New Jersey
ACCUTEST LABORATORIES

Reissue #1
11/20/15

Technical Report for

Stantec Consulting Services Inc.

Sunoco - Marcus Hook Facility, PA

MHIC TANK Sampling (386)

Accutest Job Number: JC7291

Sampling Date: 10/27/15

Report to:

Stantec Consulting Services Inc.
1060 Andrew Drive Suite 140
West Chester, PA 19380
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EDD@stantec.com; chris.mccardell@stantec.com
ATTN: Jennifer Menges

Total number of pages in report: **583**

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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November 20, 2015

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

RE: Accutest Job # JC7291 – Reissue

Dear Ms. Menges:

The final report for Accutest job number JC7291 has been edited to reflect changes to your data package. These edits have been incorporated into the revised report which is attached.

The field ID's have been corrected to reflect the appropriate prefix of "MH" instead of "MW" as originally reported by the laboratory. This revised report incorporates these changes.

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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Accutest Laboratories

Sample Summary

Stantec Consulting Services Inc.

Job No: JC7291

Sunoco - Marcus Hook Facility, PA
Project No: MHIC TANK Sampling (386)

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC7291-1	10/27/15	09:25	CD	10/28/15	SO	Soil	MH386-6-20151027(3')
JC7291-2	10/27/15	09:40	CD	10/28/15	SO	Soil	MH386-7-20151027(3')
JC7291-3	10/27/15	10:00	CD	10/28/15	SO	Soil	MH386-8-20151027(5')
JC7291-4	10/27/15	10:55	CD	10/28/15	SO	Soil	MH386-9-20151027(5')
JC7291-5	10/27/15	11:25	CD	10/28/15	SO	Soil	MH386-10-20151027(2')
JC7291-6	10/27/15	11:35	CD	10/28/15	SO	Soil	MH386-10-20151027(5')
JC7291-7	10/27/15	11:50	CD	10/28/15	SO	Soil	MH386-11-20151027(2')
JC7291-8	10/27/15	12:00	CD	10/28/15	SO	Soil	MH386-12-20151027(2')
JC7291-9	10/27/15	12:20	CD	10/28/15	SO	Soil	MH386-13-20151027(2')
JC7291-10	10/27/15	12:35	CD	10/28/15	SO	Soil	MH386-14-20151027(2')

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**	JC7291
Site:	Sunoco - Marcus Hook Facility, PA	**Report Date**	11/11/2015 11:26:40 A

On 10/28/2015, 10 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a maximum corrected temperature of 3.3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JC7291 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:** V2C6060

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC7291-4MS, JC7291-4MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD9618

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC7291-1MS, JC7291-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JC7291-1: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VD9619

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC7291-2MS, JC7291-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JC7291-2: Diluted due to high concentration of non-target compound and matrix interference.
- JC7291-10: Dilution required due to matrix interference.
- JC7291-3: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VD9621

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC7874-4MS, JC7874-4MSD were used as the QC samples indicated.
- JC7291-7: Diluted due to high concentration of non-target compound and matrix interference.

Matrix: SO **Batch ID:** VY6927

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC7290-1MS, JC7290-2DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for Duplicate for Naphthalene are outside control limits for sample JC7290-2DUP. High RPD due to possible sample analyzed from different vials.

Extractables by GCMS By Method SW846 8270D

Matrix: SO	Batch ID: OP88533

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC7290-1MS, JC7290-1MSD were used as the QC samples indicated.
- JC7291-1: Confirmation run.
- JC7291-5: Confirmation run.

Volatiles by GC By Method SW846 8011

Matrix: SO	Batch ID: M:GBB3509

- The data for SW846 8011 meets quality control requirements.
- JC7291-8: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-9: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-7: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-10: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-6: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JC7291-2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO	Batch ID: MP90063

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC7214-19MS, JC7214-19MSD, JC7214-19SDL were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Zinc are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- Matrix Spike Duplicate Recovery(s) for Zinc are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- RPD(s) for Serial Dilution for Zinc are outside control limits for sample MP90063-SD1. Serial dilution indicates possible matrix interference.
- MP90063-MB1 for Zinc: All reported results <RL or >10x MB value.

Wet Chemistry By Method SM2540 G-97

Matrix: SO	Batch ID: GN35308

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

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

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

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Accutest New Jersey	**Job No**	JC7291
Site:	SECORPAE: Sunoco - Marcus Hook Facility, PA	**Report Date**	11/11/2015 10:51:35 AM

10 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 10/27/2015 and were received at Accutest on 10/28/2015 properly preserved, at 3 Deg. C and intact. These Samples received an Accutest job number of JC7291. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

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

Volatiles by GC By Method SW846 8011

Matrix: SO **Batch ID:** OP45247

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC7265-1MS, JC7265-1MSD were used as the QC samples indicated.
- Continuing calibration check standard GBB3509-CC3508, signal #1, file BB65093 for 1,2-Dibromoethane exceed 15% Dev. Sample results are reported from signal #2.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(JC7291).

Summary of Hits

Job Number: JC7291
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 10/27/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC7291-1	**MH386-6-20151027(3')**					
Ethylbenzene [a]		0.0568 J	0.12	0.019	mg/kg	SW846 8260C
Xylene (total) [a]		0.0320 J	0.12	0.032	mg/kg	SW846 8260C
sec-Butylbenzene [a]		2.33	0.24	0.020	mg/kg	SW846 8260C
tert-Butylbenzene [a]		0.212 J	0.24	0.025	mg/kg	SW846 8260C
Cyclohexane [a]		0.172 J	0.24	0.037	mg/kg	SW846 8260C
Isopropylbenzene [a]		1.99	0.24	0.013	mg/kg	SW846 8260C
Naphthalene [a]		0.214 J	0.59	0.022	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene [a]		0.0468 J	0.24	0.024	mg/kg	SW846 8260C
2,4-Dimethylphenol		0.417	0.20	0.074	mg/kg	SW846 8270D
Acenaphthene		0.204	0.040	0.038	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0574	0.040	0.0078	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0383 J	0.040	0.0086	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0503	0.040	0.0083	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0246 J	0.040	0.012	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0451 J	0.081	0.0075	mg/kg	SW846 8270D
Chrysene		0.199	0.040	0.0065	mg/kg	SW846 8270D
Fluoranthene		0.0922	0.040	0.0049	mg/kg	SW846 8270D
Fluorene		0.892	0.040	0.0048	mg/kg	SW846 8270D
2-Methylnaphthalene		1.00	0.081	0.0076	mg/kg	SW846 8270D
Phenanthrene		1.72	0.040	0.0045	mg/kg	SW846 8270D
Pyrene		0.245	0.040	0.0050	mg/kg	SW846 8270D
Cobalt		7.3	6.2	0.050	mg/kg	SW846 6010C
Lead		22.4	2.5	0.30	mg/kg	SW846 6010C
Nickel		14.3	5.0	0.12	mg/kg	SW846 6010C
Vanadium		35.9	6.2	0.094	mg/kg	SW846 6010C
Zinc		63.7	6.2	0.96	mg/kg	SW846 6010C
JC7291-2	**MH386-7-20151027(3')**					
Ethylbenzene [b]		0.211	0.12	0.020	mg/kg	SW846 8260C
Xylene (total) [b]		0.161	0.12	0.033	mg/kg	SW846 8260C
sec-Butylbenzene [b]		0.186 J	0.24	0.021	mg/kg	SW846 8260C
tert-Butylbenzene [b]		0.0679 J	0.24	0.026	mg/kg	SW846 8260C
Cyclohexane [b]		6.80	0.24	0.038	mg/kg	SW846 8260C
Hexane [b]		8.09	0.60	0.047	mg/kg	SW846 8260C
Isopropylbenzene [b]		0.271	0.24	0.013	mg/kg	SW846 8260C
Naphthalene [b]		0.697	0.60	0.023	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene [b]		0.987	0.24	0.024	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene [b]		0.464	0.24	0.023	mg/kg	SW846 8260C
Acenaphthene		0.0536	0.041	0.038	mg/kg	SW846 8270D
1,1'-Biphenyl		0.181	0.081	0.0075	mg/kg	SW846 8270D
Chrysene		0.0198 J	0.041	0.0065	mg/kg	SW846 8270D
Fluoranthene		0.0253 J	0.041	0.0050	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC7291
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 10/27/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Fluorene		0.157	0.041	0.0048	mg/kg	SW846 8270D
2-Methylnaphthalene		2.59	0.081	0.0076	mg/kg	SW846 8270D
Phenanthrene		0.358	0.041	0.0045	mg/kg	SW846 8270D
Pyrene		0.107	0.041	0.0051	mg/kg	SW846 8270D
Cobalt		4.5 J	6.3	0.050	mg/kg	SW846 6010C
Lead		11.0	2.5	0.30	mg/kg	SW846 6010C
Nickel		12.7	5.0	0.12	mg/kg	SW846 6010C
Vanadium		40.5	6.3	0.094	mg/kg	SW846 6010C
Zinc		30.6	6.3	0.96	mg/kg	SW846 6010C
JC7291-3	**MH386-8-20151027(5')**					
Benzene [a]		0.308	0.057	0.015	mg/kg	SW846 8260C
Xylene (total) [a]		0.175	0.11	0.031	mg/kg	SW846 8260C
Methyl Tert Butyl Ether [a]		0.177	0.11	0.017	mg/kg	SW846 8260C
sec-Butylbenzene [a]		0.0235 J	0.23	0.019	mg/kg	SW846 8260C
Naphthalene [a]		0.459 J	0.57	0.022	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene [a]		0.481	0.23	0.023	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene [a]		0.244	0.23	0.022	mg/kg	SW846 8260C
Acenaphthene		0.290	0.040	0.037	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0397 J	0.040	0.0076	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0241 J	0.040	0.0084	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0160 J	0.040	0.0081	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0464 J	0.079	0.0073	mg/kg	SW846 8270D
Chrysene		0.0712	0.040	0.0064	mg/kg	SW846 8270D
Fluoranthene		0.0448	0.040	0.0048	mg/kg	SW846 8270D
Fluorene		0.509	0.040	0.0047	mg/kg	SW846 8270D
2-Methylnaphthalene		1.67	0.079	0.0074	mg/kg	SW846 8270D
Phenanthrene		0.676	0.040	0.0044	mg/kg	SW846 8270D
Pyrene		0.187	0.040	0.0049	mg/kg	SW846 8270D
Cobalt		4.7 J	5.9	0.047	mg/kg	SW846 6010C
Lead		10.5	2.4	0.28	mg/kg	SW846 6010C
Nickel		14.1	4.7	0.11	mg/kg	SW846 6010C
Vanadium		30.8	5.9	0.089	mg/kg	SW846 6010C
Zinc		31.7	5.9	0.91	mg/kg	SW846 6010C
JC7291-4	**MH386-9-20151027(5')**					
Benzene		0.596	0.053	0.014	mg/kg	SW846 8260C
Toluene		0.0067	0.00092	0.00019	mg/kg	SW846 8260C
Ethylbenzene		0.0107	0.00092	0.00015	mg/kg	SW846 8260C
Xylene (total)		0.0321	0.00092	0.00025	mg/kg	SW846 8260C
Methyl Tert Butyl Ether		0.0999	0.00092	0.00014	mg/kg	SW846 8260C
sec-Butylbenzene		0.00038 J	0.0018	0.00016	mg/kg	SW846 8260C
tert-Butylbenzene		0.00019 J	0.0018	0.00019	mg/kg	SW846 8260C

Summary of Hits

Job Number: JC7291
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 10/27/15

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Cyclohexane	0.0074	0.0018	0.00029	mg/kg	SW846 8260C
Hexane	0.0062	0.0046	0.00036	mg/kg	SW846 8260C
Isopropylbenzene	0.00068 J	0.0018	0.000098	mg/kg	SW846 8260C
Naphthalene	0.0207	0.0046	0.00017	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene	0.0184	0.0018	0.00018	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene	0.0082	0.0018	0.00018	mg/kg	SW846 8260C
Acenaphthene	0.227	0.040	0.038	mg/kg	SW846 8270D
Benzo(a)anthracene	0.0384 J	0.040	0.0077	mg/kg	SW846 8270D
Benzo(a)pyrene	0.0234 J	0.040	0.0085	mg/kg	SW846 8270D
1,1'-Biphenyl	0.0257 J	0.080	0.0074	mg/kg	SW846 8270D
Chrysene	0.0678	0.040	0.0065	mg/kg	SW846 8270D
Fluoranthene	0.0427	0.040	0.0049	mg/kg	SW846 8270D
Fluorene	0.404	0.040	0.0048	mg/kg	SW846 8270D
2-Methylnaphthalene	1.26	0.080	0.0075	mg/kg	SW846 8270D
Phenanthrene	0.695	0.040	0.0045	mg/kg	SW846 8270D
Pyrene	0.167	0.040	0.0050	mg/kg	SW846 8270D
Cobalt	6.5	6.3	0.050	mg/kg	SW846 6010C
Lead	15.1	2.5	0.30	mg/kg	SW846 6010C
Nickel	18.3	5.0	0.12	mg/kg	SW846 6010C
Vanadium	35.4	6.3	0.094	mg/kg	SW846 6010C
Zinc	39.2	6.3	0.96	mg/kg	SW846 6010C
JC7291-5 MH386-10-20151027(2')					
Benzene	0.0928	0.00047	0.00013	mg/kg	SW846 8260C
Toluene	0.0072	0.00094	0.00020	mg/kg	SW846 8260C
Ethylbenzene	0.0150	0.00094	0.00015	mg/kg	SW846 8260C
Xylene (total)	0.0461	0.00094	0.00026	mg/kg	SW846 8260C
Methyl Tert Butyl Ether	0.158	0.00094	0.00014	mg/kg	SW846 8260C
sec-Butylbenzene	0.0022	0.0019	0.00016	mg/kg	SW846 8260C
tert-Butylbenzene	0.0010 J	0.0019	0.00020	mg/kg	SW846 8260C
Cyclohexane	0.0841	0.0019	0.00030	mg/kg	SW846 8260C
Hexane	0.0276	0.0047	0.00037	mg/kg	SW846 8260C
Isopropylbenzene	0.0096	0.0019	0.00010	mg/kg	SW846 8260C
Naphthalene	0.0041 J	0.0047	0.00018	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene	0.0090	0.0019	0.00019	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene	0.0050	0.0019	0.00018	mg/kg	SW846 8260C
Acenaphthene	0.147	0.037	0.035	mg/kg	SW846 8270D
Anthracene	0.183	0.037	0.0032	mg/kg	SW846 8270D
Benzo(a)anthracene	0.0453	0.037	0.0072	mg/kg	SW846 8270D
Benzo(a)pyrene	0.0289 J	0.037	0.0080	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.0313 J	0.037	0.0077	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.0274 J	0.037	0.011	mg/kg	SW846 8270D
1,1'-Biphenyl	0.359	0.075	0.0069	mg/kg	SW846 8270D
Chrysene	0.125	0.037	0.0060	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC7291
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 10/27/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Fluoranthene		0.0982	0.037	0.0046	mg/kg	SW846 8270D
Fluorene		0.235	0.037	0.0045	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0745 J	0.075	0.0070	mg/kg	SW846 8270D
Phenanthrene		0.452	0.037	0.0042	mg/kg	SW846 8270D
Pyrene		0.543	0.037	0.0047	mg/kg	SW846 8270D
Cobalt		13.3	5.6	0.045	mg/kg	SW846 6010C
Lead		34.4	2.3	0.27	mg/kg	SW846 6010C
Nickel		14.2	4.5	0.11	mg/kg	SW846 6010C
Vanadium		36.4	5.6	0.084	mg/kg	SW846 6010C
Zinc		48.6	5.6	0.86	mg/kg	SW846 6010C
JC7291-6	**MH386-10-20151027(5')**					
Benzene		0.0164	0.00046	0.00012	mg/kg	SW846 8260C
Toluene		0.00041 J	0.00093	0.00019	mg/kg	SW846 8260C
Ethylbenzene		0.0020	0.00093	0.00015	mg/kg	SW846 8260C
Xylene (total)		0.0028	0.00093	0.00025	mg/kg	SW846 8260C
Methyl Tert Butyl Ether		0.320	0.10	0.016	mg/kg	SW846 8260C
sec-Butylbenzene		0.00019 J	0.0019	0.00016	mg/kg	SW846 8260C
Cyclohexane		0.0021	0.0019	0.00029	mg/kg	SW846 8260C
Hexane		0.0018 J	0.0046	0.00036	mg/kg	SW846 8260C
Isopropylbenzene		0.00044 J	0.0019	0.000098	mg/kg	SW846 8260C
Naphthalene		0.0029 J	0.0046	0.00018	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene		0.0028	0.0019	0.00018	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene		0.0011 J	0.0019	0.00018	mg/kg	SW846 8260C
Cobalt		6.1	5.9	0.047	mg/kg	SW846 6010C
Lead		9.4	2.4	0.28	mg/kg	SW846 6010C
Nickel		15.4	4.7	0.11	mg/kg	SW846 6010C
Vanadium		34.0	5.9	0.089	mg/kg	SW846 6010C
Zinc		31.1	5.9	0.91	mg/kg	SW846 6010C
JC7291-7	**MH386-11-20151027(2')**					
sec-Butylbenzene [b]		0.0227 J	0.22	0.019	mg/kg	SW846 8260C
Cyclohexane [b]		0.234	0.22	0.035	mg/kg	SW846 8260C
Isopropylbenzene [b]		0.0509 J	0.22	0.012	mg/kg	SW846 8260C
Naphthalene [b]		0.0393 J	0.55	0.021	mg/kg	SW846 8260C
2,4-Dimethylphenol		0.130 J	0.20	0.074	mg/kg	SW846 8270D
Acenaphthene		0.154	0.040	0.038	mg/kg	SW846 8270D
Anthracene		0.180	0.040	0.0035	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0866	0.040	0.0078	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0216 J	0.040	0.0086	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0425	0.040	0.0083	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0167 J	0.040	0.012	mg/kg	SW846 8270D
Chrysene		0.204	0.040	0.0065	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC7291
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 10/27/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Fluoranthene		0.0860	0.040	0.0049	mg/kg	SW846 8270D
Fluorene		0.435	0.040	0.0048	mg/kg	SW846 8270D
2-Methylnaphthalene		0.588	0.081	0.0075	mg/kg	SW846 8270D
Phenanthrene		1.03	0.040	0.0045	mg/kg	SW846 8270D
Pyrene		0.359	0.040	0.0050	mg/kg	SW846 8270D
Cobalt		8.5	6.1	0.049	mg/kg	SW846 6010C
Lead		53.7	2.4	0.29	mg/kg	SW846 6010C
Nickel		17.3	4.9	0.12	mg/kg	SW846 6010C
Vanadium		42.4	6.1	0.091	mg/kg	SW846 6010C
Zinc		53.0	6.1	0.93	mg/kg	SW846 6010C
JC7291-8	**MH386-12-20151027(2')**					
Methyl Tert Butyl Ether		0.0070	0.0010	0.00016	mg/kg	SW846 8260C
Acenaphthene		0.0573	0.037	0.035	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0188 J	0.037	0.0071	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0150 J	0.074	0.0068	mg/kg	SW846 8270D
Chrysene		0.0525	0.037	0.0059	mg/kg	SW846 8270D
Fluoranthene		0.0178 J	0.037	0.0045	mg/kg	SW846 8270D
Fluorene		0.208	0.037	0.0044	mg/kg	SW846 8270D
2-Methylnaphthalene		0.262	0.074	0.0069	mg/kg	SW846 8270D
Phenanthrene		0.205	0.037	0.0041	mg/kg	SW846 8270D
Pyrene		0.0751	0.037	0.0046	mg/kg	SW846 8270D
Cobalt		5.5 J	5.7	0.046	mg/kg	SW846 6010C
Lead		8.5	2.3	0.27	mg/kg	SW846 6010C
Nickel		14.8	4.6	0.11	mg/kg	SW846 6010C
Vanadium		39.4	5.7	0.085	mg/kg	SW846 6010C
Zinc		40.3	5.7	0.87	mg/kg	SW846 6010C
JC7291-9	**MH386-13-20151027(2')**					
Cobalt		11.2	6.0	0.048	mg/kg	SW846 6010C
Lead		9.8	2.4	0.29	mg/kg	SW846 6010C
Nickel		17.2	4.8	0.11	mg/kg	SW846 6010C
Vanadium		38.1	6.0	0.090	mg/kg	SW846 6010C
Zinc		38.9	6.0	0.92	mg/kg	SW846 6010C
JC7291-10	**MH386-14-20151027(2')**					
Naphthalene [a]		0.0473 J	0.57	0.021	mg/kg	SW846 8260C
Acenaphthene		0.0406	0.038	0.036	mg/kg	SW846 8270D
Anthracene		0.104	0.038	0.0033	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0416	0.038	0.0074	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0254 J	0.038	0.0081	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0290 J	0.038	0.0079	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC7291
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 10/27/15

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzo(g,h,i)perylene	0.0275 J	0.038	0.011	mg/kg	SW846 8270D
Chrysene	0.0891	0.038	0.0062	mg/kg	SW846 8270D
Fluoranthene	0.0741	0.038	0.0047	mg/kg	SW846 8270D
Fluorene	0.154	0.038	0.0046	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0346 J	0.076	0.0072	mg/kg	SW846 8270D
Phenanthrene	0.0713	0.038	0.0042	mg/kg	SW846 8270D
Pyrene	0.276	0.038	0.0048	mg/kg	SW846 8270D
Cobalt	6.7	5.9	0.048	mg/kg	SW846 6010C
Lead	17.9	2.4	0.28	mg/kg	SW846 6010C
Nickel	14.3	4.8	0.11	mg/kg	SW846 6010C
Vanadium	40.0	5.9	0.089	mg/kg	SW846 6010C
Zinc	42.5	5.9	0.91	mg/kg	SW846 6010C

(a) Dilution required due to matrix interference.
(b) Diluted due to high concentration of non-target compound and matrix interference.

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-6-20151027(3')		
Lab Sample ID:	JC7291-1	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	80.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D235576.D	1	11/06/15	BM	n/a	n/a	VD9618
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.8 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.059	0.016	mg/kg	
108-88-3	Toluene	ND	0.12	0.025	mg/kg	
100-41-4	Ethylbenzene	0.0568	0.12	0.019	mg/kg	J
1330-20-7	Xylene (total)	0.0320	0.12	0.032	mg/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	0.018	mg/kg	
135-98-8	sec-Butylbenzene	2.33	0.24	0.020	mg/kg	
98-06-6	tert-Butylbenzene	0.212	0.24	0.025	mg/kg	J
110-82-7	Cyclohexane	0.172	0.24	0.037	mg/kg	J
107-06-2	1,2-Dichloroethane	ND	0.12	0.016	mg/kg	
110-54-3	Hexane	ND	0.59	0.046	mg/kg	
98-82-8	Isopropylbenzene	1.99	0.24	0.013	mg/kg	
91-20-3	Naphthalene	0.214	0.59	0.022	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0468	0.24	0.024	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	ND	0.24	0.023	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	98%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	90%		72-130%

(a) Dilution required due to matrix interference.

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:	MH386-6-20151027(3')		
Lab Sample ID:	JC7291-1	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22849.D	1	11/05/15	AP	10/30/15	OP88533	E5P1168
Run #2 [a]	5P22980.D	2	11/09/15	AP	10/30/15	OP88533	E5P1173

	Initial Weight	Final Volume
Run #1	30.6 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	0.417	0.20	0.074	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.18	mg/kg	
95-48-7	2-Methylphenol	ND	0.081	0.059	mg/kg	
	3&4-Methylphenol	ND	0.081	0.039	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.069	mg/kg	
108-95-2	Phenol	ND	0.081	0.030	mg/kg	
83-32-9	Acenaphthene	0.204	0.040	0.038	mg/kg	
120-12-7	Anthracene	ND	0.040	0.0035	mg/kg	
56-55-3	Benzo(a)anthracene	0.0574	0.040	0.0078	mg/kg	
50-32-8	Benzo(a)pyrene	0.0383	0.040	0.0086	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0503	0.040	0.0083	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0246	0.040	0.012	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.040	0.0090	mg/kg	
92-52-4	1,1'-Biphenyl	0.0451	0.081	0.0075	mg/kg	J
218-01-9	Chrysene	0.199	0.040	0.0065	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.040	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.081	0.0048	mg/kg	
84-66-2	Diethyl phthalate	ND	0.081	0.0051	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.081	0.014	mg/kg	
206-44-0	Fluoranthene	0.0922	0.040	0.0049	mg/kg	
86-73-7	Fluorene	0.892	0.040	0.0048	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.040	0.021	mg/kg	
91-57-6	2-Methylnaphthalene	1.00	0.081	0.0076	mg/kg	
85-01-8	Phenanthrene	1.72	0.040	0.0045	mg/kg	
129-00-0	Pyrene	0.245	0.040	0.0050	mg/kg	
110-86-1	Pyridine	ND	0.081	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	77%	86%	30-106%
4165-62-2	Phenol-d5	78%	88%	30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-6-20151027(3')		
Lab Sample ID:	JC7291-1	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.9
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	83%	85%	24-140%
4165-60-0	Nitrobenzene-d5	98%	121%	26-122%
321-60-8	2-Fluorobiphenyl	76%	91%	36-112%
1718-51-0	Terphenyl-d14	83%	96%	36-132%

(a) Confirmation run.

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-6-20151027(3')		
Lab Sample ID:	JC7291-1	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	80.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65103.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.00051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	123%		70-170%
460-00-4	Bromofluorobenzene (S)	122%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-6-20151027(3')		
Lab Sample ID:	JC7291-1	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	80.9
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	7.3	6.2	0.050	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	22.4	2.5	0.30	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	14.3	5.0	0.12	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	35.9	6.2	0.094	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	63.7	6.2	0.96	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-7-20151027(3')		
Lab Sample ID:	JC7291-2	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D235609.D	1	11/07/15	BM	n/a	n/a	VD9619
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.7 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.060	0.016	mg/kg	
108-88-3	Toluene	ND	0.12	0.025	mg/kg	
100-41-4	Ethylbenzene	0.211	0.12	0.020	mg/kg	
1330-20-7	Xylene (total)	0.161	0.12	0.033	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	0.018	mg/kg	
135-98-8	sec-Butylbenzene	0.186	0.24	0.021	mg/kg	J
98-06-6	tert-Butylbenzene	0.0679	0.24	0.026	mg/kg	J
110-82-7	Cyclohexane	6.80	0.24	0.038	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.12	0.016	mg/kg	
110-54-3	Hexane	8.09	0.60	0.047	mg/kg	
98-82-8	Isopropylbenzene	0.271	0.24	0.013	mg/kg	
91-20-3	Naphthalene	0.697	0.60	0.023	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.987	0.24	0.024	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.464	0.24	0.023	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	101%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	98%		72-130%

(a) Diluted due to high concentration of non-target compound and matrix interference.

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:	MH386-7-20151027(3')		
Lab Sample ID:	JC7291-2	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22845.D	1	11/05/15	AP	10/30/15	OP88533	E5P1168
Run #2							

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

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.20	0.074	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.18	mg/kg	
95-48-7	2-Methylphenol	ND	0.081	0.059	mg/kg	
	3&4-Methylphenol	ND	0.081	0.039	mg/kg	
100-02-7	4-Nitrophenol	ND	0.41	0.069	mg/kg	
108-95-2	Phenol	ND	0.081	0.030	mg/kg	
83-32-9	Acenaphthene	0.0536	0.041	0.038	mg/kg	
120-12-7	Anthracene	ND	0.041	0.0035	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.041	0.0079	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.041	0.0087	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.041	0.0084	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.041	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.041	0.0091	mg/kg	
92-52-4	1,1'-Biphenyl	0.181	0.081	0.0075	mg/kg	
218-01-9	Chrysene	0.0198	0.041	0.0065	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.041	0.015	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.081	0.0048	mg/kg	
84-66-2	Diethyl phthalate	ND	0.081	0.0052	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.081	0.014	mg/kg	
206-44-0	Fluoranthene	0.0253	0.041	0.0050	mg/kg	J
86-73-7	Fluorene	0.157	0.041	0.0048	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.041	0.021	mg/kg	
91-57-6	2-Methylnaphthalene	2.59	0.081	0.0076	mg/kg	
85-01-8	Phenanthrene	0.358	0.041	0.0045	mg/kg	
129-00-0	Pyrene	0.107	0.041	0.0051	mg/kg	
110-86-1	Pyridine	ND	0.081	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		30-106%
4165-62-2	Phenol-d5	69%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-7-20151027(3')		
Lab Sample ID:	JC7291-2	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	67%		24-140%
4165-60-0	Nitrobenzene-d5	78%		26-122%
321-60-8	2-Fluorobiphenyl	75%		36-112%
1718-51-0	Terphenyl-d14	72%		36-132%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-7-20151027(3')		
Lab Sample ID:	JC7291-2	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65105.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0031	0.00051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	122%		70-170%
460-00-4	Bromofluorobenzene (S)	115%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-7-20151027(3')		
Lab Sample ID:	JC7291-2	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	4.5 J	6.3	0.050	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	11.0	2.5	0.30	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	12.7	5.0	0.12	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	40.5	6.3	0.094	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	30.6	6.3	0.96	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-8-20151027(5')		
Lab Sample ID:	JC7291-3	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	80.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D235610.D	1	11/07/15	BM	n/a	n/a	VD9619
Run #2							

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

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.308	0.057	0.015	mg/kg	
108-88-3	Toluene	ND	0.11	0.024	mg/kg	
100-41-4	Ethylbenzene	ND	0.11	0.019	mg/kg	
1330-20-7	Xylene (total)	0.175	0.11	0.031	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.177	0.11	0.017	mg/kg	
135-98-8	sec-Butylbenzene	0.0235	0.23	0.019	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.23	0.024	mg/kg	
110-82-7	Cyclohexane	ND	0.23	0.036	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.11	0.015	mg/kg	
110-54-3	Hexane	ND	0.57	0.044	mg/kg	
98-82-8	Isopropylbenzene	ND	0.23	0.012	mg/kg	
91-20-3	Naphthalene	0.459	0.57	0.022	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.481	0.23	0.023	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.244	0.23	0.022	mg/kg	

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

(a) Dilution required due to matrix interference.

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:	MH386-8-20151027(5')		
Lab Sample ID:	JC7291-3	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22846.D	1	11/05/15	AP	10/30/15	OP88533	E5P1168
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	0.20	0.072	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.079	0.057	mg/kg	
	3&4-Methylphenol	ND	0.079	0.038	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.067	mg/kg	
108-95-2	Phenol	ND	0.079	0.030	mg/kg	
83-32-9	Acenaphthene	0.290	0.040	0.037	mg/kg	
120-12-7	Anthracene	ND	0.040	0.0034	mg/kg	
56-55-3	Benzo(a)anthracene	0.0397	0.040	0.0076	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0241	0.040	0.0084	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0160	0.040	0.0081	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	0.040	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.040	0.0088	mg/kg	
92-52-4	1,1'-Biphenyl	0.0464	0.079	0.0073	mg/kg	J
218-01-9	Chrysene	0.0712	0.040	0.0064	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.040	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.079	0.0047	mg/kg	
84-66-2	Diethyl phthalate	ND	0.079	0.0050	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.079	0.014	mg/kg	
206-44-0	Fluoranthene	0.0448	0.040	0.0048	mg/kg	
86-73-7	Fluorene	0.509	0.040	0.0047	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.040	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	1.67	0.079	0.0074	mg/kg	
85-01-8	Phenanthrene	0.676	0.040	0.0044	mg/kg	
129-00-0	Pyrene	0.187	0.040	0.0049	mg/kg	
110-86-1	Pyridine	ND	0.079	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		30-106%
4165-62-2	Phenol-d5	75%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-8-20151027(5')		
Lab Sample ID:	JC7291-3	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.5
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	76%		24-140%
4165-60-0	Nitrobenzene-d5	78%		26-122%
321-60-8	2-Fluorobiphenyl	87%		36-112%
1718-51-0	Terphenyl-d14	79%		36-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-8-20151027(5')		
Lab Sample ID:	JC7291-3	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	80.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65106.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 g	50.0 ml
Run #2		

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	114%		70-170%
460-00-4	Bromofluorobenzene (S)	119%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-8-20151027(5')		
Lab Sample ID:	JC7291-3	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	80.5
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	4.7 J	5.9	0.047	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [3]
Lead	10.5	2.4	0.28	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [3]
Nickel	14.1	4.7	0.11	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [3]
Vanadium	30.8	5.9	0.089	mg/kg	1	11/04/15	11/07/15	BS	SW846 6010C [2]	SW846 3050B [3]
Zinc	31.7	5.9	0.91	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA37983
(2) Instrument QC Batch: MA37987
(3) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-9-20151027(5')		
Lab Sample ID:	JC7291-4	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y158623.D	1	11/05/15	PS	n/a	n/a	VY6927
Run #2	2C134333.D	1	11/07/15	TP	n/a	n/a	V2C6060

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.6 g		
Run #2	6.4 g	10.0 ml	100 ul

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.596 [a]	0.053	0.014	mg/kg	
108-88-3	Toluene	0.0067	0.00092	0.00019	mg/kg	
100-41-4	Ethylbenzene	0.0107	0.00092	0.00015	mg/kg	
1330-20-7	Xylene (total)	0.0321	0.00092	0.00025	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.0999	0.00092	0.00014	mg/kg	
135-98-8	sec-Butylbenzene	0.00038	0.0018	0.00016	mg/kg	J
98-06-6	tert-Butylbenzene	0.00019	0.0018	0.00019	mg/kg	J
110-82-7	Cyclohexane	0.0074	0.0018	0.00029	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00012	mg/kg	
110-54-3	Hexane	0.0062	0.0046	0.00036	mg/kg	
98-82-8	Isopropylbenzene	0.00068	0.0018	0.000098	mg/kg	J
91-20-3	Naphthalene	0.0207	0.0046	0.00017	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.0184	0.0018	0.00018	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0082	0.0018	0.00018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%	91%	70-122%
17060-07-0	1,2-Dichloroethane-D4	90%	94%	68-124%
2037-26-5	Toluene-D8	98%	104%	77-125%
460-00-4	4-Bromofluorobenzene	104%	104%	72-130%

(a) Result is from Run# 2

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:	MH386-9-20151027(5')		
Lab Sample ID:	JC7291-4	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22847.D	1	11/05/15	AP	10/30/15	OP88533	E5P1168
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 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	0.073	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.18	mg/kg	
95-48-7	2-Methylphenol	ND	0.080	0.058	mg/kg	
	3&4-Methylphenol	ND	0.080	0.038	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.068	mg/kg	
108-95-2	Phenol	ND	0.080	0.030	mg/kg	
83-32-9	Acenaphthene	0.227	0.040	0.038	mg/kg	
120-12-7	Anthracene	ND	0.040	0.0035	mg/kg	
56-55-3	Benzo(a)anthracene	0.0384	0.040	0.0077	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0234	0.040	0.0085	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.040	0.0083	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.040	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.040	0.0089	mg/kg	
92-52-4	1,1'-Biphenyl	0.0257	0.080	0.0074	mg/kg	J
218-01-9	Chrysene	0.0678	0.040	0.0065	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.040	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.080	0.0047	mg/kg	
84-66-2	Diethyl phthalate	ND	0.080	0.0051	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.080	0.014	mg/kg	
206-44-0	Fluoranthene	0.0427	0.040	0.0049	mg/kg	
86-73-7	Fluorene	0.404	0.040	0.0048	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.040	0.021	mg/kg	
91-57-6	2-Methylnaphthalene	1.26	0.080	0.0075	mg/kg	
85-01-8	Phenanthrene	0.695	0.040	0.0045	mg/kg	
129-00-0	Pyrene	0.167	0.040	0.0050	mg/kg	
110-86-1	Pyridine	ND	0.080	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	75%		30-106%
4165-62-2	Phenol-d5	76%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-9-20151027(5')		
Lab Sample ID:	JC7291-4	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	74%		24-140%
4165-60-0	Nitrobenzene-d5	76%		26-122%
321-60-8	2-Fluorobiphenyl	85%		36-112%
1718-51-0	Terphenyl-d14	78%		36-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-9-20151027(5')		
Lab Sample ID:	JC7291-4	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65107.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	112%		70-170%
460-00-4	Bromofluorobenzene (S)	116%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-9-20151027(5')		
Lab Sample ID:	JC7291-4	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	82.3
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	6.5	6.3	0.050	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	15.1	2.5	0.30	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	18.3	5.0	0.12	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	35.4	6.3	0.094	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	39.2	6.3	0.96	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-10-20151027(2')		
Lab Sample ID:	JC7291-5	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	85.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y158624.D	1	11/05/15	PS	n/a	n/a	VY6927
Run #2							

	Initial Weight
Run #1	6.2 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0928	0.00047	0.00013	mg/kg	
108-88-3	Toluene	0.0072	0.00094	0.00020	mg/kg	
100-41-4	Ethylbenzene	0.0150	0.00094	0.00015	mg/kg	
1330-20-7	Xylene (total)	0.0461	0.00094	0.00026	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.158	0.00094	0.00014	mg/kg	
135-98-8	sec-Butylbenzene	0.0022	0.0019	0.00016	mg/kg	
98-06-6	tert-Butylbenzene	0.0010	0.0019	0.00020	mg/kg	J
110-82-7	Cyclohexane	0.0841	0.0019	0.00030	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00094	0.00013	mg/kg	
110-54-3	Hexane	0.0276	0.0047	0.00037	mg/kg	
98-82-8	Isopropylbenzene	0.0096	0.0019	0.00010	mg/kg	
91-20-3	Naphthalene	0.0041	0.0047	0.00018	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0090	0.0019	0.00019	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0050	0.0019	0.00018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-122%
17060-07-0	1,2-Dichloroethane-D4	92%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	103%		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:	MH386-10-20151027(2')		
Lab Sample ID:	JC7291-5	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22848.D	1	11/05/15	AP	10/30/15	OP88533	E5P1168
Run #2 [a]	5P22981.D	2	11/09/15	AP	10/30/15	OP88533	E5P1173

	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.068	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.075	0.054	mg/kg	
	3&4-Methylphenol	ND	0.075	0.036	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.064	mg/kg	
108-95-2	Phenol	ND	0.075	0.028	mg/kg	
83-32-9	Acenaphthene	0.147	0.037	0.035	mg/kg	
120-12-7	Anthracene	0.183	0.037	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	0.0453	0.037	0.0072	mg/kg	
50-32-8	Benzo(a)pyrene	0.0289	0.037	0.0080	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0313	0.037	0.0077	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0274	0.037	0.011	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.037	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	0.359	0.075	0.0069	mg/kg	
218-01-9	Chrysene	0.125	0.037	0.0060	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.037	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.075	0.0044	mg/kg	
84-66-2	Diethyl phthalate	ND	0.075	0.0048	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.075	0.013	mg/kg	
206-44-0	Fluoranthene	0.0982	0.037	0.0046	mg/kg	
86-73-7	Fluorene	0.235	0.037	0.0045	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.037	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	0.0745	0.075	0.0070	mg/kg	J
85-01-8	Phenanthrene	0.452	0.037	0.0042	mg/kg	
129-00-0	Pyrene	0.543	0.037	0.0047	mg/kg	
110-86-1	Pyridine	ND	0.075	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%	71%	30-106%
4165-62-2	Phenol-d5	64%	72%	30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-10-20151027(2')		
Lab Sample ID:	JC7291-5	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.4
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	62%	64%	24-140%
4165-60-0	Nitrobenzene-d5	72%	86%	26-122%
321-60-8	2-Fluorobiphenyl	80%	84%	36-112%
1718-51-0	Terphenyl-d14	65%	74%	36-132%

(a) Confirmation run.

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-10-20151027(2')		
Lab Sample ID:	JC7291-5	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.4
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65108.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	50.0 ml
Run #2		

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	119%		70-170%
460-00-4	Bromofluorobenzene (S)	112%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-10-20151027(2')		
Lab Sample ID:	JC7291-5	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	85.4
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	13.3	5.6	0.045	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	34.4	2.3	0.27	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	14.2	4.5	0.11	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	36.4	5.6	0.084	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	48.6	5.6	0.86	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-10-20151027(5')		
Lab Sample ID:	JC7291-6	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y158629.D	1	11/05/15	PS	n/a	n/a	VY6927
Run #2	2C134334.D	1	11/07/15	TP	n/a	n/a	V2C6060

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g		
Run #2	6.2 g	10.0 ml	100 ul

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0164	0.00046	0.00012	mg/kg	
108-88-3	Toluene	0.00041	0.00093	0.00019	mg/kg	J
100-41-4	Ethylbenzene	0.0020	0.00093	0.00015	mg/kg	
1330-20-7	Xylene (total)	0.0028	0.00093	0.00025	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.320 [a]	0.10	0.016	mg/kg	
135-98-8	sec-Butylbenzene	0.00019	0.0019	0.00016	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.0019	0.00020	mg/kg	
110-82-7	Cyclohexane	0.0021	0.0019	0.00029	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00093	0.00012	mg/kg	
110-54-3	Hexane	0.0018	0.0046	0.00036	mg/kg	J
98-82-8	Isopropylbenzene	0.00044	0.0019	0.000098	mg/kg	J
91-20-3	Naphthalene	0.0029	0.0046	0.00018	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0028	0.0019	0.00018	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0011	0.0019	0.00018	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%	92%	70-122%
17060-07-0	1,2-Dichloroethane-D4	88%	94%	68-124%
2037-26-5	Toluene-D8	97%	107%	77-125%
460-00-4	4-Bromofluorobenzene	105%	105%	72-130%

(a) Result is from Run# 2

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:	MH386-10-20151027(5')		
Lab Sample ID:	JC7291-6	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22982.D	1	11/09/15	AP	10/30/15	OP88533	E5P1173
Run #2							

	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.069	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.075	0.055	mg/kg	
	3&4-Methylphenol	ND	0.075	0.036	mg/kg	
100-02-7	4-Nitrophenol	ND	0.38	0.064	mg/kg	
108-95-2	Phenol	ND	0.075	0.028	mg/kg	
83-32-9	Acenaphthene	ND	0.038	0.036	mg/kg	
120-12-7	Anthracene	ND	0.038	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.038	0.0073	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.038	0.0080	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.038	0.0078	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.038	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.038	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.075	0.0070	mg/kg	
218-01-9	Chrysene	ND	0.038	0.0061	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.038	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.075	0.0045	mg/kg	
84-66-2	Diethyl phthalate	ND	0.075	0.0048	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.075	0.013	mg/kg	
206-44-0	Fluoranthene	ND	0.038	0.0046	mg/kg	
86-73-7	Fluorene	ND	0.038	0.0045	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.038	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.075	0.0071	mg/kg	
85-01-8	Phenanthrene	ND	0.038	0.0042	mg/kg	
129-00-0	Pyrene	ND	0.038	0.0047	mg/kg	
110-86-1	Pyridine	ND	0.075	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	76%		30-106%
4165-62-2	Phenol-d5	77%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-10-20151027(5')		
Lab Sample ID:	JC7291-6	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	71%		24-140%
4165-60-0	Nitrobenzene-d5	84%		26-122%
321-60-8	2-Fluorobiphenyl	83%		36-112%
1718-51-0	Terphenyl-d14	83%		36-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-10-20151027(5')		
Lab Sample ID:	JC7291-6	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65109.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	114%		70-170%
460-00-4	Bromofluorobenzene (S)	119%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-10-20151027(5')		
Lab Sample ID:	JC7291-6	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	85.5
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	6.1	5.9	0.047	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	9.4	2.4	0.28	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	15.4	4.7	0.11	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	34.0	5.9	0.089	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	31.1	5.9	0.91	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-11-20151027(2')		
Lab Sample ID:	JC7291-7	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D235670.D	1	11/10/15	BM	n/a	n/a	VD9621
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.055	0.015	mg/kg	
108-88-3	Toluene	ND	0.11	0.023	mg/kg	
100-41-4	Ethylbenzene	ND	0.11	0.018	mg/kg	
1330-20-7	Xylene (total)	ND	0.11	0.030	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.11	0.017	mg/kg	
135-98-8	sec-Butylbenzene	0.0227	0.22	0.019	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.22	0.023	mg/kg	
110-82-7	Cyclohexane	0.234	0.22	0.035	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.11	0.015	mg/kg	
110-54-3	Hexane	ND	0.55	0.043	mg/kg	
98-82-8	Isopropylbenzene	0.0509	0.22	0.012	mg/kg	J
91-20-3	Naphthalene	0.0393	0.55	0.021	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	ND	0.22	0.022	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.22	0.021	mg/kg	

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

(a) Diluted due to high concentration of non-target compound and matrix interference.

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:	MH386-11-20151027(2')		
Lab Sample ID:	JC7291-7	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22985.D	1	11/09/15	AP	10/30/15	OP88533	E5P1173
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	0.130	0.20	0.074	mg/kg	J
51-28-5	2,4-Dinitrophenol	ND	0.20	0.18	mg/kg	
95-48-7	2-Methylphenol	ND	0.081	0.058	mg/kg	
	3&4-Methylphenol	ND	0.081	0.039	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.068	mg/kg	
108-95-2	Phenol	ND	0.081	0.030	mg/kg	
83-32-9	Acenaphthene	0.154	0.040	0.038	mg/kg	
120-12-7	Anthracene	0.180	0.040	0.0035	mg/kg	
56-55-3	Benzo(a)anthracene	0.0866	0.040	0.0078	mg/kg	
50-32-8	Benzo(a)pyrene	0.0216	0.040	0.0086	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0425	0.040	0.0083	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0167	0.040	0.012	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.040	0.0090	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.081	0.0075	mg/kg	
218-01-9	Chrysene	0.204	0.040	0.0065	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.040	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.081	0.0048	mg/kg	
84-66-2	Diethyl phthalate	ND	0.081	0.0051	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.081	0.014	mg/kg	
206-44-0	Fluoranthene	0.0860	0.040	0.0049	mg/kg	
86-73-7	Fluorene	0.435	0.040	0.0048	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.040	0.021	mg/kg	
91-57-6	2-Methylnaphthalene	0.588	0.081	0.0075	mg/kg	
85-01-8	Phenanthrene	1.03	0.040	0.0045	mg/kg	
129-00-0	Pyrene	0.359	0.040	0.0050	mg/kg	
110-86-1	Pyridine	ND	0.081	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		30-106%
4165-62-2	Phenol-d5	75%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-11-20151027(2')		
Lab Sample ID:	JC7291-7	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	76%		24-140%
4165-60-0	Nitrobenzene-d5	98%		26-122%
321-60-8	2-Fluorobiphenyl	96%		36-112%
1718-51-0	Terphenyl-d14	78%		36-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-11-20151027(2')		
Lab Sample ID:	JC7291-7	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65110.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.00051	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	122%		70-170%
460-00-4	Bromofluorobenzene (S)	127%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-11-20151027(2')		
Lab Sample ID:	JC7291-7	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	80.6
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	8.5	6.1	0.049	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	53.7	2.4	0.29	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	17.3	4.9	0.12	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	42.4	6.1	0.091	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	53.0	6.1	0.93	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-12-20151027(2')		
Lab Sample ID:	JC7291-8	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	83.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y158630.D	1	11/05/15	PS	n/a	n/a	VY6927
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00052	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	0.00029	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.0070	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	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00014	mg/kg	
110-54-3	Hexane	ND	0.0052	0.00041	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0021	0.00011	mg/kg	
91-20-3	Naphthalene	ND	0.0052	0.00020	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0021	0.00021	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0021	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	92%		68-124%
2037-26-5	Toluene-D8	97%		77-125%
460-00-4	4-Bromofluorobenzene	106%		72-130%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-12-20151027(2')		
Lab Sample ID:	JC7291-8	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	83.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22984.D	1	11/09/15	AP	10/30/15	OP88533	E5P1173
Run #2							

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

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.18	0.068	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.16	mg/kg	
95-48-7	2-Methylphenol	ND	0.074	0.054	mg/kg	
	3&4-Methylphenol	ND	0.074	0.035	mg/kg	
100-02-7	4-Nitrophenol	ND	0.37	0.063	mg/kg	
108-95-2	Phenol	ND	0.074	0.028	mg/kg	
83-32-9	Acenaphthene	0.0573	0.037	0.035	mg/kg	
120-12-7	Anthracene	ND	0.037	0.0032	mg/kg	
56-55-3	Benzo(a)anthracene	0.0188	0.037	0.0071	mg/kg	J
50-32-8	Benzo(a)pyrene	ND	0.037	0.0079	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.037	0.0076	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.037	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.037	0.0082	mg/kg	
92-52-4	1,1'-Biphenyl	0.0150	0.074	0.0068	mg/kg	J
218-01-9	Chrysene	0.0525	0.037	0.0059	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.037	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.074	0.0044	mg/kg	
84-66-2	Diethyl phthalate	ND	0.074	0.0047	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.074	0.013	mg/kg	
206-44-0	Fluoranthene	0.0178	0.037	0.0045	mg/kg	J
86-73-7	Fluorene	0.208	0.037	0.0044	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.037	0.019	mg/kg	
91-57-6	2-Methylnaphthalene	0.262	0.074	0.0069	mg/kg	
85-01-8	Phenanthrene	0.205	0.037	0.0041	mg/kg	
129-00-0	Pyrene	0.0751	0.037	0.0046	mg/kg	
110-86-1	Pyridine	ND	0.074	0.018	mg/kg	
91-22-5	Quinoline	ND	0.18	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		30-106%
4165-62-2	Phenol-d5	68%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-12-20151027(2')		
Lab Sample ID:	JC7291-8	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	83.6
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	62%		24-140%
4165-60-0	Nitrobenzene-d5	76%		26-122%
321-60-8	2-Fluorobiphenyl	73%		36-112%
1718-51-0	Terphenyl-d14	72%		36-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-12-20151027(2')		
Lab Sample ID:	JC7291-8	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	83.6
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65111.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	112%		70-170%
460-00-4	Bromofluorobenzene (S)	121%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-12-20151027(2')		
Lab Sample ID:	JC7291-8	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	83.6
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	5.5 J	5.7	0.046	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	8.5	2.3	0.27	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	14.8	4.6	0.11	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	39.4	5.7	0.085	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	40.3	5.7	0.87	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-13-20151027(2')		
Lab Sample ID:	JC7291-9	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	82.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y158631.D	1	11/05/15	PS	n/a	n/a	VY6927
Run #2							

	Initial Weight
Run #1	6.2 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00049	0.00013	mg/kg	
108-88-3	Toluene	ND	0.00098	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00098	0.00016	mg/kg	
1330-20-7	Xylene (total)	ND	0.00098	0.00027	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00098	0.00015	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0020	0.00017	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0020	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00031	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00098	0.00013	mg/kg	
110-54-3	Hexane	ND	0.0049	0.00038	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0020	0.00010	mg/kg	
91-20-3	Naphthalene	ND	0.0049	0.00019	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0020	0.00020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0020	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-122%
17060-07-0	1,2-Dichloroethane-D4	87%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	110%		72-130%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-13-20151027(2')		
Lab Sample ID:	JC7291-9	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22983.D	1	11/09/15	AP	10/30/15	OP88533	E5P1173
Run #2							

	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.20	0.072	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.079	0.057	mg/kg	
	3&4-Methylphenol	ND	0.079	0.038	mg/kg	
100-02-7	4-Nitrophenol	ND	0.39	0.067	mg/kg	
108-95-2	Phenol	ND	0.079	0.029	mg/kg	
83-32-9	Acenaphthene	ND	0.039	0.037	mg/kg	
120-12-7	Anthracene	ND	0.039	0.0034	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.039	0.0076	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.039	0.0084	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.039	0.0081	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.039	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.039	0.0088	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.079	0.0073	mg/kg	
218-01-9	Chrysene	ND	0.039	0.0063	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.039	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.079	0.0046	mg/kg	
84-66-2	Diethyl phthalate	ND	0.079	0.0050	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.079	0.014	mg/kg	
206-44-0	Fluoranthene	ND	0.039	0.0048	mg/kg	
86-73-7	Fluorene	ND	0.039	0.0047	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.039	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.079	0.0073	mg/kg	
85-01-8	Phenanthrene	ND	0.039	0.0044	mg/kg	
129-00-0	Pyrene	ND	0.039	0.0049	mg/kg	
110-86-1	Pyridine	ND	0.079	0.020	mg/kg	
91-22-5	Quinoline	ND	0.20	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	81%		30-106%
4165-62-2	Phenol-d5	83%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-13-20151027(2')		
Lab Sample ID:	JC7291-9	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	82.1
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	71%		24-140%
4165-60-0	Nitrobenzene-d5	86%		26-122%
321-60-8	2-Fluorobiphenyl	89%		36-112%
1718-51-0	Terphenyl-d14	90%		36-132%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-13-20151027(2')		
Lab Sample ID:	JC7291-9	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	82.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65112.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

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

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	113%		70-170%
460-00-4	Bromofluorobenzene (S)	118%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-13-20151027(2')		
Lab Sample ID:	JC7291-9	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	82.1
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	11.2	6.0	0.048	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	9.8	2.4	0.29	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	17.2	4.8	0.11	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	38.1	6.0	0.090	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	38.9	6.0	0.92	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-14-20151027(2')		
Lab Sample ID:	JC7291-10	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8260C	**Percent Solids:**	81.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D235611.D	1	11/07/15	BM	n/a	n/a	VD9619
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.0 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.057	0.015	mg/kg	
108-88-3	Toluene	ND	0.11	0.024	mg/kg	
100-41-4	Ethylbenzene	ND	0.11	0.018	mg/kg	
1330-20-7	Xylene (total)	ND	0.11	0.031	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.11	0.017	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.23	0.019	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.23	0.024	mg/kg	
110-82-7	Cyclohexane	ND	0.23	0.036	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.11	0.015	mg/kg	
110-54-3	Hexane	ND	0.57	0.044	mg/kg	
98-82-8	Isopropylbenzene	ND	0.23	0.012	mg/kg	
91-20-3	Naphthalene	0.0473	0.57	0.021	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	ND	0.23	0.023	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.23	0.022	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	97%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	101%		72-130%

(a) Dilution required due to matrix interference.

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:	MH386-14-20151027(2')		
Lab Sample ID:	JC7291-10	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P22986.D	1	11/09/15	AP	10/30/15	OP88533	E5P1173
Run #2							

	Initial Weight	Final Volume
Run #1	32.0 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.070	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.17	mg/kg	
95-48-7	2-Methylphenol	ND	0.076	0.055	mg/kg	
	3&4-Methylphenol	ND	0.076	0.037	mg/kg	
100-02-7	4-Nitrophenol	ND	0.38	0.065	mg/kg	
108-95-2	Phenol	ND	0.076	0.029	mg/kg	
83-32-9	Acenaphthene	0.0406	0.038	0.036	mg/kg	
120-12-7	Anthracene	0.104	0.038	0.0033	mg/kg	
56-55-3	Benzo(a)anthracene	0.0416	0.038	0.0074	mg/kg	
50-32-8	Benzo(a)pyrene	0.0254	0.038	0.0081	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0290	0.038	0.0079	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0275	0.038	0.011	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.038	0.0085	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.076	0.0071	mg/kg	
218-01-9	Chrysene	0.0891	0.038	0.0062	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.038	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.076	0.0045	mg/kg	
84-66-2	Diethyl phthalate	ND	0.076	0.0049	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.076	0.013	mg/kg	
206-44-0	Fluoranthene	0.0741	0.038	0.0047	mg/kg	
86-73-7	Fluorene	0.154	0.038	0.0046	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.038	0.020	mg/kg	
91-57-6	2-Methylnaphthalene	0.0346	0.076	0.0072	mg/kg	J
85-01-8	Phenanthrene	0.0713	0.038	0.0042	mg/kg	
129-00-0	Pyrene	0.276	0.038	0.0048	mg/kg	
110-86-1	Pyridine	ND	0.076	0.019	mg/kg	
91-22-5	Quinoline	ND	0.19	0.014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		30-106%
4165-62-2	Phenol-d5	68%		30-106%

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

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

Report of Analysis

Client Sample ID:	MH386-14-20151027(2')		
Lab Sample ID:	JC7291-10	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.7
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	65%		24-140%
4165-60-0	Nitrobenzene-d5	76%		26-122%
321-60-8	2-Fluorobiphenyl	78%		36-112%
1718-51-0	Terphenyl-d14	73%		36-132%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MH386-14-20151027(2')		
Lab Sample ID:	JC7291-10	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	81.7
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB65113.D	1	11/02/15	AMA	11/02/15	M:OP45247	M:GBB3509
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.00049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	110%		70-170%
460-00-4	Bromofluorobenzene (S)	118%		70-170%

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

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

Report of Analysis

Client Sample ID:	MH386-14-20151027(2')		
Lab Sample ID:	JC7291-10	**Date Sampled:**	10/27/15
Matrix:	SO - Soil	**Date Received:**	10/28/15
		Percent Solids:	81.7
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	6.7	5.9	0.048	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	17.9	2.4	0.28	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	14.3	4.8	0.11	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	40.0	5.9	0.089	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	42.5	5.9	0.91	mg/kg	1	11/04/15	11/06/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA37983
(2) Prep QC Batch: MP90063

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = 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

CHAIN OF CUSTODY

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

10/28/15

PAGE 1 OF 1

FED-EX Tracking #:

Bottle Order Control #:

Accutest Quote #:

Accutest Job #: JC7291

Client / Reporting Information

Company Name: Stantec
Street Address: 1060 Andrew Drive Ste 140
City: W. Chester State: PA Zip: 19380
Project Contact: Mark Schaeffer E-mail: mark.schaeffer@stantec.com
Phone #: 610-840-2552 Fax #:
Sampler(s) Name(s): C. Oblinski Phone #: 908-442-1650

Project Information

Project Name: OFR MHIC Tank Sampling (386)
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

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

Requested Analysis (see TEST CODE sheet)

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	VOCs by EPA Method 8260 *	SVOCs by EPA Method 82-70 *	Metals by 6010/6020 *	EDB by 8011 *	LAB USE ONLY
1	MH386-6-20151027(3')		10/27/15	0925	CD	SO	6					3	2	1		X	X	X	X	D34
2	MH386-7-20151027(3')			0940	CD	SO	6					3	2	1						D33T3
3	MH386-8-20151027(5')			1000	CD	SO	6					3	2	1						1465
4	MH386-9-20151027(5')			1055	CD	SO	6					3	2	1						40115
5	MH386-10-20151027(2')			1125	CD	SO	6					3	2	1						
6	MH386-10-20151027(5')			1135	CD	SO	6					3	2	1						
7	MH386-11-20151027(2')			1150	CD	SO	6					3	2	1						
8	MH386-12-20151027(2')			1200	CD	SO	6					3	2	1						
9	MH386-13-20151027(2')			1220	CD	SO	6					3	2	1						
10	MH386-14-20151027(2')			1235	CD	SO	6					3	2	1						

Initial:
Date:

INITIAL ASESSMENT JAOB
LABEL VERIFICATION OK

D.I. slurry voc vials frozen storage
Date: 10/28/15 Time: 2334 Initials: OK

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] *NJ Data of Known Quality Protocol Reporting*
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [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 attached COC for list of analyses for soil sampling

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	10/27/15 1530	1	2	10/28/15 15:07	2
3	10/28/15 16:17	3	4		4
5		5			

Custody Seal # ☐ Intact ☐ Not intact

Preserved where applicable ☐

On Ice ☑ Cooler Temp. 3.1 C-IR

JC7291: Chain of Custody
Page 1 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JC7291 **Client:** **Project:**

Date / Time Received: 10/28/2015 6:17:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (3.3);

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

JC7291: Chain of Custody
Page 2 of 4

ACCUTEST LABORATORIES

JOB NUMBER: JC7291

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

SAMPLE #	MeOH VIAL	DIH2O / NaHSO4	DIH2O / NaHSO4	
1	3623	4295	4296	
2	3622	4294	4293	
3	3624	4297	4298	
4	3626	4302	4301	
5	3610	4270	4267	
6	3612	4274	4273	
7	3606	4262	4261	
8	3611	4272	4271	
9	3608	4265	4266	
10	3613	4276	4275	

JC7291: Chain of Custody

Page 3 of 4

Comprehensive COC List for Evergreen Characterizations (August 2015)

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
Ethylene Dibromide*	106-93-4
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

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

*Ethylene Dibromide should be analyzed by EPA Method 8011 instead of 8260 in soil for tank investigations and in **all groundwater samples**.

**Naphthalene should be analyzed by EPA Method 8260 instead of 8270 for tank investigations.

***Metals analysis should be total in soil and dissolved in groundwater.

This list is generated from the PADEP SERO Crude Oil Parameters for Corrective Action (CDB|SERO|PADEP|9 Aug 2013) combined with PADEP Short List of Petroleum Products (leaded and unleaded gasoline and No. 1, 2, 4, 5, 6 Fuel Oils).

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC7291

Sunoco - Marcus Hook Facility, PA
Project No: MHIC TANK Sampling (386)

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC7291-1	Collected: 27-OCT-15 09:25 By: CD		Received: 28-OCT-15 By: AS			
MH386-6-20151027(3')						
JC7291-1	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-1	SW846 8011	02-NOV-15 17:43	AMA	02-NOV-15	AMA	V8011EDB
JC7291-1	SW846 8270D	05-NOV-15 19:58	AP	30-OCT-15	AQ	AB8270SL3
JC7291-1	SW846 8260C	06-NOV-15 17:58	BM			V8260SL2
JC7291-1	SW846 6010C	06-NOV-15 21:04	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-1	SW846 8270D	09-NOV-15 16:45	AP	30-OCT-15	AQ	AB8270SL3
JC7291-2	Collected: 27-OCT-15 09:40 By: CD		Received: 28-OCT-15 By: AS			
MH386-7-20151027(3')						
JC7291-2	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-2	SW846 8011	02-NOV-15 18:42	AMA	02-NOV-15	AMA	V8011EDB
JC7291-2	SW846 8270D	05-NOV-15 18:10	AP	30-OCT-15	AQ	AB8270SL3
JC7291-2	SW846 6010C	06-NOV-15 21:07	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-2	SW846 8260C	07-NOV-15 15:15	BM			V8260SL2
JC7291-3	Collected: 27-OCT-15 10:00 By: CD		Received: 28-OCT-15 By: AS			
MH386-8-20151027(5')						
JC7291-3	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-3	SW846 8011	02-NOV-15 19:11	AMA	02-NOV-15	AMA	V8011EDB
JC7291-3	SW846 8270D	05-NOV-15 18:37	AP	30-OCT-15	AQ	AB8270SL3
JC7291-3	SW846 6010C	06-NOV-15 21:15	BS	04-NOV-15	JA	CO,NI,PB,ZN
JC7291-3	SW846 6010C	07-NOV-15 15:07	BS	04-NOV-15	JA	V
JC7291-3	SW846 8260C	07-NOV-15 15:45	BM			V8260SL2
JC7291-4	Collected: 27-OCT-15 10:55 By: CD		Received: 28-OCT-15 By: AS			
MH386-9-20151027(5')						
JC7291-4	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-4	SW846 8011	02-NOV-15 19:41	AMA	02-NOV-15	AMA	V8011EDB
JC7291-4	SW846 8260C	05-NOV-15 16:14	PS			V8260SL2
JC7291-4	SW846 8270D	05-NOV-15 19:04	AP	30-OCT-15	AQ	AB8270SL3
JC7291-4	SW846 6010C	06-NOV-15 21:18	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-4	SW846 8260C	07-NOV-15 13:04	TP			V8260SL2

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC7291

Sunoco - Marcus Hook Facility, PA
Project No: MHIC TANK Sampling (386)

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC7291-5	Collected: 27-OCT-15 11:25 By: CD		Received: 28-OCT-15 By: AS			
MH386-10-20151027(2')						
JC7291-5	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-5	SW846 8011	02-NOV-15 20:10	AMA	02-NOV-15	AMA	V8011EDB
JC7291-5	SW846 8260C	05-NOV-15 16:43	PS			V8260SL2
JC7291-5	SW846 8270D	05-NOV-15 19:31	AP	30-OCT-15	AQ	AB8270SL3
JC7291-5	SW846 6010C	06-NOV-15 21:20	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-5	SW846 8270D	09-NOV-15 17:11	AP	30-OCT-15	AQ	AB8270SL3
JC7291-6	Collected: 27-OCT-15 11:35 By: CD		Received: 28-OCT-15 By: AS			
MH386-10-20151027(5')						
JC7291-6	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-6	SW846 8011	02-NOV-15 20:39	AMA	02-NOV-15	AMA	V8011EDB
JC7291-6	SW846 8260C	05-NOV-15 19:04	PS			V8260SL2
JC7291-6	SW846 6010C	06-NOV-15 21:23	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-6	SW846 8260C	07-NOV-15 13:33	TP			V8260SL2
JC7291-6	SW846 8270D	09-NOV-15 17:37	AP	30-OCT-15	AQ	AB8270SL3
JC7291-7	Collected: 27-OCT-15 11:50 By: CD		Received: 28-OCT-15 By: AS			
MH386-11-20151027(2')						
JC7291-7	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-7	SW846 8011	02-NOV-15 21:09	AMA	02-NOV-15	AMA	V8011EDB
JC7291-7	SW846 6010C	06-NOV-15 21:26	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-7	SW846 8270D	09-NOV-15 18:58	AP	30-OCT-15	AQ	AB8270SL3
JC7291-7	SW846 8260C	10-NOV-15 04:24	BM			V8260SL2
JC7291-8	Collected: 27-OCT-15 12:00 By: CD		Received: 28-OCT-15 By: AS			
MH386-12-20151027(2')						
JC7291-8	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-8	SW846 8011	02-NOV-15 21:39	AMA	02-NOV-15	AMA	V8011EDB
JC7291-8	SW846 8260C	05-NOV-15 19:32	PS			V8260SL2
JC7291-8	SW846 6010C	06-NOV-15 21:29	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-8	SW846 8270D	09-NOV-15 18:31	AP	30-OCT-15	AQ	AB8270SL3

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JC7291

Sunoco - Marcus Hook Facility, PA
Project No: MHIC TANK Sampling (386)

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC7291-9 Collected: 27-OCT-15 12:20 By: CD Received: 28-OCT-15 By: AS MH386-13-20151027(2')						
JC7291-9	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-9	SW846 8011	02-NOV-15 22:08	AMA	02-NOV-15	AMA	V8011EDB
JC7291-9	SW846 8260C	05-NOV-15 20:01	PS			V8260SL2
JC7291-9	SW846 6010C	06-NOV-15 21:31	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-9	SW846 8270D	09-NOV-15 18:04	AP	30-OCT-15	AQ	AB8270SL3
JC7291-10 Collected: 27-OCT-15 12:35 By: CD Received: 28-OCT-15 By: AS MH386-14-20151027(2')						
JC7291-10	SM2540 G-97	30-OCT-15 17:00	KP			%SOL
JC7291-10	SW846 8011	02-NOV-15 22:38	AMA	02-NOV-15	AMA	V8011EDB
JC7291-10	SW846 6010C	06-NOV-15 21:34	BS	04-NOV-15	JA	CO,NI,PB,V,ZN
JC7291-10	SW846 8260C	07-NOV-15 16:16	BM			V8260SL2
JC7291-10	SW846 8270D	09-NOV-15 19:25	AP	30-OCT-15	AQ	AB8270SL3

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-1.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-1.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-1.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-1.1
JC7291-1.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-1.1
JC7291-1.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-1.1.1	Extract Storage	Alicja Pawelec	11/03/15 16:02	Retrieve from Storage
JC7291-1.1.1	Alicja Pawelec	GCMS5P	11/03/15 16:02	Load on Instrument
JC7291-1.1.1	GCMS5P	Alicja Pawelec	11/06/15 10:56	Unload from Instrument
JC7291-1.1.1	Alicja Pawelec	Extract Freezer	11/06/15 10:57	Return to Storage
JC7291-1.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-1.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-1.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-1.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-1.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-1.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-1.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-1.2
JC7291-1.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-1.2
JC7291-1.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-1.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-1.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-1.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-1.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-1.4	Secured Storage	Benjamin Mendez	11/06/15 16:40	Retrieve from Storage
JC7291-1.4	Benjamin Mendez	Secured Storage	11/06/15 16:40	Return to Storage
JC7291-2.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-2.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-2.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-2.1
JC7291-2.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-2.1
JC7291-2.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-2.1.1	Extract Storage	Alicja Pawelec	11/03/15 16:02	Retrieve from Storage
JC7291-2.1.1	Alicja Pawelec	GCMS5P	11/03/15 16:02	Load on Instrument
JC7291-2.1.1	GCMS5P	Kristi Schollenberger	11/07/15 12:50	Unload from Instrument
JC7291-2.1.1	Kristi Schollenberger	Extract Freezer	11/07/15 12:50	Return to Storage
JC7291-2.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-2.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-2.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-2.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-2.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-2.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-2.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-2.2
JC7291-2.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-2.2
JC7291-2.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-2.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-2.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-2.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-2.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-2.4	Secured Storage	Benjamin Mendez	11/06/15 16:40	Retrieve from Storage
JC7291-2.4	Benjamin Mendez	Secured Storage	11/06/15 16:40	Return to Storage
JC7291-3.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-3.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-3.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-3.1
JC7291-3.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-3.1
JC7291-3.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-3.1.1	Extract Storage	Alicja Pawelec	11/03/15 16:02	Retrieve from Storage
JC7291-3.1.1	Alicja Pawelec	GCMS5P	11/03/15 16:02	Load on Instrument
JC7291-3.1.1	GCMS5P	Alicja Pawelec	11/06/15 10:57	Unload from Instrument
JC7291-3.1.1	Alicja Pawelec	Extract Freezer	11/06/15 10:57	Return to Storage
JC7291-3.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-3.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-3.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-3.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-3.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-3.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-3.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-3.2
JC7291-3.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-3.2
JC7291-3.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-3.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-3.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-3.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-3.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-3.4	Secured Storage	Benjamin Mendez	11/06/15 16:40	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-3.4	Benjamin Mendez	Secured Storage	11/06/15 16:40	Return to Storage
JC7291-4.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-4.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-4.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-4.1
JC7291-4.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-4.1
JC7291-4.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-4.1.1	Extract Storage	Alicja Pawelec	11/03/15 16:02	Retrieve from Storage
JC7291-4.1.1	Alicja Pawelec	GCMS5P	11/03/15 16:02	Load on Instrument
JC7291-4.1.1	GCMS5P	Alicja Pawelec	11/06/15 10:56	Unload from Instrument
JC7291-4.1.1	Alicja Pawelec	Extract Freezer	11/06/15 10:57	Return to Storage
JC7291-4.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-4.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-4.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-4.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-4.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-4.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-4.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-4.2
JC7291-4.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-4.2
JC7291-4.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-4.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-4.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-4.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-4.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-4.4	Secured Storage	Toan Pham	11/07/15 10:47	Retrieve from Storage
JC7291-4.4	Toan Pham	Secured Storage	11/07/15 14:09	Return to Storage
JC7291-4.6	Secured Storage	Robert Szot	11/04/15 16:23	Retrieve from Storage
JC7291-4.6	Robert Szot	GCMSV	11/04/15 16:23	Load on Instrument
JC7291-4.6	GCMSV	Robert Szot	11/04/15 17:05	Unload from Instrument
JC7291-4.6	Robert Szot	Secured Storage	11/04/15 17:06	Return to Storage
JC7291-4.6	Secured Storage	Payal Rana	11/05/15 14:04	Retrieve from Storage
JC7291-4.6	Payal Rana	GCMSY	11/05/15 14:04	Load on Instrument
JC7291-4.6	GCMSY	Michael Lee	11/06/15 09:57	Unload from Instrument
JC7291-4.6	Michael Lee		11/06/15 09:58	Depleted
JC7291-5.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-5.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-5.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-5.1
JC7291-5.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-5.1
JC7291-5.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-5.1.1	Extract Storage	Alicja Pawelec	11/03/15 16:02	Retrieve from Storage
JC7291-5.1.1	Alicja Pawelec	GCMS5P	11/03/15 16:02	Load on Instrument
JC7291-5.1.1	GCMS5P	Alicja Pawelec	11/06/15 10:56	Unload from Instrument
JC7291-5.1.1	Alicja Pawelec	GCMS5P	11/06/15 10:57	Load on Instrument
JC7291-5.1.1	GCMS5P	Kristi Schollenberger	11/07/15 12:50	Unload from Instrument
JC7291-5.1.1	Kristi Schollenberger	Extract Freezer	11/07/15 12:50	Return to Storage
JC7291-5.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-5.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-5.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-5.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-5.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-5.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-5.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-5.2
JC7291-5.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-5.2
JC7291-5.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-5.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-5.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-5.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-5.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-5.6	Secured Storage	Robert Szot	11/04/15 16:23	Retrieve from Storage
JC7291-5.6	Robert Szot	GCMSV	11/04/15 16:23	Load on Instrument
JC7291-5.6	GCMSV	Robert Szot	11/04/15 17:05	Unload from Instrument
JC7291-5.6	Robert Szot	Secured Storage	11/04/15 17:06	Return to Storage
JC7291-5.6	Secured Storage	Payal Rana	11/05/15 14:04	Retrieve from Storage
JC7291-5.6	Payal Rana	GCMSY	11/05/15 14:04	Load on Instrument
JC7291-5.6	GCMSY	Michael Lee	11/06/15 09:57	Unload from Instrument
JC7291-5.6	Michael Lee		11/06/15 09:58	Depleted
JC7291-6.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-6.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-6.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-6.1
JC7291-6.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-6.1
JC7291-6.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-6.1.1	Extract Storage	Alicja Pawelec	11/09/15 14:54	Retrieve from Storage
JC7291-6.1.1	Alicja Pawelec	GCMS5P	11/09/15 14:54	Load on Instrument
JC7291-6.1.1	GCMS5P	Alicja Pawelec	11/10/15 10:02	Unload from Instrument

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-6.1.1	Alicja Pawelec	Extract Freezer	11/10/15 10:02	Return to Storage
JC7291-6.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-6.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-6.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-6.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-6.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-6.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-6.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-6.2
JC7291-6.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-6.2
JC7291-6.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-6.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-6.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-6.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-6.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-6.4	Secured Storage	Toan Pham	11/07/15 10:47	Retrieve from Storage
JC7291-6.4	Toan Pham	Secured Storage	11/07/15 14:09	Return to Storage
JC7291-6.6	Secured Storage	Robert Szot	11/04/15 16:23	Retrieve from Storage
JC7291-6.6	Robert Szot	GCMSV	11/04/15 16:23	Load on Instrument
JC7291-6.6	GCMSV	Robert Szot	11/04/15 17:05	Unload from Instrument
JC7291-6.6	Robert Szot	Secured Storage	11/04/15 17:06	Return to Storage
JC7291-6.6	Secured Storage	Payal Rana	11/05/15 14:04	Retrieve from Storage
JC7291-6.6	Payal Rana	GCMSY	11/05/15 14:04	Load on Instrument
JC7291-6.6	GCMSY	Michael Lee	11/06/15 09:57	Unload from Instrument
JC7291-6.6	Michael Lee		11/06/15 09:58	Depleted
JC7291-7.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-7.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-7.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-7.1
JC7291-7.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-7.1
JC7291-7.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-7.1.1	Extract Storage	Alicja Pawelec	11/09/15 14:54	Retrieve from Storage
JC7291-7.1.1	Alicja Pawelec	GCMS5P	11/09/15 14:54	Load on Instrument
JC7291-7.1.1	GCMS5P	Alicja Pawelec	11/10/15 10:02	Unload from Instrument
JC7291-7.1.1	Alicja Pawelec	Extract Freezer	11/10/15 10:02	Return to Storage
JC7291-7.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-7.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-7.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-7.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-7.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-7.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-7.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-7.2
JC7291-7.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-7.2
JC7291-7.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-7.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-7.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-7.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-7.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-7.4	Secured Storage	Benjamin Mendez	11/06/15 16:40	Retrieve from Storage
JC7291-7.4	Benjamin Mendez	Secured Storage	11/06/15 16:40	Return to Storage
JC7291-7.4	Secured Storage	Benjamin Mendez	11/09/15 16:15	Retrieve from Storage
JC7291-7.4	Benjamin Mendez	Secured Storage	11/09/15 16:15	Return to Storage
JC7291-8.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-8.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-8.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-8.1
JC7291-8.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-8.1
JC7291-8.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-8.1.1	Extract Storage	Alicja Pawelec	11/09/15 14:54	Retrieve from Storage
JC7291-8.1.1	Alicja Pawelec	GCMS5P	11/09/15 14:54	Load on Instrument
JC7291-8.1.1	GCMS5P	Alicja Pawelec	11/10/15 10:02	Unload from Instrument
JC7291-8.1.1	Alicja Pawelec	Extract Freezer	11/10/15 10:02	Return to Storage
JC7291-8.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-8.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-8.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-8.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-8.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-8.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-8.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-8.2
JC7291-8.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-8.2
JC7291-8.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-8.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-8.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-8.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-8.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-8.6	Secured Storage	Robert Szot	11/04/15 16:23	Retrieve from Storage
JC7291-8.6	Robert Szot	GCMSV	11/04/15 16:23	Load on Instrument
JC7291-8.6	GCMSV	Robert Szot	11/04/15 17:05	Unload from Instrument
JC7291-8.6	Robert Szot	Secured Storage	11/04/15 17:06	Return to Storage
JC7291-8.6	Secured Storage	Payal Rana	11/05/15 14:04	Retrieve from Storage
JC7291-8.6	Payal Rana	GCMSY	11/05/15 14:04	Load on Instrument
JC7291-8.6	GCMSY	Michael Lee	11/06/15 09:57	Unload from Instrument
JC7291-8.6	Michael Lee		11/06/15 09:58	Depleted
JC7291-9.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-9.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-9.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-9.1
JC7291-9.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-9.1
JC7291-9.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-9.1.1	Extract Storage	Alicja Pawelec	11/09/15 14:54	Retrieve from Storage
JC7291-9.1.1	Alicja Pawelec	GCMS5P	11/09/15 14:54	Load on Instrument
JC7291-9.1.1	GCMS5P	Alicja Pawelec	11/10/15 10:02	Unload from Instrument
JC7291-9.1.1	Alicja Pawelec	Extract Freezer	11/10/15 10:02	Return to Storage
JC7291-9.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-9.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-9.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-9.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-9.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-9.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-9.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-9.2
JC7291-9.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-9.2
JC7291-9.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-9.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-9.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-9.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-9.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-9.6	Secured Storage	Robert Szot	11/04/15 16:23	Retrieve from Storage
JC7291-9.6	Robert Szot	GCMSV	11/04/15 16:23	Load on Instrument
JC7291-9.6	GCMSV	Robert Szot	11/04/15 17:05	Unload from Instrument
JC7291-9.6	Robert Szot	Secured Storage	11/04/15 17:06	Return to Storage
JC7291-9.6	Secured Storage	Payal Rana	11/05/15 14:04	Retrieve from Storage
JC7291-9.6	Payal Rana	GCMSY	11/05/15 14:04	Load on Instrument
JC7291-9.6	GCMSY	Michael Lee	11/06/15 09:57	Unload from Instrument

Accutest Internal Chain of Custody

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-9.6	Michael Lee		11/06/15 09:58	Depleted
JC7291-10.1	Secured Storage	Sauvelson Auguste	10/30/15 06:12	Retrieve from Storage
JC7291-10.1	Sauvelson Auguste	Secured Storage	10/30/15 09:48	Return to Storage
JC7291-10.1.1	Sauvelson Auguste	Organics Prep	10/30/15 06:15	Extract from JC7291-10.1
JC7291-10.1.1	Organics Prep	Albert Quayson	10/30/15 16:46	Extract from JC7291-10.1
JC7291-10.1.1	Albert Quayson	Extract Storage	10/30/15 16:46	Return to Storage
JC7291-10.1.1	Extract Storage	Alicja Pawelec	11/09/15 14:54	Retrieve from Storage
JC7291-10.1.1	Alicja Pawelec	GCMS5P	11/09/15 14:54	Load on Instrument
JC7291-10.1.1	GCMS5P	Alicja Pawelec	11/10/15 10:02	Unload from Instrument
JC7291-10.1.1	Alicja Pawelec	Extract Freezer	11/10/15 10:02	Return to Storage
JC7291-10.2	Secured Storage	Luis Villanueva	10/30/15 13:12	Retrieve from Storage
JC7291-10.2	Luis Villanueva	Secured Staging Area	10/30/15 13:12	Return to Storage
JC7291-10.2	Secured Staging Area	Kruti Patel	10/30/15 14:14	Retrieve from Storage
JC7291-10.2	Kruti Patel	Secured Storage	10/30/15 14:39	Return to Storage
JC7291-10.2	Secured Storage	Jessica Adametz	11/04/15 07:10	Retrieve from Storage
JC7291-10.2	Jessica Adametz	Secured Storage	11/04/15 08:49	Return to Storage
JC7291-10.2.1	Jessica Adametz	Metals Digestion	11/04/15 08:39	Digestate from JC7291-10.2
JC7291-10.2.1	Metals Digestion	Jessica Adametz	11/04/15 08:41	Digestate from JC7291-10.2
JC7291-10.2.1	Jessica Adametz	Metals Digestate Storage	11/04/15 08:41	Return to Storage
JC7291-10.2.1	Metals Digestate Storage	Bryan Stokes-Cawley	11/07/15 10:33	Retrieve from Storage
JC7291-10.2.1	Bryan Stokes-Cawley	Metals Digestate Storage	11/07/15 10:35	Return to Storage
JC7291-10.3	Secured Storage	Bernadette Vassilatos	10/29/15 14:07	Retrieve from Storage
JC7291-10.3	Bernadette Vassilatos		10/29/15 14:07	Subcontract
JC7291-10.4	Secured Storage	Benjamin Mendez	11/06/15 16:40	Retrieve from Storage
JC7291-10.4	Benjamin Mendez	Secured Storage	11/06/15 16:40	Return to Storage

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: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY6927-MB	Y158616.D	1	11/05/15	PS	n/a	n/a	VY6927

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

JC7291-4, JC7291-5, JC7291-6, JC7291-8, JC7291-9

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

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	84%	68-124%
2037-26-5	Toluene-D8	98%	77-125%
460-00-4	4-Bromofluorobenzene	109%	72-130%

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

Method Blank Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD9618-MB	D235562.D	1	11/06/15	BM	n/a	n/a	VD9618

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

JC7291-1

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	
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	
91-20-3	Naphthalene	ND	250	9.5	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	103%	70-122%
17060-07-0	1,2-Dichloroethane-D4	102%	68-124%
2037-26-5	Toluene-D8	99%	77-125%
460-00-4	4-Bromofluorobenzene	104%	72-130%

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

Method Blank Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C6060-MB	2C134328.D	1	11/07/15	TP	n/a	n/a	V2C6060

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

JC7291-4, JC7291-6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	13	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	100	15	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	70-122%
17060-07-0	1,2-Dichloroethane-D4	95%	68-124%
2037-26-5	Toluene-D8	98%	77-125%
460-00-4	4-Bromofluorobenzene	101%	72-130%

Method Blank Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD9619-MB	D235604.D	1	11/07/15	BM	n/a	n/a	VD9619

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

JC7291-2, JC7291-3, JC7291-10

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	13	3.3	ug/kg	
135-98-8	sec-Butylbenzene	ND	50	4.3	ug/kg	
98-06-6	tert-Butylbenzene	ND	50	5.3	ug/kg	
110-82-7	Cyclohexane	ND	50	7.9	ug/kg	
107-06-2	1,2-Dichloroethane	ND	25	3.4	ug/kg	
100-41-4	Ethylbenzene	ND	25	4.1	ug/kg	
110-54-3	Hexane	ND	130	9.7	ug/kg	
98-82-8	Isopropylbenzene	ND	50	2.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	25	3.8	ug/kg	
91-20-3	Naphthalene	ND	130	4.7	ug/kg	
108-88-3	Toluene	ND	25	5.2	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	50	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	50	4.8	ug/kg	
1330-20-7	Xylene (total)	ND	25	6.9	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	102%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	100%	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: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD9621-MB	D235657.D	1	11/09/15	BM	n/a	n/a	VD9621

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

JC7291-7

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	
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	
91-20-3	Naphthalene	ND	250	9.5	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	104%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	100%	77-125%
460-00-4	4-Bromofluorobenzene	104%	72-130%

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

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY6927-BS	Y158617.D	1	11/05/15	PS	n/a	n/a	VY6927

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

JC7291-4, JC7291-5, JC7291-6, JC7291-8, JC7291-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	46.6	93	77-122
135-98-8	sec-Butylbenzene	50	50.8	102	70-125
98-06-6	tert-Butylbenzene	50	52.2	104	70-126
110-82-7	Cyclohexane	50	59.2	118	66-131
107-06-2	1,2-Dichloroethane	50	41.1	82	77-140
100-41-4	Ethylbenzene	50	49.6	99	75-121
110-54-3	Hexane	50	40.7	81	37-137
98-82-8	Isopropylbenzene	50	52.6	105	70-126
1634-04-4	Methyl Tert Butyl Ether	100	99.9	100	77-121
91-20-3	Naphthalene	50	49.4	99	74-126
108-88-3	Toluene	50	51.0	102	75-123
95-63-6	1,2,4-Trimethylbenzene	50	52.0	104	75-126
108-67-8	1,3,5-Trimethylbenzene	50	50.6	101	72-124
1330-20-7	Xylene (total)	150	155	103	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	86%	68-124%
2037-26-5	Toluene-D8	98%	77-125%
460-00-4	4-Bromofluorobenzene	101%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD9618-BS	D235563.D	1	11/06/15	BM	n/a	n/a	VD9618

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

JC7291-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2450	98	77-122
135-98-8	sec-Butylbenzene	2500	2300	92	70-125
98-06-6	tert-Butylbenzene	2500	2300	92	70-126
110-82-7	Cyclohexane	2500	2360	94	66-131
107-06-2	1,2-Dichloroethane	2500	2320	93	77-140
100-41-4	Ethylbenzene	2500	2310	92	75-121
110-54-3	Hexane	2500	2010	80	37-137
98-82-8	Isopropylbenzene	2500	2460	98	70-126
1634-04-4	Methyl Tert Butyl Ether	5000	4720	94	77-121
91-20-3	Naphthalene	2500	2430	97	74-126
108-88-3	Toluene	2500	2370	95	75-123
95-63-6	1,2,4-Trimethylbenzene	2500	2470	99	75-126
108-67-8	1,3,5-Trimethylbenzene	2500	2400	96	72-124
1330-20-7	Xylene (total)	7500	7130	95	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	70-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	101%	77-125%
460-00-4	4-Bromofluorobenzene	102%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C6060-BS	2C134329.D	1	11/07/15	TP	n/a	n/a	V2C6060

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

JC7291-4, JC7291-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	5000	4490	90	77-122
1634-04-4	Methyl Tert Butyl Ether	10000	10700	107	77-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	70-122%
17060-07-0	1,2-Dichloroethane-D4	92%	68-124%
2037-26-5	Toluene-D8	107%	77-125%
460-00-4	4-Bromofluorobenzene	104%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD9619-BS	D235605.D	1	11/07/15	BM	n/a	n/a	VD9619

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

JC7291-2, JC7291-3, JC7291-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2460	98	77-122
135-98-8	sec-Butylbenzene	2500	2320	93	70-125
98-06-6	tert-Butylbenzene	2500	2350	94	70-126
110-82-7	Cyclohexane	2500	2500	100	66-131
107-06-2	1,2-Dichloroethane	2500	2340	94	77-140
100-41-4	Ethylbenzene	2500	2310	92	75-121
110-54-3	Hexane	2500	1730	69	37-137
98-82-8	Isopropylbenzene	2500	2500	100	70-126
1634-04-4	Methyl Tert Butyl Ether	5000	4760	95	77-121
91-20-3	Naphthalene	2500	2530	101	74-126
108-88-3	Toluene	2500	2360	94	75-123
95-63-6	1,2,4-Trimethylbenzene	2500	2490	100	75-126
108-67-8	1,3,5-Trimethylbenzene	2500	2440	98	72-124
1330-20-7	Xylene (total)	7500	7140	95	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	70-122%
17060-07-0	1,2-Dichloroethane-D4	106%	68-124%
2037-26-5	Toluene-D8	102%	77-125%
460-00-4	4-Bromofluorobenzene	103%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD9621-BS	D235658.D	1	11/09/15	BM	n/a	n/a	VD9621

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

JC7291-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2630	105	77-122
135-98-8	sec-Butylbenzene	2500	2410	96	70-125
98-06-6	tert-Butylbenzene	2500	2400	96	70-126
110-82-7	Cyclohexane	2500	2620	105	66-131
107-06-2	1,2-Dichloroethane	2500	2490	100	77-140
100-41-4	Ethylbenzene	2500	2500	100	75-121
110-54-3	Hexane	2500	1340	54	37-137
98-82-8	Isopropylbenzene	2500	2610	104	70-126
1634-04-4	Methyl Tert Butyl Ether	5000	4760	95	77-121
91-20-3	Naphthalene	2500	2430	97	74-126
108-88-3	Toluene	2500	2550	102	75-123
95-63-6	1,2,4-Trimethylbenzene	2500	2600	104	75-126
108-67-8	1,3,5-Trimethylbenzene	2500	2540	102	72-124
1330-20-7	Xylene (total)	7500	7660	102	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	70-122%
17060-07-0	1,2-Dichloroethane-D4	107%	68-124%
2037-26-5	Toluene-D8	103%	77-125%
460-00-4	4-Bromofluorobenzene	101%	72-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC7290-1MS	Y158625.D	1	11/05/15	PS	n/a	n/a	VY6927
JC7290-1	Y158620.D	1	11/05/15	PS	n/a	n/a	VY6927

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

JC7291-4, JC7291-5, JC7291-6, JC7291-8, JC7291-9

CAS No.	Compound	JC7290-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		52.6	41.3	79	48-136
135-98-8	sec-Butylbenzene	ND		52.6	44.9	85	23-151
98-06-6	tert-Butylbenzene	ND		52.6	44.9	85	30-149
110-82-7	Cyclohexane	ND		52.6	48.8	93	22-154
107-06-2	1,2-Dichloroethane	ND		52.6	33.2	63	56-140
100-41-4	Ethylbenzene	ND		52.6	43.7	83	34-145
110-54-3	Hexane	ND		52.6	37.3	71	10-157
98-82-8	Isopropylbenzene	ND		52.6	47.6	91	36-145
1634-04-4	Methyl Tert Butyl Ether	ND		105	80.1	76	54-129
91-20-3	Naphthalene	2.5	J	52.6	68.3	125	12-160
108-88-3	Toluene	ND		52.6	44.8	85	40-141
95-63-6	1,2,4-Trimethylbenzene	ND		52.6	67.7	129	23-152
108-67-8	1,3,5-Trimethylbenzene	ND		52.6	51.0	97	26-150
1330-20-7	Xylene (total)	ND		158	139	88	34-146

CAS No.	Surrogate Recoveries	MS	JC7290-1	Limits
1868-53-7	Dibromofluoromethane	103%	104%	70-122%
17060-07-0	1,2-Dichloroethane-D4	82%	88%	68-124%
2037-26-5	Toluene-D8	98%	98%	77-125%
460-00-4	4-Bromofluorobenzene	104%	103%	72-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC7291-1MS	D235573.D	1	11/06/15	BM	n/a	n/a	VD9618
JC7291-1MSD	D235574.D	1	11/06/15	BM	n/a	n/a	VD9618
JC7291-1 [a]	D235576.D	1	11/06/15	BM	n/a	n/a	VD9618

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

JC7291-1

CAS No.	Compound	JC7291-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		5920	6190	105	5920	5830	99	6	48-136/30
135-98-8	sec-Butylbenzene	2330		5920	8800	109	5920	8170	99	7	23-151/34
98-06-6	tert-Butylbenzene	212	J	5920	6580	108	5920	6180	101	6	30-149/34
110-82-7	Cyclohexane	172	J	5920	6940	114	5920	6230	102	11	22-154/33
107-06-2	1,2-Dichloroethane	ND		5920	5830	99	5920	5580	94	4	56-140/24
100-41-4	Ethylbenzene	56.8	J	5920	6180	103	5920	5860	98	5	34-145/29
110-54-3	Hexane	ND		5920	5680	96	5920	5150	87	10	10-157/33
98-82-8	Isopropylbenzene	1990		5920	8180	105	5920	7800	98	5	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		11800	12500	106	11800	11400	96	9	54-129/25
91-20-3	Naphthalene	214	J	5920	5980	97	5920	5630	92	6	12-160/33
108-88-3	Toluene	ND		5920	6280	106	5920	5910	100	6	40-141/30
95-63-6	1,2,4-Trimethylbenzene	46.8	J	5920	6360	107	5920	5980	100	6	23-152/31
108-67-8	1,3,5-Trimethylbenzene	ND		5920	6310	107	5920	5930	100	6	26-150/32
1330-20-7	Xylene (total)	32.0	J	17800	19500	110	17800	18700	105	4	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JC7291-1	Limits
1868-53-7	Dibromofluoromethane	101%	100%	99%	70-122%
17060-07-0	1,2-Dichloroethane-D4	101%	101%	98%	68-124%
2037-26-5	Toluene-D8	104%	102%	100%	77-125%
460-00-4	4-Bromofluorobenzene	91%	93%	90%	72-130%

(a) Dilution required due to matrix interference.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC7291-2MS	D235606.D	1	11/07/15	BM	n/a	n/a	VD9619
JC7291-2MSD	D235607.D	1	11/07/15	BM	n/a	n/a	VD9619
JC7291-2 [a]	D235609.D	1	11/07/15	BM	n/a	n/a	VD9619

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

JC7291-2, JC7291-3, JC7291-10

CAS No.	Compound	JC7291-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		6040	6200	103	6040	6050	100	2	48-136/30
135-98-8	sec-Butylbenzene	186	J	6040	6520	105	6040	6190	99	5	23-151/34
98-06-6	tert-Butylbenzene	67.9	J	6040	6320	103	6040	6120	100	3	30-149/34
110-82-7	Cyclohexane	6800		6040	14700	131	6040	13700	114	7	22-154/33
107-06-2	1,2-Dichloroethane	ND		6040	5960	99	6040	5790	96	3	56-140/24
100-41-4	Ethylbenzene	211		6040	6120	98	6040	5940	95	3	34-145/29
110-54-3	Hexane	8090		6040	14600	108	6040	13300	86	9	10-157/33
98-82-8	Isopropylbenzene	271		6040	6570	104	6040	6260	99	5	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		12100	11900	98	12100	11400	94	4	54-129/25
91-20-3	Naphthalene	697		6040	7300	108	6040	6470	94	12	12-160/33
108-88-3	Toluene	ND		6040	6050	100	6040	6010	99	1	40-141/30
95-63-6	1,2,4-Trimethylbenzene	987		6040	7440	107	6040	7150	102	4	23-152/31
108-67-8	1,3,5-Trimethylbenzene	464		6040	6800	105	6040	6540	101	4	26-150/32
1330-20-7	Xylene (total)	161		18100	18600	102	18100	18200	99	2	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JC7291-2	Limits
1868-53-7	Dibromofluoromethane	104%	101%	99%	70-122%
17060-07-0	1,2-Dichloroethane-D4	108%	104%	101%	68-124%
2037-26-5	Toluene-D8	103%	103%	100%	77-125%
460-00-4	4-Bromofluorobenzene	99%	98%	98%	72-130%

(a) Diluted due to high concentration of non-target compound and matrix interference.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC7291-4MS	2C134341.D	1	11/07/15	TP	n/a	n/a	V2C6060
JC7291-4MSD	2C134342.D	1	11/07/15	TP	n/a	n/a	V2C6060
JC7291-4	2C134333.D	1	11/07/15	TP	n/a	n/a	V2C6060

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

JC7291-4, JC7291-6

CAS No.	Compound	JC7291-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	596		5280	5540	94	5280	5310	89	4	48-136/30
1634-04-4	Methyl Tert Butyl Ether	130		10600	11400	107	10600	11500	108	1	54-129/25

CAS No.	Surrogate Recoveries	MS	MSD	JC7291-4	Limits
1868-53-7	Dibromofluoromethane	95%	92%	91%	70-122%
17060-07-0	1,2-Dichloroethane-D4	94%	92%	94%	68-124%
2037-26-5	Toluene-D8	99%	106%	104%	77-125%
460-00-4	4-Bromofluorobenzene	100%	105%	104%	72-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC7874-4MS	D235663.D	1	11/10/15	BM	n/a	n/a	VD9621
JC7874-4MSD	D235664.D	1	11/10/15	BM	n/a	n/a	VD9621
JC7874-4	D235666.D	1	11/10/15	BM	n/a	n/a	VD9621

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

JC7291-7

CAS No.	Compound	JC7874-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		14500	15400	106	14500	15200	105	1	48-136/30
135-98-8	sec-Butylbenzene	ND		14500	14900	103	14500	14700	101	1	23-151/34
98-06-6	tert-Butylbenzene	ND		14500	14900	103	14500	14700	101	1	30-149/34
110-82-7	Cyclohexane	ND		14500	15500	107	14500	15200	105	2	22-154/33
107-06-2	1,2-Dichloroethane	ND		14500	14700	101	14500	14500	100	1	56-140/24
100-41-4	Ethylbenzene	ND		14500	14700	101	14500	14500	100	1	34-145/29
110-54-3	Hexane	ND		14500	11900	82	14500	11800	81	1	10-157/33
98-82-8	Isopropylbenzene	ND		14500	16000	110	14500	15700	108	2	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND		29000	27500	95	29000	27800	96	1	54-129/25
91-20-3	Naphthalene	ND		14500	15100	104	14500	14500	100	4	12-160/33
108-88-3	Toluene	ND		14500	15100	104	14500	14900	103	1	40-141/30
95-63-6	1,2,4-Trimethylbenzene	ND		14500	15800	109	14500	15500	107	2	23-152/31
108-67-8	1,3,5-Trimethylbenzene	ND		14500	15300	105	14500	15200	105	1	26-150/32
1330-20-7	Xylene (total)	ND		43600	44900	103	43600	44600	102	1	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JC7874-4	Limits
1868-53-7	Dibromofluoromethane	102%	105%	103%	70-122%
17060-07-0	1,2-Dichloroethane-D4	104%	105%	104%	68-124%
2037-26-5	Toluene-D8	102%	102%	99%	77-125%
460-00-4	4-Bromofluorobenzene	104%	103%	106%	72-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC7290-2DUP	Y158628.D	1	11/05/15	PS	n/a	n/a	VY6927
JC7290-2	Y158621.D	1	11/05/15	PS	n/a	n/a	VY6927

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

JC7291-4, JC7291-5, JC7291-6, JC7291-8, JC7291-9

CAS No.	Compound	JC7290-2 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	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
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
91-20-3	Naphthalene	1.5	J	ND		200* [a]	30
108-88-3	Toluene	ND		ND		nc	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	JC7290-2	Limits
1868-53-7	Dibromofluoromethane	104%	105%	70-122%
17060-07-0	1,2-Dichloroethane-D4	90%	89%	68-124%
2037-26-5	Toluene-D8	98%	99%	77-125%
460-00-4	4-Bromofluorobenzene	107%	106%	72-130%

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

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V2C6046-BFB
Lab File ID: 2C133971.D
Instrument ID: GCMS2C
Injection Date: 10/28/15
Injection Time: 14:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10560	17.7		Pass
75	30.0 - 60.0% of mass 95	27813	46.6		Pass
95	Base peak, 100% relative abundance	59661	100.0		Pass
96	5.0 - 9.0% of mass 95	3955	6.63		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	65008	109.0		Pass
175	5.0 - 9.0% of mass 174	5149	8.63	(7.92) [a]	Pass
176	95.0 - 101.0% of mass 174	63418	106.3	(97.6) [a]	Pass
177	5.0 - 9.0% of mass 176	4140	6.94	(6.53) [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
V2C6046-IC6046	2C133972.D	10/28/15	14:46	00:34	Initial cal 0.2
V2C6046-IC6046	2C133973.D	10/28/15	15:15	01:03	Initial cal 0.5
V2C6046-IC6046	2C133974.D	10/28/15	15:43	01:31	Initial cal 1
V2C6046-IC6046	2C133975.D	10/28/15	16:12	02:00	Initial cal 2
V2C6046-IC6046	2C133976.D	10/28/15	16:40	02:28	Initial cal 5
V2C6046-IC6046	2C133977.D	10/28/15	17:09	02:57	Initial cal 10
V2C6046-IC6046	2C133978.D	10/28/15	17:38	03:26	Initial cal 20
V2C6046-ICC6046	2C133979.D	10/28/15	18:06	03:54	Initial cal 50
V2C6046-IC6046	2C133980.D	10/28/15	18:35	04:23	Initial cal 100
V2C6046-IC6046	2C133981.D	10/28/15	19:03	04:51	Initial cal 200
V2C6046-ICV6406	2C133984.D	10/28/15	20:29	06:17	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V2C6060-BFB
Lab File ID: 2C134325.D
Instrument ID: GCMS2C
Injection Date: 11/07/15
Injection Time: 08:51

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15936	17.2		Pass
75	30.0 - 60.0% of mass 95	41813	45.0		Pass
95	Base peak, 100% relative abundance	92917	100.0		Pass
96	5.0 - 9.0% of mass 95	6038	6.50		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	96960	104.4		Pass
175	5.0 - 9.0% of mass 174	7401	7.97	(7.63) [a]	Pass
176	95.0 - 101.0% of mass 174	94379	101.6	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	6021	6.48	(6.38) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2C6060-CC6046	2C134326.D	11/07/15	09:26	00:35	Continuing cal 20
V2C6060-MB	2C134328.D	11/07/15	10:33	01:42	Method Blank
V2C6060-BS	2C134329.D	11/07/15	11:10	02:19	Blank Spike
JC7291-4	2C134333.D	11/07/15	13:04	04:13	MH386-9-20151027(5')
JC7291-6	2C134334.D	11/07/15	13:33	04:42	MH386-10-20151027(5')
ZZZZZZ	2C134335.D	11/07/15	14:01	05:10	(unrelated sample)
ZZZZZZ	2C134338.D	11/07/15	15:28	06:37	(unrelated sample)
JC7291-4MS	2C134341.D	11/07/15	16:54	08:03	Matrix Spike
JC7291-4MSD	2C134342.D	11/07/15	17:22	08:31	Matrix Spike Duplicate
ZZZZZZ	2C134344.D	11/07/15	18:20	09:29	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VD9588-BFB
Lab File ID: D234784.D
Instrument ID: GCMSD
Injection Date: 10/15/15
Injection Time: 11:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	20776	21.9		Pass
75	30.0 - 60.0% of mass 95	49408	52.2		Pass
95	Base peak, 100% relative abundance	94693	100.0		Pass
96	5.0 - 9.0% of mass 95	6389	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	77493	81.8		Pass
175	5.0 - 9.0% of mass 174	5909	6.24	(7.63) [a]	Pass
176	95.0 - 101.0% of mass 174	76122	80.4	(98.2) [a]	Pass
177	5.0 - 9.0% of mass 176	4951	5.23	(6.50) [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
VD9588-IC9588	D234785.D	10/15/15	11:55	00:34	Initial cal 0.2
VD9588-IC9588	D234786.D	10/15/15	12:25	01:04	Initial cal 0.5
VD9588-IC9588	D234787.D	10/15/15	12:56	01:35	Initial cal 1.0
VD9588-IC9588	D234788.D	10/15/15	13:26	02:05	Initial cal 2.0
VD9588-IC9588	D234789.D	10/15/15	13:57	02:36	Initial cal 4.0
VD9588-IC9588	D234790.D	10/15/15	14:28	03:07	Initial cal 8.0
VD9588-IC9588	D234791.D	10/15/15	14:58	03:37	Initial cal 20
VD9588-ICC9588	D234792.D	10/15/15	15:29	04:08	Initial cal 50
VD9588-IC9588	D234793.D	10/15/15	16:00	04:39	Initial cal 100
VD9588-IC9588	D234794.D	10/15/15	16:30	05:09	Initial cal 200
VD9588-ICV9588	D234797.D	10/15/15	18:02	06:41	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VD9618-BFB
Lab File ID: D235556.D
Instrument ID: GCMSD
Injection Date: 11/06/15
Injection Time: 07:04

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15615	20.3		Pass
75	30.0 - 60.0% of mass 95	38397	50.0		Pass
95	Base peak, 100% relative abundance	76794	100.0		Pass
96	5.0 - 9.0% of mass 95	5262	6.85		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	61037	79.5		Pass
175	5.0 - 9.0% of mass 174	4566	5.95	(7.48) [a]	Pass
176	95.0 - 101.0% of mass 174	59770	77.8	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	3952	5.15	(6.61) [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
VD9618-CC9588	D235557.D	11/06/15	07:45	00:41	Continuing cal 20
VD9618-MB	D235562.D	11/06/15	10:47	03:43	Method Blank
ZZZZZZ	D235562A.D	11/06/15	10:47	03:43	(unrelated sample)
VD9618-BS	D235563.D	11/06/15	11:18	04:14	Blank Spike
ZZZZZZ	D235566.D	11/06/15	12:50	05:46	(unrelated sample)
ZZZZZZ	D235568.D	11/06/15	13:51	06:47	(unrelated sample)
ZZZZZZ	D235570.D	11/06/15	14:54	07:50	(unrelated sample)
ZZZZZZ	D235571.D	11/06/15	15:25	08:21	(unrelated sample)
ZZZZZZ	D235572.D	11/06/15	15:55	08:51	(unrelated sample)
JC7291-1MS	D235573.D	11/06/15	16:26	09:22	Matrix Spike
JC7291-1MSD	D235574.D	11/06/15	16:56	09:52	Matrix Spike Duplicate
JC7291-1	D235576.D	11/06/15	17:58	10:54	MH386-6-20151027(3')
ZZZZZZ	D235577.D	11/06/15	18:28	11:24	(unrelated sample)
ZZZZZZ	D235578.D	11/06/15	18:59	11:55	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VD9619-BFB
Lab File ID: D235601.D
Instrument ID: GCMSD
Injection Date: 11/07/15
Injection Time: 10:05

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	14398	20.9		Pass
75	30.0 - 60.0% of mass 95	34461	50.1		Pass
95	Base peak, 100% relative abundance	68768	100.0		Pass
96	5.0 - 9.0% of mass 95	4686	6.81		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	52507	76.4		Pass
175	5.0 - 9.0% of mass 174	4169	6.06	(7.94) [a]	Pass
176	95.0 - 101.0% of mass 174	51184	74.4	(97.5) [a]	Pass
177	5.0 - 9.0% of mass 176	3584	5.21	(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
VD9619-CC9588	D235602.D	11/07/15	10:58	00:53	Continuing cal 20
VD9619-MB	D235604.D	11/07/15	12:15	02:10	Method Blank
ZZZZZZ	D235604A.D	11/07/15	12:15	02:10	(unrelated sample)
VD9619-BS	D235605.D	11/07/15	12:54	02:49	Blank Spike
JC7291-2MS	D235606.D	11/07/15	13:43	03:38	Matrix Spike
JC7291-2MSD	D235607.D	11/07/15	14:14	04:09	Matrix Spike Duplicate
JC7291-2	D235609.D	11/07/15	15:15	05:10	MH386-7-20151027(3')
JC7291-3	D235610.D	11/07/15	15:45	05:40	MH386-8-20151027(5')
JC7291-10	D235611.D	11/07/15	16:16	06:11	MH386-14-20151027(2')
ZZZZZZ	D235612.D	11/07/15	16:47	06:42	(unrelated sample)
ZZZZZZ	D235613.D	11/07/15	17:17	07:12	(unrelated sample)
ZZZZZZ	D235614.D	11/07/15	17:48	07:43	(unrelated sample)
ZZZZZZ	D235615.D	11/07/15	18:18	08:13	(unrelated sample)
ZZZZZZ	D235616.D	11/07/15	18:49	08:44	(unrelated sample)
ZZZZZZ	D235619.D	11/07/15	20:21	10:16	(unrelated sample)
ZZZZZZ	D235620.D	11/07/15	20:51	10:46	(unrelated sample)
ZZZZZZ	D235622.D	11/07/15	21:52	11:47	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VD9621-BFB
Lab File ID: D235654.D
Instrument ID: GCMSD
Injection Date: 11/09/15
Injection Time: 20:16

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	14730	21.2		Pass
75	30.0 - 60.0% of mass 95	35240	50.8		Pass
95	Base peak, 100% relative abundance	69400	100.0		Pass
96	5.0 - 9.0% of mass 95	4723	6.81		Pass
173	Less than 2.0% of mass 174	183	0.26	(0.34) [a]	Pass
174	50.0 - 120.0% of mass 95	53216	76.7		Pass
175	5.0 - 9.0% of mass 174	4002	5.77	(7.52) [a]	Pass
176	95.0 - 101.0% of mass 174	51597	74.3	(97.0) [a]	Pass
177	5.0 - 9.0% of mass 176	3395	4.89	(6.58) [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
VD9621-CC9588	D235655.D	11/09/15	20:47	00:31	Continuing cal 50
VD9621-MB	D235657.D	11/09/15	21:48	01:32	Method Blank
VD9621-BS	D235658.D	11/09/15	22:18	02:02	Blank Spike
VD9622-BS100	D235659.D	11/09/15	22:49	02:33	Blank Spike
VD9622-BS100	D235660.D	11/09/15	23:19	03:03	Blank Spike
VD9622-BS100	D235661.D	11/09/15	23:50	03:34	Blank Spike
VD9622-BS100	D235662.D	11/10/15	00:21	04:05	Blank Spike
JC7874-4MS	D235663.D	11/10/15	00:51	04:35	Matrix Spike
JC7874-4MSD	D235664.D	11/10/15	01:22	05:06	Matrix Spike Duplicate
JC7874-4	D235666.D	11/10/15	02:23	06:07	(used for QC only; not part of job JC7291)
ZZZZZZ	D235668.D	11/10/15	03:23	07:07	(unrelated sample)
ZZZZZZ	D235669.D	11/10/15	03:54	07:38	(unrelated sample)
JC7291-7	D235670.D	11/10/15	04:24	08:08	MH386-11-20151027(2')

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VY6891-BFB
Lab File ID: Y157669.D
Instrument ID: GCMSY
Injection Date: 10/07/15
Injection Time: 16:11

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	11556	21.6		Pass
75	30.0 - 60.0% of mass 95	27029	50.6		Pass
95	Base peak, 100% relative abundance	53440	100.0		Pass
96	5.0 - 9.0% of mass 95	3347	6.26		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	49520	92.7		Pass
175	5.0 - 9.0% of mass 174	3783	7.08	(7.64) [a]	Pass
176	95.0 - 101.0% of mass 174	48072	90.0	(97.1) [a]	Pass
177	5.0 - 9.0% of mass 176	3258	6.10	(6.78) [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
VY6891-IC6891	Y157670.D	10/07/15	16:46	00:35	Initial cal 0.2
VY6891-IC6891	Y157671.D	10/07/15	17:14	01:03	Initial cal 0.5
VY6891-IC6891	Y157672.D	10/07/15	17:42	01:31	Initial cal 1
VY6891-IC6891	Y157673.D	10/07/15	18:10	01:59	Initial cal 2
VY6891-IC6891	Y157674.D	10/07/15	18:38	02:27	Initial cal 4
VY6891-IC6891	Y157675.D	10/07/15	19:06	02:55	Initial cal 8
VY6891-IC6891	Y157676.D	10/07/15	19:35	03:24	Initial cal 20
VY6891-ICC6891	Y157677.D	10/07/15	20:03	03:52	Initial cal 50
VY6891-IC6891	Y157678.D	10/07/15	20:31	04:20	Initial cal 100
VY6891-IC6891	Y157679.D	10/07/15	20:59	04:48	Initial cal 200
VY6891-ICV6891	Y157682.D	10/07/15	22:23	06:12	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VY6927-BFB
Lab File ID: Y158613.D
Instrument ID: GCMSY
Injection Date: 11/05/15
Injection Time: 11:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10515	18.6		Pass
75	30.0 - 60.0% of mass 95	26384	46.6		Pass
95	Base peak, 100% relative abundance	56605	100.0		Pass
96	5.0 - 9.0% of mass 95	3753	6.63		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	49632	87.7		Pass
175	5.0 - 9.0% of mass 174	3854	6.81	(7.77) [a]	Pass
176	95.0 - 101.0% of mass 174	49330	87.1	(99.4) [a]	Pass
177	5.0 - 9.0% of mass 176	3291	5.81	(6.67) [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
VY6927-CC6891	Y158614.D	11/05/15	11:40	00:28	Continuing cal 20
VY6927-MB	Y158616.D	11/05/15	12:41	01:29	Method Blank
VY6927-BS	Y158617.D	11/05/15	13:10	01:58	Blank Spike
ZZZZZZ	Y158619.D	11/05/15	14:21	03:09	(unrelated sample)
JC7290-1	Y158620.D	11/05/15	14:49	03:37	(used for QC only; not part of job JC7291)
JC7290-2	Y158621.D	11/05/15	15:18	04:06	(used for QC only; not part of job JC7291)
ZZZZZZ	Y158622.D	11/05/15	15:46	04:34	(unrelated sample)
JC7291-4	Y158623.D	11/05/15	16:14	05:02	MH386-9-20151027(5')
JC7291-5	Y158624.D	11/05/15	16:43	05:31	MH386-10-20151027(2')
JC7290-1MS	Y158625.D	11/05/15	17:12	06:00	Matrix Spike
ZZZZZZ	Y158627.D	11/05/15	18:08	06:56	(unrelated sample)
JC7290-2DUP	Y158628.D	11/05/15	18:36	07:24	Duplicate
JC7291-6	Y158629.D	11/05/15	19:04	07:52	MH386-10-20151027(5')
JC7291-8	Y158630.D	11/05/15	19:32	08:20	MH386-12-20151027(2')
JC7291-9	Y158631.D	11/05/15	20:01	08:49	MH386-13-20151027(2')
ZZZZZZ	Y158632.D	11/05/15	20:29	09:17	(unrelated sample)
ZZZZZZ	Y158633.D	11/05/15	20:57	09:45	(unrelated sample)
ZZZZZZ	Y158634.D	11/05/15	21:25	10:13	(unrelated sample)
ZZZZZZ	Y158635.D	11/05/15	21:53	10:41	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	V2C6060-CC6046	**Injection Date:**	11/07/15
Lab File ID:	2C134326.D	**Injection Time:**	09:26
Instrument ID:	GCMS2C	**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	177828	7.21	327729	9.69	379147	10.65	358421	13.76	192135	15.95
Upper Limit [a]	355656	7.71	655458	10.19	758294	11.15	716842	14.26	384270	16.45
Lower Limit [b]	88914	6.71	163865	9.19	189574	10.15	179211	13.26	96068	15.45

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V2C6060-MB	170852	7.24	340128	9.69	391773	10.65	335939	13.76	195352	15.95
V2C6060-BS	170331	7.21	304474	9.69	364875	10.65	331418	13.76	177012	15.95
JC7291-4	175158	7.23	341206	9.69	397055	10.65	363812	13.76	210024	15.95
JC7291-6	179408	7.23	343094	9.69	394831	10.65	394333	13.76	214030	15.95
ZZZZZZ	178238	7.26	319869	9.70	375788	10.65	345699	13.77	197651	15.96
ZZZZZZ	163531	7.23	344850	9.70	385528	10.65	354828	13.76	203386	15.95
JC7291-4MS	169463	7.22	315900	9.69	370488	10.65	316521	13.76	189643	15.95
JC7291-4MSD	166203	7.24	302446	9.69	362421	10.65	336905	13.76	186845	15.95
ZZZZZZ	224752	7.23	271527	9.70	348494	10.65	343143	13.76	180472	15.96

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

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

Volatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VD9618-CC9588	**Injection Date:**	11/06/15
Lab File ID:	D235557.D	**Injection Time:**	07:45
Instrument ID:	GCMSD	**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	108464	7.94	196968	10.13	275828	11.05	253746	14.39	152409	16.97
Upper Limit [a]	216928	8.44	393936	10.63	551656	11.55	507492	14.89	304818	17.47
Lower Limit [b]	54232	7.44	98484	9.63	137914	10.55	126873	13.89	76205	16.47

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD9618-MB	106385	7.96	210341	10.13	298976	11.06	278600	14.39	158965	16.97
ZZZZZZ	106385	7.96	210341	10.13	298976	11.06	278600	14.39	158965	16.97
VD9618-BS	108224	7.96	200775	10.13	288762	11.06	274619	14.39	161739	16.97
ZZZZZZ	104996	7.96	192712	10.12	272950	11.06	257513	14.39	151589	16.97
ZZZZZZ	113740	7.97	202641	10.13	292274	11.06	289345	14.39	177118	16.97
ZZZZZZ	118445	7.96	223403	10.13	311896	11.06	302844	14.39	178451	16.97
ZZZZZZ	141739	8.07	211805	10.13	293580	11.05	279104	14.39	167640	16.97
ZZZZZZ	130562	8.08	212289	10.13	293103	11.05	277171	14.39	162000	16.97
JC7291-1MS	117749	7.98	200045	10.12	275866	11.05	281139	14.39	192129	16.97
JC7291-1MSD	118972	7.98	219289	10.13	307478	11.05	310493	14.39	208351	16.97
JC7291-1 [c]	109325	7.96	213547	10.13	296551	11.05	287721	14.39	198245	16.97
ZZZZZZ	108502	7.94	226145	10.13	311605	11.06	298206	14.39	176733	16.97
ZZZZZZ	112553	7.97	226666	10.13	311684	11.06	294338	14.39	177488	16.97

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) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VD9619-CC9588	**Injection Date:**	11/07/15
Lab File ID:	D235602.D	**Injection Time:**	10:58
Instrument ID:	GCMSD	**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	103349	7.95	185885	10.12	261324	11.05	244914	14.39	145361	16.97
Upper Limit [a]	206698	8.45	371770	10.62	522648	11.55	489828	14.89	290722	17.47
Lower Limit [b]	51675	7.45	92943	9.62	130662	10.55	122457	13.89	72681	16.47

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD9619-MB	101255	7.96	187620	10.12	266461	11.06	253042	14.39	149721	16.97
ZZZZZZ	101255	7.96	187620	10.12	266461	11.06	253042	14.39	149721	16.97
VD9619-BS	106132	7.94	183145	10.13	261309	11.05	248880	14.39	145227	16.97
JC7291-2MS	110905	7.97	186841	10.12	265090	11.05	258242	14.39	159360	16.96
JC7291-2MSD	116018	7.96	206124	10.12	289715	11.05	283781	14.39	178717	16.97
JC7291-2 [c]	103473	7.95	200339	10.12	280553	11.05	266084	14.39	165309	16.97
JC7291-3 [d]	105616	7.95	203090	10.12	283196	11.06	267100	14.39	163000	16.97
JC7291-10 [d]	102726	7.97	207167	10.12	288119	11.06	275065	14.39	173565	16.97
ZZZZZZ	108411	7.96	206177	10.13	286350	11.06	284420	14.39	181021	16.97
ZZZZZZ	123632	7.98	210974	10.12	292657	11.05	311101	14.39	200086	16.97
ZZZZZZ	106031	7.97	210744	10.13	292013	11.05	280411	14.39	170377	16.97
ZZZZZZ	105197	7.97	209578	10.13	289616	11.05	273620	14.39	170057	16.97
ZZZZZZ	109475	7.97	210221	10.13	298037	11.05	341604	14.39	203750	16.97
ZZZZZZ	101114	7.99	203897	10.13	285411	11.05	269476	14.39	169788	16.97
ZZZZZZ	102422	7.96	200779	10.12	279546	11.06	259518	14.39	157619	16.97
ZZZZZZ	147878	8.13	187585	10.12	261564	11.06	246588	14.39	146403	16.97

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 and matrix interference.
(d) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VD9621-CC9588	**Injection Date:**	11/09/15
Lab File ID:	D235655.D	**Injection Time:**	20:47
Instrument ID:	GCMSD	**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	105285	7.96	201651	10.13	288953	11.06	277256	14.39	157455	16.97
Upper Limit [a]	210570	8.46	403302	10.63	577906	11.56	554512	14.89	314910	17.47
Lower Limit [b]	52643	7.46	100826	9.63	144477	10.56	138628	13.89	78728	16.47

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD9621-MB	97030	7.95	192705	10.13	274674	11.05	258382	14.39	149205	16.96
VD9621-BS	98642	7.96	185245	10.13	267040	11.05	259373	14.39	154948	16.96
VD9622-BS100	104183	7.96	185275	10.12	268026	11.06	255559	14.39	150942	16.97
VD9622-BS100	104268	7.96	197831	10.13	283166	11.05	272345	14.39	161210	16.96
VD9622-BS100	101073	7.95	195002	10.13	281064	11.05	271102	14.39	159084	16.96
VD9622-BS100	100939	7.96	194311	10.13	279577	11.05	266481	14.39	153772	16.97
JC7874-4MS	104573	7.97	196505	10.13	277745	11.06	268480	14.39	154554	16.97
JC7874-4MSD	104629	7.97	197587	10.13	285096	11.06	275982	14.39	160306	16.97
JC7874-4	100948	7.96	196560	10.13	281443	11.05	263923	14.39	150079	16.96
ZZZZZZ	103067	7.96	191537	10.12	277232	11.06	264836	14.39	157942	16.97
ZZZZZZ	100479	7.95	188579	10.12	269109	11.05	252355	14.39	147912	16.96
JC7291-7 [c]	100726	7.95	186956	10.12	266511	11.05	250558	14.39	146813	16.96

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 and matrix interference.

Volatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VY6927-CC6891	**Injection Date:**	11/05/15
Lab File ID:	Y158614.D	**Injection Time:**	11:40
Instrument ID:	GCMSY	**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	75171	7.27	201811	9.48	263758	10.40	219071	13.54	108218	15.83
Upper Limit [a]	150342	7.77	403622	9.98	527516	10.90	438142	14.04	216436	16.33
Lower Limit [b]	37586	6.77	100906	8.98	131879	9.90	109536	13.04	54109	15.33

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VY6927-MB	84485	7.25	198674	9.48	256067	10.40	213390	13.54	101169	15.84
VY6927-BS	88910	7.28	202085	9.47	265529	10.40	217042	13.54	111943	15.83
ZZZZZZ	90487	7.27	206265	9.48	271005	10.40	223396	13.54	106053	15.84
JC7290-1	83738	7.27	205301	9.48	271090	10.40	223016	13.54	112754	15.83
JC7290-2	88749	7.26	214486	9.48	283617	10.40	239994	13.54	116441	15.84
ZZZZZZ	94515	7.26	215597	9.48	292154	10.40	236982	13.54	118350	15.84
JC7291-4	93436	7.27	217669	9.48	291408	10.40	242658	13.54	121017	15.84
JC7291-5	106187	7.27	225655	9.48	297732	10.40	243314	13.54	119212	15.84
JC7290-1MS	67585	7.27	210638	9.47	281609	10.40	229162	13.54	114569	15.83
ZZZZZZ	84042	7.27	230878	9.48	308041	10.40	247571	13.54	120382	15.83
JC7290-2DUP	99535	7.27	227802	9.48	306774	10.40	254921	13.54	121988	15.84
JC7291-6	79506	7.26	216957	9.48	287409	10.40	236045	13.54	117281	15.83
JC7291-8	96541	7.26	220122	9.48	292618	10.40	243356	13.54	119884	15.84
JC7291-9	86260	7.27	225087	9.48	296728	10.40	248147	13.54	115346	15.84
ZZZZZZ	80822	7.27	187390	9.48	246327	10.40	201680	13.54	98801	15.84
ZZZZZZ	91082	7.27	221595	9.48	298802	10.40	244038	13.54	112991	15.84
ZZZZZZ	105058	7.27	192500	9.48	260606	10.40	199594	13.54	77073	15.84
ZZZZZZ	75971	7.27	187143	9.48	246816	10.40	197862	13.54	81952	15.84

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: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

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

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JC7291-1	D235576.D	99	98	100	90
JC7291-2	D235609.D	99	101	100	98
JC7291-3	D235610.D	100	98	98	102
JC7291-4	Y158623.D	107	90	98	104
JC7291-4	2C134333.D	91	94	104	104
JC7291-5	Y158624.D	103	92	100	103
JC7291-6	Y158629.D	104	88	97	105
JC7291-6	2C134334.D	92	94	107	105
JC7291-7	D235670.D	103	103	100	104
JC7291-8	Y158630.D	105	92	97	106
JC7291-9	Y158631.D	103	87	99	110
JC7291-10	D235611.D	99	97	99	101
JC7290-1MS	Y158625.D	103	82	98	104
JC7290-2DUP	Y158628.D	104	90	98	107
JC7291-1MS	D235573.D	101	101	104	91
JC7291-1MSD	D235574.D	100	101	102	93
JC7291-2MS	D235606.D	104	108	103	99
JC7291-2MSD	D235607.D	101	104	103	98
JC7291-4MS	2C134341.D	95	94	99	100
JC7291-4MSD	2C134342.D	92	92	106	105
JC7874-4MS	D235663.D	102	104	102	104
JC7874-4MSD	D235664.D	105	105	102	103
V2C6060-BS	2C134329.D	93	92	107	104
V2C6060-MB	2C134328.D	94	95	98	101
VD9618-BS	D235563.D	103	105	101	102
VD9618-MB	D235562.D	103	102	99	104
VD9619-BS	D235605.D	103	106	102	103
VD9619-MB	D235604.D	102	103	100	102
VD9621-BS	D235658.D	104	107	103	101
VD9621-MB	D235657.D	104	103	100	104
VY6927-BS	Y158617.D	101	86	98	101
VY6927-MB	Y158616.D	100	84	98	109

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%

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: V2C6046-ICC6046
Lab FileID: 2C133979.D


```
                         Response Factor Report  Instrument #1

Method       : C:\msdchem\1\METHODS\M2C6046.M (RTE Integrator)
Title        : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
Last Update  : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration

Calibration Files
1   =2C133974.D  2   =2C133975.D  100 =2C133980.D  50  =2C133979.D
20  =2C133978.D  200 =2C133981.D  5   =2C133976.D  10  =2C133977.D
0.5 =2C133973.D  0.2 =2C133972.D      =                =

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

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
     0.961 1.096 1.194 1.190 1.193 1.192 1.203 1.160              1.149    7.26
3)  ethanol
                                                                  0.000#  -1.00
4)  1,4-dioxane
           0.078 0.109 0.106 0.106 0.107 0.096 0.104              0.101   10.82

5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  FREON 115
                                                                  0.000#  -1.00
7)  FREON 23
                                                                  0.000#  -1.00
8)  FREON 143A
                                                                  0.000#  -1.00
9)  FREON 152A
                                                                  0.000#  -1.00
10)  CHLOROTRIFLUOROETHENE
                                                                  0.000#  -1.00
11)  chlorodifluoromethane *This compound does not meet initial calibration criteria.
      0.533 0.508 0.543 0.548 0.504 0.510 0.533 0.509              0.524    3.36
12)  dichlorodifluoromethane
           0.474 0.568 0.567 0.538 0.532 0.561 0.554              0.542    6.10
13)  FREON 114
                                                                  0.000#  -1.00
14)  FREON 142B
                                                                  0.000#  -1.00
15)  chloromethane
      0.596 0.585 0.688 0.664 0.622 0.643 0.629 0.603 0.677        0.634    5.78
16)  vinyl chloride
      0.587 0.578 0.676 0.659 0.610 0.630 0.635 0.605              0.623    5.45
17)  bromomethane
      0.439 0.420 0.416 0.422 0.405 0.345 0.416 0.404 0.413        0.409    6.38
18)  chloroethane
      0.276 0.284 0.304 0.304 0.293 0.283 0.301 0.301              0.293    3.73
19)  trichlorofluoromethane
      0.685 0.700 0.767 0.764 0.735 0.730 0.769 0.748              0.737    4.25
20)  pentane
                                                                  0.000#  -1.00
21)  ethyl ether
      0.180 0.156 0.216 0.216 0.205 0.217 0.198 0.195              0.198   10.81
22)  2-CHLOROPROPANE
      0.866 0.814 0.776 0.791 0.774 0.758 0.839 0.798 0.952        0.819    7.38
23)  FREON 123
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** V2C6046-ICC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C133979.D
Project: Sunoco - Marcus Hook Facility, PA

```
                                                                    0.000#  -1.00
24)  FREON 141B
                                                                    0.000#  -1.00
25)  FREON 123A
                                                                    0.000#  -1.00
26)  acrolein
      0.081 0.088 0.106 0.104 0.099 0.094 0.094 0.092               0.095    8.66
27)  1,1-dichloroethene
      0.400 0.386 0.410 0.423 0.415 0.400 0.429 0.420 0.335         0.402    7.10
28)  acetone
                  0.125 0.124 0.126 0.128 0.146 0.149               0.133    8.49
29)  allyl chloride
      0.173 0.184 0.222 0.229 0.223 0.221 0.190 0.212               0.207   10.22
30)  acetonitrile
            0.035 0.042 0.044 0.042 0.039 0.043 0.041               0.041    7.09
31)  iodomethane
      0.855 0.831 0.951 0.955 0.919 0.934 0.936 0.917 0.721         0.891    8.57
32)  iso-butyl alcohol
                  0.014 0.014 0.012 0.014 0.013 0.013               0.013    6.22
33)  carbon disulfide
      1.548 1.509 1.593 1.639 1.581 1.534 1.674 1.621 1.350 1.793   1.584    7.30
34)  methylene chloride
      0.507 0.482 0.472 0.485 0.479 0.462 0.507 0.490 0.521 0.662   0.507   11.36
35)  1-CHLOROPROPANE
                  0.735 0.777 0.873 0.712 1.236 0.997               0.888   22.50
            ----- Linear regression -----  Coefficient =  0.9999
              Response Ratio = 0.06652 + 0.69702 *A

36)  methyl acetate
                  0.065 0.065 0.057 0.064 0.048 0.048               0.058   14.48
37)  methyl tert butyl ether
      1.262 1.186 1.311 1.341 1.253 1.259 1.283 1.261 1.095 1.287   1.254    5.49
38)  trans-1,2-dichloroethene
      0.419 0.432 0.417 0.434 0.440 0.412 0.457 0.455 0.363         0.425    6.68
39)  di-isopropyl ether
      1.265 1.298 1.359 1.383 1.299 1.308 1.309 1.274 1.120 1.050   1.267    8.15
40)  2-butanone
                  0.051 0.049 0.044 0.049 0.034 0.042               0.045   14.16
41)  1,1-dichloroethane
      0.761 0.696 0.752 0.767 0.758 0.746 0.767 0.776 0.642 0.670   0.734    6.38
42)  chloroprene
      0.506 0.511 0.561 0.566 0.554 0.561 0.564 0.551               0.547    4.41
43)  acrylonitrile
      0.129 0.142 0.173 0.178 0.167 0.163 0.172 0.165               0.161   10.39
44)  vinyl acetate
                  0.074 0.073 0.062 0.074       0.053               0.067   13.55
45)  ethyl tert-butyl ether
      1.181 1.203 1.371 1.373 1.266 1.360 1.266 1.244 1.080 0.986   1.233   10.29
46)  ethyl acetate
                  0.063 0.063 0.054 0.058 0.042 0.055               0.056   14.23
47)  2,2-dichloropropane
      0.648 0.618 0.648 0.654 0.639 0.612 0.666 0.660 0.557 0.665   0.637    5.24
48)  cis-1,2-dichloroethene
      0.456 0.424 0.465 0.480 0.479 0.457 0.483 0.478 0.435 0.543   0.470    6.91
49)  propionitrile
      0.044 0.057 0.067 0.068 0.066 0.063 0.067 0.066               0.062   13.05
50)  bromochloromethane
      0.227 0.235 0.250 0.254 0.254 0.245 0.253 0.255               0.246    4.23
51)  tetrahydrofuran
            0.148 0.151 0.161 0.153 0.145 0.162 0.155               0.154    4.10
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** V2C6046-ICC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C133979.D
Project: Sunoco - Marcus Hook Facility, PA

```
52)  chloroform
      0.735 0.704 0.722 0.749 0.743 0.706 0.764 0.761 0.716 0.658  0.726    4.39
53)  t-butyl formate
      0.287 0.290 0.363 0.353 0.319 0.360 0.308 0.311              0.324    9.50
54)  dibromofluoromethane (s)
      0.408 0.407 0.399 0.405 0.401 0.403 0.409 0.399 0.401 0.410  0.404    1.02
55)  1,2-dichloroethane-d4 (s)
      0.432 0.429 0.418 0.424 0.435 0.412 0.429 0.430 0.424 0.431  0.427    1.66
56)  freon 113
      0.313 0.324 0.342 0.352 0.342 0.330 0.355 0.347              0.338    4.29
57)  methacrylonitrile
      0.179 0.176 0.258 0.254 0.246 0.254 0.230 0.237              0.229   14.43
58)  1,1,1-trichloroethane
      0.650 0.634 0.693 0.692 0.660 0.675 0.689 0.678 0.578 0.656  0.660    5.29
59)  Cyclohexane
      0.597 0.577 0.617 0.611 0.616 0.600 0.634 0.611 0.485        0.594    7.41
60)  tert amyl alcohol
                                                                   0.000#  -1.00

61) I   1,4-difluorobenzene   ----------------ISTD---------------------
62)  Di-isobutylene
                                                                   0.000#  -1.00
63)  epichlorohydrin
            0.031 0.039 0.039 0.035 0.038 0.037 0.036              0.036    7.21
64)  n-butyl alcohol
            0.008 0.013 0.012 0.011 0.012 0.011 0.010              0.011   14.38
65)  carbon tetrachloride
      0.529 0.521 0.528 0.530 0.527 0.509 0.549 0.547 0.446 0.500  0.519    5.67
66)  1,1-dichloropropene
      0.452 0.440 0.445 0.448 0.453 0.441 0.465 0.457 0.424        0.447    2.60
67)  hexane
      0.301 0.290 0.336 0.326 0.334 0.323 0.312 0.320              0.318    5.06
68)  tert amyl ethyl ether
                                                                   0.000#  -1.00
69)  iso-octane
      1.088 1.047 1.171 1.174 1.187 1.078 1.144 1.177 0.906 0.859  1.083   10.76
70)  benzene
      1.363 1.295 1.322 1.360 1.396 1.276 1.390 1.398 1.269 1.449  1.352    4.39
71)  tert-amyl methyl ether
      0.235 0.241 0.251 0.253 0.245 0.245 0.255 0.245 0.189        0.240    8.32
72)  heptane
      0.166 0.168 0.199 0.191 0.197 0.187 0.196 0.191              0.187    6.87
73)  isopropyl acetate
            0.753 0.695 0.709 0.641 0.676 0.626 0.643              0.678    6.65
74)  1,2-dichloroethane
      0.443 0.450 0.434 0.452 0.463 0.409 0.469 0.468 0.446        0.448    4.19
75)  trichloroethene
      0.350 0.324 0.357 0.356 0.365 0.349 0.349 0.357 0.284        0.344    7.27
76)  2-nitropropane
            0.082 0.091 0.085 0.079 0.090 0.076 0.084              0.084    6.37
77)  2-chloroethyl vinyl ether
      0.159 0.183 0.221 0.222 0.213 0.207 0.200 0.198 0.149        0.195   13.39
78)  methyl methacrylate
                  0.088 0.088 0.084 0.087 0.072 0.075              0.082    8.49
79)  1,2-dichloropropane
      0.333 0.320 0.335 0.339 0.350 0.324 0.346 0.351 0.284        0.331    6.24
80)  dibromomethane
      0.237 0.219 0.236 0.238 0.241 0.226 0.244 0.240 0.166        0.227   10.71
81)  methylcyclohexane
      0.538 0.506 0.558 0.548 0.544 0.543 0.526 0.534 0.438        0.526    6.89
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** V2C6046-ICC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C133979.D
Project: Sunoco - Marcus Hook Facility, PA

```
 82)  bromodichloromethane
       0.450 0.425 0.485 0.486 0.483 0.476 0.480 0.479 0.387        0.461    7.46
 83)  cis-1,3-dichloropropene
       0.494 0.465 0.560 0.553 0.549 0.551 0.523 0.537 0.484 0.490  0.521    6.62
 84)  toluene-d8 (s)
       1.107 1.107 1.128 1.120 1.121 1.125 1.115 1.124 1.096 1.096  1.114    1.07
 85)  4-methyl-2-pentanone
       0.100 0.110 0.154 0.149 0.145 0.150 0.138 0.142              0.136   14.67
 86)  toluene
       0.747 0.699 0.790 0.796 0.782 0.774 0.766 0.775 0.686 0.734  0.755    5.02
 87)  3-methyl-1-butanol
             0.013 0.020 0.019 0.017 0.019 0.015 0.016              0.017   14.55
 88)  trans-1,3-dichloropropene
       0.442 0.401 0.513 0.512 0.487 0.493 0.452 0.469 0.407        0.464    9.00
 89)  ethyl methacrylate
       0.294 0.322 0.418 0.408 0.388 0.399 0.339 0.361              0.366   12.21
 90)  1,1,2-trichloroethane
       0.253 0.233 0.263 0.261 0.260 0.252 0.259 0.246 0.234        0.251    4.60
 91)  2-hexanone
             0.090 0.125 0.122 0.116 0.119 0.100 0.101              0.110   11.96

 92) I   chlorobenzene-d5      ----------------ISTD---------------------
 93)  tetrachloroethene
       0.389 0.372 0.393 0.393 0.390 0.390 0.401 0.389 0.303        0.380    7.83
 94)  1,3-dichloropropane
       0.534 0.500 0.564 0.568 0.566 0.549 0.551 0.548 0.503 0.633  0.552    6.77
 95)  butyl acetate
             0.181 0.254 0.243 0.230 0.260 0.217 0.209              0.228   12.21
 96)  3,3-dimethyl-1-butanol
             0.033 0.054 0.049 0.044 0.055 0.040 0.040              0.045   17.48
 97)  dibromochloromethane
       0.466 0.393 0.491 0.484 0.474 0.491 0.456 0.449 0.362        0.452   10.02
 98)  1,2-dibromoethane
       0.360 0.358 0.420 0.409 0.402 0.418 0.388 0.391 0.333        0.387    7.80
 99)  BUTYL ETHER
       1.294 1.240 1.638 1.595 1.543 1.643 1.412 1.449 1.199 1.837  1.485   13.70
100)  chlorobenzene
       0.988 0.943 1.052 1.048 1.035 1.063 1.057 1.030 0.951 1.202  1.037    6.99
101)  1,1,1,2-tetrachloroethane
       0.452 0.416 0.461 0.460 0.453 0.457 0.454 0.450 0.395 0.422  0.442    5.11
102)  ethylbenzene
       1.656 1.547 1.680 1.701 1.719 1.653 1.675 1.644 1.530 1.805  1.661    4.78
103)  m,p-xylene
       0.606 0.575 0.671 0.669 0.670 0.673 0.651 0.657 0.520 0.604  0.630    8.21
104)  o-xylene
       0.623 0.586 0.728 0.720 0.695 0.725 0.679 0.679 0.537 0.707  0.668    9.73
105)  styrene
       0.934 0.899 1.136 1.135 1.120 1.126 1.042 1.068 0.834 0.983  1.028   10.66
106)  bromoform
       0.311 0.299 0.412 0.390 0.369 0.413 0.348 0.352 0.288        0.354   13.24

107) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
108)  isopropylbenzene
       3.028 2.962 3.478 3.557 3.402 3.307 3.230 3.265 2.600 3.626  3.246    9.58
109)  4-bromofluorobenzene (s)
       0.853 0.855 0.891 0.886 0.869 0.903 0.856 0.855 0.858 0.849  0.867    2.19
110)  cyclohexanone
       0.034 0.035 0.034 0.037 0.033 0.032 0.033 0.031              0.034    5.59
111)  bromobenzene
       0.995 0.913 0.985 1.017 0.991 0.954 0.997 0.983 0.911 1.050  0.980    4.41
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** V2C6046-ICC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C133979.D
Project: Sunoco - Marcus Hook Facility, PA

```
112)  1,1,2,2-tetrachloroethane
       1.124 0.944 1.051 1.065 1.026 0.996 1.069 1.012 1.059        1.038    4.95
113)  trans-1,4-dichloro-2-butene
                  0.131 0.125 0.118 0.127 0.106 0.109              0.119    8.40
114)  1,2,3-trichloropropane
       0.256 0.246 0.242 0.246 0.248 0.229 0.250 0.247              0.246    3.19
115)  n-propylbenzene
       3.355 3.296 3.545 3.648 3.628 3.405 3.574 3.618 3.185 3.912  3.517    5.97
116)  2-chlorotoluene
       0.758 0.791 0.872 0.881 0.853 0.858 0.812 0.830 0.723 0.825  0.820    6.21
117)  4-chlorotoluene
       2.128 2.030 2.255 2.269 2.235 2.203 2.174 2.191 2.008 2.628  2.212    7.72
118)  1,3,5-trimethylbenzene
       2.530 2.410 2.814 2.869 2.803 2.672 2.667 2.784 2.223 2.657  2.643    7.68
119)  tert-butylbenzene
       0.443 0.449 0.601 0.596 0.557 0.588 0.511 0.543 0.464        0.528   12.06
120)  pentachloroethane
       0.676 0.583 0.709 0.719 0.677 0.688 0.653 0.710 0.622        0.671    6.71
121)  1,2,4-trimethylbenzene
       2.424 2.330 2.767 2.828 2.808 2.645 2.605 2.738 2.068 2.960  2.617   10.32
122)  sec-butylbenzene
       3.468 3.213 3.921 4.011 3.802 3.728 3.593 3.734 3.039 4.066  3.658    9.18
123)  1,3-dichlorobenzene
       1.884 1.706 1.807 1.861 1.848 1.751 1.847 1.883 1.734 2.094  1.841    5.93
124)  p-isopropyltoluene
       2.826 2.642 3.301 3.359 3.213 3.174 2.964 3.112 2.340 3.104  3.003   10.61
125)  1,2,3-trimethylbenzene
                                                                    0.000#  -1.00
126)  1,4-dichlorobenzene
       1.907 1.689 1.799 1.846 1.826 1.765 1.846 1.827 1.901        1.823    3.69
127)  1,2-dichlorobenzene
       1.938 1.727 1.884 1.935 1.883 1.792 1.833 1.898 1.711 2.632  1.923   13.60
128)  n-butylbenzene
       1.406 1.326 1.615 1.656 1.567 1.571 1.449 1.510 1.227 1.596  1.492    9.26
129)  1,2-dibromo-3-chloropropane
       0.214 0.171 0.215 0.216 0.201 0.205 0.189 0.194              0.200    7.78
130)  1,3,5-trichlorobenzene
       1.709 1.661 1.930 1.997 1.861 1.770 1.725 1.832 1.593 2.329  1.841   11.47
131)  1,2,4-trichlorobenzene
       1.542 1.470 1.828 1.868 1.691 1.634 1.559 1.677 1.478 2.068  1.681   11.37
132)  hexachlorobutadiene
       0.966 0.860 0.993 1.025 0.965 0.895 0.965 0.992 0.874        0.949    6.11
133)  naphthalene
       2.737 2.458 3.587 3.588 3.197 3.109 2.849 3.083 2.476        3.009   13.94
134)  1,2,3-trichlorobenzene
       1.466 1.235 1.684 1.724 1.574 1.469 1.470 1.558 1.316        1.500   10.54
135)  hexachloroethane
       0.528 0.524 0.741 0.719 0.654 0.741 0.574 0.625              0.638   14.19
 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2C6046.M         Fri Oct 30 07:52:27 2015   RPT1
```

Continuing Calibration Summary

Job Number: JC7291 **Sample:** V2C6060-CC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C134326.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2C\v2c6058-6060\2C134326.D Vial: 2
Acq On    :  7 Nov 2015   9:26 am                    Operator: ToanP
Sample    : cc6046-20                                Inst    : Instrument #1
Misc      : MS93596,V2C6060,5,,100,10,1              Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M2C6046.M (RTE Integrator)
Title        : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
Last Update  : Fri Oct 30 07:40:00 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	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	148	0.00	7.21
2		tertiary butyl alcohol	1.149	1.173	-2.1	145	-0.03	7.34
3		ethanol		----------NA----------				
4		1,4-dioxane	0.101	0.111	-9.9	155	-0.01	11.39
5	I	pentafluorobenzene	1.000	1.000	0.0	130	0.00	9.69
6		FREON 115		----------NA----------				
7		FREON 23		----------NA----------				
8		FREON 143A		----------NA----------				
9		FREON 152A		----------NA----------				
10		CHLOROTRIFLUOROETHENE		----------NA----------				
11		chlorodifluoromethane	0.524	0.596	-13.7	154	0.00	3.61
12		dichlorodifluoromethane	0.542	0.641	-18.3	155	-0.01	3.60
13		FREON 114		----------NA----------				
14		FREON 142B		----------NA----------				
15		chloromethane	0.634	0.679	-7.1	143	0.00	3.90
16		vinyl chloride	0.623	0.651	-4.5	139	0.00	4.18
17		bromomethane	0.409	0.414	-1.2	133	0.00	4.82
18		chloroethane	0.293	0.292	0.3	130	0.00	5.00
19		trichlorofluoromethane	0.737	0.688	6.6	122	0.00	5.53
20		pentane		----------NA----------				
21		ethyl ether	0.198	0.209	-5.6	133	0.00	5.96
22		2-CHLOROPROPANE	0.819	0.722	11.8	122	0.00	6.16
23		FREON 123		----------NA----------				
24		FREON 141B		----------NA----------				
25		FREON 123A		----------NA----------				
26		acrolein	0.095	0.094	1.1	124	-0.03	6.22
27		1,1-dichloroethene	0.402	0.394	2.0	124	-0.02	6.41
28		acetone	0.133	0.146	-9.8	151	-0.05	6.47
29		allyl chloride	0.207	0.201	2.9	118	-0.01	6.99
30		acetonitrile	0.041	0.041	0.0	129	-0.04	6.95
31		iodomethane	0.891	0.893	-0.2	127	-0.01	6.70
32		iso-butyl alcohol	0.013	0.015	-15.4	162	-0.02	10.02
33		carbon disulfide	1.584	1.512	4.5	125	-0.01	6.84
34		methylene chloride	0.507	0.458	9.7	125	-0.01	7.21
		----------	True	Calc.	% Drift	----------		
35		1-CHLOROPROPANE	20.000	17.526	12.4	116	0.00	7.24
		----------	AvgRF	CCRF	% Dev	----------		
36		methyl acetate	0.058	0.059	-1.7	134	-0.01	7.01
37		methyl tert butyl ether	1.254	1.275	-1.7	133	-0.01	7.59

Continuing Calibration Summary

Job Number: JC7291 **Sample:** V2C6060-CC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C134326.D
Project: Sunoco - Marcus Hook Facility, PA

38		trans-1,2-dichloroethene	0.425	0.406	4.5	120	-0.02	7.64
39		di-isopropyl ether	1.267	1.311	-3.5	132	-0.02	8.29
40		2-butanone	0.045	0.049	-8.9	145	-0.04	9.09
41		1,1-dichloroethane	0.734	0.710	3.3	122	0.00	8.27
42		chloroprene	0.547	0.509	6.9	120	-0.02	8.40
43		acrylonitrile	0.161	0.164	-1.9	128	-0.03	7.58
44		vinyl acetate	0.067	0.065	3.0	136	0.01	8.30
45		ethyl tert-butyl ether	1.233	1.300	-5.4	134	0.00	8.81
46		ethyl acetate	0.056	0.062	-10.7	150	-0.02	9.12
47		2,2-dichloropropane	0.637	0.661	-3.8	135	0.00	9.10
48		cis-1,2-dichloroethene	0.470	0.437	7.0	119	-0.01	9.10
49		propionitrile	0.062	0.063	-1.6	126	-0.02	9.15
50		bromochloromethane	0.246	0.238	3.3	122	0.00	9.43
51		tetrahydrofuran	0.154	0.154	0.0	132	-0.02	9.49
52		chloroform	0.726	0.678	6.6	119	0.00	9.50
53		t-butyl formate	0.324	0.350	-8.0	143	0.00	9.54
54	S	dibromofluoromethane (s)	0.404	0.383	5.2	124	-0.01	9.71
55	S	1,2-dichloroethane-d4 (s)	0.427	0.415	2.8	124	0.00	10.15
56		freon 113	0.338	0.368	-8.9	140	0.01	6.41
57		methacrylonitrile	0.229	0.230	-0.4	122	-0.03	9.37
58		1,1,1-trichloroethane	0.660	0.624	5.5	123	0.00	9.77
59		Cyclohexane	0.594	0.591	0.5	125	0.00	9.85
60		tert amyl alcohol		----------NA----------				
61	I	1,4-difluorobenzene	1.000	1.000	0.0	131	0.00	10.65
62		Di-isobutylene		----------NA----------				
63		epichlorohydrin	0.036	0.041	-13.9	155	-0.01	11.92
64		n-butyl alcohol	0.011	0.013	-18.2	147	-0.02	10.82
65		carbon tetrachloride	0.519	0.499	3.9	124	0.00	9.99
66		1,1-dichloropropene	0.447	0.417	6.7	121	-0.01	9.97
67		hexane	0.318	0.359	-12.9	141	0.00	8.01
68		tert amyl ethyl ether		----------NA----------				
69		iso-octane	1.083	1.158	-6.9	128	0.00	10.26
70		benzene	1.352	1.287	4.8	121	0.00	10.24
71		tert-amyl methyl ether	0.240	0.251	-4.6	134	0.00	10.30
72		heptane	0.187	0.214	-14.4	142	0.00	10.46
73		isopropyl acetate	0.678	0.696	-2.7	142	-0.01	10.20
74		1,2-dichloroethane	0.448	0.419	6.5	119	-0.01	10.25
75		trichloroethene	0.344	0.344	0.0	124	-0.01	11.00
76		2-nitropropane	0.084	0.085	-1.2	141	0.00	11.76
77		2-chloroethyl vinyl ether	0.195	0.240	-23.1#	148	0.00	11.81
78		methyl methacrylate	0.082	0.089	-8.5	139	-0.01	11.30
79		1,2-dichloropropane	0.331	0.339	-2.4	127	0.00	11.26
80		dibromomethane	0.227	0.236	-4.0	129	0.00	11.42
81		methylcyclohexane	0.526	0.564	-7.2	136	-0.01	11.22
82		bromodichloromethane	0.461	0.465	-0.9	126	0.00	11.55
83		cis-1,3-dichloropropene	0.521	0.564	-8.3	135	0.00	12.02
84	S	toluene-d8 (s)	1.114	1.178	-5.7	138	0.00	12.30
85		4-methyl-2-pentanone	0.136	0.156	-14.7	141	0.00	12.12
86		toluene	0.755	0.807	-6.9	135	0.00	12.37
87		3-methyl-1-butanol	0.017	0.021	-23.5#	161	-0.01	12.16
88		trans-1,3-dichloropropene	0.464	0.526	-13.4	142	0.00	12.57
89		ethyl methacrylate	0.366	0.438	-19.7	148	0.00	12.58
90		1,1,2-trichloroethane	0.251	0.277	-10.4	140	0.00	12.77
91		2-hexanone	0.110	0.139	-26.4#	157	-0.02	12.95
92	I	chlorobenzene-d5	1.000	1.000	0.0	148	0.00	13.76
93		tetrachloroethene	0.380	0.360	5.3	137	0.00	12.95
94		1,3-dichloropropane	0.552	0.548	0.7	143	0.00	12.95
95		butyl acetate	0.228	0.252	-10.5	162	0.00	13.03

Continuing Calibration Summary

Job Number: JC7291 **Sample:** V2C6060-CC6046
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2C134326.D
Project: Sunoco - Marcus Hook Facility, PA

96		3,3-dimethyl-1-butanol	0.045	0.048	-6.7	161	0.00	13.13
97		dibromochloromethane	0.452	0.446	1.3	139	0.00	13.20
98		1,2-dibromoethane	0.387	0.395	-2.1	145	0.00	13.34
99		BUTYL ETHER	1.485	1.526	-2.8	146	0.00	13.74
100		chlorobenzene	1.037	1.020	1.6	146	0.00	13.79
101		1,1,1,2-tetrachloroethane	0.442	0.404	8.6	132	0.00	13.85
102		ethylbenzene	1.661	1.653	0.5	142	0.00	13.85
103		m,p-xylene	0.630	0.648	-2.9	143	0.00	13.95
104		o-xylene	0.668	0.676	-1.2	144	0.00	14.35
105		styrene	1.028	1.140	-10.9	151	0.00	14.36
106		bromoform	0.354	0.374	-5.6	150	0.00	14.60
107	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	144	0.00	15.95
108		isopropylbenzene	3.246	3.277	-1.0	138	0.00	14.67
109	S	4-bromofluorobenzene (s)	0.867	0.914	-5.4	151	0.00	14.86
110		cyclohexanone	0.034	0.099	-191.2#	432#	0.00	14.81
111		bromobenzene	0.980	1.016	-3.7	147	0.00	15.04
112		1,1,2,2-tetrachloroethane	1.038	1.038	0.0	145	0.00	14.95
113		trans-1,4-dichloro-2-bute	0.119	0.098	17.6	119	0.00	14.99
114		1,2,3-trichloropropane	0.246	0.252	-2.4	146	0.00	15.02
115		n-propylbenzene	3.517	3.601	-2.4	143	0.00	15.06
116		2-chlorotoluene	0.820	0.843	-2.8	142	0.00	15.19
117		4-chlorotoluene	2.212	2.285	-3.3	147	0.00	15.28
118		1,3,5-trimethylbenzene	2.643	2.715	-2.7	139	0.00	15.20
119		tert-butylbenzene	0.528	0.504	4.5	130	0.00	15.52
120		pentachloroethane	0.671	0.615	8.3	130	0.00	15.60
121		1,2,4-trimethylbenzene	2.617	2.754	-5.2	141	0.00	15.57
122		sec-butylbenzene	3.658	3.553	2.9	134	0.00	15.73
123		1,3-dichlorobenzene	1.841	1.846	-0.3	143	0.00	15.90
124		p-isopropyltoluene	3.003	3.042	-1.3	136	0.00	15.84
125		1,2,3-trimethylbenzene		----------NA----------				
126		1,4-dichlorobenzene	1.823	1.817	0.3	143	0.00	15.98
127		1,2-dichlorobenzene	1.923	1.851	3.7	141	0.00	16.34
128		n-butylbenzene	1.492	1.524	-2.1	140	0.00	16.23
129		1,2-dibromo-3-chloropropa	0.200	0.184	8.0	132	0.00	17.07
130		1,3,5-trichlorobenzene	1.841	1.719	6.6	133	0.00	17.26
131		1,2,4-trichlorobenzene	1.681	1.541	8.3	131	0.00	17.88
132		hexachlorobutadiene	0.949	0.788	17.0	117	0.00	18.00
133		naphthalene	3.009	3.072	-2.1	138	0.00	18.16
134		1,2,3-trichlorobenzene	1.500	1.364	9.1	124	0.00	18.40
135		hexachloroethane	0.638	0.553	13.3	121	0.00	16.59

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2C133978.D M2C6046.M Mon Nov 09 09:17:00 2015 T

6.9.2

6

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VD9588-ICC9588
Lab FileID: D234792.D

Response Factor Report MSD

```
Method       : C:\MSDCHEM\1\METHODS\MD9588.M (RTE Integrator)
Title        : SW-846 Method 8260C
Last Update  : Mon Oct 19 09:20:02 2015
Response via : Initial Calibration

Calibration Files
4   =d234789.D   2   =d234788.D   0.5 =d234786.D   50  =d234792.D
100 =d234793.D   1   =d234787.D   200 =d234794.D   20  =d234791.D
8   =d234790.D   0.2 =d234785.D       =                =

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

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.097 0.095       0.103 0.105 0.098 0.095 0.102 0.101        0.099    3.87
3)  tertiary butyl alcohol
     1.183 1.114       1.128 1.127 1.153 1.070 1.160 1.124        1.132    2.99

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  1,2-dichloro-1,2,2-trifluoroet
                                                                  0.000#  -1.00
6)  chlorodifluoromethane
     0.788 0.770       0.843 0.779 0.762 0.792 0.789 0.744        0.783    3.71
7)  dichlorodifluoromethane
     1.018 0.958       1.076 1.132 0.907 1.073 1.077 1.095        1.042    7.26
8)  chloromethane
     0.824 0.756       0.863 0.984 0.984 0.949 0.855 0.846        0.883    9.28
9)  1,3-butadiene
                                                                  0.000#  -1.00
10)  vinyl chloride
     0.936 0.865 0.985 0.986 1.061 0.973 1.031 0.933 0.950 0.766  0.949    8.85
11)  bromomethane
     0.564 0.630 0.638 0.689 0.839 0.749 0.859 0.605 0.603        0.686   15.56
12)  chloroethane
     0.437 0.448 0.489 0.476 0.559 0.525 0.577 0.448 0.451        0.490   10.59
13)  vinyl bromide
                                                                  0.000#  -1.00
14)  trichlorofluoromethane
     1.058 0.962 1.001 1.130 1.239 1.022 1.224 1.096 1.101        1.093    8.69
15)  pentane
                                                                  0.000#  -1.00
16)  ethyl ether
     0.266 0.264 0.298 0.250 0.249 0.245 0.255 0.239 0.260        0.258    6.66
17)  acrolein
     0.100 0.106       0.096       0.105       0.092 0.098        0.099    5.34
18)  chlorotrifluoroethene
                                                                  0.000#  -1.00
19)  2-chloropropane
     1.129 1.144 1.122 1.106 1.126 1.425 1.074 0.981 1.131        1.137   10.43
20)  1,1-dichloroethene
     0.902 0.824 0.824 0.953 0.978 0.923 0.929 0.820 0.918 0.985  0.906    6.92
21)  acetone
     0.033 0.051       0.036 0.037       0.038 0.034 0.037        0.038   15.79
22)  allyl chloride
     1.402 1.330 1.681 1.340 1.349 1.610 1.299 1.253 1.336        1.400   10.41
23)  acetonitrile
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** VD9588-ICC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D234792.D
Project: Sunoco - Marcus Hook Facility, PA

```
      0.045 0.051       0.042 0.042       0.041 0.041 0.042        0.043    8.28
24)  acetaldehyde
                                                                   0.000#  -1.00
25)  iodomethane
      0.981 0.963 0.981 1.068 1.119 1.038 1.076 0.936 1.052 1.053  1.027    5.70
26)  iso-butyl alcohol
      0.008 0.005       0.007 0.007       0.007 0.006 0.007        0.007#  10.87
27)  carbon disulfide
      2.030 1.842 1.909 2.164 2.166 2.056 2.053 1.819 2.063 2.434  2.054    8.76
28)  methylene chloride
      0.598 0.571 0.660 0.603 0.630 0.624 0.600 0.553 0.616 0.709  0.616    7.18
29)  1-chloropropane
      1.635             1.046 1.031       0.991 1.008 1.345        1.176   22.18
            ----- Linear regression -----  Coefficient =  0.9996
              Response Ratio = 0.05143 + 0.98320 *A

30)  methyl acetate
      0.069             0.065 0.064       0.066 0.065 0.054        0.064    7.79
31)  methyl tert butyl ether
      1.881 1.688 2.057 1.819 1.864 2.164 1.781 1.681 1.867        1.867    8.49
32)  trans-1,2-dichloroethene
      0.791 0.709 0.738 0.776 0.789 0.810 0.783 0.704 0.792 0.923  0.782    7.90
33)  di-isopropyl ether
      1.696 1.622 1.845 1.774 1.828 1.801 1.726 1.718 1.603 1.908  1.752    5.58
34)  ethyl tert-butyl ether
      1.758 1.729 1.873 1.922 1.983 1.753 1.887 1.813 1.708 1.829  1.826    4.94
35)  2-butanone
      0.049             0.047 0.049       0.050 0.043 0.048        0.048    5.35
36)  1,1-dichloroethane
      0.918 0.856 0.905 0.920 0.937 0.909 0.927 0.847 0.934 1.086  0.924    7.02
37)  chloroprene
      0.643 0.624 0.559 0.692 0.695 0.644 0.698 0.672 0.652 0.582  0.646    7.32
38)  acrylonitrile
      0.161 0.152 0.146 0.159 0.161 0.164 0.159 0.154 0.167        0.158    4.07
39)  vinyl acetate
      0.073 0.052       0.088 0.091       0.091 0.090 0.078        0.081   17.86
40)  ethyl acetate
      0.061             0.051 0.052       0.050 0.051 0.052        0.053    7.77
41)  2,2-dichloropropane
      1.035 0.974 1.195 1.061 1.046 1.089 1.015 0.902 1.049 1.539  1.091   16.03
42)  cis-1,2-dichloroethene
      0.611 0.611 0.875 0.559 0.563 0.744 0.570 0.512 0.595 0.556  0.620   17.53
43)  propionitrile
      0.060 0.052 0.052 0.059 0.060 0.061 0.060 0.058 0.063 0.049  0.057    8.29
44)  methyl acrylate
      0.050             0.058 0.060       0.060 0.052 0.055        0.056    7.31
45)  bromochloromethane
      0.257 0.243 0.278 0.254 0.266 0.277 0.266 0.242 0.264 0.170  0.252   12.38
46)  tetrahydrofuran
      0.058 0.048       0.054 0.056 0.042 0.057 0.050 0.054        0.052   10.16
47)  chloroform
      0.888 0.824 0.897 0.873 0.886 0.935 0.894 0.804 0.884 0.946  0.883    4.89
48)  dibromofluoromethane (s)
      0.464 0.463 0.467 0.452 0.461 0.459 0.463 0.457 0.459 0.460  0.461    0.93
49)  1,2-dichloroethane-d4 (s)
      0.553 0.548 0.551 0.550 0.562 0.544 0.573 0.547 0.543 0.541  0.551    1.76
50)  freon 113
      0.366 0.330       0.424 0.424 0.341 0.415 0.397 0.376        0.384    9.54
51)  methacrylonitrile
      0.252 0.223 0.340 0.227 0.232 0.293 0.231 0.227 0.244        0.252   15.69
```

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VD9588-ICC9588
Lab FileID: D234792.D

```
52)  t-butyl formate
      0.513 0.511       0.567 0.589 0.510 0.566 0.533 0.498        0.536    6.33
53)  1,1,1-trichloroethane
      0.913 0.839 0.940 1.019 1.032 0.892 1.005 0.858 0.964 1.052  0.952    7.88
54)  tert-amyl methyl ether
      1.673 1.589 1.703 1.776 1.868 1.698 1.822 1.669 1.579 1.881  1.726    6.22

55) I   1,4-difluorobenzene   ----------------ISTD---------------------
56)  cyclohexane
      0.663 0.581 0.503 0.750 0.757 0.668 0.741 0.610 0.699 0.806  0.678   13.68
57)  tert amyl alcohol
                                                                    0.000#  -1.00
58)  2,2,4-trimethylpentane
      1.273 1.128       1.562 1.638 1.307 1.564 1.412 1.289        1.397   12.73
59)  epichlorohydrin *This compound does not meet Initial Calibration criteria
      0.033 0.028       0.034 0.036 0.031 0.034 0.033 0.033        0.033    7.61
60)  n-butyl alcohol
      0.009 0.008       0.010 0.010 0.008 0.010 0.010 0.009        0.009#   9.20
61)  carbon tetrachloride
      0.584 0.534 0.495 0.647 0.674 0.609 0.673 0.530 0.592 0.654  0.599   10.65
62)  1,1-dichloropropene
      0.469 0.446 0.476 0.497 0.491 0.512 0.508 0.430 0.485 0.530  0.484    6.31
63)  hexane
      0.404 0.363       0.418 0.424 0.449 0.408 0.413 0.397        0.410    6.00
64)  benzene
      1.434 1.355 1.512 1.449 1.467 1.554 1.484 1.319 1.463 1.859  1.489    9.86
65)  heptane
      0.227 0.214 0.163 0.244 0.246 0.279 0.233 0.237 0.222 0.213  0.228   13.06
66)  isopropyl acetate
      0.779 0.791 0.775 0.899 0.921 0.847 0.897 0.816 0.766 1.223  0.872   15.59
67)  1,2-dichloroethane
      0.494 0.457 0.498 0.500 0.510 0.516 0.519 0.476 0.513 0.593  0.508    7.03
68)  Ethyl Acrylate
                                                                    0.000#  -1.00
69)  trichloroethene
      0.355 0.333 0.383 0.368 0.370 0.363 0.381 0.331 0.374 0.428  0.369    7.42
70)  2-nitropropane
      0.577 0.482 0.601 0.547 0.570 0.626 0.561 0.514 0.532        0.557    7.90
71)  2-chloroethyl vinyl ether
      0.178 0.176 0.173 0.195 0.209 0.183 0.204 0.190 0.174 0.170  0.185    7.37
72)  methyl methacrylate
      0.075 0.056       0.081 0.089       0.089 0.076 0.076        0.078   14.30
73)  tert-amyl ethyl ether
                                                                    0.000#  -1.00
74)  1,2-dichloropropane
      0.346 0.326 0.362 0.364 0.368 0.370 0.365 0.333 0.362 0.383  0.358    4.85
75)  methylcyclohexane
      0.627 0.568       0.736 0.766 0.659 0.746 0.674 0.622        0.675   10.31
76)  dibromomethane
      0.220 0.214 0.213 0.224 0.234 0.227 0.232 0.214 0.228 0.216  0.222    3.61
77)  bromodichloromethane
      0.509 0.474 0.514 0.512 0.533 0.513 0.533 0.474 0.512 0.561  0.514    5.10
78)  cis-1,3-dichloropropene
      0.581 0.538 0.614 0.599 0.621 0.631 0.610 0.560 0.590 0.670  0.601    6.22
79)  toluene-d8 (s)
      1.255 1.255 1.266 1.296 1.344 1.262 1.300 1.273 1.260 1.256  1.277    2.25
80)  4-methyl-2-pentanone
      0.118 0.110       0.127 0.137       0.135 0.118 0.123        0.124    7.91
81)  toluene
      0.858 0.794 0.902 0.913 0.958 0.892 0.941 0.820 0.900 1.024  0.900    7.42
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** VD9588-ICC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D234792.D
Project: Sunoco - Marcus Hook Facility, PA

```
 82)  3-methyl-1-butanol
       0.009 0.008       0.010 0.011       0.011 0.010 0.009        0.010#  11.59
 83)  trans-1,3-dichloropropene
       0.542 0.502 0.602 0.552 0.589 0.588 0.574 0.519 0.550 0.594  0.561    6.03
 84)  ethyl methacrylate
       0.417 0.368 0.395 0.431 0.473 0.431 0.459 0.401 0.416 0.288  0.408   12.74
 85)  1,1,2-trichloroethane
       0.244 0.225 0.228 0.248 0.268 0.261 0.261 0.233 0.248 0.303  0.252    9.09
 86)  2-hexanone
       0.118 0.105       0.116 0.130 0.101 0.126 0.112 0.112        0.115    8.60

 87) I   chlorobenzene-d5      ----------------ISTD---------------------
 88)  tetrachloroethene
       0.385 0.372 0.388 0.415 0.405 0.387 0.416 0.364 0.398 0.498  0.403    9.31
 89)  1,3-dichloropropane
       0.531 0.496 0.473 0.536 0.535 0.506 0.528 0.510 0.547 0.581  0.524    5.72
 90)  butyl acetate
       0.205 0.218 0.238 0.213 0.218 0.233 0.212 0.213 0.204 0.207  0.216    5.23
 91)  3,3-dimethyl-1-butanol
       0.037 0.034 0.036 0.042 0.042 0.038 0.044 0.041 0.038 0.037  0.039    8.48
 92)  dibromochloromethane
       0.375 0.335 0.340 0.390 0.400 0.391 0.407 0.365 0.382 0.413  0.380    6.94
 93)  1,2-dibromoethane
       0.335 0.302 0.340 0.322 0.333 0.351 0.329 0.305 0.333 0.386  0.334    7.03
 94)  chlorobenzene
       1.059 0.980 1.023 1.051 1.068 1.072 1.070 0.967 1.068 1.184  1.054    5.66
 95)  1,1,1,2-tetrachloroethane
       0.452 0.418 0.390 0.477 0.475 0.473 0.497 0.435 0.465 0.462  0.454    7.00
 96)  ethylbenzene
       1.896 1.731 1.943 1.900 1.918 1.913 1.901 1.727 1.906 2.344  1.918    8.77
 97)  m,p-xylene
       0.694 0.644 0.694 0.731 0.742 0.712 0.761 0.655 0.729 0.757  0.712    5.63
 98)  o-xylene
       0.733 0.686 0.734 0.775 0.787 0.752 0.809 0.712 0.759 0.823  0.757    5.63
 99)  styrene
       1.177 1.075 1.114 1.220 1.284 1.143 1.311 1.116 1.203 1.262  1.190    6.66
100)  bromoform
       0.274 0.230 0.265 0.287 0.304 0.253 0.317 0.261 0.282 0.223  0.270   11.00

101) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
102)  isopropylbenzene
       3.360 3.122 3.364 3.550 3.522 3.468 3.374 3.180 3.466 3.804  3.421    5.63
103)  4-bromofluorobenzene (s)
       0.950 0.961 0.964 0.905 0.932 0.974 0.896 0.936 0.939 0.953  0.941    2.68
104)  bromobenzene
       0.864 0.812 0.818 0.829 0.883 0.922 0.896 0.780 0.847 0.771  0.842    5.90
105)  cyclohexanone
       0.040 0.042       0.037 0.036       0.031 0.038 0.040        0.038    9.42
106)  1,1,2,2-tetrachloroethane
       0.846 0.767 0.850 0.803 0.801 0.903 0.763 0.792 0.845 0.879  0.825    5.70
107)  trans-1,4-dichloro-2-butene
       0.267 0.272 0.273 0.249 0.252 0.296 0.239 0.245 0.265 0.300  0.266    7.78
108)  1,2,3-trichloropropane
       0.232 0.220 0.176 0.223 0.234 0.254 0.231 0.223 0.239 0.162  0.219   12.99
109)  n-propylbenzene
       3.906 3.630 3.935 3.904 3.926 4.198 3.725 3.588 3.986 5.133  3.993   10.99
110)  p-ethyltoluene
                                                                    0.000#  -1.00
111)  2-chlorotoluene
       0.813 0.749 0.855 0.830 0.864 0.901 0.880 0.762 0.838        0.832    6.13
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** VD9588-ICC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D234792.D
Project: Sunoco - Marcus Hook Facility, PA

```
112)  4-chlorotoluene
       2.486 2.324 2.934 2.384 2.473 2.789 2.401 2.272 2.460 3.480  2.600   14.28
113)  1,3,5-trimethylbenzene
       3.002 2.801 2.949 3.189 3.195 3.219 3.161 2.891 3.115 3.445  3.097    6.08
114)  tert-butylbenzene
       2.467 2.243 2.508 2.709 2.585 2.591 2.662 2.367 2.522 3.313  2.597   11.03
115)  pentachloroethane
       0.581 0.559 0.606 0.633 0.634 0.584 0.676 0.569 0.586 0.606  0.603    5.89
116)  1,2,4-trimethylbenzene
       3.044 2.795 3.105 3.166 3.175 3.176 3.111 2.887 3.109 3.727  3.130    7.84
117)  sec-butylbenzene
       3.935 3.598 3.843 4.340 4.175 4.105 4.075 3.819 4.097 4.748  4.073    7.76
118)  1,3-dichlorobenzene
       1.778 1.625 1.762 1.762 1.796 1.825 1.808 1.640 1.798 2.153  1.795    7.98
119)  p-isopropyltoluene
       3.353 2.986 3.217 3.590 3.515 3.447 3.488 3.136 3.400 4.143  3.427    9.13
120)  1,4-dichlorobenzene
       1.781 1.681 1.898 1.792 1.820 1.907 1.828 1.666 1.837        1.801    4.65
121)  1,2,3-trimethylbenzene
                                                                    0.000#  -1.00
122)  Benzyl Chloride
       1.854 1.782 2.238 1.783 1.773 1.925 1.679 1.821 1.747        1.845    8.82
123)  p-diethylbenzene
                                                                    0.000#  -1.00
124)  INDANE
                                                                    0.000#  -1.00
125)  1,2-dichlorobenzene
       1.781 1.623 1.652 1.807 1.808 1.820 1.789 1.692 1.834 2.081  1.789    7.10
126)  n-butylbenzene
       1.736 1.564 1.682 1.859 1.827 1.800 1.805 1.637 1.786 1.964  1.766    6.54
127)  1,2,4,5-tetramethylbenzene
                                                                    0.000#  -1.00
128)  1,2-dibromo-3-chloropropane
       0.180 0.179 0.177 0.208 0.202 0.185 0.201 0.194 0.199 0.235  0.196    8.99
129)  1,3,5-trichlorobenzene
       1.448 1.289 1.405 1.688 1.632 1.372 1.639 1.463 1.537 1.649  1.512    9.03
130)  1,2,4-trichlorobenzene
       1.111 0.936 1.023 1.414 1.350 1.008 1.377 1.189 1.157 1.305  1.187   14.22
131)  hexachlorobutadiene
       0.621 0.564 0.585 0.724 0.679 0.634 0.688 0.598 0.632 0.715  0.644    8.58
132)  naphthalene
       2.187 1.840       2.816 2.726 1.965 2.662 2.432 2.332        2.370   15.08
133)  1,2,3-trichlorobenzene
       0.892 0.792 0.877 1.171 1.139 0.884 1.149 0.998 0.962 1.144  1.001   14.01
134)  hexachloroethane
       0.604 0.581 0.664 0.667 0.642 0.675 0.699 0.596 0.617        0.638    6.37
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MD9588.M          Mon Oct 19 09:22:26 2015   RPT1
```

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: VD9588-ICV9588
Lab FileID: D234797.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d234797.D Vial: 14
Acq On : 15 Oct 2015 6:02 pm Operator: BenM
Sample : icv9588-50 Inst : MSD
Misc : ms92609,vd9588,5.0,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MD9588.M (RTE Integrator)
Title : SW-846 Method 8260C
Last Update : Mon Oct 19 09:20:02 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	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	101	0.00	7.97
2	M	1,4-dioxane	0.099	0.109	-10.1	107	0.00	11.82
3	M	tertiary butyl alcohol	1.132	1.194	-5.5	107	0.00	8.08
4	I	pentafluorobenzene	1.000	1.000	0.0	106	0.00	10.13
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.783	0.756	3.4	95	0.01	4.42
7	M	dichlorodifluoromethane	1.042	1.035	0.7	102	0.00	4.39
8	M	chloromethane	0.883	0.854	3.3	105	0.01	4.76
9		1,3-butadiene		----------NA----------				
10	M	vinyl chloride	0.949	0.938	1.2	101	0.00	5.04
11	M	bromomethane	0.686	0.721	-5.1	111	0.00	5.72
12	M	chloroethane	0.490	0.487	0.6	108	0.00	5.89
13	M	vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	1.093	1.120	-2.5	105	0.00	6.37
15		pentane		----------NA----------				
16	M	ethyl ether	0.258	0.243	5.8	103	0.00	6.78
17	M	acrolein	0.099	0.105	-6.1	116	0.00	7.09
18	M	chlorotrifluoroethene		----------NA----------				
19	M	2-chloropropane	1.137	1.025	9.9	98	0.00	7.01
20	M	1,1-dichloroethene	0.906	0.876	3.3	97	0.00	7.23
21	M	acetone	0.038	0.037	2.6	109	-0.01	7.31
22	M	allyl chloride	1.400	1.355	3.2	107	0.00	7.77
23	M	acetonitrile	0.043	0.042	2.3	106	0.00	7.79
24	M	acetaldehyde		----------NA----------				
25	M	iodomethane	1.027	1.007	1.9	100	0.00	7.54
26	M	iso-butyl alcohol	0.007	0.005#	28.6	82	0.00	10.43
27	M	carbon disulfide	2.054	1.984	3.4	97	0.00	7.66
28	M	methylene chloride	0.616	0.583	5.4	103	0.00	7.98
		----------	True	Calc.	% Drift	----------		
29	M	1-chloropropane	50.000	44.905	10.2	95	0.00	7.99
		----------	AvgRF	CCRF	% Dev	----------		
30	M	methyl acetate	0.064	0.064	0.0	104	0.00	7.75
31	M	methyl tert butyl ether	1.867	1.724	7.7	101	0.00	8.28
32	M	trans-1,2-dichloroethene	0.782	0.720	7.9	99	0.00	8.33
33	M	di-isopropyl ether	1.752	1.766	-0.8	106	0.00	8.85
34	M	ethyl tert-butyl ether	1.826	1.888	-3.4	104	0.00	9.32
35	M	2-butanone	0.048	0.048	0.0	109	0.00	9.63
36	M	1,1-dichloroethane	0.924	0.888	3.9	102	0.00	8.91
37	M	chloroprene	0.646	0.673	-4.2	103	0.00	9.00

Initial Calibration Verification

Job Number: JC7291 **Sample:** VD9588-ICV9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D234797.D
Project: Sunoco - Marcus Hook Facility, PA

38	M	acrylonitrile	0.158	0.159	-0.6	106	0.00	8.33
39	M	vinyl acetate	0.081	0.087	-7.4	104	0.00	8.88
40	M	ethyl acetate	0.053	0.059	-11.3	122	0.00	9.61
41	M	2,2-dichloropropane	1.091	1.003	8.1	100	0.00	9.65
42	M	cis-1,2-dichloroethene	0.620	0.521	16.0	99	0.00	9.65
43	M	propionitrile	0.057	0.059	-3.5	105	0.00	9.76
44		methyl acrylate	0.056	0.058	-3.6	108	0.00	9.70
45	M	bromochloromethane	0.252	0.245	2.8	102	0.00	9.97
46	M	tetrahydrofuran	0.052	0.056	-7.7	109	0.00	10.00
47	M	chloroform	0.883	0.841	4.8	102	0.00	10.02
48	S	dibromofluoromethane (s)	0.461	0.450	2.4	106	0.00	10.22
49	S	1,2-dichloroethane-d4 (s)	0.551	0.536	2.7	103	0.00	10.65
50	M	freon 113	0.384	0.467	-21.6	117	0.00	7.18
51	M	methacrylonitrile	0.252	0.228	9.5	106	0.00	9.92
52	m	t-butyl formate	0.536	0.617	-15.1	115	0.00	10.04
53	M	1,1,1-trichloroethane	0.952	0.954	-0.2	99	0.00	10.26
54	M	tert-amyl methyl ether	1.726	1.770	-2.5	106	0.00	10.70
55	I	1,4-difluorobenzene	1.000	1.000	0.0	105	0.00	11.06
56	M	cyclohexane	0.678	0.689	-1.6	96	0.00	10.31
57		tert amyl alcohol		----------NA----------				
58	M	2,2,4-trimethylpentane	1.397	1.489	-6.6	100	0.00	10.65
59	M	epichlorohydrin		----------NA----------				
60	M	n-butyl alcohol	0.009	0.010#	-11.1	104	0.00	11.21
61	M	carbon tetrachloride	0.599	0.616	-2.8	100	0.00	10.45
62	M	1,1-dichloropropene	0.484	0.480	0.8	101	0.00	10.42
63	M	hexane	0.410	0.312	23.9	78	0.00	8.59
64	M	benzene	1.489	1.399	6.0	101	0.00	10.70
65	M	heptane	0.228	0.244	-7.0	105	0.00	10.80
66	M	isopropyl acetate	0.872	0.867	0.6	101	0.00	10.60
67	M	1,2-dichloroethane	0.508	0.496	2.4	104	0.00	10.74
68		Ethyl Acrylate		----------NA----------				
69	M	trichloroethene	0.369	0.350	5.1	100	0.00	11.40
70	M	2-nitropropane	0.557	0.594	-6.6	114	0.00	11.67
71	M	2-chloroethyl vinyl ether	0.185	0.227	-22.7	122	0.00	12.22
72	M	methyl methacrylate	0.078	0.091	-16.7	118	0.00	11.67
73	M	tert-amyl ethyl ether		----------NA----------				
74	M	1,2-dichloropropane	0.358	0.368	-2.8	106	0.00	11.69
75	M	methylcyclohexane	0.675	0.719	-6.5	102	0.00	11.60
76	M	dibromomethane	0.222	0.222	0.0	104	0.00	11.87
77	M	bromodichloromethane	0.514	0.503	2.1	103	0.00	11.99
78	M	cis-1,3-dichloropropene	0.601	0.614	-2.2	107	0.00	12.46
79	S	toluene-d8 (s)	1.277	1.355	-6.1	110	0.00	12.75
80	M	4-methyl-2-pentanone	0.124	0.144	-16.1	119	0.00	12.55
81	M	toluene	0.900	0.932	-3.6	107	0.00	12.83
82	M	3-methyl-1-butanol	0.010	0.016	-60.0#	163	0.00	12.57
83	M	trans-1,3-dichloropropene	0.561	0.592	-5.5	112	0.00	13.05
84	M	ethyl methacrylate	0.408	0.500	-22.5	122	0.00	13.01
85	M	1,1,2-trichloroethane	0.252	0.276	-9.5	117	0.00	13.29
86	M	2-hexanone	0.115	0.144	-25.2	130	0.00	13.46
87	I	chlorobenzene-d5	1.000	1.000	0.0	122	0.00	14.40
88	M	tetrachloroethene	0.403	0.365	9.4	108	0.00	13.44
89	M	1,3-dichloropropane	0.524	0.515	1.7	117	0.00	13.49
90	M	butyl acetate	0.216	0.236	-9.3	135	0.00	13.51
91	m	3,3-dimethyl-1-butanol	0.039	0.036	7.7	106	0.00	13.64
92	M	dibromochloromethane	0.380	0.368	3.2	115	0.00	13.78
93	M	1,2-dibromoethane	0.334	0.321	3.9	122	0.00	13.95
94	M	chlorobenzene	1.054	1.039	1.4	121	0.00	14.43
95	M	1,1,1,2-tetrachloroethane	0.454	0.395	13.0	101	0.00	14.50

Initial Calibration Verification

Job Number: JC7291 **Sample:** VD9588-ICV9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D234797.D
Project: Sunoco - Marcus Hook Facility, PA

96	M	ethylbenzene	1.918	1.820	5.1	117	0.00	14.47
97	M	m,p-xylene	0.712	0.704	1.1	118	0.00	14.58
98	M	o-xylene	0.757	0.723	4.5	114	0.00	15.06
99	M	styrene	1.190	1.262	-6.1	127	0.00	15.07
100	M	bromoform	0.270	0.296	-9.6	126	0.00	15.41
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	122	0.00	16.97
102	M	isopropylbenzene	3.421	3.121	8.8	107	0.00	15.43
103	S	4-bromofluorobenzene (s)	0.941	0.967	-2.8	130	0.00	15.68
104	M	bromobenzene	0.842	0.862	-2.4	127	0.00	15.90
105	M	cyclohexanone	0.038	0.033	13.2	106	0.00	15.67
106	M	1,1,2,2-tetrachloroethane	0.825	0.747	9.5	113	0.00	15.81
107	M	trans-1,4-dichloro-2-bute	0.266	0.258	3.0	126	0.00	15.84
108	M	1,2,3-trichloropropane	0.219	0.220	-0.5	120	0.00	15.89
109	M	n-propylbenzene	3.993	3.963	0.8	124	0.00	15.88
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.832	0.795	4.4	117	0.00	16.06
112	M	4-chlorotoluene	2.600	2.449	5.8	125	0.00	16.17
113	M	1,3,5-trimethylbenzene	3.097	2.834	8.5	108	0.00	16.04
114	M	tert-butylbenzene	2.597	2.193	15.6	98	0.00	16.44
115	M	pentachloroethane	0.603	0.538	10.8	103	0.00	16.56
116	M	1,2,4-trimethylbenzene	3.130	3.018	3.6	116	0.00	16.49
117	M	sec-butylbenzene	4.073	3.671	9.9	103	0.00	16.67
118	M	1,3-dichlorobenzene	1.795	1.709	4.8	118	0.00	16.91
119	M	p-isopropyltoluene	3.427	3.197	6.7	108	0.00	16.80
120	M	1,4-dichlorobenzene	1.801	1.754	2.6	119	0.00	17.00
121		1,2,3-trimethylbenzene		----------NA----------				
122		Benzyl Chloride	1.845	1.739	5.7	119	0.00	17.14
123	M	p-diethylbenzene		----------NA----------				
124		INDANE		----------NA----------				
125	M	1,2-dichlorobenzene	1.789	1.676	6.3	113	0.00	17.45
126	M	n-butylbenzene	1.766	1.725	2.3	113	0.00	17.26
127	M	1,2,4,5-tetramethylbenzen		----------NA----------				
128	M	1,2-dibromo-3-chloropropa	0.196	0.175	10.7	102	0.00	18.32
129	M	1,3,5-trichlorobenzene	1.512	1.384	8.5	100	0.00	18.49
130	M	1,2,4-trichlorobenzene	1.187	1.140	4.0	98	0.00	19.23
131	M	hexachlorobutadiene	0.644	0.570	11.5	96	0.00	19.33
132	M	naphthalene	2.370	2.209	6.8	95	0.00	19.56
133	M	1,2,3-trichlorobenzene	1.001	0.935	6.6	97	0.00	19.84
134	M	hexachloroethane	0.638	0.539	15.5	98	0.00	17.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d234792.D MD9588.M Mon Oct 19 09:22:02 2015 RPT1

6.9.4

6

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9618-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235557.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d235557.D                    Vial: 2
Acq On    :  6 Nov 2015   7:45 am                     Operator: BenM
Sample    : cc9588-20                                 Inst    : MSD
Misc      : ms93780,vd9618,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MD9588.M (RTE Integrator)
Title        : SW-846 Method 8260C
Last Update  : Thu Nov 05 07:40:57 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	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	80	-0.04	7.94
2	M	1,4-dioxane	0.099	0.095	4.0	74	0.00	11.82
3	M	tertiary butyl alcohol	1.132	1.214	-7.2	84	-0.01	8.08
4	I	pentafluorobenzene	1.000	1.000	0.0	75	0.00	10.13
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.783	1.164	-48.7#	111	0.02	4.43
7	M	dichlorodifluoromethane	1.042	1.129	-8.3	79	0.02	4.40
8	M	chloromethane	0.883	1.172	-32.7#	103	0.01	4.75
9		1,3-butadiene		----------NA----------				
10	M	vinyl chloride	0.949	1.199	-26.3#	97	0.01	5.04
11	M	bromomethane	0.686	0.606	11.7	76	0.00	5.72
12	M	chloroethane	0.490	0.484	1.2	81	0.00	5.88
13	M	vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	1.093	1.046	4.3	72	0.00	6.37
15		pentane		----------NA----------				
16	M	ethyl ether	0.258	0.257	0.4	81	0.00	6.76
17	M	acrolein	0.099	0.108	-9.1	89	0.00	7.08
18	M	chlorotrifluoroethene		----------NA----------				
19	M	2-chloropropane	1.137	1.179	-3.7	91	0.00	6.99
20	M	1,1-dichloroethene	0.906	0.877	3.2	81	0.00	7.22
21	M	acetone	0.038	0.032	15.8	70	0.00	7.31
22	M	allyl chloride	1.400	1.543	-10.2	93	0.00	7.77
23	M	acetonitrile	0.043	0.049	-14.0	90	-0.01	7.78
24	M	acetaldehyde		----------NA----------				
25	M	iodomethane	1.027	0.928	9.6	75	0.00	7.53
26	M	iso-butyl alcohol	0.007	0.007#	0.0	79	0.00	10.41
27	M	carbon disulfide	2.054	2.099	-2.2	87	-0.01	7.64
28	M	methylene chloride	0.616	0.587	4.7	80	0.00	7.97
		----------	True	Calc.	% Drift		----------	
29	M	1-chloropropane	20.000	20.982	-4.9	87	0.00	7.99
		----------	AvgRF	CCRF	% Dev		----------	
30	M	methyl acetate	0.064	0.065	-1.6	76	0.00	7.75
31	M	methyl tert butyl ether	1.867	1.745	6.5	78	0.00	8.26
32	M	trans-1,2-dichloroethene	0.782	0.795	-1.7	85	0.00	8.32
33	M	di-isopropyl ether	1.752	1.970	-12.4	86	0.00	8.84
34	M	ethyl tert-butyl ether	1.826	1.928	-5.6	80	0.00	9.30
35	M	2-butanone	0.048	0.045	6.3	80	0.00	9.62
36	M	1,1-dichloroethane	0.924	0.964	-4.3	86	0.00	8.91
37	M	chloroprene	0.646	0.773	-19.7	87	0.00	9.00

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9618-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235557.D
Project: Sunoco - Marcus Hook Facility, PA

38	M	acrylonitrile	0.158	0.172	-8.9	84	0.00	8.33
39	M	vinyl acetate	0.081	0.085	-4.9	71	0.00	8.88
40	M	ethyl acetate	0.053	0.057	-7.5	85	0.00	9.61
41	M	2,2-dichloropropane	1.091	1.080	1.0	90	0.00	9.64
42	M	cis-1,2-dichloroethene	0.620	0.553	10.8	81	0.00	9.64
43	M	propionitrile	0.057	0.065	-14.0	84	0.00	9.75
44		methyl acrylate	0.056	0.051	8.9	73	0.00	9.70
45	M	bromochloromethane	0.252	0.245	2.8	76	0.00	9.96
46	M	tetrahydrofuran	0.052	0.056	-7.7	85	0.00	10.00
47	M	chloroform	0.883	0.869	1.6	81	0.00	10.01
48	S	dibromofluoromethane (s)	0.461	0.475	-3.0	78	0.00	10.21
49	S	1,2-dichloroethane-d4 (s)	0.551	0.565	-2.5	78	0.00	10.64
50	M	freon 113	0.384	0.436	-13.5	83	0.00	7.18
51	M	methacrylonitrile	0.252	0.249	1.2	83	0.00	9.91
52	m	t-butyl formate	0.536	0.562	-4.9	79	0.00	10.03
53	M	1,1,1-trichloroethane	0.952	0.916	3.8	80	0.00	10.25
54	M	tert-amyl methyl ether	1.726	1.763	-2.1	80	0.00	10.69
55	I	1,4-difluorobenzene	1.000	1.000	0.0	78	0.00	11.05
56	M	cyclohexane	0.678	0.691	-1.9	88	0.00	10.30
57		tert amyl alcohol		----------NA----------				
58	M	2,2,4-trimethylpentane	1.397	1.111	20.5#	61	-0.01	10.63
59	M	epichlorohydrin	0.033	0.031	6.1	72	0.00	12.37
60	M	n-butyl alcohol	0.009	0.011	-22.2#	85	0.00	11.20
61	M	carbon tetrachloride	0.599	0.543	9.3	80	0.00	10.44
62	M	1,1-dichloropropene	0.484	0.465	3.9	84	0.00	10.41
63	M	hexane	0.410	0.403	1.7	76	0.00	8.58
64	M	benzene	1.489	1.433	3.8	85	0.00	10.69
65	M	heptane	0.228	0.196	14.0	64	0.00	10.80
66	M	isopropyl acetate	0.872	0.775	11.1	74	0.00	10.59
67	M	1,2-dichloroethane	0.508	0.465	8.5	76	0.00	10.73
68		Ethyl Acrylate		----------NA----------				
69	M	trichloroethene	0.369	0.340	7.9	80	0.00	11.40
70	M	2-nitropropane	0.557	0.510	8.4	77	0.00	11.67
71	M	2-chloroethyl vinyl ether	0.185	0.185	0.0	76	0.00	12.21
72	M	methyl methacrylate	0.078	0.067	14.1	69	0.00	11.66
73	M	tert-amyl ethyl ether		----------NA----------				
74	M	1,2-dichloropropane	0.358	0.363	-1.4	85	0.00	11.68
75	M	methylcyclohexane	0.675	0.637	5.6	74	0.00	11.60
76	M	dibromomethane	0.222	0.202	9.0	73	0.00	11.86
77	M	bromodichloromethane	0.514	0.463	9.9	76	0.00	11.98
78	M	cis-1,3-dichloropropene	0.601	0.558	7.2	78	0.00	12.45
79	S	toluene-d8 (s)	1.277	1.269	0.6	78	0.00	12.74
80	M	4-methyl-2-pentanone	0.124	0.127	-2.4	83	0.00	12.55
81	M	toluene	0.900	0.831	7.7	79	0.00	12.82
82	M	3-methyl-1-butanol	0.010	0.011	-10.0	81	0.00	12.57
83	M	trans-1,3-dichloropropene	0.561	0.496	11.6	74	0.00	13.05
84	M	ethyl methacrylate	0.408	0.374	8.3	73	0.00	13.00
85	M	1,1,2-trichloroethane	0.252	0.228	9.5	76	0.00	13.28
86	M	2-hexanone	0.115	0.104	9.6	72	0.00	13.46
87	I	chlorobenzene-d5	1.000	1.000	0.0	75	0.00	14.39
88	M	tetrachloroethene	0.403	0.349	13.4	72	0.00	13.44
89	M	1,3-dichloropropane	0.524	0.515	1.7	76	-0.01	13.48
90	M	butyl acetate	0.216	0.214	0.9	76	0.00	13.50
91	m	3,3-dimethyl-1-butanol	0.039	0.044	-12.8	81	0.00	13.64
92	M	dibromochloromethane	0.380	0.334	12.1	69	0.00	13.77
93	M	1,2-dibromoethane	0.334	0.289	13.5	71	0.00	13.94
94	M	chlorobenzene	1.054	0.938	11.0	73	0.00	14.43
95	M	1,1,1,2-tetrachloroethane	0.454	0.441	2.9	77	0.00	14.49

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9618-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235557.D
Project: Sunoco - Marcus Hook Facility, PA

96	M	ethylbenzene	1.918	1.787	6.8	78	0.00	14.47
97	M	m,p-xylene	0.712	0.670	5.9	77	0.00	14.58
98	M	o-xylene	0.757	0.729	3.7	77	0.00	15.05
99	M	styrene	1.190	1.075	9.7	73	0.00	15.07
100	M	bromoform	0.270	0.234	13.3	68	0.00	15.40
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	74	0.00	16.97
102	M	isopropylbenzene	3.421	3.384	1.1	79	0.00	15.42
103	S	4-bromofluorobenzene (s)	0.941	0.948	-0.7	75	0.00	15.67
104	M	bromobenzene	0.842	0.745	11.5	71	0.00	15.89
105	M	cyclohexanone	0.038	0.002#	94.7#	3#	0.21	15.88
106	M	1,1,2,2-tetrachloroethane	0.825	0.807	2.2	76	0.00	15.80
107	M	trans-1,4-dichloro-2-bute	0.266	0.243	8.6	74	0.00	15.84
108	M	1,2,3-trichloropropane	0.219	0.209	4.6	69	0.00	15.89
109	M	n-propylbenzene	3.993	3.711	7.1	77	0.00	15.87
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.832	0.782	6.0	76	0.00	16.06
112	M	4-chlorotoluene	2.600	2.324	10.6	76	0.00	16.17
113	M	1,3,5-trimethylbenzene	3.097	3.018	2.6	78	0.00	16.04
114	M	tert-butylbenzene	2.597	2.392	7.9	75	0.00	16.43
115	M	pentachloroethane	0.603	0.591	2.0	77	0.00	16.55
116	M	1,2,4-trimethylbenzene	3.130	3.052	2.5	79	0.00	16.48
117	M	sec-butylbenzene	4.073	3.839	5.7	75	0.00	16.66
118	M	1,3-dichlorobenzene	1.795	1.623	9.6	74	0.00	16.90
119	M	p-isopropyltoluene	3.427	3.142	8.3	74	0.00	16.79
120	M	1,4-dichlorobenzene	1.801	1.660	7.8	74	0.00	17.00
121		1,2,3-trimethylbenzene		----------NA----------				
122		Benzyl Chloride	1.845	2.159	-17.0	88	0.00	17.13
123	M	p-diethylbenzene		----------NA----------				
124		INDANE		----------NA----------				
125	M	1,2-dichlorobenzene	1.789	1.734	3.1	76	0.00	17.44
126	M	n-butylbenzene	1.766	1.663	5.8	76	0.00	17.25
127	M	1,2,4,5-tetramethylbenzen		----------NA----------				
128	M	1,2-dibromo-3-chloropropa	0.196	0.178	9.2	68	0.00	18.31
129	M	1,3,5-trichlorobenzene	1.512	1.447	4.3	74	0.00	18.48
130	M	1,2,4-trichlorobenzene	1.187	1.216	-2.4	76	0.00	19.22
131	M	hexachlorobutadiene	0.644	0.525	18.5	65	0.00	19.32
132	M	naphthalene	2.370	2.529	-6.7	77	0.00	19.56
133	M	1,2,3-trichlorobenzene	1.001	0.965	3.6	72	0.00	19.83
134	M	hexachloroethane	0.638	0.599	6.1	75	0.00	17.70

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d234791.D MD9588.M Fri Nov 06 14:35:21 2015 RPT1

6.9.5

6

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9619-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235602.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\D\vd9618-9619\d235602.D    Vial: 2
Acq On    :  7 Nov 2015  10:58 am                     Operator: BenM
Sample    : cc9588-20                                 Inst    : MSD
Misc      : ms93776,vd9619,6.0,,100,5,1               Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MD9588.M (RTE Integrator)
Title        : SW-846 Method 8260C
Last Update  : Mon Oct 19 11:56:02 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	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	76	-0.03	7.95
2	M	1,4-dioxane	0.099	0.101	-2.0	75	0.00	11.81
3	M	tertiary butyl alcohol	1.132	1.241	-9.6	82	-0.03	8.06
4	I	pentafluorobenzene	1.000	1.000	0.0	71	-0.01	10.12
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.783	1.243	-58.7#	112	0.02	4.42
7	M	dichlorodifluoromethane	1.042	0.977	6.2	65	0.00	4.39
8	M	chloromethane	0.883	1.290	-46.1#	107	0.02	4.76
9		1,3-butadiene		----------NA----------				
10	M	vinyl chloride	0.949	1.284	-35.3#	98	0.02	5.05
11	M	bromomethane	0.686	0.683	0.4	80	0.00	5.72
12	M	chloroethane	0.490	0.557	-13.7	88	0.00	5.88
13	M	vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	1.093	1.032	5.6	67	0.00	6.37
15		pentane		----------NA----------				
16	M	ethyl ether	0.258	0.285	-10.5	85	0.00	6.78
17	M	acrolein	0.099	0.113	-14.1	87	0.00	7.08
18	M	chlorotrifluoroethene		----------NA----------				
19	M	2-chloropropane	1.137	1.284	-12.9	93	0.00	7.00
20	M	1,1-dichloroethene	0.906	0.987	-8.9	86	0.00	7.22
21	M	acetone	0.038	0.033	13.2	69	0.00	7.31
22	M	allyl chloride	1.400	1.677	-19.8	95	0.00	7.77
23	M	acetonitrile	0.043	0.051	-18.6	90	0.00	7.79
24	M	acetaldehyde		----------NA----------				
25	M	iodomethane	1.027	1.033	-0.6	79	0.00	7.53
26	M	iso-butyl alcohol	0.007	0.008#	-14.3	83	0.00	10.42
27	M	carbon disulfide	2.054	2.323	-13.1	91	-0.01	7.64
28	M	methylene chloride	0.616	0.652	-5.8	84	0.00	7.97
		----------	True	Calc.	% Drift	----------		
29	M	1-chloropropane	20.000	23.616	-18.1	91	0.00	7.98
		----------	AvgRF	CCRF	% Dev	----------		
30	M	methyl acetate	0.064	0.069	-7.8	76	-0.01	7.75
31	M	methyl tert butyl ether	1.867	1.916	-2.6	81	0.00	8.26
32	M	trans-1,2-dichloroethene	0.782	0.868	-11.0	88	0.00	8.32
33	M	di-isopropyl ether	1.752	2.178	-24.3#	90	0.00	8.84
34	M	ethyl tert-butyl ether	1.826	2.115	-15.8	83	0.00	9.30
35	M	2-butanone	0.048	0.047	2.1	78	0.00	9.62
36	M	1,1-dichloroethane	0.924	1.058	-14.5	89	-0.01	8.90
37	M	chloroprene	0.646	0.845	-30.8#	90	0.00	9.00

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9619-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235602.D
Project: Sunoco - Marcus Hook Facility, PA

38	M	acrylonitrile	0.158	0.179	-13.3	83	0.00	8.33
39	M	vinyl acetate	0.081	0.095	-17.3	75	0.00	8.88
40	M	ethyl acetate	0.053	0.066	-24.5#	93	0.00	9.61
41	M	2,2-dichloropropane	1.091	1.190	-9.1	94	0.00	9.64
42	M	cis-1,2-dichloroethene	0.620	0.607	2.1	84	0.00	9.64
43	M	propionitrile	0.057	0.070	-22.8#	86	0.00	9.75
44		methyl acrylate	0.056	0.056	0.0	76	0.00	9.69
45	M	bromochloromethane	0.252	0.266	-5.6	78	-0.01	9.96
46	M	tetrahydrofuran	0.052	0.056	-7.7	81	0.00	10.00
47	M	chloroform	0.883	0.950	-7.6	84	0.00	10.01
48	S	dibromofluoromethane (s)	0.461	0.478	-3.7	74	0.00	10.21
49	S	1,2-dichloroethane-d4 (s)	0.551	0.565	-2.5	74	-0.01	10.64
50	M	freon 113	0.384	0.407	-6.0	73	0.00	7.18
51	M	methacrylonitrile	0.252	0.272	-7.9	85	-0.01	9.91
52	m	t-butyl formate	0.536	0.607	-13.2	81	0.00	10.03
53	M	1,1,1-trichloroethane	0.952	1.009	-6.0	84	0.00	10.25
54	M	tert-amyl methyl ether	1.726	1.913	-10.8	82	0.00	10.69
55	I	1,4-difluorobenzene	1.000	1.000	0.0	74	0.00	11.05
56	M	cyclohexane	0.678	0.656	3.2	79	0.00	10.30
57		tert amyl alcohol		----------NA----------				
58	M	2,2,4-trimethylpentane	1.397	1.045	25.2#	55	-0.02	10.63
59	M	epichlorohydrin	0.033	0.038	-15.2	83	0.00	12.37
60	M	n-butyl alcohol	0.009	0.011	-22.2#	84	-0.01	11.20
61	M	carbon tetrachloride	0.599	0.592	1.2	82	0.00	10.44
62	M	1,1-dichloropropene	0.484	0.508	-5.0	87	-0.01	10.41
63	M	hexane	0.410	0.367	10.5	66	0.00	8.58
64	M	benzene	1.489	1.546	-3.8	86	0.00	10.69
65	M	heptane	0.228	0.185	18.9	58	0.00	10.80
66	M	isopropyl acetate	0.872	0.831	4.7	75	0.00	10.59
67	M	1,2-dichloroethane	0.508	0.513	-1.0	79	0.00	10.73
68		Ethyl Acrylate		----------NA----------				
69	M	trichloroethene	0.369	0.374	-1.4	83	0.00	11.39
70	M	2-nitropropane	0.557	0.561	-0.7	81	0.00	11.67
71	M	2-chloroethyl vinyl ether	0.185	0.202	-9.2	78	0.00	12.21
72	M	methyl methacrylate	0.078	0.074	5.1	72	0.00	11.66
73	M	tert-amyl ethyl ether		----------NA----------				
74	M	1,2-dichloropropane	0.358	0.399	-11.5	88	0.00	11.69
75	M	methylcyclohexane	0.675	0.595	11.9	65	-0.01	11.59
76	M	dibromomethane	0.222	0.223	-0.5	77	-0.01	11.86
77	M	bromodichloromethane	0.514	0.511	0.6	79	0.00	11.99
78	M	cis-1,3-dichloropropene	0.601	0.611	-1.7	80	0.00	12.45
79	S	toluene-d8 (s)	1.277	1.283	-0.5	74	0.00	12.74
80	M	4-methyl-2-pentanone	0.124	0.135	-8.9	84	0.00	12.55
81	M	toluene	0.900	0.925	-2.8	83	0.00	12.82
82	M	3-methyl-1-butanol	0.010	0.011	-10.0	81	-0.01	12.57
83	M	trans-1,3-dichloropropene	0.561	0.553	1.4	79	0.00	13.05
84	M	ethyl methacrylate	0.408	0.425	-4.2	78	0.00	13.00
85	M	1,1,2-trichloroethane	0.252	0.258	-2.4	81	0.00	13.29
86	M	2-hexanone	0.115	0.113	1.7	75	0.00	13.45
87	I	chlorobenzene-d5	1.000	1.000	0.0	73	0.00	14.39
88	M	tetrachloroethene	0.403	0.383	5.0	76	-0.01	13.43
89	M	1,3-dichloropropane	0.524	0.562	-7.3	80	-0.01	13.48
90	M	butyl acetate	0.216	0.232	-7.4	79	0.00	13.50
91	m	3,3-dimethyl-1-butanol	0.039	0.044	-12.8	77	0.00	13.64
92	M	dibromochloromethane	0.380	0.365	3.9	73	0.00	13.77
93	M	1,2-dibromoethane	0.334	0.315	5.7	75	-0.01	13.94
94	M	chlorobenzene	1.054	1.050	0.4	79	0.00	14.42
95	M	1,1,1,2-tetrachloroethane	0.454	0.473	-4.2	79	0.00	14.49

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9619-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235602.D
Project: Sunoco - Marcus Hook Facility, PA

96	M	ethylbenzene	1.918	1.975	-3.0	83	0.00	14.46
97	M	m,p-xylene	0.712	0.732	-2.8	81	0.00	14.58
98	M	o-xylene	0.757	0.802	-5.9	82	0.00	15.05
99	M	styrene	1.190	1.191	-0.1	78	0.00	15.07
100	M	bromoform	0.270	0.256	5.2	71	0.00	15.40
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	71	0.00	16.97
102	M	isopropylbenzene	3.421	3.725	-8.9	83	0.00	15.42
103	S	4-bromofluorobenzene (s)	0.941	0.953	-1.3	72	-0.01	15.67
104	M	bromobenzene	0.842	0.839	0.4	76	-0.01	15.89
105	M	cyclohexanone	0.038	0.002#	94.7#	4#	0.19	15.86
106	M	1,1,2,2-tetrachloroethane	0.825	0.887	-7.5	79	0.00	15.80
107	M	trans-1,4-dichloro-2-bute	0.266	0.263	1.1	76	0.00	15.84
108	M	1,2,3-trichloropropane	0.219	0.235	-7.3	75	0.00	15.89
109	M	n-propylbenzene	3.993	4.135	-3.6	82	-0.01	15.87
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.832	0.853	-2.5	79	-0.01	16.05
112	M	4-chlorotoluene	2.600	2.553	1.8	80	0.00	16.17
113	M	1,3,5-trimethylbenzene	3.097	3.313	-7.0	81	0.00	16.03
114	M	tert-butylbenzene	2.597	2.573	0.9	77	-0.01	16.43
115	M	pentachloroethane	0.603	0.638	-5.8	79	0.00	16.55
116	M	1,2,4-trimethylbenzene	3.130	3.355	-7.2	82	0.00	16.48
117	M	sec-butylbenzene	4.073	4.143	-1.7	77	0.00	16.67
118	M	1,3-dichlorobenzene	1.795	1.785	0.6	77	0.00	16.90
119	M	p-isopropyltoluene	3.427	3.433	-0.2	78	0.00	16.79
120	M	1,4-dichlorobenzene	1.801	1.800	0.1	77	0.00	17.00
121		1,2,3-trimethylbenzene		----------NA----------				
122		Benzyl Chloride	1.845	2.263	-22.7#	88	0.00	17.13
123	M	p-diethylbenzene		----------NA----------				
124		INDANE		----------NA----------				
125	M	1,2-dichlorobenzene	1.789	1.852	-3.5	78	0.00	17.44
126	M	n-butylbenzene	1.766	1.786	-1.1	77	0.00	17.25
127	M	1,2,4,5-tetramethylbenzen		----------NA----------				
128	M	1,2-dibromo-3-chloropropa	0.196	0.188	4.1	69	0.00	18.31
129	M	1,3,5-trichlorobenzene	1.512	1.469	2.8	71	0.00	18.48
130	M	1,2,4-trichlorobenzene	1.187	1.223	-3.0	73	0.00	19.22
131	M	hexachlorobutadiene	0.644	0.542	15.8	64	0.00	19.32
132	M	naphthalene	2.370	2.564	-8.2	75	0.00	19.55
133	M	1,2,3-trichlorobenzene	1.001	0.966	3.5	69	0.00	19.83
134	M	hexachloroethane	0.638	0.630	1.3	75	0.00	17.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d234791.D MD9588.M Mon Nov 09 07:42:36 2015 T

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9621-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235655.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\D\vd9620-9622\d235655.D    Vial: 28
Acq On    :  9 Nov 2015   8:47 pm                     Operator: BenM
Sample    : cc9588-50                                 Inst    : MSD
Misc      : ms93776,vd9621,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MD9588.M (RTE Integrator)
Title        : SW-846 Method 8260C
Last Update  : Mon Oct 19 11:56:02 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	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	76	-0.02	7.96
2	M	1,4-dioxane	0.099	0.102	-3.0	75	-0.01	11.81
3	M	tertiary butyl alcohol	1.132	1.129	0.3	76	-0.02	8.07
4	I	pentafluorobenzene	1.000	1.000	0.0	79	0.00	10.13
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.783	1.086	-38.7#	102	0.01	4.41
7	M	dichlorodifluoromethane	1.042	1.097	-5.3	81	0.01	4.39
8	M	chloromethane	0.883	1.110	-25.7#	102	0.02	4.76
9		1,3-butadiene		----------NA----------				
10	M	vinyl chloride	0.949	1.126	-18.7	91	0.03	5.06
11	M	bromomethane	0.686	0.650	5.2	75	0.02	5.73
12	M	chloroethane	0.490	0.510	-4.1	85	0.00	5.88
13	M	vinyl bromide		----------NA----------				
14	M	trichlorofluoromethane	1.093	1.007	7.9	71	0.00	6.37
15		pentane		----------NA----------				
16	M	ethyl ether	0.258	0.261	-1.2	83	0.00	6.77
17	M	acrolein	0.099	0.096	3.0	79	0.00	7.09
18	M	chlorotrifluoroethene		----------NA----------				
19	M	2-chloropropane	1.137	1.179	-3.7	84	0.00	7.00
20	M	1,1-dichloroethene	0.906	0.938	-3.5	78	0.00	7.22
21	M	acetone	0.038	0.033	13.2	72	-0.01	7.31
22	M	allyl chloride	1.400	1.507	-7.6	89	0.00	7.77
23	M	acetonitrile	0.043	0.046	-7.0	87	-0.01	7.78
24	M	acetaldehyde		----------NA----------				
25	M	iodomethane	1.027	0.951	7.4	71	0.00	7.53
26	M	iso-butyl alcohol	0.007	0.007#	0.0	82	0.00	10.42
27	M	carbon disulfide	2.054	2.135	-3.9	78	-0.01	7.65
28	M	methylene chloride	0.616	0.594	3.6	78	0.00	7.97
		----------	True	Calc.	% Drift		----------	
29	M	1-chloropropane	50.000	54.863	-9.7	86	0.00	7.99
		----------	AvgRF	CCRF	% Dev		----------	
30	M	methyl acetate	0.064	0.066	-3.1	80	0.00	7.76
31	M	methyl tert butyl ether	1.867	1.678	10.1	73	0.00	8.26
32	M	trans-1,2-dichloroethene	0.782	0.828	-5.9	85	0.00	8.33
33	M	di-isopropyl ether	1.752	2.052	-17.1	92	0.00	8.84
34	M	ethyl tert-butyl ether	1.826	1.959	-7.3	81	0.00	9.30
35	M	2-butanone	0.048	0.044	8.3	74	0.00	9.62
36	M	1,1-dichloroethane	0.924	1.000	-8.2	86	0.00	8.91
37	M	chloroprene	0.646	0.841	-30.2#	96	0.00	9.00

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9621-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235655.D
Project: Sunoco - Marcus Hook Facility, PA

38	M	acrylonitrile	0.158	0.169	-7.0	84	0.00	8.33
39	M	vinyl acetate	0.081	0.089	-9.9	80	0.00	8.88
40	M	ethyl acetate	0.053	0.057	-7.5	88	0.00	9.61
41	M	2,2-dichloropropane	1.091	1.001	8.2	75	0.00	9.65
42	M	cis-1,2-dichloroethene	0.620	0.584	5.8	83	0.00	9.64
43	M	propionitrile	0.057	0.065	-14.0	87	0.00	9.76
44		methyl acrylate	0.056	0.058	-3.6	80	0.00	9.70
45	M	bromochloromethane	0.252	0.254	-0.8	79	0.00	9.97
46	M	tetrahydrofuran	0.052	0.058	-11.5	85	0.00	9.99
47	M	chloroform	0.883	0.919	-4.1	83	0.00	10.01
48	S	dibromofluoromethane (s)	0.461	0.478	-3.7	84	0.00	10.22
49	S	1,2-dichloroethane-d4 (s)	0.551	0.580	-5.3	84	0.00	10.64
50	M	freon 113	0.384	0.425	-10.7	79	0.00	7.18
51	M	methacrylonitrile	0.252	0.257	-2.0	89	0.00	9.92
52	m	t-butyl formate	0.536	0.559	-4.3	78	0.00	10.03
53	M	1,1,1-trichloroethane	0.952	0.950	0.2	74	0.00	10.25
54	M	tert-amyl methyl ether	1.726	1.823	-5.6	81	0.00	10.69
55	I	1,4-difluorobenzene	1.000	1.000	0.0	85	0.00	11.06
56	M	cyclohexane	0.678	0.679	-0.1	77	0.00	10.30
57		tert amyl alcohol		----------NA----------				
58	M	2,2,4-trimethylpentane	1.397	1.131	19.0	61	-0.01	10.64
59	M	epichlorohydrin	0.033	0.034	-3.0	86	0.00	12.37
60	M	n-butyl alcohol	0.009	0.010	-11.1	86	0.00	11.20
61	M	carbon tetrachloride	0.599	0.553	7.7	72	0.00	10.44
62	M	1,1-dichloropropene	0.484	0.496	-2.5	85	0.00	10.42
63	M	hexane	0.410	0.379	7.6	77	0.00	8.58
64	M	benzene	1.489	1.497	-0.5	88	0.00	10.69
65	M	heptane	0.228	0.199	12.7	69	0.00	10.80
66	M	isopropyl acetate	0.872	0.805	7.7	76	0.00	10.60
67	M	1,2-dichloroethane	0.508	0.483	4.9	82	0.00	10.73
68		Ethyl Acrylate		----------NA----------				
69	M	trichloroethene	0.369	0.363	1.6	84	0.00	11.40
70	M	2-nitropropane	0.557	0.557	0.0	86	0.00	11.67
71	M	2-chloroethyl vinyl ether	0.185	0.199	-7.6	87	0.00	12.21
72	M	methyl methacrylate	0.078	0.073	6.4	76	0.00	11.66
73	M	tert-amyl ethyl ether		----------NA----------				
74	M	1,2-dichloropropane	0.358	0.386	-7.8	90	0.00	11.69
75	M	methylcyclohexane	0.675	0.636	5.8	73	0.00	11.60
76	M	dibromomethane	0.222	0.212	4.5	80	0.00	11.87
77	M	bromodichloromethane	0.514	0.500	2.7	83	0.00	11.99
78	M	cis-1,3-dichloropropene	0.601	0.597	0.7	84	0.00	12.45
79	S	toluene-d8 (s)	1.277	1.296	-1.5	85	0.00	12.74
80	M	4-methyl-2-pentanone	0.124	0.132	-6.5	88	0.00	12.55
81	M	toluene	0.900	0.904	-0.4	84	0.00	12.82
82	M	3-methyl-1-butanol	0.010	0.010	0.0	81	-0.01	12.57
83	M	trans-1,3-dichloropropene	0.561	0.529	5.7	81	0.00	13.05
84	M	ethyl methacrylate	0.408	0.424	-3.9	83	0.00	13.00
85	M	1,1,2-trichloroethane	0.252	0.245	2.8	84	0.00	13.29
86	M	2-hexanone	0.115	0.111	3.5	81	0.00	13.45
87	I	chlorobenzene-d5	1.000	1.000	0.0	84	-0.01	14.39
88	M	tetrachloroethene	0.403	0.380	5.7	77	-0.01	13.44
89	M	1,3-dichloropropane	0.524	0.533	-1.7	83	-0.01	13.48
90	M	butyl acetate	0.216	0.219	-1.4	86	0.00	13.50
91	m	3,3-dimethyl-1-butanol	0.039	0.039	0.0	79	0.00	13.64
92	M	dibromochloromethane	0.380	0.357	6.1	77	0.00	13.78
93	M	1,2-dibromoethane	0.334	0.302	9.6	79	-0.01	13.94
94	M	chlorobenzene	1.054	1.010	4.2	81	0.00	14.42
95	M	1,1,1,2-tetrachloroethane	0.454	0.447	1.5	79	0.00	14.49

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VD9621-CC9588
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** D235655.D
Project: Sunoco - Marcus Hook Facility, PA

96	M	ethylbenzene	1.918	1.903	0.8	84	0.00	14.47
97	M	m,p-xylene	0.712	0.708	0.6	81	0.00	14.58
98	M	o-xylene	0.757	0.762	-0.7	83	-0.01	15.05
99	M	styrene	1.190	1.176	1.2	81	0.00	15.07
100	M	bromoform	0.270	0.245	9.3	72	-0.01	15.39
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	77	-0.01	16.97
102	M	isopropylbenzene	3.421	3.681	-7.6	79	0.00	15.42
103	S	4-bromofluorobenzene (s)	0.941	0.989	-5.1	84	-0.01	15.67
104	M	bromobenzene	0.842	0.834	1.0	77	-0.01	15.89
105	M	cyclohexanone	0.038	0.019	50.0#	39#	-0.01	15.66
106	M	1,1,2,2-tetrachloroethane	0.825	0.847	-2.7	81	0.00	15.80
107	M	trans-1,4-dichloro-2-bute	0.266	0.244	8.3	75	0.00	15.84
108	M	1,2,3-trichloropropane	0.219	0.222	-1.4	76	0.00	15.89
109	M	n-propylbenzene	3.993	4.060	-1.7	80	-0.01	15.87
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.832	0.848	-1.9	78	-0.01	16.06
112	M	4-chlorotoluene	2.600	2.523	3.0	81	-0.01	16.17
113	M	1,3,5-trimethylbenzene	3.097	3.198	-3.3	77	0.00	16.03
114	M	tert-butylbenzene	2.597	2.547	1.9	72	-0.01	16.43
115	M	pentachloroethane	0.603	0.609	-1.0	74	-0.01	16.55
116	M	1,2,4-trimethylbenzene	3.130	3.195	-2.1	77	0.00	16.48
117	M	sec-butylbenzene	4.073	4.042	0.8	71	-0.01	16.66
118	M	1,3-dichlorobenzene	1.795	1.722	4.1	75	0.00	16.90
119	M	p-isopropyltoluene	3.427	3.274	4.5	70	0.00	16.79
120	M	1,4-dichlorobenzene	1.801	1.729	4.0	74	-0.01	16.99
121		1,2,3-trimethylbenzene		----------NA----------				
122		Benzyl Chloride	1.845	1.805	2.2	78	-0.01	17.13
123	M	p-diethylbenzene		----------NA----------				
124		INDANE		----------NA----------				
125	M	1,2-dichlorobenzene	1.789	1.756	1.8	74	-0.01	17.44
126	M	n-butylbenzene	1.766	1.673	5.3	69	0.00	17.25
127	M	1,2,4,5-tetramethylbenzen		----------NA----------				
128	M	1,2-dibromo-3-chloropropa	0.196	0.170	13.3	63	0.00	18.31
129	M	1,3,5-trichlorobenzene	1.512	1.343	11.2	61	-0.01	18.48
130	M	1,2,4-trichlorobenzene	1.187	1.128	5.0	61	0.00	19.22
131	M	hexachlorobutadiene	0.644	0.484	24.8#	51	0.00	19.32
132	M	naphthalene	2.370	2.304	2.8	63	0.00	19.55
133	M	1,2,3-trichlorobenzene	1.001	0.866	13.5	57	-0.01	19.83
134	M	hexachloroethane	0.638	0.613	3.9	70	-0.01	17.70

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d234792.D MD9588.M Tue Nov 10 07:29:09 2015 T

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VY6891-ICC6891
Lab FileID: Y157677.D

Response Factor Report MSY

Method : C:\MSDCHEM\1\METHODS\MYS6891.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Oct 08 12:33:48 2015
Response via : Initial Calibration

Calibration Files
4 =Y157674.D 8 =Y157675.D 0.5 =Y157671.D 50 =Y157677.D
100 =Y157678.D 1 =Y157672.D 200 =Y157679.D 20 =Y157676.D
2 =Y157673.D 0.2 =Y157670.D = =

Compound	4	8	0.5	50	100	1	200	20	2	0.2	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------												
2) 1,4-dioxane	0.077	0.087		0.100	0.102		0.103	0.102			0.095	11.37
3) tertiary butyl alcohol	1.230	1.292		1.300	1.280		1.233	1.296			1.272	2.50
4) I pentafluorobenzene ----------ISTD----------												
5) propene											0.000	-1.00
6) chlorodifluoromethane	0.436	0.400	0.346	0.456	0.439	0.484	0.414	0.416	0.440		0.426	9.10
7) dichlorodifluoromethane	0.480	0.429		0.481	0.463		0.432	0.490	0.400		0.454	7.43
8) chloromethane	0.779	0.641		0.658	0.635	0.964	0.596	0.690	0.856		0.727	17.60
9) vinyl chloride	0.532	0.520	0.343	0.582	0.545	0.432	0.522	0.575	0.551		0.511	14.98
10) 1,3-butadiene											0.000	-1.00
11) bromomethane	0.334	0.392		0.408	0.387	0.505	0.362	0.416	0.485		0.411	14.15
12) chloroethane	0.285	0.239		0.280	0.262		0.251	0.277	0.257		0.264	6.44
13) Vinyl Bromide											0.000	-1.00
14) trichlorofluoromethane	0.668	0.583		0.668	0.637		0.602	0.676	0.666		0.643	5.78
15) ethyl ether	0.182	0.197		0.216	0.212	0.248	0.206	0.208	0.206		0.209	9.03
16) 2-chloropropane	0.176	0.158		0.180	0.173		0.165	0.176	0.144		0.168	7.51
17) acrolein	0.112	0.082	0.077	0.084		0.083		0.079	0.085		0.086	13.87
18) 1,1-dichloroethene	0.620	0.572		0.649	0.601	0.639	0.577	0.635	0.687		0.622	6.23
19) acetone		0.032		0.033	0.030		0.029	0.031			0.031	5.26
20) allyl chloride	0.196	0.191		0.212	0.203		0.196	0.205	0.196		0.200	3.62
21) acetonitrile	0.118	0.117	0.123	0.120	0.111	0.146	0.107	0.118	0.125		0.121	9.06
22) iodomethane	0.675	0.671	0.541	0.756	0.713	0.712	0.704	0.734	0.746		0.695	9.28
23) carbon disulfide												

```
      1.325 1.270 1.247 1.375 1.290 1.381 1.258 1.358 1.516        1.336    6.32
24)  1-chloropropane*This compound does not meet initial calibration criteria*
      1.278 1.010       0.865 0.785       0.736 0.912              0.931   20.97
            ----- Linear regression -----  Coefficient =  0.9985
              Response Ratio = 0.07787 + 0.72537 *A

25)  methylene chloride
      0.772 0.715       0.741 0.691 1.082 0.662 0.727 0.971        0.795   18.81
26)  methyl acetate
      0.247 0.280       0.272 0.264       0.252 0.267              0.264    4.67
27)  methyl tert butyl ether
      1.265 1.234 1.479 1.342 1.288 1.532 1.247 1.287 1.433        1.345    8.13
28)  trans-1,2-dichloroethene
      0.596 0.623 0.588 0.643 0.611 0.647 0.591 0.638 0.649        0.621    4.01
29)  di-isopropyl ether
      1.530 1.491 1.601 1.591 1.544 1.664 1.483 1.554 1.415 1.356  1.523    5.95
30)  ethyl tert-butyl ether
      1.453 1.415 1.521 1.562 1.514 1.590 1.484 1.507 1.340 1.298  1.468    6.38
31)  2-butanone
            0.031       0.041 0.040       0.038 0.037              0.037   10.55
32)  1,1-dichloroethane
      0.746 0.734 0.842 0.802 0.771 0.809 0.748 0.793 0.837        0.787    5.04
33)  chloroprene
      0.521 0.513 0.488 0.564 0.536 0.536 0.520 0.554 0.497        0.525    4.74
34)  acrylonitrile
      0.129 0.135 0.110 0.141 0.134 0.150 0.129 0.138 0.138        0.134    8.20
35)  vinyl acetate *This compound does not meet initial calibration criteria*
            0.050       0.062 0.061       0.060 0.056              0.058    8.16
36)  ethyl acetate *This compound does not meet initial calibration criteria*
      0.040 0.047       0.052 0.049       0.046 0.048              0.047    8.69
37)  2,2-dichloropropane
      0.698 0.651 0.811 0.686 0.664 0.831 0.629 0.684 0.760        0.713   10.01
38)  cis-1,2-dichloroethene
      0.266 0.272       0.293 0.280 0.225 0.277 0.280 0.297        0.274    8.07
39)  propionitrile
      0.049 0.053       0.055 0.052 0.055 0.050 0.052 0.058        0.053    5.75
40)  bromochloromethane
      0.237 0.276       0.291 0.277 0.293 0.277 0.275 0.291        0.277    6.49
41)  tetrahydrofuran
            0.043       0.048 0.046       0.043 0.045              0.045    4.72
42)  chloroform
      0.739 0.723 0.763 0.777 0.731 0.846 0.728 0.772 0.791        0.763    5.15
43)  tert-Butyl Formate
      0.386 0.373       0.413 0.401 0.354 0.391 0.382 0.342        0.380    6.20
44)  isobutyl alcohol *This compound does not meet initial calibration criteria*
      0.015 0.016       0.016 0.016       0.014 0.015 0.013        0.015    8.81
45)  dibromofluoromethane (s)
      0.418 0.416 0.416 0.424 0.420 0.416 0.419 0.425 0.419 0.420  0.419    0.74
46)  1,2-dichloroethane-d4 (s)
      0.487 0.493 0.480 0.495 0.475 0.480 0.472 0.490 0.488 0.493  0.485    1.64
47)  freon 113
      0.220 0.230       0.258 0.243       0.235 0.248              0.239    5.61
48)  methacrylonitrile
      0.105 0.125       0.139 0.134       0.132 0.128 0.123        0.127    8.66
49)  1,1,1-trichloroethane
      0.632 0.605 0.518 0.655 0.628 0.713 0.596 0.645 0.729        0.635    9.88
50)  Cyclohexane
      0.531 0.508 0.537 0.577 0.544 0.559 0.532 0.549 0.599        0.548    4.91
51)  2,2,4-trimethylpentane
      1.393 1.326 1.323 1.532 1.481 1.463 1.462 1.461 1.336        1.420    5.43
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** VY6891-ICC6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y157677.D
Project: Sunoco - Marcus Hook Facility, PA

```
52)  tert-amyl methyl ether
      1.320 1.298 1.703 1.361 1.332 1.555 1.297 1.297 1.299 1.649  1.411   11.34

53) I   1,4-difluorobenzene   ----------------ISTD---------------------
54)  epichlorohydrin  *This compound does not meet initial calibration criteria*
      0.025 0.026       0.028 0.027       0.026 0.026 0.022        0.026    7.15
55)  n-butyl alcohol
      0.008 0.009       0.010 0.010 0.008 0.009 0.009 0.008        0.009   10.74
56)  carbon tetrachloride
      0.429 0.417 0.430 0.457 0.436 0.457 0.411 0.443 0.511        0.443    6.76
57)  1,1-dichloropropene
      0.392 0.391 0.436 0.422 0.396 0.418 0.386 0.398 0.413        0.406    4.17
58)  hexane
      0.355 0.351       0.376 0.357 0.495 0.340 0.393 0.354        0.378   13.24
59)  Tert Amyl Alcohol
                                                                   0.000   -1.00
60)  benzene
      1.279 1.239 1.648 1.270 1.226 1.641 1.202 1.245 1.457 1.954  1.416   17.89
61)  heptane
      0.217 0.201       0.230 0.221 0.260 0.215 0.222 0.198        0.220    8.64
62)  isopropyl acetate*This compound does not meet initial calibration criteria*
      0.182 0.150       0.117 0.110       0.103 0.120              0.130   23.01
            ----- Linear regression -----  Coefficient =  0.9991
              Response Ratio = 0.00967 + 0.10198 *A

63)  1,2-dichloroethane
      0.436 0.487 0.536 0.502 0.478 0.534 0.455 0.499 0.520        0.494    6.92
64)  trichloroethene
      0.276 0.288 0.301 0.308 0.293 0.319 0.291 0.301 0.323        0.300    5.01
65)  ethyl acrylate
                                                                   0.000   -1.00
66)  2-nitropropane
      0.135 0.136       0.135 0.133 0.144 0.125 0.128 0.138        0.134    4.50
67)  2-chloroethyl vinyl ether
      0.171 0.169 0.157 0.182 0.183 0.184 0.172 0.172 0.159        0.172    5.68
68)  methyl methacrylate
      0.155 0.171       0.176 0.184 0.138 0.176 0.167 0.201        0.171   11.00
69)  1,2-dichloropropane
      0.318 0.328 0.319 0.349 0.340 0.320 0.329 0.342 0.356        0.333    4.13
70)  methylcyclohexane
      0.474 0.457 0.383 0.509 0.486 0.545 0.474 0.492 0.441        0.473    9.58
71)  Tert-amyl ethyl ether
                                                                   0.000   -1.00
72)  dibromomethane
      0.180 0.188       0.199 0.193 0.187 0.189 0.199 0.198        0.192    3.56
73)  bromodichloromethane
      0.434 0.437 0.451 0.480 0.465 0.500 0.457 0.452 0.502        0.464    5.37
74)  cis-1,3-dichloropropene
      0.524 0.514 0.496 0.547 0.543 0.583 0.529 0.526 0.581        0.538    5.41
75)  toluene-d8 (s)
      1.215 1.202 1.198 1.207 1.226 1.209 1.207 1.196 1.225 1.218  1.210    0.87
76)  4-methyl-2-pentanone
      0.100 0.106       0.113 0.109       0.103 0.107 0.094        0.105    5.99
77)  toluene
      1.135 1.143 1.456 1.223 1.218 1.419 1.184 1.189 1.296 0.919  1.218   12.43
78)  3-methyl-1-butanol
      0.007 0.008       0.009 0.009       0.008 0.008 0.005        0.008   14.58
79)  trans-1,3-dichloropropene
      0.450 0.476 0.509 0.499 0.501 0.542 0.480 0.475 0.566 0.392  0.489    9.83
80)  ethyl methacrylate
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** VY6891-ICC6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y157677.D
Project: Sunoco - Marcus Hook Facility, PA

```
      0.310 0.327 0.293 0.352 0.352 0.342 0.336 0.329 0.377        0.335    7.37
 81)  1,1,2-trichloroethane
      0.204 0.199 0.175 0.221 0.217 0.252 0.208 0.213 0.215        0.212    9.60
 82)  2-hexanone
      0.076 0.089       0.098 0.096       0.088 0.088 0.058        0.085   16.14

 83) I   chlorobenzene-d5      ----------------ISTD---------------------
 84)  tetrachloroethene
      0.356 0.345 0.380 0.360 0.357 0.388 0.349 0.361 0.380        0.364    4.15
 85)  1,3-dichloropropane
      0.464 0.499 0.487 0.496 0.494 0.552 0.486 0.492 0.569        0.504    6.70
 86)  butyl acetate *This compound does not meet initial calibration criteria*
      0.187 0.193       0.212 0.199 0.207 0.191 0.208 0.186        0.198    5.06
 87)  dibromochloromethane
      0.379 0.379 0.378 0.400 0.395 0.431 0.402 0.399 0.398        0.396    4.17
 88)  1,2-dibromoethane
      0.289 0.282 0.266 0.308 0.304 0.305 0.301 0.302 0.298        0.295    4.62
 89)  3,3-Dimethyl-1-Butanol
      0.031 0.032       0.038 0.037 0.028 0.036 0.035 0.030        0.033   11.05
 90)  n-butyl ether
      1.487 1.537 1.685 1.622 1.572 1.705 1.556 1.591 1.661 1.401  1.582    5.90
 91)  chlorobenzene
      0.929 0.948 0.971 0.976 0.961 1.111 0.963 0.979 1.045        0.987    5.70
 92)  1,1,1,2-tetrachloroethane
      0.376 0.395 0.360 0.411 0.399 0.422 0.405 0.414 0.428        0.401    5.47
 93)  ethylbenzene
      1.532 1.565 1.740 1.638 1.597 1.826 1.592 1.633 1.756 1.496  1.638    6.44
 94)  m,p-xylene
      0.561 0.593 0.625 0.614 0.599 0.617 0.600 0.610 0.653 0.475  0.595    8.08
 95)  o-xylene
      1.311 1.370 1.489 1.429 1.406 1.511 1.416 1.420 1.541 1.406  1.430    4.77
 96)  styrene
      1.011 1.033 1.112 1.085 1.069 1.161 1.084 1.064 1.100 0.910  1.063    6.35
 97)  bromoform
      0.258 0.266 0.263 0.284 0.283 0.274 0.283 0.281 0.290        0.276    3.98

 98) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 99)  isopropylbenzene
      2.758 2.869 3.369 3.005 2.977 3.235 2.993 2.987 3.296 2.348  2.984    9.85
100)  4-bromofluorobenzene (s)
      0.979 0.976 1.021 0.971 0.965 0.981 0.974 0.975 0.983 1.009  0.983    1.79
101)  cis-1,4-dichloro-2-butene
                                                                   0.000   -1.00
102)  bromobenzene
      0.795 0.857 1.038 0.873 0.862 0.976 0.858 0.870 0.960        0.899    8.45
103)  cyclohexanone
      0.062 0.062 0.077 0.052 0.056 0.076 0.046 0.058 0.064        0.061   16.73
104)  1,1,2,2-tetrachloroethane
      0.749 0.795 0.742 0.810 0.788 0.912 0.777 0.781 0.849        0.800    6.57
105)  trans-1,4-dichloro-2-butene
      0.221 0.242       0.246 0.240 0.198 0.234 0.246 0.231        0.232    6.98
106)  1,2,3-trichloropropane
      0.184 0.177       0.196 0.183 0.185 0.178 0.182 0.188        0.184    3.28
107)  n-propylbenzene
      3.323 3.394 4.128 3.511 3.414 4.052 3.421 3.520 3.869 3.790  3.642    8.05
108)  4-Ethyltoluene
                                                                   0.000   -1.00
109)  2-chlorotoluene
      0.737 0.746 0.656 0.788 0.768 0.849 0.774 0.773 0.882        0.775    8.36
110)  4-chlorotoluene
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** VY6891-ICC6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y157677.D
Project: Sunoco - Marcus Hook Facility, PA

```
       2.353 2.285 2.540 2.356 2.315 2.717 2.378 2.363 2.606 2.241  2.415    6.35
111)  1,3,5-trimethylbenzene
       2.490 2.542 2.941 2.676 2.683 2.994 2.718 2.705 2.911 2.471  2.713    6.85
112)  tert-butylbenzene
       1.962 2.027 2.461 2.111 2.110 2.339 2.180 2.083 2.206 1.615  2.109   10.77
113)  pentachloroethane
       0.468 0.517 0.483 0.555 0.562 0.541 0.577 0.567 0.586        0.540    7.72
114)  1,2,4-trimethylbenzene
       2.572 2.574 2.968 2.776 2.699 3.022 2.734 2.706 2.939 2.652  2.764    5.82
115)  sec-butylbenzene
       3.107 3.144 3.588 3.363 3.376 3.642 3.374 3.296 3.470 3.345  3.370    5.02
116)  1,3-dichlorobenzene
       1.665 1.634 1.993 1.705 1.692 1.923 1.705 1.747 1.909 1.620  1.759    7.54
117)  p-isopropyltoluene
       2.739 2.748 3.283 2.922 2.887 3.242 2.909 2.891 3.203 2.445  2.927    8.86
118)  1,4-dichlorobenzene
       1.600 1.669 1.878 1.681 1.679 1.986 1.693 1.703 1.902 1.643  1.743    7.42
119)  1,2-dichlorobenzene
       1.541 1.572 1.752 1.630 1.637 1.880 1.653 1.645 1.810 1.068  1.619   13.60
120)  n-butylbenzene
       1.398 1.452 1.632 1.547 1.513 1.611 1.527 1.528 1.589 1.467  1.526    4.81
121)  p-Diethylbenzene
                                                                    0.000   -1.00
122)  1,2-dibromo-3-chloropropane
       0.156 0.152       0.166 0.168       0.164 0.159 0.186        0.164    6.66
123)  1,3,5-Trichlorobenzene
       1.348 1.412 1.522 1.526 1.509 1.653 1.503 1.500 1.650 1.329  1.495    7.29
124)  1,2,4-trichlorobenzene
       1.065 1.125 1.276 1.282 1.289 1.322 1.303 1.245 1.278 1.206  1.239    6.73
125)  1,2,4,5-tetramethylbenzene
                                                                    0.000   -1.00
126)  hexachlorobutadiene
       0.813 0.821 0.868 0.830 0.815 0.942 0.804 0.851 0.860        0.845    5.07
127)  naphthalene
       1.885 2.001 2.270 2.226 2.289 2.263 2.293 2.098 2.067 2.744  2.214   10.51
128)  1,2,3-trichlorobenzene
       0.971 1.045 1.075 1.143 1.149 1.059 1.166 1.089 1.118        1.090    5.64
129)  hexachloroethane
       0.548 0.592 0.790 0.618 0.625 0.729 0.640 0.620 0.604        0.641   11.53
130)  Benzyl chloride
       1.530 1.562 2.047 1.613 1.596 1.747 1.564 1.596 1.571        1.647    9.83
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MYS6891.M         Wed Oct 14 16:51:05 2015   RPT1
```

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VY6891-ICV6891
Lab FileID: Y157682.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\Y157682.D Vial: 14
Acq On : 7 Oct 2015 10:23 pm Operator: prashans
Sample : ICV6891-50 Inst : MSY
Misc : MS91846,VY6891,5.0,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MYS6891.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Oct 14 17:43:57 2015
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	97	0.01	7.28
2		1,4-dioxane	0.095	0.106	-11.6	103	0.00	11.13
3		tertiary butyl alcohol	1.272	1.340	-5.3	100	0.01	7.41
4	I	pentafluorobenzene	1.000	1.000	0.0	105	0.00	9.49
5		propene		----------NA----------				
6		chlorodifluoromethane	0.426	0.400	6.1	92	0.00	3.92
7		dichlorodifluoromethane	0.454	0.400	11.9	87	0.00	3.91
8		chloromethane	0.727	0.617	15.1	98	0.00	4.24
9		vinyl chloride	0.511	0.528	-3.3	95	0.01	4.51
10		1,3-butadiene		----------NA----------				
11		bromomethane	0.411	0.401	2.4	103	0.00	5.15
12		chloroethane	0.264	0.298	-12.9	111	0.00	5.31
13		Vinyl Bromide		----------NA----------				
14		trichlorofluoromethane	0.643	0.570	11.4	89	0.00	5.77
15		ethyl ether	0.209	0.215	-2.9	104	0.00	6.15
16		2-chloropropane	0.168	0.173	-3.0	100	-0.01	6.35
17		acrolein	0.086	0.085	1.2	106	0.00	6.43
18		1,1-dichloroethene	0.622	0.601	3.4	97	0.00	6.58
19		acetone	0.031	0.035	-12.9	111	0.00	6.66
20		allyl chloride	0.200	0.224	-12.0	110	0.00	7.12
21		acetonitrile	0.121	0.122	-0.8	106	0.00	7.12
22		iodomethane	0.695	0.728	-4.7	101	0.00	6.87
23		carbon disulfide	1.336	1.353	-1.3	103	0.00	6.99
		----------	True	Calc.	% Drift	----------		
24		1-chloropropane	50.000	48.480	3.0	94	0.00	7.34
		----------	AvgRF	CCRF	% Dev	----------		
25		methylene chloride	0.795	0.731	8.1	103	0.00	7.31
26		methyl acetate	0.264	0.292	-10.6	112	0.00	7.10
27		methyl tert butyl ether	1.345	1.300	3.3	102	0.00	7.62
28		trans-1,2-dichloroethene	0.621	0.614	1.1	100	0.00	7.68
29		di-isopropyl ether	1.523	1.578	-3.6	104	0.00	8.21
30		ethyl tert-butyl ether	1.468	1.545	-5.2	103	0.00	8.67
31		2-butanone	0.037	0.041	-10.8	106	-0.01	8.94
32		1,1-dichloroethane	0.787	0.793	-0.8	103	0.00	8.25
33		chloroprene	0.525	0.558	-6.3	104	0.00	8.35
34		acrylonitrile	0.134	0.144	-7.5	107	0.00	7.64
35		vinyl acetate		----------NA----------				
36		ethyl acetate		----------NA----------				
37		2,2-dichloropropane	0.713	0.661	7.3	101	0.01	8.99

Initial Calibration Verification

Job Number: JC7291 **Sample:** VY6891-ICV6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y157682.D
Project: Sunoco - Marcus Hook Facility, PA

38		cis-1,2-dichloroethene	0.274	0.287	-4.7	103	0.00	8.98
39		propionitrile	0.053	0.054	-1.9	103	0.00	9.06
40		bromochloromethane	0.277	0.281	-1.4	101	0.00	9.30
41		tetrahydrofuran	0.045	0.046	-2.2	99	-0.01	9.32
42		chloroform	0.763	0.758	0.7	102	0.00	9.35
43		tert-Butyl Formate	0.380	0.445	-17.1	113	0.00	9.38
44		isobutyl alcohol	0.015	0.006	60.0#	38#	0.00	9.78
45	S	dibromofluoromethane (s)	0.419	0.418	0.2	103	0.00	9.55
46	S	1,2-dichloroethane-d4 (s)	0.485	0.469	3.3	99	0.00	9.97
47		freon 113	0.239	0.294	-23.0	119	0.00	6.56
48		methacrylonitrile	0.127	0.135	-6.3	102	0.00	9.23
49		1,1,1-trichloroethane	0.635	0.638	-0.5	102	0.00	9.60
50		Cyclohexane	0.548	0.535	2.4	97	0.00	9.66
51		2,2,4-trimethylpentane	1.420	1.492	-5.1	102	0.00	10.01
52		tert-amyl methyl ether	1.411	1.366	3.2	105	0.00	10.06
53	I	1,4-difluorobenzene	1.000	1.000	0.0	104	0.00	10.41
54		epichlorohydrin		----------NA----------				
55		n-butyl alcohol	0.009	0.010	-11.1	100	0.00	10.54
56		carbon tetrachloride	0.443	0.433	2.3	98	0.00	9.79
57		1,1-dichloropropene	0.406	0.402	1.0	99	0.00	9.77
58		hexane	0.378	0.271	28.3	75	0.00	7.96
59		Tert Amyl Alcohol		----------NA----------				
60		benzene	1.416	1.247	11.9	102	0.00	10.03
61		heptane	0.220	0.234	-6.4	106	0.00	10.19
		----------	True	Calc.	% Drift	----------		
62		isopropyl acetate		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
63		1,2-dichloroethane	0.494	0.488	1.2	101	0.00	10.06
64		trichloroethene	0.300	0.299	0.3	101	0.00	10.75
65		ethyl acrylate		----------NA----------				
66		2-nitropropane	0.134	0.135	-0.7	104	0.00	11.54
67		2-chloroethyl vinyl ether	0.172	0.182	-5.8	104	0.00	11.54
68		methyl methacrylate	0.171	0.189	-10.5	111	0.00	11.01
69		1,2-dichloropropane	0.333	0.354	-6.3	105	0.00	11.02
70		methylcyclohexane	0.473	0.521	-10.1	106	0.00	10.96
71		Tert-amyl ethyl ether		----------NA----------				
72		dibromomethane	0.192	0.196	-2.1	102	0.00	11.18
73		bromodichloromethane	0.464	0.475	-2.4	103	0.00	11.31
74		cis-1,3-dichloropropene	0.538	0.545	-1.3	103	0.00	11.76
75	S	toluene-d8 (s)	1.210	1.223	-1.1	105	0.00	12.04
76		4-methyl-2-pentanone	0.105	0.118	-12.4	108	0.00	11.85
77		toluene	1.218	1.210	0.7	103	0.00	12.12
78		3-methyl-1-butanol	0.008	0.012	-50.0#	147	0.00	11.87
79		trans-1,3-dichloropropene	0.489	0.491	-0.4	102	0.00	12.32
80		ethyl methacrylate	0.335	0.353	-5.4	104	0.00	12.30
81		1,1,2-trichloroethane	0.212	0.220	-3.8	103	0.00	12.53
82		2-hexanone	0.085	0.099	-16.5	105	0.00	12.70
83	I	chlorobenzene-d5	1.000	1.000	0.0	105	0.00	13.54
84		tetrachloroethene	0.364	0.354	2.7	103	0.00	12.69
85		1,3-dichloropropane	0.504	0.490	2.8	104	0.00	12.71
86		butyl acetate		----------NA----------				
87		dibromochloromethane	0.396	0.392	1.0	103	0.00	12.97
88		1,2-dibromoethane	0.295	0.301	-2.0	103	0.00	13.13
89		3,3-Dimethyl-1-Butanol	0.033	0.036	-9.1	101	0.00	12.87
90		n-butyl ether	1.582	1.732	-9.5	112	0.00	13.48
91		chlorobenzene	0.987	0.982	0.5	106	0.00	13.58

Initial Calibration Verification

Job Number: JC7291 **Sample:** VY6891-ICV6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y157682.D
Project: Sunoco - Marcus Hook Facility, PA

92		1,1,1,2-tetrachloroethane	0.401	0.400	0.2	102	0.00	13.64
93		ethylbenzene	1.638	1.594	2.7	102	0.00	13.62
94		m,p-xylene	0.595	0.603	-1.3	103	0.00	13.73
95		o-xylene	1.430	1.432	-0.1	105	0.00	14.15
96		styrene	1.063	1.076	-1.2	104	0.00	14.16
97		bromoform	0.276	0.284	-2.9	105	0.00	14.43
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	15.85
99		isopropylbenzene	2.984	3.012	-0.9	102	0.00	14.48
100	S	4-bromofluorobenzene (s)	0.983	0.974	0.9	102	0.00	14.69
101		cis-1,4-dichloro-2-butene		----------NA----------				
102		bromobenzene	0.899	0.888	1.2	103	0.00	14.88
103		cyclohexanone	0.061	0.043	29.5	84	0.00	14.66
104		1,1,2,2-tetrachloroethane	0.800	0.794	0.8	99	0.00	14.80
105		trans-1,4-dichloro-2-bute	0.232	0.241	-3.9	99	0.00	14.84
106		1,2,3-trichloropropane	0.184	0.183	0.5	95	0.00	14.87
107		n-propylbenzene	3.642	3.700	-1.6	107	0.00	14.89
108		4-Ethyltoluene		----------NA----------				
109		2-chlorotoluene	0.775	0.786	-1.4	101	0.00	15.04
110		4-chlorotoluene	2.415	2.389	1.1	103	0.00	15.13
111		1,3,5-trimethylbenzene	2.713	2.699	0.5	102	0.00	15.03
112		tert-butylbenzene	2.109	2.114	-0.2	102	0.00	15.38
113		pentachloroethane	0.540	0.589	-9.1	108	0.00	15.47
114		1,2,4-trimethylbenzene	2.764	2.872	-3.9	105	0.00	15.43
115		sec-butylbenzene	3.370	3.305	1.9	100	0.00	15.59
116		1,3-dichlorobenzene	1.759	1.713	2.6	102	0.00	15.79
117		p-isopropyltoluene	2.927	2.929	-0.1	102	0.00	15.71
118		1,4-dichlorobenzene	1.743	1.689	3.1	102	0.00	15.87
119		1,2-dichlorobenzene	1.619	1.684	-4.0	105	0.00	16.26
120		n-butylbenzene	1.526	1.518	0.5	99	0.00	16.12
121		p-Diethylbenzene		----------NA----------				
122		1,2-dibromo-3-chloropropa	0.164	0.164	0.0	100	0.00	17.04
123		1,3,5-Trichlorobenzene	1.495	1.490	0.3	99	0.00	17.22
124		1,2,4-trichlorobenzene	1.239	1.271	-2.6	100	0.00	17.85
125		1,2,4,5-tetramethylbenzen		----------NA----------				
126		hexachlorobutadiene	0.845	0.815	3.6	100	0.00	17.95
127		naphthalene	2.214	2.177	1.7	99	0.00	18.13
128		1,2,3-trichlorobenzene	1.090	1.117	-2.5	99	0.00	18.37
129		hexachloroethane	0.641	0.618	3.6	101	0.00	16.51
130		Benzyl chloride	1.647	1.519	7.8	95	0.00	15.99

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Y157677.D MYS6891.M Wed Oct 14 17:47:20 2015 RPT1

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VY6927-CC6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y158614.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\Y158614.D Vial: 2
Acq On : 5 Nov 2015 11:40 am Operator: prashans
Sample : cc6891-20 Inst : MSY
Misc : MS93775,VY6927,5.0,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MYS6891.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Oct 14 17:43:57 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	115	0.00	7.27
2		1,4-dioxane	0.095	0.111	-16.8	124	-0.01	11.12
3		tertiary butyl alcohol	1.272	1.294	-1.7	114	-0.02	7.38
4	I	pentafluorobenzene	1.000	1.000	0.0	117	0.00	9.48
5		propene		----------NA----------				
6		chlorodifluoromethane	0.426	0.469	-10.1	132	0.00	3.92
7		dichlorodifluoromethane	0.454	0.461	-1.5	110	0.01	3.91
8		chloromethane	0.727	0.600	17.5	102	-0.02	4.22
9		vinyl chloride	0.511	0.513	-0.4	104	0.00	4.50
10		1,3-butadiene		----------NA----------				
11		bromomethane	0.411	0.388	5.6	109	0.00	5.14
12		chloroethane	0.264	0.258	2.3	109	-0.01	5.30
13		Vinyl Bromide		----------NA----------				
14		trichlorofluoromethane	0.643	0.534	17.0	93	-0.02	5.76
15		ethyl ether	0.209	0.236	-12.9	133	0.00	6.14
16		2-chloropropane	0.168	0.196	-16.7	131	-0.01	6.35
17		acrolein	0.086	0.084	2.3	124	0.00	6.42
18		1,1-dichloroethene	0.622	0.652	-4.8	120	-0.01	6.57
19		acetone	0.031	0.037	-19.4	141	-0.03	6.63
20		allyl chloride	0.200	0.237	-18.5	135	0.00	7.11
21		acetonitrile	0.121	0.121	0.0	120	-0.02	7.10
22		iodomethane	0.695	0.827	-19.0	132	0.00	6.86
23		carbon disulfide	1.336	1.568	-17.4	135	-0.01	6.99
		----------	True	Calc.	% Drift	----------		
24		1-chloropropane	20.000	18.804	6.0	113	-0.01	7.33
		----------	AvgRF	CCRF	% Dev	----------		
25		methylene chloride	0.795	0.769	3.3	124	-0.01	7.30
26		methyl acetate	0.264	0.275	-4.2	121	-0.02	7.08
27		methyl tert butyl ether	1.345	1.313	2.4	120	-0.01	7.61
28		trans-1,2-dichloroethene	0.621	0.678	-9.2	124	0.00	7.66
29		di-isopropyl ether	1.523	1.626	-6.8	123	0.00	8.20
30		ethyl tert-butyl ether	1.468	1.487	-1.3	116	-0.01	8.66
31		2-butanone	0.037	0.038	-2.7	119	-0.02	8.93
32		1,1-dichloroethane	0.787	0.833	-5.8	123	-0.01	8.24
33		chloroprene	0.525	0.581	-10.7	123	0.00	8.34
34		acrylonitrile	0.134	0.143	-6.7	121	-0.01	7.63
35		vinyl acetate	0.058	0.062	-6.9	129	0.00	8.22
36		ethyl acetate	0.047	0.048	-2.1	119	-0.01	8.95
37		2,2-dichloropropane	0.713	0.637	10.7	109	0.00	8.98

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VY6927-CC6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y158614.D
Project: Sunoco - Marcus Hook Facility, PA

38		cis-1,2-dichloroethene	0.274	0.319	-16.4	134	-0.01	8.97
39		propionitrile	0.053	0.054	-1.9	121	-0.01	9.05
40		bromochloromethane	0.277	0.309	-11.6	131	-0.01	9.29
41		tetrahydrofuran	0.045	0.046	-2.2	120	-0.01	9.32
42		chloroform	0.763	0.760	0.4	115	-0.01	9.34
43		tert-Butyl Formate	0.380	0.360	5.3	110	0.00	9.37
44		isobutyl alcohol	0.015	0.015	0.0	114	0.00	9.78
45	S	dibromofluoromethane (s)	0.419	0.430	-2.6	119	0.00	9.54
46	S	1,2-dichloroethane-d4 (s)	0.485	0.402	17.1	96	-0.01	9.96
47		freon 113	0.239	0.296	-23.8#	140	0.00	6.56
48		methacrylonitrile	0.127	0.138	-8.7	126	-0.01	9.22
49		1,1,1-trichloroethane	0.635	0.621	2.2	113	0.00	9.59
50		Cyclohexane	0.548	0.646	-17.9	138	-0.01	9.66
51		2,2,4-trimethylpentane	1.420	1.517	-6.8	122	-0.01	10.00
52		tert-amyl methyl ether	1.411	1.364	3.3	123	-0.01	10.04
53	I	1,4-difluorobenzene	1.000	1.000	0.0	122	-0.01	10.40
54		epichlorohydrin	0.026	0.025	3.8	117	-0.01	11.66
55		n-butyl alcohol	0.009	0.009	0.0	123	-0.01	10.53
56		carbon tetrachloride	0.443	0.407	8.1	112	-0.01	9.79
57		1,1-dichloropropene	0.406	0.415	-2.2	127	-0.01	9.76
58		hexane	0.378	0.374	1.1	116	0.00	7.95
59		Tert Amyl Alcohol		----------NA----------				
60		benzene	1.416	1.366	3.5	133	-0.01	10.02
61		heptane	0.220	0.212	3.6	116	0.00	10.18
		----------	True	Calc.	% Drift	----------		
62		isopropyl acetate	20.000	20.171	-0.9	129	0.00	9.95
		----------	AvgRF	CCRF	% Dev	----------		
63		1,2-dichloroethane	0.494	0.415	16.0	101	-0.01	10.05
64		trichloroethene	0.300	0.318	-6.0	129	-0.01	10.74
65		ethyl acrylate		----------NA----------				
66		2-nitropropane	0.134	0.097	27.6#	92	-0.01	11.52
67		2-chloroethyl vinyl ether	0.172	0.154	10.5	109	-0.01	11.53
68		methyl methacrylate	0.171	0.180	-5.3	131	-0.01	11.00
69		1,2-dichloropropane	0.333	0.365	-9.6	130	-0.01	11.01
70		methylcyclohexane	0.473	0.543	-14.8	134	0.00	10.95
71		Tert-amyl ethyl ether		----------NA----------				
72		dibromomethane	0.192	0.195	-1.6	119	-0.01	11.17
73		bromodichloromethane	0.464	0.442	4.7	119	0.00	11.30
74		cis-1,3-dichloropropene	0.538	0.540	-0.4	125	-0.01	11.75
75	S	toluene-d8 (s)	1.210	1.188	1.8	121	-0.01	12.03
76		4-methyl-2-pentanone	0.105	0.106	-1.0	120	0.00	11.85
77		toluene	1.218	1.291	-6.0	132	0.00	12.11
78		3-methyl-1-butanol	0.008	0.008	0.0	124	-0.01	11.86
79		trans-1,3-dichloropropene	0.489	0.471	3.7	121	-0.01	12.31
80		ethyl methacrylate	0.335	0.345	-3.0	128	0.00	12.29
81		1,1,2-trichloroethane	0.212	0.222	-4.7	127	-0.01	12.52
82		2-hexanone	0.085	0.090	-5.9	124	-0.01	12.69
83	I	chlorobenzene-d5	1.000	1.000	0.0	122	0.00	13.54
84		tetrachloroethene	0.364	0.366	-0.5	124	-0.01	12.69
85		1,3-dichloropropane	0.504	0.512	-1.6	127	0.00	12.71
86		butyl acetate	0.198	0.211	-6.6	124	0.00	12.76
87		dibromochloromethane	0.396	0.390	1.5	120	-0.01	12.97
88		1,2-dibromoethane	0.295	0.310	-5.1	125	0.00	13.12
89		3,3-Dimethyl-1-Butanol	0.033	0.033	0.0	116	0.00	12.86
90		n-butyl ether	1.582	1.624	-2.7	125	0.00	13.47
91		chlorobenzene	0.987	1.033	-4.7	129	0.00	13.57

Continuing Calibration Summary

Job Number: JC7291 **Sample:** VY6927-CC6891
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** Y158614.D
Project: Sunoco - Marcus Hook Facility, PA

92		1,1,1,2-tetrachloroethane	0.401	0.394	1.7	117	-0.01	13.63
93		ethylbenzene	1.638	1.669	-1.9	125	0.00	13.62
94		m,p-xylene	0.595	0.635	-6.7	127	0.00	13.72
95		o-xylene	1.430	1.424	0.4	123	0.00	14.14
96		styrene	1.063	1.091	-2.6	125	0.00	14.15
97		bromoform	0.276	0.262	5.1	114	0.00	14.42
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	110	-0.01	15.83
99		isopropylbenzene	2.984	3.253	-9.0	120	0.00	14.47
100	S	4-bromofluorobenzene (s)	0.983	1.021	-3.9	115	0.00	14.68
101		cis-1,4-dichloro-2-butene		----------NA----------				
102		bromobenzene	0.899	0.951	-5.8	120	0.00	14.88
103		cyclohexanone	0.061	0.035	42.6#	67	0.00	14.66
104		1,1,2,2-tetrachloroethane	0.800	0.860	-7.5	121	0.00	14.79
105		trans-1,4-dichloro-2-bute	0.232	0.205	11.6	92	0.00	14.83
106		1,2,3-trichloropropane	0.184	0.194	-5.4	117	-0.01	14.86
107		n-propylbenzene	3.642	3.759	-3.2	117	-0.01	14.88
108		4-Ethyltoluene		----------NA----------				
109		2-chlorotoluene	0.775	0.869	-12.1	123	0.00	15.03
110		4-chlorotoluene	2.415	2.543	-5.3	118	0.00	15.13
111		1,3,5-trimethylbenzene	2.713	2.884	-6.3	117	0.00	15.03
112		tert-butylbenzene	2.109	2.228	-5.6	117	0.00	15.37
113		pentachloroethane	0.540	0.591	-9.4	115	0.00	15.46
114		1,2,4-trimethylbenzene	2.764	2.899	-4.9	118	0.00	15.42
115		sec-butylbenzene	3.370	3.535	-4.9	118	0.00	15.59
116		1,3-dichlorobenzene	1.759	1.818	-3.4	114	0.00	15.78
117		p-isopropyltoluene	2.927	3.005	-2.7	114	0.00	15.70
118		1,4-dichlorobenzene	1.743	1.753	-0.6	113	-0.01	15.86
119		1,2-dichlorobenzene	1.619	1.708	-5.5	114	-0.01	16.25
120		n-butylbenzene	1.526	1.510	1.0	109	0.00	16.12
121		p-Diethylbenzene		----------NA----------				
122		1,2-dibromo-3-chloropropa	0.164	0.154	6.1	106	0.00	17.03
123		1,3,5-Trichlorobenzene	1.495	1.510	-1.0	111	0.00	17.20
124		1,2,4-trichlorobenzene	1.239	1.162	6.2	103	-0.01	17.84
125		1,2,4,5-tetramethylbenzen		----------NA----------				
126		hexachlorobutadiene	0.845	0.800	5.3	103	0.00	17.95
127		naphthalene	2.214	1.904	14.0	100	-0.01	18.11
128		1,2,3-trichlorobenzene	1.090	1.016	6.8	102	-0.01	18.36
129		hexachloroethane	0.641	0.632	1.4	112	0.00	16.51
130		Benzyl chloride	1.647	1.546	6.1	106	0.00	15.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
Y157676.D MYS6891.M Mon Nov 09 16:38:39 2015 RPT1

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Manual Integrations
APPROVED
(compounds with "m" flag)
Mei Chen
11/09/15 08:44

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235576.D
Acq On : 6 Nov 2015 5:58 pm
Operator : BenM
Sample : jc7291-1
Misc : ms93732,vd9618,5.8,,100,10,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Nov 09 07:28:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.964	65	109325	500.00 ug/L	-0.02
4) pentafluorobenzene	10.129	168	213547	50.00 ug/L	0.00
55) 1,4-difluorobenzene	11.055	114	296551	50.00 ug/L	0.00
87) chlorobenzene-d5	14.392	117	287721	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	198245	50.00 ug/L	0.00
System Monitoring Compounds					
48) dibromofluoromethane (s)	10.213	113	97218	49.41 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 98.82%		
49) 1,2-dichloroethane-d4 (s)	10.636	65	114982	48.86 ug/L	-0.01
Spiked Amount 50.000	Range 68 - 124		Recovery = 97.72%		
79) toluene-d8 (s)	12.739	98	376865	49.77 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 99.54%		
103) 4-bromofluorobenzene (s)	15.673	95	168266	45.10 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 90.20%		
Target Compounds					Qvalue
56) cyclohexane	10.302	84	5854	1.46 ug/L #	1
96) ethylbenzene	14.460	91	5299	0.48 ug/L #	1
97) m,p-xylene	14.580	106	1109	0.27 ug/L #	50
102) isopropylbenzene	15.417	105	227532	16.77 ug/L	97
109) n-propylbenzene	15.877	91	505661	31.94 ug/L	100
114) tert-butylbenzene	16.431	119	18415	1.79 ug/L	97
116) 1,2,4-trimethylbenzene	16.484	105	4905	0.40 ug/L	97
117) sec-butylbenzene	16.667	105	317965	19.69 ug/L	97
126) n-butylbenzene	17.253	92	144957	20.70 ug/L	98
132) naphthalene	19.564	128	16987m	1.81 ug/L	

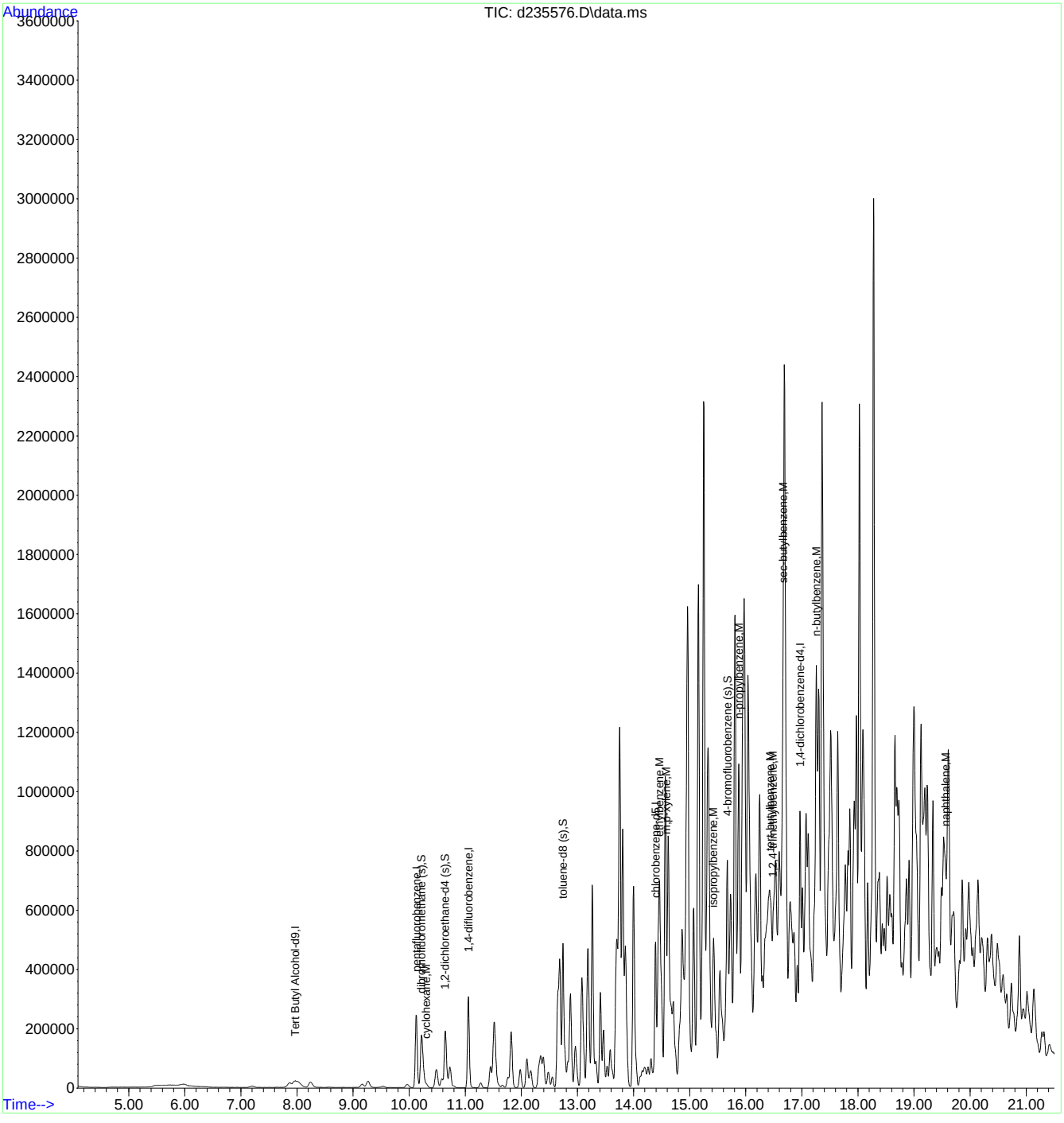
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235576.D
Acq On : 6 Nov 2015 5:58 pm
Operator : BenM
Sample : jc7291-1
Misc : ms93732,vd9618,5.8,,100,10,1
ALS Vial : 21 Sample Multiplier: 1

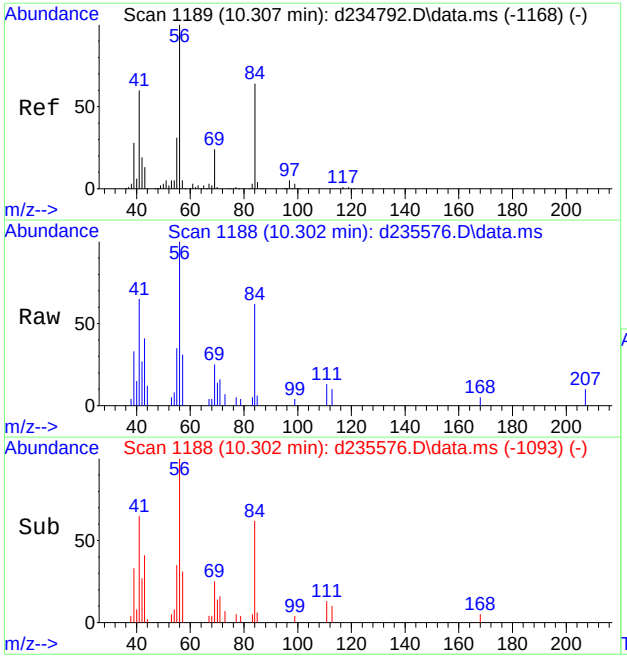
Quant Time: Nov 09 07:28:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration



MD9588.M Mon Nov 09 07:59:10 2015 T

Page: 2

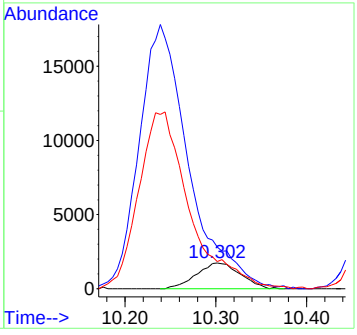
ACCUTEST LABORATORIES JC7291

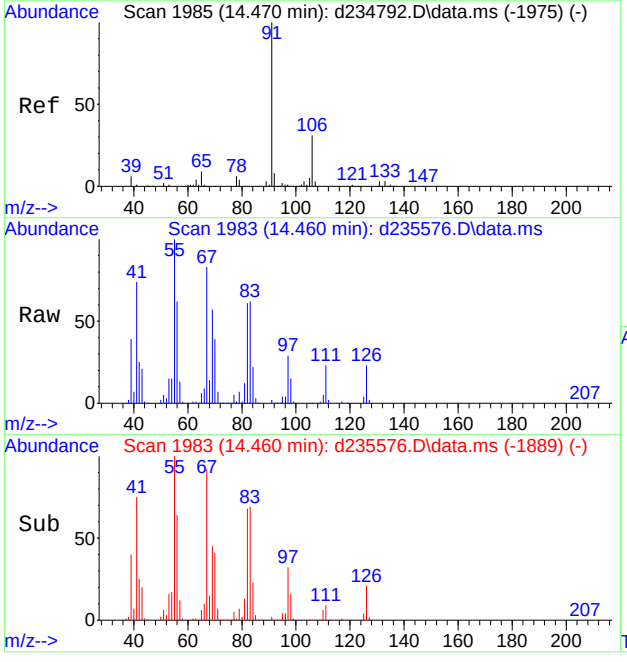


#56
cyclohexane
Concen: 1.46 ug/L
RT: 10.302 min Scan# 1188
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion: 84 Resp: 5854

Ion	Ratio	Lower	Upper
84	100		
56	0.0	145.0	269.4#
41	0.0	86.1	159.9#

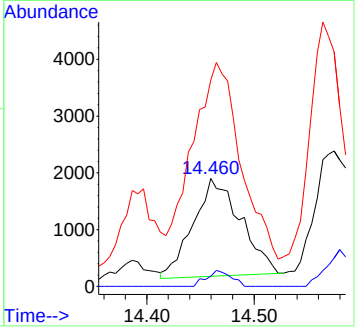


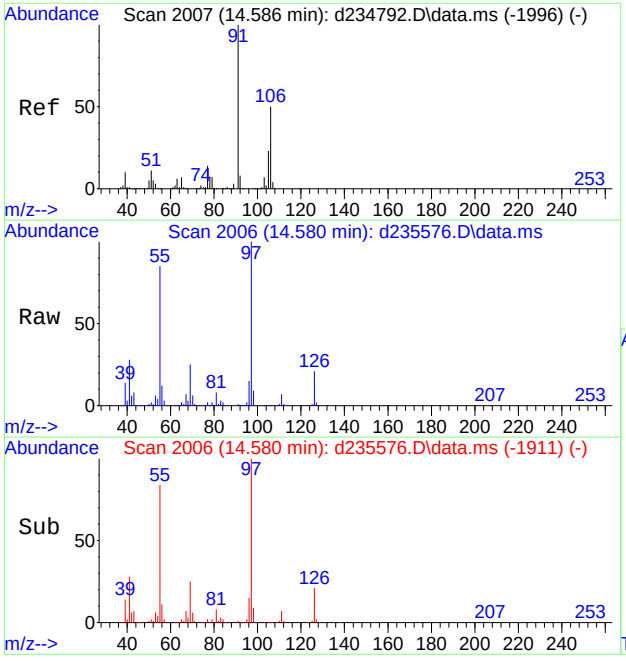


#96
ethylbenzene
Concen: 0.48 ug/L
RT: 14.460 min Scan# 1983
Delta R.T. -0.011 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion: 91 Resp: 5299

Ion	Ratio	Lower	Upper
91	100		
106	10.7	0.9	60.9
77	186.4	0.0	39.6#

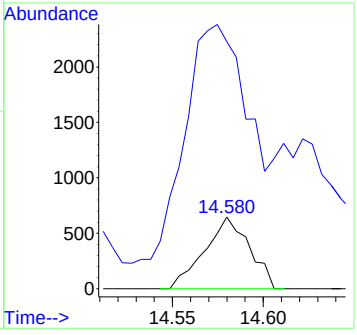


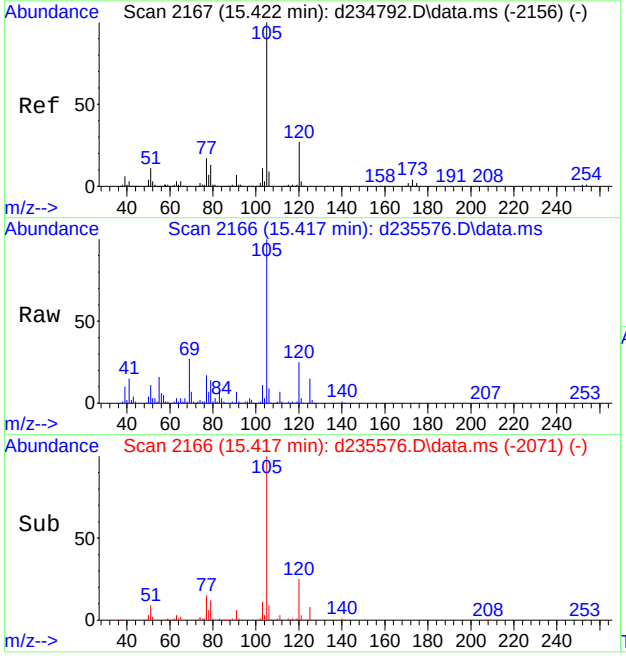


#97
m,p-xylene
Concen: 0.27 ug/L
RT: 14.580 min Scan# 2006
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion:106 Resp: 1109

Ion	Ratio	Lower	Upper
106	100		
91	278.0	141.4	262.6#

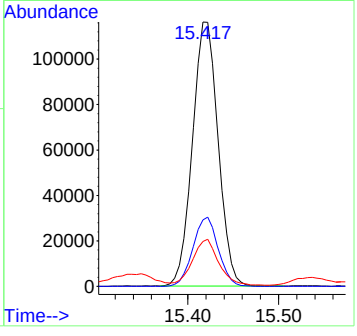




#102
isopropylbenzene
Concen: 16.77 ug/L
RT: 15.417 min Scan# 2166
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

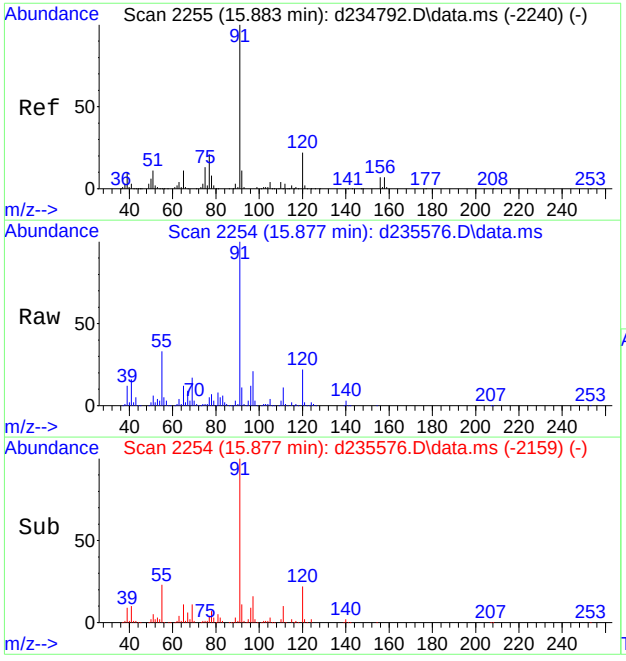
Tgt Ion:105 Resp: 227532

Ion	Ratio	Lower	Upper
105	100		
120	25.2	0.0	57.1
77	15.9	0.0	46.5



7.1.1

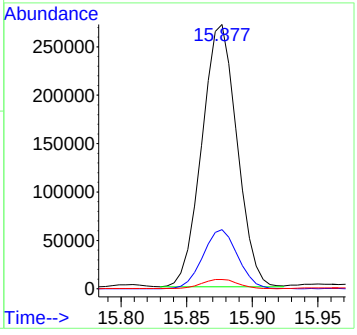
7

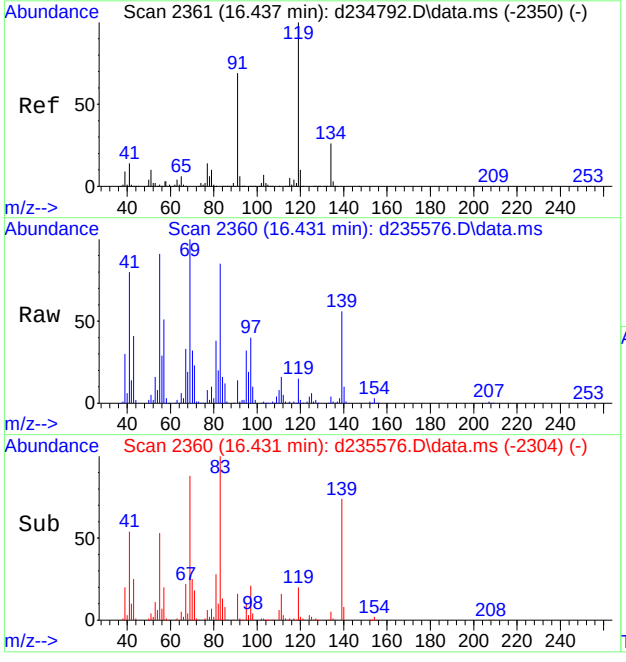


#109
n-propylbenzene
Concen: 31.94 ug/L
RT: 15.877 min Scan# 2254
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion: 91 Resp: 505661

Ion	Ratio	Lower	Upper
91	100		
120	22.6	0.0	52.4
105	3.5	0.0	33.8

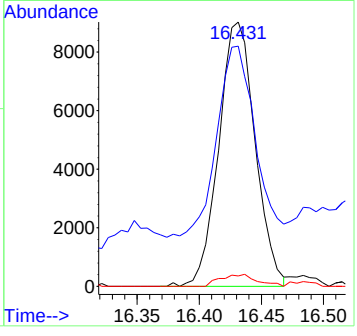


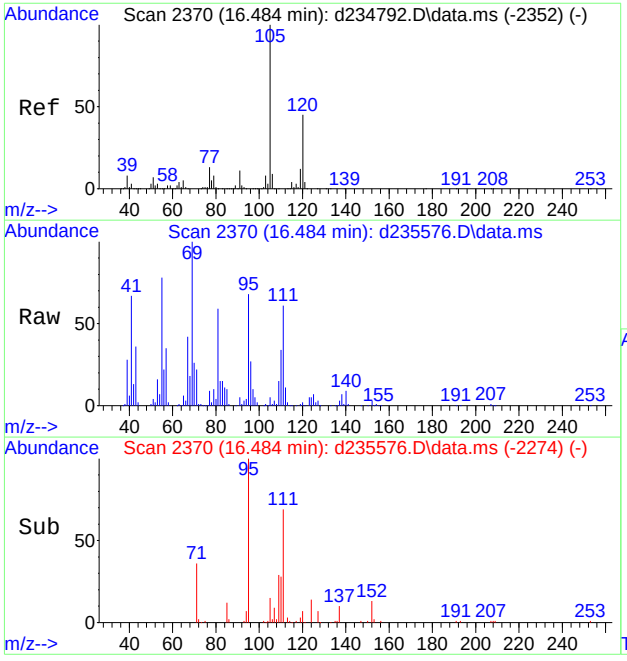


#114
tert-butylbenzene
Concen: 1.79 ug/L
RT: 16.431 min Scan# 2360
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion:119 Resp: 18415

Ion	Ratio	Lower	Upper
119	100		
91	71.4	38.5	98.5
117	4.0	0.0	33.7

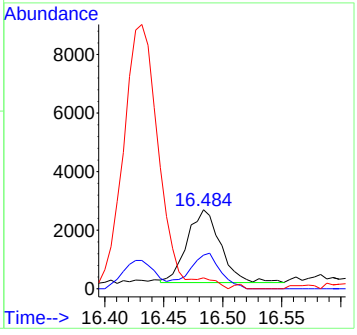


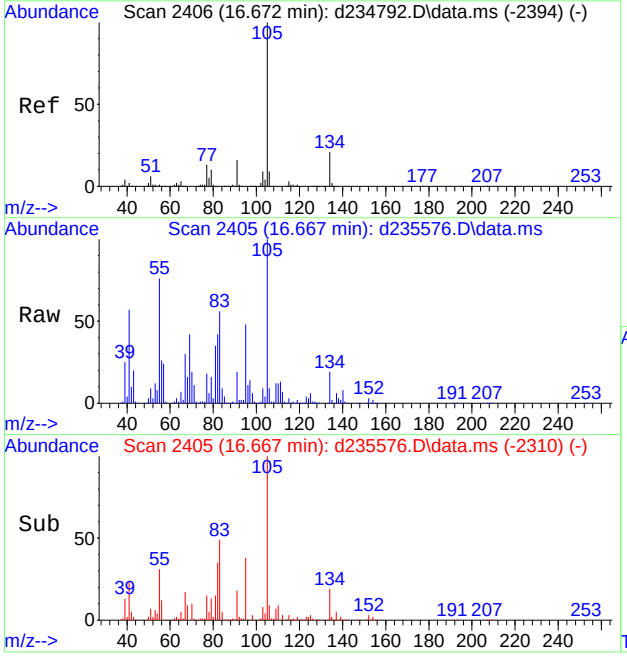


#116
1,2,4-trimethylbenzene
Concen: 0.40 ug/L
RT: 16.484 min Scan# 2370
Delta R.T. -0.000 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion:105 Resp: 4905

Ion	Ratio	Lower	Upper
105	100		
120	46.0	14.8	74.8
119	15.1	0.0	41.7

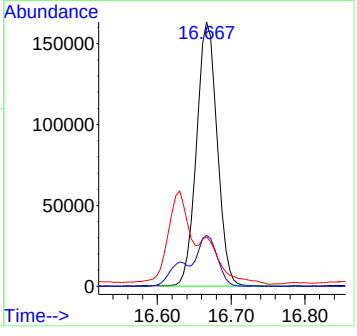




#117
sec-butylbenzene
Concen: 19.69 ug/L
RT: 16.667 min Scan# 2405
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

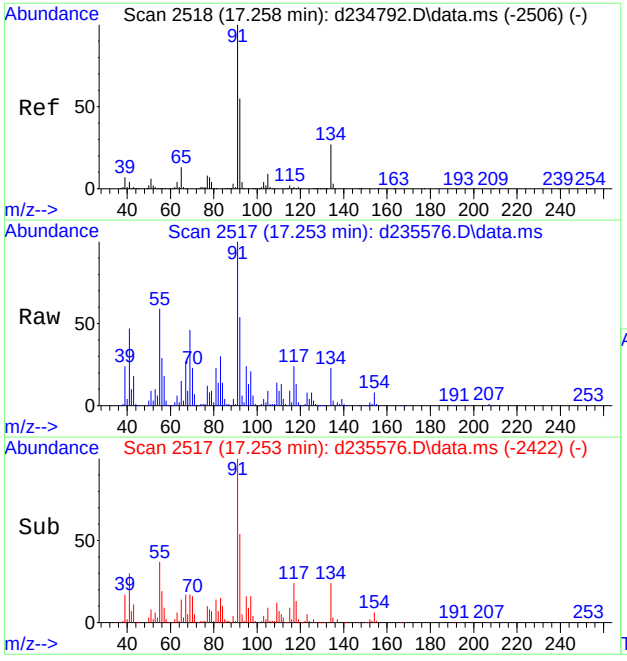
Tgt Ion:105 Resp: 317965

Ion	Ratio	Lower	Upper
105	100		
134	19.4	0.0	50.8
91	17.7	0.0	46.4



7.1.1

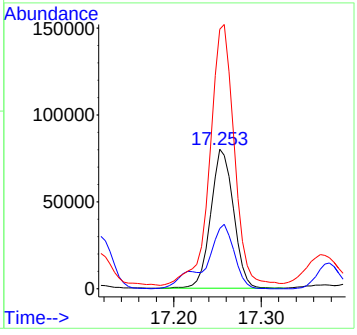
7

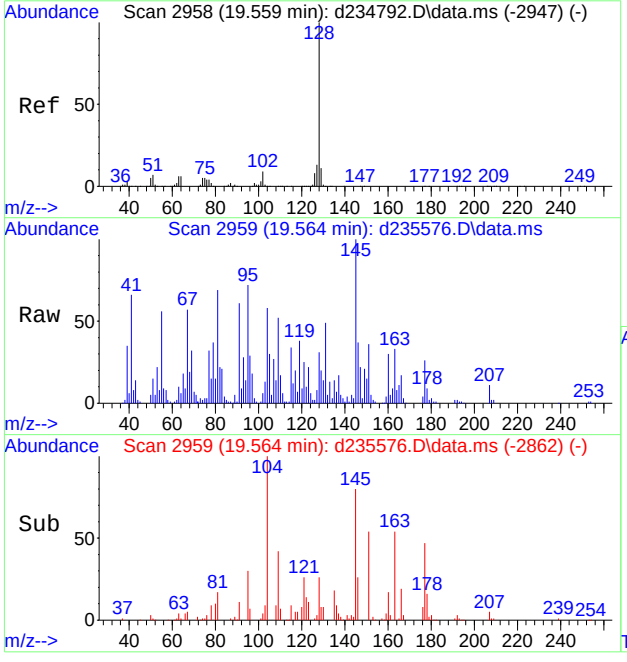


#126
n-butylbenzene
Concen: 20.70 ug/L
RT: 17.253 min Scan# 2517
Delta R.T. -0.006 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion: 92 Resp: 144957

Ion	Ratio	Lower	Upper
92	100		
134	43.4	19.0	79.0
91	184.1	153.1	213.1

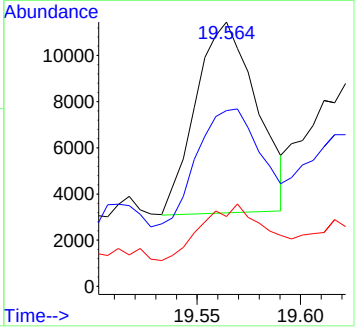




#132
naphthalene
Concen: 1.81 ug/L m
RT: 19.564 min Scan# 2959
Delta R.T. 0.005 min
Lab File: d235576.D
Acq: 6 Nov 2015 5:58 pm

Tgt Ion:128 Resp: 16987

Ion	Ratio	Lower	Upper
128	100		
129	66.4	0.0	41.3#
127	26.4	0.0	43.4



7.1.1

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 11/09/15 12:31

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235609.D
Acq On : 7 Nov 2015 3:15 pm
Operator : BenM
Sample : jc7291-2
Misc : ms93732,vd9619,5.7,,100,10,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 09 12:17:06 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.953	65	103473	500.00 ug/L	-0.03
4) pentafluorobenzene	10.123	168	200339	50.00 ug/L	-0.01
55) 1,4-difluorobenzene	11.054	114	280553	50.00 ug/L	0.00
87) chlorobenzene-d5	14.391	117	266084	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.969	152	165309	50.00 ug/L	0.00
System Monitoring Compounds					
48) dibromofluoromethane (s)	10.217	113	91624	49.63 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.26%		
49) 1,2-dichloroethane-d4 (s)	10.641	65	111344	50.43 ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 100.86%		
79) toluene-d8 (s)	12.738	98	358548	50.05 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 100.10%		
103) 4-bromofluorobenzene (s)	15.667	95	153059	49.20 ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 98.40%		
Target Compounds					Qvalue
56) cyclohexane	10.306	84	213927	56.25 ug/L	78
63) hexane	8.570	57	153823	66.93 ug/L	100
65) heptane	10.798	57	219863	172.04 ug/L #	37
75) methylcyclohexane	11.598	83	956990	252.76 ug/L	96
96) ethylbenzene	14.464	91	17818	1.75 ug/L	95
97) m,p-xylene	14.584	106	3871	1.02 ug/L	96
98) o-xylene	15.050	106	1242	0.31 ug/L	96
102) isopropylbenzene	15.416	105	25330	2.24 ug/L	94
109) n-propylbenzene	15.876	91	43251	3.28 ug/L	99
113) 1,3,5-trimethylbenzene	16.038	105	39339	3.84 ug/L	99
114) tert-butylbenzene	16.425	119	4820	0.56 ug/L	95
116) 1,2,4-trimethylbenzene	16.483	105	84486	8.17 ug/L	99
117) sec-butylbenzene	16.666	105	20722	1.54 ug/L	84
119) p-isopropyltoluene	16.791	119	23744	2.10 ug/L	97
126) n-butylbenzene	17.252	92	13766	2.36 ug/L	94
132) naphthalene	19.553	128	45173m	5.76 ug/L	

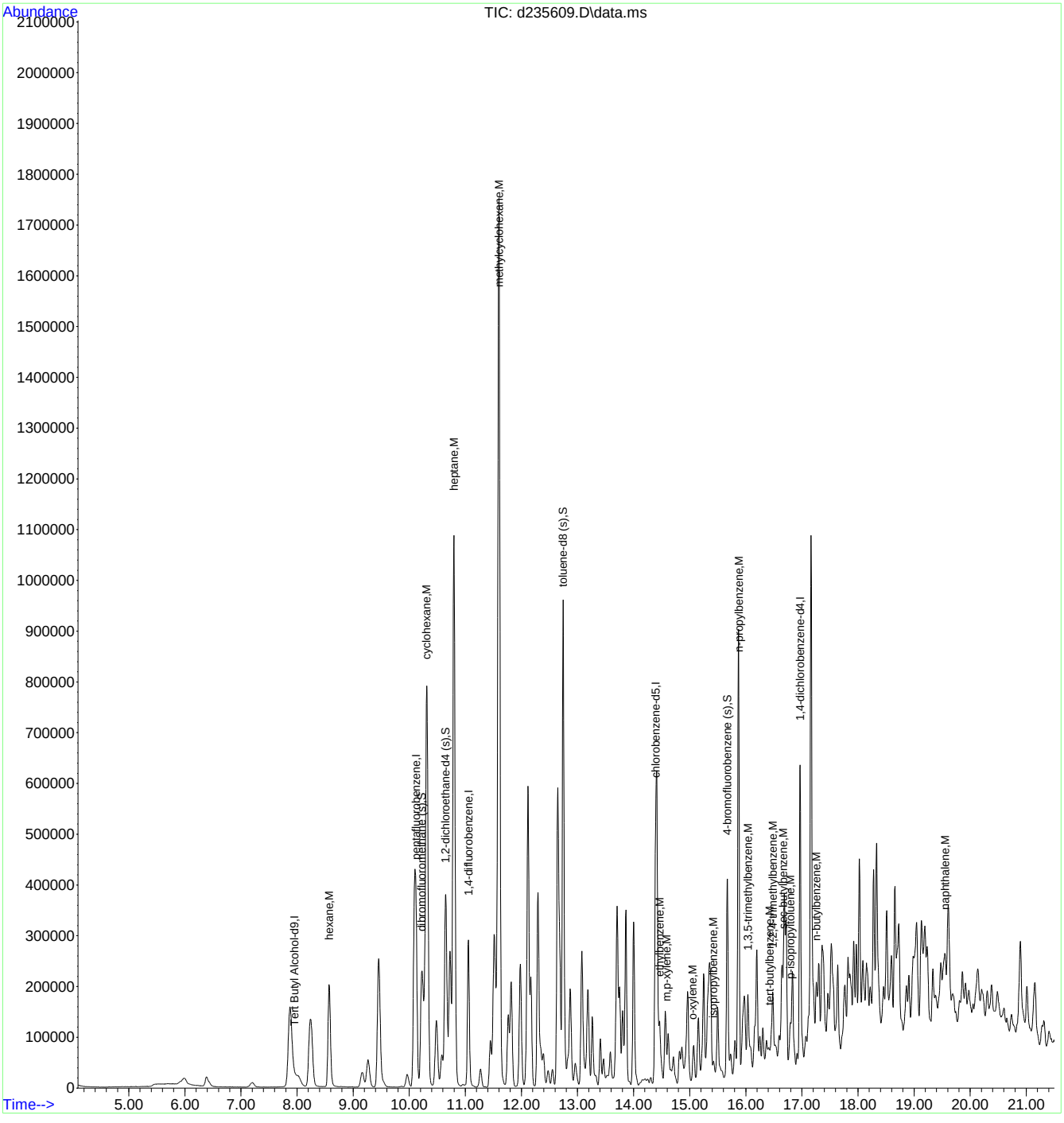
(#) = qualifier out of range (m) = manual integration (+) = signals summed

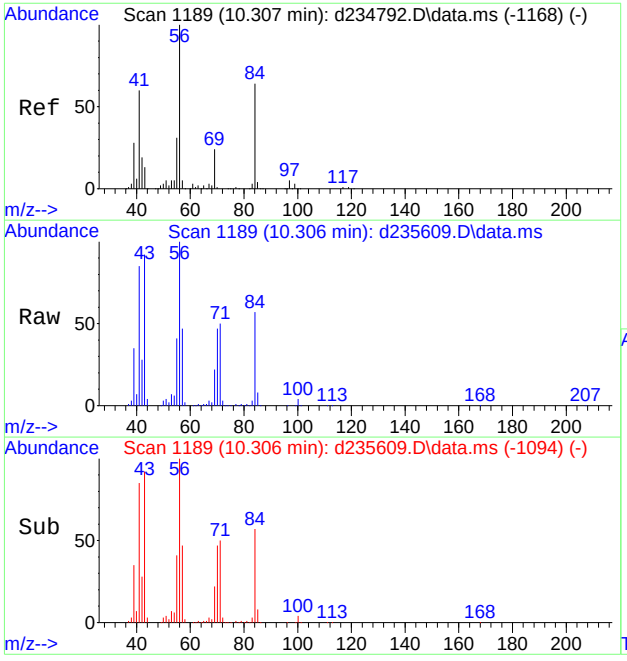
7.1.2
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235609.D
Acq On : 7 Nov 2015 3:15 pm
Operator : BenM
Sample : jc7291-2
Misc : ms93732,vd9619,5.7,,100,10,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 09 12:17:06 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

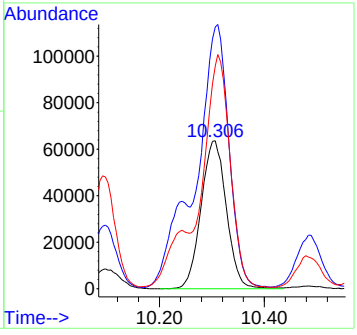


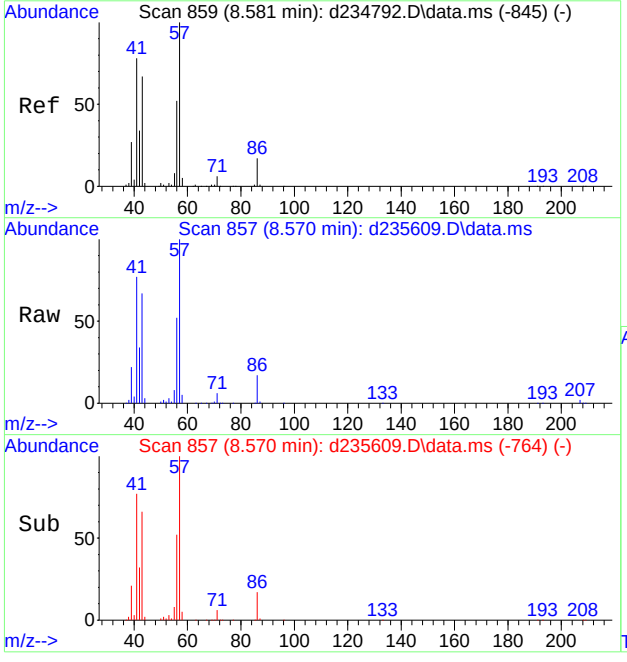


#56
cyclohexane
Concen: 56.25 ug/L
RT: 10.306 min Scan# 1189
Delta R.T. -0.001 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion: 84 Resp: 213927

Ion	Ratio	Lower	Upper
84	100		
56	178.2	145.0	269.4
41	153.4	86.1	159.9

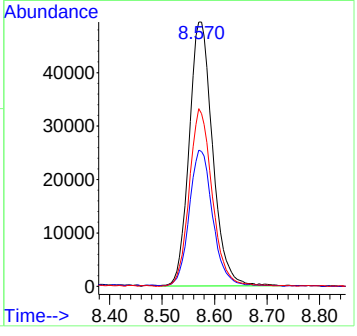




#63
hexane
Concen: 66.93 ug/L
RT: 8.570 min Scan# 857
Delta R.T. -0.012 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

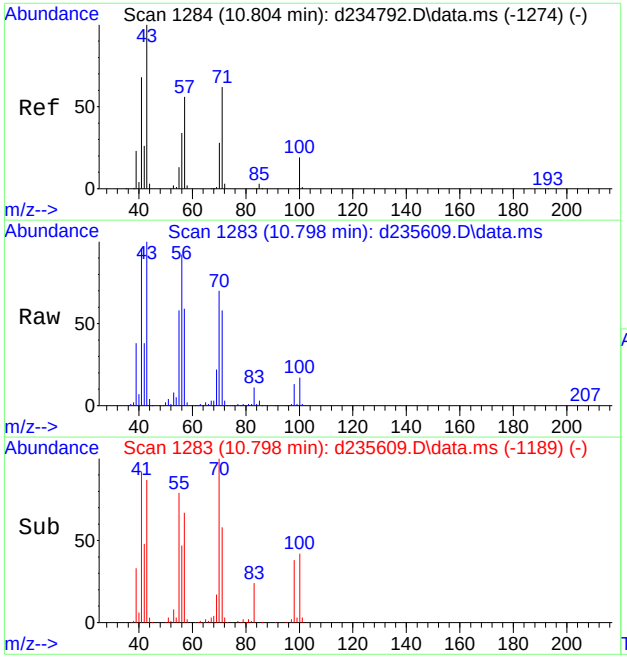
Tgt Ion: 57 Resp: 153823

Ion	Ratio	Lower	Upper
57	100		
56	51.7	21.8	81.8
43	67.3	37.2	97.2



7.1.2

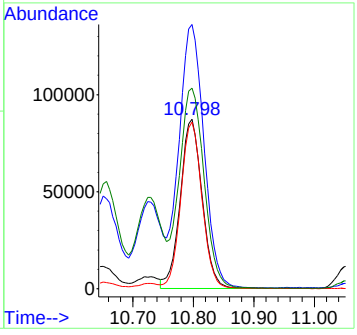
7

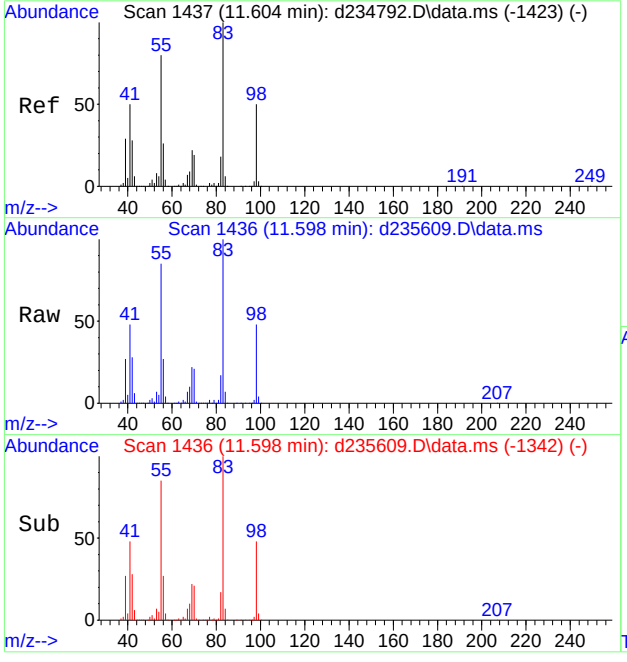


#65
heptane
Concen: 172.04 ug/L
RT: 10.798 min Scan# 1283
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion: 57 Resp: 219863

Ion	Ratio	Lower	Upper
57	100		
56	155.5	30.5	90.5#
71	98.4	80.4	140.4
70	118.3	19.2	79.2#

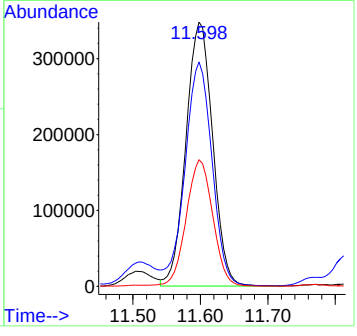




#75
methylcyclohexane
Concen: 252.76 ug/L
RT: 11.598 min Scan# 1436
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

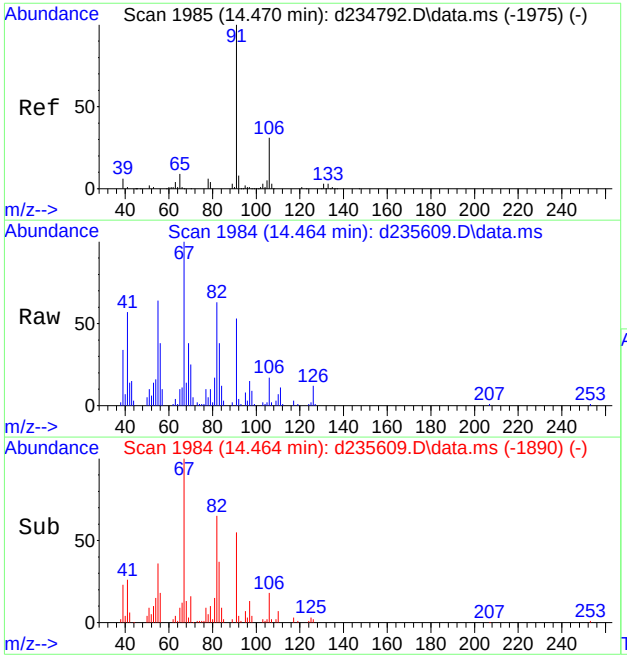
Tgt Ion: 83 Resp: 956990

Ion	Ratio	Lower	Upper
83	100		
55	84.8	50.5	110.5
98	47.9	19.5	79.5



7.1.2

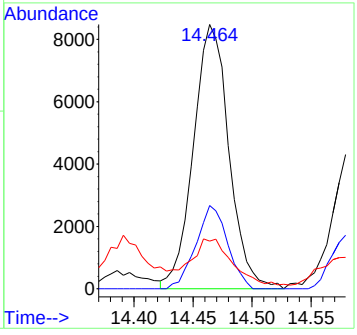
7

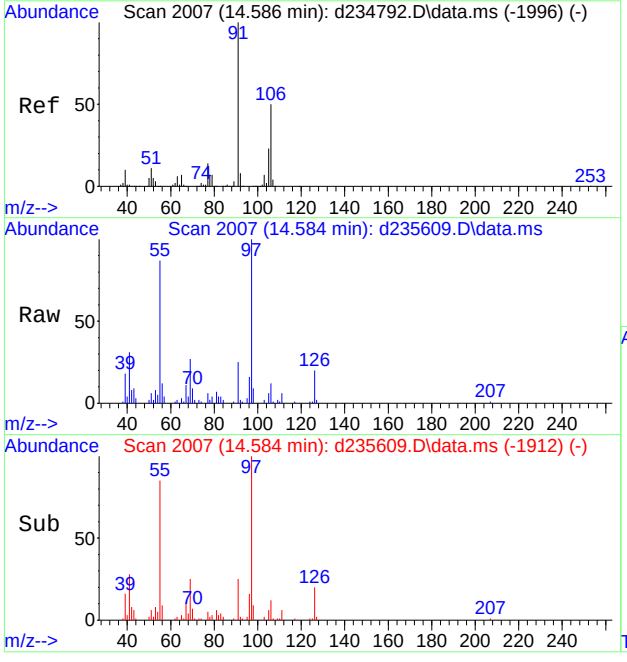


#96
ethylbenzene
Concen: 1.75 ug/L
RT: 14.464 min Scan# 1984
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion: 91 Resp: 17818

Ion	Ratio	Lower	Upper
91	100		
106	31.5	0.9	60.9
77	16.4	0.0	39.6

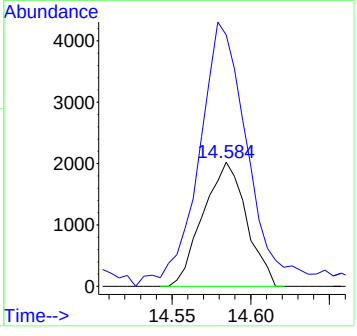




#97
m,p-xylene
Concen: 1.02 ug/L
RT: 14.584 min Scan# 2007
Delta R.T. -0.001 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

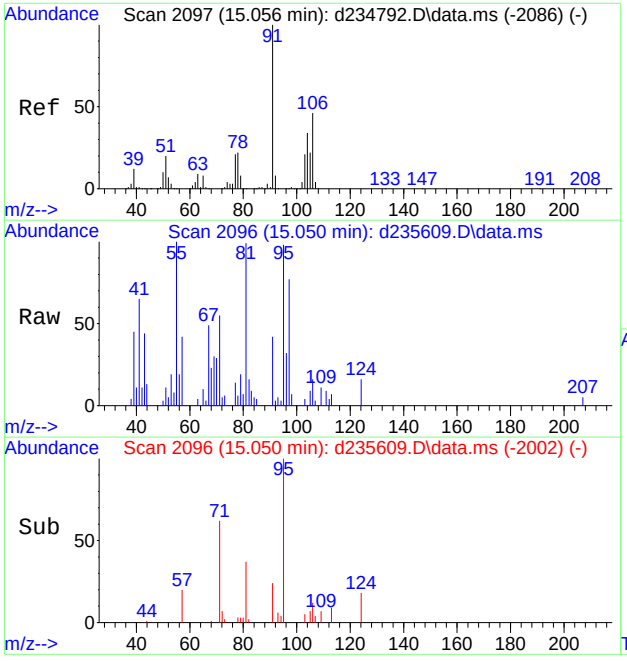
Tgt Ion:106 Resp: 3871

Ion	Ratio	Lower	Upper
106	100		
91	195.4	141.4	262.6



7.1.2

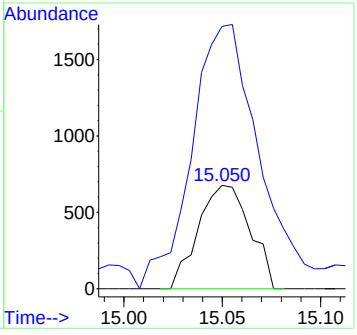
7

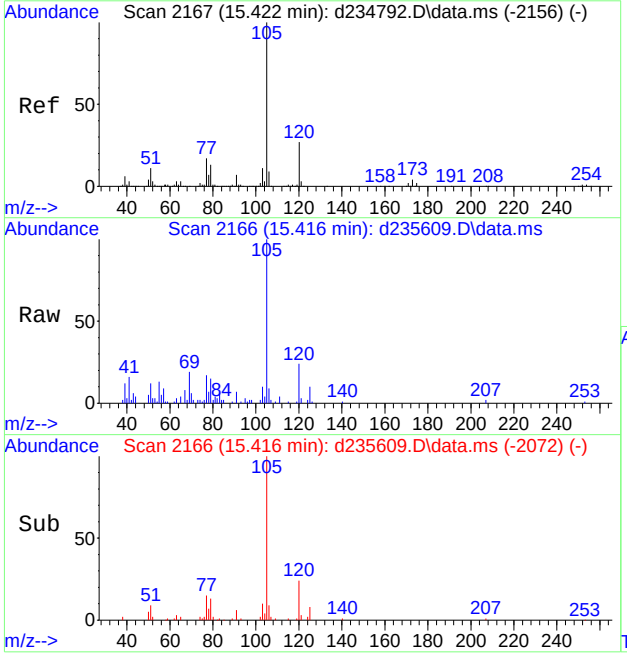


#98
o-xylene
Concen: 0.31 ug/L
RT: 15.050 min Scan# 2096
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:106 Resp: 1242

Ion	Ratio	Lower	Upper
106	100		
91	222.7	151.2	280.8

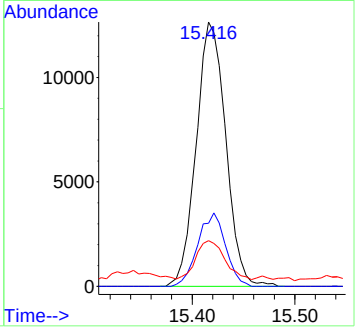


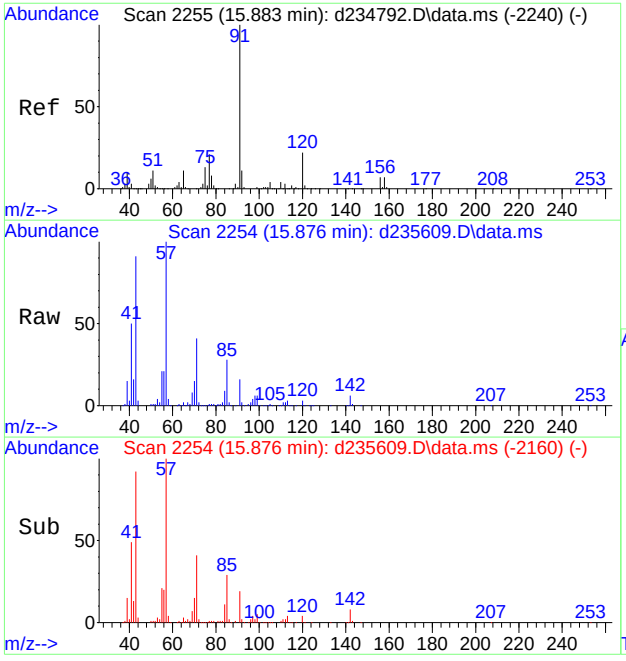


#102
isopropylbenzene
Concen: 2.24 ug/L
RT: 15.416 min Scan# 2166
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:105 Resp: 25330

Ion	Ratio	Lower	Upper
105	100		
120	23.8	0.0	57.1
77	14.3	0.0	46.5

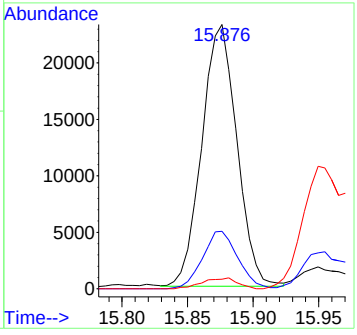


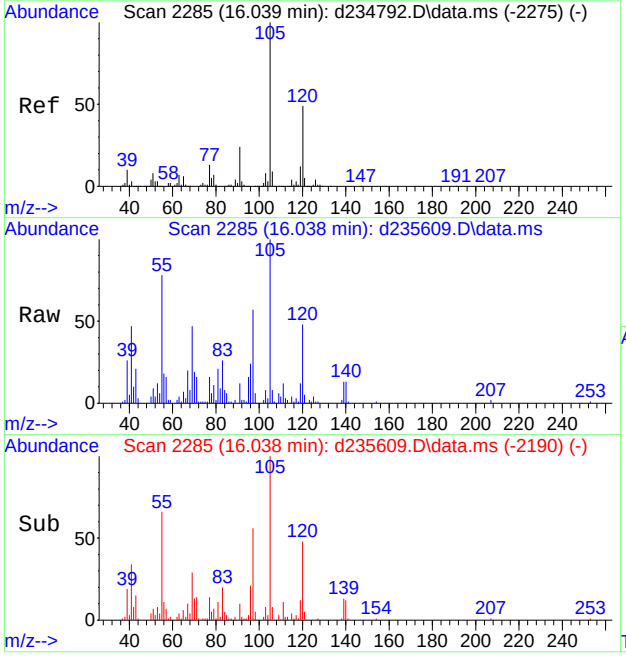


#109
n-propylbenzene
Concen: 3.28 ug/L
RT: 15.876 min Scan# 2254
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion: 91 Resp: 43251

Ion	Ratio	Lower	Upper
91	100		
120	22.0	0.0	52.4
105	3.7	0.0	33.8

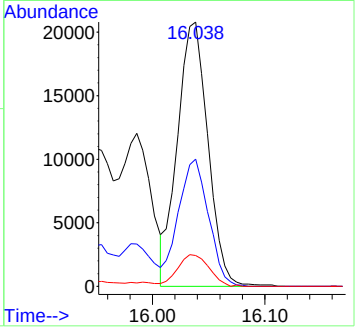


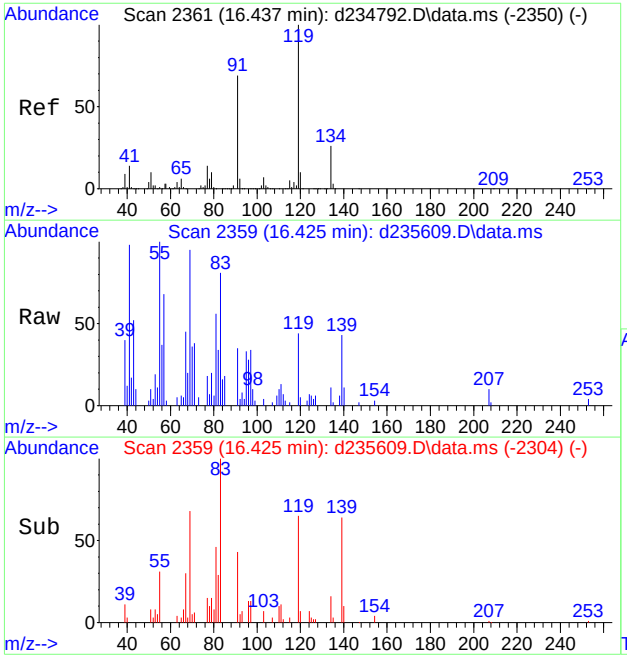


#113
1,3,5-trimethylbenzene
Concen: 3.84 ug/L
RT: 16.038 min Scan# 2285
Delta R.T. -0.001 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:105 Resp: 39339

Ion	Ratio	Lower	Upper
105	100		
120	48.2	18.6	78.6
119	11.7	0.0	42.5

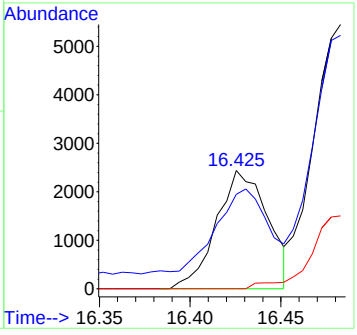


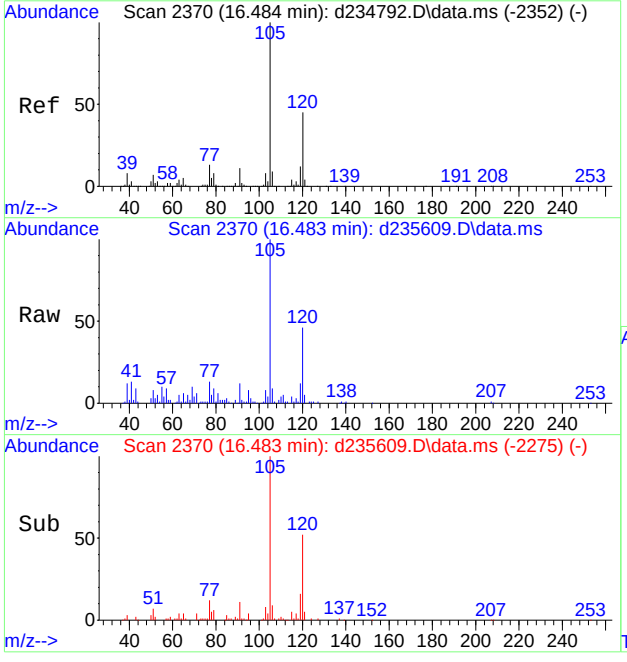


#114
tert-butylbenzene
Concen: 0.56 ug/L
RT: 16.425 min Scan# 2359
Delta R.T. -0.012 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:119 Resp: 4820

Ion	Ratio	Lower	Upper
119	100		
91	64.7	38.5	98.5
117	0.0	0.0	33.7

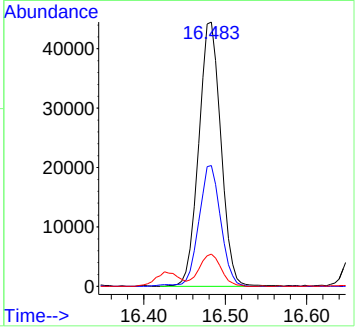




#116
1,2,4-trimethylbenzene
Concen: 8.17 ug/L
RT: 16.483 min Scan# 2370
Delta R.T. -0.001 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

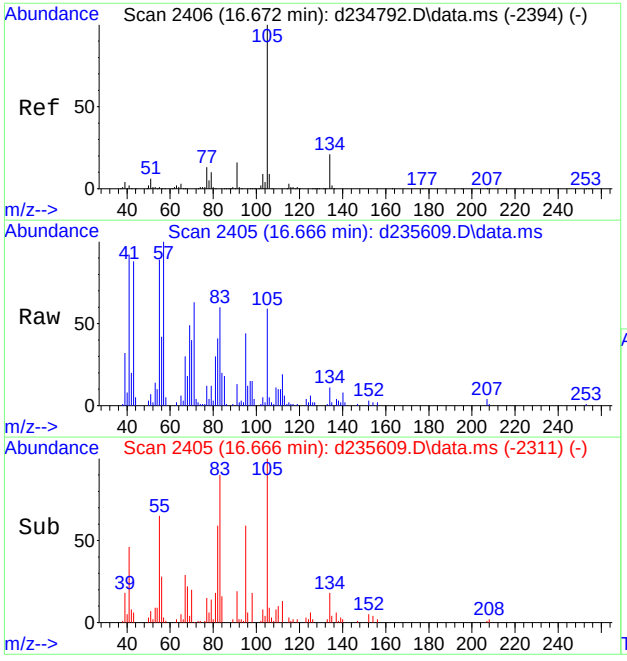
Tgt Ion:105 Resp: 84486

Ion	Ratio	Lower	Upper
105	100		
120	45.7	14.8	74.8
119	12.3	0.0	41.7



7.1.2

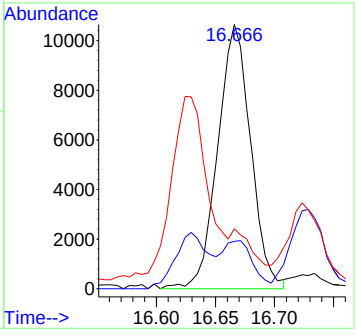
7

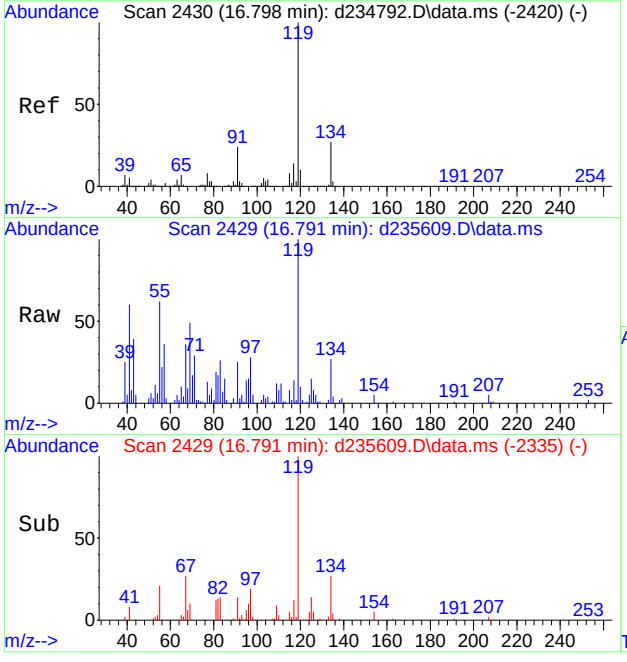


#117
sec-butylbenzene
Concen: 1.54 ug/L
RT: 16.666 min Scan# 2405
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:105 Resp: 20722

Ion	Ratio	Lower	Upper
105	100		
134	15.7	0.0	50.8
91	7.1	0.0	46.4

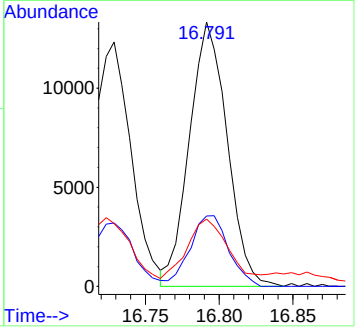


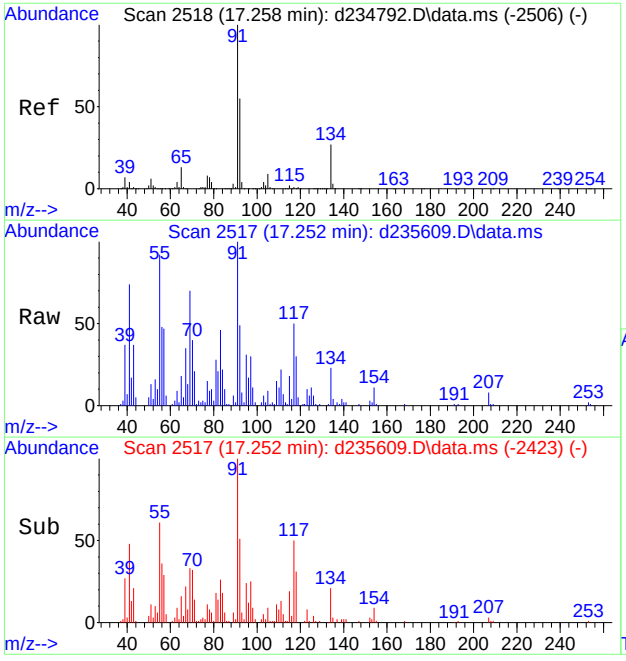


#119
p-isopropyltoluene
Concen: 2.10 ug/L
RT: 16.791 min Scan# 2429
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:119 Resp: 23744

Ion	Ratio	Lower	Upper
119	100		
134	26.6	0.0	57.4
91	22.5	0.0	54.5

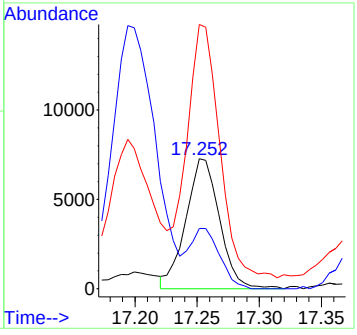


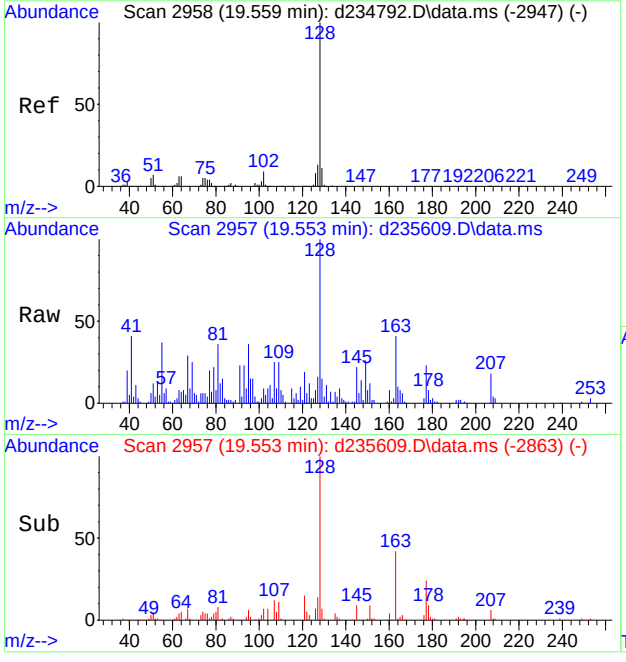


#126
n-butylbenzene
Concen: 2.36 ug/L
RT: 17.252 min Scan# 2517
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion: 92 Resp: 13766

Ion	Ratio	Lower	Upper
92	100		
134	46.5	19.0	79.0
91	192.6	153.1	213.1

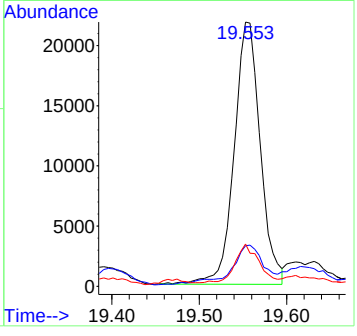




#132
naphthalene
Concen: 5.76 ug/L m
RT: 19.553 min Scan# 2957
Delta R.T. -0.006 min
Lab File: d235609.D
Acq: 7 Nov 2015 3:15 pm

Tgt Ion:128 Resp: 45173

Ion	Ratio	Lower	Upper
128	100		
129	15.3	0.0	41.3
127	16.0	0.0	43.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235610.D
Acq On : 7 Nov 2015 3:45 pm
Operator : BenM
Sample : jc7291-3
Misc : ms93732,vd9619,6.1,,100,10,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 09 07:48:27 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

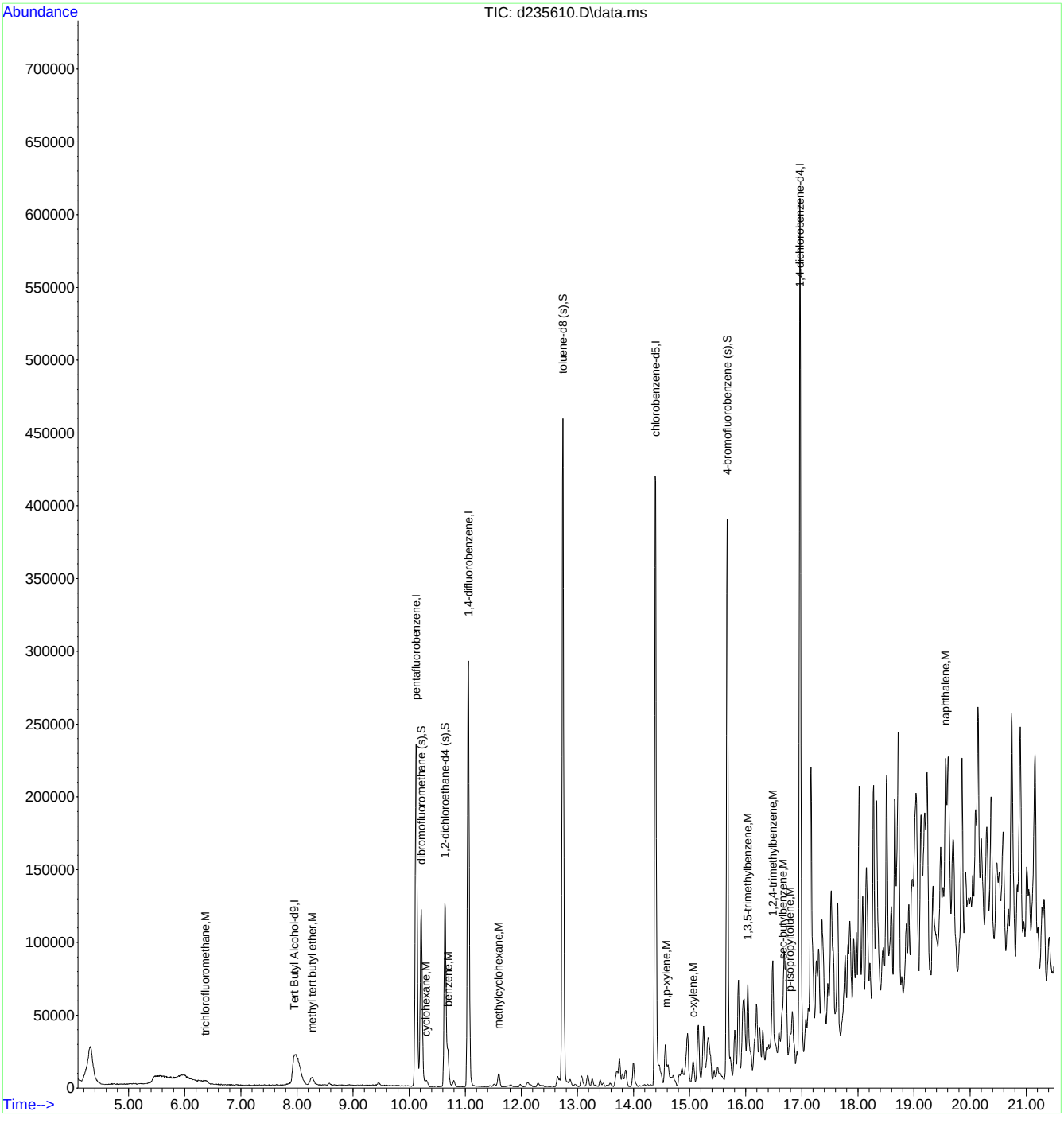
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.954	65	105616	500.00 ug/L	-0.03
4) pentafluorobenzene	10.124	168	203090	50.00 ug/L	-0.01
55) 1,4-difluorobenzene	11.055	114	283196	50.00 ug/L	0.00
87) chlorobenzene-d5	14.392	117	267100	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.965	152	163000	50.00 ug/L	-0.01
System Monitoring Compounds					
48) dibromofluoromethane (s)	10.213	113	93105	49.75 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.50%		
49) 1,2-dichloroethane-d4 (s)	10.637	65	109564	48.95 ug/L	-0.01
Spiked Amount 50.000	Range 68 - 124		Recovery = 97.90%		
79) toluene-d8 (s)	12.739	98	354385	49.01 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.02%		
103) 4-bromofluorobenzene (s)	15.668	95	156307	50.95 ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 101.90%		
Target Compounds					Qvalue
14) trichlorofluoromethane	6.364	101	1508	0.34 ug/L #	57
31) methyl tert butyl ether	8.268	73	11801	1.56 ug/L	95
56) cyclohexane	10.297	84	1131	0.29 ug/L	76
64) benzene	10.694	78	22828	2.71 ug/L	98
75) methylcyclohexane	11.594	83	5096	1.33 ug/L	90
97) m,p-xylene	14.580	106	3891	1.02 ug/L	86
98) o-xylene	15.056	106	2083	0.52 ug/L	85
113) 1,3,5-trimethylbenzene	16.034	105	21578	2.14 ug/L	98
116) 1,2,4-trimethylbenzene	16.484	105	43084	4.22 ug/L	99
117) sec-butylbenzene	16.662	105	2737	0.21 ug/L	78
119) p-isopropyltoluene	16.788	119	2729	0.24 ug/L	91
132) naphthalene	19.559	128	31134	4.03 ug/L	77

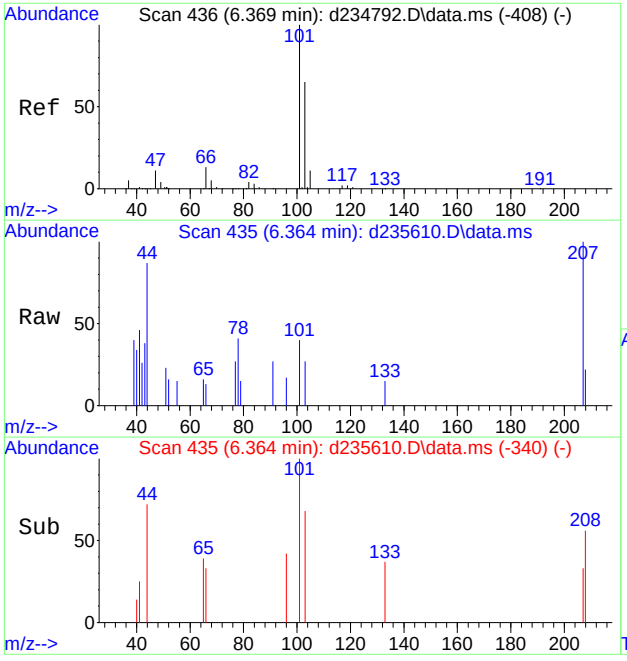
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235610.D
Acq On : 7 Nov 2015 3:45 pm
Operator : BenM
Sample : jc7291-3
Misc : ms93732,vd9619,6.1,,100,10,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 09 07:48:27 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

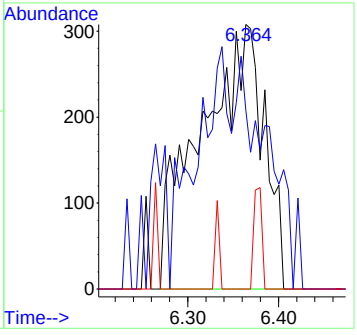


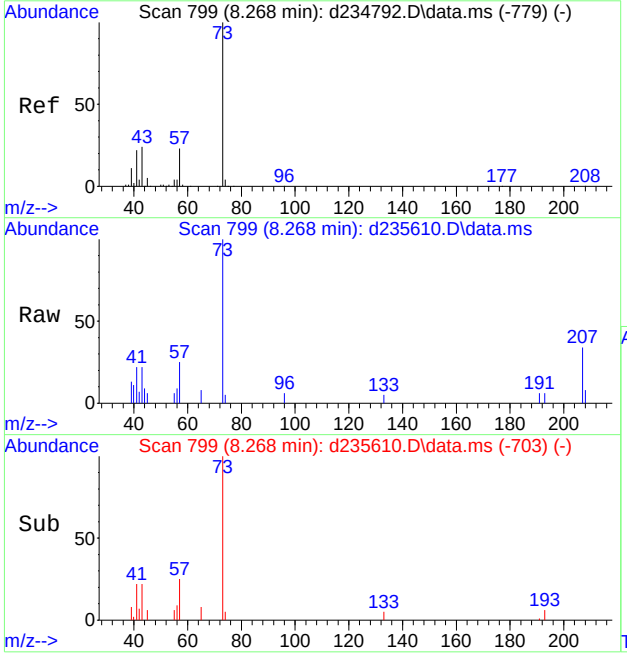


#14
trichlorofluoromethane
Concen: 0.34 ug/L
RT: 6.364 min Scan# 435
Delta R.T. -0.005 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:101 Resp: 1508

Ion	Ratio	Lower	Upper
101	100		
103	28.6	34.5	94.5#
105	0.0	0.0	40.8

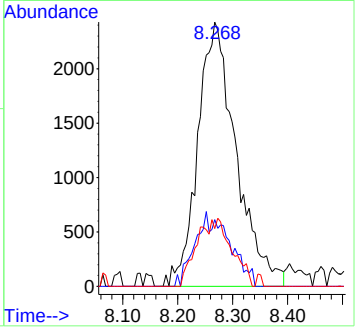


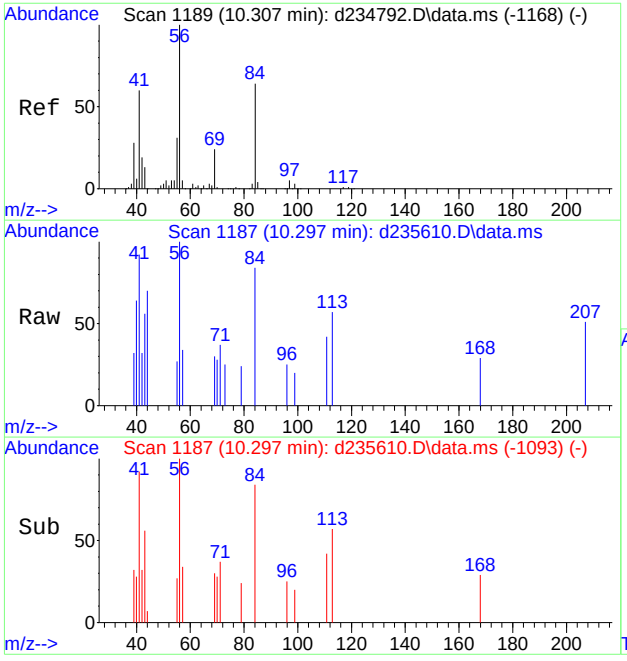


#31
methyl tert butyl ether
Concen: 1.56 ug/L
RT: 8.268 min Scan# 799
Delta R.T. 0.000 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion: 73 Resp: 11801

Ion	Ratio	Lower	Upper
73	100		
57	25.3	0.0	52.8
43	21.9	0.0	54.4

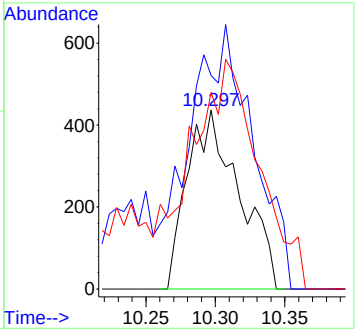


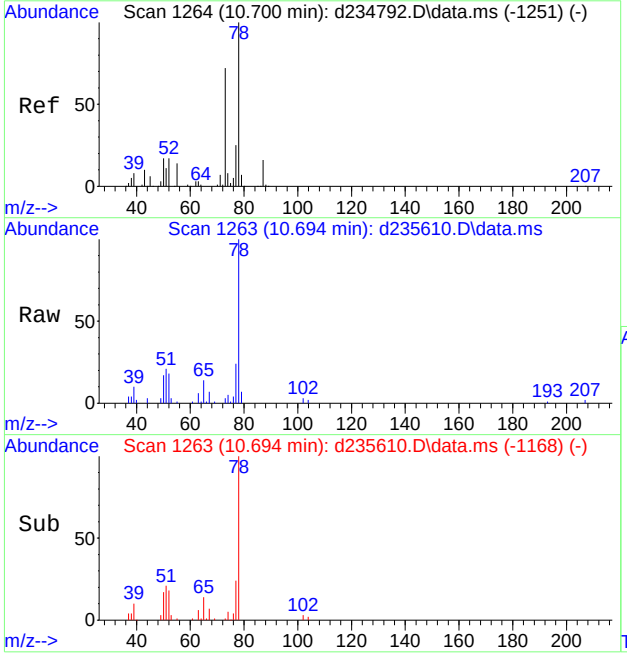


#56
cyclohexane
Concen: 0.29 ug/L
RT: 10.297 min Scan# 1187
Delta R.T. -0.010 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion: 84 Resp: 1131

Ion	Ratio	Lower	Upper
84	100		
56	178.5	145.0	269.4
41	159.9	86.1	159.9

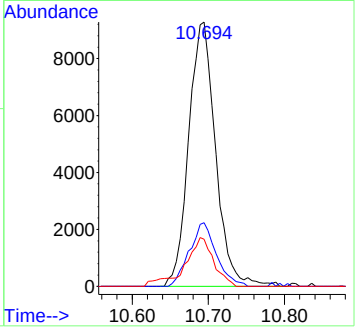




#64
benzene
Concen: 2.71 ug/L
RT: 10.694 min Scan# 1263
Delta R.T. -0.005 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

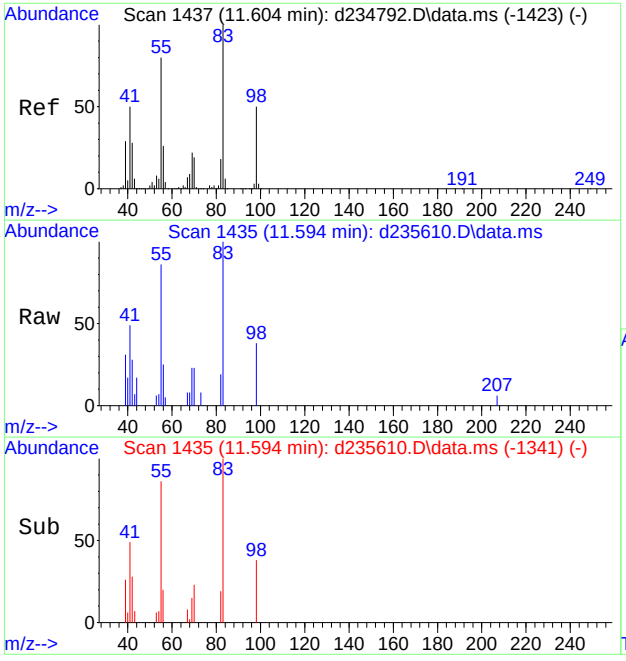
Tgt Ion: 78 Resp: 22828

Ion	Ratio	Lower	Upper
78	100		
77	24.1	0.0	54.8
52	17.8	0.0	46.9



7.1.3

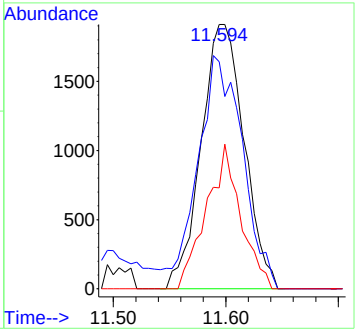
7

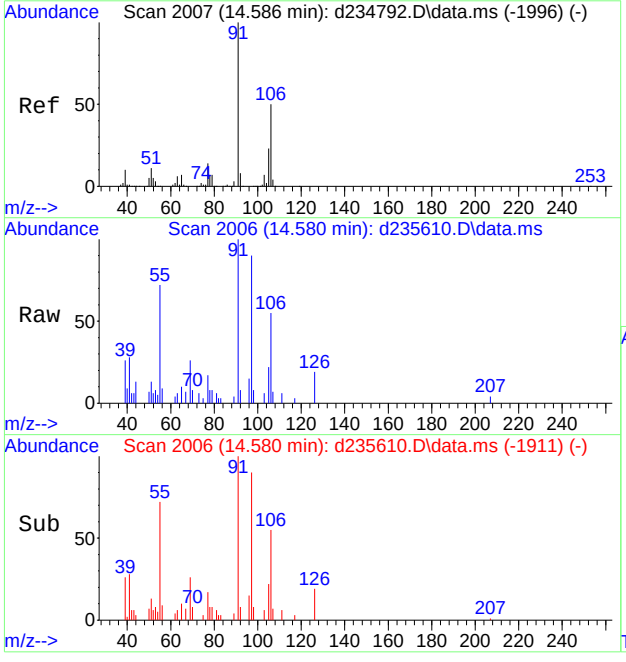


#75
methylcyclohexane
Concen: 1.33 ug/L
RT: 11.594 min Scan# 1435
Delta R.T. -0.010 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion: 83 Resp: 5096

Ion	Ratio	Lower	Upper
83	100		
55	85.8	50.5	110.5
98	38.2	19.5	79.5

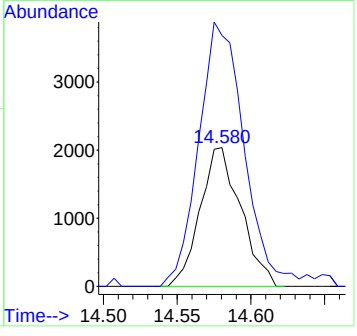


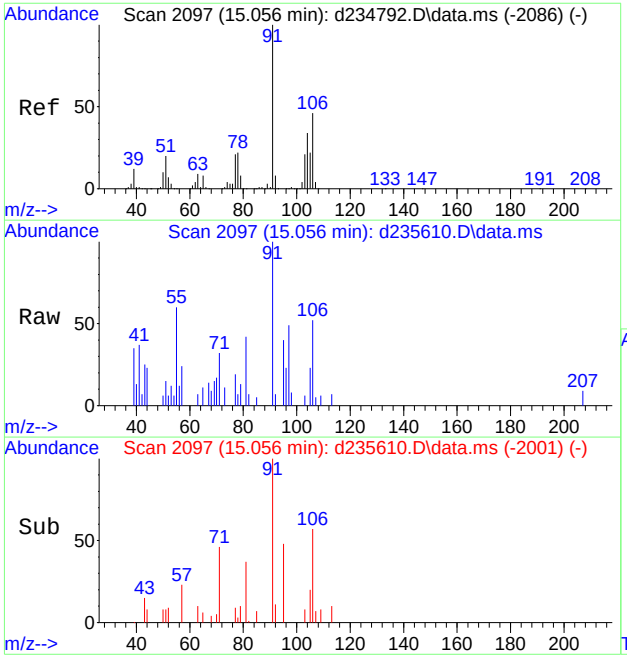


#97
m,p-xylene
Concen: 1.02 ug/L
RT: 14.580 min Scan# 2006
Delta R.T. -0.005 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:106 Resp: 3891

Ion	Ratio	Lower	Upper
106	100		
91	180.7	141.4	262.6

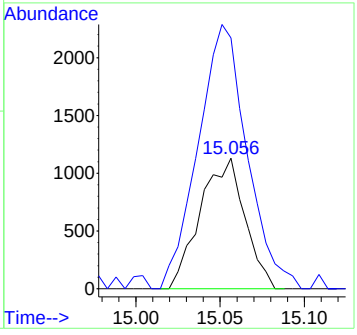


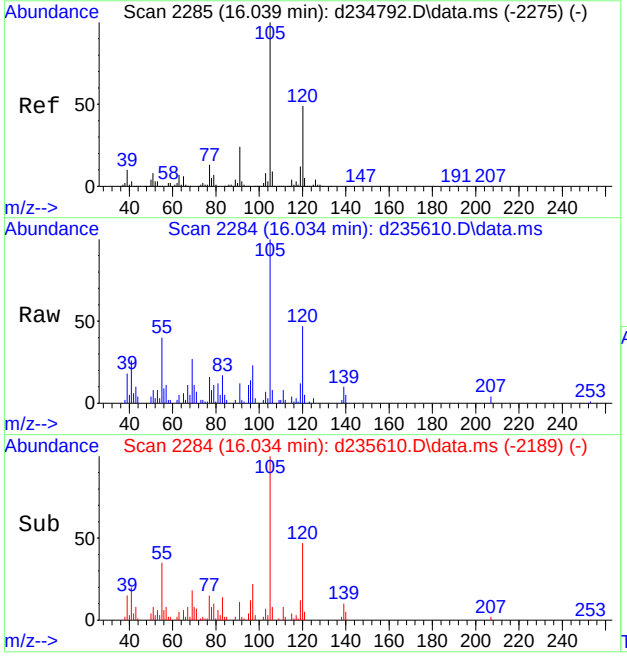


#98
o-xylene
Concen: 0.52 ug/L
RT: 15.056 min Scan# 2097
Delta R.T. 0.000 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:106 Resp: 2083

Ion	Ratio	Lower	Upper
106	100		
91	192.0	151.2	280.8

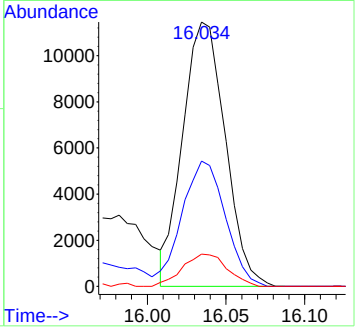


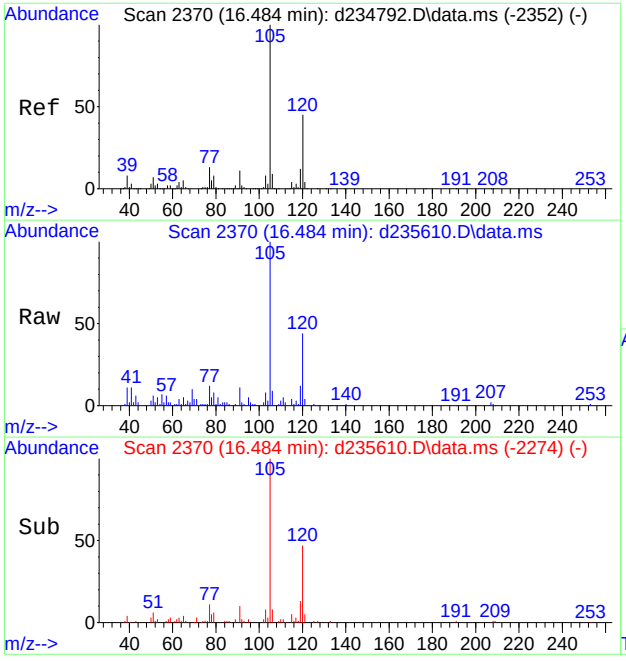


#113
1,3,5-trimethylbenzene
Concen: 2.14 ug/L
RT: 16.034 min Scan# 2284
Delta R.T. -0.005 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:105 Resp: 21578

Ion	Ratio	Lower	Upper
105	100		
120	47.4	18.6	78.6
119	12.2	0.0	42.5

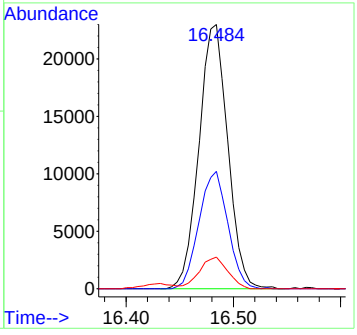


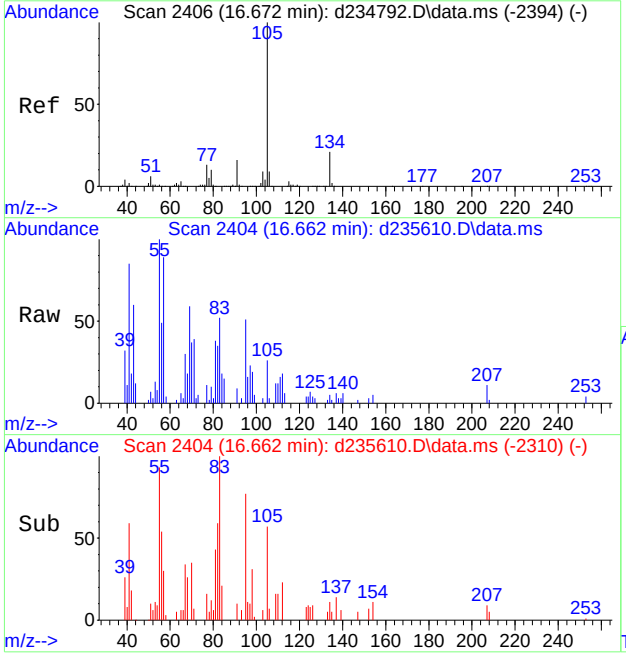


#116
1,2,4-trimethylbenzene
Concen: 4.22 ug/L
RT: 16.484 min Scan# 2370
Delta R.T. 0.000 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:105 Resp: 43084

Ion	Ratio	Lower	Upper
105	100		
120	44.4	14.8	74.8
119	12.0	0.0	41.7

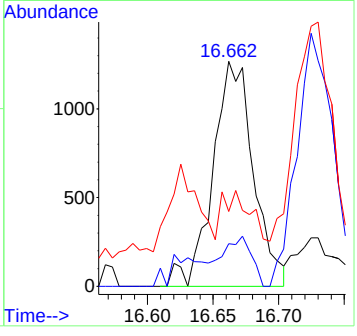


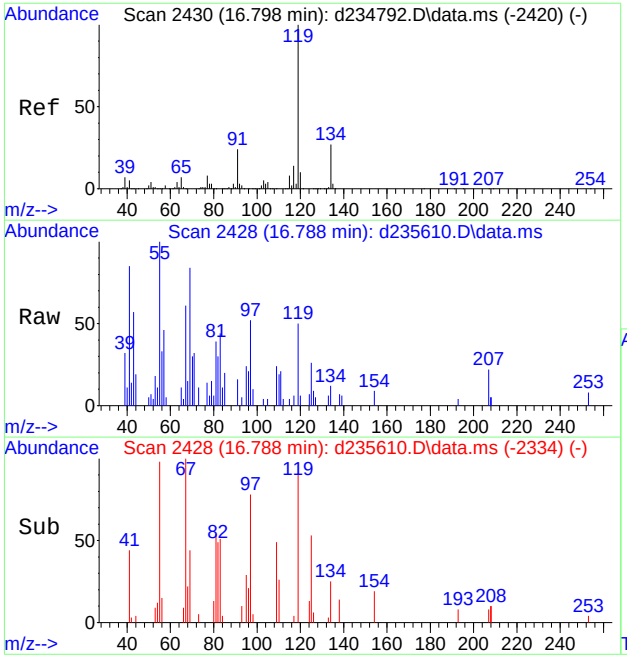


#117
sec-butylbenzene
Concen: 0.21 ug/L
RT: 16.662 min Scan# 2404
Delta R.T. -0.010 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:105 Resp: 2737

Ion	Ratio	Lower	Upper
105	100		
134	10.8	0.0	50.8
91	6.7	0.0	46.4

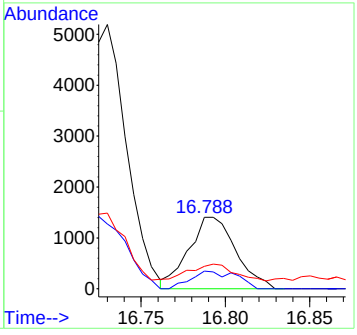


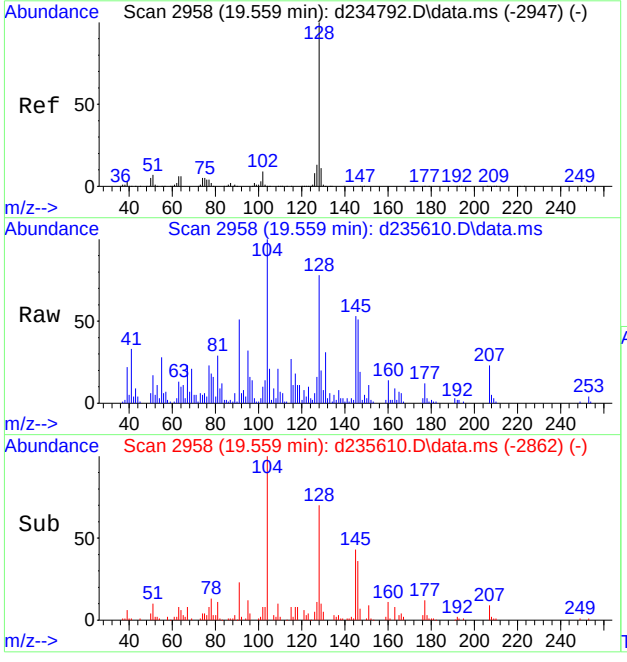


#119
p-isopropyltoluene
Concen: 0.24 ug/L
RT: 16.788 min Scan# 2428
Delta R.T. -0.010 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:119 Resp: 2729

Ion	Ratio	Lower	Upper
119	100		
134	24.7	0.0	57.4
91	17.8	0.0	54.5

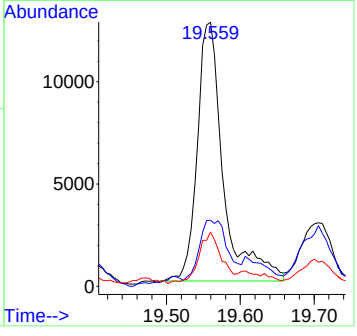




#132
naphthalene
Concen: 4.03 ug/L
RT: 19.559 min Scan# 2958
Delta R.T. 0.000 min
Lab File: d235610.D
Acq: 7 Nov 2015 3:45 pm

Tgt Ion:128 Resp: 31134

Ion	Ratio	Lower	Upper
128	100		
129	24.0	0.0	41.3
127	19.2	0.0	43.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2C\v2c6058-6060\
Data File : 2C134333.D
Acq On : 7 Nov 2015 1:04 pm
Operator : ToanP
Sample : jc7291-4
Misc : MS93732,V2C6060,6.4,,100,10,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 09 09:18:56 2015
Quant Method : C:\msdchem\1\METHODS\M2C6046.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration

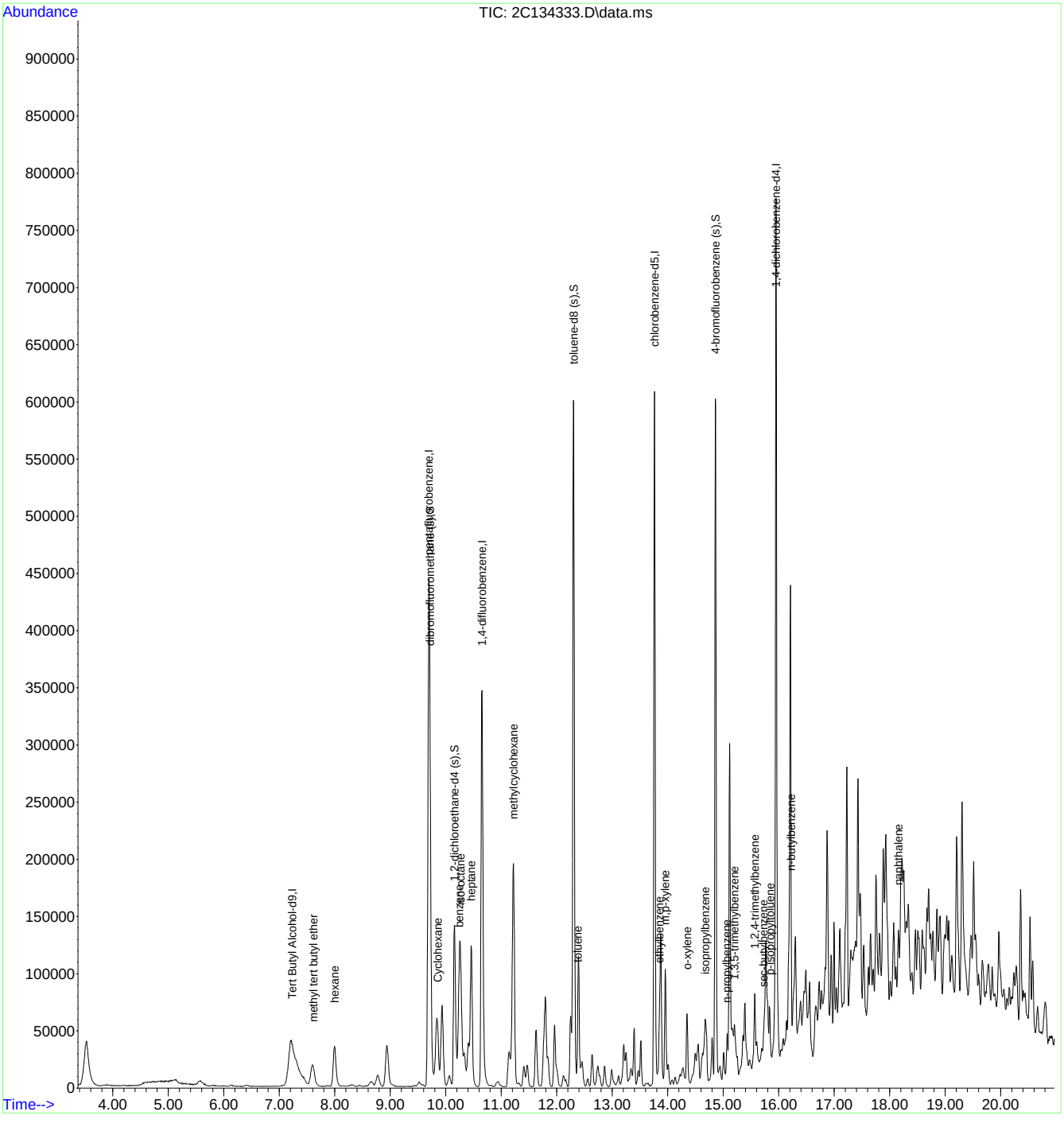
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.234	65	175158	500.00	ug/L	0.02
5) pentafluorobenzene	9.693	168	341206	50.00	ug/L	0.00
61) 1,4-difluorobenzene	10.653	114	397055	50.00	ug/L	0.00
92) chlorobenzene-d5	13.762	117	363812	50.00	ug/L	0.00
107) 1,4-dichlorobenzene-d4	15.953	152	210024	50.00	ug/L	0.00
System Monitoring Compounds						
54) dibromofluoromethane (s)	9.714	113	125836	45.64	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 91.28%			
55) 1,2-dichloroethane-d4 (s)	10.155	65	137291	47.16	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 94.32%			
84) toluene-d8 (s)	12.304	98	461264	52.14	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 104.28%			
109) 4-bromofluorobenzene (s)	14.858	95	189399	51.99	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery = 103.98%			
Target Compounds						Qvalue
37) methyl tert butyl ether	7.612	73	10499	1.23	ug/L #	1
59) Cyclohexane	9.856	84	26293	6.48	ug/L #	49
67) hexane	8.000	57	31703	12.56	ug/L	93
69) iso-octane	10.265	57	127934	14.87	ug/L	89
70) benzene	10.239	78	60510	5.64	ug/L	100
72) heptane	10.459	57	41496	27.93	ug/L	95
81) methylcyclohexane	11.219	83	101265	24.24	ug/L	97
86) toluene	12.378	92	5298	0.88	ug/L	99
102) ethylbenzene	13.851	91	33346	2.76	ug/L	99
103) m,p-xylene	13.956	106	27080	5.91	ug/L	90
104) o-xylene	14.349	106	7989	1.64	ug/L	99
108) isopropylbenzene	14.674	105	4099	0.30	ug/L	91
115) n-propylbenzene	15.062	91	6269	0.42	ug/L	94
118) 1,3,5-trimethylbenzene	15.198	105	14292	1.29	ug/L	98
121) 1,2,4-trimethylbenzene	15.571	105	35516	3.23	ug/L	99
122) sec-butylbenzene	15.728	105	3028	0.20	ug/L	87
124) p-isopropyltoluene	15.843	119	5236	0.42	ug/L	90
128) n-butylbenzene	16.226	92	2793	0.45	ug/L	96
133) naphthalene	18.155	128	29764	2.35	ug/L	97

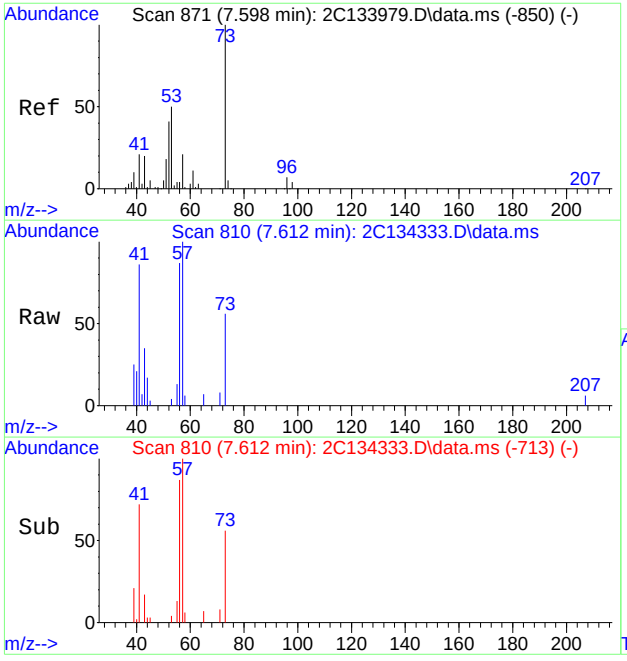
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2C\v2c6058-6060\
Data File : 2C134333.D
Acq On : 7 Nov 2015 1:04 pm
Operator : ToanP
Sample : jc7291-4
Misc : MS93732,V2C6060,6.4,,100,10,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 09 09:18:56 2015
Quant Method : C:\msdchem\1\METHODS\M2C6046.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration

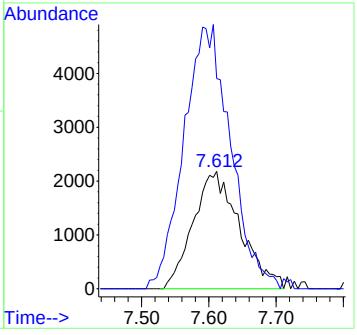


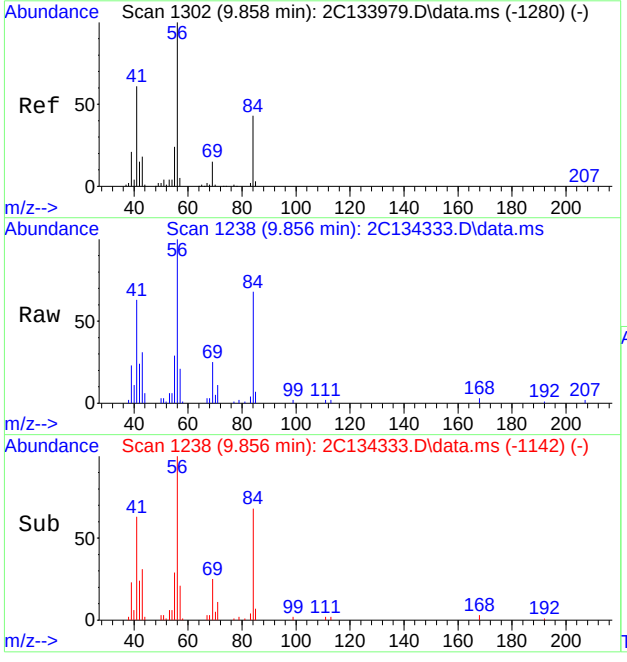


#37
methyl tert butyl ether
Concen: 1.23 ug/L
RT: 7.612 min Scan# 810
Delta R.T. 0.008 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 73 Resp: 10499

Ion	Ratio	Lower	Upper
73	100		
57	170.5	0.0	51.3#

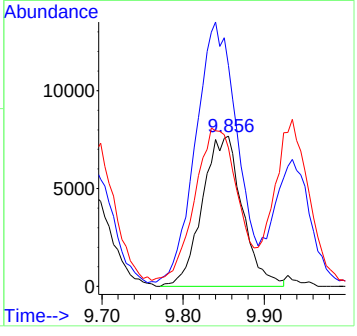


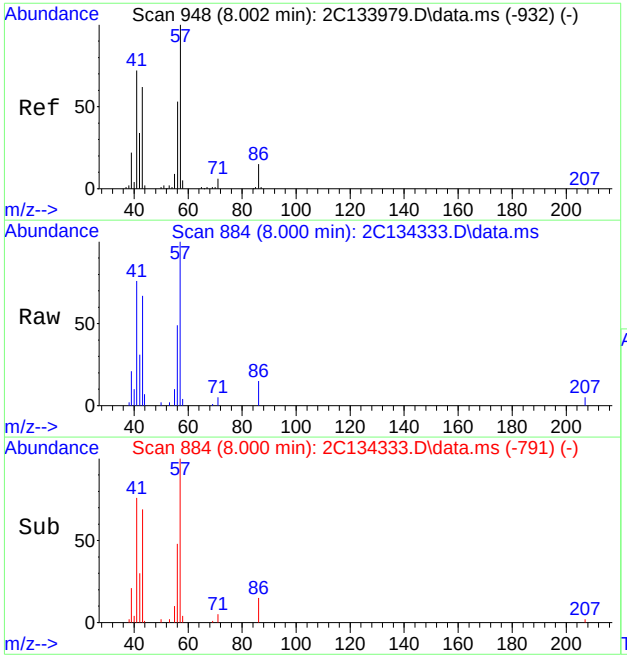


#59
Cyclohexane
Concen: 6.48 ug/L
RT: 9.856 min Scan# 1238
Delta R.T. 0.003 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 84 Resp: 26293

Ion	Ratio	Lower	Upper
84	100		
56	142.0	203.0	263.0#
41	86.2	111.5	171.5#

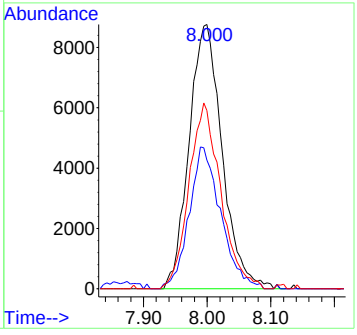


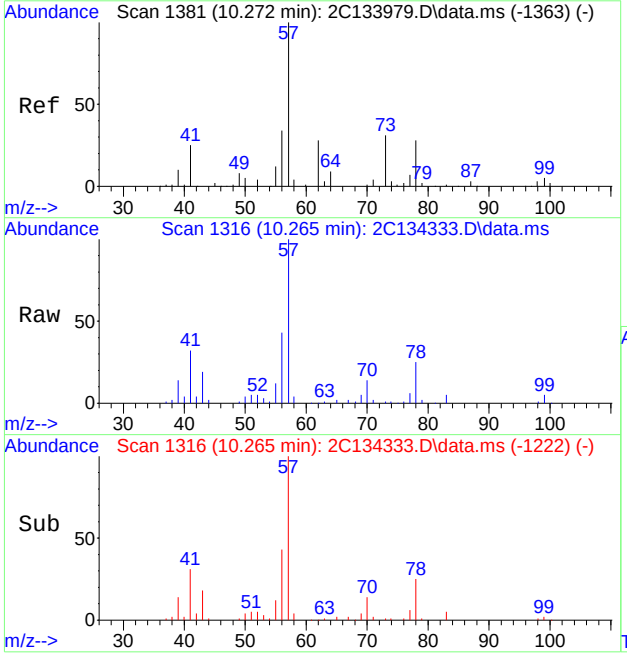


#67
hexane
Concen: 12.56 ug/L
RT: 8.000 min Scan# 884
Delta R.T. -0.013 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 57 Resp: 31703

Ion	Ratio	Lower	Upper
57	100		
56	48.7	22.8	82.8
43	67.4	31.5	91.5

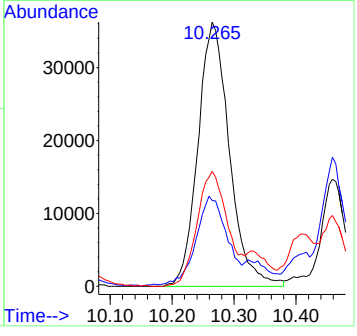




#69
iso-octane
Concen: 14.87 ug/L
RT: 10.265 min Scan# 1316
Delta R.T. -0.008 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

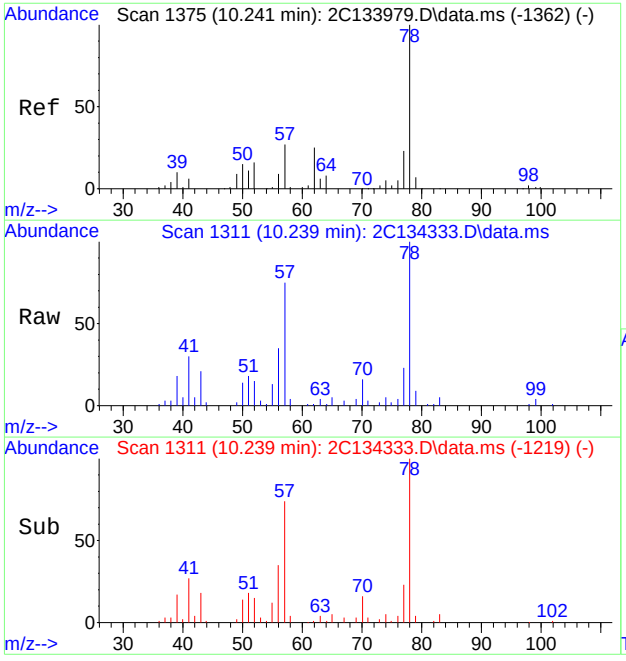
Tgt Ion: 57 Resp: 127934

Ion	Ratio	Lower	Upper
57	100		
41	31.7	0.0	59.8
56	43.5	3.6	63.6



7.1.4

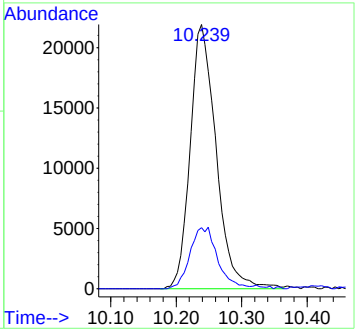
7

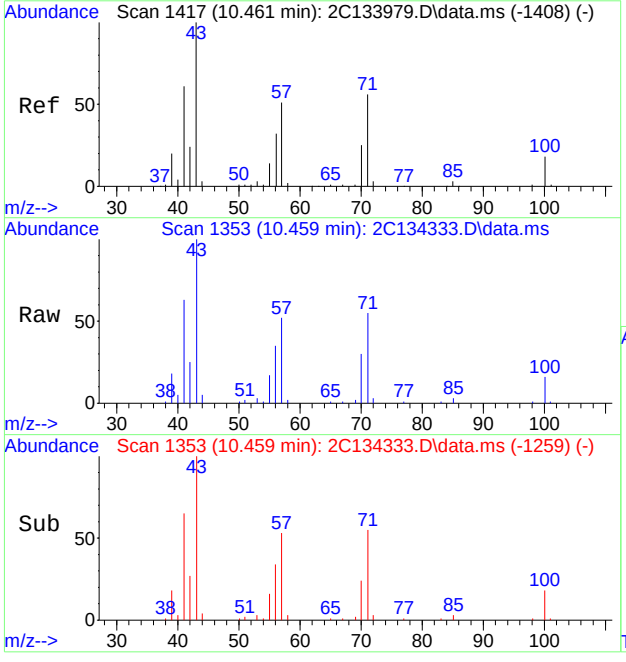


#70
benzene
Concen: 5.64 ug/L
RT: 10.239 min Scan# 1311
Delta R.T. -0.008 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 78 Resp: 60510

Ion	Ratio	Lower	Upper
78	100		
77	23.1	0.0	52.9

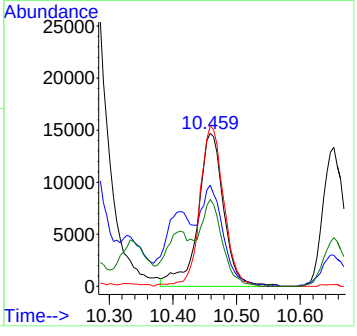




#72
heptane
Concen: 27.93 ug/L
RT: 10.459 min Scan# 1353
Delta R.T. -0.008 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

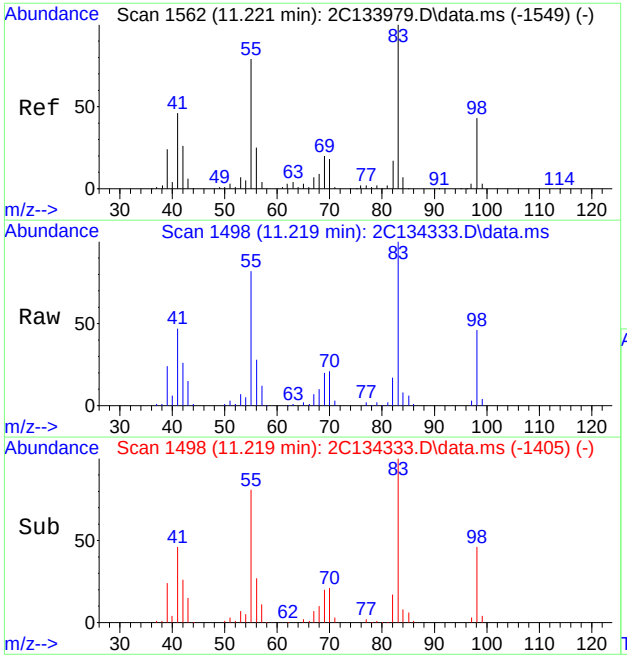
Tgt Ion: 57 Resp: 41496

Ion	Ratio	Lower	Upper
57	100		
56	66.1	32.5	92.5
71	104.9	76.9	136.9
70	56.7	18.4	78.4



7.1.4

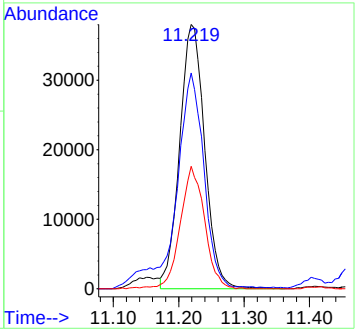
7

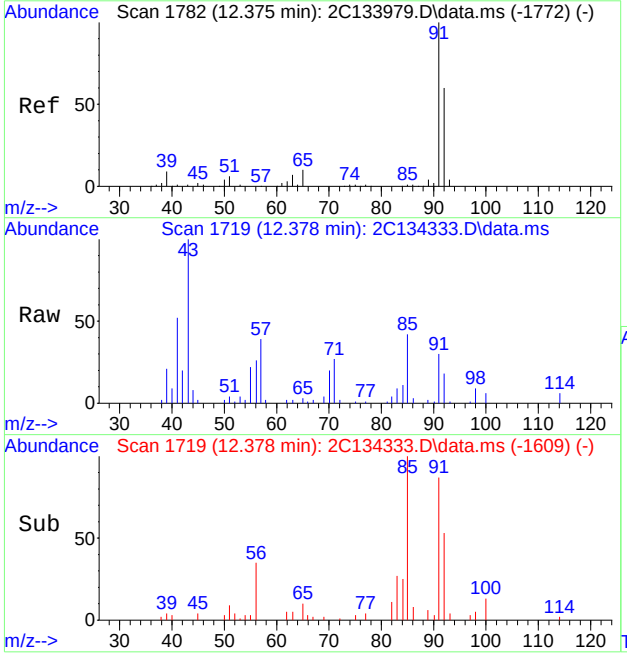


#81
methylcyclohexane
Concen: 24.24 ug/L
RT: 11.219 min Scan# 1498
Delta R.T. -0.013 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 83 Resp: 101265

Ion	Ratio	Lower	Upper
83	100		
55	81.2	48.9	108.9
98	46.3	13.1	73.1

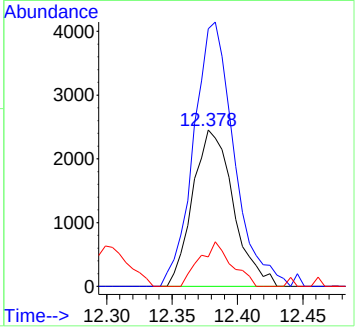




#86
toluene
Concen: 0.88 ug/L
RT: 12.378 min Scan# 1719
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 92 Resp: 5298

Ion	Ratio	Lower	Upper
92	100		
91	164.6	136.3	196.3
65	18.8	0.0	47.5



7.1.4

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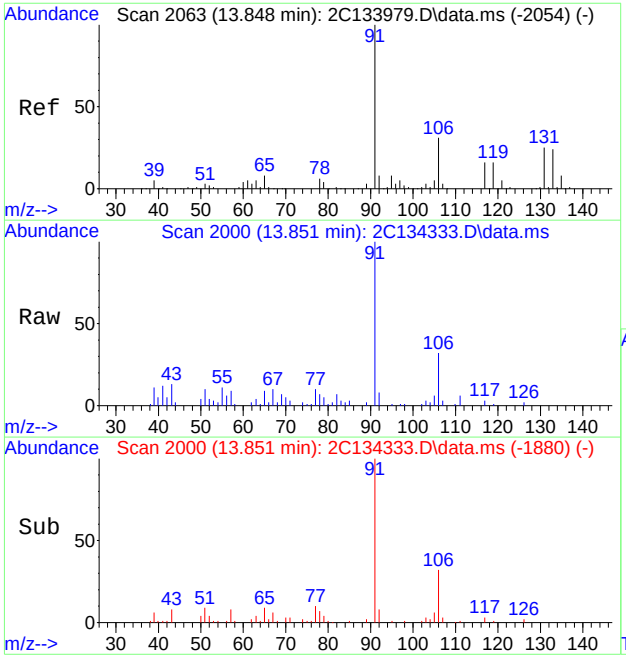
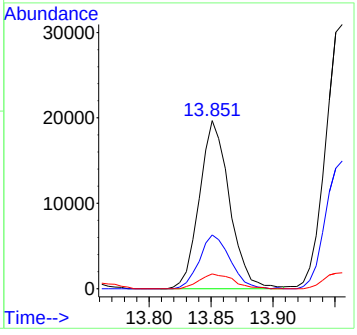
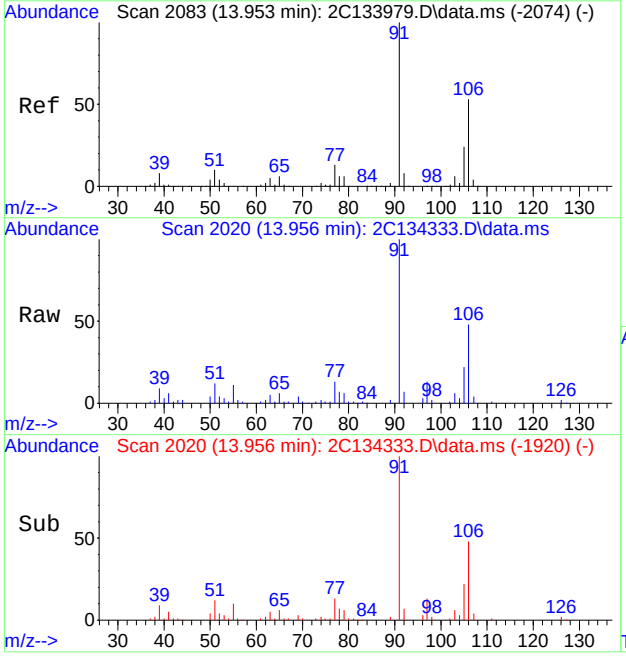


#102
ethylbenzene
Concen: 2.76 ug/L
RT: 13.851 min Scan# 2000
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 91 Resp: 33346

Ion	Ratio	Lower	Upper
91	100		
106	32.1	1.4	61.4
65	8.8	0.0	38.0

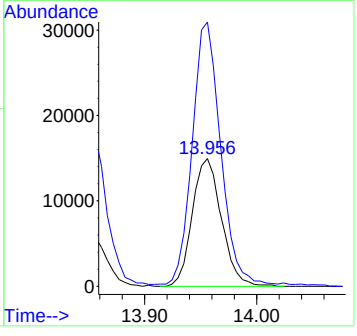




#103
m,p-xylene
Concen: 5.91 ug/L
RT: 13.956 min Scan# 2020
Delta R.T. 0.003 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:106 Resp: 27080

Ion	Ratio	Lower	Upper
106	100		
91	205.2	160.7	220.7



7.1.4

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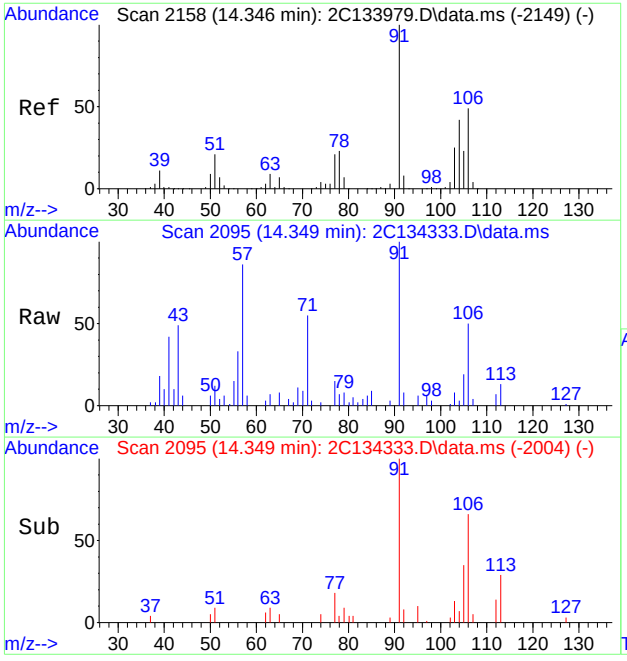
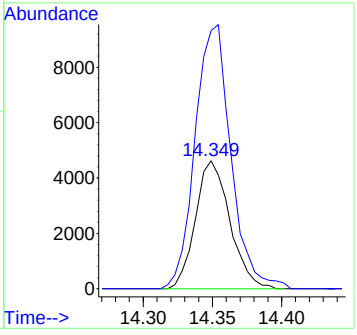
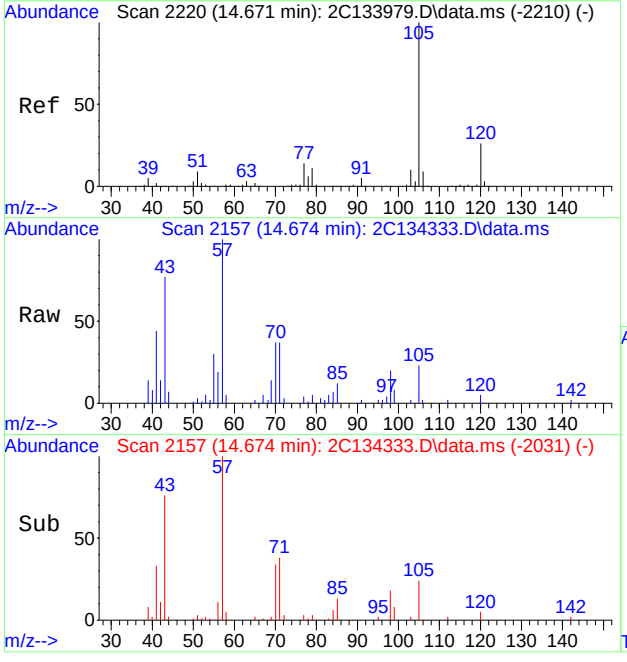


#104
o-xylene
Concen: 1.64 ug/L
RT: 14.349 min Scan# 2095
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:106 Resp: 7989

Ion	Ratio	Lower	Upper
106	100		
91	201.3	173.2	233.2

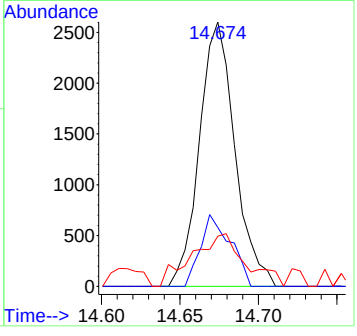




#108
isopropylbenzene
Concen: 0.30 ug/L
RT: 14.674 min Scan# 2157
Delta R.T. 0.003 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:105 Resp: 4099

Ion	Ratio	Lower	Upper
105	100		
120	22.2	0.0	56.1
77	19.0	0.0	44.3



7.1.4

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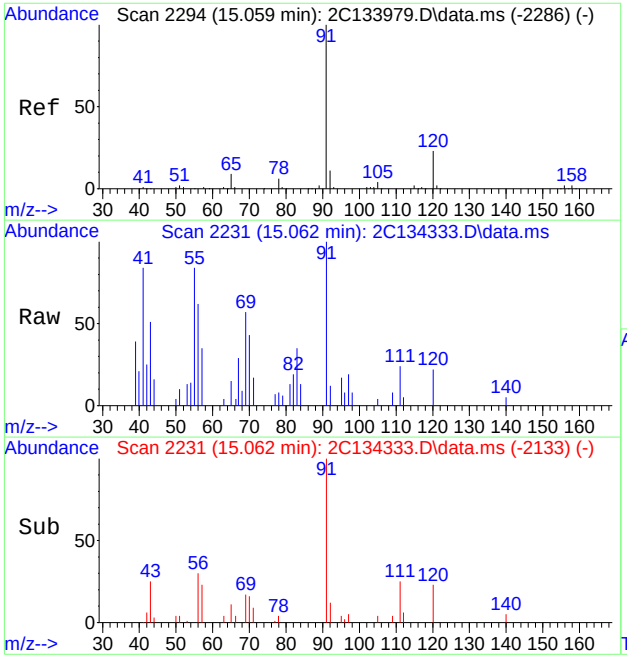
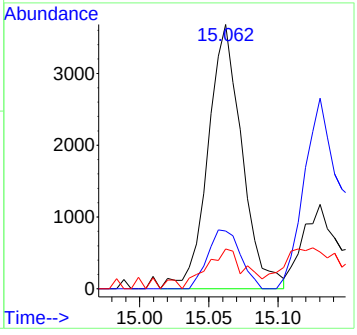
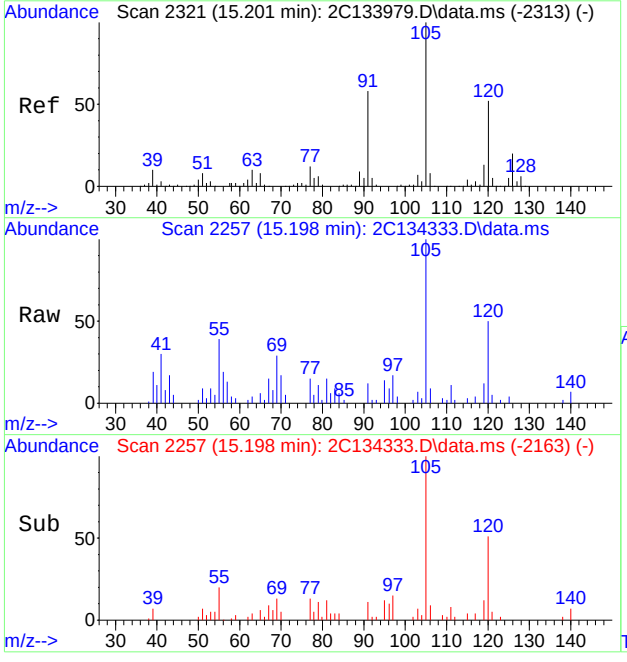


#115
n-propylbenzene
Concen: 0.42 ug/L
RT: 15.062 min Scan# 2231
Delta R.T. 0.003 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 91 Resp: 6269

Ion	Ratio	Lower	Upper
91	100		
120	21.9	0.0	53.0
65	15.1	0.0	39.4

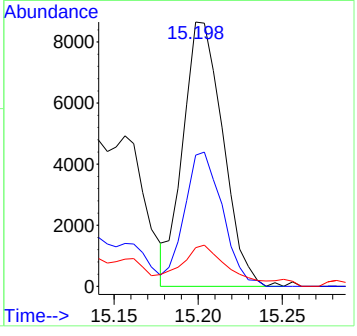




#118
1,3,5-trimethylbenzene
Concen: 1.29 ug/L
RT: 15.198 min Scan# 2257
Delta R.T. -0.008 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:105 Resp: 14292

Ion	Ratio	Lower	Upper
105	100		
120	49.7	21.7	81.7
77	12.0	0.0	42.0



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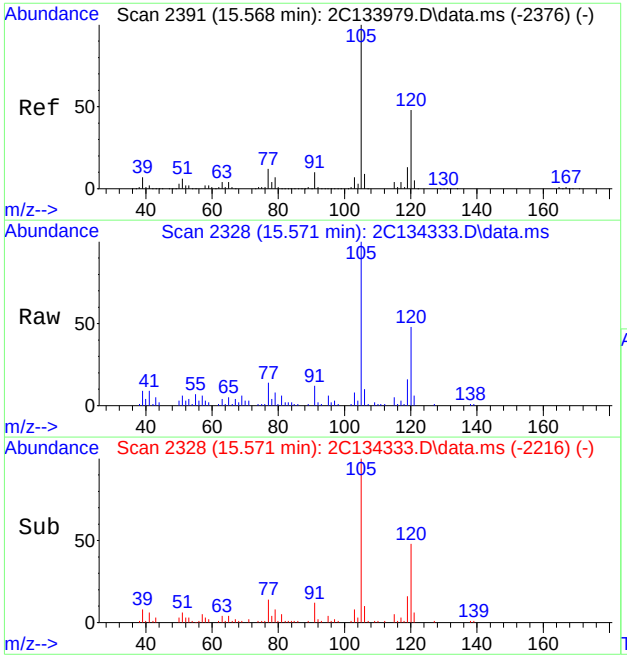
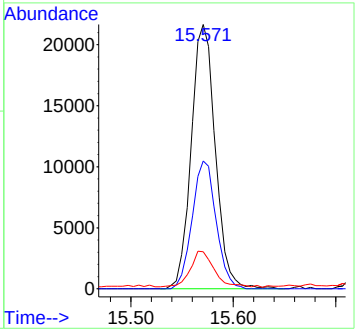
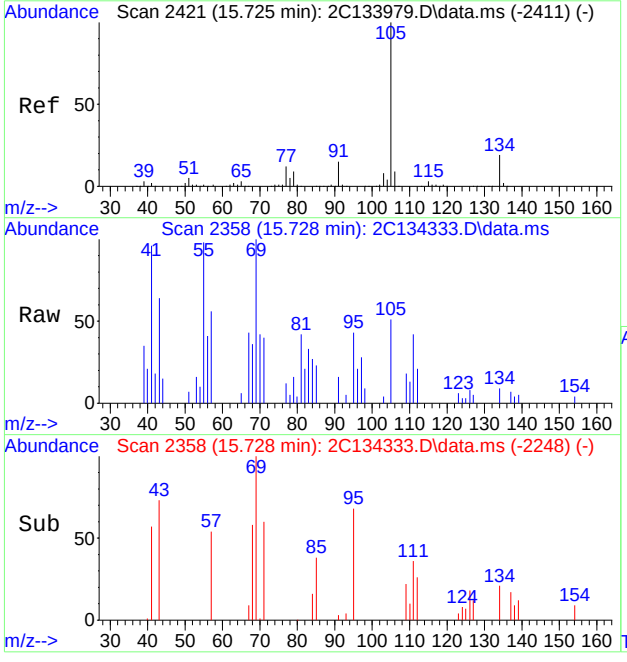


#121
1,2,4-trimethylbenzene
Concen: 3.23 ug/L
RT: 15.571 min Scan# 2328
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:105 Resp: 35516

Ion	Ratio	Lower	Upper
105	100		
120	48.3	18.1	78.1
77	13.2	0.0	41.6

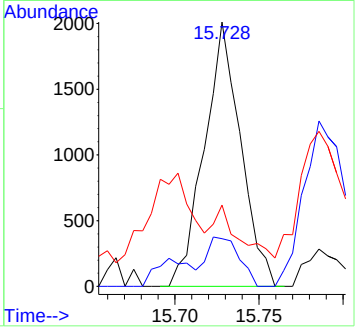




#122
sec-butylbenzene
Concen: 0.20 ug/L
RT: 15.728 min Scan# 2358
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:105 Resp: 3028

Ion	Ratio	Lower	Upper
105	100		
134	12.1	0.0	49.3
91	11.1	0.0	45.2



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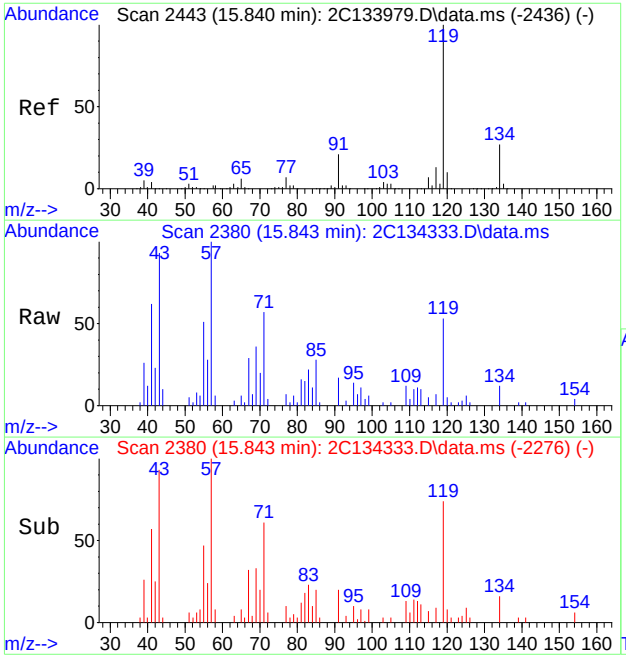
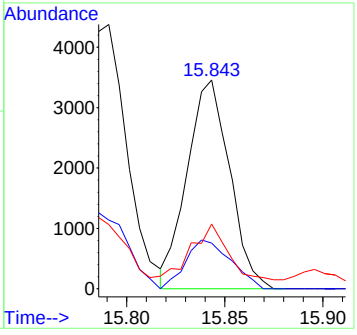
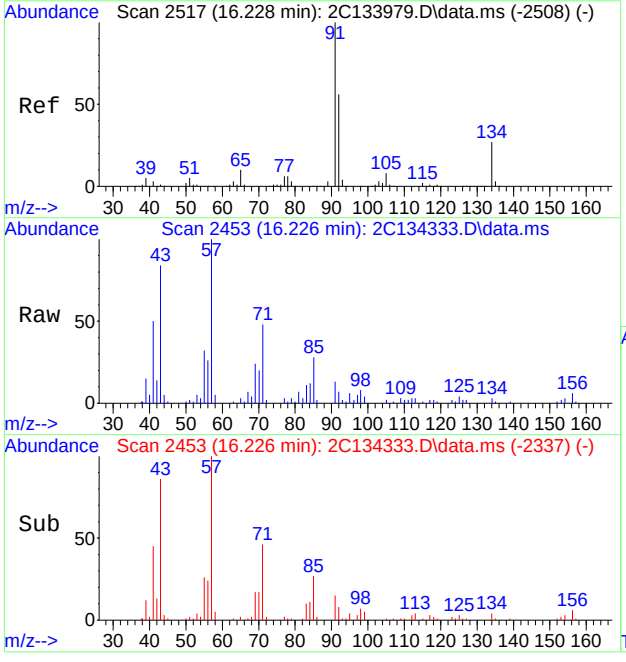


#124
p-isopropyltoluene
Concen: 0.42 ug/L
RT: 15.843 min Scan# 2380
Delta R.T. 0.003 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:119 Resp: 5236

Ion	Ratio	Lower	Upper
119	100		
134	21.9	0.0	56.6
91	26.6	0.0	51.4

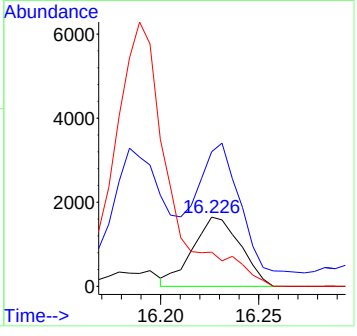




#128
n-butylbenzene
Concen: 0.45 ug/L
RT: 16.226 min Scan# 2453
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion: 92 Resp: 2793

Ion	Ratio	Lower	Upper
92	100		
91	172.3	149.6	209.6
134	49.6	19.1	79.1



7.1.4

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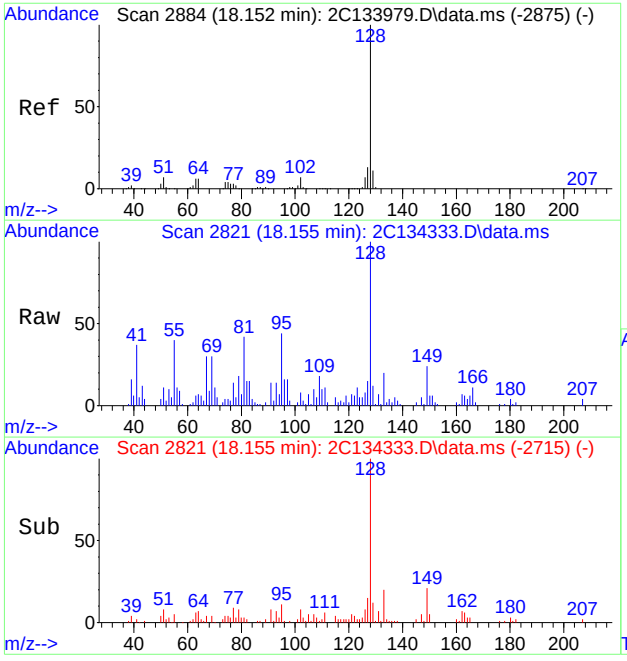
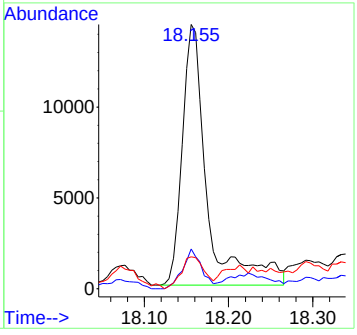


#133
naphthalene
Concen: 2.35 ug/L
RT: 18.155 min Scan# 2821
Delta R.T. -0.002 min
Lab File: 2C134333.D
Acq: 7 Nov 2015 1:04 pm

Tgt Ion:128 Resp: 29764

Ion	Ratio	Lower	Upper
128	100		
127	15.3	0.0	43.1
129	11.2	0.0	41.0



7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158623.D
Acq On : 5 Nov 2015 4:14 pm
Operator : prashans
Sample : jc7291-4
Misc : MS93732,VY6927,6.6,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 09 16:43:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.27	65	93436	500.00	ug/L	0.00
4) pentafluorobenzene	9.48	168	217669	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.40	114	291408	50.00	ug/L	-0.01
83) chlorobenzene-d5	13.54	117	242658	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.84	152	121017	50.00	ug/L	0.00

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.54	113	97618	53.48	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 106.96%			
46) 1,2-dichloroethane-d4 (s)	9.96	65	95099	45.01	ug/L	-0.02
Spiked Amount 50.000	Range 68 - 124		Recovery = 90.02%			
75) toluene-d8 (s)	12.04	98	347238	49.22	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.44%			
100) 4-bromofluorobenzene (s)	14.68	95	123403	51.84	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 103.68%			

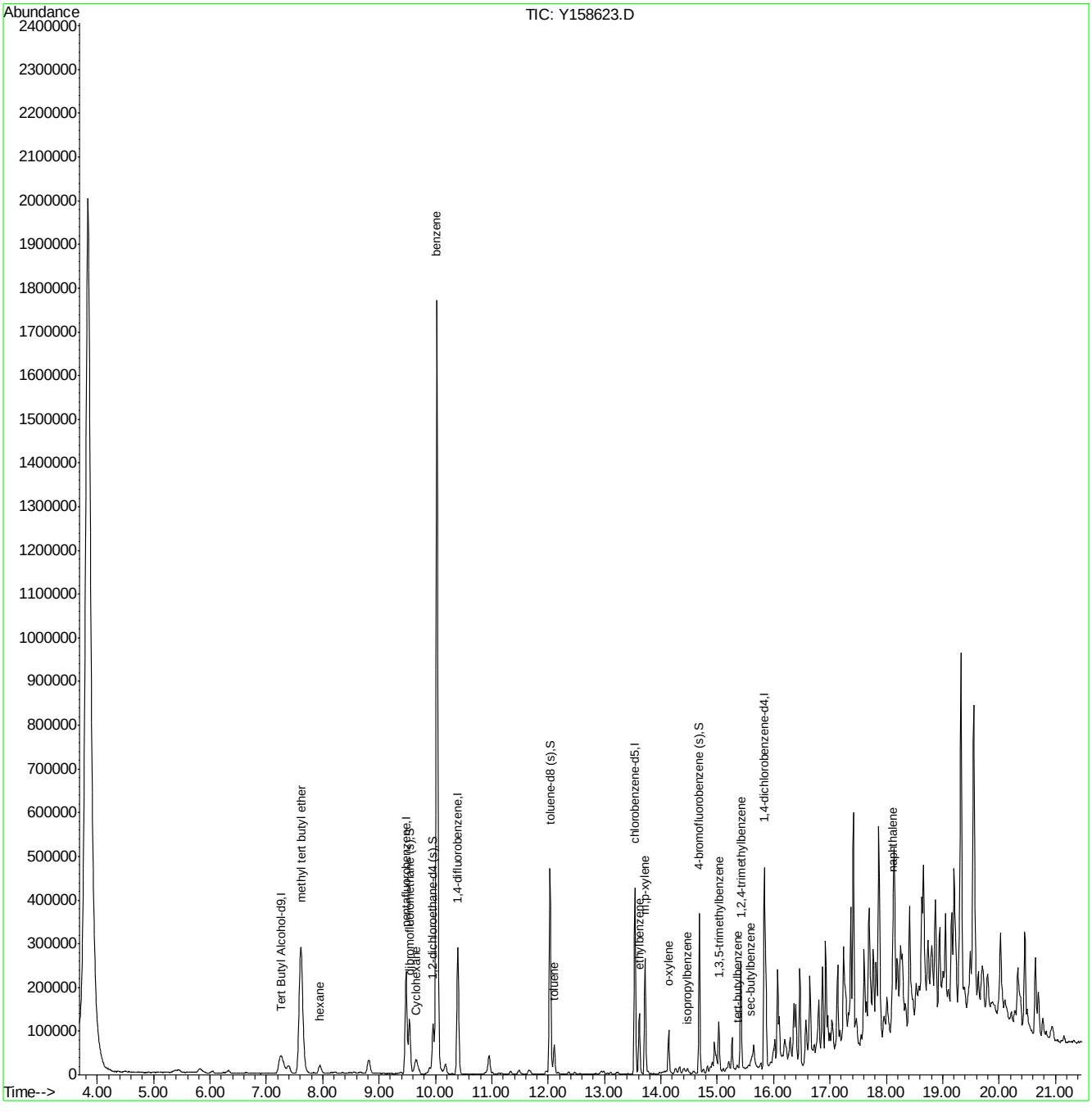
Target Compounds						Qvalue
27) methyl tert butyl ether	7.61	73	635632	108.54	ug/L	99
50) Cyclohexane	9.66	84	19229	8.05	ug/L #	64
58) hexane	7.95	57	14853	6.75	ug/L	95
60) benzene	10.03	78	2014964	244.14	ug/L	99
77) toluene	12.11	91	51677	7.28	ug/L	99
93) ethylbenzene	13.62	91	92515	11.64	ug/L	99
94) m,p-xylene	13.72	106	76093	26.36	ug/L	96
95) o-xylene	14.14	91	59307	8.55	ug/L	97
99) isopropylbenzene	14.47	105	5374	0.74	ug/L	89
111) 1,3,5-trimethylbenzene	15.03	105	58813	8.96	ug/L	100
112) tert-butylbenzene	15.37	119	1063	0.21	ug/L #	61
114) 1,2,4-trimethylbenzene	15.42	105	133691	19.98	ug/L	97
115) sec-butylbenzene	15.59	105	3380	0.41	ug/L	87
127) naphthalene	18.11	128	120487	22.49	ug/L	99

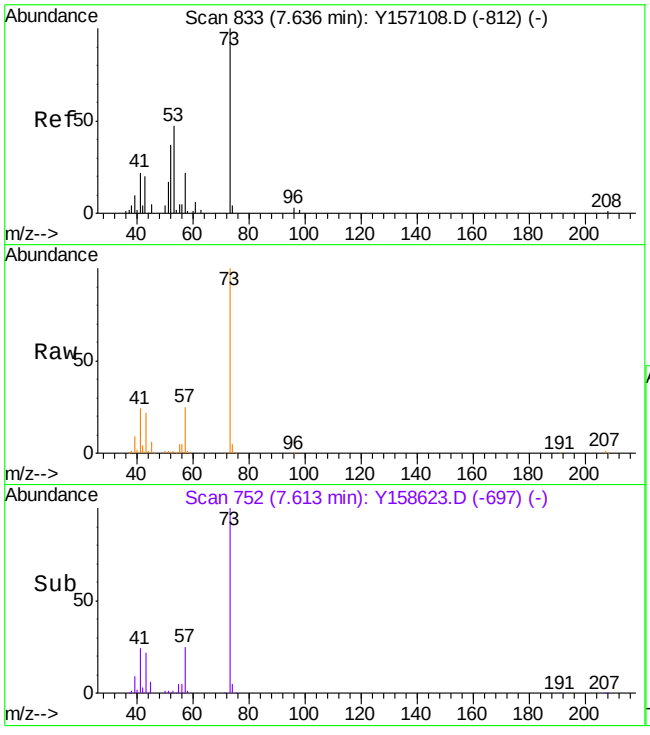
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158623.D
Acq On : 5 Nov 2015 4:14 pm
Operator : prashans
Sample : jc7291-4
Misc : MS93732,VY6927,6.6,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 09 16:43:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

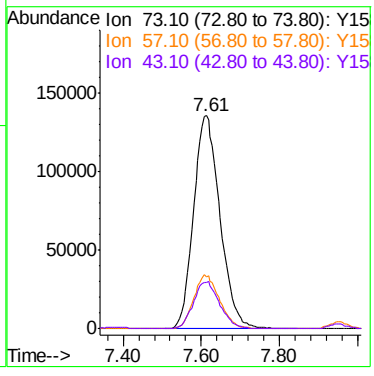


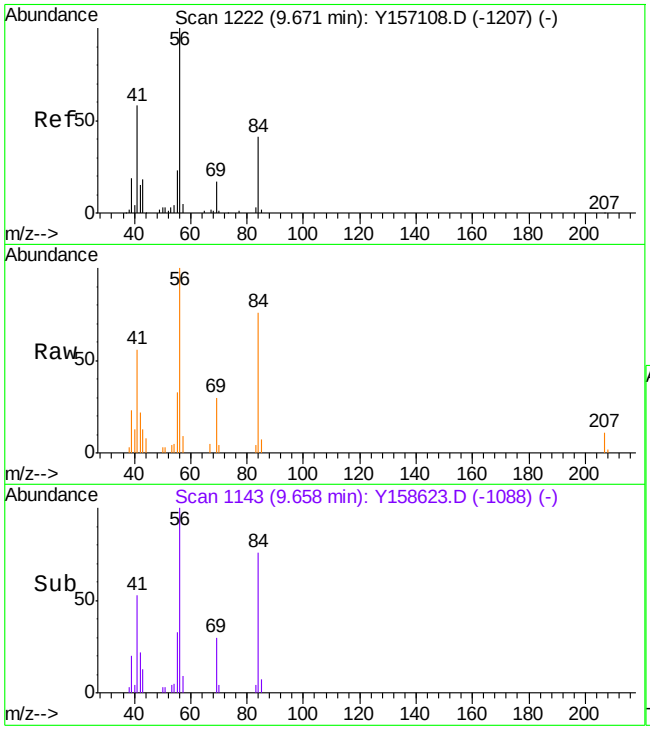


#27
methyl tert butyl ether
Concen: 108.54 ug/L
RT: 7.61 min Scan# 752
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 73 Resp: 635632

Ion	Ratio	Lower	Upper
73	100		
57	24.6	0.0	53.9
43	21.9	0.0	51.5

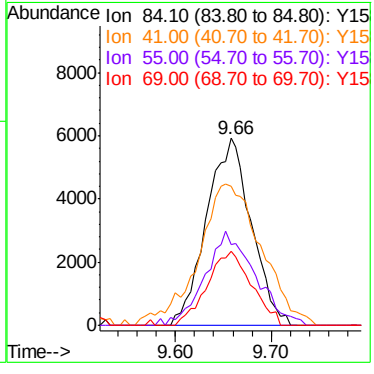


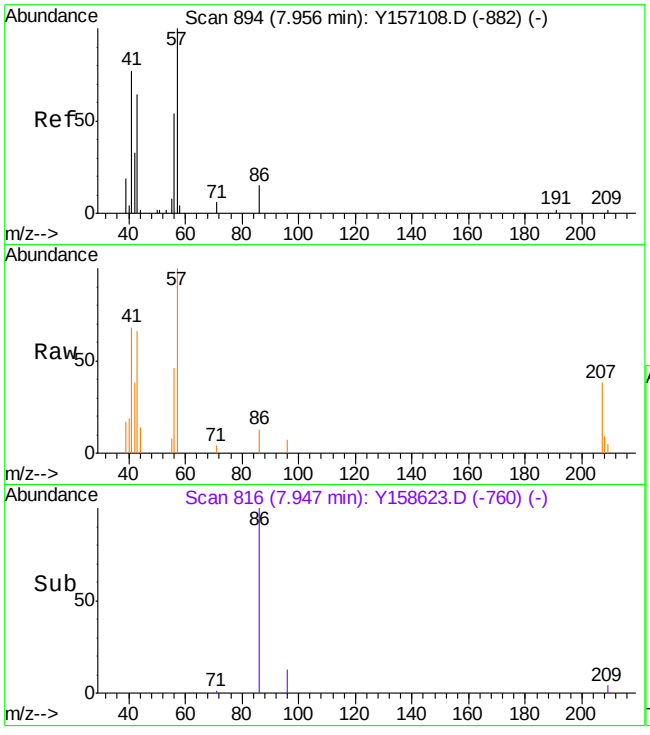


#50
Cyclohexane
Concen: 8.05 ug/L
RT: 9.66 min Scan# 1143
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 84 Resp: 19229

Ion	Ratio	Lower	Upper
84	100		
41	67.6	92.7	172.1#
55	43.1	37.2	69.0
69	39.6	26.6	49.4

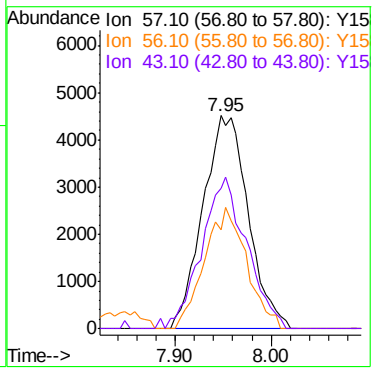


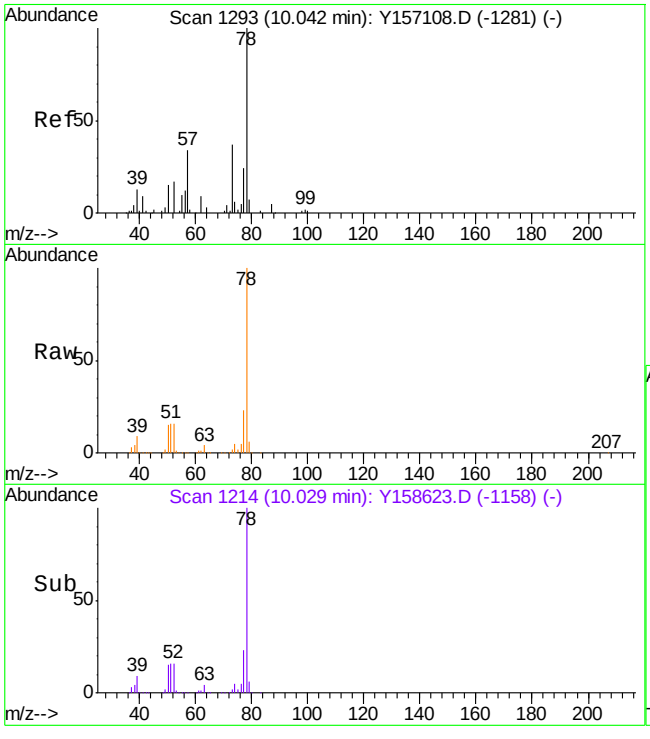


#58
hexane
Concen: 6.75 ug/L
RT: 7.95 min Scan# 816
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 57 Resp: 14853

Ion	Ratio	Lower	Upper
57	100		
56	46.4	20.4	80.4
43	66.0	33.2	93.2

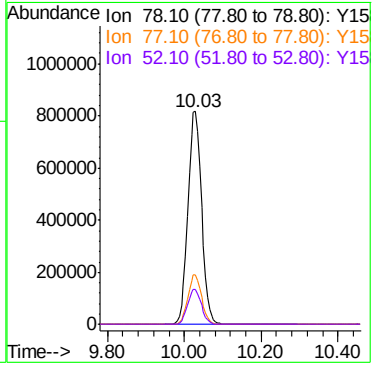


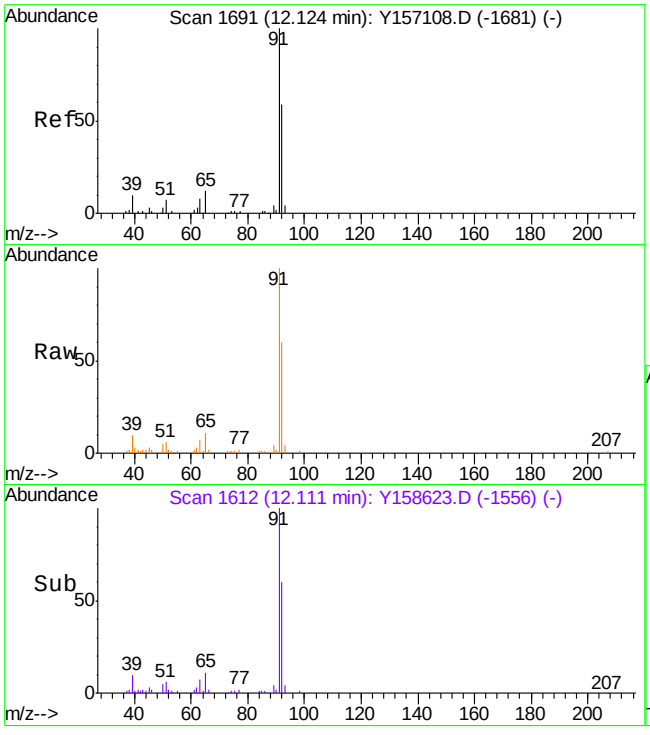


#60
benzene
Concen: 244.14 ug/L
RT: 10.03 min Scan# 1214
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 78 Resp: 2014964

Ion	Ratio	Lower	Upper
78	100		
77	23.4	0.0	53.2
52	16.5	0.0	47.5

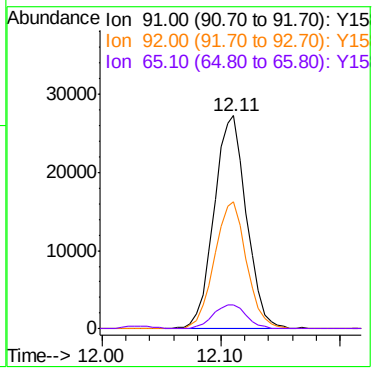


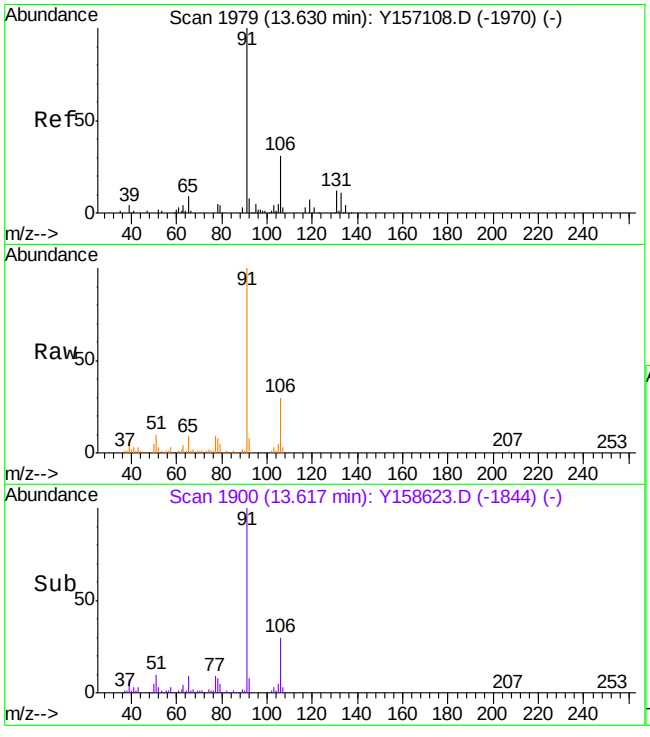


#77
toluene
Concen: 7.28 ug/L
RT: 12.11 min Scan# 1612
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 91 Resp: 51677

Ion	Ratio	Lower	Upper
91	100		
92	59.6	29.5	89.5
65	11.1	0.0	42.0

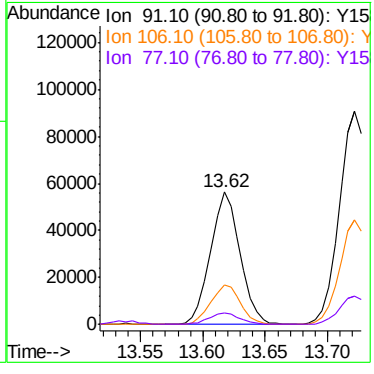


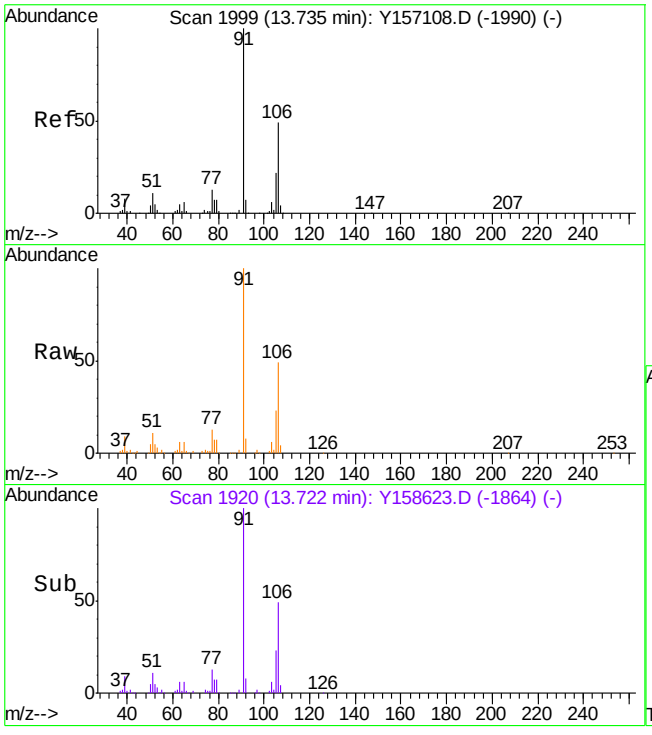


#93
ethylbenzene
Concen: 11.64 ug/L
RT: 13.62 min Scan# 1900
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 91 Resp: 92515

Ion	Ratio	Lower	Upper
91	100		
106	29.9	0.4	60.4
77	8.9	0.0	38.3

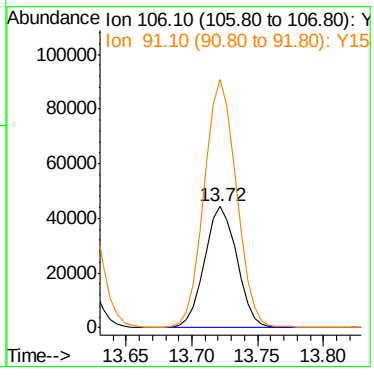


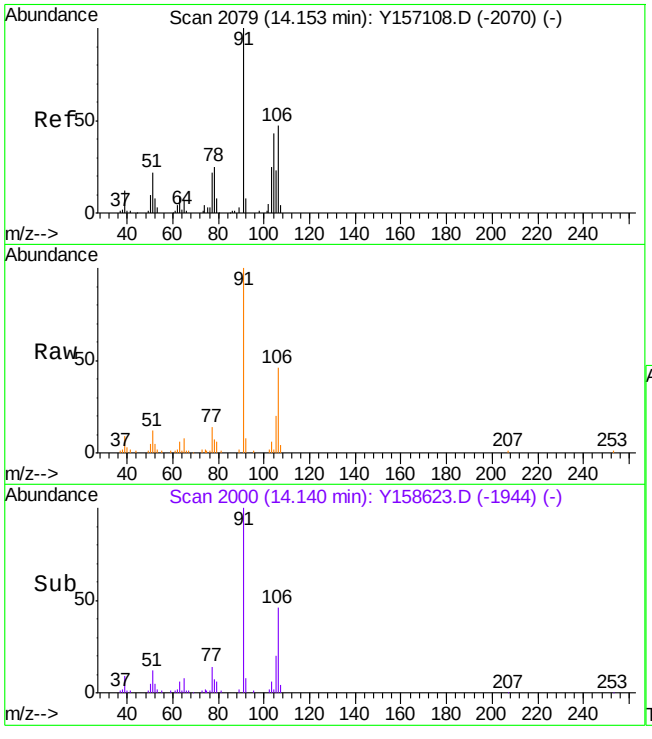


#94
m,p-xylene
Concen: 26.36 ug/L
RT: 13.72 min Scan# 1920
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion:106 Resp: 76093

Ion	Ratio	Lower	Upper
106	100		
91	202.8	146.0	271.2

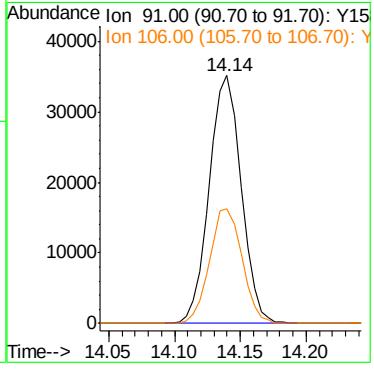


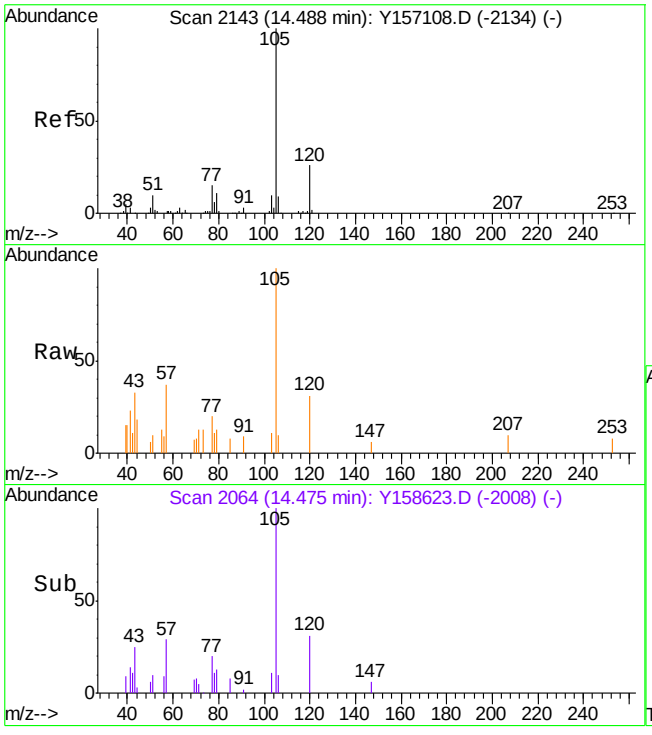


#95
o-xylene
Concen: 8.55 ug/L
RT: 14.14 min Scan# 2000
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion: 91 Resp: 59307

Ion	Ratio	Lower	Upper
91	100		
106	46.3	33.7	62.7

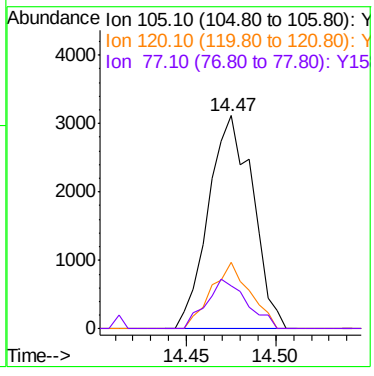


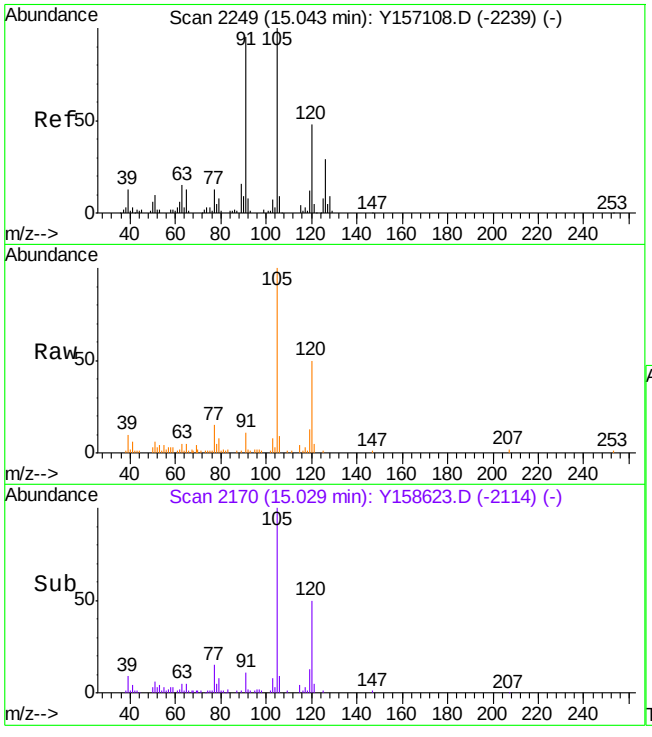


#99
isopropylbenzene
Concen: 0.74 ug/L
RT: 14.47 min Scan# 2064
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion:105 Resp: 5374

Ion	Ratio	Lower	Upper
105	100		
120	31.3	0.0	55.4
77	19.9	0.0	45.4

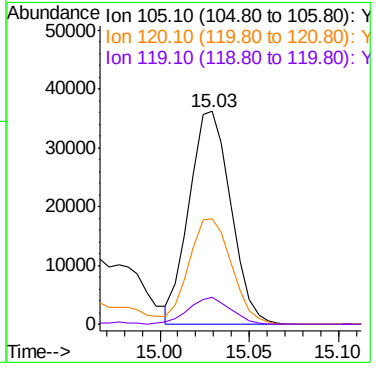




#111
1,3,5-trimethylbenzene
Concen: 8.96 ug/L
RT: 15.03 min Scan# 2170
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

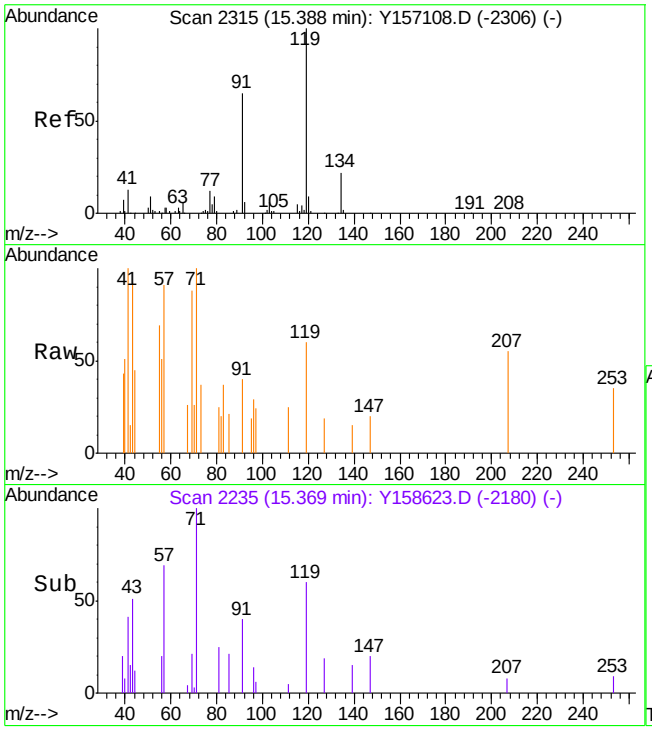
Tgt Ion:105 Resp: 58813

Ion	Ratio	Lower	Upper
105	100		
120	49.8	19.8	79.8
119	12.8	0.0	42.2



7.1.5

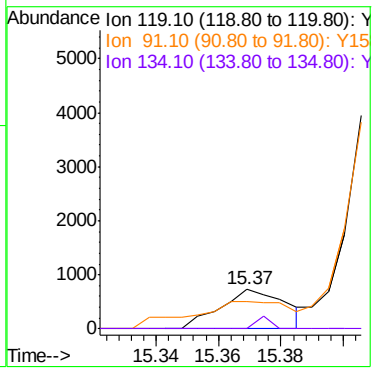
7

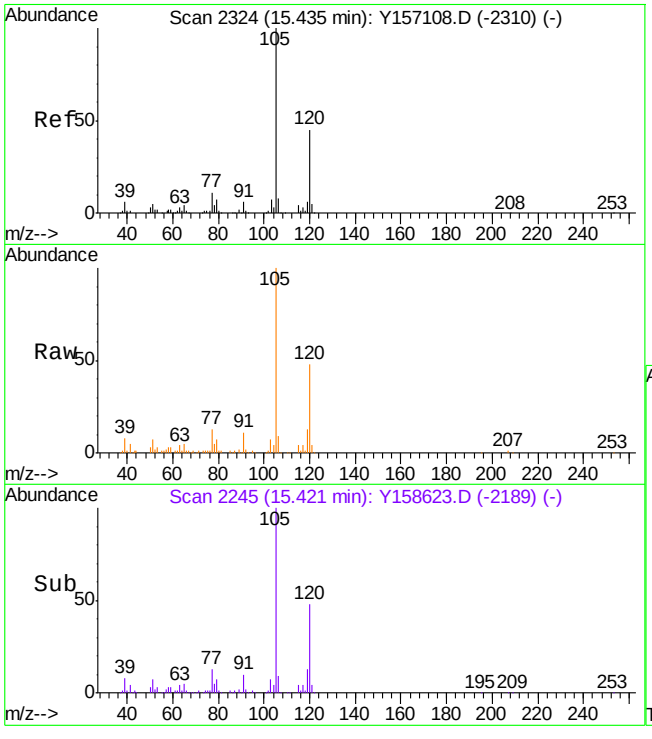


#112
tert-butylbenzene
Concen: 0.21 ug/L
RT: 15.37 min Scan# 2235
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion:119 Resp: 1063

Ion	Ratio	Lower	Upper
119	100		
91	37.3	37.7	97.7#
134	0.0	0.0	51.1

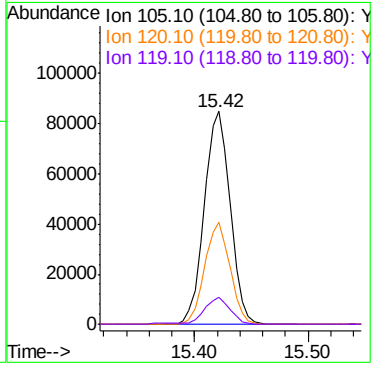


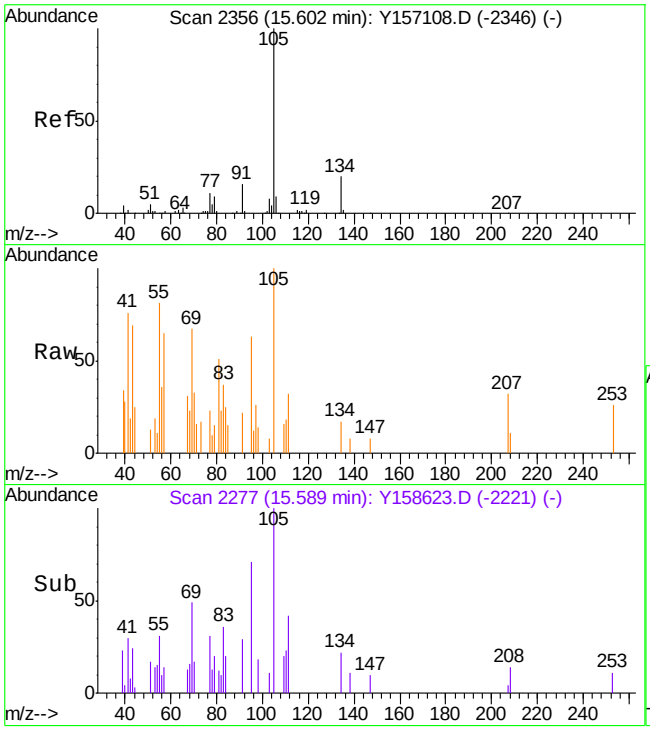


#114
1,2,4-trimethylbenzene
Concen: 19.98 ug/L
RT: 15.42 min Scan# 2245
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion:105 Resp: 133691

Ion	Ratio	Lower	Upper
105	100		
120	47.8	16.1	76.1
119	12.6	0.0	41.3

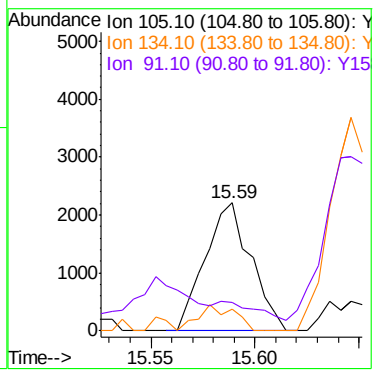


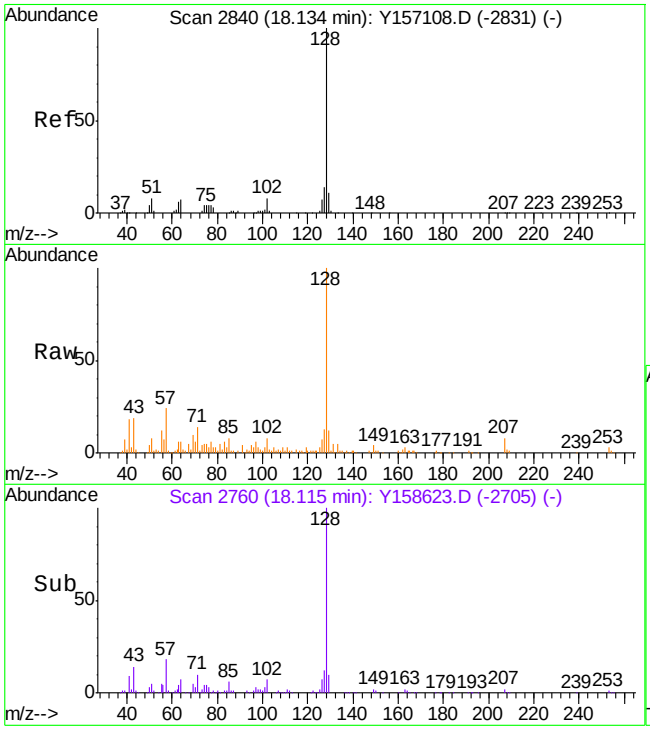


#115
sec-butylbenzene
Concen: 0.41 ug/L
RT: 15.59 min Scan# 2277
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion:105 Resp: 3380

Ion	Ratio	Lower	Upper
105	100		
134	16.6	0.0	48.3
91	5.8	0.0	45.7

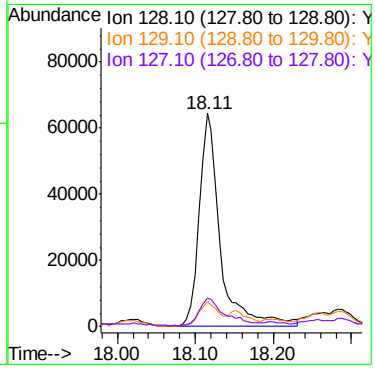




#127
naphthalene
Concen: 22.49 ug/L
RT: 18.11 min Scan# 2760
Delta R.T. -0.01 min
Lab File: Y158623.D
Acq: 5 Nov 2015 4:14 pm

Tgt Ion:128 Resp: 120487

Ion	Ratio	Lower	Upper
128	100		
129	11.9	0.0	41.1
127	12.9	0.0	43.0



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158624.D
Acq On : 5 Nov 2015 4:43 pm
Operator : prashans
Sample : jc7291-5
Misc : MS93732,VY6927,6.2,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 09 16:43:58 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.27	65	106187	500.00	ug/L	0.00
4) pentafluorobenzene	9.48	168	225655	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.40	114	297732	50.00	ug/L	0.00
83) chlorobenzene-d5	13.54	117	243314	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.84	152	119212	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.54	113	97486	51.52	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.04%			
46) 1,2-dichloroethane-d4 (s)	9.96	65	100336	45.81	ug/L	-0.02
Spiked Amount 50.000	Range 68 - 124		Recovery = 91.62%			
75) toluene-d8 (s)	12.03	98	361565	50.17	ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 100.34%			
100) 4-bromofluorobenzene (s)	14.68	95	120528	51.40	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 102.80%			

Target Compounds

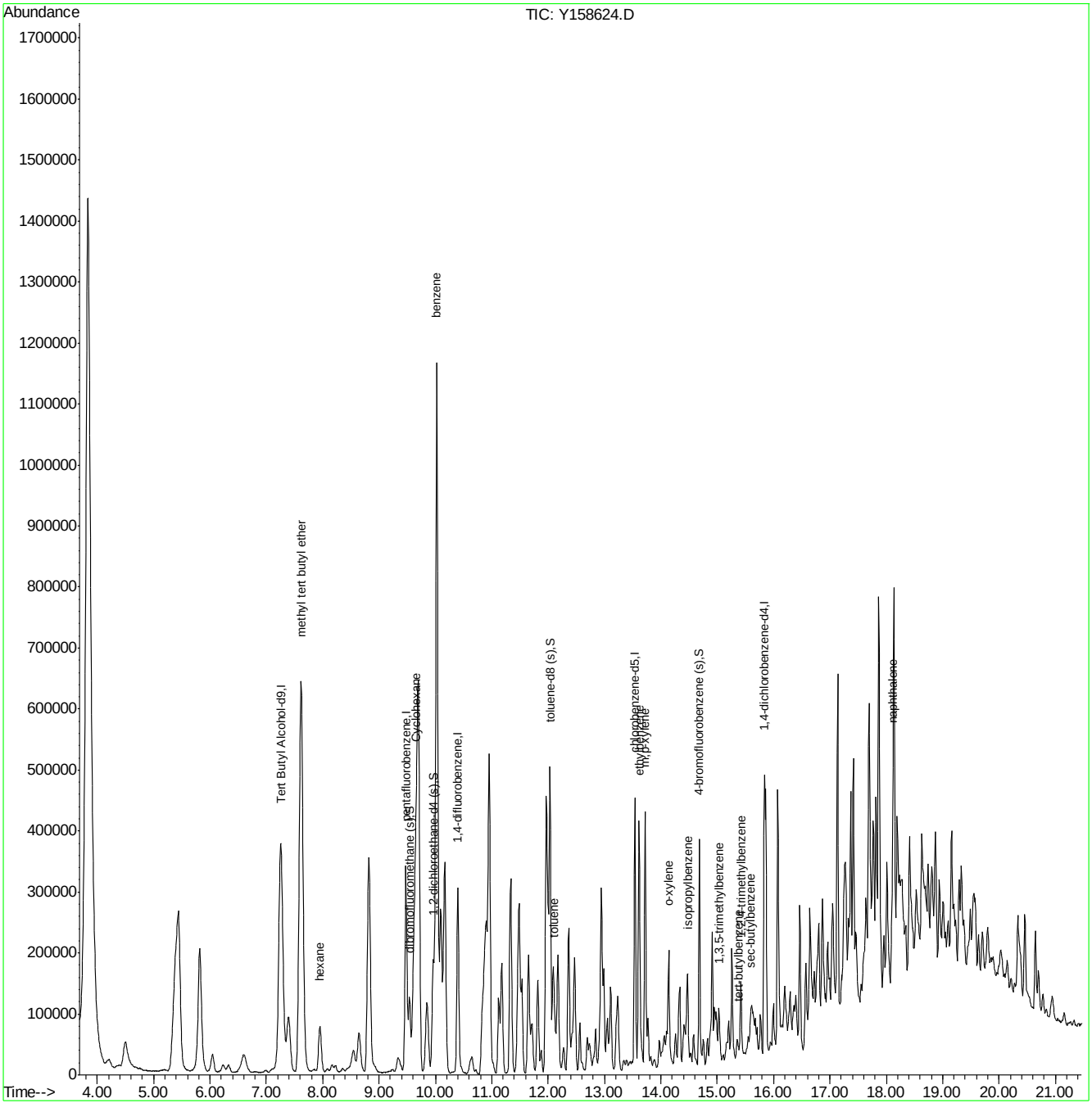
						Qvalue
27) methyl tert butyl ether	7.62	73	1016253	167.39	ug/L	62
50) Cyclohexane	9.66	84	220487	89.08	ug/L #	79
58) hexane	7.95	57	65707	29.23	ug/L	95
60) benzene	10.03	78	829065	98.32	ug/L	99
77) toluene	12.11	91	55002	7.58	ug/L	98
93) ethylbenzene	13.62	91	126782	15.91	ug/L	99
94) m,p-xylene	13.72	106	95375	32.96	ug/L	98
95) o-xylene	14.14	91	110207	15.84	ug/L	95
99) isopropylbenzene	14.47	105	72110	10.14	ug/L	99
111) 1,3,5-trimethylbenzene	15.03	105	34504	5.33	ug/L	98
112) tert-butylbenzene	15.37	119	5507	1.09	ug/L	89
114) 1,2,4-trimethylbenzene	15.42	105	63143	9.58	ug/L	97
115) sec-butylbenzene	15.59	105	18652	2.32	ug/L	97
127) naphthalene	18.12	128	22850	4.33	ug/L	88

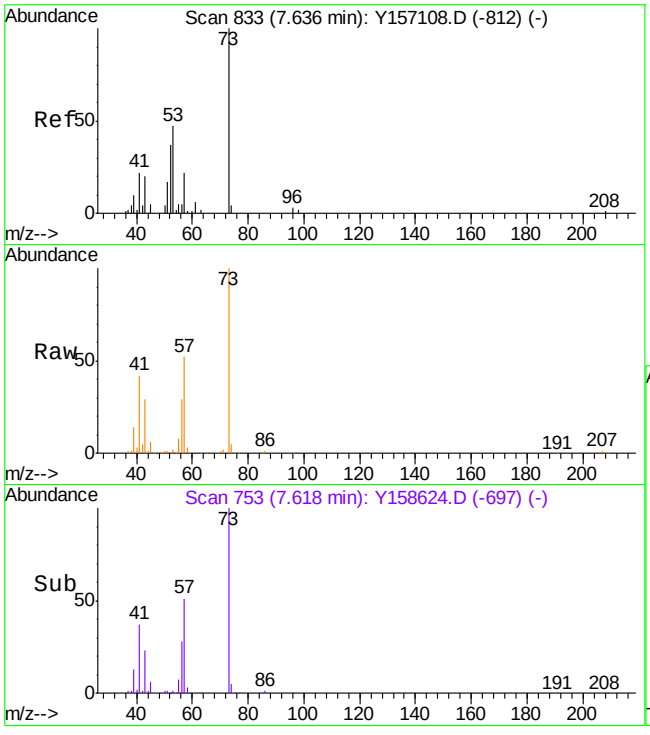
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158624.D
Acq On : 5 Nov 2015 4:43 pm
Operator : prashans
Sample : jc7291-5
Misc : MS93732,VY6927,6.2,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 09 16:43:58 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

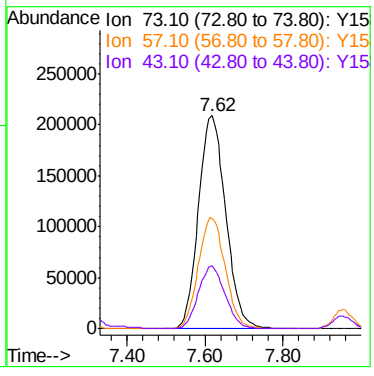


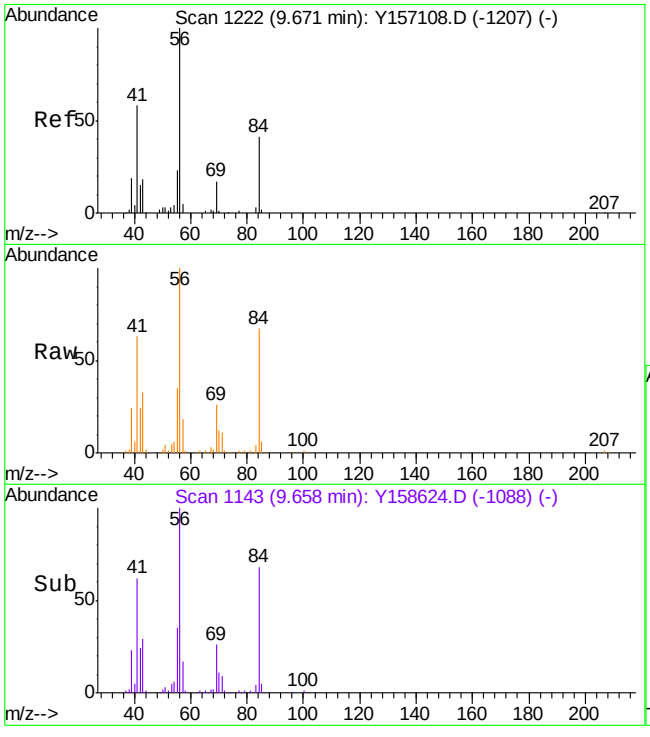


#27
methyl tert butyl ether
Concen: 167.39 ug/L
RT: 7.62 min Scan# 753
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 73 Resp: 1016253

Ion	Ratio	Lower	Upper
73	100		
57	51.6	0.0	53.9
43	29.4	0.0	51.5

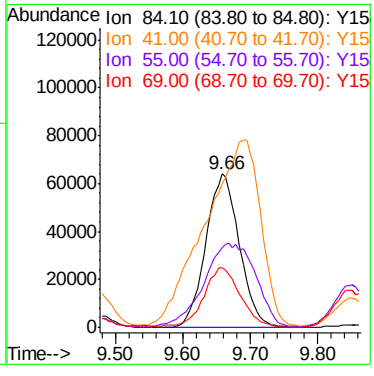


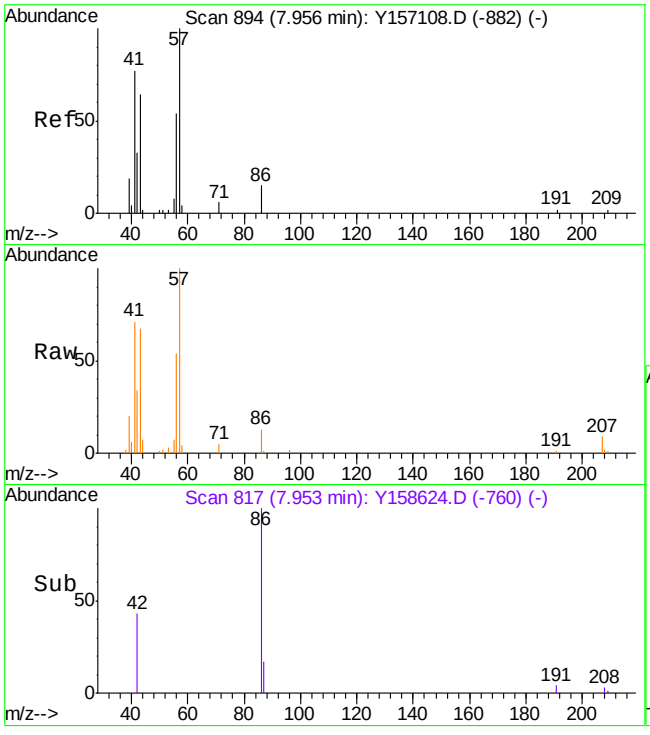


#50
Cyclohexane
Concen: 89.08 ug/L
RT: 9.66 min Scan# 1143
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 84 Resp: 220487

Ion	Ratio	Lower	Upper
84	100		
41	92.3	92.7	172.1#
55	51.4	37.2	69.0
69	38.6	26.6	49.4

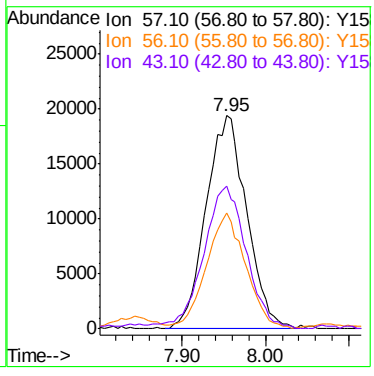


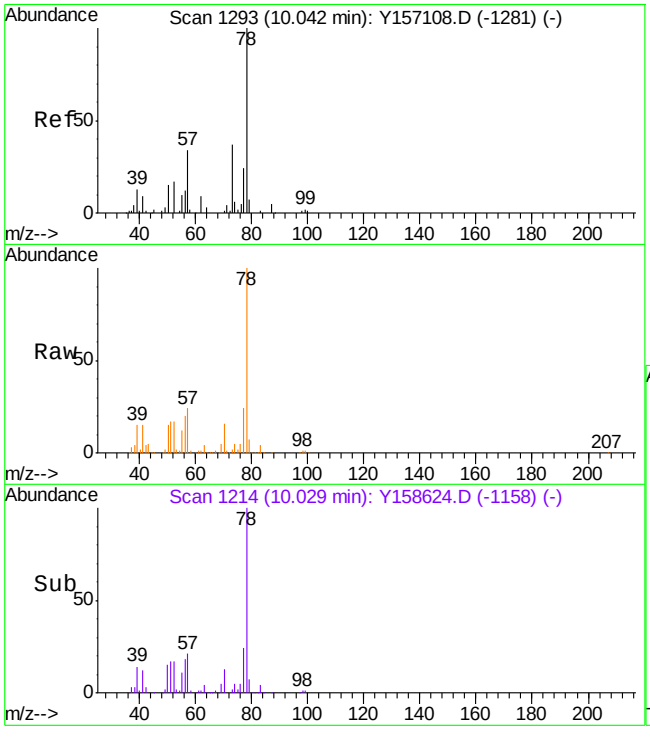


#58
hexane
Concen: 29.23 ug/L
RT: 7.95 min Scan# 817
Delta R.T. -0.00 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 57 Resp: 65707

Ion	Ratio	Lower	Upper
57	100		
56	53.4	20.4	80.4
43	66.9	33.2	93.2

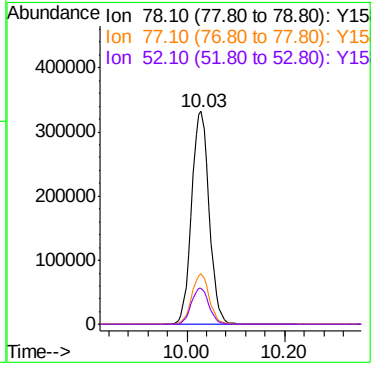


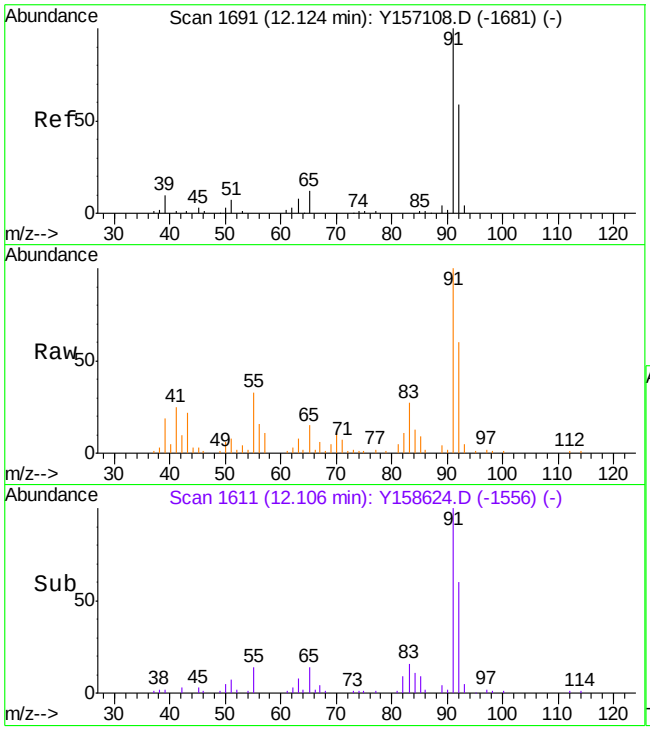


#60
benzene
Concen: 98.32 ug/L
RT: 10.03 min Scan# 1214
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 78 Resp: 829065

Ion	Ratio	Lower	Upper
78	100		
77	23.7	0.0	53.2
52	17.0	0.0	47.5

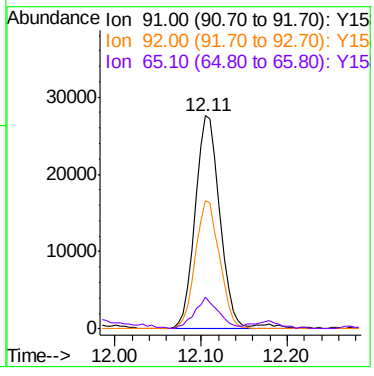


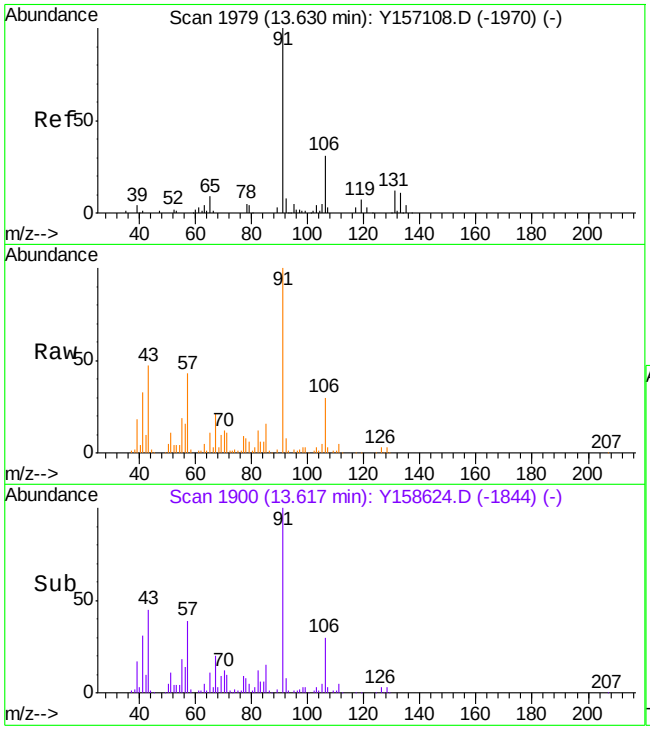


#77
toluene
Concen: 7.58 ug/L
RT: 12.11 min Scan# 1611
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 91 Resp: 55002

Ion	Ratio	Lower	Upper
91	100		
92	60.0	29.5	89.5
65	14.7	0.0	42.0

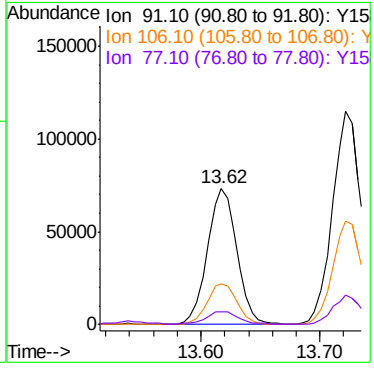




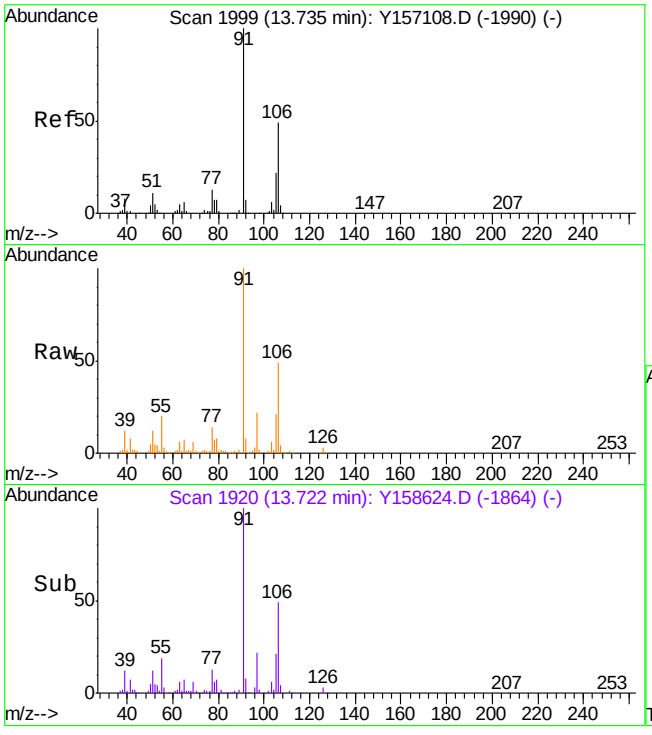
#93
ethylbenzene
Concen: 15.91 ug/L
RT: 13.62 min Scan# 1900
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 91 Resp: 126782

Ion	Ratio	Lower	Upper
91	100		
106	30.0	0.4	60.4
77	8.8	0.0	38.3



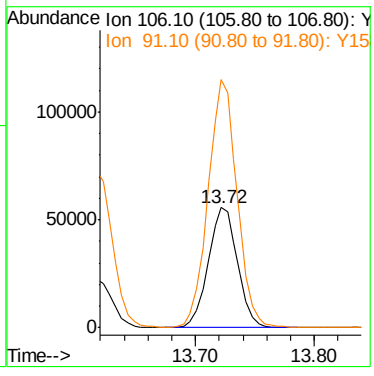
7.1.6

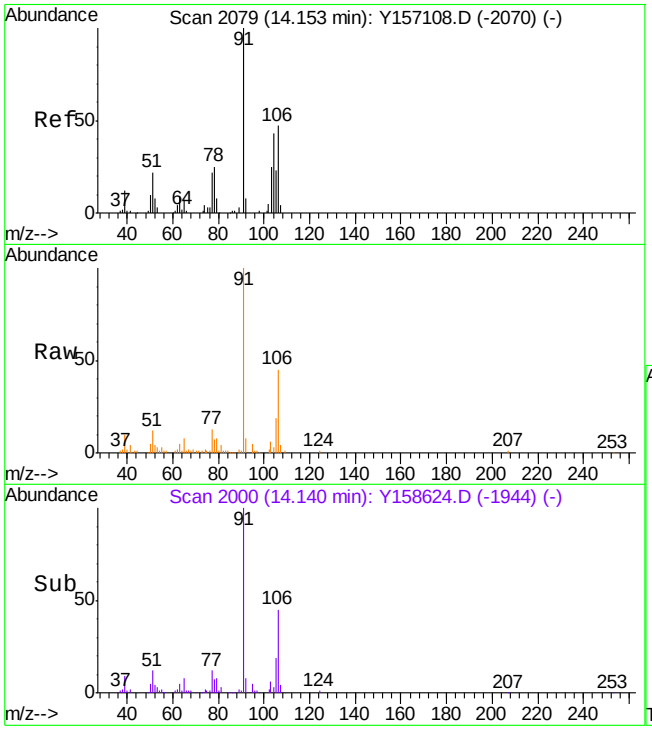


#94
m,p-xylene
Concen: 32.96 ug/L
RT: 13.72 min Scan# 1920
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:106 Resp: 95375

Ion	Ratio	Lower	Upper
106	100		
91	205.3	146.0	271.2

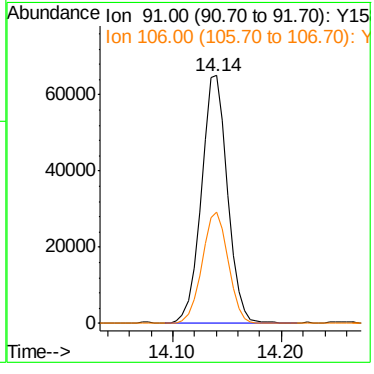


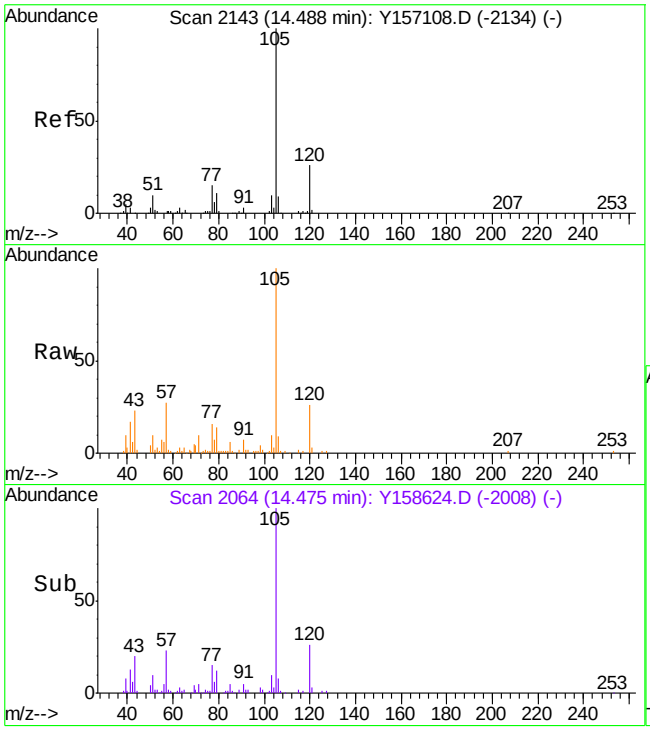


#95
o-xylene
Concen: 15.84 ug/L
RT: 14.14 min Scan# 2000
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion: 91 Resp: 110207

Ion	Ratio	Lower	Upper
91	100		
106	44.9	33.7	62.7

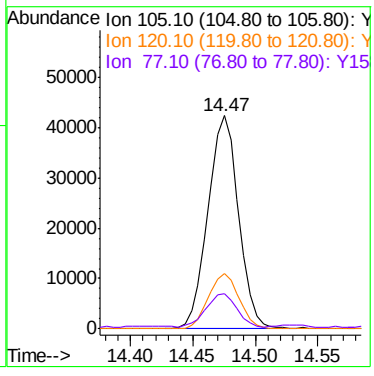


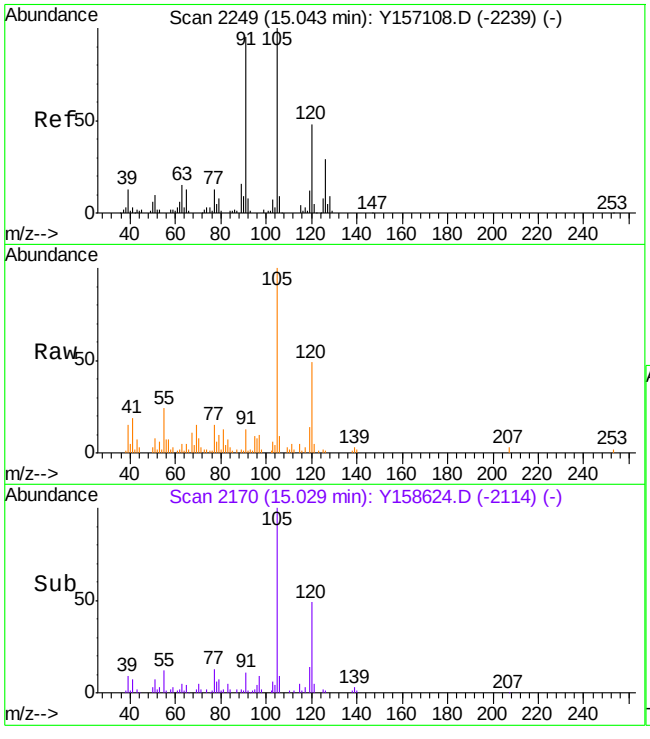


#99
isopropylbenzene
Concen: 10.14 ug/L
RT: 14.47 min Scan# 2064
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:105 Resp: 72110

Ion	Ratio	Lower	Upper
105	100		
120	25.9	0.0	55.4
77	15.4	0.0	45.4

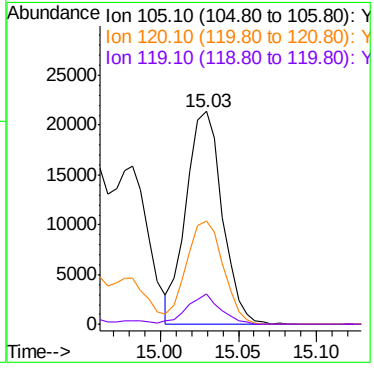


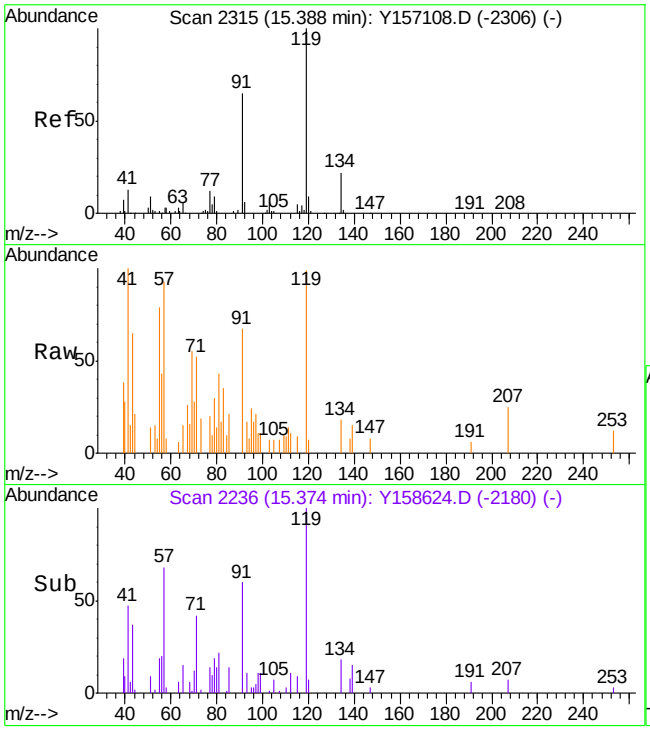


#111
1,3,5-trimethylbenzene
Concen: 5.33 ug/L
RT: 15.03 min Scan# 2170
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:105 Resp: 34504

Ion	Ratio	Lower	Upper
105	100		
120	48.6	19.8	79.8
119	14.4	0.0	42.2

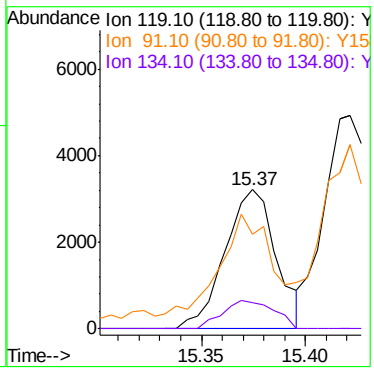


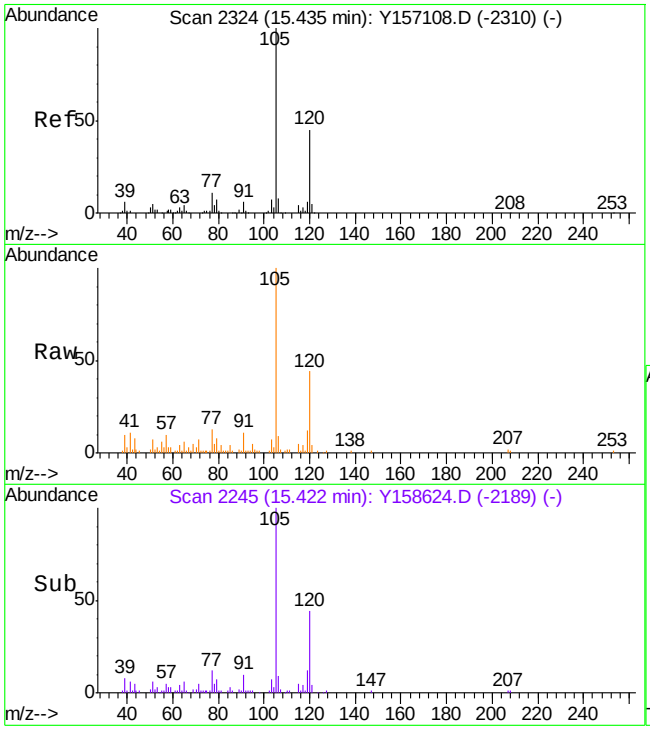


#112
tert-butylbenzene
Concen: 1.09 ug/L
RT: 15.37 min Scan# 2236
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:119 Resp: 5507

Ion	Ratio	Lower	Upper
119	100		
91	57.0	37.7	97.7
134	18.5	0.0	51.1

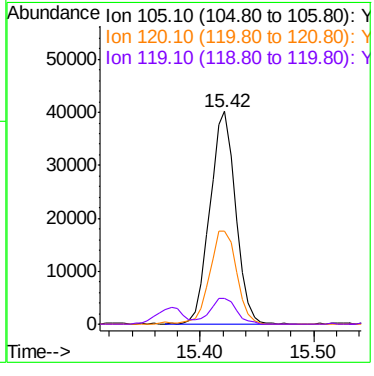


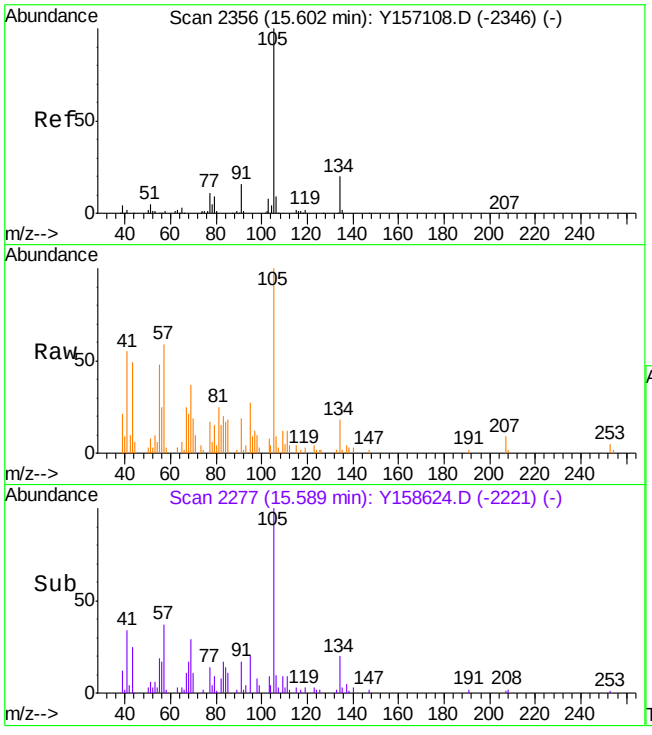


#114
1,2,4-trimethylbenzene
Concen: 9.58 ug/L
RT: 15.42 min Scan# 2245
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:105 Resp: 63143

Ion	Ratio	Lower	Upper
105	100		
120	43.9	16.1	76.1
119	12.3	0.0	41.3

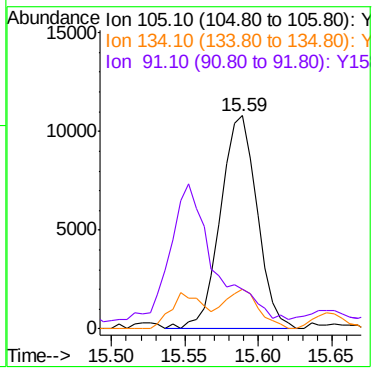


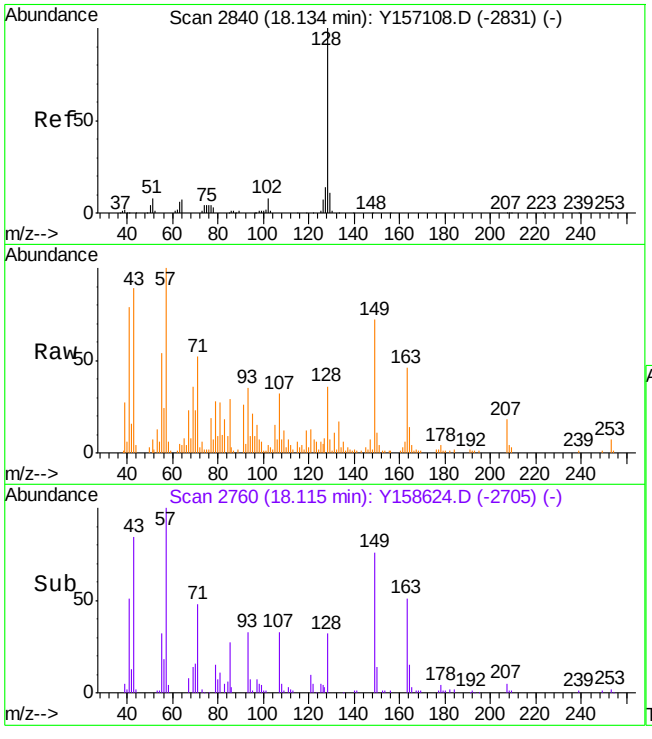


#115
sec-butylbenzene
Concen: 2.32 ug/L
RT: 15.59 min Scan# 2277
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:105 Resp: 18652

Ion	Ratio	Lower	Upper
105	100		
134	18.4	0.0	48.3
91	13.1	0.0	45.7

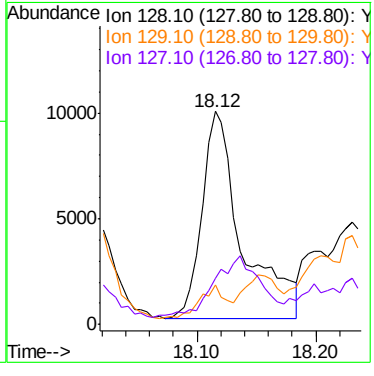




#127
naphthalene
Concen: 4.33 ug/L
RT: 18.12 min Scan# 2760
Delta R.T. -0.01 min
Lab File: Y158624.D
Acq: 5 Nov 2015 4:43 pm

Tgt Ion:128 Resp: 22850

Ion	Ratio	Lower	Upper
128	100		
129	15.6	0.0	41.1
127	17.6	0.0	43.0



7.1.6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2C\v2c6058-6060\
Data File : 2C134334.D
Acq On : 7 Nov 2015 1:33 pm
Operator : ToanP
Sample : jc7291-6
Misc : MS93732,V2C6060,6.2,,100,10,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 09 10:51:19 2015
Quant Method : C:\msdchem\1\METHODS\M2C6046.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration

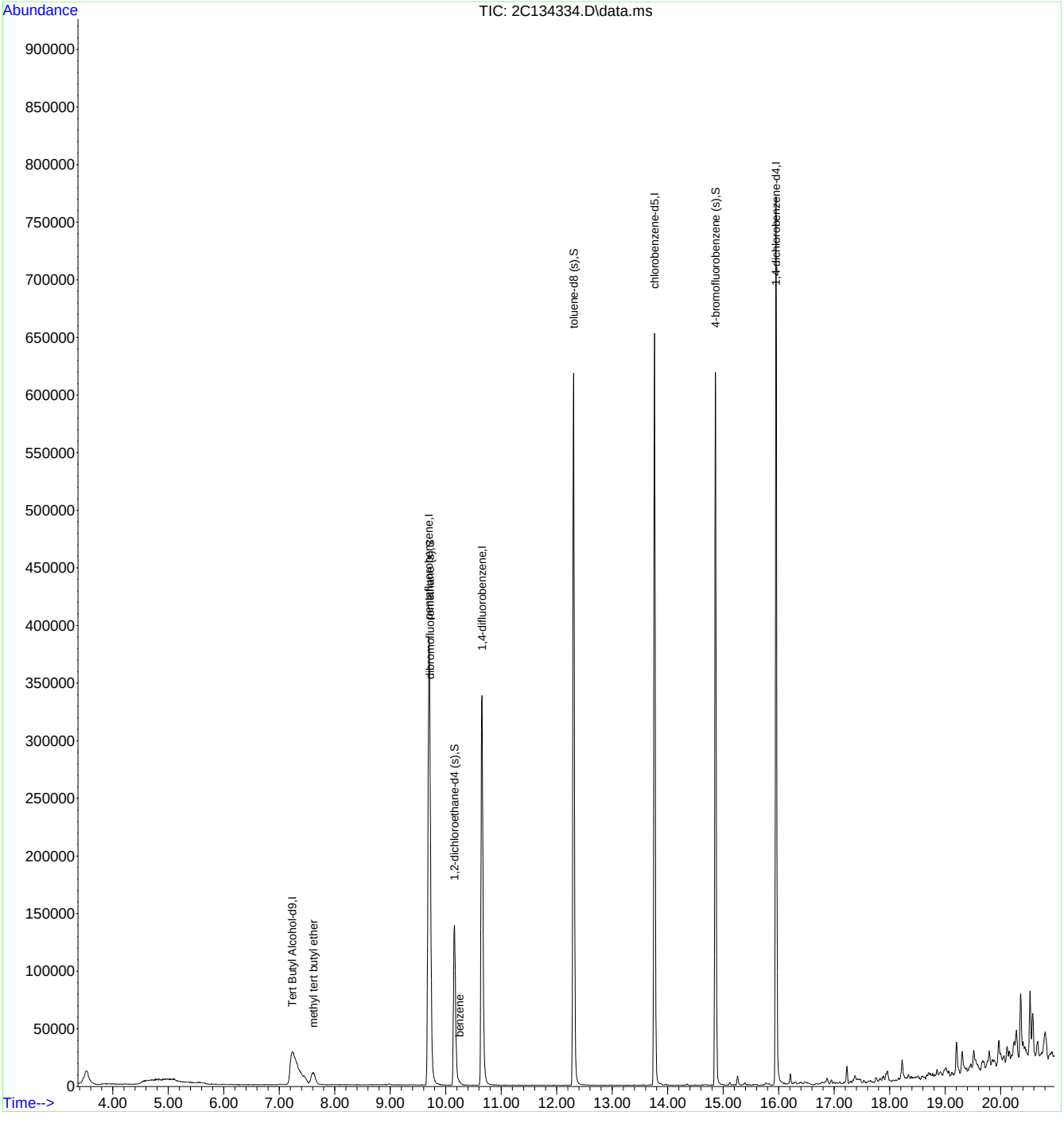
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.234	65	179408	500.00	ug/L	0.02
5) pentafluorobenzene	9.693	168	343094	50.00	ug/L	0.00
61) 1,4-difluorobenzene	10.653	114	394831	50.00	ug/L	0.00
92) chlorobenzene-d5	13.762	117	394333	50.00	ug/L	0.00
107) 1,4-dichlorobenzene-d4	15.953	152	214030	50.00	ug/L	0.00
System Monitoring Compounds						
54) dibromofluoromethane (s)	9.714	113	127681	46.05	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 92.10%			
55) 1,2-dichloroethane-d4 (s)	10.155	65	137216	46.88	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 93.76%			
84) toluene-d8 (s)	12.304	98	469523	53.38	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 106.76%			
109) 4-bromofluorobenzene (s)	14.858	95	194196	52.31	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery = 104.62%			
Target Compounds						Qvalue
37) methyl tert butyl ether	7.612	73	26797	3.11	ug/L	96
70) benzene	10.249	78	2495	0.23	ug/L	94

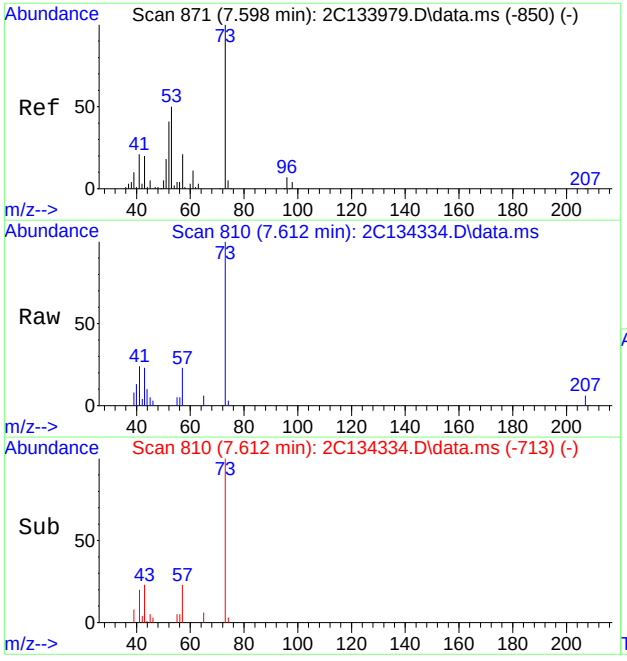
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2C\v2c6058-6060\
Data File : 2C134334.D
Acq On : 7 Nov 2015 1:33 pm
Operator : ToanP
Sample : jc7291-6
Misc : MS93732,V2C6060,6.2,,100,10,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 09 10:51:19 2015
Quant Method : C:\msdchem\1\METHODS\M2C6046.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration

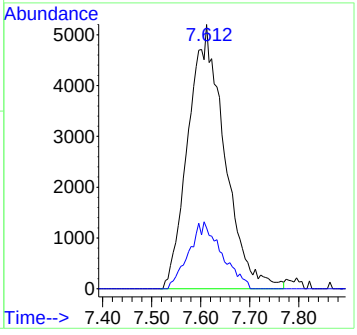


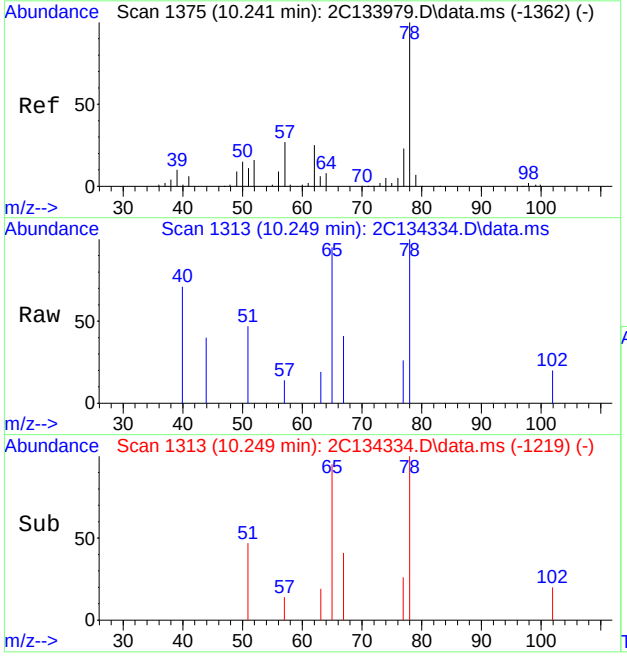


#37
methyl tert butyl ether
Concen: 3.11 ug/L
RT: 7.612 min Scan# 810
Delta R.T. 0.008 min
Lab File: 2C134334.D
Acq: 7 Nov 2015 1:33 pm

Tgt Ion: 73 Resp: 26797

Ion	Ratio	Lower	Upper
73	100		
57	23.0	0.0	51.3

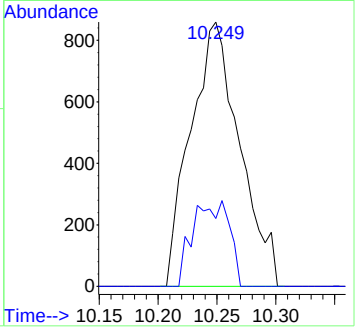




#70
benzene
Concen: 0.23 ug/L
RT: 10.249 min Scan# 1313
Delta R.T. 0.003 min
Lab File: 2C134334.D
Acq: 7 Nov 2015 1:33 pm

Tgt Ion: 78 Resp: 2495

Ion	Ratio	Lower	Upper
78	100		
77	25.7	0.0	52.9



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158629.D
Acq On : 5 Nov 2015 7:04 pm
Operator : prashans
Sample : jc7291-6
Misc : MS93732,VY6927,6.3,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 09 16:46:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.26	65	79506	500.00	ug/L	-0.02
4) pentafluorobenzene	9.48	168	216957	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.40	114	287409	50.00	ug/L	-0.01
83) chlorobenzene-d5	13.54	117	236045	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.83	152	117281	50.00	ug/L	-0.01

System Monitoring Compounds						
45) dibromofluoromethane (s)	9.54	113	94695	52.05	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 104.10%			
46) 1,2-dichloroethane-d4 (s)	9.96	65	92649	43.99	ug/L	-0.02
Spiked Amount 50.000	Range 68 - 124		Recovery = 87.98%			
75) toluene-d8 (s)	12.03	98	336283	48.33	ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 96.66%			
100) 4-bromofluorobenzene (s)	14.68	95	121436	52.64	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 105.28%			

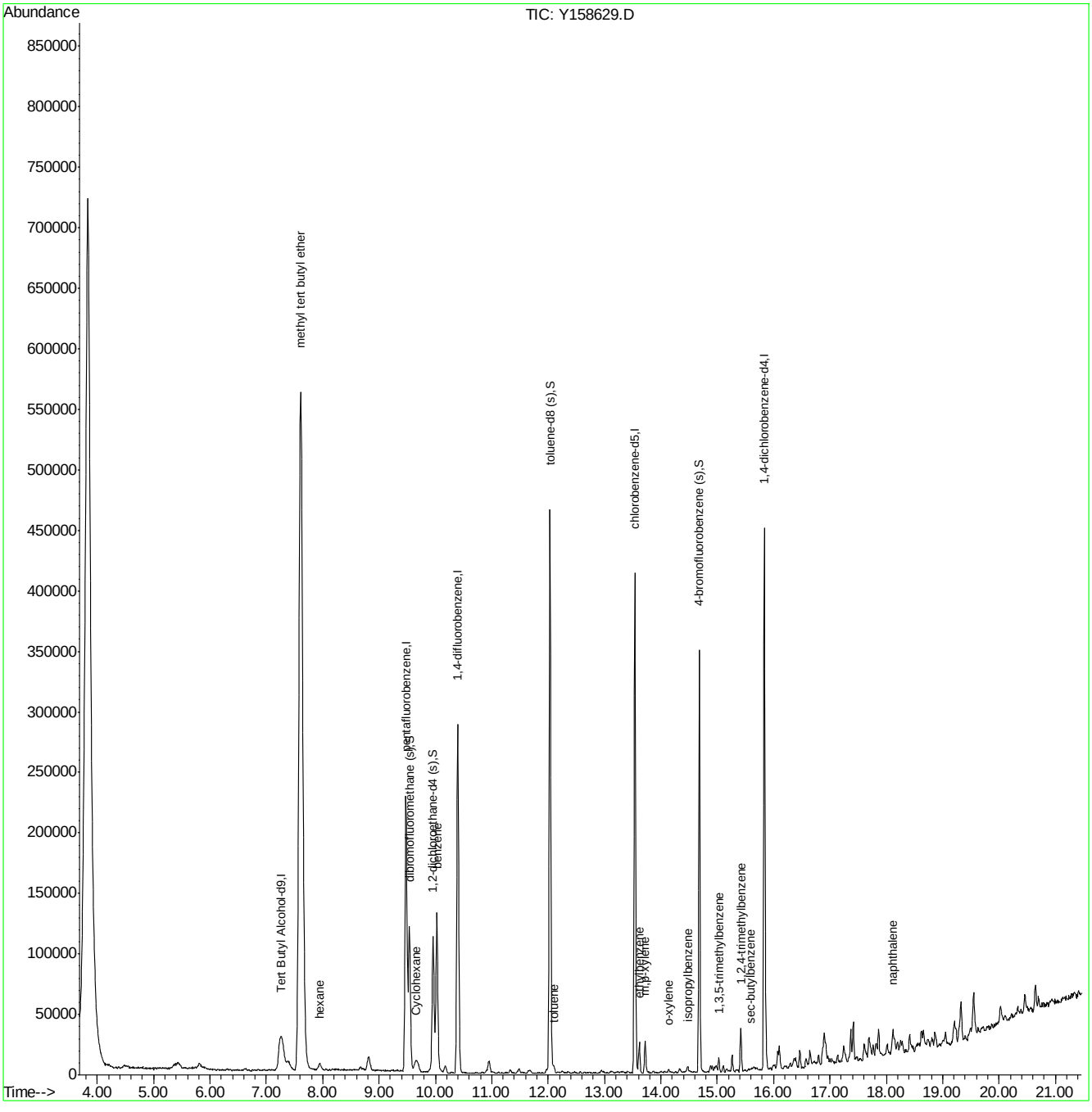
Target Compounds						Qvalue
27) methyl tert butyl ether	7.61	73	1289220	220.86	ug/L	99
50) Cyclohexane	9.66	84	5450	2.29	ug/L #	57
58) hexane	7.94	57	4177	1.92	ug/L	79
60) benzene	10.03	78	144096	17.70	ug/L	100
77) toluene	12.11	91	3094	0.44	ug/L	91
93) ethylbenzene	13.62	91	16732	2.16	ug/L	97
94) m,p-xylene	13.72	106	7500	2.67	ug/L	92
95) o-xylene	14.13	91	2432	0.36	ug/L	81
99) isopropylbenzene	14.47	105	3309	0.47	ug/L	94
111) 1,3,5-trimethylbenzene	15.03	105	7443	1.17	ug/L	97
114) 1,2,4-trimethylbenzene	15.42	105	19363	2.99	ug/L	95
115) sec-butylbenzene	15.59	105	1627	0.21	ug/L	63
127) naphthalene	18.12	128	15974	3.08	ug/L	92

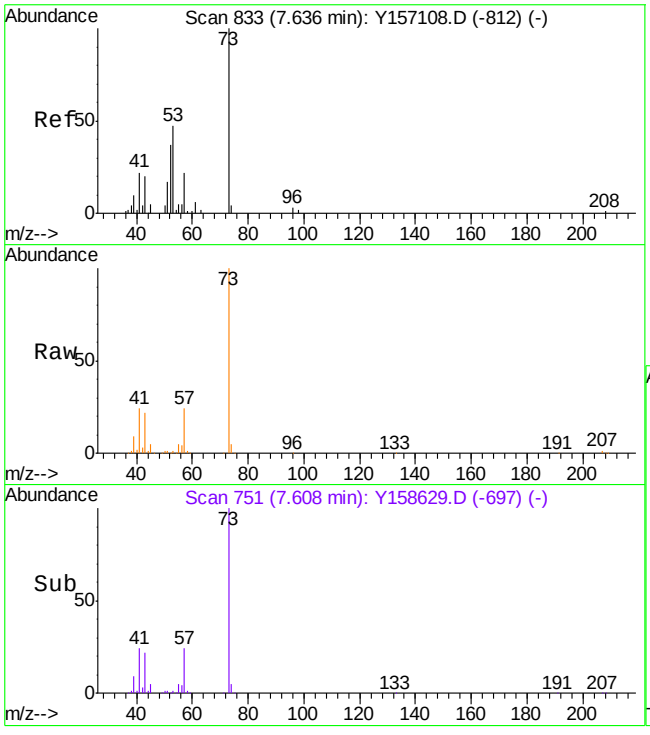
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158629.D
Acq On : 5 Nov 2015 7:04 pm
Operator : prashans
Sample : jc7291-6
Misc : MS93732,VY6927,6.3,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 09 16:46:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

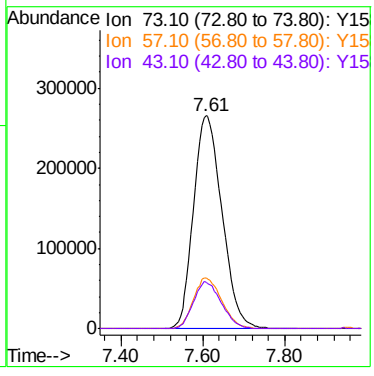


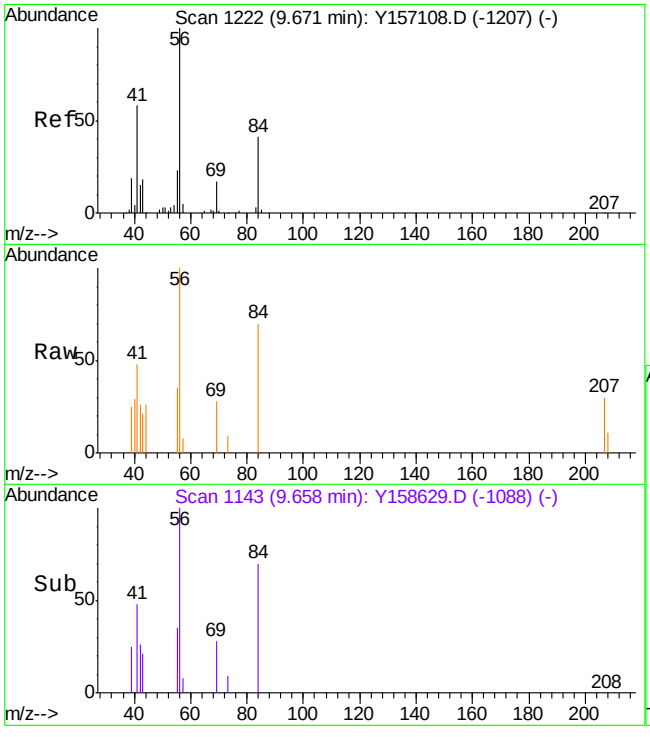


#27
methyl tert butyl ether
Concen: 220.86 ug/L
RT: 7.61 min Scan# 751
Delta R.T. -0.02 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion: 73 Resp: 1289220

Ion	Ratio	Lower	Upper
73	100		
57	24.1	0.0	53.9
43	22.0	0.0	51.5

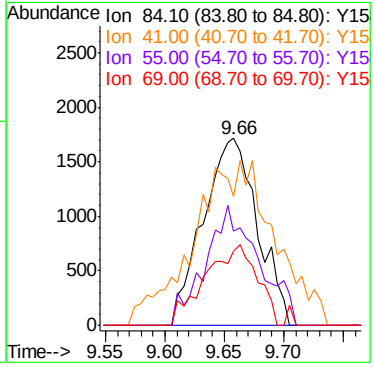


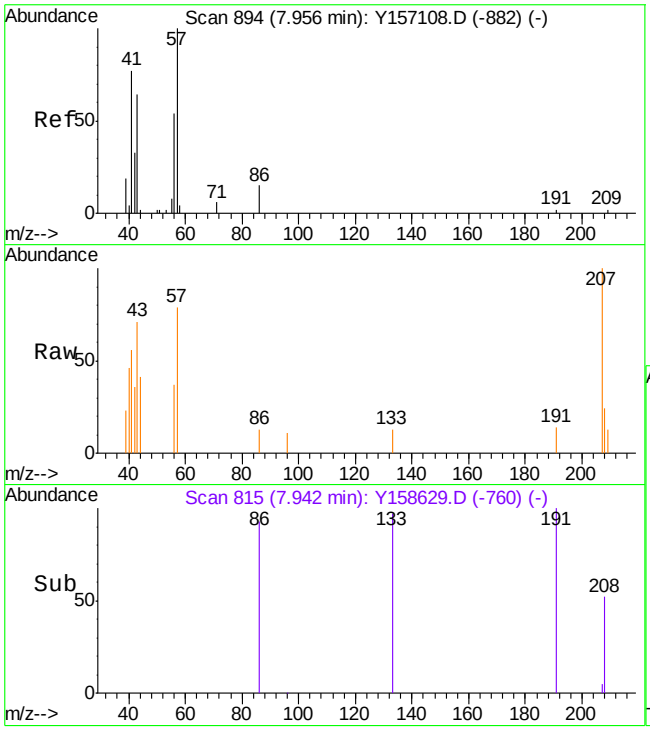


#50
Cyclohexane
Concen: 2.29 ug/L
RT: 9.66 min Scan# 1143
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion: 84 Resp: 5450

Ion	Ratio	Lower	Upper
84	100		
41	49.8	92.7	172.1#
55	50.3	37.2	69.0
69	39.5	26.6	49.4

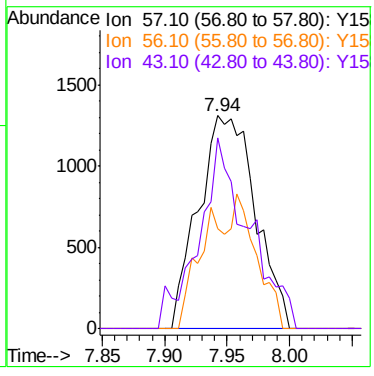


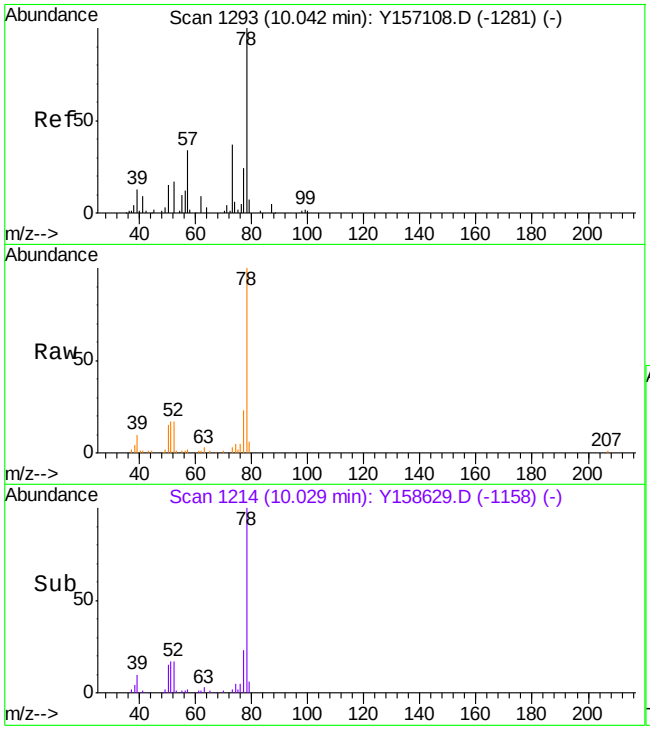


#58
hexane
Concen: 1.92 ug/L
RT: 7.94 min Scan# 815
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion: 57 Resp: 4177

Ion	Ratio	Lower	Upper
57	100		
56	46.8	20.4	80.4
43	89.4	33.2	93.2

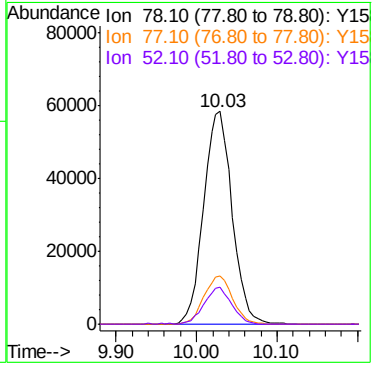


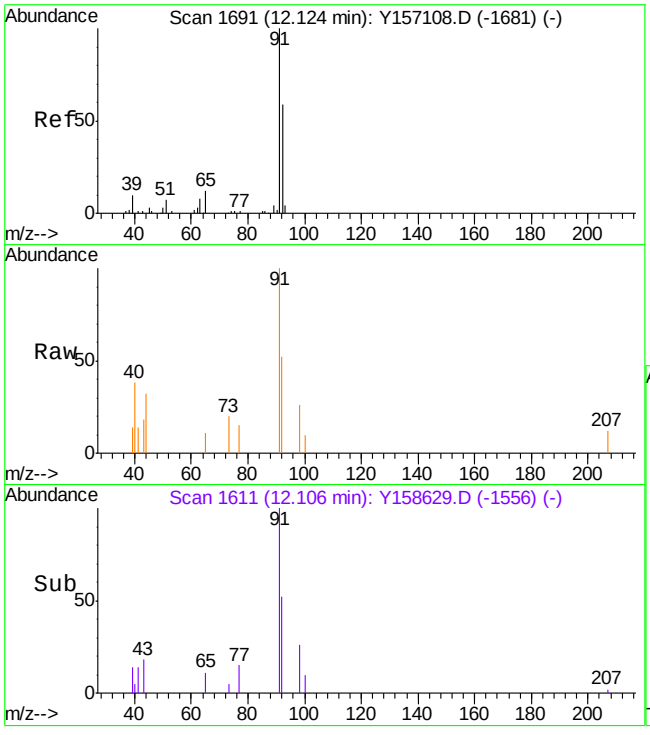


#60
benzene
Concen: 17.70 ug/L
RT: 10.03 min Scan# 1214
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion: 78 Resp: 144096

Ion	Ratio	Lower	Upper
78	100		
77	23.0	0.0	53.2
52	17.4	0.0	47.5

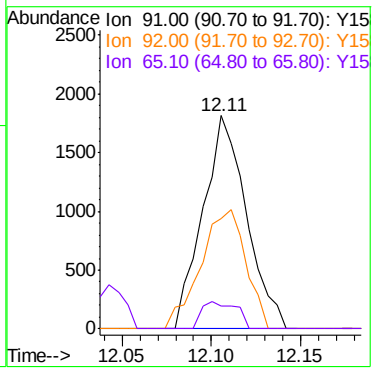


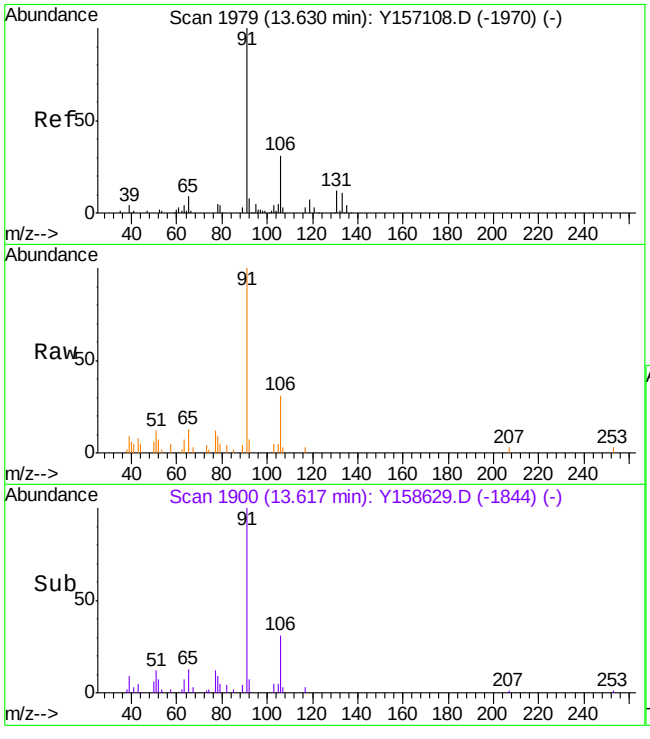


#77
toluene
Concen: 0.44 ug/L
RT: 12.11 min Scan# 1611
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion: 91 Resp: 3094

Ion	Ratio	Lower	Upper
91	100		
92	51.8	29.5	89.5
65	10.8	0.0	42.0

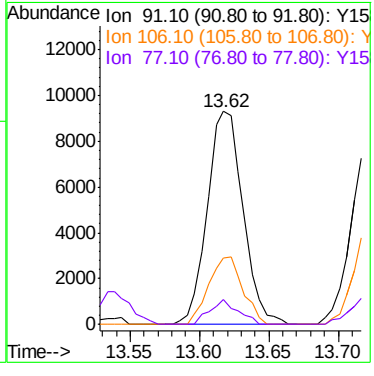




#93
ethylbenzene
Concen: 2.16 ug/L
RT: 13.62 min Scan# 1900
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

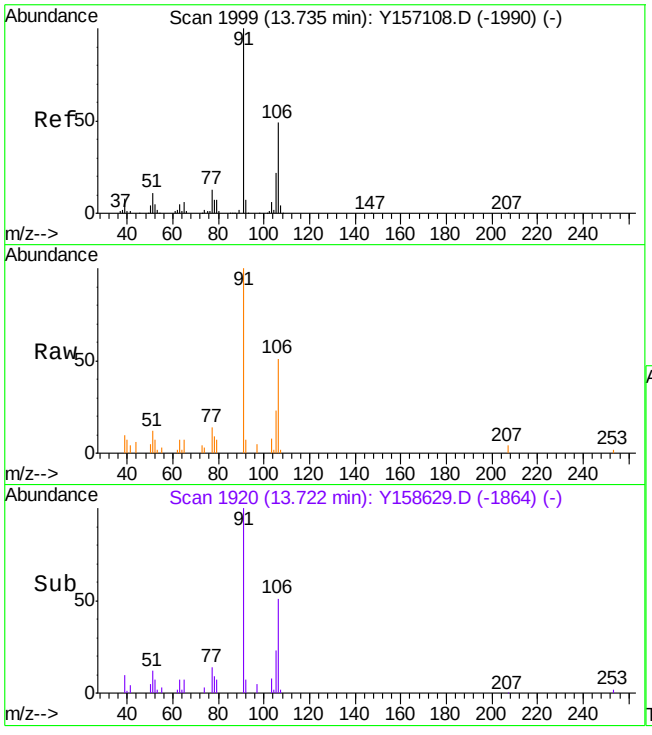
Tgt Ion: 91 Resp: 16732

Ion	Ratio	Lower	Upper
91	100		
106	31.1	0.4	60.4
77	11.8	0.0	38.3



7.1.8

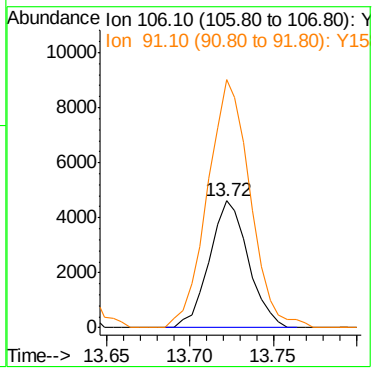
7

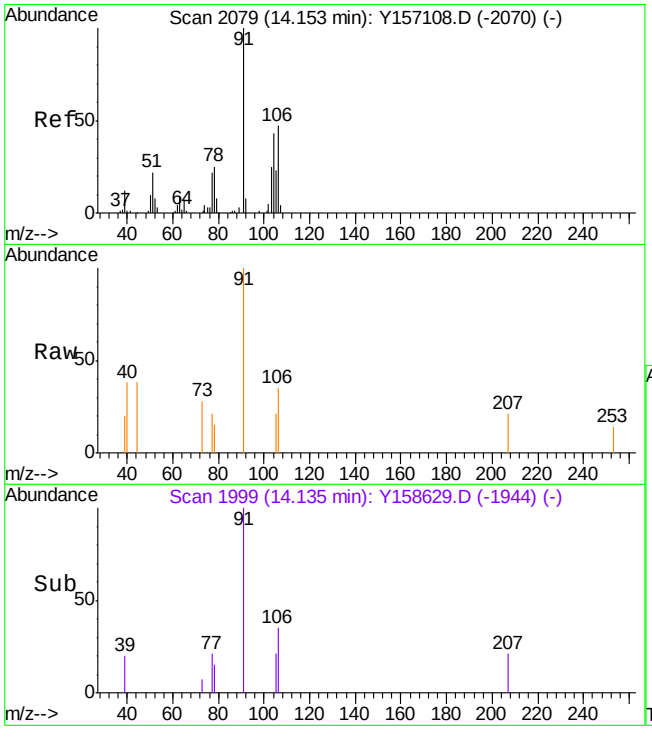


#94
m,p-xylene
Concen: 2.67 ug/L
RT: 13.72 min Scan# 1920
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion:106 Resp: 7500

Ion	Ratio	Lower	Upper
106	100		
91	195.8	146.0	271.2

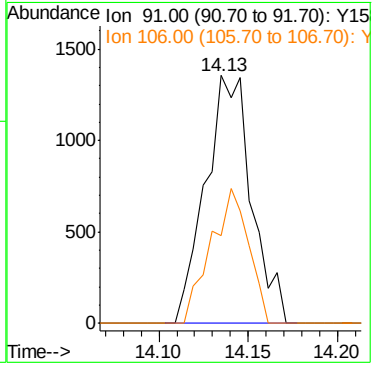


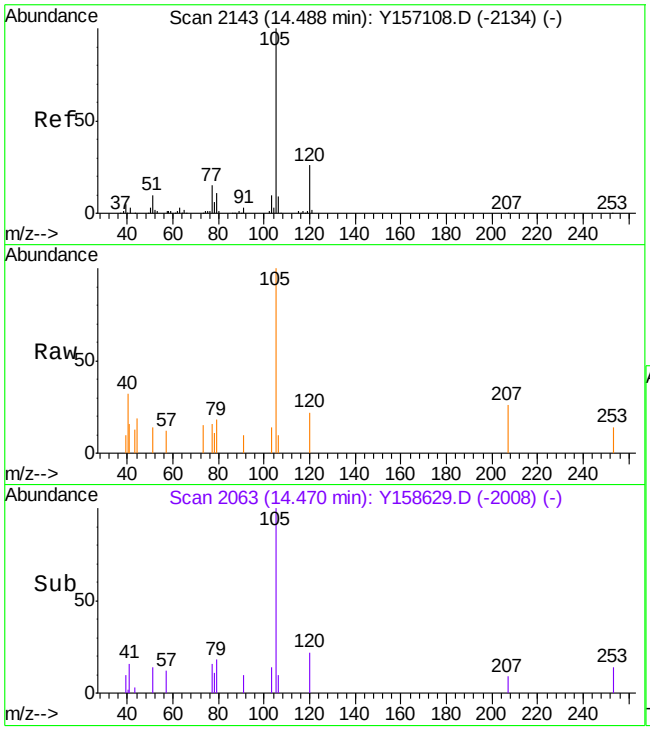


#95
o-xylene
Concen: 0.36 ug/L
RT: 14.13 min Scan# 1999
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion: 91 Resp: 2432

Ion	Ratio	Lower	Upper
91	100		
106	35.3	33.7	62.7

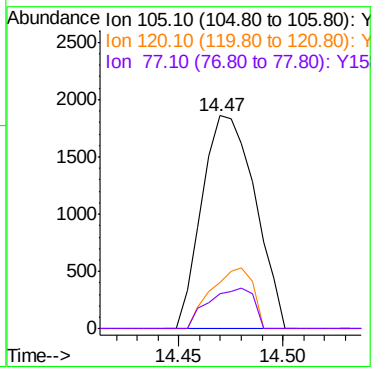


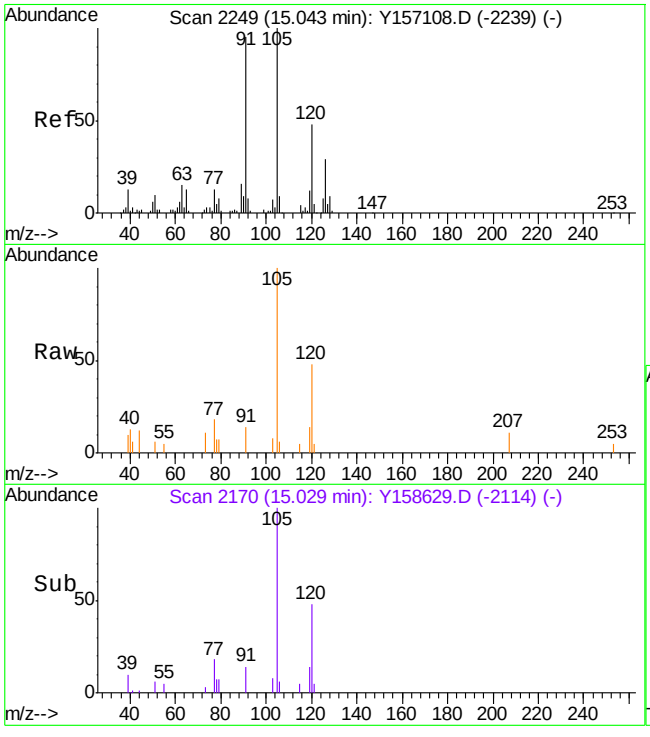


#99
isopropylbenzene
Concen: 0.47 ug/L
RT: 14.47 min Scan# 2063
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion:105 Resp: 3309

Ion	Ratio	Lower	Upper
105	100		
120	21.6	0.0	55.4
77	16.3	0.0	45.4

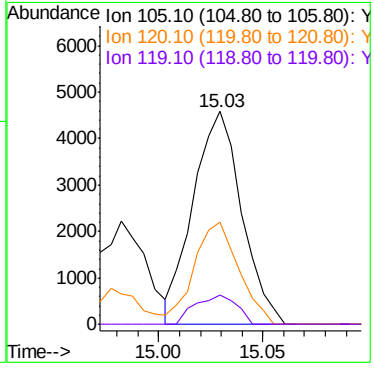




#111
1,3,5-trimethylbenzene
Concen: 1.17 ug/L
RT: 15.03 min Scan# 2170
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

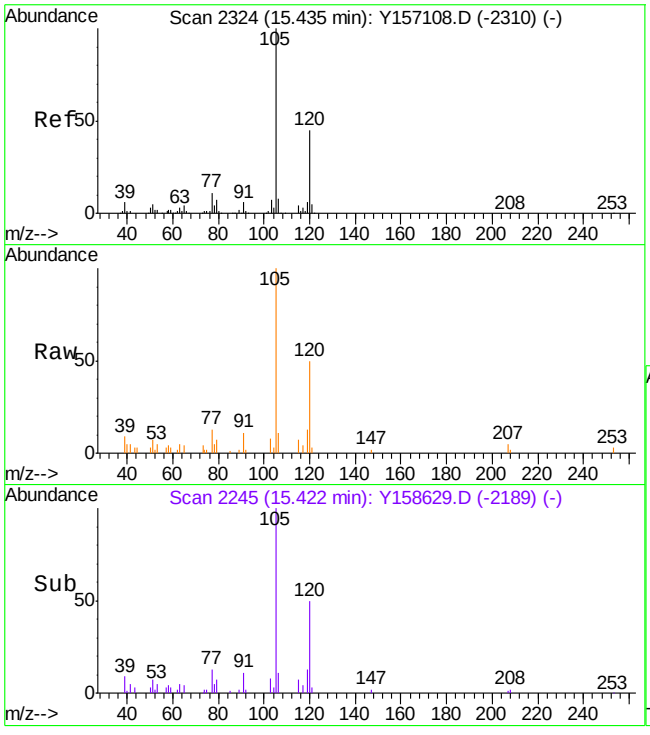
Tgt Ion:105 Resp: 7443

Ion	Ratio	Lower	Upper
105	100		
120	48.1	19.8	79.8
119	13.8	0.0	42.2



7.1.8

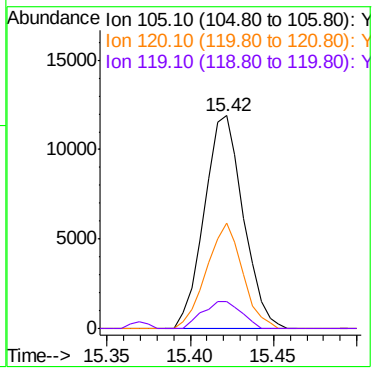
7

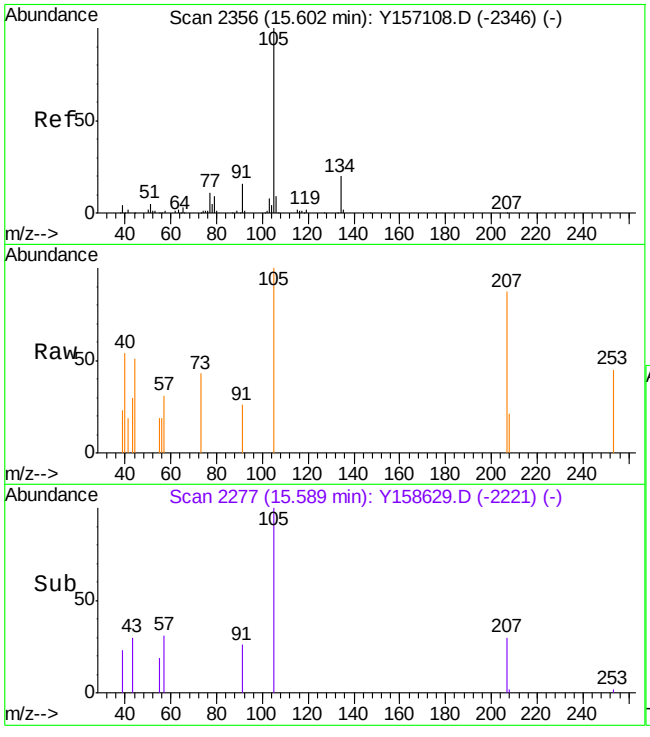


#114
1,2,4-trimethylbenzene
Concen: 2.99 ug/L
RT: 15.42 min Scan# 2245
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion:105 Resp: 19363

Ion	Ratio	Lower	Upper
105	100		
120	49.6	16.1	76.1
119	12.9	0.0	41.3

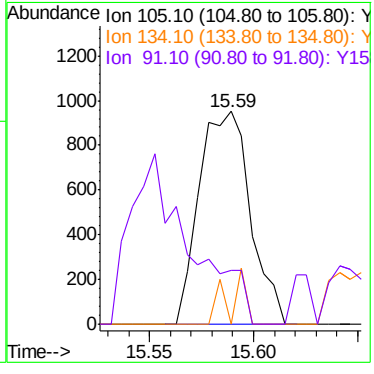


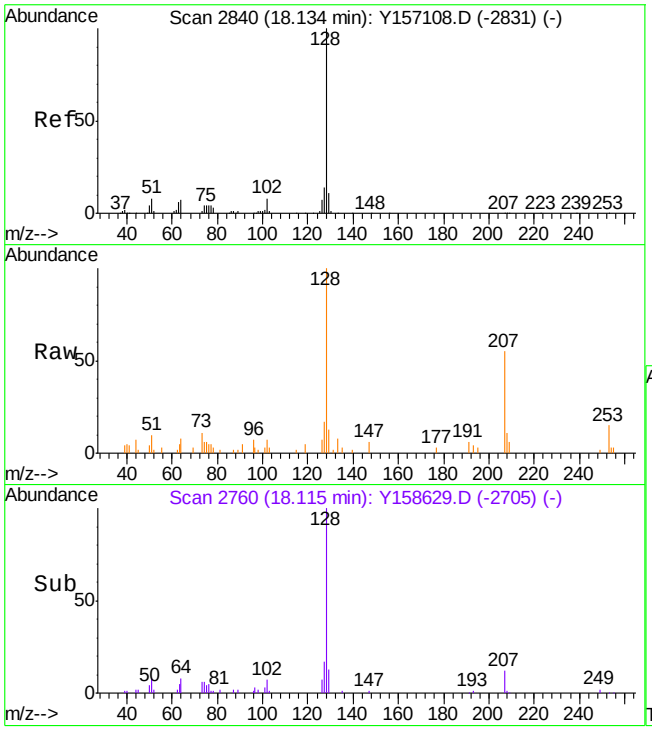


#115
sec-butylbenzene
Concen: 0.21 ug/L
RT: 15.59 min Scan# 2277
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion:105 Resp: 1627

Ion	Ratio	Lower	Upper
105	100		
134	0.0	0.0	48.3
91	2.1	0.0	45.7

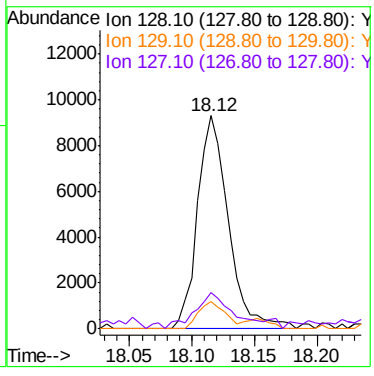




#127
naphthalene
Concen: 3.08 ug/L
RT: 18.12 min Scan# 2760
Delta R.T. -0.01 min
Lab File: Y158629.D
Acq: 5 Nov 2015 7:04 pm

Tgt Ion:128 Resp: 15974

Ion	Ratio	Lower	Upper
128	100		
129	13.0	0.0	41.1
127	17.3	0.0	43.0



7.1.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9620-9622\
Data File : d235670.D
Acq On : 10 Nov 2015 4:24 am
Operator : BenM
Sample : jc7291-7
Misc : ms93732,vd9621,6.3,,100,10,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Nov 10 07:34:35 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.953	65	100726	500.00	ug/L	-0.03
4) pentafluorobenzene	10.123	168	186956	50.00	ug/L	-0.01
55) 1,4-difluorobenzene	11.054	114	266511	50.00	ug/L	0.00
87) chlorobenzene-d5	14.391	117	250558	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.964	152	146813	50.00	ug/L	-0.01
System Monitoring Compounds						
48) dibromofluoromethane (s)	10.212	113	88696	51.49	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery	=	102.98%	
49) 1,2-dichloroethane-d4 (s)	10.636	65	105988	51.44	ug/L	-0.01
Spiked Amount 50.000	Range 68 - 124		Recovery	=	102.88%	
79) toluene-d8 (s)	12.738	98	339865	49.94	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery	=	99.88%	
103) 4-bromofluorobenzene (s)	15.667	95	143051	51.77	ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery	=	103.54%	
Target Compounds						Qvalue
56) cyclohexane	10.301	84	7655	2.12	ug/L #	1
75) methylcyclohexane	11.598	83	64877	18.04	ug/L	95
102) isopropylbenzene	15.416	105	4627	0.46	ug/L	95
109) n-propylbenzene	15.876	91	7282	0.62	ug/L	96
117) sec-butylbenzene	16.666	105	2453	0.21	ug/L	91
132) naphthalene	19.553	128	2472	0.36	ug/L	69

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

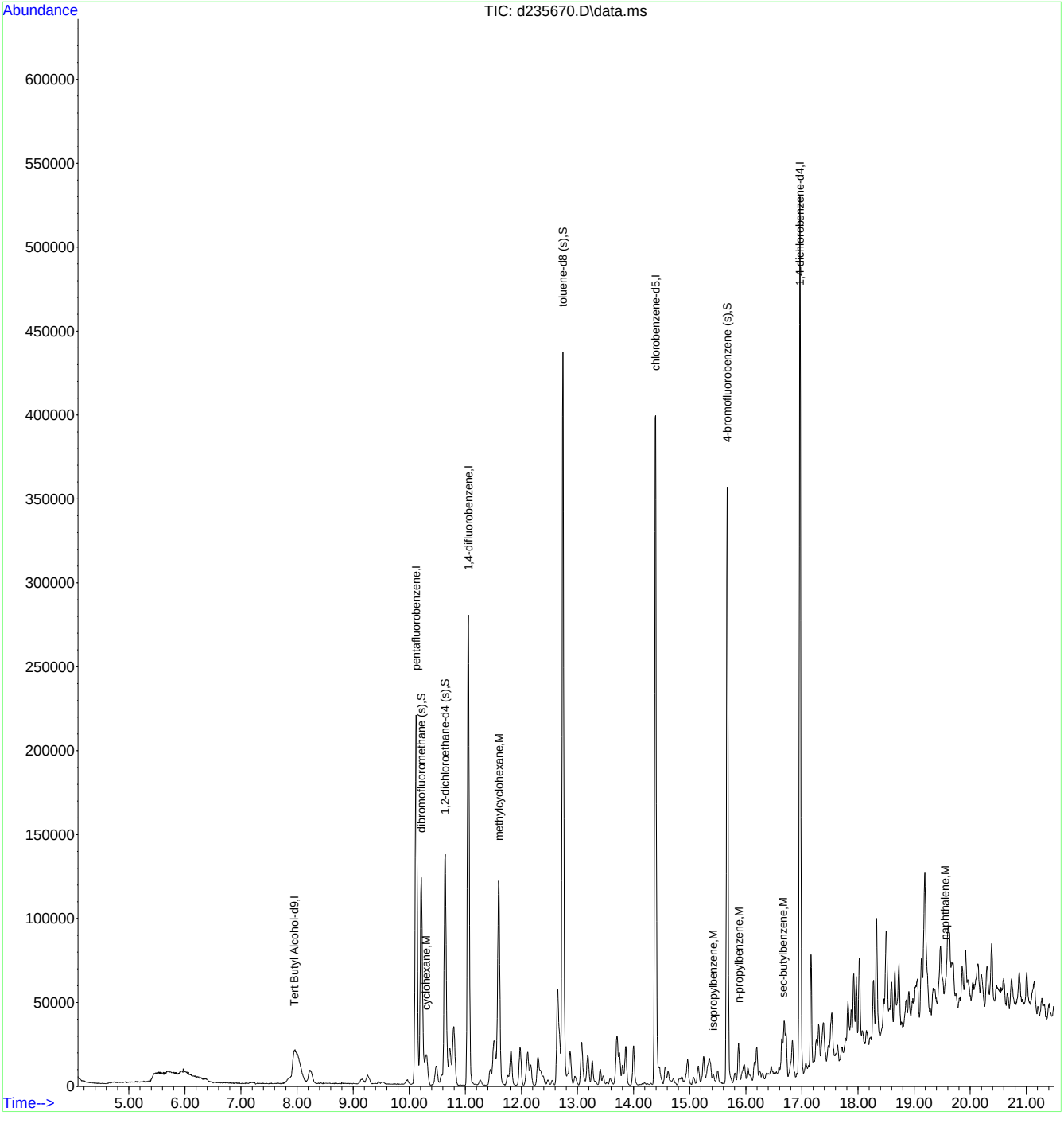
7.1.9

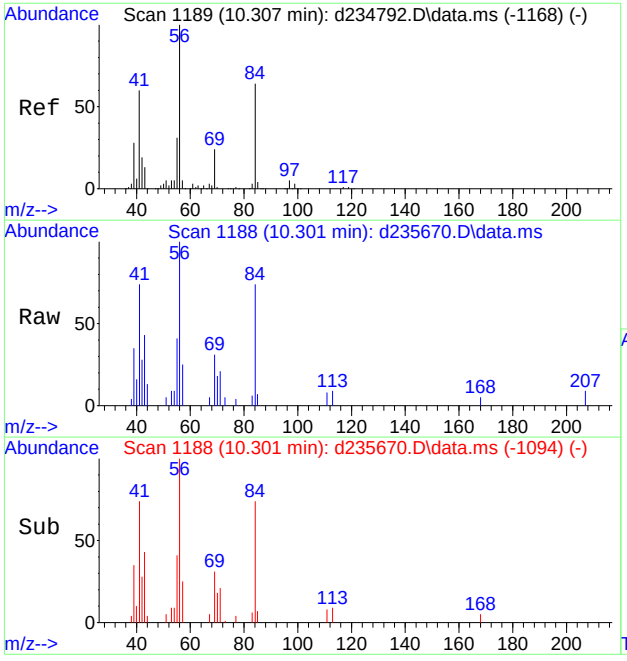
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9620-9622\
Data File : d235670.D
Acq On : 10 Nov 2015 4:24 am
Operator : BenM
Sample : jc7291-7
Misc : ms93732,vd9621,6.3,,100,10,1
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Nov 10 07:34:35 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

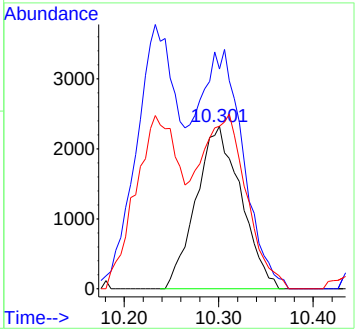


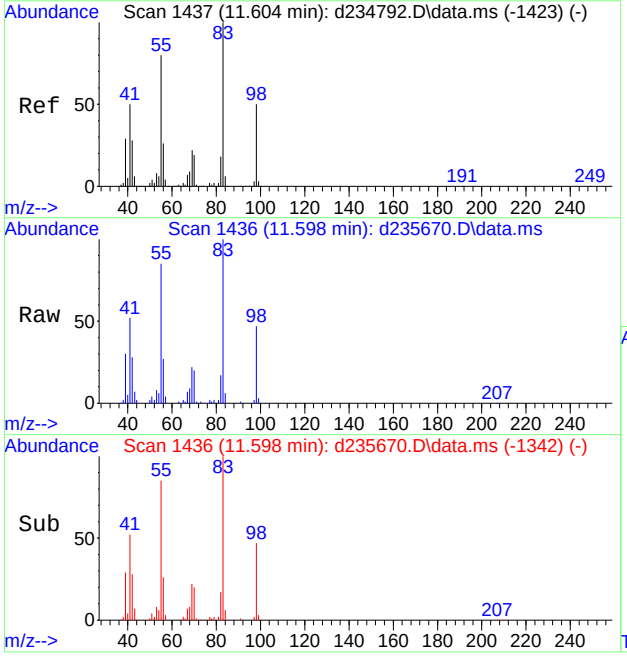


#56
cyclohexane
Concen: 2.12 ug/L
RT: 10.301 min Scan# 1188
Delta R.T. -0.006 min
Lab File: d235670.D
Acq: 10 Nov 2015 4:24 am

Tgt Ion: 84 Resp: 7655

Ion	Ratio	Lower	Upper
84	100		
56	0.0	145.0	269.4#
41	217.5	86.1	159.9#

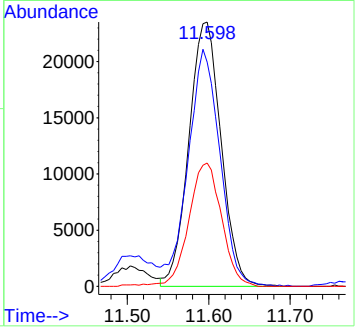


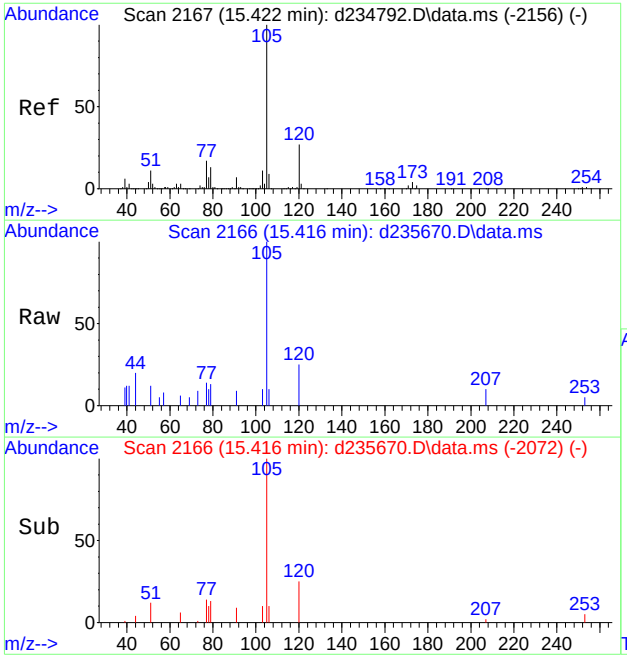


#75
methylcyclohexane
Concen: 18.04 ug/L
RT: 11.598 min Scan# 1436
Delta R.T. -0.006 min
Lab File: d235670.D
Acq: 10 Nov 2015 4:24 am

Tgt Ion: 83 Resp: 64877

Ion	Ratio	Lower	Upper
83	100		
55	84.8	50.5	110.5
98	46.7	19.5	79.5

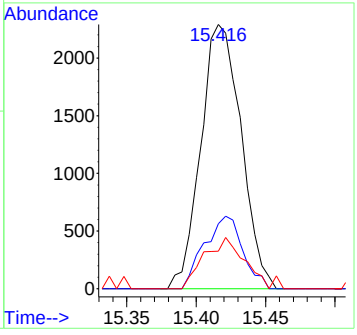


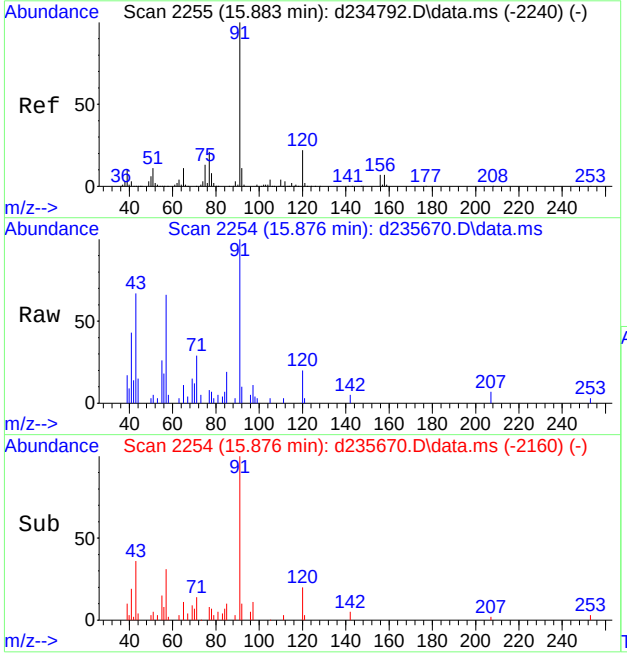


#102
isopropylbenzene
Concen: 0.46 ug/L
RT: 15.416 min Scan# 2166
Delta R.T. -0.006 min
Lab File: d235670.D
Acq: 10 Nov 2015 4:24 am

Tgt Ion:105 Resp: 4627

Ion	Ratio	Lower	Upper
105	100		
120	24.7	0.0	57.1
77	14.3	0.0	46.5

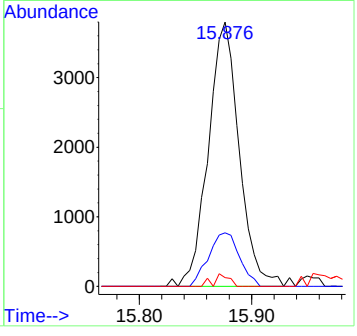


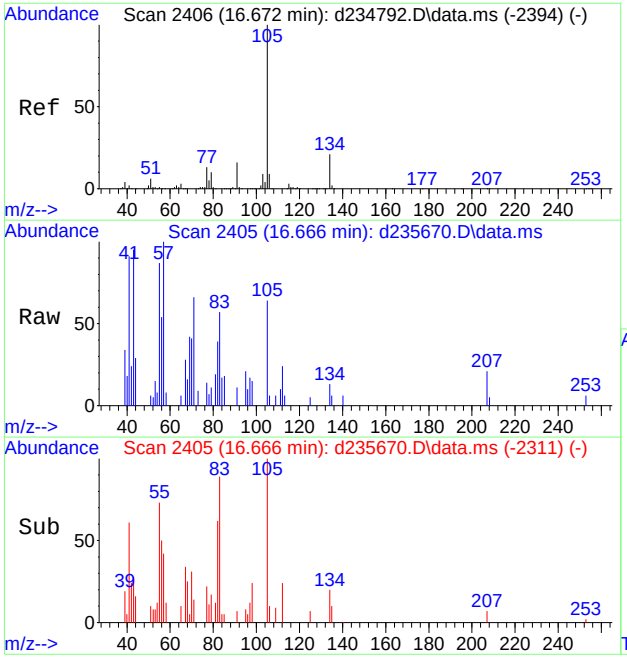


#109
n-propylbenzene
Concen: 0.62 ug/L
RT: 15.876 min Scan# 2254
Delta R.T. -0.006 min
Lab File: d235670.D
Acq: 10 Nov 2015 4:24 am

Tgt Ion: 91 Resp: 7282

Ion	Ratio	Lower	Upper
91	100		
120	20.3	0.0	52.4
105	3.3	0.0	33.8

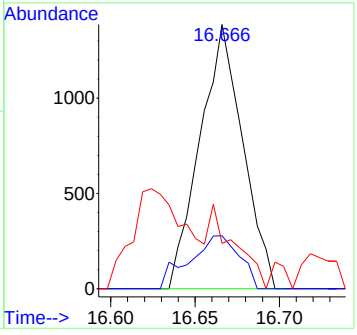


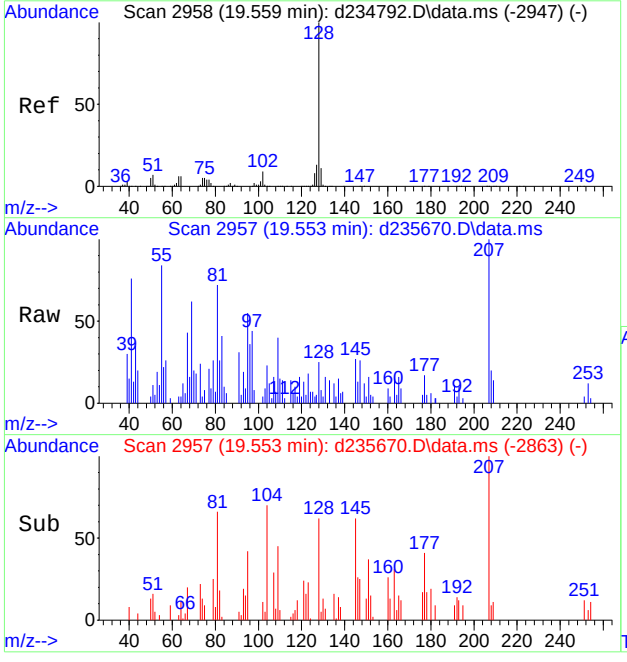


#117
sec-butylbenzene
Concen: 0.21 ug/L
RT: 16.666 min Scan# 2405
Delta R.T. -0.006 min
Lab File: d235670.D
Acq: 10 Nov 2015 4:24 am

Tgt Ion:105 Resp: 2453

Ion	Ratio	Lower	Upper
105	100		
134	20.0	0.0	50.8
91	8.7	0.0	46.4

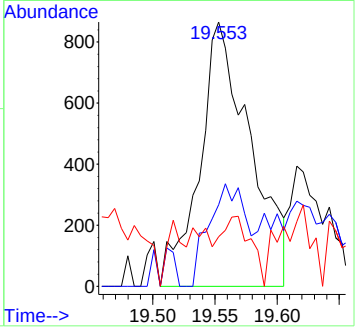




#132
naphthalene
Concen: 0.36 ug/L
RT: 19.553 min Scan# 2957
Delta R.T. -0.006 min
Lab File: d235670.D
Acq: 10 Nov 2015 4:24 am

Tgt Ion:128 Resp: 2472

Ion	Ratio	Lower	Upper
128	100		
129	30.8	0.0	41.3
127	18.8	0.0	43.4



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158630.D
Acq On : 5 Nov 2015 7:32 pm
Operator : prashans
Sample : jc7291-8
Misc : MS93732,VY6927,5.7,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 09 16:47:21 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.26	65	96541	500.00	ug/L	-0.02
4) pentafluorobenzene	9.48	168	220122	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.40	114	292618	50.00	ug/L	-0.01
83) chlorobenzene-d5	13.54	117	243356	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.84	152	119884	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.54	113	97335	52.73	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.46%			
46) 1,2-dichloroethane-d4 (s)	9.96	65	98545	46.12	ug/L	-0.02
Spiked Amount 50.000	Range 68 - 124		Recovery = 92.24%			
75) toluene-d8 (s)	12.03	98	343774	48.53	ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 97.06%			
100) 4-bromofluorobenzene (s)	14.68	95	125210	53.10	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 106.20%			

Target Compounds						Qvalue
27) methyl tert butyl ether	7.61	73	39302	6.64	ug/L	97

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

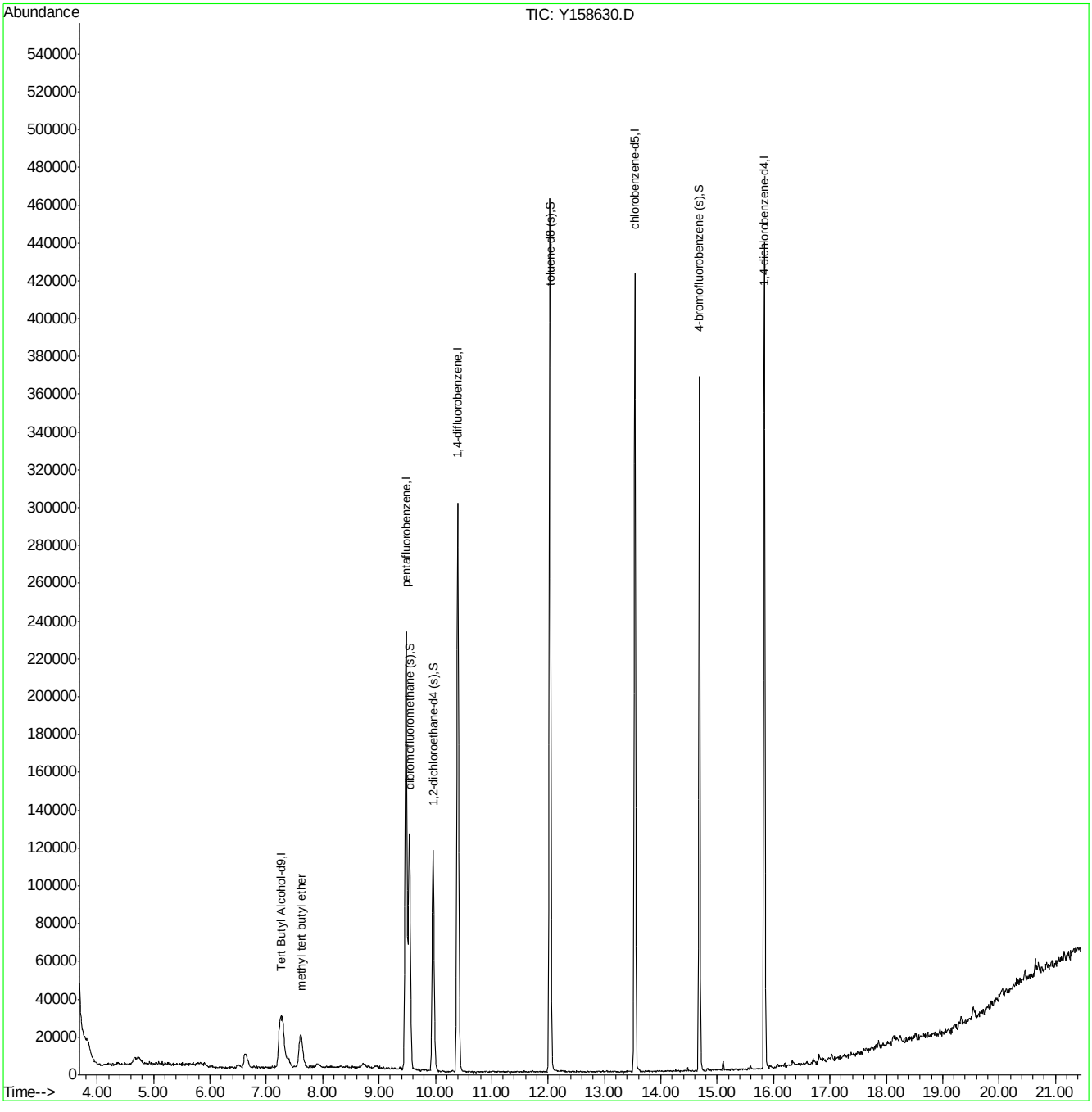
7.1.10

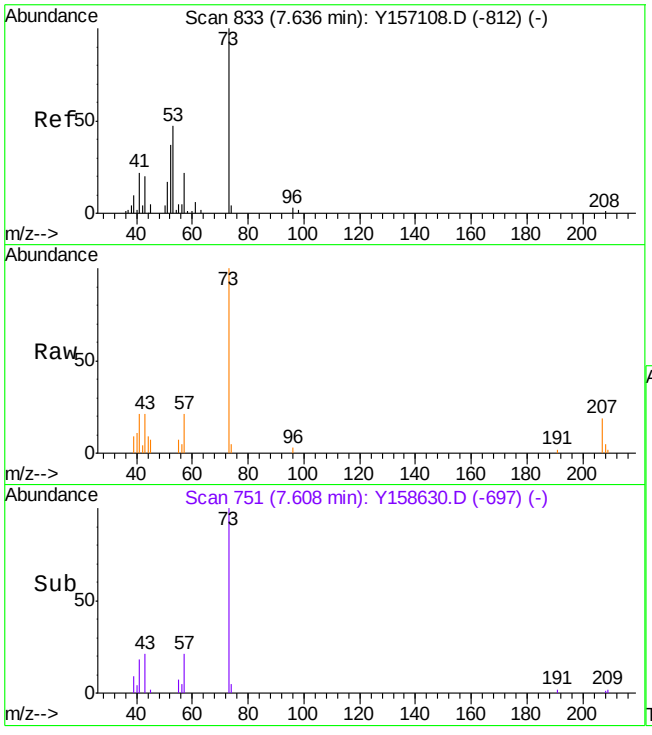
7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158630.D
Acq On : 5 Nov 2015 7:32 pm
Operator : prashans
Sample : jc7291-8
Misc : MS93732,VY6927,5.7,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 09 16:47:21 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

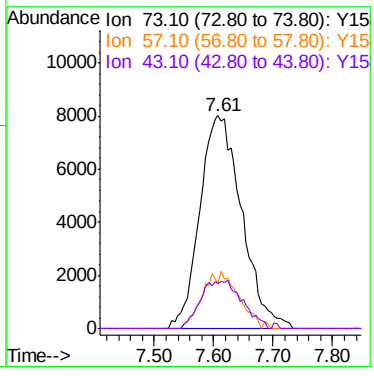




#27
methyl tert butyl ether
Concen: 6.64 ug/L
RT: 7.61 min Scan# 751
Delta R.T. -0.02 min
Lab File: Y158630.D
Acq: 5 Nov 2015 7:32 pm

Tgt Ion: 73 Resp: 39302

Ion	Ratio	Lower	Upper
73	100		
57	20.9	0.0	53.9
43	21.4	0.0	51.5



7.1.10

7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158631.D
Acq On : 5 Nov 2015 8:01 pm
Operator : prashans
Sample : jc7291-9
Misc : MS93732,VY6927,6.2,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 09 16:47:44 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.27	65	86260	500.00	ug/L	0.00
4) pentafluorobenzene	9.48	168	225087	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.40	114	296728	50.00	ug/L	0.00
83) chlorobenzene-d5	13.54	117	248147	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.84	152	115346	50.00	ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.54	113	97209	51.50	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.00%			
46) 1,2-dichloroethane-d4 (s)	9.96	65	94675	43.33	ug/L	-0.01
Spiked Amount 50.000	Range 68 - 124		Recovery = 86.66%			
75) toluene-d8 (s)	12.03	98	353814	49.26	ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.52%			
100) 4-bromofluorobenzene (s)	14.68	95	125225	55.20	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 110.40%			

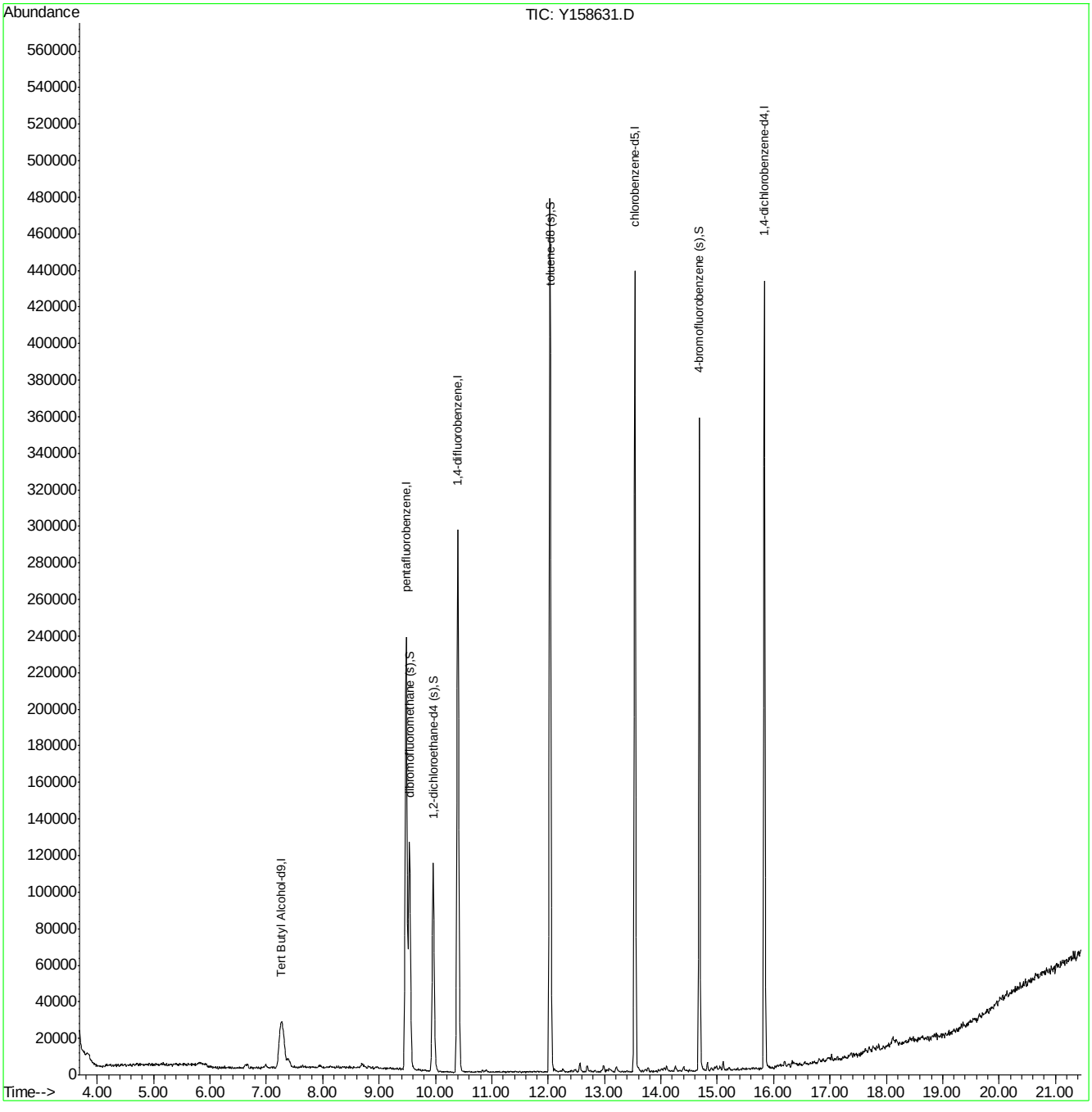
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158631.D
Acq On : 5 Nov 2015 8:01 pm
Operator : prashans
Sample : jc7291-9
Misc : MS93732,VY6927,6.2,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 09 16:47:44 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235611.D
Acq On : 7 Nov 2015 4:16 pm
Operator : BenM
Sample : jc7291-10
Misc : ms93732,vd9619,6.0,,100,10,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 09 07:49:29 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.970	65	102726	500.00 ug/L	-0.01
4) pentafluorobenzene	10.124	168	207167	50.00 ug/L	-0.01
55) 1,4-difluorobenzene	11.055	114	288119	50.00 ug/L	0.00
87) chlorobenzene-d5	14.387	117	275065	50.00 ug/L	-0.01
101) 1,4-dichlorobenzene-d4	16.965	152	173565	50.00 ug/L	-0.01
System Monitoring Compounds					
48) dibromofluoromethane (s)	10.219	113	94787	49.65 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 99.30%		
49) 1,2-dichloroethane-d4 (s)	10.637	65	110495	48.39 ug/L	-0.01
Spiked Amount 50.000	Range 68 - 124		Recovery = 96.78%		
79) toluene-d8 (s)	12.740	98	363141	49.36 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.72%		
103) 4-bromofluorobenzene (s)	15.668	95	165577	50.69 ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 101.38%		
Target Compounds					Qvalue
75) methylcyclohexane	11.594	83	843	0.22 ug/L	76
132) naphthalene	19.560	128	3441	0.42 ug/L #	50

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

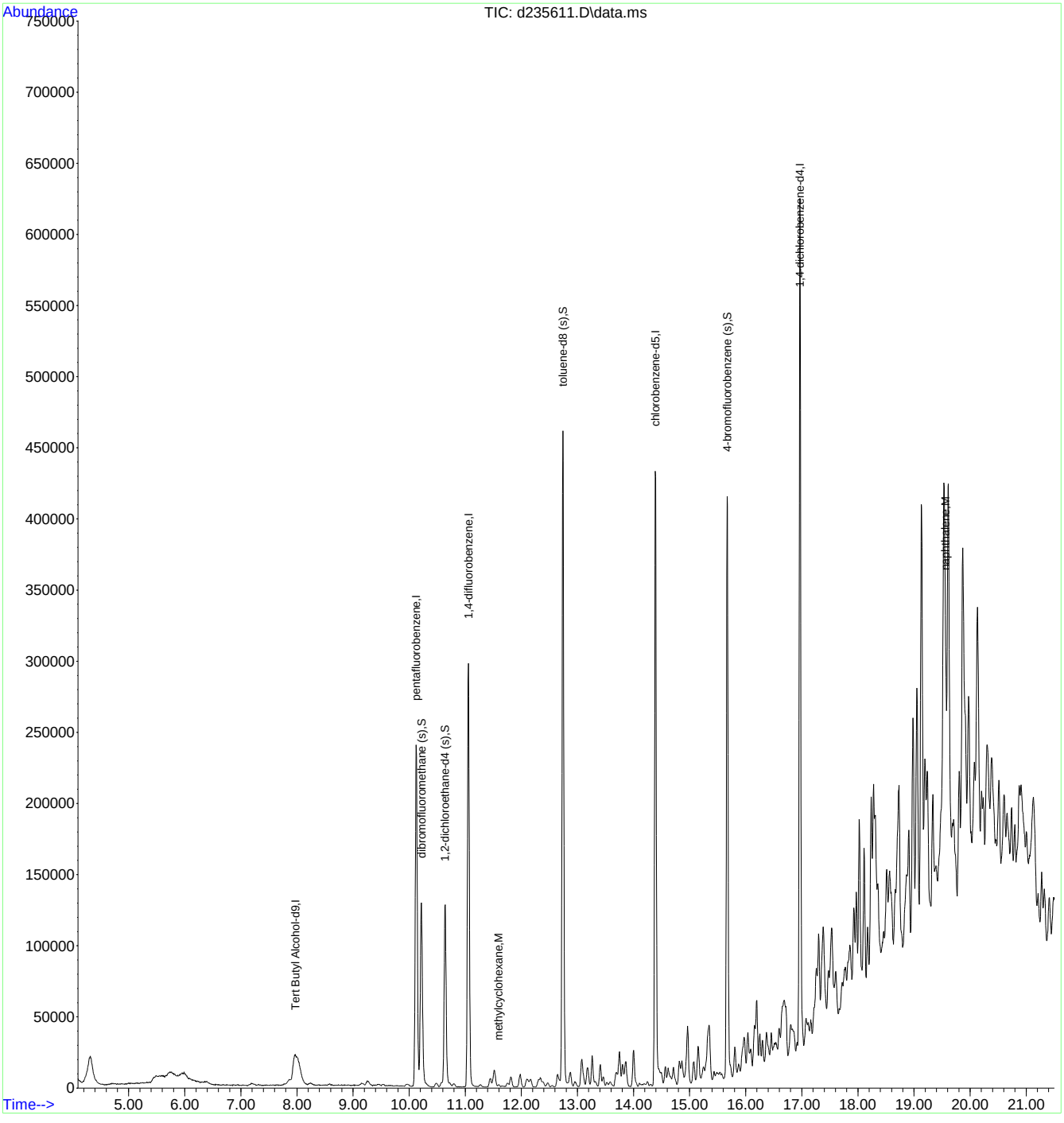
7.1.12

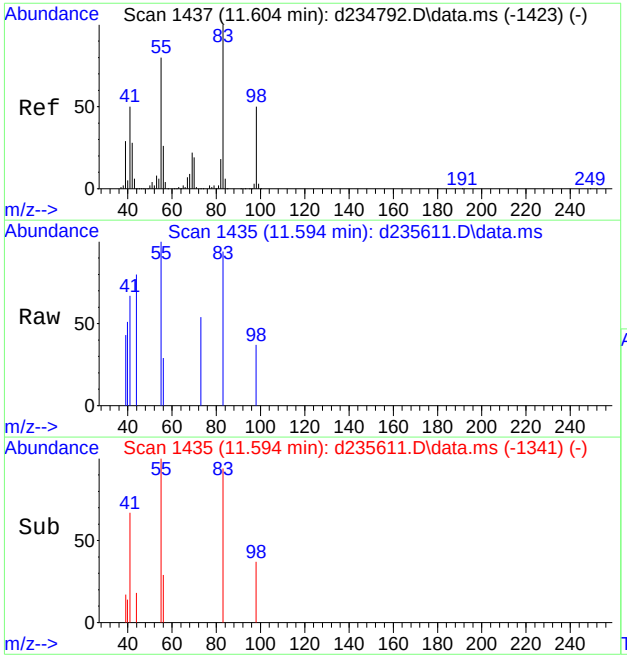
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235611.D
Acq On : 7 Nov 2015 4:16 pm
Operator : BenM
Sample : jc7291-10
Misc : ms93732,vd9619,6.0,,100,10,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 09 07:49:29 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

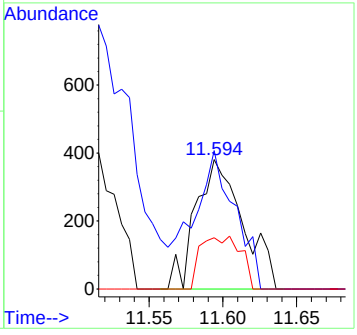


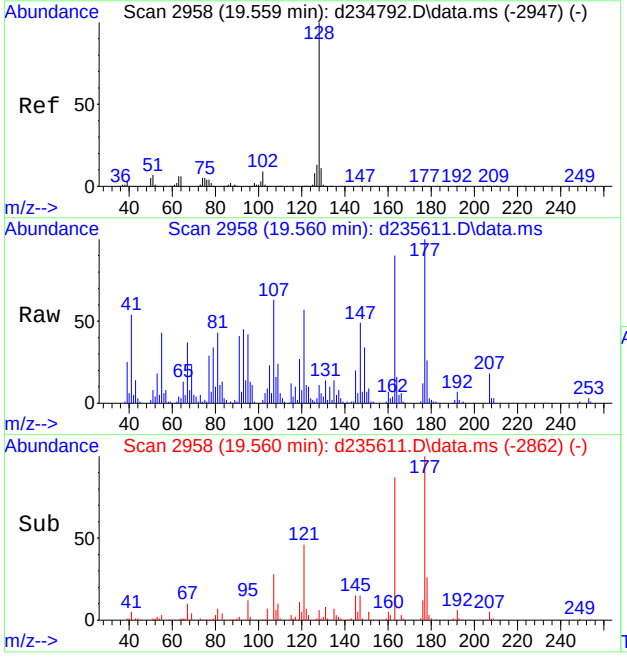


#75
methylcyclohexane
Concen: 0.22 ug/L
RT: 11.594 min Scan# 1435
Delta R.T. -0.010 min
Lab File: d235611.D
Acq: 7 Nov 2015 4:16 pm

Tgt Ion: 83 Resp: 843

Ion	Ratio	Lower	Upper
83	100		
55	106.8	50.5	110.5
98	39.6	19.5	79.5

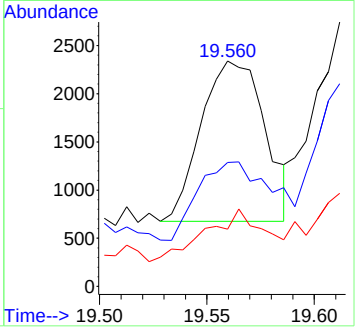




#132
naphthalene
Concen: 0.42 ug/L
RT: 19.560 min Scan# 2958
Delta R.T. 0.000 min
Lab File: d235611.D
Acq: 7 Nov 2015 4:16 pm

Tgt Ion:128 Resp: 3441

Ion	Ratio	Lower	Upper
128	100		
129	48.4	0.0	41.3#
127	17.4	0.0	43.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2C\v2c6058-6060\
Data File : 2C134328.D
Acq On : 7 Nov 2015 10:33 am
Operator : ToanP
Sample : mb
Misc : MS93596,V2C6060,5,,100,10,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 09:17:21 2015
Quant Method : C:\msdchem\1\METHODS\M2C6046.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.240	65	170852	500.00 ug/L	0.02
5) pentafluorobenzene	9.693	168	340128	50.00 ug/L	0.00
61) 1,4-difluorobenzene	10.653	114	391773	50.00 ug/L	0.00
92) chlorobenzene-d5	13.762	117	335939	50.00 ug/L	0.00
107) 1,4-dichlorobenzene-d4	15.954	152	195352	50.00 ug/L	0.00
System Monitoring Compounds					
54) dibromofluoromethane (s)	9.714	113	128817	46.86 ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 93.72%		
55) 1,2-dichloroethane-d4 (s)	10.155	65	137569	47.41 ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 94.82%		
84) toluene-d8 (s)	12.304	98	429229	49.18 ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 98.36%		
109) 4-bromofluorobenzene (s)	14.858	95	171834	50.71 ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery = 101.42%		
Target Compounds					Qvalue

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

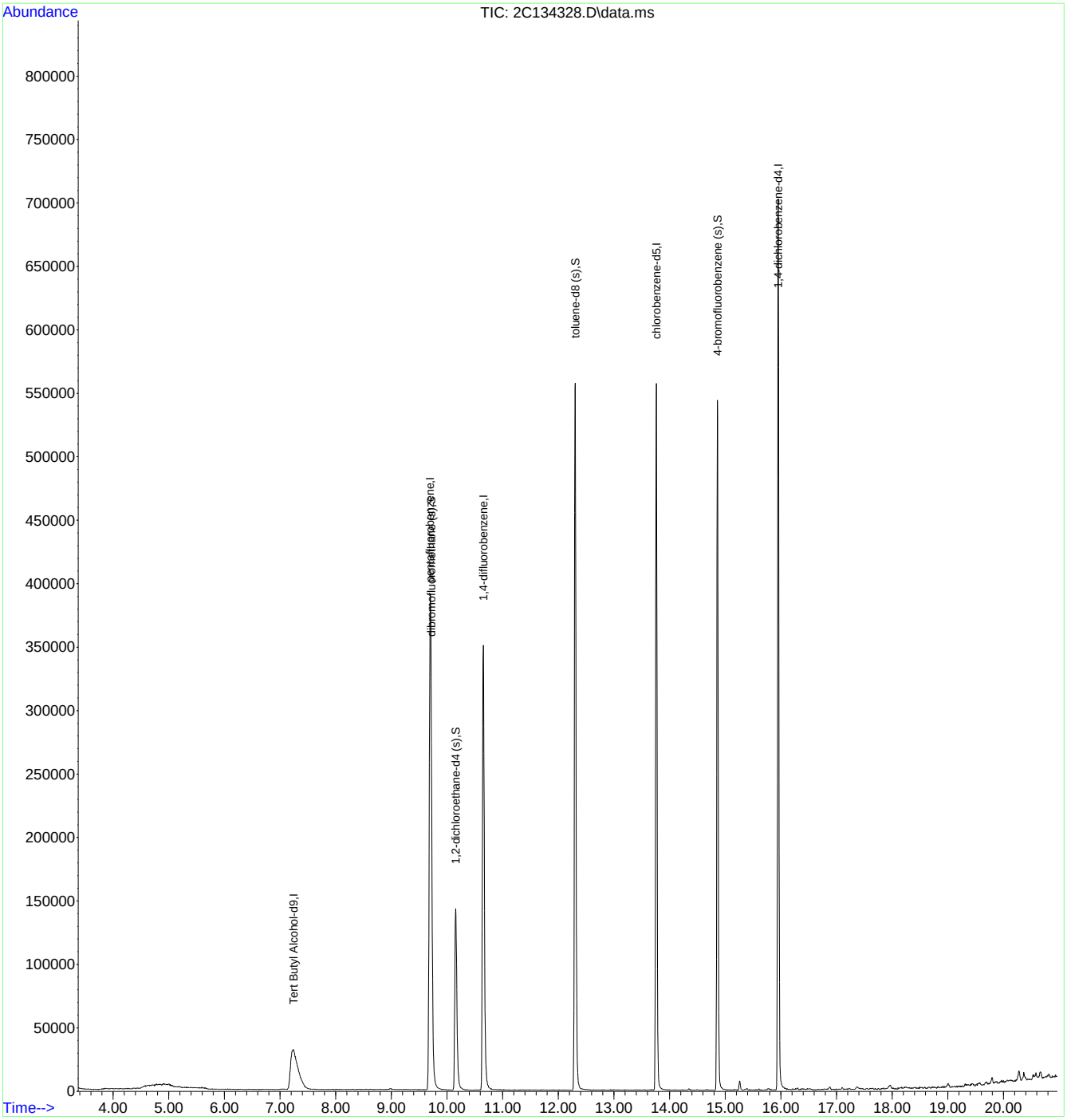
7.2.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2C\v2c6058-6060\
Data File : 2C134328.D
Acq On : 7 Nov 2015 10:33 am
Operator : ToanP
Sample : mb
Misc : MS93596,V2C6060,5,,100,10,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 09:17:21 2015
Quant Method : C:\msdchem\1\METHODS\M2C6046.M
Quant Title : SW846 8260C, Column ZB624 60mX0.25mmX1.4um
QLast Update : Fri Oct 30 07:40:00 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d235562.D
Acq On : 6 Nov 2015 10:47 am
Operator : BenM
Sample : mb
Misc : ms93937,vd9618,5.0,,100,5,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 06 16:04:34 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.958	65	106385	500.00	ug/L	-0.02
4) pentafluorobenzene	10.134	168	210341	50.00	ug/L	0.00
55) 1,4-difluorobenzene	11.059	114	298976	50.00	ug/L	0.00
87) chlorobenzene-d5	14.391	117	278600	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.969	152	158965	50.00	ug/L	0.00

System Monitoring Compounds

48) dibromofluoromethane (s)	10.217	113	99339	51.25	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 102.50%			
49) 1,2-dichloroethane-d4 (s)	10.641	65	118503	51.12	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.24%			
79) toluene-d8 (s)	12.744	98	377446	49.44	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.88%			
103) 4-bromofluorobenzene (s)	15.672	95	155668	52.03	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 104.06%			

Target Compounds Qvalue

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

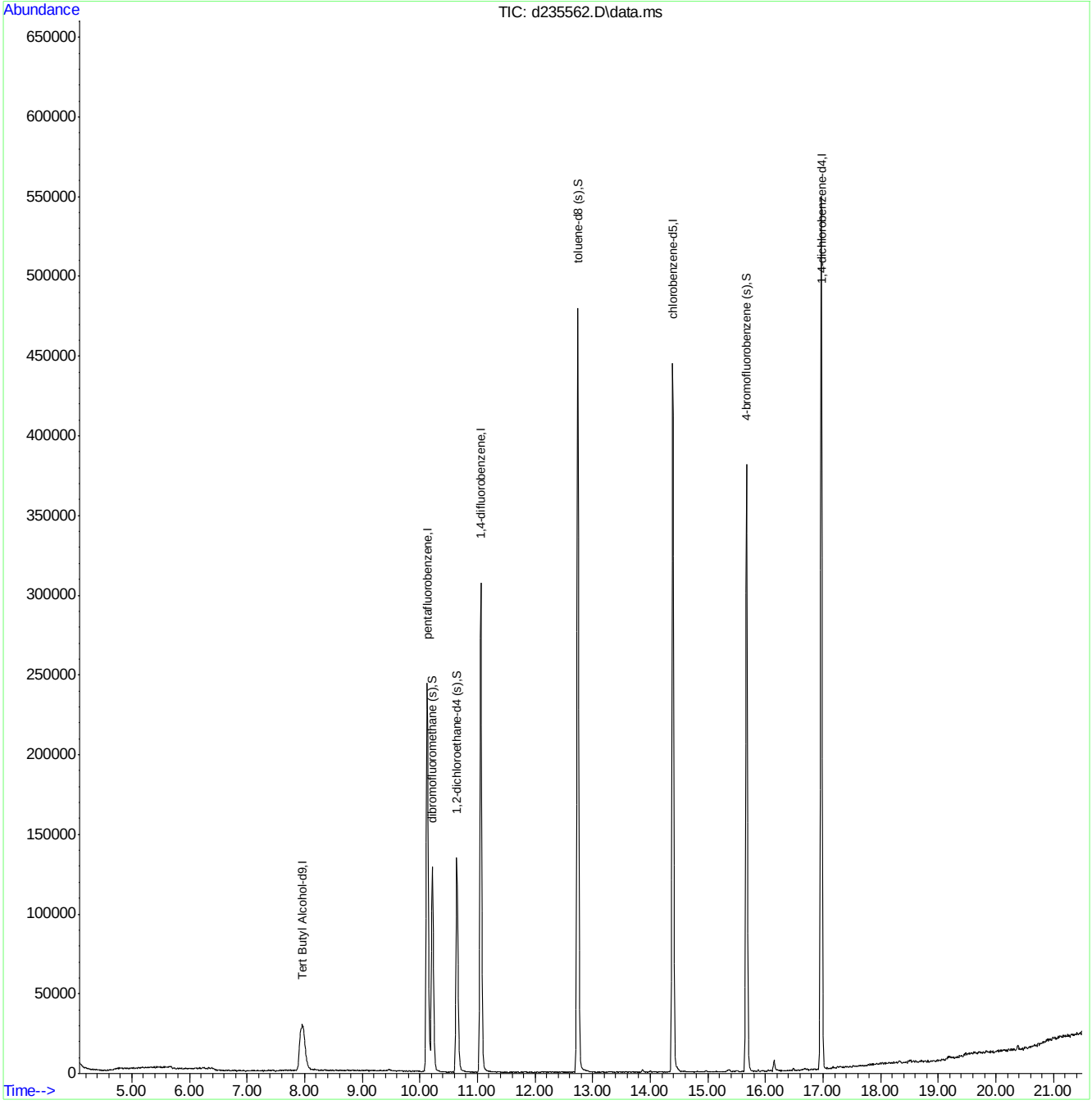
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d235562.D
Acq On : 6 Nov 2015 10:47 am
Operator : BenM
Sample : mb
Misc : ms93937,vd9618,5.0,,100,5,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 06 16:04:34 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration



MD9588.M Fri Nov 06 16:04:44 2015 RPT1

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235604.D
Acq On : 7 Nov 2015 12:15 pm
Operator : BenM
Sample : mb
Misc : ms94029,vd9619,10,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 07:43:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.959	65	101255	500.00 ug/L	-0.02
4) pentafluorobenzene	10.124	168	187620	50.00 ug/L	-0.01
55) 1,4-difluorobenzene	11.055	114	266461	50.00 ug/L	0.00
87) chlorobenzene-d5	14.392	117	253042	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.965	152	149721	50.00 ug/L	-0.01
System Monitoring Compounds					
48) dibromofluoromethane (s)	10.213	113	87891	50.84 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.68%		
49) 1,2-dichloroethane-d4 (s)	10.637	65	106421	51.47 ug/L	-0.01
Spiked Amount 50.000	Range 68 - 124		Recovery = 102.94%		
79) toluene-d8 (s)	12.739	98	338565	49.76 ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 99.52%		
103) 4-bromofluorobenzene (s)	15.668	95	143750	51.02 ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 102.04%		

Target Compounds Qvalue

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

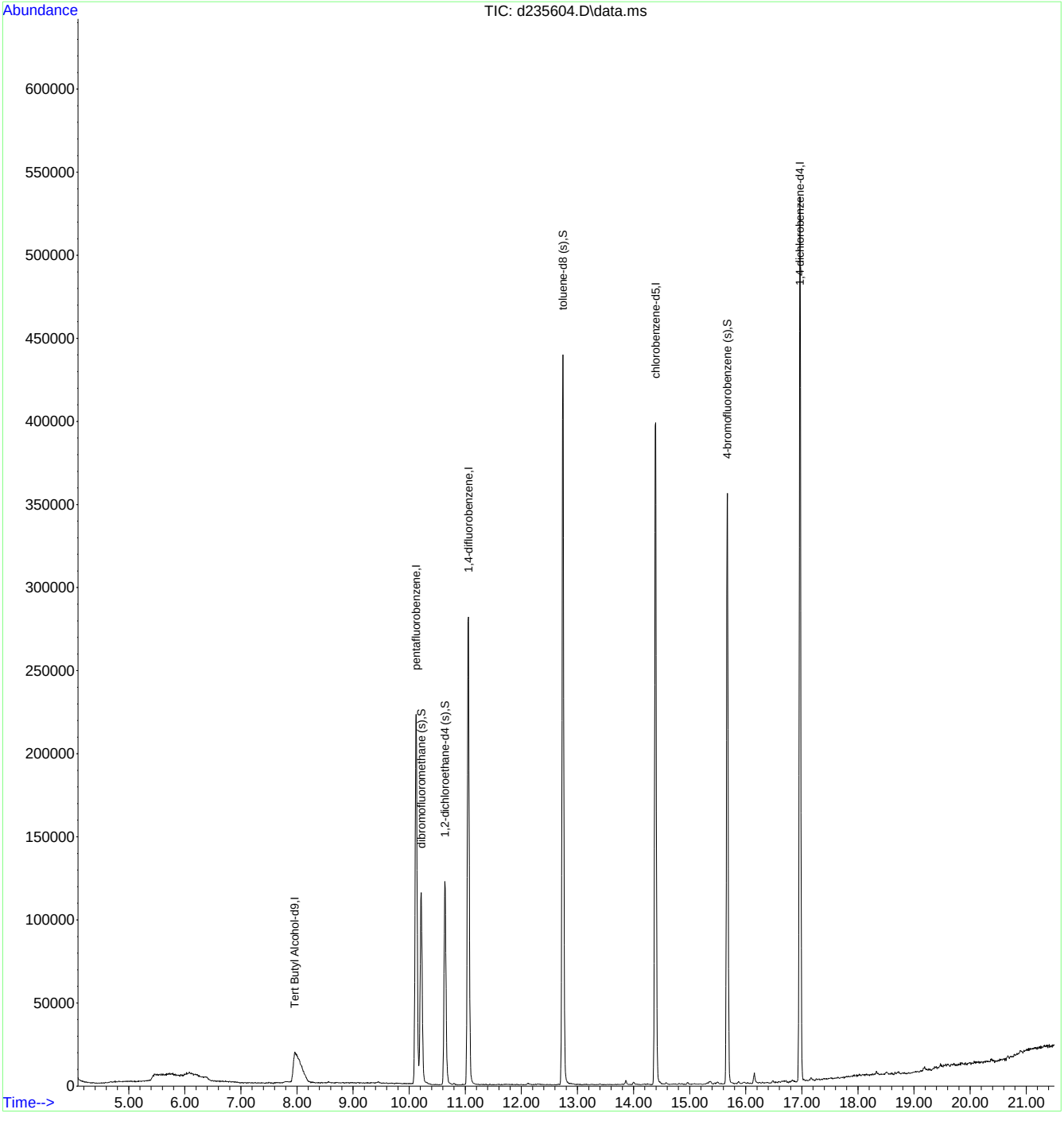
7.2.3

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9618-9619\
Data File : d235604.D
Acq On : 7 Nov 2015 12:15 pm
Operator : BenM
Sample : mb
Misc : ms94029,vd9619,10,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 07:43:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9620-9622\
Data File : d235657.D
Acq On : 9 Nov 2015 9:48 pm
Operator : BenM
Sample : mb
Misc : ms94129,vd9621,5,,100,5,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Nov 10 07:29:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration

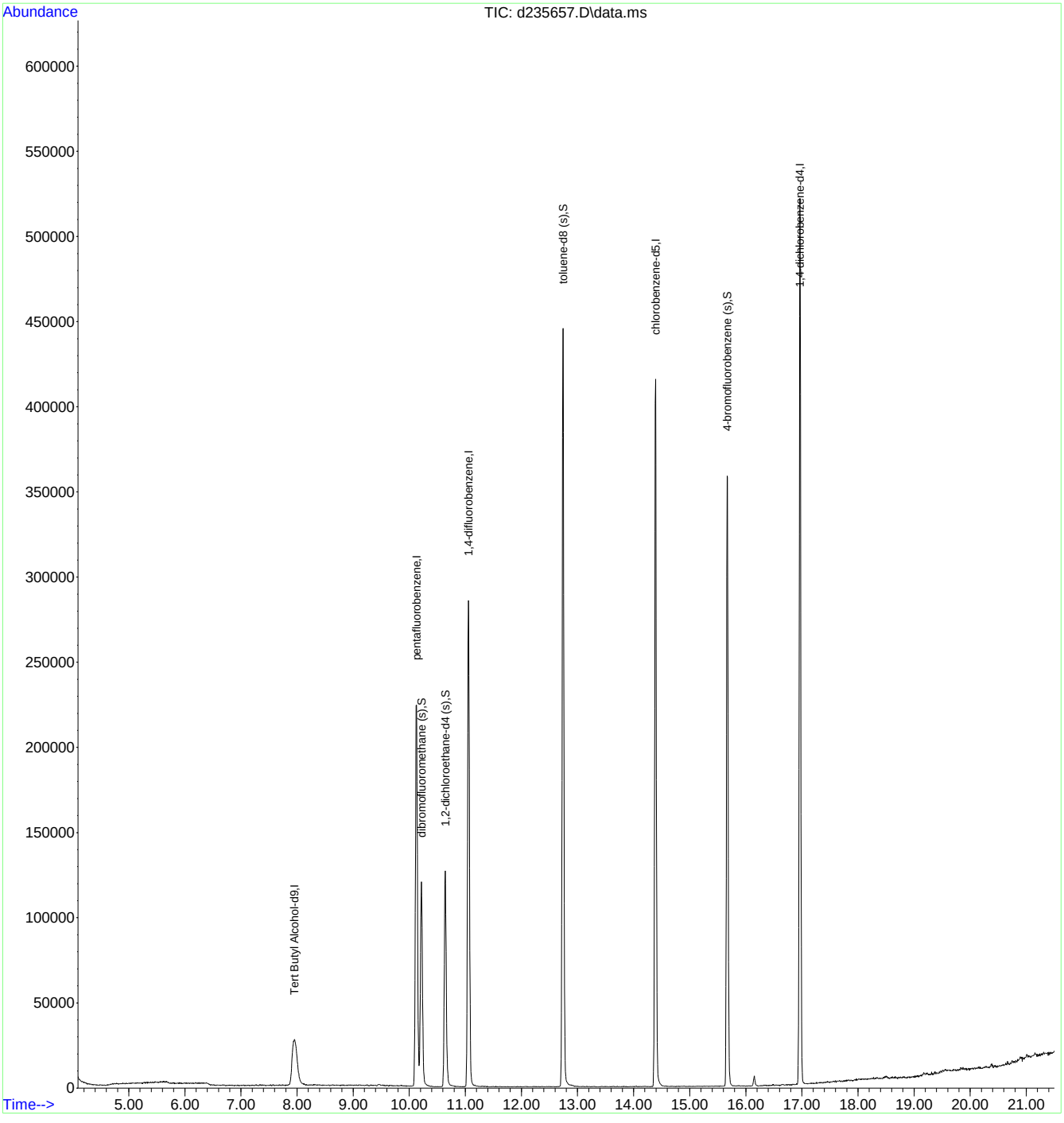
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.953	65	97030	500.00	ug/L	-0.03
4) pentafluorobenzene	10.128	168	192705	50.00	ug/L	0.00
55) 1,4-difluorobenzene	11.054	114	274674	50.00	ug/L	0.00
87) chlorobenzene-d5	14.391	117	258382	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.964	152	149205	50.00	ug/L	-0.01
System Monitoring Compounds						
48) dibromofluoromethane (s)	10.217	113	92235	51.94	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.88%			
49) 1,2-dichloroethane-d4 (s)	10.641	65	109485	51.55	ug/L	0.00
Spiked Amount 50.000	Range 68 - 124		Recovery = 103.10%			
79) toluene-d8 (s)	12.743	98	350714	50.01	ug/L	0.00
Spiked Amount 50.000	Range 77 - 125		Recovery = 100.02%			
103) 4-bromofluorobenzene (s)	15.667	95	145577	51.84	ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 103.68%			
Target Compounds						Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\D\vd9620-9622\
Data File : d235657.D
Acq On : 9 Nov 2015 9:48 pm
Operator : BenM
Sample : mb
Misc : ms94129,vd9621,5,,100,5,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Nov 10 07:29:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\MD9588.M
Quant Title : SW-846 Method 8260C
QLast Update : Thu Nov 05 07:40:57 2015
Response via : Initial Calibration



ACCUTEST LABORATORIES JC7291

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158616.D
Acq On : 5 Nov 2015 12:41 pm
Operator : prashans
Sample : mb
Misc : MS93611,VY6927,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 16:38:41 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.25	65	84485	500.00 ug/L	-0.02
4) pentafluorobenzene	9.48	168	198674	50.00 ug/L	0.00
53) 1,4-difluorobenzene	10.40	114	256067	50.00 ug/L	-0.01
83) chlorobenzene-d5	13.54	117	213390	50.00 ug/L	0.00
98) 1,4-dichlorobenzene-d4	15.84	152	101169	50.00 ug/L	0.00

System Monitoring Compounds

45) dibromofluoromethane (s)	9.54	113	83557	50.15 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 100.30%		
46) 1,2-dichloroethane-d4 (s)	9.96	65	81285	42.15 ug/L	-0.02
Spiked Amount 50.000	Range 68 - 124		Recovery = 84.30%		
75) toluene-d8 (s)	12.03	98	304622	49.14 ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 98.28%		
100) 4-bromofluorobenzene (s)	14.68	95	108332	54.44 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 108.88%		

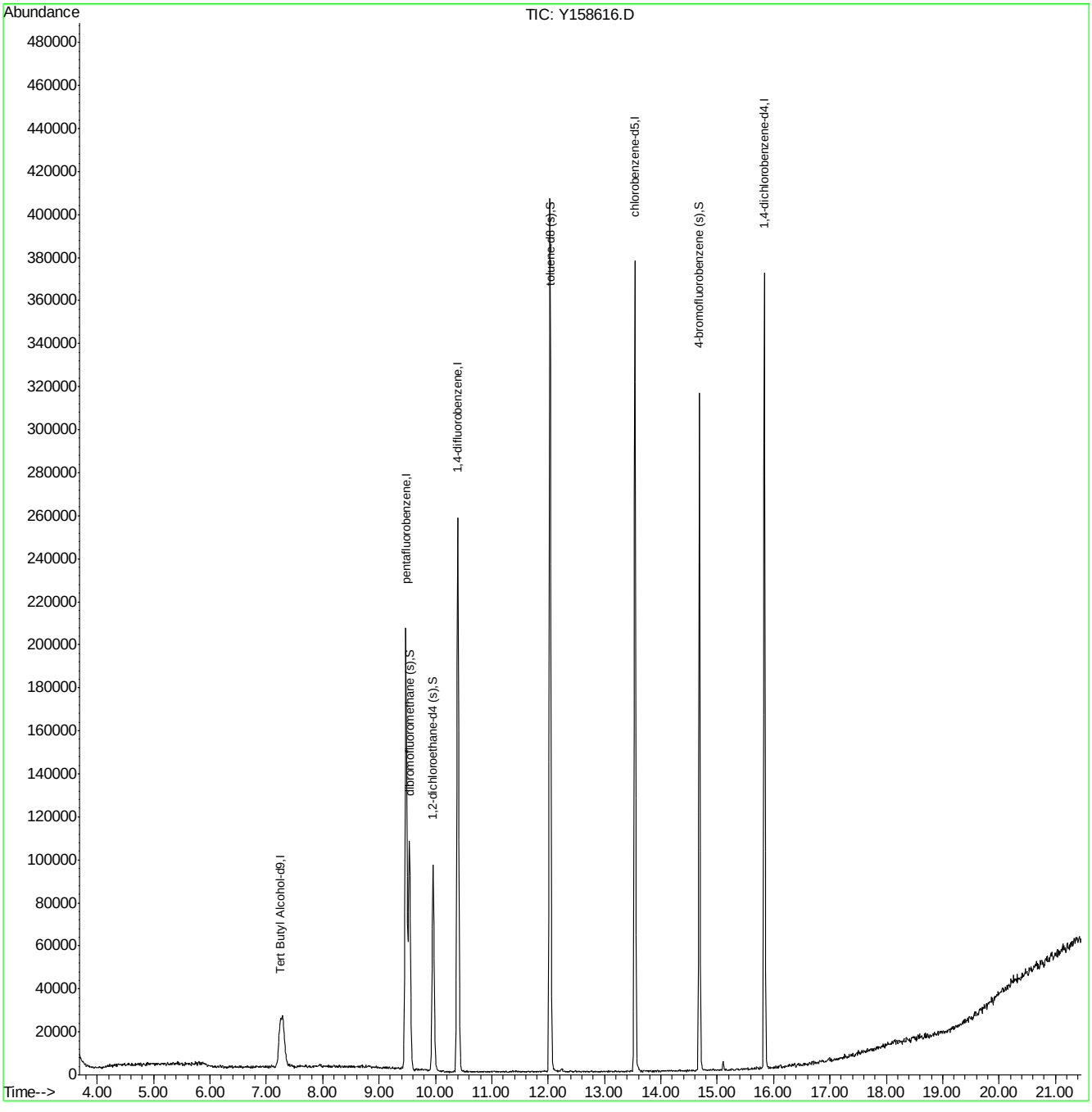
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\
Data File : Y158616.D
Acq On : 5 Nov 2015 12:41 pm
Operator : prashans
Sample : mb
Misc : MS93611,VY6927,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 09 16:38:41 2015
Quant Method : C:\MSDCHEM\1\METHODS\MYS6891.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Oct 14 17:43:57 2015
Response via : Initial Calibration



ACCUTEST LABORATORIES JC7291

New Jersey

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: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-MB1	6P20812.D	1	10/31/15	SW	10/30/15	OP88533	E6P948

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	150	ug/kg	
95-48-7	2-Methylphenol	ND	67	48	ug/kg	
	3&4-Methylphenol	ND	67	32	ug/kg	
100-02-7	4-Nitrophenol	ND	330	57	ug/kg	
108-95-2	Phenol	ND	67	25	ug/kg	
83-32-9	Acenaphthene	ND	33	31	ug/kg	
120-12-7	Anthracene	ND	33	2.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	7.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.9	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	10	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	7.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.2	ug/kg	
218-01-9	Chrysene	ND	33	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	12	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	3.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	4.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	12	ug/kg	
206-44-0	Fluoranthene	ND	33	4.1	ug/kg	
86-73-7	Fluorene	ND	33	4.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	6.2	ug/kg	
85-01-8	Phenanthrene	ND	33	3.7	ug/kg	
129-00-0	Pyrene	ND	33	4.2	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	91%	30-106%
4165-62-2	Phenol-d5	86%	30-106%
118-79-6	2,4,6-Tribromophenol	90%	24-140%
4165-60-0	Nitrobenzene-d5	96%	26-122%
321-60-8	2-Fluorobiphenyl	92%	36-112%

Method Blank Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-MB1	6P20812.D	1	10/31/15	SW	10/30/15	OP88533	E6P948

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Surrogate Recoveries		Limits
1718-51-0	Terphenyl-d14	98%	36-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.47	290	ug/kg	J
	system artifact	1.80	380	ug/kg	J
	system artifact/aldol-condensation	3.08	610	ug/kg	J
	Total TIC, Semi-Volatile		0	ug/kg	

Method Blank Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-MB1	5P22706.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	150	ug/kg	
95-48-7	2-Methylphenol	ND	67	48	ug/kg	
	3&4-Methylphenol	ND	67	32	ug/kg	
100-02-7	4-Nitrophenol	ND	330	57	ug/kg	
108-95-2	Phenol	ND	67	25	ug/kg	
83-32-9	Acenaphthene	ND	33	31	ug/kg	
120-12-7	Anthracene	ND	33	2.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	7.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.9	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	10	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	7.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	6.2	ug/kg	
218-01-9	Chrysene	ND	33	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	12	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	3.9	ug/kg	
84-66-2	Diethyl phthalate	ND	67	4.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	12	ug/kg	
206-44-0	Fluoranthene	ND	33	4.1	ug/kg	
86-73-7	Fluorene	ND	33	4.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	17	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	6.2	ug/kg	
85-01-8	Phenanthrene	ND	33	3.7	ug/kg	
129-00-0	Pyrene	ND	33	4.2	ug/kg	
110-86-1	Pyridine	ND	67	17	ug/kg	
91-22-5	Quinoline	ND	170	12	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	88%	30-106%
4165-62-2	Phenol-d5	89%	30-106%
118-79-6	2,4,6-Tribromophenol	84%	24-140%
4165-60-0	Nitrobenzene-d5	90%	26-122%
321-60-8	2-Fluorobiphenyl	87%	36-112%

Method Blank Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-MB1	5P22706.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Surrogate Recoveries		Limits
1718-51-0	Terphenyl-d14	91%	36-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.28	250	ug/kg	J
	system artifact/aldol-condensation	3.53	620	ug/kg	J
	system artifact	6.19	150	ug/kg	J
	system artifact	7.45	180	ug/kg	J
	system artifact	17.94	180	ug/kg	J
	Total TIC, Semi-Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-BS1	5P22705.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1530	92	49-115
51-28-5	2,4-Dinitrophenol	3330	3020	91	30-127
95-48-7	2-Methylphenol	1670	1380	83	53-103
	3&4-Methylphenol	1670	1400	84	53-102
100-02-7	4-Nitrophenol	1670	1360	82	36-143
108-95-2	Phenol	1670	1310	79	45-106
83-32-9	Acenaphthene	1670	1330	80	60-108
120-12-7	Anthracene	1670	1380	83	59-109
56-55-3	Benzo(a)anthracene	1670	1390	83	52-113
50-32-8	Benzo(a)pyrene	1670	1490	89	56-122
205-99-2	Benzo(b)fluoranthene	1670	1460	88	53-119
191-24-2	Benzo(g,h,i)perylene	1670	1430	86	48-117
207-08-9	Benzo(k)fluoranthene	1670	1450	87	52-115
92-52-4	1,1'-Biphenyl	1670	1320	79	54-101
218-01-9	Chrysene	1670	1420	85	51-119
53-70-3	Dibenzo(a,h)anthracene	1670	1510	91	49-118
84-74-2	Di-n-butyl phthalate	1670	1390	83	56-117
84-66-2	Diethyl phthalate	1670	1310	79	54-112
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1370	82	45-130
206-44-0	Fluoranthene	1670	1490	89	58-110
86-73-7	Fluorene	1670	1390	83	59-108
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1520	91	48-120
91-57-6	2-Methylnaphthalene	1670	1360	82	48-104
85-01-8	Phenanthrene	1670	1400	84	57-105
129-00-0	Pyrene	1670	1440	86	50-117
110-86-1	Pyridine	1670	1180	71	26-110
91-22-5	Quinoline	1670	1370	82	51-102

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	85%	30-106%
4165-62-2	Phenol-d5	84%	30-106%
118-79-6	2,4,6-Tribromophenol	93%	24-140%
4165-60-0	Nitrobenzene-d5	84%	26-122%
321-60-8	2-Fluorobiphenyl	85%	36-112%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-BS1	5P22705.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Surrogate Recoveries	BSP	Limits
1718-51-0	Terphenyl-d14	89%	36-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-MS	5P22719.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162
OP88533-MSD	5P22720.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162
JC7290-1	5P22718.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	JC7290-1 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		2020	1780	88	2010	1620	81	9	23-133/34
51-28-5	2,4-Dinitrophenol	ND		4040	3270	81	4010	2970	74	10	10-110/51
95-48-7	2-Methylphenol	ND		2020	1630	81	2010	1470	73	10	32-111/34
	3&4-Methylphenol	ND		2020	1680	83	2010	1470	73	13	32-113/34
100-02-7	4-Nitrophenol	ND		2020	1570	78	2010	1350	67	15	14-154/39
108-95-2	Phenol	ND		2020	1560	77	2010	1420	71	9	25-112/33
83-32-9	Acenaphthene	ND		2020	1530	76	2010	1370	68	11	34-125/36
120-12-7	Anthracene	ND		2020	1580	78	2010	1390	69	13	31-131/41
56-55-3	Benzo(a)anthracene	ND		2020	1540	76	2010	1380	69	11	23-136/43
50-32-8	Benzo(a)pyrene	ND		2020	1680	83	2010	1480	74	13	22-144/42
205-99-2	Benzo(b)fluoranthene	ND		2020	1590	79	2010	1430	71	11	18-145/43
191-24-2	Benzo(g,h,i)perylene	ND		2020	1620	80	2010	1420	71	13	20-138/43
207-08-9	Benzo(k)fluoranthene	ND		2020	1640	81	2010	1430	71	14	27-129/43
92-52-4	1,1'-Biphenyl	ND		2020	1500	74	2010	1330	66	12	33-116/32
218-01-9	Chrysene	ND		2020	1540	76	2010	1370	68	12	21-142/43
53-70-3	Dibenzo(a,h)anthracene	ND		2020	1680	83	2010	1480	74	13	25-135/41
84-74-2	Di-n-butyl phthalate	ND		2020	1540	76	2010	1380	69	11	32-131/34
84-66-2	Diethyl phthalate	ND		2020	1450	72	2010	1300	65	11	35-124/32
117-81-7	bis(2-Ethylhexyl)phthalate	ND		2020	1490	74	2010	1320	66	12	25-146/35
206-44-0	Fluoranthene	ND		2020	1700	84	2010	1520	76	11	15-143/46
86-73-7	Fluorene	38.3		2020	1580	76	2010	1400	68	12	30-129/37
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2020	1690	84	2010	1440	72	16	23-141/44
91-57-6	2-Methylnaphthalene	159		2020	1670	75	2010	1490	66	11	21-125/33
85-01-8	Phenanthrene	133		2020	1660	76	2010	1420	64	16	14-144/44
129-00-0	Pyrene	17.4	J	2020	1560	76	2010	1380	68	12	16-147/46
110-86-1	Pyridine	ND		2020	1300	64	2010	1250	62	4	10-110/43
91-22-5	Quinoline	ND		2020	1540	76	2010	1400	70	10	26-116/32

CAS No.	Surrogate Recoveries	MS	MSD	JC7290-1	Limits
367-12-4	2-Fluorophenol	83%	76%	83%	30-106%
4165-62-2	Phenol-d5	83%	75%	82%	30-106%
118-79-6	2,4,6-Tribromophenol	86%	77%	84%	24-140%
4165-60-0	Nitrobenzene-d5	82%	77%	83%	26-122%
321-60-8	2-Fluorobiphenyl	80%	74%	83%	36-112%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP88533-MS	5P22719.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162
OP88533-MSD	5P22720.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162
JC7290-1	5P22718.D	1	11/02/15	AP	10/30/15	OP88533	E5P1162

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

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Surrogate Recoveries	MS	MSD	JC7290-1	Limits
1718-51-0	Terphenyl-d14	80%	72%	81%	36-132%

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1151-DFTPP
Lab File ID: 5P22483.D
Instrument ID: GCMS5P
Injection Date: 10/26/15
Injection Time: 23:32

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	35532	35.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	42229	42.0		Pass
70	Less than 2.0% of mass 69	356	0.35	(0.84) [a]	Pass
127	40.0 - 60.0% of mass 198	56893	56.6		Pass
197	Less than 1.0% of mass 198	156	0.16		Pass
198	Base peak, 100% relative abundance	100560	100.0		Pass
199	5.0 - 9.0% of mass 198	7184	7.14		Pass
275	10.0 - 30.0% of mass 198	23984	23.9		Pass
365	1.0 - 100.0% of mass 198	3116	3.10		Pass
441	Present, but less than mass 443	14051	14.0	(78.3) [b]	Pass
442	40.0 - 100.0% of mass 198	91645	91.1		Pass
443	17.0 - 23.0% of mass 442	17936	17.8	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E5P1151-IC1151	5P22484.D	10/26/15	23:54	00:22	Initial cal 100
E5P1151-IC1151	5P22485.D	10/27/15	00:22	00:50	Initial cal 80
E5P1151-ICC1151	5P22486.D	10/27/15	00:49	01:17	Initial cal 50
E5P1151-IC1151	5P22487.D	10/27/15	01:17	01:45	Initial cal 25
E5P1151-IC1151	5P22488.D	10/27/15	01:44	02:12	Initial cal 10
E5P1151-IC1151	5P22489.D	10/27/15	02:12	02:40	Initial cal 5
E5P1151-IC1151	5P22490.D	10/27/15	02:39	03:07	Initial cal 2
E5P1151-IC1151	5P22491.D	10/27/15	03:07	03:35	Initial cal 1

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-DFTPP
Lab File ID: 5P22492.D
Instrument ID: GCMS5P
Injection Date: 10/27/15
Injection Time: 03:31

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	34386	33.4		Pass
68	Less than 2.0% of mass 69	405	0.39	(0.96) [a]	Pass
69	Mass 69 relative abundance	42357	41.2		Pass
70	Less than 2.0% of mass 69	213	0.21	(0.50) [a]	Pass
127	40.0 - 60.0% of mass 198	60162	58.5		Pass
197	Less than 1.0% of mass 198	357	0.35		Pass
198	Base peak, 100% relative abundance	102890	100.0		Pass
199	5.0 - 9.0% of mass 198	7015	6.82		Pass
275	10.0 - 30.0% of mass 198	24768	24.1		Pass
365	1.0 - 100.0% of mass 198	3262	3.17		Pass
441	Present, but less than mass 443	15557	15.1	(78.9) [b]	Pass
442	40.0 - 100.0% of mass 198	97714	95.0		Pass
443	17.0 - 23.0% of mass 442	19705	19.2	(20.2) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E5P1152-IC1152	5P22493.D	10/27/15	03:43	00:12	Initial cal 100
E5P1152-IC1152	5P22494.D	10/27/15	04:10	00:39	Initial cal 80
E5P1152-ICC1152	5P22495.D	10/27/15	04:37	01:06	Initial cal 50
E5P1152-IC1152	5P22496.D	10/27/15	05:05	01:34	Initial cal 25
E5P1152-IC1152	5P22497.D	10/27/15	05:32	02:01	Initial cal 10
E5P1152-IC1152	5P22498.D	10/27/15	05:59	02:28	Initial cal 5
E5P1152-IC1152	5P22499.D	10/27/15	06:26	02:55	Initial cal 2
E5P1152-IC1152	5P22500.D	10/27/15	06:53	03:22	Initial cal 1
E5P1152-ICV1151	5P22501.D	10/27/15	07:21	03:50	Initial cal verification 50
E5P1152-ICV1151	5P22503.D	10/27/15	08:15	04:44	Initial cal verification 50
E5P1152-ICV1152	5P22504A.D	10/27/15	08:43	05:12	Initial cal verification 50
E5P1152-ICV1152	5P22505A.D	10/27/15	09:10	05:39	Initial cal verification 50
E5P1152-ICV1151	5P22505.D	10/27/15	09:10	05:39	Initial cal verification 50
E5P1152-ICV1152	5P22506.D	10/27/15	09:37	06:06	Initial cal verification 50
E5P1152-ICV1152	5P22507.D	10/27/15	10:05	06:34	Initial cal verification 50
E5P1152-ICV1151	5P22508.D	10/27/15	10:32	07:01	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1153-DFTPP
Lab File ID: 5P22509.D
Instrument ID: GCMS5P
Injection Date: 10/27/15
Injection Time: 11:37

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	42529	34.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	51579	41.7		Pass
70	Less than 2.0% of mass 69	98	0.08	(0.19) [a]	Pass
127	40.0 - 60.0% of mass 198	72418	58.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	123706	100.0		Pass
199	5.0 - 9.0% of mass 198	8452	6.83		Pass
275	10.0 - 30.0% of mass 198	28106	22.7		Pass
365	1.0 - 100.0% of mass 198	3261	2.64		Pass
441	Present, but less than mass 443	16483	13.3	(76.8) [b]	Pass
442	40.0 - 100.0% of mass 198	113320	91.6		Pass
443	17.0 - 23.0% of mass 442	21459	17.3	(18.9) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E5P1153-ICV1151	5P22512.D	10/27/15	12:46	01:09	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1162-DFTPP
Lab File ID: 5P22700.D
Instrument ID: GCMS5P
Injection Date: 11/02/15
Injection Time: 09:35

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	43231	31.5		Pass
68	Less than 2.0% of mass 69	589	0.43	(1.11) [a]	Pass
69	Mass 69 relative abundance	52991	38.6		Pass
70	Less than 2.0% of mass 69	275	0.20	(0.52) [a]	Pass
127	40.0 - 60.0% of mass 198	69893	50.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	137256	100.0		Pass
199	5.0 - 9.0% of mass 198	9273	6.76		Pass
275	10.0 - 30.0% of mass 198	31472	22.9		Pass
365	1.0 - 100.0% of mass 198	3983	2.90		Pass
441	Present, but less than mass 443	17426	12.7	(74.6) [b]	Pass
442	40.0 - 100.0% of mass 198	118978	86.7		Pass
443	17.0 - 23.0% of mass 442	23358	17.0	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E5P1162-CC1151	5P22701.D	11/02/15	09:48	00:13	Continuing cal 25
E5P1162-CC1152	5P22702.D	11/02/15	10:15	00:40	Continuing cal 25
OP88533-BS1	5P22705.D	11/02/15	11:35	02:00	Blank Spike
OP88533-MB1	5P22706.D	11/02/15	12:02	02:27	Method Blank
OP88479-MB1	5P22709.D	11/02/15	12:29	02:54	Method Blank
ZZZZZZ	5P22710.D	11/02/15	12:56	03:21	(unrelated sample)
ZZZZZZ	5P22711.D	11/02/15	13:22	03:47	(unrelated sample)
ZZZZZZ	5P22712.D	11/02/15	14:43	05:08	(unrelated sample)
ZZZZZZ	5P22713.D	11/02/15	15:10	05:35	(unrelated sample)
ZZZZZZ	5P22714.D	11/02/15	15:37	06:02	(unrelated sample)
OP88458-MS	5P22715.D	11/02/15	16:04	06:29	Matrix Spike
OP88458-MSD	5P22716.D	11/02/15	16:31	06:56	Matrix Spike Duplicate
ZZZZZZ	5P22717.D	11/02/15	16:57	07:22	(unrelated sample)
JC7290-1	5P22718.D	11/02/15	17:24	07:49	(used for QC only; not part of job JC7291)
OP88533-MS	5P22719.D	11/02/15	17:51	08:16	Matrix Spike
OP88533-MSD	5P22720.D	11/02/15	18:18	08:43	Matrix Spike Duplicate
ZZZZZZ	5P22721.D	11/02/15	18:45	09:10	(unrelated sample)
ZZZZZZ	5P22722.D	11/02/15	19:12	09:37	(unrelated sample)
ZZZZZZ	5P22723.D	11/02/15	19:38	10:03	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample:	E5P1162-DFTPP	**Injection Date:**	11/02/15
Lab File ID:	5P22700.D	**Injection Time:**	09:35
Instrument ID:	GCMS5P		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	5P22724.D	11/02/15	20:05	10:30	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1165-DFTPP
Lab File ID: 5P22775.D
Instrument ID: GCMS5P
Injection Date: 11/04/15
Injection Time: 09:56

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	32250	34.9		Pass
68	Less than 2.0% of mass 69	2	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	41805	45.2		Pass
70	Less than 2.0% of mass 69	49	0.05	(0.12) [a]	Pass
127	40.0 - 60.0% of mass 198	50813	54.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	92512	100.0		Pass
199	5.0 - 9.0% of mass 198	6411	6.93		Pass
275	10.0 - 30.0% of mass 198	22352	24.2		Pass
365	1.0 - 100.0% of mass 198	2324	2.51		Pass
441	Present, but less than mass 443	11877	12.8	(76.6) [b]	Pass
442	40.0 - 100.0% of mass 198	81306	87.9		Pass
443	17.0 - 23.0% of mass 442	15500	16.8	(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
E5P1165-IC1165	5P22776.D	11/04/15	10:10	00:14	Initial cal 2
E5P1165-IC1165	5P22778.D	11/04/15	11:04	01:08	Initial cal 1
E5P1165-IC1165	5P22779.D	11/04/15	11:30	01:34	Initial cal 5
E5P1165-IC1165	5P22780.D	11/04/15	11:57	02:01	Initial cal 10
E5P1165-IC1165	5P22781.D	11/04/15	12:24	02:28	Initial cal 80
E5P1165-IC1165	5P22782.D	11/04/15	12:51	02:55	Initial cal 25
E5P1165-ICC1165	5P22783.D	11/04/15	13:19	03:23	Initial cal 50
E5P1165-IC1165	5P22784.D	11/04/15	13:45	03:49	Initial cal 100

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1166-DFTPP
Lab File ID: 5P22786.D
Instrument ID: GCMS5P
Injection Date: 11/04/15
Injection Time: 14:39

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	39616	35.4		Pass
68	Less than 2.0% of mass 69	449	0.40	(0.96) [a]	Pass
69	Mass 69 relative abundance	46568	41.6		Pass
70	Less than 2.0% of mass 69	275	0.25	(0.59) [a]	Pass
127	40.0 - 60.0% of mass 198	59346	53.0		Pass
197	Less than 1.0% of mass 198	403	0.36		Pass
198	Base peak, 100% relative abundance	111941	100.0		Pass
199	5.0 - 9.0% of mass 198	7526	6.72		Pass
275	10.0 - 30.0% of mass 198	26808	23.9		Pass
365	1.0 - 100.0% of mass 198	3219	2.88		Pass
441	Present, but less than mass 443	15283	13.7	(75.4) [b]	Pass
442	40.0 - 100.0% of mass 198	106328	95.0		Pass
443	17.0 - 23.0% of mass 442	20271	18.1	(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
E5P1166-IC1166	5P22787.D	11/04/15	14:54	00:15	Initial cal 1
E5P1166-IC1166	5P22788.D	11/04/15	15:21	00:42	Initial cal 2
E5P1166-IC1166	5P22789.D	11/04/15	15:48	01:09	Initial cal 5
E5P1166-IC1166	5P22790.D	11/04/15	16:15	01:36	Initial cal 10
E5P1166-IC1166	5P22791.D	11/04/15	16:42	02:03	Initial cal 25
E5P1166-ICC1166	5P22792.D	11/04/15	17:09	02:30	Initial cal 50
E5P1166-IC1166	5P22793.D	11/04/15	17:36	02:57	Initial cal 80
E5P1166-IC1166	5P22794.D	11/04/15	18:03	03:24	Initial cal 100
E5P1166-ICV1165	5P22795.D	11/04/15	18:30	03:51	Initial cal verification 50
E5P1166-ICV1165	5P22796.D	11/04/15	18:57	04:18	Initial cal verification 50
E5P1166-ICV1166	5P22797A.D	11/04/15	19:24	04:45	Initial cal verification 50
E5P1166-ICV1165	5P22797.D	11/04/15	19:24	04:45	Initial cal verification 50
E5P1166-ICV1165	5P22798.D	11/04/15	19:51	05:12	Initial cal verification 50
E5P1166-ICV1166	5P22798A.D	11/04/15	19:51	05:12	Initial cal verification 50
E5P1166-ICV1166	5P22800.D	11/04/15	20:46	06:07	Initial cal verification 50
E5P1166-ICV1165	5P22802.D	11/04/15	21:40	07:01	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1168-DFTPP
Lab File ID: 5P22822.D
Instrument ID: GCMS5P
Injection Date: 11/05/15
Injection Time: 08:04

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	52642	33.4		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	66203	42.0		Pass
70	Less than 2.0% of mass 69	409	0.26	(0.62) [a]	Pass
127	40.0 - 60.0% of mass 198	85016	53.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	157781	100.0		Pass
199	5.0 - 9.0% of mass 198	10429	6.61		Pass
275	10.0 - 30.0% of mass 198	35469	22.5		Pass
365	1.0 - 100.0% of mass 198	4068	2.58		Pass
441	Present, but less than mass 443	19600	12.4	(73.9) [b]	Pass
442	40.0 - 100.0% of mass 198	135837	86.1		Pass
443	17.0 - 23.0% of mass 442	26519	16.8	(19.5) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E5P1168-CC1165	5P22823.D	11/05/15	08:18	00:14	Continuing cal 25
E5P1168-CC1166	5P22824.D	11/05/15	08:45	00:41	Continuing cal 25
OP88032A-MB1	5P22827.D	11/05/15	10:05	02:01	Method Blank
OP88032A-BS1	5P22828.D	11/05/15	10:32	02:28	Blank Spike
OP88032A-BSD	5P22829.D	11/05/15	10:59	02:55	Blank Spike Duplicate
OP88290A-MB1	5P22830.D	11/05/15	11:26	03:22	Method Blank
OP88290A-BS1	5P22831.D	11/05/15	11:53	03:49	Blank Spike
OP88290A-BSD	5P22832.D	11/05/15	12:20	04:16	Blank Spike Duplicate
JC6117-1R	5P22833.D	11/05/15	12:47	04:43	(used for QC only; not part of job JC7291)
ZZZZZZ	5P22834.D	11/05/15	13:14	05:10	(unrelated sample)
OP88032A-MS	5P22835.D	11/05/15	13:41	05:37	Matrix Spike
OP88032A-MSD	5P22836.D	11/05/15	14:08	06:04	Matrix Spike Duplicate
ZZZZZZ	5P22838.D	11/05/15	15:01	06:57	(unrelated sample)
ZZZZZZ	5P22839.D	11/05/15	15:28	07:24	(unrelated sample)
JC6117-1R	5P22840.D	11/05/15	15:55	07:51	(used for QC only; not part of job JC7291)
ZZZZZZ	5P22841.D	11/05/15	16:22	08:18	(unrelated sample)
ZZZZZZ	5P22842.D	11/05/15	16:49	08:45	(unrelated sample)
ZZZZZZ	5P22843.D	11/05/15	17:16	09:12	(unrelated sample)
ZZZZZZ	5P22844.D	11/05/15	17:44	09:40	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1168-DFTPP
Lab File ID: 5P22822.D
Instrument ID: GCMS5P
Injection Date: 11/05/15
Injection Time: 08:04

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JC7291-2	5P22845.D	11/05/15	18:10	10:06	MH386-7-20151027(3')
JC7291-3	5P22846.D	11/05/15	18:37	10:33	MH386-8-20151027(5')
JC7291-4	5P22847.D	11/05/15	19:04	11:00	MH386-9-20151027(5')
JC7291-5	5P22848.D	11/05/15	19:31	11:27	MH386-10-20151027(2')
JC7291-1	5P22849.D	11/05/15	19:58	11:54	MH386-6-20151027(3')

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1173-DFTPP
Lab File ID: 5P22962.D
Instrument ID: GCMS5P
Injection Date: 11/09/15
Injection Time: 09:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	48661	30.1		Pass
68	Less than 2.0% of mass 69	244	0.15	(0.36) [a]	Pass
69	Mass 69 relative abundance	67182	41.6		Pass
70	Less than 2.0% of mass 69	302	0.19	(0.45) [a]	Pass
127	40.0 - 60.0% of mass 198	85952	53.2		Pass
197	Less than 1.0% of mass 198	358	0.22		Pass
198	Base peak, 100% relative abundance	161573	100.0		Pass
199	5.0 - 9.0% of mass 198	10851	6.72		Pass
275	10.0 - 30.0% of mass 198	33906	21.0		Pass
365	1.0 - 100.0% of mass 198	4141	2.56		Pass
441	Present, but less than mass 443	21289	13.2	(79.6) [b]	Pass
442	40.0 - 100.0% of mass 198	142610	88.3		Pass
443	17.0 - 23.0% of mass 442	26754	16.6	(18.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E5P1173-CC1165	5P22963.D	11/09/15	09:13	00:12	Continuing cal 50
E5P1173-CC1166	5P22964.D	11/09/15	09:39	00:38	Continuing cal 50
OP88791-MB1	5P22966.D	11/09/15	10:31	01:30	Method Blank
OP88791-BS1	5P22967.D	11/09/15	10:58	01:57	Blank Spike
ZZZZZZ	5P22968.D	11/09/15	11:24	02:23	(unrelated sample)
ZZZZZZ	5P22969.D	11/09/15	11:51	02:50	(unrelated sample)
JC7903-1	5P22970.D	11/09/15	12:17	03:16	(used for QC only; not part of job JC7291)
ZZZZZZ	5P22971.D	11/09/15	12:44	03:43	(unrelated sample)
ZZZZZZ	5P22972.D	11/09/15	13:11	04:10	(unrelated sample)
JC7903-1	5P22975.D	11/09/15	13:37	04:36	(used for QC only; not part of job JC7291)
ZZZZZZ	5P22976.D	11/09/15	14:04	05:03	(unrelated sample)
OP88791-MS	5P22973.D	11/09/15	14:30	05:29	Matrix Spike
OP88791-MSD	5P22974.D	11/09/15	14:57	05:56	Matrix Spike Duplicate
ZZZZZZ	5P22978.D	11/09/15	15:51	06:50	(unrelated sample)
ZZZZZZ	5P22979.D	11/09/15	16:18	07:17	(unrelated sample)
JC7291-1	5P22980.D	11/09/15	16:45	07:44	MH386-6-20151027(3')
JC7291-5	5P22981.D	11/09/15	17:11	08:10	MH386-10-20151027(2')
JC7291-6	5P22982.D	11/09/15	17:37	08:36	MH386-10-20151027(5')
JC7291-9	5P22983.D	11/09/15	18:04	09:03	MH386-13-20151027(2')

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1173-DFTPP
Lab File ID: 5P22962.D
Instrument ID: GCMS5P
Injection Date: 11/09/15
Injection Time: 09:01

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JC7291-8	5P22984.D	11/09/15	18:31	09:30	MH386-12-20151027(2')
JC7291-7	5P22985.D	11/09/15	18:58	09:57	MH386-11-20151027(2')
JC7291-10	5P22986.D	11/09/15	19:25	10:24	MH386-14-20151027(2')

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P921-DFTPP
Lab File ID: 6P20181.D
Instrument ID: GCMS6P
Injection Date: 10/12/15
Injection Time: 21:00

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	49599	40.0		Pass
68	Less than 2.0% of mass 69	205	0.17	(0.29) [a]	Pass
69	Mass 69 relative abundance	70893	57.1		Pass
70	Less than 2.0% of mass 69	354	0.29	(0.50) [a]	Pass
127	40.0 - 60.0% of mass 198	71971	58.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	124048	100.0		Pass
199	5.0 - 9.0% of mass 198	8295	6.69		Pass
275	10.0 - 30.0% of mass 198	31328	25.3		Pass
365	1.0 - 100.0% of mass 198	2813	2.27		Pass
441	Present, but less than mass 443	11668	9.41	(71.7) [b]	Pass
442	40.0 - 100.0% of mass 198	86957	70.1		Pass
443	17.0 - 23.0% of mass 442	16284	13.1	(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
E6P921-IC921	6P20182.D	10/12/15	21:36	00:36	Initial cal 2
E6P921-IC921	6P20183.D	10/12/15	22:03	01:03	Initial cal 1
E6P921-IC921	6P20184.D	10/12/15	22:29	01:29	Initial cal 100
E6P921-IC921	6P20185.D	10/12/15	22:55	01:55	Initial cal 80
E6P921-ICC921	6P20186.D	10/12/15	23:42	02:42	Initial cal 50
E6P921-IC921	6P20187.D	10/13/15	00:08	03:08	Initial cal 25
E6P921-IC921	6P20188.D	10/13/15	00:34	03:34	Initial cal 10
E6P921-IC921	6P20189.D	10/13/15	01:00	04:00	Initial cal 5

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-DFTPP
Lab File ID: 6P20190.D
Instrument ID: GCMS6P
Injection Date: 10/13/15
Injection Time: 08:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	50885	39.6		Pass
68	Less than 2.0% of mass 69	908	0.71	(1.28) [a]	Pass
69	Mass 69 relative abundance	71040	55.3		Pass
70	Less than 2.0% of mass 69	239	0.19	(0.34) [a]	Pass
127	40.0 - 60.0% of mass 198	75600	58.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	128437	100.0		Pass
199	5.0 - 9.0% of mass 198	8115	6.32		Pass
275	10.0 - 30.0% of mass 198	31989	24.9		Pass
365	1.0 - 100.0% of mass 198	3120	2.43		Pass
441	Present, but less than mass 443	13068	10.2	(73.1) [b]	Pass
442	40.0 - 100.0% of mass 198	90448	70.4		Pass
443	17.0 - 23.0% of mass 442	17889	13.9	(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
E6P922-IC922	6P20191.D	10/13/15	09:21	00:32	Initial cal 100
E6P922-IC922	6P20192.D	10/13/15	09:47	00:58	Initial cal 80
E6P922-ICC922	6P20193.D	10/13/15	10:13	01:24	Initial cal 50
E6P922-IC922	6P20194.D	10/13/15	10:39	01:50	Initial cal 25
E6P922-IC922	6P20195.D	10/13/15	11:05	02:16	Initial cal 10
E6P922-IC922	6P20196.D	10/13/15	11:32	02:43	Initial cal 5
E6P922-IC922	6P20197.D	10/13/15	11:58	03:09	Initial cal 2
E6P922-IC922	6P20198.D	10/13/15	12:24	03:35	Initial cal 1
E6P922-ICV921	6P20200.D	10/13/15	13:17	04:28	Initial cal verification 50
E6P922-ICV921	6P20201.D	10/13/15	13:43	04:54	Initial cal verification 50
E6P922-ICV922	6P20201A.D	10/13/15	13:43	04:54	Initial cal verification 50
E6P922-ICV922	6P20202A.D	10/13/15	14:09	05:20	Initial cal verification 50
E6P922-ICV921	6P20202.D	10/13/15	14:09	05:20	Initial cal verification 50
E6P922-ICV921	6P20203.D	10/13/15	14:35	05:46	Initial cal verification 50
E6P922-ICV922	6P20204.D	10/13/15	15:02	06:13	Initial cal verification 50
E6P922-ICV922	6P20205A.D	10/13/15	15:28	06:39	Initial cal verification 50
E6P922-ICV921	6P20205.D	10/13/15	15:28	06:39	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P923-DFTPP
Lab File ID: 6P20208.D
Instrument ID: GCMS6P
Injection Date: 10/13/15
Injection Time: 18:15

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	44376	35.5		Pass
68	Less than 2.0% of mass 69	127	0.10	(0.20) [a]	Pass
69	Mass 69 relative abundance	61995	49.6		Pass
70	Less than 2.0% of mass 69	424	0.34	(0.68) [a]	Pass
127	40.0 - 60.0% of mass 198	69456	55.5		Pass
197	Less than 1.0% of mass 198	88	0.07		Pass
198	Base peak, 100% relative abundance	125072	100.0		Pass
199	5.0 - 9.0% of mass 198	8816	7.05		Pass
275	10.0 - 30.0% of mass 198	33789	27.0		Pass
365	1.0 - 100.0% of mass 198	3994	3.19		Pass
441	Present, but less than mass 443	14864	11.9	(74.7) [b]	Pass
442	40.0 - 100.0% of mass 198	105696	84.5		Pass
443	17.0 - 23.0% of mass 442	19885	15.9	(18.8) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E6P923-ICV921	6P20209.D	10/13/15	18:33	00:18	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P948-DFTPP
Lab File ID: 6P20793.D
Instrument ID: GCMS6P
Injection Date: 10/30/15
Injection Time: 20:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	27844	37.6		Pass
68	Less than 2.0% of mass 69	90	0.12	(0.22) [a]	Pass
69	Mass 69 relative abundance	40636	54.9		Pass
70	Less than 2.0% of mass 69	241	0.33	(0.59) [a]	Pass
127	40.0 - 60.0% of mass 198	39549	53.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	74036	100.0		Pass
199	5.0 - 9.0% of mass 198	5301	7.16		Pass
275	10.0 - 30.0% of mass 198	17563	23.7		Pass
365	1.0 - 100.0% of mass 198	1824	2.46		Pass
441	Present, but less than mass 443	7160	9.67	(73.2) [b]	Pass
442	40.0 - 100.0% of mass 198	51096	69.0		Pass
443	17.0 - 23.0% of mass 442	9782	13.2	(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
E6P948-CC921	6P20794.D	10/30/15	21:10	00:15	Continuing cal 50
E6P948-CC922	6P20795.D	10/30/15	21:52	00:57	Continuing cal 50
OP88543-MB1	6P20796.D	10/30/15	22:31	01:36	Method Blank
OP88544-MB1	6P20796.D	10/30/15	22:31	01:36	Method Blank
OP88543-LB48	6P20797.D	10/30/15	22:58	02:03	Leachate Blank
OP88544-BS1	6P20798.D	10/30/15	23:44	02:49	Blank Spike
OP88543-BS1	6P20798.D	10/30/15	23:44	02:49	Blank Spike
OP88543-MS	6P20799.D	10/31/15	00:11	03:16	Matrix Spike
OP88543-LS16	6P20799.D	10/31/15	00:11	03:16	Leachate Spike
OP88543-MSD	6P20800.D	10/31/15	00:37	03:42	Matrix Spike Duplicate
OP88544-LS17	6P20801.D	10/31/15	01:04	04:09	Leachate Spike
OP88544-MS	6P20801.D	10/31/15	01:04	04:09	Matrix Spike
OP88544-MSD	6P20802.D	10/31/15	01:30	04:35	Matrix Spike Duplicate
JC7255-1	6P20803.D	10/31/15	01:57	05:02	(used for QC only; not part of job JC7291)
ZZZZZZ	6P20804.D	10/31/15	02:23	05:28	(unrelated sample)
ZZZZZZ	6P20805.D	10/31/15	02:49	05:54	(unrelated sample)
JC7244-1A	6P20806.D	10/31/15	03:16	06:21	(used for QC only; not part of job JC7291)
ZZZZZZ	6P20807.D	10/31/15	03:42	06:47	(unrelated sample)
ZZZZZZ	6P20808.D	10/31/15	04:08	07:13	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P948-DFTPP
Lab File ID: 6P20793.D
Instrument ID: GCMS6P
Injection Date: 10/30/15
Injection Time: 20:55

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6P20809.D	10/31/15	04:34	07:39	(unrelated sample)
ZZZZZZ	6P20810.D	10/31/15	05:00	08:05	(unrelated sample)
ZZZZZZ	6P20811.D	10/31/15	05:27	08:32	(unrelated sample)
OP88533-MB1	6P20812.D	10/31/15	05:53	08:58	Method Blank
ZZZZZZ	6P20814.D	10/31/15	06:45	09:50	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E5P1162-CC1151	**Injection Date:**	11/02/15
Lab File ID:	5P22701.D	**Injection Time:**	09:48
Instrument ID:	GCMS5P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	213838	5.26	812677	6.72	474169	8.84	756897	10.66	698282	14.46	700536	16.52
Upper Limit [a]	427676	5.76	1625354	7.22	948338	9.34	1513794	11.16	1396564	14.96	1401072	17.02
Lower Limit [b]	106919	4.76	406339	6.22	237085	8.34	378449	10.16	349141	13.96	350268	16.02

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
OP88533-BS1	278074	5.26	1023685	6.72	567536	8.84	872793	10.66	787205	14.46	771445	16.52
OP88533-MB1	303688	5.26	1136886	6.72	637012	8.84	970449	10.66	890752	14.45	849255	16.52
OP88479-MB1	226662	5.25	870797	6.72	474649	8.83	718691	10.66	655244	14.45	648821	16.52
ZZZZZZ	281404	5.26	1023134	6.72	566343	8.84	855695	10.66	811145	14.45	796167	16.52
ZZZZZZ	277223	5.26	1042897	6.72	571411	8.83	863188	10.66	784483	14.45	752080	16.52
ZZZZZZ	242724	5.26	929819	6.72	533685	8.83	824078	10.66	791363	14.45	764498	16.52
ZZZZZZ	257081	5.25	975599	6.72	554787	8.83	872562	10.66	816497	14.45	789455	16.52
ZZZZZZ	341153	5.26	1310292	6.72	737607	8.83	1166113	10.66	1133880	14.45	1129067	16.52
OP88458-MS	270421	5.25	1000851	6.72	562945	8.84	889546	10.66	839682	14.46	819818	16.52
OP88458-MSD	259271	5.25	962549	6.72	544329	8.84	855565	10.66	815330	14.46	797890	16.52
ZZZZZZ	279999	5.25	1053734	6.72	589828	8.83	909937	10.66	838621	14.45	829269	16.52
JC7290-1	264678	5.25	1004442	6.72	540327	8.83	829521	10.66	804443	14.45	775632	16.52
OP88533-MS	280374	5.25	1049446	6.72	590076	8.84	918840	10.66	868202	14.46	856144	16.52
OP88533-MSD	281707	5.26	1034064	6.72	583970	8.84	902244	10.66	859585	14.46	841746	16.52
ZZZZZZ	103269*	5.25	391730*	6.72	219090*	8.83	347012*	10.66	330371*	14.45	109337*	16.61
ZZZZZZ	260210	5.26	978570	6.72	552189	8.84	855845	10.67	674799	14.53	692614	16.65
ZZZZZZ	239109	5.26	913975	6.73	517601	8.84	788113	10.67	727999	14.48	729784	16.55
ZZZZZZ	215750	5.26	810875	6.73	460142	8.84	713241	10.67	655760	14.48	653040	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 Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E5P1168-CC1165	**Injection Date:**	11/05/15
Lab File ID:	5P22823.D	**Injection Time:**	08:18
Instrument ID:	GCMS5P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	202134	5.24	772106	6.70	446456	8.82	712120	10.64	659344	14.43	648787	16.50
Upper Limit [a]	404268	5.74	1544212	7.20	892912	9.32	1424240	11.14	1318688	14.93	1297574	17.00
Lower Limit [b]	101067	4.74	386053	6.20	223228	8.32	356060	10.14	329672	13.93	324394	16.00

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
OP88032A-MB1	121920	5.24	463910	6.70	296132	8.81	474998	10.64	418108	14.43	407543	16.50
OP88032A-BS1	202556	5.24	809088	6.70	486594	8.81	791703	10.64	729353	14.43	755259	16.50
OP88032A-BSD	176106	5.24	693899	6.70	407517	8.81	659669	10.64	619410	14.43	638771	16.50
OP88290A-MB1	127003	5.24	509170	6.70	323979	8.81	540125	10.64	496603	14.43	498098	16.50
OP88290A-BS1	171586	5.24	675956	6.70	413762	8.81	680501	10.64	634264	14.43	641685	16.50
OP88290A-BSD	157847	5.24	614952	6.70	371545	8.81	604909	10.64	562586	14.43	560976	16.50
JC6117-1R	216636	5.24	821814	6.71	547301	8.82	897492	10.64	897477	14.43	934464	16.51
ZZZZZZ	209900	5.24	769224	6.71	527162	8.82	888091	10.64	933255	14.44	1008418	16.51
OP88032A-MS	237754	5.24	865483	6.71	590122	8.82	997979	10.65	990466	14.44	1042982	16.51
OP88032A-MSD	276269	5.24	997264	6.71	663261	8.82	1121514	10.65	1132804	14.45	1225306	16.52
ZZZZZZ	277940	5.24	1080832	6.70	663745	8.82	1101173	10.64	1103451	14.43	1113627	16.50
ZZZZZZ	262938	5.24	988314	6.70	592707	8.82	942445	10.64	893037	14.43	906096	16.50
JC6117-1R	251741	5.24	919602	6.71	549739	8.82	912560	10.64	842920	14.43	828342	16.50
ZZZZZZ	290429	5.24	1130127	6.71	715785	8.82	1230940	10.65	1217515	14.43	1244336	16.51
ZZZZZZ	235599	5.24	917348	6.70	563258	8.82	953880	10.65	978197	14.43	976682	16.50
ZZZZZZ	244768	5.24	943431	6.70	578011	8.82	946664	10.65	971898	14.43	978986	16.50
ZZZZZZ	241520	5.24	933521	6.70	562959	8.82	930569	10.64	927377	14.43	916746	16.50
JC7291-2	274746	5.24	1020910	6.71	611799	8.82	1098095	10.65	1167002	14.43	1190985	16.51
JC7291-3	282135	5.24	1049313	6.70	590646	8.83	1129963	10.65	1213145	14.44	1247663	16.51
JC7291-4	260951	5.24	991589	6.70	579144	8.82	1041307	10.65	1126180	14.43	1163643	16.51
JC7291-5	340514	5.24	1211714	6.71	638226	8.83	1339273	10.66	1539097*	14.46	1593514*	16.53
JC7291-1	303775	5.24	1078296	6.71	668265	8.84	1230216	10.66	1409367*	14.46	1455275*	16.54

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: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E5P1173-CC1165	**Injection Date:**	11/09/15
Lab File ID:	5P22963.D	**Injection Time:**	09:13
Instrument ID:	GCMS5P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	231598	5.21	880163	6.68	522213	8.79	831237	10.62	756976	14.40	753024	16.46
Upper Limit [a]	463196	5.71	1760326	7.18	1044426	9.29	1662474	11.12	1513952	14.90	1506048	16.96
Lower Limit [b]	115799	4.71	440082	6.18	261107	8.29	415619	10.12	378488	13.90	376512	15.96

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
OP88791-MB1	292765	5.21	1119047	6.67	624341	8.79	981303	10.61	804940	14.39	738997	16.46
OP88791-BS1	267257	5.21	1000140	6.68	565465	8.79	890879	10.61	749254	14.40	737649	16.46
ZZZZZZ	283264	5.21	1057627	6.68	590089	8.78	917496	10.61	765257	14.39	706846	16.46
ZZZZZZ	267450	5.21	1010319	6.68	555650	8.79	841378	10.61	733047	14.39	701832	16.46
JC7903-1	255375	5.21	954476	6.68	519660	8.79	251207*	10.64	782850	14.42	768789	16.47
ZZZZZZ	284231	5.21	1049637	6.68	583113	8.79	911241	10.61	778686	14.39	746385	16.46
ZZZZZZ	270703	5.21	980942	6.68	545009	8.79	864074	10.63	764457	14.40	757733	16.46
JC7903-1	243283	5.21	922250	6.68	512136	8.79	761378	10.62	739935	14.40	725348	16.46
ZZZZZZ	274492	5.21	1019298	6.68	566078	8.79	883020	10.62	787980	14.40	766472	16.46
OP88791-MS	247029	5.21	901700	6.68	499645	8.79	293122*	10.64	727150	14.42	716450	16.48
OP88791-MSD	250987	5.21	907709	6.68	505657	8.79	265061*	10.65	720486	14.42	727944	16.48
ZZZZZZ	289097	5.21	1072020	6.68	624811	8.79	988460	10.61	889615	14.40	830565	16.46
ZZZZZZ	275649	5.21	1064378	6.68	622121	8.79	1004002	10.61	894872	14.40	852512	16.46
JC7291-1 [c]	287586	5.21	995073	6.68	571426	8.80	929335	10.63	877299	14.41	868229	16.48
JC7291-5 [c]	298287	5.21	1034528	6.68	541827	8.79	918502	10.62	859779	14.41	858500	16.48
JC7291-6	305274	5.21	1082111	6.68	601045	8.79	942034	10.62	800923	14.40	795982	16.47
JC7291-9	276677	5.21	1005328	6.68	557112	8.79	881995	10.62	749103	14.40	730553	16.47
JC7291-8	299187	5.21	1057950	6.68	582510	8.79	931147	10.62	840228	14.41	823469	16.48
JC7291-7	281140	5.21	938148	6.68	383436	8.81	780433	10.64	816013	14.43	832475	16.50
JC7291-10	333813	5.21	1128026	6.68	600197	8.80	941392	10.63	856463	14.41	858394	16.49

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) Confirmation run.

Semivolatile Internal Standard Area Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E6P948-CC921	**Injection Date:**	10/30/15
Lab File ID:	6P20794.D	**Injection Time:**	21:10
Instrument ID:	GCMS6P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	245798	4.37	986789	5.41	561557	7.41	895100	9.56	895948	13.75	758621	15.86
Upper Limit [a]	491596	4.87	1973578	5.91	1123114	7.91	1790200	10.06	1791896	14.25	1517242	16.36
Lower Limit [b]	122899	3.87	493395	4.91	280779	6.91	447550	9.06	447974	13.25	379311	15.36

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
OP88543-MB1	229233	4.36	840838	5.40	495584	7.40	761786	9.55	765518	13.73	639765	15.85
OP88544-MB1	229233	4.36	840838	5.40	495584	7.40	761786	9.55	765518	13.73	639765	15.85
OP88543-LB48	220769	4.36	839508	5.40	489349	7.40	749328	9.55	722632	13.73	617939	15.84
OP88544-BS1	228367	4.37	882594	5.40	490275	7.40	749192	9.55	742279	13.74	586157	15.85
OP88543-BS1	228367	4.37	882594	5.40	490275	7.40	749192	9.55	742279	13.74	586157	15.85
OP88543-MS	221227	4.37	863508	5.40	472656	7.40	733159	9.55	727687	13.74	582405	15.84
OP88543-LS16	221227	4.37	863508	5.40	472656	7.40	733159	9.55	727687	13.74	582405	15.84
OP88543-MSD	213006	4.37	839268	5.40	465951	7.40	706699	9.55	686686	13.73	553685	15.84
OP88544-LS17	228131	4.37	880829	5.40	488576	7.40	742718	9.55	740730	13.73	580199	15.84
OP88544-MS	228131	4.37	880829	5.40	488576	7.40	742718	9.55	740730	13.73	580199	15.84
OP88544-MSD	224433	4.37	871703	5.40	483372	7.40	740442	9.55	722970	13.73	568590	15.84
JC7255-1	220943	4.36	815204	5.40	484021	7.40	741593	9.54	716180	13.72	622136	15.84
ZZZZZZ	216358	4.36	792574	5.40	465546	7.40	720495	9.54	687245	13.72	592542	15.83
ZZZZZZ	217410	4.36	804945	5.40	471106	7.40	724011	9.54	686965	13.72	597961	15.83
JC7244-1A	215549	4.36	802294	5.40	470255	7.40	727801	9.54	688379	13.72	602819	15.83
ZZZZZZ	203809	4.36	768454	5.40	449015	7.40	694420	9.54	656566	13.72	579648	15.83
ZZZZZZ	223248	4.36	830460	5.40	484902	7.40	756835	9.54	707433	13.72	609274	15.83
ZZZZZZ	207535	4.36	775919	5.40	451619	7.40	707467	9.54	674490	13.72	583918	15.83
ZZZZZZ	209848	4.36	785455	5.40	459336	7.40	715595	9.54	676403	13.72	592899	15.83
ZZZZZZ	198310	4.36	735179	5.40	432702	7.39	671745	9.54	641198	13.72	552602	15.83
OP88533-MB1	285784	4.36	1076129	5.40	610543	7.40	927646	9.54	848508	13.72	708120	15.83
ZZZZZZ	248704	4.36	942142	5.40	543668	7.40	886835	9.57	929480	13.82	632269	15.87

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Surrogate Recovery Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846 8270D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
JC7291-1	5P22980.D	86	88	85	121	91	96
JC7291-1	5P22849.D	77	78	83	98	76	83
JC7291-2	5P22845.D	69	69	67	78	75	72
JC7291-3	5P22846.D	74	75	76	78	87	79
JC7291-4	5P22847.D	75	76	74	76	85	78
JC7291-5	5P22981.D	71	72	64	86	84	74
JC7291-5	5P22848.D	64	64	62	72	80	65
JC7291-6	5P22982.D	76	77	71	84	83	83
JC7291-7	5P22985.D	74	75	76	98	96	78
JC7291-8	5P22984.D	69	68	62	76	73	72
JC7291-9	5P22983.D	81	83	71	86	89	90
JC7291-10	5P22986.D	69	68	65	76	78	73
OP88533-BS1	5P22705.D	85	84	93	84	85	89
OP88533-MB1	6P20812.D	91	86	90	96	92	98
OP88533-MB1	5P22706.D	88	89	84	90	87	91
OP88533-MS	5P22719.D	83	83	86	82	80	80
OP88533-MSD	5P22720.D	76	75	77	77	74	72

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	30-106%
S2 = Phenol-d5	30-106%
S3 = 2,4,6-Tribromophenol	24-140%
S4 = Nitrobenzene-d5	26-122%
S5 = 2-Fluorobiphenyl	36-112%
S6 = Terphenyl-d14	36-132%

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1151-ICC1151
Lab FileID: 5P22486.D

Response Factor Report MS5P

Method : C:\msdchem\1\METHODS\M5P1151.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Tue Oct 27 09:04:33 2015
Response via : Initial Calibration

Calibration Files
2 =5p22490.D 5 =5p22489.D 25 =5p22487.D 80 =5p22485.D
100 =5p22484.D 50 =5p22486.D 1 =5p22491.D 10 =5p22488.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.551	0.557	0.498	0.518	0.537	0.518	0.523	0.557	0.532	4.06
3) Pyridine	1.418	1.349	1.322	1.320	1.378	1.301	1.441	1.407	1.367	3.78
4) N-Nitrosodim	0.830	0.796	0.726	0.760	0.798	0.758	0.823	0.835	0.791	4.97
5) 2-Fluorophen	1.415	1.376	1.308	1.308	1.365	1.347	1.376	1.368	1.358	2.65
6) Indene	2.642	2.571	2.423	2.388	2.443	2.446	2.723	2.640	2.534	4.94
7) Cumene	3.366	3.339	3.015	3.030	3.081	3.034	3.314	3.326	3.188	5.02
8) Phenol-d5	1.721	1.701	1.612	1.590	1.679	1.627	1.707	1.703	1.667	3.02
9) Phenol	1.846	1.922	1.786	1.786	1.856	1.805	1.967	1.933	1.863	3.78
10) Aniline	2.212	2.257	1.964	1.707	1.816	1.970	2.208	2.161	2.037	10.00
11) bis(2-Chloro	1.268	1.239	1.164	1.194	1.221	1.168	1.285	1.264	1.226	3.78
12) 2-Chlorophen	1.568	1.546	1.441	1.422	1.463	1.420	1.560	1.555	1.497	4.43
13) Decane	1.240	1.161	1.078	1.027	1.068	1.049	1.229	1.156	1.126	7.28
14) 1,3-Dichloro	1.635	1.644	1.525	1.523	1.554	1.520	1.756	1.662	1.602	5.33
15) 1,4-Dichloro	1.615	1.722	1.544	1.516	1.583	1.535	1.731	1.714	1.620	5.56
16) Benzyl alcoh	0.929	0.957	0.873	0.896	0.926	0.894	0.961	0.962	0.925	3.72
17) 1,2-Dichloro	1.599	1.576	1.446	1.415	1.444	1.447	1.612	1.552	1.511	5.36
18) Acetophenone	1.933	1.829	1.799	1.741	1.792	1.756	1.885	1.948	1.835	4.28
19) 2-Methylphen	1.342	1.267	1.201	1.147	1.188	1.187	1.320	1.284	1.242	5.70
20) 2,2'-oxybis(	1.595	1.568	1.383	1.393	1.440	1.402	1.683	1.528	1.499	7.41
21) 3&4-Methylph	1.294	1.303	1.294	1.270	1.290	1.280	1.256	1.357	1.293	2.30
22) n-Nitroso-di	0.918	0.879	0.810	0.788	0.812	0.794	0.905	0.910	0.852	6.58
23) Hexachloroet	0.468	0.454	0.421	0.417	0.429	0.421	0.447	0.443	0.438	4.17
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.343	0.343	0.345	0.324	0.320	0.358	0.352	0.349	0.342	3.87
26) Nitrobenzene	0.374	0.355	0.329	0.330	0.328	0.330	0.375	0.355	0.347	5.86
27) Quinoline	0.763	0.775	0.733	0.751	0.760	0.740	0.767	0.778	0.758	2.11
28) Isophorone	0.625	0.616	0.573	0.584	0.589	0.598	0.637	0.623	0.606	3.75
29) 2-Nitropheno	0.197	0.209	0.196	0.204	0.205	0.202	0.215	0.210	0.205	3.13
30) 2,4-Dimethyl	0.278	0.284	0.312	0.319	0.322	0.316	0.295	0.299	0.303	5.49
31) Benzoic acid		0.210	0.246	0.284	0.287	0.271		0.246	0.257	11.38
32) bis(2-Chloro	0.394	0.388	0.371	0.381	0.383	0.379	0.409	0.410	0.389	3.62
33) 2,4-Dichloro	0.280	0.278	0.271	0.285	0.281	0.286	0.282	0.292	0.282	2.21
34) 2,6-Dichloro	0.293	0.288	0.270	0.275	0.270	0.277	0.277	0.283	0.279	2.95
35) 1,3,5-Trichl	0.346	0.336	0.300	0.306	0.301	0.304	0.356	0.333	0.323	7.00
36) 1,2,4-Trichl	0.314	0.304	0.285	0.290	0.289	0.291	0.322	0.311	0.301	4.57
37) 1,2,3-Trichl	0.303	0.302	0.278	0.276	0.280	0.282	0.319	0.302	0.293	5.43
38) Naphthalene	1.201	1.155	1.066	1.086	1.066	1.086	1.174	1.171	1.125	4.88
39) 4-Chloroanil	0.474	0.490	0.452	0.445	0.444	0.459	0.466	0.505	0.467	4.65
40) 2,3-Dichloro	0.369	0.359	0.333	0.336	0.340	0.342	0.397	0.366	0.355	6.12
41) Caprolactam	0.146	0.132	0.125	0.131	0.135	0.130	0.136	0.134	0.134	4.56
42) Hexachlorobu	0.148	0.140	0.133	0.131	0.127	0.132	0.159	0.147	0.140	7.72
43) 4-Chloro-3-m	0.292	0.299	0.283	0.291	0.298	0.294	0.284	0.299	0.293	2.25
44) 2-Methylnaph	0.643	0.640	0.562	0.588	0.580	0.574	0.670	0.636	0.612	6.56
45) 1-Methylnaph	0.662	0.651	0.602	0.602	0.598	0.605	0.666	0.659	0.630	4.97

Initial Calibration Summary

Job Number: JC7291 **Sample:** E5P1151-ICC1151
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22486.D
Project: Sunoco - Marcus Hook Facility, PA

```
46) Dimethylnaph 0.651 0.647 0.602 0.613 0.609 0.618 0.690 0.651 0.635   4.72

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.291 0.295 0.298 0.310 0.338 0.304 0.287 0.313 0.304   5.30
49) 2,4,6-Trichl 0.343 0.331 0.312 0.322 0.359 0.319 0.348 0.341 0.334   4.82
50) 2,4,5-Trichl 0.367 0.343 0.324 0.341 0.387 0.341 0.349 0.355 0.351   5.48
51) 2-Fluorobiph 1.341 1.317 1.301 1.208 1.391 1.327 1.343 1.312 1.318   3.95
52) 2-Chloronaph 1.199 1.155 1.043 1.064 1.215 1.063 1.196 1.162 1.137   6.13
53) Biphenyl     1.654 1.616 1.457 1.495 1.719 1.499 1.688 1.612 1.592   6.12
54) 2-Nitroanili 0.308 0.308 0.279 0.296 0.341 0.287 0.290 0.311 0.302   6.38
55) Dimethylphth 1.240 1.255 1.149 1.194 1.370 1.184 1.328 1.271 1.249   5.95
56) Acenaphthyle 2.002 2.027 1.856 1.911 2.184 1.905 2.053 2.046 1.998   5.26
57) 2,6-Dinitrot 0.268 0.258 0.270 0.288 0.326 0.278 0.242 0.286 0.277   8.99
58) 3-Nitroanili 0.350 0.364 0.348 0.379 0.428 0.360 0.387 0.376 0.374   6.89
59) Acenaphthene 1.238 1.264 1.140 1.162 1.326 1.147 1.319 1.274 1.234   6.12
60) 2,4-Dinitrop 0.112 0.139 0.170 0.199 0.232 0.187       0.165 0.172  22.94
         ----- Quadratic regression -----                Coefficient =  0.9979
              Response Ratio = 0.00705 + 0.12969 *A + 0.01940 *A^2

61) 4-Nitropheno 0.149 0.144 0.139 0.149 0.167 0.143 0.143 0.152 0.148   5.85
62) Dibenzofuran 1.703 1.650 1.481 1.529 1.745 1.505 1.777 1.732 1.640   7.22
63) 2,4-Dinitrot 0.344 0.367 0.366 0.379 0.432 0.375 0.364 0.394 0.378   6.92
64) 2,3,4,6-Tetr 0.290 0.272 0.258 0.279 0.315 0.267 0.272 0.280 0.279   6.15
65) Diethylphtha 1.574 1.315 1.200 1.253 1.440 1.227 1.377 1.312 1.337   9.28
66) Fluorene     1.327 1.365 1.219 1.219 1.401 1.239 1.423 1.334 1.316   6.17
67) 4-Chlorophen 0.535 0.538 0.486 0.488 0.555 0.487 0.557 0.539 0.523   5.91
68) 4-Nitroanili 0.399 0.393 0.358 0.382 0.423 0.375 0.354 0.401 0.386   6.00

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.100 0.125 0.132 0.148 0.143 0.134       0.130 0.130  11.83
71) n-Nitrosodip 0.598 0.603 0.550 0.572 0.543 0.551 0.661 0.624 0.588   7.06
72) 1,2-Diphenyl 0.784 0.783 0.700 0.736 0.701 0.712 0.821 0.803 0.755   6.41
73) 2,4,6-Tribro 0.119 0.111 0.110 0.122 0.114 0.113 0.128 0.122 0.117   5.49
74) 4-Bromopheny 0.182 0.200 0.171 0.189 0.177 0.180 0.188 0.196 0.185   5.23
75) Hexachlorobe 0.247 0.245 0.215 0.225 0.210 0.213 0.234 0.236 0.228   6.32
76) Pentachlorop 0.141 0.145 0.143 0.153 0.145 0.145 0.141 0.153 0.146   3.27
77) Phenanthrene 1.213 1.198 1.064 1.107 1.040 1.072 1.280 1.218 1.149   7.72
78) Anthracene   1.228 1.233 1.104 1.121 1.070 1.088 1.335 1.239 1.177   8.03
79) Carbazole    1.135 1.167 1.049 1.094 1.029 1.054 1.187 1.181 1.112   5.75
80) Di-n-butylph 1.404 1.428 1.318 1.425 1.334 1.333 1.450 1.487 1.397   4.44
81) Fluoranthene 1.122 1.133 1.033 1.103 1.028 1.048 1.209 1.153 1.103   5.78
82) Octadecane   0.475 0.479 0.433 0.448 0.421 0.428 0.498 0.499 0.460   6.86

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.378 1.323 1.235 1.275 1.266 1.251 1.426 1.312 1.308   5.03
85) Terphenyl-d1 0.968 0.854 0.823 0.780 0.769 0.848       0.832 0.839   7.78
86) Butylbenzylp 0.699 0.695 0.653 0.692 0.689 0.674 0.667 0.686 0.682   2.34
87) Butyl steara 0.335 0.345 0.364 0.360 0.359 0.372 0.365 0.367 0.358   3.48
88) Benzo[a]anth 1.179 1.152 1.074 1.097 1.068 1.073 1.296 1.172 1.139   6.88
89) 3,3'-Dichlor 0.433 0.463 0.438 0.455 0.440 0.446 0.456 0.466 0.450   2.73
90) Chrysene     1.174 1.152 1.040 1.069 1.052 1.046 1.232 1.135 1.113   6.39
91) bis(2-Ethylh 0.943 0.973 0.900 0.959 0.943 0.928 0.887 0.979 0.939   3.48

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.506 1.530 1.567 1.630 1.571 1.609 1.434 1.602 1.556   4.13
94) Benzo[b]fluo 1.219 1.193 1.144 1.183 1.152 1.150 1.225 1.209 1.184   2.74
95) Benzo[k]fluo 1.118 1.137 1.065 1.064 0.991 1.077 1.124 1.128 1.088   4.51
96) Benzo[a]pyre 1.061 1.065 1.020 1.036 0.994 1.042 1.147 1.097 1.058   4.48
97) Indeno[1,2,3 0.985 0.985 0.971 1.049 1.006 1.021 1.068 1.022 1.013   3.31
98) Dibenz(a,h)a 0.882 0.913 0.883 0.943 0.892 0.914 0.881 0.940 0.906   2.81
```

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1151-ICC1151
Lab FileID: 5P22486.D

```
 99) Dibenz[a,h]a 0.988 1.047 1.008 1.054 1.005 1.024 1.045 1.059 1.029   2.54
100) 7,12-Dimethy 0.393 0.420 0.502 0.513 0.493 0.512 0.379 0.470 0.460  11.94
101) Benzo[g,h,i] 1.055 1.030 0.996 1.056 1.010 1.020 1.052 1.055 1.034   2.31
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M5P1151.M         Tue Oct 27 09:04:42 2015   RPT1
```

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICC1152
Lab FileID: 5P22495.D

```
                          Response Factor Report  MS5P

  Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
  Last Update  : Tue Oct 27 09:42:13 2015
  Response via : Initial Calibration

  Calibration Files
  2   =5p22499.D  5   =5p22498.D  25  =5p22496.D  80  =5p22494.D
  100 =5p22493.D  50  =5p22495.D  1   =5p22500.D  10  =5p22497.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------
102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.328 1.015 1.079 1.055 1.014 1.052 1.179 1.140 1.108   9.59

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.563 0.432 0.454 0.451 0.431 0.447 0.493 0.464 0.467   9.31

106)     Chrysene-d12a         ----------------ISTD---------------------
107) Benzidine    0.569 0.742 0.833 0.648       0.717 0.746 0.842 0.728  13.31
108) 1-chloroocta 0.370 0.295 0.337 0.333 0.327 0.338 0.348 0.338 0.336   6.21

109)     Phenanthrene-d10a     ----------------ISTD---------------------
110) o-terphenyl  0.584 0.458 0.488 0.467 0.457 0.476 0.532 0.495 0.495   8.77
111) Atrazine     0.118 0.090 0.098 0.098 0.096 0.099 0.105 0.101 0.101   8.27

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.305 0.242 0.345 0.367 0.358 0.353       0.287 0.322  14.30
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M5P1151.M         Tue Oct 27 09:42:35 2015   RPT1
```

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1152-ICV1151
Lab FileID: 5P22501.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22501.D          Vial: 18
Acq On    : 27 Oct 2015   7:21 am                    Operator: sarad
Sample    : icv1151-50                               Inst    : MS5P
Misc      : op88151,e5p1152                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	133	0.00	5.32
9	t	Phenol	1.863	1.577	15.4	116	-0.01	4.93
12	t	2-Chlorophenol	1.497	1.387	7.3	130	0.00	5.09
19	t	2-Methylphenol	1.242	1.201	3.3	134	-0.01	5.60
21	t	3&4-Methylphenol	1.293	1.265	2.2	131	-0.01	5.78
24	I	Naphthalene-d8	1.000	1.000	0.0	136	0.00	6.79
29	t	2-Nitrophenol	0.205	0.183	10.7	123	0.00	6.34
30	t	2,4-Dimethylphenol	0.303	0.315	-4.0	135	0.00	6.41
31	t	Benzoic acid	0.257	0.229	10.9	115	-0.04	6.54
33	t	2,4-Dichlorophenol	0.282	0.260	7.8	123	-0.01	6.63
34	t	2,6-Dichlorophenol	0.279	0.258	7.5	127	-0.01	6.89
43	t	4-Chloro-3-methylphenol	0.293	0.264	9.9	122	-0.02	7.47
47	I	Acenaphthene-d10	1.000	1.000	0.0	117	0.00	8.90
49	t	2,4,6-Trichlorophenol	0.334	0.340	-1.8	124	0.00	7.99
50	t	2,4,5-Trichlorophenol	0.351	0.346	1.4	118	-0.02	8.03
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	97.834	2.1	98	-0.02	8.98
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.148	0.151	-2.0	123	-0.02	9.07
64		2,3,4,6-Tetrachlorophenol	0.279	0.273	2.2	119	-0.01	9.31
69	I	Phenanthrene-d10	1.000	1.000	0.0	134	0.00	10.73
70	t	4,6-Dinitro-2-methylpheno	0.130	0.116	10.8	115	-0.02	9.63
76	t	Pentachlorophenol	0.146	0.126	13.7	116	-0.02	10.50

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 5p22495a.D M5P1151.M        Tue Oct 27 09:49:19 2015   RPT1
```

8.7.3

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1152-ICV1151
Lab FileID: 5P22503.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22503.D          Vial: 20
Acq On    : 27 Oct 2015   8:15 am                    Operator: sarad
Sample    : icv1151-50                               Inst    : MS5P
Misc      : op88151,e5p1152                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 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	124	0.00	5.32
5	S	2-Fluorophenol	1.358	1.425	-4.9	132	0.00	3.93
8	S	Phenol-d5	1.667	1.679	-0.7	128	-0.01	4.92
24	I	Naphthalene-d8	1.000	1.000	0.0	124	-0.01	6.79
25	S	Nitrobenzene-d5	0.342	0.345	-0.9	119	0.00	5.95
47	I	Acenaphthene-d10	1.000	1.000	0.0	119	0.00	8.90
51	S	2-Fluorobiphenyl	1.318	1.333	-1.1	119	-0.01	8.09
69	I	Phenanthrene-d10	1.000	1.000	0.0	112	0.00	10.73
73	S	2,4,6-Tribromophenol	0.117	0.117	0.0	115	-0.01	9.86
83	I	Chrysene-d12	1.000	1.000	0.0	108	-0.02	14.53
85	S	Terphenyl-d14	0.839	0.878	-4.6	111	0.00	12.98

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22495a.D M5P1151.M Tue Oct 27 09:50:19 2015 RPT1

8.7.4
8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICV1152
Lab FileID: 5P22504A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22504a.D        Vial: 21
Acq On    : 27 Oct 2015   8:43 am                   Operator: sarad
Sample    : icv1152-50                              Inst    : MS5P
Misc      : op88151,e5p1152                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 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	8.90
105	1,2,4,5-Tetrachlorobenzen	0.467	0.414	11.3	103	0.00	7.85

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22495a.D M5P1151.M Tue Oct 27 09:56:21 2015 RPT1

8.7.5

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICV1152
Lab FileID: 5P22505A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22505a.D        Vial: 22
Acq On    : 27 Oct 2015   9:10 am                   Operator: sarad
Sample    : icv1152-50                              Inst    : MS5P
Misc      : op88151,e5p1152                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 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	107	0.00	5.32
103	Benzaldehyde	1.108	1.039	6.2	106	0.00	4.84
109	Phenanthrene-d10a	1.000	1.000	0.0	108	0.00	10.73
111	Atrazine	0.101	0.085	15.8	93	0.01	10.40

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22495a.D M5P1151.M Tue Oct 27 09:58:30 2015 RPT1

8.7.6

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICV1151
Lab FileID: 5P22505.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22505.D          Vial: 22
Acq On    : 27 Oct 2015   9:10 am                    Operator: sarad
Sample    : icv1151-50                               Inst    : MS5P
Misc      : op88151,e5p1152                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 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	126	0.00	5.32
2	t	1,4-Dioxane	0.532	0.482	9.4	117	0.02	2.35
6	t	Indene	2.534	2.317	8.6	120	0.00	5.61
7	t	Cumene	3.188	2.917	8.5	122	0.00	4.47
13	t	Decane	1.126	0.992	11.9	119	0.00	5.16
18	t	Acetophenone	1.835	1.689	8.0	122	-0.01	5.77
24	I	Naphthalene-d8	1.000	1.000	0.0	128	-0.01	6.79
27	t	Quinoline	0.758	0.681	10.2	118	-0.02	7.21
41	t	Caprolactam	0.134	0.111	17.2	109	-0.06	7.27
45	t	1-Methylnaphthalene	0.630	0.541	14.1	114	0.00	7.76
46	t	Dimethylnaphthalene	0.635	0.553	12.9	114	-0.01	8.40
47	I	Acenaphthene-d10	1.000	1.000	0.0	107	0.00	8.90
48	t	Hexachlorocyclopentadiene	0.304	0.272	10.5	114	0.00	7.85
53	t	Biphenyl	1.592	1.612	-1.3	115	-0.01	8.21
69	I	Phenanthrene-d10	1.000	1.000	0.0	121	0.00	10.73
82	t	Octadecane	0.460	0.399	13.3	112	-0.01	10.6
92	I	Perylene-d12	1.000	1.000	0.0	108	-0.01	16.61
100	t	7,12-Dimethylbenz(a)anthr	0.460	0.405	12.0	86	-0.02	16.09

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 5p22495a.D M5P1151.M        Tue Oct 27 09:57:37 2015   RPT1
```

8.7.7

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICV1152
Lab FileID: 5P22506.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22506.D          Vial: 23
Acq On    : 27 Oct 2015   9:37 am                    Operator: sarad
Sample    : icv1152-50                               Inst    : MS5P
Misc      : op88151,e5p1152                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
106	Chrysene-d12a	1.000	1.000	0.0	171	0.00	14.54
107	Benzidine	0.728	0.700	3.8	167	0.00	12.61

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22495a.D M5P1151.M Tue Oct 27 10:00:10 2015 RPT1

8.7.8

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICV1152
Lab FileID: 5P22507.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\e5p1152\5p22507.D          Vial: 24
  Acq On    : 27 Oct 2015  10:05 am                    Operator: sarad
  Sample    : icv1152-50                               Inst    : MS5P
  Misc      : op88151,e5p1152                          Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
  Last Update  : Tue Oct 27 09:42:13 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	109	0.00	6.79
113	Hydroquinone	0.322	0.348	-8.1	108	0.00	7.29

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22495a.D M5P1151.M Tue Oct 27 10:32:23 2015 RPT1

8.7.9

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1152-ICV1151
Lab FileID: 5P22508.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1152\5p22508.D          Vial: 25
Acq On    : 27 Oct 2015  10:32 am                     Operator: sarad
Sample    : icv1151-50                                Inst    : MS5P
Misc      : op88151,e5p1152                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 09:42:13 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	5.33
3	t	Pyridine	1.367	1.443	-5.6	146	0.10	2.74
10		Aniline	2.037	1.996	2.0	133	0.00	4.96
16	t	Benzyl alcohol	0.925	0.903	2.4	133	0.00	5.48
24	I	Naphthalene-d8	1.000	1.000	0.0	142	0.00	6.79
39	t	4-Chloroaniline	0.467	0.416	10.9	129	-0.01	6.88
44	t	2-Methylnaphthalene	0.612	0.531	13.2	132	0.00	7.65
47	I	Acenaphthene-d10	1.000	1.000	0.0	122	0.00	8.90
54	t	2-Nitroaniline	0.302	0.288	4.6	122	-0.01	8.36
58	t	3-Nitroaniline	0.374	0.353	5.6	119	-0.01	8.85
62	t	Dibenzofuran	1.640	1.569	4.3	127	-0.01	9.15
68	t	4-Nitroaniline	0.386	0.338	12.4	110	-0.03	9.59
69	I	Phenanthrene-d10	1.000	1.000	0.0	137	0.00	10.73
79	t	Carbazole	1.112	0.920	17.3	119	-0.01	11.05

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 5p22495a.D M5P1151.M        Tue Oct 27 10:57:51 2015   RPT1
```

8.7.10

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1153-ICV1151
Lab FileID: 5P22512.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e5p1153\5p22512.D Vial: 4
Acq On : 27 Oct 2015 12:46 pm Operator: alicjap
Sample : icv1151-50 Inst : MS5P
Misc : op88151,e5p1153 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Tue Oct 27 13:03:32 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	107	0.00	5.32
4	t	N-Nitrosodimethylamine	0.791	0.743	6.1	105	0.00	2.61
11	t	bis(2-Chloroethyl)ether	1.226	1.241	-1.2	114	-0.01	5.02
14	t	1,3-Dichlorobenzene	1.602	1.543	3.7	109	0.00	5.26
15	t	1,4-Dichlorobenzene	1.620	1.545	4.6	108	0.00	5.34
17	t	1,2-Dichlorobenzene	1.511	1.474	2.4	109	0.00	5.51
20	t	2,2'-oxybis(1-Chloropropa	1.499	1.406	6.2	107	-0.01	5.63
22	t	n-Nitroso-di-n-propylamin	0.852	0.837	1.8	113	-0.01	5.78
23	t	Hexachloroethane	0.438	0.437	0.2	111	0.00	5.90
24	I	Naphthalene-d8	1.000	1.000	0.0	111	-0.01	6.79
26	t	Nitrobenzene	0.347	0.326	6.1	110	-0.02	5.96
28	t	Isophorone	0.606	0.611	-0.8	114	-0.02	6.25
32	t	bis(2-Chloroethoxy)methan	0.389	0.400	-2.8	117	0.00	6.51
36	t	1,2,4-Trichlorobenzene	0.301	0.293	2.7	112	0.00	6.73
38	t	Naphthalene	1.125	1.080	4.0	111	-0.01	6.81
42	t	Hexachlorobutadiene	0.140	0.135	3.6	114	-0.01	6.98
47	I	Acenaphthene-d10	1.000	1.000	0.0	110	0.00	8.90
52	t	2-Chloronaphthalene	1.137	1.067	6.2	111	-0.01	8.23
55	t	Dimethylphthalate	1.249	1.204	3.6	112	-0.01	8.59
56	t	Acenaphthylene	1.998	1.762	11.8	102	-0.01	8.72
57	t	2,6-Dinitrotoluene	0.277	0.271	2.2	107	-0.01	8.66
59	t	Acenaphthene	1.234	1.205	2.4	116	-0.01	8.94
63	t	2,4-Dinitrotoluene	0.378	0.354	6.3	104	-0.02	9.14
65	t	Diethylphthalate	1.337	1.249	6.6	112	-0.02	9.45
66	t	Fluorene	1.316	1.236	6.1	110	-0.01	9.56
67	t	4-Chlorophenyl-phenylethe	0.523	0.492	5.9	111	-0.01	9.57
69	I	Phenanthrene-d10	1.000	1.000	0.0	107	-0.01	10.73
71	t	n-Nitrosodiphenylamine	0.588	0.513	12.8	100	-0.02	9.72
72	t	1,2-Diphenylhydrazine	0.755	0.746	1.2	112	-0.01	9.77
74	t	4-Bromophenyl-phenylether	0.185	0.183	1.1	109	-0.01	10.17
75	t	Hexachlorobenzene	0.228	0.219	3.9	110	-0.01	10.25
77	t	Phenanthrene	1.149	1.082	5.8	108	-0.02	10.76
78	t	Anthracene	1.177	1.101	6.5	108	-0.02	10.82
80	t	Di-n-butylphthalate	1.397	1.370	1.9	110	-0.01	11.56
81	t	Fluoranthene	1.103	1.060	3.9	108	-0.02	12.39
83	I	Chrysene-d12	1.000	1.000	0.0	109	-0.02	14.53
84	t	Pyrene	1.308	1.233	5.7	108	-0.02	12.71
86	t	Butylbenzylphthalate	0.682	0.677	0.7	110	-0.02	13.74

Initial Calibration Verification

Job Number: JC7291 **Sample:** E5P1153-ICV1151
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22512.D
Project: Sunoco - Marcus Hook Facility, PA

88	t	Benzo[a]anthracene	1.139	1.051	7.7	107	-0.02	14.52
89	t	3,3'-Dichlorobenzidine	0.449	0.359	20.0	88	-0.02	14.51
90	t	Chrysene	1.113	1.019	8.4	106	-0.02	14.57
91	t	bis(2-Ethylhexyl)phthalat	0.939	0.946	-0.7	111	-0.01	14.67
92	I	Perylene-d12	1.000	1.000	0.0	110	-0.02	16.60
93	t	Di-n-octylphthalate	1.556	1.605	-3.1	110	-0.02	15.63
94	t	Benzo[b]fluoranthene	1.184	1.100	7.1	105	-0.03	16.09
95	t	Benzo[k]fluoranthene	1.088	1.077	1.0	110	-0.03	16.12
96	t	Benzo[a]pyrene	1.058	1.052	0.6	111	-0.02	16.52
97	t	Indeno[1,2,3-cd]pyrene	1.013	0.993	2.0	107	-0.04	18.24
99	t	Dibenz[a,h]anthracene	1.029	1.036	-0.7	111	-0.04	18.28
101	t	Benzo[g,h,i]perylene	1.034	0.995	3.8	107	-0.05	18.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22495a.D M5P1151.M Tue Oct 27 13:12:09 2015 RPT1

8.7.11

8

Continuing Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1162-CC1151
Lab FileID: 5P22701.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e5p1162\5p22701.D Vial: 2
Acq On : 2 Nov 2015 9:48 am Operator: alicjap
Sample : cc1151-25 Inst : MS5P
Misc : op88458,e5p1162 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Tue Oct 27 13:03:32 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	134	-0.06	5.26
2	t	1,4-Dioxane	0.532	0.506	4.9	137	-0.04	2.29
3	t	Pyridine	1.367	1.317	3.7	134	-0.04	2.60
4	t	N-Nitrosodimethylamine	0.791	0.761	3.8	141	-0.05	2.55
5	S	2-Fluorophenol	1.358	1.294	4.7	133	-0.06	3.87
6	t	Indene	2.534	2.392	5.6	133	-0.07	5.55
7	t	Cumene	3.188	3.026	5.1	135	-0.06	4.40
8	S	Phenol-d5	1.667	1.626	2.5	136	-0.06	4.87
9	t	Phenol	1.863	1.762	5.4	133	-0.06	4.88
10		Aniline	2.037	1.921	5.7	131	-0.06	4.89
11	t	bis(2-Chloroethyl)ether	1.226	1.164	5.1	134	-0.07	4.96
12	t	2-Chlorophenol	1.497	1.401	6.4	131	-0.06	5.03
13	t	Decane	1.126	1.220	-8.3	152	-0.07	5.10
14	t	1,3-Dichlorobenzene	1.602	1.533	4.3	135	-0.07	5.19
15	t	1,4-Dichlorobenzene	1.620	1.577	2.7	137	-0.07	5.27
16	t	Benzyl alcohol	0.925	0.852	7.9	131	-0.07	5.41
17	t	1,2-Dichlorobenzene	1.511	1.477	2.3	137	-0.07	5.44
18	t	Acetophenone	1.835	1.729	5.8	129	-0.07	5.71
19	t	2-Methylphenol	1.242	1.154	7.1	129	-0.06	5.55
20	t	2,2'-oxybis(1-Chloropropa	1.499	1.624	-8.3	158	-0.07	5.57
21	t	3&4-Methylphenol	1.293	1.271	1.7	132	-0.06	5.73
22	t	n-Nitroso-di-n-propylamin	0.852	0.817	4.1	135	-0.08	5.72
23	t	Hexachloroethane	0.438	0.457	-4.3	146	-0.08	5.83
24	I	Naphthalene-d8	1.000	1.000	0.0	135	-0.08	6.72
25	S	Nitrobenzene-d5	0.342	0.350	-2.3	137	-0.07	5.88
26	t	Nitrobenzene	0.347	0.332	4.3	136	-0.08	5.90
27	t	Quinoline	0.758	0.691	8.8	127	-0.09	7.14
28	t	Isophorone	0.606	0.571	5.8	135	-0.08	6.18
29	t	2-Nitrophenol	0.205	0.201	2.0	138	-0.07	6.28
30	t	2,4-Dimethylphenol	0.303	0.281	7.3	122	-0.06	6.35
31	t	Benzoic acid	0.257	0.253	1.6	139	-0.12	6.46
32	t	bis(2-Chloroethoxy)methan	0.389	0.370	4.9	135	-0.07	6.45
33	t	2,4-Dichlorophenol	0.282	0.296	-5.0	148	-0.07	6.57
34	t	2,6-Dichlorophenol	0.279	0.281	-0.7	141	-0.08	6.83
35		1,3,5-Trichlorobenzene	0.323	0.315	2.5	142	-0.08	6.29
36	t	1,2,4-Trichlorobenzene	0.301	0.300	0.3	142	-0.07	6.66
37		1,2,3-Trichlorobenzene	0.293	0.290	1.0	141	-0.08	6.92
38	t	Naphthalene	1.125	1.025	8.9	130	-0.08	6.75
39	t	4-Chloroaniline	0.467	0.434	7.1	130	-0.08	6.82
40	t	2,3-Dichloroaniline	0.355	0.351	1.1	142	-0.08	7.92
41	t	Caprolactam	0.134	0.138	-3.0	150	-0.11	7.21

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1162-CC1151
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22701.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.140	0.144	-2.9	147	-0.08	6.91
43	t	4-Chloro-3-methylphenol	0.293	0.279	4.8	134	-0.07	7.42
44	t	2-Methylnaphthalene	0.612	0.564	7.8	136	-0.08	7.58
45	t	1-Methylnaphthalene	0.630	0.589	6.5	132	-0.08	7.69
46	t	Dimethylnaphthalene	0.635	0.598	5.8	134	-0.08	8.33
47	I	Acenaphthene-d10	1.000	1.000	0.0	141	-0.07	8.84
48	t	Hexachlorocyclopentadiene	0.304	0.305	-0.3	144	-0.07	7.78
49	t	2,4,6-Trichlorophenol	0.334	0.332	0.6	150	-0.07	7.93
50	t	2,4,5-Trichlorophenol	0.351	0.351	0.0	153	-0.08	7.97
51	S	2-Fluorobiphenyl	1.318	1.296	1.7	140	-0.08	8.03
52	t	2-Chloronaphthalene	1.137	1.056	7.1	143	-0.08	8.16
53	t	Biphenyl	1.592	1.415	11.1	137	-0.08	8.15
54	t	2-Nitroaniline	0.302	0.281	7.0	142	-0.08	8.29
55	t	Dimethylphthalate	1.249	1.159	7.2	142	-0.08	8.53
56	t	Acenaphthylene	1.998	1.754	12.2	133	-0.08	8.66
57	t	2,6-Dinitrotoluene	0.277	0.260	6.1	136	-0.08	8.59
58	t	3-Nitroaniline	0.374	0.338	9.6	137	-0.08	8.79
59	t	Acenaphthene	1.234	1.086	12.0	134	-0.08	8.87
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	54.689	-9.4	146	-0.08	8.92
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.148	0.140	5.4	143	-0.06	9.02
62	t	Dibenzofuran	1.640	1.497	8.7	142	-0.08	9.08
63	t	2,4-Dinitrotoluene	0.378	0.367	2.9	141	-0.08	9.08
64		2,3,4,6-Tetrachlorophenol	0.279	0.282	-1.1	154	-0.08	9.24
65	t	Diethylphthalate	1.337	1.164	12.9	137	-0.08	9.39
66	t	Fluorene	1.316	1.226	6.8	142	-0.08	9.50
67	t	4-Chlorophenyl-phenylethe	0.523	0.505	3.4	146	-0.08	9.51
68	t	4-Nitroaniline	0.386	0.341	11.7	134	-0.09	9.53
69	I	Phenanthrene-d10	1.000	1.000	0.0	142	-0.08	10.66
70	t	4,6-Dinitro-2-methylpheno	0.130	0.135	-3.8	145	-0.08	9.57
71	t	n-Nitrosodiphenylamine	0.588	0.540	8.2	139	-0.08	9.65
72	t	1,2-Diphenylhydrazine	0.755	0.690	8.6	139	-0.08	9.70
73	S	2,4,6-Tribromophenol	0.117	0.109	6.8	140	-0.08	9.79
74	t	4-Bromophenyl-phenylether	0.185	0.191	-3.2	158	-0.08	10.11
75	t	Hexachlorobenzene	0.228	0.214	6.1	140	-0.08	10.18
76	t	Pentachlorophenol	0.146	0.136	6.8	134	-0.08	10.43
77	t	Phenanthrene	1.149	1.063	7.5	141	-0.09	10.69
78	t	Anthracene	1.177	1.080	8.2	139	-0.09	10.75
79	t	Carbazole	1.112	1.030	7.4	139	-0.08	10.98
80	t	Di-n-butylphthalate	1.397	1.284	8.1	138	-0.09	11.49
81	t	Fluoranthene	1.103	1.107	-0.4	152	-0.09	12.31
82	t	Octadecane	0.460	0.438	4.8	143	-0.08	10.58
83	I	Chrysene-d12	1.000	1.000	0.0	147	-0.09	14.46
84	t	Pyrene	1.308	1.236	5.5	147	-0.09	12.63
85	S	Terphenyl-d14	0.839	0.835	0.5	149	-0.09	12.90
86	t	Butylbenzylphthalate	0.682	0.610	10.6	138	-0.09	13.67
87		Butyl stearate	0.358	0.354	1.1	143	-0.09	13.82
88	t	Benzo[a]anthracene	1.139	1.086	4.7	149	-0.10	14.44
89	t	3,3'-Dichlorobenzidine	0.449	0.409	8.9	137	-0.10	14.43
90	t	Chrysene	1.113	1.058	4.9	150	-0.10	14.49
91	t	bis(2-Ethylhexyl)phthalat	0.939	0.858	8.6	140	-0.09	14.59
92	I	Perylene-d12	1.000	1.000	0.0	145	-0.10	16.52
93	t	Di-n-octylphthalate	1.556	1.496	3.9	139	-0.10	15.55

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1162-CC1151
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22701.D
Project: Sunoco - Marcus Hook Facility, PA

94	t	Benzo[b]fluoranthene	1.184	1.120	5.4	142	-0.11	16.01
95	t	Benzo[k]fluoranthene	1.088	1.043	4.1	142	-0.11	16.04
96	t	Benzo[a]pyrene	1.058	1.013	4.3	144	-0.10	16.44
97	t	Indeno[1,2,3-cd]pyrene	1.013	1.009	0.4	151	-0.16	18.12
98	t	Dibenz(a,h)acridine	0.906	0.910	-0.4	150	-0.14	17.75
99	t	Dibenz[a,h]anthracene	1.029	1.032	-0.3	149	-0.16	18.16
100	t	7,12-Dimethylbenz(a)anthr	0.460	0.465	-1.1	135	-0.11	16.01
101	t	Benzo[g,h,i]perylene	1.034	1.037	-0.3	152	-0.18	18.58

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22496a.D M5P1151.M Mon Nov 02 10:57:37 2015 RPT1

8.7.12

8

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1162-CC1152
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22702.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1162\5p22702.D          Vial: 3
Acq On    :  2 Nov 2015  10:15 am                    Operator: alicjap
Sample    : cc1152-25                                Inst    : MS5P
Misc      : op88458,e5p1162                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1151.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Tue Oct 27 13:03:32 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	153	-0.06	5.26
103	Benzaldehyde	1.108	1.042	6.0	147	-0.06	4.77
104	Acenaphthene-d10a	1.000	1.000	0.0	163	-0.06	8.84
105	1,2,4,5-Tetrachlorobenzen	0.467	0.488	-4.5	176	-0.06	7.78
106	Chrysene-d12a	1.000	1.000	0.0	178	-0.08	14.46
107	Benzidine	0.728	0.550	24.5#	117	-0.08	12.53
108	Phenanthrene-d10a	1.000	1.000	0.0	164	-0.07	10.66
109	Atrazine	0.101	0.100	1.0	168	-0.06	10.33
110 I	Naphthalene-d8a	1.000	1.000	0.0	158	-0.06	6.72
111	Hydroquinone	0.322	0.345	-7.1	158	-0.05	7.24

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22496a.D M5P1151.M Mon Nov 02 10:57:39 2015 RPT1

8.7.13

8

Initial Calibration Summary

Job Number: JC7291 **Sample:** E5P1165-ICC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22783.D
Project: Sunoco - Marcus Hook Facility, PA

Response Factor Report MS5P

Method : C:\msdchem\1\METHODS\M5P1165.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Wed Nov 04 14:47:17 2015
Response via : Initial Calibration

Calibration Files
2 =5p22776.D 5 =5p22779.D 25 =5p22782.D 80 =5p22781.D
100 =5p22784.D 50 =5p22783.D 1 =5p22778.D 10 =5p22780.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.564	0.699	0.587	0.573	0.580	0.582	0.621	0.634	0.605	7.43
3) Pyridine	1.506	1.540	1.503	1.483	1.488	1.450	1.646	1.553	1.521	3.94
4) N-Nitrosodim	0.993	0.931	0.933	0.855	0.914	0.881	1.061	0.932	0.937	6.86
5) 2-Fluorophen	1.467	1.444	1.404	1.394	1.437	1.369	1.515	1.468	1.437	3.28
6) Indene	2.853	2.769	2.671	2.501	2.544	2.524	2.747	2.823	2.679	5.23
7) Cumene	3.473	3.398	3.161	3.070	3.110	3.104	3.679	3.461	3.307	6.81
8) Phenol-d5	1.753	1.758	1.761	1.633	1.665	1.646	1.733	1.804	1.719	3.64
9) Phenol	2.028	1.954	1.954	1.819	1.876	1.858	2.004	1.995	1.936	3.92
10) Aniline	2.322	2.328	2.238	1.609	2.089	2.091	2.302	2.266	2.156	11.16
11) bis(2-Chloro	1.439	1.375	1.369	1.271	1.325	1.297	1.377	1.408	1.358	4.16
12) 2-Chlorophen	1.586	1.538	1.504	1.448	1.475	1.434	1.656	1.557	1.525	4.90
13) Decane	1.520	1.404	1.238	1.157	1.153	1.187	1.661	1.365	1.336	13.94
14) 1,3-Dichloro	1.626	1.676	1.614	1.513	1.565	1.535	1.601	1.691	1.603	3.94
15) 1,4-Dichloro	1.690	1.685	1.632	1.531	1.560	1.568	1.820	1.693	1.647	5.75
16) Benzyl alcoh	0.953	0.914	0.955	0.899	0.914	0.893	0.905	0.962	0.925	3.01
17) 1,2-Dichloro	1.592	1.570	1.537	1.421	1.455	1.456	1.754	1.615	1.550	7.01
18) Acetophenone	1.978	2.025	1.941	1.822	1.857	1.842	1.941	1.995	1.925	3.95
19) 2-Methylphen	1.326	1.311	1.353	1.177	1.257	1.264	1.357	1.340	1.298	4.76
20) 2,2'-oxybis(	2.013	1.836	1.739	1.522	1.571	1.633	2.007	1.805	1.766	10.52
21) 3&4-Methylph	1.389	1.397	1.485	1.367	1.408	1.378	1.247	1.450	1.390	5.02
22) n-Nitroso-di	0.976	0.987	1.015	0.884	0.948	0.929	1.034	0.983	0.970	4.98
23) Hexachloroet	0.511	0.505	0.487	0.465	0.487	0.467	0.512	0.508	0.493	3.90
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.355	0.345	0.340	0.328	0.323	0.332	0.388	0.350	0.345	5.87
26) Nitrobenzene	0.376	0.357	0.350	0.338	0.333	0.342	0.356	0.367	0.352	4.09
27) Quinoline	0.802	0.770	0.784	0.765	0.738	0.755	0.773	0.798	0.773	2.78
28) Isophorone	0.652	0.651	0.631	0.597	0.598	0.623	0.635	0.650	0.630	3.57
29) 2-Nitropheno	0.195	0.205	0.201	0.200	0.198	0.197	0.187	0.203	0.198	2.74
30) 2,4-Dimethyl	0.292	0.272	0.344	0.322	0.327	0.334	0.305	0.287	0.310	8.12
31) Benzoic acid		0.187	0.261	0.285	0.282	0.266		0.220	0.250	15.48
32) bis(2-Chloro	0.424	0.423	0.424	0.393	0.399	0.409	0.434	0.420	0.416	3.37
33) 2,4-Dichloro	0.269	0.291	0.297	0.292	0.287	0.291	0.296	0.312	0.292	4.11
34) 2,6-Dichloro	0.290	0.308	0.292	0.278	0.279	0.284	0.280	0.295	0.288	3.55
35) 1,3,5-Trichl	0.332	0.344	0.317	0.319	0.307	0.313	0.380	0.342	0.332	7.14
36) 1,2,4-Trichl	0.312	0.328	0.318	0.297	0.301	0.308	0.346	0.329	0.317	5.12
37) 1,2,3-Trichl	0.300	0.313	0.300	0.298	0.290	0.302	0.332	0.321	0.307	4.53
38) Naphthalene	1.159	1.172	1.274	1.070	1.175	1.231	1.261	1.194	1.192	5.44
39) 4-Chloroanil	0.466	0.503	0.484	0.422	0.454	0.469	0.448	0.502	0.469	5.92
40) 2,3-Dichloro	0.380	0.388	0.369	0.359	0.353	0.355	0.380	0.384	0.371	3.75
41) Caprolactam	0.167	0.154	0.150	0.150	0.144	0.146	0.188	0.156	0.157	9.21
42) Hexachlorobu	0.151	0.154	0.147	0.144	0.145	0.149	0.160	0.153	0.150	3.56
43) 4-Chloro-3-m	0.289	0.312	0.315	0.298	0.294	0.304	0.303	0.314	0.304	3.13
44) 2-Methylnaph	0.629	0.618	0.603	0.570	0.557	0.580	0.633	0.637	0.603	5.12
45) 1-Methylnaph	0.636	0.635	0.616	0.584	0.572	0.600	0.612	0.657	0.614	4.59

Initial Calibration Summary

Job Number: JC7291 **Sample:** E5P1165-ICC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22783.D
Project: Sunoco - Marcus Hook Facility, PA

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46) Dimethylnaph 0.631 0.649 0.631 0.598 0.591 0.598 0.610 0.654 0.620   3.91

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.247 0.269 0.306 0.311 0.311 0.300 0.215 0.298 0.282  12.50
49) 2,4,6-Trichl 0.332 0.344 0.335 0.338 0.328 0.330 0.389 0.346 0.343   5.72
50) 2,4,5-Trichl 0.350 0.360 0.367 0.364 0.361 0.358 0.409 0.370 0.367   4.92
51) 2-Fluorobiph 1.308 1.311 1.226 1.196 1.185 1.203 1.365 1.331 1.266   5.57
52) 2-Chloronaph 1.165 1.182 1.097 1.053 1.055 1.056 1.230 1.178 1.127   6.20
53) Biphenyl     1.560 1.575 1.437 1.394 1.343 1.396 1.622 1.573 1.487   7.15
54) 2-Nitroanili 0.310 0.312 0.299 0.302 0.290 0.289 0.369 0.318 0.311   8.17
55) Dimethylphth 1.255 1.238 1.239 1.184 1.216 1.210 1.354 1.284 1.248   4.21
56) Acenaphthyle 1.913 1.932 2.105 1.789 1.983 2.042 2.006 1.998 1.971   4.81
57) 2,6-Dinitrot 0.274 0.287 0.281 0.282 0.285 0.277 0.331 0.293 0.289   6.34
58) 3-Nitroanili 0.314 0.355 0.340 0.348 0.343 0.337 0.404 0.358 0.350   7.36
59) Acenaphthene 1.212 1.205 1.262 1.075 1.185 1.228 1.299 1.214 1.210   5.38
60) 2,4-Dinitrop 0.038 0.060 0.150 0.187 0.183 0.160       0.107 0.127  46.74
         ----- Quadratic regression -----                Coefficient =  0.9981
              Response Ratio = -0.02276 + 0.16088 *A + 0.00599 *A^2

61) 4-Nitropheno 0.120 0.140 0.151 0.153 0.148 0.147 0.191 0.144 0.149  13.20
62) Dibenzofuran 1.663 1.707 1.552 1.507 1.458 1.517 1.838 1.730 1.622   8.18
63) 2,4-Dinitrot 0.371 0.408 0.378 0.368 0.367 0.379 0.407 0.409 0.386   4.82
64) 2,3,4,6-Tetr 0.240 0.259 0.271 0.287 0.284 0.272 0.314 0.281 0.276   7.80
65) Diethylphtha 1.457 1.235 1.218 1.160 1.170 1.195 1.401 1.265 1.263   8.63
66) Fluorene     1.329 1.355 1.428 1.201 1.329 1.383 1.607 1.362 1.374   8.33
67) 4-Chlorophen 0.611 0.578 0.561 0.521 0.533 0.552 0.609 0.588 0.569   5.85
68) 4-Nitroanili 0.308 0.352 0.347 0.351 0.350 0.337 0.346 0.367 0.345   4.94

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.069 0.090 0.127 0.147 0.144 0.130       0.109 0.117  24.65
         ----- Quadratic regression -----                Coefficient =  0.9986
              Response Ratio = -0.00484 + 0.12964 *A + 0.00743 *A^2

71) n-Nitrosodip 0.603 0.616 0.587 0.556 0.561 0.568 0.749 0.608 0.606  10.22
72) 1,2-Diphenyl 0.800 0.811 0.748 0.715 0.690 0.709 0.946 0.804 0.778  10.62
73) 2,4,6-Tribro 0.106 0.102 0.105 0.108 0.109 0.103 0.147 0.100 0.110  13.70
74) 4-Bromopheny 0.198 0.205 0.211 0.202 0.206 0.204 0.256 0.211 0.211   8.65
75) Hexachlorobe 0.223 0.226 0.223 0.218 0.220 0.214 0.289 0.223 0.230  10.51
76) Pentachlorop 0.050 0.056 0.096 0.126 0.122 0.105       0.071 0.090  34.25
         ----- Quadratic regression -----                Coefficient =  0.9970
              Response Ratio = -0.01304 + 0.10418 *A + 0.00457 *A^2

77) Phenanthrene 1.229 1.211 1.259 1.067 1.186 1.203 1.608 1.206 1.246  12.56
78) Anthracene   1.189 1.233 1.311 1.091 1.198 1.250 1.421 1.215 1.239   7.80
79) Carbazole    1.121 1.176 1.089 1.073 1.051 1.051 1.399 1.187 1.143  10.15
80) Di-n-butylph 1.272 1.335 1.335 1.263 1.295 1.298 1.362 1.345 1.313   2.76
81) Fluoranthene 1.188 1.216 1.330 1.147 1.254 1.268 1.485 1.220 1.263   8.30
82) Octadecane   0.497 0.506 0.458 0.438 0.420 0.441 0.574 0.501 0.480  10.46

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.289 1.350 1.416 1.241 1.352 1.346 1.685 1.341 1.377   9.75
85) Terphenyl-d1 0.962 0.846 0.779 0.780 0.774 0.759       0.837 0.820   8.66
86) Butylbenzylp 0.565 0.596 0.593 0.588 0.583 0.575 0.627 0.600 0.591   3.14
87) Butyl steara 0.319 0.334 0.324 0.325 0.301 0.308 0.327 0.355 0.324   5.06
88) Benzo[a]anth 1.144 1.150 1.225 1.047 1.170 1.164 1.616 1.164 1.210  14.15
89) 3,3'-Dichlor 0.333 0.408 0.413 0.408 0.400 0.390 0.458 0.422 0.404   8.66
90) Chrysene     1.127 1.155 1.219 1.074 1.203 1.175 1.500 1.138 1.199  10.83
91) bis(2-Ethylh 0.795 0.806 0.814 0.811 0.814 0.805 0.915 0.830 0.824   4.65

92) I   Perylene-d12          ----------------ISTD---------------------
```

Initial Calibration Summary

Job Number: JC7291 **Sample:** E5P1165-ICC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22783.D
Project: Sunoco - Marcus Hook Facility, PA

93)	Di-n-octylph	1.312	1.389	1.401	1.355	1.393	1.385	1.455	1.384	1.384	2.93
94)	Benzo[b]fluo	1.064	1.155	1.243	1.068	1.244	1.240	1.171	1.149	1.167	6.32
95)	Benzo[k]fluo	1.099	1.116	1.257	1.060	1.216	1.161	1.335	1.134	1.172	7.78
96)	Benzo[a]pyre	0.969	1.030	1.179	1.015	1.184	1.140	1.139	1.050	1.088	7.53
97)	Indeno[1,2,3	0.954	1.035	1.185	1.077	1.221	1.163	1.113	1.009	1.094	8.46
98)	Dibenz(a,h)a	0.874	0.932	0.924	0.922	0.929	0.897	0.970	0.943	0.924	3.14
99)	Dibenz[a,h]a	1.000	1.064	1.216	1.054	1.228	1.168	1.202	1.066	1.125	7.86
100)	7,12-Dimethy	0.373	0.408	0.518	0.478	0.499	0.497	0.466	0.451	0.461	10.67
101)	Benzo[g,h,i]	1.135	1.115	1.242	1.084	1.238	1.197	1.257	1.115	1.173	5.82

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

M5P1165.M Wed Nov 04 14:53:46 2015 RPT1

8.7.14

8

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1166-ICC1166
Lab FileID: 5P22792.D

```
                          Response Factor Report  MS5P

  Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
  Last Update  : Wed Nov 04 18:27:28 2015
  Response via : Initial Calibration

  Calibration Files
  2   =5p22788.D  5   =5p22789.D  25  =5p22791.D  80  =5p22793.D
  100 =5p22794.D  50  =5p22792.D  1   =5p22787.D  10  =5p22790.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------



102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.518 1.019 1.132 1.080 1.030 1.089 1.247 1.170 1.161  14.02

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.579 0.434 0.476 0.461 0.445 0.475 0.504 0.485 0.482   9.30

106)     Chrysene-d12a         ----------------ISTD---------------------
107) Benzidine    0.529 0.656 0.648 0.411 0.319 0.475 0.803 0.727 0.571  28.94
          ----- Quadratic regression -----                Coefficient =  0.9952
               Response Ratio = 0.00412 + 0.68956 *A + -0.14729 *A^2

108) 1-chloroocta 0.369 0.287 0.334 0.305 0.289 0.313 0.323 0.329 0.319   8.43

109)     Phenanthrene-d10a     ----------------ISTD---------------------
110) o-terphenyl  0.644 0.480 0.508 0.494 0.474 0.502 0.563 0.530 0.524  10.72
111) Atrazine     0.125 0.094 0.104 0.104 0.099 0.103 0.123 0.103 0.107  10.55

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.375 0.287 0.357 0.380 0.378 0.351       0.287 0.345  11.91
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M5P1165.M         Thu Nov 05 09:48:13 2015   RPT1
```

8.7.15

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1166-ICV1165
Lab FileID: 5P22795.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22795.D          Vial: 10
Acq On    :  4 Nov 2015   6:30 pm                    Operator: alicjap
Sample    : icv1165-50                               Inst    : MS5P
Misc      : op88593,e5p1166                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	5.24
9	t	Phenol	1.936	1.913	1.2	108	0.00	4.89
12	t	2-Chlorophenol	1.525	1.596	-4.7	117	0.00	5.02
19	t	2-Methylphenol	1.298	1.435	-10.6	119	-0.01	5.55
21	t	3&4-Methylphenol	1.390	1.512	-8.8	115	0.00	5.73
24	I	Naphthalene-d8	1.000	1.000	0.0	107	0.00	6.70
29	t	2-Nitrophenol	0.198	0.202	-2.0	110	0.00	6.26
30	t	2,4-Dimethylphenol	0.310	0.372	-20.0	120	0.00	6.34
31	t	Benzoic acid	0.250	0.240	4.0	97	-0.02	6.48
33	t	2,4-Dichlorophenol	0.292	0.312	-6.8	115	0.00	6.56
34	t	2,6-Dichlorophenol	0.288	0.316	-9.7	119	0.00	6.82
43	t	4-Chloro-3-methylphenol	0.304	0.325	-6.9	115	-0.02	7.42
47	I	Acenaphthene-d10	1.000	1.000	0.0	108	0.00	8.82
49	t	2,4,6-Trichlorophenol	0.343	0.338	1.5	111	-0.01	7.92
50	t	2,4,5-Trichlorophenol	0.367	0.377	-2.7	114	-0.01	7.97
		----------	True	Calc.	% Drift		----------	
60	t	2,4-Dinitrophenol	50.000	40.268	19.5	78	-0.01	8.91
		----------	AvgRF	CCRF	% Dev		----------	
61	t	4-Nitrophenol	0.149	0.150	-0.7	110	0.00	9.04
64		2,3,4,6-Tetrachlorophenol	0.276	0.267	3.3	106	0.00	9.24
69	I	Phenanthrene-d10	1.000	1.000	0.0	106	0.00	10.64
		----------	True	Calc.	% Drift		----------	
70	t	4,6-Dinitro-2-methylpheno	50.000	43.856	12.3	95	-0.01	9.56
76	t	Pentachlorophenol	50.000	48.152	3.7	96	0.00	10.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Wed Nov 04 19:21:46 2015 RPT1

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1166-ICV1165
Lab FileID: 5P22796.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22796.D          Vial: 11
Acq On    :  4 Nov 2015   6:57 pm                    Operator: alicjap
Sample    : icv1165-50                               Inst    : MS5P
Misc      : op88593,e5p1166                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	128	0.00	5.25
3	t	Pyridine	1.521	1.618	-6.4	143	0.06	2.62
10		Aniline	2.156	2.123	1.5	130	0.00	4.89
16	t	Benzyl alcohol	0.925	0.938	-1.4	135	0.00	5.41
24	I	Naphthalene-d8	1.000	1.000	0.0	132	0.00	6.71
44	t	2-Methylnaphthalene	0.603	0.549	9.0	125	0.00	7.56
47	I	Acenaphthene-d10	1.000	1.000	0.0	128	0.00	8.82
54	t	2-Nitroaniline	0.311	0.282	9.3	125	0.00	8.28
58	t	3-Nitroaniline	0.350	0.308	12.0	117	-0.01	8.78
62	t	Dibenzofuran	1.622	1.472	9.2	124	0.00	9.07
68	t	4-Nitroaniline	0.345	0.316	8.4	120	-0.01	9.52
69	I	Phenanthrene-d10	1.000	1.000	0.0	124	0.00	10.64
79	t	Carbazole	1.143	1.040	9.0	123	0.00	10.97

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Wed Nov 04 19:21:48 2015 RPT1

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1166-ICV1165
Lab FileID: 5P22797.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e5p1166\5p22797.D Vial: 12
Acq On : 4 Nov 2015 7:24 pm Operator: alicjap
Sample : icv1165-50 Inst : MS5P
Misc : op88593,e5p1166 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	120	0.00	5.24
4	t	N-Nitrosodimethylamine	0.937	0.839	10.5	115	0.00	2.53
11	t	bis(2-Chloroethyl)ether	1.358	1.309	3.6	121	0.00	4.95
14	t	1,3-Dichlorobenzene	1.603	1.507	6.0	118	0.00	5.18
15	t	1,4-Dichlorobenzene	1.647	1.509	8.4	116	0.00	5.26
17	t	1,2-Dichlorobenzene	1.550	1.475	4.8	122	0.00	5.43
20	t	2,2'-oxybis(1-Chloropropa	1.766	1.555	11.9	115	0.00	5.56
22	t	n-Nitroso-di-n-propylamin	0.970	0.884	8.9	115	-0.01	5.70
23	t	Hexachloroethane	0.493	0.470	4.7	121	0.00	5.81
24	I	Naphthalene-d8	1.000	1.000	0.0	122	0.00	6.70
26	t	Nitrobenzene	0.352	0.329	6.5	117	0.00	5.89
28	t	Isophorone	0.630	0.617	2.1	121	-0.01	6.17
32	t	bis(2-Chloroethoxy)methan	0.416	0.408	1.9	122	0.00	6.43
36	t	1,2,4-Trichlorobenzene	0.317	0.299	5.7	118	0.00	6.65
38	t	Naphthalene	1.192	1.040	12.8	103	0.00	6.73
42	t	Hexachlorobutadiene	0.150	0.148	1.3	121	0.00	6.90
47	I	Acenaphthene-d10	1.000	1.000	0.0	120	0.00	8.82
48	t	Hexachlorocyclopentadiene	0.282	0.260	7.8	104	0.00	7.77
52	t	2-Chloronaphthalene	1.127	1.053	6.6	119	0.00	8.15
55	t	Dimethylphthalate	1.248	1.159	7.1	115	0.00	8.51
56	t	Acenaphthylene	1.971	1.632	17.2	96	0.00	8.64
57	t	2,6-Dinitrotoluene	0.289	0.263	9.0	114	0.00	8.57
59	t	Acenaphthene	1.210	1.090	9.9	106	0.00	8.86
63	t	2,4-Dinitrotoluene	0.386	0.348	9.8	110	0.00	9.07
65	t	Diethylphthalate	1.263	1.164	7.8	117	0.00	9.37
66	t	Fluorene	1.374	1.224	10.9	106	0.00	9.48
67	t	4-Chlorophenyl-phenylethe	0.569	0.543	4.6	118	0.00	9.49
69	I	Phenanthrene-d10	1.000	1.000	0.0	123	0.00	10.64
71	t	n-Nitrosodiphenylamine	0.606	0.497	18.0	107	0.00	9.64
72	t	1,2-Diphenylhydrazine	0.778	0.690	11.3	119	0.00	9.69
74	t	4-Bromophenyl-phenylether	0.211	0.191	9.5	115	0.00	10.09
75	t	Hexachlorobenzene	0.230	0.203	11.7	117	0.00	10.17
77	t	Phenanthrene	1.246	1.040	16.5	106	0.00	10.67
78	t	Anthracene	1.239	1.063	14.2	104	-0.01	10.74
80	t	Di-n-butylphthalate	1.313	1.222	6.9	115	0.00	11.47
81	t	Fluoranthene	1.263	1.123	11.1	109	0.00	12.30
83	I	Chrysene-d12	1.000	1.000	0.0	121	0.00	14.43
84	t	Pyrene	1.377	1.195	13.2	108	0.00	12.62

Initial Calibration Verification

Job Number: JC7291 **Sample:** E5P1166-ICV1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22797.D
Project: Sunoco - Marcus Hook Facility, PA

86	t	Butylbenzylphthalate	0.591	0.564	4.6	119	0.00	13.65
88	t	Benzo[a]anthracene	1.210	1.027	15.1	107	0.00	14.42
89	t	3,3'-Dichlorobenzidine	0.404	0.328	18.8	102	0.00	14.41
90	t	Chrysene	1.199	1.039	13.3	107	0.00	14.48
91	t	bis(2-Ethylhexyl)phthalat	0.824	0.793	3.8	120	0.00	14.57
92	I	Perylene-d12	1.000	1.000	0.0	123	0.00	16.50
93	t	Di-n-octylphthalate	1.384	1.356	2.0	121	0.00	15.53
94	t	Benzo[b]fluoranthene	1.167	1.058	9.3	105	-0.01	15.99
95	t	Benzo[k]fluoranthene	1.172	1.087	7.3	115	-0.02	16.03
96	t	Benzo[a]pyrene	1.088	1.031	5.2	111	-0.01	16.43
97	t	Indeno[1,2,3-cd]pyrene	1.094	0.972	11.2	103	-0.02	18.10
99	t	Dibenz[a,h]anthracene	1.125	1.021	9.2	108	-0.02	18.14
101	t	Benzo[g,h,i]perylene	1.173	1.008	14.1	104	-0.02	18.56

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Wed Nov 04 21:41:02 2015 RPT1

8.7.18

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1166-ICV1166
Lab FileID: 5P22797A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22797a.D        Vial: 12
Acq On    :  4 Nov 2015   7:24 pm                   Operator: alicjap
Sample    : icv1166-50                              Inst    : MS5P
Misc      : op88593,e5p1166                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
104	Acenaphthene-d10a	1.000	1.000	0.0	91	0.00	8.82
105	1,2,4,5-Tetrachlorobenzen	0.482	0.470	2.5	90	0.00	7.77

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Wed Nov 04 21:42:27 2015 RPT1

8.7.19

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1166-ICV1165
Lab FileID: 5P22798.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22798.D          Vial: 13
Acq On    :  4 Nov 2015   7:51 pm                    Operator: alicjap
Sample    : icv1165-50                               Inst    : MS5P
Misc      : op88593,e5p1166                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	123	0.00	5.24
2	t	1,4-Dioxane	0.605	0.546	9.8	116	0.00	2.26
6	t	Indene	2.679	2.542	5.1	124	0.00	5.53
7	t	Cumene	3.307	3.082	6.8	122	0.00	4.38
13	t	Decane	1.336	1.132	15.3	117	0.00	5.08
18	t	Acetophenone	1.925	1.859	3.4	124	0.00	5.69
24	I	Naphthalene-d8	1.000	1.000	0.0	125	0.00	6.70
27	t	Quinoline	0.773	0.754	2.5	125	0.00	7.13
40	t	2,3-Dichloroaniline	0.371	0.326	12.1	114	0.00	7.91
41	t	Caprolactam	0.157	0.138	12.1	118	-0.05	7.19
45	t	1-Methylnaphthalene	0.614	0.583	5.0	121	0.00	7.68
46	t	Dimethylnaphthalene	0.620	0.619	0.2	129	0.00	8.32
47	I	Acenaphthene-d10	1.000	1.000	0.0	125	0.00	8.82
53	t	Biphenyl	1.487	1.382	7.1	124	0.00	8.13
69	I	Phenanthrene-d10	1.000	1.000	0.0	123	0.00	10.64
82	t	Octadecane	0.480	0.441	8.1	123	0.00	10.57
83	I	Chrysene-d12	1.000	1.000	0.0	121	-0.01	14.43
92	I	Perylene-d12	1.000	1.000	0.0	120	0.00	16.50
100	t	7,12-Dimethylbenz(a)anthr	0.461	0.512	-11.1	124	-0.02	15.98

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 5p22792a.D M5P1165.M        Wed Nov 04 20:53:02 2015   RPT1
```

8.7.20

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1166-ICV1166
Lab FileID: 5P22798A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22798a.D        Vial: 13
Acq On    :  4 Nov 2015   7:51 pm                   Operator: alicjap
Sample    : icv1166-50                              Inst    : MS5P
Misc      : op88593,e5p1166                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	87	0.00	5.24
103	Benzaldehyde	1.161	1.107	4.7	88	0.00	4.75
109	Phenanthrene-d10a	1.000	1.000	0.0	97	0.00	10.64
111	Atrazine	0.107	0.103	3.7	97	-0.01	10.32

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Wed Nov 04 20:52:20 2015 RPT1

8.7.21

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1166-ICV1166
Lab FileID: 5P22800.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22800.D          Vial: 15
Acq On    :  4 Nov 2015   8:46 pm                    Operator: sarad
Sample    : icv1166-50                               Inst    : MS5P
Misc      : op88593,e5p1166                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
112 I	Naphthalene-d8a	1.000	1.000	0.0	98	0.00	6.70
113	Hydroquinone	0.345	0.370	-7.2	104	0.00	7.26

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Wed Nov 04 21:12:06 2015 RPT1

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1166-ICV1165
Lab FileID: 5P22802.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1166\5p22802.D          Vial: 17
Acq On    :  4 Nov 2015   9:40 pm                     Operator: sarad
Sample    : icv1165-50                                Inst    : MS5P
Misc      : op88593,e5p1166                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	180	0.00	5.24
5	S	2-Fluorophenol	1.437	1.478	-2.9	195	0.00	3.87
8	S	Phenol-d5	1.719	1.767	-2.8	193	0.00	4.87
24	I	Naphthalene-d8	1.000	1.000	0.0	184	0.00	6.70
25	S	Nitrobenzene-d5	0.345	0.347	-0.6	192	0.00	5.87
47	I	Acenaphthene-d10	1.000	1.000	0.0	180	0.00	8.82
51	S	2-Fluorobiphenyl	1.266	1.240	2.1	185	0.00	8.01
69	I	Phenanthrene-d10	1.000	1.000	0.0	177	0.00	10.64
73	S	2,4,6-Tribromophenol	0.110	0.099	10.0	169	0.00	9.78
83	I	Chrysene-d12	1.000	1.000	0.0	175	0.00	14.43
85	S	Terphenyl-d14	0.820	0.781	4.8	180	0.00	12.88

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 5p22792a.D M5P1165.M        Wed Nov 04 22:03:42 2015   RPT1
```

Continuing Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E5P1168-CC1165
Lab FileID: 5P22823.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e5p1168\5p22823.D Vial: 2
Acq On : 5 Nov 2015 8:18 am Operator: alicjap
Sample : cc1165-25 Inst : MS5P
Misc : op88630,e5p1168 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Wed Nov 04 18:27:28 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	81	0.00	5.24
2	t	1,4-Dioxane	0.605	0.605	0.0	84	0.00	2.26
3	t	Pyridine	1.521	1.441	5.3	78	0.01	2.58
4	t	N-Nitrosodimethylamine	0.937	0.880	6.1	76	0.00	2.53
5	S	2-Fluorophenol	1.437	1.387	3.5	80	0.00	3.87
6	t	Indene	2.679	2.545	5.0	77	0.00	5.53
7	t	Cumene	3.307	3.238	2.1	83	0.00	4.38
8	S	Phenol-d5	1.719	1.636	4.8	75	0.00	4.87
9	t	Phenol	1.936	1.820	6.0	75	0.00	4.89
10		Aniline	2.156	2.087	3.2	76	0.00	4.88
11	t	bis(2-Chloroethyl)ether	1.358	1.316	3.1	78	0.00	4.95
12	t	2-Chlorophenol	1.525	1.486	2.6	80	0.00	5.02
13	t	Decane	1.336	1.172	12.3	77	0.00	5.08
14	t	1,3-Dichlorobenzene	1.603	1.604	-0.1	80	0.00	5.18
15	t	1,4-Dichlorobenzene	1.647	1.599	2.9	79	0.00	5.26
16	t	Benzyl alcohol	0.925	0.880	4.9	75	-0.01	5.40
17	t	1,2-Dichlorobenzene	1.550	1.489	3.9	79	0.00	5.43
18	t	Acetophenone	1.925	1.847	4.1	77	0.00	5.69
19	t	2-Methylphenol	1.298	1.245	4.1	75	-0.01	5.55
20	t	2,2'-oxybis(1-Chloropropa	1.766	1.594	9.7	74	0.00	5.56
21	t	3&4-Methylphenol	1.390	1.350	2.9	74	0.00	5.73
22	t	n-Nitroso-di-n-propylamin	0.970	0.940	3.1	75	-0.01	5.70
23	t	Hexachloroethane	0.493	0.488	1.0	81	0.00	5.81
24	I	Naphthalene-d8	1.000	1.000	0.0	77	0.00	6.70
25	S	Nitrobenzene-d5	0.345	0.327	5.2	74	0.00	5.87
26	t	Nitrobenzene	0.352	0.344	2.3	76	0.00	5.89
27	t	Quinoline	0.773	0.734	5.0	72	0.00	7.13
28	t	Isophorone	0.630	0.603	4.3	74	0.00	6.17
29	t	2-Nitrophenol	0.198	0.197	0.5	76	0.00	6.26
30	t	2,4-Dimethylphenol	0.310	0.336	-8.4	76	0.00	6.34
31	t	Benzoic acid	0.250	0.222	11.2	66	-0.05	6.45
32	t	bis(2-Chloroethoxy)methan	0.416	0.405	2.6	74	0.00	6.43
33	t	2,4-Dichlorophenol	0.292	0.290	0.7	76	0.00	6.56
34	t	2,6-Dichlorophenol	0.288	0.293	-1.7	78	0.00	6.82
35		1,3,5-Trichlorobenzene	0.332	0.327	1.5	80	0.00	6.28
36	t	1,2,4-Trichlorobenzene	0.317	0.314	0.9	77	0.00	6.65
37		1,2,3-Trichlorobenzene	0.307	0.301	2.0	78	0.00	6.91
38	t	Naphthalene	1.192	1.237	-3.8	75	0.00	6.73
39	t	4-Chloroaniline	0.469	0.464	1.1	74	0.00	6.81
40	t	2,3-Dichloroaniline	0.371	0.354	4.6	74	0.00	7.91
41	t	Caprolactam	0.157	0.131	16.6	68	-0.04	7.20

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1168-CC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22823.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.150	0.147	2.0	77	0.00	6.90
43	t	4-Chloro-3-methylphenol	0.304	0.301	1.0	74	-0.01	7.43
44	t	2-Methylnaphthalene	0.603	0.578	4.1	74	0.00	7.56
45	t	1-Methylnaphthalene	0.614	0.600	2.3	75	0.00	7.68
46	t	Dimethylnaphthalene	0.620	0.608	1.9	75	0.00	8.32
47	I	Acenaphthene-d10	1.000	1.000	0.0	74	0.00	8.82
48	t	Hexachlorocyclopentadiene	0.282	0.259	8.2	63	0.00	7.76
49	t	2,4,6-Trichlorophenol	0.343	0.346	-0.9	77	0.00	7.92
50	t	2,4,5-Trichlorophenol	0.367	0.367	0.0	74	-0.01	7.97
51	S	2-Fluorobiphenyl	1.266	1.254	0.9	76	0.00	8.01
52	t	2-Chloronaphthalene	1.127	1.133	-0.5	77	0.00	8.15
53	t	Biphenyl	1.487	1.438	3.3	75	0.00	8.13
54	t	2-Nitroaniline	0.311	0.282	9.3	70	0.00	8.28
55	t	Dimethylphthalate	1.248	1.246	0.2	75	0.00	8.51
56	t	Acenaphthylene	1.971	2.084	-5.7	74	0.00	8.64
57	t	2,6-Dinitrotoluene	0.289	0.271	6.2	72	0.00	8.57
58	t	3-Nitroaniline	0.350	0.326	6.9	71	-0.01	8.78
59	t	Acenaphthene	1.210	1.270	-5.0	75	0.00	8.86
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	36.166	27.7#	51	-0.01	8.91
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.149	0.137	8.1	68	0.00	9.04
62	t	Dibenzofuran	1.622	1.577	2.8	76	0.00	9.07
63	t	2,4-Dinitrotoluene	0.386	0.371	3.9	73	-0.01	9.06
64		2,3,4,6-Tetrachlorophenol	0.276	0.239	13.4	66	0.00	9.24
65	t	Diethylphthalate	1.263	1.222	3.2	75	0.00	9.37
66	t	Fluorene	1.374	1.427	-3.9	74	0.00	9.48
67	t	4-Chlorophenyl-phenylethe	0.569	0.576	-1.2	76	0.00	9.49
68	t	4-Nitroaniline	0.345	0.331	4.1	71	-0.01	9.52
69	I	Phenanthrene-d10	1.000	1.000	0.0	74	0.00	10.64
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	25.000	19.549	21.8#	56	-0.01	9.56
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.606	0.586	3.3	74	-0.01	9.64
72	t	1,2-Diphenylhydrazine	0.778	0.719	7.6	71	0.00	9.69
73	S	2,4,6-Tribromophenol	0.110	0.091	17.3	65	0.00	9.78
74	t	4-Bromophenyl-phenylether	0.211	0.195	7.6	69	0.00	10.09
75	t	Hexachlorobenzene	0.230	0.203	11.7	67	0.00	10.17
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	39.270	21.5#	58	0.00	10.42
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.246	1.255	-0.7	74	0.00	10.67
78	t	Anthracene	1.239	1.293	-4.4	73	-0.01	10.74
79	t	Carbazole	1.143	1.076	5.9	73	-0.01	10.96
80	t	Di-n-butylphthalate	1.313	1.310	0.2	73	0.00	11.47
81	t	Fluoranthene	1.263	1.318	-4.4	74	-0.01	12.29
82	t	Octadecane	0.480	0.440	8.3	71	0.00	10.56
83	I	Chrysene-d12	1.000	1.000	0.0	70	-0.01	14.43
84	t	Pyrene	1.377	1.495	-8.6	74	-0.01	12.61
85	S	Terphenyl-d14	0.820	0.780	4.9	70	0.00	12.88
86	t	Butylbenzylphthalate	0.591	0.609	-3.0	72	0.00	13.64

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1168-CC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22823.D
Project: Sunoco - Marcus Hook Facility, PA

87		Butyl stearate	0.324	0.320	1.2	69	0.00	13.79
88	t	Benzo[a]anthracene	1.210	1.208	0.2	69	-0.01	14.42
89	t	3,3'-Dichlorobenzidine	0.404	0.405	-0.2	68	0.00	14.41
90	t	Chrysene	1.199	1.222	-1.9	70	-0.01	14.47
91	t	bis(2-Ethylhexyl)phthalat	0.824	0.819	0.6	70	0.00	14.56
92	I	Perylene-d12	1.000	1.000	0.0	67	-0.01	16.50
93	t	Di-n-octylphthalate	1.384	1.438	-3.9	69	-0.01	15.52
94	t	Benzo[b]fluoranthene	1.167	1.294	-10.9	70	-0.02	15.98
95	t	Benzo[k]fluoranthene	1.172	1.264	-7.8	68	-0.02	16.02
96	t	Benzo[a]pyrene	1.088	1.195	-9.8	68	-0.02	16.42
97	t	Indeno[1,2,3-cd]pyrene	1.094	1.120	-2.4	63	-0.03	18.09
98	t	Dibenz(a,h)acridine	0.924	0.922	0.2	67	-0.02	17.73
99	t	Dibenz[a,h]anthracene	1.125	1.215	-8.0	67	-0.03	18.13
100	t	7,12-Dimethylbenz(a)anthr	0.461	0.530	-15.0	69	-0.02	15.98
101	t	Benzo[g,h,i]perylene	1.173	1.146	2.3	62	-0.03	18.55

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22791a.D M5P1165.M Fri Nov 06 09:04:51 2015 RPT1

8.7.24

8

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1168-CC1166
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22824.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1168\5p22824.D          Vial: 3
Acq On    :  5 Nov 2015   8:45 am                    Operator: alicjap
Sample    : cc1166-25                                Inst    : MS5P
Misc      : op88630,e5p1168                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 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	96	0.00	5.24
103	Benzaldehyde	1.161	1.071	7.8	91	0.00	4.75
104	Acenaphthene-d10a	1.000	1.000	0.0	91	0.00	8.81
105	1,2,4,5-Tetrachlorobenzen	0.482	0.485	-0.6	93	0.00	7.77
106	Chrysene-d12a	1.000	1.000	0.0	85	0.00	14.43
	----------	True	Calc.	% Drift	----------		
107	Benzidine	25.000	21.895	12.4	70	0.00	12.51
	----------	AvgRF	CCRF	% Dev	----------		
108 s	1-chlorooctadecane	0.319	0.301	5.6	76	0.00	12.20
109	Phenanthrene-d10a	1.000	1.000	0.0	90	0.00	10.64
110 s	o-terphenyl	0.524	0.457	12.8	81	0.00	11.17
111	Atrazine	0.107	0.096	10.3	83	-0.01	10.32
112 I	Naphthalene-d8a	1.000	1.000	0.0	94	0.00	6.70
113	Hydroquinone	0.345	0.325	5.8	86	0.00	7.26

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22791a.D M5P1165.M Thu Nov 05 16:28:13 2015 RPT1

8.7.25

8

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1169-ECC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22869.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1169\5p22869.D          Vial: 18
Acq On    :  6 Nov 2015   4:42 am                    Operator: sarad
Sample    : ecc1165-50                               Inst    : MS5P
Misc      : op88651,e5p1169,450                      Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  50%     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	187	-0.01	5.23
2	t	1,4-Dioxane	0.605	0.547	9.6	176	0.00	2.27
3	t	Pyridine	1.521	1.389	8.7	179	0.01	2.57
4	t	N-Nitrosodimethylamine	0.937	0.818	12.7	174	0.00	2.53
5	S	2-Fluorophenol	1.437	1.358	5.5	186	0.00	3.87
6	t	Indene	2.679	2.458	8.2	182	0.00	5.52
7	t	Cumene	3.307	2.958	10.6	179	-0.01	4.37
8	S	Phenol-d5	1.719	1.558	9.4	177	-0.01	4.87
9	t	Phenol	1.936	1.725	10.9	174	-0.01	4.88
10		Aniline	2.156	1.862	13.6	167	-0.01	4.87
11	t	bis(2-Chloroethyl)ether	1.358	1.230	9.4	178	-0.01	4.94
12	t	2-Chlorophenol	1.525	1.428	6.4	187	-0.01	5.01
13	t	Decane	1.336	1.039	22.2	164	-0.01	5.07
14	t	1,3-Dichlorobenzene	1.603	1.533	4.4	187	-0.01	5.17
15	t	1,4-Dichlorobenzene	1.647	1.556	5.5	186	-0.01	5.25
16	t	Benzyl alcohol	0.925	0.870	5.9	183	-0.01	5.40
17	t	1,2-Dichlorobenzene	1.550	1.443	6.9	186	-0.01	5.42
18	t	Acetophenone	1.925	1.772	7.9	180	-0.01	5.69
19	t	2-Methylphenol	1.298	1.185	8.7	176	-0.01	5.55
20	t	2,2'-oxybis(1-Chloropropa	1.766	1.417	19.8	163	0.00	5.55
21	t	3&4-Methylphenol	1.390	1.317	5.3	179	-0.01	5.73
22	t	n-Nitroso-di-n-propylamin	0.970	0.847	12.7	171	-0.01	5.70
23	t	Hexachloroethane	0.493	0.493	0.0	198	-0.01	5.81
24	I	Naphthalene-d8	1.000	1.000	0.0	184	-0.01	6.70
25	S	Nitrobenzene-d5	0.345	0.330	4.3	183	-0.01	5.86
26	t	Nitrobenzene	0.352	0.334	5.1	180	-0.01	5.88
27	t	Quinoline	0.773	0.741	4.1	180	0.00	7.13
28	t	Isophorone	0.630	0.593	5.9	175	-0.01	6.16
29	t	2-Nitrophenol	0.198	0.204	-3.0	190	-0.01	6.26
30	t	2,4-Dimethylphenol	0.310	0.320	-3.2	177	-0.01	6.34
31	t	Benzoic acid	0.250	0.264	-5.6	183	-0.01	6.49
32	t	bis(2-Chloroethoxy)methan	0.416	0.395	5.0	177	-0.01	6.43
33	t	2,4-Dichlorophenol	0.292	0.299	-2.4	189	-0.01	6.55
34	t	2,6-Dichlorophenol	0.288	0.286	0.7	185	-0.01	6.82
35		1,3,5-Trichlorobenzene	0.332	0.325	2.1	191	-0.01	6.27
36	t	1,2,4-Trichlorobenzene	0.317	0.318	-0.3	189	-0.01	6.64
37		1,2,3-Trichlorobenzene	0.307	0.305	0.7	185	-0.01	6.90
38	t	Naphthalene	1.192	1.199	-0.6	179	-0.01	6.73
39	t	4-Chloroaniline	0.469	0.454	3.2	178	0.00	6.81
40	t	2,3-Dichloroaniline	0.371	0.355	4.3	184	-0.01	7.90
41	t	Caprolactam	0.157	0.131	16.6	165	-0.01	7.23

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1169-ECC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22869.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.150	0.150	0.0	185	-0.01	6.89
43	t	4-Chloro-3-methylphenol	0.304	0.296	2.6	179	-0.02	7.42
44	t	2-Methylnaphthalene	0.603	0.560	7.1	177	-0.01	7.55
45	t	1-Methylnaphthalene	0.614	0.583	5.0	179	-0.01	7.67
46	t	Dimethylnaphthalene	0.620	0.599	3.4	184	-0.01	8.31
47	I	Acenaphthene-d10	1.000	1.000	0.0	183	0.00	8.81
48	t	Hexachlorocyclopentadiene	0.282	0.299	-6.0	182	-0.01	7.76
49	t	2,4,6-Trichlorophenol	0.343	0.343	0.0	190	-0.01	7.92
50	t	2,4,5-Trichlorophenol	0.367	0.376	-2.5	192	-0.02	7.97
51	S	2-Fluorobiphenyl	1.266	1.200	5.2	183	-0.01	8.01
52	t	2-Chloronaphthalene	1.127	1.064	5.6	185	-0.01	8.14
53	t	Biphenyl	1.487	1.372	7.7	180	-0.01	8.13
54	t	2-Nitroaniline	0.311	0.274	11.9	174	-0.01	8.28
55	t	Dimethylphthalate	1.248	1.229	1.5	186	0.00	8.51
56	t	Acenaphthylene	1.971	1.986	-0.8	178	-0.01	8.64
57	t	2,6-Dinitrotoluene	0.289	0.280	3.1	185	0.00	8.57
58	t	3-Nitroaniline	0.350	0.335	4.3	182	-0.01	8.78
59	t	Acenaphthene	1.210	1.181	2.4	176	-0.01	8.85
			True	Calc.	% Drift			
60	t	2,4-Dinitrophenol	100.000	102.573	-2.6	197	-0.01	8.91
			AvgRF	CCRF	% Dev			
61	t	4-Nitrophenol	0.149	0.141	5.4	175	-0.01	9.03
62	t	Dibenzofuran	1.622	1.452	10.5	175	-0.01	9.06
63	t	2,4-Dinitrotoluene	0.386	0.363	6.0	175	-0.01	9.06
64		2,3,4,6-Tetrachlorophenol	0.276	0.279	-1.1	188	-0.01	9.23
65	t	Diethylphthalate	1.263	1.179	6.7	181	0.00	9.37
66	t	Fluorene	1.374	1.322	3.8	175	-0.01	9.48
67	t	4-Chlorophenyl-phenylethe	0.569	0.547	3.9	181	-0.01	9.49
68	t	4-Nitroaniline	0.345	0.332	3.8	181	-0.01	9.52
69	I	Phenanthrene-d10	1.000	1.000	0.0	181	-0.01	10.64
			True	Calc.	% Drift			
70	t	4,6-Dinitro-2-methylpheno	50.000	51.321	-2.6	194	-0.01	9.56
			AvgRF	CCRF	% Dev			
71	t	n-Nitrosodiphenylamine	0.606	0.564	6.9	180	-0.01	9.64
72	t	1,2-Diphenylhydrazine	0.778	0.660	15.2	169	-0.01	9.68
73	S	2,4,6-Tribromophenol	0.110	0.099	10.0	174	-0.01	9.78
74	t	4-Bromophenyl-phenylether	0.211	0.201	4.7	179	-0.01	10.08
75	t	Hexachlorobenzene	0.230	0.218	5.2	185	-0.01	10.16
			True	Calc.	% Drift			
76	t	Pentachlorophenol	100.000	107.189	-7.2	206	-0.01	10.42
			AvgRF	CCRF	% Dev			
77	t	Phenanthrene	1.246	1.182	5.1	178	-0.01	10.67
78	t	Anthracene	1.239	1.223	1.3	177	-0.02	10.73
79	t	Carbazole	1.143	1.039	9.1	179	-0.02	10.96
80	t	Di-n-butylphthalate	1.313	1.287	2.0	180	-0.01	11.46
81	t	Fluoranthene	1.263	1.264	-0.1	181	-0.01	12.29
82	t	Octadecane	0.480	0.392	18.3	161	-0.01	10.56
83	I	Chrysene-d12	1.000	1.000	0.0	175	-0.01	14.43
84	t	Pyrene	1.377	1.423	-3.3	185	-0.01	12.61
85	S	Terphenyl-d14	0.820	0.783	4.5	180	-0.01	12.87
86	t	Butylbenzylphthalate	0.591	0.595	-0.7	181	-0.01	13.64

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1169-ECC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22869.D
Project: Sunoco - Marcus Hook Facility, PA

87		Butyl stearate	0.324	0.294	9.3	166	-0.02	13.78
88	t	Benzo[a]anthracene	1.210	1.151	4.9	173	-0.02	14.41
89	t	3,3'-Dichlorobenzidine	0.404	0.407	-0.7	182	-0.01	14.41
90	t	Chrysene	1.199	1.176	1.9	175	-0.01	14.47
91	t	bis(2-Ethylhexyl)phthalat	0.824	0.824	0.0	179	-0.01	14.56
92	I	Perylene-d12	1.000	1.000	0.0	177	-0.01	16.50
93	t	Di-n-octylphthalate	1.384	1.418	-2.5	181	-0.01	15.52
94	t	Benzo[b]fluoranthene	1.167	1.221	-4.6	175	-0.02	15.98
95	t	Benzo[k]fluoranthene	1.172	1.172	0.0	179	-0.02	16.03
96	t	Benzo[a]pyrene	1.088	1.135	-4.3	176	-0.02	16.42
97	t	Indeno[1,2,3-cd]pyrene	1.094	1.171	-7.0	179	-0.03	18.09
98	t	Dibenz(a,h)acridine	0.924	0.907	1.8	179	-0.03	17.72
99	t	Dibenz[a,h]anthracene	1.125	1.182	-5.1	179	-0.03	18.13
100	t	7,12-Dimethylbenz(a)anthr	0.461	0.489	-6.1	174	-0.02	15.98
101	t	Benzo[g,h,i]perylene	1.173	1.168	0.4	173	-0.03	18.55

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Fri Nov 06 08:40:01 2015 RPT1

8.7.26

8

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1169-ECC1166
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22870.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1169\5p22870.D          Vial: 19
Acq On    :  6 Nov 2015   5:08 am                    Operator: sarad
Sample    : ecc1166-50                               Inst    : MS5P
Misc      : op88651,e5p1169,450                      Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  50%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	133	-0.01	5.23
103	Benzaldehyde	1.161	1.117	3.8	137	0.00	4.75
104	Acenaphthene-d10a	1.000	1.000	0.0	155	-0.01	8.81
105	1,2,4,5-Tetrachlorobenzen	0.482	0.480	0.4	157	-0.01	7.76
106	Chrysene-d12a	1.000	1.000	0.0	165	-0.01	14.42
	----------	True	Calc.	% Drift	----------		
107	Benzidine	50.000	68.797	-37.6	210	0.00	12.51
	----------	AvgRF	CCRF	% Dev	----------		
108 s	1-chlorooctadecane	0.319	0.277	13.2	146	-0.02	12.19
109	Phenanthrene-d10a	1.000	1.000	0.0	164	-0.01	10.64
110 s	o-terphenyl	0.524	0.467	10.9	153	-0.01	11.17
111	Atrazine	0.107	0.104	2.8	165	-0.01	10.32
112 I	Naphthalene-d8a	1.000	1.000	0.0	141	0.00	6.70
113	Hydroquinone	0.345	0.378	-9.6	152	-0.02	7.25

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Fri Nov 06 08:40:03 2015 RPT1

8.7.27

8

Continuing Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E5P1173-CC1165
Lab FileID: 5P22963.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e5p1173\5p22963.D Vial: 2
Acq On : 9 Nov 2015 9:13 am Operator: alicjap
Sample : cc1165-50 Inst : MS5P
Misc : op88750,e5p1173 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update : Wed Nov 04 18:27:28 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	121	-0.03	5.21
2	t	1,4-Dioxane	0.605	0.587	3.0	122	-0.01	2.25
3	t	Pyridine	1.521	1.445	5.0	120	0.00	2.56
4	t	N-Nitrosodimethylamine	0.937	0.886	5.4	122	-0.01	2.52
5	S	2-Fluorophenol	1.437	1.334	7.2	118	-0.02	3.86
6	t	Indene	2.679	2.482	7.4	119	-0.03	5.50
7	t	Cumene	3.307	2.995	9.4	117	-0.03	4.35
8	S	Phenol-d5	1.719	1.675	2.6	123	-0.03	4.85
9	t	Phenol	1.936	1.848	4.5	120	-0.03	4.87
10		Aniline	2.156	1.651	23.4#	95	-0.03	4.86
11	t	bis(2-Chloroethyl)ether	1.358	1.384	-1.9	129	-0.03	4.93
12	t	2-Chlorophenol	1.525	1.432	6.1	121	-0.03	4.99
13	t	Decane	1.336	1.161	13.1	118	-0.03	5.05
14	t	1,3-Dichlorobenzene	1.603	1.534	4.3	121	-0.03	5.15
15	t	1,4-Dichlorobenzene	1.647	1.549	6.0	120	-0.03	5.23
16	t	Benzyl alcohol	0.925	0.859	7.1	116	-0.03	5.38
17	t	1,2-Dichlorobenzene	1.550	1.452	6.3	121	-0.03	5.40
18	t	Acetophenone	1.925	1.765	8.3	116	-0.03	5.67
19	t	2-Methylphenol	1.298	1.201	7.5	115	-0.03	5.53
20	t	2,2'-oxybis(1-Chloropropa	1.766	1.591	9.9	118	-0.03	5.52
21	t	3&4-Methylphenol	1.390	1.344	3.3	118	-0.03	5.71
22	t	n-Nitroso-di-n-propylamin	0.970	0.918	5.4	120	-0.03	5.68
23	t	Hexachloroethane	0.493	0.468	5.1	121	-0.03	5.79
24	I	Naphthalene-d8	1.000	1.000	0.0	119	-0.03	6.68
25	S	Nitrobenzene-d5	0.345	0.348	-0.9	125	-0.03	5.84
26	t	Nitrobenzene	0.352	0.360	-2.3	126	-0.03	5.86
27	t	Quinoline	0.773	0.753	2.6	119	-0.03	7.11
28	t	Isophorone	0.630	0.617	2.1	118	-0.03	6.14
29	t	2-Nitrophenol	0.198	0.200	-1.0	121	-0.03	6.23
30	t	2,4-Dimethylphenol	0.310	0.312	-0.6	111	-0.03	6.32
31	t	Benzoic acid	0.250	0.265	-6.0	119	-0.02	6.48
32	t	bis(2-Chloroethoxy)methan	0.416	0.421	-1.2	123	-0.03	6.41
33	t	2,4-Dichlorophenol	0.292	0.292	0.0	120	-0.03	6.54
34	t	2,6-Dichlorophenol	0.288	0.281	2.4	118	-0.03	6.80
35		1,3,5-Trichlorobenzene	0.332	0.311	6.3	118	-0.03	6.25
36	t	1,2,4-Trichlorobenzene	0.317	0.308	2.8	119	-0.03	6.62
37		1,2,3-Trichlorobenzene	0.307	0.292	4.9	115	-0.03	6.88
38	t	Naphthalene	1.192	1.211	-1.6	117	-0.03	6.70
39	t	4-Chloroaniline	0.469	0.408	13.0	104	-0.03	6.78
40	t	2,3-Dichloroaniline	0.371	0.347	6.5	117	-0.03	7.88
41	t	Caprolactam	0.157	0.148	5.7	121	-0.03	7.21

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1173-CC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22963.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.150	0.136	9.3	108	-0.04	6.86
43	t	4-Chloro-3-methylphenol	0.304	0.294	3.3	115	-0.03	7.40
44	t	2-Methylnaphthalene	0.603	0.558	7.5	115	-0.03	7.53
45	t	1-Methylnaphthalene	0.614	0.575	6.4	114	-0.03	7.65
46	t	Dimethylnaphthalene	0.620	0.593	4.4	118	-0.03	8.29
47	I	Acenaphthene-d10	1.000	1.000	0.0	118	-0.03	8.79
48	t	Hexachlorocyclopentadiene	0.282	0.271	3.9	106	-0.03	7.74
49	t	2,4,6-Trichlorophenol	0.343	0.338	1.5	121	-0.03	7.90
50	t	2,4,5-Trichlorophenol	0.367	0.361	1.6	119	-0.03	7.95
51	S	2-Fluorobiphenyl	1.266	1.172	7.4	115	-0.03	7.99
52	t	2-Chloronaphthalene	1.127	1.057	6.2	118	-0.04	8.11
53	t	Biphenyl	1.487	1.359	8.6	115	-0.04	8.10
54	t	2-Nitroaniline	0.311	0.309	0.6	126	-0.03	8.25
55	t	Dimethylphthalate	1.248	1.210	3.0	118	-0.03	8.49
56	t	Acenaphthylene	1.971	1.993	-1.1	115	-0.03	8.62
57	t	2,6-Dinitrotoluene	0.289	0.278	3.8	118	-0.03	8.55
58	t	3-Nitroaniline	0.350	0.327	6.6	114	-0.03	8.76
59	t	Acenaphthene	1.210	1.197	1.1	115	-0.03	8.83
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	105.958	-6.0	131	-0.03	8.88
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.149	0.152	-2.0	122	-0.03	9.02
62	t	Dibenzofuran	1.622	1.463	9.8	114	-0.03	9.04
63	t	2,4-Dinitrotoluene	0.386	0.370	4.1	115	-0.03	9.04
64		2,3,4,6-Tetrachlorophenol	0.276	0.260	5.8	113	-0.03	9.21
65	t	Diethylphthalate	1.263	1.208	4.4	119	-0.03	9.35
66	t	Fluorene	1.374	1.320	3.9	112	-0.03	9.46
67	t	4-Chlorophenyl-phenylethe	0.569	0.527	7.4	113	-0.03	9.47
68	t	4-Nitroaniline	0.345	0.322	6.7	113	-0.03	9.50
69	I	Phenanthrene-d10	1.000	1.000	0.0	115	-0.03	10.62
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	52.014	-4.0	125	-0.03	9.54
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.606	0.571	5.8	116	-0.03	9.62
72	t	1,2-Diphenylhydrazine	0.778	0.736	5.4	120	-0.04	9.65
73	S	2,4,6-Tribromophenol	0.110	0.095	13.6	106	-0.04	9.75
74	t	4-Bromophenyl-phenylether	0.211	0.189	10.4	107	-0.03	10.06
75	t	Hexachlorobenzene	0.230	0.200	13.0	107	-0.04	10.13
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	100.000	109.738	-9.7	134	-0.03	10.40
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.246	1.194	4.2	114	-0.04	10.64
78	t	Anthracene	1.239	1.229	0.8	113	-0.04	10.71
79	t	Carbazole	1.143	1.050	8.1	115	-0.04	10.94
80	t	Di-n-butylphthalate	1.313	1.347	-2.6	119	-0.04	11.44
81	t	Fluoranthene	1.263	1.259	0.3	114	-0.04	12.26
82	t	Octadecane	0.480	0.455	5.2	119	-0.04	10.53
83	I	Chrysene-d12	1.000	1.000	0.0	107	-0.04	14.40
84	t	Pyrene	1.377	1.451	-5.4	115	-0.04	12.58
85	S	Terphenyl-d14	0.820	0.756	7.8	106	-0.04	12.84
86	t	Butylbenzylphthalate	0.591	0.656	-11.0	122	-0.04	13.61

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1173-CC1165
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22963.D
Project: Sunoco - Marcus Hook Facility, PA

87		Butyl stearate	0.324	0.354	-9.3	123	-0.04	13.76
88	t	Benzo[a]anthracene	1.210	1.155	4.5	106	-0.05	14.38
89	t	3,3'-Dichlorobenzidine	0.404	0.373	7.7	102	-0.04	14.38
90	t	Chrysene	1.199	1.159	3.3	105	-0.04	14.44
91	t	bis(2-Ethylhexyl)phthalat	0.824	0.920	-11.7	122	-0.04	14.53
92	I	Perylene-d12	1.000	1.000	0.0	106	-0.04	16.46
93	t	Di-n-octylphthalate	1.384	1.590	-14.9	122	-0.05	15.49
94	t	Benzo[b]fluoranthene	1.167	1.247	-6.9	107	-0.05	15.95
95	t	Benzo[k]fluoranthene	1.172	1.193	-1.8	109	-0.05	15.99
96	t	Benzo[a]pyrene	1.088	1.137	-4.5	106	-0.05	16.39
97	t	Indeno[1,2,3-cd]pyrene	1.094	1.179	-7.8	108	-0.08	18.05
98	t	Dibenz(a,h)acridine	0.924	0.914	1.1	108	-0.07	17.68
99	t	Dibenz[a,h]anthracene	1.125	1.184	-5.2	108	-0.07	18.09
100	t	7,12-Dimethylbenz(a)anthr	0.461	0.494	-7.2	106	-0.05	15.95
101	t	Benzo[g,h,i]perylene	1.173	1.208	-3.0	107	-0.08	18.51

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Mon Nov 09 11:23:48 2015 RPT1

8.7.28

8

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E5P1173-CC1166
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 5P22964.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e5p1173\5p22964.D          Vial: 3
Acq On    :  9 Nov 2015   9:39 am                    Operator: alicjap
Sample    : cc1166-50                                Inst    : MS5P
Misc      : op88750,e5p1173                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M5P1165.M (RTE Integrator)
Title        : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
Last Update  : Wed Nov 04 18:27:28 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	104	-0.03	5.21
103	Benzaldehyde	1.161	1.097	5.5	104	-0.03	4.73
104	Acenaphthene-d10a	1.000	1.000	0.0	116	-0.03	8.79
105	1,2,4,5-Tetrachlorobenzen	0.482	0.463	3.9	113	-0.03	7.74
106	Chrysene-d12a	1.000	1.000	0.0	113	-0.04	14.39
	----------	True	Calc.	% Drift	----------		
107	Benzidine	50.000	33.913	32.2#	92	-0.04	12.48
	----------	AvgRF	CCRF	% Dev	----------		
108	Phenanthrene-d10a	1.000	1.000	0.0	119	-0.04	10.61
109	Atrazine	0.107	0.099	7.5	114	-0.03	10.29
110 I	Naphthalene-d8a	1.000	1.000	0.0	111	-0.03	6.68
111	Hydroquinone	0.345	0.371	-7.5	118	-0.03	7.24

(#) = Out of Range SPCC's out = 0 CCC's out = 0
5p22792a.D M5P1165.M Mon Nov 09 11:23:50 2015 RPT1

8.7.29

8

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P921-ICC921
Lab FileID: 6P20186.D

Response Factor Report MS6P

Method : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update : Tue Oct 13 15:13:34 2015
Response via : Initial Calibration

Calibration Files
100 =6p20191.D 80 =6p20192.D 50 =6p20193.D 25 =6p20194.D
10 =6p20195.D 5 =6p20196.D 2 =6p20197.D 1 =6p20198.D

Compound	100	80	50	25	10	5	2	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.671	0.639	0.668	0.696	0.682	0.669	0.660	0.790	0.684	6.71
3) Pyridine	1.723	1.670	1.761	1.850	1.654	1.683	1.797	1.508	1.706	6.12
4) N-Nitrosodim	0.982	0.940	1.003	1.043	0.976	0.954	1.024	1.024	0.993	3.65
5) 2-Fluorophen	1.522	1.452	1.532	1.547	1.532	1.419	1.445	1.487	1.492	3.23
6) Indene	2.838	2.723	2.851	2.939	2.823	2.713	2.775	2.920	2.823	2.95
7) Cumene	3.961	3.799	3.976	4.220	4.045	3.926	4.076	4.196	4.025	3.49
8) Phenol-d5	1.917	1.829	1.948	2.015	1.925	1.846	1.947	1.936	1.920	3.09
9) Phenol	2.252	2.133	2.319	2.378	2.325	2.141	2.352	2.271	2.271	4.06
10) Aniline	2.466	2.225	2.378	2.585	2.676	2.630	2.757	2.699	2.552	7.11
11) bis(2-Chloro	1.473	1.398	1.467	1.530	1.454	1.434	1.501	1.524	1.473	3.06
12) 2-Chlorophen	1.504	1.454	1.504	1.529	1.540	1.443	1.498	1.456	1.491	2.42
13) Decane	1.184	1.138	1.173	1.223	1.206	1.130	1.220	1.220	1.187	3.13
14) 1,3-Dichloro	1.642	1.570	1.622	1.689	1.624	1.603	1.611	1.677	1.630	2.39
15) 1,4-Dichloro	1.673	1.591	1.647	1.724	1.603	1.600	1.696	1.694	1.653	3.07
16) Benzyl alcoh	1.054	1.000	1.051	1.067	0.996	0.941	0.997	1.027	1.017	4.07
17) 1,2-Dichloro	1.546	1.477	1.537	1.593	1.516	1.524	1.471	1.620	1.536	3.38
18) Acetophenone	2.282	2.163	2.340	2.442	2.338	2.279	2.331	2.283	2.307	3.42
19) 2-Methylphen	1.420	1.337	1.413	1.476	1.416	1.337	1.379	1.350	1.391	3.53
20) 2,2'-oxybis(	0.521	0.494	0.528	0.547	0.510	0.509	0.539	0.540	0.523	3.49
21) 3&4-Methylph	1.547	1.482	1.547	1.608	1.546	1.434	1.521	1.474	1.520	3.59
22) n-Nitroso-di	1.200	1.141	1.233	1.340	1.279	1.227	1.312	1.383	1.264	6.28
23) Hexachloroet	0.525	0.500	0.511	0.540	0.496	0.476	0.474	0.482	0.500	4.75
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.459	0.454	0.467	0.486	0.473	0.450	0.495	0.463	0.468	3.33
26) Nitrobenzene	0.480	0.479	0.497	0.499	0.493	0.497	0.519	0.504	0.496	2.59
27) Quinoline	0.734	0.719	0.734	0.740	0.727	0.716	0.749	0.735	0.732	1.49
28) Isophorone	0.801	0.784	0.805	0.826	0.814	0.799	0.806	0.816	0.806	1.58
29) 2-Nitropheno	0.210	0.205	0.206	0.205	0.189	0.174	0.196	0.177	0.195	7.09
30) 2,4-Dimethyl	0.416	0.400	0.395	0.396	0.379	0.367	0.373	0.366	0.386	4.65
31) Benzoic Acid	0.297	0.292	0.330	0.303	0.233				0.291	12.20
32) bis(2-Chloro	0.443	0.437	0.449	0.461	0.448	0.442	0.450	0.447	0.447	1.55
33) 2,4-Dichloro	0.296	0.289	0.291	0.296	0.276	0.271	0.263	0.267	0.281	4.71
34) 2,6-Dichloro	0.290	0.282	0.285	0.286	0.277	0.267	0.294	0.275	0.282	3.03
35) 1,3,5-Trichl	0.336	0.330	0.329	0.334	0.325	0.321	0.316	0.336	0.328	2.25
36) 1,2,4-Trichl	0.314	0.306	0.308	0.311	0.309	0.308	0.297	0.304	0.307	1.59
37) 1,2,3-Trichl	0.309	0.305	0.308	0.313	0.304	0.296	0.285	0.312	0.304	3.13
38) Naphthalene	1.090	1.072	1.096	1.128	1.103	1.082	1.112	1.064	1.093	1.92
39) 4-Chloroanil	0.464	0.447	0.458	0.473	0.471	0.452	0.432	0.409	0.451	4.77
40) 2,3-Dichloro	0.366	0.356	0.359	0.362	0.345	0.331	0.345	0.345	0.351	3.36
41) Caprolactam	0.139	0.123	0.138	0.143	0.130	0.126	0.121	0.121	0.130	6.68
42) Hexachlorobu	0.174	0.171	0.172	0.176	0.171	0.168	0.159	0.165	0.170	3.18
43) 4-Chloro-3-m	0.384	0.375	0.392	0.393	0.361	0.357	0.359	0.340	0.370	5.08
44) 2-Methylnaph	0.622	0.611	0.618	0.629	0.609	0.579	0.596	0.600	0.608	2.60
45) 1-Methylnaph	0.637	0.623	0.634	0.638	0.631	0.615	0.627	0.623	0.628	1.28

Initial Calibration Summary

Job Number: JC7291 **Sample:** E6P921-ICC921
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P20186.D
Project: Sunoco - Marcus Hook Facility, PA

```
46) Dimethylnaph 0.654 0.643 0.651 0.656 0.629 0.617 0.604 0.593 0.631   3.83

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.455 0.393 0.374 0.367 0.331 0.305 0.303 0.264 0.349  17.34
49) 2,4,6-Trichl 0.418 0.357 0.361 0.360 0.334 0.326 0.303 0.332 0.349   9.81
50) 2,4,5-Trichl 0.420 0.363 0.357 0.362 0.359 0.323 0.341 0.302 0.353   9.73
51) 2-Fluorobiph 1.446 1.246 1.245 1.275 1.244 1.208 1.233 1.280 1.272   5.81
52) 2-Chloronaph 1.294 1.121 1.115 1.123 1.123 1.094 1.087 1.101 1.132   5.89
53) Biphenyl     1.752 1.509 1.497 1.514 1.518 1.459 1.442 1.481 1.522   6.37
54) 2-Nitroanili 0.528 0.448 0.458 0.457 0.436 0.397 0.436 0.378 0.442  10.13
55) Dimethylphth 1.480 1.293 1.299 1.300 1.303 1.261 1.284 1.283 1.313   5.25
56) Acenaphthyle 2.152 1.868 1.876 1.897 1.879 1.825 1.783 1.820 1.888   6.00
57) 2,6-Dinitrot 0.340 0.290 0.296 0.299 0.270 0.252 0.263 0.221 0.279  12.85
58) 3-Nitroanili 0.408 0.355 0.350 0.346 0.332 0.306 0.321 0.278 0.337  11.44
59) Acenaphthene 1.334 1.153 1.154 1.165 1.150 1.130 1.147 1.172 1.176   5.55
60) 2,4-Dinitrop 0.213 0.186 0.175 0.144 0.095 0.056 0.065       0.133  46.53
            ---- Quadratic regression ----  Coefficient =  0.9985
              Response Ratio = -0.01405 + 0.13218 *A + 0.01616 *A^2

61) 4-Nitropheno 0.289 0.249 0.257 0.252 0.237 0.219 0.196 0.193 0.236  13.76
62) Dibenzofuran 1.884 1.641 1.600 1.649 1.616 1.582 1.604 1.633 1.651   5.85
63) 2,4-Dinitrot 0.489 0.425 0.423 0.423 0.390 0.340 0.334 0.279 0.388  17.18
64) 2,3,4,6-Tetr 0.356 0.302 0.300 0.288 0.279 0.257 0.255 0.262 0.287  11.53
65) Diethylphtha 1.532 1.340 1.359 1.375 1.339 1.318 1.555 1.297 1.389   7.07
66) Fluorene     1.492 1.302 1.296 1.300 1.266 1.240 1.239 1.220 1.295   6.63
67) 4-Chlorophen 0.683 0.595 0.579 0.593 0.594 0.551 0.555 0.544 0.587   7.49
68) 4-Nitroanili 0.405 0.350 0.346 0.343 0.334 0.285 0.332 0.280 0.334  11.77

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.140 0.147 0.130 0.121 0.091 0.062 0.074       0.109  30.63
            ---- Quadratic regression ----  Coefficient =  0.9973
              Response Ratio = -0.00885 + 0.13746 *A + 0.00349 *A^2

71) n-Nitrosodip 0.547 0.579 0.544 0.556 0.583 0.558 0.545 0.530 0.555   3.24
72) 1,2-Diphenyl 0.933 0.983 0.961 0.993 1.062 1.016 1.022 1.023 0.999   4.06
73) 2,4,6-Tribro 0.079 0.083 0.077 0.076 0.077 0.074 0.069 0.075 0.076   5.14
74) 4-Bromopheny 0.189 0.197 0.186 0.182 0.193 0.187 0.176 0.189 0.187   3.31
75) Hexachlorobe 0.191 0.202 0.186 0.190 0.197 0.193 0.193 0.197 0.194   2.60
76) Pentachlorop 0.147 0.155 0.139 0.134 0.127 0.111 0.111 0.095 0.127  16.11
77) Phenanthrene 1.051 1.096 1.033 1.062 1.103 1.080 1.108 1.145 1.085   3.31
78) Anthracene   1.085 1.139 1.056 1.091 1.131 1.089 1.131 1.103 1.103   2.62
79) Carbazole    1.013 1.060 0.996 1.037 1.066 1.029 1.077 1.030 1.039   2.64
80) Di-n-butylph 1.310 1.382 1.315 1.330 1.321 1.218 1.292 1.167 1.292   5.27
81) Fluoranthene 1.119 1.181 1.106 1.107 1.128 1.070 1.103 1.081 1.112   3.04
82) Octadecane   0.439 0.459 0.440 0.448 0.465 0.438 0.472 0.468 0.454   3.09

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.071 1.107 1.100 1.180 1.181 1.149 1.163 1.095 1.131   3.78
85) Butyl steara 0.269 0.282 0.275 0.289 0.264 0.226 0.265 0.210 0.260  10.60
86) Terphenyl-d1 0.687 0.715 0.698 0.736 0.752 0.735 0.833 0.955 0.764  11.68
87) Butylbenzylp 0.547 0.568 0.566 0.599 0.572 0.490 0.528 0.443 0.539   9.44
88) Benzo[a]anth 1.041 1.075 1.052 1.096 1.080 1.043 1.104 1.147 1.080   3.33
89) 3,3'-Dichlor 0.385 0.397 0.396 0.396 0.370 0.331 0.343 0.291 0.364  10.65
90) Chrysene     0.960 1.003 0.980 1.053 1.053 1.012 1.031 1.022 1.014   3.25
91) bis(2-Ethylh 0.738 0.761 0.757 0.782 0.707 0.626 0.650 0.529 0.694  12.43

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.654 1.670 1.764 1.731 1.296 1.071 1.188       1.482  19.40
94) Benzo[b]fluo 1.431 1.405 1.406 1.424 1.244 1.104 1.133 1.069 1.277  12.31
95) Benzo[k]fluo 1.091 1.137 1.282 1.333 1.117 1.085 1.043 1.036 1.140   9.60
```

8.7.30

8

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P921-ICC921
Lab FileID: 6P20186.D

```
 96) Benzo[a]pyre 1.138 1.138 1.204 1.220 1.035 0.945 0.954 0.864 1.062  12.42
 97) Indeno[1,2,3 1.066 1.061 1.131 1.141 0.912 0.793 0.822 0.770 0.962  16.14
 98) Dibenz(a,h)a 0.973 0.981 1.049 1.051 0.847 0.732 0.760 0.732 0.891  15.62
 99) Dibenz[a,h]a 1.110 1.118 1.197 1.190 0.960 0.849 0.819 0.829 1.009  16.18
100) 7,12-Dimethy 0.650 0.643 0.664 0.652 0.522 0.444 0.434       0.573  18.07
101) Benzo[g,h,i] 1.055 1.073 1.148 1.165 0.962 0.883 0.900 0.868 1.007  11.86

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

          M6P921.M          Tue Oct 13 15:22:37 2015   RPT1
```

8.7.30

8

Initial Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICC922
Lab FileID: 6P20193.D

```
                          Response Factor Report  MS6P

  Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
  Last Update  : Tue Oct 13 17:17:20 2015
  Response via : Initial Calibration

  Calibration Files
  100 =6p20191.D   80  =6p20192.D   50  =6p20193.D   25  =6p20194.D
  10  =6p20195.D   5   =6p20196.D   2   =6p20197.D   1   =6p20198.D

   Compound         100   80    50    25    10    5     2     1     Avg %RSD
  ---------------------------------------------------------------------------
102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.203 1.262 1.244 1.250 1.242 1.073 1.449 1.194 1.240   8.38

104)     Phenanthrene-d10a     ----------------ISTD---------------------
105) Atrazine     0.110 0.110 0.108 0.103 0.090 0.071 0.084 0.063 0.092  19.90
106) o-terphenyl  0.595 0.597 0.583 0.552 0.550 0.451 0.567 0.494 0.549   9.39

107)     Chrysene-d12a         ----------------ISTD---------------------
108) Benzidine    0.488 0.521 0.618 0.620 0.523                   0.554  11.01
109) 1-chloroocta 0.279 0.279 0.271 0.263 0.247 0.187 0.197       0.246  15.71

110)     Acenaphthene-d10a     ----------------ISTD---------------------
111) 1,2,4,5-Tetr 0.498 0.512 0.486 0.480 0.472 0.421 0.547 0.543 0.495   8.26

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.345 0.346 0.337 0.307 0.236 0.224             0.299  18.55
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M6P921.M          Wed Oct 14 11:10:29 2015   RPT1
```

8.7.31

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV921
Lab FileID: 6P20200.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20200.D          Vial: 11
Acq On    : 13 Oct 2015   1:17 pm                   Operator: brittanp
Sample    : icv921-50                               Inst    : MS6P
Misc      : op87824,e6p922,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 17:17:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	152	0.00	4.54
3	t	Pyridine	1.706	1.698	0.5	147	0.18	2.53
10	t	Aniline	2.552	2.208	13.5	141	0.00	4.30
16	t	Benzyl alcohol	1.017	0.887	12.8	128	0.00	4.65
24	I	Naphthalene-d8	1.000	1.000	0.0	151	0.00	5.62
39	t	4-Chloroaniline	0.451	0.333	26.2	110	0.00	5.69
44	t	2-Methylnaphthalene	0.608	0.541	11.0	132	0.00	6.36
47	I	Acenaphthene-d10	1.000	1.000	0.0	130	0.00	7.66
54	t	2-Nitroaniline	0.442	0.368	16.7	104	-0.01	7.07
58	t	3-Nitroaniline	0.337	0.282	16.3	105	0.00	7.61
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.651	1.558	5.6	126	0.00	7.94
68	t	4-Nitroaniline	0.334	0.262	21.6	98	-0.02	8.47
69	I	Phenanthrene-d10	1.000	1.000	0.0	139	-0.01	9.82
		----------	AvgRF	CCRF	% Dev	----------		
79	t	Carbazole	1.039	0.846	18.6	118	0.00	10.21
83	I	Chrysene-d12	1.000	1.000	0.0	124	-0.01	14.01
92	I	Perylene-d12	1.000	1.000	0.0	137	-0.01	16.12

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 6p20193.D  M6P921.M         Wed Oct 14 11:48:48 2015   RPT1
```

8.7.32

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV922
Lab FileID: 6P20201A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20201a.D          Vial: 12
Acq On    : 13 Oct 2015   1:43 pm                    Operator: brittanp
Sample    : icv922-50                                Inst    : MS6P
Misc      : op87824,e6p922,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 15:13:34 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
110	Acenaphthene-d10a	1.000	1.000	0.0	106	0.00	7.66
111	1,2,4,5-Tetrachlorobenzen	0.495	0.505	-2.0	111	0.00	6.56

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Tue Oct 13 16:52:58 2015 RPT1

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV921
Lab FileID: 6P20201.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e6p922\6p20201.D Vial: 12
Acq On : 13 Oct 2015 1:43 pm Operator: brittanp
Sample : icv921-50 Inst : MS6P
Misc : op87824,e6p922, Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update : Tue Oct 13 15:13:34 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	121	0.00	4.54
4	t	N-Nitrosodimethylamine	0.993	0.862	13.2	104	0.03	2.34
11	t	bis(2-Chloroethyl)ether	1.473	1.330	9.7	110	0.00	4.34
14	t	1,3-Dichlorobenzene	1.630	1.470	9.8	110	0.00	4.50
15	t	1,4-Dichlorobenzene	1.653	1.482	10.3	109	0.00	4.55
17	t	1,2-Dichlorobenzene	1.536	1.381	10.1	109	0.00	4.67
20	t	2,2'-oxybis(1-Chloropropa	0.523	0.456	12.8	105	0.00	4.76
22	t	n-Nitroso-di-n-propylamin	1.264	1.082	14.4	107	0.00	4.86
23	t	Hexachloroethane	0.500	0.480	4.0	114	0.00	4.94
24	I	Naphthalene-d8	1.000	1.000	0.0	115	0.00	5.62
26	t	Nitrobenzene	0.496	0.439	11.5	101	0.00	4.99
28	t	Isophorone	0.806	0.771	4.3	110	-0.01	5.19
32	t	bis(2-Chloroethoxy)methan	0.447	0.420	6.0	107	0.00	5.39
36	t	1,2,4-Trichlorobenzene	0.307	0.294	4.2	110	0.00	5.56
38	t	Naphthalene	1.093	1.004	8.1	105	0.00	5.64
42	t	Hexachlorobutadiene	0.170	0.173	-1.8	115	0.00	5.77
47	I	Acenaphthene-d10	1.000	1.000	0.0	112	0.00	7.66
48	t	Hexachlorocyclopentadiene	0.349	0.306	12.3	92	0.00	6.56
52	t	2-Chloronaphthalene	1.132	1.004	11.3	101	-0.01	6.93
55	t	Dimethylphthalate	1.313	1.162	11.5	100	0.00	7.33
56	t	Acenaphthylene	1.888	1.576	16.5	94	0.00	7.47
57	t	2,6-Dinitrotoluene	0.279	0.229	17.9	86	0.00	7.39
59	t	Acenaphthene	1.176	1.094	7.0	106	0.00	7.71
63	t	2,4-Dinitrotoluene	0.388	0.293	24.5	77	0.00	7.94
65	t	Diethylphthalate	1.389	1.205	13.2	99	-0.01	8.32
66	t	Fluorene	1.295	1.181	8.8	102	0.00	8.43
67	t	4-Chlorophenyl-phenylethe	0.587	0.535	8.9	103	0.00	8.46
69	I	Phenanthrene-d10	1.000	1.000	0.0	100	0.00	9.83
71	t	n-Nitrosodiphenylamine	0.555	0.493	11.2	91	-0.01	8.63
72	t	1,2-Diphenylhydrazine	0.999	0.974	2.5	102	0.00	8.69
74	t	4-Bromophenyl-phenylether	0.187	0.188	-0.5	102	0.00	9.18
75	t	Hexachlorobenzene	0.194	0.190	2.1	102	0.00	9.25
77	t	Phenanthrene	1.085	1.030	5.1	100	-0.01	9.86
78	t	Anthracene	1.103	1.025	7.1	97	0.00	9.94
80	t	Di-n-butylphthalate	1.292	1.250	3.3	95	-0.01	10.86
81	t	Fluoranthene	1.112	1.085	2.4	98	-0.01	11.72
83	I	Chrysene-d12	1.000	1.000	0.0	108	0.00	14.02
84	t	Pyrene	1.131	0.995	12.0	98	-0.01	12.07

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV921
Lab FileID: 6P20201.D

87	t	Butylbenzylphthalate	0.539	0.501	7.1	96	0.00	13.24
88	t	Benzo[a]anthracene	1.080	0.960	11.1	98	0.00	14.00
90	t	Chrysene	1.014	0.892	12.0	98	-0.01	14.05
91	t	bis(2-Ethylhexyl)phthalat	0.694	0.663	4.5	94	0.00	14.22
92	I	Perylene-d12	1.000	1.000	0.0	110	-0.01	16.12
93	t	Di-n-octylphthalate	1.482	1.501	-1.3	94	-0.01	15.20
94	t	Benzo[b]fluoranthene	1.277	1.183	7.4	93	-0.01	15.60
95	t	Benzo[k]fluoranthene	1.140	1.119	1.8	96	-0.02	15.65
96	t	Benzo[a]pyrene	1.062	1.093	-2.9	100	0.00	16.05
97	t	Indeno[1,2,3-cd]pyrene	0.962	0.926	3.7	90	-0.02	17.59
99	t	Dibenz[a,h]anthracene	1.009	1.028	-1.9	95	-0.02	17.64
101	t	Benzo[g,h,i]perylene	1.007	0.929	7.7	89	-0.02	18.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Tue Oct 13 16:52:55 2015 RPT1

8.7.34

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV921
Lab FileID: 6P20202.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20202.D          Vial: 13
Acq On    : 13 Oct 2015   2:09 pm                   Operator: brittanp
Sample    : icv921-50                               Inst    : MS6P
Misc      : op87824,e6p922,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 15:13:34 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	114	0.00	4.54
2		1,4-Dioxane	0.684	0.592	13.5	101	0.03	2.04
6	t	Indene	2.823	2.586	8.4	103	0.00	4.74
7	t	Cumene	4.025	3.722	7.5	107	0.00	3.94
13	t	Decane	1.187	1.057	11.0	103	0.00	4.43
18	t	Acetophenone	2.307	2.114	8.4	103	0.00	4.85
24	I	Naphthalene-d8	1.000	1.000	0.0	111	0.00	5.62
26	t	Nitrobenzene	0.496	0.498	-0.4	111	-0.14	4.85
27	t	Quinoline	0.732	0.685	6.4	103	-0.02	5.97
40	t	2,3-Dichloroaniline	0.351	0.289	17.7	89	0.00	6.69
41	t	Caprolactam	0.130	0.115	11.5	92	-0.04	6.02
45	t	1-Methylnaphthalene	0.628	0.585	6.8	102	0.00	6.47
46	t	Dimethylnaphthalene	0.631	0.609	3.5	103	0.00	7.12
47	I	Acenaphthene-d10	1.000	1.000	0.0	110	0.00	7.66
53	t	Biphenyl	1.522	1.389	8.7	102	0.00	6.92
69	I	Phenanthrene-d10	1.000	1.000	0.0	102	-0.01	9.82
82	t	Octadecane	0.454	0.422	7.0	98	0.00	9.81
92	I	Perylene-d12	1.000	1.000	0.0	121	-0.01	16.12
100	t	7,12-Dimethylbenz(a)anthr	0.573	0.414	27.7	76	-0.02	15.61

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 6p20193.D  M6P921.M         Tue Oct 13 16:59:57 2015   RPT1
```

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV922
Lab FileID: 6P20202A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20202a.D          Vial: 13
Acq On    : 13 Oct 2015   2:09 pm                    Operator: brittanp
Sample    : icv922-50                                Inst    : MS6P
Misc      : op87824,e6p922,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 15:13:34 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	102	0.00	4.54
103	Benzaldehyde	1.240	1.207	2.7	99	0.00	4.21
104	Phenanthrene-d10a	1.000	1.000	0.0	105	0.00	9.82
105	Atrazine	0.092	0.104	-13.0	101	-0.01	9.48

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Tue Oct 13 16:53:02 2015 RPT1

8.7.36

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV921
Lab FileID: 6P20203.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20203.D          Vial: 14
Acq On    : 13 Oct 2015   2:35 pm                   Operator: brittanp
Sample    : icv921-50                               Inst    : MS6P
Misc      : op87824,e6p922,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 15:13:34 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	118	0.00	4.54
5	S	2-Fluorophenol	1.492	1.417	5.0	109	0.00	3.54
8	S	Phenol-d5	1.920	1.728	10.0	105	0.00	4.27
24	I	Naphthalene-d8	1.000	1.000	0.0	111	-0.01	5.61
25	S	Nitrobenzene-d5	0.468	0.464	0.9	111	0.00	4.98
47	I	Acenaphthene-d10	1.000	1.000	0.0	108	0.00	7.66
51	S	2-Fluorobiphenyl	1.272	1.318	-3.6	114	0.00	6.80
69	I	Phenanthrene-d10	1.000	1.000	0.0	98	-0.01	9.82
73	S	2,4,6-Tribromophenol	0.076	0.072	5.3	91	-0.01	8.78
83	I	Chrysene-d12	1.000	1.000	0.0	94	-0.02	14.00
86	S	Terphenyl-d14	0.764	0.793	-3.8	107	0.00	12.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Tue Oct 13 16:23:46 2015 RPT1

8.7.37

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV922
Lab FileID: 6P20204.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20204.D          Vial: 15
Acq On    : 13 Oct 2015   3:02 pm                   Operator: brittanp
Sample    : icv922-50                               Inst    : MS6P
Misc      : op87824,e6p922,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 17:17:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
112 I	Naphthalene-d8a	1.000	1.000	0.0	147	0.00	5.62
113	Hydroquinone	0.299	0.425	-42.1#	186	0.01	6.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Wed Oct 14 11:44:36 2015 RPT1

8.7.38

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV921
Lab FileID: 6P20205.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20205.D          Vial: 16
Acq On    : 13 Oct 2015   3:28 pm                   Operator: brittanp
Sample    : icv921-50                               Inst    : MS6P
Misc      : op87824,e6p922,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 17:17:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83 I	Chrysene-d12	1.000	1.000	0.0	155	-0.01	14.01
89 t	3,3'-Dichlorobenzidine	0.364	0.256	29.7	100	-0.01	14.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Wed Oct 14 11:42:58 2015 RPT1

8.7.39

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E6P922-ICV922
Lab FileID: 6P20205A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p922\6p20205A.D          Vial: 16
Acq On    : 13 Oct 2015   3:28 pm                    Operator: brittanp
Sample    : icv922-50                                Inst    : MS6P
Misc      : op87824,e6p922,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 17:17:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
107	Chrysene-d12a	1.000	1.000	0.0	155	0.00	14.01
108	Benzidine	0.554	0.470	15.2	118	0.00	11.99

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Wed Oct 14 11:43:01 2015 RPT1

8.7.40

8

Initial Calibration Verification

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E6P923-ICV921
Lab FileID: 6P20209.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p923\6p20209.D          Vial: 2
Acq On    : 13 Oct 2015   6:33 pm                   Operator: saraw
Sample    : icv921-50                               Inst    : MS6P
Misc      : op87824,e6p923,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Tue Oct 13 17:17:20 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	151	-0.01	4.53
9	t	Phenol	2.271	1.961	13.7	128	0.00	4.28
12	t	2-Chlorophenol	1.491	1.426	4.4	143	-0.01	4.38
19	t	2-Methylphenol	1.391	1.401	-0.7	150	0.00	4.73
21	t	3&4-Methylphenol	1.520	1.480	2.6	144	-0.01	4.85
24	I	Naphthalene-d8	1.000	1.000	0.0	150	-0.02	5.61
29	t	2-Nitrophenol	0.195	0.195	0.0	142	-0.01	5.26
30	t	2,4-Dimethylphenol	0.386	0.409	-6.0	155	-0.01	5.30
31		Benzoic Acid	0.291	0.284	2.4	129	0.00	5.42
33	t	2,4-Dichlorophenol	0.281	0.271	3.6	140	-0.01	5.48
34		2,6-Dichlorophenol	0.282	0.272	3.5	143	-0.01	5.69
43	t	4-Chloro-3-methylphenol	0.370	0.364	1.6	139	-0.02	6.19
47	I	Acenaphthene-d10	1.000	1.000	0.0	131	-0.02	7.65
49	t	2,4,6-Trichlorophenol	0.349	0.371	-6.3	135	-0.02	6.69
50	t	2,4,5-Trichlorophenol	0.353	0.376	-6.5	137	-0.02	6.73
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	39.486	21.0	84	-0.02	7.75
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.236	0.274	-16.1	139	0.00	7.88
64		2,3,4,6-Tetrachlorophenol	0.287	0.322	-12.2	140	-0.01	8.13
69	I	Phenanthrene-d10	1.000	1.000	0.0	142	-0.02	9.82
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	41.175	17.7	119	-0.02	8.51
		----------	AvgRF	CCRF	% Dev	----------		
76	t	Pentachlorophenol	0.127	0.118	7.1	120	-0.02	9.55

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20193.D M6P921.M Wed Oct 14 11:31:21 2015 RPT1

8.7.41

8

Continuing Calibration Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E6P948-CC921
Lab FileID: 6P20794.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e6p948\6p20794.D Vial: 2
Acq On : 30 Oct 2015 9:10 pm Operator: saraw
Sample : cc921-50 Inst : MS6P
Misc : op87824,e6p948,1000,,,1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update : Fri Oct 30 18:07:58 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	101	0.00	4.37
2		1,4-Dioxane	0.684	0.726	-6.1	110	-0.09	1.79
3	t	Pyridine	1.706	1.822	-6.8	105	-0.06	2.14
4	t	N-Nitrosodimethylamine	0.993	1.118	-12.6	113	-0.08	2.10
5	S	2-Fluorophenol	1.492	1.569	-5.2	103	-0.02	3.40
6	t	Indene	2.823	2.836	-0.5	100	-0.02	4.56
7	t	Cumene	4.025	3.960	1.6	101	-0.04	3.76
8	S	Phenol-d5	1.920	2.026	-5.5	105	-0.02	4.15
9	t	Phenol	2.271	2.249	1.0	98	-0.02	4.16
10	t	Aniline	2.552	1.997	21.7#	85	-0.02	4.13
11	t	bis(2-Chloroethyl)ether	1.473	1.611	-9.4	111	-0.03	4.17
12	t	2-Chlorophenol	1.491	1.489	0.1	100	-0.01	4.23
13	t	Decane	1.187	1.367	-15.2	118	-0.03	4.25
14	t	1,3-Dichlorobenzene	1.630	1.604	1.6	100	0.00	4.32
15	t	1,4-Dichlorobenzene	1.653	1.619	2.1	99	0.00	4.38
16	t	Benzyl alcohol	1.017	0.998	1.9	96	0.00	4.49
17	t	1,2-Dichlorobenzene	1.536	1.503	2.1	99	0.00	4.49
18	t	Acetophenone	2.307	2.221	3.7	96	-0.02	4.68
19	t	2-Methylphenol	1.391	1.415	-1.7	101	0.00	4.60
20	t	2,2'-oxybis(1-Chloropropa	0.523	0.514	1.7	98	-0.02	4.58
21	t	3&4-Methylphenol	1.520	1.598	-5.1	104	0.00	4.71
22	t	n-Nitroso-di-n-propylamin	1.264	1.333	-5.5	109	-0.02	4.69
23	t	Hexachloroethane	0.500	0.470	6.0	93	-0.03	4.75
24	I	Naphthalene-d8	1.000	1.000	0.0	101	0.00	5.41
25	S	Nitrobenzene-d5	0.468	0.520	-11.1	113	0.00	4.79
26	t	Nitrobenzene	0.496	0.494	0.4	101	0.07	4.81
27	t	Quinoline	0.732	0.717	2.0	99	-0.02	5.76
28	t	Isophorone	0.806	0.815	-1.1	102	-0.07	5.01
29	t	2-Nitrophenol	0.195	0.208	-6.7	102	-0.02	5.08
30	t	2,4-Dimethylphenol	0.386	0.370	4.1	95	0.00	5.14
31		Benzoic Acid	0.291	0.307	-5.5	94	0.07	5.30
32	t	bis(2-Chloroethoxy)methan	0.447	0.458	-2.5	103	0.00	5.20
33	t	2,4-Dichlorophenol	0.281	0.281	0.0	98	0.10	5.31
34		2,6-Dichlorophenol	0.282	0.265	6.0	94	0.00	5.51
35	t	1,3,5-Trichlorobenzene	0.328	0.303	7.6	93	0.02	5.08
36	t	1,2,4-Trichlorobenzene	0.307	0.288	6.2	95	0.03	5.36
37	t	1,2,3-Trichlorobenzene	0.304	0.278	8.6	91	0.03	5.57
38	t	Naphthalene	1.093	1.075	1.6	99	0.00	5.43
39	t	4-Chloroaniline	0.451	0.379	16.0	84	0.00	5.49
40	t	2,3-Dichloroaniline	0.351	0.334	4.8	94	0.12	6.47
41	t	Caprolactam	0.130	0.154	-18.5	113	0.05	5.88

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E6P948-CC921
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P20794.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.170	0.146	14.1	86	0.00	5.55
43	t	4-Chloro-3-methylphenol	0.370	0.365	1.4	94	-0.03	6.03
44	t	2-Methylnaphthalene	0.608	0.588	3.3	96	0.00	6.14
45	t	1-Methylnaphthalene	0.628	0.610	2.9	97	0.03	6.24
46	t	Dimethylnaphthalene	0.631	0.614	2.7	95	0.12	6.88
47	I	Acenaphthene-d10	1.000	1.000	0.0	98	0.00	7.41
48	t	Hexachlorocyclopentadiene	0.349	0.278	20.3#	73	0.00	6.32
49	t	2,4,6-Trichlorophenol	0.349	0.328	6.0	89	0.00	6.48
50	t	2,4,5-Trichlorophenol	0.353	0.337	4.5	92	-0.03	6.55
51	S	2-Fluorobiphenyl	1.272	1.350	-6.1	106	0.00	6.56
52	t	2-Chloronaphthalene	1.132	1.069	5.6	94	0.00	6.70
53	t	Biphenyl	1.522	1.454	4.5	95	0.00	6.69
54	t	2-Nitroaniline	0.442	0.467	-5.7	100	0.01	6.85
55	t	Dimethylphthalate	1.313	1.228	6.5	92	-0.02	7.09
56	t	Acenaphthylene	1.888	1.860	1.5	97	0.00	7.22
57	t	2,6-Dinitrotoluene	0.279	0.288	-3.2	95	0.01	7.17
58	t	3-Nitroaniline	0.337	0.312	7.4	87	0.02	7.39
59	t	Acenaphthene	1.176	1.141	3.0	97	0.00	7.46
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	109.050	-9.0	106	0.05	7.55
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.236	0.188	20.3#	72	0.08	7.75
62	t	Dibenzofuran	1.651	1.518	8.1	93	0.00	7.69
63	t	2,4-Dinitrotoluene	0.388	0.397	-2.3	92	0.02	7.72
64		2,3,4,6-Tetrachlorophenol	0.287	0.264	8.0	86	0.03	7.90
65	t	Diethylphthalate	1.389	1.243	10.5	89	0.01	8.08
66	t	Fluorene	1.295	1.254	3.2	95	0.02	8.18
67	t	4-Chlorophenyl-phenylethe	0.587	0.539	8.2	91	0.01	8.20
68	t	4-Nitroaniline	0.334	0.313	6.3	88	0.04	8.26
69	I	Phenanthrene-d10	1.000	1.000	0.0	90	0.00	9.56
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	53.967	-7.9	101	0.00	8.31
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.555	0.567	-2.2	94	0.06	8.38
72	t	1,2-Diphenylhydrazine	0.999	1.051	-5.2	98	0.00	8.43
73	S	2,4,6-Tribromophenol	0.076	0.071	6.6	82	-0.05	8.54
74	t	4-Bromophenyl-phenylether	0.187	0.178	4.8	86	-0.06	8.91
75	t	Hexachlorobenzene	0.194	0.171	11.9	83	-0.05	9.00
76	t	Pentachlorophenol	0.127	0.117	7.9	75	-0.03	9.33
77	t	Phenanthrene	1.085	1.088	-0.3	95	-0.02	9.60
78	t	Anthracene	1.103	1.115	-1.1	95	0.00	9.68
79	t	Carbazole	1.039	1.044	-0.5	94	-0.05	9.97
80	t	Di-n-butylphthalate	1.292	1.353	-4.7	93	0.00	10.60
81	t	Fluoranthene	1.112	1.150	-3.4	94	-0.09	11.45
82	t	Octadecane	0.454	0.539	-18.7	110	-0.06	9.54
83	I	Chrysene-d12	1.000	1.000	0.0	86	0.00	13.75
84	t	Pyrene	1.131	1.204	-6.5	94	0.03	11.80
85		Butyl stearate	0.260	0.381	-46.5#	119	-0.10	13.15
86	S	Terphenyl-d14	0.764	0.796	-4.2	98	0.00	12.12
87	t	Butylbenzylphthalate	0.539	0.624	-15.8	95	-0.11	12.97
88	t	Benzo[a]anthracene	1.080	1.080	0.0	88	0.02	13.73
89	t	3,3'-Dichlorobenzidine	0.364	0.348	4.4	76	-0.09	13.75
90	t	Chrysene	1.014	1.022	-0.8	90	-0.01	13.78

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E6P948-CC921
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P20794.D
Project: Sunoco - Marcus Hook Facility, PA

91	t	bis(2-Ethylhexyl)phthalat	0.694	0.867	-24.9#	99	-0.13	13.94
92	I	Perylene-d12	1.000	1.000	0.0	99	0.00	15.86
93	t	Di-n-octylphthalate	1.482	1.795	-21.1#	101	0.05	14.93
94	t	Benzo[b]fluoranthene	1.277	1.274	0.2	90	0.01	15.35
95	t	Benzo[k]fluoranthene	1.140	1.115	2.2	86	0.00	15.39
96	t	Benzo[a]pyrene	1.062	1.088	-2.4	89	0.10	15.79
97	t	Indeno[1,2,3-cd]pyrene	0.962	1.092	-13.5	95	0.14	17.28
98	t	Dibenz(a,h)acridine	0.891	0.942	-5.7	89	0.11	16.97
99	t	Dibenz[a,h]anthracene	1.009	1.094	-8.4	90	-0.01	17.31
100	t	7,12-Dimethylbenz(a)anthr	0.573	0.582	-1.6	87	-0.06	15.35
101	t	Benzo[g,h,i]perylene	1.007	1.055	-4.8	91	-0.07	17.66

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20377.D M6P921.M Mon Nov 02 08:10:12 2015 RPT1

8.7.42

8

Continuing Calibration Summary

Job Number: JC7291 **Sample:** E6P948-CC922
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P20795.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p948\6p20795.D          Vial: 3
Acq On    : 30 Oct 2015   9:52 pm                   Operator: saraw
Sample    : cc922-50                                Inst    : MS6P
Misc      : op87824,e6p948,1000,,,1,1               Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P921.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Fri Oct 30 18:07:58 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	115	0.00	4.37
103	Benzaldehyde	1.240	1.092	11.9	101	0.00	4.03
104	Phenanthrene-d10a	1.000	1.000	0.0	110	-0.01	9.55
105	Atrazine	0.092	0.106	-15.2	108	0.00	9.24
106	Chrysene-d12a	1.000	1.000	0.0	106	-0.01	13.74
107	Benzidine	0.554	0.376	32.1#	64	0.05	11.73
108	Acenaphthene-d10a	1.000	1.000	0.0	113	0.00	7.41
109	1,2,4,5-Tetrachlorobenzen	0.495	0.449	9.3	104	-0.13	6.33
110 I	Naphthalene-d8a	1.000	1.000	0.0	111	0.00	5.40
111	Hydroquinone	0.299	0.373	-24.7#	123	0.07	5.89

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p20377.D M6P921.M Mon Nov 02 08:10:14 2015 RPT1

8.7.43

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
11/10/15 18:37

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22849.D
Acq On : 5 Nov 15 7:58 pm
Operator : alicjap
Sample : jc7291-1
Misc : op88533,e5p1168,30.6
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Nov 06 09:36:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.241	152	303775	40.00	ppm	0.00
24) Naphthalene-d8	6.710	136	1078296	40.00	ppm	0.00
47) Acenaphthene-d10	8.836	164	668265	40.00	ppm	0.02
69) Phenanthrene-d10	10.663	188	1230216	40.00	ppm	0.02
83) Chrysene-d12	14.461	240	1409367	40.00	ppm	0.02
92) Perylene-d12	16.540	264	1455275	40.00	ppm	0.03
102) 1,4-Dichlorobenzene-d4a	5.241	152	301800	40.00	ppm	0.00
104) Acenaphthene-d10a	8.836	164	668265	40.00	ppm	0.02
106) Chrysene-d12a	14.461	240	1409367	40.00	ppm	0.03
108) Phenanthrene-d10a	10.663	188	1230216	40.00	ppm	0.02
110) Naphthalene-d8a	6.710	136	1082086	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.873	112	419381	38.42	ppm	0.00
Spiked Amount 50.000			Recovery = 76.84%			
8) Phenol-d5	4.872	99	508215	38.93	ppm	0.00
Spiked Amount 50.000			Recovery = 77.86%			
25) Nitrobenzene-d5	5.866	82	455132	48.89	ppm	0.00
Spiked Amount 50.000			Recovery = 97.78%			
51) 2-Fluorobiphenyl	8.024	172	799394	37.80	ppm	0.00
Spiked Amount 50.000			Recovery = 75.60%			
73) 2,4,6-Tribromophenol	9.798	330	140847	41.60	ppm	0.01
Spiked Amount 50.000			Recovery = 83.20%			
85) Terphenyl-d14	12.907	244	1203729	41.68	ppm	0.02
Spiked Amount 50.000			Recovery = 83.36%			
Target Compounds						Qvalue
30) 2,4-Dimethylphenol	6.304	107	86414m	10.33	ppm	
44) 2-Methylnaphthalene	7.570	141	403173	24.79	ppm	92
53) Biphenyl	8.136	154	27716	1.12	ppm	68
59) Acenaphthene	8.868	153	102131	5.05	ppm	97
66) Fluorene	9.498	166	506956	22.08	ppm	93
77) Phenanthrene	10.695	178	1630295	42.54	ppm	99
81) Fluoranthene	12.324	202	88682	2.28	ppm	86
84) Pyrene	12.640	202	294067	6.06	ppm	88
88) Benzo[a]anthracene	14.445	228	60553	1.42	ppm	93
90) Chrysene	14.483	228	208194	4.93	ppm	96
94) Benzo[b]fluoranthene	16.016	252	52829	1.24	ppm	62
96) Benzo[a]pyrene	16.454	252	37493	0.95	ppm	82
101) Benzo[g,h,i]perylene	18.596	276	26034	0.61	ppm	78

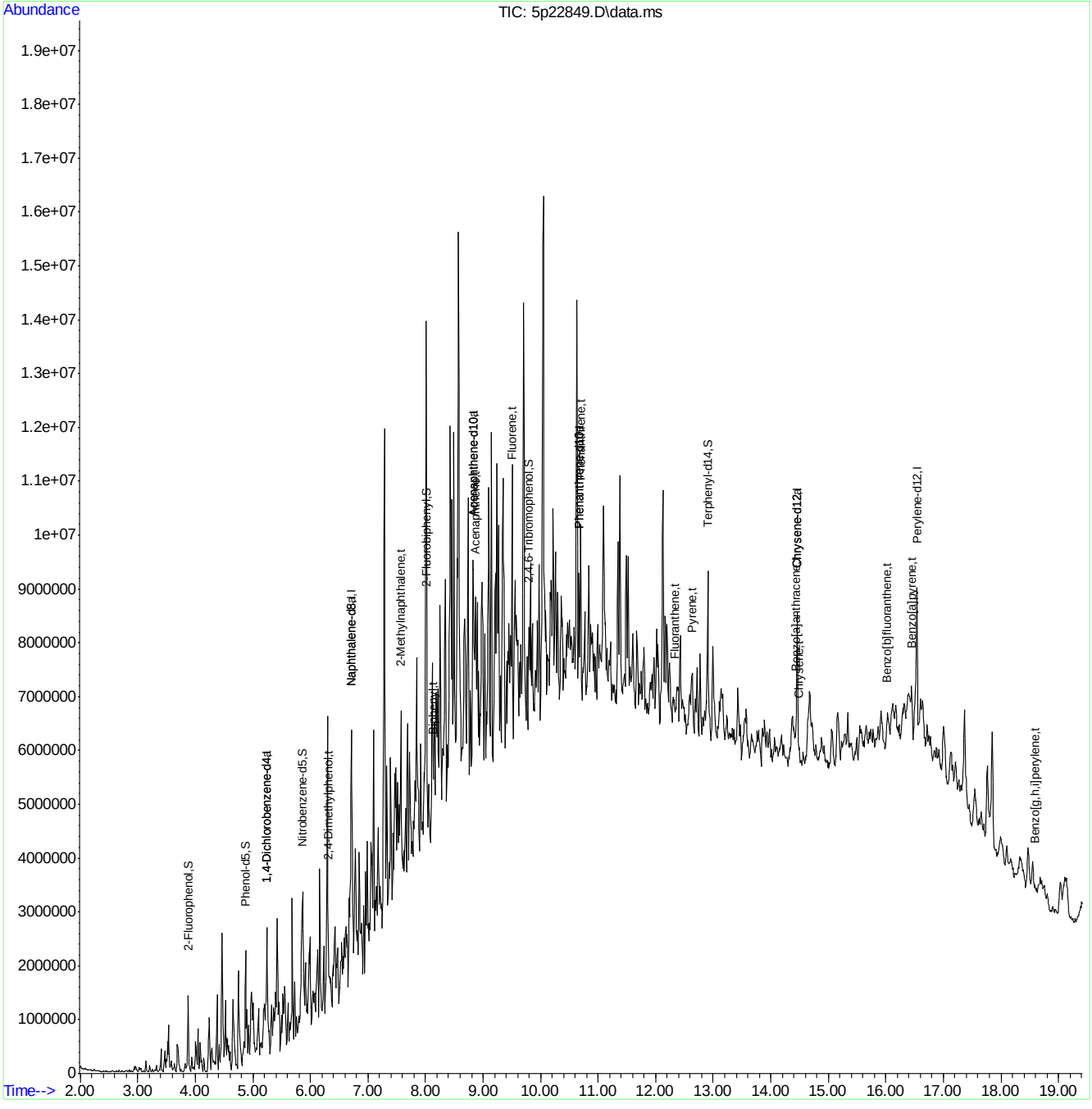
(#) = qualifier out of range (m) = manual integration (+) = signals summed

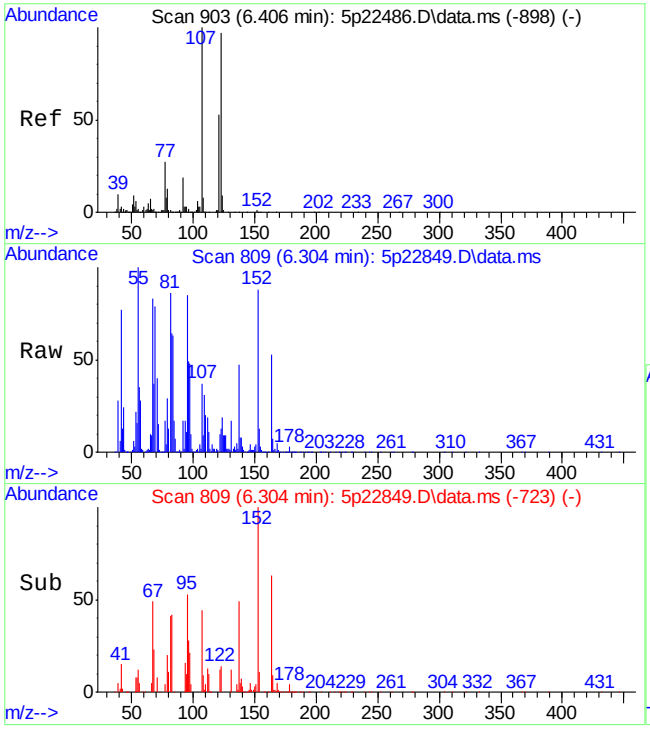
9.1.1
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22849.D
Acq On : 5 Nov 15 7:58 pm
Operator : alicjap
Sample : jc7291-1
Misc : op88533,e5p1168,30.6
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Nov 06 09:36:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

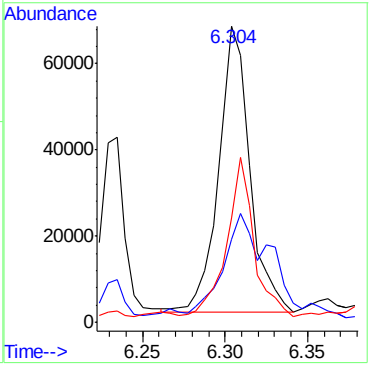


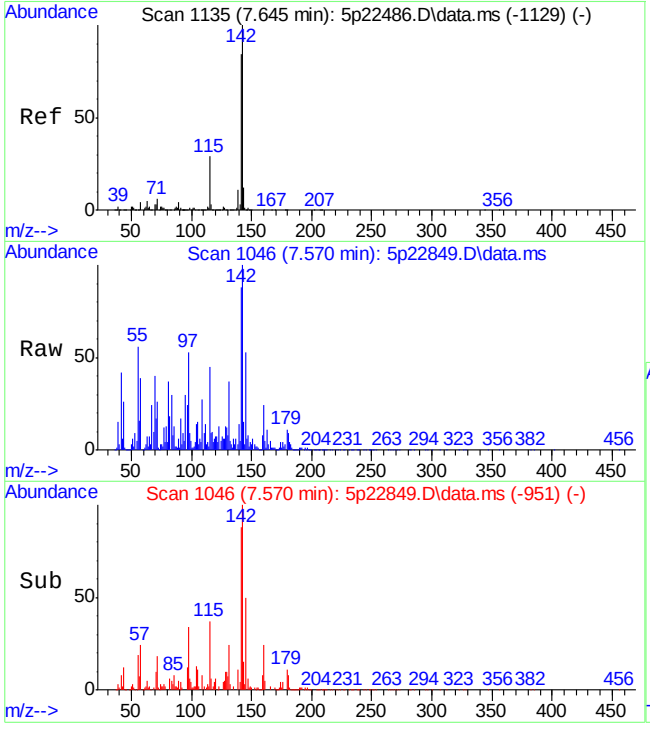


#30
2,4-Dimethylphenol
Concen: 10.33 ppm m
RT: 6.304 min Scan# 809
Delta R.T. -0.043 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:107 Resp: 86414

Ion	Ratio	Lower	Upper
107	100		
121	28.1	23.3	83.3
122	35.2	67.2	127.2#

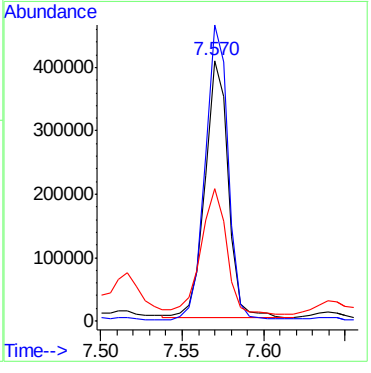


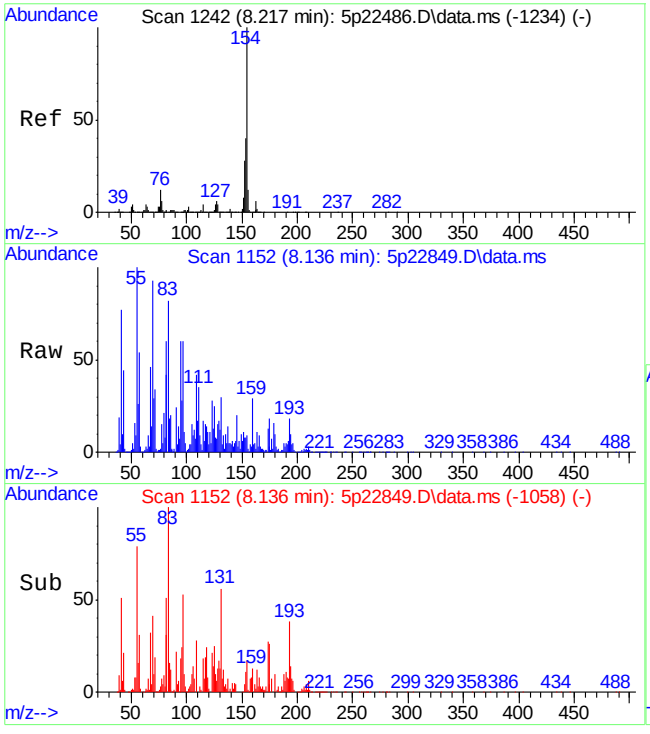


#44
2-Methylnaphthalene
Concen: 24.79 ppm
RT: 7.570 min Scan# 1046
Delta R.T. 0.005 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:141 Resp: 403173

Ion	Ratio	Lower	Upper
141	100		
142	115.0	88.6	148.6
115	48.1	5.3	65.3

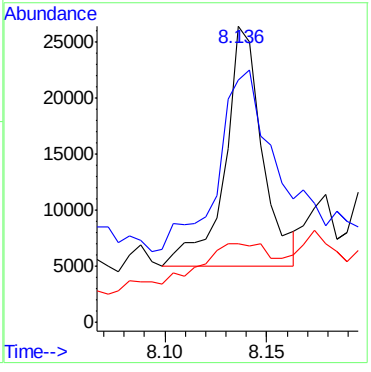


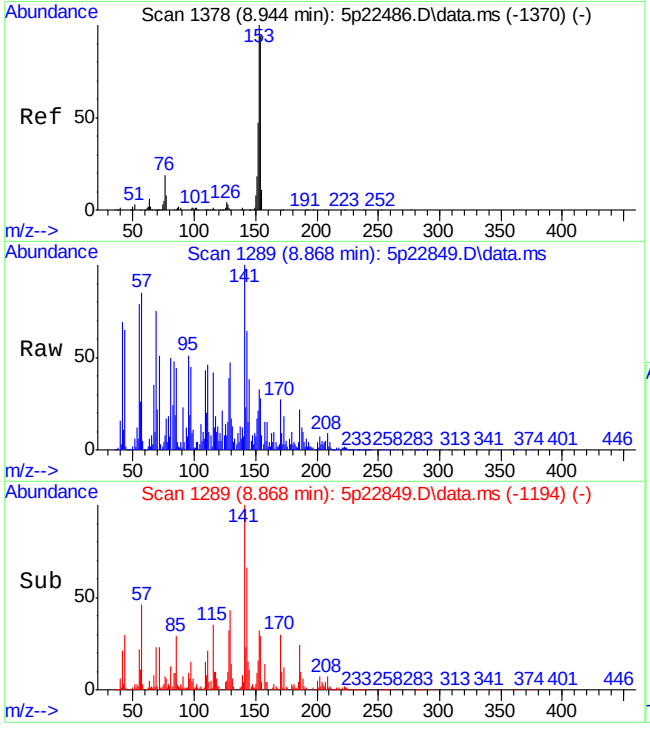


#53
Biphenyl
Concen: 1.12 ppm
RT: 8.136 min Scan# 1152
Delta R.T. -0.000 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:154 Resp: 27716

Ion	Ratio	Lower	Upper
154	100		
153	64.9	9.1	69.1
155	11.9	0.0	43.2

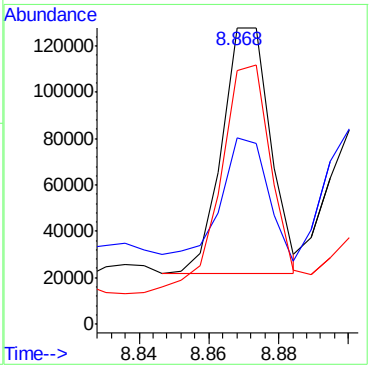


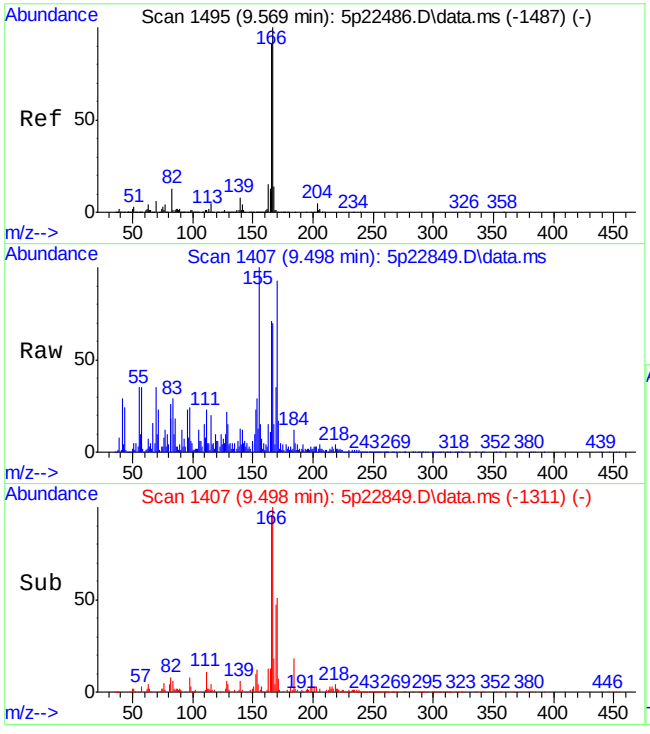


#59
Acenaphthene
Concen: 5.05 ppm
RT: 8.868 min Scan# 1289
Delta R.T. 0.005 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:153 Resp: 102131

Ion	Ratio	Lower	Upper
153	100		
152	50.9	16.1	76.1
154	88.4	57.7	117.7

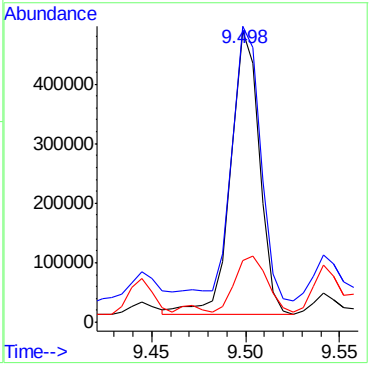


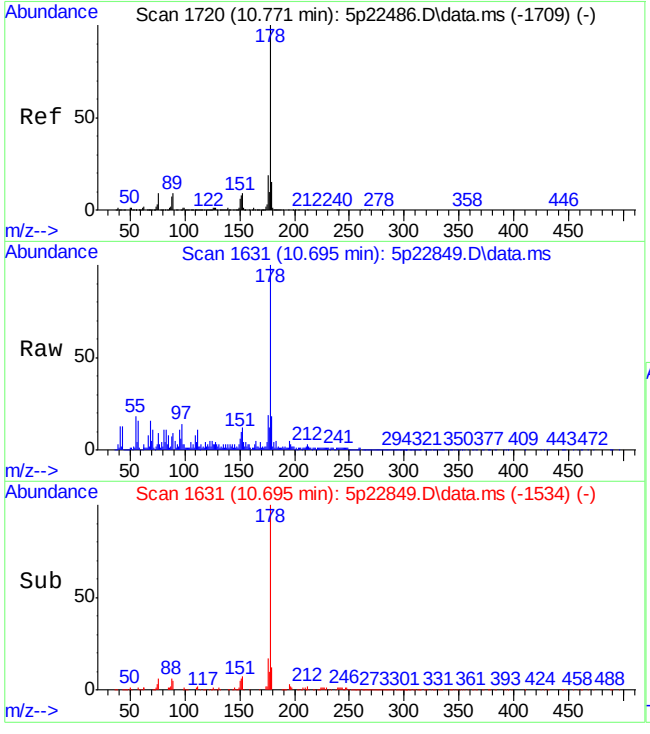


#66
Fluorene
Concen: 22.08 ppm
RT: 9.498 min Scan# 1407
Delta R.T. 0.010 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:166 Resp: 506956

Ion	Ratio	Lower	Upper
166	100		
165	96.0	60.3	120.3
167	17.5	0.0	43.3

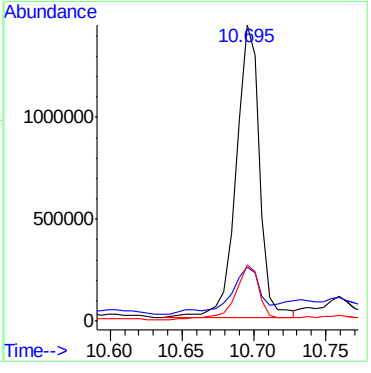




#77
Phenanthrene
Concen: 42.54 ppm
RT: 10.695 min Scan# 1631
Delta R.T. 0.016 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

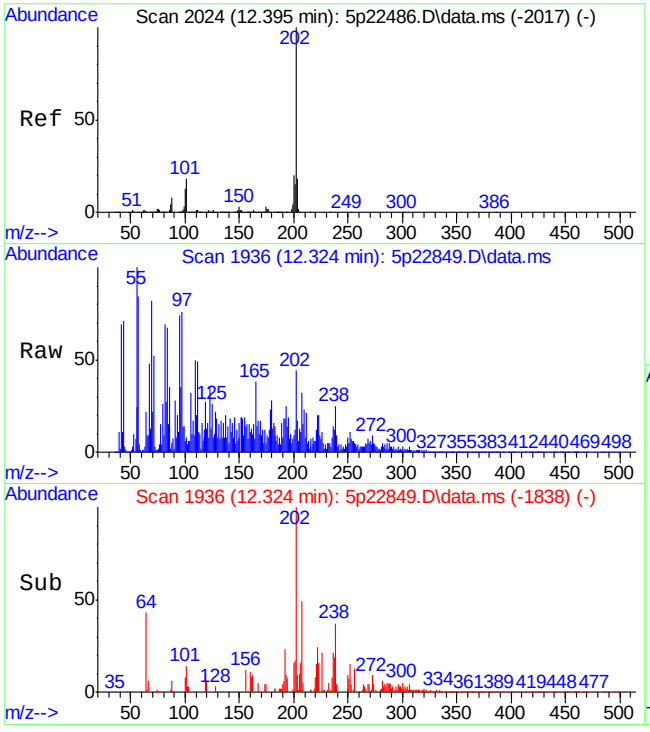
Tgt Ion:178 Resp: 1630295

Ion	Ratio	Lower	Upper
178	100		
179	14.1	0.0	45.2
176	18.6	0.0	48.8



9.1.1

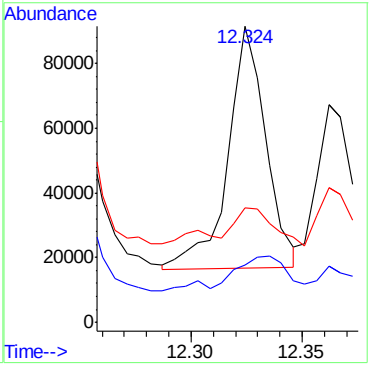
9

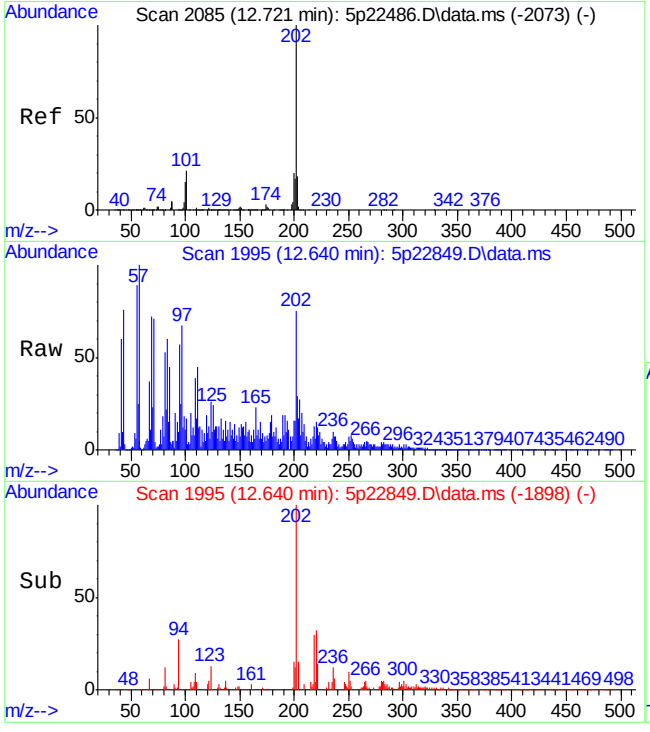


#81
Fluoranthene
Concen: 2.28 ppm
RT: 12.324 min Scan# 1936
Delta R.T. 0.021 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:202 Resp: 88682

Ion	Ratio	Lower	Upper
202	100		
101	8.7	0.0	47.7
203	14.4	0.0	47.6

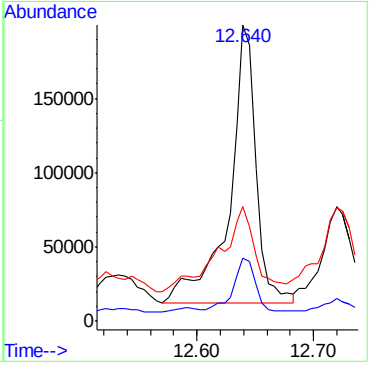


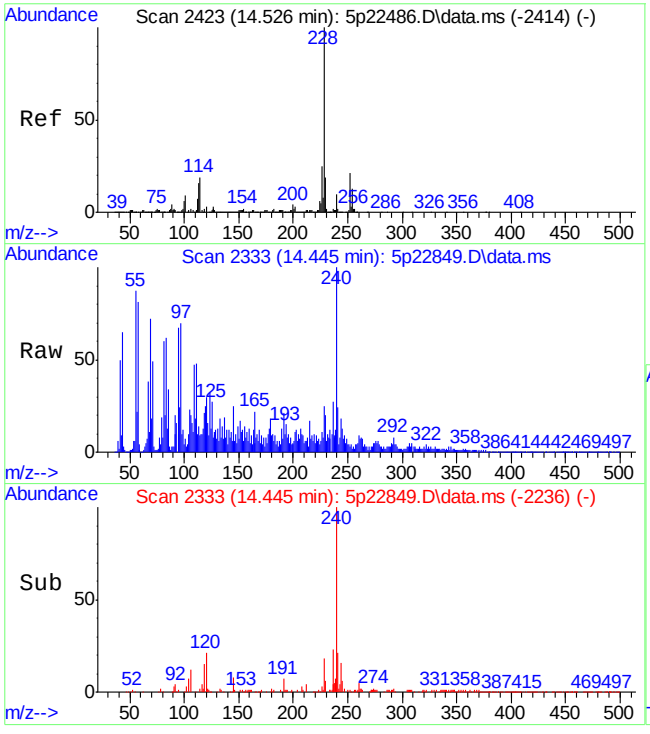


#84
Pyrene
Concen: 6.06 ppm
RT: 12.640 min Scan# 1995
Delta R.T. 0.016 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:202 Resp: 294067

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	49.9
203	29.1	0.0	48.3

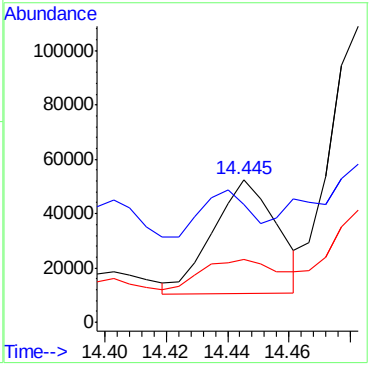


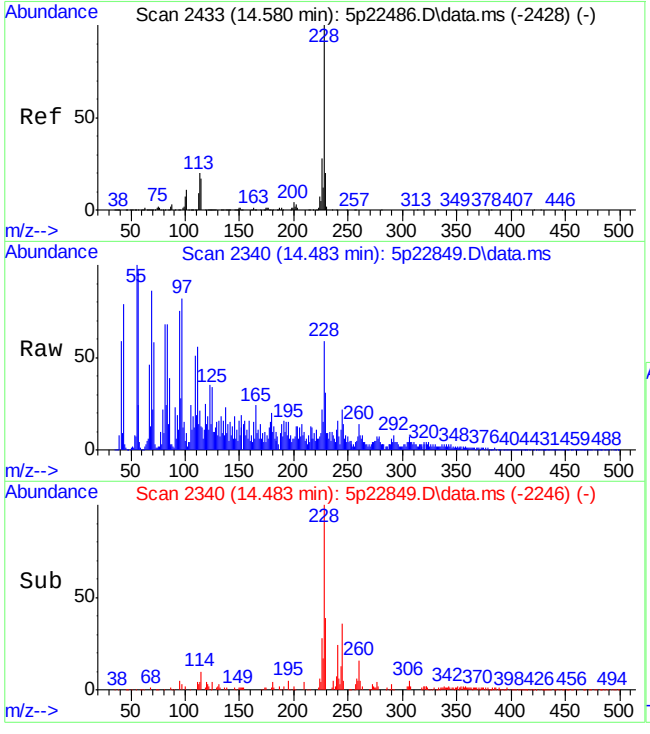


#88
Benzo[a]anthracene
Concen: 1.42 ppm
RT: 14.445 min Scan# 2333
Delta R.T. 0.016 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:228 Resp: 60553

Ion	Ratio	Lower	Upper
228	100		
229	15.5	0.0	50.3
226	24.1	0.0	56.5

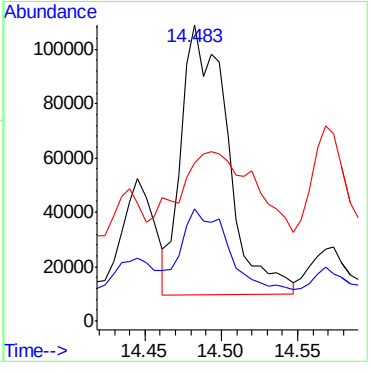


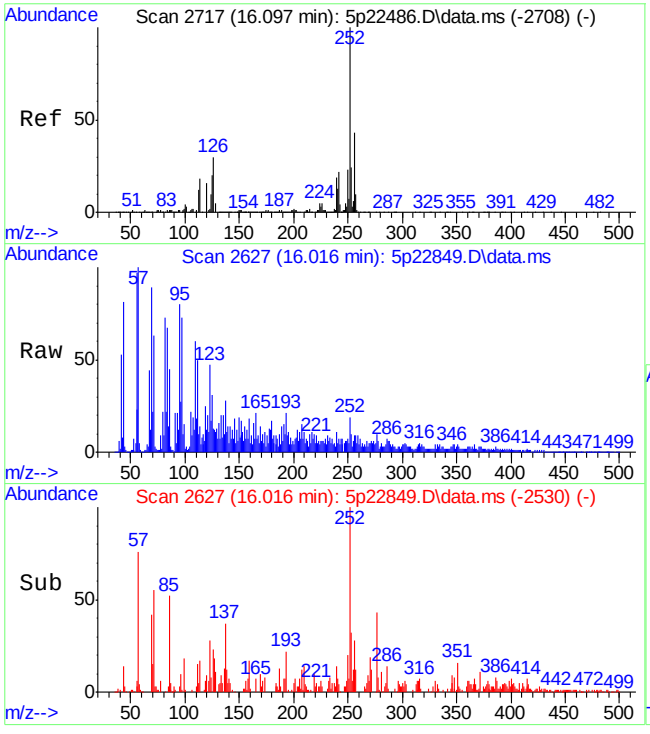


#90
Chrysene
Concen: 4.93 ppm
RT: 14.483 min Scan# 2340
Delta R.T. -0.000 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:228 Resp: 208194

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.0	57.6
229	21.8	0.0	49.4

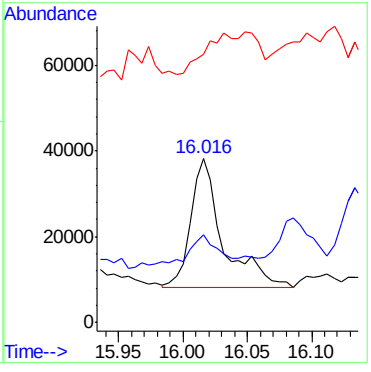


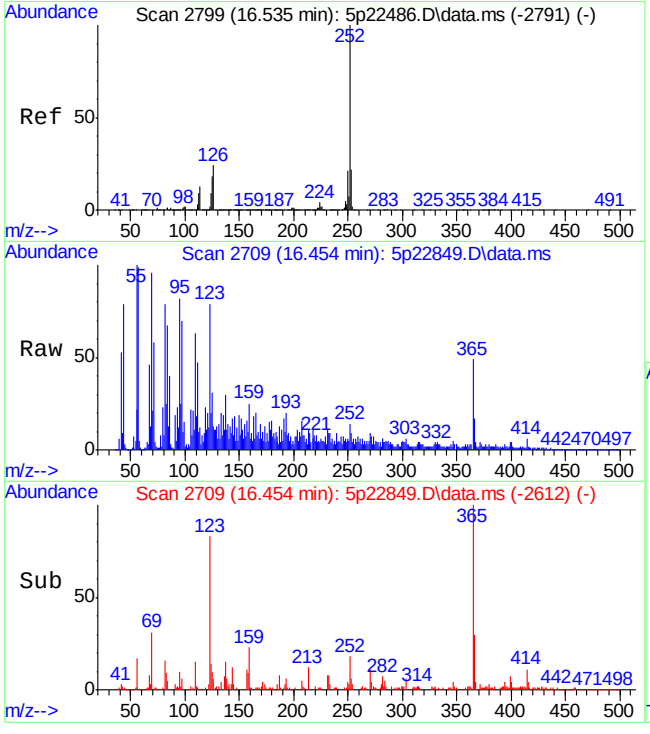


#94
Benzo[b]fluoranthene
Concen: 1.24 ppm
RT: 16.016 min Scan# 2627
Delta R.T. 0.016 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:252 Resp: 52829

Ion	Ratio	Lower	Upper
252	100		
253	3.8	0.0	54.3
125	3.0	0.0	48.2

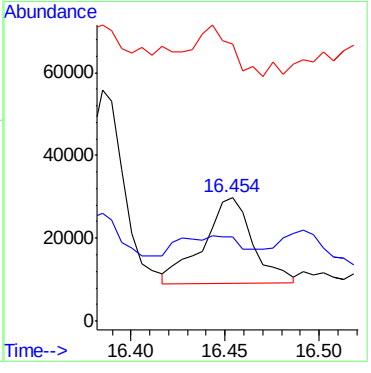




#96
Benzo[a]pyrene
Concen: 0.95 ppm
RT: 16.454 min Scan# 2709
Delta R.T. 0.016 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

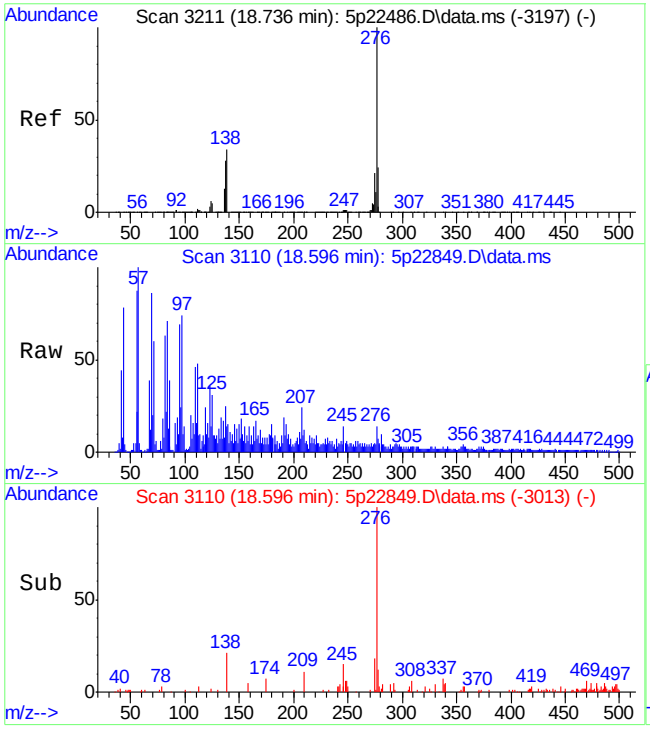
Tgt Ion:252 Resp: 37493

Ion	Ratio	Lower	Upper
252	100		
253	9.9	0.0	51.9
125	14.7	0.0	49.2



9.1.1

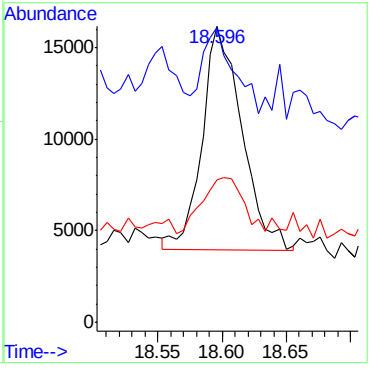
9



#101
Benzo[g,h,i]perylene
Concen: 0.61 ppm
RT: 18.596 min Scan# 3110
Delta R.T. 0.016 min
Lab File: 5p22849.D
Acq: 5 Nov 15 7:58 pm

Tgt Ion:276 Resp: 26034

Ion	Ratio	Lower	Upper
276	100		
138	19.2	5.7	65.7
277	17.7	0.0	54.3



9.1.1

9

Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
11/10/15 18:37

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22980.D
Acq On : 9 Nov 2015 4:45 pm
Operator : alicjap
Sample : jc7291-1
Misc : op88533,e5p1173,30.6,,,1,2
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 10 08:52:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

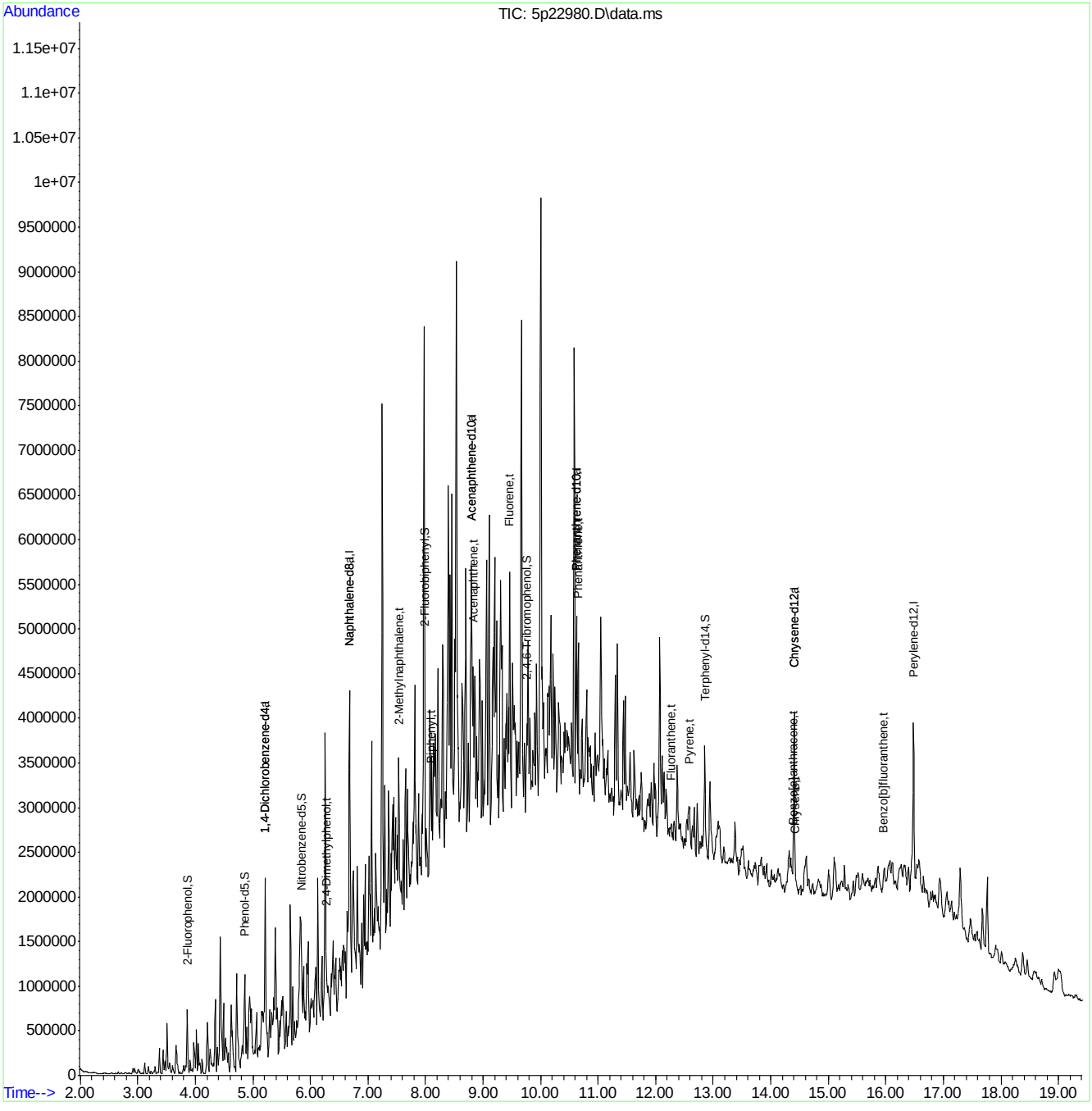
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.209	152	287586	40.00	ppm	-0.03
24) Naphthalene-d8	6.678	136	995073	40.00	ppm	-0.03
47) Acenaphthene-d10	8.799	164	571426	40.00	ppm	-0.02
69) Phenanthrene-d10	10.626	188	929335	40.00	ppm	-0.02
83) Chrysene-d12	14.408	240	877299	40.00	ppm	-0.03
92) Perylene-d12	16.481	264	868229	40.00	ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	5.209	152	287152	40.00	ppm	-0.03
104) Acenaphthene-d10a	8.799	164	571426	40.00	ppm	-0.02
106) Chrysene-d12a	14.408	240	877299	40.00	ppm	-0.03
108) Phenanthrene-d10a	10.626	188	929335	40.00	ppm	-0.02
110) Naphthalene-d8a	6.678	136	996807	40.00	ppm	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	3.857	112	221833	21.47	ppm	-0.02
Spiked Amount 50.000			Recovery = 42.94%			
8) Phenol-d5	4.856	99	272871	22.08	ppm	-0.02
Spiked Amount 50.000			Recovery = 44.16%			
25) Nitrobenzene-d5	5.839	82	260828	30.36	ppm	-0.03
Spiked Amount 50.000			Recovery = 60.72%			
51) 2-Fluorobiphenyl	7.987	172	413066	22.85	ppm	-0.03
Spiked Amount 50.000			Recovery = 45.70%			
73) 2,4,6-Tribromophenol	9.760	330	54064	21.14	ppm	-0.03
Spiked Amount 50.000			Recovery = 42.28%			
85) Terphenyl-d14	12.854	244	429834	23.91	ppm	-0.03
Spiked Amount 50.000			Recovery = 47.82%			
Target Compounds						Qvalue
30) 2,4-Dimethylphenol	6.272	107	44510m	5.77	ppm	
44) 2-Methylnaphthalene	7.538	141	198097	13.20	ppm	95
53) Biphenyl	8.104	154	14674	0.69	ppm	67
59) Acenaphthene	8.831	153	50864	2.94	ppm	99
66) Fluorene	9.461	166	232559	11.85	ppm	91
77) Phenanthrene	10.653	178	680979	23.52	ppm	99
81) Fluoranthene	12.271	202	35960	1.23	ppm	94
84) Pyrene	12.592	202	91763	3.04	ppm	89
88) Benzo[a]anthracene	14.387	228	22991	0.87	ppm	84
90) Chrysene	14.429	228	71106	2.70	ppm	98
94) Benzo[b]fluoranthene	15.957	252	17892	0.71	ppm	71

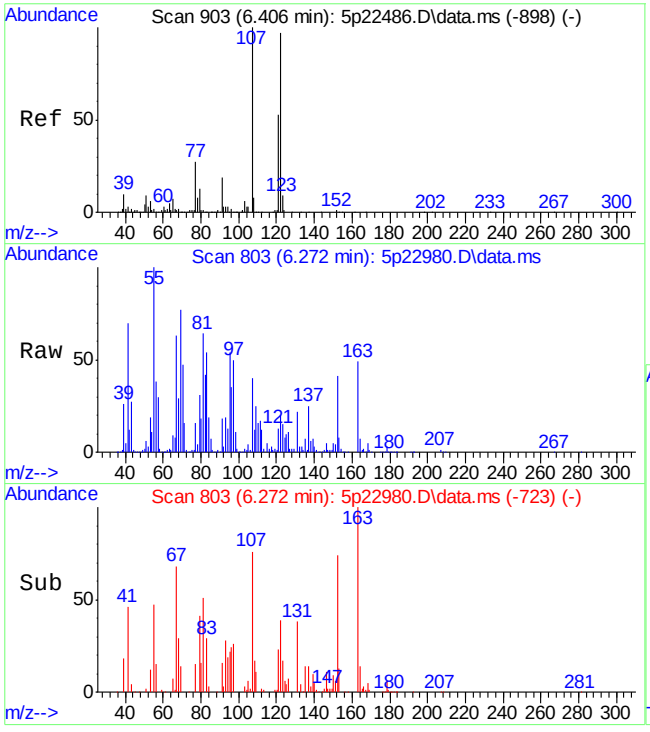
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22980.D
Acq On : 9 Nov 2015 4:45 pm
Operator : alicjap
Sample : jc7291-1
Misc : op88533,e5p1173,30.6,,,1,2
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 10 08:52:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

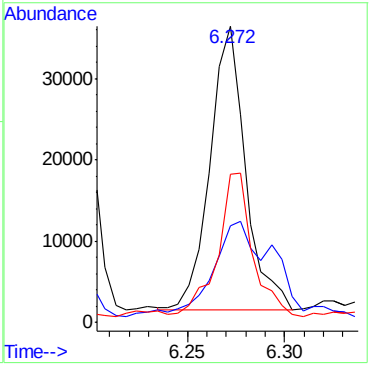


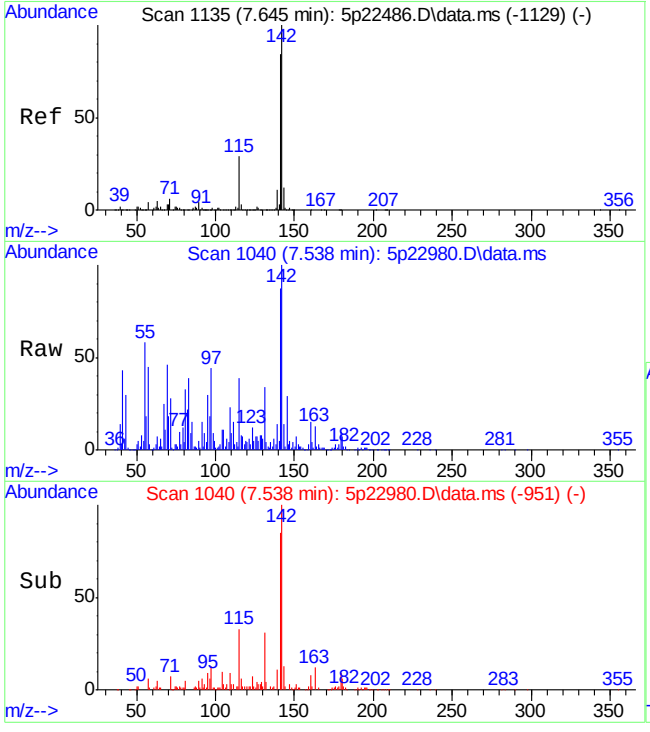


#30
2,4-Dimethylphenol
Concen: 5.77 ppm m
RT: 6.272 min Scan# 803
Delta R.T. -0.075 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:107 Resp: 44510

Ion	Ratio	Lower	Upper
107	100		
121	32.6	23.3	83.3
122	49.9	67.2	127.2#

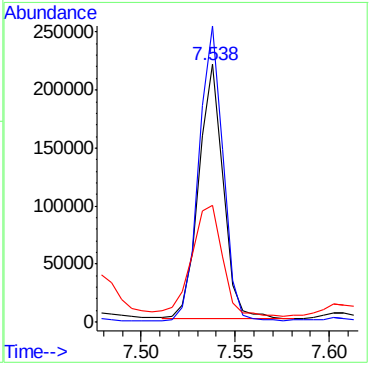


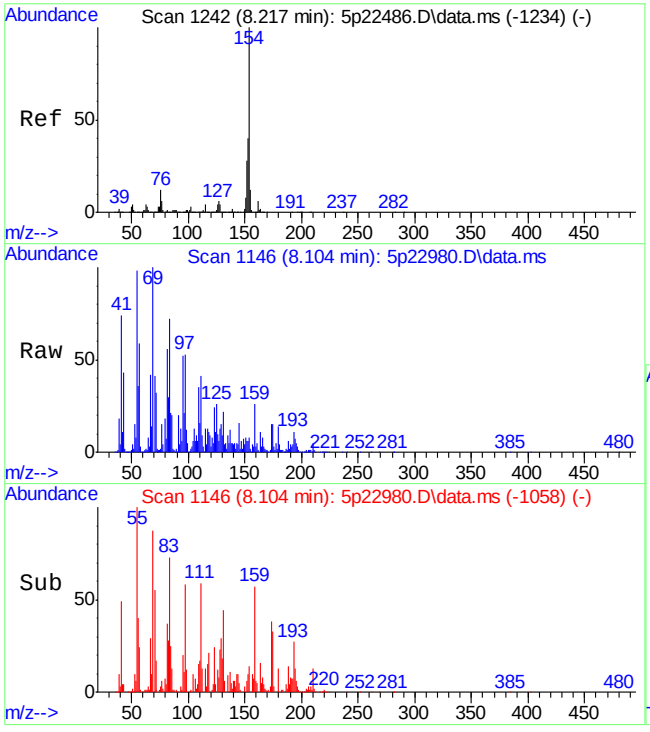


#44
2-Methylnaphthalene
Concen: 13.20 ppm
RT: 7.538 min Scan# 1040
Delta R.T. -0.027 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:141 Resp: 198097

Ion	Ratio	Lower	Upper
141	100		
142	116.0	88.6	148.6
115	42.5	5.3	65.3

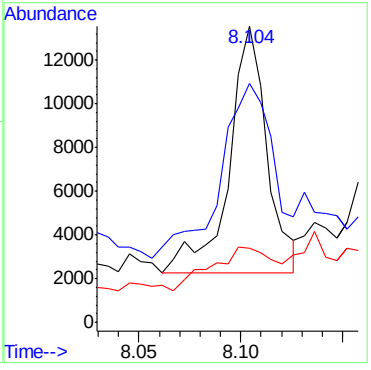


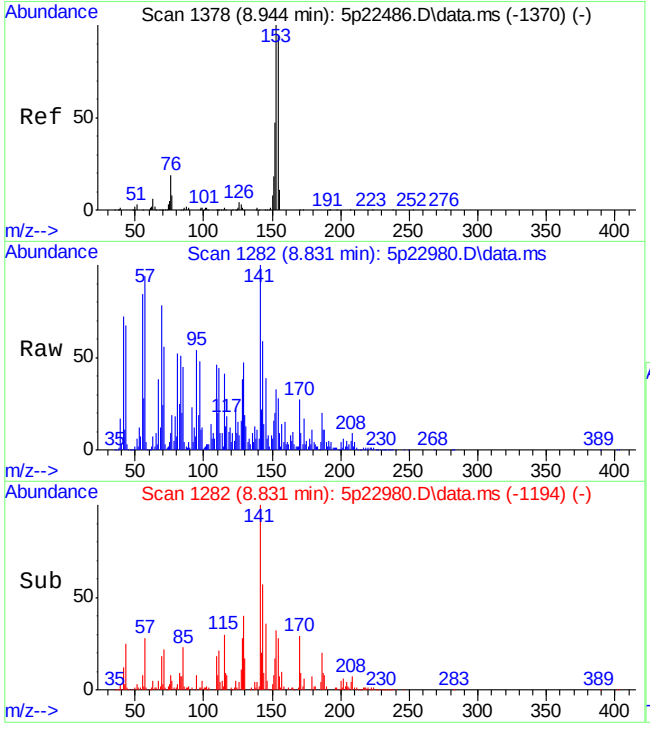


#53
Biphenyl
Concen: 0.69 ppm
RT: 8.104 min Scan# 1146
Delta R.T. -0.032 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:154 Resp: 14674

Ion	Ratio	Lower	Upper
154	100		
153	64.5	9.1	69.1
155	9.4	0.0	43.2

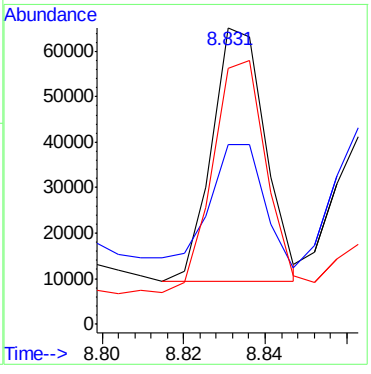


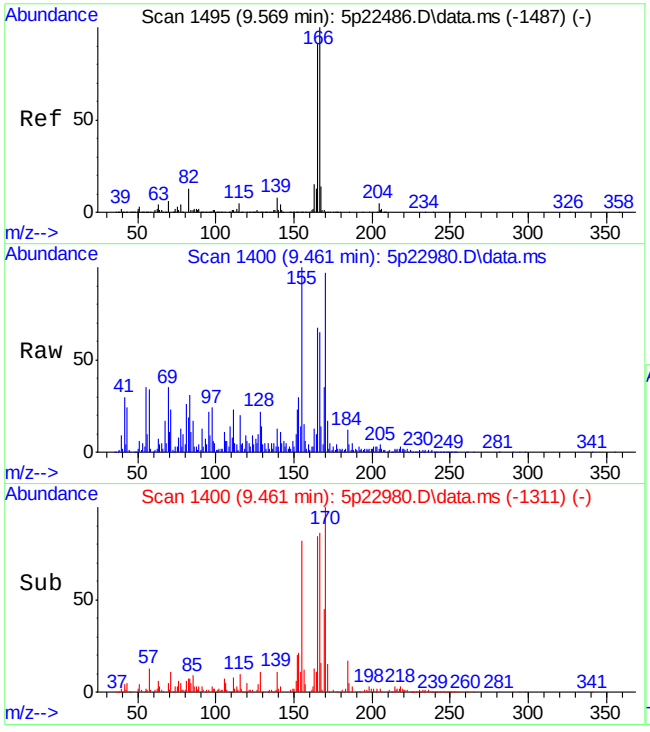


#59
Acenaphthene
Concen: 2.94 ppm
RT: 8.831 min Scan# 1282
Delta R.T. -0.032 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:153 Resp: 50864

Ion	Ratio	Lower	Upper
153	100		
152	48.4	16.1	76.1
154	88.1	57.7	117.7

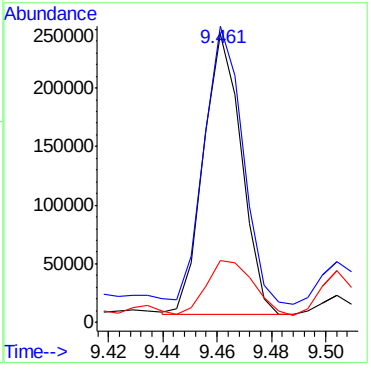


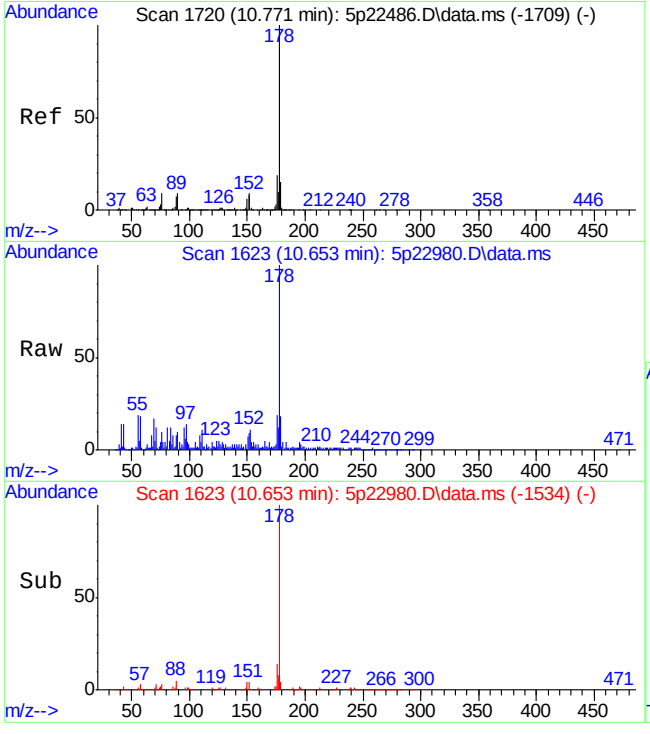


#66
Fluorene
Concen: 11.85 ppm
RT: 9.461 min Scan# 1400
Delta R.T. -0.027 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:166 Resp: 232559

Ion	Ratio	Lower	Upper
166	100		
165	98.6	60.3	120.3
167	18.8	0.0	43.3

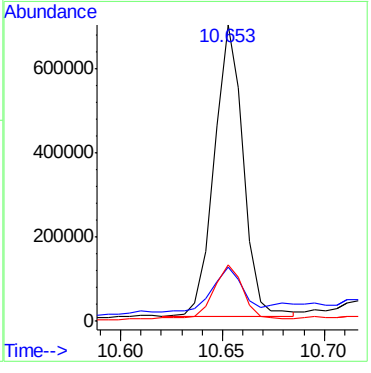




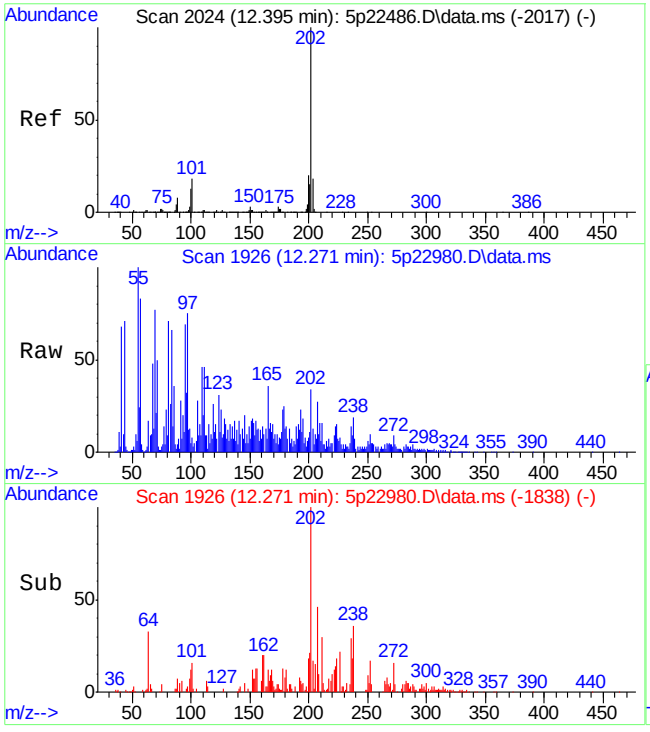
#77
Phenanthrene
Concen: 23.52 ppm
RT: 10.653 min Scan# 1623
Delta R.T. -0.027 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:178 Resp: 680979

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	45.2
176	18.5	0.0	48.8



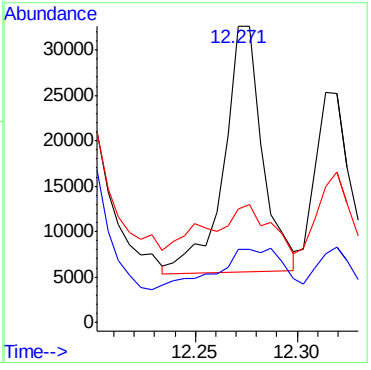
9.1.2
9

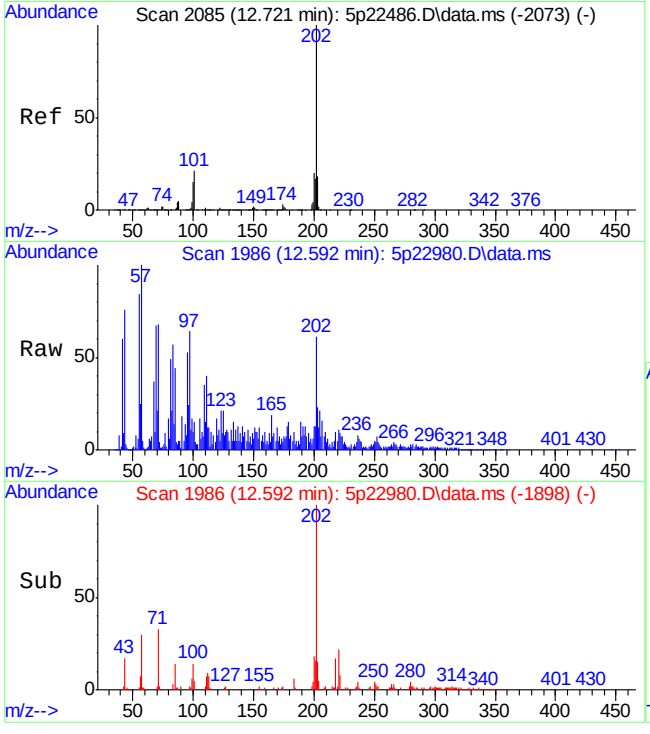


#81
Fluoranthene
Concen: 1.23 ppm
RT: 12.271 min Scan# 1926
Delta R.T. -0.032 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:202 Resp: 35960

Ion	Ratio	Lower	Upper
202	100		
101	13.9	0.0	47.7
203	18.7	0.0	47.6

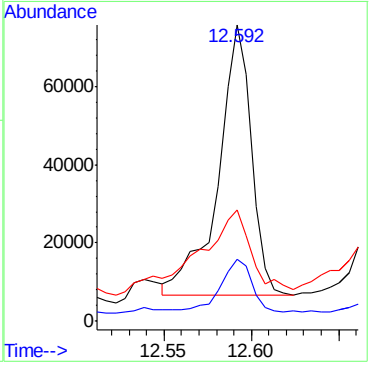




#84
Pyrene
Concen: 3.04 ppm
RT: 12.592 min Scan# 1986
Delta R.T. -0.032 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

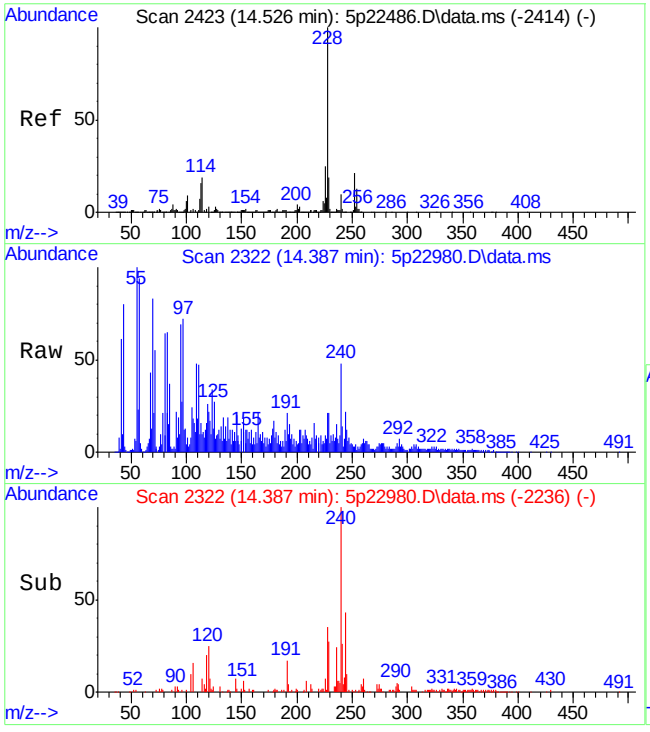
Tgt Ion:202 Resp: 91763

Ion	Ratio	Lower	Upper
202	100		
200	19.1	0.0	49.9
203	27.8	0.0	48.3



9.1.2

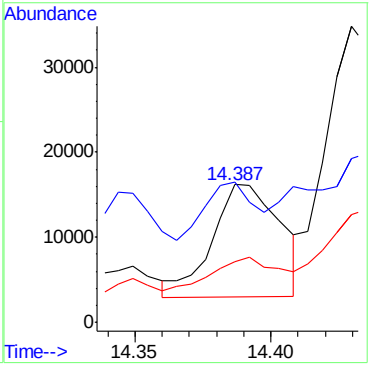
9

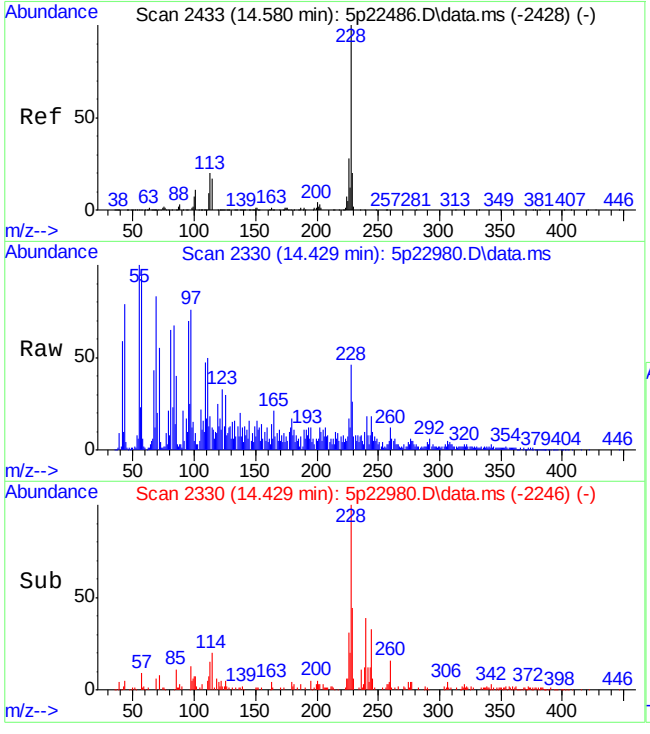


#88
Benzo[a]anthracene
Concen: 0.87 ppm
RT: 14.387 min Scan# 2322
Delta R.T. -0.043 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:228 Resp: 22991

Ion	Ratio	Lower	Upper
228	100		
229	36.9	0.0	50.3
226	27.3	0.0	56.5

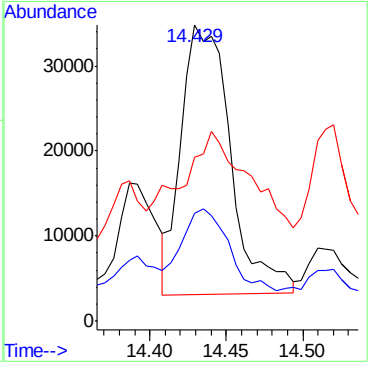




#90
Chrysene
Concen: 2.70 ppm
RT: 14.429 min Scan# 2330
Delta R.T. -0.054 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

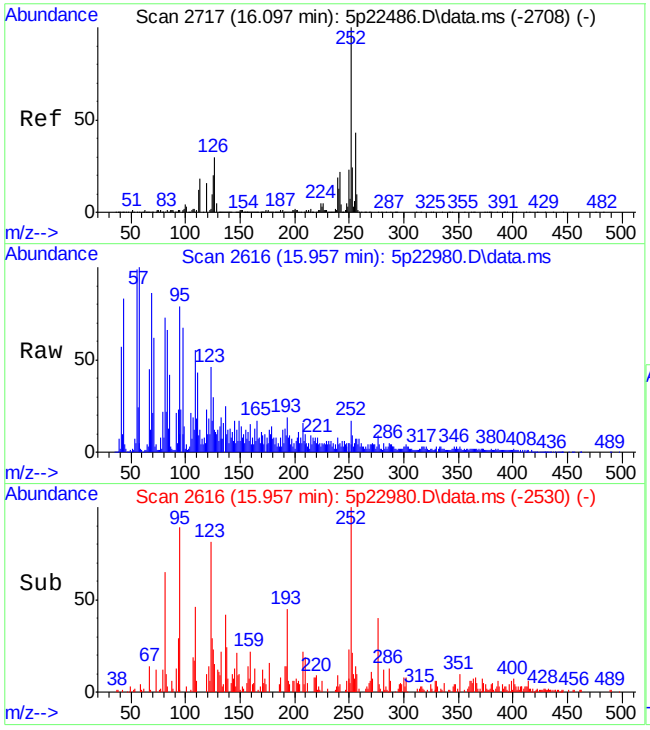
Tgt Ion:228 Resp: 71106

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	57.6
229	21.2	0.0	49.4



9.1.2

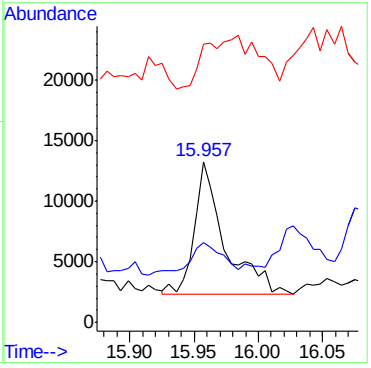
9



#94
Benzo[b]fluoranthene
Concen: 0.71 ppm
RT: 15.957 min Scan# 2616
Delta R.T. -0.043 min
Lab File: 5p22980.D
Acq: 9 Nov 15 4:45 pm

Tgt Ion:252 Resp: 17892

Ion	Ratio	Lower	Upper
252	100		
253	4.4	0.0	54.3
125	11.8	0.0	48.2



9.1.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22845.D
Acq On : 5 Nov 15 6:10 pm
Operator : alicjap
Sample : jc7291-2
Misc : op88533,e5p1168,30.5
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Nov 06 09:11:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

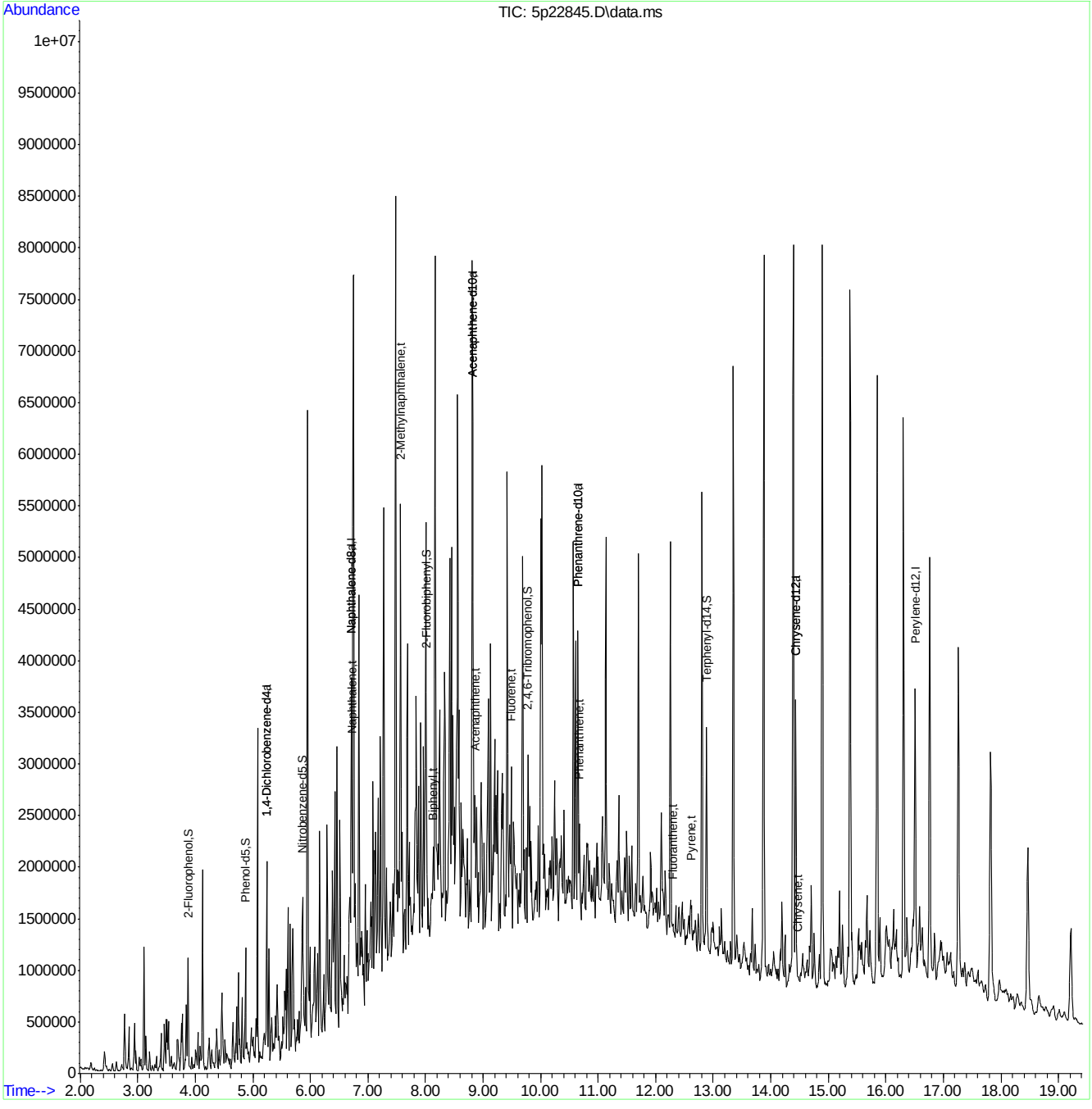
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.241	152	274746	40.00 ppm	0.00
24) Naphthalene-d8	6.710	136	1020910	40.00 ppm	0.00
47) Acenaphthene-d10	8.820	164	611799	40.00 ppm	0.00
69) Phenanthrene-d10	10.647	188	1098095	40.00 ppm	0.00
83) Chrysene-d12	14.435	240	1167002	40.00 ppm	0.00
92) Perylene-d12	16.508	264	1190985	40.00 ppm	0.00
102) 1,4-Dichlorobenzene-d4a	5.241	152	274746	40.00 ppm	0.00
104) Acenaphthene-d10a	8.820	164	611799	40.00 ppm	0.00
106) Chrysene-d12a	14.435	240	1167002	40.00 ppm	0.00
108) Phenanthrene-d10a	10.647	188	1098095	40.00 ppm	0.00
110) Naphthalene-d8a	6.710	136	1020910	40.00 ppm	0.00
System Monitoring Compounds					
5) 2-Fluorophenol	3.873	112	338584	34.29 ppm	0.00
Spiked Amount 50.000			Recovery	= 68.58%	
8) Phenol-d5	4.872	99	408826	34.62 ppm	0.00
Spiked Amount 50.000			Recovery	= 69.24%	
25) Nitrobenzene-d5	5.866	82	345243	39.17 ppm	0.00
Spiked Amount 50.000			Recovery	= 78.34%	
51) 2-Fluorobiphenyl	8.014	172	726176	37.51 ppm	0.00
Spiked Amount 50.000			Recovery	= 75.02%	
73) 2,4,6-Tribromophenol	9.782	330	101770	33.68 ppm	0.00
Spiked Amount 50.000			Recovery	= 67.36%	
85) Terphenyl-d14	12.886	244	855336	35.77 ppm	0.00
Spiked Amount 50.000			Recovery	= 71.54%	
Target Compounds					Qvalue
38) Naphthalene	6.731	128	202197	6.65 ppm	90
44) 2-Methylnaphthalene	7.565	141	978695	63.55 ppm	97
53) Biphenyl	8.131	154	101472	4.46 ppm	99
59) Acenaphthene	8.858	153	24392	1.32 ppm	94
66) Fluorene	9.488	166	81042	3.86 ppm	82
77) Phenanthrene	10.674	178	301014	8.80 ppm	96
81) Fluoranthene	12.298	202	21589	0.62 ppm	97
84) Pyrene	12.619	202	106109	2.64 ppm	99
90) Chrysene	14.472	228	16991	0.49 ppm	85

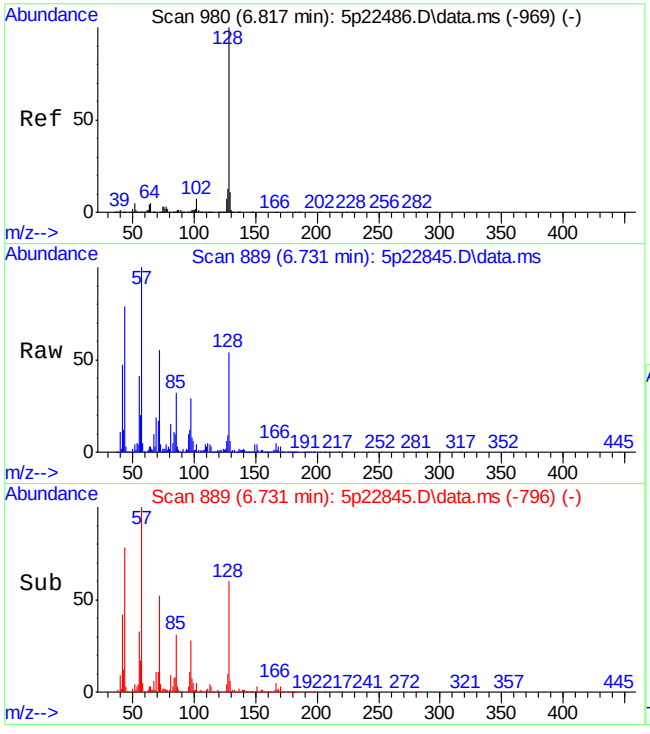
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22845.D
Acq On : 5 Nov 15 6:10 pm
Operator : alicjap
Sample : jc7291-2
Misc : op88533,e5p1168,30.5
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Nov 06 09:11:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

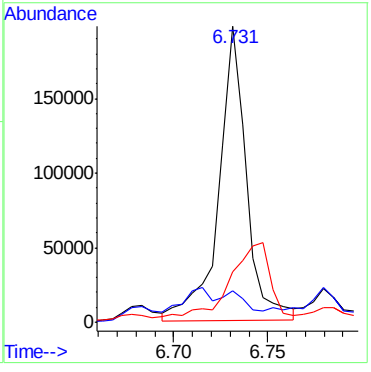


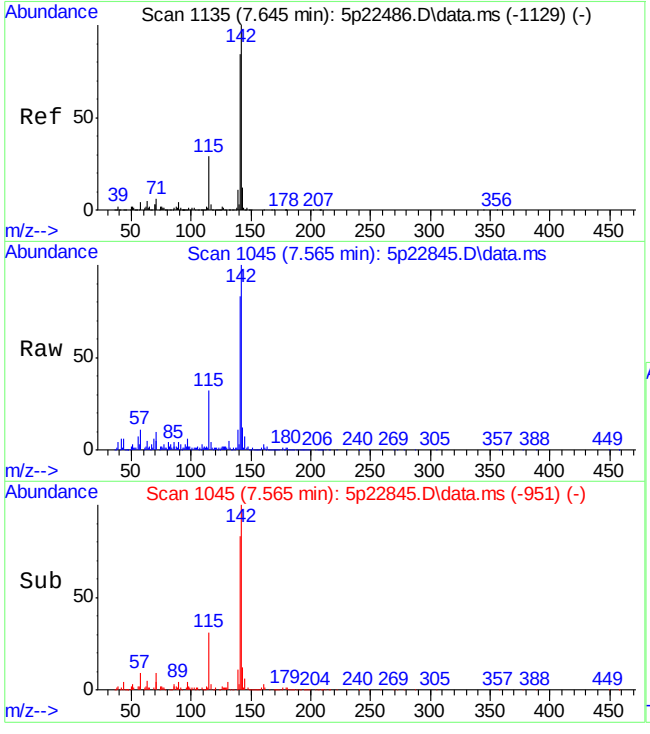


#38
Naphthalene
Concen: 6.65 ppm
RT: 6.731 min Scan# 889
Delta R.T. -0.005 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:128 Resp: 202197

Ion	Ratio	Lower	Upper
128	100		
129	6.7	0.0	41.0
127	15.5	0.0	42.0

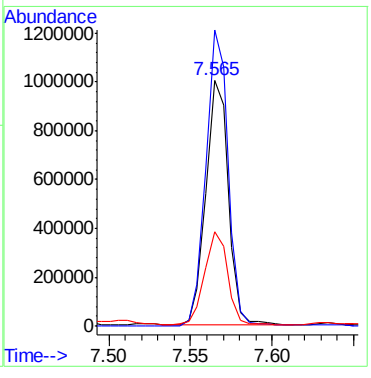


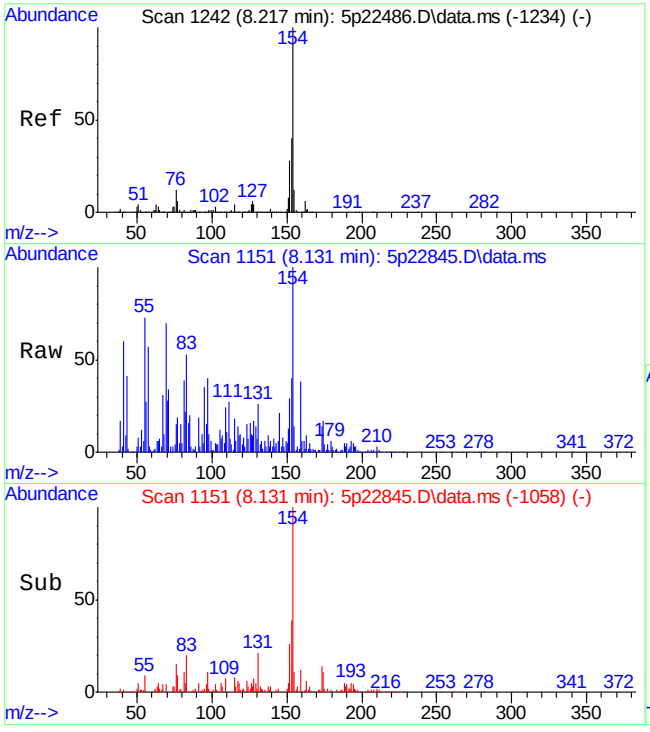


#44
2-Methylnaphthalene
Concen: 63.55 ppm
RT: 7.565 min Scan# 1045
Delta R.T. -0.000 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:141 Resp: 978695

Ion	Ratio	Lower	Upper
141	100		
142	120.8	88.6	148.6
115	38.0	5.3	65.3

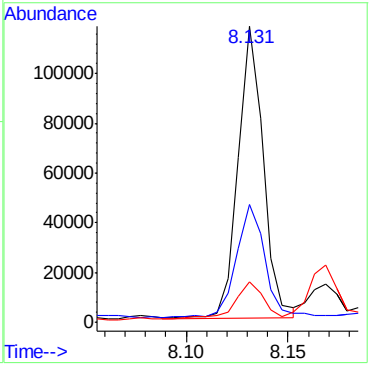


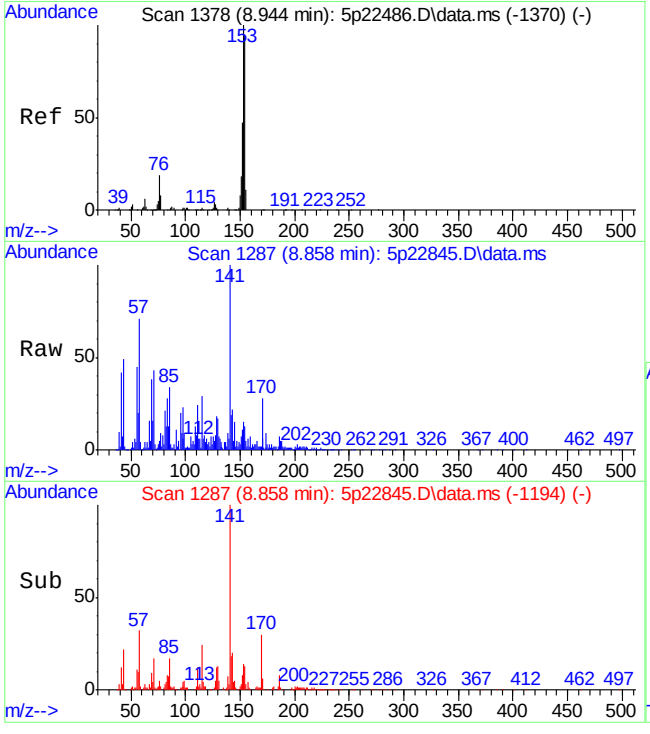


#53
Biphenyl
Concen: 4.46 ppm
RT: 8.131 min Scan# 1151
Delta R.T. -0.005 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:154 Resp: 101472

Ion	Ratio	Lower	Upper
154	100		
153	38.7	9.1	69.1
155	12.0	0.0	43.2

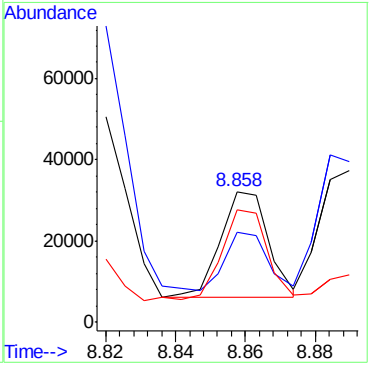


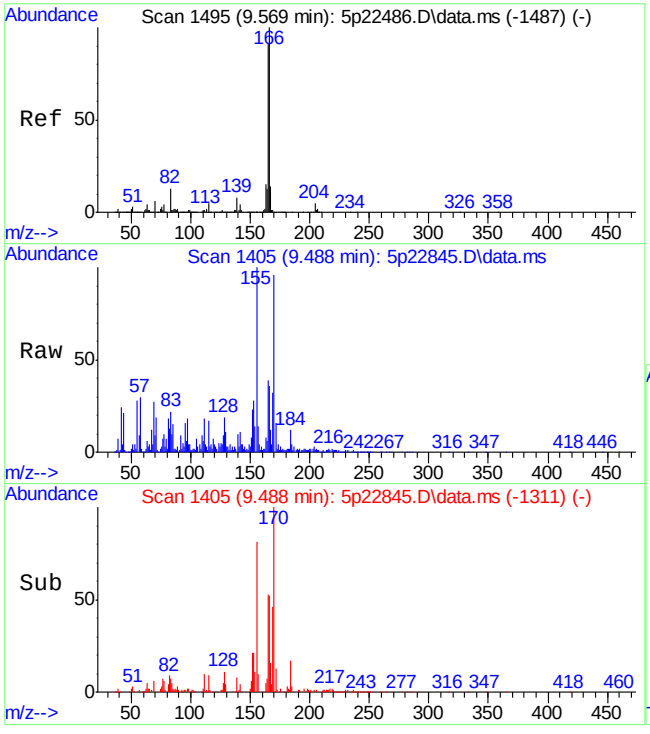


#59
Acenaphthene
Concen: 1.32 ppm
RT: 8.858 min Scan# 1287
Delta R.T. -0.005 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:153 Resp: 24392

Ion	Ratio	Lower	Upper
153	100		
152	52.9	16.1	76.1
154	84.5	57.7	117.7

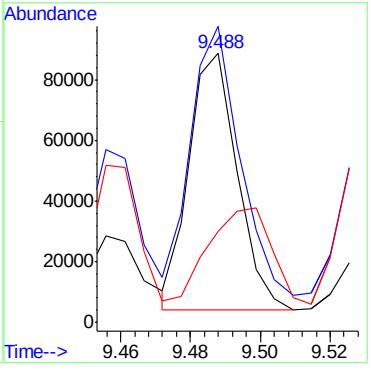


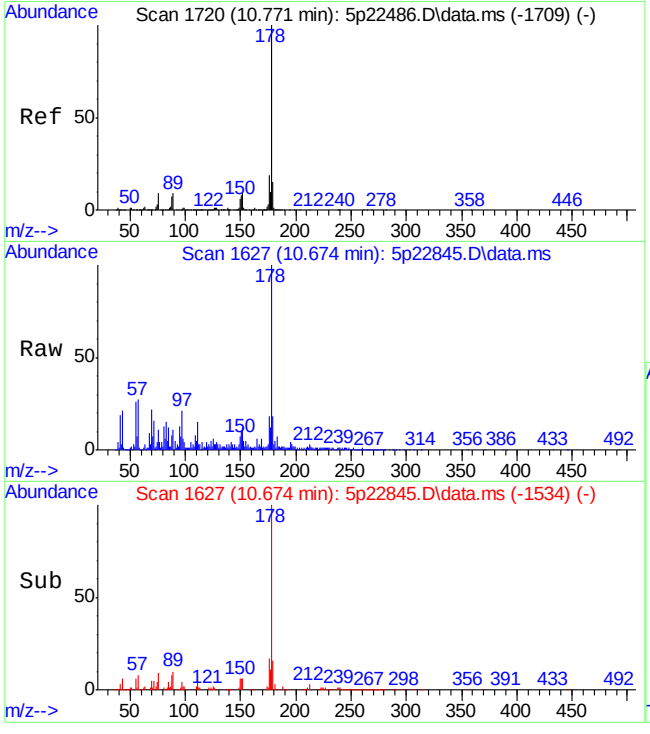


#66
Fluorene
Concen: 3.86 ppm
RT: 9.488 min Scan# 1405
Delta R.T. -0.000 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:166 Resp: 81042

Ion	Ratio	Lower	Upper
166	100		
165	104.9	60.3	120.3
167	27.6	0.0	43.3

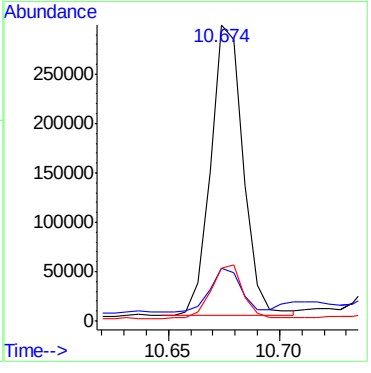


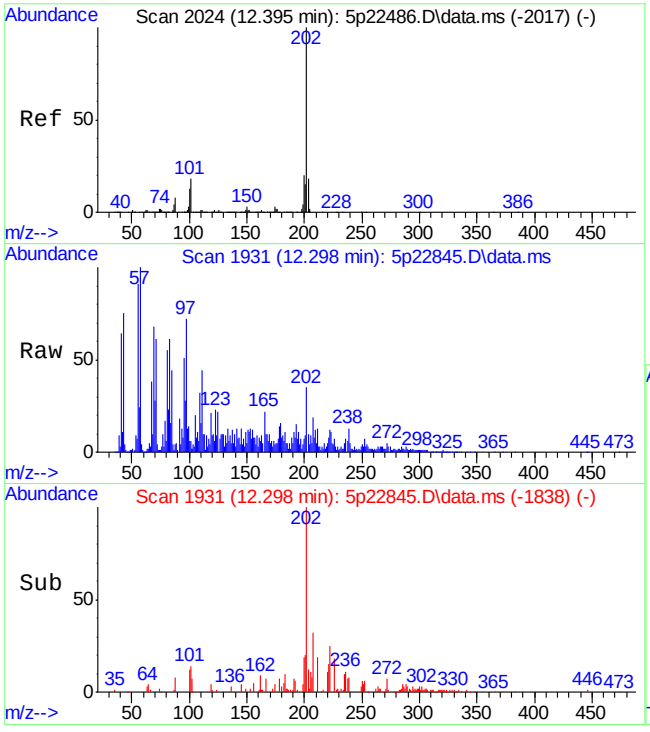


#77
Phenanthrene
Concen: 8.80 ppm
RT: 10.674 min Scan# 1627
Delta R.T. -0.005 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:178 Resp: 301014

Ion	Ratio	Lower	Upper
178	100		
179	13.5	0.0	45.2
176	17.2	0.0	48.8

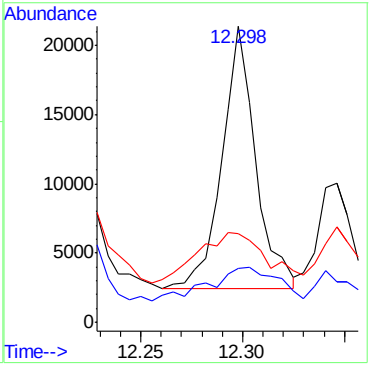


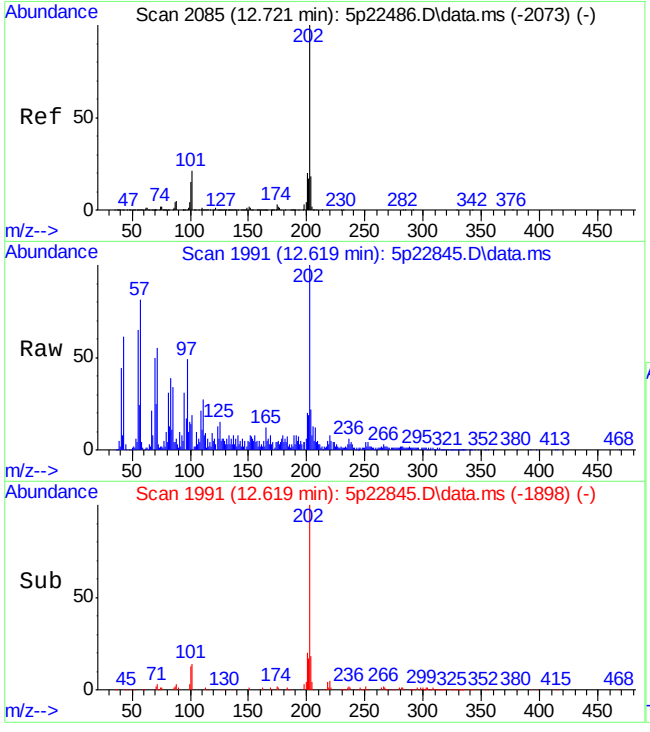


#81
Fluoranthene
Concen: 0.62 ppm
RT: 12.298 min Scan# 1931
Delta R.T. -0.005 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:202 Resp: 21589

Ion	Ratio	Lower	Upper
202	100		
101	16.9	0.0	47.7
203	16.1	0.0	47.6

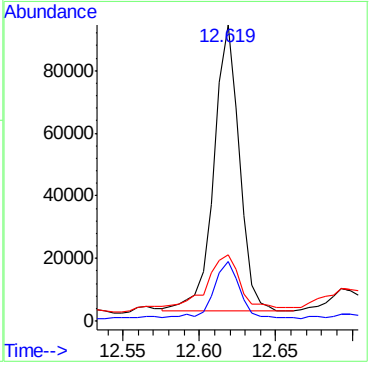




#84
Pyrene
Concen: 2.64 ppm
RT: 12.619 min Scan# 1991
Delta R.T. -0.005 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

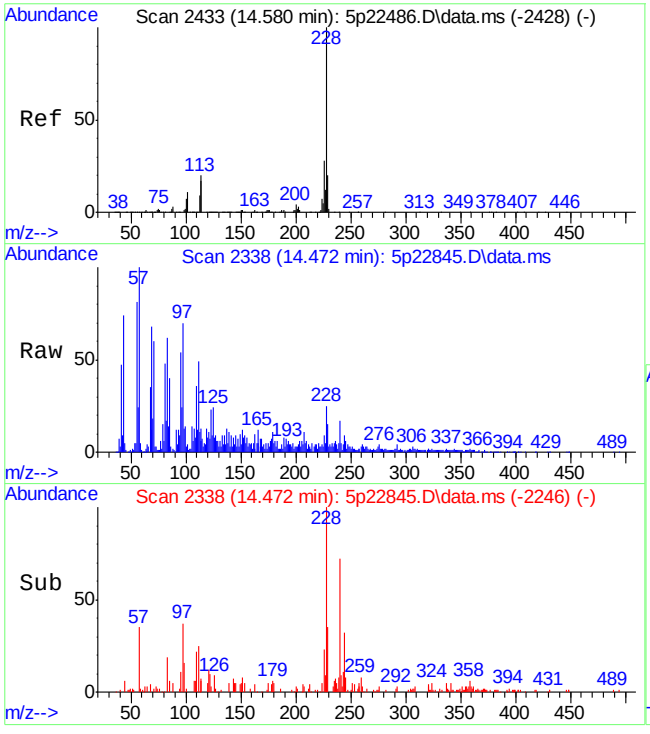
Tgt Ion:202 Resp: 106109

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	49.9
203	18.4	0.0	48.3



9.1.3

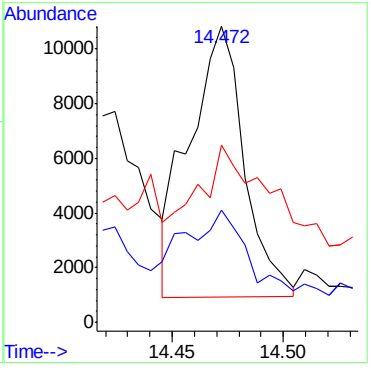
9



#90
Chrysene
Concen: 0.49 ppm
RT: 14.472 min Scan# 2338
Delta R.T. -0.011 min
Lab File: 5p22845.D
Acq: 5 Nov 15 6:10 pm

Tgt Ion:228 Resp: 16991

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	57.6
229	34.2	0.0	49.4



9.1.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22846.D
Acq On : 5 Nov 15 6:37 pm
Operator : alicjap
Sample : jc7291-3
Misc : op88533,e5p1168,31.4
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Nov 06 09:14:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

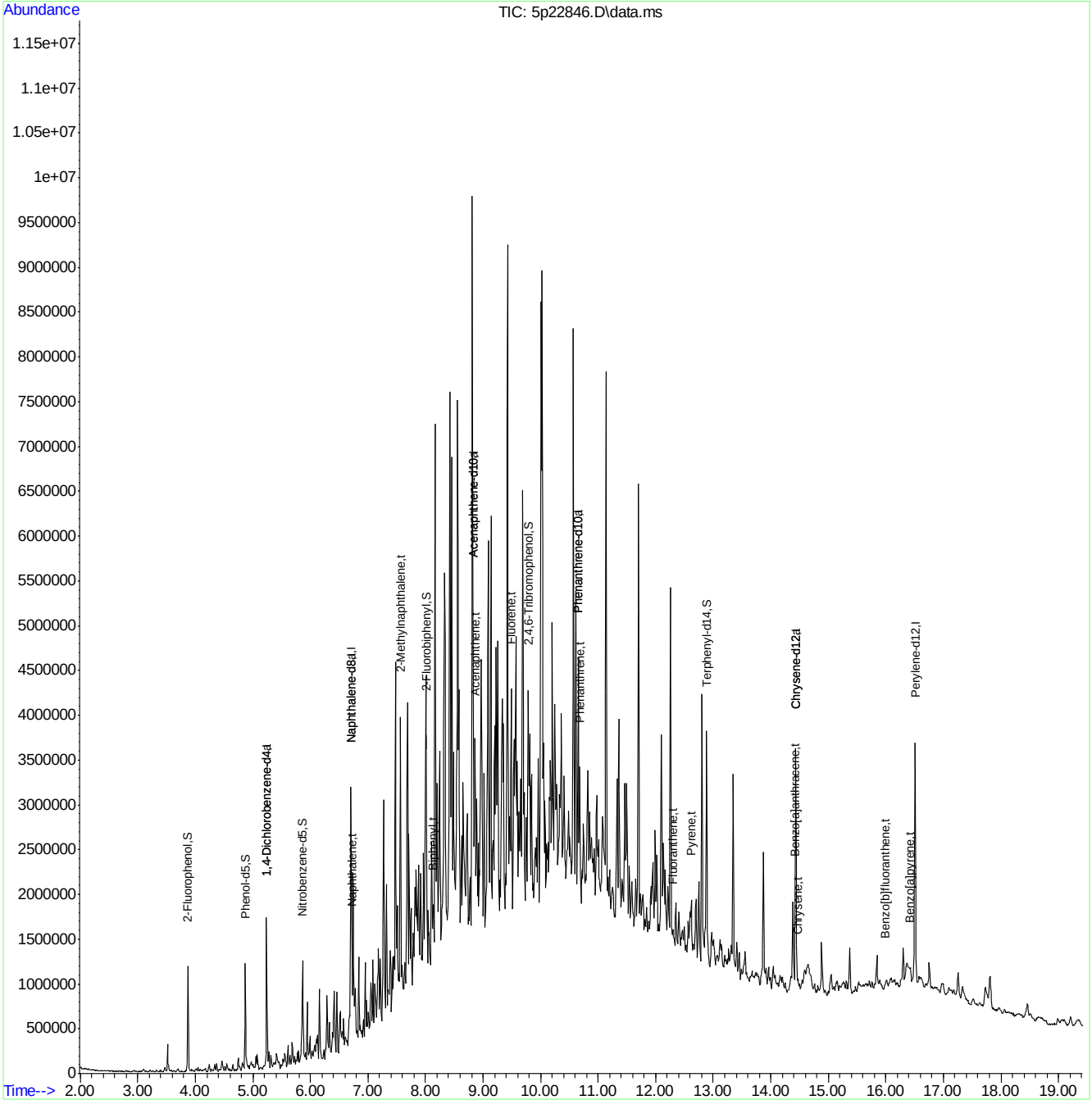
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.241	152	282135	40.00	ppm	0.00
24) Naphthalene-d8	6.705	136	1049313	40.00	ppm	0.00
47) Acenaphthene-d10	8.825	164	590646	40.00	ppm	0.00
69) Phenanthrene-d10	10.652	188	1129963	40.00	ppm	0.00
83) Chrysene-d12	14.440	240	1213145	40.00	ppm	0.00
92) Perylene-d12	16.508	264	1247663	40.00	ppm	0.00
102) 1,4-Dichlorobenzene-d4a	5.241	152	282135	40.00	ppm	0.00
104) Acenaphthene-d10a	8.825	164	590646	40.00	ppm	0.00
106) Chrysene-d12a	14.440	240	1213145	40.00	ppm	0.00
108) Phenanthrene-d10a	10.652	188	1129963	40.00	ppm	0.00
110) Naphthalene-d8a	6.705	136	1050399	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.868	112	376103	37.10	ppm	0.00
Spiked Amount 50.000			Recovery = 74.20%			
8) Phenol-d5	4.867	99	454220	37.46	ppm	-0.01
Spiked Amount 50.000			Recovery = 74.92%			
25) Nitrobenzene-d5	5.866	82	351179	38.77	ppm	0.00
Spiked Amount 50.000			Recovery = 77.54%			
51) 2-Fluorobiphenyl	8.013	172	817358	43.73	ppm	0.00
Spiked Amount 50.000			Recovery = 87.46%			
73) 2,4,6-Tribromophenol	9.787	330	118415	38.08	ppm	0.00
Spiked Amount 50.000			Recovery = 76.16%			
85) Terphenyl-d14	12.886	244	980116	39.43	ppm	0.00
Spiked Amount 50.000			Recovery = 78.86%			
Target Compounds						Qvalue
38) Naphthalene	6.731	128	115063	3.68	ppm	91
44) 2-Methylnaphthalene	7.565	141	667524	42.17	ppm	98
53) Biphenyl	8.131	154	25781	1.17	ppm	89
59) Acenaphthene	8.863	153	130866	7.32	ppm	92
66) Fluorene	9.488	166	261053	12.87	ppm	94
77) Phenanthrene	10.679	178	601414	17.09	ppm	99
81) Fluoranthene	12.303	202	40378	1.13	ppm	94
84) Pyrene	12.618	202	197055	4.72	ppm	85
88) Benzo[a]anthracene	14.424	228	36793	1.00	ppm	85
90) Chrysene	14.472	228	65437	1.80	ppm	80
94) Benzo[b]fluoranthene	15.984	252	14710	0.40	ppm	75
96) Benzo[a]pyrene	16.422	252	20662	0.61	ppm	95

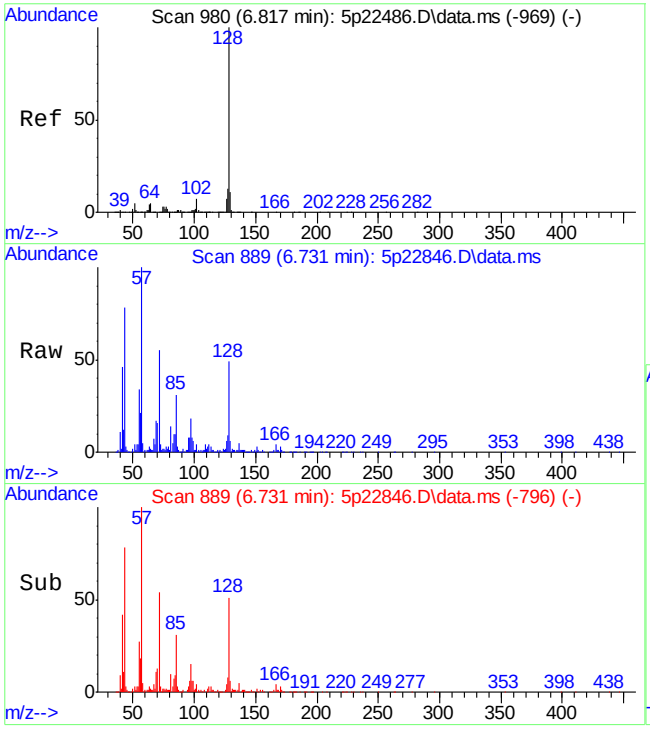
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22846.D
Acq On : 5 Nov 15 6:37 pm
Operator : alicjap
Sample : jc7291-3
Misc : op88533,e5p1168,31.4
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Nov 06 09:14:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

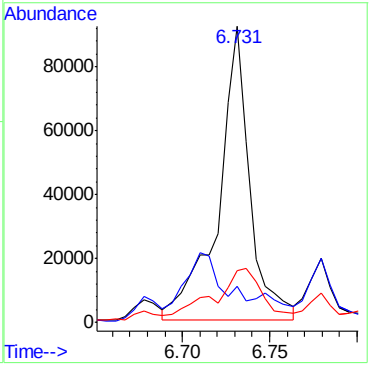


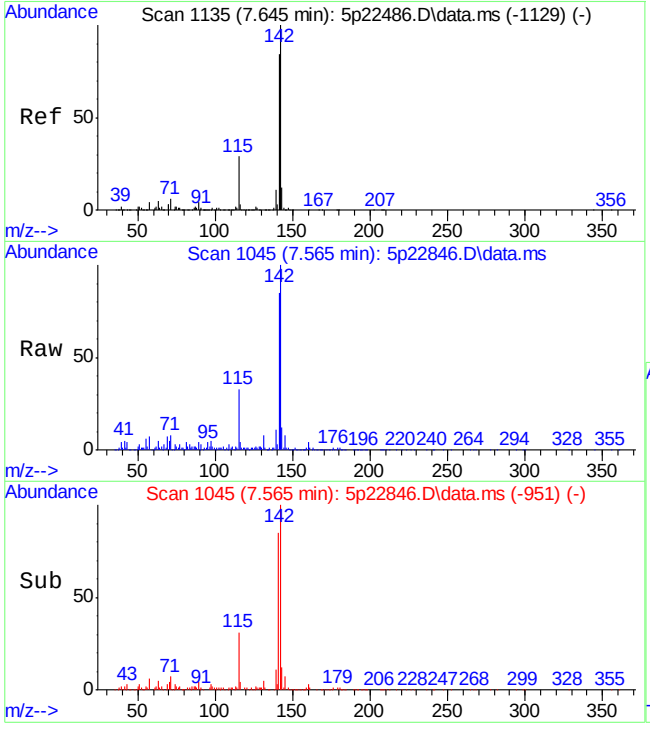


#38
Naphthalene
Concen: 3.68 ppm
RT: 6.731 min Scan# 889
Delta R.T. -0.006 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:128 Resp: 115063

Ion	Ratio	Lower	Upper
128	100		
129	7.6	0.0	41.0
127	15.5	0.0	42.0

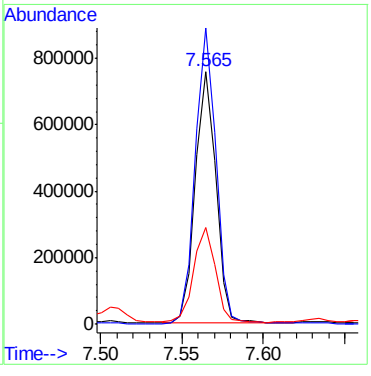


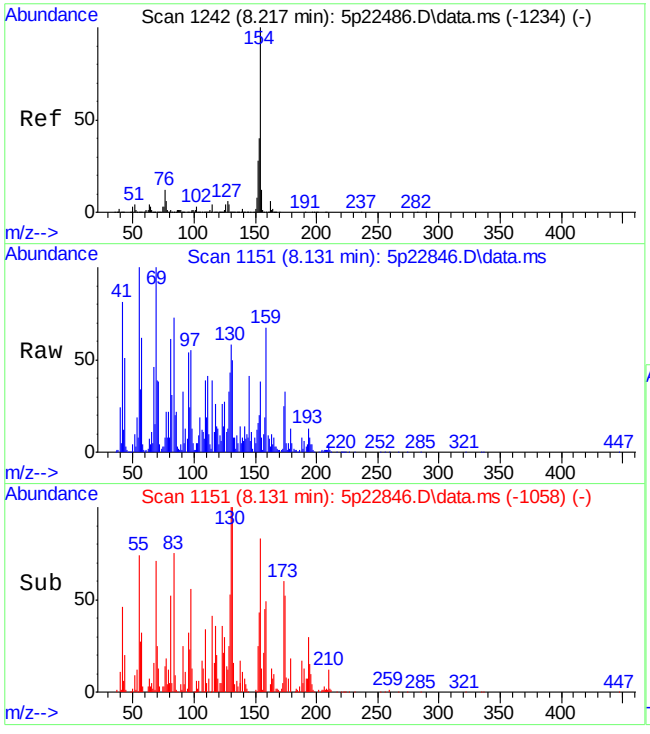


#44
2-Methylnaphthalene
Concen: 42.17 ppm
RT: 7.565 min Scan# 1045
Delta R.T. -0.000 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:141 Resp: 667524

Ion	Ratio	Lower	Upper
141	100		
142	117.4	88.6	148.6
115	37.3	5.3	65.3

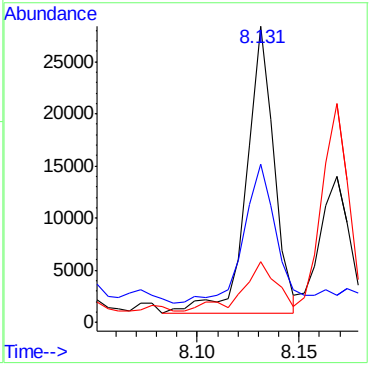


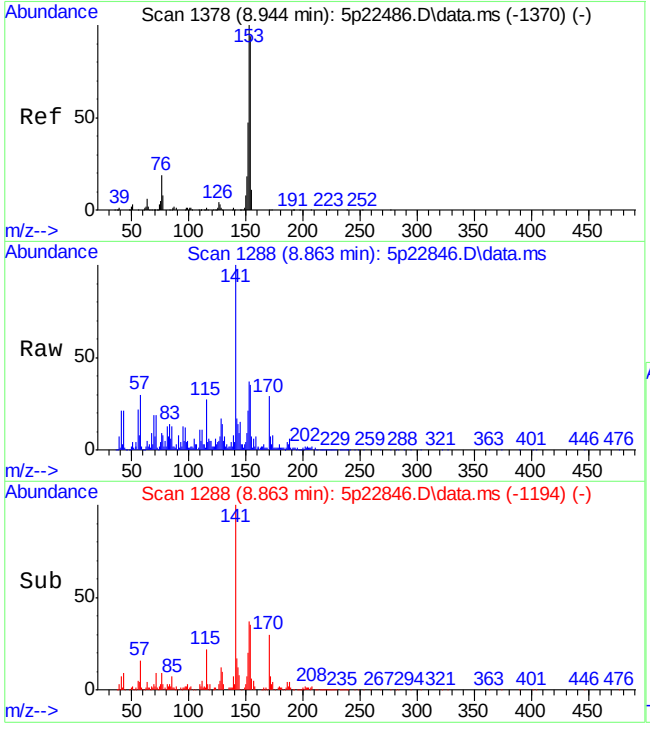


#53
Biphenyl
Concen: 1.17 ppm
RT: 8.131 min Scan# 1151
Delta R.T. -0.005 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:154 Resp: 25781

Ion	Ratio	Lower	Upper
154	100		
153	46.8	9.1	69.1
155	16.2	0.0	43.2

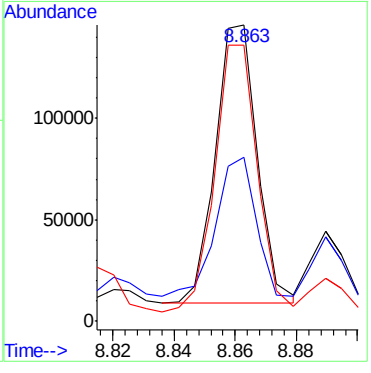




#59
Acenaphthene
Concen: 7.32 ppm
RT: 8.863 min Scan# 1288
Delta R.T. -0.000 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

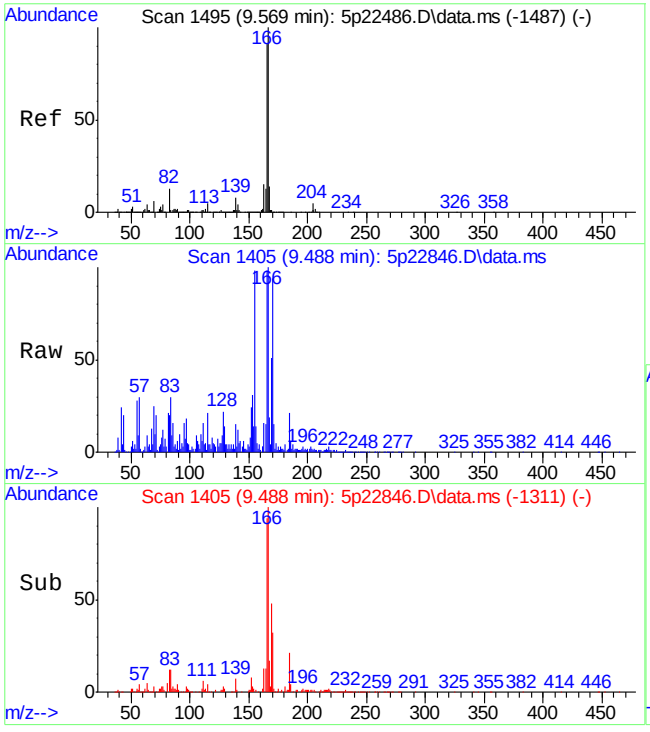
Tgt Ion:153 Resp: 130866

Ion	Ratio	Lower	Upper
153	100		
152	50.9	16.1	76.1
154	96.2	57.7	117.7



9.1.4

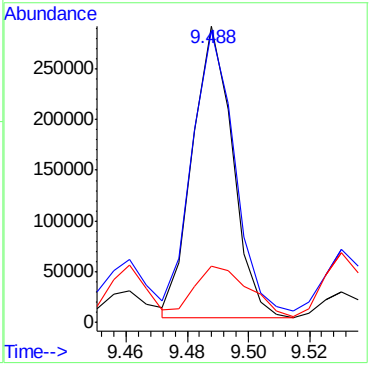
9

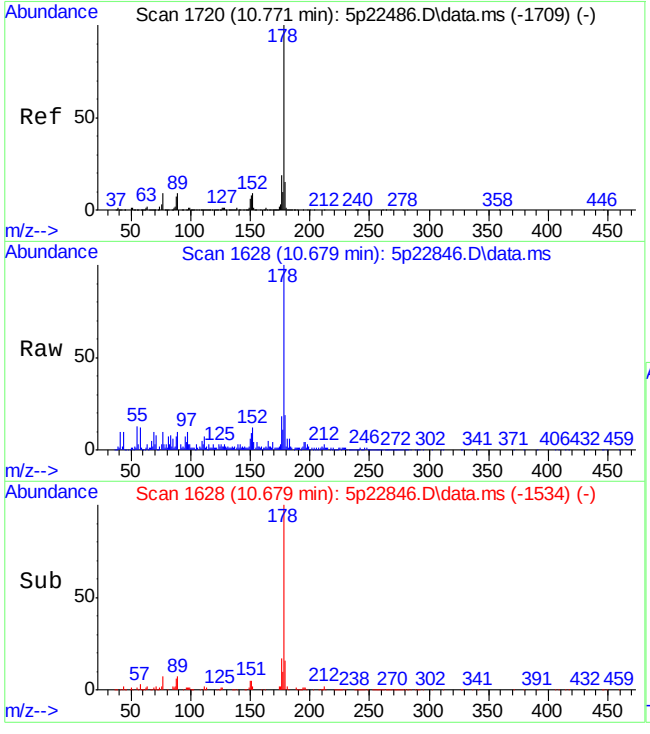


#66
Fluorene
Concen: 12.87 ppm
RT: 9.488 min Scan# 1405
Delta R.T. -0.000 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:166 Resp: 261053

Ion	Ratio	Lower	Upper
166	100		
165	96.1	60.3	120.3
167	16.6	0.0	43.3

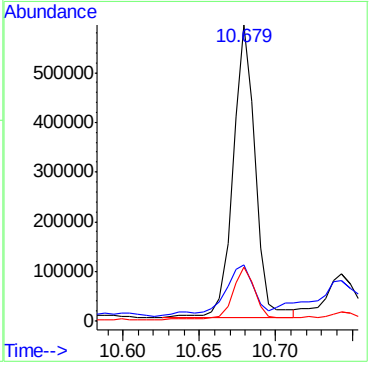


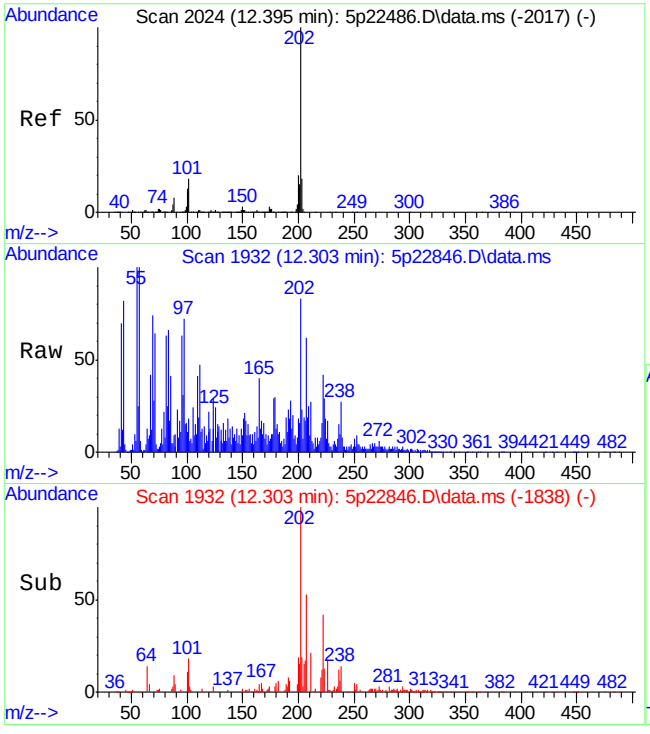


#77
Phenanthrene
Concen: 17.09 ppm
RT: 10.679 min Scan# 1628
Delta R.T. -0.000 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:178 Resp: 601414

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.2
176	17.8	0.0	48.8

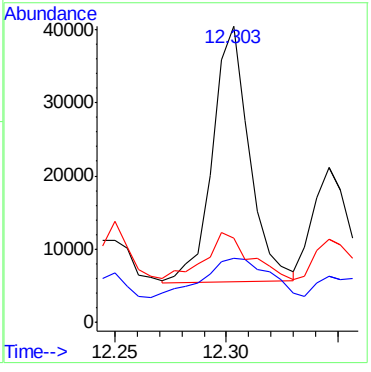


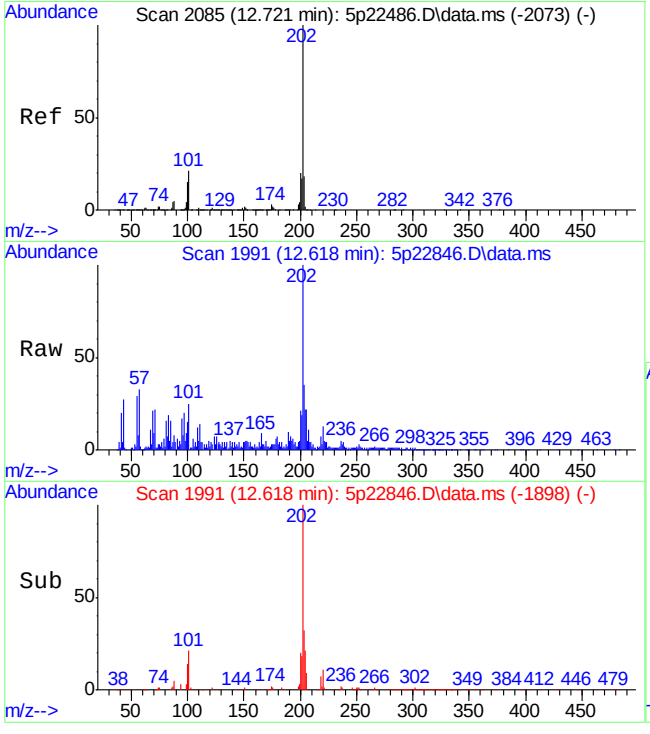


#81
Fluoranthene
Concen: 1.13 ppm
RT: 12.303 min Scan# 1932
Delta R.T. -0.000 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:202 Resp: 40378

Ion	Ratio	Lower	Upper
202	100		
101	13.9	0.0	47.7
203	16.2	0.0	47.6

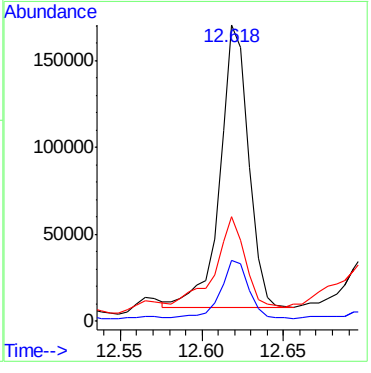


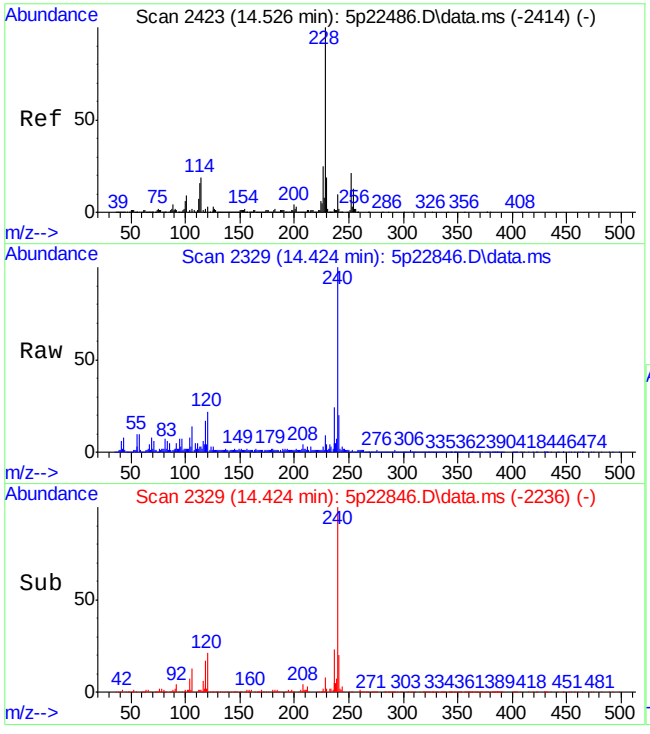


#84
Pyrene
Concen: 4.72 ppm
RT: 12.618 min Scan# 1991
Delta R.T. -0.005 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:202 Resp: 197055

Ion	Ratio	Lower	Upper
202	100		
200	20.7	0.0	49.9
203	31.0	0.0	48.3

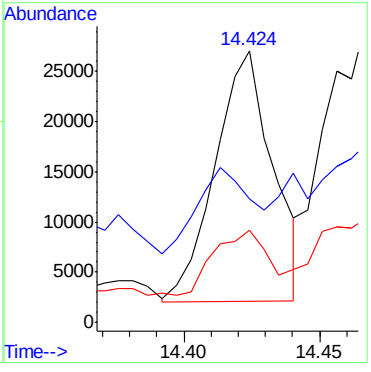


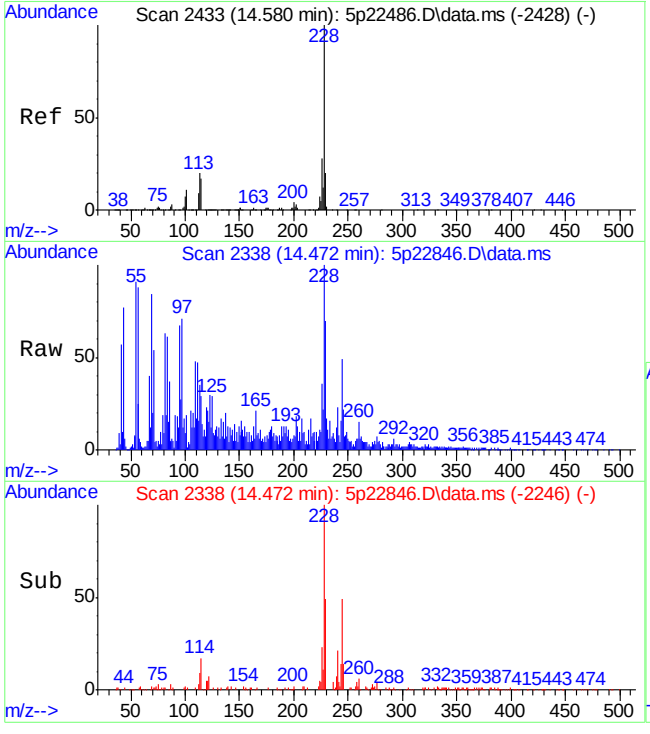


#88
Benzo[a]anthracene
Concen: 1.00 ppm
RT: 14.424 min Scan# 2329
Delta R.T. -0.006 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:228 Resp: 36793

Ion	Ratio	Lower	Upper
228	100		
229	6.7	0.0	50.3
226	24.8	0.0	56.5

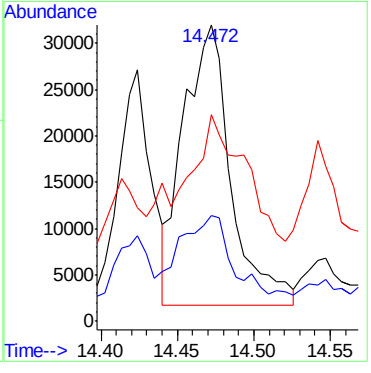




#90
Chrysene
Concen: 1.80 ppm
RT: 14.472 min Scan# 2338
Delta R.T. -0.011 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:228 Resp: 65437

Ion	Ratio	Lower	Upper
228	100		
226	29.1	0.0	57.6
229	39.7	0.0	49.4



9.1.4

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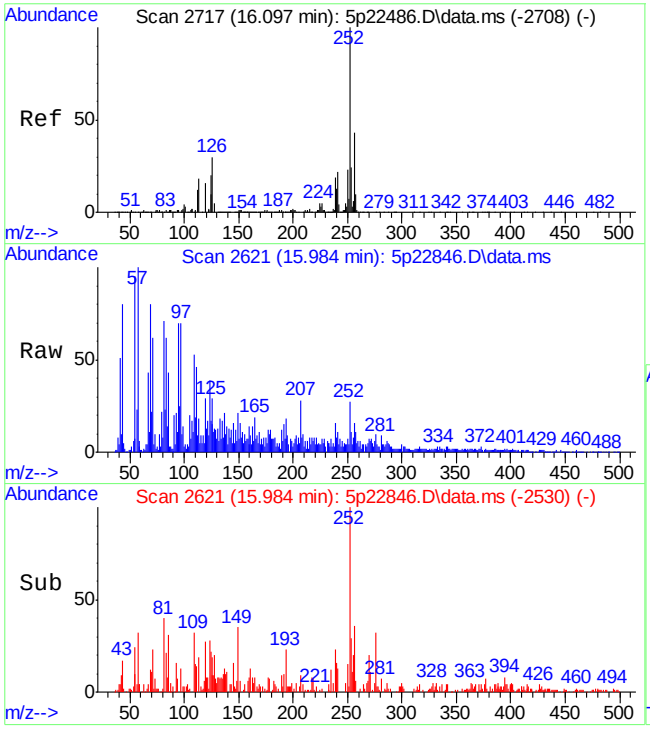
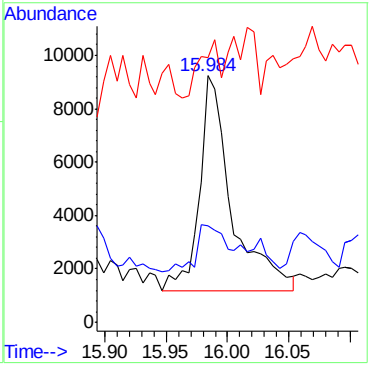
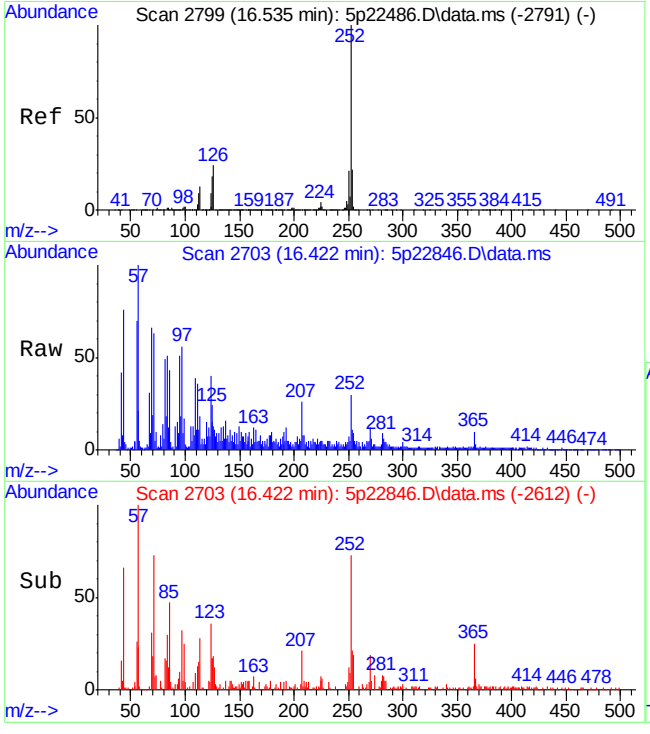


#94
Benzo[b]fluoranthene
Concen: 0.40 ppm
RT: 15.984 min Scan# 2621
Delta R.T. -0.016 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:252 Resp: 14710

Ion	Ratio	Lower	Upper
252	100		
253	14.8	0.0	54.3
125	4.1	0.0	48.2

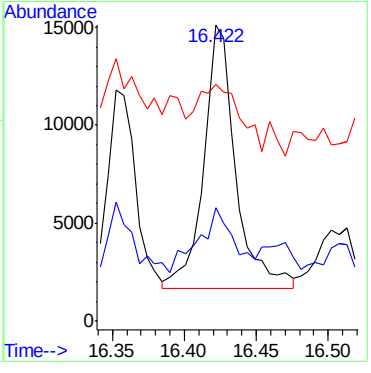




#96
Benzo[a]pyrene
Concen: 0.61 ppm
RT: 16.422 min Scan# 2703
Delta R.T. -0.016 min
Lab File: 5p22846.D
Acq: 5 Nov 15 6:37 pm

Tgt Ion:252 Resp: 20662

Ion	Ratio	Lower	Upper
252	100		
253	20.7	0.0	51.9
125	15.3	0.0	49.2



9.1.4

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22847.D
Acq On : 5 Nov 15 7:04 pm
Operator : alicjap
Sample : jc7291-4
Misc : op88533,e5p1168,30.3
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Nov 06 09:18:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

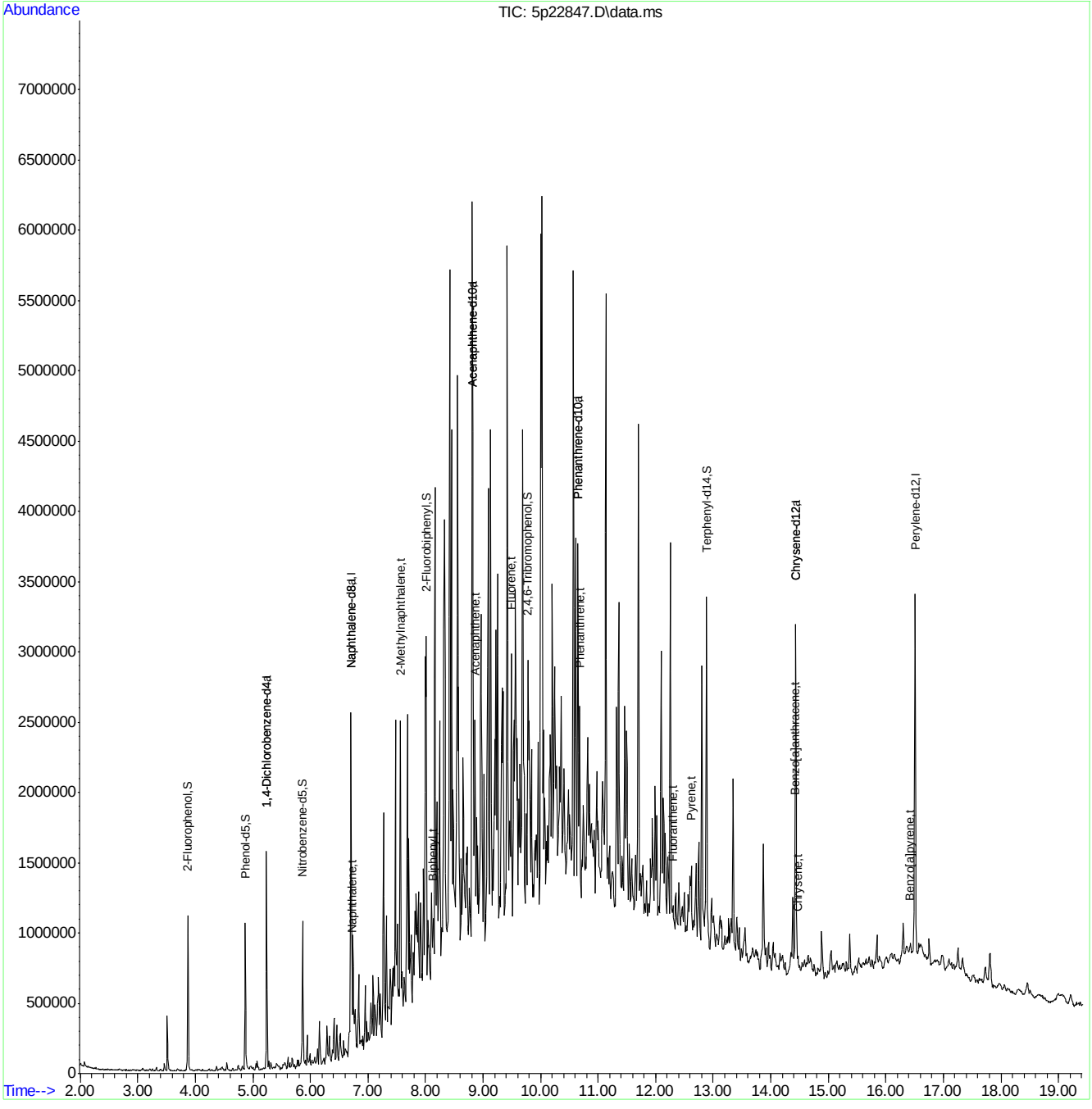
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.236	152	260951	40.00	ppm	0.00
24) Naphthalene-d8	6.705	136	991589	40.00	ppm	0.00
47) Acenaphthene-d10	8.820	164	579144	40.00	ppm	0.00
69) Phenanthrene-d10	10.647	188	1041307	40.00	ppm	0.00
83) Chrysene-d12	14.435	240	1126180	40.00	ppm	0.00
92) Perylene-d12	16.508	264	1163643	40.00	ppm	0.00
102) 1,4-Dichlorobenzene-d4a	5.236	152	260951	40.00	ppm	0.00
104) Acenaphthene-d10a	8.820	164	579144	40.00	ppm	0.00
106) Chrysene-d12a	14.435	240	1126180	40.00	ppm	0.00
108) Phenanthrene-d10a	10.647	188	1041307	40.00	ppm	0.00
110) Naphthalene-d8a	6.705	136	991589	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.868	112	351787	37.51	ppm	0.00
Spiked Amount 50.000			Recovery = 75.02%			
8) Phenol-d5	4.867	99	424039	37.81	ppm	-0.01
Spiked Amount 50.000			Recovery = 75.62%			
25) Nitrobenzene-d5	5.866	82	327141	38.22	ppm	0.00
Spiked Amount 50.000			Recovery = 76.44%			
51) 2-Fluorobiphenyl	8.014	172	778264	42.47	ppm	0.00
Spiked Amount 50.000			Recovery = 84.94%			
73) 2,4,6-Tribromophenol	9.782	330	105385	36.77	ppm	0.00
Spiked Amount 50.000			Recovery = 73.54%			
85) Terphenyl-d14	12.886	244	898251	38.93	ppm	0.00
Spiked Amount 50.000			Recovery = 77.86%			
Target Compounds						Qvalue
38) Naphthalene	6.731	128	53976	1.83	ppm	90
44) 2-Methylnaphthalene	7.565	141	471136	31.50	ppm	99
53) Biphenyl	8.131	154	13825	0.64	ppm	96
59) Acenaphthene	8.858	153	99024	5.65	ppm	96
66) Fluorene	9.488	166	200594	10.08	ppm	94
77) Phenanthrene	10.679	178	562380	17.34	ppm	99
81) Fluoranthene	12.298	202	35000	1.06	ppm	95
84) Pyrene	12.619	202	161753	4.17	ppm	88
88) Benzo[a]anthracene	14.424	228	32642	0.96	ppm	84
90) Chrysene	14.472	228	57103	1.69	ppm	82
96) Benzo[a]pyrene	16.422	252	18487	0.58	ppm	92

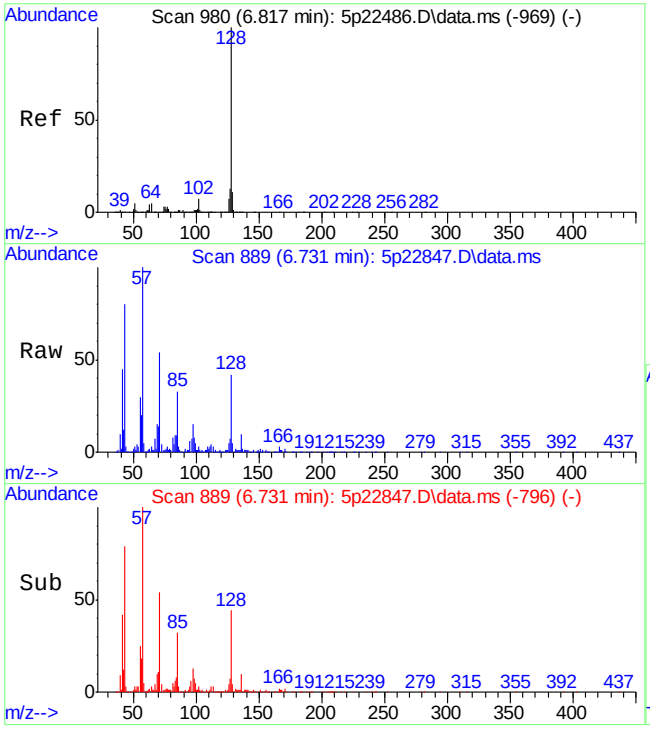
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22847.D
Acq On : 5 Nov 15 7:04 pm
Operator : alicjap
Sample : jc7291-4
Misc : op88533,e5p1168,30.3
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Nov 06 09:18:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

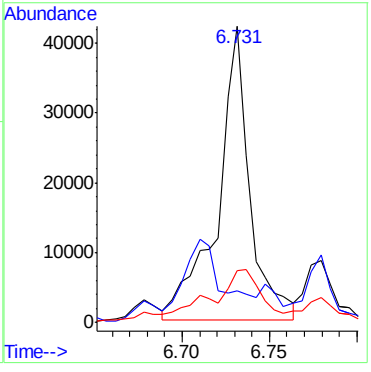


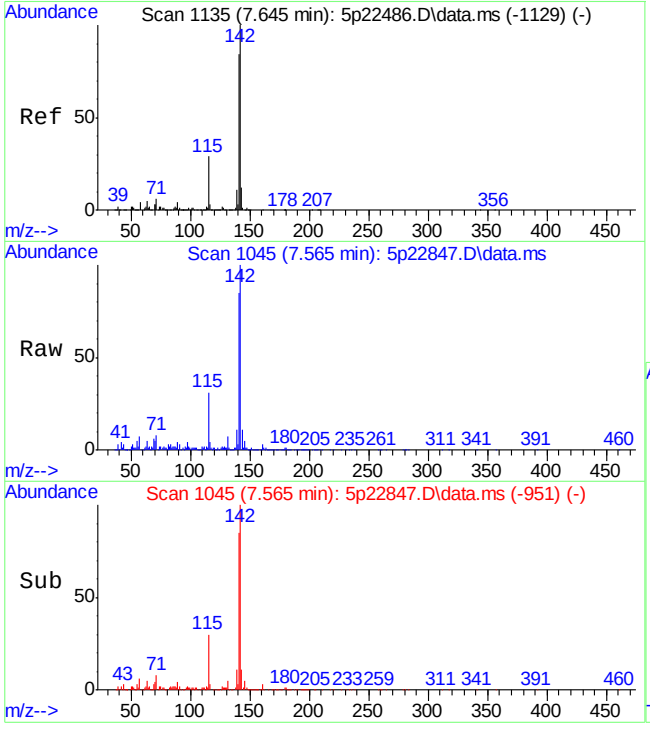


#38
Naphthalene
Concen: 1.83 ppm
RT: 6.731 min Scan# 889
Delta R.T. -0.005 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:128 Resp: 53976

Ion	Ratio	Lower	Upper
128	100		
129	6.0	0.0	41.0
127	15.0	0.0	42.0

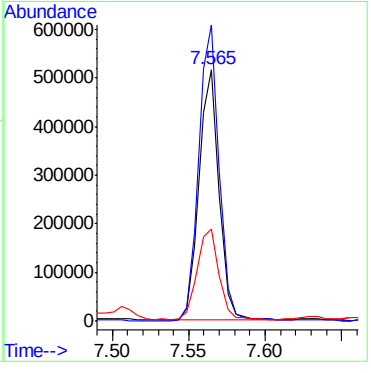




#44
2-Methylnaphthalene
Concen: 31.50 ppm
RT: 7.565 min Scan# 1045
Delta R.T. -0.000 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:141 Resp: 471136

Ion	Ratio	Lower	Upper
141	100		
142	117.9	88.6	148.6
115	36.0	5.3	65.3



9.1.5

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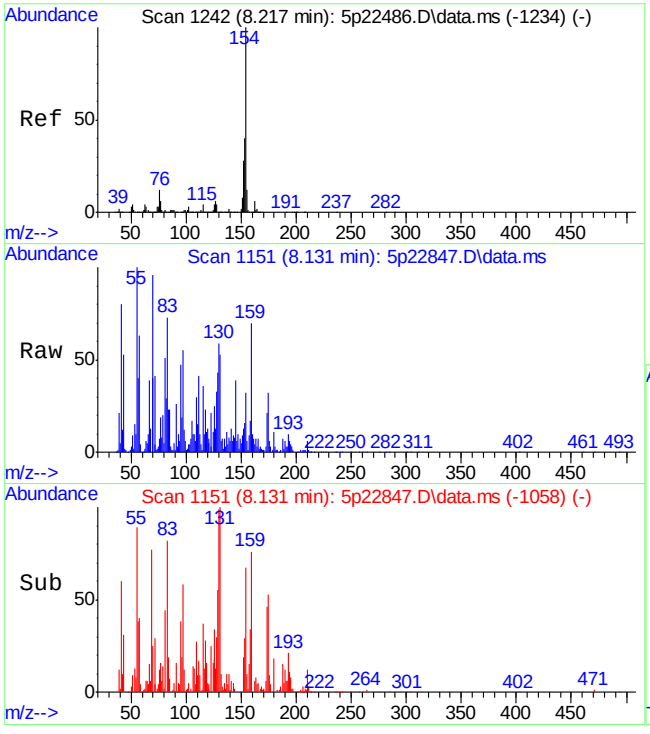
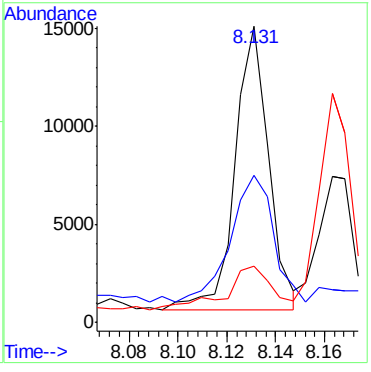
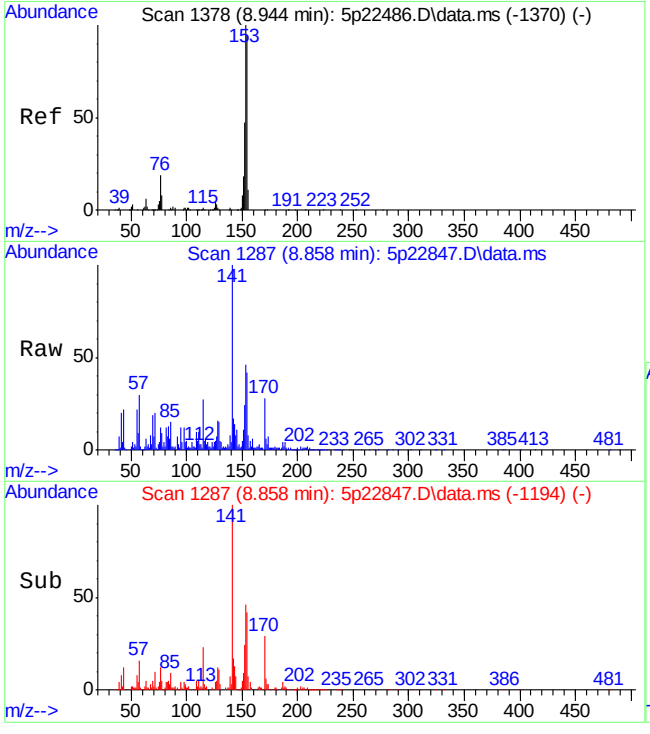


#53
Biphenyl
Concen: 0.64 ppm
RT: 8.131 min Scan# 1151
Delta R.T. -0.005 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:154 Resp: 13825

Ion	Ratio	Lower	Upper
154	100		
153	42.1	9.1	69.1
155	13.6	0.0	43.2

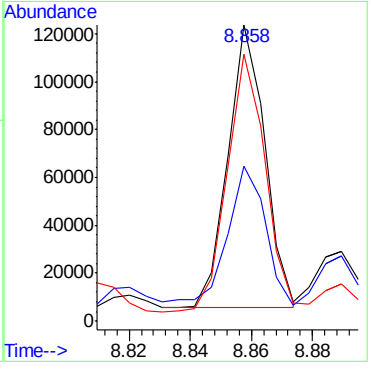




#59
Acenaphthene
Concen: 5.65 ppm
RT: 8.858 min Scan# 1287
Delta R.T. -0.005 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:153 Resp: 99024

Ion	Ratio	Lower	Upper
153	100		
152	49.2	16.1	76.1
154	90.8	57.7	117.7



9.1.5

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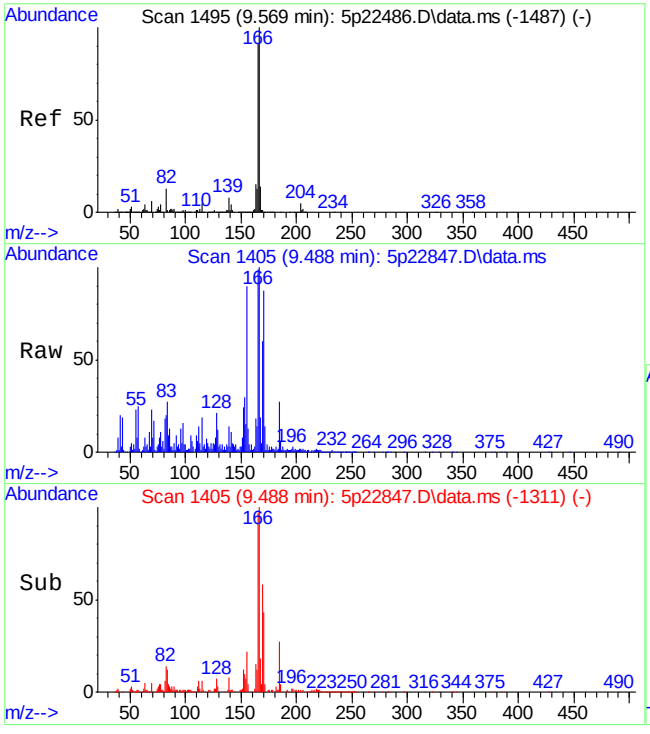
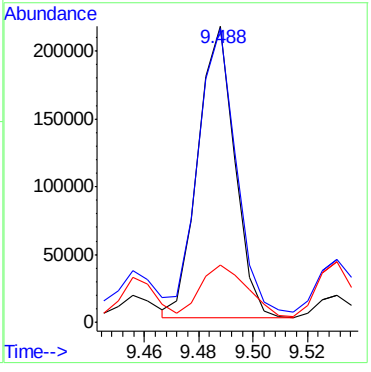
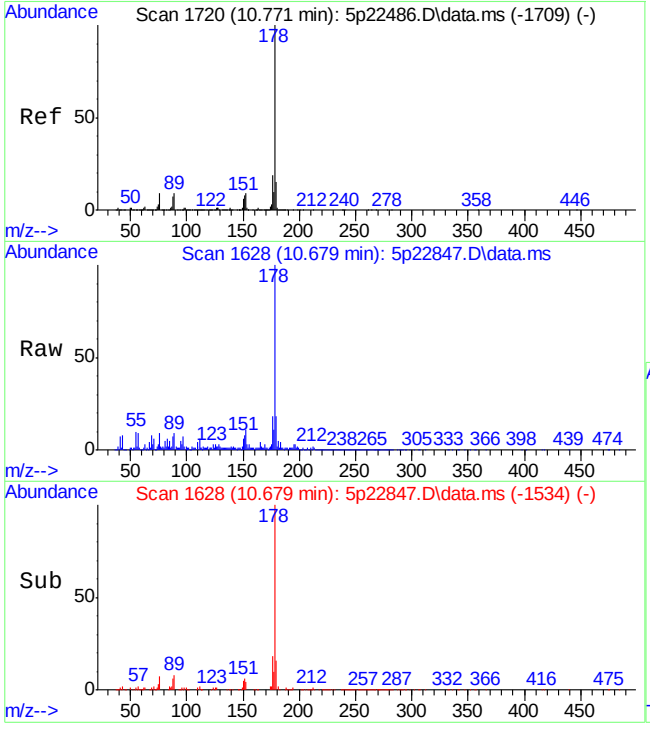


#66
Fluorene
Concen: 10.08 ppm
RT: 9.488 min Scan# 1405
Delta R.T. -0.000 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:166 Resp: 200594

Ion	Ratio	Lower	Upper
166	100		
165	96.2	60.3	120.3
167	15.9	0.0	43.3

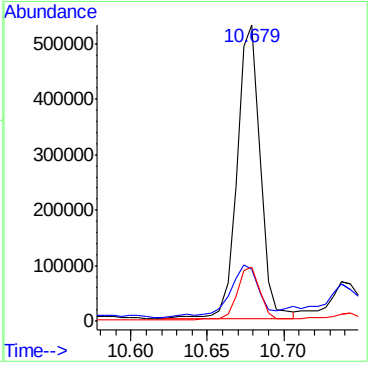




#77
Phenanthrene
Concen: 17.34 ppm
RT: 10.679 min Scan# 1628
Delta R.T. -0.000 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:178 Resp: 562380

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.2
176	18.1	0.0	48.8



9.1.5

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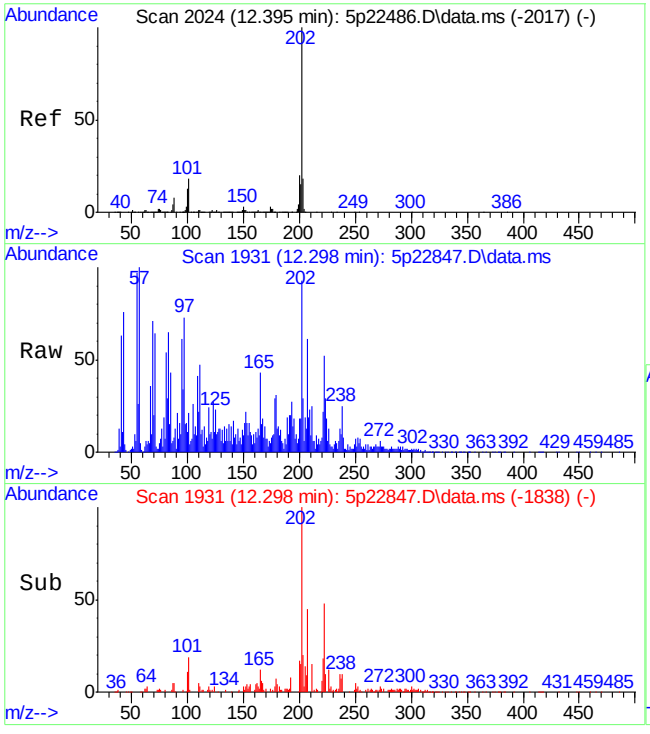
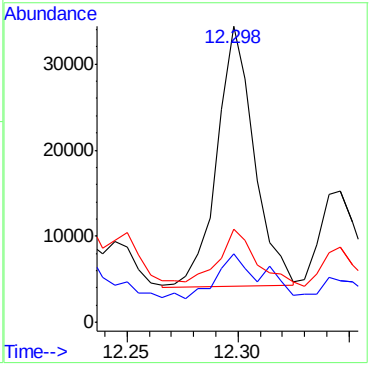
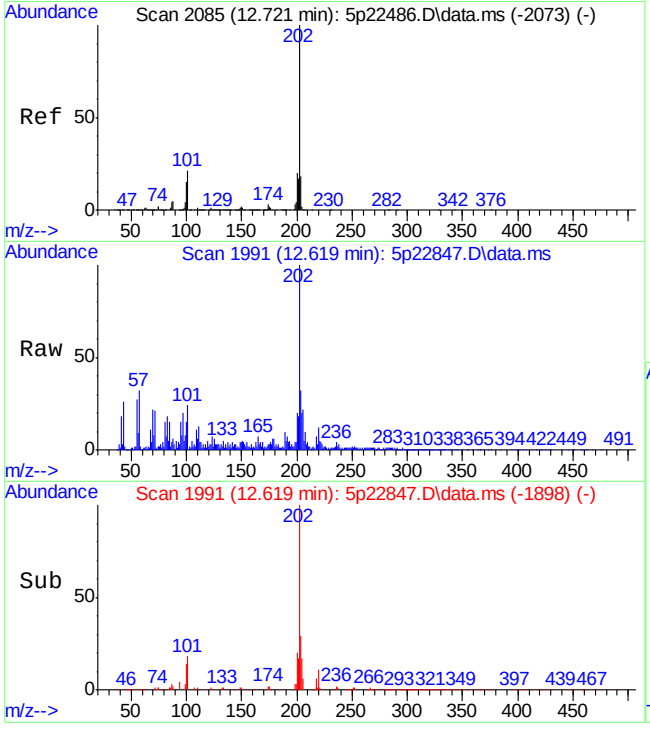


#81
Fluoranthene
Concen: 1.06 ppm
RT: 12.298 min Scan# 1931
Delta R.T. -0.005 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:202 Resp: 35000

Ion	Ratio	Lower	Upper
202	100		
101	16.6	0.0	47.7
203	20.7	0.0	47.6

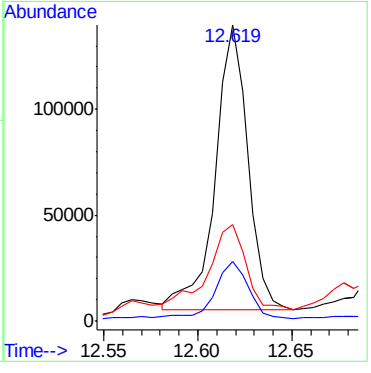


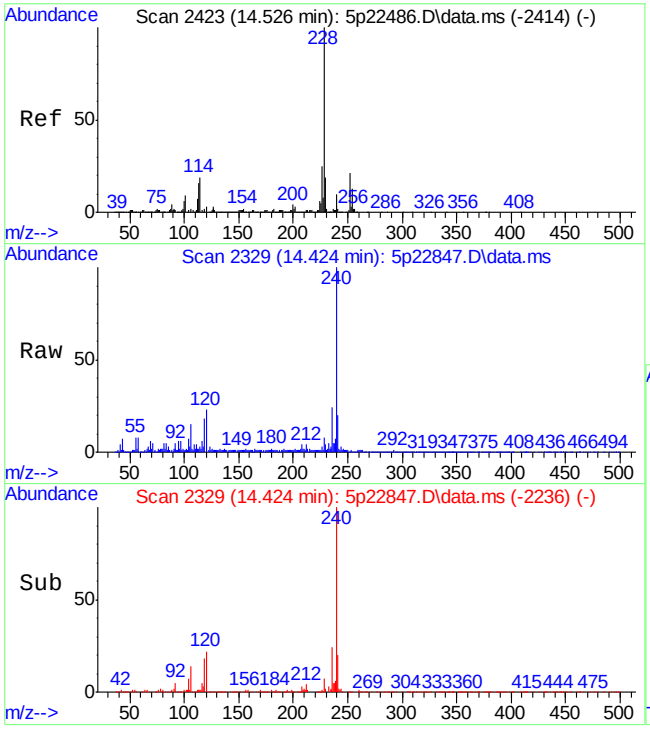


#84
Pyrene
Concen: 4.17 ppm
RT: 12.619 min Scan# 1991
Delta R.T. -0.005 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:202 Resp: 161753

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.9
203	28.9	0.0	48.3

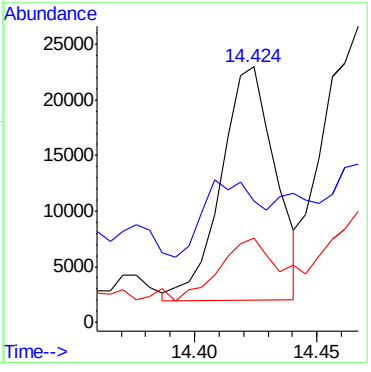


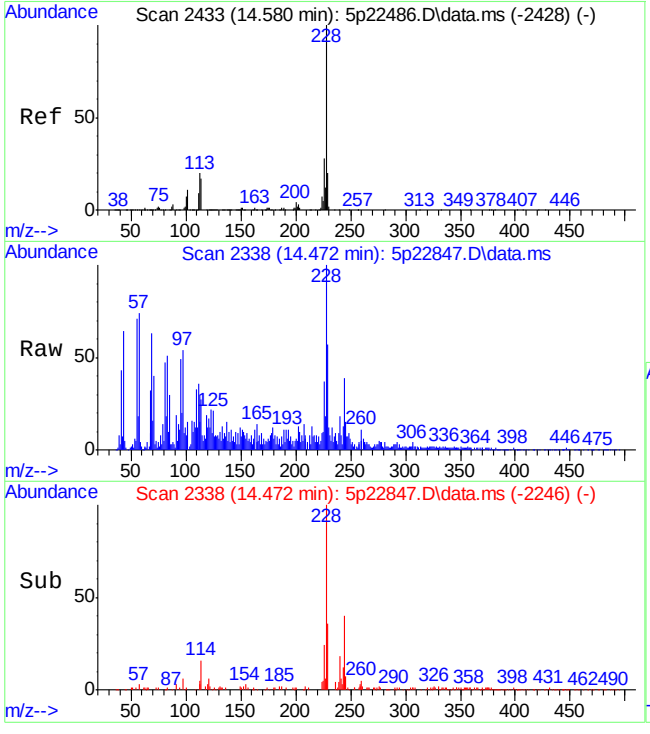


#88
Benzo[a]anthracene
Concen: 0.96 ppm
RT: 14.424 min Scan# 2329
Delta R.T. -0.005 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:228 Resp: 32642

Ion	Ratio	Lower	Upper
228	100		
229	11.3	0.0	50.3
226	19.9	0.0	56.5

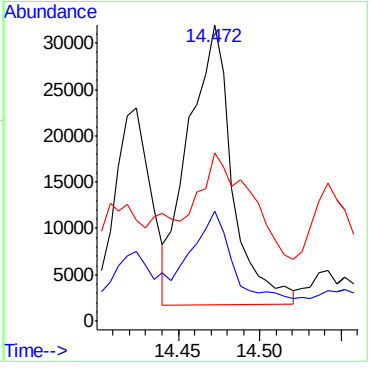




#90
Chrysene
Concen: 1.69 ppm
RT: 14.472 min Scan# 2338
Delta R.T. -0.011 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

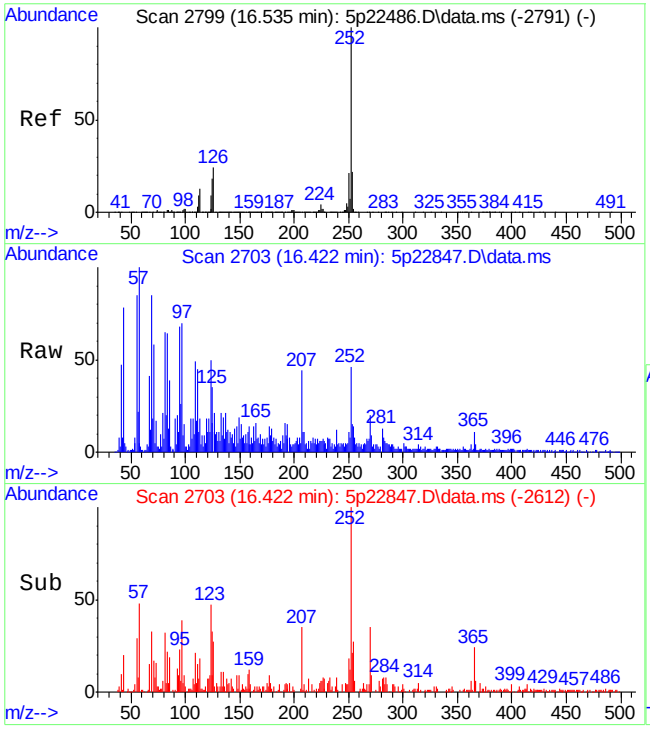
Tgt Ion:228 Resp: 57103

Ion	Ratio	Lower	Upper
228	100		
226	31.1	0.0	57.6
229	34.8	0.0	49.4



9.1.5

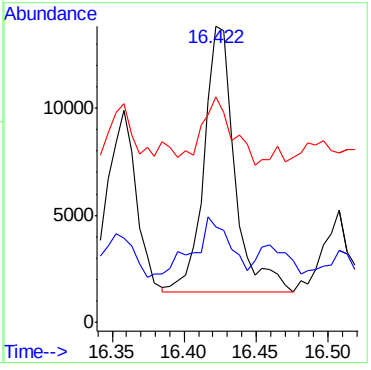
9



#96
Benzo[a]pyrene
Concen: 0.58 ppm
RT: 16.422 min Scan# 2703
Delta R.T. -0.016 min
Lab File: 5p22847.D
Acq: 5 Nov 15 7:04 pm

Tgt Ion:252 Resp: 18487

Ion	Ratio	Lower	Upper
252	100		
253	15.4	0.0	51.9
125	19.9	0.0	49.2



9.1.5

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22848.D
Acq On : 5 Nov 15 7:31 pm
Operator : alicjap
Sample : jc7291-5
Misc : op88533,e5p1168,31.3
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Nov 06 09:33:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

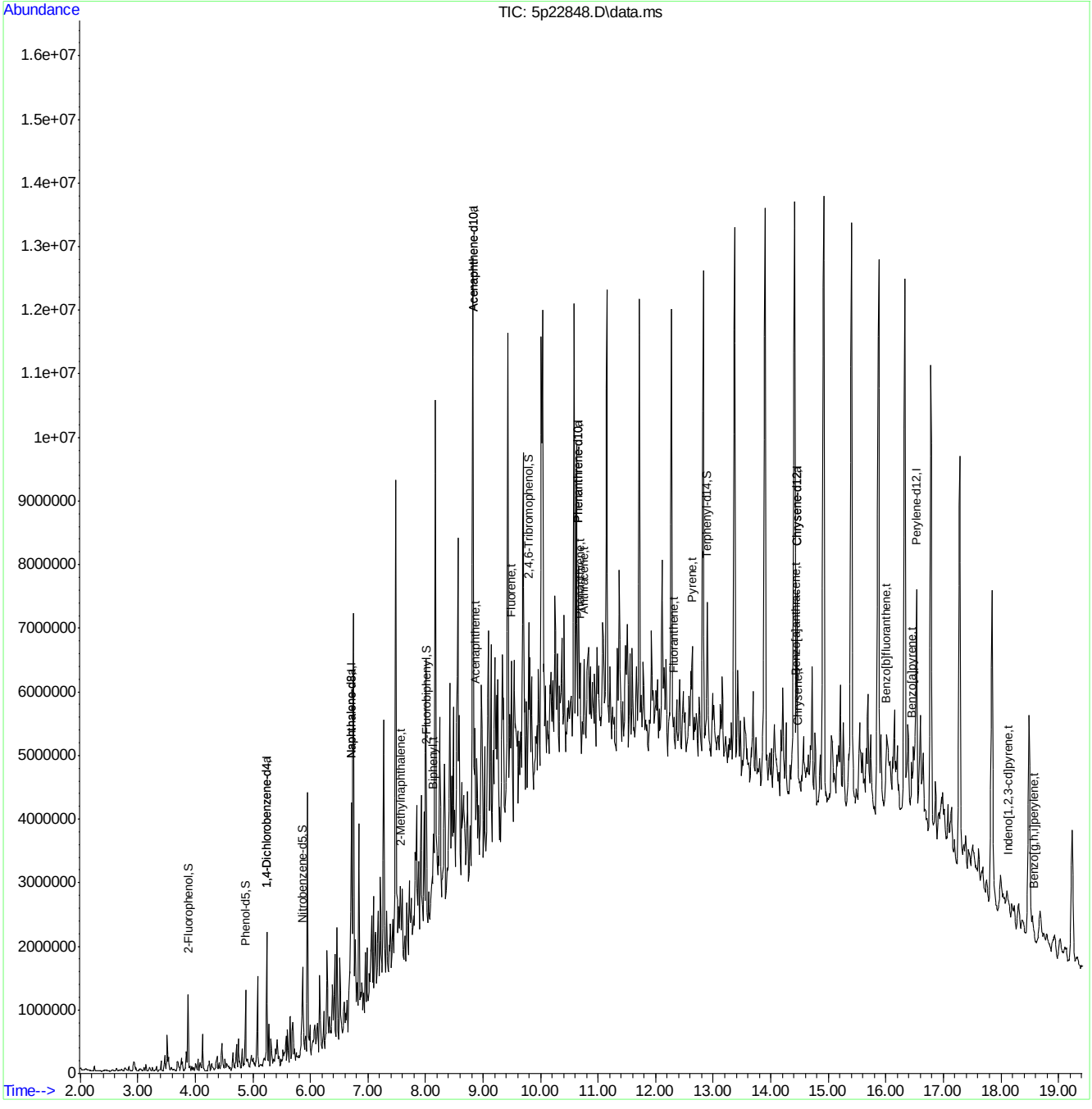
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.241	152	340514	40.00	ppm	0.00
24) Naphthalene-d8	6.710	136	1211714	40.00	ppm	0.00
47) Acenaphthene-d10	8.825	164	638226	40.00	ppm	0.00
69) Phenanthrene-d10	10.658	188	1339273	40.00	ppm	0.01
83) Chrysene-d12	14.456	240	1539097	40.00	ppm	0.02
92) Perylene-d12	16.534	264	1593514	40.00	ppm	0.03
102) 1,4-Dichlorobenzene-d4a	5.241	152	340514	40.00	ppm	0.00
104) Acenaphthene-d10a	8.825	164	638226	40.00	ppm	0.00
106) Chrysene-d12a	14.456	240	1539066	40.00	ppm	0.02
108) Phenanthrene-d10a	10.658	188	1337015	40.00	ppm	0.01
110) Naphthalene-d8a	6.710	136	1211714	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.873	112	392645	32.09	ppm	0.00
Spiked Amount 50.000			Recovery = 64.18%			
8) Phenol-d5	4.872	99	467162	31.92	ppm	0.00
Spiked Amount 50.000			Recovery = 63.84%			
25) Nitrobenzene-d5	5.866	82	375509	35.90	ppm	0.00
Spiked Amount 50.000			Recovery = 71.80%			
51) 2-Fluorobiphenyl	8.019	172	811153	40.17	ppm	0.00
Spiked Amount 50.000			Recovery = 80.34%			
73) 2,4,6-Tribromophenol	9.792	330	114798	31.15	ppm	0.00
Spiked Amount 50.000			Recovery = 62.30%			
85) Terphenyl-d14	12.896	244	1017415	32.26	ppm	0.01
Spiked Amount 50.000			Recovery = 64.52%			
Target Compounds						Qvalue
44) 2-Methylnaphthalene	7.565	141	36406	1.99	ppm #	69
53) Biphenyl	8.136	154	227529	9.59	ppm	97
59) Acenaphthene	8.863	153	75837	3.93	ppm	95
66) Fluorene	9.493	166	137919	6.29	ppm	85
77) Phenanthrene	10.685	178	503703	12.07	ppm	94
78) Anthracene	10.754	178	202336	4.88	ppm	73
81) Fluoranthene	12.314	202	111081	2.63	ppm	93
84) Pyrene	12.634	202	769120	14.51	ppm	100
88) Benzo[a]anthracene	14.440	228	56401	1.21	ppm	91
90) Chrysene	14.478	228	153516	3.33	ppm	95
94) Benzo[b]fluoranthene	16.011	252	38906	0.84	ppm	72
96) Benzo[a]pyrene	16.449	252	33528	0.77	ppm	94
97) Indeno[1,2,3-cd]pyrene	18.126	276	21117	0.48	ppm	84
101) Benzo[g,h,i]perylene	18.580	276	34205	0.73	ppm	82

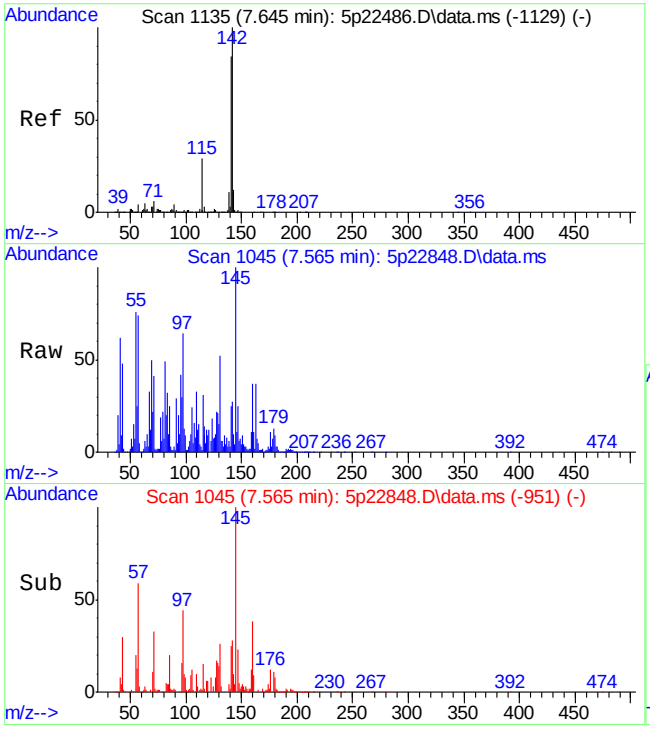
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1168\
Data File : 5p22848.D
Acq On : 5 Nov 15 7:31 pm
Operator : alicjap
Sample : jc7291-5
Misc : op88533,e5p1168,31.3
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Nov 06 09:33:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

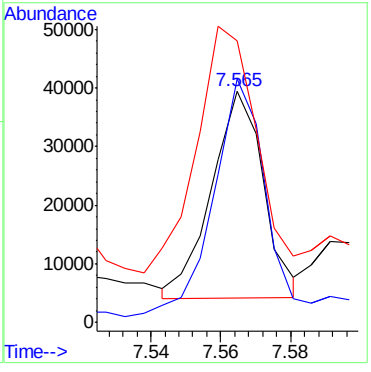


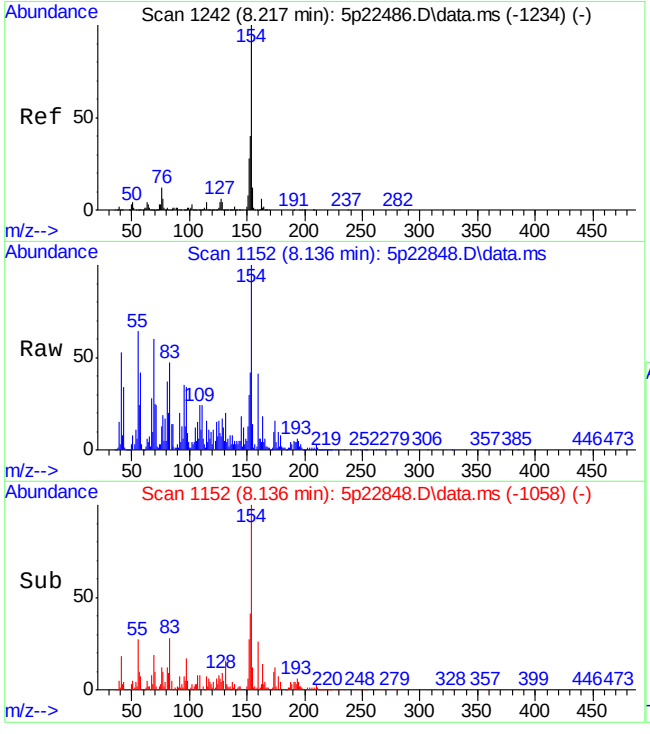


#44
2-Methylnaphthalene
Concen: 1.99 ppm
RT: 7.565 min Scan# 1045
Delta R.T. -0.000 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:141 Resp: 36406

Ion	Ratio	Lower	Upper
141	100		
142	116.1	88.6	148.6
115	109.8	5.3	65.3#

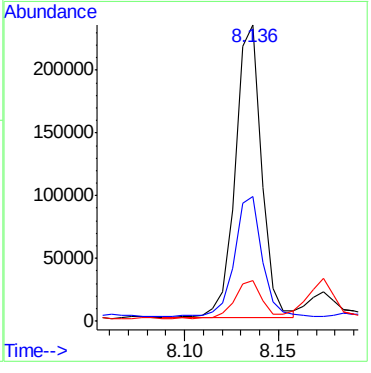


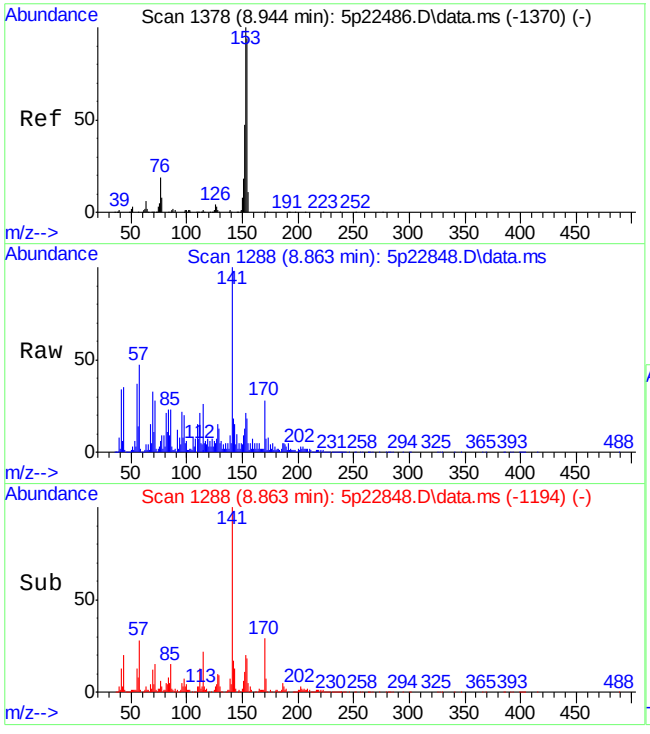


#53
Biphenyl
Concen: 9.59 ppm
RT: 8.136 min Scan# 1152
Delta R.T. -0.000 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:154 Resp: 227529

Ion	Ratio	Lower	Upper
154	100		
153	40.9	9.1	69.1
155	11.9	0.0	43.2

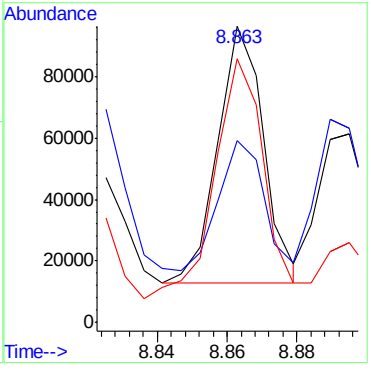


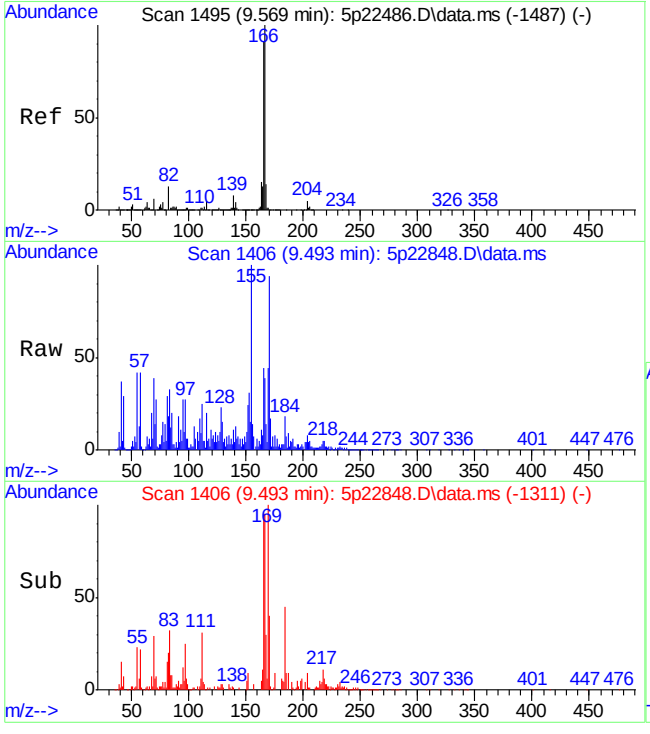


#59
Acenaphthene
Concen: 3.93 ppm
RT: 8.863 min Scan# 1288
Delta R.T. -0.000 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:153 Resp: 75837

Ion	Ratio	Lower	Upper
153	100		
152	50.4	16.1	76.1
154	91.5	57.7	117.7

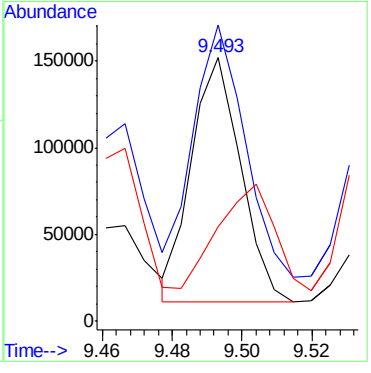


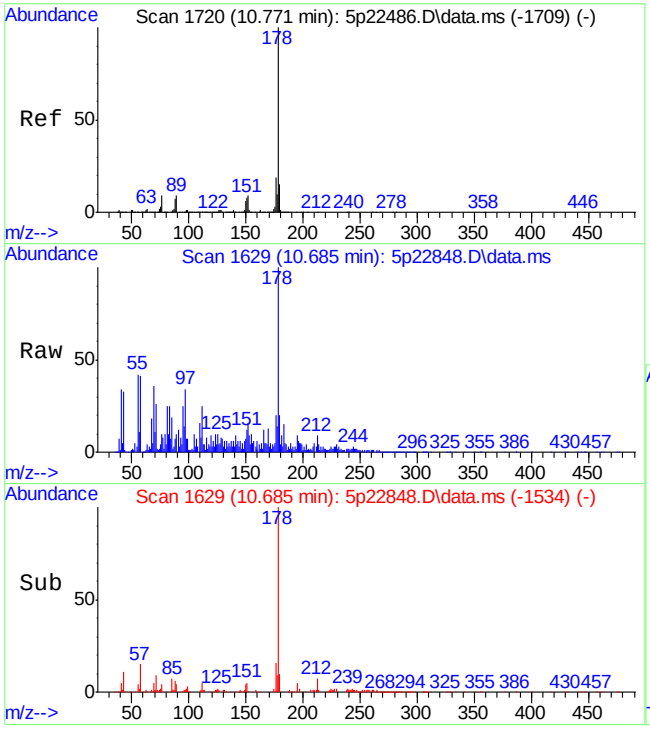


#66
Fluorene
Concen: 6.29 ppm
RT: 9.493 min Scan# 1406
Delta R.T. 0.005 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:166 Resp: 137919

Ion	Ratio	Lower	Upper
166	100		
165	102.8	60.3	120.3
167	24.1	0.0	43.3

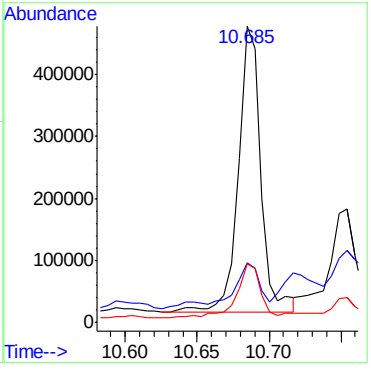


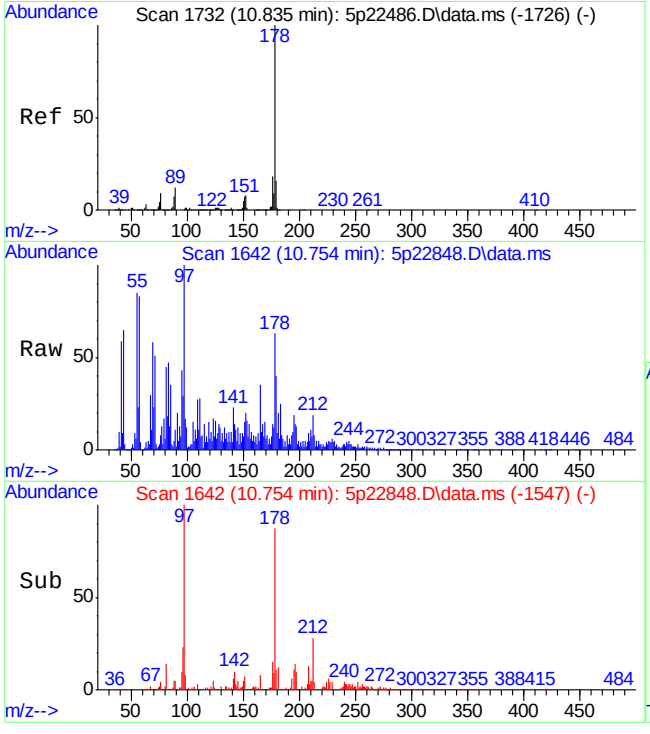


#77
Phenanthrene
Concen: 12.07 ppm
RT: 10.685 min Scan# 1629
Delta R.T. 0.005 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:178 Resp: 503703

Ion	Ratio	Lower	Upper
178	100		
179	10.1	0.0	45.2
176	18.7	0.0	48.8

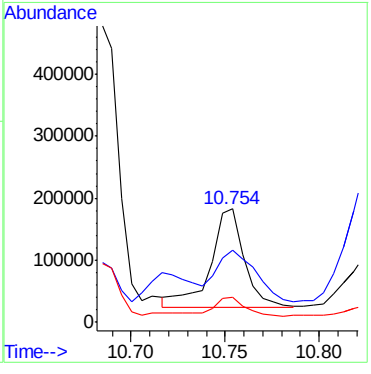


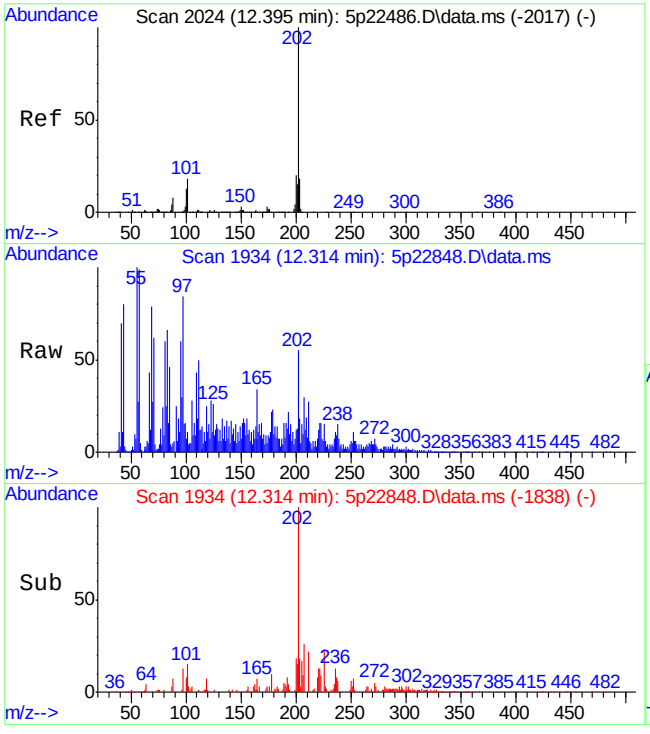


#78
Anthracene
Concen: 4.88 ppm
RT: 10.754 min Scan# 1642
Delta R.T. 0.005 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:178 Resp: 202336

Ion	Ratio	Lower	Upper
178	100		
179	39.5	0.0	45.2
176	18.3	0.0	47.9

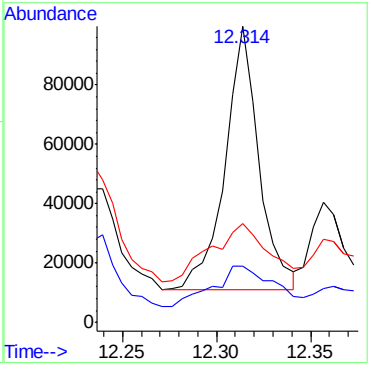


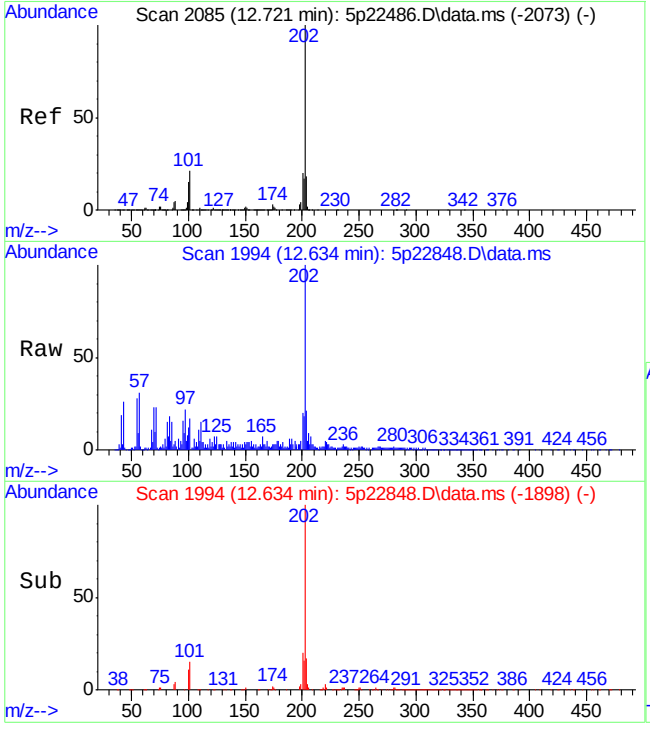


#81
Fluoranthene
Concen: 2.63 ppm
RT: 12.314 min Scan# 1934
Delta R.T. 0.011 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:202 Resp: 111081

Ion	Ratio	Lower	Upper
202	100		
101	14.1	0.0	47.7
203	20.3	0.0	47.6

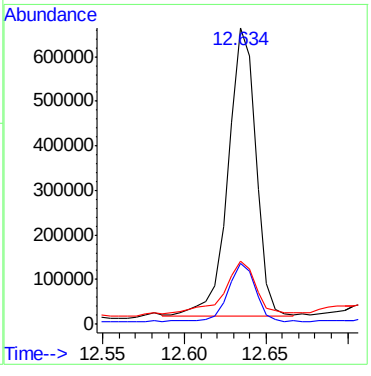




#84
Pyrene
Concen: 14.51 ppm
RT: 12.634 min Scan# 1994
Delta R.T. 0.011 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

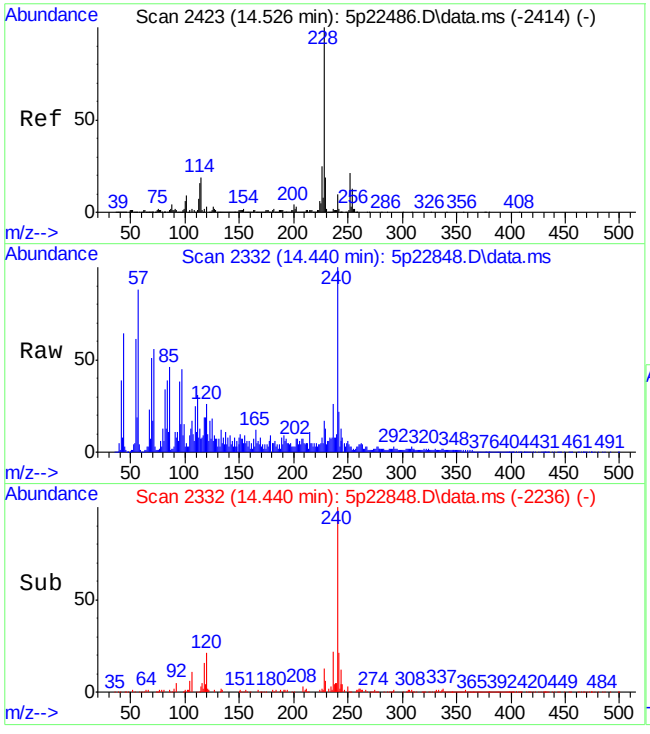
Tgt Ion:202 Resp: 769120

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.9
203	18.0	0.0	48.3



9.1.6

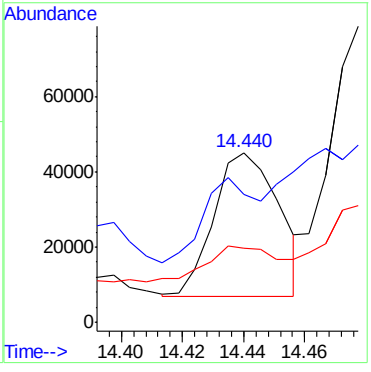
9

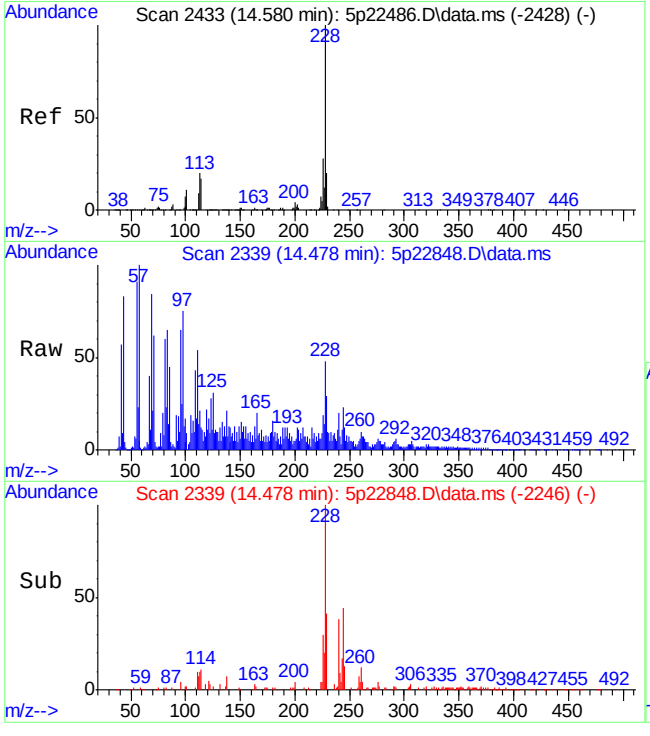


#88
Benzo[a]anthracene
Concen: 1.21 ppm
RT: 14.440 min Scan# 2332
Delta R.T. 0.011 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:228 Resp: 56401

Ion	Ratio	Lower	Upper
228	100		
229	20.7	0.0	50.3
226	19.0	0.0	56.5

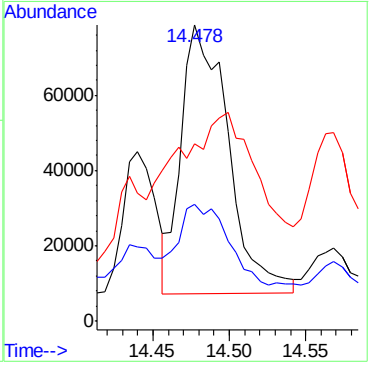




#90
Chrysene
Concen: 3.33 ppm
RT: 14.478 min Scan# 2339
Delta R.T. -0.005 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

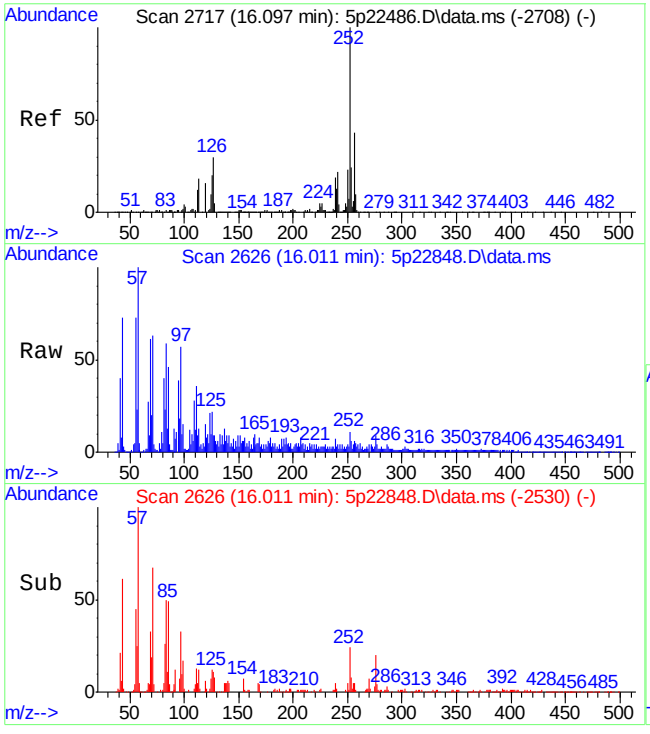
Tgt Ion:228 Resp: 153516

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	57.6
229	23.7	0.0	49.4



9.1.6

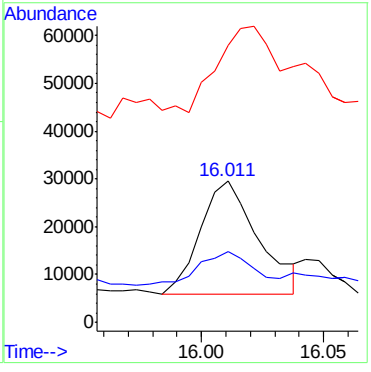
9

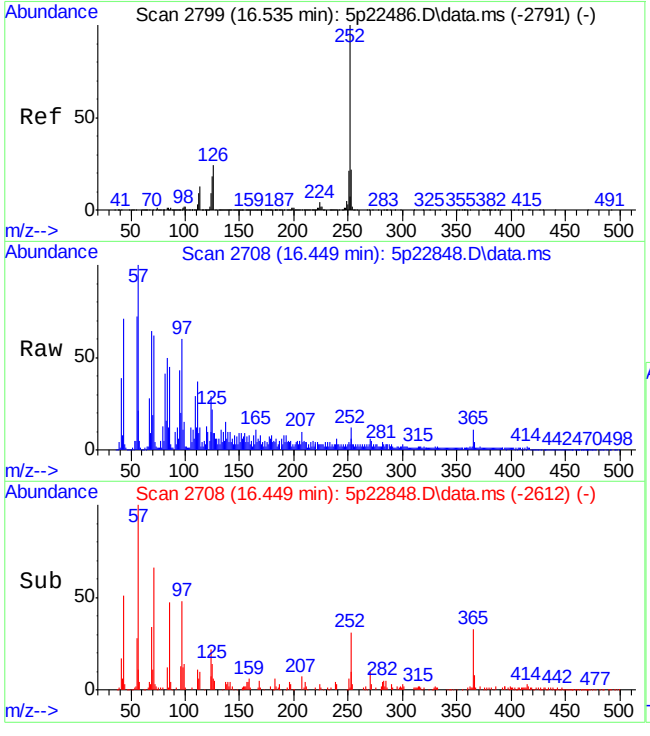


#94
Benzo[b]fluoranthene
Concen: 0.84 ppm
RT: 16.011 min Scan# 2626
Delta R.T. 0.011 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:252 Resp: 38906

Ion	Ratio	Lower	Upper
252	100		
253	26.5	0.0	54.3
125	44.2	0.0	48.2

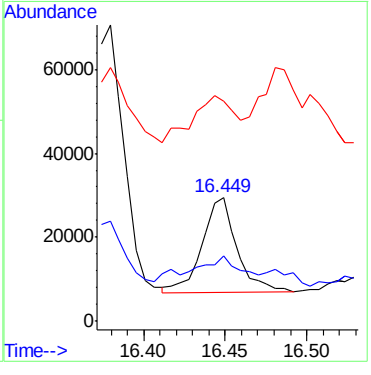




#96
Benzo[a]pyrene
Concen: 0.77 ppm
RT: 16.449 min Scan# 2708
Delta R.T. 0.011 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

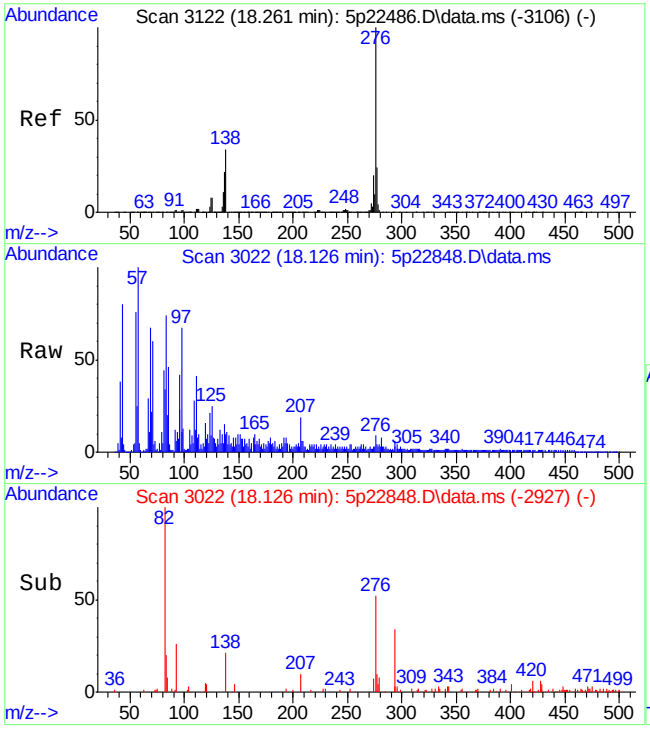
Tgt Ion:252 Resp: 33528

Ion	Ratio	Lower	Upper
252	100		
253	19.3	0.0	51.9
125	16.5	0.0	49.2



9.1.6

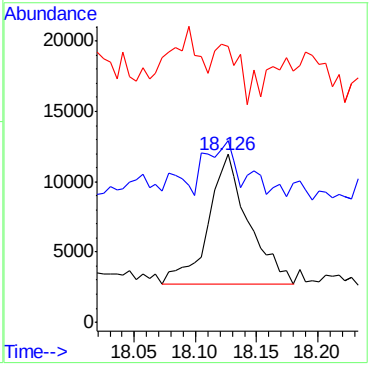
9

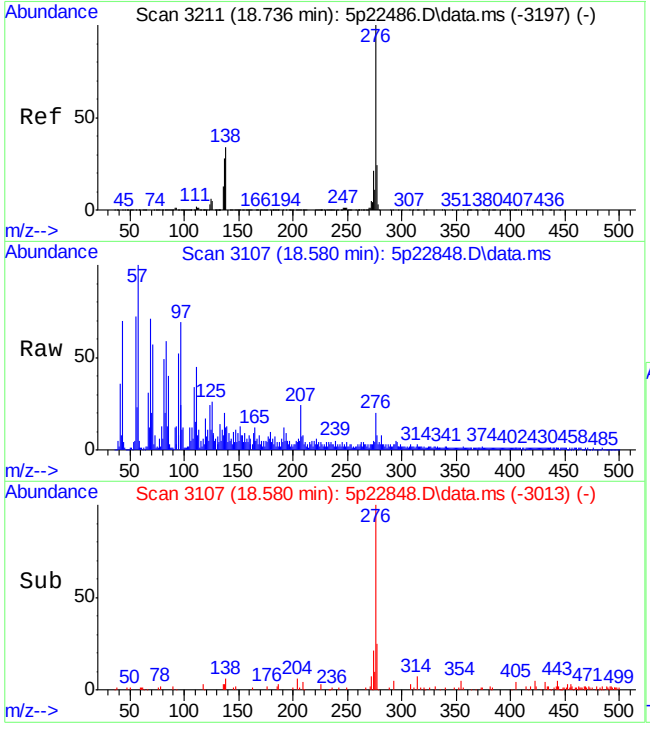


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.48 ppm
RT: 18.126 min Scan# 3022
Delta R.T. 0.005 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:276 Resp: 21117

Ion	Ratio	Lower	Upper
276	100		
138	36.0	0.0	56.7
137	14.3	0.0	50.6

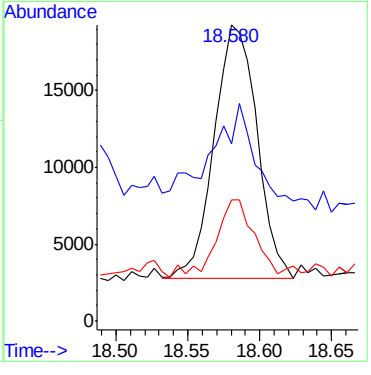




#101
Benzo[g,h,i]perylene
Concen: 0.73 ppm
RT: 18.580 min Scan# 3107
Delta R.T. -0.000 min
Lab File: 5p22848.D
Acq: 5 Nov 15 7:31 pm

Tgt Ion:276 Resp: 34205

Ion	Ratio	Lower	Upper
276	100		
138	20.7	5.7	65.7
277	27.2	0.0	54.3



9.1.6

9

Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
11/10/15 18:37

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22981.D
Acq On : 9 Nov 15 5:11 pm
Operator : alicjap
Sample : jc7291-5
Misc : op88533,e5p1173,31.3,,,1,2
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 10 08:54:52 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.214	152	298287	40.00	ppm	-0.03
24) Naphthalene-d8	6.678	136	1034528	40.00	ppm	-0.03
47) Acenaphthene-d10	8.793	164	541827	40.00	ppm	-0.03
69) Phenanthrene-d10	10.620	188	918502	40.00	ppm	-0.03
83) Chrysene-d12	14.408	240	859779	40.00	ppm	-0.03
92) Perylene-d12	16.481	264	858500	40.00	ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	5.214	152	298287	40.00	ppm	-0.03
104) Acenaphthene-d10a	8.793	164	541827	40.00	ppm	-0.03
106) Chrysene-d12a	14.408	240	859779	40.00	ppm	-0.03
108) Phenanthrene-d10a	10.620	188	918502	40.00	ppm	-0.03
110) Naphthalene-d8a	6.678	136	1034528	40.00	ppm	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	3.857	112	191471	17.86	ppm	-0.02
Spiked Amount 50.000			Recovery = 35.72%			
8) Phenol-d5	4.856	99	231947	18.09	ppm	-0.02
Spiked Amount 50.000			Recovery = 36.18%			
25) Nitrobenzene-d5	5.839	82	191708	21.47	ppm	-0.03
Spiked Amount 50.000			Recovery = 42.94%			
51) 2-Fluorobiphenyl	7.987	172	360308	21.02	ppm	-0.03
Spiked Amount 50.000			Recovery = 42.04%			
73) 2,4,6-Tribromophenol	9.760	330	40192	15.90	ppm	-0.03
Spiked Amount 50.000			Recovery = 31.80%			
85) Terphenyl-d14	12.853	244	326019	18.51	ppm	-0.03
Spiked Amount 50.000			Recovery = 37.02%			
Target Compounds						Qvalue
44) 2-Methylnaphthalene	7.533	141	15988	1.02	ppm #	62
53) Biphenyl	8.104	154	97215	4.83	ppm	97
59) Acenaphthene	8.831	153	31336	1.91	ppm	92
66) Fluorene	9.461	166	58968	3.17	ppm	78
77) Phenanthrene	10.647	178	179563	6.28	ppm	93
78) Anthracene	10.717	178	74465m	2.62	ppm	
81) Fluoranthene	12.271	202	35376	1.22	ppm	94
84) Pyrene	12.592	202	276017	9.32	ppm	99
88) Benzo[a]anthracene	14.392	228	18945	0.73	ppm	63
90) Chrysene	14.429	228	43734	1.70	ppm	89
94) Benzo[b]fluoranthene	15.957	252	12663	0.51	ppm	90
96) Benzo[a]pyrene	16.395	252	11019	0.47	ppm	89
101) Benzo[g,h,i]perylene	18.511	276	12158	0.48	ppm	88

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

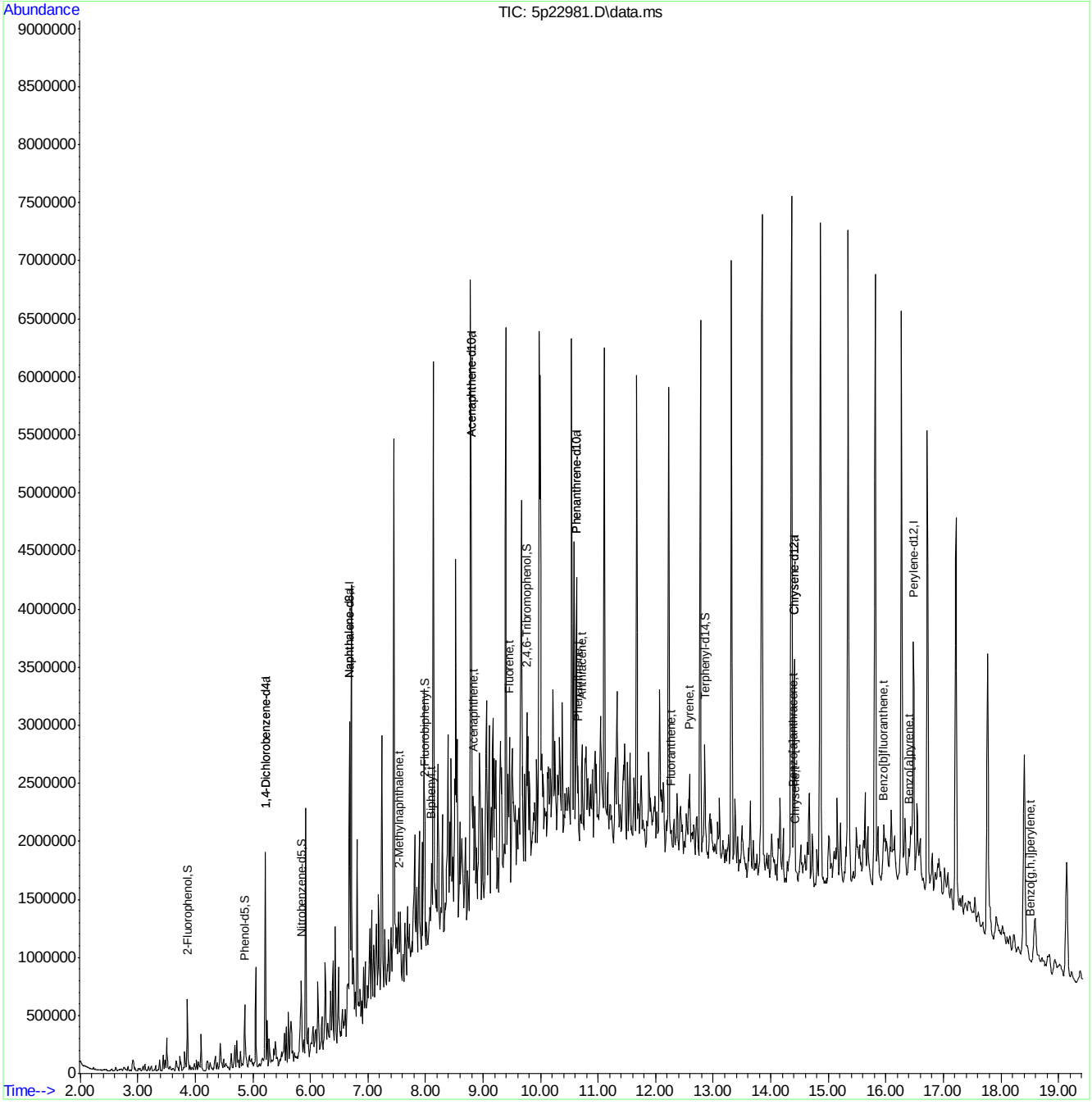
9.1.7

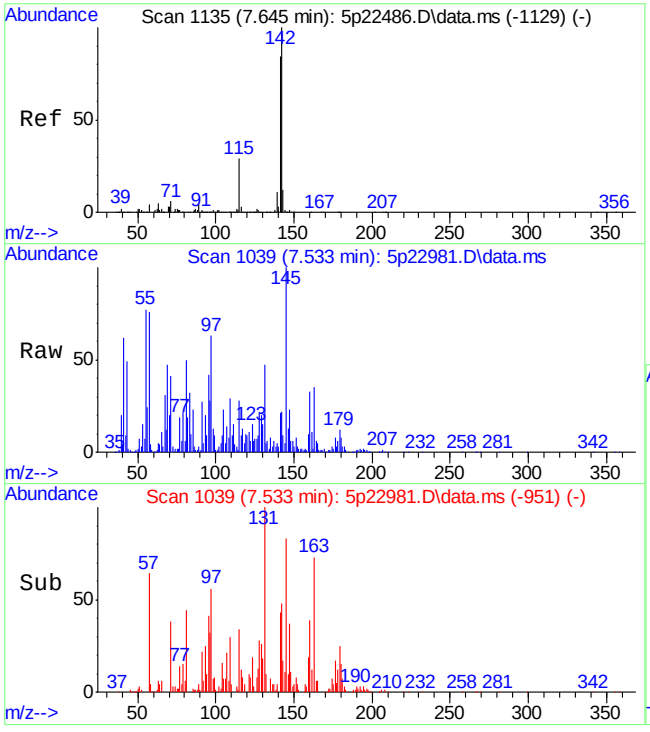
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22981.D
Acq On : 9 Nov 15 5:11 pm
Operator : alicjap
Sample : jc7291-5
Misc : op88533,e5p1173,31.3,,,1,2
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 10 08:54:52 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

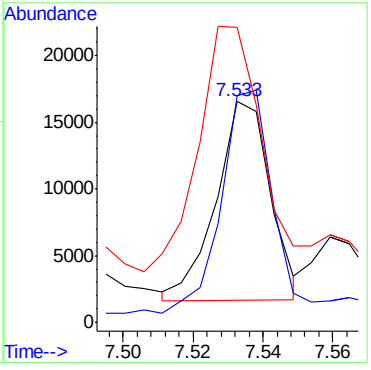


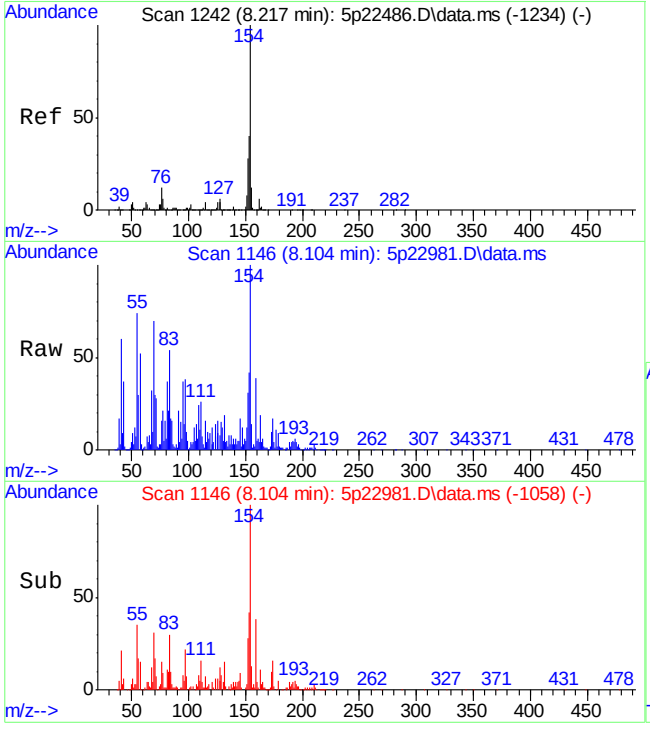


#44
2-Methylnaphthalene
Concen: 1.02 ppm
RT: 7.533 min Scan# 1039
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:141 Resp: 15988

Ion	Ratio	Lower	Upper
141	100		
142	113.7	88.6	148.6
115	122.1	5.3	65.3#

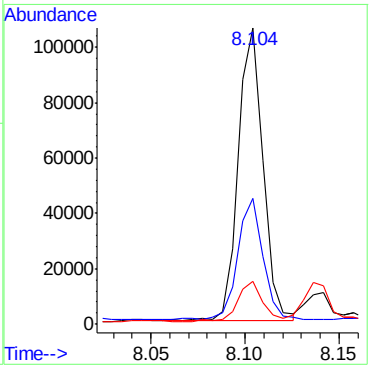




#53
Biphenyl
Concen: 4.83 ppm
RT: 8.104 min Scan# 1146
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:154 Resp: 97215

Ion	Ratio	Lower	Upper
154	100		
153	41.4	9.1	69.1
155	12.6	0.0	43.2



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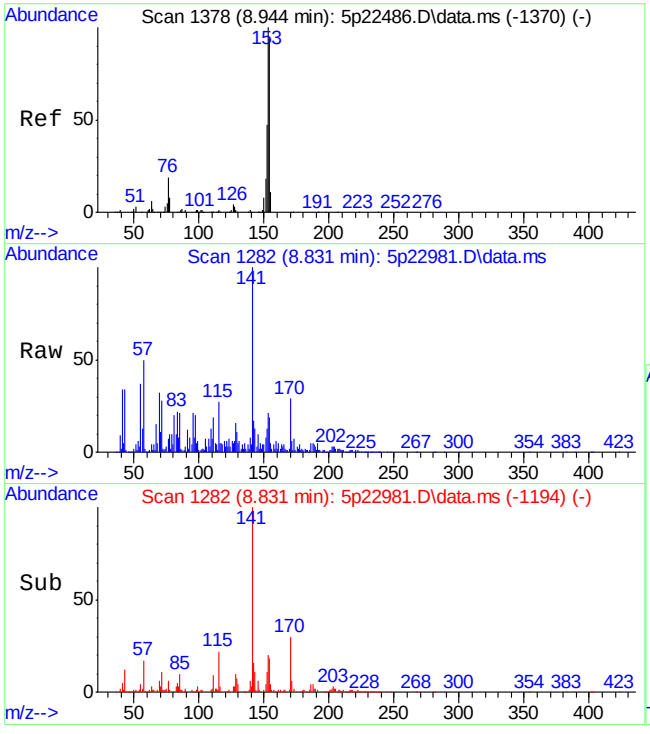
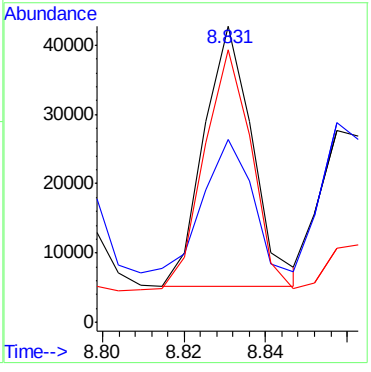
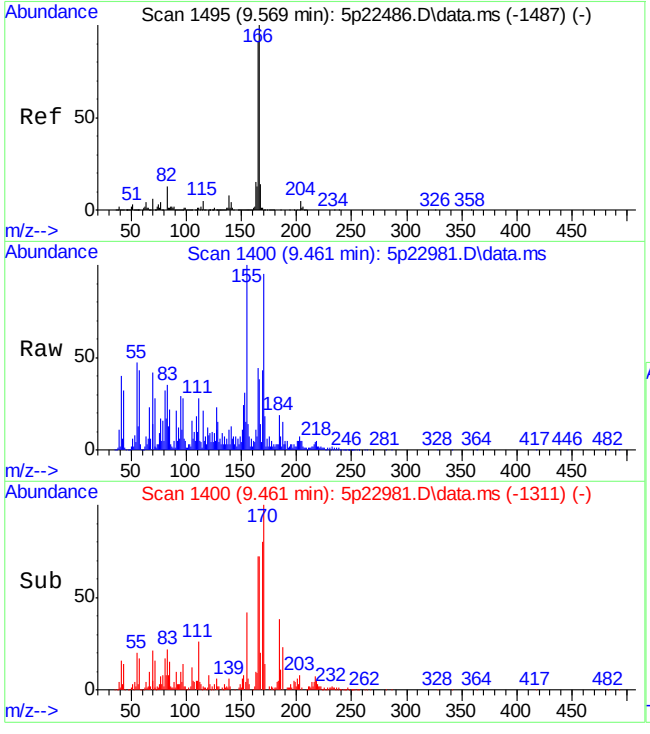


#59
Acenaphthene
Concen: 1.91 ppm
RT: 8.831 min Scan# 1282
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:153 Resp: 31336

Ion	Ratio	Lower	Upper
153	100		
152	52.2	16.1	76.1
154	95.2	57.7	117.7

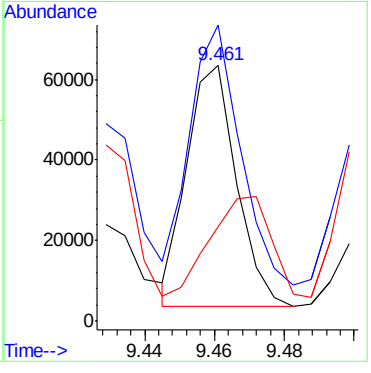


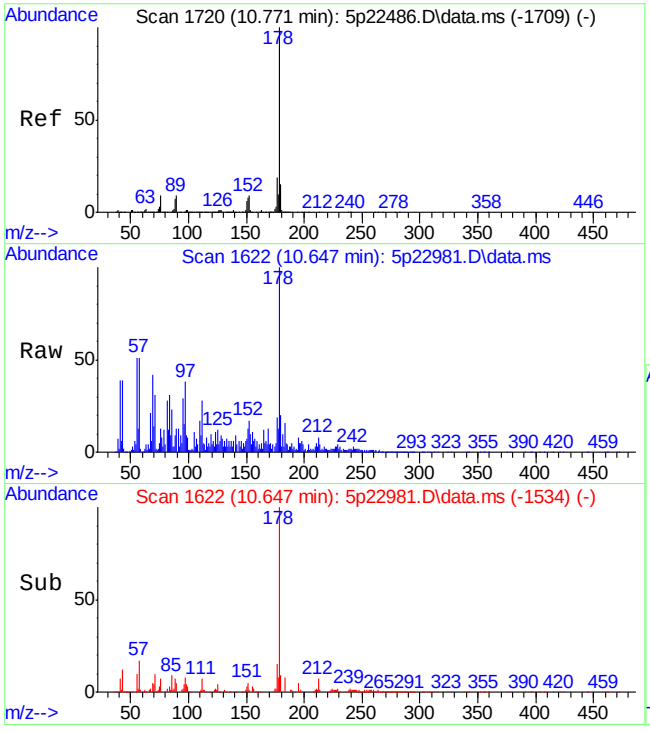


#66
Fluorene
Concen: 3.17 ppm
RT: 9.461 min Scan# 1400
Delta R.T. -0.027 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:166 Resp: 58968

Ion	Ratio	Lower	Upper
166	100		
165	108.1	60.3	120.3
167	29.5	0.0	43.3

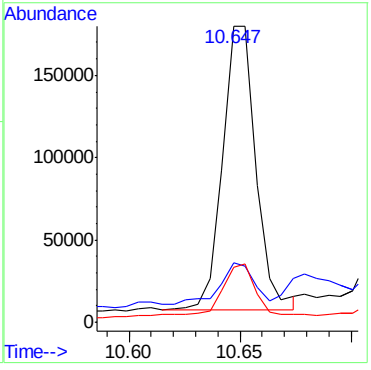


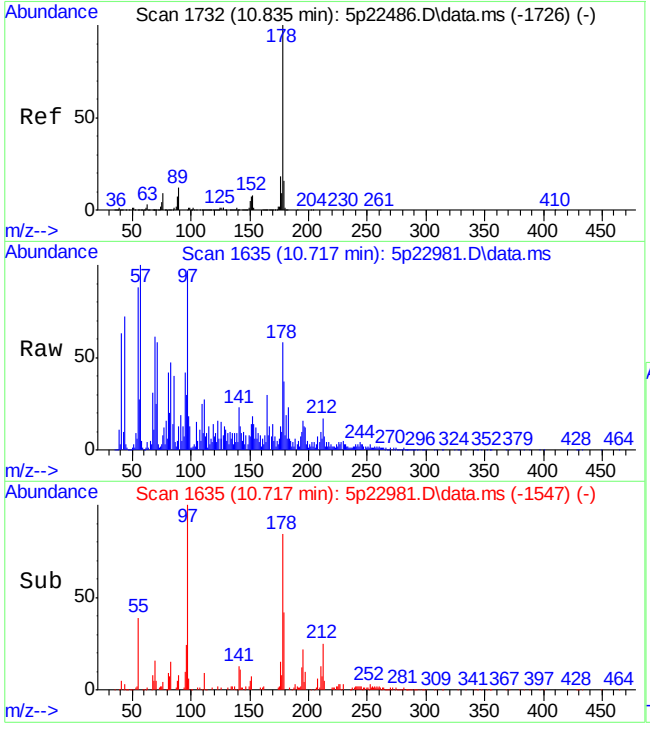


#77
Phenanthrene
Concen: 6.28 ppm
RT: 10.647 min Scan# 1622
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:178 Resp: 179563

Ion	Ratio	Lower	Upper
178	100		
179	10.4	0.0	45.2
176	17.1	0.0	48.8

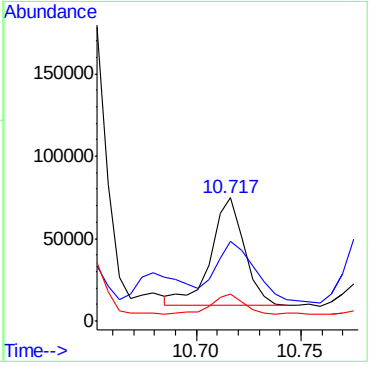




#78
Anthracene
Concen: 2.62 ppm m
RT: 10.717 min Scan# 1635
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:178 Resp: 74465

Ion	Ratio	Lower	Upper
178	100		
179	64.2	0.0	45.2#
176	22.3	0.0	47.9



9.1.7

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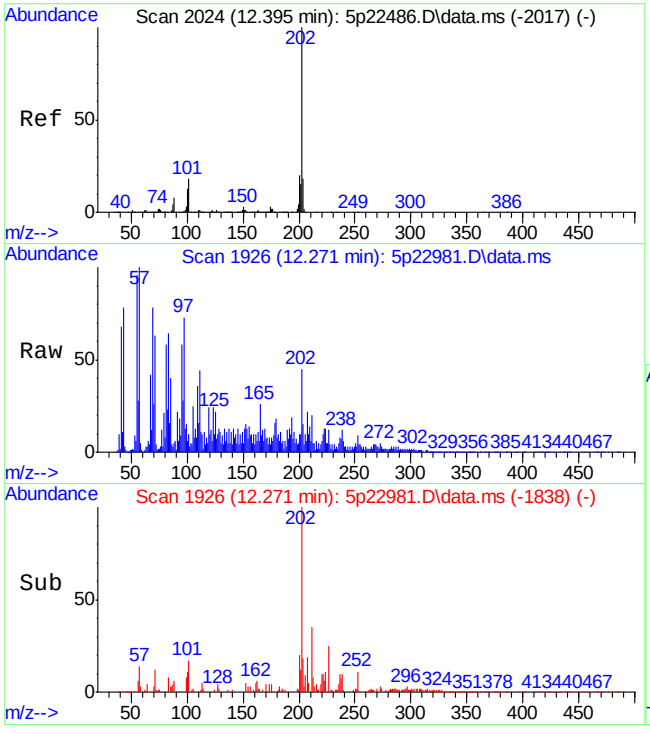
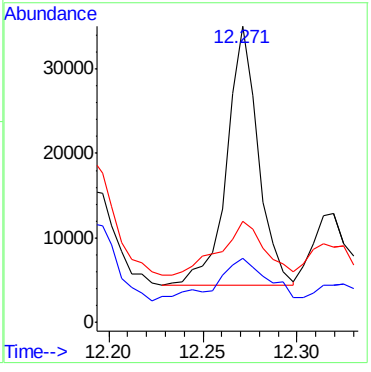
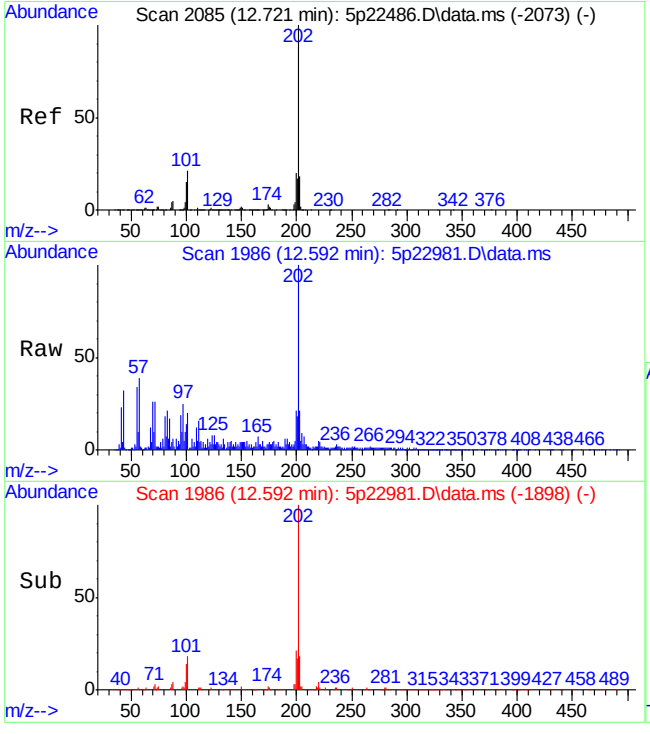


#81
Fluoranthene
Concen: 1.22 ppm
RT: 12.271 min Scan# 1926
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:202 Resp: 35376

Ion	Ratio	Lower	Upper
202	100		
101	15.1	0.0	47.7
203	20.3	0.0	47.6

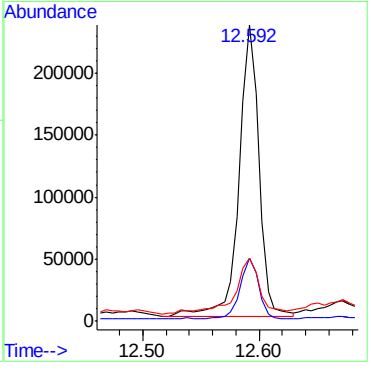


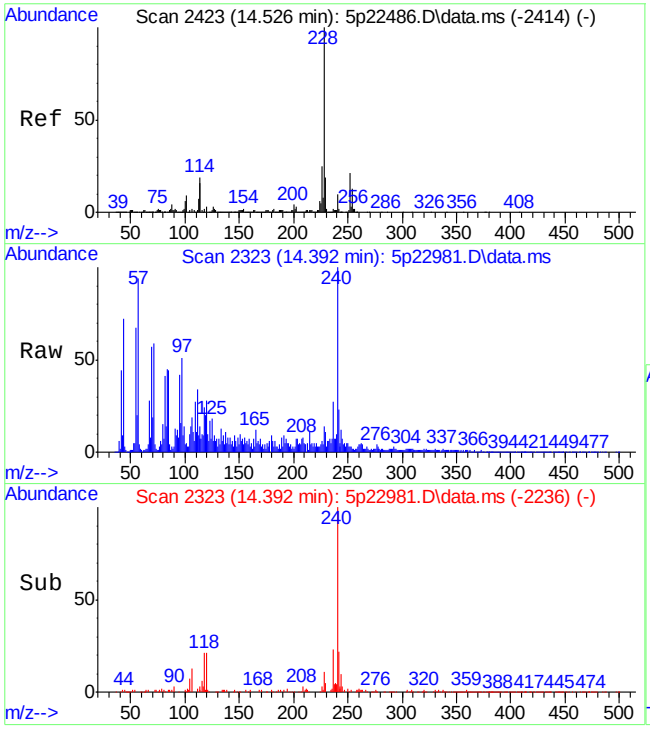


#84
Pyrene
Concen: 9.32 ppm
RT: 12.592 min Scan# 1986
Delta R.T. -0.032 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:202 Resp: 276017

Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.0	49.9
203	18.6	0.0	48.3

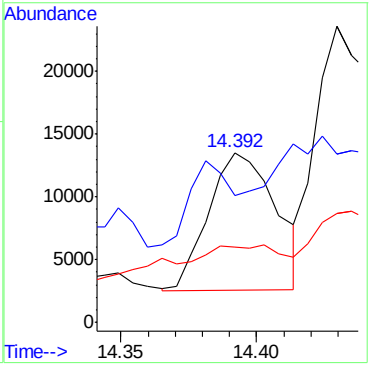


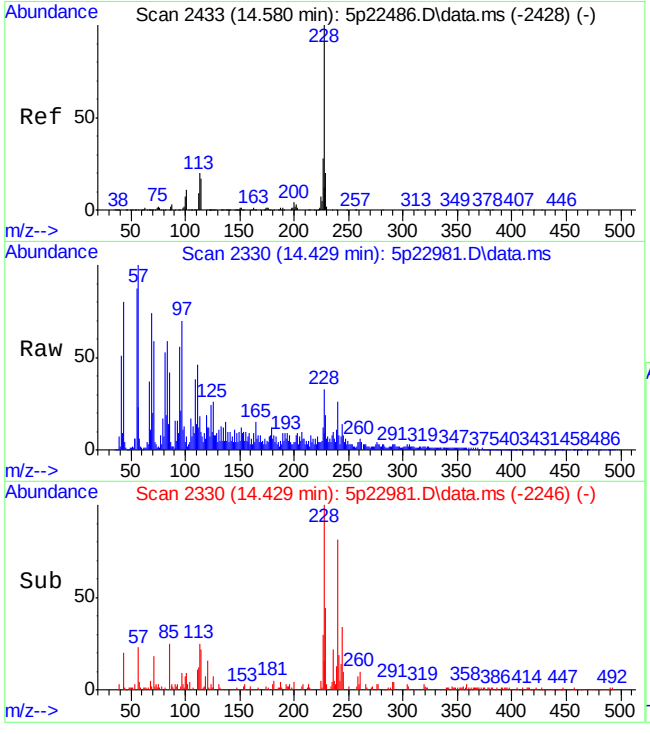


#88
Benzo[a]anthracene
Concen: 0.73 ppm
RT: 14.392 min Scan# 2323
Delta R.T. -0.038 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:228 Resp: 18945

Ion	Ratio	Lower	Upper
228	100		
229	0.0	0.0	50.3
226	9.8	0.0	56.5

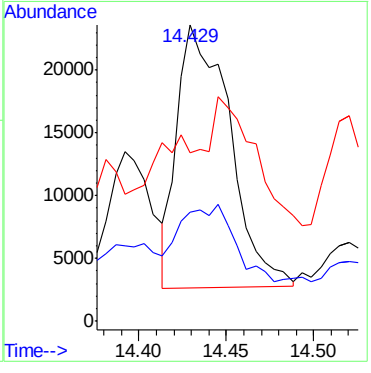


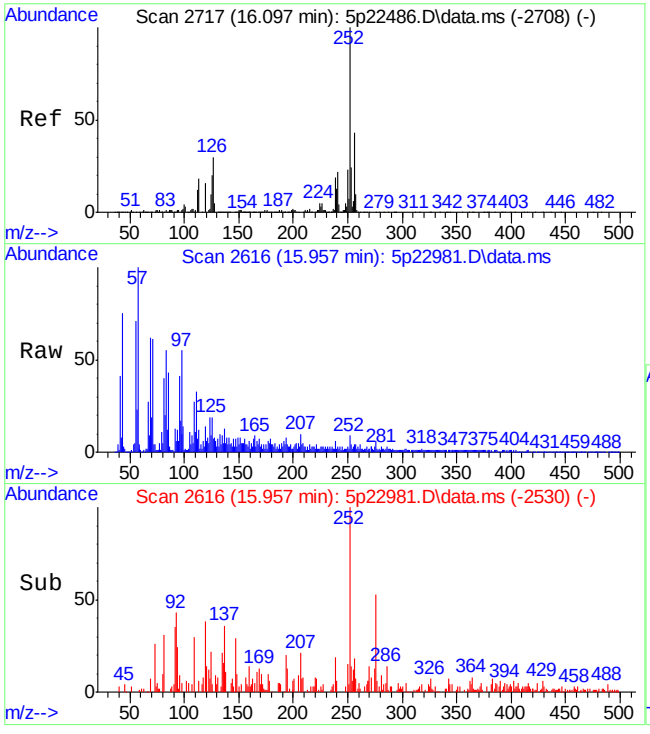


#90
Chrysene
Concen: 1.70 ppm
RT: 14.429 min Scan# 2330
Delta R.T. -0.054 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:228 Resp: 43734

Ion	Ratio	Lower	Upper
228	100		
226	24.4	0.0	57.6
229	11.4	0.0	49.4

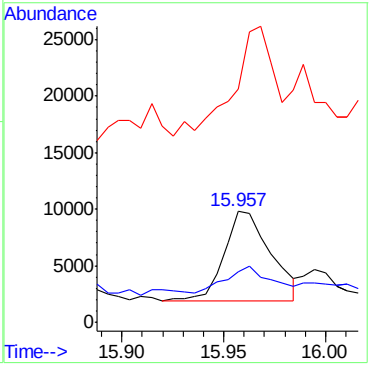


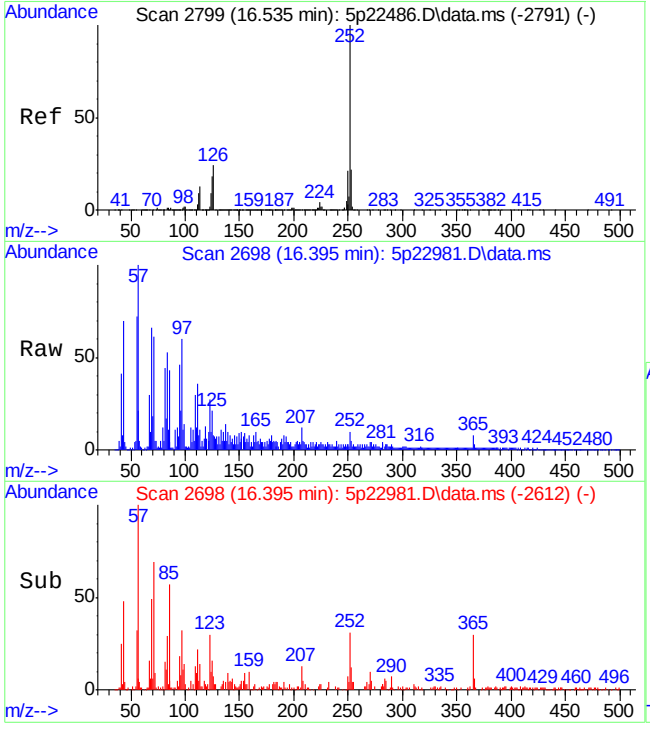


#94
Benzo[b]fluoranthene
Concen: 0.51 ppm
RT: 15.957 min Scan# 2616
Delta R.T. -0.043 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:252 Resp: 12663

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	54.3
125	25.4	0.0	48.2

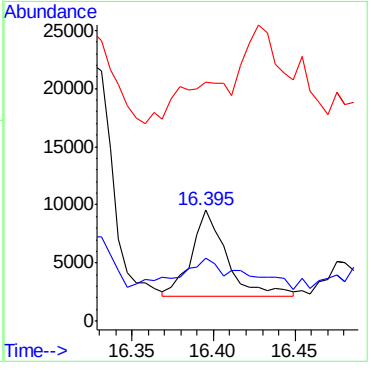




#96
Benzo[a]pyrene
Concen: 0.47 ppm
RT: 16.395 min Scan# 2698
Delta R.T. -0.043 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:252 Resp: 11019

Ion	Ratio	Lower	Upper
252	100		
253	29.8	0.0	51.9
125	21.6	0.0	49.2



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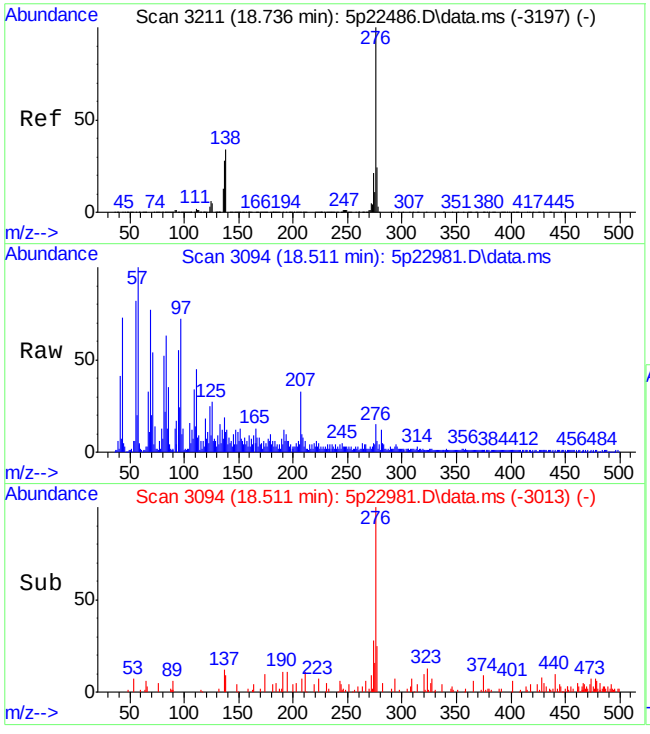
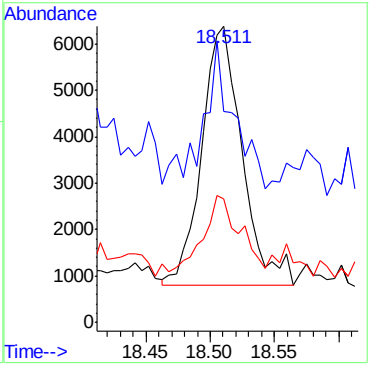


#101
Benzo[g,h,i]perylene
Concen: 0.48 ppm
RT: 18.511 min Scan# 3094
Delta R.T. -0.070 min
Lab File: 5p22981.D
Acq: 9 Nov 15 5:11 pm

Tgt Ion:276 Resp: 12158

Ion	Ratio	Lower	Upper
276	100		
138	24.8	5.7	65.7
277	25.4	0.0	54.3



9.1.7

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22982.D
Acq On : 9 Nov 2015 5:37 pm
Operator : alicjap
Sample : jc7291-6
Misc : op88533,e5p1173,31.0
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Nov 10 08:57:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.214	152	305274	40.00 ppm	-0.03
24) Naphthalene-d8	6.678	136	1082111	40.00 ppm	-0.03
47) Acenaphthene-d10	8.788	164	601045	40.00 ppm	-0.03
69) Phenanthrene-d10	10.615	188	942034	40.00 ppm	-0.03
83) Chrysene-d12	14.403	240	800923	40.00 ppm	-0.04
92) Perylene-d12	16.470	264	795982	40.00 ppm	-0.04
102) 1,4-Dichlorobenzene-d4a	5.214	152	305274	40.00 ppm	-0.03
104) Acenaphthene-d10a	8.788	164	601045	40.00 ppm	-0.03
106) Chrysene-d12a	14.403	240	800923	40.00 ppm	-0.03
108) Phenanthrene-d10a	10.615	188	942034	40.00 ppm	-0.03
110) Naphthalene-d8a	6.678	136	1082111	40.00 ppm	-0.03
System Monitoring Compounds					
5) 2-Fluorophenol	3.857	112	419447	38.24 ppm	-0.02
Spiked Amount 50.000			Recovery	= 76.48%	
8) Phenol-d5	4.856	99	503695	38.39 ppm	-0.02
Spiked Amount 50.000			Recovery	= 76.78%	
25) Nitrobenzene-d5	5.839	82	393332	42.11 ppm	-0.03
Spiked Amount 50.000			Recovery	= 84.22%	
51) 2-Fluorobiphenyl	7.987	172	793397	41.72 ppm	-0.03
Spiked Amount 50.000			Recovery	= 83.44%	
73) 2,4,6-Tribromophenol	9.755	330	92324	35.61 ppm	-0.03
Spiked Amount 50.000			Recovery	= 71.22%	
85) Terphenyl-d14	12.848	244	681850	41.55 ppm	-0.04
Spiked Amount 50.000			Recovery	= 83.10%	

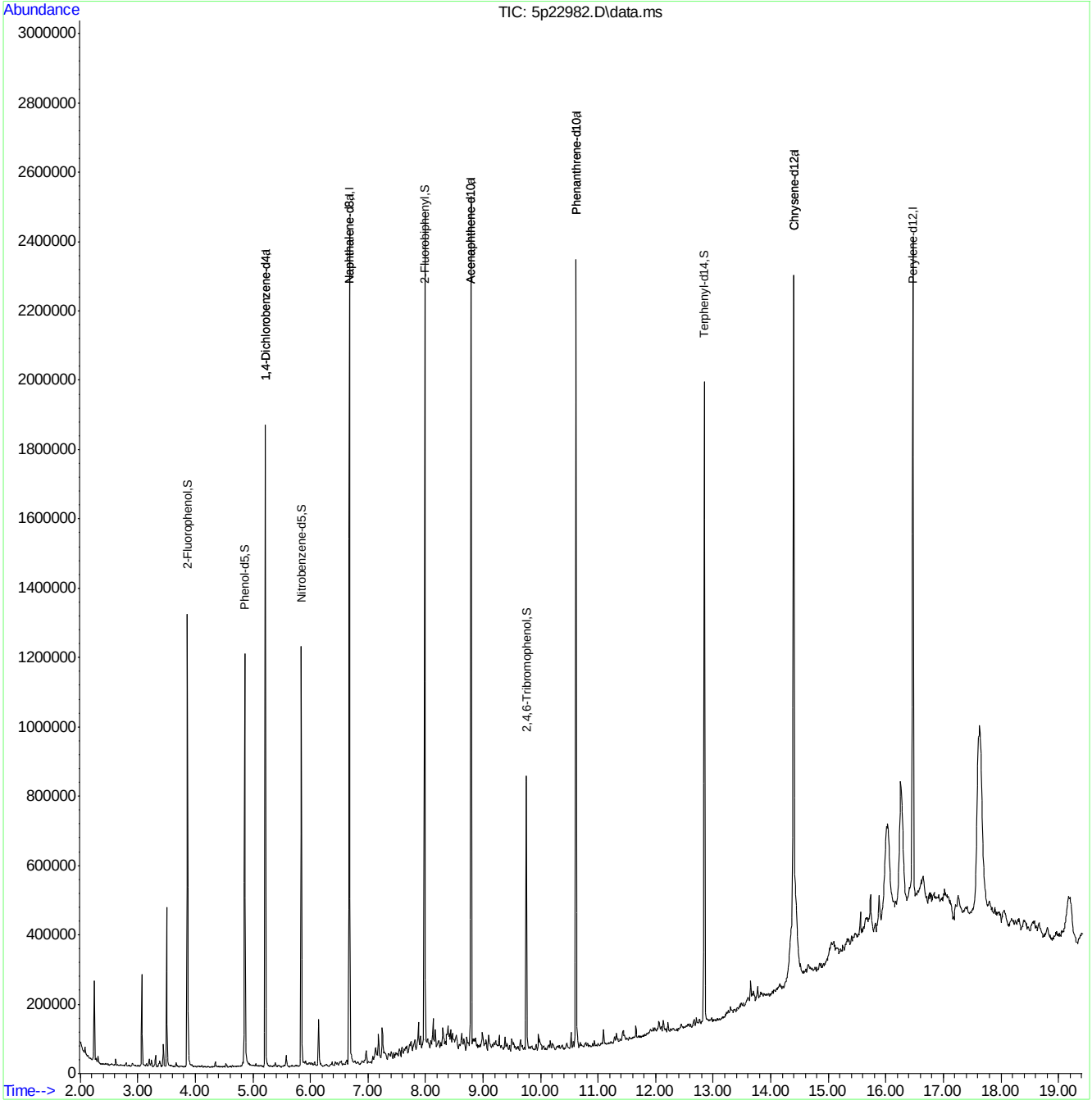
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22982.D
Acq On : 9 Nov 2015 5:37 pm
Operator : alicjap
Sample : jc7291-6
Misc : op88533,e5p1173,31.0
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Nov 10 08:57:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
11/10/15 18:37

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22985.D
Acq On : 9 Nov 15 6:58 pm
Operator : alicjap
Sample : jc7291-7
Misc : op88533,e5p1173,30.8
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Nov 10 09:04:12 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.214	152	281140	40.00	ppm	-0.03
24) Naphthalene-d8	6.683	136	938148	40.00	ppm	-0.03
47) Acenaphthene-d10	8.809	164	383436	40.00	ppm	-0.01
69) Phenanthrene-d10	10.642	188	780433	40.00	ppm	0.00
83) Chrysene-d12	14.429	240	816013	40.00	ppm	-0.01
92) Perylene-d12	16.497	264	832475	40.00	ppm	-0.01
102) 1,4-Dichlorobenzene-d4a	5.214	152	281140	40.00	ppm	-0.03
104) Acenaphthene-d10a	8.809	164	383349	40.00	ppm	-0.01
106) Chrysene-d12a	14.429	240	816013	40.00	ppm	0.00
108) Phenanthrene-d10a	10.642	188	780433	40.00	ppm	0.00
110) Naphthalene-d8a	6.683	136	938148	40.00	ppm	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	3.857	112	371493	36.77	ppm	-0.02
Spiked Amount 50.000			Recovery = 73.54%			
8) Phenol-d5	4.861	99	455709	37.71	ppm	-0.02
Spiked Amount 50.000			Recovery = 75.42%			
25) Nitrobenzene-d5	5.839	82	397225	49.05	ppm	-0.03
Spiked Amount 50.000			Recovery = 98.10%			
51) 2-Fluorobiphenyl	7.997	172	585281	48.24	ppm	-0.02
Spiked Amount 50.000			Recovery = 96.48%			
73) 2,4,6-Tribromophenol	9.776	330	81509	37.95	ppm	-0.01
Spiked Amount 50.000			Recovery = 75.90%			
85) Terphenyl-d14	12.875	244	652290	39.01	ppm	-0.01
Spiked Amount 50.000			Recovery = 78.02%			
Target Compounds						Qvalue
30) 2,4-Dimethylphenol	6.272	107	23402m	3.22	ppm	
44) 2-Methylnaphthalene	7.543	141	206642	14.60	ppm	92
59) Acenaphthene	8.847	153	44283	3.82	ppm	84
66) Fluorene	9.472	166	142119	10.79	ppm	92
77) Phenanthrene	10.674	178	623055	25.63	ppm	95
78) Anthracene	10.738	178	107830	4.46	ppm	75
81) Fluoranthene	12.298	202	52641	2.14	ppm	86
84) Pyrene	12.618	202	250195	8.90	ppm	99
88) Benzo[a]anthracene	14.413	228	53079	2.15	ppm	91
90) Chrysene	14.461	228	123792	5.06	ppm	98
94) Benzo[b]fluoranthene	15.973	252	25623	1.06	ppm	88
96) Benzo[a]pyrene	16.411	252	12149	0.54	ppm	61
101) Benzo[g,h,i]perylene	18.527	276	10138	0.42	ppm	65

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

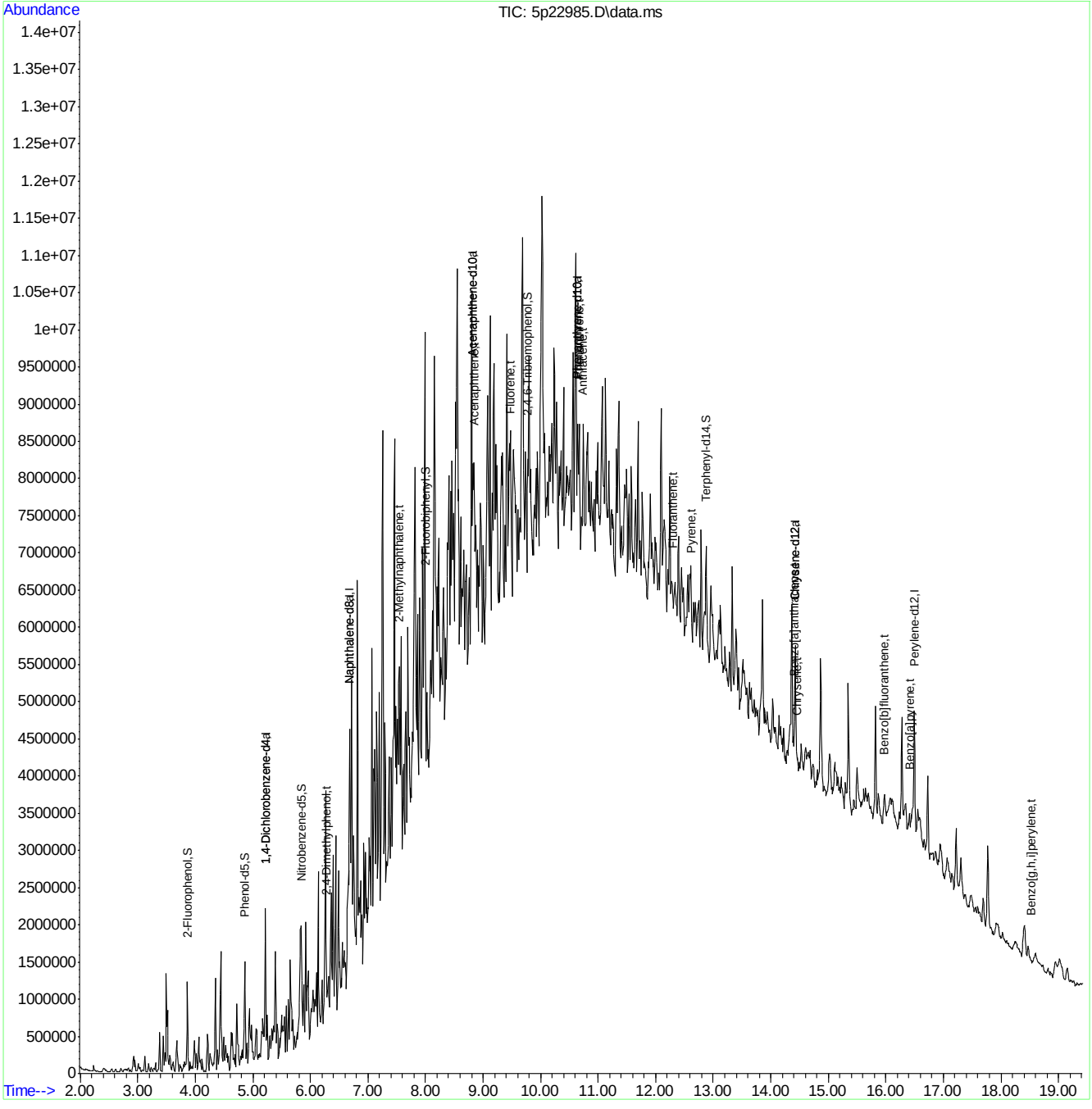
9.1.9

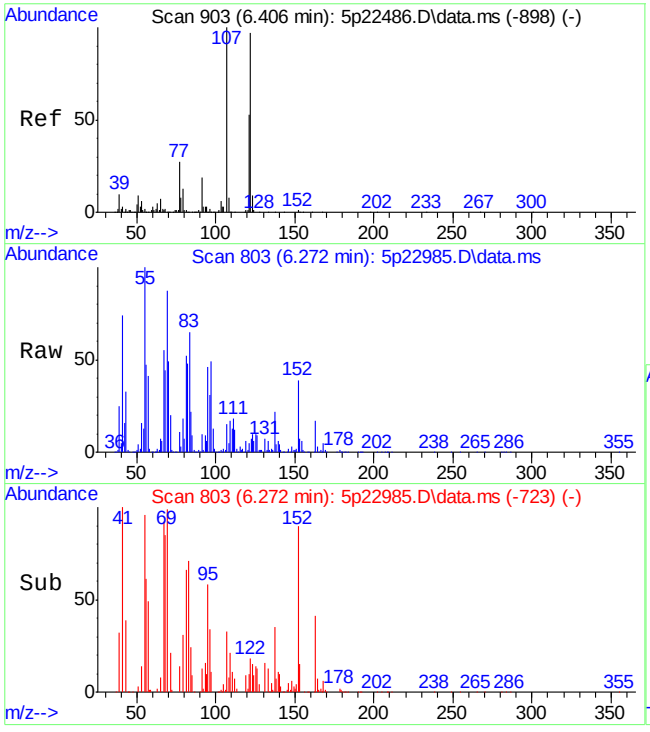
6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22985.D
Acq On : 9 Nov 15 6:58 pm
Operator : alicjap
Sample : jc7291-7
Misc : op88533,e5p1173,30.8
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Nov 10 09:04:12 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

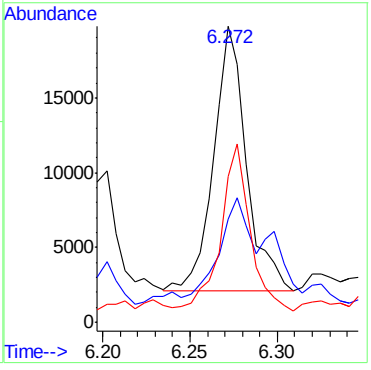


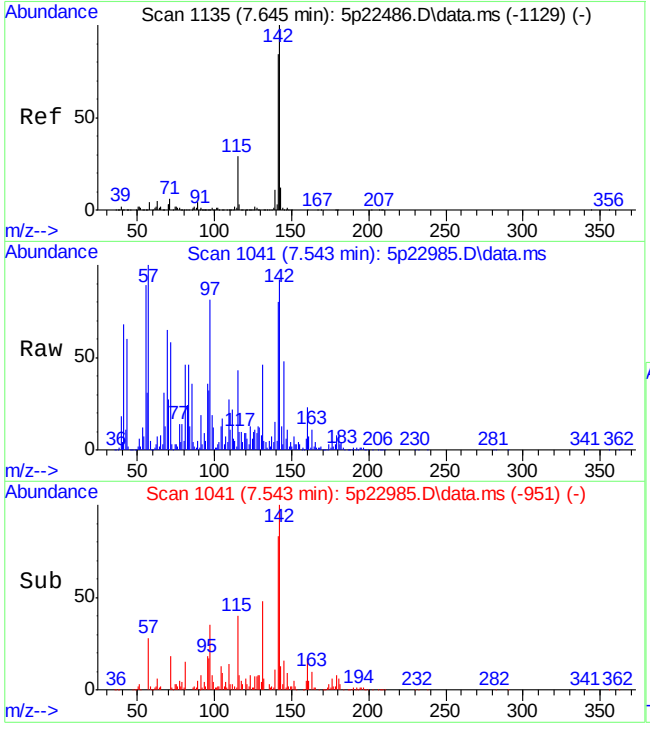


#30
2,4-Dimethylphenol
Concen: 3.22 ppm m
RT: 6.272 min Scan# 803
Delta R.T. -0.075 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:107 Resp: 23402

Ion	Ratio	Lower	Upper
107	100		
121	35.0	23.3	83.3
122	49.2	67.2	127.2#

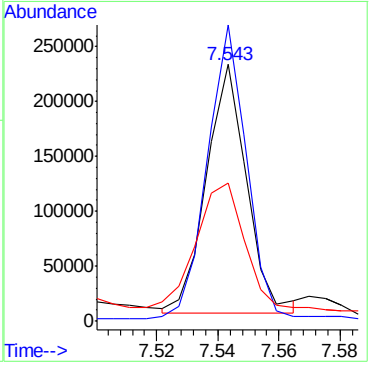




#44
2-Methylnaphthalene
Concen: 14.60 ppm
RT: 7.543 min Scan# 1041
Delta R.T. -0.022 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

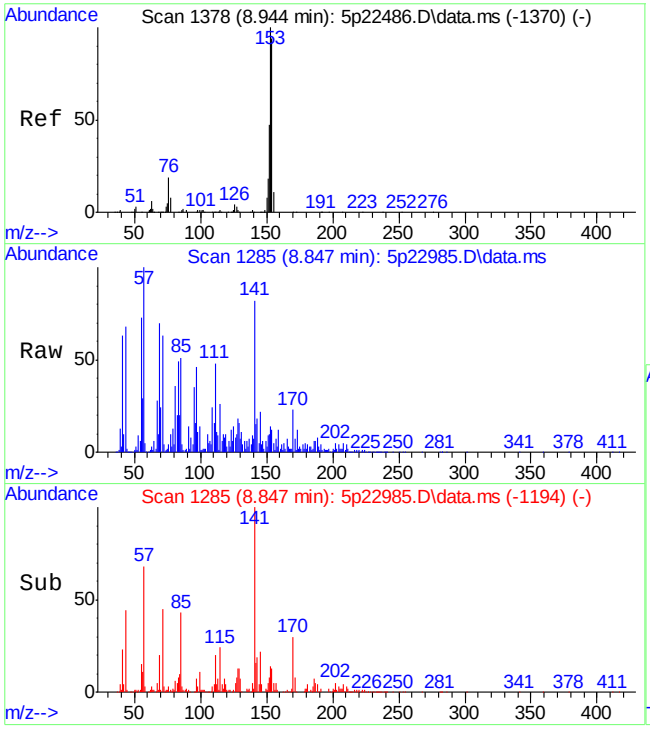
Tgt Ion:141 Resp: 206642

Ion	Ratio	Lower	Upper
141	100		
142	121.1	88.6	148.6
115	50.4	5.3	65.3



9.1.9

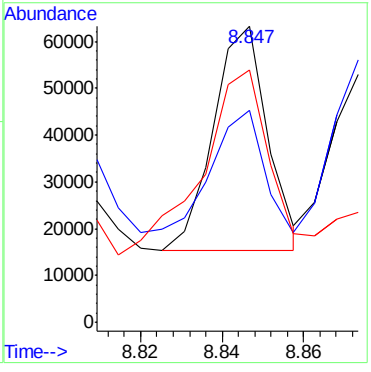
9

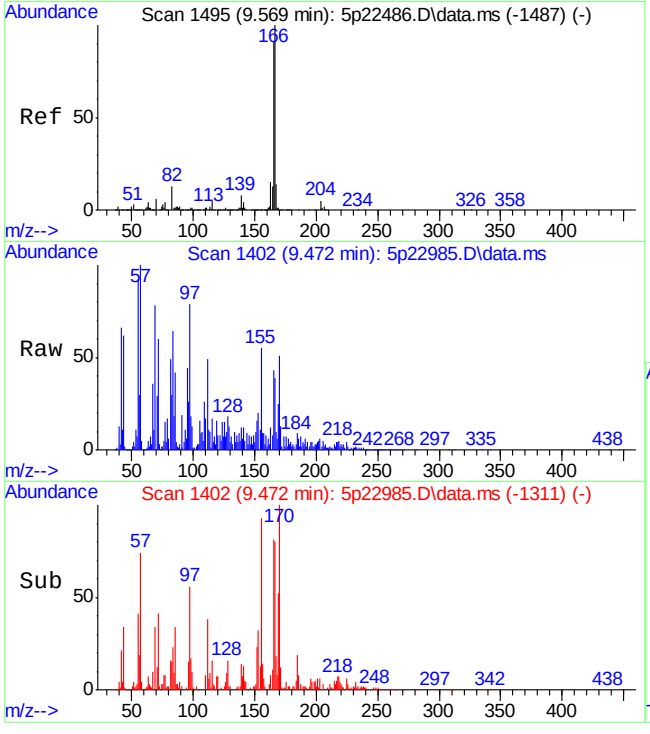


#59
Acenaphthene
Concen: 3.82 ppm
RT: 8.847 min Scan# 1285
Delta R.T. -0.016 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:153 Resp: 44283

Ion	Ratio	Lower	Upper
153	100		
152	57.2	16.1	76.1
154	73.0	57.7	117.7

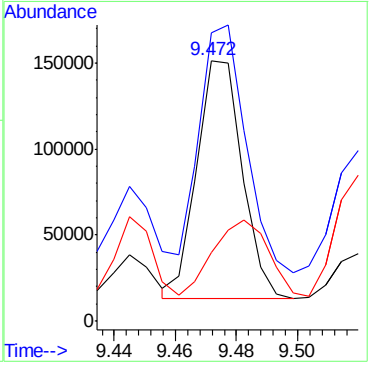


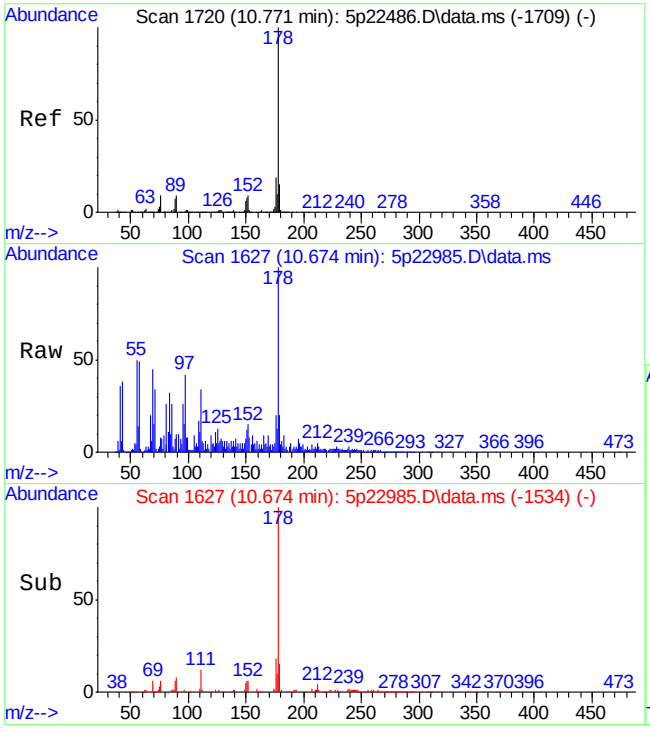


#66
Fluorene
Concen: 10.79 ppm
RT: 9.472 min Scan# 1402
Delta R.T. -0.016 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:166 Resp: 142119

Ion	Ratio	Lower	Upper
166	100		
165	98.6	60.3	120.3
167	15.2	0.0	43.3

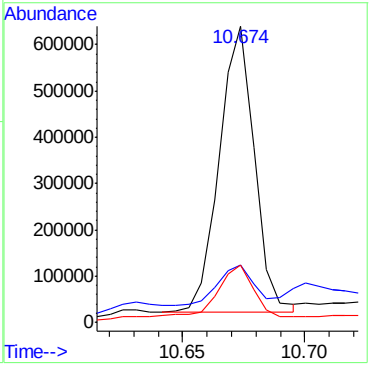


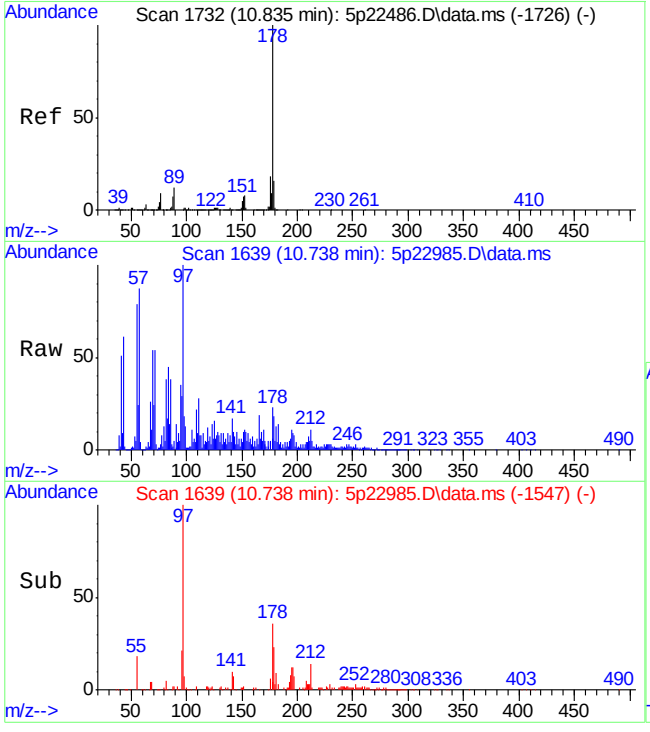


#77
Phenanthrene
Concen: 25.63 ppm
RT: 10.674 min Scan# 1627
Delta R.T. -0.006 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:178 Resp: 623055

Ion	Ratio	Lower	Upper
178	100		
179	11.5	0.0	45.2
176	18.3	0.0	48.8

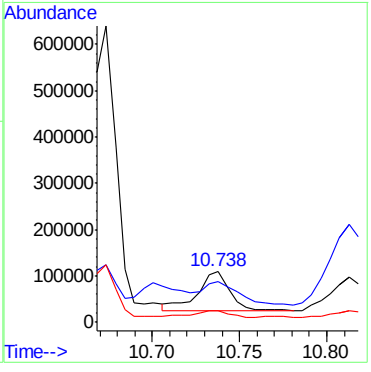


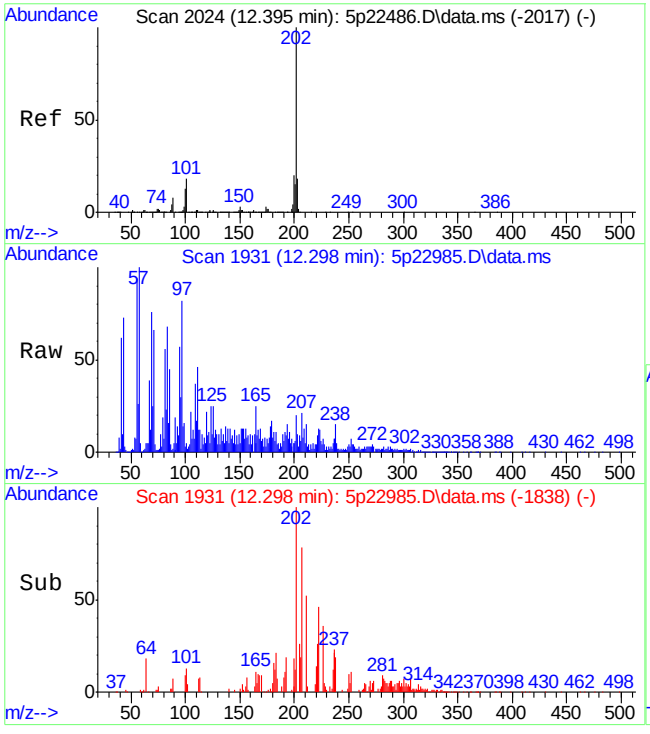


#78
Anthracene
Concen: 4.46 ppm
RT: 10.738 min Scan# 1639
Delta R.T. -0.011 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:178 Resp: 107830

Ion	Ratio	Lower	Upper
178	100		
179	37.4	0.0	45.2
176	17.0	0.0	47.9

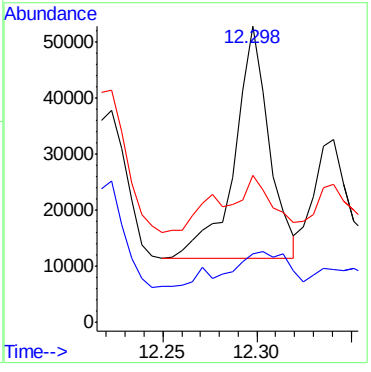


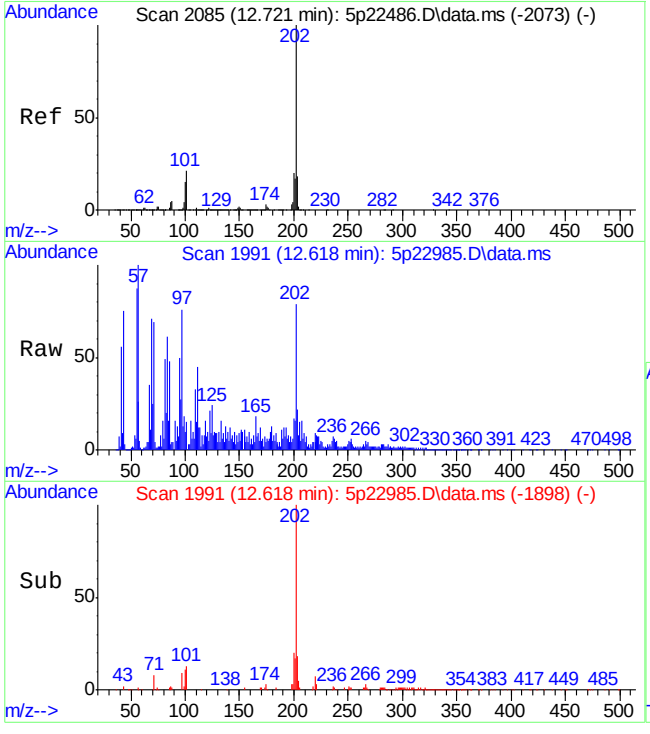


#81
Fluoranthene
Concen: 2.14 ppm
RT: 12.298 min Scan# 1931
Delta R.T. -0.006 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:202 Resp: 52641

Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	47.7
203	23.3	0.0	47.6

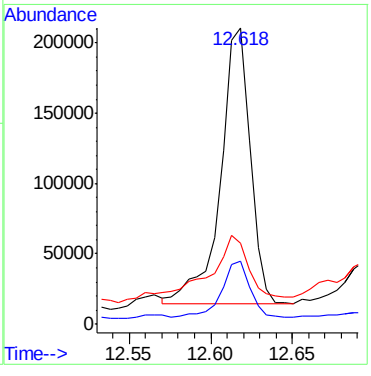




#84
Pyrene
Concen: 8.90 ppm
RT: 12.618 min Scan# 1991
Delta R.T. -0.006 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

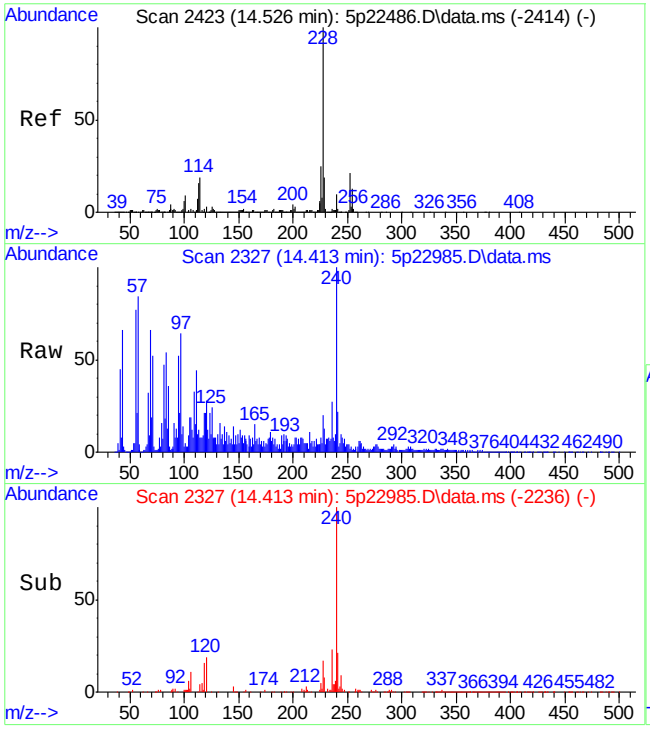
Tgt Ion:202 Resp: 250195

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.9
203	19.0	0.0	48.3



9.1.9

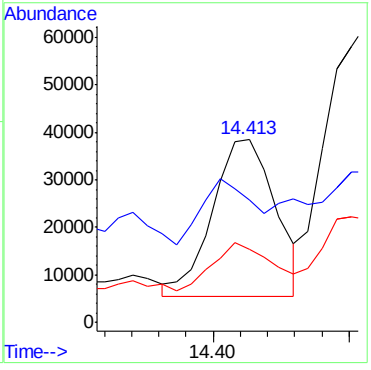
9

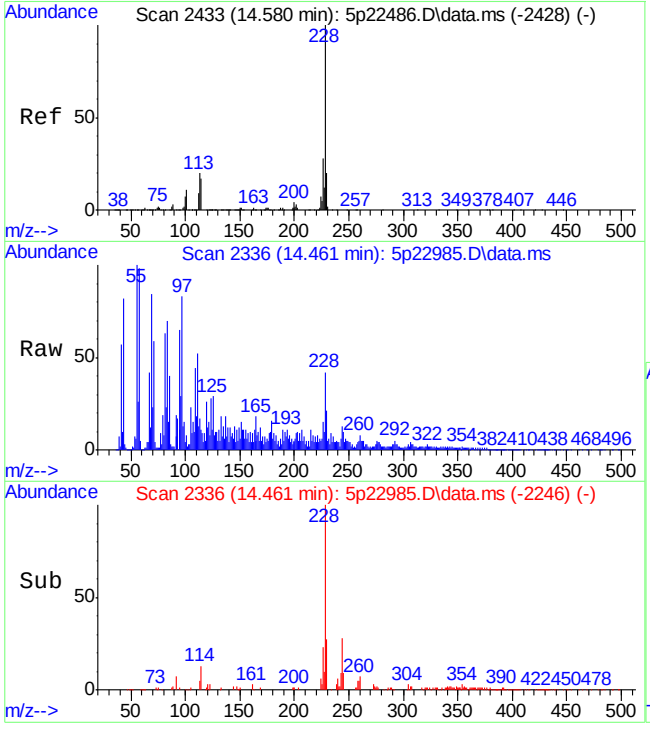


#88
Benzo[a]anthracene
Concen: 2.15 ppm
RT: 14.413 min Scan# 2327
Delta R.T. -0.016 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:228 Resp: 53079

Ion	Ratio	Lower	Upper
228	100		
229	13.1	0.0	50.3
226	24.0	0.0	56.5

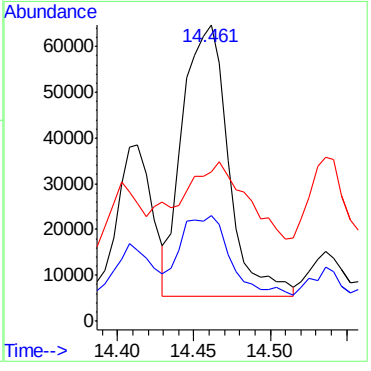


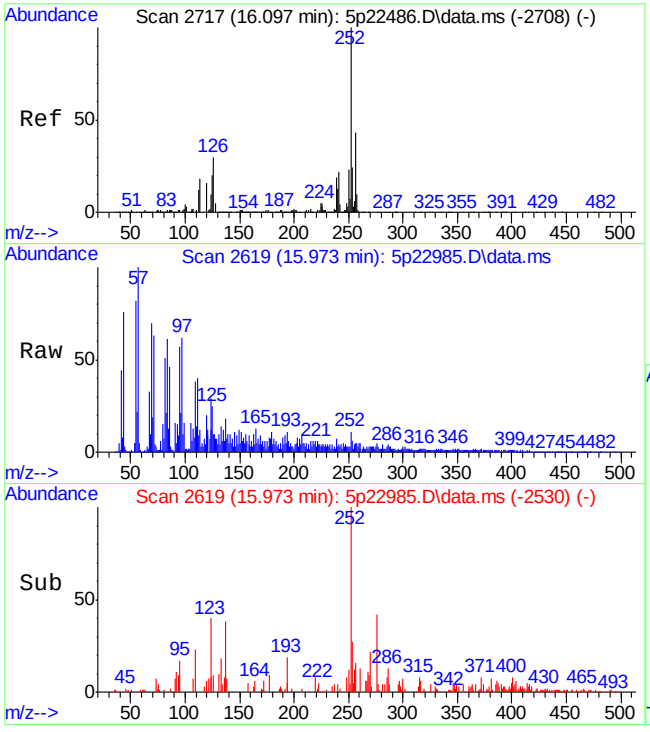


#90
Chrysene
Concen: 5.06 ppm
RT: 14.461 min Scan# 2336
Delta R.T. -0.022 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:228 Resp: 123792

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	57.6
229	20.0	0.0	49.4

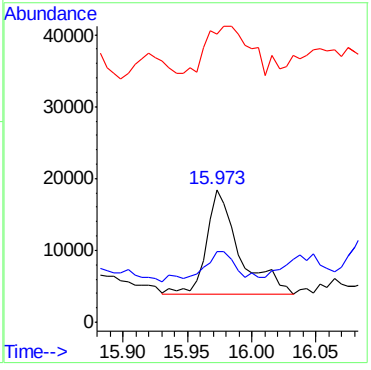


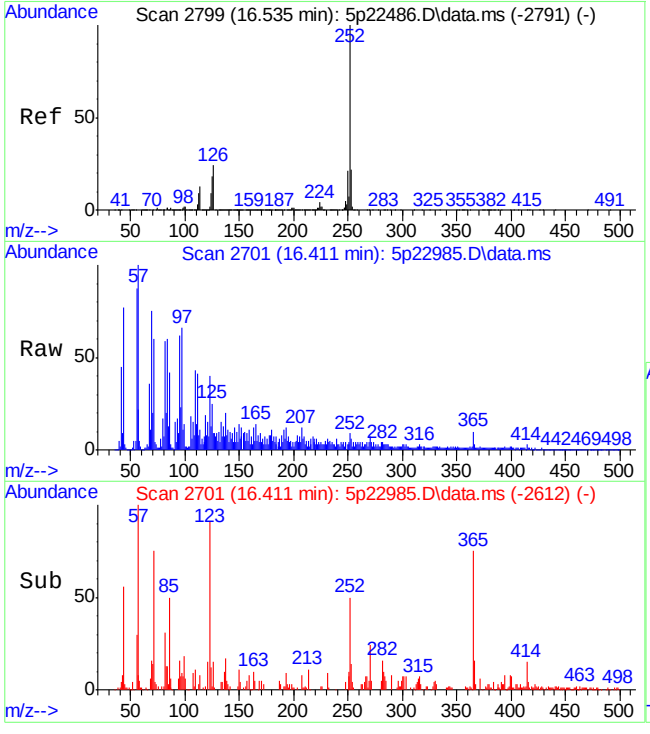


#94
Benzo[b]fluoranthene
Concen: 1.06 ppm
RT: 15.973 min Scan# 2619
Delta R.T. -0.027 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:252 Resp: 25623

Ion	Ratio	Lower	Upper
252	100		
253	18.8	0.0	54.3
125	23.8	0.0	48.2

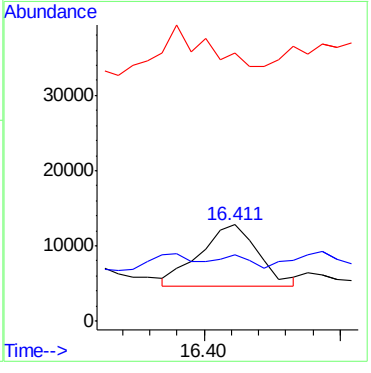


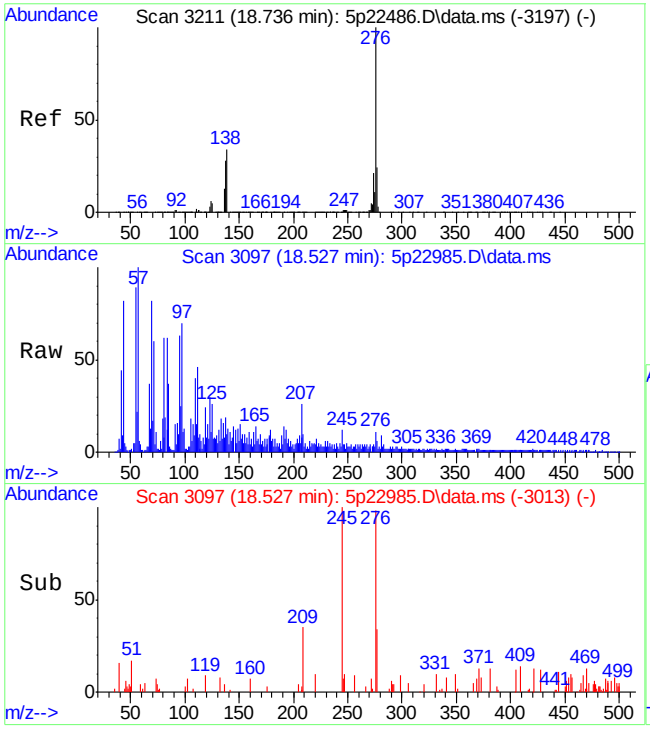


#96
Benzo[a]pyrene
Concen: 0.54 ppm
RT: 16.411 min Scan# 2701
Delta R.T. -0.027 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:252 Resp: 12149

Ion	Ratio	Lower	Upper
252	100		
253	4.8	0.0	51.9
125	0.0	0.0	49.2

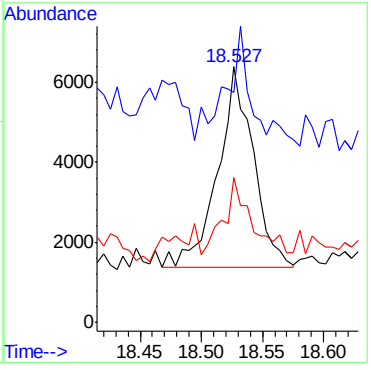




#101
Benzo[g,h,i]perylene
Concen: 0.42 ppm
RT: 18.527 min Scan# 3097
Delta R.T. -0.054 min
Lab File: 5p22985.D
Acq: 9 Nov 15 6:58 pm

Tgt Ion:276 Resp: 10138

Ion	Ratio	Lower	Upper
276	100		
138	8.5	5.7	65.7
277	33.8	0.0	54.3



9.1.9

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22984.D
Acq On : 9 Nov 15 6:31 pm
Operator : alicjap
Sample : jc7291-8
Misc : op88533,e5p1173,32.4
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 10 08:59:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

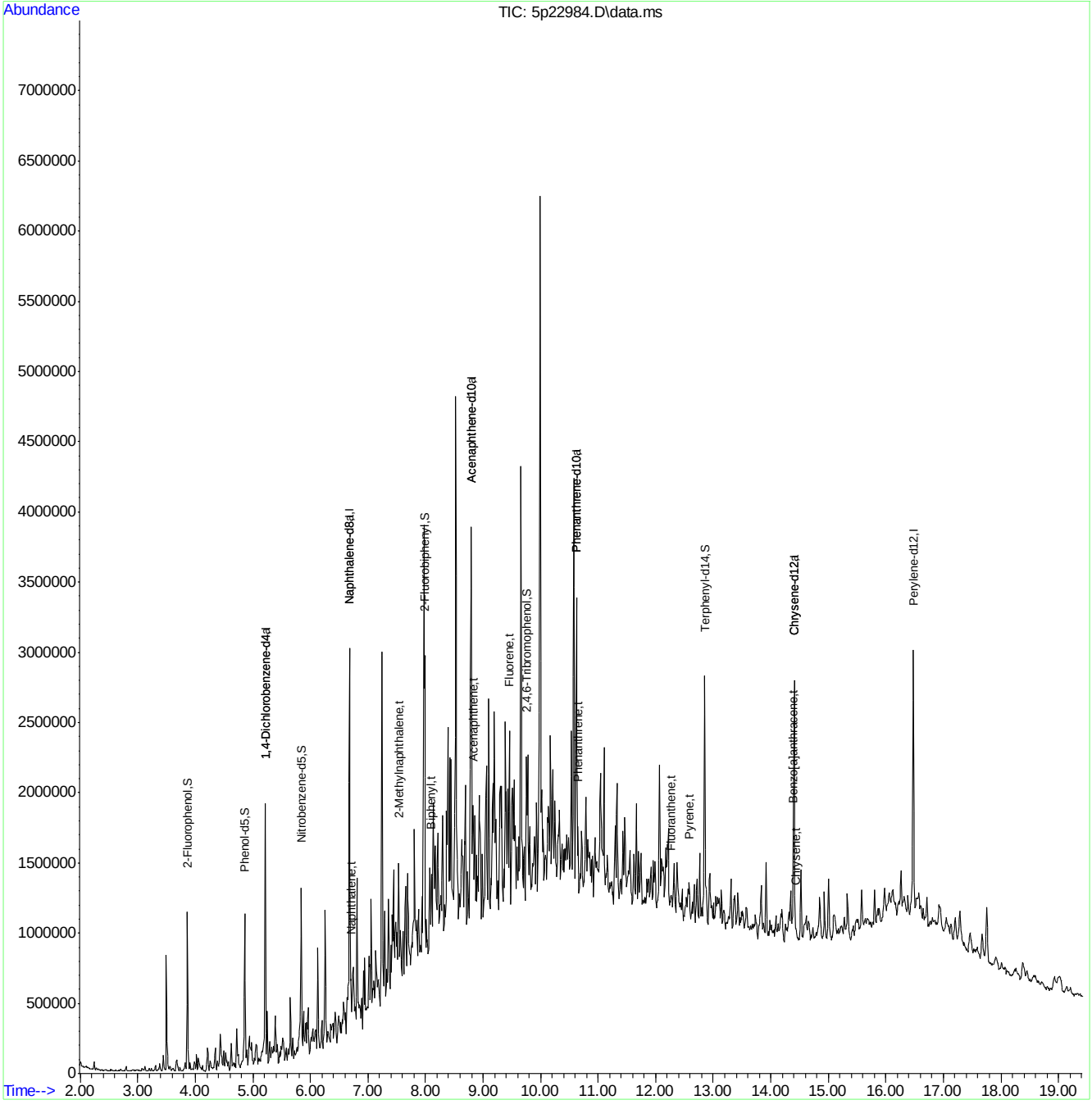
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.214	152	299187	40.00	ppm	-0.03
24) Naphthalene-d8	6.678	136	1057950	40.00	ppm	-0.03
47) Acenaphthene-d10	8.793	164	582510	40.00	ppm	-0.03
69) Phenanthrene-d10	10.620	188	931147	40.00	ppm	-0.03
83) Chrysene-d12	14.408	240	840228	40.00	ppm	-0.03
92) Perylene-d12	16.476	264	823469	40.00	ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	5.214	152	299187	40.00	ppm	-0.03
104) Acenaphthene-d10a	8.793	164	582510	40.00	ppm	-0.03
106) Chrysene-d12a	14.408	240	840228	40.00	ppm	-0.03
108) Phenanthrene-d10a	10.620	188	931147	40.00	ppm	-0.03
110) Naphthalene-d8a	6.678	136	1057950	40.00	ppm	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	3.857	112	368582	34.28	ppm	-0.02
Spiked Amount 50.000			Recovery = 68.56%			
8) Phenol-d5	4.856	99	437516	34.02	ppm	-0.02
Spiked Amount 50.000			Recovery = 68.04%			
25) Nitrobenzene-d5	5.839	82	348568	38.17	ppm	-0.03
Spiked Amount 50.000			Recovery = 76.34%			
51) 2-Fluorobiphenyl	7.987	172	676619	36.71	ppm	-0.03
Spiked Amount 50.000			Recovery = 73.42%			
73) 2,4,6-Tribromophenol	9.755	330	79510	31.03	ppm	-0.03
Spiked Amount 50.000			Recovery = 62.06%			
85) Terphenyl-d14	12.854	244	620824	36.06	ppm	-0.03
Spiked Amount 50.000			Recovery = 72.12%			
Target Compounds						Qvalue
38) Naphthalene	6.705	128	32448	1.03	ppm	85
44) 2-Methylnaphthalene	7.533	141	113292	7.10	ppm	95
53) Biphenyl	8.104	154	8805	0.41	ppm	84
59) Acenaphthene	8.831	153	27361	1.55	ppm	93
66) Fluorene	9.456	166	112901	5.64	ppm	94
77) Phenanthrene	10.647	178	160887	5.55	ppm	97
81) Fluoranthene	12.271	202	14145	0.48	ppm	96
84) Pyrene	12.586	202	58869	2.03	ppm	91
88) Benzo[a]anthracene	14.392	228	12941	0.51	ppm	80
90) Chrysene	14.440	228	35804	1.42	ppm	89

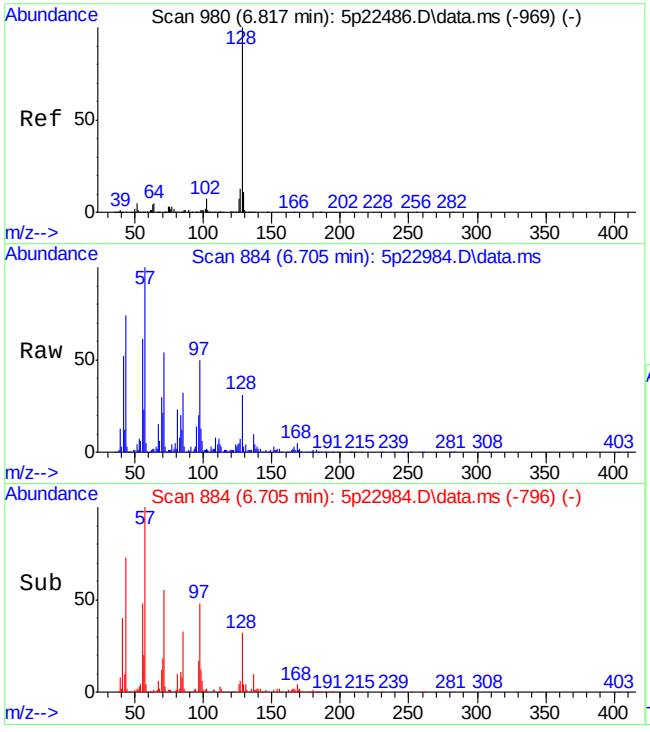
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22984.D
Acq On : 9 Nov 15 6:31 pm
Operator : alicjap
Sample : jc7291-8
Misc : op88533,e5p1173,32.4
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 10 08:59:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

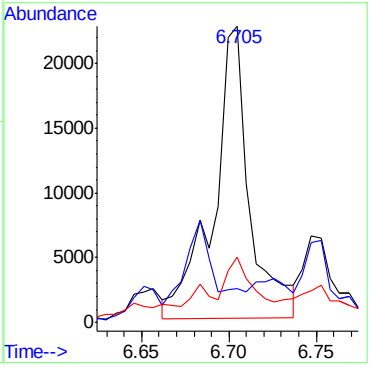


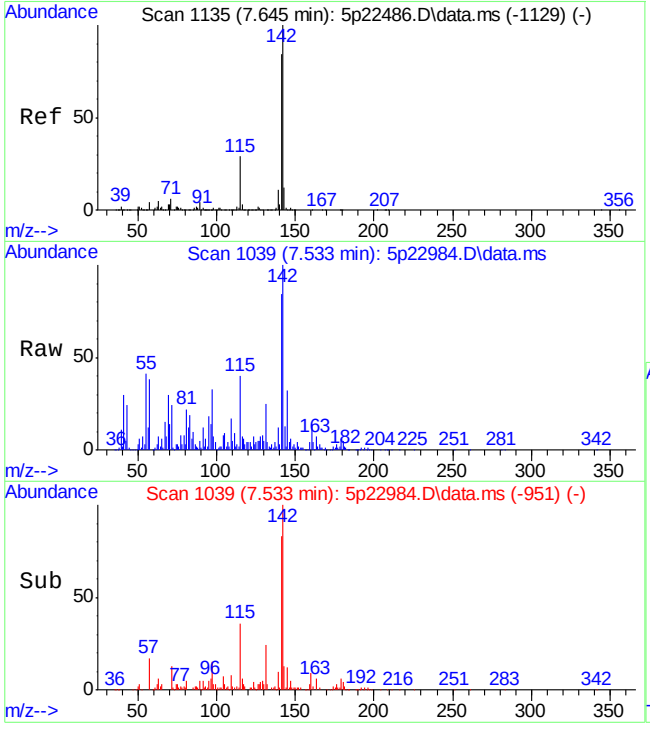


#38
Naphthalene
Concen: 1.03 ppm
RT: 6.705 min Scan# 884
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:128 Resp: 32448

Ion	Ratio	Lower	Upper
128	100		
129	3.9	0.0	41.0
127	16.5	0.0	42.0

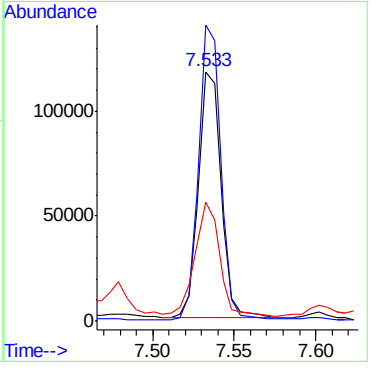




#44
2-Methylnaphthalene
Concen: 7.10 ppm
RT: 7.533 min Scan# 1039
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:141 Resp: 113292

Ion	Ratio	Lower	Upper
141	100		
142	119.9	88.6	148.6
115	45.8	5.3	65.3



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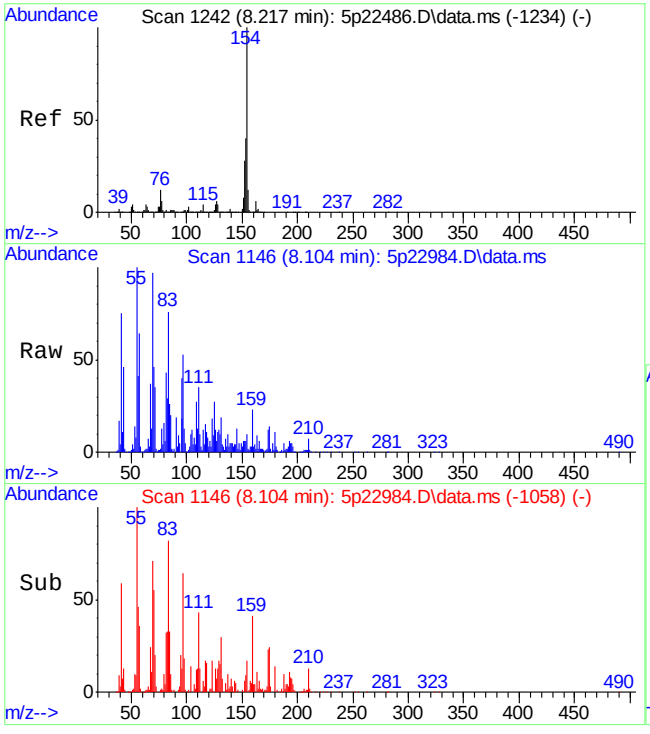
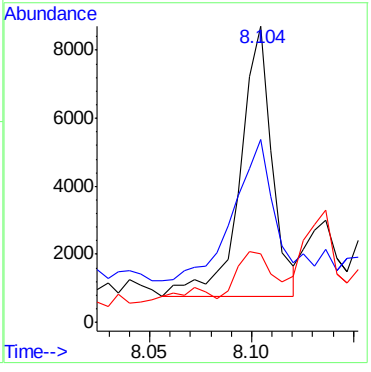
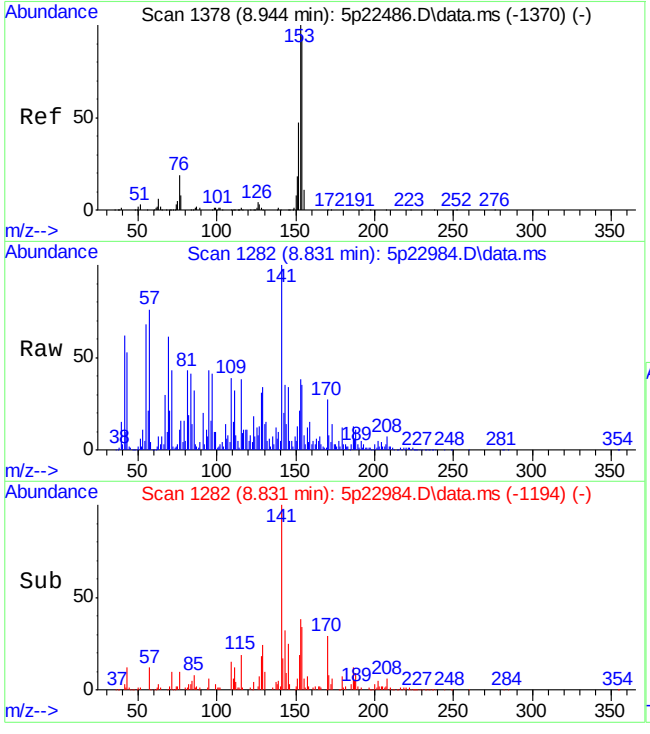


#53
Biphenyl
Concen: 0.41 ppm
RT: 8.104 min Scan# 1146
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:154 Resp: 8805

Ion	Ratio	Lower	Upper
154	100		
153	51.7	9.1	69.1
155	12.6	0.0	43.2

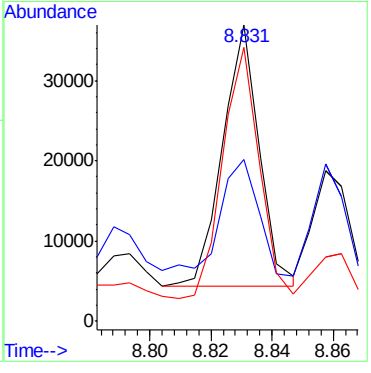




#59
Acenaphthene
Concen: 1.55 ppm
RT: 8.831 min Scan# 1282
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:153 Resp: 27361

Ion	Ratio	Lower	Upper
153	100		
152	44.2	16.1	76.1
154	96.5	57.7	117.7



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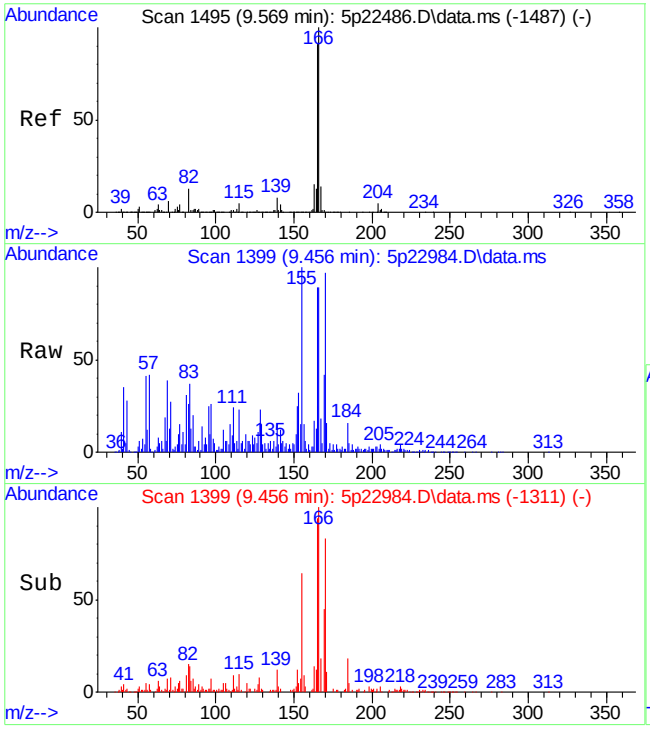
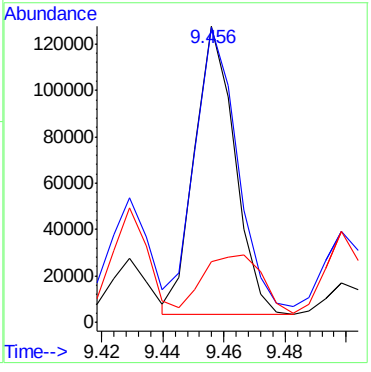
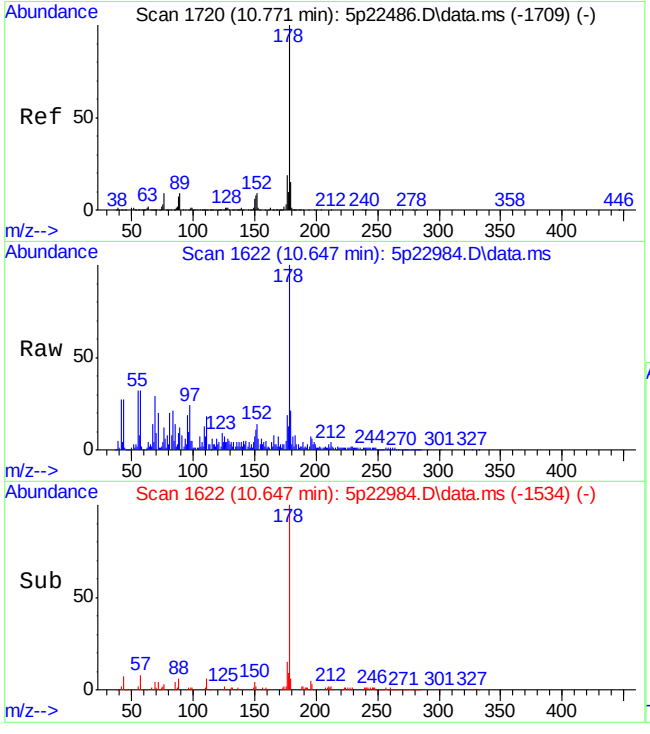


#66
Fluorene
Concen: 5.64 ppm
RT: 9.456 min Scan# 1399
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:166 Resp: 112901

Ion	Ratio	Lower	Upper
166	100		
165	95.7	60.3	120.3
167	16.0	0.0	43.3

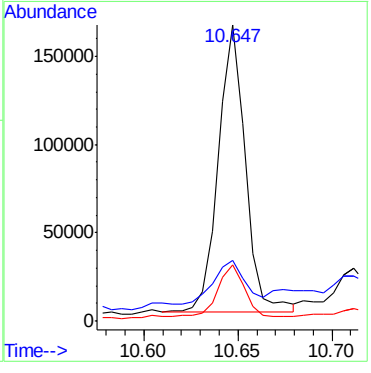




#77
Phenanthrene
Concen: 5.55 ppm
RT: 10.647 min Scan# 1622
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

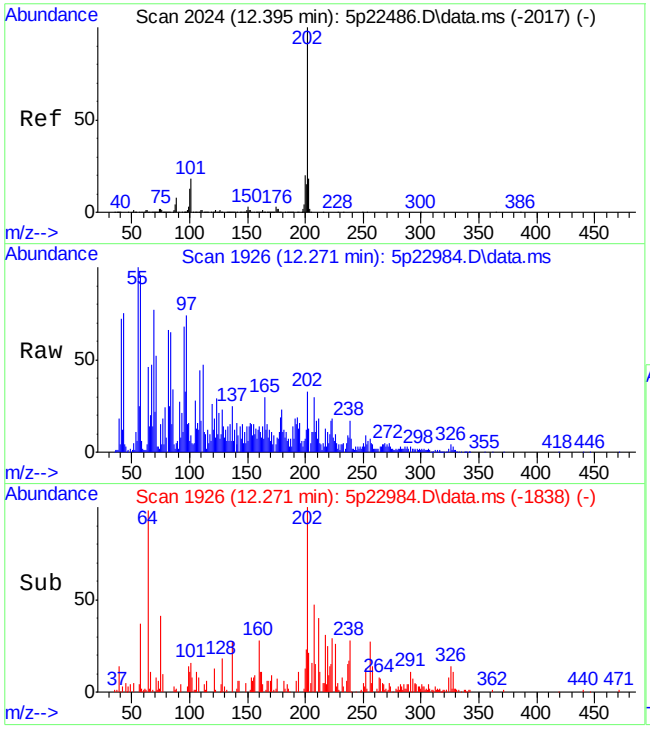
Tgt Ion:178 Resp: 160887

Ion	Ratio	Lower	Upper
178	100		
179	13.0	0.0	45.2
176	18.2	0.0	48.8



9.1.10

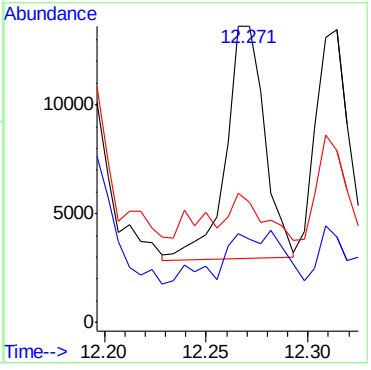
9

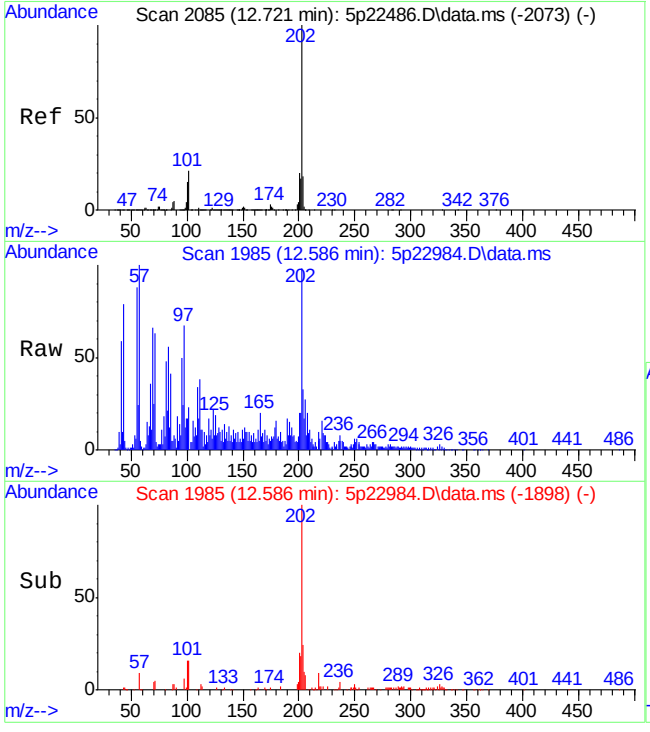


#81
Fluoranthene
Concen: 0.48 ppm
RT: 12.271 min Scan# 1926
Delta R.T. -0.032 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:202 Resp: 14145

Ion	Ratio	Lower	Upper
202	100		
101	15.3	0.0	47.7
203	16.2	0.0	47.6

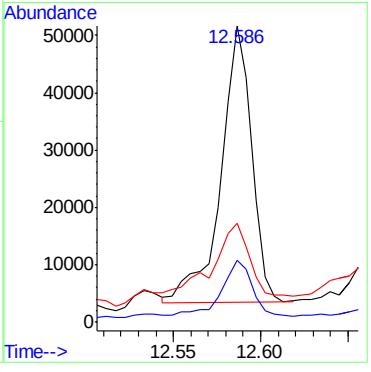




#84
Pyrene
Concen: 2.03 ppm
RT: 12.586 min Scan# 1985
Delta R.T. -0.037 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

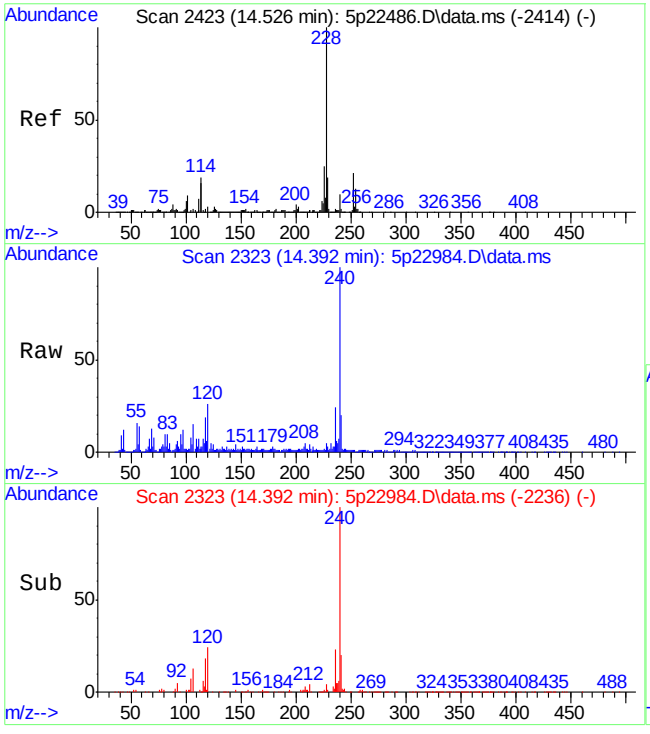
Tgt Ion:202 Resp: 58869

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	49.9
203	26.1	0.0	48.3



9.1.10

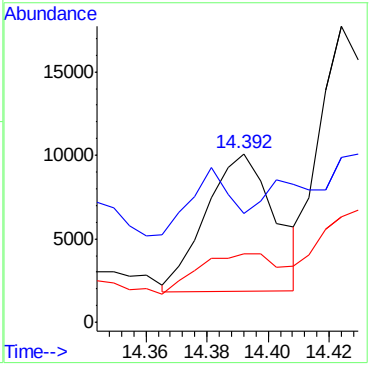
9

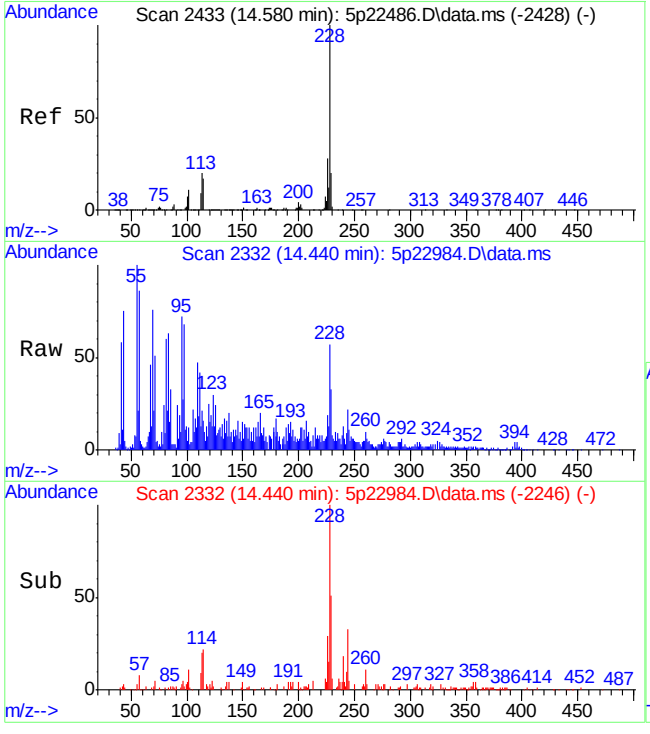


#88
Benzo[a]anthracene
Concen: 0.51 ppm
RT: 14.392 min Scan# 2323
Delta R.T. -0.038 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:228 Resp: 12941

Ion	Ratio	Lower	Upper
228	100		
229	0.0	0.0	50.3
226	25.7	0.0	56.5

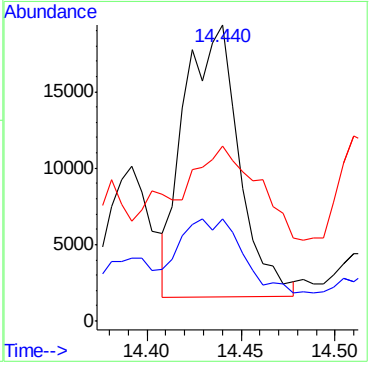




#90
Chrysene
Concen: 1.42 ppm
RT: 14.440 min Scan# 2332
Delta R.T. -0.043 min
Lab File: 5p22984.D
Acq: 9 Nov 15 6:31 pm

Tgt Ion:228 Resp: 35804

Ion	Ratio	Lower	Upper
228	100		
226	26.6	0.0	57.6
229	29.9	0.0	49.4



9.1.10

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22983.D
Acq On : 9 Nov 2015 6:04 pm
Operator : alicjap
Sample : jc7291-9
Misc : op88533,e5p1173,31.0
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Nov 10 08:58:11 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.214	152	276677	40.00 ppm	-0.03
24) Naphthalene-d8	6.678	136	1005328	40.00 ppm	-0.03
47) Acenaphthene-d10	8.788	164	557112	40.00 ppm	-0.03
69) Phenanthrene-d10	10.615	188	881995	40.00 ppm	-0.03
83) Chrysene-d12	14.398	240	749103	40.00 ppm	-0.04
92) Perylene-d12	16.470	264	730553	40.00 ppm	-0.04
102) 1,4-Dichlorobenzene-d4a	5.214	152	276677	40.00 ppm	-0.03
104) Acenaphthene-d10a	8.788	164	557112	40.00 ppm	-0.03
106) Chrysene-d12a	14.398	240	749103	40.00 ppm	-0.04
108) Phenanthrene-d10a	10.615	188	881995	40.00 ppm	-0.03
110) Naphthalene-d8a	6.678	136	1005328	40.00 ppm	-0.03
System Monitoring Compounds					
5) 2-Fluorophenol	3.863	112	404015	40.64 ppm	-0.01
Spiked Amount 50.000			Recovery	= 81.28%	
8) Phenol-d5	4.856	99	491050	41.29 ppm	-0.02
Spiked Amount 50.000			Recovery	= 82.58%	
25) Nitrobenzene-d5	5.839	82	374128	43.11 ppm	-0.03
Spiked Amount 50.000			Recovery	= 86.22%	
51) 2-Fluorobiphenyl	7.987	172	784485	44.50 ppm	-0.03
Spiked Amount 50.000			Recovery	= 89.00%	
73) 2,4,6-Tribromophenol	9.755	330	85790	35.34 ppm	-0.03
Spiked Amount 50.000			Recovery	= 70.68%	
85) Terphenyl-d14	12.848	244	692833	45.14 ppm	-0.04
Spiked Amount 50.000			Recovery	= 90.28%	

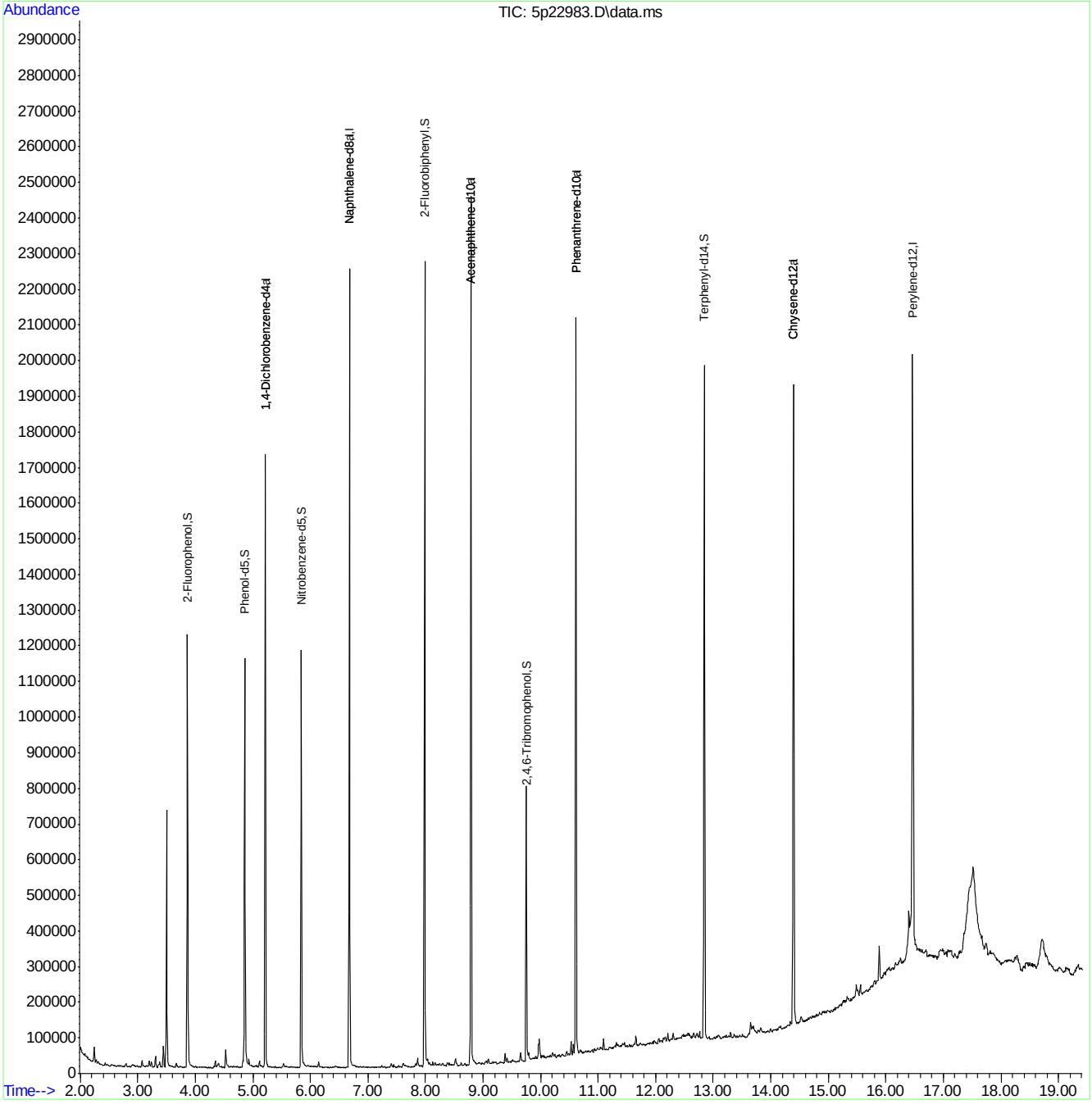
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22983.D
Acq On : 9 Nov 2015 6:04 pm
Operator : alicjap
Sample : jc7291-9
Misc : op88533,e5p1173,31.0
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Nov 10 08:58:11 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
11/10/15 18:37

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22986.D
Acq On : 9 Nov 15 7:25 pm
Operator : alicjap
Sample : jc7291-10
Misc : op88533,e5p1173,32.0
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Nov 10 09:10:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.214	152	333813	40.00	ppm	-0.03
24) Naphthalene-d8	6.683	136	1128026	40.00	ppm	-0.03
47) Acenaphthene-d10	8.799	164	600197	40.00	ppm	-0.02
69) Phenanthrene-d10	10.626	188	941392	40.00	ppm	-0.02
83) Chrysene-d12	14.413	240	856463	40.00	ppm	-0.03
92) Perylene-d12	16.486	264	858394	40.00	ppm	-0.02
102) 1,4-Dichlorobenzene-d4a	5.214	152	333813	40.00	ppm	-0.03
104) Acenaphthene-d10a	8.799	164	600197	40.00	ppm	-0.02
106) Chrysene-d12a	14.413	240	856463	40.00	ppm	-0.02
108) Phenanthrene-d10a	10.626	188	941392	40.00	ppm	-0.02
110) Naphthalene-d8a	6.683	136	1129440	40.00	ppm	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	3.862	112	411768	34.33	ppm	-0.01
Spiked Amount 50.000			Recovery = 68.66%			
8) Phenol-d5	4.862	99	487511	33.98	ppm	-0.02
Spiked Amount 50.000			Recovery = 67.96%			
25) Nitrobenzene-d5	5.839	82	369843	37.98	ppm	-0.03
Spiked Amount 50.000			Recovery = 75.96%			
51) 2-Fluorobiphenyl	7.987	172	742050	39.07	ppm	-0.03
Spiked Amount 50.000			Recovery = 78.14%			
73) 2,4,6-Tribromophenol	9.766	330	83961	32.41	ppm	-0.02
Spiked Amount 50.000			Recovery = 64.82%			
85) Terphenyl-d14	12.859	244	636522	36.27	ppm	-0.03
Spiked Amount 50.000			Recovery = 72.54%			
Target Compounds						Qvalue
44) 2-Methylnaphthalene	7.538	141	15400	0.91	ppm #	81
59) Acenaphthene	8.831	153	19292	1.06	ppm	94
66) Fluorene	9.461	166	83216	4.04	ppm	89
77) Phenanthrene	10.652	178	54658	1.86	ppm	84
78) Anthracene	10.722	178	79130m	2.71	ppm	
81) Fluoranthene	12.282	202	57586	1.94	ppm	95
84) Pyrene	12.597	202	212859	7.22	ppm	99
88) Benzo[a]anthracene	14.397	228	28197	1.09	ppm	88
90) Chrysene	14.451	228	59815	2.33	ppm	82
94) Benzo[b]fluoranthene	15.963	252	18999	0.76	ppm	93
96) Benzo[a]pyrene	16.401	252	15497	0.66	ppm	84
101) Benzo[g,h,i]perylene	18.516	276	18062	0.72	ppm	92

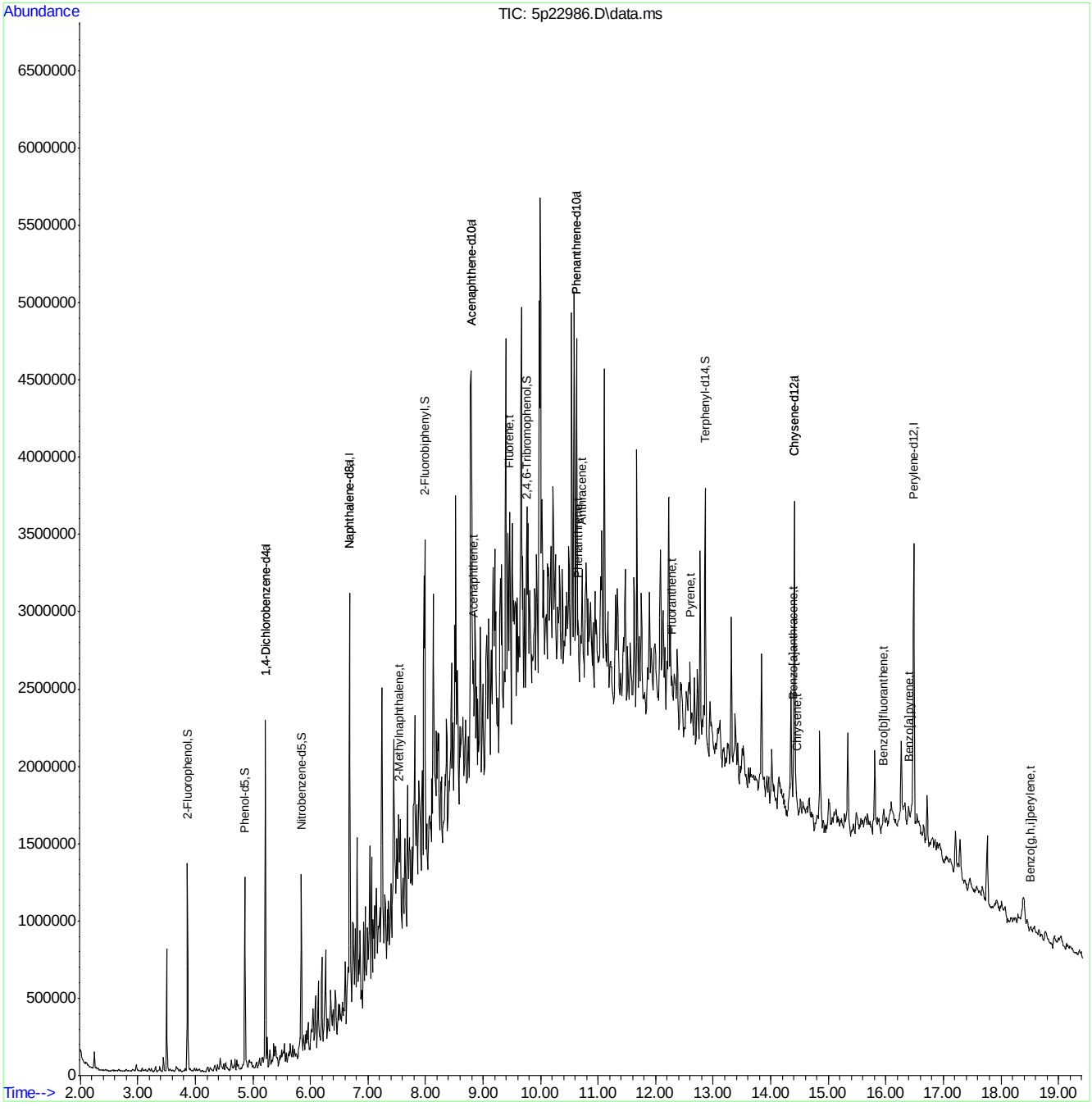
(#) = qualifier out of range (m) = manual integration (+) = signals summed

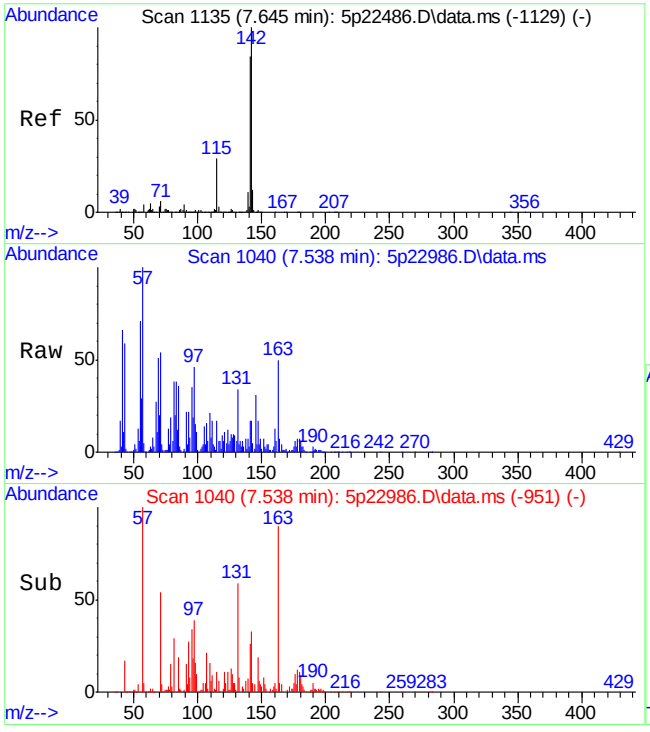
9.1.12
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1173\
Data File : 5p22986.D
Acq On : 9 Nov 15 7:25 pm
Operator : alicjap
Sample : jc7291-10
Misc : op88533,e5p1173,32.0
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Nov 10 09:10:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1165.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Wed Nov 04 18:27:28 2015
Response via : Initial Calibration

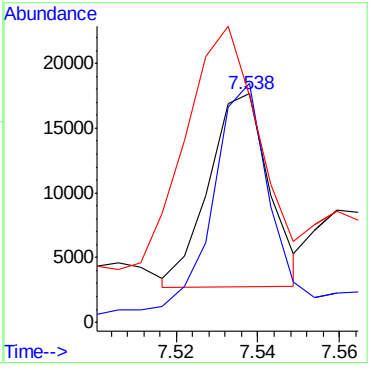


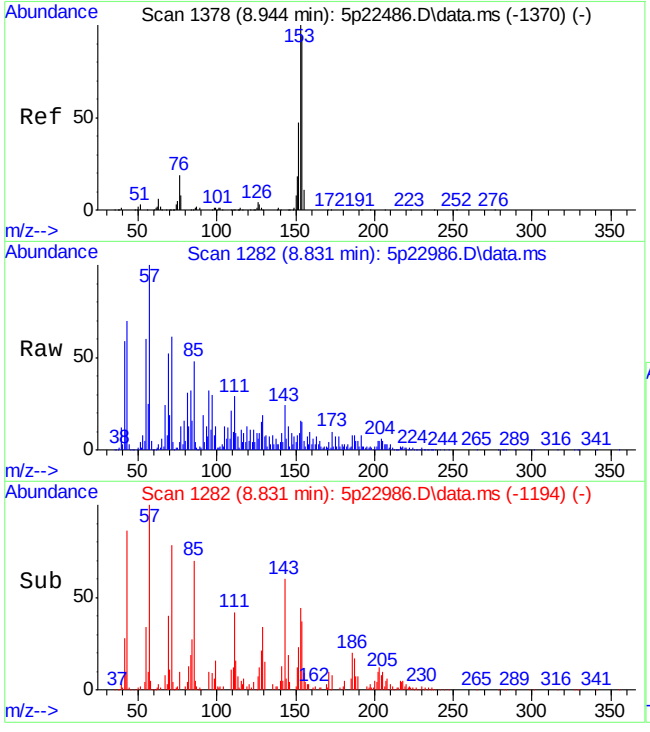


#44
2-Methylnaphthalene
Concen: 0.91 ppm
RT: 7.538 min Scan# 1040
Delta R.T. -0.027 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:141 Resp: 15400

Ion	Ratio	Lower	Upper
141	100		
142	122.5	88.6	148.6
115	76.0	5.3	65.3#

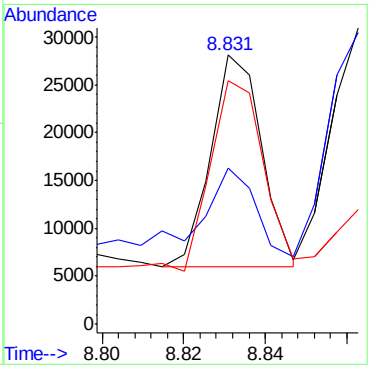




#59
Acenaphthene
Concen: 1.06 ppm
RT: 8.831 min Scan# 1282
Delta R.T. -0.032 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:153 Resp: 19292

Ion	Ratio	Lower	Upper
153	100		
152	36.6	16.1	76.1
154	86.7	57.7	117.7



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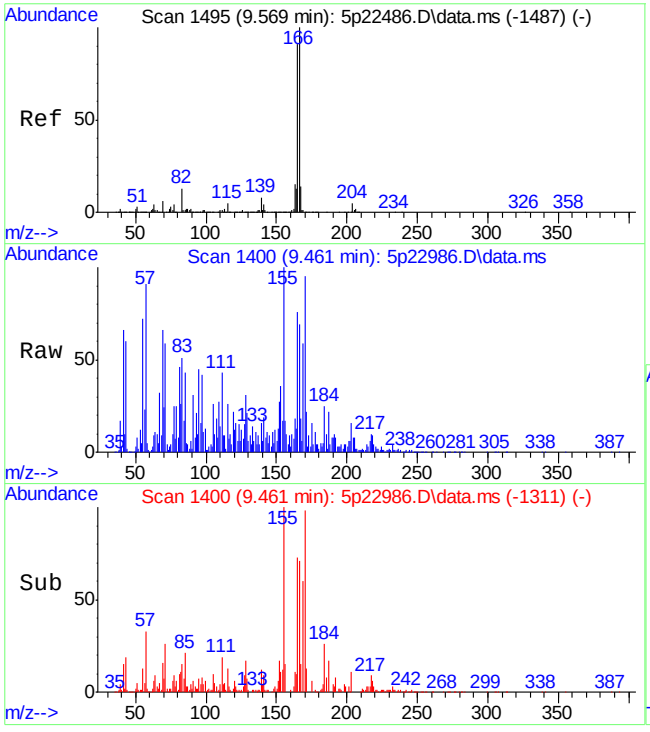
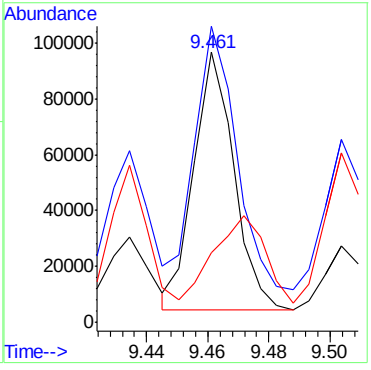
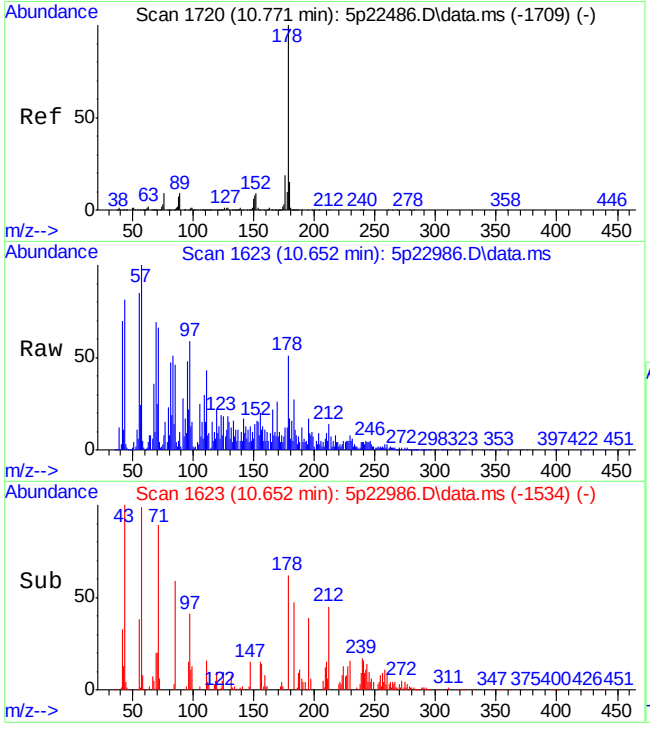


#66
Fluorene
Concen: 4.04 ppm
RT: 9.461 min Scan# 1400
Delta R.T. -0.027 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:166 Resp: 83216

Ion	Ratio	Lower	Upper
166	100		
165	101.0	60.3	120.3
167	17.0	0.0	43.3

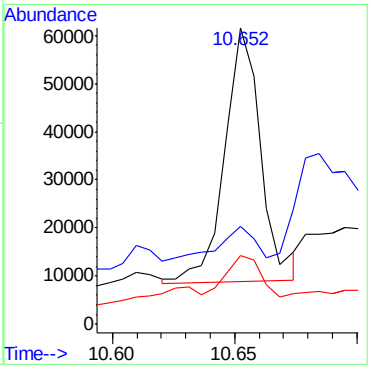


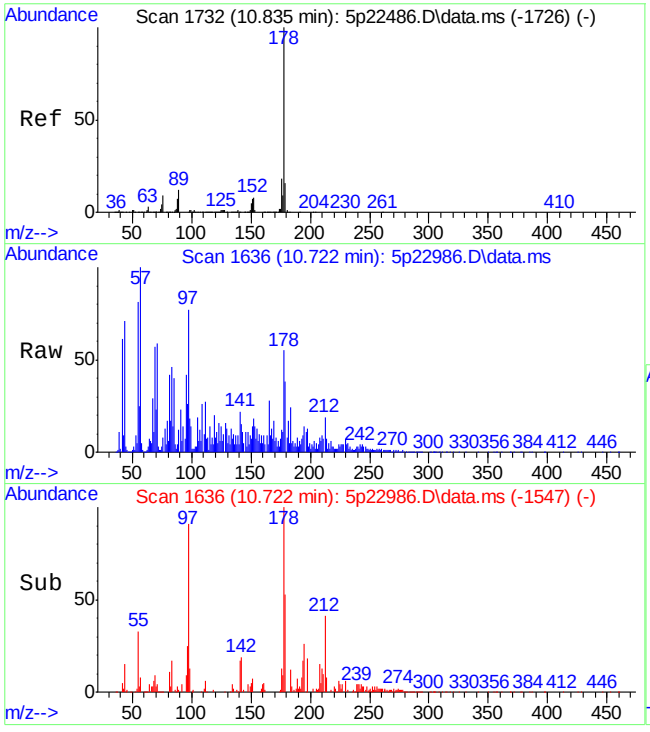


#77
Phenanthrene
Concen: 1.86 ppm
RT: 10.652 min Scan# 1623
Delta R.T. -0.027 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:178 Resp: 54658

Ion	Ratio	Lower	Upper
178	100		
179	3.9	0.0	45.2
176	15.6	0.0	48.8

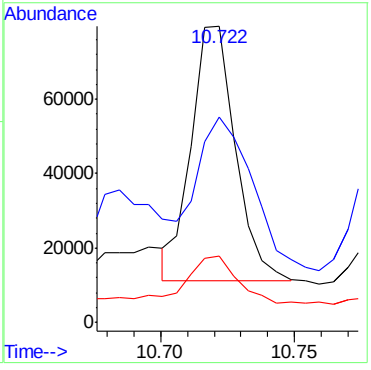


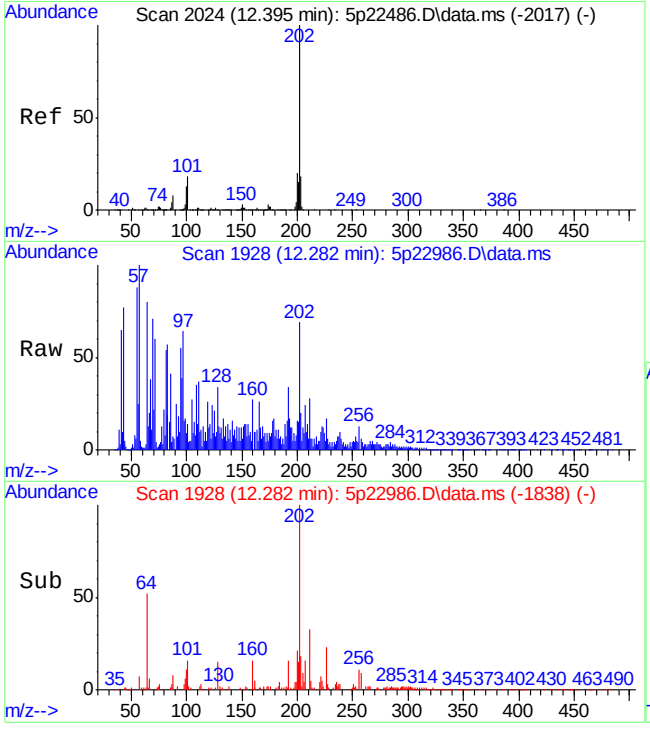


#78
Anthracene
Concen: 2.71 ppm m
RT: 10.722 min Scan# 1636
Delta R.T. -0.027 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:178 Resp: 79130

Ion	Ratio	Lower	Upper
178	100		
179	69.5	0.0	45.2#
176	22.5	0.0	47.9

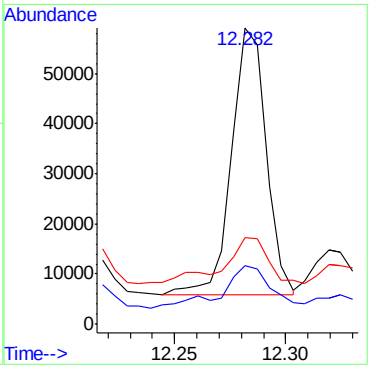




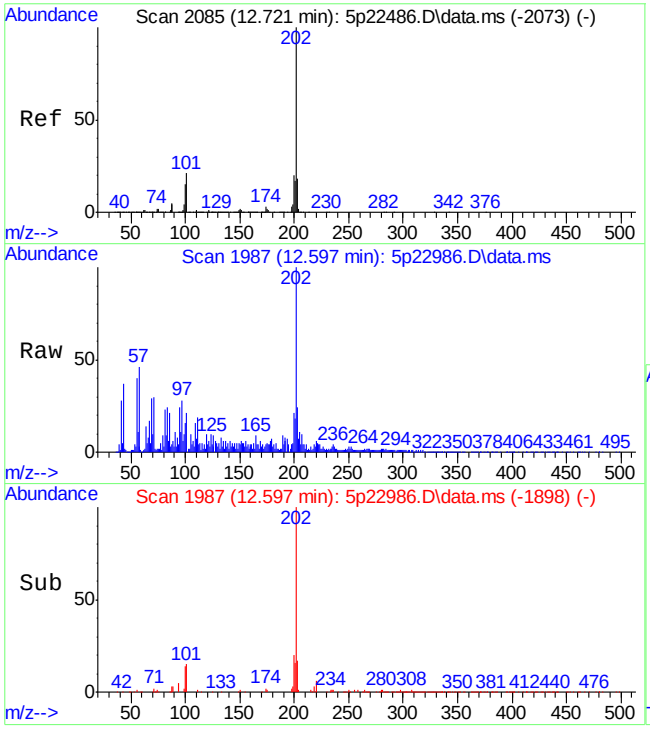
#81
Fluoranthene
Concen: 1.94 ppm
RT: 12.282 min Scan# 1928
Delta R.T. -0.022 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:202 Resp: 57586

Ion	Ratio	Lower	Upper
202	100		
101	14.5	0.0	47.7
203	16.8	0.0	47.6



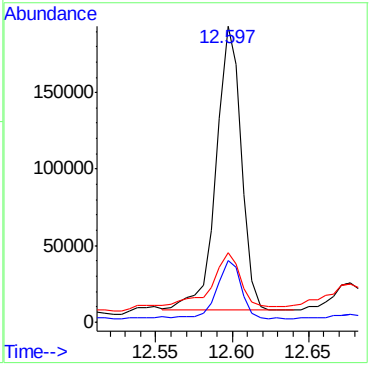
9.1.12
9

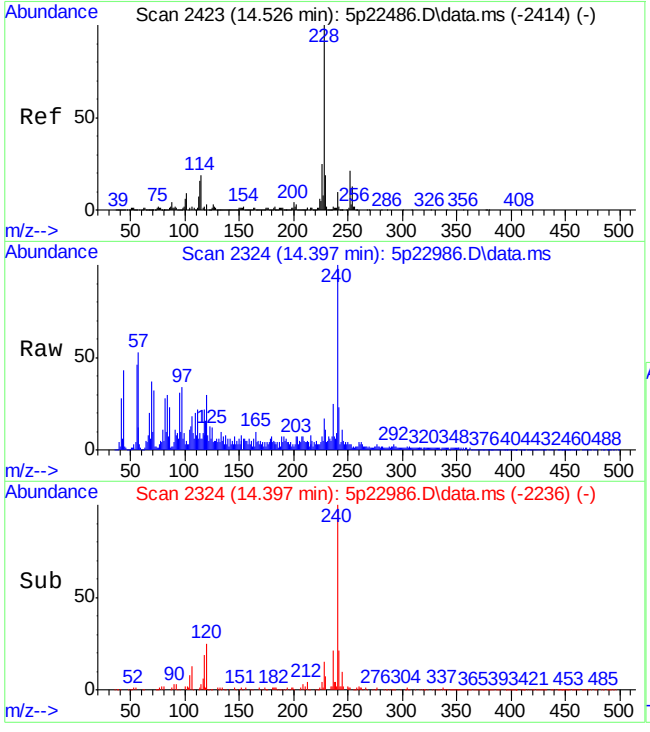


#84
Pyrene
Concen: 7.22 ppm
RT: 12.597 min Scan# 1987
Delta R.T. -0.027 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:202 Resp: 212859

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	49.9
203	18.7	0.0	48.3

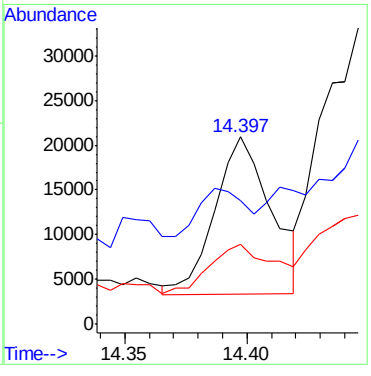


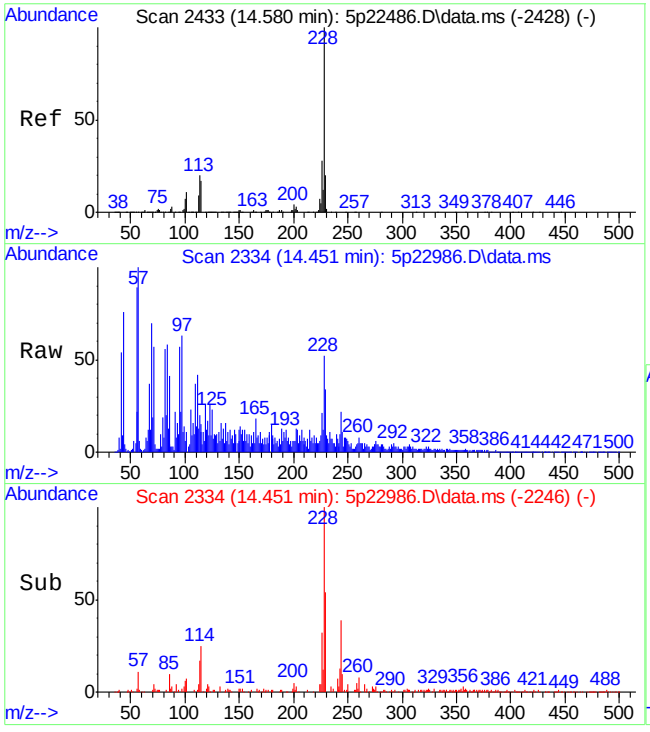


#88
Benzo[a]anthracene
Concen: 1.09 ppm
RT: 14.397 min Scan# 2324
Delta R.T. -0.032 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:228 Resp: 28197

Ion	Ratio	Lower	Upper
228	100		
229	11.1	0.0	50.3
226	29.6	0.0	56.5

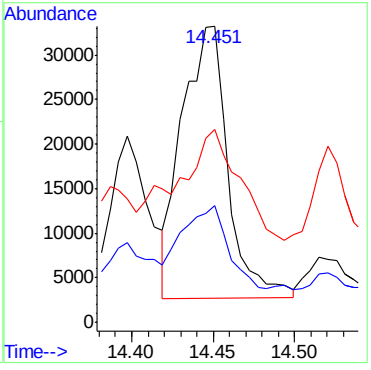


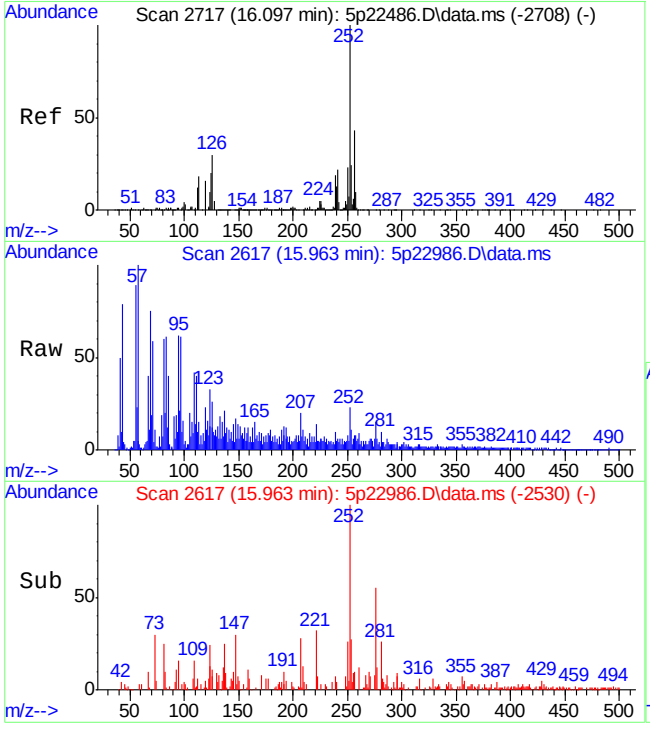


#90
Chrysene
Concen: 2.33 ppm
RT: 14.451 min Scan# 2334
Delta R.T. -0.032 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:228 Resp: 59815

Ion	Ratio	Lower	Upper
228	100		
226	31.1	0.0	57.6
229	35.3	0.0	49.4

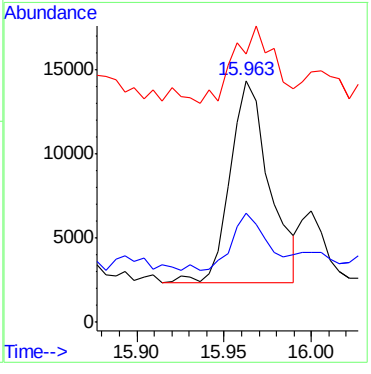


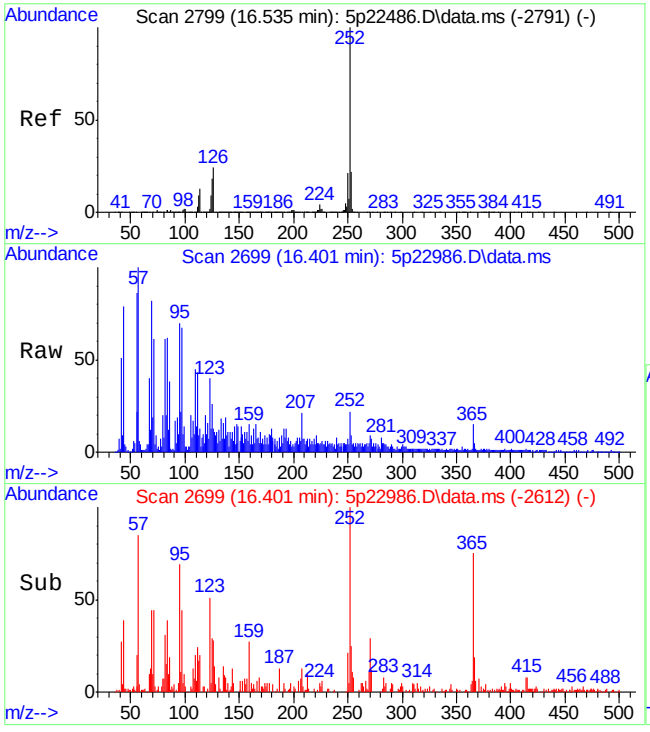


#94
Benzo[b]fluoranthene
Concen: 0.76 ppm
RT: 15.963 min Scan# 2617
Delta R.T. -0.038 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:252 Resp: 18999

Ion	Ratio	Lower	Upper
252	100		
253	26.2	0.0	54.3
125	22.9	0.0	48.2

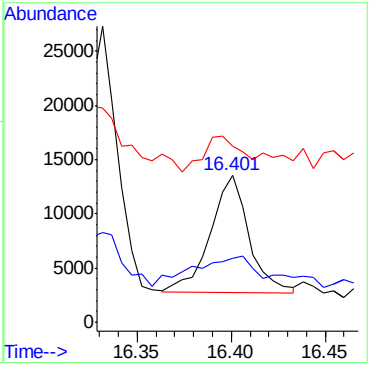


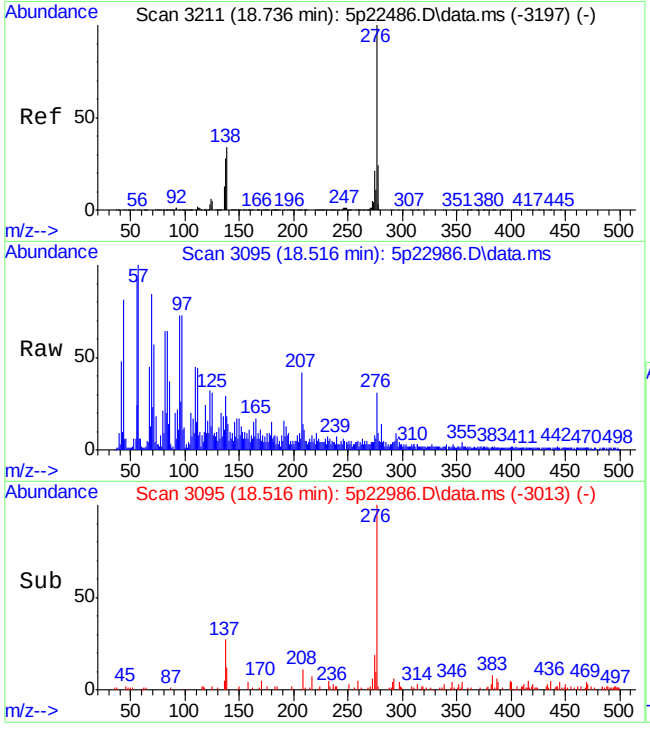


#96
Benzo[a]pyrene
Concen: 0.66 ppm
RT: 16.401 min Scan# 2699
Delta R.T. -0.038 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:252 Resp: 15497

Ion	Ratio	Lower	Upper
252	100		
253	15.6	0.0	51.9
125	10.1	0.0	49.2

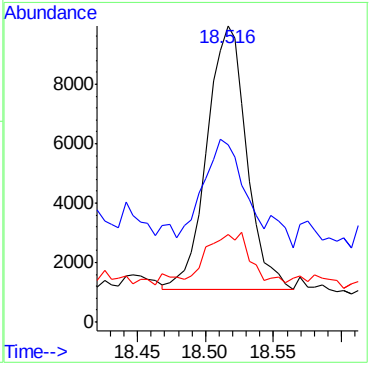




#101
Benzo[g,h,i]perylene
Concen: 0.72 ppm
RT: 18.516 min Scan# 3095
Delta R.T. -0.064 min
Lab File: 5p22986.D
Acq: 9 Nov 15 7:25 pm

Tgt Ion:276 Resp: 18062

Ion	Ratio	Lower	Upper
276	100		
138	35.2	5.7	65.7
277	15.5	0.0	54.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1162\
Data File : 5p22706.D
Acq On : 2 Nov 2015 12:02 pm
Operator : alicjap
Sample : op88533-mb1
Misc : op88533,e5p1162,30.0
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 02 12:23:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1151.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Tue Oct 27 13:03:32 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.257	152	303688	40.00 ppm	-0.06
24) Naphthalene-d8	6.721	136	1136886	40.00 ppm	-0.08
47) Acenaphthene-d10	8.836	164	637012	40.00 ppm	-0.07
69) Phenanthrene-d10	10.663	188	970449	40.00 ppm	-0.08
83) Chrysene-d12	14.451	240	890752	40.00 ppm	-0.10
92) Perylene-d12	16.524	264	849255	40.00 ppm	-0.10
102) 1,4-Dichlorobenzene-d4a	5.257	152	303688	40.00 ppm	-0.06
104) Acenaphthene-d10a	8.836	164	637012	40.00 ppm	-0.06
106) Chrysene-d12a	14.451	240	890752	40.00 ppm	-0.08
108) Phenanthrene-d10a	10.663	188	970449	40.00 ppm	-0.07
110) Naphthalene-d8a	6.721	136	1136886	40.00 ppm	-0.06
System Monitoring Compounds					
5) 2-Fluorophenol	3.878	112	451647	43.81 ppm	-0.05
Spiked Amount 50.000			Recovery	= 87.62%	
8) Phenol-d5	4.867	99	562459	44.43 ppm	-0.06
Spiked Amount 50.000			Recovery	= 88.86%	
25) Nitrobenzene-d5	5.882	82	434750	44.77 ppm	-0.07
Spiked Amount 50.000			Recovery	= 89.54%	
51) 2-Fluorobiphenyl	8.029	172	915654	43.64 ppm	-0.08
Spiked Amount 50.000			Recovery	= 87.28%	
73) 2,4,6-Tribromophenol	9.792	330	120021	42.11 ppm	-0.08
Spiked Amount 50.000			Recovery	= 84.22%	
85) Terphenyl-d14	12.901	244	849882	45.49 ppm	-0.09
Spiked Amount 50.000			Recovery	= 90.98%	

Target Compounds Qvalue

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

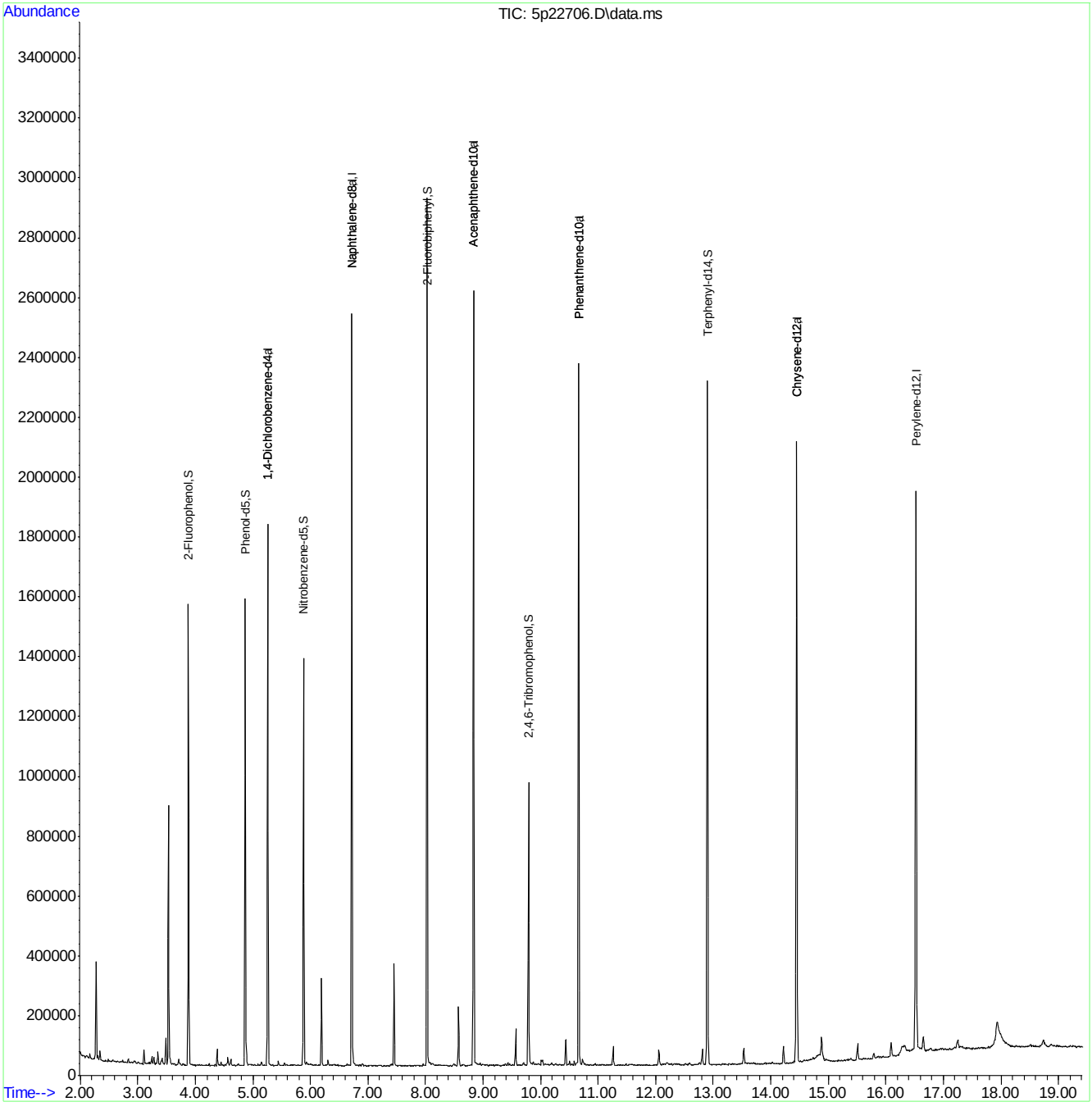
9.2.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e5p1162\
Data File : 5p22706.D
Acq On : 2 Nov 2015 12:02 pm
Operator : alicjap
Sample : op88533-mb1
Misc : op88533,e5p1162,30.0
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 02 12:23:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\M5P1151.M
Quant Title : Semi Volatile GC/MS, zb-5msi 30mx .25mmx .25um
QLast Update : Tue Oct 27 13:03:32 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p948\
Data File : 6p20812.D
Acq On : 31 Oct 2015 5:53 am
Operator : saraw
Sample : op88533-mb1
Misc : op88533,e6p948,30.0,,,1,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 02 11:39:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P921.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Oct 30 18:07:58 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	4.361	152	285784	40.00 ppm	0.00
24) Naphthalene-d8	5.398	136	1076129	40.00 ppm	-0.01
47) Acenaphthene-d10	7.399	164	610543	40.00 ppm	-0.01
69) Phenanthrene-d10	9.538	188	927646	40.00 ppm	-0.03
83) Chrysene-d12	13.716	240	848508	40.00 ppm	-0.03
92) Perylene-d12	15.828	264	708120	40.00 ppm	-0.03
102) 1,4-Dichlorobenzene-d4a	4.361	152	285784	40.00 ppm	0.00
104) Phenanthrene-d10a	9.538	188	927646	40.00 ppm	-0.03
106) Chrysene-d12a	13.716	240	848508	40.00 ppm	-0.03
108) Acenaphthene-d10a	7.399	164	610543	40.00 ppm	-0.01
110) Naphthalene-d8a	5.398	136	1076129	40.00 ppm	-0.01
System Monitoring Compounds					
5) 2-Fluorophenol	3.393	112	484449	45.45 ppm	-0.03
Spiked Amount 50.000			Recovery = 90.90%		
8) Phenol-d5	4.136	99	591143	43.09 ppm	-0.03
Spiked Amount 50.000			Recovery = 86.18%		
25) Nitrobenzene-d5	4.783	82	603116	47.87 ppm	0.00
Spiked Amount 50.000			Recovery = 95.74%		
51) 2-Fluorobiphenyl	6.554	172	896836	46.19 ppm	-0.02
Spiked Amount 50.000			Recovery = 92.38%		
73) 2,4,6-Tribromophenol	8.517	330	79519	44.96 ppm	-0.07
Spiked Amount 50.000			Recovery = 89.92%		
86) Terphenyl-d14	12.106	244	790086	48.76 ppm	-0.02
Spiked Amount 50.000			Recovery = 97.52%		

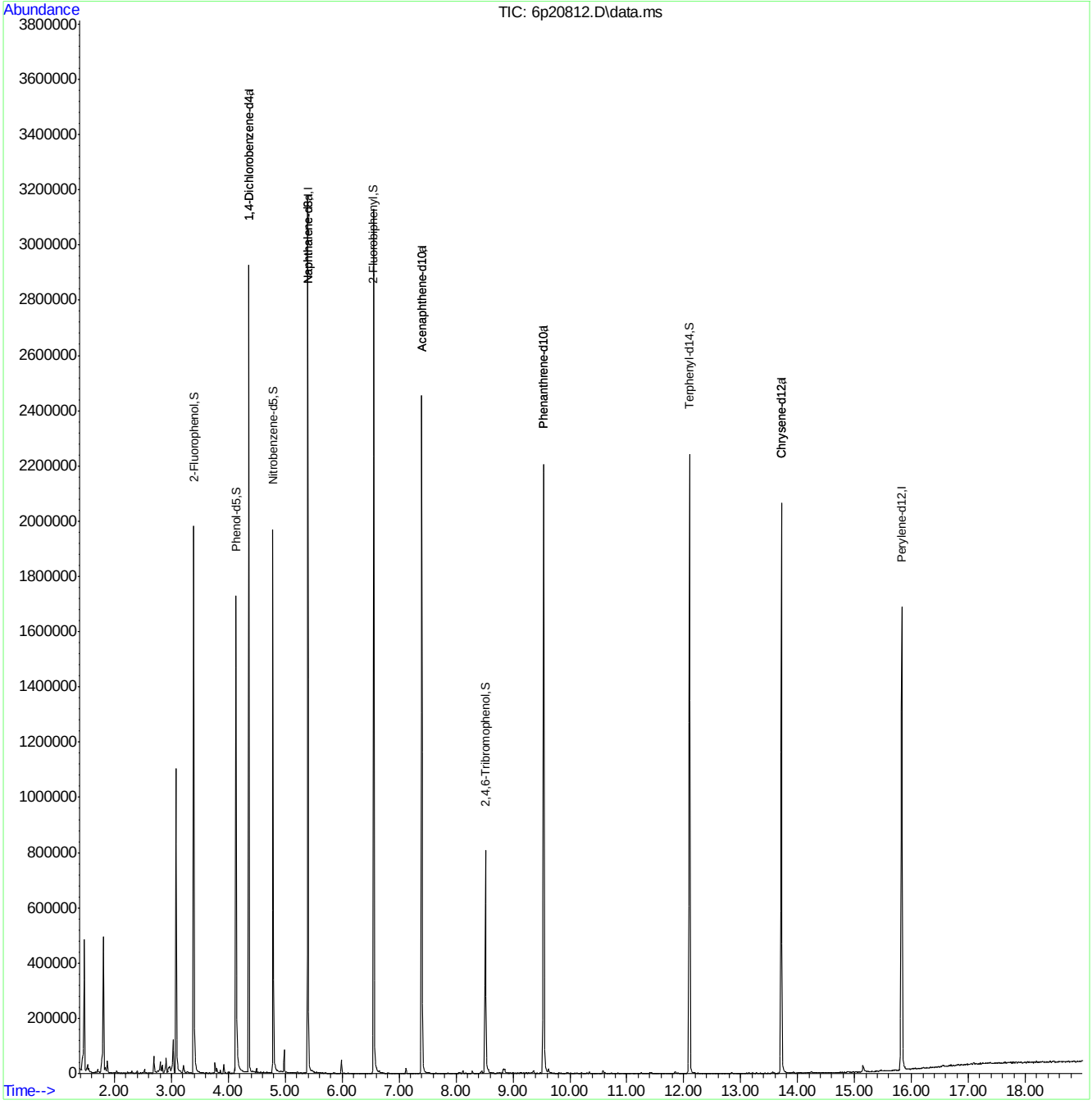
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p948\
Data File : 6p20812.D
Acq On : 31 Oct 2015 5:53 am
Operator : saraw
Sample : op88533-mb1
Misc : op88533,e6p948,30.0,,,1,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 02 11:39:38 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P921.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Oct 30 18:07:58 2015
Response via : Initial Calibration



ACCUTEST LABORATORIES JC7291

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: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:21	MA37983-STD1	1		STDA
16:24	MA37983-STD2	1		STDB
16:27	ZZZZZZ	1		
16:30	ZZZZZZ	1		
16:33	MA37983-ICV1	1		
16:35	MA37983-ICB1	1		
16:38	MA37983-CCV1	1		
16:41	MA37983-CCB1	1		
16:44	MA37983-CRI1	1		
16:47	MA37983-CRID1	1		
16:50	MA37983-CRIA1	1		
16:53	MA37983-ICSA1	1		
16:56	MA37983-ICSAB1	1		
16:59	MA37983-HSTD1	1		
17:02	MA37983-HSTD2	1		
17:05	MA37983-CCV2	1		
17:08	MA37983-CCB2	1		
17:11	ZZZZZZ	1		
17:14	ZZZZZZ	1		
17:17	ZZZZZZ	1		
17:20	MA37983-CCV3	1		
17:22	MA37983-CCB3	1		
17:25	MP90038-MB1	1		
17:28	MP90038-B1	1		
17:31	MP90038-S1	1		
17:34	MP90038-S2	1		
17:36	JC7383-7	1		(sample used for QC only; not part of login JC7291)
17:39	MP90038-SD1	5		
17:42	ZZZZZZ	1		
17:45	ZZZZZZ	1		
17:48	ZZZZZZ	1		
17:51	MA37983-CCV4	1		
17:54	MA37983-CCB4	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:57	ZZZZZZ	1		
18:00	ZZZZZZ	1		
18:03	ZZZZZZ	1		
18:06	ZZZZZZ	1		
18:08	ZZZZZZ	1		
18:11	ZZZZZZ	1		
18:14	ZZZZZZ	1		
18:17	ZZZZZZ	1		
18:21	ZZZZZZ	1		
18:24	MA37983-CCV5	1		
18:26	MA37983-CCB5	1		
18:29	ZZZZZZ	1		
18:32	ZZZZZZ	1		
18:39	MA37983-CCV6	1		
18:42	MA37983-CCB6	1		
18:45	ZZZZZZ	1		
18:48	ZZZZZZ	1		
18:51	ZZZZZZ	1		
18:54	ZZZZZZ	1		
18:57	ZZZZZZ	1		
19:00	ZZZZZZ	1		
19:03	MP90060-S1	1		CCV out
19:05	MA37983-CCV7	1		
19:08	MA37983-CCB7	1		
19:11	MP90060-S2	1		CCV out
19:14	JC7540-1	1		(sample used for QC only; not part of login JC7291)
19:17	MP90060-SD1	5		
19:20	ZZZZZZ	1		
19:23	ZZZZZZ	1		
19:26	ZZZZZZ	1		
19:29	ZZZZZZ	1		
19:31	ZZZZZZ	1		
19:35	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:38	MA37983-CCV8	1		
19:40	MA37983-CCB8	1		
19:43	ZZZZZZ	1		
19:46	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:52	ZZZZZZ	1		
19:55	ZZZZZZ	1		
19:58	ZZZZZZ	1		
20:01	ZZZZZZ	1		
20:04	ZZZZZZ	1		
20:07	ZZZZZZ	1		
20:10	MA37983-CCV9	1		
20:12	MA37983-CCB9	1		
20:15	ZZZZZZ	1		
20:18	MP90063-B1	1		
20:21	MP90063-MB1	1		
20:23	MP90063-S1	1		ISTD out
20:26	MP90063-S2	1		ISTD out
20:29	JC7214-19	1		(sample used for QC only; not part of login JC7291)
20:31	MP90063-SD1	5		ISTD out
20:34	ZZZZZZ	1		
20:37	ZZZZZZ	1		
20:40	MA37983-CCV10	1		
20:42	MA37983-CCB10	1		
20:45	ZZZZZZ	1		
20:48	ZZZZZZ	1		
20:51	ZZZZZZ	1		
20:53	ZZZZZZ	1		
20:56	ZZZZZZ	1		
20:59	ZZZZZZ	1		
21:02	ZZZZZZ	1		
21:04	JC7291-1	1		
21:07	JC7291-2	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	21:10	MA37983-CCV11	1		
	21:12	MA37983-CCB11	1		
	21:15	JC7291-3	1		high rsd
	21:18	JC7291-4	1		
	21:20	JC7291-5	1		
	21:23	JC7291-6	1		
	21:26	JC7291-7	1		
	21:29	JC7291-8	1		
	21:31	JC7291-9	1		
	21:34	JC7291-10	1		
---------->	Last reportable sample/prep for job JC7291				
	21:37	MA37983-CCV12	1		
	21:39	MA37983-CCB12	1		
	21:42	MA37983-CRI2	1		
	21:45	MA37983-CRID2	1		
	21:48	MA37983-CRIA2	1		
	21:50	MA37983-ICSA2	1		
	21:53	MA37983-ICSAB2	1		
	21:56	MA37983-CCV13	1		
	21:58	MA37983-CCB13	1		
---------->	Last reportable CCB for job JC7291				
	22:01	MP90093-MB1	1		
	22:04	MP90093-B1	1		
	22:07	MP90093-S1	1		
	22:09	MP90093-S2	1		
	22:12	JC7389-8	1		(sample used for QC only; not part of login JC7291)
	22:14	MP90093-SD1	5		
	22:17	ZZZZZZ	1		
	22:20	ZZZZZZ	1		
	22:23	ZZZZZZ	1		
	22:25	MA37983-CCV14	1		
	22:28	MA37983-CCB14	1		
	22:31	ZZZZZZ	1		
	22:33	ZZZZZZ	1		
	22:36	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:39	ZZZZZZ	1		
22:42	ZZZZZZ	1		
22:44	ZZZZZZ	1		
22:47	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:52	ZZZZZZ	1		
22:55	MA37983-CCV15	1		
22:58	MA37983-CCB15	1		
23:00	ZZZZZZ	1		
23:03	ZZZZZZ	1		
23:06	ZZZZZZ	1		
23:09	ZZZZZZ	1		
23:11	ZZZZZZ	1		
23:14	ZZZZZZ	1		
23:17	ZZZZZZ	1		
23:20	MP90047-B1	1		
23:22	MP90047-MB1	1		
23:25	MA37983-CCV16	1		
23:27	MA37983-CCB16	1		
23:30	MP90047-S1	1		
23:33	MP90047-S2	1		
23:35	JC7114-1	1		(sample used for QC only; not part of login JC7291)
23:38	MP90047-SD1	5		
23:41	ZZZZZZ	1		
23:44	ZZZZZZ	1		
23:46	ZZZZZZ	1		
23:49	ZZZZZZ	1		
23:52	ZZZZZZ	1		
23:54	MA37983-CCV17	1		
23:57	MA37983-CCB17	1		
00:00	ZZZZZZ	1		
00:02	ZZZZZZ	1		
00:05	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:08	ZZZZZZ	1		
00:10	ZZZZZZ	1		
00:13	ZZZZZZ	1		
00:16	ZZZZZZ	1		
00:19	ZZZZZZ	1		
00:21	ZZZZZZ	1		
00:24	MA37983-CCV18	1		
00:27	MA37983-CCB18	1		
00:29	ZZZZZZ	1		
00:32	ZZZZZZ	1		
00:35	ZZZZZZ	1		
00:38	ZZZZZZ	1		
00:41	ZZZZZZ	1		
00:43	MP90035-B1	1		
00:46	MP90035-MB1	1		
00:49	MP90035-S1	1		Na high. High RSD. rerun straight and on dilution
00:51	MP90035-S2	1		Na high. High RSD. rerun straight and on dilution
00:54	MA37983-CCV19	1		
00:56	MA37983-CCB19	1		
00:59	JC7171-3	1		(sample used for QC only; not part of login JC7291)
01:02	MP90035-SD1	5		Na high. High RSD. rerun straight and on dilution
01:05	MP90035-S3	1		Na high
01:07	MP90035-S4	1		Na high
01:10	JC7171-3F	1		(sample used for QC only; not part of login JC7291)
01:13	MP90035-SD2	5		Na high
01:16	ZZZZZZ	1		
01:18	ZZZZZZ	1		
01:21	ZZZZZZ	1		
01:24	MA37983-CCV20	1		
01:26	MA37983-CCB20	1		
01:29	ZZZZZZ	1		
01:32	ZZZZZZ	1		
01:35	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
01:38	ZZZZZZ	1		
01:40	ZZZZZZ	1		
01:43	ZZZZZZ	1		
01:46	ZZZZZZ	1		
01:49	ZZZZZZ	1		
01:52	ZZZZZZ	1		
01:54	MA37983-CCV21	1		
01:57	MA37983-CCB21	1		
02:00	ZZZZZZ	1		
02:03	ZZZZZZ	1		
02:05	ZZZZZZ	1		
02:08	ZZZZZZ	1		
02:11	ZZZZZZ	1		
02:14	ZZZZZZ	1		
02:17	MA37983-CCV22	1		empty CCV
02:19	MA37983-CCB22	1		empty CCV
02:22	MA37983-CRI3	1		
02:25	MA37983-CRID3	1		
02:28	MA37983-CRIA3	1		
02:31	MA37983-ICSA3	1		
02:33	MA37983-ICSAB3	1		
02:36	MA37983-CCV23	1		empty
02:39	MA37983-CCB23	1		empty
02:42	ZZZZZZ	1		
02:45	ZZZZZZ	1		
02:47	ZZZZZZ	1		
02:50	ZZZZZZ	1		
02:53	ZZZZZZ	1		
02:56	ZZZZZZ	1		
02:59	ZZZZZZ	1		
03:02	ZZZZZZ	1		
03:04	ZZZZZZ	1		
06:24	MA37983-CCV24	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
06:31	MA37983-CCB24	1		

Refer to raw data for calibration curve and standards.

10.1
10

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:21	MA37983-STD1	2797 R	66581 R	13099 R	6761 R
16:24	MA37983-STD2	2581	60734	12840	5835
16:27	ZZZZZZ	2652	63227	12911	6075
16:30	ZZZZZZ	2785	67165	13095	6803
16:33	MA37983-ICV1	2712	64325	13149	6196
16:35	MA37983-ICB1	2836	68003	13396	6894
16:38	MA37983-CCV1	2707	64396	13218	6183
16:41	MA37983-CCB1	2823	68444	13403	6900
16:44	MA37983-CRI1	2757	68182	14035	6717
16:47	MA37983-CRID1	2707	69012	14041	6663
16:50	MA37983-CRIA1	2821	69192	14010	6931
16:53	MA37983-ICSA1	2528	60288	13335	5539
16:56	MA37983-ICSAB1	2495	57738	13428	5457
16:59	MA37983-HSTD1	2772	67286	13910	6732
17:02	MA37983-HSTD2	2531	61219	13323	5535
17:05	MA37983-CCV2	2709	65903	13690	6253
17:08	MA37983-CCB2	2795	70876	14055	6886
17:11	ZZZZZZ	2755	68446	13975	6898
17:14	ZZZZZZ	2778	69719	13873	6965
17:17	ZZZZZZ	2862	71931	13974	7030
17:20	MA37983-CCV3	2710	66823	13923	6259
17:22	MA37983-CCB3	2830	69887	13961	7011
17:25	MP90038-MB1	2821	69916	13862	6996
17:28	MP90038-B1	2646	66946	13986	6239
17:31	MP90038-S1	2658	65928	14057	6177
17:34	MP90038-S2	2662	65965	14001	6186
17:36	JC7383-7	2725	67422	14097	6540
17:39	MP90038-SD1	2796	69596	13663	6863
17:42	ZZZZZZ	2796	69758	14231	6840
17:45	ZZZZZZ	2780	69181	14241	6650
17:48	ZZZZZZ	2823	69204	14127	6795
17:51	MA37983-CCV4	2700	66324	13689	6234
17:54	MA37983-CCB4	2851	70368	14024	7025

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:57	ZZZZZZ	2862	70195	14538	6681
18:00	ZZZZZZ	2834	69710	14238	6840
18:03	ZZZZZZ	2735	67819	14049	6600
18:06	ZZZZZZ	2807	69216	14171	6669
18:08	ZZZZZZ	2812	69237	14232	6821
18:11	ZZZZZZ	2521	60636	13683	5650
18:14	ZZZZZZ	2876	70551	14109	6993
18:17	ZZZZZZ	1792 !a	43778 !a	11898	3826 !a
18:21	ZZZZZZ	2654	64956	13928	6209
18:24	MA37983-CCV5	2693	68717	13132	6224
18:26	MA37983-CCB5	2890	72199	13935	7012
18:29	ZZZZZZ	2550	61304	13639	5657
18:32	ZZZZZZ	1861 !a	43659 !a	11882	3880 !a
18:39	MA37983-CCV6	2717	66179	13505	6262
18:42	MA37983-CCB6	2891	70469	14092	7052
18:45	ZZZZZZ	2539	62295	13404	5685
18:48	ZZZZZZ	2744	67955	13902	6527
18:51	ZZZZZZ	1903 !a	45001 !a	12103	4045 !a
18:54	ZZZZZZ	2654	68032	13742	6334
18:57	ZZZZZZ	2638	64294	14014	6113
19:00	ZZZZZZ	2848	70843	14127	7014
19:03	MP90060-S1	2709	66715	14048	6236
19:05	MA37983-CCV7	2740	66752	13898	6317
19:08	MA37983-CCB7	2859	70546	13996	7034
19:11	MP90060-S2	2673	65647	14028	6157
19:14	JC7540-1	2687	65672	14180	6282
19:17	MP90060-SD1	2836	68414	14016	6737
19:20	ZZZZZZ	2659	67257	14221	6152
19:23	ZZZZZZ	2878	71054	14194	7090
19:26	ZZZZZZ	2627	64068	13894	6100
19:29	ZZZZZZ	2696	65721	14038	6280
19:31	ZZZZZZ	2607	63950	13824	5961
19:35	ZZZZZZ	2658	63290	13917	6073

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
19:38	MA37983-CCV8	2713	66019	13886	6255
19:40	MA37983-CCB8	2857	70083	14085	7038
19:43	ZZZZZZ	2675	64597	13955	6180
19:46	ZZZZZZ	2643	64738	14037	6171
19:49	ZZZZZZ	2586	61786	13894	5844
19:52	ZZZZZZ	2666	64452	13988	6141
19:55	ZZZZZZ	2934	71663	14209	7158
19:58	ZZZZZZ	2904	71020	14314	7070
20:01	ZZZZZZ	2867	70970	14289	7049
20:04	ZZZZZZ	2864	71281	14396	7078
20:07	ZZZZZZ	2901	71207	14307	7098
20:10	MA37983-CCV9	2748	66108	13913	6315
20:12	MA37983-CCB9	2857	70684	14101	7009
20:15	ZZZZZZ	2872	71500	14372	7087
20:18	MP90063-B1	2736	67090	14101	6415
20:21	MP90063-MB1	2859	71068	14301	7003
20:23	MP90063-S1	3424	84461	18210 !a	6261
20:26	MP90063-S2	3444	84646	18154 !a	6308
20:29	JC7214-19	3540	87909 !a	18369 !a	6611
20:31	MP90063-SD1	2998	73705	15168	6797
20:34	ZZZZZZ	2986	73290	15275	6537
20:37	ZZZZZZ	2891	69952	14573	6586
20:40	MA37983-CCV10	2704	66099	13967	6239
20:42	MA37983-CCB10	2893	70580	14302	7045
20:45	ZZZZZZ	3002	74430	15552	6550
20:48	ZZZZZZ	3141	77866	15914	6739
20:51	ZZZZZZ	3291	81375	16832	6850
20:53	ZZZZZZ	2954	72868	15188	6568
20:56	ZZZZZZ	3413	84144	17383 !a	6544
20:59	ZZZZZZ	3042	74556	15282	6631
21:02	ZZZZZZ	3324	82609	17217 !a	6681
21:04	JC7291-1	2895	71651	14876	6486
21:07	JC7291-2	2873	70492	14732	6458

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:10	MA37983-CCV11	2711	66610	13989	6266
21:12	MA37983-CCB11	2869	70853	14153	7046
21:15	JC7291-3	2777	65406	14345	6151
21:18	JC7291-4	2874	69831	14522	6455
21:20	JC7291-5	2941	71564	14903	6413
21:23	JC7291-6	3006	71914	14886	6495
21:26	JC7291-7	2973	72392	15063	6435
21:29	JC7291-8	2916	68533	15211	6424
21:31	JC7291-9	2953	71551	14893	6449
21:34	JC7291-10	2896	70951	14559	6445
21:37	MA37983-CCV12	2687	66145	13776	6196
21:39	MA37983-CCB12	2856	70514	13919	7025
21:42	MA37983-CRI2	2842	69363	13949	6850
21:45	MA37983-CRID2	2871	70395	13712	6973
21:48	MA37983-CRIA2	2856	70865	13490	6987
21:50	MA37983-ICSA2	2587	63800	13065	5609
21:53	MA37983-ICSAB2	2527	61086	13379	5514
21:56	MA37983-CCV13	2722	66425	13723	6258
21:58	MA37983-CCB13	2886	70841	13987	7039
22:01	MP90093-MB1	2836	70197	14042	6933
22:04	MP90093-B1	2767	67468	13777	6404
22:07	MP90093-S1	2876	70737	14727	6264
22:09	MP90093-S2	2866	70225	14655	6254
22:12	JC7389-8	2974	71828	14674	6535
22:14	MP90093-SD1	2915	72834	13957	6842
22:17	ZZZZZZ	2990	71446	14707	6499
22:20	ZZZZZZ	2976	71931	14849	6480
22:23	ZZZZZZ	2948	71569	14747	6443
22:25	MA37983-CCV14	2745	66879	13797	6309
22:28	MA37983-CCB14	2883	71444	14136	7052
22:31	ZZZZZZ	2859	70417	15432	6208
22:33	ZZZZZZ	3164	71353	15271	6546
22:36	ZZZZZZ	2997	72482	14777	6650

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
22:39	ZZZZZZ	2930	71768	15307	6482
22:42	ZZZZZZ	2938	71539	14678	6477
22:44	ZZZZZZ	2902	71251	14553	6476
22:47	ZZZZZZ	2956	72545	14457	6499
22:50	ZZZZZZ	2999	72416	14726	6569
22:52	ZZZZZZ	2973	73031	14725	6539
22:55	MA37983-CCV15	2776	67609	13537	6360
22:58	MA37983-CCB15	2904	71278	13983	7071
23:00	ZZZZZZ	2950	72357	14894	6552
23:03	ZZZZZZ	2796	68768	13461	6582
23:06	ZZZZZZ	2869	69193	14138	6662
23:09	ZZZZZZ	2904	71833	14570	6579
23:11	ZZZZZZ	2918	72997	14442	6566
23:14	ZZZZZZ	2983	71906	14645	6604
23:17	ZZZZZZ	2893	71081	14565	6511
23:20	MP90047-B1	2775	67529	13862	6413
23:22	MP90047-MB1	2908	71164	14127	7035
23:25	MA37983-CCV16	2736	66364	13829	6274
23:27	MA37983-CCB16	2889	70835	14107	6995
23:30	MP90047-S1	2824	68481	14600	6187
23:33	MP90047-S2	2768	68238	14340	6077
23:35	JC7114-1	2873	70553	14669	6404
23:38	MP90047-SD1	2857	70369	14220	6761
23:41	ZZZZZZ	2843	69501	14556	6359
23:44	ZZZZZZ	2757	70030	14691	6164
23:46	ZZZZZZ	2925	71426	14699	6427
23:49	ZZZZZZ	2860	69632	14591	6310
23:52	ZZZZZZ	2914	69928	14535	6428
23:54	MA37983-CCV17	2728	66432	13919	6225
23:57	MA37983-CCB17	2872	70388	14191	6961
00:00	ZZZZZZ	3051	72470	15213	6605
00:02	ZZZZZZ	2875	70544	14695	6409
00:05	ZZZZZZ	2921	70751	14798	6404

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
00:08	ZZZZZZ	2878	69257	14340	6397
00:10	ZZZZZZ	2916	70839	14806	6410
00:13	ZZZZZZ	2881	70467	14709	6363
00:16	ZZZZZZ	2830	69208	14177	6568
00:19	ZZZZZZ	2747	67648	14765	6141
00:21	ZZZZZZ	2562	65070	14154	6215
00:24	MA37983-CCV18	2710	66656	13949	6188
00:27	MA37983-CCB18	2904	70815	14162	6940
00:29	ZZZZZZ	2753	68253	14503	6268
00:32	ZZZZZZ	2304	59409	13653	5814
00:35	ZZZZZZ	2801	70087	14355	6659
00:38	ZZZZZZ	2528	65628	14286	6209
00:41	ZZZZZZ	2798	69536	14164	6634
00:43	MP90035-B1	2765	68343	14088	6423
00:46	MP90035-MB1	2781	70795	14291	6793
00:49	MP90035-S1	2501	61210	13445	5515
00:51	MP90035-S2	2522	61125	13538	5566
00:54	MA37983-CCV19	2687	66102	13810	6161
00:56	MA37983-CCB19	2841	71392	14025	6920
00:59	JC7171-3	2500	61939	13196	5542
01:02	MP90035-SD1	2737	65910	14003	6248
01:05	MP90035-S3	2457	60781	13699	5423
01:07	MP90035-S4	2480	60687	13599	5462
01:10	JC7171-3F	2486	60303	13648	5559
01:13	MP90035-SD2	2680	62439	13863	6246
01:16	ZZZZZZ	2654	67685	14081	6330
01:18	ZZZZZZ	2719	67315	14213	6462
01:21	ZZZZZZ	2462	60287	13616	5494
01:24	MA37983-CCV20	2678	65943	13909	6126
01:26	MA37983-CCB20	2835	71099	14105	6857
01:29	ZZZZZZ	2747	67106	13971	6412
01:32	ZZZZZZ	2680	65828	13960	6242
01:35	ZZZZZZ	2686	65550	13901	6216

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
01:38	ZZZZZZ	2665	65774	13927	6172
01:40	ZZZZZZ	2387	60216	13602	5357
01:43	ZZZZZZ	2874	70308	14227	6889
01:46	ZZZZZZ	2709	67465	14110	6426
01:49	ZZZZZZ	2730	67951	14219	6499
01:52	ZZZZZZ	2466	60210	13648	5509
01:54	MA37983-CCV21	2670	65663	13384	6122
01:57	MA37983-CCB21	2852	70526	14273	6867
02:00	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:03	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:05	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:08	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:11	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:14	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:17	MA37983-CCV22	No results reported for the elements associated with this internal standard.			
02:19	MA37983-CCB22	No results reported for the elements associated with this internal standard.			
02:22	MA37983-CRI3	2858	69864	14022	6777
02:25	MA37983-CRID3	2844	70682	14098	6894
02:28	MA37983-CRIA3	2825	70316	14215	6879
02:31	MA37983-ICSA3	2494	61124	13364	5442
02:33	MA37983-ICSAB3	2495	60865	13354	5431
02:36	MA37983-CCV23	No results reported for the elements associated with this internal standard.			
02:39	MA37983-CCB23	No results reported for the elements associated with this internal standard.			
02:42	ZZZZZZ	2858	70789	14283	6933
02:45	ZZZZZZ	2860	70839	14076	6960
02:47	ZZZZZZ	2824	70105	14268	6864
02:50	ZZZZZZ	2904	71349	14238	6925
02:53	ZZZZZZ	2845	70822	14108	6915
02:56	ZZZZZZ	2866	70744	13593	6993
02:59	ZZZZZZ	2894	67224	14508	6158
03:02	ZZZZZZ	2545	62834	13521	5867
03:04	ZZZZZZ	2574	63390	13537	5914
06:24	MA37983-CCV24	2905	70052	14597	6572

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
Analyst: BS Run ID: MA37983
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
06:31	MA37983-CCB24	2941	72005	14315	7094

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			16:35		16:41		17:08		17:22	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.8	anr							
Antimony	6.0	2.9	anr							
Arsenic	3.0	1.3	anr							
Barium	200	.1	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1.6								
Boron	100	1.1								
Cadmium	3.0	.4	anr							
Calcium	5000	52	anr							
Chromium	10	1	anr							
Cobalt	50	.6	0.0	<50	-0.10	<50	0.0	<50	-0.10	<50
Copper	10	1.2	anr							
Iron	100	2.5	anr							
Lead	3.0	2	-0.10	<3.0	0.10	<3.0	0.10	<3.0	1.1	<3.0
Lithium	20	.4								
Magnesium	5000	21	anr							
Manganese	15	.2	anr							
Molybdenum	20	.7	anr							
Nickel	10	.5	0.0	<10	0.0	<10	-0.10	<10	-0.10	<10
Palladium	50	2								
Potassium	10000	23	anr							
Selenium	10	3.3	anr							
Silicon	200	5.3								
Silver	10	.9	anr							
Sodium	10000	6.9	anr							
Sulfur	50	4.5								
Strontium	10	.1								
Thallium	2.0	2	anr							
Tin	10	2								
Titanium	10	1.3								
Tungsten	50	1.8								
Vanadium	50	1.1	0.10	<50	0.30	<50	0.10	<50	0.30	<50
Zinc	20	2	-0.10	<20	-0.10	<20	-0.10	<20	-0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			16:35		16:41		17:08		17:22	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.6								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			17:54		18:26		18:42		19:08	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.8	anr							
Antimony	6.0	2.9	anr							
Arsenic	3.0	1.3	anr							
Barium	200	.1	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1.6								
Boron	100	1.1								
Cadmium	3.0	.4	anr							
Calcium	5000	52	anr							
Chromium	10	1	anr							
Cobalt	50	.6	-0.10	<50	0.30	<50	0.0	<50	0.20	<50
Copper	10	1.2	anr							
Iron	100	2.5	anr							
Lead	3.0	2	-0.40	<3.0	1.5	<3.0	0.50	<3.0	-0.60	<3.0
Lithium	20	.4								
Magnesium	5000	21	anr							
Manganese	15	.2	anr							
Molybdenum	20	.7	anr							
Nickel	10	.5	-0.20	<10	-0.30	<10	-0.30	<10	0.10	<10
Palladium	50	2								
Potassium	10000	23	anr							
Selenium	10	3.3	anr							
Silicon	200	5.3								
Silver	10	.9	anr							
Sodium	10000	6.9	anr							
Sulfur	50	4.5								
Strontium	10	.1								
Thallium	2.0	2	anr							
Tin	10	2								
Titanium	10	1.3								
Tungsten	50	1.8								
Vanadium	50	1.1	0.30	<50	-0.10	<50	-0.10	<50	0.10	<50
Zinc	20	2	-0.20	<20	-0.10	<20	-0.10	<20	-0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			17:54		18:26		18:42		19:08	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.6								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			19:40		20:12		20:42		21:12	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.8	anr							
Antimony	6.0	2.9	anr							
Arsenic	3.0	1.3	anr							
Barium	200	.1	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1.6								
Boron	100	1.1								
Cadmium	3.0	.4	anr							
Calcium	5000	52	anr							
Chromium	10	1	anr							
Cobalt	50	.6	0.0	<50	0.10	<50	0.0	<50	0.20	<50
Copper	10	1.2	anr							
Iron	100	2.5	anr							
Lead	3.0	2	1.3	<3.0	-0.10	<3.0	-0.40	<3.0	0.50	<3.0
Lithium	20	.4								
Magnesium	5000	21	anr							
Manganese	15	.2	anr							
Molybdenum	20	.7	anr							
Nickel	10	.5	-0.50	<10	-0.40	<10	-0.10	<10	0.10	<10
Palladium	50	2								
Potassium	10000	23	anr							
Selenium	10	3.3	anr							
Silicon	200	5.3								
Silver	10	.9	anr							
Sodium	10000	6.9	anr							
Sulfur	50	4.5								
Strontium	10	.1								
Thallium	2.0	2	anr							
Tin	10	2								
Titanium	10	1.3								
Tungsten	50	1.8								
Vanadium	50	1.1	0.10	<50	0.30	<50	0.0	<50	0.0	<50
Zinc	20	2	-0.10	<20	-0.10	<20	-0.30	<20	-0.20	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			19:40		20:12		20:42		21:12	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.6								

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			21:39		21:58	
Sample ID:			CCB12		CCB13	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	7.8	anr			
Antimony	6.0	2.9	anr			
Arsenic	3.0	1.3	anr			
Barium	200	.1	anr			
Beryllium	1.0	.04	anr			
Bismuth	20	1.6				
Boron	100	1.1				
Cadmium	3.0	.4	anr			
Calcium	5000	52	anr			
Chromium	10	1	anr			
Cobalt	50	.6	0.10	<50	0.20	<50
Copper	10	1.2	anr			
Iron	100	2.5	anr			
Lead	3.0	2	0.80	<3.0	0.60	<3.0
Lithium	20	.4				
Magnesium	5000	21	anr			
Manganese	15	.2	anr			
Molybdenum	20	.7	anr			
Nickel	10	.5	-0.20	<10	0.0	<10
Palladium	50	2				
Potassium	10000	23	anr			
Selenium	10	3.3	anr			
Silicon	200	5.3				
Silver	10	.9	anr			
Sodium	10000	6.9	anr			
Sulfur	50	4.5				
Strontium	10	.1				
Thallium	2.0	2	anr			
Tin	10	2				
Titanium	10	1.3				
Tungsten	50	1.8				
Vanadium	50	1.1	0.40	<50	0.40	<50
Zinc	20	2	-0.10	<20	0.0	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA37983 Units: ug/l

Time:			21:39		21:58	
Sample ID:			CCB12		CCB13	
Metal	RL	IDL	raw	final	raw	final
Zirconium	10	.6				

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		16:33			16:38			17:05	
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	2010	100.5	2000	2010	100.5	2000	1980	99.0
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2050	102.5	2000	2000	100.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	2020	101.0	2000	2030	101.5	2000	1980	99.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1980	99.0	2000	1970	98.5	2000	1920	96.0
Zinc	2000	2040	102.0	2000	2040	102.0	2000	1980	99.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		16:33			16:38			17:05	
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: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		17:20			17:51			18:24	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1970	98.5	2000	1970	98.5	2000	1970	98.5
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	1990	99.5	2000	1990	99.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	1960	98.0	2000	1970	98.5	2000	1970	98.5
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1900	95.0	2000	1910	95.5	2000	1830	91.5
Zinc	2000	1960	98.0	2000	1960	98.0	2000	1960	98.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		17:20			17:51			18:24	
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: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		18:39			19:05			19:38	
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	1960	98.0	2000	1940	97.0	2000	1960	98.0
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1960	98.0	2000	1980	99.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	1960	98.0	2000	1940	97.0	2000	1960	98.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1920	96.0	2000	1890	94.5	2000	1910	95.5
Zinc	2000	1960	98.0	2000	1940	97.0	2000	1960	98.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		18:39			19:05			19:38	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		20:10			20:40			21:10	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	2000	1980	99.0	2000	1970	98.5	2000	1950	97.5
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	1990	99.5	2000	1960	98.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	1990	99.5	2000	1980	99.0	2000	1960	98.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1910	95.5	2000	1910	95.5	2000	1900	95.0
Zinc	2000	2000	100.0	2000	1960	98.0	2000	1940	97.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		20:10			20:40			21:10	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		21:37			21:56	
Sample ID:	CCV	CCV12		CCV	CCV13	
Metal	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	1980	99.0	2000	1970	98.5
Copper	anr					
Iron	anr					
Lead	2000	2000	100.0	2000	1980	99.0
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	2000	1990	99.5	2000	1980	99.0
Palladium						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	2000	1910	95.5	2000	1910	95.5
Zinc	2000	1990	99.5	2000	1960	98.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		21:37			21:56	
Sample ID:	CCV	CCV12		CCV	CCV13	
Metal	True	Results	% Rec	True	Results	% Rec
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		16:59			17:02	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	5000	4990	99.8			
Copper	anr					
Iron						
Lead	5000	4970	99.4			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum	anr					
Nickel	5000	4940	98.8			
Palladium						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	5000	5030	100.6			
Zinc	5000	5040	100.8			

HIGH STANDARD CHECK SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37983 Units: ug/l

Time:		16:59			17:02	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

10.1.4

10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37983 Units: ug/l

Time:				16:44		16:47		16:50	
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	49.3	98.6	3.1	103.3		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.2	106.7	3.2	128.0	20.4	102.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	9.7	97.0	4.1	102.5		
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	49.7	99.4	2.0	100.0		
Zinc	20		10	20.1	100.5	10.0	100.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37983 Units: ug/l

Time:				16:44		16:47		16:50	
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

10.1.5
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37983 Units: ug/l

Time:				21:42		21:45		21:48	
Sample ID:	CRI	CRIA	CRID	CRI2		CRID2		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	49.3	98.6	3.0	100.0		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.9	96.7	2.2	88.0	20.6	103.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	9.6	96.0	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	48.7	97.4	1.8	90.0		
Zinc	20		10	20.3	101.5	9.8	98.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37983 Units: ug/l

Time:				21:42		21:45		21:48	
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

10.1.5
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37983 Units: ug/l

Time:			16:53		16:56		21:50		21:53	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	494000	98.8	498000	99.6	508000	101.6	501000	100.2
Antimony		1000	-1.9		1070	107.0	-2.8		1060	106.0
Arsenic		1000	-1.1		1020	102.0	0.20		1020	102.0
Barium		500	-0.80		483	96.6	-0.70		490	98.0
Beryllium		500	-0.20		471	94.2	-0.20		471	94.2
Bismuth		500	15.4		529	105.8	15.0		525	105.0
Boron			-5.0		-2.4		-6.6		-2.0	
Cadmium		1000	0.80		983	98.3	0.80		984	98.4
Calcium	400000	400000	362000	90.5	354000	88.5	365000	91.3	354000	88.5
Chromium		500	0.90		481	96.2	0.50		450	90.0
Cobalt		500	-0.10		473	94.6	1.0		473	94.6
Copper		500	8.7		520	104.0	9.7		491	98.2
Iron	200000	200000	175000	87.5	180000	90.0	177000	88.5	179000	89.5
Lead		1000	1.9		921	92.1	1.6		916	91.6
Lithium		500	10.3		527	105.4	10.7		526	105.2
Magnesium	500000	500000	471000	94.2	467000	93.4	479000	95.8	466000	93.2
Manganese		500	0.10		482	96.4	1.4		455	91.0
Molybdenum		500	-0.40		479	95.8	-0.30		478	95.6
Nickel		1000	4.3		927	92.7	4.7		932	93.2
Palladium		500	-16		523	104.6	-12		495	99.0
Potassium			167		165		220		197	
Selenium		1000	-3.8		1010	101.0	0.70		1000	100.0
Silicon			1.6		7.7		2.5		5.0	
Silver		1000	1.6		1040	104.0	6.6		986	98.6
Sodium			53.5		50.7		90.0		94.2	
Sulfur		500	11.4		534	106.8	11.3		527	105.4
Strontium			5.1		5.0		5.4		5.3	
Thallium		1000	0.50		920	92.0	0.20		922	92.2
Tin			-3.6		-3.7		-4.4		-3.0	
Titanium			1.3		1.9		1.1		1.4	
Tungsten		500	0.90		492	98.4	1.1		489	97.8
Vanadium		500	1.2		482	96.4	0.50		452	90.4
Zinc		1000	1.8		889	88.9	1.7		894	89.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110615M2.ICP Date Analyzed: 11/06/15 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37983 Units: ug/l

Time:			16:53		16:56		21:50		21:53	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	8.6		472	94.4	9.5		449	89.8

(*) Outside of QC limits
(anr) Analyte not requested

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:49	MA37987-STD1	1		STDA
12:52	MA37987-STD2	1		STDB
12:55	ZZZZZZ	1		
12:58	ZZZZZZ	1		
13:01	MA37987-ICV1	1		
13:04	MA37987-ICB1	1		
13:07	MA37987-CCV1	1		
13:09	MA37987-CCB1	1		
13:12	MA37987-CRI1	1		
13:15	MA37987-CRID1	1		
13:18	MA37987-CRIA1	1		
13:21	MA37987-ICSA1	1		
13:24	MA37987-ICSAB1	1		
13:27	MA37987-HSTD1	1		
13:30	MA37987-HSTD2	1		
13:33	MA37987-CCV2	1		
13:36	MA37987-CCB2	1		
13:39	ZZZZZZ	1		
13:42	ZZZZZZ	1		
13:45	ZZZZZZ	1		
13:48	MA37987-CCV3	1		
13:51	MA37987-CCB3	1		
13:54	ZZZZZZ	1		
13:57	ZZZZZZ	5		
14:00	ZZZZZZ	5		
14:03	ZZZZZZ	1		
14:06	ZZZZZZ	1		
14:09	ZZZZZZ	1		
14:12	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:17	ZZZZZZ	1		
14:20	MA37987-CCV4	1		
14:23	MA37987-CCB4	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:26	ZZZZZZ	1		
14:29	ZZZZZZ	5		
14:32	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:37	MP90060-S1	1		
14:40	MP90060-S2	1		
14:43	ZZZZZZ	1		
14:45	MP90063-S1	5		
14:48	MP90063-S2	5		
14:51	MA37987-CCV5	1		
14:53	MA37987-CCB5	1		
14:56	JC7214-19	5		(sample used for QC only; not part of login JC7291)
14:59	MP90063-SD1	25		
15:02	ZZZZZZ	5		
15:04	ZZZZZZ	5		
15:07	JC7291-3	1		
----------> Last reportable sample/prep for job JC7291				
15:10	ZZZZZZ	1		
15:13	ZZZZZZ	1		
15:15	ZZZZZZ	1		
15:18	ZZZZZZ	1		
15:21	MA37987-CCV6	1		
15:23	MA37987-CCB6	1		
15:26	ZZZZZZ	1		
15:29	ZZZZZZ	1		
15:32	ZZZZZZ	1		
15:34	ZZZZZZ	5		
15:37	ZZZZZZ	2		
15:40	ZZZZZZ	1		
15:42	MP90035-S1	1		
15:45	MP90035-S1	3		
15:48	MP90035-S2	1		
15:50	MA37987-CCV7	1		
15:53	MA37987-CCB7	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:56	MP90035-S2	3		
15:58	JC7171-3	1		(sample used for QC only; not part of login JC7291)
16:01	JC7171-3	3		(sample used for QC only; not part of login JC7291)
16:04	MP90035-SD1	5		
16:07	MP90035-SD1	15		
16:10	MP90035-S3	3		
16:12	MP90035-S4	3		
16:15	JC7171-3F	3		(sample used for QC only; not part of login JC7291)
16:18	MP90035-SD2	15		
16:21	MA37987-CCV8	1		
16:23	MA37987-CCB8	1		
16:26	ZZZZZZ	3		
16:29	ZZZZZZ	3		
16:32	ZZZZZZ	1		
16:34	ZZZZZZ	1		
16:37	ZZZZZZ	1		
16:40	ZZZZZZ	1		
16:43	ZZZZZZ	1		
16:46	ZZZZZZ	1		
16:48	MA37987-CCV9	1		
16:51	MA37987-CCB9	1		
16:54	MP90134-B1	1		
16:56	MP90134-MB1	1		
16:59	MP90134-S1	1		
17:02	MP90134-S2	1		
17:04	JC7786-1	1		(sample used for QC only; not part of login JC7291)
17:07	MP90134-SD1	5		
17:10	ZZZZZZ	1		
17:12	ZZZZZZ	1		
17:15	ZZZZZZ	1		
17:18	MA37987-CCV10	1		
17:20	MA37987-CCB10	1		
17:23	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	17:26	ZZZZZZ	1		
	17:29	ZZZZZZ	1		
	17:32	ZZZZZZ	1		
	17:35	ZZZZZZ	1		
	17:37	ZZZZZZ	1		
	17:40	ZZZZZZ	1		
	17:43	ZZZZZZ	1		
	17:46	ZZZZZZ	1		
	17:48	MA37987-CCV11	1		
	17:51	MA37987-CCB11	1		
	17:54	MA37987-CRI2	1		
	17:57	MA37987-CRID2	1		
	17:59	MA37987-CRIA2	1		
	18:02	MA37987-ICSA2	1		
	18:05	MA37987-ICSAB2	1		
	18:08	MA37987-CCV12	1		
	18:10	MA37987-CCB12	1		
---------->	Last reportable CCB for job JC7291				
	18:13	ZZZZZZ	1		
	18:16	ZZZZZZ	1		
	18:19	ZZZZZZ	1		
	18:21	ZZZZZZ	1		
	18:24	ZZZZZZ	1		
	18:27	ZZZZZZ	1		
	18:30	ZZZZZZ	1		
	18:33	MP90139-B1	1		high rsd-s on CCV
	18:35	MP90139-MB1	1		high rsd-s on CCV
	18:38	MA37987-CCV13	1		
	18:40	MA37987-CCB13	1		
	18:43	MP90139-S1	1		high rsd-s on CCV
	18:46	MP90139-S2	1		high rsd-s on CCV
	18:48	JC7765-11	1		(sample used for QC only; not part of login JC7291)
	18:51	MP90139-SD1	5		high rsd-s on CCV
	18:54	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:57	ZZZZZZ	1		
18:59	ZZZZZZ	1		
19:02	ZZZZZZ	1		
19:05	ZZZZZZ	1		
19:07	MA37987-CCV14	1		
19:10	MA37987-CCB14	1		
19:13	ZZZZZZ	1		
19:15	ZZZZZZ	1		
19:18	ZZZZZZ	1		
19:21	ZZZZZZ	1		
19:24	ZZZZZZ	1		
19:26	ZZZZZZ	1		
19:29	ZZZZZZ	1		
19:32	ZZZZZZ	1		
19:35	ZZZZZZ	1		
19:37	MA37987-CCV15	1		
19:40	MA37987-CCB15	1		
19:43	ZZZZZZ	1		
19:45	ZZZZZZ	1		
19:48	ZZZZZZ	1		
19:51	ZZZZZZ	1		
19:54	ZZZZZZ	1		
19:56	MP90137-B1	1		
19:59	MP90137-MB1	1		
20:02	MP90137-S1	1		Ca high
20:04	MP90137-S2	1		Ca high
20:07	MA37987-CCV16	1		
20:09	MA37987-CCB16	1		
20:12	JC7736-1	1		(sample used for QC only; not part of login JC7291)
20:15	MP90137-SD1	5		Ca high
20:18	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:23	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:26	ZZZZZZ	1		
20:29	ZZZZZZ	1		
20:31	ZZZZZZ	1		
20:34	ZZZZZZ	1		
20:37	MA37987-CCV17	1		
20:39	MA37987-CCB17	1		
20:42	ZZZZZZ	1		
20:45	ZZZZZZ	1		
20:48	ZZZZZZ	1		
20:50	ZZZZZZ	1		
20:53	ZZZZZZ	1		
20:56	ZZZZZZ	1		
20:59	ZZZZZZ	1		
21:01	ZZZZZZ	1		
21:04	ZZZZZZ	1		
21:07	MA37987-CCV18	1		
21:09	MA37987-CCB18	1		
21:12	ZZZZZZ	1		
21:15	ZZZZZZ	1		
21:17	ZZZZZZ	1		
21:20	MP90132-B1	1		
21:23	MP90132-MB1	1		
21:25	MP90132-S1	1		
21:28	MP90132-S2	1		
21:31	JC7286-65A	1		(sample used for QC only; not part of login JC7291)
21:33	MP90132-SD1	5		
21:36	MA37987-CCV19	1		
21:39	MA37987-CCB19	1		
21:41	ZZZZZZ	1		
21:44	ZZZZZZ	1		
21:47	ZZZZZZ	1		
21:49	ZZZZZZ	1		
21:52	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:55	ZZZZZZ	1		
21:58	ZZZZZZ	1		
22:00	ZZZZZZ	1		
22:03	ZZZZZZ	1		
22:06	MA37987-CCV20	1		
22:08	MA37987-CCB20	1		
22:11	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:16	ZZZZZZ	1		
22:19	ZZZZZZ	1		
22:22	ZZZZZZ	1		
22:24	ZZZZZZ	1		
22:27	ZZZZZZ	1		
22:30	ZZZZZZ	1		
22:32	ZZZZZZ	1		
22:35	MA37987-CCV21	1		
22:38	MA37987-CCB21	1		
22:41	ZZZZZZ	1		
22:43	ZZZZZZ	1		
22:46	ZZZZZZ	10		
22:49	MA37987-CRI3	1		
22:52	MA37987-CRID3	1		
22:55	MA37987-CRIA3	1		
22:58	MA37987-ICSA3	1		
23:01	MA37987-ICSAB3	1		
23:03	MA37987-CCV22	1		
23:06	MA37987-CCB22	1		
23:09	ZZZZZZ	1		
23:11	ZZZZZZ	1		
23:14	ZZZZZZ	1		
23:17	ZZZZZZ	1		
23:20	ZZZZZZ	1		
23:23	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:26	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:31	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:49	MA37987-STD1	2716 R	66755 R	13326 R	6466 R
12:52	MA37987-STD2	2479	60489	13061	5546
12:55	ZZZZZZ	2556	61703	13133	5778
12:58	ZZZZZZ	2714	65823	13256	6481
13:01	MA37987-ICV1	2553	62091	13082	5770
13:04	MA37987-ICB1	2685	66283	13463	6450
13:07	MA37987-CCV1	2578	62332	13217	5826
13:09	MA37987-CCB1	2703	65954	13468	6472
13:12	MA37987-CRI1	2700	65328	13313	6344
13:15	MA37987-CRID1	2673	66285	13437	6403
13:18	MA37987-CRIA1	2703	66402	13364	6437
13:21	MA37987-ICSA1	2364	56986	12682	5124
13:24	MA37987-ICSAB1	2383	57395	12646	5107
13:27	MA37987-HSTD1	2645	63631	12985	6258
13:30	MA37987-HSTD2	2369	57922	12715	5104
13:33	MA37987-CCV2	2522	62269	13135	5703
13:36	MA37987-CCB2	2692	64759	13341	6468
13:39	ZZZZZZ	2650	64669	13200	6401
13:42	ZZZZZZ	2610	66457	13266	6316
13:45	ZZZZZZ	2730	67118	13512	6497
13:48	MA37987-CCV3	2562	62163	13237	5783
13:51	MA37987-CCB3	2701	66760	13263	6430
13:54	ZZZZZZ	2685	67028	13665	6452
13:57	ZZZZZZ	2223	52448	12408	4741
14:00	ZZZZZZ	2222	53093	12519	4745
14:03	ZZZZZZ	2396	57309	13347	5250
14:06	ZZZZZZ	2693	67925	13848	6206
14:09	ZZZZZZ	2667	66363	13876	6327
14:12	ZZZZZZ	2638	65583	13811	6204
14:15	ZZZZZZ	2685	66617	13950	6351
14:17	ZZZZZZ	2684	66804	13746	6435
14:20	MA37987-CCV4	2584	63683	13467	5855
14:23	MA37987-CCB4	2746	68505	13254	6551

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:26	ZZZZZZ	2413	58332	13221	5329
14:29	ZZZZZZ	2223	54508	12672	4812
14:32	ZZZZZZ	2564	61578	13493	5717
14:35	ZZZZZZ	2718	67255	13578	6524
14:37	MP90060-S1	2544	62812	13434	5749
14:40	MP90060-S2	2511	62124	13486	5688
14:43	ZZZZZZ	2707	67743	13800	6503
14:45	MP90063-S1	2861	67763	14340	6258
14:48	MP90063-S2	2889	69004	13858	6300
14:51	MA37987-CCV5	2611	63426	13326	5909
14:53	MA37987-CCB5	2762	69315	13594	6624
14:56	JC7214-19	2955	70580	14336	6484
14:59	MP90063-SD1	2714	68460	13732	6357
15:02	ZZZZZZ	2872	70186	14226	6475
15:04	ZZZZZZ	2885	70393	14216	6491
15:07	JC7291-3	2698	65639	13935	5763
15:10	ZZZZZZ	2749	67614	13533	6556
15:13	ZZZZZZ	2912	68423	14311	6168
15:15	ZZZZZZ	2958	70652	15050	6096
15:18	ZZZZZZ	2808	68708	14074	6046
15:21	MA37987-CCV6	2562	64274	13024	5793
15:23	MA37987-CCB6	2756	66286	13369	6576
15:26	ZZZZZZ	2604	63352	13387	6054
15:29	ZZZZZZ	2727	68729	14122	6546
15:32	ZZZZZZ	2723	66938	13923	6014
15:34	ZZZZZZ	2539	63039	13129	5920
15:37	ZZZZZZ	2504	63821	13409	5971
15:40	ZZZZZZ	2717	67612	13302	6506
15:42	MP90035-S1	2358	58210	12907	5167
15:45	MP90035-S1	2540	61373	12797	5662
15:48	MP90035-S2	2377	60695	12835	5207
15:50	MA37987-CCV7	2541	63973	13124	5750
15:53	MA37987-CCB7	2803	67263	13328	6627

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:56	MP90035-S2	2563	61605	13193	5686
15:58	JC7171-3	2391	57463	12965	5249
16:01	JC7171-3	2544	60860	13121	5695
16:04	MP90035-SD1	2571	62585	12733	5904
16:07	MP90035-SD1	2637	64487	13192	6008
16:10	MP90035-S3	2532	63145	12622	5653
16:12	MP90035-S4	2539	61169	13004	5639
16:15	JC7171-3F	2513	60782	12838	5690
16:18	MP90035-SD2	2642	66785	13262	6160
16:21	MA37987-CCV8	2507	64592	12990	5680
16:23	MA37987-CCB8	2774	67925	12921	6517
16:26	ZZZZZZ	2571	61284	12961	5709
16:29	ZZZZZZ	2515	60483	13074	5682
16:32	ZZZZZZ	2554	63542	13045	5940
16:34	ZZZZZZ	2589	62728	13237	5955
16:37	ZZZZZZ	2508	62359	13137	5710
16:40	ZZZZZZ	2593	62410	13196	5898
16:43	ZZZZZZ	2401	57733	12784	5246
16:46	ZZZZZZ	2730	67277	13753	6503
16:48	MA37987-CCV9	2558	61037	12820	5800
16:51	MA37987-CCB9	2727	64611	13263	6500
16:54	MP90134-B1	2596	64115	13284	5982
16:56	MP90134-MB1	2723	67034	13491	6490
16:59	MP90134-S1	2572	63042	13201	5899
17:02	MP90134-S2	2577	63314	13227	5911
17:04	JC7786-1	2746	66451	13441	6429
17:07	MP90134-SD1	2729	66914	13427	6480
17:10	ZZZZZZ	2597	63450	13512	5956
17:12	ZZZZZZ	2530	61992	13401	5642
17:15	ZZZZZZ	2569	64129	13445	6009
17:18	MA37987-CCV10	2569	62575	13092	5808
17:20	MA37987-CCB10	2735	68292	13380	6484
17:23	ZZZZZZ	2618	64442	13459	6047

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:26	ZZZZZZ	2717	62915	13659	6575
17:29	ZZZZZZ	2677	67188	13570	6470
17:32	ZZZZZZ	2727	67465	13480	6544
17:35	ZZZZZZ	2587	63865	13437	5920
17:37	ZZZZZZ	2670	66813	13722	6313
17:40	ZZZZZZ	2575	62202	13102	5919
17:43	ZZZZZZ	2569	65416	13472	6098
17:46	ZZZZZZ	2613	64649	13426	6146
17:48	MA37987-CCV11	2558	62632	13528	5801
17:51	MA37987-CCB11	2771	67287	13241	6527
17:54	MA37987-CRI2	2756	66118	13210	6378
17:57	MA37987-CRID2	2756	66867	13242	6479
17:59	MA37987-CRIA2	2756	67041	12417	6485
18:02	MA37987-ICSA2	2377	57729	12569	5159
18:05	MA37987-ICSAB2	2409	57856	12477	5166
18:08	MA37987-CCV12	2596	63464	13027	5880
18:10	MA37987-CCB12	2728	67480	13349	6532
18:13	ZZZZZZ	2686	65754	13345	6229
18:16	ZZZZZZ	2598	65718	13352	6172
18:19	ZZZZZZ	2692	66277	13474	6345
18:21	ZZZZZZ	2614	64341	13234	6031
18:24	ZZZZZZ	2753	68239	13431	6594
18:27	ZZZZZZ	2723	66851	13425	6513
18:30	ZZZZZZ	2577	63137	13198	5884
18:33	MP90139-B1	2613	63817	13188	5982
18:35	MP90139-MB1	2736	68366	13505	6599
18:38	MA37987-CCV13	2589	62461	12288	5838
18:40	MA37987-CCB13	2773	67554	13264	6584
18:43	MP90139-S1	2632	63896	13241	5876
18:46	MP90139-S2	2664	64299	13404	5898
18:48	JC7765-11	2799	67026	13724	6214
18:51	MP90139-SD1	2743	67320	13344	6431
18:54	ZZZZZZ	2934	68485	14177	6165

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:57	ZZZZZZ	2631	64812	13621	6008
18:59	ZZZZZZ	2689	64945	13504	6130
19:02	ZZZZZZ	2642	65300	13494	6072
19:05	ZZZZZZ	2782	66415	13471	6262
19:07	MA37987-CCV14	2601	63829	13081	5875
19:10	MA37987-CCB14	2756	69237	13140	6568
19:13	ZZZZZZ	2667	65481	13388	6136
19:15	ZZZZZZ	2673	65519	13389	6055
19:18	ZZZZZZ	2738	65760	13436	6117
19:21	ZZZZZZ	2715	66527	13567	6172
19:24	ZZZZZZ	2665	65541	13482	6055
19:26	ZZZZZZ	2742	67046	13493	6222
19:29	ZZZZZZ	No results reported for the elements associated with this internal standard.			
19:32	ZZZZZZ	No results reported for the elements associated with this internal standard.			
19:35	ZZZZZZ	2891	68883	14154	6073
19:37	MA37987-CCV15	2627	63669	12993	5906
19:40	MA37987-CCB15	2798	67858	13318	6610
19:43	ZZZZZZ	2876	69464	14287	6169
19:45	ZZZZZZ	2792	67341	13920	6161
19:48	ZZZZZZ	2783	67280	13861	6119
19:51	ZZZZZZ	2776	67024	13630	6143
19:54	ZZZZZZ	2740	67287	13820	6004
19:56	MP90137-B1	2649	64334	12981	6033
19:59	MP90137-MB1	2760	68114	13388	6582
20:02	MP90137-S1	2606	63860	13383	5601
20:04	MP90137-S2	2578	62771	13301	5557
20:07	MA37987-CCV16	2666	64559	12991	5979
20:09	MA37987-CCB16	2788	68160	13268	6650
20:12	JC7736-1	3155	76484	16330	5383
20:15	MP90137-SD1	2856	68421	13789	6018
20:18	ZZZZZZ	2794	68710	14049	6137
20:21	ZZZZZZ	2899	68584	13756	6146
20:23	ZZZZZZ	2906	69748	13769	6142

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:26	ZZZZZZ	2885	70264	14123	6153
20:29	ZZZZZZ	2884	70181	14127	6219
20:31	ZZZZZZ	2850	69549	13951	6169
20:34	ZZZZZZ	2547	62235	13088	5434
20:37	MA37987-CCV17	2665	64415	13036	5982
20:39	MA37987-CCB17	2790	68440	13400	6647
20:42	ZZZZZZ	2606	64484	12996	5606
20:45	ZZZZZZ	2907	70492	14204	6178
20:48	ZZZZZZ	2810	73144	14040	6002
20:50	ZZZZZZ	2841	68534	13823	6230
20:53	ZZZZZZ	2850	67756	13662	6167
20:56	ZZZZZZ	2901	69786	13832	6385
20:59	ZZZZZZ	2825	67313	13250	6205
21:01	ZZZZZZ	2867	69601	13806	6269
21:04	ZZZZZZ	2763	74107	13716	6025
21:07	MA37987-CCV18	2678	64796	12971	6011
21:09	MA37987-CCB18	2863	68596	13215	6659
21:12	ZZZZZZ	2815	68984	13668	6283
21:15	ZZZZZZ	2850	68897	13839	6242
21:17	ZZZZZZ	2824	68673	13780	6261
21:20	MP90132-B1	2597	68065	13008	5952
21:23	MP90132-MB1	2785	68867	13292	6622
21:25	MP90132-S1	2692	65293	13189	6011
21:28	MP90132-S2	2713	65945	13192	6013
21:31	JC7286-65A	2704	69825	14209	6158
21:33	MP90132-SD1	2765	68901	13392	6377
21:36	MA37987-CCV19	2674	64547	13085	6005
21:39	MA37987-CCB19	2852	70865	13297	6693
21:41	ZZZZZZ	2716	67200	13620	6116
21:44	ZZZZZZ	2815	68268	13682	6486
21:47	ZZZZZZ	2659	65097	13138	5927
21:49	ZZZZZZ	2836	67050	13224	6333
21:52	ZZZZZZ	2752	66667	13399	5974

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:55	ZZZZZZ	2798	67594	13578	6322
21:58	ZZZZZZ	2712	65916	13459	5751
22:00	ZZZZZZ	2764	68507	13836	6202
22:03	ZZZZZZ	3035	69818	13816	6338
22:06	MA37987-CCV20	2668	64912	13037	6016
22:08	MA37987-CCB20	2782	69099	13347	6601
22:11	ZZZZZZ	2857	69473	14041	6047
22:14	ZZZZZZ	2825	68191	13258	6348
22:16	ZZZZZZ	2739	67881	13395	6334
22:19	ZZZZZZ	2823	69806	14284	6048
22:22	ZZZZZZ	2830	69431	13945	6088
22:24	ZZZZZZ	2932	69090	13699	6193
22:27	ZZZZZZ	2738	66376	12568	6192
22:30	ZZZZZZ	2767	67398	13166	6124
22:32	ZZZZZZ	2659	65217	12769	5901
22:35	MA37987-CCV21	2698	65293	13016	6064
22:38	MA37987-CCB21	2911	69102	13169	6863
22:41	ZZZZZZ	2834	68884	13688	6210
22:43	ZZZZZZ	2836	69574	13560	6736
22:46	ZZZZZZ	2505	59096	12654	5464
22:49	MA37987-CRI3	2846	68215	13170	6550
22:52	MA37987-CRID3	2771	69165	13219	6588
22:55	MA37987-CRIA3	2851	69960	13121	6740
22:58	MA37987-ICSA3	2473	59461	12478	5296
23:01	MA37987-ICSAB3	2478	59455	12437	5337
23:03	MA37987-CCV22	2693	64442	12734	6042
23:06	MA37987-CCB22	2840	69469	13226	6768
23:09	ZZZZZZ	2819	69181	13225	6721
23:11	ZZZZZZ	2847	68922	13171	6776
23:14	ZZZZZZ	2903	69434	13099	6762
23:17	ZZZZZZ	2839	69289	13195	6699
23:20	ZZZZZZ	2872	68745	13195	6809
23:23	ZZZZZZ	2865	69113	13225	6753

INTERNAL STANDARD SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA37987
Parameters: V

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:26	ZZZZZZ	2866	65379	13612	5997
23:28	ZZZZZZ	2624	62159	12637	5843
23:31	ZZZZZZ	2585	61689	12243	5800

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: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			13:04		13:09		13:36		13:51	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.8	anr							
Antimony	6.0	2.9	anr							
Arsenic	3.0	1.3	anr							
Barium	200	.1	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1.6								
Boron	100	1.1								
Cadmium	3.0	.4	anr							
Calcium	5000	52	anr							
Chromium	10	1	anr							
Cobalt	50	.6	anr							
Copper	10	1.2	anr							
Iron	100	2.5	anr							
Lead	3.0	2	anr							
Lithium	20	.4								
Magnesium	5000	21	anr							
Manganese	15	.2	anr							
Molybdenum	20	.7								
Nickel	10	.5	anr							
Palladium	50	2								
Potassium	10000	23	anr							
Selenium	10	3.3	anr							
Silicon	200	5.3								
Silver	10	.9	anr							
Sodium	10000	6.9	anr							
Sulfur	50	4.5								
Strontium	10	.1								
Thallium	2.0	2	anr							
Tin	10	2								
Titanium	10	1.3								
Tungsten	50	1.8								
Vanadium	50	1.1	0.50	<50	-0.10	<50	0.30	<50	0.30	<50
Zinc	20	2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			13:04		13:09		13:36		13:51	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.6								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			14:23		14:53		15:23		15:53	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.8	anr							
Antimony	6.0	2.9	anr							
Arsenic	3.0	1.3	anr							
Barium	200	.1	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1.6								
Boron	100	1.1								
Cadmium	3.0	.4	anr							
Calcium	5000	52	anr							
Chromium	10	1	anr							
Cobalt	50	.6	anr							
Copper	10	1.2	anr							
Iron	100	2.5	anr							
Lead	3.0	2	anr							
Lithium	20	.4								
Magnesium	5000	21	anr							
Manganese	15	.2	anr							
Molybdenum	20	.7								
Nickel	10	.5	anr							
Palladium	50	2								
Potassium	10000	23	anr							
Selenium	10	3.3	anr							
Silicon	200	5.3								
Silver	10	.9	anr							
Sodium	10000	6.9	anr							
Sulfur	50	4.5								
Strontium	10	.1								
Thallium	2.0	2	anr							
Tin	10	2								
Titanium	10	1.3								
Tungsten	50	1.8								
Vanadium	50	1.1	0.10	<50	0.20	<50	0.30	<50	0.10	<50
Zinc	20	2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			14:23		14:53		15:23		15:53	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.6								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			16:23		16:51		17:20		17:51	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	7.8	anr							
Antimony	6.0	2.9	anr							
Arsenic	3.0	1.3	anr							
Barium	200	.1	anr							
Beryllium	1.0	.04	anr							
Bismuth	20	1.6								
Boron	100	1.1								
Cadmium	3.0	.4	anr							
Calcium	5000	52	anr							
Chromium	10	1	anr							
Cobalt	50	.6	anr							
Copper	10	1.2	anr							
Iron	100	2.5	anr							
Lead	3.0	2	anr							
Lithium	20	.4								
Magnesium	5000	21	anr							
Manganese	15	.2	anr							
Molybdenum	20	.7								
Nickel	10	.5	anr							
Palladium	50	2								
Potassium	10000	23	anr							
Selenium	10	3.3	anr							
Silicon	200	5.3								
Silver	10	.9	anr							
Sodium	10000	6.9	anr							
Sulfur	50	4.5								
Strontium	10	.1								
Thallium	2.0	2	anr							
Tin	10	2								
Titanium	10	1.3								
Tungsten	50	1.8								
Vanadium	50	1.1	0.10	<50	0.10	<50	0.30	<50	0.30	<50
Zinc	20	2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			16:23		16:51		17:20		17:51	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.6								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			18:10	
Sample ID:			CCB12	
Metal	RL	IDL	raw	final
Aluminum	200	7.8	anr	
Antimony	6.0	2.9	anr	
Arsenic	3.0	1.3	anr	
Barium	200	.1	anr	
Beryllium	1.0	.04	anr	
Bismuth	20	1.6		
Boron	100	1.1		
Cadmium	3.0	.4	anr	
Calcium	5000	52	anr	
Chromium	10	1	anr	
Cobalt	50	.6	anr	
Copper	10	1.2	anr	
Iron	100	2.5	anr	
Lead	3.0	2	anr	
Lithium	20	.4		
Magnesium	5000	21	anr	
Manganese	15	.2	anr	
Molybdenum	20	.7		
Nickel	10	.5	anr	
Palladium	50	2		
Potassium	10000	23	anr	
Selenium	10	3.3	anr	
Silicon	200	5.3		
Silver	10	.9	anr	
Sodium	10000	6.9	anr	
Sulfur	50	4.5		
Strontium	10	.1		
Thallium	2.0	2	anr	
Tin	10	2		
Titanium	10	1.3		
Tungsten	50	1.8		
Vanadium	50	1.1	0.50	<50
Zinc	20	2	anr	

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA37987 Units: ug/l

Time:			18:10	
Sample ID:			CCB12	
Metal	RL	IDL	raw	final
Zirconium	10	.6		

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		13:01			13:07			13:33	
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	anr								
Copper	anr								
Iron	anr								
Lead	anr								
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2030	101.5	2000	2030	101.5	2000	2020	101.0
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		13:01			13:07			13:33	
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

10.2.3 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		13:48			14:20			14:51	
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	anr								
Copper	anr								
Iron	anr								
Lead	anr								
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2020	101.0	2000	1960	98.0	2000	1980	99.0
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		13:48			14:20			14:51	
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

10.2.3 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		15:21			15:50			16:21	
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	anr								
Copper	anr								
Iron	anr								
Lead	anr								
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1960	98.0	2000	1960	98.0	2000	1950	97.5
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		15:21			15:50			16:21	
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

10.2.3 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		16:48			17:18			17:48	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	anr								
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	2080	104.0	2000	2020	101.0	2000	2020	101.0
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		16:48			17:18			17:48	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

10.2.3 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		18:08	
Sample ID:	CCV	CCV12	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	anr		
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	2010	100.5
Zinc	anr		

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		18:08	
Sample ID:	CCV	CCV12	
Metal	True	Results	% Rec
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		13:27			13:30	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	anr					
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Palladium						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	5000	5320	106.4			
Zinc	anr					

HIGH STANDARD CHECK SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA37987 Units: ug/l

Time:		13:27			13:30	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37987 Units: ug/l

Time:				13:12		13:15		13:18	
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	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	anr					
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	53.4	106.8	2.4	120.0		
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37987 Units: ug/l

Time:				13:12		13:15		13:18	
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

10.2.5
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37987 Units: ug/l

Time:				17:54		17:57		17:59	
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	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	anr					
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	52.8	105.6	2.4	120.0		
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37987 Units: ug/l

Time:				17:54		17:57		17:59	
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

10.2.5
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37987 Units: ug/l

Time:			13:21		13:24		18:02		18:05	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	517000	103.4	509000	101.8	518000	103.6	521000	104.2
Antimony		1000	-4.5		1010	101.0	-4.7		1020	102.0
Arsenic		1000	-0.50		975	97.5	0.30		981	98.1
Barium		500	-0.70		500	100.0	-0.60		505	101.0
Beryllium		500	-0.30		489	97.8	-0.30		498	99.6
Bismuth		500	20.3		523	104.6	16.5		524	104.8
Boron			-4.5		-2.1		-7.0		-4.9	
Cadmium		1000	1.6		1000	100.0	1.4		1010	101.0
Calcium	400000	400000	376000	94.0	370000	92.5	380000	95.0	376000	94.0
Chromium		500	0.50		480	96.0	0.90		484	96.8
Cobalt		500	1.0		488	97.6	0.40		493	98.6
Copper		500	8.1		499	99.8	7.5		506	101.2
Iron	200000	200000	180000	90.0	180000	90.0	182000	91.0	182000	91.0
Lead		1000	3.2		954	95.4	-0.10		962	96.2
Lithium		500	10.3		500	100.0	10.9		504	100.8
Magnesium	500000	500000	496000	99.2	493000	98.6	502000	100.4	500000	100.0
Manganese		500	1.9		483	96.6	1.3		489	97.8
Molybdenum		500	-0.70		469	93.8	-0.60		474	94.8
Nickel		1000	4.4		966	96.6	3.9		972	97.2
Palladium		500	-16		498	99.6	-17		504	100.8
Potassium			168		136		182		146	
Selenium		1000	2.4		1020	102.0	4.6		1020	102.0
Silicon			1.9		3.3		2.6		2.4	
Silver		1000	1.8		988	98.8	1.4		992	99.2
Sodium			49.9		43.5		68.5		55.7	
Sulfur		500	5.4		497	99.4	10.4		492	98.4
Strontium			4.9		4.7		5.1		4.6	
Thallium		1000	-1.6		944	94.4	-3.4		950	95.0
Tin			-4.7		-4.5		-5.0		-3.3	
Titanium			0.60		1.6		0.90		1.6	
Tungsten		500	4.2		465	93.0	4.5		470	94.0
Vanadium		500	0.20		479	95.8	0.60		480	96.0
Zinc		1000	2.3		939	93.9	2.7		952	95.2

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SE110715M1.ICP Date Analyzed: 11/07/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA37987 Units: ug/l

Time:			13:21		13:24		18:02		18:05	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	9.6		440	88.0	9.2		449	89.8

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/04/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	49	.76	3.2		
Antimony	1.9	.28	.3		
Arsenic	1.9	.13	.13		
Barium	19	.0097	.052		
Beryllium	0.19	.0039	.04		
Bismuth	1.9	.16	.36		
Boron	9.7	.11	.42		
Cadmium	0.49	.039	.05		
Calcium	490	5	2.6		
Chromium	0.97	.097	.096		
Cobalt	4.9	.058	.039	0.0	<4.9
Copper	2.4	.12	.14		
Iron	49	.24	3.2		
Lead	1.9	.19	.23	0.049	<1.9
Lithium	1.9	.039	.32		
Magnesium	490	2	8.7		
Manganese	1.5	.019	.035		
Molybdenum	1.9	.068	.14		
Nickel	3.9	.049	.093	0.078	<3.9
Palladium	4.9	.19	.36		
Potassium	970	2.3	7.2		
Selenium	1.9	.32	.24		
Silicon	19	.51	1.6		
Silver	0.49	.087	.18		
Sodium	970	.67	1.5		
Strontium	0.97	.0097	.033		
Sulfur	4.9	.44	.67		
Thallium	0.97	.19	.18		
Tin	4.9	.19	1.1		
Titanium	0.97	.13	.2		
Tungsten	4.9	.17	.42		
Vanadium	4.9	.11	.073	-0.0097	<4.9
Zinc	4.9	.19	.75	2.8	<4.9 (a)

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/04/15

Metal	RL	IDL	MDL	MB raw	final
Zirconium	1.9	.058	.1		

Associated samples MP90063: JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) All reported results <RL or >10x MB value.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/04/15

Metal	JC7214-19 Original	MS	Spikelot MPSPK1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt	18.8	216	218	90.6	75-125
Copper					
Iron					
Lead	13.6	211	218	90.7	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	33.7	237	218	93.4	75-125
Palladium					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium	21.0	230	218	96.0	75-125
Zinc	121	265	218	66.2N(a)	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/04/15

Metal	JC7214-19 Original MS	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP90063: JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

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
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/04/15

Metal	JC7214-19 Original	MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	18.8	211	220	87.5	2.3	20
Copper						
Iron						
Lead	13.6	203	220	86.2	3.9	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	33.7	232	220	90.2	2.1	20
Palladium						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	21.0	228	220	94.2	0.9	20
Zinc	121	272	220	68.7N(a)	2.6	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/04/15

Metal	JC7214-19 Original MSD	Spikelot MPSPK1	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP90063: JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

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
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 11/04/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	190	200	95.0	80-120
Copper				
Iron				
Lead	192	200	96.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	191	200	95.5	80-120
Palladium				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	187	200	93.5	80-120
Zinc	196	200	98.0	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date: 11/04/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Zirconium				

Associated samples MP90063: JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/04/15

Metal	JC7214-19 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	171	175	1.8	0-10
Copper				
Iron				
Lead	124	125	1.1	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	307	311	1.4	0-10
Palladium				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	191	199	4.2	0-10
Zinc	1100	1380	25.0*(a)	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JC7291
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP90063 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date: 11/04/15

Metal	JC7214-19 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP90063: JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

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: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JC7291-1 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-6-20151027(3')

Wet Weight (Total)	26.29	g
Tare Weight	20.05	g
Dry Weight (Total)	25.1	g
Solids, Percent	80.9	%

Sample: JC7291-2 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-7-20151027(3')

Wet Weight (Total)	28.01	g
Tare Weight	21.84	g
Dry Weight (Total)	26.81	g
Solids, Percent	80.6	%

Sample: JC7291-3 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-8-20151027(5')

Wet Weight (Total)	24.56	g
Tare Weight	18.66	g
Dry Weight (Total)	23.41	g
Solids, Percent	80.5	%

Sample: JC7291-4 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-9-20151027(5')

Wet Weight (Total)	24.03	g
Tare Weight	18.09	g
Dry Weight (Total)	22.98	g
Solids, Percent	82.3	%

Sample: JC7291-5 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-10-20151027(2')

Wet Weight (Total)	28.23	g
Tare Weight	19.88	g
Dry Weight (Total)	27.01	g
Solids, Percent	85.4	%

Sample: JC7291-6 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-10-20151027(5')

Wet Weight (Total)	26.06	g
Tare Weight	19.44	g
Dry Weight (Total)	25.1	g
Solids, Percent	85.5	%

Percent Solids Raw Data Summary

Job Number: JC7291
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JC7291-7 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-11-20151027(2')

Wet Weight (Total)	27.97	g
Tare Weight	21.21	g
Dry Weight (Total)	26.66	g
Solids, Percent	80.6	%

Sample: JC7291-8 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-12-20151027(2')

Wet Weight (Total)	27.59	g
Tare Weight	20.11	g
Dry Weight (Total)	26.36	g
Solids, Percent	83.6	%

Sample: JC7291-9 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-13-20151027(2')

Wet Weight (Total)	27.04	g
Tare Weight	20.46	g
Dry Weight (Total)	25.86	g
Solids, Percent	82.1	%

Sample: JC7291-10 **Analyzed:** 30-OCT-15 by KP **Method:** SM2540 G-97
ClientID: MH386-14-20151027(2')

Wet Weight (Total)	26.51	g
Tare Weight	20.39	g
Dry Weight (Total)	25.39	g
Solids, Percent	81.7	%

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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 #: JC7291

Client / Reporting Information

Company Name: Accutest Laboratories
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: mariem E-mail: mariem@accutest.com
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): CD Phone:

Project Information

Project Name: Sunoco - Marcus Hook Facility, PA
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

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

Requested Analysis (see TEST CODE sheet)

V8011EDB

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	V8011EDB	LAB USE ONLY
1	MW386-6-20151027(3')		10/27/15	9:25:00 AM	CD	SO	1					1				X	
2	MW386-7-20151027(3')		10/27/15	9:40:00 AM	CD	SO	1					1				X	
3	MW386-8-20151027(5')		10/27/15	10:00:00 AM	CD	SO	1					1				X	
4	MW386-9-20151027(5')		10/27/15	10:55:00 AM	CD	SO	1					1				X	
5	MW386-10-20151027(2')		10/27/15	11:25:00 AM	CD	SO	1					1				X	14E
6	MW386-10-20151027(5')		10/27/15	11:35:00 AM	CD	SO	1					1				X	
7	MW386-11-20151027(2')		10/27/15	11:50:00 AM	CD	SO	1					1				X	
8	MW386-12-20151027(2')		10/27/15	12:00:00 PM	CD	SO	1					1				X	
9	MW386-13-20151027(2')		10/27/15	12:20:00 PM	CD	SO	1					1				X	
10	MW386-14-20151027(2')		10/27/15	12:35:00 PM	CD	SO	1					1				X	

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [x] other Due 11/11/2015

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other REDT2

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

Comments / Special Instructions

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	10/29/15 17:00	1 Fed Ex	2	10/31/15 9:25	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Intact / Not Intact	Preserved where applicable / On Ice ☑ Cooler Temp. 3-C

12.1 12

JC7291: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JC7291 **Client:** NJ **Project:**

Date / Time Received: 10/30/2015 9:25:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (3/3);

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

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

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

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

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

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

Comments

Accutest Laboratories
V:(508) 481-6200
495 Technology Center West, Bldg One
F: (508) 481-7753
Marlborough, MA 01752
www/accutest.com

JC7291: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JC7291

SECORPAE: Sunoco - Marcus Hook Facility, PA
Project No: MHIC TANK Sampling (386)

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC7291-1	Collected: 27-OCT-15 09:25 By: CD		Received: 28-OCT-15 By: NT			
MH386-6-20151027(3')						
JC7291-1	SW846 8011	02-NOV-15 17:43	NK	02-NOV-15	AW	V8011EDB
JC7291-2	Collected: 27-OCT-15 09:40 By: CD		Received: 28-OCT-15 By: NT			
MH386-7-20151027(3')						
JC7291-2	SW846 8011	02-NOV-15 18:42	NK	02-NOV-15	AW	V8011EDB
JC7291-3	Collected: 27-OCT-15 10:00 By: CD		Received: 28-OCT-15 By: NT			
MH386-8-20151027(5')						
JC7291-3	SW846 8011	02-NOV-15 19:11	NK	02-NOV-15	AW	V8011EDB
JC7291-4	Collected: 27-OCT-15 10:55 By: CD		Received: 28-OCT-15 By: NT			
MH386-9-20151027(5')						
JC7291-4	SW846 8011	02-NOV-15 19:41	NK	02-NOV-15	AW	V8011EDB
JC7291-5	Collected: 27-OCT-15 11:25 By: CD		Received: 28-OCT-15 By: NT			
MH386-10-20151027(2')						
JC7291-5	SW846 8011	02-NOV-15 20:10	NK	02-NOV-15	AW	V8011EDB
JC7291-6	Collected: 27-OCT-15 11:35 By: CD		Received: 28-OCT-15 By: NT			
MH386-10-20151027(5')						
JC7291-6	SW846 8011	02-NOV-15 20:39	NK	02-NOV-15	AW	V8011EDB
JC7291-7	Collected: 27-OCT-15 11:50 By: CD		Received: 28-OCT-15 By: NT			
MH386-11-20151027(2')						
JC7291-7	SW846 8011	02-NOV-15 21:09	NK	02-NOV-15	AW	V8011EDB
JC7291-8	Collected: 27-OCT-15 12:00 By: CD		Received: 28-OCT-15 By: NT			
MH386-12-20151027(2')						
JC7291-8	SW846 8011	02-NOV-15 21:39	NK	02-NOV-15	AW	V8011EDB

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JC7291

SECORPAE: Sunoco - Marcus Hook Facility, PA
Project No: MHIC TANK Sampling (386)

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC7291-9	Collected: 27-OCT-15 12:20 By: CD		Received: 28-OCT-15 By: NT			
MH386-13-20151027(2')						
JC7291-9	SW846 8011	02-NOV-15 22:08	NK	02-NOV-15	AW	V8011EDB
JC7291-10	Collected: 27-OCT-15 12:35 By: CD		Received: 28-OCT-15 By: NT			
MH386-14-20151027(2')						
JC7291-10	SW846 8011	02-NOV-15 22:38	NK	02-NOV-15	AW	V8011EDB

Accutest Internal Chain of Custody

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Received: 10/28/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC7291-1.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-1.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-2.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-2.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-3.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-3.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-4.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-4.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-5.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-5.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-6.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-6.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-7.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-7.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-8.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-8.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage
JC7291-9.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-9.1	Analisa Caruso	Walk In Ref #9	11/02/15 15:37	Return to Storage
JC7291-10.1	Walk In Ref #9	Analisa Caruso	11/02/15 07:19	Retrieve from Storage
JC7291-10.1	Analisa Caruso	Walk In Ref #9	11/02/15 10:34	Return to Storage

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP45247-MB	BB65094.D	1	11/02/15	NK	11/02/15	OP45247	GBB3509

The QC reported here applies to the following samples: **Method:** SW846 8011

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.4	0.41	ug/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	Bromofluorobenzene (S)	115%	70-170%
460-00-4	Bromofluorobenzene (S)	115%	70-170%

Blank Spike Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP45247-BS	BB65095.D	1	11/02/15	NK	11/02/15	OP45247	GBB3509

The QC reported here applies to the following samples: **Method:** SW846 8011

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	32.8	31.6	96	59-133

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	95%	70-170%
460-00-4	Bromofluorobenzene (S)	95%	70-170%

13.2.1

13

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP45247-MS	BB65096.D	1	11/02/15	NK	11/02/15	OP45247	GBB3509
OP45247-MSD	BB65097.D	1	11/02/15	NK	11/02/15	OP45247	GBB3509
JC7265-1	BB65098.D	1	11/02/15	NK	11/02/15	OP45247	GBB3509

The QC reported here applies to the following samples: **Method:** SW846 8011

JC7291-1, JC7291-2, JC7291-3, JC7291-4, JC7291-5, JC7291-6, JC7291-7, JC7291-8, JC7291-9, JC7291-10

CAS No.	Compound	JC7265-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		45.4	52.2	115	44.7	54.2	121	4	74-147/30

CAS No.	Surrogate Recoveries	MS	MSD	JC7265-1	Limits
460-00-4	Bromofluorobenzene (S)	122%	124%	127%	70-170%
460-00-4	Bromofluorobenzene (S)	118%	121%	129%	70-170%

13.3.1

13

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Method: SW846 8011 **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JC7291-1	BB65103.D	123	122
JC7291-2	BB65105.D	122	115
JC7291-3	BB65106.D	114	119
JC7291-4	BB65107.D	112	116
JC7291-5	BB65108.D	119	112
JC7291-6	BB65109.D	114	119
JC7291-7	BB65110.D	122	127
JC7291-8	BB65111.D	112	121
JC7291-9	BB65112.D	113	118
JC7291-10	BB65113.D	110	118
OP45247-BS	BB65095.D	95	95
OP45247-MB	BB65094.D	115	115
OP45247-MS	BB65096.D	122	118
OP45247-MSD	BB65097.D	124	121

Surrogate Compounds	Recovery Limits
S1 = Bromofluorobenzene (S)	70-170%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3509-CC3508	**Injection Date:**	11/02/15
Lab File ID:	BB65093.D	**Injection Time:**	12:46
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	6.66	6.18

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP45247-MB	BB65094.D	11/02/15	13:19	6.65	6.16
OP45247-BS	BB65095.D	11/02/15	13:49	6.65	6.16
OP45247-MS	BB65096.D	11/02/15	14:19	6.64	6.16
OP45247-MSD	BB65097.D	11/02/15	14:49	6.64	6.15
JC7265-1	BB65098.D	11/02/15	15:18	6.64	6.16
ZZZZZZ	BB65099.D	11/02/15	15:47	6.64	6.16
ZZZZZZ	BB65100.D	11/02/15	16:16	6.64	6.16
ZZZZZZ	BB65101.D	11/02/15	16:45	6.64	6.16
ZZZZZZ	BB65102.D	11/02/15	17:14	6.64	6.16
JC7291-1	BB65103.D	11/02/15	17:43	6.64	6.16

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3509-CC3508	**Injection Date:**	11/02/15
Lab File ID:	BB65104.D	**Injection Time:**	18:12
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	6.65	6.17

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JC7291-2	BB65105.D	11/02/15	18:42	6.64	6.15
JC7291-3	BB65106.D	11/02/15	19:11	6.64	6.16
JC7291-4	BB65107.D	11/02/15	19:41	6.64	6.15
JC7291-5	BB65108.D	11/02/15	20:10	6.64	6.15
JC7291-6	BB65109.D	11/02/15	20:39	6.64	6.15
JC7291-7	BB65110.D	11/02/15	21:09	6.64	6.15
JC7291-8	BB65111.D	11/02/15	21:39	6.64	6.15
JC7291-9	BB65112.D	11/02/15	22:08	6.64	6.15
JC7291-10	BB65113.D	11/02/15	22:38	6.64	6.15
GBB3509-ECC3508	BB65114.D	11/02/15	23:07	6.65	6.16

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample: GBB3508-ICC3508
Lab FileID: BB65055.D

```
                         Response Factor Report  GCBB

  Method       : C:\msdchem\1\METHODS\EDS151029.M (ChemStation Integrator)
  Title        : v8011edb soil
  Last Update  : Fri Oct 30 10:32:53 2015
  Response via : Initial Calibration

  Calibration Files
  1   =BB65056.d   2   =BB65055.d   3   =BB65054.d   4   =BB65053.d
  5      =BB65052.d    6      =BB65051.d

        Compound              1     2     3     4     5     6     Avg    %RSD
  ---------------------------------------------------------------------------
  1)     1,2-Dibromoethane   1.097 1.028 1.077 1.087 1.128 1.214 1.105 E6   5.65
  2) s   4-Bromofluorobenzen 4.910 5.043 4.761 5.201 5.131 5.077 5.021 E4   3.18
  3)     1,2-Dibromo-3-chlor 1.942 1.824 1.686 1.758 1.695 1.832 1.790 E6   5.43

Signal #2

  1)     1,2-Dibromoethane   7.588 7.205 7.477 7.406 7.320 6.625 7.270 E6   4.71
  2) s   4-Bromofluorobenzen 5.702 6.160 5.837 5.206 4.476 4.269 5.275 E5  14.53
             ----- Linear regression -----  Coefficient =  0.9978
               Response Ratio = -1018821.00121 + 591151.77784 *A

  3)     1,2-Dibromo-3-chlor 1.699 1.628 1.595 1.707 1.684 1.746 1.677 E7   3.29
 ---------------------------------------------------------------------------
 (#) = Out of Range

           EDS151029.M        Fri Oct 30 10:33:39 2015
```

13.6.1

13

Initial Calibration Verification

Job Number: JC7291
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Sample: GBB3508-ICV3508
Lab FileID: BB65057.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...29\BB65057.d\ECD1B.CH Vial: 27
 Signal #2 : C:\msdchem\1\DATA\BB151029\BB65057.d\ECD2A.CH
 Acq On    : 29-Oct-15, 22:20:27                      Operator: nickk
 Sample    : icv3508-20,edb soil                      Inst    : GCBB
 Misc      : op45205,gbb3508,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS151029.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Fri Oct 30 10:32:53 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane        1.105   1.134 E6  -2.6  110   0.00    3.22- 3.28
 2 s   4-Bromofluorobenzene    50.207  51.515 E3  -2.6  102   0.00    6.17- 6.23
 3     1,2-Dibromo-3-chloropr   1.790   1.958 E6  -9.4  107   0.00   10.15-10.21

*****  Signal #2   *****

 1     1,2-Dibromoethane        7.270   7.626 E6  -4.9  106   0.00    3.87- 3.93

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000 107.736     -7.7  102   0.00    6.67- 6.73

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  16.766  17.599 E6  -5.0  108   0.00   11.23-11.29
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB65055.d  EDS151029.M       Fri Oct 30 10:33:30 2015
```

Continuing Calibration Summary

Job Number: JC7291 **Sample:** GBB3509-CC3508
Account: ALNJ Accutest New Jersey **Lab FileID:** BB65093.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...02\BB65093.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB151102\BB65093.d\ECD2A.CH
 Acq On    : 02-Nov-15, 12:46:11                      Operator: nickk
 Sample    : cc3508-20,edb soil                       Inst    : GCBB
 Misc      : op45205,gbb3509,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS151102.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Fri Oct 30 10:32:53 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane        1.105   0.919 E6  16.8#  89  -0.02    3.19- 3.25
 2 s   4-Bromofluorobenzene    50.207  44.512 E3  11.3   88  -0.02    6.15- 6.21
 3     1,2-Dibromo-3-chloropr   1.790   1.475 E6  17.6#  81# -0.02   10.14-10.20

*****  Signal #2   *****

 1     1,2-Dibromoethane        7.270   6.987 E6   3.9   97  -0.04    3.83- 3.89

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  95.810      4.2   90  -0.04    6.63- 6.69

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  16.766  14.861 E6  11.4   91  -0.03   11.20-11.26
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB65055.d  EDS151102.M       Mon Nov 02 13:07:18 2015
```

13.6.3

13

Continuing Calibration Summary

Job Number: JC7291 **Sample:** GBB3509-CC3508
Account: ALNJ Accutest New Jersey **Lab FileID:** BB65104.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...02\BB65104.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB151102\BB65104.d\ECD2A.CH
 Acq On    : 02-Nov-15, 18:12:21                      Operator: nickk
 Sample    : cc3508-20,edb soil                       Inst    : GCBB
 Misc      : op45205,gbb3509,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS151102.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Nov 02 13:07:27 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane        1.105   1.005 E6   9.0   98   0.00    3.18- 3.24
 2 s   4-Bromofluorobenzene    50.207  49.381 E3   1.6   98   0.00    6.14- 6.20
 3     1,2-Dibromo-3-chloropr   1.790   1.651 E6   7.8   91   0.00   10.13-10.19

*****  Signal #2   *****

 1     1,2-Dibromoethane        7.270   7.609 E6  -4.7  106   0.00    3.83- 3.89

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  99.456      0.5   94   0.00    6.62- 6.68

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  16.766  16.105 E6   3.9   99   0.00   11.20-11.26
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB65055.d  EDS151102.M       Tue Nov 03 06:23:14 2015
```

13.6.4

13

Continuing Calibration Summary

Job Number: JC7291 **Sample:** GBB3509-ECC3508
Account: ALNJ Accutest New Jersey **Lab FileID:** BB65114.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...02\BB65114.d\ECD1B.CH Vial: 100
 Signal #2 : C:\msdchem\1\DATA\BB151102\BB65114.d\ECD2A.CH
 Acq On    : 02-Nov-15, 23:07:45                      Operator: nickk
 Sample    : ecc3508-20,edb soil                      Inst    : GCBB
 Misc      : op45205,gbb3509,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS151102.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Mon Nov 02 13:07:27 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  85%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 115%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1     1,2-Dibromoethane        1.105   1.031 E6   6.7  100  -0.01    3.18- 3.24
 2 s   4-Bromofluorobenzene    50.207  49.644 E3   1.1   98  -0.01    6.13- 6.19
 3     1,2-Dibromo-3-chloropr   1.790   1.752 E6   2.1   96  -0.01   10.13-10.19

*****  Signal #2   *****

 1     1,2-Dibromoethane        7.270   7.667 E6  -5.5  106   0.00    3.83- 3.89

           ----------------------- True    Calc.   % Drift  ------------
 2 s   4-Bromofluorobenzene   100.000  97.410      2.6   92   0.00    6.62- 6.68

           ----------------------- AvgRF   CCRF     % Dev   -------------
 3     1,2-Dibromo-3-chloropr  16.766  16.131 E6   3.8   99   0.00   11.20-11.26
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB65055.d  EDS151102.M       Tue Nov 03 06:22:32 2015
```

13.6.5

13

New Jersey

ACCUTEST LABORATORIES

GC Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65103.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 17:43:16
Operator  : nickk
Sample    : jc7291-1,op45247
Misc      : op45247,gbb3509,30.57,,,50,,s
ALS Vial  : 10 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:08 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.156f	6.642f	3055059	35269109	60.850	61.385
Spiked Amount 50.000	Range	60 - 140	Recovery	=	121.70%	122.77%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

14.1.1

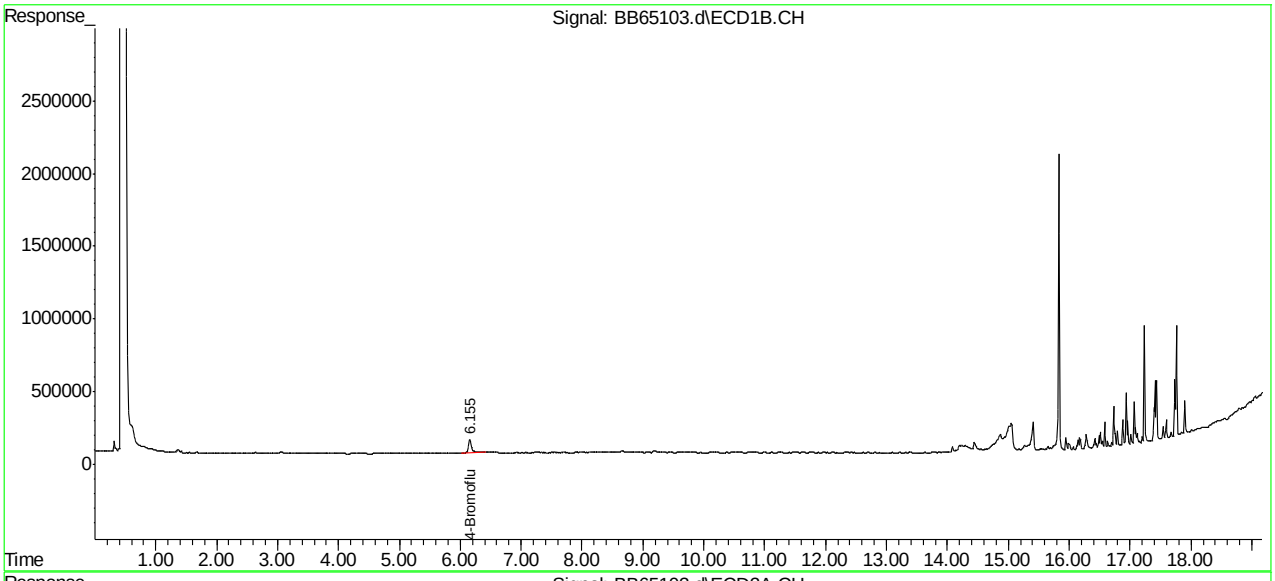
14

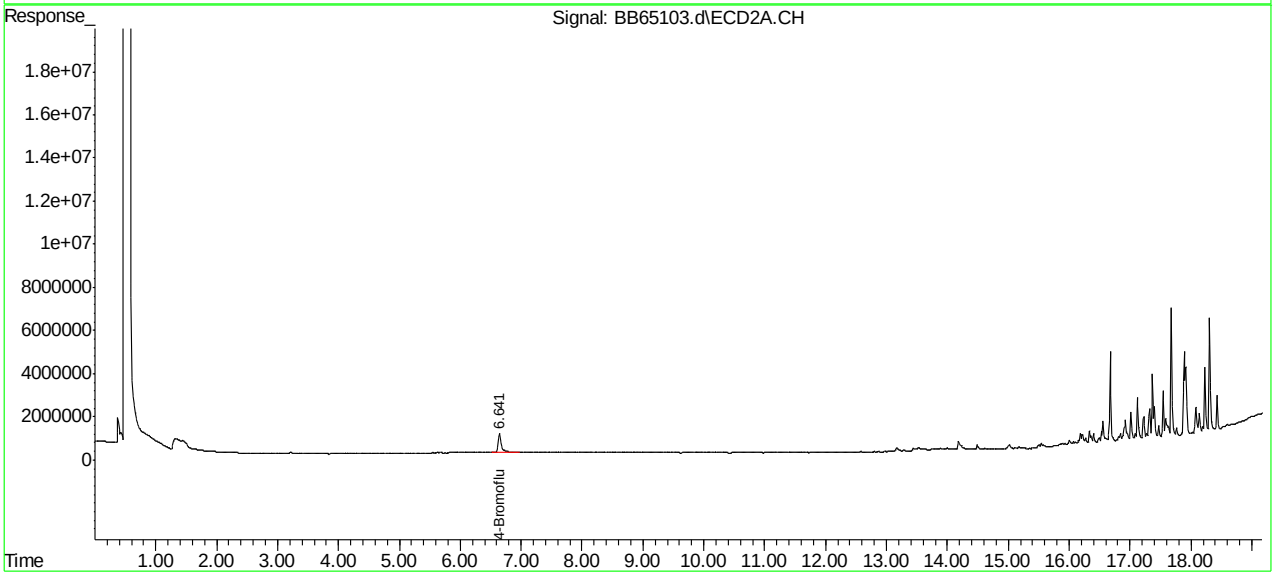
Quantitation Report (QT Reviewed)

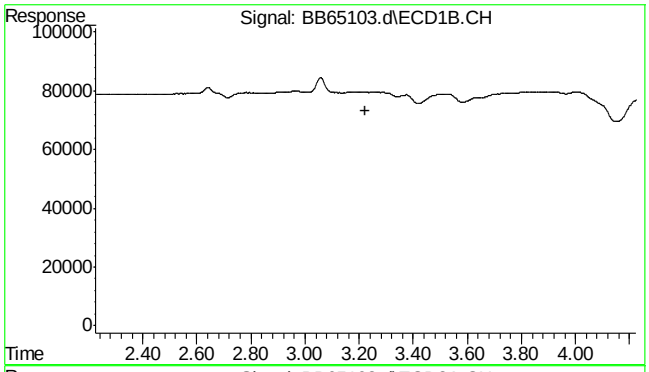
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65103.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 17:43:16
Operator : nickk
Sample : jc7291-1,op45247
Misc : op45247,gbb3509,30.57,,,50,,s
ALS Vial : 10 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:08 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

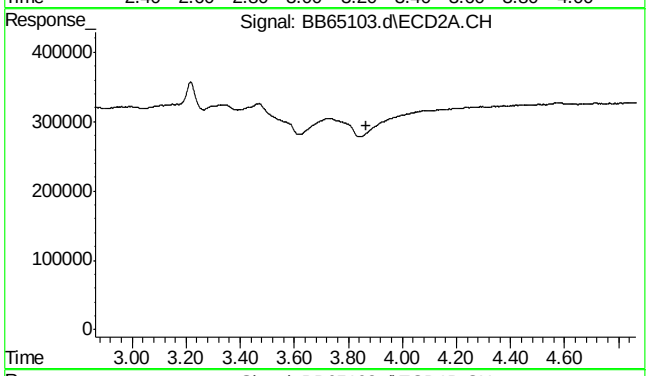






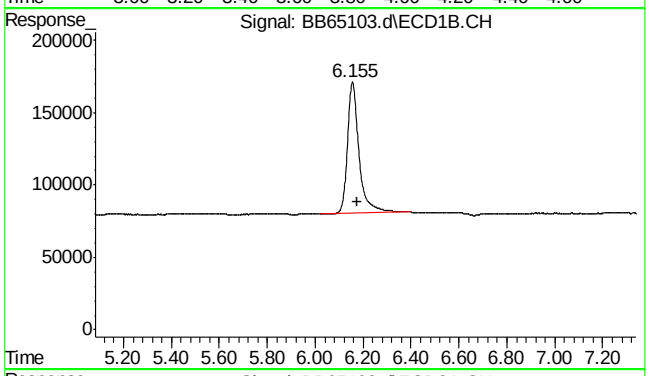
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



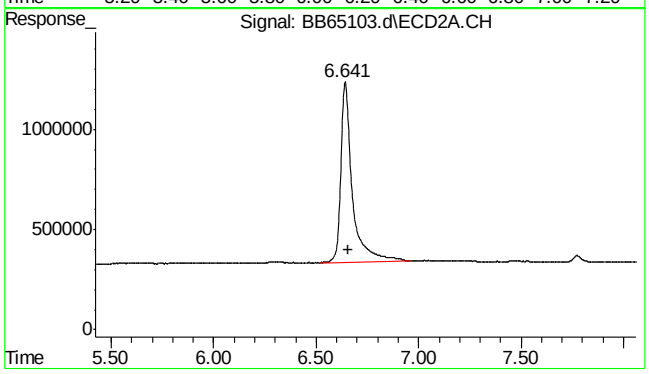
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.156 min
Delta R.T.: -0.020 min
Response: 3055059
Conc: 60.85 ug/L

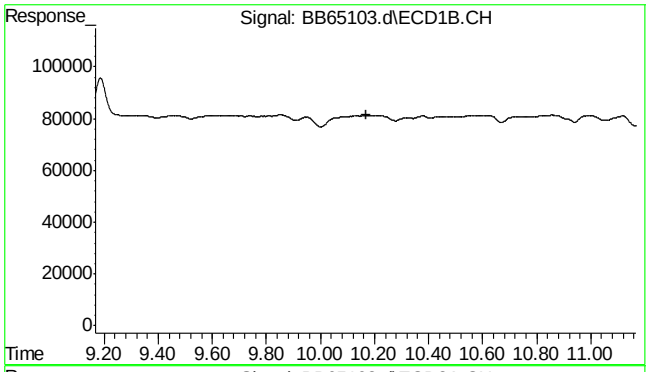


#2 4-Bromofluorobenzene

R.T.: 6.642 min
Delta R.T.: -0.016 min
Response: 35269109
Conc: 61.39 ug/L

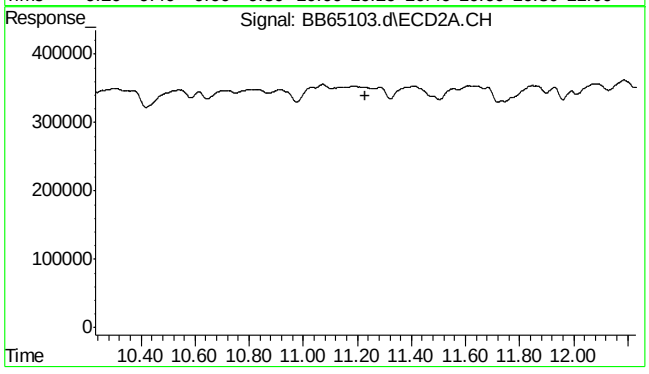
14.1.1

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.1

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65105.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 18:42:01
Operator  : nickk
Sample    : jc7291-2,op45247
Misc      : op45247,gbb3509,30.27,,,50,,s
ALS Vial  : 11 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:17 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.153f	6.640f	2881641	35111823	57.396	61.119
Spiked Amount 50.000	Range 60 - 140	Recovery = 114.79%			122.24%	
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

14.1.2

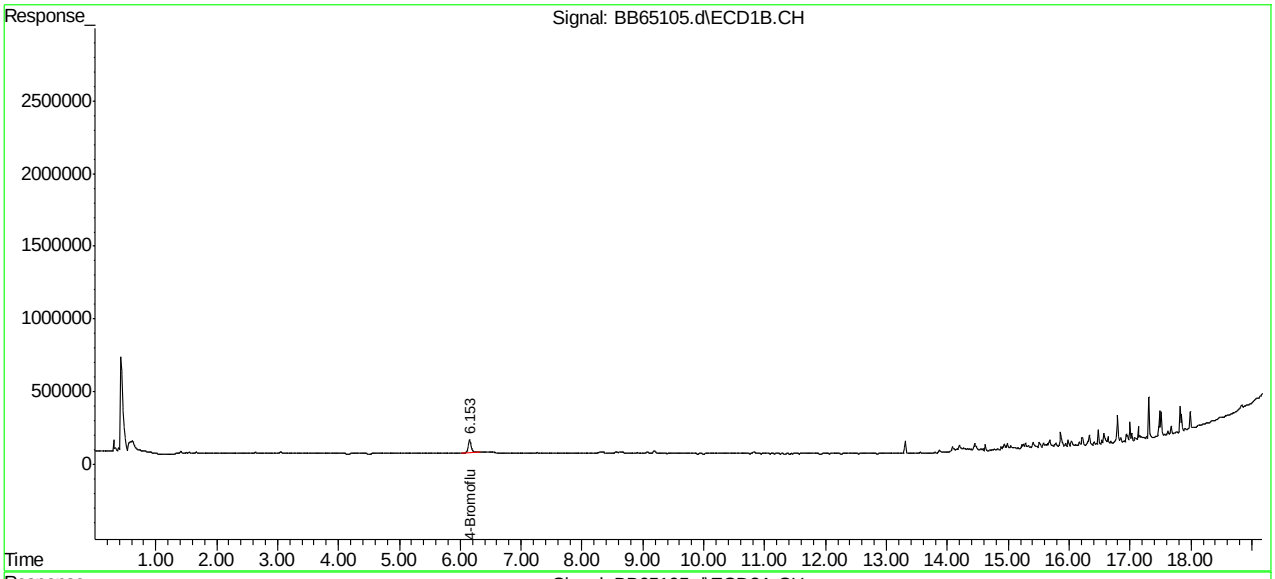
14

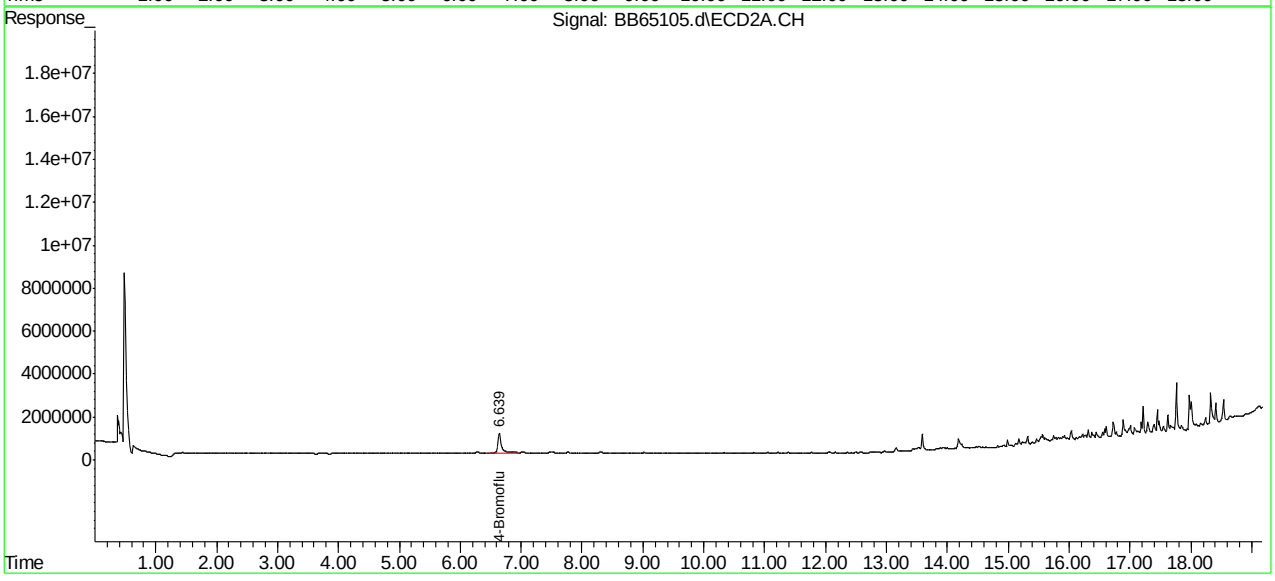
Quantitation Report (QT Reviewed)

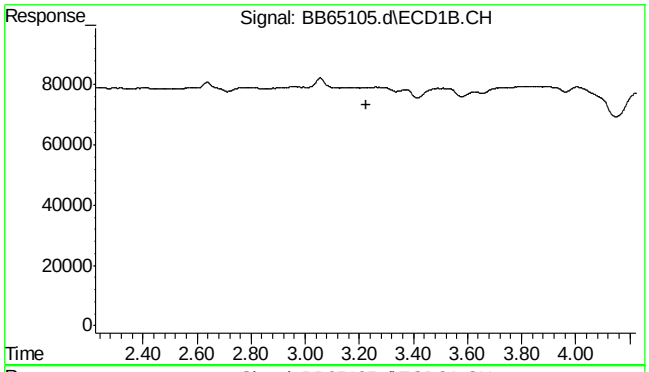
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65105.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 18:42:01
Operator : nickk
Sample : jc7291-2,op45247
Misc : op45247,gbb3509,30.27,,,50,,s
ALS Vial : 11 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:17 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

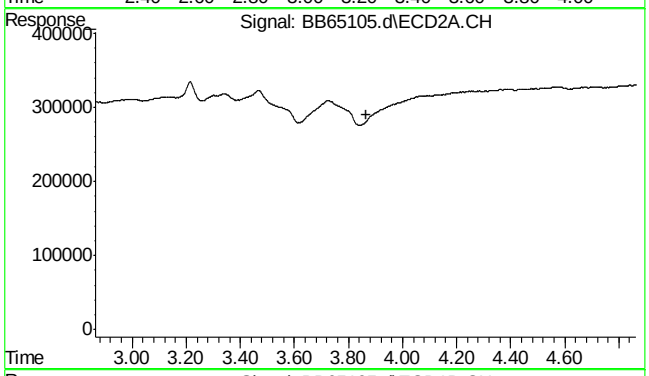






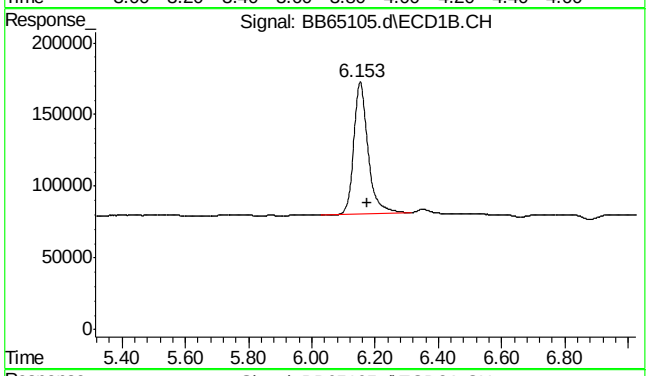
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



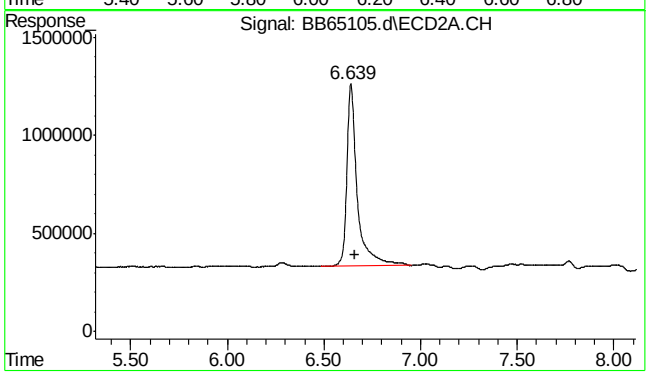
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.153 min
Delta R.T.: -0.023 min
Response: 2881641
Conc: 57.40 ug/L

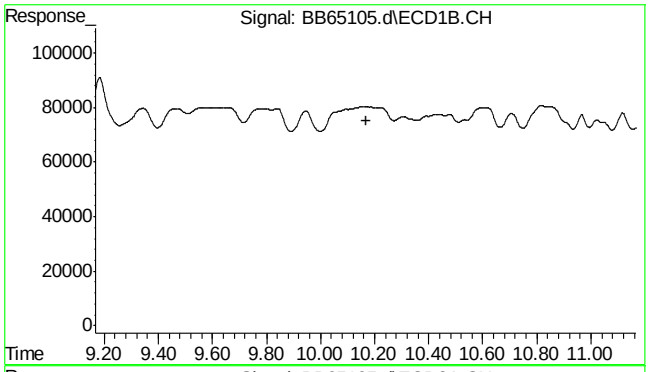


#2 4-Bromofluorobenzene

R.T.: 6.640 min
Delta R.T.: -0.018 min
Response: 35111823
Conc: 61.12 ug/L

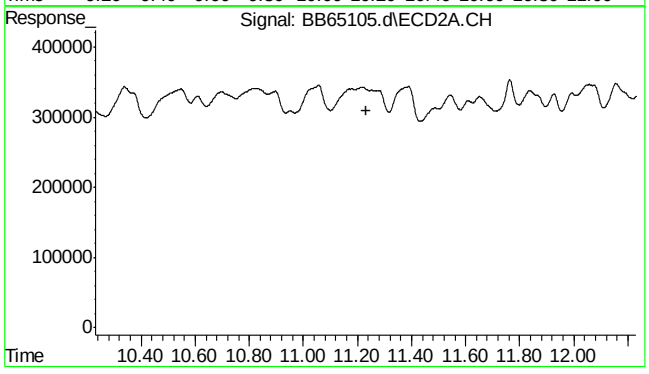
14.1.2

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.2

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65106.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 19:11:33
Operator  : nickk
Sample    : jc7291-3,op45247
Misc      : op45247,gbb3509,30.88,,,50,,s
ALS Vial  : 12 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:26 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.157f    6.644   2977766 32752863   59.310    57.129
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  118.62%   114.26%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

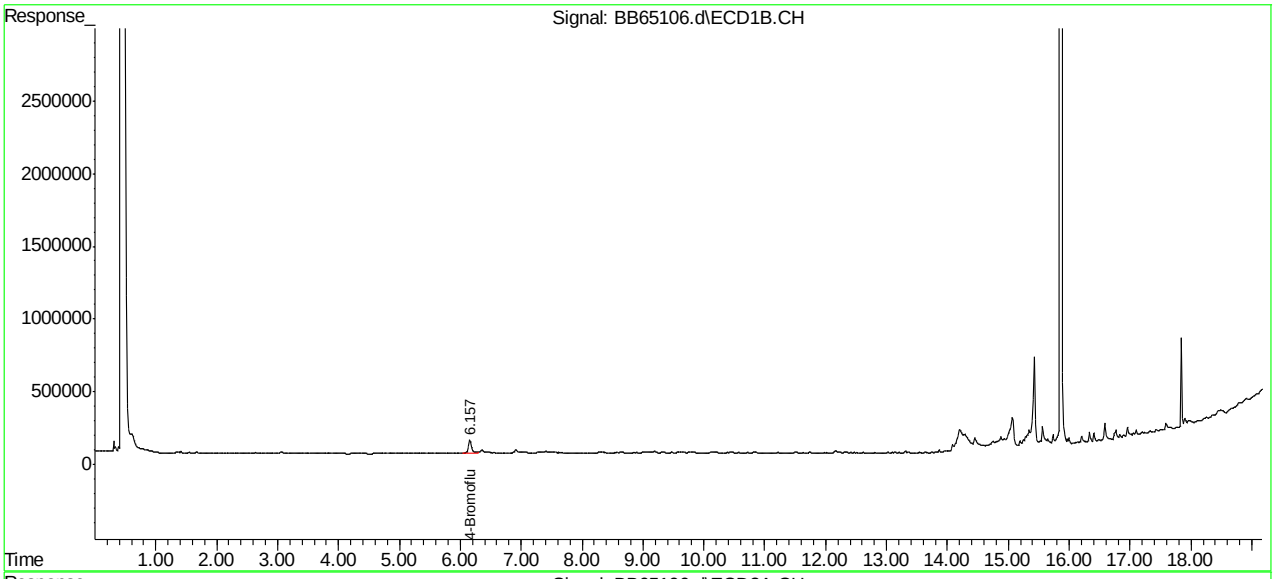
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

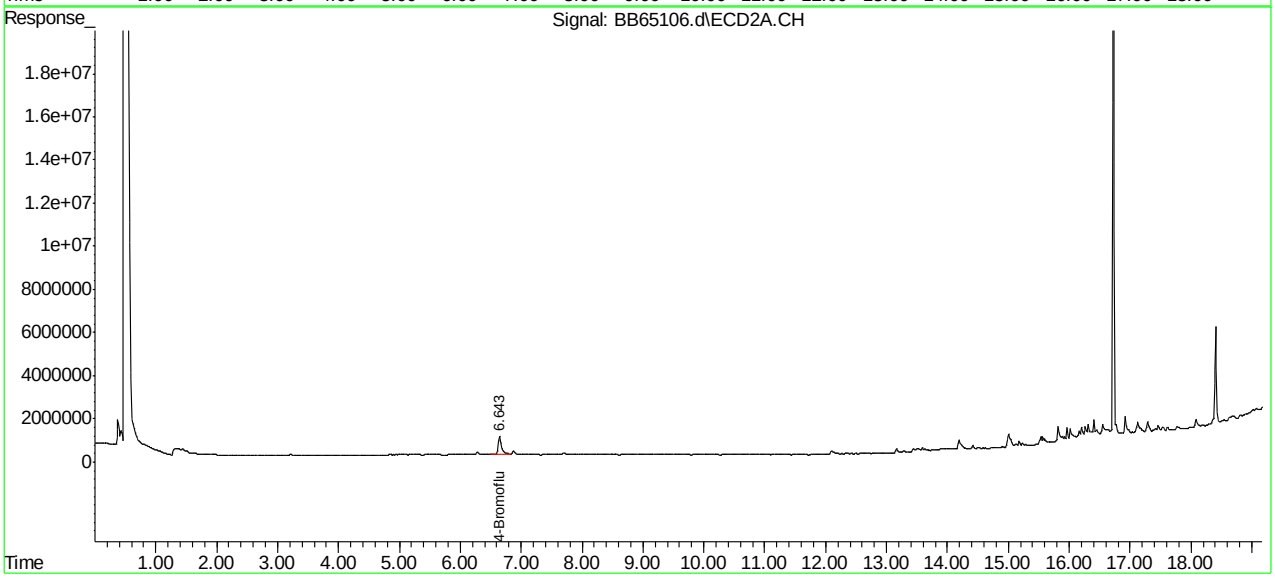
Quantitation Report (QT Reviewed)

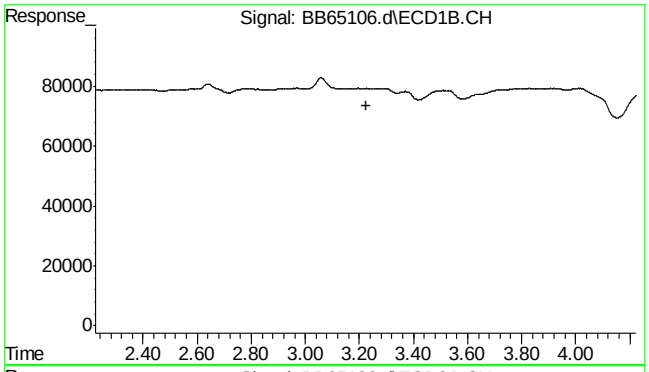
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65106.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 19:11:33
Operator : nickk
Sample : jc7291-3,op45247
Misc : op45247,gbb3509,30.88,,,50,,s
ALS Vial : 12 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:26 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

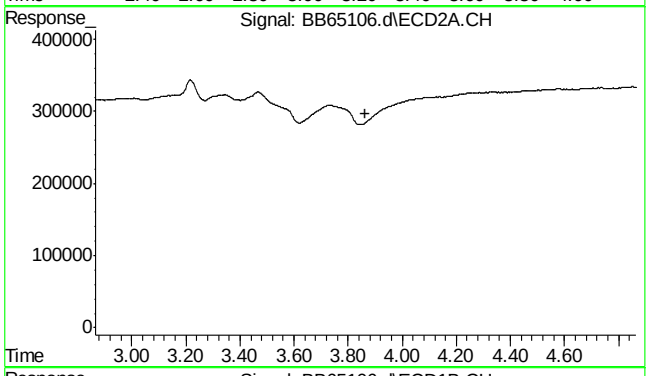






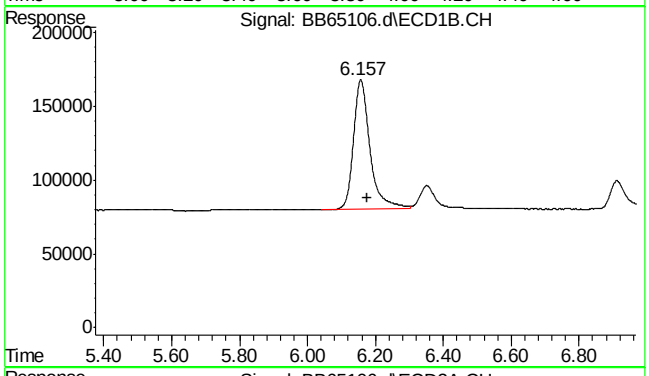
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



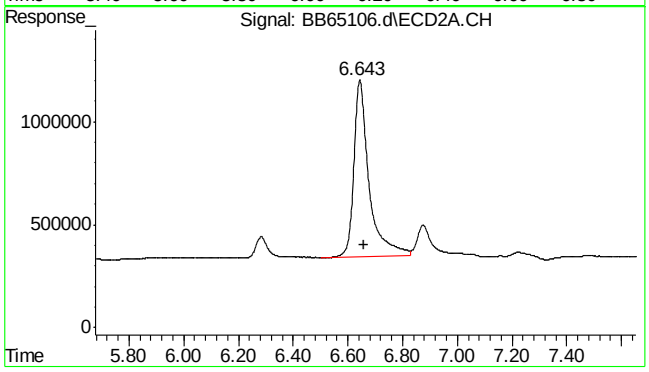
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.157 min
Delta R.T.: -0.019 min
Response: 2977766
Conc: 59.31 ug/L

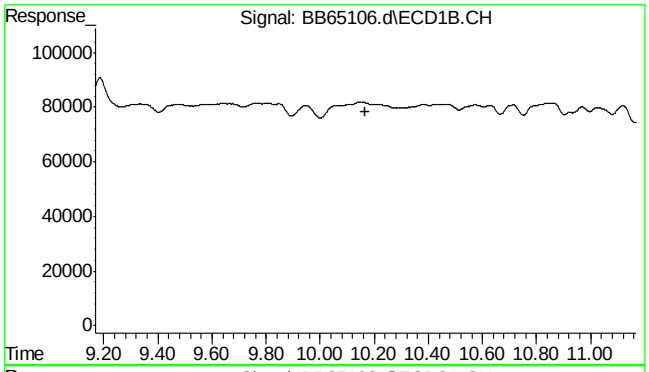


#2 4-Bromofluorobenzene

R.T.: 6.644 min
Delta R.T.: -0.014 min
Response: 32752863
Conc: 57.13 ug/L

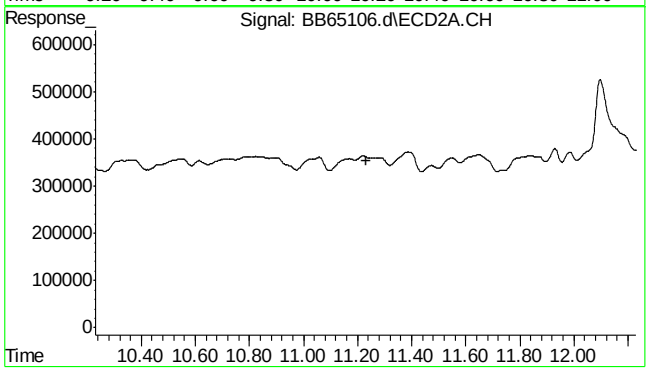
14.1.3

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.3

14

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
11/03/15 09:56

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65107.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 19:41:13
Operator : nickk
Sample : jc7291-4,op45247
Misc : op45247,gbb3509,30.46,,,50,,s
ALS Vial : 13 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:48 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
	System Monitoring Compounds						
2) s	4-Bromofl...	6.153f	6.639f	2910808	32084563	57.976	55.998m
	Spiked Amount	50.000	Range	60 - 140	Recovery	= 115.95%	112.00%
	Target Compounds						
1)	1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3)	1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

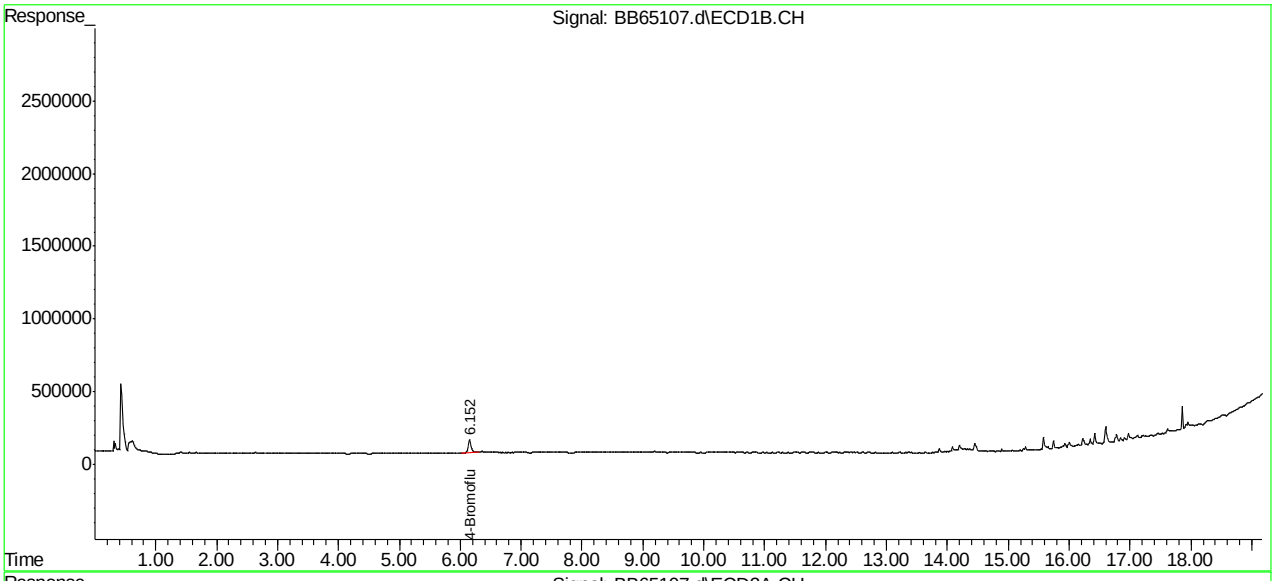
14.1.4
14

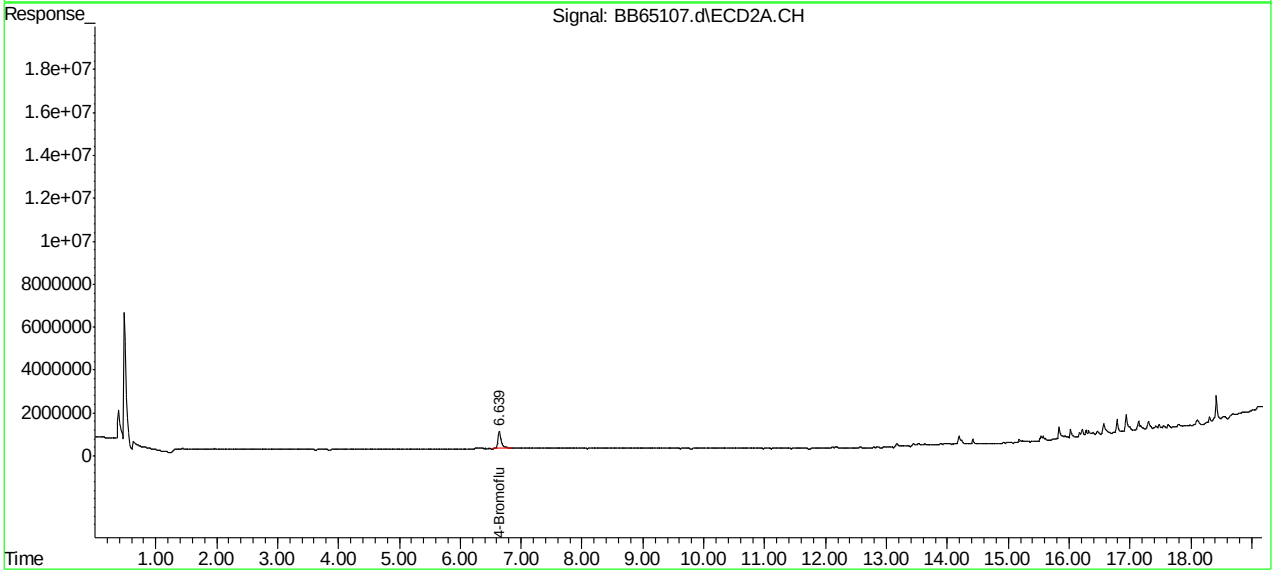
Quantitation Report (QT Reviewed)

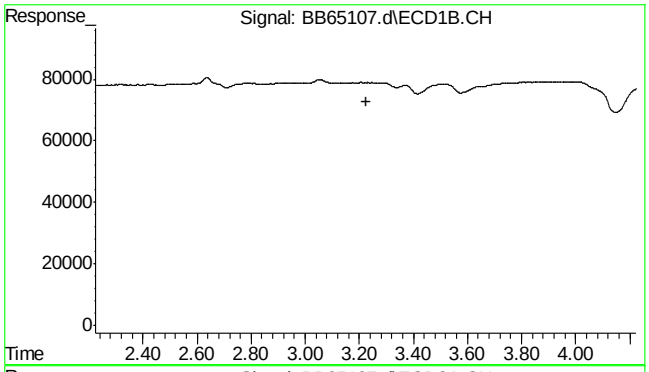
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65107.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 19:41:13
Operator : nickk
Sample : jc7291-4,op45247
Misc : op45247,gbb3509,30.46,,,50,,s
ALS Vial : 13 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:48 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

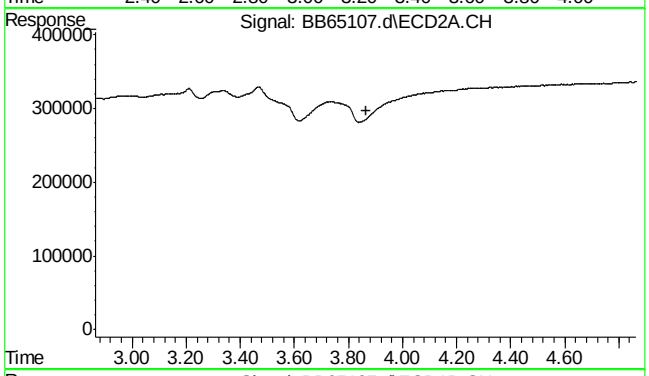






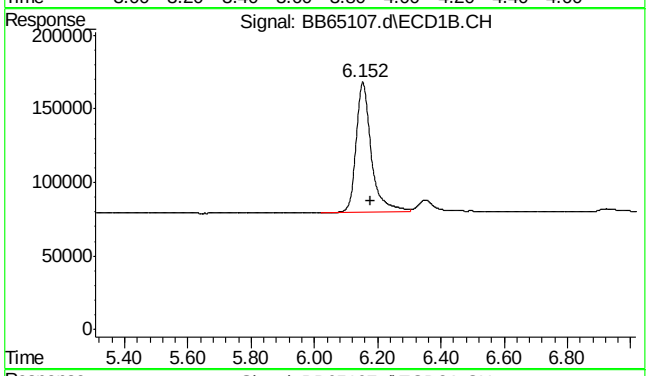
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



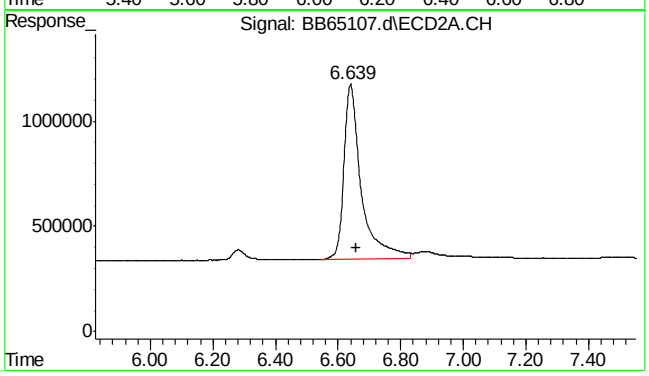
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.153 min
Delta R.T.: -0.023 min
Response: 2910808
Conc: 57.98 ug/L

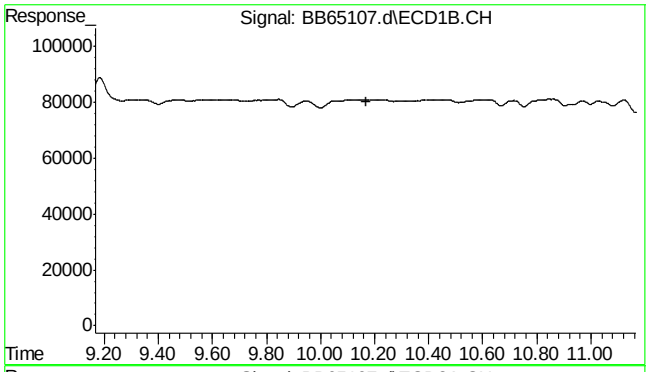


#2 4-Bromofluorobenzene

R.T.: 6.639 min
Delta R.T.: -0.019 min
Response: 32084563
Conc: 56.00 ug/L m

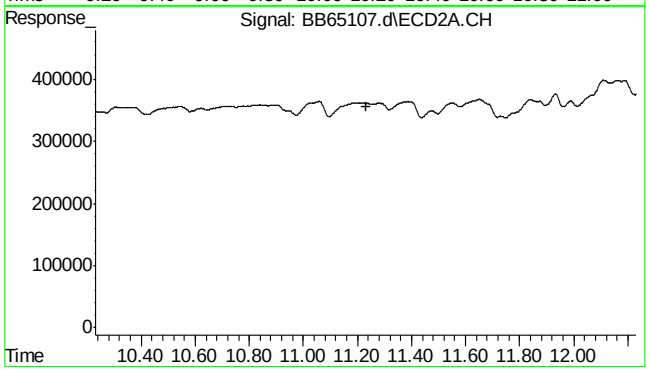
14.1.4

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.4

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65108.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 20:10:37
Operator  : nickk
Sample    : jc7291-5,op45247
Misc      : op45247,gbb3509,30.22,,,50,,s
ALS Vial  : 14 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:57 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.153f    6.640f  2811471 34092594   55.998    59.395
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  112.00%   118.79%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

14.1.5

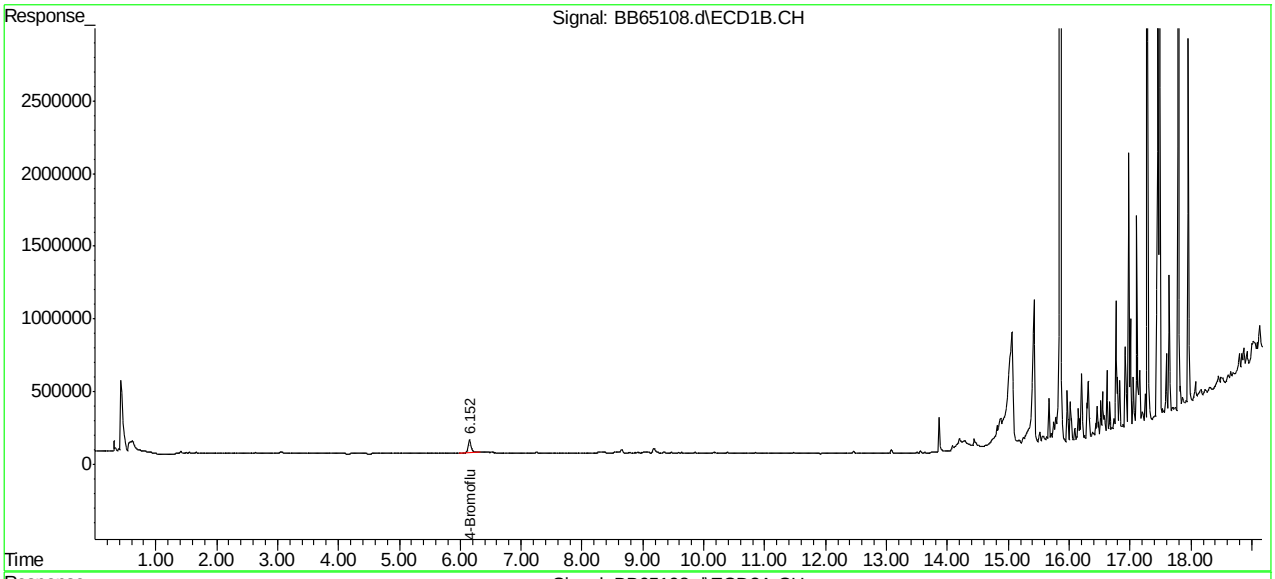
14

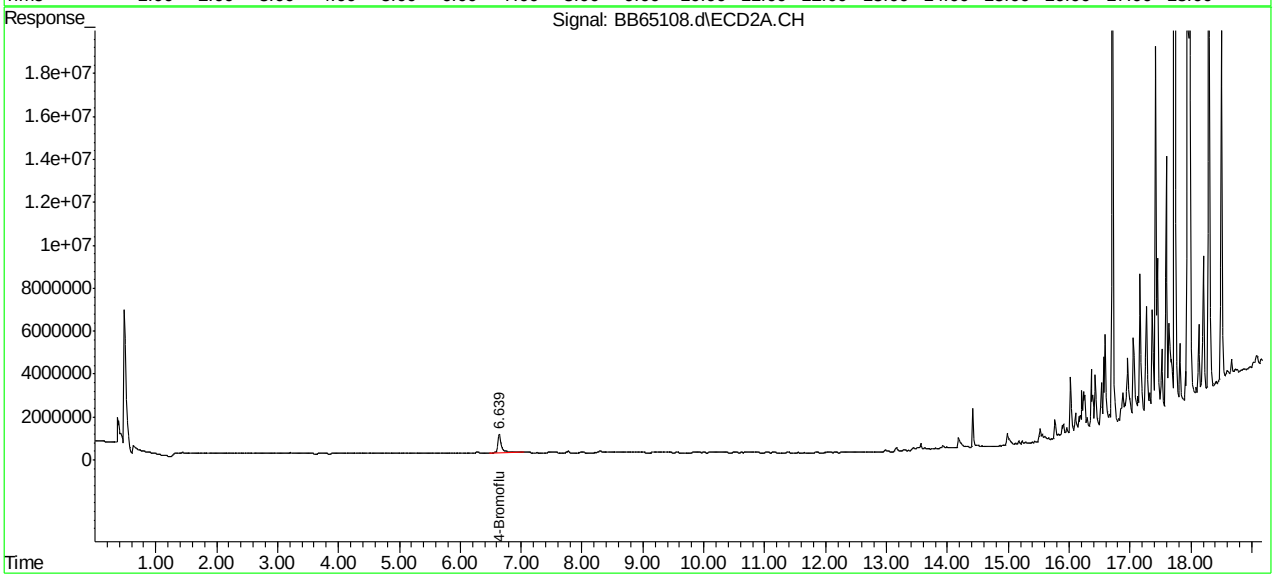
Quantitation Report (QT Reviewed)

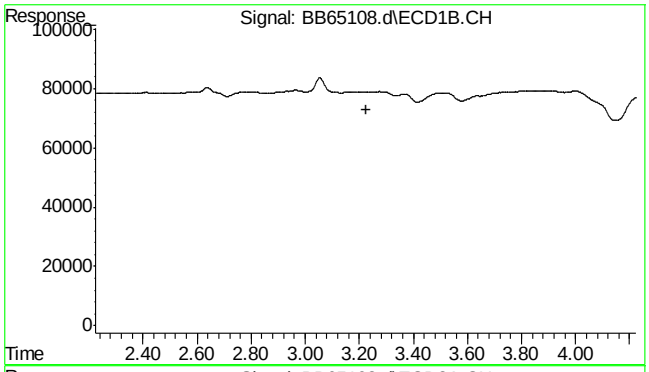
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65108.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 20:10:37
Operator : nickk
Sample : jc7291-5,op45247
Misc : op45247,gbb3509,30.22,,,50,,s
ALS Vial : 14 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:26:57 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

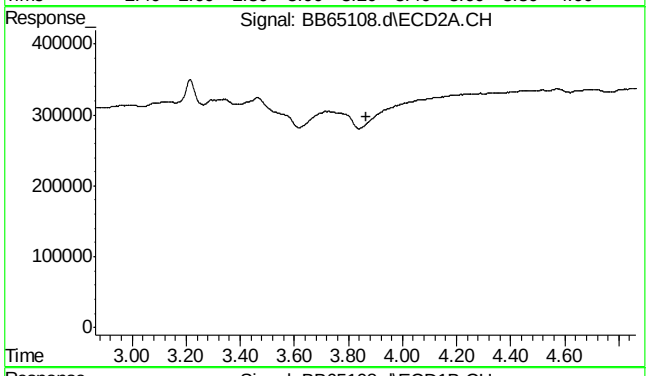






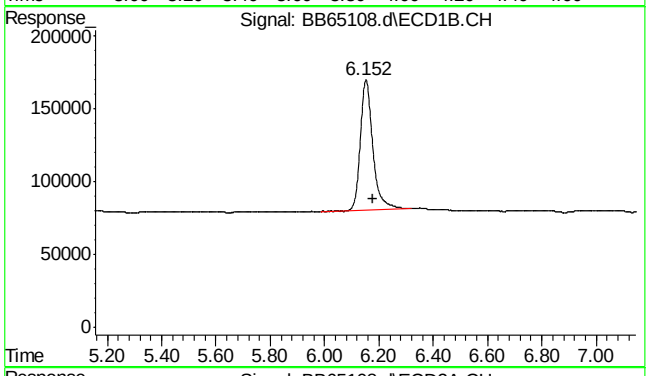
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



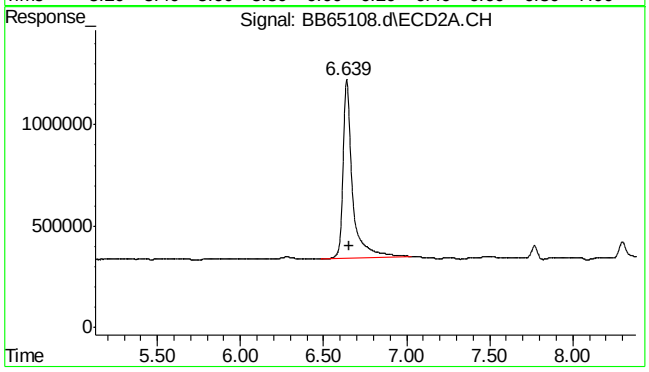
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.153 min
Delta R.T.: -0.024 min
Response: 2811471
Conc: 56.00 ug/L

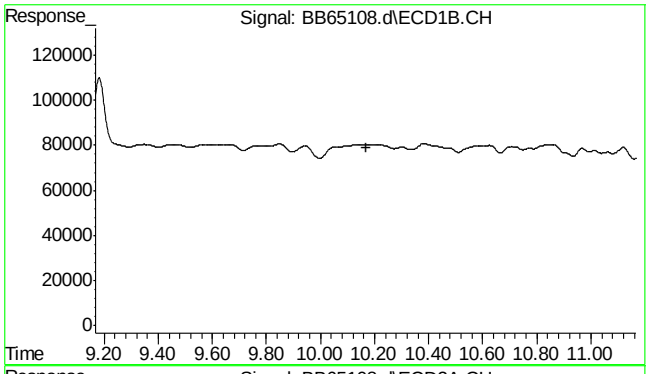


#2 4-Bromofluorobenzene

R.T.: 6.640 min
Delta R.T.: -0.019 min
Response: 34092594
Conc: 59.39 ug/L

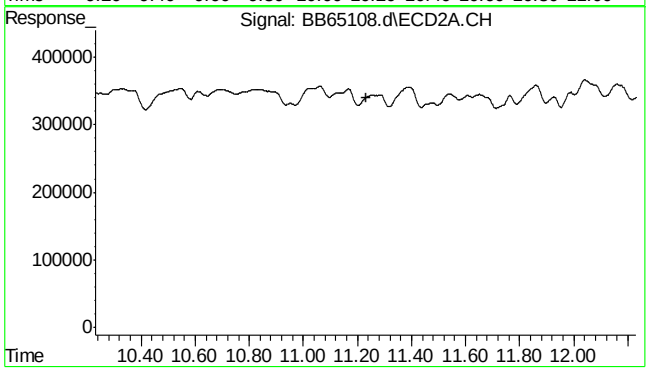
14.1.5

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.5

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65109.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 20:39:55
Operator  : nickk
Sample    : jc7291-6,op45247
Misc      : op45247,gbb3509,30.72,,,50,,s
ALS Vial  : 15 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:05 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.154f    6.641f  2974788 32718636   59.251    57.071
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  118.50%   114.14%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

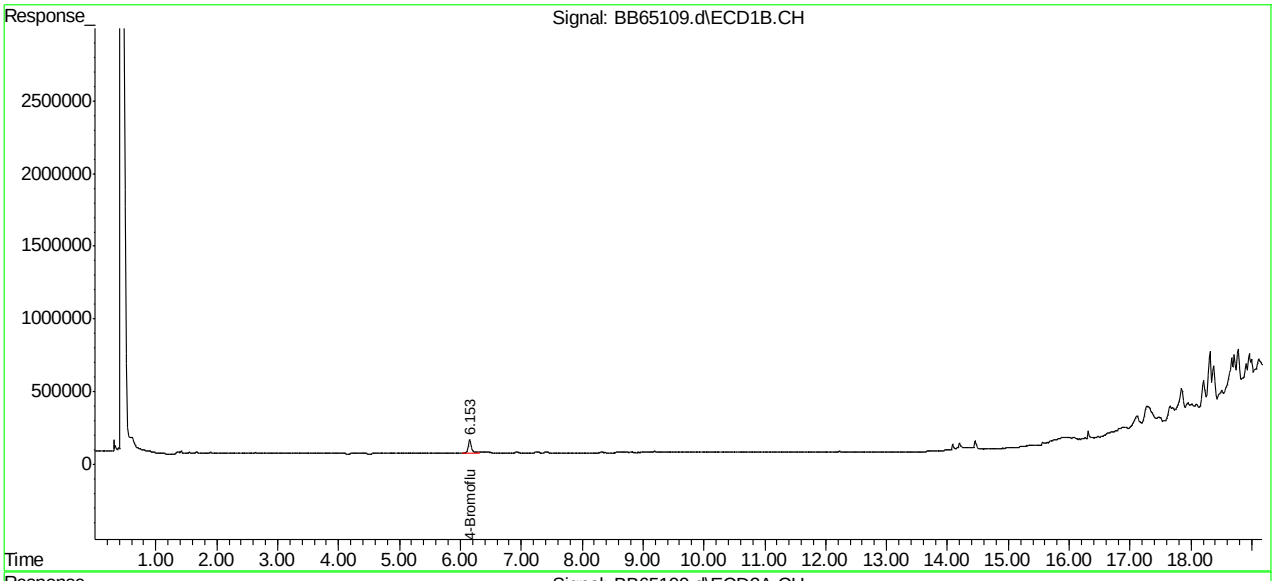
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

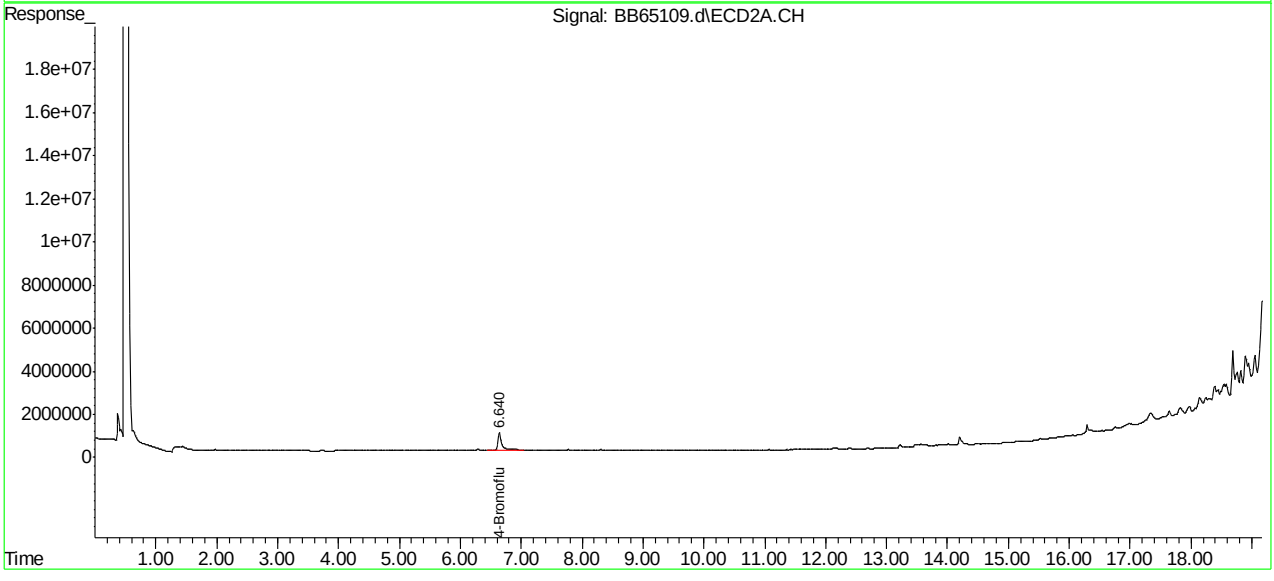
Quantitation Report (QT Reviewed)

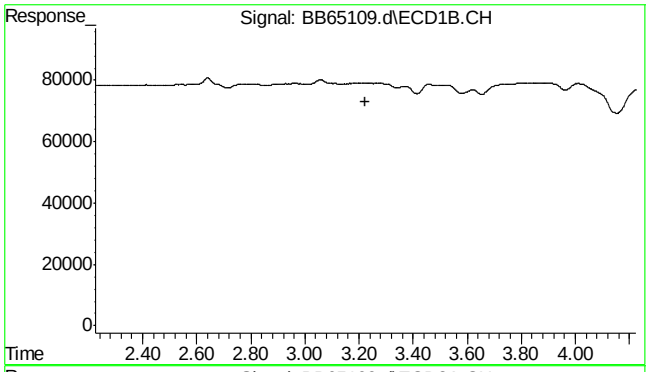
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65109.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 20:39:55
Operator : nickk
Sample : jc7291-6,op45247
Misc : op45247,gbb3509,30.72,,,50,,s
ALS Vial : 15 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:05 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

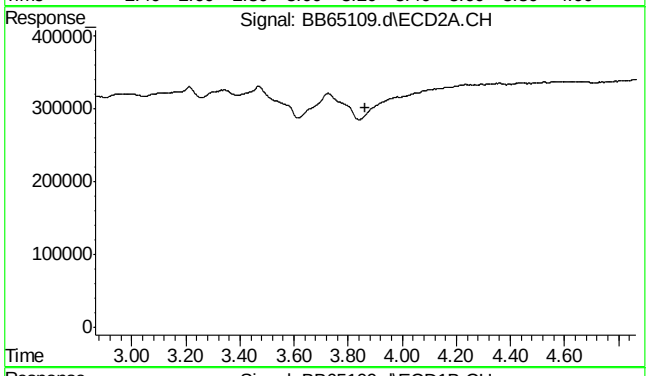






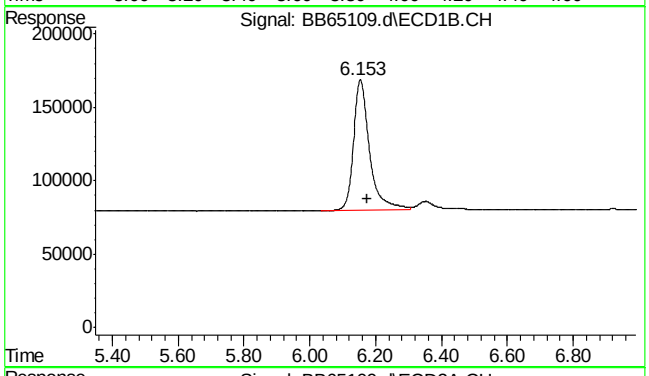
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



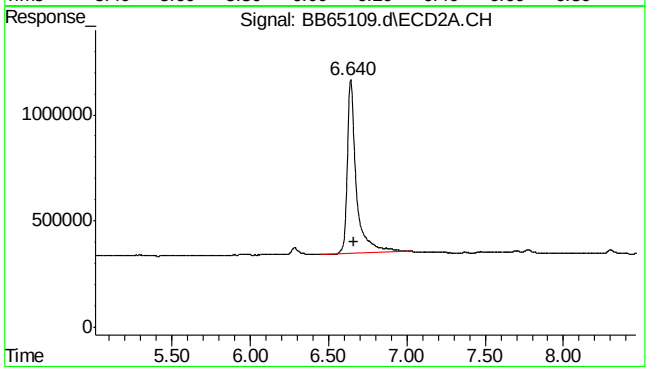
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.154 min
Delta R.T.: -0.022 min
Response: 2974788
Conc: 59.25 ug/L

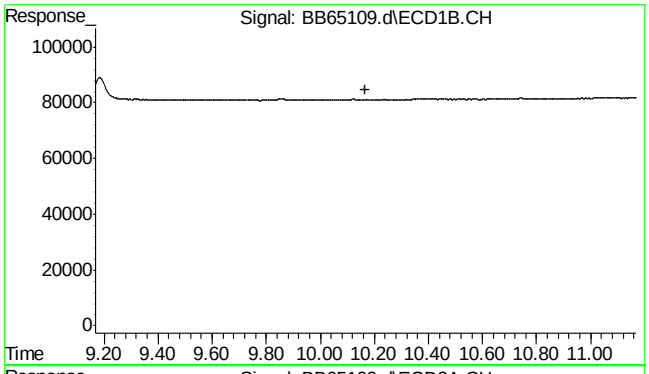


#2 4-Bromofluorobenzene

R.T.: 6.641 min
Delta R.T.: -0.017 min
Response: 32718636
Conc: 57.07 ug/L

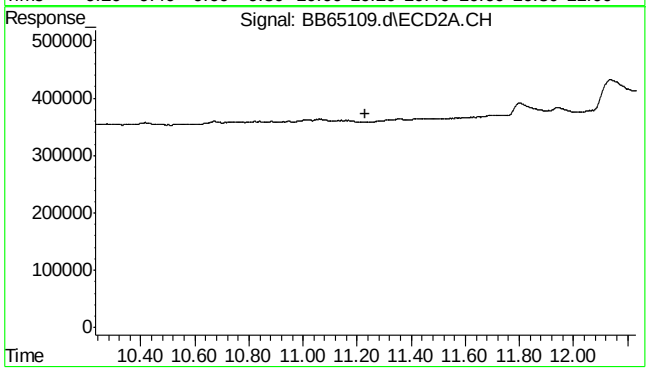
14.1.6

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.6

14

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
11/03/15 09:56

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65110.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 21:09:44
Operator : nickk
Sample : jc7291-7,op45247
Misc : op45247,gbb3509,30.57,,,50,,s
ALS Vial : 16 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:28 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
System Monitoring Compounds						
2) s 4-Bromofl...	6.151f	6.638f	3179722	35181495	63.333m	61.237m
Spiked Amount	50.000	Range	60 - 140	Recovery	= 126.67%	122.47%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

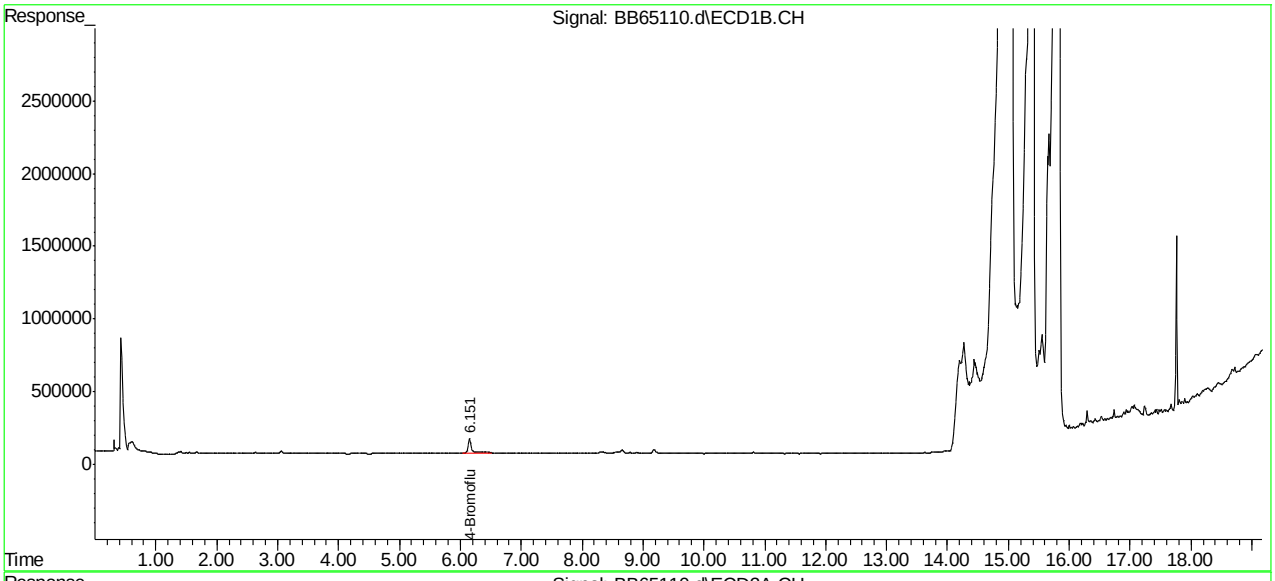
14.1.7
14

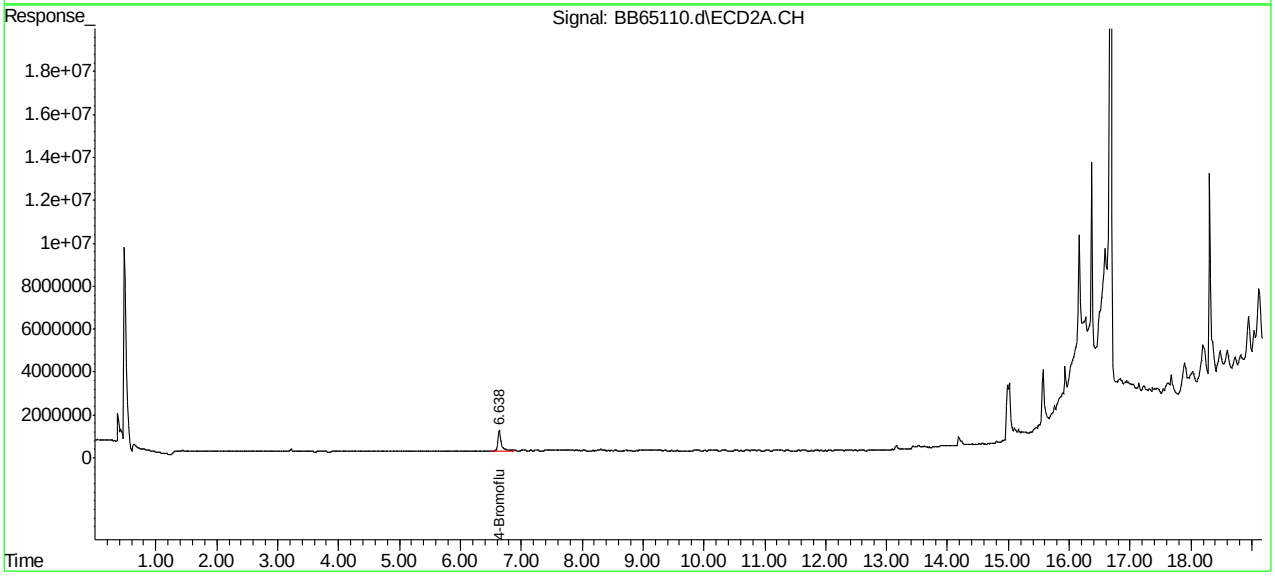
Quantitation Report (QT Reviewed)

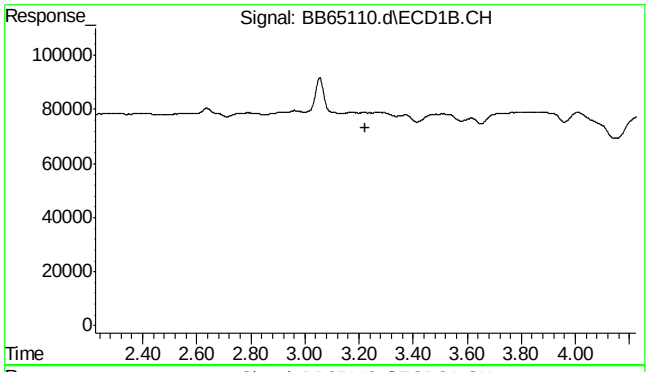
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65110.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 21:09:44
Operator : nickk
Sample : jc7291-7,op45247
Misc : op45247,gbb3509,30.57,,,50,,s
ALS Vial : 16 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:28 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

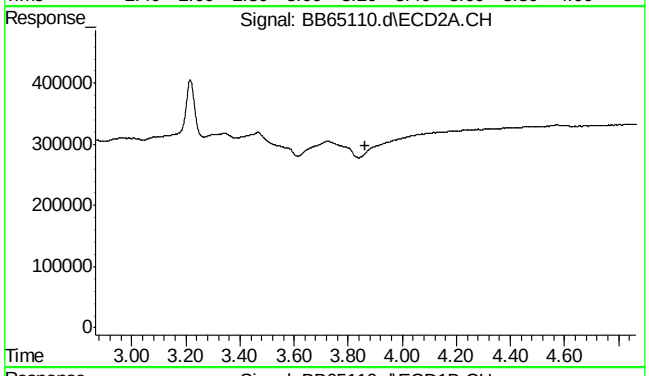






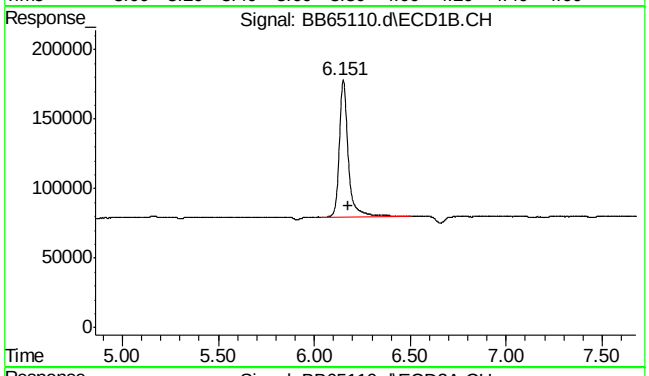
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



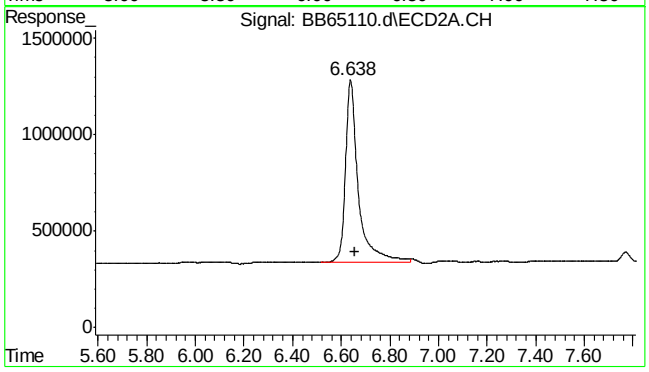
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.151 min
Delta R.T.: -0.026 min
Response: 3179722
Conc: 63.33 ug/L m

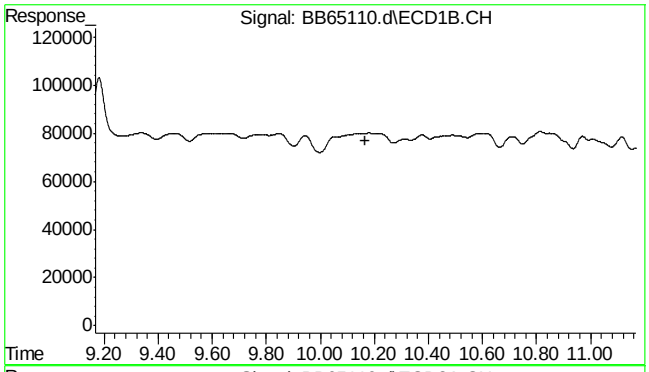


#2 4-Bromofluorobenzene

R.T.: 6.638 min
Delta R.T.: -0.021 min
Response: 35181495
Conc: 61.24 ug/L m

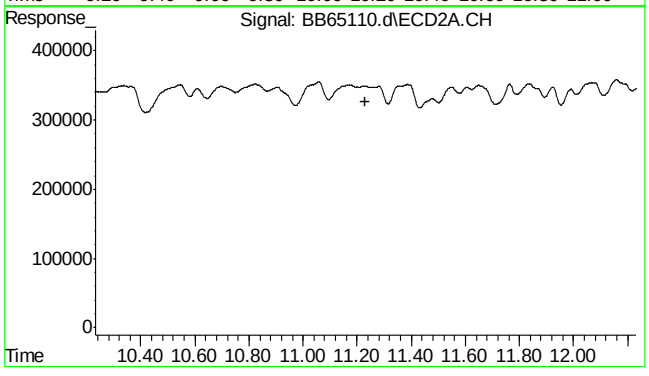
14.1.7

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.7

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65111.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 21:39:07
Operator  : nickk
Sample    : jc7291-8,op45247
Misc      : op45247,gbb3509,30.51,,,50,,s
ALS Vial  : 17 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:36 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.154f    6.641f  3048175 32096415   60.712    56.018
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  121.42%   112.04%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

14.1.8

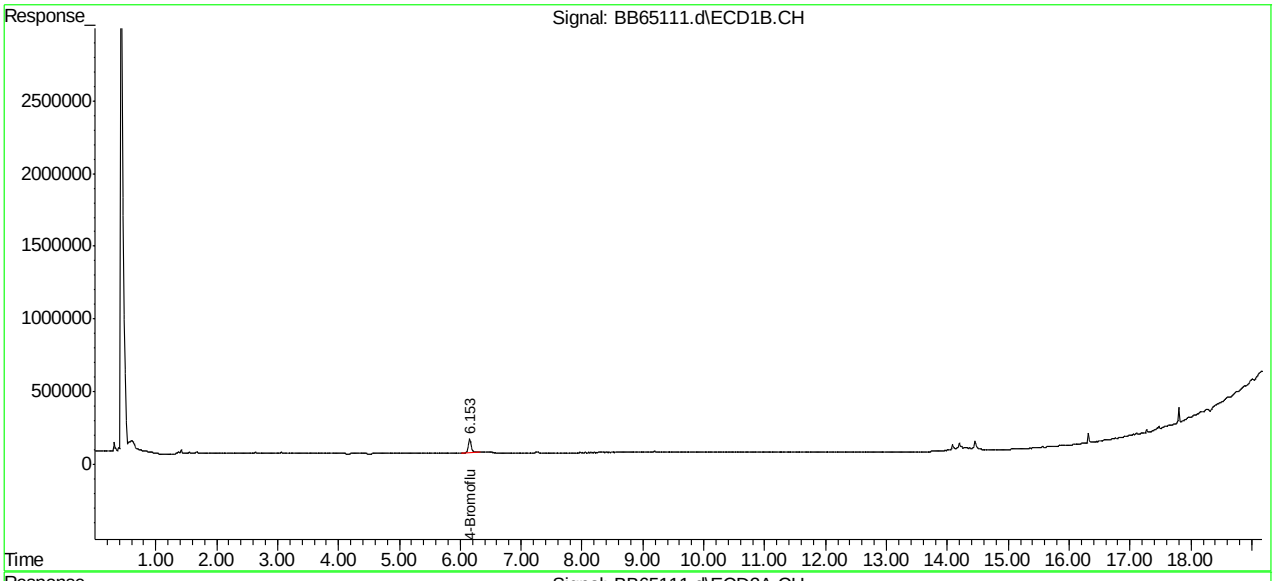
14

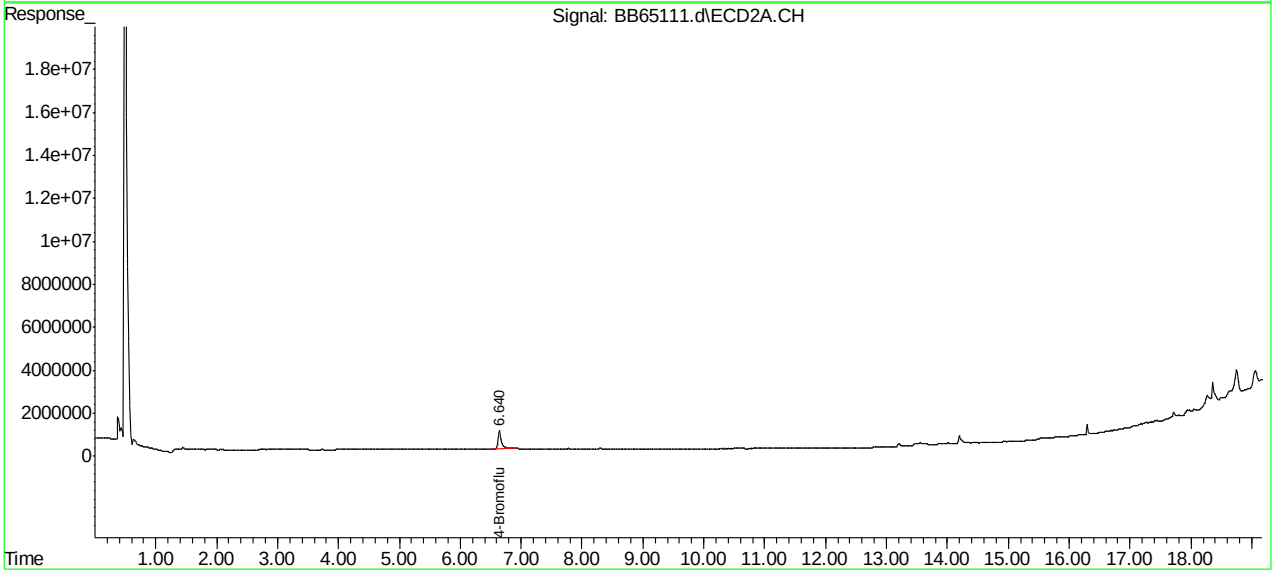
Quantitation Report (QT Reviewed)

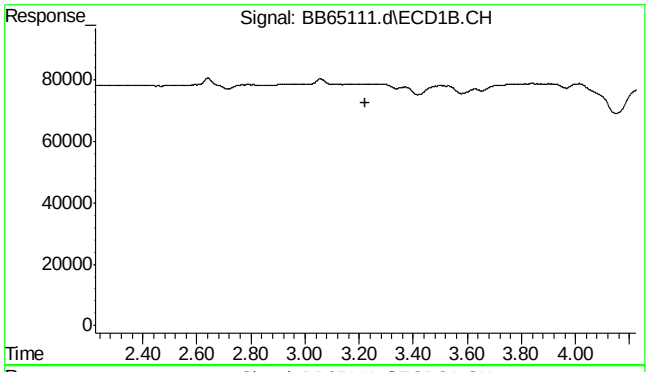
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65111.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 21:39:07
Operator : nickk
Sample : jc7291-8,op45247
Misc : op45247,gbb3509,30.51,,,50,,s
ALS Vial : 17 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:36 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

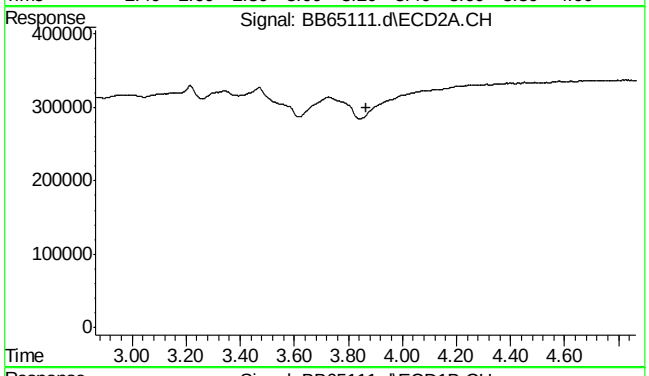






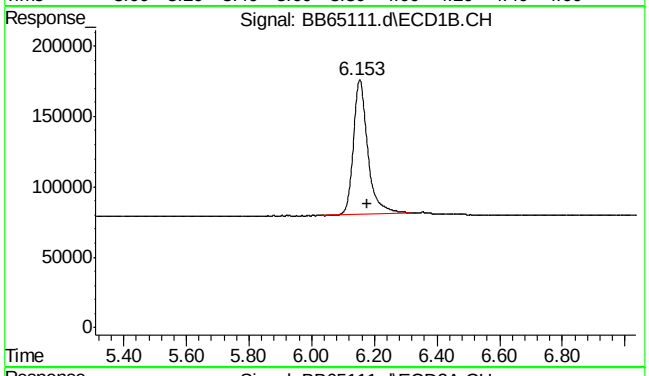
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



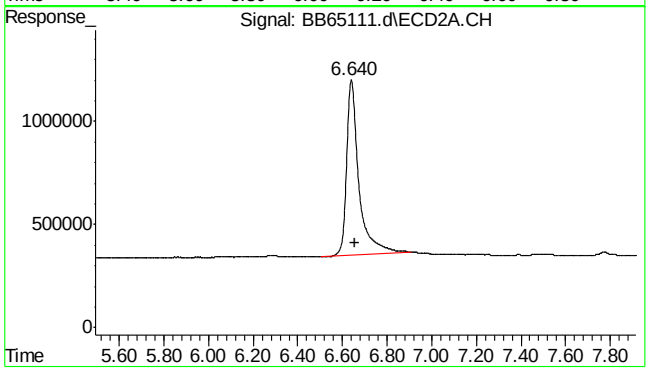
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.154 min
Delta R.T.: -0.022 min
Response: 3048175
Conc: 60.71 ug/L

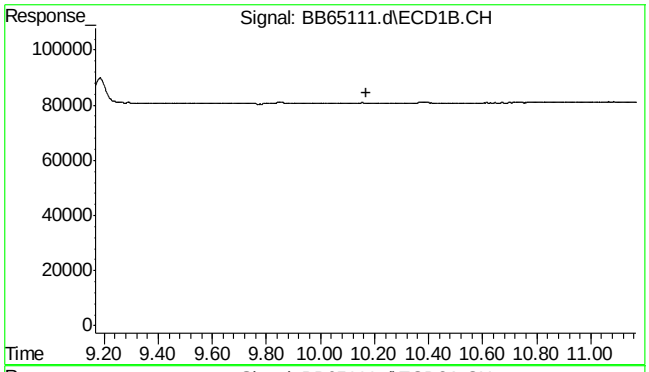


#2 4-Bromofluorobenzene

R.T.: 6.641 min
Delta R.T.: -0.018 min
Response: 32096415
Conc: 56.02 ug/L

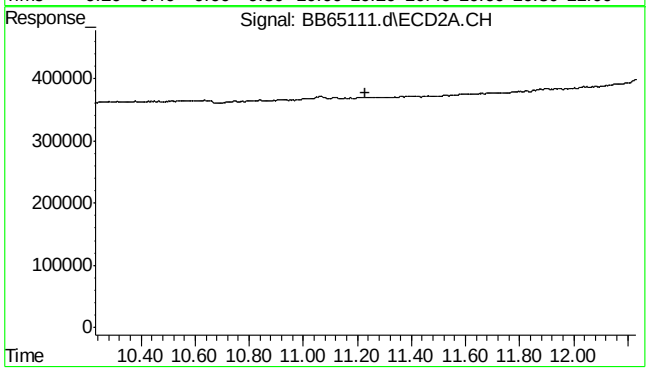
14.1.8

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65112.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 22:08:37
Operator  : nickk
Sample    : jc7291-9,op45247
Misc      : op45247,gbb3509,30.41,,,50,,s
ALS Vial  : 18 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:45 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.153f    6.640f  2963559 32273806   59.027    56.318
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  118.05%   112.64%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

14.1.9

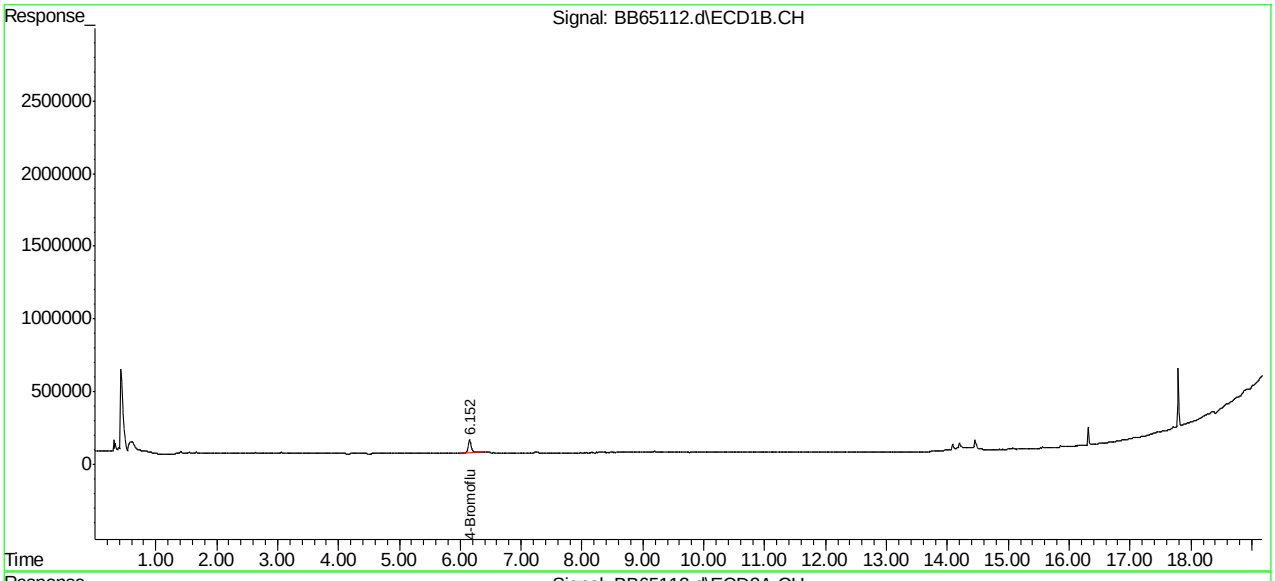
14

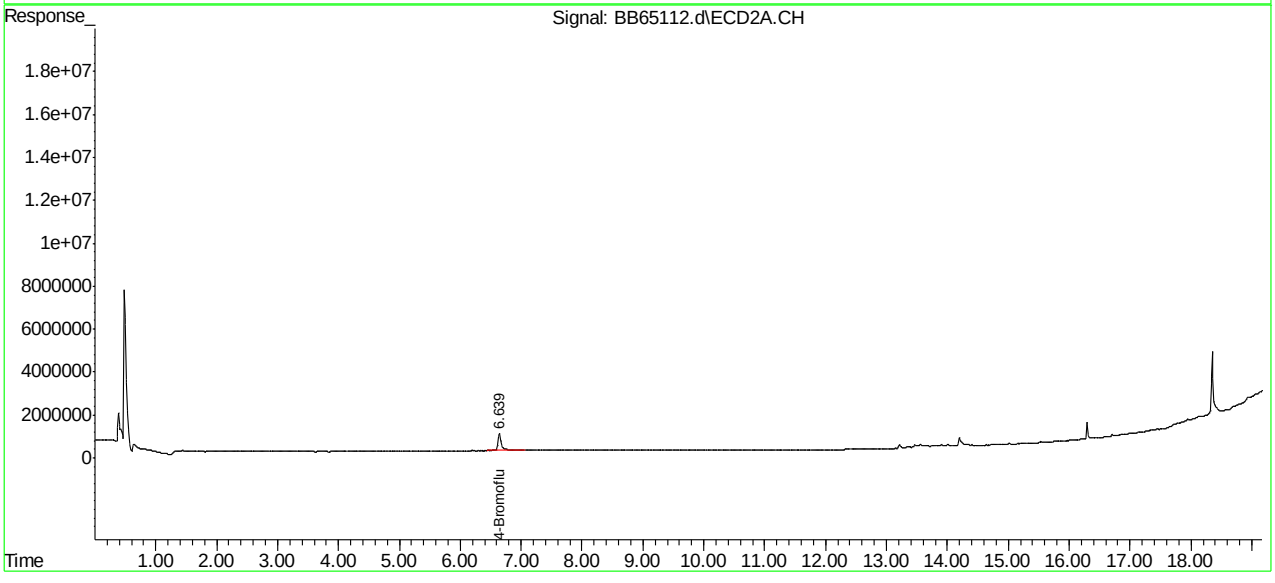
Quantitation Report (QT Reviewed)

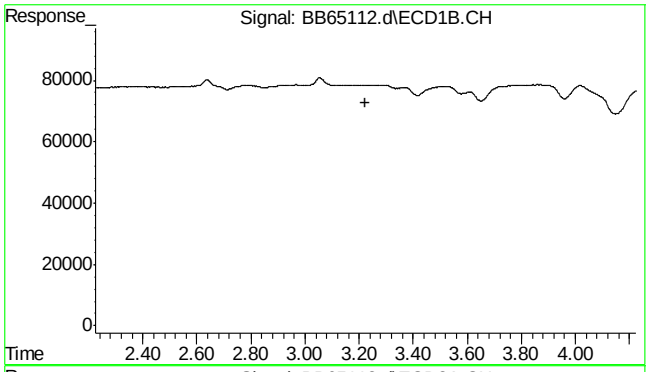
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65112.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 22:08:37
Operator : nickk
Sample : jc7291-9,op45247
Misc : op45247,gbb3509,30.41,,,50,,s
ALS Vial : 18 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:45 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

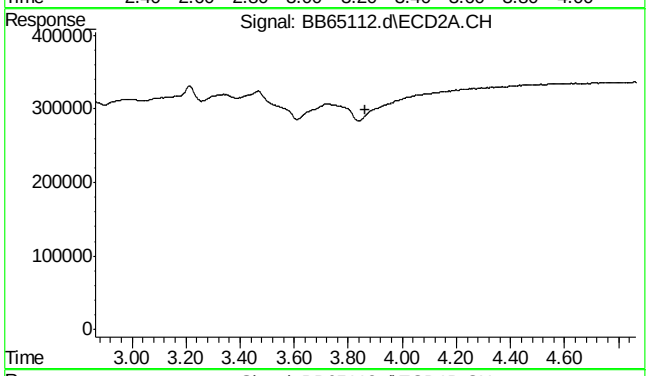






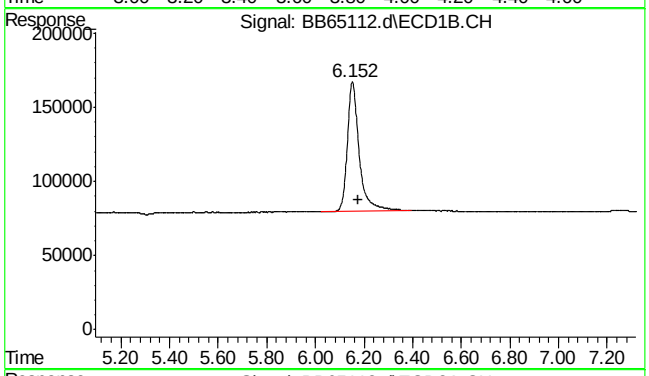
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



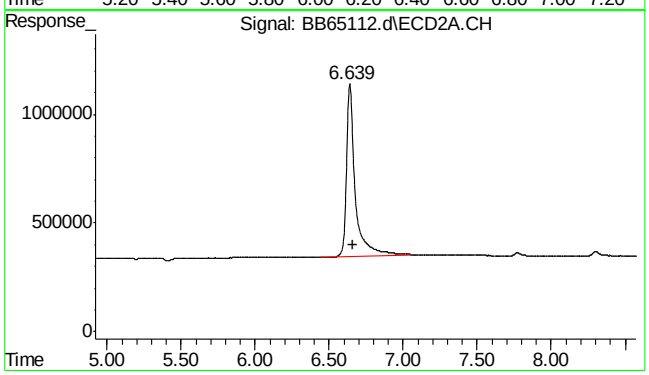
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.153 min
Delta R.T.: -0.023 min
Response: 2963559
Conc: 59.03 ug/L

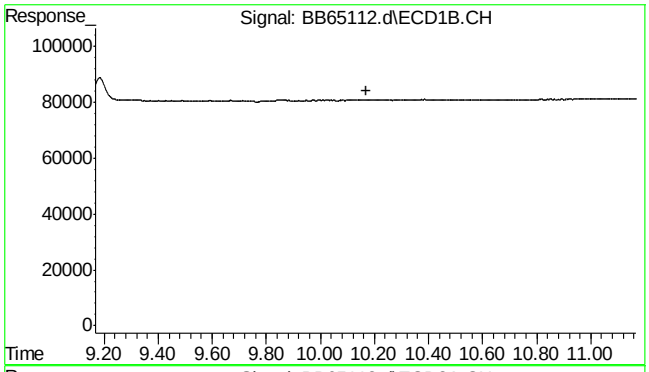


#2 4-Bromofluorobenzene

R.T.: 6.640 min
Delta R.T.: -0.019 min
Response: 32273806
Conc: 56.32 ug/L

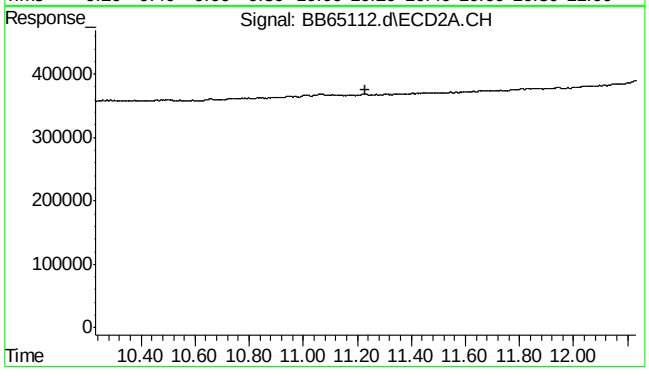
14.1.9

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.9

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65113.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 22:38:03
Operator  : nickk
Sample    : jc7291-10,op45247
Misc      : op45247,gbb3509,30.92,,,50,,s
ALS Vial  : 19 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:54 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.153f    6.640f  2963339 31399800   59.023    54.840
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  118.05%   109.68%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

14.1.10

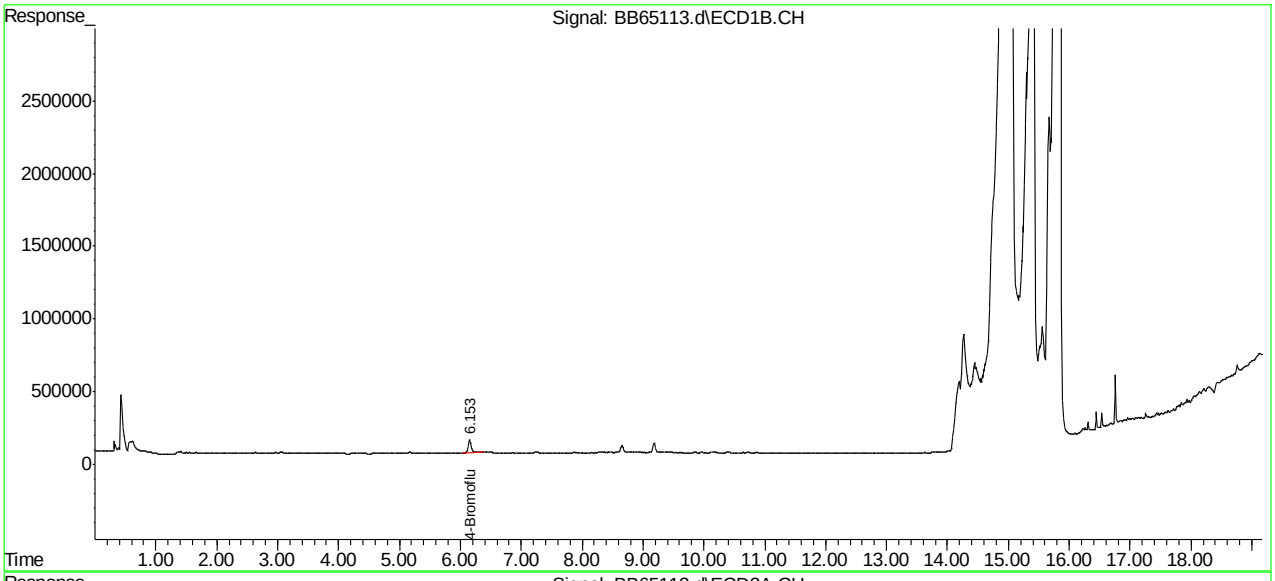
14

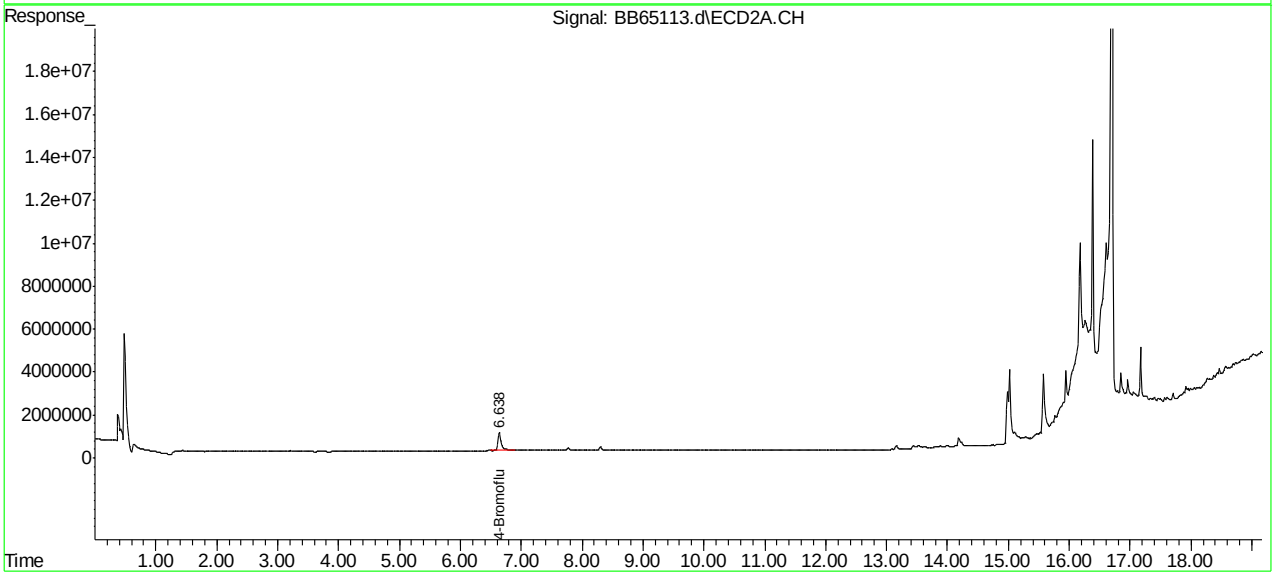
Quantitation Report (QT Reviewed)

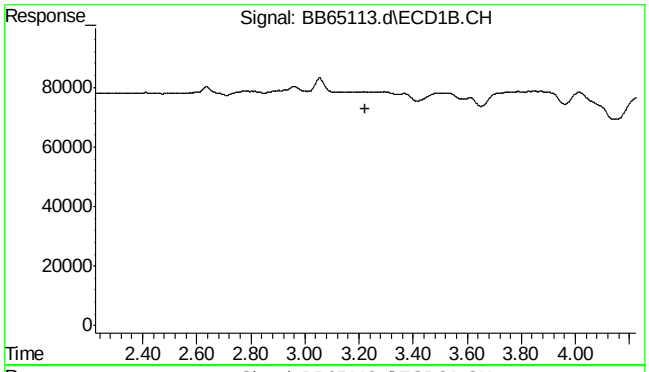
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65113.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 22:38:03
Operator : nickk
Sample : jc7291-10,op45247
Misc : op45247,gbb3509,30.92,,,50,,s
ALS Vial : 19 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:27:54 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

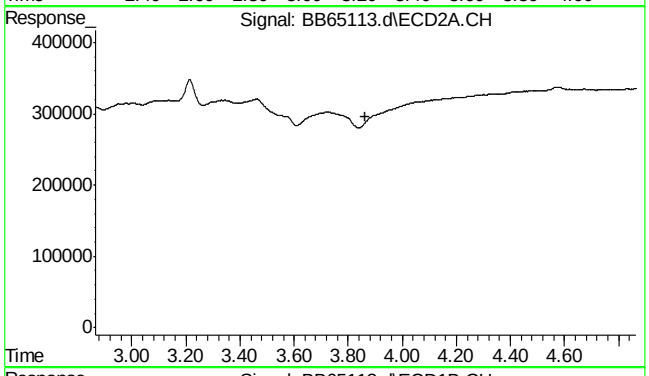






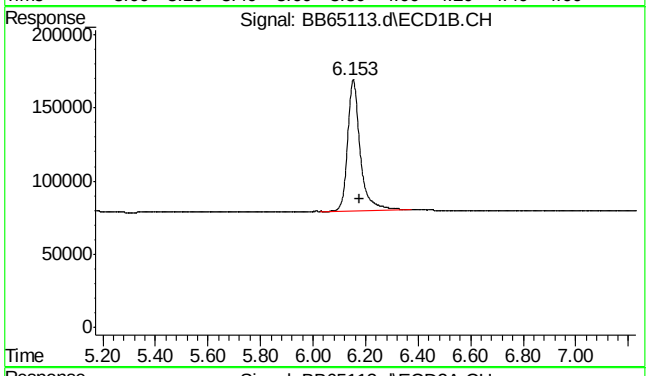
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



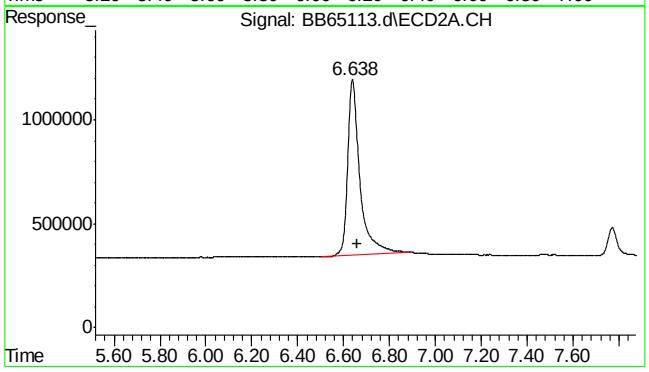
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.153 min
Delta R.T.: -0.023 min
Response: 2963339
Conc: 59.02 ug/L

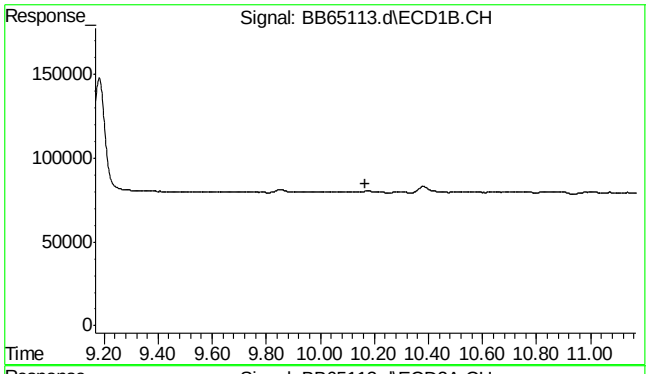


#2 4-Bromofluorobenzene

R.T.: 6.640 min
Delta R.T.: -0.019 min
Response: 31399800
Conc: 54.84 ug/L

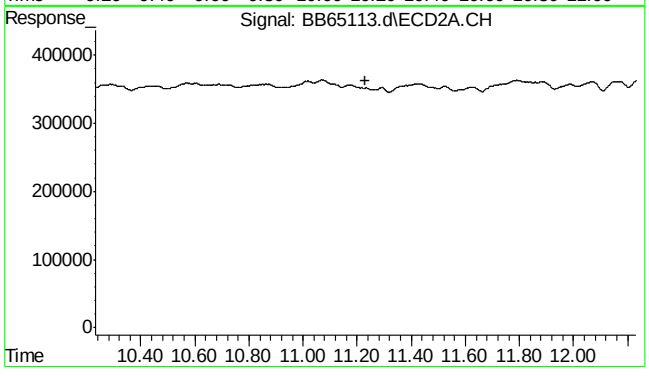
14.1.10

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.1.10

14

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65094.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 02-Nov-15, 13:19:58
Operator  : nickk
Sample    : op45247-mb
Misc      : op45247,gbb3509,30.70,,,50,,s
ALS Vial  : 1 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:23:28 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title  : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Small noise peaks clipped

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :

      Compound         RT#1      RT#2    Resp#1   Resp#2   ug/L    ug/L
  ---------------------------------------------------------------------------

  System Monitoring Compounds
2) s   4-Bromofl...    6.158f    6.646   2875723 32876757   57.278    57.338
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  114.56%   114.68%

  Target Compounds
1)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
3)     1,2-Dibro...    0.000     0.000         0        0    N.D. d    N.D. d
  ---------------------------------------------------------------------------

 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

14.2.1

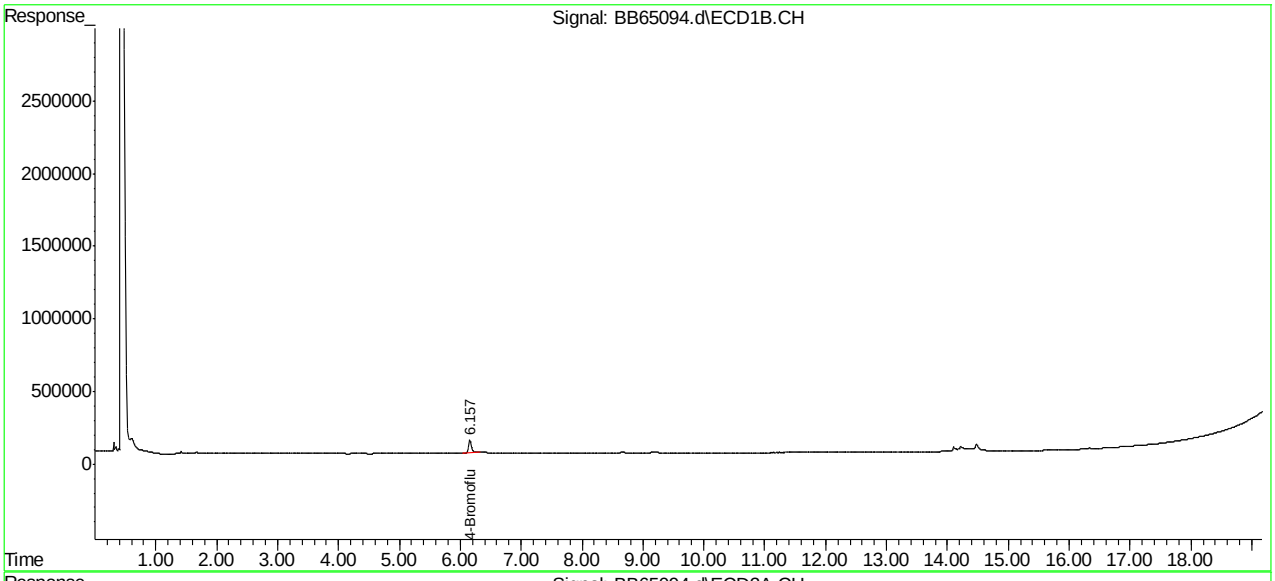
14

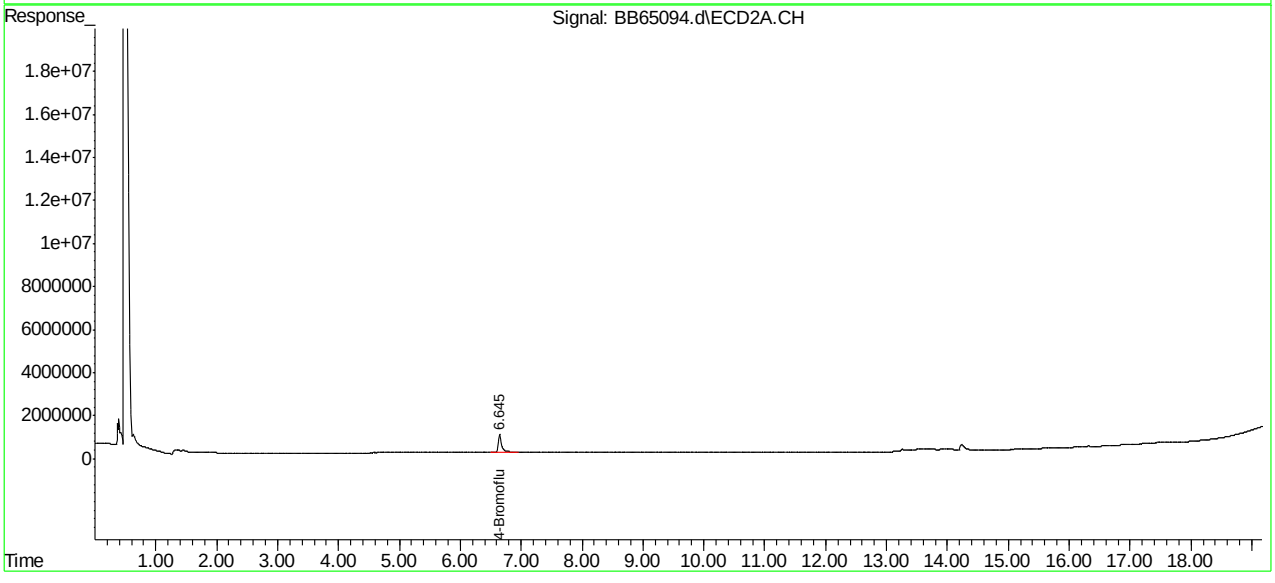
Quantitation Report (QT Reviewed)

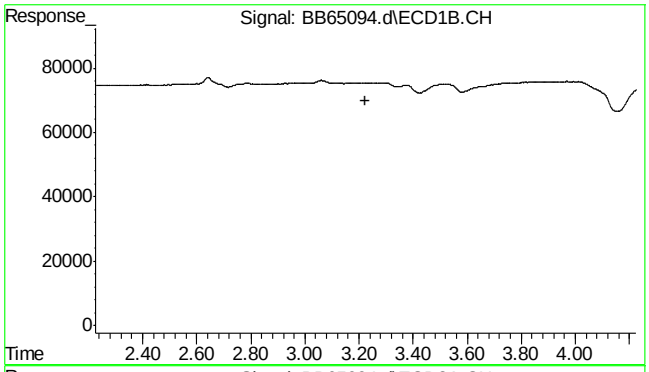
Data Path : C:\msdchem\1\DATA\BB151102\
Data File : BB65094.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 02-Nov-15, 13:19:58
Operator : nickk
Sample : op45247-mb
Misc : op45247,gbb3509,30.70,,,50,,s
ALS Vial : 1 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Nov 03 06:23:28 2015
Quant Method : C:\msdchem\1\METHODS\EDS151102.M
Quant Title : v8011edb soil
QLast Update : Mon Nov 02 13:07:27 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

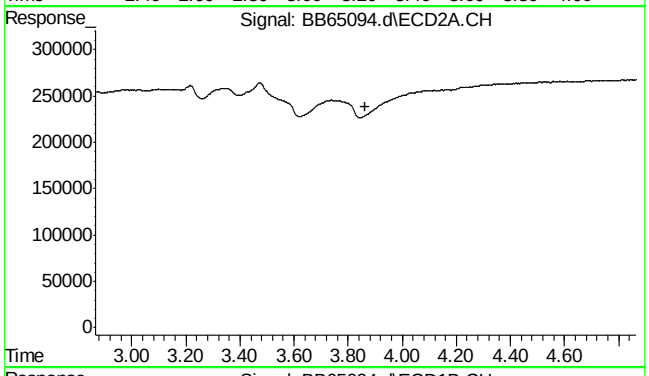






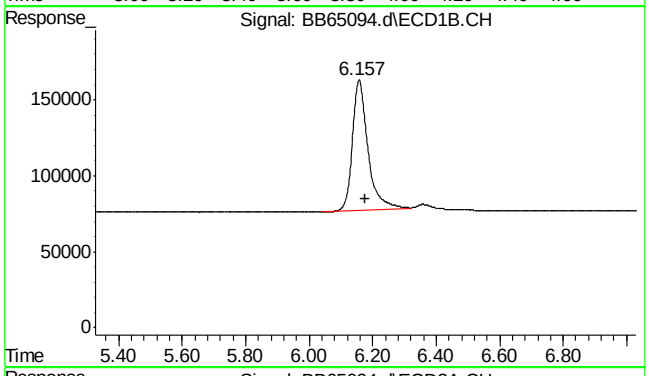
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.224 min
Response: 0
Conc: N.D.



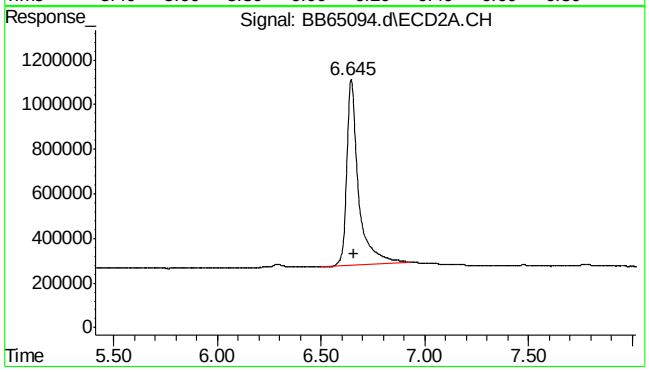
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.864 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 6.158 min
Delta R.T.: -0.019 min
Response: 2875723
Conc: 57.28 ug/L

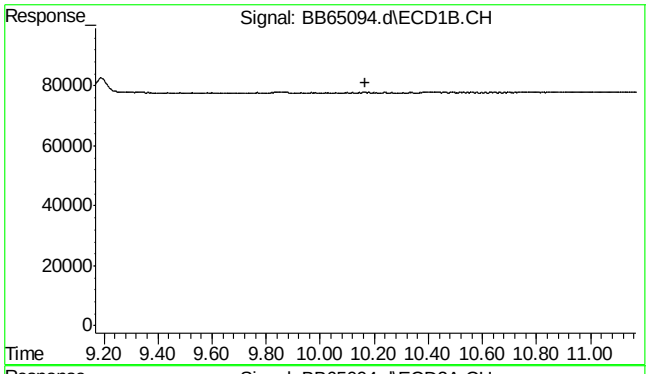


#2 4-Bromofluorobenzene

R.T.: 6.646 min
Delta R.T.: -0.013 min
Response: 32876757
Conc: 57.34 ug/L

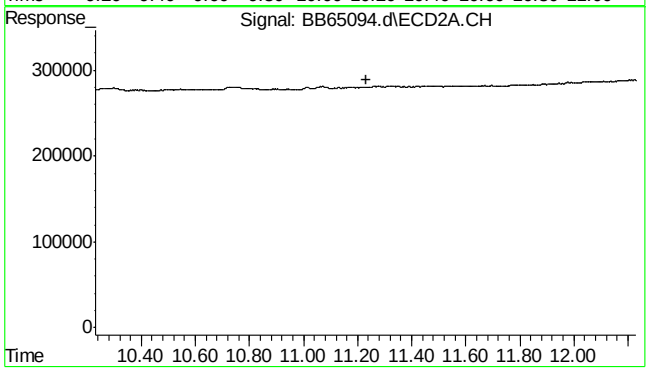
14.2.1

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 10.168 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 11.231 min
Response: 0
Conc: N.D.

14.2.1

14