17.1	17.1	0.0	0-10
Palladium				
Potassium				
Selenium				
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	34.9	36.0	3.2	0-10
Zinc	229	235	2.5	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB99970A
Account: SECORPAE - Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

QC Batch ID: MP87962
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/28/15

Metal	JB99498-88 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP87962: JB99970-4, JB99970-5, JB99970-6, JB99970-7, JB99970-8, JB99970-9, JB99970-10

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).

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: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: JB99970-4 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-6_0-2_20150724

Wet Weight (Total)	27.27	g
Tare Weight	19.52	g
Dry Weight (Total)	26.75	g
Solids, Percent	93.3	%

Sample: JB99970-5 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-6_6-7_20150724

Wet Weight (Total)	31.17	g
Tare Weight	23.9	g
Dry Weight (Total)	30.51	g
Solids, Percent	90.9	%

Sample: JB99970-6 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-7_0-2_20150724

Wet Weight (Total)	35.42	g
Tare Weight	28.33	g
Dry Weight (Total)	34.48	g
Solids, Percent	86.7	%

Sample: JB99970-7 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-7_6-8_20150724

Wet Weight (Total)	35.72	g
Tare Weight	26.95	g
Dry Weight (Total)	34.22	g
Solids, Percent	82.9	%

Sample: JB99970-8 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-5_0-2_20150724

Wet Weight (Total)	33	g
Tare Weight	25.36	g
Dry Weight (Total)	32.01	g
Solids, Percent	87	%

Sample: JB99970-9 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-5_9-9.5_20150724

Wet Weight (Total)	35.48	g
Tare Weight	28.01	g
Dry Weight (Total)	34.44	g
Solids, Percent	86.1	%

Percent Solids Raw Data Summary

Job Number: JB99970A
Account: SECORPAE Stantec Consulting Services Inc.
Project: MHIC AOI 5 Demo Characterization

Sample: JB99970-10 **Analyzed:** 28-JUL-15 by KP **Method:** SM2540 G-97
ClientID: AOI-5-BH-15-10_0-2_20150724

Wet Weight (Total)	33.9	g
Tare Weight	26.06	g
Dry Weight (Total)	33.27	g
Solids, Percent	92	%