New Jersey
ACCUTEST LABORATORIES

01/20/15

Technical Report for

Stantec Consulting Services Inc.

Sunoco - Marcus Hook Facility, PA

Accutest Job Number: JB85833

Sampling Date: 01/07/15

Report to:

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Total number of pages in report: **417**

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.

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Sample Summary

Stantec Consulting Services Inc.

Sunoco - Marcus Hook Facility, PA

Job No: JB85833

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB85833-1	01/07/15	12:35	JD	01/07/15	SO	Soil	AOI5_BH-15-01_0-2_01072015
JB85833-2	01/07/15	12:40	JD	01/07/15	SO	Soil	AOI5_BH-15-01_2-4_01072015
JB85833-3	01/07/15	09:15	JD	01/07/15	SO	Soil	AOI5_BH-15-02_0-2_01072015
JB85833-4	01/07/15	09:25	JD	01/07/15	SO	Soil	AOI5_BH-15-02_12-14_01072015
JB85833-5	01/07/15	12:50	JD	01/07/15	SO	Soil	AOI5_BH-15-03_0-2_01072015
JB85833-6	01/07/15	12:55	JD	01/07/15	SO	Soil	AOI5_BH-15-03_4-6_01072015
JB85833-7	01/07/15	13:05	JD	01/07/15	SO	Soil	AOI5_BH-15-04_0-2_01072015
JB85833-8	01/07/15	13:10	JD	01/07/15	SO	Soil	AOI5_BH-15-04_4-6_01072015

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**	JB85833
Site:	Sunoco - Marcus Hook Facility, PA	**Report Date**	1/20/2015 11:48:44 A

On 01/07/2015, 8 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 1.0 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB85833 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 8260B

Matrix: SO **Batch ID:** VE9772

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB85893-10MS, JB85893-10MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB85833-4 have surrogates outside control limits. Outside control limits due to matrix interference. Confirmed by reanalysis.
- JB85833-2: Dilution required due to matrix interference.
- JB85833-8: Diluted due to high concentration of non-target compound.
- JB85833-4: Dilution required due to matrix interference.
- JB85833-6: Dilution required due to matrix interference.
- JB85833-7: Diluted due to high concentration of non-target compound.
- JB85833-4 for 1,2-Dichloroethane-D4: Outside control limits due to matrix interference. Confirmed by reanalysis.

Matrix: SO **Batch ID:** VE9774

- The data for SW846 8260B meets quality control requirements.
- JB85833-4: Confirmation run for surrogate recoveries.

Matrix: SO **Batch ID:** VV6378

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB85784-5MS, JB85784-6DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VV6380

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB85833-3MS, JB85833-5DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for Duplicate for 1,2,4-Trimethylbenzene, Benzene, Methyl Tert Butyl Ether, sec-Butylbenzene, Toluene are outside control limits for sample JB85833-5DUP. Outside control limits due to matrix interference.

Extractables by GCMS By Method SW846 8270D

Matrix: SO	**Batch ID:** OP81001

- All samples were extracted within the recommended method holding time.
- Sample(s) JB85833-1MS, JB85833-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for 2,4-Dinitrophenol are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for 2,4-Dinitrophenol, Benzo(b)fluoranthene, Chrysene, Pyrene, Pyridine are outside control limits for sample OP81001-MSD. Analytical precision exceeds in-house control limits.
- Sample(s) JB85833-7 have surrogates outside control limits. Outside control limits due to dilution and matrix interference
- JB85833-7: Dilution required due to viscosity of the extract matrix
- JB85833-7 for Phenol-d5: Outside control limits due to dilution and matrix interference.
- JB85833-7 for Phenol-d5: Outside control limits due to dilution and matrix interference.

Volatiles by GC By Method SW846 8011

Matrix: SO	**Batch ID:** M:OP41590

- The data for SW846 8011 meets quality control requirements.
- JB85833-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-6: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-7: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB85833-8: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO	**Batch ID:** MP84326

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB85833-4MS, JB85833-4MSD, JB85833-4SDL were used as the QC samples for metals.

Wet Chemistry By Method SM2540 G-97

Matrix: SO	**Batch ID:** GN18563

- 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**	JB85833
Site:	SECORPAE: Sunoco - Marcus Hook Facility, PA	**Report Date**	1/20/2015 10:26:07 AM

8 Sample(s) were collected on 01/07/2015 and were received at Accutest on 01/07/2015 properly preserved, at 0.7 Deg. C and intact. These Samples received an Accutest job number of JB85833. 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:** OP41590

- 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) JB85833-1MS, JB85833-1MSD were used as the QC samples indicated.

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(JB85833).

Summary of Hits

Job Number: JB85833
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 01/07/15

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Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB85833-1	**AOI5_BH-15-01_0-2_01072015**					
Benzene		0.00083	0.00050	0.00018	mg/kg	SW846 8260B
Toluene		0.0022	0.0010	0.00023	mg/kg	SW846 8260B
Ethylbenzene		0.0195	0.0010	0.00019	mg/kg	SW846 8260B
Xylene (total)		0.0685	0.0010	0.00022	mg/kg	SW846 8260B
sec-Butylbenzene		0.0014 J	0.0020	0.00017	mg/kg	SW846 8260B
Cyclohexane		0.0099	0.0020	0.00035	mg/kg	SW846 8260B
Hexane		0.0023 J	0.0050	0.0010	mg/kg	SW846 8260B
Isopropylbenzene		0.0033 J	0.0050	0.00018	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.0071	0.0020	0.00013	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		0.0029	0.0020	0.00014	mg/kg	SW846 8260B
Acenaphthene		0.0204 J	0.040	0.011	mg/kg	SW846 8270D
Anthracene		0.0182 J	0.040	0.014	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0762	0.040	0.013	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0612	0.040	0.012	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0570	0.040	0.013	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0474	0.040	0.015	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0451	0.040	0.015	mg/kg	SW846 8270D
Chrysene		0.0946	0.040	0.013	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.277	0.079	0.035	mg/kg	SW846 8270D
Fluoranthene		0.126	0.040	0.017	mg/kg	SW846 8270D
Fluorene		0.0241 J	0.040	0.013	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0338 J	0.040	0.014	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0932	0.079	0.022	mg/kg	SW846 8270D
Naphthalene		0.0197 J	0.040	0.011	mg/kg	SW846 8270D
Phenanthrene		0.105	0.040	0.018	mg/kg	SW846 8270D
Pyrene		0.169	0.040	0.015	mg/kg	SW846 8270D
Cobalt		12.0	5.9	0.071	mg/kg	SW846 6010C
Lead		90.2	2.4	0.25	mg/kg	SW846 6010C
Nickel		76.2	4.7	0.12	mg/kg	SW846 6010C
Vanadium		123	5.9	0.11	mg/kg	SW846 6010C
Zinc		1040	5.9	0.45	mg/kg	SW846 6010C
JB85833-2	**AOI5_BH-15-01_2-4_01072015**					
Benzene [a]		0.0954	0.062	0.022	mg/kg	SW846 8260B
Toluene [a]		0.0314 J	0.12	0.029	mg/kg	SW846 8260B
Ethylbenzene [a]		0.318	0.12	0.024	mg/kg	SW846 8260B
Xylene (total) [a]		0.301	0.12	0.027	mg/kg	SW846 8260B
sec-Butylbenzene [a]		0.0588 J	0.25	0.021	mg/kg	SW846 8260B
Cyclohexane [a]		0.0631 J	0.25	0.044	mg/kg	SW846 8260B
Hexane [a]		0.203 J	0.62	0.13	mg/kg	SW846 8260B
Isopropylbenzene [a]		0.0569 J	0.62	0.022	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [a]		1.50	0.25	0.016	mg/kg	SW846 8260B

Summary of Hits

Job Number: JB85833
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 01/07/15

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Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
1,3,5-Trimethylbenzene [a]		0.0705 J	0.25	0.017	mg/kg	SW846 8260B
Acenaphthene		0.0283 J	0.042	0.012	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0425	0.042	0.014	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0421	0.042	0.013	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0297 J	0.042	0.014	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0546	0.042	0.016	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0239 J	0.042	0.016	mg/kg	SW846 8270D
Chrysene		0.0522	0.042	0.014	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0850	0.084	0.037	mg/kg	SW846 8270D
Fluoranthene		0.0536	0.042	0.019	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0186 J	0.042	0.015	mg/kg	SW846 8270D
2-Methylnaphthalene		0.132	0.084	0.023	mg/kg	SW846 8270D
Naphthalene		0.0385 J	0.042	0.011	mg/kg	SW846 8270D
Phenanthrene		0.0742	0.042	0.019	mg/kg	SW846 8270D
Pyrene		0.108	0.042	0.016	mg/kg	SW846 8270D
Cobalt		8.7	6.1	0.073	mg/kg	SW846 6010C
Lead		112	2.4	0.25	mg/kg	SW846 6010C
Nickel		23.6	4.9	0.12	mg/kg	SW846 6010C
Vanadium		41.3	6.1	0.11	mg/kg	SW846 6010C
Zinc		214	6.1	0.46	mg/kg	SW846 6010C
JB85833-3	**AOI5_BH-15-02_0-2_01072015**					
Benzo(a)anthracene		0.0180 J	0.038	0.013	mg/kg	SW846 8270D
Chrysene		0.0153 J	0.038	0.013	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0552 J	0.077	0.034	mg/kg	SW846 8270D
Fluoranthene		0.0279 J	0.038	0.017	mg/kg	SW846 8270D
Phenanthrene		0.0356 J	0.038	0.018	mg/kg	SW846 8270D
Pyrene		0.0291 J	0.038	0.015	mg/kg	SW846 8270D
Cobalt		7.3	5.9	0.070	mg/kg	SW846 6010C
Lead		46.7	2.3	0.25	mg/kg	SW846 6010C
Nickel		15.3	4.7	0.12	mg/kg	SW846 6010C
Vanadium		38.3	5.9	0.11	mg/kg	SW846 6010C
Zinc		89.6	5.9	0.45	mg/kg	SW846 6010C
JB85833-4	**AOI5_BH-15-02_12-14_01072015**					
Xylene (total) [a]		0.0246 J	0.10	0.022	mg/kg	SW846 8260B
sec-Butylbenzene [a]		0.210	0.21	0.018	mg/kg	SW846 8260B
Cyclohexane [a]		0.908	0.21	0.037	mg/kg	SW846 8260B
Hexane [a]		0.157 J	0.52	0.11	mg/kg	SW846 8260B
Isopropylbenzene [a]		0.0809 J	0.52	0.019	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [a]		0.0559 J	0.21	0.014	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [a]		0.0220 J	0.21	0.015	mg/kg	SW846 8260B
Acenaphthene		0.248	0.040	0.012	mg/kg	SW846 8270D

Summary of Hits

Job Number: JB85833
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 01/07/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Anthracene		0.0800	0.040	0.014	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0791	0.040	0.013	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0589	0.040	0.012	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0502	0.040	0.015	mg/kg	SW846 8270D
Chrysene		0.128	0.040	0.013	mg/kg	SW846 8270D
Fluoranthene		0.0390 J	0.040	0.018	mg/kg	SW846 8270D
Fluorene		0.506	0.040	0.013	mg/kg	SW846 8270D
Phenanthrene		1.12	0.040	0.018	mg/kg	SW846 8270D
Pyrene		0.463	0.040	0.015	mg/kg	SW846 8270D
Cobalt		8.7	5.7	0.069	mg/kg	SW846 6010C
Lead		10.5	2.3	0.24	mg/kg	SW846 6010C
Nickel		20.9	4.6	0.11	mg/kg	SW846 6010C
Vanadium		41.2	5.7	0.10	mg/kg	SW846 6010C
Zinc		44.1	5.7	0.44	mg/kg	SW846 6010C
JB85833-5	**AOI5_BH-15-03_0-2_01072015**					
Benzene		0.0079	0.00043	0.00015	mg/kg	SW846 8260B
Toluene		0.00022 J	0.00085	0.00020	mg/kg	SW846 8260B
Ethylbenzene		0.0028	0.00085	0.00016	mg/kg	SW846 8260B
Xylene (total)		0.0014	0.00085	0.00018	mg/kg	SW846 8260B
Methyl Tert Butyl Ether		0.00050 J	0.00085	0.00014	mg/kg	SW846 8260B
sec-Butylbenzene		0.00028 J	0.0017	0.00015	mg/kg	SW846 8260B
Cyclohexane		0.0034	0.0017	0.00030	mg/kg	SW846 8260B
Isopropylbenzene		0.0011 J	0.0043	0.00016	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene		0.0023	0.0017	0.00011	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene		0.0022	0.0017	0.00012	mg/kg	SW846 8260B
Acenaphthene		0.0196 J	0.034	0.0099	mg/kg	SW846 8270D
Chrysene		0.0175 J	0.034	0.012	mg/kg	SW846 8270D
Fluorene		0.0401	0.034	0.011	mg/kg	SW846 8270D
2-Methylnaphthalene		1.08	0.068	0.019	mg/kg	SW846 8270D
Naphthalene		0.0777	0.034	0.0093	mg/kg	SW846 8270D
Phenanthrene		0.0953	0.034	0.016	mg/kg	SW846 8270D
Pyrene		0.0448	0.034	0.013	mg/kg	SW846 8270D
Cobalt		5.0 B	5.6	0.068	mg/kg	SW846 6010C
Lead		13.0	2.3	0.24	mg/kg	SW846 6010C
Nickel		12.3	4.5	0.11	mg/kg	SW846 6010C
Vanadium		38.1	5.6	0.10	mg/kg	SW846 6010C
Zinc		32.3	5.6	0.43	mg/kg	SW846 6010C
JB85833-6	**AOI5_BH-15-03_4-6_01072015**					
Benzene [a]		0.247	0.052	0.018	mg/kg	SW846 8260B
Toluene [a]		0.150	0.10	0.024	mg/kg	SW846 8260B
Ethylbenzene [a]		0.120	0.10	0.020	mg/kg	SW846 8260B

Summary of Hits

Job Number: JB85833
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 01/07/15

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Xylene (total) [a]	0.243	0.10	0.022	mg/kg	SW846 8260B
sec-Butylbenzene [a]	0.124 J	0.21	0.018	mg/kg	SW846 8260B
Isopropylbenzene [a]	0.165 J	0.52	0.019	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [a]	0.131 J	0.21	0.014	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [a]	0.0414 J	0.21	0.015	mg/kg	SW846 8260B
Acenaphthene	0.0452	0.035	0.010	mg/kg	SW846 8270D
Anthracene	0.0156 J	0.035	0.012	mg/kg	SW846 8270D
Benzo(a)anthracene	0.0270 J	0.035	0.011	mg/kg	SW846 8270D
Benzo(a)pyrene	0.0152 J	0.035	0.011	mg/kg	SW846 8270D
Chrysene	0.0327 J	0.035	0.012	mg/kg	SW846 8270D
Fluoranthene	0.0240 J	0.035	0.015	mg/kg	SW846 8270D
Fluorene	0.0735	0.035	0.011	mg/kg	SW846 8270D
Phenanthrene	0.140	0.035	0.016	mg/kg	SW846 8270D
Pyrene	0.0977	0.035	0.013	mg/kg	SW846 8270D
Cobalt	9.1	5.7	0.069	mg/kg	SW846 6010C
Lead	11.8	2.3	0.24	mg/kg	SW846 6010C
Nickel	15.8	4.6	0.11	mg/kg	SW846 6010C
Vanadium	43.7	5.7	0.10	mg/kg	SW846 6010C
Zinc	48.5	5.7	0.43	mg/kg	SW846 6010C
JB85833-7 AOI5_BH-15-04_0-2_01072015					
Benzene [b]	10.6	0.29	0.10	mg/kg	SW846 8260B
Toluene [b]	1.06	0.59	0.14	mg/kg	SW846 8260B
Ethylbenzene [b]	1.32	0.59	0.11	mg/kg	SW846 8260B
Xylene (total) [b]	7.37	0.59	0.13	mg/kg	SW846 8260B
sec-Butylbenzene [b]	2.37	1.2	0.10	mg/kg	SW846 8260B
Cyclohexane [b]	26.7	1.2	0.21	mg/kg	SW846 8260B
Hexane [b]	35.0	2.9	0.60	mg/kg	SW846 8260B
Isopropylbenzene [b]	3.44	2.9	0.11	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [b]	5.58	1.2	0.078	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [b]	21.9	1.2	0.083	mg/kg	SW846 8260B
Acenaphthene [c]	0.833	0.067	0.019	mg/kg	SW846 8270D
Benzo(a)anthracene [c]	0.543	0.067	0.022	mg/kg	SW846 8270D
Benzo(a)pyrene [c]	0.402	0.067	0.021	mg/kg	SW846 8270D
Benzo(b)fluoranthene [c]	0.202	0.067	0.022	mg/kg	SW846 8270D
Benzo(g,h,i)perylene [c]	0.315	0.067	0.025	mg/kg	SW846 8270D
Benzo(k)fluoranthene [c]	0.157	0.067	0.025	mg/kg	SW846 8270D
Chrysene [c]	0.815	0.067	0.023	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene [c]	0.0761	0.067	0.023	mg/kg	SW846 8270D
Fluoranthene [c]	0.427	0.067	0.030	mg/kg	SW846 8270D
Fluorene [c]	1.78	0.067	0.022	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene [c]	0.110	0.067	0.023	mg/kg	SW846 8270D
2-Methylnaphthalene	39.8	2.7	0.75	mg/kg	SW846 8270D
Naphthalene [c]	4.04	0.067	0.018	mg/kg	SW846 8270D

Summary of Hits

Job Number: JB85833
Account: Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Collected: 01/07/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Phenanthrene [c]		4.30	0.067	0.031	mg/kg	SW846 8270D
Pyrene [c]		2.01	0.067	0.026	mg/kg	SW846 8270D
Cobalt		5.2 B	5.6	0.068	mg/kg	SW846 6010C
Lead		15.7	2.3	0.24	mg/kg	SW846 6010C
Nickel		11.0	4.5	0.11	mg/kg	SW846 6010C
Vanadium		30.4	5.6	0.10	mg/kg	SW846 6010C
Zinc		39.7	5.6	0.43	mg/kg	SW846 6010C
JB85833-8	**AOI5_BH-15-04_4-6_01072015**					
Ethylbenzene [b]		0.428 J	0.59	0.11	mg/kg	SW846 8260B
Xylene (total) [b]		0.145 J	0.59	0.13	mg/kg	SW846 8260B
sec-Butylbenzene [b]		3.18	1.2	0.10	mg/kg	SW846 8260B
tert-Butylbenzene [b]		0.496 J	1.2	0.094	mg/kg	SW846 8260B
Cyclohexane [b]		51.2	1.2	0.21	mg/kg	SW846 8260B
Isopropylbenzene [b]		3.78	2.9	0.11	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [b]		0.180 J	1.2	0.078	mg/kg	SW846 8260B
Anthracene		0.109	0.040	0.014	mg/kg	SW846 8270D
Benzo(a)anthracene		0.130	0.040	0.013	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0875	0.040	0.012	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0274 J	0.040	0.013	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0767	0.040	0.015	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0165 J	0.040	0.015	mg/kg	SW846 8270D
Chrysene		0.204	0.040	0.013	mg/kg	SW846 8270D
Fluoranthene		0.0553	0.040	0.017	mg/kg	SW846 8270D
Fluorene		0.567	0.040	0.013	mg/kg	SW846 8270D
Phenanthrene		1.25	0.040	0.018	mg/kg	SW846 8270D
Pyrene		0.429	0.040	0.015	mg/kg	SW846 8270D
Cobalt		9.5	6.1	0.073	mg/kg	SW846 6010C
Lead		11.2	2.4	0.26	mg/kg	SW846 6010C
Nickel		17.6	4.9	0.12	mg/kg	SW846 6010C
Vanadium		48.3	6.1	0.11	mg/kg	SW846 6010C
Zinc		42.5	6.1	0.46	mg/kg	SW846 6010C

(a) Dilution required due to matrix interference.
(b) Diluted due to high concentration of non-target compound.
(c) Dilution required due to viscosity of the extract matrix

New Jersey

ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-01_0-2_01072015		
Lab Sample ID:	JB85833-1	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	83.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V150506.D	1	01/09/15	BM	n/a	n/a	VV6378
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.00083	0.00050	0.00018	mg/kg	
108-88-3	Toluene	0.0022	0.0010	0.00023	mg/kg	
100-41-4	Ethylbenzene	0.0195	0.0010	0.00019	mg/kg	
1330-20-7	Xylene (total)	0.0685	0.0010	0.00022	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00017	mg/kg	
135-98-8	sec-Butylbenzene	0.0014	0.0020	0.00017	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.0020	0.00016	mg/kg	
110-82-7	Cyclohexane	0.0099	0.0020	0.00035	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00025	mg/kg	
110-54-3	Hexane	0.0023	0.0050	0.0010	mg/kg	J
98-82-8	Isopropylbenzene	0.0033	0.0050	0.00018	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0071	0.0020	0.00013	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0029	0.0020	0.00014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	80%		48-141%
17060-07-0	1,2-Dichloroethane-D4	106%		70-120%
2037-26-5	Toluene-D8	108%		78-129%
460-00-4	4-Bromofluorobenzene	104%		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:	AOI5_BH-15-01_0-2_01072015		
Lab Sample ID:	JB85833-1	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	83.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68593.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
Run #2							

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

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.20	0.067	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.79	0.048	mg/kg	
95-48-7	2-Methylphenol	ND	0.079	0.045	mg/kg	
	3&4-Methylphenol	ND	0.079	0.050	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.067	mg/kg	
108-95-2	Phenol	ND	0.079	0.042	mg/kg	
83-32-9	Acenaphthene	0.0204	0.040	0.011	mg/kg	J
120-12-7	Anthracene	0.0182	0.040	0.014	mg/kg	J
56-55-3	Benzo(a)anthracene	0.0762	0.040	0.013	mg/kg	
50-32-8	Benzo(a)pyrene	0.0612	0.040	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0570	0.040	0.013	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0474	0.040	0.015	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0451	0.040	0.015	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.079	0.0046	mg/kg	
218-01-9	Chrysene	0.0946	0.040	0.013	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.040	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.079	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.079	0.013	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.277	0.079	0.035	mg/kg	
206-44-0	Fluoranthene	0.126	0.040	0.017	mg/kg	
86-73-7	Fluorene	0.0241	0.040	0.013	mg/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	0.0338	0.040	0.014	mg/kg	J
91-57-6	2-Methylnaphthalene	0.0932	0.079	0.022	mg/kg	
91-20-3	Naphthalene	0.0197	0.040	0.011	mg/kg	J
85-01-8	Phenanthrene	0.105	0.040	0.018	mg/kg	
129-00-0	Pyrene	0.169	0.040	0.015	mg/kg	
110-86-1	Pyridine	ND	0.079	0.016	mg/kg	
91-22-5	Quinoline	ND	0.20	0.037	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-01_0-2_01072015		
Lab Sample ID:	JB85833-1	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	83.1
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		27-119%
118-79-6	2,4,6-Tribromophenol	60%		17-158%
4165-60-0	Nitrobenzene-d5	60%		33-127%
321-60-8	2-Fluorobiphenyl	60%		41-121%
1718-51-0	Terphenyl-d14	72%		44-137%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-01_0-2_01072015		
Lab Sample ID:	JB85833-1	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	83.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61460.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.00073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	116%		61-167%
460-00-4	Bromofluorobenzene (S)	109%		61-167%

(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:	AOI5_BH-15-01_0-2_01072015		
Lab Sample ID:	JB85833-1	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	83.1
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	12.0	5.9	0.071	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	90.2	2.4	0.25	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	76.2	4.7	0.12	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	123	5.9	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	1040	5.9	0.45	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-01_2-4_01072015		
Lab Sample ID:	JB85833-2	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	78.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E222894.D	1	01/15/15	TDN	n/a	n/a	VE9772
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	0.0954	0.062	0.022	mg/kg	
108-88-3	Toluene	0.0314	0.12	0.029	mg/kg	J
100-41-4	Ethylbenzene	0.318	0.12	0.024	mg/kg	
1330-20-7	Xylene (total)	0.301	0.12	0.027	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	0.021	mg/kg	
135-98-8	sec-Butylbenzene	0.0588	0.25	0.021	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.25	0.020	mg/kg	
110-82-7	Cyclohexane	0.0631	0.25	0.044	mg/kg	J
107-06-2	1,2-Dichloroethane	ND	0.12	0.031	mg/kg	
110-54-3	Hexane	0.203	0.62	0.13	mg/kg	J
98-82-8	Isopropylbenzene	0.0569	0.62	0.022	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	1.50	0.25	0.016	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0705	0.25	0.017	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		48-141%
17060-07-0	1,2-Dichloroethane-D4	101%		70-120%
2037-26-5	Toluene-D8	97%		78-129%
460-00-4	4-Bromofluorobenzene	91%		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:	AOI5_BH-15-01_2-4_01072015		
Lab Sample ID:	JB85833-2	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	78.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68595.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
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	0.21	0.071	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.84	0.051	mg/kg	
95-48-7	2-Methylphenol	ND	0.084	0.048	mg/kg	
	3&4-Methylphenol	ND	0.084	0.053	mg/kg	
100-02-7	4-Nitrophenol	ND	0.42	0.071	mg/kg	
108-95-2	Phenol	ND	0.084	0.044	mg/kg	
83-32-9	Acenaphthene	0.0283	0.042	0.012	mg/kg	J
120-12-7	Anthracene	ND	0.042	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0425	0.042	0.014	mg/kg	
50-32-8	Benzo(a)pyrene	0.0421	0.042	0.013	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0297	0.042	0.014	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0546	0.042	0.016	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0239	0.042	0.016	mg/kg	J
92-52-4	1,1'-Biphenyl	ND	0.084	0.0049	mg/kg	
218-01-9	Chrysene	0.0522	0.042	0.014	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.042	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.084	0.0093	mg/kg	
84-66-2	Diethyl phthalate	ND	0.084	0.014	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0850	0.084	0.037	mg/kg	
206-44-0	Fluoranthene	0.0536	0.042	0.019	mg/kg	
86-73-7	Fluorene	ND	0.042	0.014	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0186	0.042	0.015	mg/kg	J
91-57-6	2-Methylnaphthalene	0.132	0.084	0.023	mg/kg	
91-20-3	Naphthalene	0.0385	0.042	0.011	mg/kg	J
85-01-8	Phenanthrene	0.0742	0.042	0.019	mg/kg	
129-00-0	Pyrene	0.108	0.042	0.016	mg/kg	
110-86-1	Pyridine	ND	0.084	0.017	mg/kg	
91-22-5	Quinoline	ND	0.21	0.040	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-01_2-4_01072015		
Lab Sample ID:	JB85833-2	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	78.5
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	62%		27-119%
118-79-6	2,4,6-Tribromophenol	78%		17-158%
4165-60-0	Nitrobenzene-d5	70%		33-127%
321-60-8	2-Fluorobiphenyl	65%		41-121%
1718-51-0	Terphenyl-d14	69%		44-137%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-01_2-4_01072015		
Lab Sample ID:	JB85833-2	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	78.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61461.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.0032	0.00078	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	104%		61-167%
460-00-4	Bromofluorobenzene (S)	109%		61-167%

(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:	AOI5_BH-15-01_2-4_01072015		
Lab Sample ID:	JB85833-2	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	78.5
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	8.7	6.1	0.073	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	112	2.4	0.25	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	23.6	4.9	0.12	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	41.3	6.1	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	214	6.1	0.46	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_0-2_01072015		
Lab Sample ID:	JB85833-3	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	85.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V150548.D	1	01/12/15	BM	n/a	n/a	VV6380
Run #2							

	Initial Weight
Run #1	6.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00043	0.00015	mg/kg	
108-88-3	Toluene	ND	0.00085	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00085	0.00016	mg/kg	
1330-20-7	Xylene (total)	ND	0.00085	0.00018	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00085	0.00014	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0017	0.00015	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0017	0.00014	mg/kg	
110-82-7	Cyclohexane	ND	0.0017	0.00030	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00085	0.00022	mg/kg	
110-54-3	Hexane	ND	0.0043	0.00087	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0043	0.00015	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0017	0.00011	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0017	0.00012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		48-141%
17060-07-0	1,2-Dichloroethane-D4	96%		70-120%
2037-26-5	Toluene-D8	109%		78-129%
460-00-4	4-Bromofluorobenzene	105%		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:	AOI5_BH-15-02_0-2_01072015		
Lab Sample ID:	JB85833-3	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68596.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
Run #2							

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

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.19	0.065	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.77	0.047	mg/kg	
95-48-7	2-Methylphenol	ND	0.077	0.044	mg/kg	
	3&4-Methylphenol	ND	0.077	0.049	mg/kg	
100-02-7	4-Nitrophenol	ND	0.38	0.065	mg/kg	
108-95-2	Phenol	ND	0.077	0.040	mg/kg	
83-32-9	Acenaphthene	ND	0.038	0.011	mg/kg	
120-12-7	Anthracene	ND	0.038	0.013	mg/kg	
56-55-3	Benzo(a)anthracene	0.0180	0.038	0.013	mg/kg	J
50-32-8	Benzo(a)pyrene	ND	0.038	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.038	0.013	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.038	0.014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.038	0.014	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.077	0.0045	mg/kg	
218-01-9	Chrysene	0.0153	0.038	0.013	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.038	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.077	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.077	0.013	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0552	0.077	0.034	mg/kg	J
206-44-0	Fluoranthene	0.0279	0.038	0.017	mg/kg	J
86-73-7	Fluorene	ND	0.038	0.013	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.038	0.013	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.077	0.021	mg/kg	
91-20-3	Naphthalene	ND	0.038	0.011	mg/kg	
85-01-8	Phenanthrene	0.0356	0.038	0.018	mg/kg	J
129-00-0	Pyrene	0.0291	0.038	0.015	mg/kg	J
110-86-1	Pyridine	ND	0.077	0.015	mg/kg	
91-22-5	Quinoline	ND	0.19	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	66%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_0-2_01072015		
Lab Sample ID:	JB85833-3	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.2
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		27-119%
118-79-6	2,4,6-Tribromophenol	63%		17-158%
4165-60-0	Nitrobenzene-d5	64%		33-127%
321-60-8	2-Fluorobiphenyl	63%		41-121%
1718-51-0	Terphenyl-d14	77%		44-137%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_0-2_01072015		
Lab Sample ID:	JB85833-3	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	85.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61462.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.0029	0.00071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	119%		61-167%
460-00-4	Bromofluorobenzene (S)	106%		61-167%

(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:	AOI5_BH-15-02_0-2_01072015		
Lab Sample ID:	JB85833-3	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	85.2
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	7.3	5.9	0.070	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	46.7	2.3	0.25	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	15.3	4.7	0.12	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	38.3	5.9	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	89.6	5.9	0.45	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_12-14_01072015		
Lab Sample ID:	JB85833-4	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E222895.D	1	01/15/15	TDN	n/a	n/a	VE9772
Run #2 [b]	E222922.D	1	01/16/15	TDN	n/a	n/a	VE9774

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g	10.0 ml	100 ul
Run #2	6.3 g	10.0 ml	20.0 ul

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.052	0.018	mg/kg	
108-88-3	Toluene	ND	0.10	0.024	mg/kg	
100-41-4	Ethylbenzene	ND	0.10	0.020	mg/kg	
1330-20-7	Xylene (total)	0.0246	0.10	0.022	mg/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	0.10	0.017	mg/kg	
135-98-8	sec-Butylbenzene	0.210	0.21	0.018	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.21	0.017	mg/kg	
110-82-7	Cyclohexane	0.908	0.21	0.037	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.10	0.026	mg/kg	
110-54-3	Hexane	0.157	0.52	0.11	mg/kg	J
98-82-8	Isopropylbenzene	0.0809	0.52	0.019	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0559	0.21	0.014	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	0.0220	0.21	0.015	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%	103%	48-141%
17060-07-0	1,2-Dichloroethane-D4	155% [c]	102%	70-120%
2037-26-5	Toluene-D8	97%	96%	78-129%
460-00-4	4-Bromofluorobenzene	90%	91%	72-130%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_12-14_01072015		
Lab Sample ID:	JB85833-4	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68597.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
Run #2							

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

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.20	0.067	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.79	0.048	mg/kg	
95-48-7	2-Methylphenol	ND	0.079	0.045	mg/kg	
	3&4-Methylphenol	ND	0.079	0.050	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.067	mg/kg	
108-95-2	Phenol	ND	0.079	0.042	mg/kg	
83-32-9	Acenaphthene	0.248	0.040	0.012	mg/kg	
120-12-7	Anthracene	0.0800	0.040	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.0791	0.040	0.013	mg/kg	
50-32-8	Benzo(a)pyrene	0.0589	0.040	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.040	0.013	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0502	0.040	0.015	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.040	0.015	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.079	0.0046	mg/kg	
218-01-9	Chrysene	0.128	0.040	0.013	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	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.079	0.014	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.079	0.035	mg/kg	
206-44-0	Fluoranthene	0.0390	0.040	0.018	mg/kg	J
86-73-7	Fluorene	0.506	0.040	0.013	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.040	0.014	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.079	0.022	mg/kg	
91-20-3	Naphthalene	ND	0.040	0.011	mg/kg	
85-01-8	Phenanthrene	1.12	0.040	0.018	mg/kg	
129-00-0	Pyrene	0.463	0.040	0.015	mg/kg	
110-86-1	Pyridine	ND	0.079	0.016	mg/kg	
91-22-5	Quinoline	ND	0.20	0.037	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	59%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_12-14_01072015		
Lab Sample ID:	JB85833-4	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		27-119%
118-79-6	2,4,6-Tribromophenol	87%		17-158%
4165-60-0	Nitrobenzene-d5	61%		33-127%
321-60-8	2-Fluorobiphenyl	61%		41-121%
1718-51-0	Terphenyl-d14	72%		44-137%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-02_12-14_01072015		
Lab Sample ID:	JB85833-4	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61463.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.0030	0.00073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	120%		61-167%
460-00-4	Bromofluorobenzene (S)	119%		61-167%

(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:	AOI5_BH-15-02_12-14_01072015		
Lab Sample ID:	JB85833-4	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	83.9
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	8.7	5.7	0.069	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	10.5	2.3	0.24	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	20.9	4.6	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	41.2	5.7	0.10	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	44.1	5.7	0.44	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-03_0-2_01072015		
Lab Sample ID:	JB85833-5	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	86.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V150549.D	1	01/12/15	BM	n/a	n/a	VV6380
Run #2							

	Initial Weight
Run #1	6.8 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0079	0.00043	0.00015	mg/kg	
108-88-3	Toluene	0.00022	0.00085	0.00020	mg/kg	J
100-41-4	Ethylbenzene	0.0028	0.00085	0.00016	mg/kg	
1330-20-7	Xylene (total)	0.0014	0.00085	0.00018	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.00050	0.00085	0.00014	mg/kg	J
135-98-8	sec-Butylbenzene	0.00028	0.0017	0.00015	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.0017	0.00014	mg/kg	
110-82-7	Cyclohexane	0.0034	0.0017	0.00030	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00085	0.00022	mg/kg	
110-54-3	Hexane	ND	0.0043	0.00087	mg/kg	
98-82-8	Isopropylbenzene	0.0011	0.0043	0.00016	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0023	0.0017	0.00011	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0022	0.0017	0.00012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		48-141%
17060-07-0	1,2-Dichloroethane-D4	101%		70-120%
2037-26-5	Toluene-D8	110%		78-129%
460-00-4	4-Bromofluorobenzene	105%		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:	AOI5_BH-15-03_0-2_01072015		
Lab Sample ID:	JB85833-5	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68598.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
Run #2							

	Initial Weight	Final Volume
Run #1	34.0 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.17	0.057	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.68	0.042	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.039	mg/kg	
	3&4-Methylphenol	ND	0.068	0.043	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.058	mg/kg	
108-95-2	Phenol	ND	0.068	0.036	mg/kg	
83-32-9	Acenaphthene	0.0196	0.034	0.0099	mg/kg	J
120-12-7	Anthracene	ND	0.034	0.012	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.034	0.011	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.034	0.010	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.034	0.011	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.034	0.013	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.034	0.013	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.068	0.0040	mg/kg	
218-01-9	Chrysene	0.0175	0.034	0.012	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.034	0.012	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0076	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.012	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.068	0.030	mg/kg	
206-44-0	Fluoranthene	ND	0.034	0.015	mg/kg	
86-73-7	Fluorene	0.0401	0.034	0.011	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.034	0.012	mg/kg	
91-57-6	2-Methylnaphthalene	1.08	0.068	0.019	mg/kg	
91-20-3	Naphthalene	0.0777	0.034	0.0093	mg/kg	
85-01-8	Phenanthrene	0.0953	0.034	0.016	mg/kg	
129-00-0	Pyrene	0.0448	0.034	0.013	mg/kg	
110-86-1	Pyridine	ND	0.068	0.014	mg/kg	
91-22-5	Quinoline	ND	0.17	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-03_0-2_01072015		
Lab Sample ID:	JB85833-5	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.2
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		27-119%
118-79-6	2,4,6-Tribromophenol	78%		17-158%
4165-60-0	Nitrobenzene-d5	66%		33-127%
321-60-8	2-Fluorobiphenyl	63%		41-121%
1718-51-0	Terphenyl-d14	73%		44-137%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-03_0-2_01072015		
Lab Sample ID:	JB85833-5	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	86.2
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61465.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.00071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	134%		61-167%
460-00-4	Bromofluorobenzene (S)	118%		61-167%

(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:	AOI5_BH-15-03_0-2_01072015		
Lab Sample ID:	JB85833-5	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	86.2
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	5.0 B	5.6	0.068	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	13.0	2.3	0.24	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	12.3	4.5	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	38.1	5.6	0.10	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	32.3	5.6	0.43	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-03_4-6_01072015		
Lab Sample ID:	JB85833-6	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	84.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E222896.D	1	01/15/15	TDN	n/a	n/a	VE9772
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	0.247	0.052	0.018	mg/kg	
108-88-3	Toluene	0.150	0.10	0.024	mg/kg	
100-41-4	Ethylbenzene	0.120	0.10	0.020	mg/kg	
1330-20-7	Xylene (total)	0.243	0.10	0.022	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.10	0.017	mg/kg	
135-98-8	sec-Butylbenzene	0.124	0.21	0.018	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.21	0.017	mg/kg	
110-82-7	Cyclohexane	ND	0.21	0.037	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.10	0.026	mg/kg	
110-54-3	Hexane	ND	0.52	0.11	mg/kg	
98-82-8	Isopropylbenzene	0.165	0.52	0.019	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.131	0.21	0.014	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	0.0414	0.21	0.015	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		48-141%
17060-07-0	1,2-Dichloroethane-D4	106%		70-120%
2037-26-5	Toluene-D8	96%		78-129%
460-00-4	4-Bromofluorobenzene	89%		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:	AOI5_BH-15-03_4-6_01072015		
Lab Sample ID:	JB85833-6	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	84.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68621.D	1	01/10/15	KLS	01/09/15	OP81001	E3E2945
Run #2							

	Initial Weight	Final Volume
Run #1	34.1 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.17	0.059	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.70	0.043	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.040	mg/kg	
	3&4-Methylphenol	ND	0.070	0.044	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.059	mg/kg	
108-95-2	Phenol	ND	0.070	0.037	mg/kg	
83-32-9	Acenaphthene	0.0452	0.035	0.010	mg/kg	
120-12-7	Anthracene	0.0156	0.035	0.012	mg/kg	J
56-55-3	Benzo(a)anthracene	0.0270	0.035	0.011	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0152	0.035	0.011	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.035	0.012	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.035	0.013	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.035	0.013	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.070	0.0040	mg/kg	
218-01-9	Chrysene	0.0327	0.035	0.012	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.035	0.012	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.070	0.0077	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.012	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.070	0.031	mg/kg	
206-44-0	Fluoranthene	0.0240	0.035	0.015	mg/kg	J
86-73-7	Fluorene	0.0735	0.035	0.011	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.035	0.012	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.070	0.019	mg/kg	
91-20-3	Naphthalene	ND	0.035	0.0095	mg/kg	
85-01-8	Phenanthrene	0.140	0.035	0.016	mg/kg	
129-00-0	Pyrene	0.0977	0.035	0.013	mg/kg	
110-86-1	Pyridine	ND	0.070	0.014	mg/kg	
91-22-5	Quinoline	ND	0.17	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-03_4-6_01072015		
Lab Sample ID:	JB85833-6	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	84.1
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		27-119%
118-79-6	2,4,6-Tribromophenol	74%		17-158%
4165-60-0	Nitrobenzene-d5	63%		33-127%
321-60-8	2-Fluorobiphenyl	62%		41-121%
1718-51-0	Terphenyl-d14	76%		44-137%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-03_4-6_01072015		
Lab Sample ID:	JB85833-6	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	84.1
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61466.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.0030	0.00072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	125%		61-167%
460-00-4	Bromofluorobenzene (S)	119%		61-167%

(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:	AOI5_BH-15-03_4-6_01072015		
Lab Sample ID:	JB85833-6	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	84.1
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	9.1	5.7	0.069	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	11.8	2.3	0.24	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	15.8	4.6	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	43.7	5.7	0.10	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	48.5	5.7	0.43	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-04_0-2_01072015		
Lab Sample ID:	JB85833-7	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	87.0
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E222898.D	1	01/15/15	TDN	n/a	n/a	VE9772
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	10.0 ml	20.0 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	10.6	0.29	0.10	mg/kg	
108-88-3	Toluene	1.06	0.59	0.14	mg/kg	
100-41-4	Ethylbenzene	1.32	0.59	0.11	mg/kg	
1330-20-7	Xylene (total)	7.37	0.59	0.13	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.59	0.098	mg/kg	
135-98-8	sec-Butylbenzene	2.37	1.2	0.10	mg/kg	
98-06-6	tert-Butylbenzene	ND	1.2	0.094	mg/kg	
110-82-7	Cyclohexane	26.7	1.2	0.21	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.59	0.15	mg/kg	
110-54-3	Hexane	35.0	2.9	0.60	mg/kg	
98-82-8	Isopropylbenzene	3.44	2.9	0.11	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	5.58	1.2	0.078	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	21.9	1.2	0.083	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		48-141%
17060-07-0	1,2-Dichloroethane-D4	100%		70-120%
2037-26-5	Toluene-D8	96%		78-129%
460-00-4	4-Bromofluorobenzene	90%		72-130%

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

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:	AOI5_BH-15-04_0-2_01072015		
Lab Sample ID:	JB85833-7	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	87.0
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3E68628.D	2	01/10/15	KLS	01/09/15	OP81001	E3E2945
Run #2	3E68635.D	40	01/12/15	AN	01/09/15	OP81001	E3E2946

	Initial Weight	Final Volume
Run #1	34.2 g	1.0 ml
Run #2	34.2 g	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	0.34	0.11	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.3	0.082	mg/kg	
95-48-7	2-Methylphenol	ND	0.13	0.077	mg/kg	
	3&4-Methylphenol	ND	0.13	0.085	mg/kg	
100-02-7	4-Nitrophenol	ND	0.67	0.11	mg/kg	
108-95-2	Phenol	ND	0.13	0.071	mg/kg	
83-32-9	Acenaphthene	0.833	0.067	0.019	mg/kg	
120-12-7	Anthracene	ND	0.067	0.024	mg/kg	
56-55-3	Benzo(a)anthracene	0.543	0.067	0.022	mg/kg	
50-32-8	Benzo(a)pyrene	0.402	0.067	0.021	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.202	0.067	0.022	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.315	0.067	0.025	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.157	0.067	0.025	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.13	0.0078	mg/kg	
218-01-9	Chrysene	0.815	0.067	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0761	0.067	0.023	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.13	0.015	mg/kg	
84-66-2	Diethyl phthalate	ND	0.13	0.023	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.13	0.059	mg/kg	
206-44-0	Fluoranthene	0.427	0.067	0.030	mg/kg	
86-73-7	Fluorene	1.78	0.067	0.022	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.110	0.067	0.023	mg/kg	
91-57-6	2-Methylnaphthalene	39.8 [b]	2.7	0.75	mg/kg	
91-20-3	Naphthalene	4.04	0.067	0.018	mg/kg	
85-01-8	Phenanthrene	4.30	0.067	0.031	mg/kg	
129-00-0	Pyrene	2.01	0.067	0.026	mg/kg	
110-86-1	Pyridine	ND	0.13	0.027	mg/kg	
91-22-5	Quinoline	ND	0.34	0.063	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%	66%	22-121%

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

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-04_0-2_01072015		
Lab Sample ID:	JB85833-7	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	87.0
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	134% c	128% c	27-119%
118-79-6	2,4,6-Tribromophenol	90%	54%	17-158%
4165-60-0	Nitrobenzene-d5	123%	41%	33-127%
321-60-8	2-Fluorobiphenyl	65%	53%	41-121%
1718-51-0	Terphenyl-d14	80%	51%	44-137%

(a) Dilution required due to viscosity of the extract matrix
(b) Result is from Run# 2
(c) Outside control limits due to dilution and matrix interference.

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:	AOI5_BH-15-04_0-2_01072015		
Lab Sample ID:	JB85833-7	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	87.0
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61467.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.0028	0.00070	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	114%		61-167%
460-00-4	Bromofluorobenzene (S)	150%		61-167%

(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:	AOI5_BH-15-04_0-2_01072015		
Lab Sample ID:	JB85833-7	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	87.0
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	5.2 B	5.6	0.068	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	15.7	2.3	0.24	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	11.0	4.5	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	30.4	5.6	0.10	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	39.7	5.6	0.43	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-04_4-6_01072015		
Lab Sample ID:	JB85833-8	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8260B	**Percent Solids:**	79.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	E222897.D	1	01/15/15	TDN	n/a	n/a	VE9772
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.0 g	10.0 ml	20.0 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.29	0.10	mg/kg	
108-88-3	Toluene	ND	0.59	0.14	mg/kg	
100-41-4	Ethylbenzene	0.428	0.59	0.11	mg/kg	J
1330-20-7	Xylene (total)	0.145	0.59	0.13	mg/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	0.59	0.098	mg/kg	
135-98-8	sec-Butylbenzene	3.18	1.2	0.10	mg/kg	
98-06-6	tert-Butylbenzene	0.496	1.2	0.094	mg/kg	J
110-82-7	Cyclohexane	51.2	1.2	0.21	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.59	0.15	mg/kg	
110-54-3	Hexane	ND	2.9	0.60	mg/kg	
98-82-8	Isopropylbenzene	3.78	2.9	0.11	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.180	1.2	0.078	mg/kg	J
108-67-8	1,3,5-Trimethylbenzene	ND	1.2	0.083	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		48-141%
17060-07-0	1,2-Dichloroethane-D4	95%		70-120%
2037-26-5	Toluene-D8	96%		78-129%
460-00-4	4-Bromofluorobenzene	89%		72-130%

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

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:	AOI5_BH-15-04_4-6_01072015		
Lab Sample ID:	JB85833-8	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	79.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E68624.D	1	01/10/15	KLS	01/09/15	OP81001	E3E2945
Run #2							

	Initial Weight	Final Volume
Run #1	31.8 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	0.066	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.79	0.048	mg/kg	
95-48-7	2-Methylphenol	ND	0.079	0.045	mg/kg	
	3&4-Methylphenol	ND	0.079	0.050	mg/kg	
100-02-7	4-Nitrophenol	ND	0.40	0.067	mg/kg	
108-95-2	Phenol	ND	0.079	0.042	mg/kg	
83-32-9	Acenaphthene	ND	0.040	0.011	mg/kg	
120-12-7	Anthracene	0.109	0.040	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.130	0.040	0.013	mg/kg	
50-32-8	Benzo(a)pyrene	0.0875	0.040	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0274	0.040	0.013	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0767	0.040	0.015	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0165	0.040	0.015	mg/kg	J
92-52-4	1,1'-Biphenyl	ND	0.079	0.0046	mg/kg	
218-01-9	Chrysene	0.204	0.040	0.013	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.040	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.079	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.079	0.013	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.079	0.035	mg/kg	
206-44-0	Fluoranthene	0.0553	0.040	0.017	mg/kg	
86-73-7	Fluorene	0.567	0.040	0.013	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.040	0.014	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.079	0.022	mg/kg	
91-20-3	Naphthalene	ND	0.040	0.011	mg/kg	
85-01-8	Phenanthrene	1.25	0.040	0.018	mg/kg	
129-00-0	Pyrene	0.429	0.040	0.015	mg/kg	
110-86-1	Pyridine	ND	0.079	0.016	mg/kg	
91-22-5	Quinoline	ND	0.20	0.037	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		22-121%

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

Report of Analysis

Client Sample ID:	AOI5_BH-15-04_4-6_01072015		
Lab Sample ID:	JB85833-8	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	79.5
Project:	Sunoco - Marcus Hook Facility, PA		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	72%		27-119%
118-79-6	2,4,6-Tribromophenol	94%		17-158%
4165-60-0	Nitrobenzene-d5	122%		33-127%
321-60-8	2-Fluorobiphenyl	73%		41-121%
1718-51-0	Terphenyl-d14	81%		44-137%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-15-04_4-6_01072015		
Lab Sample ID:	JB85833-8	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	79.5
Project:	Sunoco - Marcus Hook Facility, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB61468.D	1	01/14/15	AMA	01/10/15	M:OP41590	M:GBB3376
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	0.0031	0.00076	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	116%		61-167%
460-00-4	Bromofluorobenzene (S)	118%		61-167%

(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:	AOI5_BH-15-04_4-6_01072015		
Lab Sample ID:	JB85833-8	**Date Sampled:**	01/07/15
Matrix:	SO - Soil	**Date Received:**	01/07/15
		Percent Solids:	79.5
Project:	Sunoco - Marcus Hook Facility, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cobalt	9.5	6.1	0.073	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Lead	11.2	2.4	0.26	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Nickel	17.6	4.9	0.12	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Vanadium	48.3	6.1	0.11	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]
Zinc	42.5	6.1	0.46	mg/kg	1	01/09/15	01/09/15	BS	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA35827
(2) Prep QC Batch: MP84326

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

ACCUTEST LABORATORIES

SLL

CHAIN OF CUSTODY

PAGE 1 OF 1

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

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB85833

Client / Reporting Information

Company Name: Stantec
Street Address: 1060 Andrew Dr
City State Zip: West Chester PA 19038
Project Contact: Jennifer.Menges@stantec.com
Email: Jenny.DeBoer@Stantec.com
Phone #: 610-840-2500
Fax #:
Sampler(s) Name(s): Jenny DeBoer
Phone #: 610-209-2511

Project Information

Project Name: Evergreen Marcus Hook Industrial Complex 15 Plant
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	Select VOCs 8260	EDB 8011	Select SVOCs 8270	Metals 6010/6020 Cobalt, Lead, Nickel, Vanadium, Zinc	LAB USE ONLY
1	AOI5_BH-15-01_0-2_01072015		1/7/2015	1235	JD	SO	6					3	2	1		X	X	X	X	D46
2	AOI5_BH-15-01_2-4_01072015		1/7/2015	1240	JD	SO	6					3	2	1		X	X	X	X	P3
3	AOI5_BH-15-02_0-~~12~~ 2_01072015		1/7/2015	0915	JD	SO	6					3	2	1		X	X	X	X	14Q4
4	AOI5_BH-15-02_12-14_01072015		1/7/2015	0925	JD	SO	6					3	2	1		X	X	X	X	4944
5	AOI5_BH-15-03_0-2_01072015		1/7/2015	1250	JD	SO	6					3	2	1		X	X	X	X	
6	AOI5_BH-15-03_4-6_01072015		1/7/2015	1255	JD	SO	6					3	2	1		X	X	X	X	
7	AOI5_BH-15-04_0-2_01072015		1/7/2015	1305	JD	SO	6					3	2	1		X	X	X	X	SUB
8	AOI5_BH-15-04_4-6_01072015		1/7/2015	1310	JD	SO	6					3	2	1		X	X	X	X	

D.I slurry voc vials frozen storage
Date: 1/7/15 **Time:** 1900 **Initials:** JZ

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

Run for constituents on the attached Comprehensive COC list

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

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 JD DeBoer	1/7/2015 1605	1	2	1/7/15 1812	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.

2A JM

JB85833

SAMPLE #	MEOH VIAL	D.I. VIAL	D.I. VIAL
1	4943	5622	5623
2	4946	4997	4996
3	4945	4994	4995
4	4947	4998	4999
5	4944	4993	4992
6	4949	5002	5612
7	4950	5614	5613
8	5402	5615	5613
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JB85833: Chain of Custody

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JB85833

Comprehensive COC List for Sunoco Characterizations (Sept. 2013)

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

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

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

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

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

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB85833 **Client:** _____ **Project:** _____

Date / Time Received: 1/7/2015 6:10:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Initial/Adjusted): #1: (1/0.9); 0

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. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservatio	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:732.329.0200
2235 US Highway 130
F: 732.329.3499
Dayton, New Jersey
www/accutest.com

JB85833: Chain of Custody
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Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Sunoco - Marcus Hook Facility, PA

Job No: JB85833

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB85833-1 Collected: 07-JAN-15 12:35 By: JD Received: 07-JAN-15 By: AS AOI5_BH-15-01_0-2_01072015						
JB85833-1	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-1	SW846 6010C	09-JAN-15 21:12	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-1	SW846 8260B	09-JAN-15 23:30	BM			V8260SL2
JB85833-1	SW846 8270D	10-JAN-15 00:35	AD	09-JAN-15	AC	AB8270SL
JB85833-1	SW846 8011	14-JAN-15 01:07	AMA	10-JAN-15	AMA	V8011EDB
JB85833-2 Collected: 07-JAN-15 12:40 By: JD Received: 07-JAN-15 By: AS AOI5_BH-15-01_2-4_01072015						
JB85833-2	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-2	SW846 6010C	09-JAN-15 21:18	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-2	SW846 8270D	10-JAN-15 01:28	AD	09-JAN-15	AC	AB8270SL
JB85833-2	SW846 8011	14-JAN-15 01:30	AMA	10-JAN-15	AMA	V8011EDB
JB85833-2	SW846 8260B	15-JAN-15 18:01	TDN			V8260SL2
JB85833-3 Collected: 07-JAN-15 09:15 By: JD Received: 07-JAN-15 By: AS AOI5_BH-15-02_0-2_01072015						
JB85833-3	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-3	SW846 6010C	09-JAN-15 21:55	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-3	SW846 8270D	10-JAN-15 01:54	AD	09-JAN-15	AC	AB8270SL
JB85833-3	SW846 8260B	12-JAN-15 13:50	BM			V8260SL2
JB85833-3	SW846 8011	14-JAN-15 01:52	AMA	10-JAN-15	AMA	V8011EDB
JB85833-4 Collected: 07-JAN-15 09:25 By: JD Received: 07-JAN-15 By: AS AOI5_BH-15-02_12-14_01072015						
JB85833-4	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-4	SW846 6010C	09-JAN-15 20:54	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-4	SW846 8270D	10-JAN-15 02:21	AD	09-JAN-15	AC	AB8270SL
JB85833-4	SW846 8011	14-JAN-15 02:15	AMA	10-JAN-15	AMA	V8011EDB
JB85833-4	SW846 8260B	15-JAN-15 18:32	TDN			V8260SL2
JB85833-4	SW846 8260B	16-JAN-15 14:59	TDN			V8260SL2
JB85833-5 Collected: 07-JAN-15 12:50 By: JD Received: 07-JAN-15 By: AS AOI5_BH-15-03_0-2_01072015						

Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB85833

Sunoco - Marcus Hook Facility, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB85833-5	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-5	SW846 6010C	09-JAN-15 21:30	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-5	SW846 8270D	10-JAN-15 02:47	AD	09-JAN-15	AC	AB8270SL
JB85833-5	SW846 8260B	12-JAN-15 14:19	BM			V8260SL2
JB85833-5	SW846 8011	14-JAN-15 03:00	AMA	10-JAN-15	AMA	V8011EDB
JB85833-6	Collected: 07-JAN-15 12:55 By: JD		Received: 07-JAN-15 By: AS			
AOI5_BH-15-03_4-6_01072015						
JB85833-6	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-6	SW846 6010C	09-JAN-15 21:36	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-6	SW846 8270D	10-JAN-15 12:09	KLS	09-JAN-15	AC	AB8270SL
JB85833-6	SW846 8011	14-JAN-15 03:22	AMA	10-JAN-15	AMA	V8011EDB
JB85833-6	SW846 8260B	15-JAN-15 19:02	TDN			V8260SL2
JB85833-7	Collected: 07-JAN-15 13:05 By: JD		Received: 07-JAN-15 By: AS			
AOI5_BH-15-04_0-2_01072015						
JB85833-7	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-7	SW846 6010C	09-JAN-15 22:01	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-7	SW846 8270D	10-JAN-15 15:14	KLS	09-JAN-15	AC	AB8270SL
JB85833-7	SW846 8270D	12-JAN-15 11:24	AN	09-JAN-15	AC	AB8270SL
JB85833-7	SW846 8011	14-JAN-15 03:45	AMA	10-JAN-15	AMA	V8011EDB
JB85833-7	SW846 8260B	15-JAN-15 20:02	TDN			V8260SL2
JB85833-8	Collected: 07-JAN-15 13:10 By: JD		Received: 07-JAN-15 By: AS			
AOI5_BH-15-04_4-6_01072015						
JB85833-8	SM2540 G-97	09-JAN-15 16:30	KP			%SOL
JB85833-8	SW846 6010C	09-JAN-15 22:07	BS	09-JAN-15	KP	CO,NI,PB,V,ZN
JB85833-8	SW846 8270D	10-JAN-15 13:28	KLS	09-JAN-15	AC	AB8270SL
JB85833-8	SW846 8011	14-JAN-15 04:08	AMA	10-JAN-15	AMA	V8011EDB
JB85833-8	SW846 8260B	15-JAN-15 19:32	TDN			V8260SL2

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-1.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-1.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-1.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-1.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-1.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-1.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-1.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-1.1
JB85833-1.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-1.1
JB85833-1.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-1.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-1.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-1.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-1.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-1.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-1.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-1.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-1.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-1.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-1.2
JB85833-1.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-1.2
JB85833-1.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-1.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-1.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-1.5	Secured Storage	Benjamin Mendez	01/09/15 15:01	Retrieve from Storage
JB85833-1.5	Benjamin Mendez	GCMSV	01/09/15 15:01	Load on Instrument
JB85833-1.5	GCMSV	Benjamin Mendez	01/12/15 10:32	Unload from Instrument
JB85833-1.5	Benjamin Mendez		01/12/15 10:32	Depleted
JB85833-2.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-2.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-2.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-2.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-2.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-2.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-2.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-2.1
JB85833-2.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-2.1
JB85833-2.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-2.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-2.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-2.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-2.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-2.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-2.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-2.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-2.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-2.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-2.2
JB85833-2.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-2.2
JB85833-2.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-2.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-2.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-2.4	Secured Storage	Courtney McKenna	01/09/15 11:23	Retrieve from Storage
JB85833-2.4	Courtney McKenna	VOA Prep Storage	01/12/15 08:36	Return to Storage
JB85833-2.4	VOA Prep Storage	Courtney McKenna	01/12/15 15:11	Retrieve from Storage
JB85833-2.4	Courtney McKenna	Secured Storage	01/12/15 15:11	Return to Storage
JB85833-2.4	Secured Storage	Thien Nguyen	01/15/15 11:18	Retrieve from Storage
JB85833-2.4	Thien Nguyen	Secured Storage	01/15/15 11:18	Return to Storage
JB85833-3.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-3.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-3.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-3.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-3.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-3.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-3.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-3.1
JB85833-3.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-3.1
JB85833-3.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-3.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-3.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-3.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-3.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-3.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-3.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-3.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-3.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-3.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-3.2
JB85833-3.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-3.2

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-3.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-3.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-3.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-3.5	Secured Storage	Benjamin Mendez	01/09/15 15:01	Retrieve from Storage
JB85833-3.5	Benjamin Mendez	GCMSV	01/09/15 15:01	Load on Instrument
JB85833-3.5	GCMSV	Benjamin Mendez	01/12/15 10:31	Unload from Instrument
JB85833-3.5	Benjamin Mendez	Secured Storage	01/12/15 10:31	Return to Storage
JB85833-3.5	Secured Storage	Benjamin Mendez	01/12/15 11:26	Retrieve from Storage
JB85833-3.5	Benjamin Mendez	GCMSV	01/12/15 11:26	Load on Instrument
JB85833-3.5	Benjamin Mendez	Secured Storage	01/13/15 08:40	Return to Storage
JB85833-3.5	GCMSV	Benjamin Mendez	01/13/15 08:40	Unload from Instrument
JB85833-3.5	Secured Storage	Benjamin Mendez	01/13/15 08:42	Retrieve from Storage
JB85833-3.5	Benjamin Mendez		01/13/15 08:42	Depleted
JB85833-3.6	Secured Storage	Benjamin Mendez	01/12/15 11:30	Retrieve from Storage
JB85833-3.6	Benjamin Mendez	GCMSV	01/12/15 11:30	Load on Instrument
JB85833-3.6	GCMSV	Benjamin Mendez	01/13/15 08:40	Unload from Instrument
JB85833-3.6	Benjamin Mendez	Secured Storage	01/13/15 08:40	Return to Storage
JB85833-3.6	Secured Storage	Benjamin Mendez	01/13/15 08:42	Retrieve from Storage
JB85833-3.6	Benjamin Mendez		01/13/15 08:42	Depleted
JB85833-4.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-4.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-4.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-4.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-4.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-4.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-4.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-4.1
JB85833-4.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-4.1
JB85833-4.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-4.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-4.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-4.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-4.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-4.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-4.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-4.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-4.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-4.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-4.2

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-4.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-4.2
JB85833-4.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-4.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-4.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-4.4	Secured Storage	Courtney McKenna	01/09/15 11:23	Retrieve from Storage
JB85833-4.4	Courtney McKenna	VOA Prep Storage	01/12/15 08:36	Return to Storage
JB85833-4.4	VOA Prep Storage	Courtney McKenna	01/12/15 15:11	Retrieve from Storage
JB85833-4.4	Courtney McKenna	Secured Storage	01/12/15 15:11	Return to Storage
JB85833-4.4	Secured Storage	Thien Nguyen	01/15/15 11:18	Retrieve from Storage
JB85833-4.4	Thien Nguyen	Secured Storage	01/15/15 11:18	Return to Storage
JB85833-5.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-5.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-5.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-5.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-5.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-5.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-5.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-5.1
JB85833-5.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-5.1
JB85833-5.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-5.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-5.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-5.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-5.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-5.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-5.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-5.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-5.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-5.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-5.2
JB85833-5.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-5.2
JB85833-5.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-5.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-5.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-5.5	Secured Storage	Benjamin Mendez	01/12/15 11:30	Retrieve from Storage
JB85833-5.5	Benjamin Mendez	GCMSV	01/12/15 11:30	Load on Instrument
JB85833-5.5	GCMSV	Benjamin Mendez	01/13/15 08:40	Unload from Instrument
JB85833-5.5	Benjamin Mendez	Secured Storage	01/13/15 08:40	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-5.5	Secured Storage	Benjamin Mendez	01/13/15 08:42	Retrieve from Storage
JB85833-5.5	Benjamin Mendez		01/13/15 08:42	Depleted
JB85833-5.6	Secured Storage	Benjamin Mendez	01/09/15 15:01	Retrieve from Storage
JB85833-5.6	Benjamin Mendez	GCMSV	01/09/15 15:01	Load on Instrument
JB85833-5.6	GCMSV	Benjamin Mendez	01/12/15 10:31	Unload from Instrument
JB85833-5.6	Benjamin Mendez	Secured Storage	01/12/15 10:31	Return to Storage
JB85833-5.6	Secured Storage	Benjamin Mendez	01/12/15 11:26	Retrieve from Storage
JB85833-5.6	Benjamin Mendez	GCMSV	01/12/15 11:26	Load on Instrument
JB85833-5.6	GCMSV	Benjamin Mendez	01/13/15 08:40	Unload from Instrument
JB85833-5.6	Benjamin Mendez	Secured Storage	01/13/15 08:40	Return to Storage
JB85833-5.6	Secured Storage	Benjamin Mendez	01/13/15 08:42	Retrieve from Storage
JB85833-5.6	Benjamin Mendez		01/13/15 08:42	Depleted
JB85833-6.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-6.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-6.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-6.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-6.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-6.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-6.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-6.1
JB85833-6.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-6.1
JB85833-6.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-6.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-6.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-6.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-6.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-6.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-6.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-6.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-6.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-6.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-6.2
JB85833-6.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-6.2
JB85833-6.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-6.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-6.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-6.4	Secured Storage	Courtney McKenna	01/09/15 11:23	Retrieve from Storage
JB85833-6.4	Courtney McKenna	VOA Prep Storage	01/12/15 08:36	Return to Storage
JB85833-6.4	VOA Prep Storage	Courtney McKenna	01/12/15 15:11	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-6.4	Courtney McKenna	Secured Storage	01/12/15 15:11	Return to Storage
JB85833-6.4	Secured Storage	Thien Nguyen	01/15/15 11:18	Retrieve from Storage
JB85833-6.4	Thien Nguyen	Secured Storage	01/15/15 11:18	Return to Storage
JB85833-7.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-7.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-7.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-7.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-7.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-7.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage
JB85833-7.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-7.1
JB85833-7.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-7.1
JB85833-7.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-7.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-7.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-7.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-7.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-7.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-7.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-7.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-7.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-7.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-7.2
JB85833-7.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-7.2
JB85833-7.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-7.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-7.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-7.4	Secured Storage	Courtney McKenna	01/09/15 11:23	Retrieve from Storage
JB85833-7.4	Courtney McKenna	VOA Prep Storage	01/12/15 08:36	Return to Storage
JB85833-7.4	VOA Prep Storage	Courtney McKenna	01/13/15 08:02	Retrieve from Storage
JB85833-7.4	Courtney McKenna	VOA Prep Storage	01/13/15 16:11	Return to Storage
JB85833-7.4	VOA Prep Storage	Courtney McKenna	01/14/15 11:32	Retrieve from Storage
JB85833-7.4	Courtney McKenna	VOA Prep Storage	01/14/15 16:31	Return to Storage
JB85833-8.1	Secured Storage	Arielle Cocozza	01/09/15 04:25	Retrieve from Storage
JB85833-8.1	Arielle Cocozza	Secured Storage	01/09/15 08:18	Return to Storage
JB85833-8.1	Secured Storage	Luis Villanueva	01/09/15 10:36	Retrieve from Storage
JB85833-8.1	Luis Villanueva	Secured Staging Area	01/09/15 10:37	Return to Storage
JB85833-8.1	Secured Staging Area	Kruti Patel	01/09/15 12:29	Retrieve from Storage
JB85833-8.1	Kruti Patel	Secured Storage	01/09/15 16:36	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-8.1.1	Arielle Cocozza	Organics Prep	01/09/15 04:27	Extract from JB85833-8.1
JB85833-8.1.1	Organics Prep	Arielle Cocozza	01/09/15 11:14	Extract from JB85833-8.1
JB85833-8.1.1	Arielle Cocozza	Extract Storage	01/09/15 11:14	Return to Storage
JB85833-8.1.1	Extract Storage	Ashley Dye	01/09/15 22:09	Retrieve from Storage
JB85833-8.1.1	Ashley Dye	GCMS3E	01/09/15 22:09	Load on Instrument
JB85833-8.1.1	GCMS3E	Olga Azarihn	01/13/15 09:03	Unload from Instrument
JB85833-8.1.1	Olga Azarihn	Extract Freezer	01/13/15 09:03	Return to Storage
JB85833-8.2	Secured Storage	Alfredo Crespo	01/09/15 07:33	Retrieve from Storage
JB85833-8.2	Alfredo Crespo	Secured Staging Area	01/09/15 07:34	Return to Storage
JB85833-8.2	Secured Staging Area	Khushboo Patel	01/09/15 07:59	Retrieve from Storage
JB85833-8.2	Khushboo Patel	Secured Storage	01/09/15 09:50	Return to Storage
JB85833-8.2.1	Khushboo Patel	Metals Digestion	01/09/15 09:44	Digestate from JB85833-8.2
JB85833-8.2.1	Metals Digestion	Khushboo Patel	01/09/15 09:45	Digestate from JB85833-8.2
JB85833-8.2.1	Khushboo Patel	Metals Digestate Storage	01/09/15 09:45	Return to Storage
JB85833-8.3	Secured Storage	Robert Lofrano	01/08/15 16:45	Retrieve from Storage
JB85833-8.3	Robert Lofrano		01/08/15 16:45	Subcontract
JB85833-8.4	Secured Storage	Courtney McKenna	01/09/15 11:23	Retrieve from Storage
JB85833-8.4	Courtney McKenna	VOA Prep Storage	01/12/15 08:36	Return to Storage
JB85833-8.4	VOA Prep Storage	Courtney McKenna	01/12/15 15:11	Retrieve from Storage
JB85833-8.4	Courtney McKenna	Secured Storage	01/12/15 15:11	Return to Storage
JB85833-8.4	Secured Storage	Thien Nguyen	01/15/15 11:18	Retrieve from Storage
JB85833-8.4	Thien Nguyen	Secured Storage	01/15/15 11:18	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: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV6378-MB	V150488.D	1	01/09/15	BM	n/a	n/a	VV6378

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

JB85833-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.18	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	0.17	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	0.16	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.35	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.25	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.19	ug/kg	
110-54-3	Hexane	ND	5.0	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.18	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.17	ug/kg	
108-88-3	Toluene	ND	1.0	0.23	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.13	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.14	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	48-141%
17060-07-0	1,2-Dichloroethane-D4	95%	70-120%
2037-26-5	Toluene-D8	109%	78-129%
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: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV6380-MB	V150545.D	1	01/12/15	BM	n/a	n/a	VV6380

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

JB85833-3, JB85833-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.18	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	0.17	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	0.16	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.35	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.25	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.19	ug/kg	
110-54-3	Hexane	ND	5.0	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.18	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.17	ug/kg	
108-88-3	Toluene	ND	1.0	0.23	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.13	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.14	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	98%	48-141%
17060-07-0	1,2-Dichloroethane-D4	91%	70-120%
2037-26-5	Toluene-D8	109%	78-129%
460-00-4	4-Bromofluorobenzene	105%	72-130%

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

Method Blank Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE9772-MB1	E222879.D	1	01/15/15	TDN	n/a	n/a	VE9772

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

JB85833-2, JB85833-4, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	25	8.9	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	8.7	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	8.0	ug/kg	
110-82-7	Cyclohexane	ND	100	18	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	13	ug/kg	
100-41-4	Ethylbenzene	ND	50	9.7	ug/kg	
110-54-3	Hexane	ND	250	51	ug/kg	
98-82-8	Isopropylbenzene	ND	250	9.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	8.3	ug/kg	
108-88-3	Toluene	ND	50	12	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	6.7	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	7.1	ug/kg	
1330-20-7	Xylene (total)	ND	50	11	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	102%	48-141%
17060-07-0	1,2-Dichloroethane-D4	96%	70-120%
2037-26-5	Toluene-D8	96%	78-129%
460-00-4	4-Bromofluorobenzene	87%	72-130%

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

Blank Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV6378-BS	V150489.D	1	01/09/15	BM	n/a	n/a	VV6378

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

JB85833-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.0	108	84-119
135-98-8	sec-Butylbenzene	50	56.1	112	75-126
98-06-6	tert-Butylbenzene	50	56.8	114	74-131
110-82-7	Cyclohexane	50	50.6	101	72-129
107-06-2	1,2-Dichloroethane	50	52.4	105	76-133
100-41-4	Ethylbenzene	50	55.3	111	80-121
110-54-3	Hexane	50	26.1	52	32-145
98-82-8	Isopropylbenzene	50	56.6	113	75-128
1634-04-4	Methyl Tert Butyl Ether	100	104	104	75-117
108-88-3	Toluene	50	57.9	116	81-123
95-63-6	1,2,4-Trimethylbenzene	50	57.1	114	80-129
108-67-8	1,3,5-Trimethylbenzene	50	55.7	111	76-123
1330-20-7	Xylene (total)	150	171	114	81-123

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	48-141%
17060-07-0	1,2-Dichloroethane-D4	95%	70-120%
2037-26-5	Toluene-D8	109%	78-129%
460-00-4	4-Bromofluorobenzene	106%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV6380-BS	V150546.D	1	01/12/15	BM	n/a	n/a	VV6380

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

JB85833-3, JB85833-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	51.5	103	84-119
135-98-8	sec-Butylbenzene	50	49.9	100	75-126
98-06-6	tert-Butylbenzene	50	50.0	100	74-131
110-82-7	Cyclohexane	50	50.7	101	72-129
107-06-2	1,2-Dichloroethane	50	52.2	104	76-133
100-41-4	Ethylbenzene	50	51.0	102	80-121
110-54-3	Hexane	50	38.2	76	32-145
98-82-8	Isopropylbenzene	50	49.9	100	75-128
1634-04-4	Methyl Tert Butyl Ether	100	105	105	75-117
108-88-3	Toluene	50	53.6	107	81-123
95-63-6	1,2,4-Trimethylbenzene	50	52.5	105	80-129
108-67-8	1,3,5-Trimethylbenzene	50	50.0	100	76-123
1330-20-7	Xylene (total)	150	159	106	81-123

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	48-141%
17060-07-0	1,2-Dichloroethane-D4	96%	70-120%
2037-26-5	Toluene-D8	109%	78-129%
460-00-4	4-Bromofluorobenzene	107%	72-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE9772-BS	E222880.D	1	01/15/15	TDN	n/a	n/a	VE9772

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

JB85833-2, JB85833-4, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2570	103	84-119
135-98-8	sec-Butylbenzene	2500	2530	101	75-126
98-06-6	tert-Butylbenzene	2500	2490	100	74-131
110-82-7	Cyclohexane	2500	2490	100	72-129
107-06-2	1,2-Dichloroethane	2500	2660	106	76-133
100-41-4	Ethylbenzene	2500	2480	99	80-121
110-54-3	Hexane	2500	1810	72	32-145
98-82-8	Isopropylbenzene	2500	2490	100	75-128
1634-04-4	Methyl Tert Butyl Ether	5000	5030	101	75-117
108-88-3	Toluene	2500	2630	105	81-123
95-63-6	1,2,4-Trimethylbenzene	2500	2680	107	80-129
108-67-8	1,3,5-Trimethylbenzene	2500	2520	101	76-123
1330-20-7	Xylene (total)	7500	8020	107	81-123

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	106%	48-141%
17060-07-0	1,2-Dichloroethane-D4	98%	70-120%
2037-26-5	Toluene-D8	98%	78-129%
460-00-4	4-Bromofluorobenzene	89%	72-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB85784-5MS	V150496.D	1	01/09/15	BM	n/a	n/a	VV6378
JB85784-5	V150491.D	1	01/09/15	BM	n/a	n/a	VV6378

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

JB85833-1

CAS No.	Compound	JB85784-5 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		54.9	54.6	99	47-139
135-98-8	sec-Butylbenzene	ND		54.9	54.6	99	15-161
98-06-6	tert-Butylbenzene	ND		54.9	55.4	101	24-159
110-82-7	Cyclohexane	ND		54.9	52.9	96	10-163
107-06-2	1,2-Dichloroethane	ND		54.9	48.0	87	52-134
100-41-4	Ethylbenzene	ND		54.9	55.2	101	33-149
110-54-3	Hexane	ND		54.9	44.8	82	10-158
98-82-8	Isopropylbenzene	ND		54.9	58.8	107	26-157
1634-04-4	Methyl Tert Butyl Ether	ND		54.9	45.6	83	53-123
108-88-3	Toluene	ND		54.9	56.7	103	40-146
95-63-6	1,2,4-Trimethylbenzene	ND		54.9	54.0	98	22-157
108-67-8	1,3,5-Trimethylbenzene	ND		54.9	55.1	100	25-155
1330-20-7	Xylene (total)	ND		165	168	102	33-152

CAS No.	Surrogate Recoveries	MS	JB85784-5	Limits
1868-53-7	Dibromofluoromethane	98%	102%	48-141%
17060-07-0	1,2-Dichloroethane-D4	83%	96%	70-120%
2037-26-5	Toluene-D8	108%	110%	78-129%
460-00-4	4-Bromofluorobenzene	103%	104%	72-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB85833-3MS	V150550.D	1	01/12/15	BM	n/a	n/a	VV6380
JB85833-3	V150548.D	1	01/12/15	BM	n/a	n/a	VV6380

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

JB85833-3, JB85833-5

CAS No.	Compound	JB85833-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		52.4	55.3	106	47-139
135-98-8	sec-Butylbenzene	ND		52.4	53.4	102	15-161
98-06-6	tert-Butylbenzene	ND		52.4	55.8	106	24-159
110-82-7	Cyclohexane	ND		52.4	53.6	102	10-163
107-06-2	1,2-Dichloroethane	ND		52.4	47.7	91	52-134
100-41-4	Ethylbenzene	ND		52.4	56.8	108	33-149
110-54-3	Hexane	ND		52.4	52.7	101	10-158
98-82-8	Isopropylbenzene	ND		52.4	56.9	109	26-157
1634-04-4	Methyl Tert Butyl Ether	ND		52.4	46.7	89	53-123
108-88-3	Toluene	ND		52.4	57.9	111	40-146
95-63-6	1,2,4-Trimethylbenzene	ND		52.4	55.2	105	22-157
108-67-8	1,3,5-Trimethylbenzene	ND		52.4	55.4	106	25-155
1330-20-7	Xylene (total)	ND		157	176	112	33-152

CAS No.	Surrogate Recoveries	MS	JB85833-3	Limits
1868-53-7	Dibromofluoromethane	96%	99%	48-141%
17060-07-0	1,2-Dichloroethane-D4	81%	96%	70-120%
2037-26-5	Toluene-D8	107%	109%	78-129%
460-00-4	4-Bromofluorobenzene	103%	105%	72-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB85893-10MS	E222890.D	1	01/15/15	TDN	n/a	n/a	VE9772
JB85893-10MSD	E222891.D	1	01/15/15	TDN	n/a	n/a	VE9772
JB85893-10	E222886.D	1	01/15/15	TDN	n/a	n/a	VE9772

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

JB85833-2, JB85833-4, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	JB85893-10 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	7040		20300	28200	104	20300	28900	108	2	47-139/19
135-98-8	sec-Butylbenzene	3130		20300	23300	100	20300	23800	102	2	15-161/31
98-06-6	tert-Butylbenzene	ND		20300	20400	101	20300	20100	99	1	24-159/32
110-82-7	Cyclohexane	17900		20300	38100	100	20300	39300	106	3	10-163/27
107-06-2	1,2-Dichloroethane	ND		20300	20800	103	20300	21400	106	3	52-134/20
100-41-4	Ethylbenzene	39900		20300	59300	96	20300	60500	102	2	33-149/24
110-54-3	Hexane	35700		20300	53100	86	20300	53000	85	0	10-158/32
98-82-8	Isopropylbenzene	6580		20300	26400	98	20300	26700	99	1	26-157/28
1634-04-4	Methyl Tert Butyl Ether	ND		20300	20500	101	20300	21300	105	4	53-123/19
108-88-3	Toluene	11100		20300	31900	103	20300	32800	107	3	40-146/23
95-63-6	1,2,4-Trimethylbenzene	148000	E	20300	165000	84	20300	168000	99	2	22-157/33
108-67-8	1,3,5-Trimethylbenzene	44600		20300	63200	92	20300	63800	95	1	25-155/30
1330-20-7	Xylene (total)	74900		60800	139000	105	60800	142000	110	2	33-152/24

CAS No.	Surrogate Recoveries	MS	MSD	JB85893-10	Limits
1868-53-7	Dibromofluoromethane	106%	107%	103%	48-141%
17060-07-0	1,2-Dichloroethane-D4	99%	100%	98%	70-120%
2037-26-5	Toluene-D8	96%	98%	96%	78-129%
460-00-4	4-Bromofluorobenzene	90%	91%	89%	72-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB85784-6DUP	V150495.D	1	01/09/15	BM	n/a	n/a	VV6378
JB85784-6	V150492.D	1	01/09/15	BM	n/a	n/a	VV6378

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

JB85833-1

CAS No.	Compound	JB85784-6 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	24
135-98-8	sec-Butylbenzene	ND		ND		nc	12
98-06-6	tert-Butylbenzene	ND		ND		nc	30
110-82-7	Cyclohexane	ND		ND		nc	11
107-06-2	1,2-Dichloroethane	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	22
110-54-3	Hexane	ND		ND		nc	30
98-82-8	Isopropylbenzene	ND		ND		nc	18
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	30
108-88-3	Toluene	ND		ND		nc	26
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	14
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	15
1330-20-7	Xylene (total)	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	JB85784-6	Limits
1868-53-7	Dibromofluoromethane	99%	97%	48-141%
17060-07-0	1,2-Dichloroethane-D4	96%	94%	70-120%
2037-26-5	Toluene-D8	109%	111%	78-129%
460-00-4	4-Bromofluorobenzene	103%	104%	72-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB85833-5DUP	V150552.D	1	01/12/15	BM	n/a	n/a	VV6380
JB85833-5	V150549.D	1	01/12/15	BM	n/a	n/a	VV6380

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

JB85833-3, JB85833-5

CAS No.	Compound	JB85833-5 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	7.9		6.1		26* [a]	24
135-98-8	sec-Butylbenzene	0.28	J	0.32	J	13* [a]	12
98-06-6	tert-Butylbenzene	ND		ND		nc	30
110-82-7	Cyclohexane	3.4		3.6		6	11
107-06-2	1,2-Dichloroethane	ND		ND		nc	30
100-41-4	Ethylbenzene	2.8		2.8		0	22
110-54-3	Hexane	ND		ND		nc	30
98-82-8	Isopropylbenzene	1.1	J	1.3	J	17	18
1634-04-4	Methyl Tert Butyl Ether	0.50	J	ND		200* [a]	30
108-88-3	Toluene	0.22	J	ND		200* [a]	26
95-63-6	1,2,4-Trimethylbenzene	2.3		2.7		16* [a]	14
108-67-8	1,3,5-Trimethylbenzene	2.2		2.2		0	15
1330-20-7	Xylene (total)	1.4		1.5		7	30

CAS No.	Surrogate Recoveries	DUP	JB85833-5	Limits
1868-53-7	Dibromofluoromethane	100%	101%	48-141%
17060-07-0	1,2-Dichloroethane-D4	99%	101%	70-120%
2037-26-5	Toluene-D8	110%	110%	78-129%
460-00-4	4-Bromofluorobenzene	105%	105%	72-130%

(a) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VE9767-BFB
Lab File ID: E222771.D
Instrument ID: GCMSE
Injection Date: 01/12/15
Injection Time: 11:58

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8906	21.6		Pass
75	30.0 - 60.0% of mass 95	20517	49.7		Pass
95	Base peak, 100% relative abundance	41322	100.0		Pass
96	5.0 - 9.0% of mass 95	2898	7.01		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	41621	100.7		Pass
175	5.0 - 9.0% of mass 174	3320	8.03	(7.98) [a]	Pass
176	95.0 - 101.0% of mass 174	41200	99.7	(99.0) [a]	Pass
177	5.0 - 9.0% of mass 176	2770	6.70	(6.72) [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
VE9767-IC9767	E222772.D	01/12/15	12:35	00:37	Initial cal 0.2
VE9767-IC9767	E222773.D	01/12/15	13:05	01:07	Initial cal 0.5
VE9767-IC9767	E222774.D	01/12/15	13:35	01:37	Initial cal 1
VE9767-IC9767	E222775.D	01/12/15	14:05	02:07	Initial cal 2
VE9767-IC9767	E222776.D	01/12/15	14:35	02:37	Initial cal 4
VE9767-IC9767	E222777.D	01/12/15	15:06	03:08	Initial cal 8
VE9767-IC9767	E222778.D	01/12/15	15:36	03:38	Initial cal 20
VE9767-ICC9767	E222779.D	01/12/15	16:06	04:08	Initial cal 50
VE9767-IC9767	E222780.D	01/12/15	16:36	04:38	Initial cal 100
VE9767-IC9767	E222781.D	01/12/15	17:06	05:08	Initial cal 200
VE9767-ICV9767	E222784.D	01/12/15	18:37	06:39	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VE9772-BFB
Lab File ID: E222876.D
Instrument ID: GCMSE
Injection Date: 01/15/15
Injection Time: 08:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8938	20.1		Pass
75	30.0 - 60.0% of mass 95	21618	48.6		Pass
95	Base peak, 100% relative abundance	44493	100.0		Pass
96	5.0 - 9.0% of mass 95	3123	7.02		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	46109	103.6		Pass
175	5.0 - 9.0% of mass 174	3863	8.68	(8.38) [a]	Pass
176	95.0 - 101.0% of mass 174	44456	99.9	(96.4) [a]	Pass
177	5.0 - 9.0% of mass 176	3151	7.08	(7.09) [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
VE9772-CC9767	E222877.D	01/15/15	09:22	00:33	Continuing cal 50
VE9772-MB1	E222879.D	01/15/15	10:27	01:38	Method Blank
ZZZZZZ	E222879A.D	01/15/15	10:27	01:38	(unrelated sample)
VE9772-BS	E222880.D	01/15/15	10:57	02:08	Blank Spike
ZZZZZZ	E222882.D	01/15/15	11:59	03:10	(unrelated sample)
ZZZZZZ	E222883.D	01/15/15	12:29	03:40	(unrelated sample)
ZZZZZZ	E222884.D	01/15/15	12:59	04:10	(unrelated sample)
ZZZZZZ	E222885.D	01/15/15	13:30	04:41	(unrelated sample)
JB85893-10	E222886.D	01/15/15	14:00	05:11	(used for QC only; not part of job JB85833)
ZZZZZZ	E222887.D	01/15/15	14:30	05:41	(unrelated sample)
ZZZZZZ	E222888.D	01/15/15	15:00	06:11	(unrelated sample)
ZZZZZZ	E222889.D	01/15/15	15:30	06:41	(unrelated sample)
JB85893-10MS	E222890.D	01/15/15	16:01	07:12	Matrix Spike
JB85893-10MSD	E222891.D	01/15/15	16:31	07:42	Matrix Spike Duplicate
JB85833-2	E222894.D	01/15/15	18:01	09:12	AOI5_BH-15-01_2-4_01072015
JB85833-4	E222895.D	01/15/15	18:32	09:43	AOI5_BH-15-02_12-14_01072015
JB85833-6	E222896.D	01/15/15	19:02	10:13	AOI5_BH-15-03_4-6_01072015
JB85833-8	E222897.D	01/15/15	19:32	10:43	AOI5_BH-15-04_4-6_01072015
JB85833-7	E222898.D	01/15/15	20:02	11:13	AOI5_BH-15-04_0-2_01072015

Instrument Performance Check (BFB)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VE9774-BFB
Lab File ID: E222910.D
Instrument ID: GCMSE
Injection Date: 01/16/15
Injection Time: 08:05

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	21208	19.3		Pass
75	30.0 - 60.0% of mass 95	54637	49.7		Pass
95	Base peak, 100% relative abundance	109970	100.0		Pass
96	5.0 - 9.0% of mass 95	7390	6.72		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	115029	104.6		Pass
175	5.0 - 9.0% of mass 174	9213	8.38	(8.01) [a]	Pass
176	95.0 - 101.0% of mass 174	112752	102.5	(98.0) [a]	Pass
177	5.0 - 9.0% of mass 176	7419	6.75	(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
VE9774-CC9767	E222912.D	01/16/15	09:55	01:50	Continuing cal 50
ZZZZZZ	E222914A.D	01/16/15	10:57	02:52	(unrelated sample)
VE9774-MB1	E222914.D	01/16/15	10:57	02:52	Method Blank
VE9774-BS	E222915.D	01/16/15	11:27	03:22	Blank Spike
ZZZZZZ	E222917.D	01/16/15	12:27	04:22	(unrelated sample)
JB86135-1	E222918.D	01/16/15	12:58	04:53	(used for QC only; not part of job JB85833)
ZZZZZZ	E222919.D	01/16/15	13:28	05:23	(unrelated sample)
ZZZZZZ	E222920.D	01/16/15	13:59	05:54	(unrelated sample)
ZZZZZZ	E222921.D	01/16/15	14:29	06:24	(unrelated sample)
JB85833-4	E222922.D	01/16/15	14:59	06:54	AOI5_BH-15-02_12-14_01072015
JB86135-1MS	E222924.D	01/16/15	15:59	07:54	Matrix Spike
JB86135-1MSD	E222925.D	01/16/15	16:30	08:25	Matrix Spike Duplicate
ZZZZZZ	E222927.D	01/16/15	17:30	09:25	(unrelated sample)
ZZZZZZ	E222928.D	01/16/15	18:00	09:55	(unrelated sample)
ZZZZZZ	E222929.D	01/16/15	18:30	10:25	(unrelated sample)
ZZZZZZ	E222930.D	01/16/15	19:00	10:55	(unrelated sample)
ZZZZZZ	E222931.D	01/16/15	19:30	11:25	(unrelated sample)
ZZZZZZ	E222932.D	01/16/15	20:00	11:55	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VV6266-BFB
Lab File ID: V147420.D
Instrument ID: GCMSV
Injection Date: 09/03/14
Injection Time: 10:09

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	12725	19.6		Pass
75	30.0 - 60.0% of mass 95	31082	47.8		Pass
95	Base peak, 100% relative abundance	64976	100.0		Pass
96	5.0 - 9.0% of mass 95	4574	7.04		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 150.0% of mass 95	57872	89.1		Pass
175	5.0 - 9.0% of mass 174	4351	6.70	(7.52) [a]	Pass
176	95.0 - 101.0% of mass 174	57720	88.8	(99.7) [a]	Pass
177	5.0 - 9.0% of mass 176	3684	5.67	(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
VV6266-IC6266	V147421.D	09/03/14	10:47	00:38	Initial cal 0.2
VV6274-IC6274	V147421C.D	09/03/14	10:47	00:38	Initial cal 0.2
VV6266-IC6266	V147422.D	09/03/14	11:16	01:07	Initial cal 0.5
VV6274-IC6274	V147422C.D	09/03/14	11:16	01:07	Initial cal 0.5
VV6266-IC6266	V147423.D	09/03/14	11:45	01:36	Initial cal 1
VV6274-IC6274	V147423C.D	09/03/14	11:45	01:36	Initial cal 1
VV6266-IC6266	V147424.D	09/03/14	12:14	02:05	Initial cal 2
VV6274-IC6274	V147424C.D	09/03/14	12:14	02:05	Initial cal 2
VV6266-IC6266	V147425.D	09/03/14	12:44	02:35	Initial cal 4
VV6274-IC6274	V147425C.D	09/03/14	12:44	02:35	Initial cal 4
VV6266-IC6266	V147426.D	09/03/14	13:14	03:05	Initial cal 8
VV6274-IC6274	V147426C.D	09/03/14	13:14	03:05	Initial cal 8
VV6266-IC6266	V147427.D	09/03/14	13:43	03:34	Initial cal 20
VV6274-IC6274	V147427C.D	09/03/14	13:43	03:34	Initial cal 20
VV6266-ICC6266	V147428.D	09/03/14	14:12	04:03	Initial cal 50
VV6274-ICC6274	V147428C.D	09/03/14	14:12	04:03	Initial cal 50
VV6266-IC6266	V147429.D	09/03/14	14:40	04:31	Initial cal 100
VV6274-IC6274	V147429C.D	09/03/14	14:40	04:31	Initial cal 100
VV6266-IC6266	V147430.D	09/03/14	15:10	05:01	Initial cal 200
VV6274-IC6274	V147430C.D	09/03/14	15:10	05:01	Initial cal 200
VV6266-ICV6266	V147433.D	09/03/14	16:38	06:29	Initial cal verification 50
VV6274-ICV6274	V147433C.D	09/03/14	16:38	06:29	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VV6378-BFB
Lab File ID: V150484.D
Instrument ID: GCMSV
Injection Date: 01/09/15
Injection Time: 11:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10187	19.1		Pass
75	30.0 - 60.0% of mass 95	26133	48.9		Pass
95	Base peak, 100% relative abundance	53435	100.0		Pass
96	5.0 - 9.0% of mass 95	3788	7.09		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 150.0% of mass 95	50296	94.1		Pass
175	5.0 - 9.0% of mass 174	3794	7.10	(7.54) [a]	Pass
176	95.0 - 101.0% of mass 174	48064	89.9	(95.6) [a]	Pass
177	5.0 - 9.0% of mass 176	3179	5.95	(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
VV6378-CC6266	V150486.D	01/09/15	12:51	01:03	Continuing cal 50
VV6378-MB	V150488.D	01/09/15	13:48	02:00	Method Blank
VV6378-BS	V150489.D	01/09/15	14:17	02:29	Blank Spike
JB85784-5	V150491.D	01/09/15	15:16	03:28	(used for QC only; not part of job JB85833)
JB85784-6	V150492.D	01/09/15	15:44	03:56	(used for QC only; not part of job JB85833)
ZZZZZZ	V150493.D	01/09/15	16:13	04:25	(unrelated sample)
ZZZZZZ	V150494.D	01/09/15	16:42	04:54	(unrelated sample)
JB85784-6DUP	V150495.D	01/09/15	17:11	05:23	Duplicate
JB85784-5MS	V150496.D	01/09/15	17:40	05:52	Matrix Spike
ZZZZZZ	V150498.D	01/09/15	18:37	06:49	(unrelated sample)
ZZZZZZ	V150499.D	01/09/15	19:06	07:18	(unrelated sample)
ZZZZZZ	V150500.D	01/09/15	19:35	07:47	(unrelated sample)
ZZZZZZ	V150501.D	01/09/15	20:04	08:16	(unrelated sample)
ZZZZZZ	V150503.D	01/09/15	21:02	09:14	(unrelated sample)
ZZZZZZ	V150504.D	01/09/15	21:31	09:43	(unrelated sample)
ZZZZZZ	V150505.D	01/09/15	22:00	10:12	(unrelated sample)
JB85833-1	V150506.D	01/09/15	23:30	11:42	AOI5_BH-15-01_0-2_01072015

Instrument Performance Check (BFB)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VV6379-BFB2 **Injection Date:** 01/12/15
Lab File ID: V150539.D **Injection Time:** 08:40
Instrument ID: GCMSV

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10387	19.4		Pass
75	30.0 - 60.0% of mass 95	26576	49.7		Pass
95	Base peak, 100% relative abundance	53445	100.0		Pass
96	5.0 - 9.0% of mass 95	3410	6.38		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 150.0% of mass 95	50128	93.8		Pass
175	5.0 - 9.0% of mass 174	3741	7.00	(7.46) [a]	Pass
176	95.0 - 101.0% of mass 174	48789	91.3	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	3176	5.94	(6.51) [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
VV6379-CC6266	V150541.D	01/12/15	10:19	01:39	Continuing cal 20
VV6379-MB2	V150543.D	01/12/15	11:26	02:46	Method Blank
JB85871-3DUP	V150544.D	01/12/15	11:55	03:15	Duplicate
VV6380-MB	V150545.D	01/12/15	12:24	03:44	Method Blank
VV6380-BS	V150546.D	01/12/15	12:52	04:12	Blank Spike
JB85833-3	V150548.D	01/12/15	13:50	05:10	AOI5_BH-15-02_0-2_01072015
JB85833-5	V150549.D	01/12/15	14:19	05:39	AOI5_BH-15-03_0-2_01072015
JB85833-3MS	V150550.D	01/12/15	14:48	06:08	Matrix Spike
JB85833-5DUP	V150552.D	01/12/15	15:45	07:05	Duplicate
ZZZZZZ	V150553.D	01/12/15	16:14	07:34	(unrelated sample)
ZZZZZZ	V150554.D	01/12/15	16:43	08:03	(unrelated sample)
ZZZZZZ	V150555.D	01/12/15	17:12	08:32	(unrelated sample)
ZZZZZZ	V150556.D	01/12/15	17:40	09:00	(unrelated sample)
ZZZZZZ	V150557.D	01/12/15	18:09	09:29	(unrelated sample)
ZZZZZZ	V150558.D	01/12/15	18:38	09:58	(unrelated sample)
ZZZZZZ	V150559.D	01/12/15	19:06	10:26	(unrelated sample)
ZZZZZZ	V150560.D	01/12/15	19:35	10:55	(unrelated sample)
ZZZZZZ	V150561.D	01/12/15	20:04	11:24	(unrelated sample)
ZZZZZZ	V150562.D	01/12/15	20:33	11:53	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VE9772-CC9767	**Injection Date:**	01/15/15
Lab File ID:	E222877.D	**Injection Time:**	09:22
Instrument ID:	GCMSE	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	112599	7.97	138743	10.15	162602	11.08	174485	14.40	127602	16.97
Upper Limit [a]	225198	8.47	277486	10.65	325204	11.58	348970	14.90	255204	17.47
Lower Limit [b]	56300	7.47	69372	9.65	81301	10.58	87243	13.90	63801	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
VE9772-MB1	111034	7.99	140252	10.15	167863	11.08	174990	14.40	127711	16.97
ZZZZZZ	111034	7.99	140252	10.15	167863	11.08	174990	14.40	127711	16.97
VE9772-BS	116622	7.96	138093	10.15	163421	11.08	178642	14.40	134115	16.97
ZZZZZZ	114255	7.98	144307	10.15	168053	11.08	178482	14.40	126614	16.97
ZZZZZZ	112209	7.98	136099	10.14	162930	11.07	179945	14.40	130669	16.97
ZZZZZZ	114643	7.98	139664	10.14	169878	11.08	179669	14.40	129421	16.97
ZZZZZZ	118172	7.97	148681	10.15	177753	11.07	188390	14.40	143563	16.97
JB85893-10	133159	7.96	151431	10.15	182512	11.08	193107	14.40	145347	16.97
ZZZZZZ	130585	7.96	157359	10.15	184632	11.08	191963	14.40	147433	16.97
ZZZZZZ	122947	7.98	153623	10.15	186899	11.08	203639	14.40	146567	16.97
ZZZZZZ	133297	7.96	159894	10.15	189475	11.08	201342	14.40	148700	16.97
JB85893-10MS	133337	7.96	156939	10.15	188294	11.07	200401	14.40	148909	16.97
JB85893-10MSD	132305	7.97	151254	10.15	181208	11.08	196781	14.40	148329	16.97
JB85833-2 [c]	115225	7.98	148203	10.15	178632	11.08	189702	14.40	135886	16.97
JB85833-4 [c]	125519	7.99	158853	10.14	189112	11.08	196260	14.40	143415	16.97
JB85833-6 [c]	127620	7.98	162029	10.14	197117	11.08	203453	14.40	148630	16.97
JB85833-8 [d]	134206	7.96	160442	10.14	189080	11.08	200041	14.40	142719	16.97
JB85833-7 [d]	137175	7.96	170810	10.15	200479	11.08	208010	14.40	145863	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.
(d) Diluted due to high concentration of non-target compound.

Volatile Internal Standard Area Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VE9774-CC9767	**Injection Date:**	01/16/15
Lab File ID:	E222912.D	**Injection Time:**	09:55
Instrument ID:	GCMSE	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	126428	7.95	149180	10.15	174754	11.07	185697	14.40	137365	16.97
Upper Limit [a]	252856	8.45	298360	10.65	349508	11.57	371394	14.90	274730	17.47
Lower Limit [b]	63214	7.45	74590	9.65	87377	10.57	92849	13.90	68683	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
ZZZZZZ	116668	7.99	141931	10.15	170037	11.07	184077	14.40	133295	16.97
VE9774-MB1	116668	7.99	141931	10.15	170037	11.07	184077	14.40	133295	16.97
VE9774-BS	120584	7.95	151582	10.15	178746	11.08	187914	14.40	137265	16.97
ZZZZZZ	115299	7.98	140920	10.15	169708	11.07	181579	14.40	133465	16.97
JB86135-1	118042	7.99	147480	10.15	174380	11.07	189564	14.40	134117	16.97
ZZZZZZ	116417	7.98	150491	10.15	181178	11.08	187616	14.40	136554	16.97
ZZZZZZ	136443	7.96	168357	10.15	195710	11.08	204341	14.40	144577	16.97
ZZZZZZ	130168	7.96	166677	10.15	193725	11.08	201322	14.40	137269	16.97
JB85833-4 [c]	125949	7.96	153506	10.15	181007	11.08	191299	14.40	134174	16.97
JB86135-1MS	119797	7.98	152878	10.14	184248	11.08	196994	14.40	142344	16.97
JB86135-1MSD	123594	7.99	147951	10.15	182835	11.07	196274	14.40	145434	16.97
ZZZZZZ	123424	7.96	152749	10.15	175804	11.08	182804	14.40	130043	16.97
ZZZZZZ	119698	7.96	142917	10.14	163347	11.08	177672	14.40	127497	16.97
ZZZZZZ	115675	7.98	143098	10.14	171255	11.08	181830	14.40	129684	16.97
ZZZZZZ	121036	7.96	148246	10.15	171615	11.08	176985	14.40	124132	16.97
ZZZZZZ	109731	7.98	136394	10.15	164188	11.07	177783	14.40	128606	16.97
ZZZZZZ	114379	7.97	141359	10.15	165384	11.07	179250	14.40	131135	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) Confirmation run for surrogate recoveries.

Volatile Internal Standard Area Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VV6378-CC6266	**Injection Date:**	01/09/15
Lab File ID:	V150486.D	**Injection Time:**	12:51
Instrument ID:	GCMSV	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	73016	7.19	223164	9.42	255122	10.36	237014	13.78	135173	16.39
Upper Limit [a]	146032	7.69	446328	9.92	510244	10.86	474028	14.28	270346	16.89
Lower Limit [b]	36508	6.69	111582	8.92	127561	9.86	118507	13.28	67587	15.89

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VV6378-MB	63613	7.19	212939	9.43	245039	10.37	229209	13.78	131020	16.39
VV6378-BS	73318	7.19	219397	9.43	253770	10.37	235709	13.78	134110	16.39
JB85784-5	67484	7.19	210616	9.43	234299	10.37	224031	13.78	129543	16.39
JB85784-6	54403	7.19	222318	9.43	250361	10.37	231206	13.78	130130	16.39
ZZZZZZ	61423	7.20	220690	9.42	249652	10.36	238872	13.78	133436	16.39
ZZZZZZ	62395	7.19	223900	9.43	253827	10.37	237297	13.78	132353	16.39
JB85784-6DUP	55794	7.19	224088	9.43	254334	10.37	235738	13.78	131639	16.39
JB85784-5MS	46725	7.19	217012	9.43	246066	10.37	224212	13.78	122995	16.39
ZZZZZZ	73433	7.19	223523	9.43	248781	10.37	234571	13.78	135171	16.39
ZZZZZZ	71320	7.19	227116	9.43	260556	10.37	236989	13.78	135186	16.39
ZZZZZZ	67827	7.19	220772	9.43	243914	10.37	224329	13.78	130514	16.39
ZZZZZZ	74673	7.19	219062	9.43	242976	10.37	226760	13.78	133266	16.39
ZZZZZZ	72943	7.19	225805	9.43	256104	10.37	239738	13.78	137023	16.39
ZZZZZZ	66976	7.19	227512	9.42	254287	10.37	237057	13.78	136761	16.39
ZZZZZZ	71705	7.19	226509	9.43	257960	10.37	240704	13.78	136419	16.39
JB85833-1	77595	7.18	219620	9.42	251418	10.36	241982	13.78	136923	16.39

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: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	VV6379-CC6266	**Injection Date:**	01/12/15
Lab File ID:	V150541.D	**Injection Time:**	10:19
Instrument ID:	GCMSV	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	68677	7.18	205585	9.42	230885	10.36	214241	13.78	123786	16.39
Upper Limit [a]	137354	7.68	411170	9.92	461770	10.86	428482	14.28	247572	16.89
Lower Limit [b]	34339	6.68	102793	8.92	115443	9.86	107121	13.28	61893	15.89

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VV6379-MB2	60326	7.19	211501	9.42	242041	10.36	225795	13.78	125172	16.39
JB85871-3DUP	69897	7.19	209816	9.42	238286	10.36	223103	13.78	128565	16.39
VV6380-MB	61411	7.19	206452	9.42	230968	10.37	219802	13.78	124697	16.39
VV6380-BS	68746	7.19	198305	9.42	230799	10.36	217772	13.78	128725	16.39
JB85833-3	74367	7.19	216058	9.42	245936	10.37	234169	13.78	133520	16.39
JB85833-5	66400	7.19	217171	9.43	244082	10.37	236597	13.78	134972	16.39
JB85833-3MS	45633	7.19	215171	9.43	241439	10.37	216750	13.78	123262	16.39
JB85833-5DUP	66810	7.19	215485	9.43	245050	10.37	238918	13.78	136996	16.39
ZZZZZZ	65141	7.19	217208	9.43	245290	10.37	239431	13.78	132271	16.39
ZZZZZZ	64103	7.19	188617	9.43	216214	10.37	201433	13.78	111080	16.39
ZZZZZZ	71017	7.19	219010	9.42	248050	10.37	232896	13.78	128564	16.39
ZZZZZZ	63215	7.19	214739	9.42	243921	10.37	228254	13.78	126448	16.39
ZZZZZZ	56547	7.19	205951	9.43	231485	10.37	215670	13.78	118592	16.39
ZZZZZZ	64494	7.19	177936	9.43	202836	10.37	191269	13.78	106837	16.39
ZZZZZZ	61073	7.19	220474	9.43	248981	10.37	232512	13.78	127390	16.39
ZZZZZZ	66568	7.19	221909	9.43	247117	10.37	236621	13.78	132642	16.39
ZZZZZZ	71373	7.19	221191	9.42	247877	10.37	231406	13.78	131160	16.39
ZZZZZZ	66695	7.19	218376	9.43	248753	10.37	238173	13.78	130551	16.39

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: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Method: SW846 8260B **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB85833-1	V150506.D	80	106	108	104
JB85833-2	E222894.D	106	101	97	91
JB85833-3	V150548.D	99	96	109	105
JB85833-4	E222895.D	98	155* [a]	97	90
JB85833-4	E222922.D	103	102	96	91
JB85833-5	V150549.D	101	101	110	105
JB85833-6	E222896.D	101	106	96	89
JB85833-7	E222898.D	98	100	96	90
JB85833-8	E222897.D	101	95	96	89
JB85784-5MS	V150496.D	98	83	108	103
JB85784-6DUP	V150495.D	99	96	109	103
JB85833-3MS	V150550.D	96	81	107	103
JB85833-5DUP	V150552.D	100	99	110	105
JB85893-10MS	E222890.D	106	99	96	90
JB85893-10MSD	E222891.D	107	100	98	91
VE9772-BS	E222880.D	106	98	98	89
VE9772-MB1	E222879.D	102	96	96	87
VV6378-BS	V150489.D	101	95	109	106
VV6378-MB	V150488.D	100	95	109	104
VV6380-BS	V150546.D	102	96	109	107
VV6380-MB	V150545.D	98	91	109	105

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	48-141%
S2 = 1,2-Dichloroethane-D4	70-120%
S3 = Toluene-D8	78-129%
S4 = 4-Bromofluorobenzene	72-130%

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

Initial Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VE9767-ICC9767
Lab FileID: E222779.D

Response Factor Report MSE

```
Method       : C:\msdchem\1\METHODS\ME9767.M (RTE Integrator)
Title        : SW846  8260C,ZB624 60m x 0.25mm x 1.4um
Last Update  : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

Calibration Files
4   =E222776.D   2   =E222775.D   20  =E222778.D   50  =E222779.D
100 =E222780.D   1   =E222774.D   200 =E222781.D   0.5 =E222773.D
8   =E222777.D   0.2 =E222772.D       =                =

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

1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.100 0.081 0.112 0.119 0.116       0.117       0.107        0.107   12.43
3)  tertiary butyl alcohol
     1.305 1.135 1.295 1.299 1.261       1.248       1.328        1.267    5.06

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  chlorodifluoromethane
     0.373 0.306 0.381 0.382 0.378       0.368       0.382        0.367    7.44
6)  dichlorodifluoromethane
     0.388       0.441 0.454 0.410       0.425       0.440        0.426    5.63
7)  chloromethane
     0.574 0.517 0.567 0.585 0.573 0.460 0.629       0.522        0.553    9.34
8)  vinyl chloride
     0.466 0.417 0.459 0.494 0.476 0.313 0.492       0.457        0.447   13.30
9)  1,3-Butadiene
                                                                  0.000#  -1.00
10)  bromomethane
     0.361 0.360 0.370 0.373 0.368 0.305 0.410       0.338        0.361    8.31
11)  chloroethane
     0.241 0.252 0.238 0.245 0.237       0.250       0.243        0.244    2.29
12)  vinyl bromide
                                                                  0.000#  -1.00
13)  trichlorofluoromethane
     0.514 0.348 0.497 0.519 0.492       0.504       0.492        0.481   12.37
14)  pentane
                                                                  0.000#  -1.00
15)  ethyl ether
     0.252 0.251 0.281 0.287 0.283       0.307       0.262        0.275    7.51
16)  2-chloropropane
     0.684 0.609 0.605 0.643 0.603       0.616       0.617        0.625    4.65
17)  acrolein
     0.133 0.131 0.143 0.141       0.140             0.128        0.136    4.50
18)  1,1-dichloroethene
     0.567 0.458 0.523 0.549 0.505 0.341 0.519       0.520        0.498   14.25
19)  acetone
                 0.064 0.065 0.064       0.072       0.061        0.065    5.89
20)  allyl chloride
     0.198 0.161 0.199 0.210 0.200       0.221       0.193        0.198    9.38
21)  acetonitrile
     0.076       0.075 0.071 0.069       0.072       0.074        0.073    3.80
22)  iodomethane
     0.781 0.643 0.732 0.763 0.745       0.828       0.718        0.744    7.70
23)  iso-butyl alcohol
```

Initial Calibration Summary

Job Number: JB85833 **Sample:** VE9767-ICC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222779.D
Project: Sunoco - Marcus Hook Facility, PA

	0.006		0.006	0.007	0.007		0.007	0.006		0.007#	10.07
24)	carbon disulfide										
	1.156	0.992	1.091	1.134	1.097	0.841	1.151	1.103		1.071	9.93
25)	methylene chloride										
	0.468	0.394	0.479	0.496	0.477	0.374	0.540	0.443		0.459	11.78
26)	1-chloropropane										
	0.860	0.791	0.755	0.722	0.705		0.715	0.774		0.760	7.16
27)	methyl acetate										
	0.618		0.627	0.625	0.629		0.665	0.598		0.627	3.49
28)	methyl tert butyl ether										
	1.694	1.602	1.720	1.707	1.664	1.645	1.814	1.874	1.649	1.708	5.05
29)	trans-1,2-dichloroethene										
	0.573	0.488	0.548	0.563	0.534	0.379	0.566	0.493	0.530	0.519	11.71
30)	di-isopropyl ether										
	1.601	1.533	1.594	1.632	1.610	1.462	1.747	1.622	1.490	1.588	5.34
31)	ethyl tert-butyl ether										
	1.523	1.428	1.573	1.599	1.592	1.434	1.727		1.474	1.544	6.50
32)	2-butanone										
	0.056		0.082	0.081	0.086		0.089	0.081		0.079	14.87
33)	1,1-dichloroethane										
	0.725	0.625	0.727	0.751	0.730	0.573	0.791	0.678		0.700	10.19
34)	chloroprene										
	0.540	0.462	0.526	0.559	0.537	0.406	0.531	0.551	0.510	0.513	9.60
35)	acrylonitrile										
	0.268	0.242	0.268	0.272	0.267	0.229	0.287	0.246		0.260	7.39
36)	vinyl acetate										
	0.102		0.100	0.103	0.103		0.109	0.085		0.100	8.16
37)	ethyl acetate										
	0.125	0.126	0.106	0.109	0.106		0.110	0.101		0.112	8.73
38)	2,2-dichloropropane										
	0.612	0.524	0.545	0.554	0.518	0.559	0.533	0.578		0.553	5.58
39)	cis-1,2-dichloroethene										
	0.517	0.636	0.454	0.486	0.474	0.500	0.508	0.488		0.508	10.93
40)	methyl acrylate										
	0.596	0.644	0.596	0.621	0.620	0.542	0.641	0.572		0.604	5.77
41)	propionitrile										
	0.110	0.096	0.109	0.111	0.110	0.092	0.118	0.103		0.106	7.86
42)	bromochloromethane										
	0.247	0.222	0.277	0.286	0.279	0.210	0.301	0.259		0.260	12.22
43)	tetrahydrofuran										
	0.095		0.097	0.098	0.098		0.104	0.088		0.097	5.29
44)	chloroform										
	0.765	0.700	0.752	0.778	0.764	0.575	0.817	0.771	0.728	0.739	9.39
45)	t-butyl formate										
	0.580	0.558	0.584	0.590	0.588	0.508	0.620	0.470	0.536	0.559	8.39
46)	Iso-octane										
	1.120	0.895	1.149	1.160	0.999	0.815	1.028		1.108	1.034	12.15
47)	dibromofluoromethane (s)										
	0.392	0.368	0.405	0.420	0.421	0.369	0.467	0.300	0.397	0.393	11.71
48)	1,2-dichloroethane-d4 (s)										
	0.597	0.542	0.581	0.594	0.592	0.560	0.645		0.579	0.586	5.15
49)	freon 113										
	0.218		0.225	0.233	0.211		0.212	0.229		0.221	4.06
50)	methacrylonitrile										
	0.274	0.243	0.264	0.278	0.279		0.301	0.259		0.271	6.74
51)	1,1,1-trichloroethane										
	0.570	0.432	0.546	0.569	0.539	0.465	0.554	0.557		0.529	9.72
52)	Cyclohexane										
	0.474	0.391	0.454	0.474	0.427		0.432	0.466		0.445	6.84
53)	tert-amyl methyl ether										

```
      1.700 1.687 1.649 1.667 1.656 1.861 1.783 1.935 1.574        1.723    6.63

54) I   1,4-difluorobenzene   ----------------ISTD--------------------
55)  tert amyl alcohol
                                                                   0.000#  -1.00
56)  epichlorohydrin
      0.064 0.071 0.066 0.066 0.067 0.062 0.068       0.063        0.066    4.57
57)  n-butyl alcohol
      0.021 0.021 0.023 0.022 0.022 0.019 0.023       0.020        0.021    6.73
58)  tert-amyl ethyl ether
                                                                   0.000#  -1.00
59)  carbon tetrachloride
      0.438 0.354 0.405 0.417 0.386       0.361       0.410        0.396    7.72
60)  1,1-dichloropropene
      0.399 0.344 0.364 0.387 0.372 0.321 0.347 0.302 0.394        0.359    9.28
61)  hexane
      0.328 0.265 0.299 0.308 0.270       0.249       0.320        0.291   10.31
62)  benzene
      1.388 1.189 1.300 1.334 1.334 1.108 1.339 1.274 1.321 1.205  1.279    6.71
63)  heptane
      0.215 0.173 0.187 0.192 0.169       0.158       0.212        0.187   11.54
64)  isopropyl acetate
      0.215 0.185 0.214 0.219 0.221       0.220       0.192        0.209    6.91
65)  1,2-dichloroethane
      0.612 0.592 0.603 0.612 0.602 0.569 0.607 0.468 0.614        0.587    7.93
66)  ethyl acrylate
                                                                   0.000#  -1.00
67)  trichloroethene
      0.336 0.287 0.305 0.325 0.317 0.233 0.312       0.321        0.304   10.63
68)  2-nitropropane
                                                                   0.000#  -1.00
69)  2-chloroethyl vinyl ether
      0.325 0.301 0.327 0.333 0.334 0.284 0.334 0.294 0.319        0.317    6.00
70)  methylcyclohexane
      0.423 0.346 0.414 0.420 0.377       0.359       0.425        0.395    8.45
71)  methyl methacrylate
      0.147 0.120 0.146 0.153 0.150       0.155       0.146        0.145    7.93
72)  1,2-dichloropropane
      0.388 0.348 0.361 0.382 0.383 0.291 0.389 0.333 0.371        0.361    8.96
73)  dibromomethane
      0.288 0.277 0.287 0.290 0.285 0.282 0.295       0.274        0.285    2.39
74)  bromodichloromethane
      0.554 0.471 0.567 0.576 0.574 0.474 0.586       0.565        0.546    8.46
75)  cis-1,3-dichloropropene
      0.725 0.648 0.691 0.704 0.700 0.552 0.718 0.694 0.685        0.680    7.78
76)  toluene-d8 (s)
      1.258 1.137 1.169 1.204 1.197 1.187 1.260 1.331 1.211 1.451  1.241    7.41
77)  4-methyl-2-pentanone
      0.247 0.218 0.238 0.240 0.233       0.244       0.225        0.235    4.41
78)  toluene
      0.864 0.805 0.821 0.858 0.852 0.625 0.870 0.922 0.841        0.829   10.03
79)  3-methyl-1-butanol
      0.030 0.034 0.035 0.034 0.034       0.034       0.030        0.033    5.74
80)  trans-1,3-dichloropropene
      0.757 0.641 0.712 0.740 0.725 0.628 0.738 0.721 0.713 0.450  0.682   13.47
81)  ethyl methacrylate
      0.643 0.584 0.639 0.676 0.673 0.582 0.685       0.646        0.641    6.18
82)  1,1,2-trichloroethane
      0.366 0.313 0.349 0.359 0.356 0.290 0.364       0.344        0.343    7.93
83)  2-hexanone
```

```
       0.048       0.046 0.047 0.049       0.049       0.047        0.048    2.54

 84) I   chlorobenzene-d5      ----------------ISTD---------------------
 85)  cyclohexanone
       0.068 0.059 0.065 0.055 0.058 0.064 0.050       0.065        0.061   10.21
 86)  tetrachloroethene
       0.391 0.322 0.346 0.347 0.341 0.254 0.323 0.267 0.369        0.329   13.51
 87)  1,3-dichloropropane
       0.676 0.599 0.649 0.649 0.649 0.511 0.648       0.680        0.633    8.67
 88)  butyl acetate
       0.384 0.435 0.387 0.369 0.367 0.385 0.362 0.289 0.366        0.372   10.27
 89)  3,3-dimethyl-1-butanol
       0.062 0.058 0.071 0.070 0.070 0.053 0.073       0.065        0.065   11.12
 90)  dibromochloromethane
       0.479 0.400 0.500 0.504 0.499 0.383 0.516 0.355 0.486        0.458   13.35
 91)  1,2-dibromoethane
       0.449 0.395 0.450 0.453 0.452 0.402 0.462 0.323 0.438        0.425   10.59
 92)  n-butyl ether
       1.536 1.370 1.505 1.473 1.479 1.164 1.448 1.405 1.526 1.242  1.415    8.77
 93)  chlorobenzene
       1.076 0.957 1.025 1.044 1.039 0.952 1.057 0.996 1.058 0.758  0.996    9.41
 94)  1,1,1,2-tetrachloroethane
       0.408 0.386 0.431 0.423 0.420 0.373 0.432       0.439        0.414    5.67
 95)  ethylbenzene
       1.647 1.454 1.535 1.566 1.543 1.369 1.540 1.712 1.644 1.645  1.565    6.53
 96)  m,p-xylene
       0.667 0.554 0.618 0.625 0.620 0.490 0.625 0.575 0.624        0.600    8.72
 97)  o-xylene
       0.701 0.638 0.682 0.680 0.682 0.516 0.699 0.559 0.691 0.541  0.639   11.27
 98)  butyl acrylate
                                                                    0.000#  -1.00
 99)  styrene
       1.236 1.093 1.245 1.253 1.265 0.914 1.299 1.092 1.229 1.034  1.166   10.77
100)  bromoform
       0.424 0.391 0.454 0.456 0.459 0.345 0.479       0.419        0.428   10.26

101) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
102)  isopropylbenzene
       2.405 2.061 2.196 2.292 2.167 1.937 2.110 2.437 2.350        2.217    7.54
103)  4-bromofluorobenzene (s)
       0.761 0.728 0.741 0.750 0.743 0.859 0.770 0.994 0.761        0.790   10.81
104)  cis-1,4-dichloro-2-butene
                                                                    0.000#  -1.00
105)  bromobenzene
       0.893 0.769 0.821 0.824 0.798 0.774 0.805 0.822 0.825        0.815    4.47
106)  1,1,2,2-tetrachloroethane
       1.008 0.855 0.974 0.975 0.946 0.969 0.945 0.903 0.976        0.950    4.85
107)  trans-1,4-dichloro-2-butene
       0.315 0.266 0.341 0.333 0.327       0.316       0.319        0.317    7.73
108)  1,2,3-trichloropropane
       0.306 0.240 0.282 0.279 0.273 0.223 0.270 0.191 0.286        0.261   13.82
109)  n-propylbenzene
       2.904 2.520 2.603 2.701 2.590 2.614 2.542 3.177 2.765 2.896  2.731    7.61
110)  p-ethyltoluene
                                                                    0.000#  -1.00
111)  2-chlorotoluene
       0.702 0.617 0.653 0.655 0.634 0.574 0.644 0.724 0.691 0.474  0.637   11.24
112)  4-chlorotoluene
       2.140 1.958 1.978 2.008 1.948 2.003 1.976 2.471 2.078 2.847  2.141   13.68
113)  1,3,5-trimethylbenzene
```

Initial Calibration Summary

Job Number: JB85833 **Sample:** VE9767-ICC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222779.D
Project: Sunoco - Marcus Hook Facility, PA

```
       2.319 2.035 2.186 2.236 2.173 1.939 2.191 2.366 2.231 2.305  2.198    5.90
114)  tert-butylbenzene
       0.494 0.448 0.429 0.436 0.418 0.390 0.427       0.461        0.438    7.05
115)  pentachloroethane
       0.405 0.350 0.393 0.409 0.412 0.305 0.429       0.398        0.388   10.46
116)  1,2,4-trimethylbenzene
       2.447 2.162 2.344 2.409 2.329 2.030 2.397 2.327 2.411 2.517  2.337    6.12
117)  sec-butylbenzene
       2.932 2.549 2.723 2.789 2.676 2.436 2.627 2.715 2.884 3.187  2.752    7.71
118)  1,3-dichlorobenzene
       1.685 1.544 1.682 1.728 1.682 1.497 1.722 1.608 1.701 1.664  1.651    4.68
119)  p-isopropyltoluene
       2.699 2.466 2.565 2.656 2.559 2.221 2.572       2.657        2.549    5.96
120)  1,4-dichlorobenzene
       1.706 1.650 1.718 1.759 1.720 1.518 1.753 1.593 1.708        1.681    4.74
121)  benzyl chloride
       2.163 2.087 2.196 2.166 2.107       2.079       2.119        2.131    2.08
122)  p-diethylbenzene
                                                                    0.000#  -1.00
123)  1,2-dichlorobenzene
       1.794 1.570 1.712 1.765 1.724 1.458 1.760 1.684 1.768 1.629  1.686    6.28
124)  n-butylbenzene
       1.400 1.233 1.335 1.394 1.363 1.081 1.358 1.254 1.377 1.124  1.292    8.86
125)  1,2,4,5-tetramethylbenzene
                                                                    0.000#  -1.00
126)  1,2-dibromo-3-chloropropane
       0.287       0.288 0.281 0.274       0.271       0.276        0.279    2.48
127)  1,3,5-trichlorobenzene
       1.585 1.455 1.571 1.673 1.646 1.221 1.634 1.506 1.576 1.545  1.541    8.45
128)  1,2,4-trichlorobenzene
       1.239 1.013 1.303 1.383 1.363 0.979 1.366       1.276        1.240   12.80
129)  hexachlorobutadiene
       0.899 0.780 0.819 0.859 0.827 0.759 0.804       0.849        0.825    5.45
130)  naphthalene
       2.627 2.310 2.929 3.039 3.019 2.118 3.031       2.759        2.729   12.93
131)  1,2,3-trichlorobenzene
       1.059       1.123 1.184 1.172       1.175       1.099        1.135    4.43
132)  hexachloroethane
       0.599 0.420 0.488 0.526 0.514 0.559 0.536       0.541        0.523   10.09
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          ME9767.M          Tue Jan 13 14:28:56 2015   RPT1
```

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: VE9767-ICV9767
Lab FileID: E222784.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E222784.D Vial: 14
Acq On : 12 Jan 2015 6:37 pm Operator: thienn
Sample : icv9767-50 Inst : MSE
Misc : MS78492,VE9767,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9767.M (RTE Integrator)
Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Jan 13 14:28:03 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1		Tert Butyl Alcohol-d9	1.000	1.000	0.0	100	0.00	7.97
2	M	1,4-dioxane	0.107	0.115	-7.5	97	0.00	11.82
3	M	tertiary butyl alcohol	1.267	1.221	3.6	94	0.00	8.09
4	I	pentafluorobenzene	1.000	1.000	0.0	99	0.00	10.15
5	M	chlorodifluoromethane	0.367	0.330	10.1	85	0.00	4.41
6	M	dichlorodifluoromethane	0.426	0.457	-7.3	100	0.00	4.37
7	M	chloromethane	0.553	0.582	-5.2	99	0.00	4.75
8	M	vinyl chloride	0.447	0.509	-13.9	102	0.00	5.03
9		1,3-Butadiene		----------NA----------				
10	M	bromomethane	0.361	0.374	-3.6	99	-0.01	5.73
11	M	chloroethane	0.244	0.235	3.7	95	0.00	5.92
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.481	0.539	-12.1	103	0.00	6.40
14	M	pentane		----------NA----------				
15	M	ethyl ether	0.275	0.290	-5.5	100	0.00	6.81
16	m	2-chloropropane	0.625	0.646	-3.4	99	0.00	7.04
17	M	acrolein	0.136	0.143	-5.1	100	0.00	7.13
18	M	1,1-dichloroethene	0.498	0.540	-8.4	97	0.00	7.27
19	M	acetone	0.065	0.068	-4.6	103	-0.01	7.35
20	M	allyl chloride	0.198	0.224	-13.1	105	0.00	7.81
21	M	acetonitrile	0.073	0.067	8.2	94	0.00	7.82
22	M	iodomethane	0.744	0.761	-2.3	99	0.00	7.58
23	M	iso-butyl alcohol	0.007	0.007#	0.0	98	0.00	10.46
24	M	carbon disulfide	1.071	1.129	-5.4	98	0.00	7.71
25	M	methylene chloride	0.459	0.489	-6.5	98	0.00	8.02
26	m	1-chloropropane	0.760	0.752	1.1	103	0.00	8.03
27	M	methyl acetate	0.627	0.511	18.5	81	0.00	7.78
28	M	methyl tert butyl ether	1.708	1.642	3.9	95	0.00	8.30
29	M	trans-1,2-dichloroethene	0.519	0.541	-4.2	95	0.00	8.37
30	M	di-isopropyl ether	1.588	1.516	4.5	92	0.00	8.87
31	M	ethyl tert-butyl ether	1.544	1.565	-1.4	97	0.00	9.33
32	M	2-butanone	0.079	0.084	-6.3	102	0.00	9.64
33	M	1,1-dichloroethane	0.700	0.740	-5.7	98	0.00	8.95
34	M	chloroprene	0.513	0.506	1.4	90	0.00	9.03
35	M	acrylonitrile	0.260	0.275	-5.8	100	0.00	8.36
36	M	vinyl acetate	0.100	0.105	-5.0	100	0.00	8.90
37	M	ethyl acetate	0.112	0.096	14.3	87	0.00	9.64
38	M	2,2-dichloropropane	0.553	0.561	-1.4	100	0.00	9.67
39	M	cis-1,2-dichloroethene	0.508	0.463	8.9	94	0.00	9.68
40	m	methyl acrylate	0.604	0.574	5.0	91	0.00	9.72
41	M	propionitrile	0.106	0.110	-3.8	99	0.00	9.77

Initial Calibration Verification

Job Number: JB85833 **Sample:** VE9767-ICV9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222784.D
Project: Sunoco - Marcus Hook Facility, PA

42	M	bromochloromethane	0.260	0.270	-3.8	93	0.00	10.00
43	M	tetrahydrofuran	0.097	0.093	4.1	94	0.00	10.02
44	M	chloroform	0.739	0.757	-2.4	96	0.00	10.04
45	m	t-butyl formate	0.559	0.667	-19.3	112	0.00	10.05
46	M	Iso-octane	1.034	1.167	-12.9	100	0.00	10.67
47	S	dibromofluoromethane (s)	0.393	0.408	-3.8	96	0.00	10.24
48	S	1,2-dichloroethane-d4 (s)	0.586	0.568	3.1	95	0.00	10.67
49	M	freon 113	0.221	0.238	-7.7	101	0.00	7.20
50	M	methacrylonitrile	0.271	0.272	-0.4	97	0.00	9.93
51	M	1,1,1-trichloroethane	0.529	0.570	-7.8	99	0.00	10.28
52		Cyclohexane	0.445	0.485	-9.0	101	0.00	10.34
53	M	tert-amyl methyl ether	1.723	1.593	7.5	95	0.00	10.72
54	I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	11.08
55	M	tert amyl alcohol		----------NA----------				
56	M	epichlorohydrin	0.066	0.070	-6.1	103	0.00	12.39
57	M	n-butyl alcohol	0.021	0.021	0.0	91	0.00	11.21
58	M	tert-amyl ethyl ether		----------NA----------				
59	M	carbon tetrachloride	0.396	0.425	-7.3	99	0.00	10.47
60	M	1,1-dichloropropene	0.359	0.394	-9.7	99	0.00	10.45
61	M	hexane	0.291	0.259	11.0	82	0.00	8.62
62	M	benzene	1.279	1.324	-3.5	97	0.00	10.72
63	M	heptane	0.187	0.224	-19.8	113	0.00	10.82
64	M	isopropyl acetate	0.209	0.209	0.0	93	0.00	10.61
65	M	1,2-dichloroethane	0.587	0.608	-3.6	97	0.00	10.76
66		ethyl acrylate		----------NA----------				
67	M	trichloroethene	0.304	0.321	-5.6	96	0.00	11.42
68	M	2-nitropropane		----------NA----------				
69	M	2-chloroethyl vinyl ether	0.317	0.370	-16.7	108	0.00	12.22
70	M	methylcyclohexane	0.395	0.447	-13.2	104	0.00	11.62
71	M	methyl methacrylate	0.145	0.150	-3.4	96	0.00	11.67
72	M	1,2-dichloropropane	0.361	0.383	-6.1	98	0.00	11.71
73	M	dibromomethane	0.285	0.287	-0.7	96	0.00	11.88
74	M	bromodichloromethane	0.546	0.560	-2.6	95	0.00	12.01
75	M	cis-1,3-dichloropropene	0.680	0.699	-2.8	97	0.00	12.47
76	S	toluene-d8 (s)	1.241	1.171	5.6	95	0.00	12.76
77	M	4-methyl-2-pentanone	0.235	0.242	-3.0	98	0.00	12.55
78	M	toluene	0.829	0.849	-2.4	96	0.00	12.84
79	M	3-methyl-1-butanol	0.033	0.034	-3.0	96	0.00	12.58
80	M	trans-1,3-dichloropropene	0.682	0.706	-3.5	93	0.00	13.06
81	M	ethyl methacrylate	0.641	0.652	-1.7	94	0.00	13.01
82	M	1,1,2-trichloroethane	0.343	0.349	-1.7	95	0.00	13.30
83	M	2-hexanone	0.048	0.051	-6.2	105	0.00	13.46
84	I	chlorobenzene-d5	1.000	1.000	0.0	95	0.00	14.40
85	M	cyclohexanone	0.061	0.061	0.0	105	0.00	15.67
86	M	tetrachloroethene	0.329	0.351	-6.7	96	0.00	13.46
87	M	1,3-dichloropropane	0.633	0.648	-2.4	95	0.00	13.50
88	M	butyl acetate	0.372	0.353	5.1	91	0.00	13.51
89	m	3,3-dimethyl-1-butanol	0.065	0.067	-3.1	91	0.00	13.64
90	M	dibromochloromethane	0.458	0.499	-9.0	94	0.00	13.79
91	M	1,2-dibromoethane	0.425	0.448	-5.4	94	0.00	13.96
92	M	n-butyl ether	1.415	1.468	-3.7	95	0.00	14.28
93	M	chlorobenzene	0.996	1.045	-4.9	95	0.00	14.44
94	M	1,1,1,2-tetrachloroethane	0.414	0.427	-3.1	96	0.00	14.51
95	M	ethylbenzene	1.565	1.548	1.1	94	0.00	14.47
96	M	m,p-xylene	0.600	0.638	-6.3	97	0.00	14.59
97	M	o-xylene	0.639	0.684	-7.0	96	0.00	15.05
98	M	butyl acrylate		----------NA----------				
99	M	styrene	1.166	1.253	-7.5	95	0.00	15.08

Initial Calibration Verification

Job Number: JB85833 **Sample:** VE9767-ICV9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222784.D
Project: Sunoco - Marcus Hook Facility, PA

100	M	bromoform	0.428	0.452	-5.6	94	0.00	15.40
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	16.97
102	M	isopropylbenzene	2.217	2.175	1.9	95	0.00	15.43
103	S	4-bromofluorobenzene (s)	0.790	0.730	7.6	97	0.00	15.68
104		cis-1,4-dichloro-2-butene		----------NA----------				
105	M	bromobenzene	0.815	0.811	0.5	99	0.00	15.90
106	M	1,1,2,2-tetrachloroethane	0.950	0.898	5.5	92	0.00	15.80
107	M	trans-1,4-dichloro-2-bute	0.317	0.322	-1.6	96	0.00	15.84
108	M	1,2,3-trichloropropane	0.261	0.273	-4.6	98	0.00	15.89
109	M	n-propylbenzene	2.731	2.728	0.1	101	0.00	15.88
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.637	0.636	0.2	97	0.00	16.06
112	M	4-chlorotoluene	2.141	1.951	8.9	97	0.00	16.17
113	M	1,3,5-trimethylbenzene	2.198	2.184	0.6	98	0.00	16.04
114	M	tert-butylbenzene	0.438	0.425	3.0	97	0.00	16.43
115	M	pentachloroethane	0.388	0.416	-7.2	102	0.00	16.56
116	M	1,2,4-trimethylbenzene	2.337	2.447	-4.7	102	0.00	16.48
117	M	sec-butylbenzene	2.752	2.743	0.3	98	0.00	16.67
118	M	1,3-dichlorobenzene	1.651	1.649	0.1	95	0.00	16.91
119	M	p-isopropyltoluene	2.549	2.655	-4.2	100	0.00	16.80
120	M	1,4-dichlorobenzene	1.681	1.716	-2.1	98	0.00	17.00
121		benzyl chloride	2.131	2.943	-38.1#	136	0.00	17.13
122	M	p-diethylbenzene		----------NA----------				
123	M	1,2-dichlorobenzene	1.686	1.730	-2.6	98	0.00	17.44
124	M	n-butylbenzene	1.292	1.423	-10.1	102	0.00	17.26
125	M	1,2,4,5-tetramethylbenzen		----------NA----------				
126	M	1,2-dibromo-3-chloropropa	0.279	0.271	2.9	97	0.00	18.31
127	m	1,3,5-trichlorobenzene	1.541	1.604	-4.1	96	0.00	18.48
128	M	1,2,4-trichlorobenzene	1.240	1.352	-9.0	98	0.00	19.22
129	M	hexachlorobutadiene	0.825	0.831	-0.7	97	0.00	19.32
130	M	naphthalene	2.729	2.950	-8.1	97	0.00	19.55
131	M	1,2,3-trichlorobenzene	1.135	1.167	-2.8	99	0.00	19.83
132	M	hexachloroethane	0.523	0.532	-1.7	101	0.00	17.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E222779.D ME9767.M Tue Jan 13 15:29:21 2015 RPT1

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VE9772-CC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222877.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E222877.D Vial: 3
Acq On : 15 Jan 2015 9:22 am Operator: ThienN
Sample : cc9767-50 Inst : MSE
Misc : MS79544,VE9772,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9767.M (RTE Integrator)
Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Jan 13 14:28:03 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1		Tert Butyl Alcohol-d9	1.000	1.000	0.0	97	0.00	7.97
2	M	1,4-dioxane	0.107	0.111	-3.7	91	-0.01	11.82
3	M	tertiary butyl alcohol	1.267	1.286	-1.5	96	0.00	8.08
4	I	pentafluorobenzene	1.000	1.000	0.0	97	0.00	10.15
5	M	chlorodifluoromethane	0.367	0.406	-10.6	103	0.00	4.40
6	M	dichlorodifluoromethane	0.426	0.494	-16.0	106	0.00	4.37
7	M	chloromethane	0.553	0.617	-11.6	103	0.00	4.75
8	M	vinyl chloride	0.447	0.528	-18.1	104	0.00	5.03
9		1,3-Butadiene		----------NA----------				
10	M	bromomethane	0.361	0.382	-5.8	100	0.00	5.74
11	M	chloroethane	0.244	0.251	-2.9	100	0.00	5.92
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.481	0.564	-17.3	106	0.00	6.40
14	M	pentane		----------NA----------				
15	M	ethyl ether	0.275	0.293	-6.5	99	0.00	6.81
16	m	2-chloropropane	0.625	0.646	-3.4	98	0.00	7.04
17	M	acrolein	0.136	0.140	-2.9	97	0.00	7.12
18	M	1,1-dichloroethene	0.498	0.570	-14.5	101	0.00	7.28
19	M	acetone	0.065	0.072	-10.8	108	-0.01	7.34
20	M	allyl chloride	0.198	0.203	-2.5	94	0.00	7.81
21	M	acetonitrile	0.073	0.070	4.1	96	-0.01	7.81
22	M	iodomethane	0.744	0.814	-9.4	104	0.00	7.58
23	M	iso-butyl alcohol	0.007	0.007#	0.0	99	0.00	10.46
24	M	carbon disulfide	1.071	1.187	-10.8	102	0.00	7.70
25	M	methylene chloride	0.459	0.516	-12.4	101	0.00	8.01
26	m	1-chloropropane	0.760	0.751	1.2	101	0.00	8.03
27	M	methyl acetate	0.627	0.600	4.3	93	0.00	7.78
28	M	methyl tert butyl ether	1.708	1.776	-4.0	101	0.00	8.30
29	M	trans-1,2-dichloroethene	0.519	0.576	-11.0	100	0.00	8.36
30	M	di-isopropyl ether	1.588	1.630	-2.6	97	0.00	8.86
31	M	ethyl tert-butyl ether	1.544	1.620	-4.9	99	0.00	9.33
32	M	2-butanone	0.079	0.086	-8.9	103	0.00	9.64
33	M	1,1-dichloroethane	0.700	0.773	-10.4	100	0.00	8.94
34	M	chloroprene	0.513	0.550	-7.2	96	0.00	9.03
35	M	acrylonitrile	0.260	0.271	-4.2	97	0.00	8.36
36	M	vinyl acetate	0.100	0.096	4.0	91	0.00	8.90
37	M	ethyl acetate	0.112	0.105	6.3	94	0.00	9.63
38	M	2,2-dichloropropane	0.553	0.614	-11.0	108	0.00	9.67
39	M	cis-1,2-dichloroethene	0.508	0.497	2.2	100	0.00	9.68
40	m	methyl acrylate	0.604	0.600	0.7	94	0.00	9.71
41	M	propionitrile	0.106	0.110	-3.8	97	0.00	9.77

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VE9772-CC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222877.D
Project: Sunoco - Marcus Hook Facility, PA

42	M	bromochloromethane	0.260	0.289	-11.2	98	0.00	9.99
43	M	tetrahydrofuran	0.097	0.097	0.0	96	0.00	10.02
44	M	chloroform	0.739	0.798	-8.0	100	0.00	10.04
45	m	t-butyl formate	0.559	0.603	-7.9	99	0.00	10.05
46	M	Iso-octane	1.034	1.244	-20.3#	105	0.00	10.66
47	S	dibromofluoromethane (s)	0.393	0.406	-3.3	94	0.00	10.24
48	S	1,2-dichloroethane-d4 (s)	0.586	0.565	3.6	93	0.00	10.66
49	M	freon 113	0.221	0.254	-14.9	106	0.00	7.20
50	M	methacrylonitrile	0.271	0.287	-5.9	101	0.00	9.94
51	M	1,1,1-trichloroethane	0.529	0.586	-10.8	100	0.00	10.28
52		Cyclohexane	0.445	0.511	-14.8	105	0.00	10.33
53	M	tert-amyl methyl ether	1.723	1.689	2.0	99	0.00	10.72
54	I	1,4-difluorobenzene	1.000	1.000	0.0	96	0.00	11.08
55	M	tert amyl alcohol		----------NA----------				
56	M	epichlorohydrin	0.066	0.066	0.0	96	0.00	12.39
57	M	n-butyl alcohol	0.021	0.022	-4.8	93	0.00	11.20
58	M	tert-amyl ethyl ether		----------NA----------				
59	M	carbon tetrachloride	0.396	0.442	-11.6	102	0.00	10.47
60	M	1,1-dichloropropene	0.359	0.407	-13.4	101	0.00	10.44
61	M	hexane	0.291	0.317	-8.9	99	0.00	8.61
62	M	benzene	1.279	1.382	-8.1	99	0.00	10.72
63	M	heptane	0.187	0.205	-9.6	103	0.00	10.82
64	M	isopropyl acetate	0.209	0.219	-4.8	96	0.00	10.61
65	M	1,2-dichloroethane	0.587	0.639	-8.9	100	0.00	10.75
66		ethyl acrylate		----------NA----------				
67	M	trichloroethene	0.304	0.334	-9.9	99	0.00	11.42
68	M	2-nitropropane		----------NA----------				
69	M	2-chloroethyl vinyl ether	0.317	0.327	-3.2	94	0.00	12.22
70	M	methylcyclohexane	0.395	0.448	-13.4	102	0.00	11.63
71	M	methyl methacrylate	0.145	0.153	-5.5	96	0.00	11.67
72	M	1,2-dichloropropane	0.361	0.391	-8.3	98	0.00	11.71
73	M	dibromomethane	0.285	0.299	-4.9	99	0.00	11.88
74	M	bromodichloromethane	0.546	0.593	-8.6	99	0.00	12.00
75	M	cis-1,3-dichloropropene	0.680	0.729	-7.2	99	0.00	12.47
76	S	toluene-d8 (s)	1.241	1.196	3.6	95	0.00	12.76
77	M	4-methyl-2-pentanone	0.235	0.238	-1.3	95	0.00	12.55
78	M	toluene	0.829	0.891	-7.5	100	0.00	12.84
79	M	3-methyl-1-butanol	0.033	0.034	-3.0	95	0.00	12.57
80	M	trans-1,3-dichloropropene	0.682	0.754	-10.6	98	0.00	13.06
81	M	ethyl methacrylate	0.641	0.669	-4.4	95	0.00	13.01
82	M	1,1,2-trichloroethane	0.343	0.371	-8.2	99	0.00	13.30
83	M	2-hexanone	0.048	0.050	-4.2	101	0.00	13.46
84	I	chlorobenzene-d5	1.000	1.000	0.0	95	0.00	14.40
85	M	cyclohexanone	0.061	0.095	-55.7#	163	0.00	15.66
86	M	tetrachloroethene	0.329	0.373	-13.4	102	0.00	13.46
87	M	1,3-dichloropropane	0.633	0.661	-4.4	97	0.00	13.49
88	M	butyl acetate	0.372	0.359	3.5	92	0.00	13.51
89	m	3,3-dimethyl-1-butanol	0.065	0.071	-9.2	96	0.00	13.64
90	M	dibromochloromethane	0.458	0.517	-12.9	98	0.00	13.79
91	M	1,2-dibromoethane	0.425	0.463	-8.9	97	0.00	13.95
92	M	n-butyl ether	1.415	1.495	-5.7	97	0.00	14.27
93	M	chlorobenzene	0.996	1.072	-7.6	98	0.00	14.44
94	M	1,1,1,2-tetrachloroethane	0.414	0.445	-7.5	100	0.00	14.50
95	M	ethylbenzene	1.565	1.611	-2.9	98	0.00	14.47
96	M	m,p-xylene	0.600	0.646	-7.7	98	0.00	14.59
97	M	o-xylene	0.639	0.702	-9.9	98	0.00	15.06
98	M	butyl acrylate		----------NA----------				
99	M	styrene	1.166	1.272	-9.1	97	0.00	15.07

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VE9772-CC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222877.D
Project: Sunoco - Marcus Hook Facility, PA

100	M	bromoform	0.428	0.470	-9.8	98	0.00	15.40
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	16.97
102	M	isopropylbenzene	2.217	2.314	-4.4	98	0.00	15.42
103	S	4-bromofluorobenzene (s)	0.790	0.692	12.4	90	0.00	15.68
104		cis-1,4-dichloro-2-butene		----------NA----------				
105	M	bromobenzene	0.815	0.833	-2.2	98	0.00	15.91
106	M	1,1,2,2-tetrachloroethane	0.950	0.978	-2.9	97	0.00	15.80
107	M	trans-1,4-dichloro-2-bute	0.317	0.336	-6.0	98	0.00	15.84
108	M	1,2,3-trichloropropane	0.261	0.286	-9.6	100	0.00	15.89
109	M	n-propylbenzene	2.731	2.726	0.2	98	0.00	15.88
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.637	0.670	-5.2	99	0.00	16.06
112	M	4-chlorotoluene	2.141	2.029	5.2	98	0.00	16.17
113	M	1,3,5-trimethylbenzene	2.198	2.300	-4.6	100	0.00	16.04
114	M	tert-butylbenzene	0.438	0.448	-2.3	100	0.00	16.43
115	M	pentachloroethane	0.388	0.458	-18.0	109	0.00	16.55
116	M	1,2,4-trimethylbenzene	2.337	2.458	-5.2	99	0.00	16.49
117	M	sec-butylbenzene	2.752	2.893	-5.1	101	0.00	16.67
118	M	1,3-dichlorobenzene	1.651	1.773	-7.4	100	0.00	16.91
119	M	p-isopropyltoluene	2.549	2.740	-7.5	100	0.00	16.79
120	M	1,4-dichlorobenzene	1.681	1.811	-7.7	100	0.00	17.00
121		benzyl chloride	2.131	2.311	-8.4	104	0.00	17.13
122	M	p-diethylbenzene		----------NA----------				
123	M	1,2-dichlorobenzene	1.686	1.831	-8.6	101	0.00	17.44
124	M	n-butylbenzene	1.292	1.434	-11.0	100	0.00	17.25
125	M	1,2,4,5-tetramethylbenzen		----------NA----------				
126	M	1,2-dibromo-3-chloropropa	0.279	0.295	-5.7	102	0.00	18.31
127	m	1,3,5-trichlorobenzene	1.541	1.761	-14.3	102	0.00	18.48
128	M	1,2,4-trichlorobenzene	1.240	1.496	-20.6#	105	0.00	19.23
129	M	hexachlorobutadiene	0.825	0.914	-10.8	103	0.00	19.33
130	M	naphthalene	2.729	3.228	-18.3	103	0.00	19.56
131	M	1,2,3-trichlorobenzene	1.135	1.277	-12.5	105	0.00	19.83
132	M	hexachloroethane	0.523	0.539	-3.1	100	0.00	17.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E222779.D ME9767.M Thu Jan 15 14:00:57 2015 RPT1

6.9.3

6

Continuing Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: VE9774-CC9767
Lab FileID: E222912.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E222912.D Vial: 3
Acq On : 16 Jan 2015 9:55 am Operator: ThienN
Sample : cc9767-50 Inst : MSE
Misc : MS79633,VE9774,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9767.M (RTE Integrator)
Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
Last Update : Tue Jan 13 14:28:03 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1		Tert Butyl Alcohol-d9	1.000	1.000	0.0	109	-0.02	7.95
2	M	1,4-dioxane	0.107	0.122	-14.0	112	-0.01	11.82
3	M	tertiary butyl alcohol	1.267	1.294	-2.1	109	-0.02	8.07
4	I	pentafluorobenzene	1.000	1.000	0.0	105	0.00	10.15
5	M	chlorodifluoromethane	0.367	0.411	-12.0	113	0.00	4.40
6	M	dichlorodifluoromethane	0.426	0.495	-16.2	114	0.00	4.38
7	M	chloromethane	0.553	0.618	-11.8	111	0.00	4.74
8	M	vinyl chloride	0.447	0.531	-18.8	112	0.00	5.03
9		1,3-Butadiene		----------NA----------				
10	M	bromomethane	0.361	0.393	-8.9	110	0.00	5.73
11	M	chloroethane	0.244	0.259	-6.1	111	0.00	5.92
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.481	0.556	-15.6	112	0.00	6.40
14	M	pentane		----------NA----------				
15	M	ethyl ether	0.275	0.307	-11.6	112	0.00	6.81
16	m	2-chloropropane	0.625	0.668	-6.9	109	0.00	7.04
17	M	acrolein	0.136	0.154	-13.2	114	-0.02	7.11
18	M	1,1-dichloroethene	0.498	0.576	-15.7	110	0.00	7.27
19	M	acetone	0.065	0.080	-23.1#	129	-0.01	7.34
20	M	allyl chloride	0.198	0.227	-14.6	113	-0.01	7.80
21	M	acetonitrile	0.073	0.073	0.0	108	-0.01	7.81
22	M	iodomethane	0.744	0.848	-14.0	116	0.00	7.57
23	M	iso-butyl alcohol	0.007	0.008#	-14.3	107	0.00	10.45
24	M	carbon disulfide	1.071	1.251	-16.8	116	0.00	7.70
25	M	methylene chloride	0.459	0.533	-16.1	113	0.00	8.02
26	m	1-chloropropane	0.760	0.788	-3.7	114	0.00	8.02
27	M	methyl acetate	0.627	0.633	-1.0	106	0.00	7.78
28	M	methyl tert butyl ether	1.708	1.846	-8.1	113	-0.01	8.29
29	M	trans-1,2-dichloroethene	0.519	0.572	-10.2	106	0.00	8.36
30	M	di-isopropyl ether	1.588	1.678	-5.7	108	0.00	8.86
31	M	ethyl tert-butyl ether	1.544	1.645	-6.5	108	0.00	9.33
32	M	2-butanone	0.079	0.094	-19.0	121	0.00	9.63
33	M	1,1-dichloroethane	0.700	0.774	-10.6	108	-0.01	8.93
34	M	chloroprene	0.513	0.545	-6.2	102	0.00	9.02
35	M	acrylonitrile	0.260	0.287	-10.4	111	0.00	8.35
36	M	vinyl acetate	0.100	0.108	-8.0	109	0.00	8.90
37	M	ethyl acetate	0.112	0.107	4.5	103	-0.01	9.62
38	M	2,2-dichloropropane	0.553	0.634	-14.6	120	-0.01	9.66
39	M	cis-1,2-dichloroethene	0.508	0.495	2.6	107	0.00	9.67
40	m	methyl acrylate	0.604	0.662	-9.6	112	0.00	9.71
41	M	propionitrile	0.106	0.117	-10.4	111	0.00	9.77

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VE9774-CC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222912.D
Project: Sunoco - Marcus Hook Facility, PA

42	M	bromochloromethane	0.260	0.298	-14.6	109	0.00	9.99
43	M	tetrahydrofuran	0.097	0.104	-7.2	110	0.00	10.02
44	M	chloroform	0.739	0.816	-10.4	110	0.00	10.04
45	m	t-butyl formate	0.559	0.597	-6.8	106	0.00	10.05
46	M	Iso-octane	1.034	1.264	-22.2#	114	0.00	10.67
47	S	dibromofluoromethane (s)	0.393	0.399	-1.5	100	0.00	10.24
48	S	1,2-dichloroethane-d4 (s)	0.586	0.550	6.1	97	0.00	10.66
49	M	freon 113	0.221	0.249	-12.7	112	0.00	7.20
50	M	methacrylonitrile	0.271	0.301	-11.1	113	0.00	9.93
51	M	1,1,1-trichloroethane	0.529	0.600	-13.4	110	0.00	10.28
52		Cyclohexane	0.445	0.513	-15.3	113	0.00	10.33
53	M	tert-amyl methyl ether	1.723	1.706	1.0	107	0.00	10.71
54	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	11.07
55	M	tert amyl alcohol		----------NA----------				
56	M	epichlorohydrin	0.066	0.070	-6.1	109	0.00	12.38
57	M	n-butyl alcohol	0.021	0.023	-9.5	107	0.00	11.20
58	M	tert-amyl ethyl ether		----------NA----------				
59	M	carbon tetrachloride	0.396	0.447	-12.9	111	0.00	10.46
60	M	1,1-dichloropropene	0.359	0.415	-15.6	111	0.00	10.44
61	M	hexane	0.291	0.330	-13.4	111	0.00	8.61
62	M	benzene	1.279	1.426	-11.5	110	0.00	10.71
63	M	heptane	0.187	0.213	-13.9	114	0.00	10.82
64	M	isopropyl acetate	0.209	0.226	-8.1	107	0.00	10.61
65	M	1,2-dichloroethane	0.587	0.642	-9.4	108	0.00	10.75
66		ethyl acrylate		----------NA----------				
67	M	trichloroethene	0.304	0.346	-13.8	110	0.00	11.42
68	M	2-nitropropane		----------NA----------				
69	M	2-chloroethyl vinyl ether	0.317	0.334	-5.4	103	0.00	12.22
70	M	methylcyclohexane	0.395	0.441	-11.6	108	0.00	11.62
71	M	methyl methacrylate	0.145	0.162	-11.7	109	0.00	11.67
72	M	1,2-dichloropropane	0.361	0.408	-13.0	110	0.00	11.71
73	M	dibromomethane	0.285	0.307	-7.7	109	0.00	11.88
74	M	bromodichloromethane	0.546	0.618	-13.2	111	0.00	12.00
75	M	cis-1,3-dichloropropene	0.680	0.764	-12.4	112	0.00	12.46
76	S	toluene-d8 (s)	1.241	1.179	5.0	101	0.00	12.76
77	M	4-methyl-2-pentanone	0.235	0.256	-8.9	110	0.00	12.55
78	M	toluene	0.829	0.924	-11.5	111	0.00	12.83
79	M	3-methyl-1-butanol	0.033	0.035	-6.1	106	0.00	12.57
80	M	trans-1,3-dichloropropene	0.682	0.779	-14.2	109	0.00	13.06
81	M	ethyl methacrylate	0.641	0.713	-11.2	109	0.00	13.01
82	M	1,1,2-trichloroethane	0.343	0.381	-11.1	109	0.00	13.30
83	M	2-hexanone	0.048	0.055	-14.6	119	0.00	13.45
84	I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	14.40
85	M	cyclohexanone	0.061	0.119	-95.1#	218#	0.00	15.67
86	M	tetrachloroethene	0.329	0.389	-18.2	114	0.00	13.45
87	M	1,3-dichloropropane	0.633	0.698	-10.3	109	0.00	13.49
88	M	butyl acetate	0.372	0.380	-2.2	104	0.00	13.51
89	m	3,3-dimethyl-1-butanol	0.065	0.076	-16.9	110	0.00	13.64
90	M	dibromochloromethane	0.458	0.537	-17.2	108	0.00	13.79
91	M	1,2-dibromoethane	0.425	0.486	-14.4	109	0.00	13.95
92	M	n-butyl ether	1.415	1.592	-12.5	109	0.00	14.27
93	M	chlorobenzene	0.996	1.109	-11.3	108	0.00	14.44
94	M	1,1,1,2-tetrachloroethane	0.414	0.459	-10.9	110	0.00	14.50
95	M	ethylbenzene	1.565	1.684	-7.6	109	0.00	14.47
96	M	m,p-xylene	0.600	0.673	-12.2	109	0.00	14.59
97	M	o-xylene	0.639	0.731	-14.4	109	0.00	15.05
98	M	butyl acrylate		----------NA----------				
99	M	styrene	1.166	1.338	-14.8	108	0.00	15.07

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VE9774-CC9767
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** E222912.D
Project: Sunoco - Marcus Hook Facility, PA

100	M	bromoform	0.428	0.488	-14.0	108	0.00	15.40
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	16.97
102	M	isopropylbenzene	2.217	2.366	-6.7	108	0.00	15.42
103	S	4-bromofluorobenzene (s)	0.790	0.678	14.2	95	0.00	15.68
104		cis-1,4-dichloro-2-butene		----------NA----------				
105	M	bromobenzene	0.815	0.858	-5.3	109	0.00	15.90
106	M	1,1,2,2-tetrachloroethane	0.950	1.016	-6.9	109	0.00	15.80
107	M	trans-1,4-dichloro-2-bute	0.317	0.338	-6.6	106	0.00	15.84
108	M	1,2,3-trichloropropane	0.261	0.283	-8.4	106	0.00	15.89
109	M	n-propylbenzene	2.731	2.816	-3.1	109	0.00	15.88
110	M	p-ethyltoluene		----------NA----------				
111	M	2-chlorotoluene	0.637	0.687	-7.8	110	0.00	16.06
112	M	4-chlorotoluene	2.141	2.095	2.1	109	0.00	16.17
113	M	1,3,5-trimethylbenzene	2.198	2.372	-7.9	111	0.00	16.04
114	M	tert-butylbenzene	0.438	0.473	-8.0	114	0.00	16.43
115	M	pentachloroethane	0.388	0.477	-22.9#	122	0.00	16.55
116	M	1,2,4-trimethylbenzene	2.337	2.525	-8.0	110	0.00	16.48
117	M	sec-butylbenzene	2.752	3.009	-9.3	113	0.00	16.67
118	M	1,3-dichlorobenzene	1.651	1.798	-8.9	109	0.00	16.91
119	M	p-isopropyltoluene	2.549	2.842	-11.5	112	0.00	16.79
120	M	1,4-dichlorobenzene	1.681	1.851	-10.1	110	0.00	17.00
121		benzyl chloride	2.131	2.380	-11.7	115	0.00	17.13
122	M	p-diethylbenzene		----------NA----------				
123	M	1,2-dichlorobenzene	1.686	1.865	-10.6	111	0.00	17.44
124	M	n-butylbenzene	1.292	1.490	-15.3	112	0.00	17.26
125	M	1,2,4,5-tetramethylbenzen		----------NA----------				
126	M	1,2-dibromo-3-chloropropa	0.279	0.294	-5.4	110	0.00	18.31
127	m	1,3,5-trichlorobenzene	1.541	1.804	-17.1	113	0.00	18.48
128	M	1,2,4-trichlorobenzene	1.240	1.495	-20.6#	113	0.00	19.23
129	M	hexachlorobutadiene	0.825	0.939	-13.8	114	0.00	19.33
130	M	naphthalene	2.729	3.246	-18.9	112	0.00	19.56
131	M	1,2,3-trichlorobenzene	1.135	1.257	-10.7	111	0.00	19.83
132	M	hexachloroethane	0.523	0.575	-9.9	114	0.00	17.71

(#) = Out of Range SPCC's out = 0 CCC's out = 0
E222779.D ME9767.M Fri Jan 16 15:45:59 2015 RPT1

Initial Calibration Summary

Job Number: JB85833 **Sample:** VV6266-ICC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147428.D
Project: Sunoco - Marcus Hook Facility, PA


```
                         Response Factor Report  MSV

Method       : C:\MSDCHEM\1\METHODS\MVS6266.M (RTE Integrator)
Title        : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Sep 03 15:49:49 2014
Response via : Initial Calibration

Calibration Files
1   =V147423.D   4   =V147425.D   100 =V147429.D   50  =V147428.D
20  =V147427.D   200 =V147430.D   8   =V147426.D   0.5 =V147422.D
2   =V147424.D   0.2 =V147421.D       =                =

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

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
     1.484 1.107 1.124 1.138 1.187 1.086 1.166       1.323        1.202   11.27
3)  1,4-dioxane
           0.087 0.103 0.101 0.095 0.098 0.087       0.084        0.094    8.10

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  propene
                                                                  0.000   -1.00
6)  chlorodifluoromethane
           0.612 0.440 0.468 0.468 0.438 0.534       0.676        0.519   17.86
           ----- Linear regression -----  Coefficient =  0.9998
             Response Ratio = 0.01614 + 0.43410 *A

7)  dichlorodifluoromethane
     0.387 0.480 0.481 0.517 0.467 0.467 0.461       0.456        0.465    7.92
8)  chloromethane
     0.536 0.578 0.546 0.562 0.554 0.544 0.535 0.543 0.523        0.547    2.97
9)  vinyl chloride
     0.493 0.584 0.531 0.569 0.552 0.532 0.534 0.460 0.535        0.532    7.03
10)  bromomethane
     0.320 0.346 0.332 0.340 0.339 0.298 0.325 0.268 0.326        0.322    7.64
11)  chloroethane
     0.243 0.252 0.248 0.255 0.257 0.240 0.236 0.183 0.246        0.240    9.36
12)  trichlorofluoromethane
     0.572 0.607 0.571 0.594 0.592 0.580 0.592 0.493 0.579        0.576    5.72
13)  ethyl ether
     0.149 0.166 0.174 0.176 0.180 0.181 0.173       0.169        0.171    5.93
14)  2-chloropropane
     0.606 0.593 0.579 0.609 0.611 0.576 0.599 0.530 0.634        0.593    4.96
15)  acrolein
     0.059 0.057       0.053 0.056       0.052       0.062        0.057    6.71
16)  freon 113
     0.250 0.253 0.259 0.278 0.273 0.249 0.282 0.271 0.273        0.265    4.72
17)  1,1-dichloroethene
     0.317 0.312 0.312 0.333 0.334 0.309 0.323 0.235 0.306        0.309    9.53
18)  acetone
           0.108 0.085 0.090 0.107 0.084 0.128                    0.100   17.18
           ----- Linear regression -----  Coefficient =  0.9996
             Response Ratio = 0.00627 + 0.08243 *A

19)  iso-butyl alcohol
     0.010 0.011 0.012 0.012 0.012 0.012 0.011       0.011        0.011    5.42
20)  allyl chloride
```

Initial Calibration Summary

Job Number: JB85833 **Sample:** VV6266-ICC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147428.D
Project: Sunoco - Marcus Hook Facility, PA

```
      0.169 0.184 0.196 0.199 0.181 0.190 0.193       0.181        0.187    5.33
21)  acetonitrile
      0.079 0.077 0.080 0.081 0.083 0.081 0.079       0.082        0.080    2.40
22)  iodomethane
      0.604 0.602 0.622 0.641 0.636 0.620 0.623 0.506 0.584        0.604    6.75
23)  carbon disulfide
      1.140 1.187 1.139 1.211 1.218 1.140 1.196 1.016 1.178        1.158    5.31
24)  methylene chloride
      0.495 0.382 0.372 0.381 0.390 0.373 0.390       0.410        0.399   10.19
25)  1-chloropropane
      0.731 0.641 0.607 0.637 0.645 0.603 0.634 0.646 0.656        0.645    5.74
26)  methyl acetate
      0.198 0.244 0.206 0.204 0.223 0.212 0.188       0.207        0.210    8.03
27)  methyl tert butyl ether
      1.028 0.977 0.999 1.013 1.030 1.031 0.946 0.763 0.933        0.969    8.80
28)  trans-1,2-dichloroethene
      0.347 0.348 0.356 0.371 0.374 0.356 0.362 0.267 0.343        0.347    9.18
29)  di-isopropyl ether
      1.123 1.084 1.182 1.154 1.158 1.200 1.119 0.942 1.091 1.049  1.110    6.76
30)  2-butanone
             0.025 0.033 0.033 0.034 0.035 0.030                   0.032   12.18
31)  1,1-dichloroethane
      0.618 0.617 0.631 0.650 0.649 0.633 0.623 0.502 0.591        0.613    7.36
32)  chloroprene
      0.445 0.437 0.491 0.494 0.483 0.491 0.471 0.348 0.426        0.454   10.39
33)  acrylonitrile
      0.086 0.086 0.094 0.095 0.100 0.098 0.091       0.091        0.093    5.38
34)  vinyl acetate
                   0.048 0.046 0.045 0.051 0.038                   0.046   10.68
35)  ethyl tert-butyl ether
      1.114 1.081 1.179 1.132 1.155 1.205 1.105 1.011 1.088        1.119    5.17
36)  ethyl acetate
             0.029 0.038 0.038 0.045 0.038 0.033                   0.037   15.00
             ----- Linear regression -----  Coefficient =  0.9994
               Response Ratio = -0.00001 + 0.03805 *A

37)  2,2-dichloropropane
      0.532 0.539 0.522 0.551 0.533 0.520 0.552 0.435 0.514        0.522    6.71
38)  cis-1,2-dichloroethene
      0.386 0.375 0.393 0.406 0.396 0.398 0.389 0.307 0.369        0.380    7.82
39)  propionitrile
      0.028 0.033 0.037 0.038 0.039 0.039 0.033       0.034        0.035   11.00
40)  methyl acrylate
             0.007 0.041 0.041 0.039 0.043 0.017                   0.031   48.78
41)  methacrylonitrile
             0.094 0.112 0.110 0.111 0.115 0.098       0.078        0.103   13.17
42)  bromochloromethane
      0.145 0.174 0.185 0.187 0.184 0.185 0.173       0.159        0.174    8.66
43)  tetrahydrofuran
      0.125 0.113 0.094 0.101 0.107 0.099 0.098       0.125        0.108   11.18
44)  chloroform
      0.634 0.630 0.632 0.647 0.642 0.634 0.613 0.565 0.593 0.622  0.621    4.00
45)  tert-Butyl Formate
      0.249 0.280 0.296 0.286 0.290 0.312 0.268       0.264        0.281    7.06
46)  dibromofluoromethane (s)
      0.434 0.342 0.330 0.345 0.342 0.340 0.349 0.338 0.329        0.350    9.20
47)  1,2-dichloroethane-d4 (s)
      0.471 0.384 0.353 0.367 0.369 0.363 0.373 0.360 0.363        0.378    9.49
48)  1,1,1-trichloroethane
      0.483 0.530 0.552 0.570 0.560 0.549 0.534 0.394 0.491        0.518   10.66
```

Initial Calibration Summary

Job Number: JB85833 **Sample:** VV6266-ICC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147428.D
Project: Sunoco - Marcus Hook Facility, PA

```
49)  Cyclohexane
      0.481 0.516 0.530 0.563 0.551 0.510 0.544       0.488        0.523    5.64

50) I   1,4-difluorobenzene   ----------------ISTD--------------------
51)  methylcyclohexane
      0.427 0.460 0.488 0.510 0.500 0.464 0.498 0.343 0.429        0.458   11.45
52)  epichlorohydrin
             0.021 0.022 0.022 0.023 0.023 0.021       0.021        0.022    5.29
53)  n-butyl alcohol
             0.005 0.007 0.007 0.007 0.008 0.005       0.005        0.006   18.32
             ----- Linear regression -----  Coefficient =  0.9989
               Response Ratio = -0.02166 + 0.00793 *A

54)  carbon tetrachloride
      0.366 0.384 0.405 0.428 0.418 0.399 0.397       0.371        0.396    5.46
55)  1,1-dichloropropene
      0.403 0.378 0.391 0.408 0.409 0.385 0.386       0.367        0.391    3.86
56)  hexane
      0.310 0.346 0.338 0.360 0.349 0.321 0.368 0.324 0.338        0.339    5.60
57)  2,2,4-Trimethylpentane
      0.857 1.039 1.105 1.131 1.102 1.046 1.125 0.767 0.970        1.016   12.62
58)  benzene
      1.214 1.135 1.195 1.227 1.211 1.174 1.174 1.012 1.144 1.037  1.152    6.41
59)  tert-amyl methyl ether
      0.873 0.865 0.927 0.908 0.925 0.948 0.878 0.773 0.860 0.858  0.881    5.65
60)  heptane
      0.162 0.215 0.213 0.226 0.218 0.202 0.225       0.182        0.205   10.90
61)  isopropyl acetate
             0.054 0.049 0.052 0.056 0.048 0.052       0.060        0.053    7.42
62)  1,2-dichloroethane
      0.373 0.345 0.372 0.377 0.389 0.380 0.361 0.279 0.340        0.357    9.39
63)  trichloroethene
      0.302 0.281 0.303 0.312 0.308 0.299 0.297 0.247 0.283        0.292    6.76
64)  2-chloroethyl vinyl ether
      0.091 0.093 0.110 0.106 0.107 0.116 0.095       0.092        0.101    9.61
65)  methyl methacrylate
             0.044 0.063 0.062 0.058 0.065 0.049                    0.057   14.70
66)  1,2-dichloropropane
      0.288 0.283 0.301 0.306 0.308 0.301 0.289 0.251 0.274        0.289    6.25
67)  dibromomethane
      0.176 0.166 0.171 0.172 0.174 0.172 0.165       0.158        0.169    3.38
68)  bromodichloromethane
      0.384 0.367 0.411 0.413 0.413 0.413 0.383 0.301 0.355        0.382    9.80
69)  2-nitropropane
      0.095 0.092 0.090 0.089 0.094 0.095 0.083       0.094        0.092    4.50
70)  cis-1,3-dichloropropene
      0.450 0.455 0.485 0.490 0.484 0.491 0.452 0.337 0.454 0.339  0.444   13.12
71)  toluene-d8 (s)
      1.307 1.108 1.054 1.113 1.091 1.068 1.091 1.084 1.056        1.108    6.99
72)  4-methyl-2-pentanone
             0.079 0.093 0.094 0.097 0.096 0.082       0.080        0.089    9.19
73)  toluene
      0.748 0.694 0.763 0.784 0.773 0.760 0.720 0.572 0.667 0.679  0.716    9.08
74)  isoamyl alcohol
      0.011 0.010 0.012 0.011 0.011 0.013 0.010       0.011        0.011    8.81
75)  trans-1,3-dichloropropene
      0.423 0.383 0.441 0.442 0.430 0.446 0.395       0.376        0.417    6.70
76)  ethyl methacrylate
      0.264 0.271 0.327 0.323 0.313 0.341 0.275       0.259        0.296   11.01
77)  1,1,2-trichloroethane
```

Initial Calibration Summary

Job Number: JB85833 **Sample:** VV6266-ICC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147428.D
Project: Sunoco - Marcus Hook Facility, PA

```
      0.213 0.188 0.207 0.207 0.206 0.209 0.192       0.186        0.201    5.21
 78)  2-hexanone
            0.078 0.083 0.080 0.094 0.087 0.084       0.064        0.081   11.43

 79) I   chlorobenzene-d5      ----------------ISTD---------------------
 80)  tetrachloroethene
      0.418 0.364 0.385 0.421 0.407 0.366 0.382 0.291 0.372        0.379   10.38
 81)  1,3-dichloropropane
      0.435 0.421 0.433 0.443 0.449 0.439 0.415 0.325 0.423        0.420    8.91
 82)  butyl acetate
            0.050 0.060 0.061 0.061 0.063 0.059       0.044        0.057   12.32
 83)  3,3-Dimethyl-1-Butanol
      0.023 0.018 0.021 0.021 0.022 0.023 0.018       0.020        0.021    8.96
 84)  dibromochloromethane
      0.364 0.312 0.341 0.340 0.335 0.348 0.318       0.298        0.332    6.40
 85)  1,2-dibromoethane
      0.263 0.253 0.263 0.265 0.269 0.269 0.249 0.193 0.250        0.253    9.34
 86)  chlorobenzene
      1.030 0.914 0.925 0.956 0.954 0.926 0.932 0.828 0.906 0.972  0.934    5.53
 87)  1,1,1,2-tetrachloroethane
      0.381 0.340 0.356 0.365 0.364 0.356 0.345 0.281 0.320        0.345    8.65
 88)  ethylbenzene
      1.616 1.569 1.595 1.651 1.625 1.594 1.558 1.250 1.498 1.561  1.552    7.36
 89)  m,p-xylene
      0.627 0.597 0.618 0.643 0.633 0.612 0.604 0.496 0.586 0.625  0.604    6.87
 90)  o-xylene
      0.602 0.600 0.640 0.657 0.645 0.633 0.601 0.487 0.578 0.615  0.606    7.98
 91)  styrene
      0.965 0.932 1.058 1.067 1.028 1.060 0.956 0.680 0.864 0.810  0.942   13.39
 92)  bromoform
      0.231 0.211 0.231 0.230 0.226 0.240 0.200       0.197        0.221    7.26
 93)  cyclohexanone
      0.063 0.057 0.040 0.045 0.049       0.061       0.054        0.053   16.37
            ----- Linear regression -----  Coefficient =  0.9951
              Response Ratio = 0.02223 + 0.03938 *A

 94)  4-bromofluorobenzene (s)
            0.495 0.438 0.459 0.445 0.452 0.486       0.480        0.465    4.72

 95) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 96)  isopropylbenzene
      2.994 2.842 2.931 3.005 2.936 2.819 2.823 2.253 2.773 2.683  2.806    7.80
 97)  1,1,2,2-tetrachloroethane
      0.829 0.624 0.646 0.640 0.661 0.653 0.624 0.568 0.670        0.657   10.80
 98)  trans-1,4-dichloro-2-butene
      0.147 0.157 0.168 0.165 0.170 0.170 0.174       0.155        0.163    5.77
 99)  1,2,3-trichloropropane
      0.185 0.159 0.162 0.163 0.168 0.164 0.159       0.176        0.167    5.41
100)  bromobenzene
      0.802 0.715 0.742 0.745 0.748 0.727 0.725 0.641 0.695        0.727    6.00
101)  n-propylbenzene
      3.293 3.213 3.269 3.388 3.278 3.162 3.197 2.547 2.956        3.145    8.07
102)  2-chlorotoluene
      0.725 0.691 0.726 0.737 0.724 0.705 0.708 0.552 0.683        0.695    8.11
103)  4-chlorotoluene
      2.252 2.031 2.089 2.107 2.121 2.062 2.055 1.886 2.031        2.070    4.67
104)  1,3,5-trimethylbenzene
      2.489 2.327 2.561 2.599 2.547 2.534 2.387 1.998 2.316        2.417    7.80
105)  tert-butylbenzene
      2.146 2.054 2.188 2.262 2.154 2.157 2.093 1.761 1.939        2.084    7.27
```

Initial Calibration Summary

Job Number: JB85833 **Sample:** VV6266-ICC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147428.D
Project: Sunoco - Marcus Hook Facility, PA

```
106)  pentachloroethane
       0.477 0.424 0.444 0.423 0.429 0.470 0.424       0.378        0.434    7.15
107)  1,2,4-trimethylbenzene
       2.564 2.316 2.541 2.579 2.516 2.498 2.383 2.046 2.316        2.418    7.15
108)  sec-butylbenzene
       3.278 3.181 3.391 3.535 3.420 3.300 3.299 2.577 3.085        3.230    8.60
109)  p-isopropyltoluene
       2.666 2.642 2.820 2.896 2.825 2.789 2.657 2.068 2.555        2.658    9.28
110)  1,3-dichlorobenzene
       1.701 1.390 1.463 1.491 1.471 1.453 1.448 1.348 1.416        1.465    6.77
111)  1,4-dichlorobenzene
       1.834 1.515 1.463 1.494 1.519 1.456 1.499 1.609 1.546        1.548    7.52
112)  1,2-dichlorobenzene
       1.642 1.372 1.439 1.467 1.464 1.448 1.400 1.316 1.393        1.438    6.31
113)  Benzyl Chloride
       1.302 1.151 1.180 1.141 1.165 1.205 1.125 1.081 1.156        1.167    5.23
114)  Indane
                                                                    0.000   -1.00
115)  n-butylbenzene
       1.374 1.375 1.421 1.489 1.450 1.414 1.379 1.041 1.323        1.363    9.55
116)  hexachloroethane
       0.468 0.452 0.501 0.508 0.481 0.501 0.451 0.347 0.430        0.460   10.90
117)  1,2-dibromo-3-chloropropane
       0.154 0.138 0.150 0.150 0.152 0.155 0.134       0.139        0.147    5.55
118)  1,3,5-trichlorobenzene
       1.476 1.295 1.284 1.347 1.318 1.286 1.324 1.192 1.316        1.315    5.66
119)  1,2,4-trichlorobenzene
       1.418 1.162 1.110 1.167 1.173 1.104 1.171 1.147 1.195        1.183    7.86
120)  hexachlorobutadiene
       0.613 0.615 0.610 0.643 0.626 0.593 0.629 0.543 0.578        0.605    5.03
121)  naphthalene
       3.314 2.354 2.314 2.374 2.451 2.309 2.314 2.735 2.670        2.537   13.07
122)  1,2,3-trichlorobenzene
       1.304 1.066 1.022 1.055 1.082 1.015 1.058 1.100 1.140        1.093    8.02
 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MVS6266.M         Wed Sep 03 17:30:14 2014   MSV
```

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: VV6266-ICV6266
Lab FileID: V147433.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\V147433.D Vial: 14
Acq On : 3 Sep 2014 4:38 pm Operator: KingC
Sample : icv6266-50 Inst : MSV
Misc : MS72857,VV6266,5,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MVS6266.M (RTE Integrator)
Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Sep 03 15:49:49 2014
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	100	0.00	7.21
2	tertiary butyl alcohol	1.202	1.172	2.5	103	0.00	7.33
3	1,4-dioxane	0.094	0.106	-12.8	105	0.00	11.14
4 I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	9.44
5	propene		----------NA----------				
	----------	True	Calc.	% Drift	----------		
6	chlorodifluoromethane	50.000	42.077	15.8	83	0.00	4.01
	----------	AvgRF	CCRF	% Dev	----------		
7	dichlorodifluoromethane	0.465	0.474	-1.9	94	0.00	3.99
8	chloromethane	0.547	0.527	3.7	96	0.00	4.35
9	vinyl chloride	0.532	0.525	1.3	94	0.00	4.59
10	bromomethane	0.322	0.324	-0.6	98	0.00	5.18
11	chloroethane	0.240	0.241	-0.4	97	0.00	5.33
12	trichlorofluoromethane	0.576	0.580	-0.7	100	0.00	5.78
13	ethyl ether	0.171	0.181	-5.8	105	0.00	6.14
14	2-chloropropane	0.593	0.610	-2.9	102	0.00	6.34
15	acrolein	0.057	0.057	0.0	110	0.00	6.41
16	freon 113	0.265	0.245	7.5	90	0.00	6.52
17	1,1-dichloroethene	0.309	0.332	-7.4	102	0.00	6.56
	----------	True	Calc.	% Drift	----------		
18	acetone	50.000	49.122	1.8	99	0.00	6.62
	----------	AvgRF	CCRF	% Dev	----------		
19	iso-butyl alcohol	0.011	0.012	-9.1	101	0.00	10.01
20	allyl chloride	0.187	0.223	-19.3	114	0.00	7.07
21	acetonitrile	0.080	0.087	-8.7	110	0.00	7.07
22	iodomethane	0.604	0.646	-7.0	103	0.00	6.85
23	carbon disulfide	1.158	1.230	-6.2	104	0.00	6.98
24	methylene chloride	0.399	0.377	5.5	101	0.00	7.26
25	1-chloropropane	0.645	0.605	6.2	97	0.00	7.30
26	methyl acetate	0.210	0.172	18.1	86	0.00	7.06
27	methyl tert butyl ether	0.969	0.971	-0.2	98	0.00	7.57
28	trans-1,2-dichloroethene	0.347	0.361	-4.0	100	0.00	7.63
29	di-isopropyl ether	1.110	1.093	1.5	97	0.00	8.15
30	2-butanone	0.032	0.033	-3.1	101	0.00	8.91
31	1,1-dichloroethane	0.613	0.644	-5.1	101	0.00	8.20
32	chloroprene	0.454	0.483	-6.4	100	0.00	8.30
33	acrylonitrile	0.093	0.097	-4.3	104	0.00	7.59

Initial Calibration Verification

Job Number: JB85833 **Sample:** VV6266-ICV6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147433.D
Project: Sunoco - Marcus Hook Facility, PA

34		vinyl acetate	0.046	0.047	-2.2	105	0.00	8.17
35		ethyl tert-butyl ether	1.119	1.086	2.9	98	0.00	8.62
		----------	True	Calc.	% Drift	----------		
36		ethyl acetate	50.000	52.877	-5.8	109	0.00	8.91
		----------	AvgRF	CCRF	% Dev	----------		
37		2,2-dichloropropane	0.522	0.523	-0.2	97	0.00	8.93
38		cis-1,2-dichloroethene	0.380	0.398	-4.7	100	0.00	8.94
39		propionitrile	0.035	0.038	-8.6	104	0.00	9.01
40		methyl acrylate	0.031	0.041	-32.3#	103	0.00	9.00
41		methacrylonitrile	0.103	0.112	-8.7	104	0.00	9.19
42		bromochloromethane	0.174	0.182	-4.6	100	0.00	9.25
43		tetrahydrofuran	0.108	0.097	10.2	98	0.00	9.30
44		chloroform	0.621	0.640	-3.1	101	0.00	9.30
45		tert-Butyl Formate	0.281	0.270	3.9	97	0.00	9.33
46	S	dibromofluoromethane (s)		----------NA----------				
47	S	1,2-dichloroethane-d4 (s)		----------NA----------				
48		1,1,1-trichloroethane	0.518	0.561	-8.3	101	0.00	9.56
49		Cyclohexane	0.523	0.543	-3.8	99	0.00	9.63
50	I	1,4-difluorobenzene	1.000	1.000	0.0	103	0.00	10.38
51		methylcyclohexane	0.458	0.447	2.4	90	0.00	10.96
52		epichlorohydrin	0.022	0.021	4.5	97	0.00	11.71
		----------	True	Calc.	% Drift	----------		
53		n-butyl alcohol	2500.000	2429.630	2.8	106	0.00	10.51
		----------	AvgRF	CCRF	% Dev	----------		
54		carbon tetrachloride	0.396	0.420	-6.1	101	0.00	9.76
55		1,1-dichloropropene	0.391	0.387	1.0	97	0.00	9.74
56		hexane	0.339	0.220	35.1#	63	0.00	7.91
57		2,2,4-Trimethylpentane	1.016	0.962	5.3	87	0.00	9.99
58		benzene	1.152	1.214	-5.4	102	0.00	10.01
59		tert-amyl methyl ether	0.881	0.863	2.0	98	0.00	10.03
60		heptane	0.205	0.182	11.2	83	0.00	10.16
61		isopropyl acetate	0.053	0.052	1.9	103	0.00	10.03
62		1,2-dichloroethane	0.357	0.380	-6.4	103	0.00	10.03
63		trichloroethene	0.292	0.303	-3.8	100	0.00	10.74
64		2-chloroethyl vinyl ether	0.101	0.106	-5.0	103	0.00	11.57
65		methyl methacrylate	0.057	0.062	-8.8	104	0.00	11.01
66		1,2-dichloropropane	0.289	0.308	-6.6	103	0.00	11.01
67		dibromomethane	0.169	0.173	-2.4	103	0.00	11.19
68		bromodichloromethane	0.382	0.420	-9.9	104	0.00	11.32
69		2-nitropropane	0.092	0.088	4.3	101	0.00	11.56
70		cis-1,3-dichloropropene	0.444	0.477	-7.4	100	0.00	11.80
71	S	toluene-d8 (s)		----------NA----------				
72		4-methyl-2-pentanone	0.089	0.097	-9.0	106	0.00	11.90
73		toluene	0.716	0.759	-6.0	99	0.00	12.20
74		isoamyl alcohol	0.011	0.012	-9.1	105	0.00	11.92
75		trans-1,3-dichloropropene	0.417	0.413	1.0	96	0.00	12.42
76		ethyl methacrylate	0.296	0.319	-7.8	101	0.00	12.40
77		1,1,2-trichloroethane	0.201	0.205	-2.0	102	0.00	12.65
78		2-hexanone	0.081	0.083	-2.5	106	0.00	12.84
79	I	chlorobenzene-d5	1.000	1.000	0.0	102	0.00	13.79
80		tetrachloroethene	0.379	0.378	0.3	91	0.00	12.84
81		1,3-dichloropropane	0.420	0.446	-6.2	102	0.00	12.86
82		butyl acetate	0.057	0.060	-5.3	100	0.00	12.92
83		3,3-Dimethyl-1-Butanol	0.021	0.021	0.0	102	0.00	13.03

Initial Calibration Verification

Job Number: JB85833 **Sample:** VV6266-ICV6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V147433.D
Project: Sunoco - Marcus Hook Facility, PA

84		dibromochloromethane	0.332	0.338	-1.8	101	0.00	13.15
85		1,2-dibromoethane	0.253	0.267	-5.5	102	0.00	13.32
86		chlorobenzene	0.934	0.950	-1.7	101	0.00	13.83
87		1,1,1,2-tetrachloroethane	0.345	0.358	-3.8	100	0.00	13.90
88		ethylbenzene	1.552	1.616	-4.1	99	0.00	13.88
89		m,p-xylene	0.604	0.633	-4.8	100	0.00	14.00
90		o-xylene	0.606	0.637	-5.1	99	0.00	14.47
91		styrene	0.942	1.051	-11.6	100	0.00	14.49
92		bromoform	0.221	0.232	-5.0	102	0.00	14.80
		----------	True	Calc.	% Drift	----------		
93		cyclohexanone	500.000	352.743	29.5#	68	0.00	15.06
		----------	AvgRF	CCRF	% Dev	----------		
94	S	4-bromofluorobenzene (s)		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	16.41
96		isopropylbenzene	2.806	2.964	-5.6	100	0.00	14.85
97		1,1,2,2-tetrachloroethane	0.657	0.632	3.8	100	0.00	15.21
98		trans-1,4-dichloro-2-bute	0.163	0.166	-1.8	102	0.00	15.26
99		1,2,3-trichloropropane	0.167	0.165	1.2	102	0.00	15.30
100		bromobenzene	0.727	0.745	-2.5	101	0.00	15.31
101		n-propylbenzene	3.145	3.478	-10.6	104	0.00	15.32
102		2-chlorotoluene	0.695	0.724	-4.2	99	0.00	15.49
103		4-chlorotoluene	2.070	2.096	-1.3	101	0.00	15.60
104		1,3,5-trimethylbenzene	2.417	2.554	-5.7	99	0.00	15.49
105		tert-butylbenzene	2.084	2.220	-6.5	99	0.00	15.88
106		pentachloroethane	0.434	0.480	-10.6	115	0.00	15.98
107		1,2,4-trimethylbenzene	2.418	2.644	-9.3	104	0.00	15.93
108		sec-butylbenzene	3.230	3.385	-4.8	97	0.00	16.12
109		p-isopropyltoluene	2.658	2.860	-7.6	100	0.00	16.25
110		1,3-dichlorobenzene	1.465	1.447	1.2	98	0.00	16.34
111		1,4-dichlorobenzene	1.548	1.471	5.0	100	0.00	16.43
112		1,2-dichlorobenzene	1.438	1.450	-0.8	100	0.00	16.88
113		Benzyl Chloride	1.167	1.152	1.3	102	0.00	16.56
114		Indane		----------NA----------				
115		n-butylbenzene	1.363	1.460	-7.1	99	0.00	16.72
116		hexachloroethane	0.460	0.499	-8.5	99	0.00	17.16
117		1,2-dibromo-3-chloropropa	0.147	0.153	-4.1	103	0.00	17.74
118		1,3,5-trichlorobenzene	1.315	1.277	2.9	96	0.00	17.93
119		1,2,4-trichlorobenzene	1.183	1.139	3.7	99	0.00	18.64
120		hexachlorobutadiene	0.605	0.616	-1.8	97	0.00	18.76
121		naphthalene	2.537	2.364	6.8	101	0.00	18.96
122		1,2,3-trichlorobenzene	1.093	1.055	3.5	101	0.00	19.25

(#) = Out of Range SPCC's out = 0 CCC's out = 0
V147428.D MVS6266.M Wed Sep 03 17:29:18 2014 MSV

Continuing Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: VV6378-CC6266
Lab FileID: V150486.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\v\vv6378\V150486.D Vial: 3
Acq On : 9 Jan 2015 12:51 pm Operator: BenM
Sample : cc6266-50 Inst : MSV
Misc : MS79439,VV6378,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint4.p

Method : C:\MSDCHEM\1\METHODS\MVS6266.M (RTE Integrator)
Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Sep 03 15:49:49 2014
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	89	-0.02	7.19
2	tertiary butyl alcohol	1.202	1.247	-3.7	98	-0.01	7.31
3	1,4-dioxane	0.094	0.109	-16.0	96	-0.01	11.12
4 I	pentafluorobenzene	1.000	1.000	0.0	85	-0.02	9.42
5	propene		----------NA----------				
	----------	True	Calc.	% Drift	----------		
6	chlorodifluoromethane	50.000	44.553	10.9	73	0.00	4.01
	----------	AvgRF	CCRF	% Dev	----------		
7	dichlorodifluoromethane	0.465	0.556	-19.6	91	0.01	4.00
8	chloromethane	0.547	0.536	2.0	81	-0.02	4.33
9	vinyl chloride	0.532	0.520	2.3	78	-0.01	4.57
10	bromomethane	0.322	0.323	-0.3	81	0.00	5.17
11	chloroethane	0.240	0.243	-1.3	81	0.00	5.33
12	trichlorofluoromethane	0.576	0.597	-3.6	85	-0.02	5.77
13	ethyl ether	0.171	0.178	-4.1	86	-0.02	6.12
14	2-chloropropane	0.593	0.628	-5.9	88	-0.02	6.32
15	acrolein	0.057	0.047	17.5	75	-0.02	6.38
16	freon 113	0.265	0.269	-1.5	82	-0.01	6.51
17	1,1-dichloroethene	0.309	0.322	-4.2	82	-0.02	6.54
	----------	True	Calc.	% Drift	----------		
18	acetone	50.000	50.971	-1.9	85	-0.01	6.60
	----------	AvgRF	CCRF	% Dev	----------		
19	iso-butyl alcohol	0.011	0.012	-9.1	83	-0.02	9.99
20	allyl chloride	0.187	0.181	3.2	77	-0.01	7.06
21	acetonitrile	0.080	0.088	-10.0	93	-0.02	7.05
22	iodomethane	0.604	0.668	-10.6	89	-0.02	6.83
23	carbon disulfide	1.158	1.193	-3.0	84	-0.02	6.96
24	methylene chloride	0.399	0.373	6.5	83	-0.02	7.25
25	1-chloropropane	0.645	0.636	1.4	85	-0.02	7.28
26	methyl acetate	0.210	0.222	-5.7	92	-0.02	7.04
27	methyl tert butyl ether	0.969	1.051	-8.5	88	-0.01	7.55
28	trans-1,2-dichloroethene	0.347	0.364	-4.9	83	-0.01	7.61
29	di-isopropyl ether	1.110	1.232	-11.0	91	-0.01	8.13
30	2-butanone	0.032	0.035	-9.4	89	-0.02	8.89
31	1,1-dichloroethane	0.613	0.636	-3.8	83	-0.02	8.18
32	chloroprene	0.454	0.516	-13.7	89	-0.02	8.28
33	acrylonitrile	0.093	0.098	-5.4	87	-0.02	7.57

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VV6378-CC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V150486.D
Project: Sunoco - Marcus Hook Facility, PA

34		vinyl acetate	0.046	0.046	0.0	85	-0.02	8.16
35		ethyl tert-butyl ether	1.119	1.133	-1.3	85	-0.01	8.61
		----------	True	Calc.	% Drift	----------		
36		ethyl acetate	50.000	52.134	-4.3	90	-0.02	8.89
		----------	AvgRF	CCRF	% Dev	----------		
37		2,2-dichloropropane	0.522	0.579	-10.9	89	-0.02	8.91
38		cis-1,2-dichloroethene	0.380	0.391	-2.9	82	-0.02	8.92
39		propionitrile	0.035	0.038	-8.6	85	-0.02	8.99
40		methyl acrylate	0.031	0.040	-29.0#	83	-0.02	8.98
41		methacrylonitrile	0.103	0.113	-9.7	87	-0.02	9.17
42		bromochloromethane	0.174	0.183	-5.2	83	-0.02	9.23
43		tetrahydrofuran	0.108	0.103	4.6	87	-0.01	9.29
44		chloroform	0.621	0.638	-2.7	84	-0.02	9.29
45		tert-Butyl Formate	0.281	0.284	-1.1	85	-0.02	9.31
46	S	dibromofluoromethane (s)	0.350	0.346	1.1	85	-0.02	9.49
47	S	1,2-dichloroethane-d4 (s)	0.378	0.354	6.3	82	-0.02	9.92
48		1,1,1-trichloroethane	0.518	0.594	-14.7	89	-0.01	9.54
49		Cyclohexane	0.523	0.574	-9.8	87	-0.01	9.61
50	I	1,4-difluorobenzene	1.000	1.000	0.0	80	-0.02	10.36
51		methylcyclohexane	0.458	0.498	-8.7	78	-0.01	10.94
52		epichlorohydrin	0.022	0.023	-4.5	84	-0.02	11.69
		----------	True	Calc.	% Drift	----------		
53		n-butyl alcohol	2500.000	2850.060	-14.0	98	-0.01	10.49
		----------	AvgRF	CCRF	% Dev	----------		
54		carbon tetrachloride	0.396	0.460	-16.2	86	-0.01	9.75
55		1,1-dichloropropene	0.391	0.412	-5.4	81	-0.02	9.72
56		hexane	0.339	0.305	10.0	68	-0.01	7.89
57		2,2,4-Trimethylpentane	1.016	0.943	7.2	67	0.00	9.98
58		benzene	1.152	1.237	-7.4	81	-0.02	9.99
59		tert-amyl methyl ether	0.881	0.949	-7.7	84	0.00	10.01
60		heptane	0.205	0.181	11.7	64	-0.01	10.15
61		isopropyl acetate	0.053	0.051	3.8	78	-0.02	10.01
62		1,2-dichloroethane	0.357	0.386	-8.1	82	-0.02	10.01
63		trichloroethene	0.292	0.317	-8.6	81	-0.01	10.72
64		2-chloroethyl vinyl ether	0.101	0.105	-4.0	79	-0.02	11.55
65		methyl methacrylate	0.057	0.069	-21.1#	89	-0.01	11.00
66		1,2-dichloropropane	0.289	0.313	-8.3	82	-0.01	11.00
67		dibromomethane	0.169	0.180	-6.5	84	-0.02	11.17
68		bromodichloromethane	0.382	0.432	-13.1	84	-0.02	11.30
69		2-nitropropane	0.092	0.088	4.3	78	-0.02	11.54
70		cis-1,3-dichloropropene	0.444	0.518	-16.7	85	-0.01	11.79
71	S	toluene-d8 (s)	1.108	1.195	-7.9	86	-0.01	12.10
72		4-methyl-2-pentanone	0.089	0.106	-19.1	90	-0.01	11.89
73		toluene	0.716	0.810	-13.1	83	-0.02	12.18
74		isoamyl alcohol	0.011	0.013	-18.2	93	-0.01	11.91
75		trans-1,3-dichloropropene	0.417	0.458	-9.8	83	-0.01	12.40
76		ethyl methacrylate	0.296	0.350	-18.2	87	-0.01	12.38
77		1,1,2-trichloroethane	0.201	0.221	-10.0	85	-0.02	12.64
78		2-hexanone	0.081	0.096	-18.5	96	-0.01	12.83
79	I	chlorobenzene-d5	1.000	1.000	0.0	81	-0.01	13.78
80		tetrachloroethene	0.379	0.393	-3.7	76	-0.01	12.82
81		1,3-dichloropropane	0.420	0.464	-10.5	85	-0.02	12.84
82		butyl acetate	0.057	0.072	-26.3#	95	-0.02	12.90
83		3,3-Dimethyl-1-Butanol	0.021	0.025	-19.0	95	-0.01	13.01

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VV6378-CC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V150486.D
Project: Sunoco - Marcus Hook Facility, PA

84		dibromochloromethane	0.332	0.372	-12.0	89	-0.01	13.13
85		1,2-dibromoethane	0.253	0.295	-16.6	90	-0.01	13.30
86		chlorobenzene	0.934	0.988	-5.8	84	-0.01	13.81
87		1,1,1,2-tetrachloroethane	0.345	0.371	-7.5	83	-0.02	13.88
88		ethylbenzene	1.552	1.674	-7.9	82	-0.01	13.87
89		m,p-xylene	0.604	0.668	-10.6	84	-0.01	13.99
90		o-xylene	0.606	0.679	-12.0	84	-0.01	14.46
91		styrene	0.942	1.114	-18.3	85	-0.01	14.47
92		bromoform	0.221	0.255	-15.4	90	-0.01	14.78
		----------	True	Calc.	% Drift	----------		
93		cyclohexanone	500.000	666.286	-33.3#	99	-0.01	15.04
		----------	AvgRF	CCRF	% Dev	----------		
94	S	4-bromofluorobenzene (s)	0.465	0.485	-4.3	86	-0.01	15.08
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	81	0.00	16.39
96		isopropylbenzene	2.806	3.064	-9.2	82	0.00	14.84
97		1,1,2,2-tetrachloroethane	0.657	0.680	-3.5	86	-0.01	15.20
98		trans-1,4-dichloro-2-bute	0.163	0.186	-14.1	91	-0.01	15.25
99		1,2,3-trichloropropane	0.167	0.173	-3.6	85	-0.01	15.28
100		bromobenzene	0.727	0.801	-10.2	87	-0.01	15.30
101		n-propylbenzene	3.145	3.424	-8.9	82	-0.01	15.31
102		2-chlorotoluene	0.695	0.753	-8.3	82	-0.01	15.48
103		4-chlorotoluene	2.070	2.135	-3.1	82	-0.01	15.59
104		1,3,5-trimethylbenzene	2.417	2.606	-7.8	81	-0.01	15.47
105		tert-butylbenzene	2.084	2.290	-9.9	82	-0.01	15.86
106		pentachloroethane	0.434	0.507	-16.8	97	0.00	15.97
107		1,2,4-trimethylbenzene	2.418	2.598	-7.4	81	-0.01	15.92
108		sec-butylbenzene	3.230	3.467	-7.3	79	-0.01	16.11
109		p-isopropyltoluene	2.658	2.927	-10.1	81	-0.01	16.24
110		1,3-dichlorobenzene	1.465	1.534	-4.7	83	0.00	16.33
111		1,4-dichlorobenzene	1.548	1.543	0.3	83	-0.01	16.42
112		1,2-dichlorobenzene	1.438	1.487	-3.4	82	-0.01	16.86
113		Benzyl Chloride	1.167	1.265	-8.4	89	-0.01	16.55
114		Indane		----------NA----------				
115		n-butylbenzene	1.363	1.440	-5.6	78	-0.01	16.70
116		hexachloroethane	0.460	0.511	-11.1	81	-0.01	17.15
117		1,2-dibromo-3-chloropropa	0.147	0.165	-12.2	88	-0.01	17.72
118		1,3,5-trichlorobenzene	1.315	1.355	-3.0	81	-0.01	17.92
119		1,2,4-trichlorobenzene	1.183	1.212	-2.5	84	-0.01	18.63
120		hexachlorobutadiene	0.605	0.697	-15.2	87	0.00	18.75
121		naphthalene	2.537	2.584	-1.9	88	-0.01	18.95
122		1,2,3-trichlorobenzene	1.093	1.159	-6.0	89	-0.01	19.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
V147428.D MVS6266.M Sat Jan 10 11:11:13 2015 DATAREVIW

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VV6379-CC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V150541.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\v\vv6379-6380\V150541.D Vial: 3
Acq On : 12 Jan 2015 10:19 am Operator: BenM
Sample : cc6266-20 Inst : MSV
Misc : MS79480,VV6379,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint4.p

Method : C:\MSDCHEM\1\METHODS\MVS6266.M (RTE Integrator)
Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Sep 03 15:49:49 2014
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	85	-0.03	7.18
2	tertiary butyl alcohol	1.202	1.287	-7.1	92	-0.02	7.30
3	1,4-dioxane	0.094	0.101	-7.4	91	0.00	11.13
4 I	pentafluorobenzene	1.000	1.000	0.0	82	-0.03	9.42
5	propene		----------NA----------				
	----------	True	Calc.	% Drift	----------		
6	chlorodifluoromethane	20.000	18.338	8.3	77	0.00	4.00
	----------	AvgRF	CCRF	% Dev	----------		
7	dichlorodifluoromethane	0.465	0.578	-24.3#	101	0.00	3.98
8	chloromethane	0.547	0.541	1.1	80	-0.04	4.31
9	vinyl chloride	0.532	0.531	0.2	79	-0.04	4.55
10	bromomethane	0.322	0.330	-2.5	79	-0.02	5.16
11	chloroethane	0.240	0.255	-6.3	81	-0.01	5.32
12	trichlorofluoromethane	0.576	0.618	-7.3	85	-0.03	5.75
13	ethyl ether	0.171	0.178	-4.1	81	-0.03	6.12
14	2-chloropropane	0.593	0.629	-6.1	84	-0.03	6.31
15	acrolein	0.057	0.047	17.5	68	-0.02	6.38
16	freon 113	0.265	0.307	-15.8	92	-0.03	6.50
17	1,1-dichloroethene	0.309	0.320	-3.6	78	-0.03	6.53
	----------	True	Calc.	% Drift	----------		
18	acetone	20.000	23.513	-17.6	86	-0.02	6.59
	----------	AvgRF	CCRF	% Dev	----------		
19	iso-butyl alcohol	0.011	0.012	-9.1	81	-0.02	9.99
20	allyl chloride	0.187	0.189	-1.1	86	-0.02	7.05
21	acetonitrile	0.080	0.091	-13.7	90	-0.03	7.05
22	iodomethane	0.604	0.657	-8.8	85	-0.03	6.82
23	carbon disulfide	1.158	1.189	-2.7	80	-0.03	6.95
24	methylene chloride	0.399	0.372	6.8	78	-0.03	7.24
25	1-chloropropane	0.645	0.654	-1.4	83	-0.03	7.27
26	methyl acetate	0.210	0.231	-10.0	85	-0.02	7.04
27	methyl tert butyl ether	0.969	1.073	-10.7	85	-0.01	7.55
28	trans-1,2-dichloroethene	0.347	0.360	-3.7	79	-0.02	7.61
29	di-isopropyl ether	1.110	1.302	-17.3	92	-0.02	8.13
30	2-butanone	0.032	0.035	-9.4	84	-0.01	8.90
31	1,1-dichloroethane	0.613	0.644	-5.1	81	-0.03	8.17
32	chloroprene	0.454	0.553	-21.8#	94	-0.03	8.28
33	acrylonitrile	0.093	0.101	-8.6	83	-0.03	7.57

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VV6379-CC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V150541.D
Project: Sunoco - Marcus Hook Facility, PA

34		vinyl acetate	0.046	0.044	4.3	80	-0.02	8.16
35		ethyl tert-butyl ether	1.119	1.156	-3.3	82	-0.02	8.60
		----------	True	Calc.	% Drift	----------		
36		ethyl acetate	20.000	23.579	-17.9	82	-0.02	8.89
		----------	AvgRF	CCRF	% Dev	----------		
37		2,2-dichloropropane	0.522	0.598	-14.6	92	-0.02	8.91
38		cis-1,2-dichloroethene	0.380	0.395	-3.9	82	-0.03	8.91
39		propionitrile	0.035	0.039	-11.4	81	-0.02	8.99
40		methyl acrylate	0.031	0.034	-9.7	73	-0.02	8.98
41		methacrylonitrile	0.103	0.110	-6.8	80	-0.01	9.18
42		bromochloromethane	0.174	0.184	-5.7	82	-0.02	9.23
43		tetrahydrofuran	0.108	0.105	2.8	80	-0.01	9.28
44		chloroform	0.621	0.634	-2.1	81	-0.03	9.28
45		tert-Butyl Formate	0.281	0.280	0.4	79	-0.02	9.31
46	S	dibromofluoromethane (s)	0.350	0.345	1.4	83	-0.03	9.48
47	S	1,2-dichloroethane-d4 (s)	0.378	0.350	7.4	77	-0.03	9.91
48		1,1,1-trichloroethane	0.518	0.569	-9.8	83	-0.02	9.54
49		Cyclohexane	0.523	0.540	-3.3	80	-0.02	9.61
50	I	1,4-difluorobenzene	1.000	1.000	0.0	76	-0.02	10.36
51		methylcyclohexane	0.458	0.549	-19.9	83	-0.02	10.94
52		epichlorohydrin	0.022	0.024	-9.1	79	-0.02	11.69
		----------	True	Calc.	% Drift	----------		
53		n-butyl alcohol	1000.000	1209.500	-20.9#	91	-0.01	10.49
		----------	AvgRF	CCRF	% Dev	----------		
54		carbon tetrachloride	0.396	0.448	-13.1	81	-0.02	9.75
55		1,1-dichloropropene	0.391	0.415	-6.1	77	-0.02	9.72
56		hexane	0.339	0.395	-16.5	86	-0.02	7.89
57		2,2,4-Trimethylpentane	1.016	1.202	-18.3	83	-0.02	9.96
58		benzene	1.152	1.257	-9.1	79	-0.03	9.99
59		tert-amyl methyl ether	0.881	0.979	-11.1	80	-0.01	10.01
60		heptane	0.205	0.252	-22.9#	88	-0.02	10.14
61		isopropyl acetate	0.053	0.053	0.0	72	-0.02	10.00
62		1,2-dichloroethane	0.357	0.395	-10.6	77	-0.03	10.01
63		trichloroethene	0.292	0.312	-6.8	77	-0.02	10.72
64		2-chloroethyl vinyl ether	0.101	0.102	-1.0	72	-0.02	11.55
65		methyl methacrylate	0.057	0.065	-14.0	85	-0.01	11.00
66		1,2-dichloropropane	0.289	0.304	-5.2	75	-0.02	11.00
67		dibromomethane	0.169	0.178	-5.3	78	-0.02	11.17
68		bromodichloromethane	0.382	0.427	-11.8	78	-0.02	11.30
69		2-nitropropane	0.092	0.090	2.2	72	-0.01	11.54
70		cis-1,3-dichloropropene	0.444	0.509	-14.6	80	-0.02	11.78
71	S	toluene-d8 (s)	1.108	1.210	-9.2	84	-0.01	12.10
72		4-methyl-2-pentanone	0.089	0.104	-16.9	82	-0.01	11.89
73		toluene	0.716	0.807	-12.7	79	-0.02	12.18
74		isoamyl alcohol	0.011	0.013	-18.2	90	-0.01	11.91
75		trans-1,3-dichloropropene	0.417	0.472	-13.2	83	-0.02	12.40
76		ethyl methacrylate	0.296	0.355	-19.9	86	-0.01	12.38
77		1,1,2-trichloroethane	0.201	0.219	-9.0	81	-0.02	12.64
78		2-hexanone	0.081	0.094	-16.0	76	-0.01	12.83
79	I	chlorobenzene-d5	1.000	1.000	0.0	78	-0.01	13.78
80		tetrachloroethene	0.379	0.380	-0.3	73	-0.01	12.82
81		1,3-dichloropropane	0.420	0.466	-11.0	81	-0.02	12.84
82		butyl acetate	0.057	0.073	-28.1#	93	-0.01	12.90
83		3,3-Dimethyl-1-Butanol	0.021	0.025	-19.0	88	-0.01	13.01

Continuing Calibration Summary

Job Number: JB85833 **Sample:** VV6379-CC6266
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** V150541.D
Project: Sunoco - Marcus Hook Facility, PA

84		dibromochloromethane	0.332	0.361	-8.7	84	-0.01	13.13
85		1,2-dibromoethane	0.253	0.293	-15.8	84	-0.01	13.30
86		chlorobenzene	0.934	0.986	-5.6	80	-0.02	13.81
87		1,1,1,2-tetrachloroethane	0.345	0.370	-7.2	79	-0.02	13.88
88		ethylbenzene	1.552	1.675	-7.9	80	-0.01	13.87
89		m,p-xylene	0.604	0.690	-14.2	85	-0.01	13.99
90		o-xylene	0.606	0.678	-11.9	82	-0.01	14.46
91		styrene	0.942	1.105	-17.3	83	-0.01	14.47
92		bromoform	0.221	0.256	-15.8	88	-0.01	14.78
		----------	True	Calc.	% Drift	----------		
93		cyclohexanone	200.000	261.387	-30.7#	90	-0.01	15.04
		----------	AvgRF	CCRF	% Dev	----------		
94	S	4-bromofluorobenzene (s)	0.465	0.493	-6.0	86	-0.01	15.08
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	79	0.00	16.39
96		isopropylbenzene	2.806	3.000	-6.9	81	-0.01	14.84
97		1,1,2,2-tetrachloroethane	0.657	0.693	-5.5	83	-0.01	15.20
98		trans-1,4-dichloro-2-bute	0.163	0.185	-13.5	86	-0.01	15.25
99		1,2,3-trichloropropane	0.167	0.181	-8.4	85	-0.01	15.28
100		bromobenzene	0.727	0.799	-9.9	84	-0.01	15.30
101		n-propylbenzene	3.145	3.401	-8.1	82	-0.01	15.30
102		2-chlorotoluene	0.695	0.760	-9.4	83	-0.01	15.48
103		4-chlorotoluene	2.070	2.179	-5.3	81	-0.01	15.59
104		1,3,5-trimethylbenzene	2.417	2.599	-7.5	80	-0.01	15.47
105		tert-butylbenzene	2.084	2.245	-7.7	82	-0.01	15.86
106		pentachloroethane	0.434	0.523	-20.5#	96	-0.01	15.96
107		1,2,4-trimethylbenzene	2.418	2.580	-6.7	81	-0.01	15.92
108		sec-butylbenzene	3.230	3.423	-6.0	79	-0.01	16.11
109		p-isopropyltoluene	2.658	2.951	-11.0	82	-0.01	16.24
110		1,3-dichlorobenzene	1.465	1.569	-7.1	84	-0.01	16.32
111		1,4-dichlorobenzene	1.548	1.576	-1.8	82	-0.01	16.42
112		1,2-dichlorobenzene	1.438	1.507	-4.8	81	-0.01	16.86
113		Benzyl Chloride	1.167	1.410	-20.8#	95	-0.01	16.55
114		Indane		----------NA----------				
115		n-butylbenzene	1.363	1.480	-8.6	80	-0.01	16.70
116		hexachloroethane	0.460	0.501	-8.9	82	-0.01	17.15
117		1,2-dibromo-3-chloropropa	0.147	0.165	-12.2	86	-0.01	17.72
118		1,3,5-trichlorobenzene	1.315	1.423	-8.2	85	-0.01	17.91
119		1,2,4-trichlorobenzene	1.183	1.256	-6.2	84	-0.01	18.63
120		hexachlorobutadiene	0.605	0.708	-17.0	89	0.00	18.75
121		naphthalene	2.537	2.606	-2.7	84	-0.01	18.95
122		1,2,3-trichlorobenzene	1.093	1.199	-9.7	87	-0.01	19.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
V147427.D MVS6266.M Tue Jan 13 14:50:37 2015 DATAREVIW

6.9.8

6

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6378\
Data File : V150506.D
Acq On : 9 Jan 2015 11:30 pm
Operator : BenM
Sample : jb85833-1
Misc : MS79479,VV6378,6.0,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jan 10 12:00:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Sep 03 15:49:49 2014
Response via : Initial Calibration

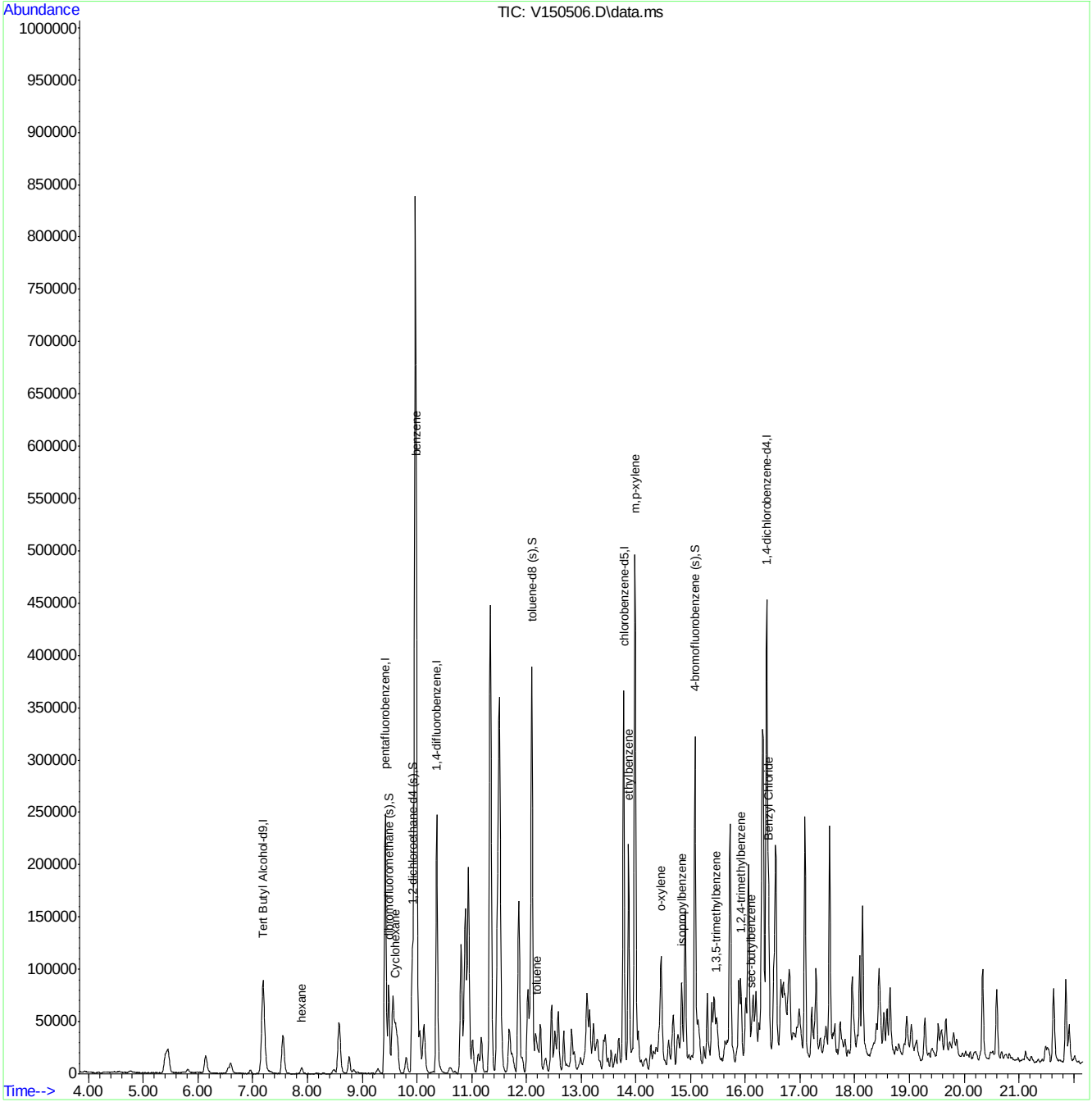
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.182	65	77595	500.00	ug/L	-0.02
4) pentafluorobenzene	9.421	168	219620	50.00	ug/L	-0.02
50) 1,4-difluorobenzene	10.362	114	251418	50.00	ug/L	-0.02
79) chlorobenzene-d5	13.778	117	241982	50.00	ug/L	-0.01
95) 1,4-dichlorobenzene-d4	16.393	152	136923	50.00	ug/L	0.00
System Monitoring Compounds						
46) dibromofluoromethane (s)	9.484	113	61395	39.94	ug/L	-0.02
Spiked Amount 50.000	Range 59 - 130		Recovery = 79.88%			
47) 1,2-dichloroethane-d4 (s)	9.918	65	88263	53.16	ug/L	-0.02
Spiked Amount 50.000	Range 65 - 123		Recovery = 106.32%			
71) toluene-d8 (s)	12.099	98	301609	54.13	ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 108.26%			
94) 4-bromofluorobenzene (s)	15.080	95	116753	51.87	ug/L	-0.01
Spiked Amount 50.000	Range 71 - 132		Recovery = 103.74%			
Target Compounds						Qvalue
49) Cyclohexane	9.609	84	22588	9.83	ug/L #	49
56) hexane	7.894	57	3968	2.33	ug/L	95
58) benzene	9.991	78	4771	0.82	ug/L #	12
73) toluene	12.183	92	8030	2.23	ug/L #	95
88) ethylbenzene	13.867	91	146055	19.45	ug/L	96
89) m,p-xylene	13.987	106	166353	56.89	ug/L	94
90) o-xylene	14.458	106	33390	11.39	ug/L	99
96) isopropylbenzene	14.845	105	24994	3.25	ug/L	79
104) 1,3,5-trimethylbenzene	15.472	105	18824	2.84	ug/L	99
107) 1,2,4-trimethylbenzene	15.917	105	46548	7.03	ug/L	100
108) sec-butylbenzene	16.105	105	12091	1.37	ug/L	94
113) Benzyl Chloride	16.424	91	2508	0.78	ug/L	87

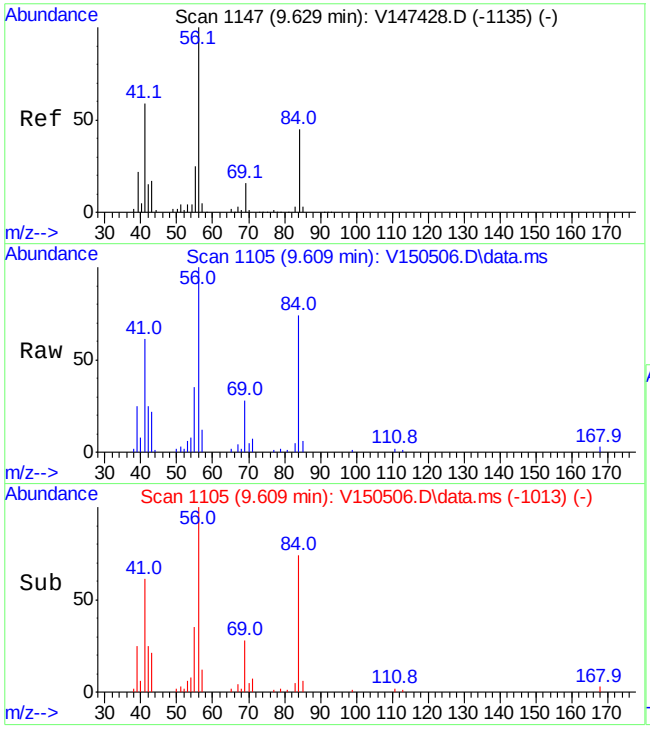
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6378\
Data File : V150506.D
Acq On : 9 Jan 2015 11:30 pm
Operator : BenM
Sample : jb85833-1
Misc : MS79479,VV6378,6.0,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jan 10 12:00:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Sep 03 15:49:49 2014
Response via : Initial Calibration

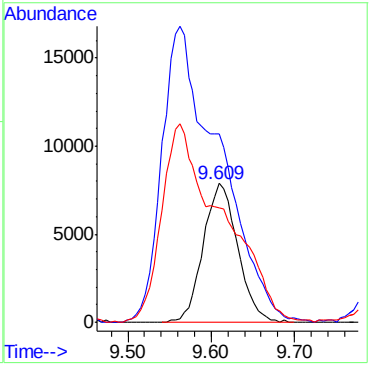


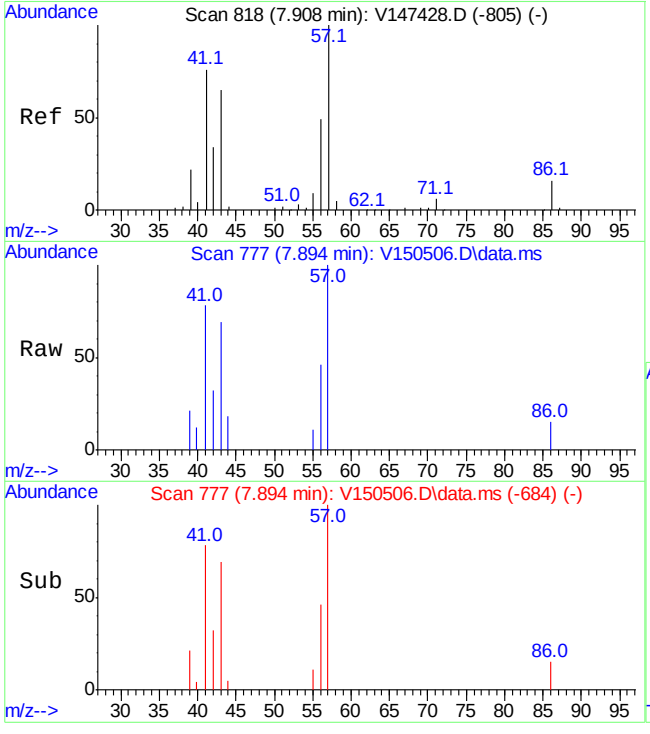


#49
Cyclohexane
Concen: 9.83 ug/L
RT: 9.609 min Scan# 1105
Delta R.T. -0.020 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion: 84 Resp: 22588

Ion	Ratio	Lower	Upper
84	100		
56	132.5	156.3	290.3#
41	80.0	91.7	170.3#

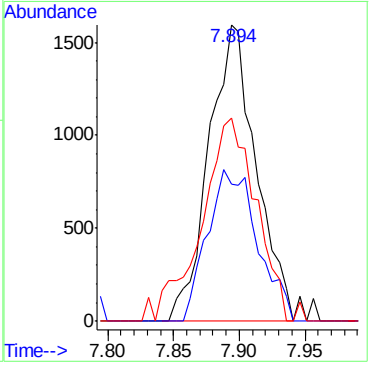


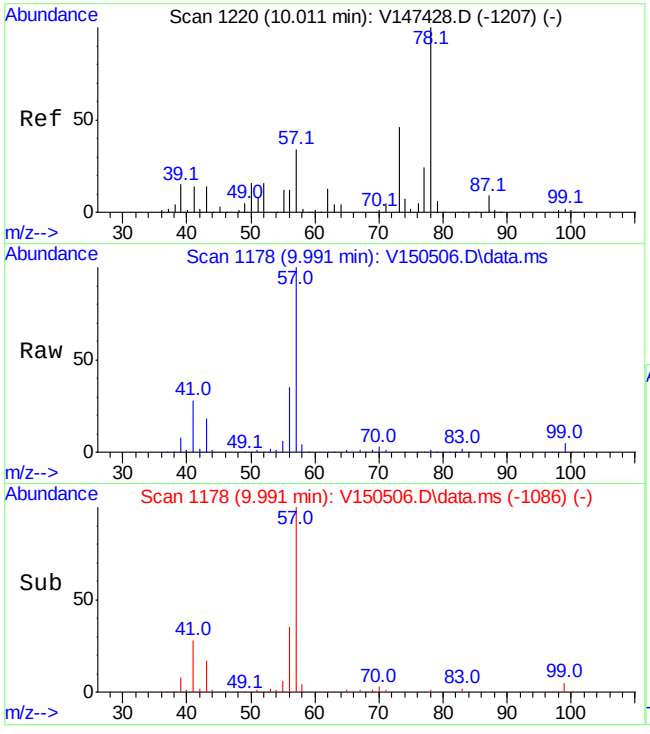


#56
hexane
Concen: 2.33 ug/L
RT: 7.894 min Scan# 777
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion: 57 Resp: 3968

Ion	Ratio	Lower	Upper
57	100		
56	46.2	19.3	79.3
43	68.8	35.0	95.0

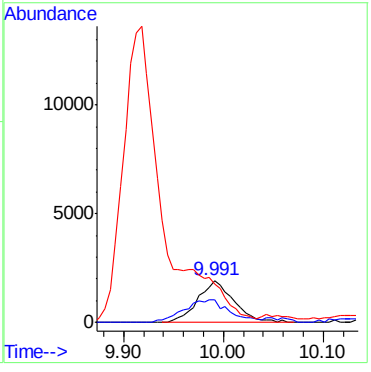


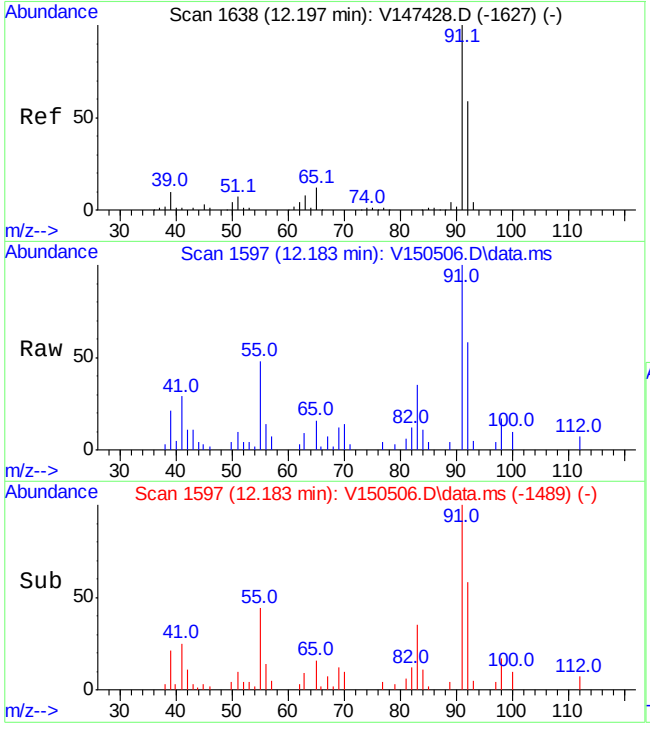


#58
benzene
Concen: 0.82 ug/L
RT: 9.991 min Scan# 1178
Delta R.T. -0.020 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion: 78 Resp: 4771

Ion	Ratio	Lower	Upper
78	100		
77	48.5	0.0	53.8
51	79.2	0.0	48.1#

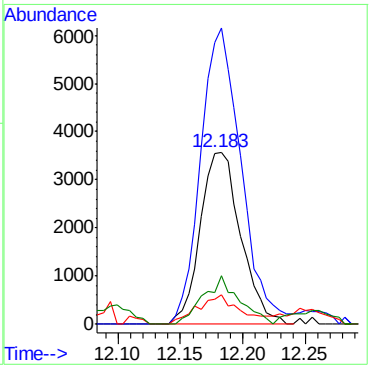


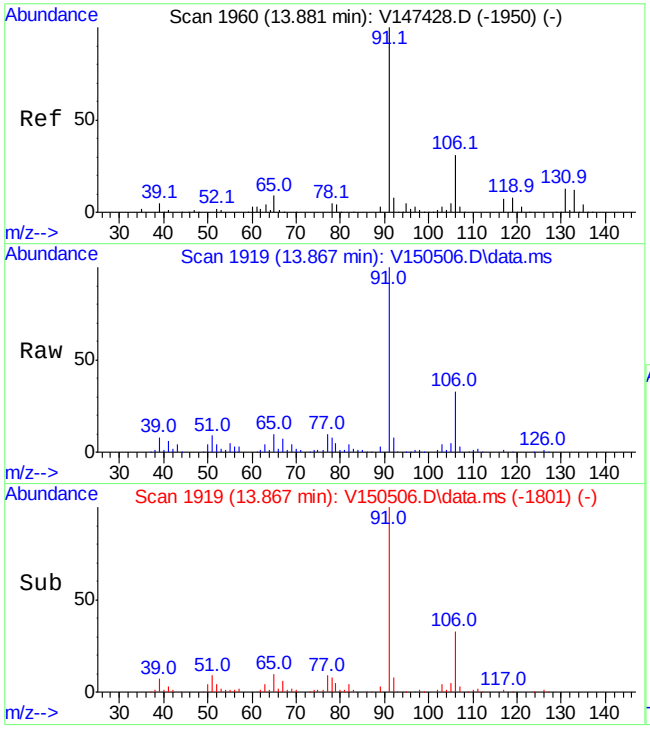


#73
toluene
Concen: 2.23 ug/L
RT: 12.183 min Scan# 1597
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion: 92 Resp: 8030

Ion	Ratio	Lower	Upper
92	100		
91	172.4	117.7	218.7
51	17.2	7.8	14.6#
65	28.0	14.0	26.0#

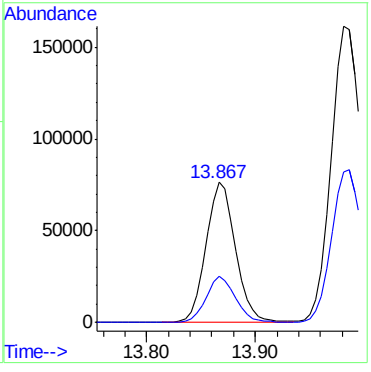


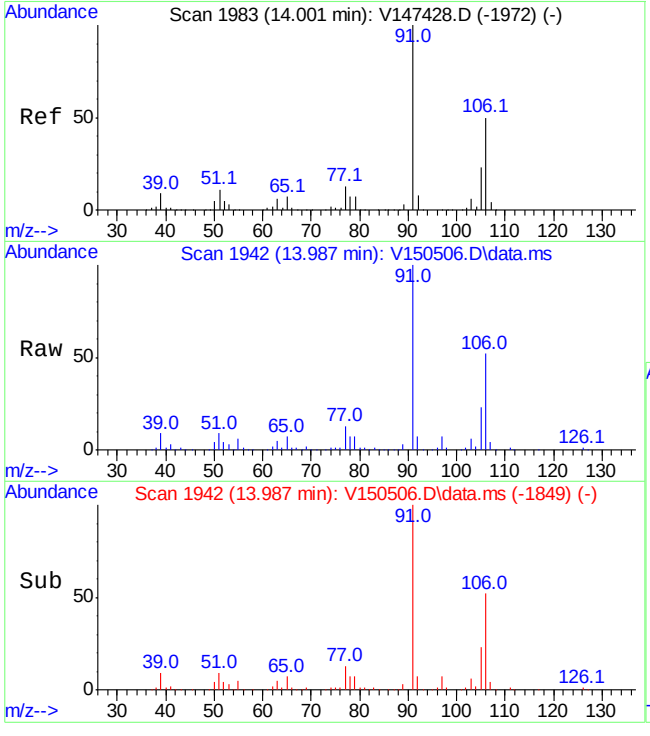


#88
ethylbenzene
Concen: 19.45 ug/L
RT: 13.867 min Scan# 1919
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion: 91 Resp: 146055

Ion	Ratio	Lower	Upper
91	100		
106	33.3	1.1	61.1

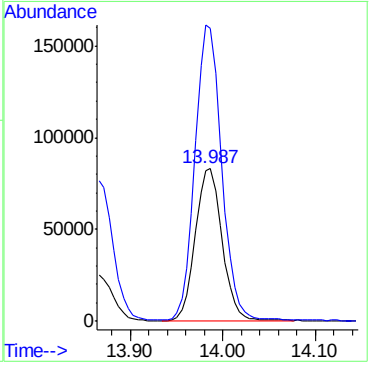


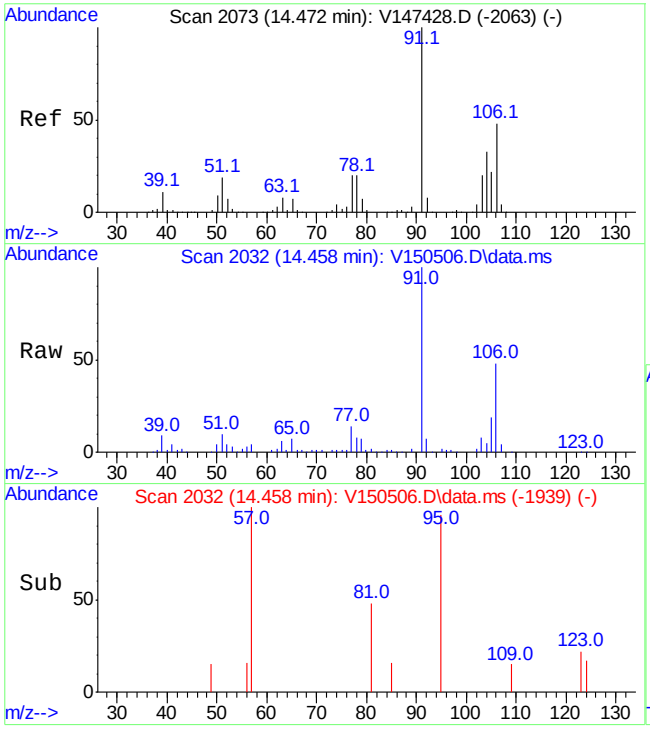


#89
m,p-xylene
Concen: 56.89 ug/L
RT: 13.987 min Scan# 1942
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion:106 Resp: 166353

Ion	Ratio	Lower	Upper
106	100		
91	191.2	140.7	261.3

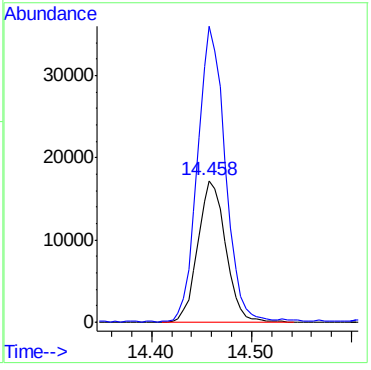


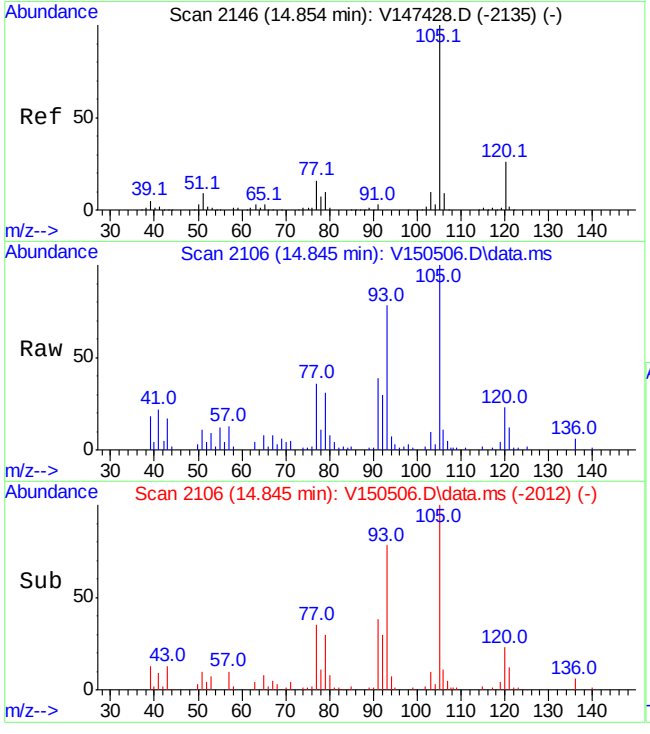


#90
o-xylene
Concen: 11.39 ug/L
RT: 14.458 min Scan# 2032
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion:106 Resp: 33390

Ion	Ratio	Lower	Upper
106	100		
91	208.2	146.7	272.5

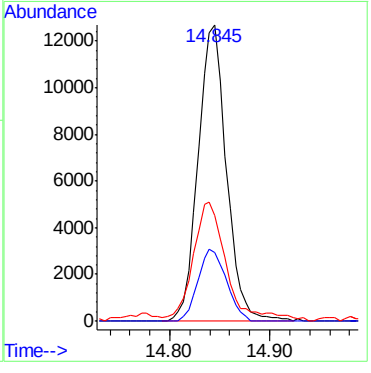


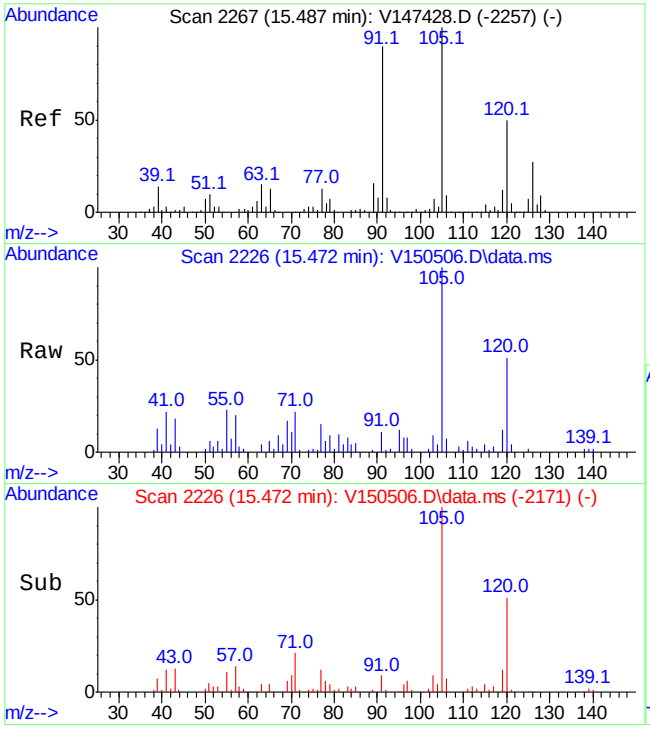


#96
isopropylbenzene
Concen: 3.25 ug/L
RT: 14.845 min Scan# 2106
Delta R.T. -0.009 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion:105 Resp: 24994

Ion	Ratio	Lower	Upper
105	100		
120	23.0	0.0	55.8
77	34.7	0.0	45.6

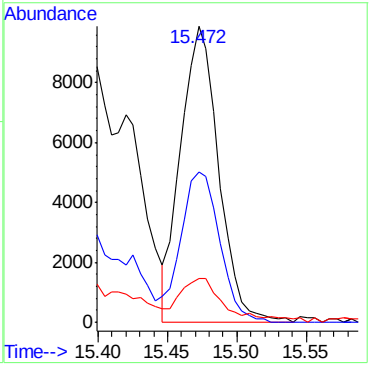


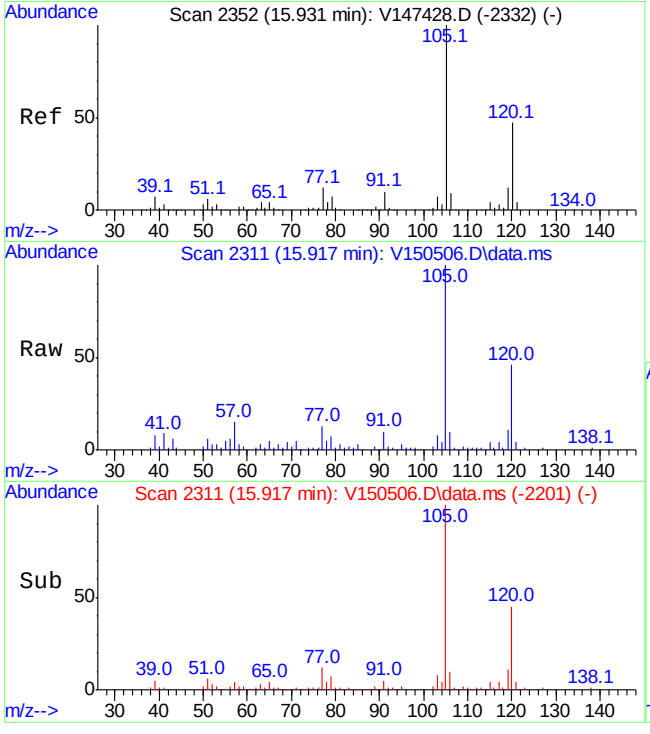


#104
1,3,5-trimethylbenzene
Concen: 2.84 ug/L
RT: 15.472 min Scan# 2226
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion:105 Resp: 18824

Ion	Ratio	Lower	Upper
105	100		
120	50.8	19.9	79.9
77	13.6	0.0	43.2

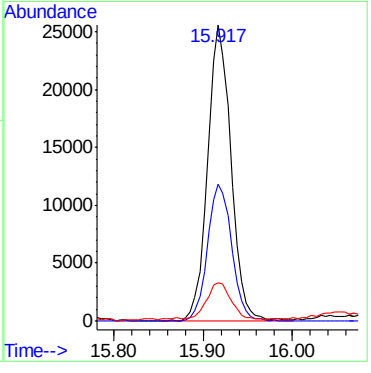


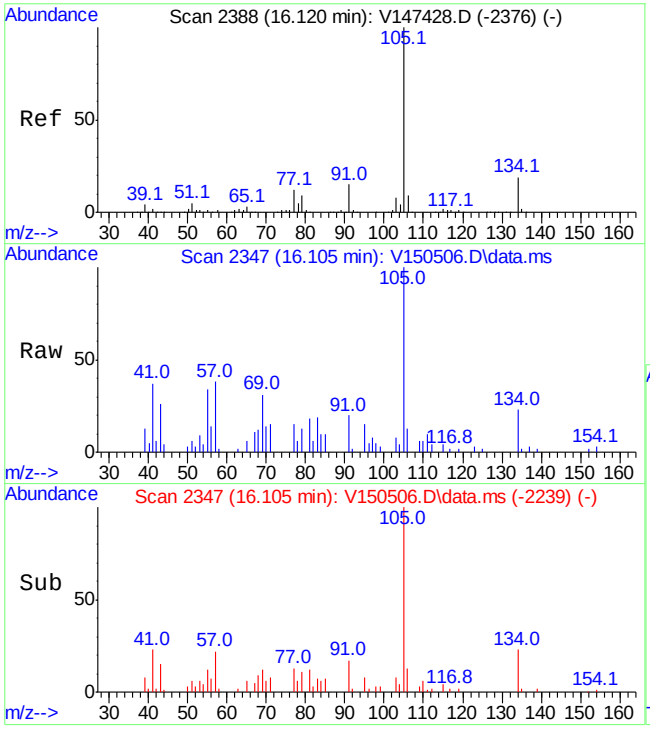


#107
1,2,4-trimethylbenzene
Concen: 7.03 ug/L
RT: 15.917 min Scan# 2311
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion:105 Resp: 46548

Ion	Ratio	Lower	Upper
105	100		
120	46.4	16.6	76.6
77	12.3	0.0	41.9

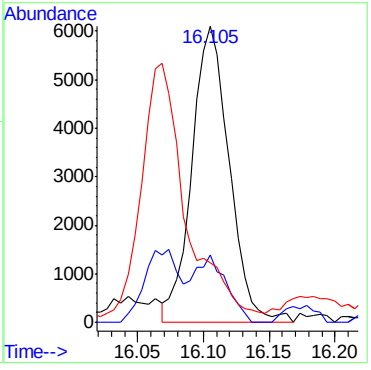


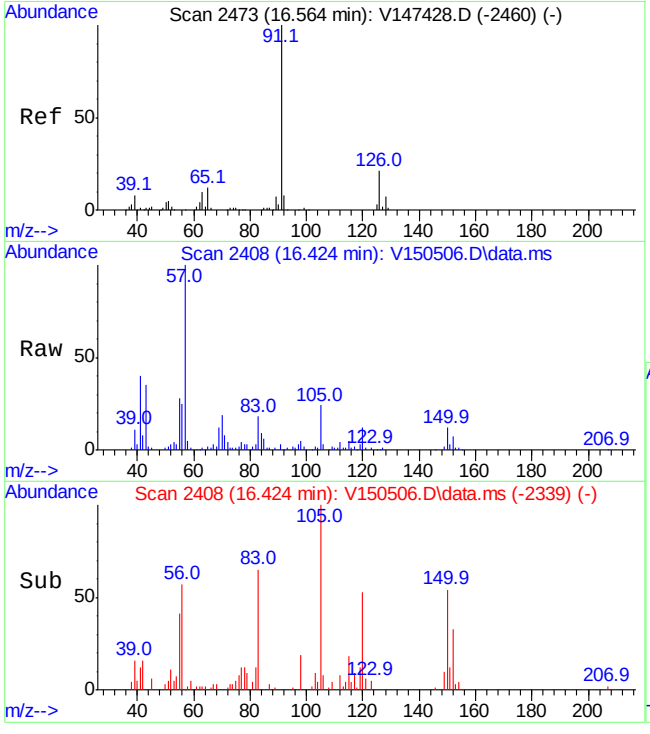


#108
sec-butylbenzene
Concen: 1.37 ug/L
RT: 16.105 min Scan# 2347
Delta R.T. -0.014 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion:105 Resp: 12091

Ion	Ratio	Lower	Upper
105	100		
134	17.4	0.0	49.4
91	12.4	0.0	45.4

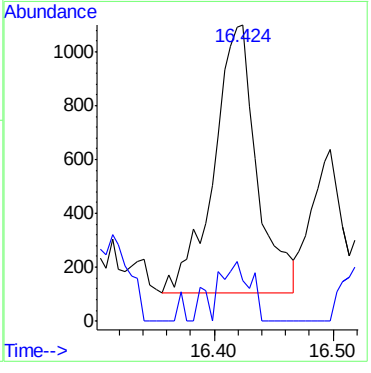




#113
Benzyl Chloride
Concen: 0.78 ug/L
RT: 16.424 min Scan# 2408
Delta R.T. -0.140 min
Lab File: V150506.D
Acq: 9 Jan 2015 11:30 pm

Tgt Ion: 91 Resp: 2508

Ion	Ratio	Lower	Upper
91	100		
126	15.1	14.9	27.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222894.D
Acq On : 15 Jan 2015 6:01 pm
Operator : ThienN
Sample : jb85833-2
Misc : MS79479,VE9772,5.8,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jan 16 11:21:01 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

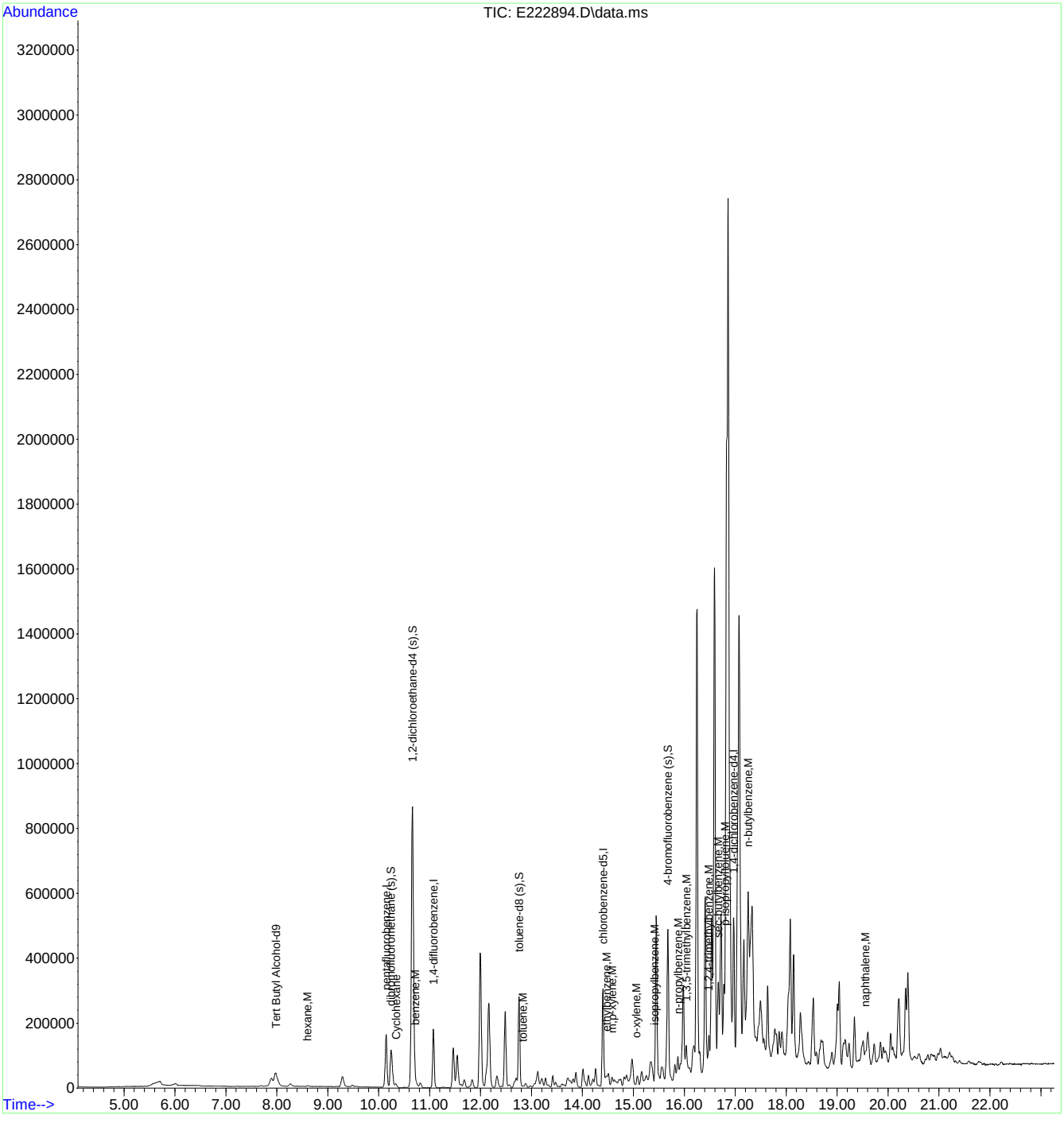
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.980	65	115225	500.00 ug/L	0.00
4) pentafluorobenzene	10.145	168	148203	50.00 ug/L	0.00
54) 1,4-difluorobenzene	11.076	114	178632	50.00 ug/L	0.00
84) chlorobenzene-d5	14.402	117	189702	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	135886	50.00 ug/L	0.00
System Monitoring Compounds					
47) dibromofluoromethane (s)	10.239	113	61584	52.84 ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 105.68%		
48) 1,2-dichloroethane-d4 (s)	10.663	65	87728	50.50 ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 101.00%		
76) toluene-d8 (s)	12.755	98	215774	48.69 ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 97.38%		
103) 4-bromofluorobenzene (s)	15.679	95	97301	45.35 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 90.70%		
Target Compounds					Qvalue
52) Cyclohexane	10.339	84	674	0.51 ug/L #	1
61) hexane	8.597	57	1713	1.65 ug/L	92
62) benzene	10.715	78	3530	0.77 ug/L	73
78) toluene	12.828	92	753	0.25 ug/L	79
95) ethylbenzene	14.476	91	15269	2.57 ug/L	99
96) m,p-xylene	14.586	106	4772	2.10 ug/L	89
97) o-xylene	15.056	106	828	0.34 ug/L	89
102) isopropylbenzene	15.417	105	2777	0.46 ug/L	76
109) n-propylbenzene	15.877	91	27041	3.64 ug/L	99
113) 1,3,5-trimethylbenzene	16.040	105	3411	0.57 ug/L	92
116) 1,2,4-trimethylbenzene	16.479	105	77245	12.16 ug/L	94
117) sec-butylbenzene	16.667	105	3561	0.48 ug/L	80
119) p-isopropyltoluene	16.798	119	2578	0.37 ug/L	74
124) n-butylbenzene	17.253	92	7544	2.15 ug/L #	80
130) naphthalene	19.554	128	15196	2.05 ug/L	90

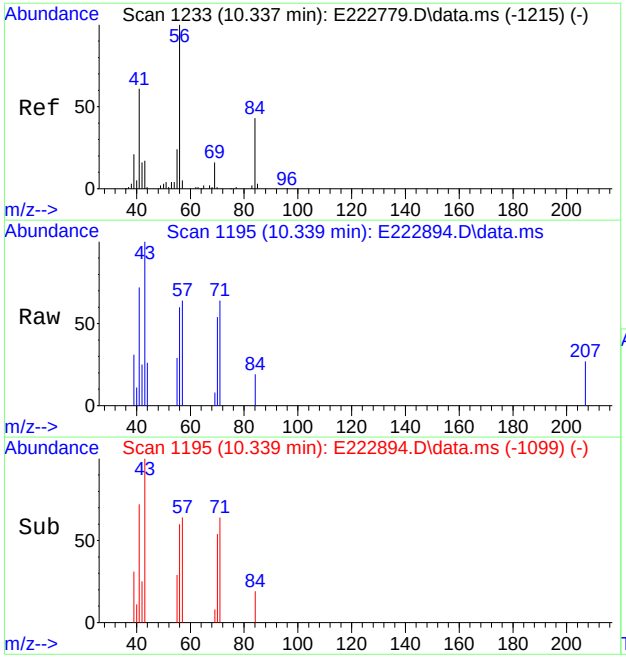
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222894.D
Acq On : 15 Jan 2015 6:01 pm
Operator : ThienN
Sample : jb85833-2
Misc : MS79479,VE9772,5.8,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jan 16 11:21:01 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

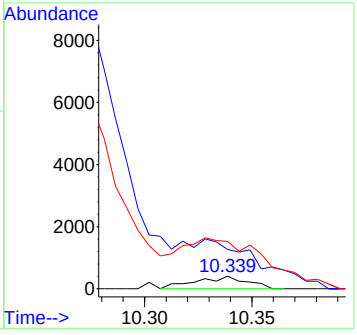


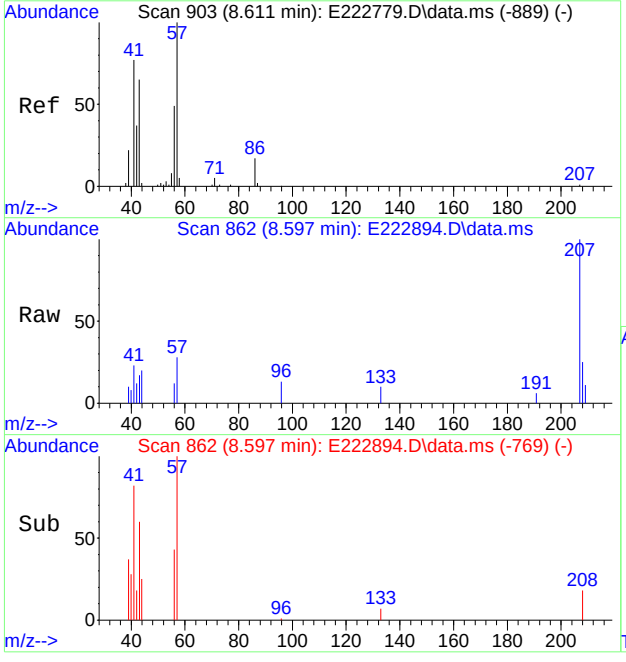


#52
Cyclohexane
Concen: 0.51 ug/L
RT: 10.339 min Scan# 1195
Delta R.T. 0.002 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion: 84 Resp: 674

Ion	Ratio	Lower	Upper
84	100		
56	0.0	179.7	333.7#
41	696.3	108.2	201.0#

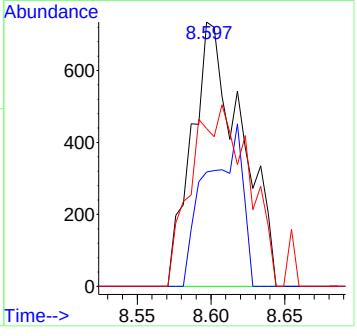


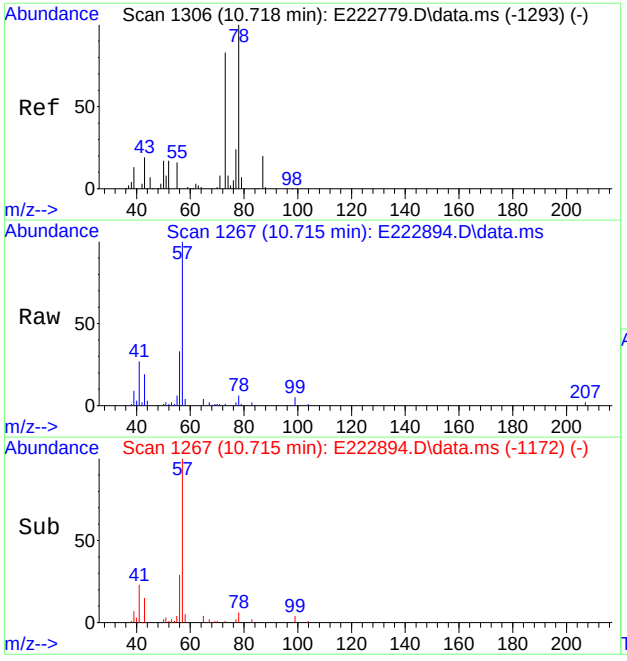


#61
hexane
Concen: 1.65 ug/L
RT: 8.597 min Scan# 862
Delta R.T. -0.014 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion: 57 Resp: 1713

Ion	Ratio	Lower	Upper
57	100		
56	43.3	19.5	79.5
43	59.7	35.5	95.5

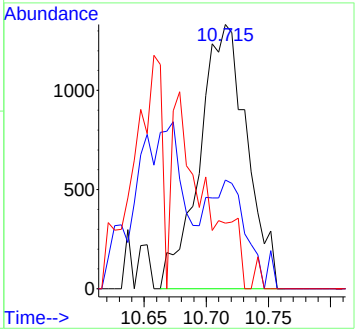


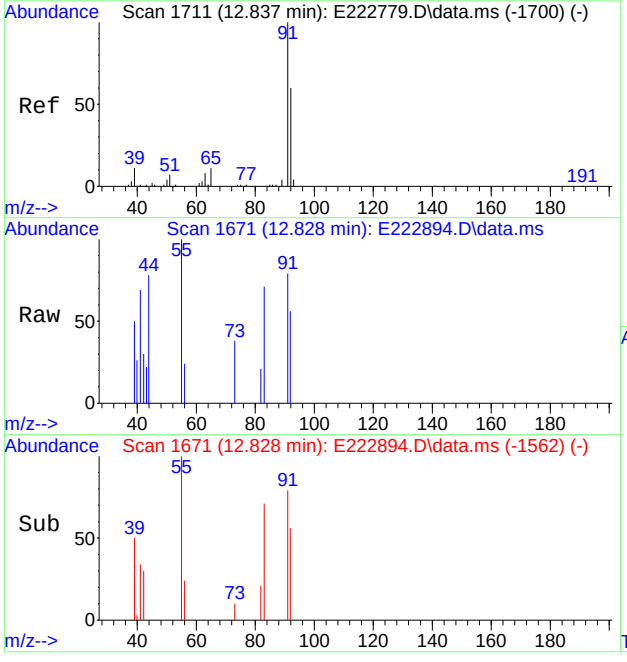


#62
benzene
Concen: 0.77 ug/L
RT: 10.715 min Scan# 1267
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion: 78 Resp: 3530

Ion	Ratio	Lower	Upper
78	100		
77	41.2	0.0	54.4
52	24.8	0.0	47.4

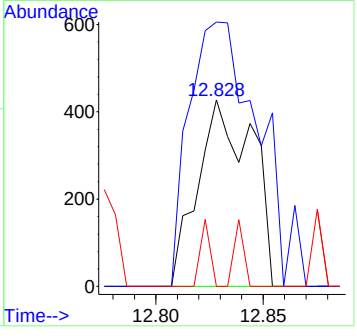




#78
toluene
Concen: 0.25 ug/L
RT: 12.828 min Scan# 1671
Delta R.T. -0.008 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

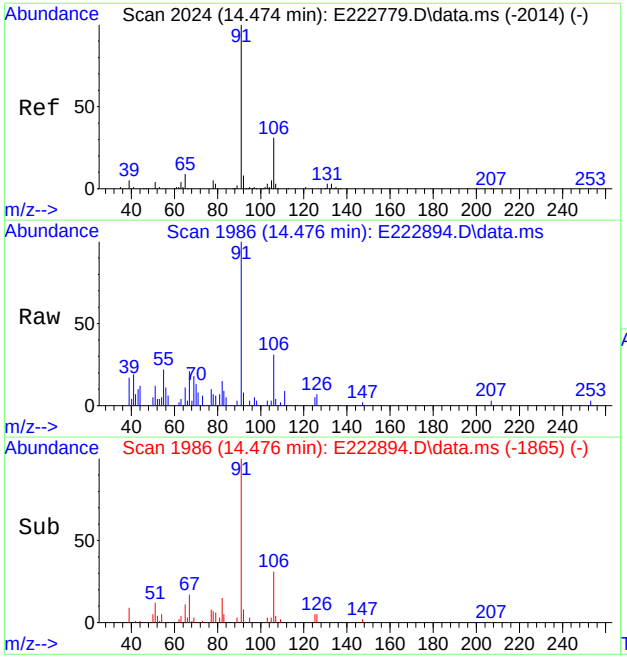
Tgt Ion: 92 Resp: 753

Ion	Ratio	Lower	Upper
92	100		
91	141.9	136.6	196.6
65	0.0	0.0	48.5



7.1.2

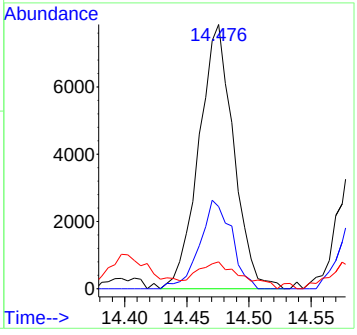
7

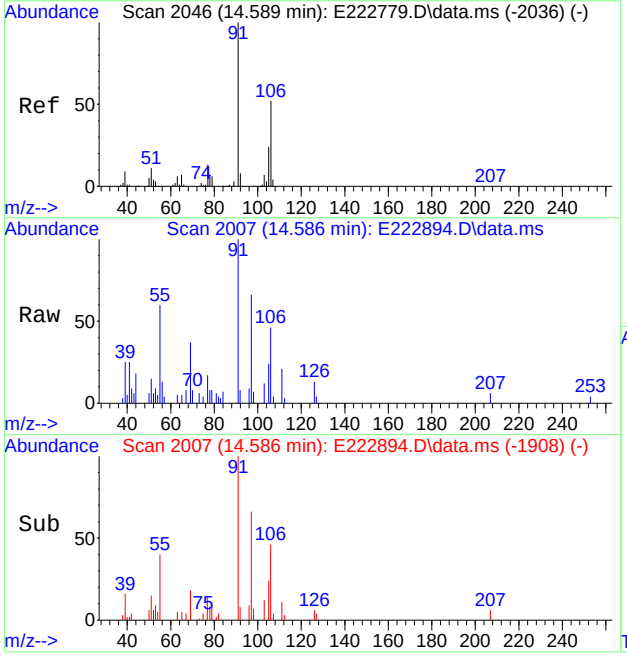


#95
ethylbenzene
Concen: 2.57 ug/L
RT: 14.476 min Scan# 1986
Delta R.T. 0.002 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion: 91 Resp: 15269

Ion	Ratio	Lower	Upper
91	100		
106	31.1	1.4	61.4
77	8.3	0.0	39.7

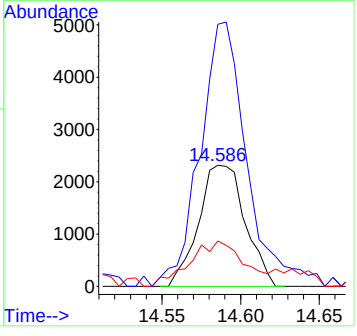


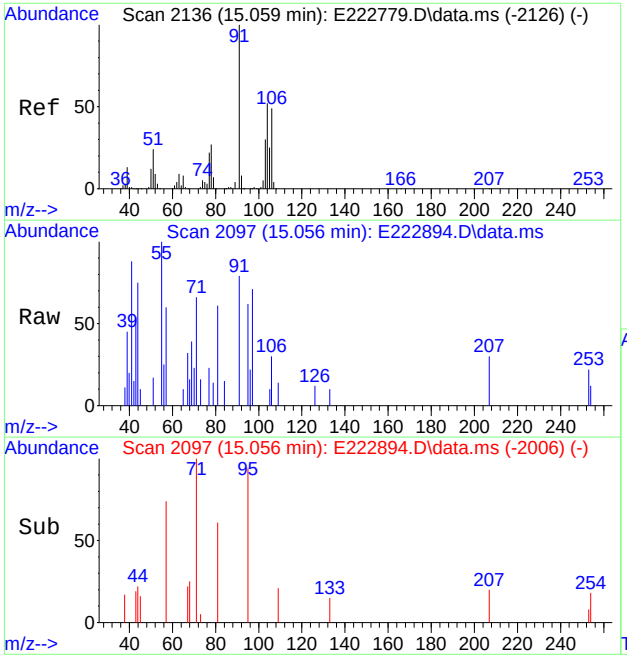


#96
m,p-xylene
Concen: 2.10 ug/L
RT: 14.586 min Scan# 2007
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion:106 Resp: 4772

Ion	Ratio	Lower	Upper
106	100		
91	208.5	162.1	222.1
77	29.8	0.0	54.7

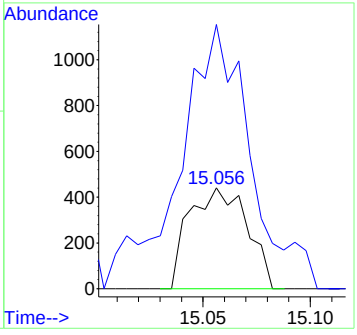


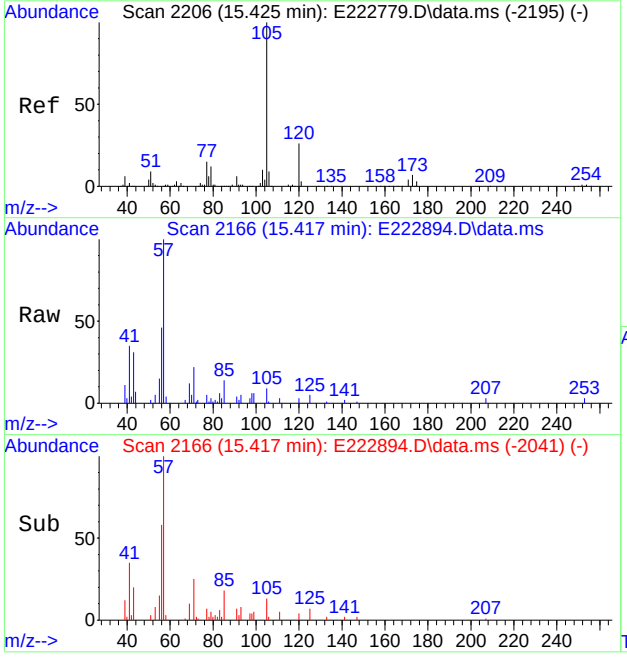


#97
o-xylene
Concen: 0.34 ug/L
RT: 15.056 min Scan# 2097
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion:106 Resp: 828

Ion	Ratio	Lower	Upper
106	100		
91	223.6	176.1	236.1

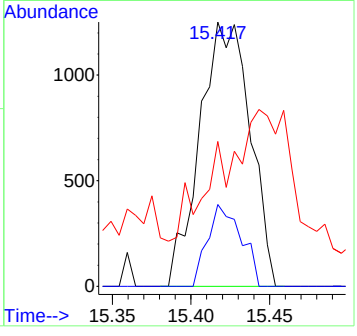




#102
isopropylbenzene
Concen: 0.46 ug/L
RT: 15.417 min Scan# 2166
Delta R.T. -0.008 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

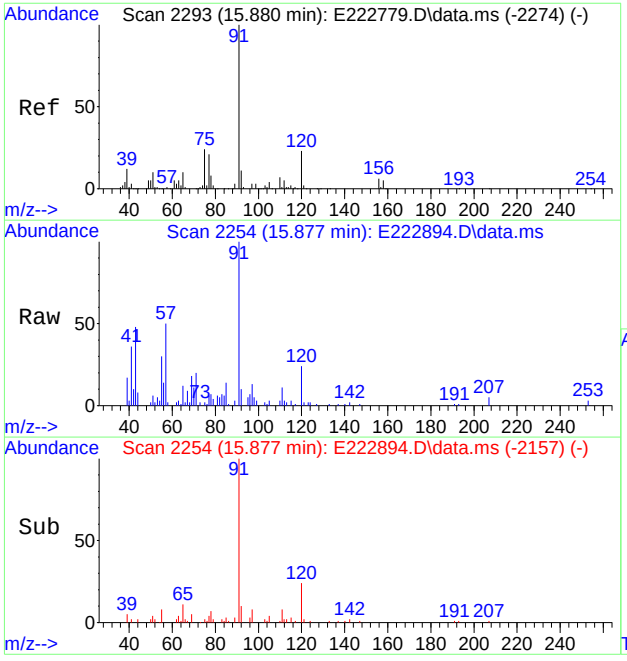
Tgt Ion:105 Resp: 2777

Ion	Ratio	Lower	Upper
105	100		
120	30.9	0.0	56.4
77	36.5	0.0	45.2



7.1.2

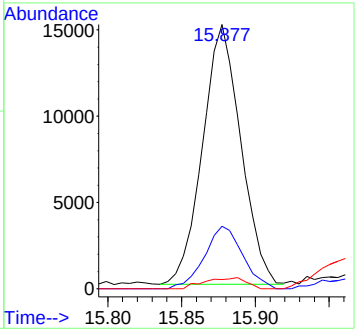
7

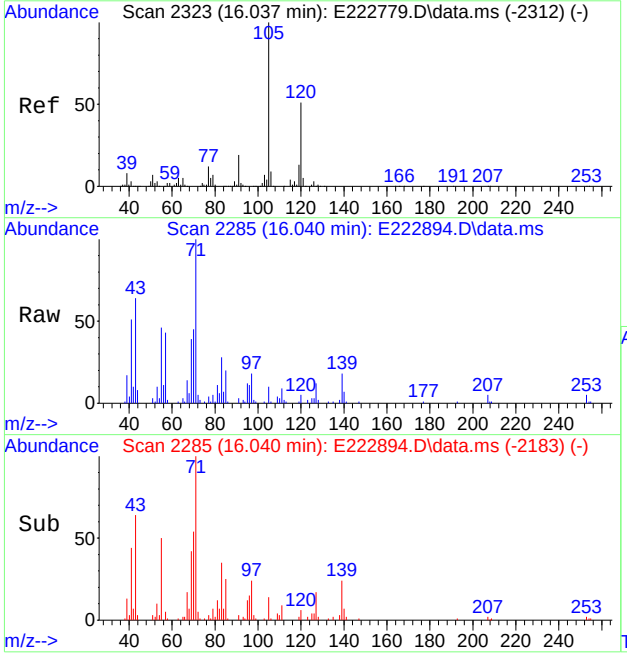


#109
n-propylbenzene
Concen: 3.64 ug/L
RT: 15.877 min Scan# 2254
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion: 91 Resp: 27041

Ion	Ratio	Lower	Upper
91	100		
120	24.1	0.0	53.4
105	3.5	0.0	33.9

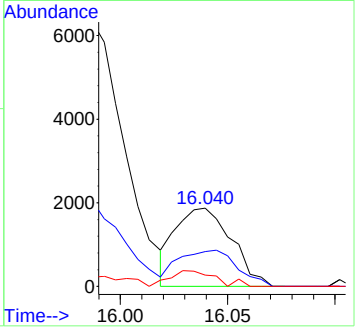




#113
1,3,5-trimethylbenzene
Concen: 0.57 ug/L
RT: 16.040 min Scan# 2285
Delta R.T. 0.002 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

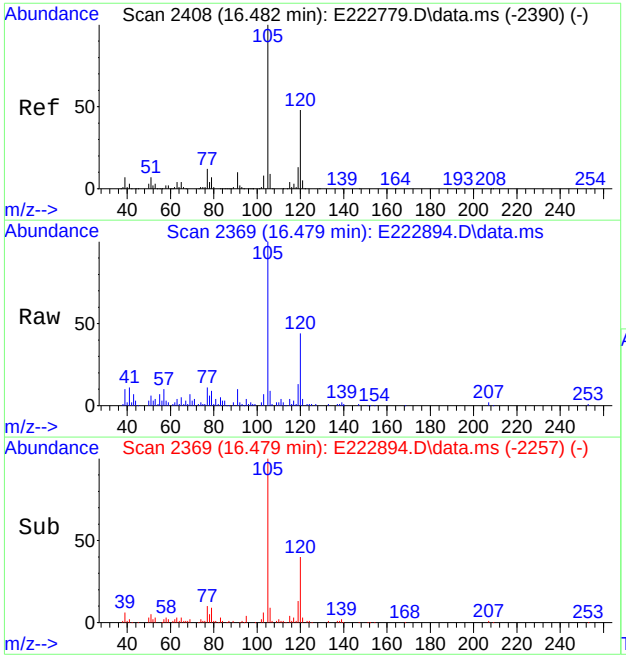
Tgt Ion:105 Resp: 3411

Ion	Ratio	Lower	Upper
105	100		
120	44.4	21.4	81.4
119	14.3	0.0	43.3



7.1.2

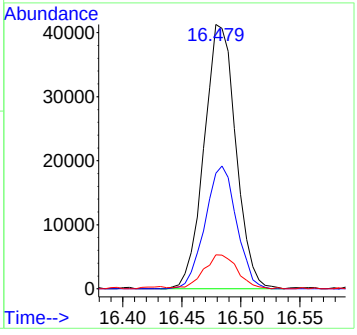
7

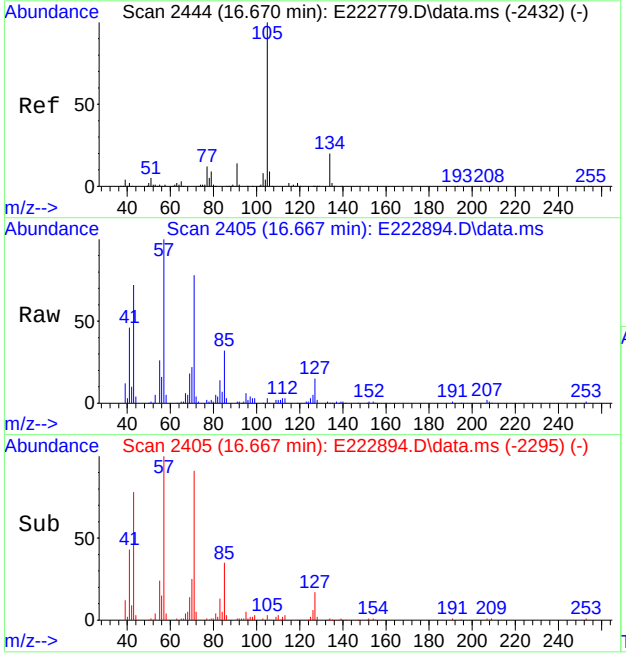


#116
1,2,4-trimethylbenzene
Concen: 12.16 ug/L
RT: 16.479 min Scan# 2369
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion:105 Resp: 77245

Ion	Ratio	Lower	Upper
105	100		
120	43.7	18.4	78.4
119	12.9	0.0	43.2

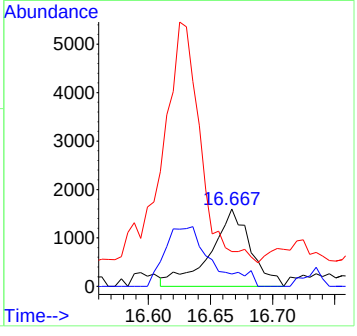




#117
sec-butylbenzene
Concen: 0.48 ug/L
RT: 16.667 min Scan# 2405
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion:105 Resp: 3561

Ion	Ratio	Lower	Upper
105	100		
134	15.9	0.0	50.3
91	0.0	0.0	44.2



7.1.2

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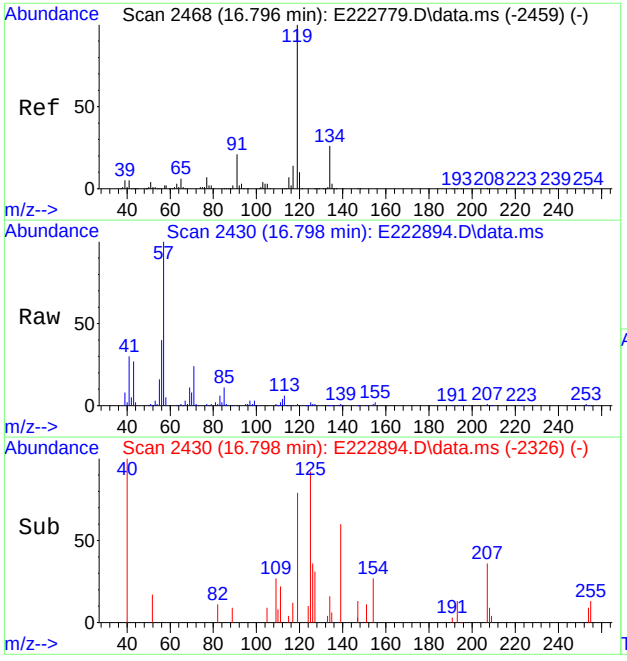
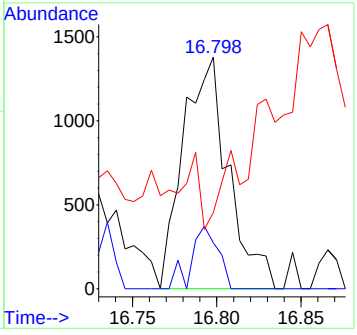
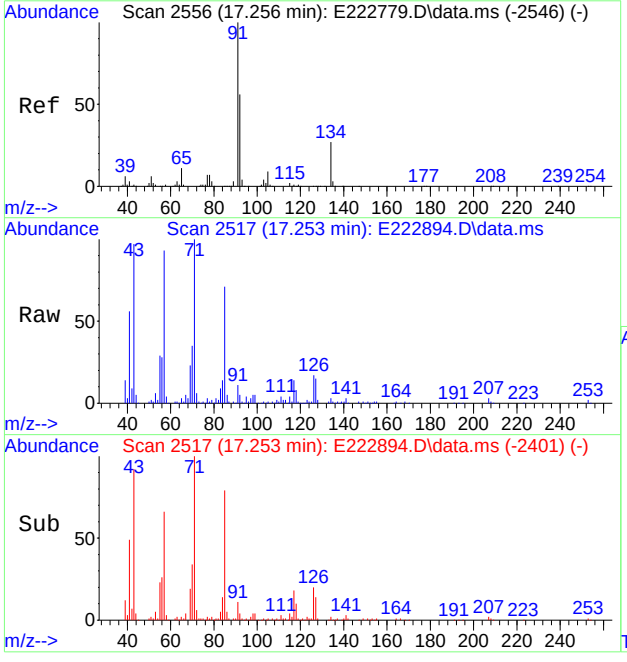


#119
p-isopropyltoluene
Concen: 0.37 ug/L
RT: 16.798 min Scan# 2430
Delta R.T. 0.002 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion:119 Resp: 2578

Ion	Ratio	Lower	Upper
119	100		
134	19.9	0.0	55.5
91	0.0	0.0	51.1

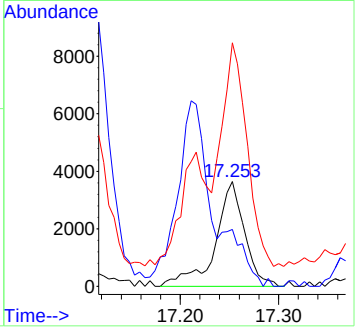




#124
n-butylbenzene
Concen: 2.15 ug/L
RT: 17.253 min Scan# 2517
Delta R.T. -0.003 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

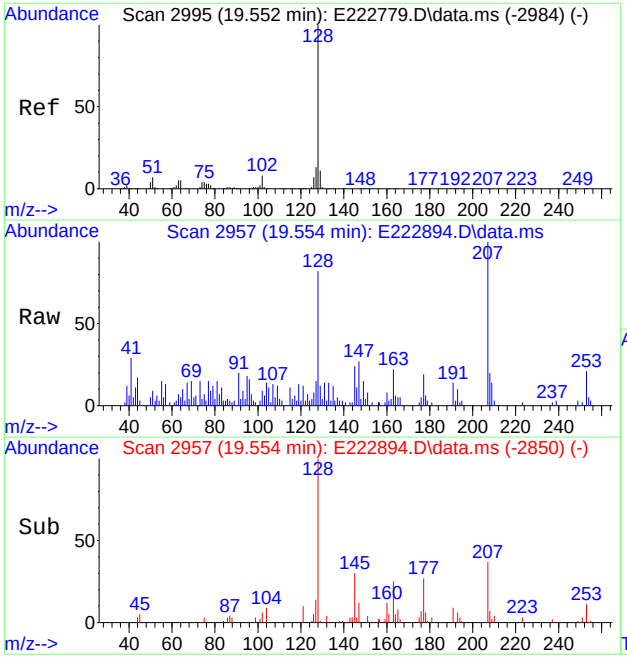
Tgt Ion: 92 Resp: 7544

Ion	Ratio	Lower	Upper
92	100		
134	54.4	18.8	78.8
91	213.8	150.0	210.0#



7.1.2

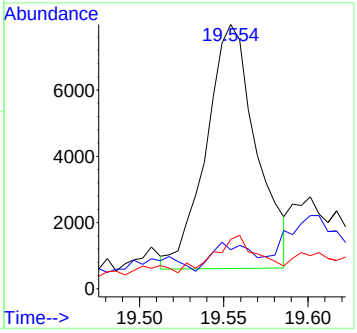
7



#130
naphthalene
Concen: 2.05 ug/L
RT: 19.554 min Scan# 2957
Delta R.T. 0.002 min
Lab File: E222894.D
Acq: 15 Jan 2015 6:01 pm

Tgt Ion:128 Resp: 15196

Ion	Ratio	Lower	Upper
128	100		
129	4.7	0.0	41.1
127	11.5	0.0	42.8



7.1.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6379-6380\
Data File : V150548.D
Acq On : 12 Jan 2015 1:50 pm
Operator : BenM
Sample : jb85833-3
Misc : MS79479,VV6380,6.9,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 13 14:54:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Jan 05 10:48:07 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.188	65	74367	500.00	ug/L	-0.02
4) pentafluorobenzene	9.421	168	216058	50.00	ug/L	-0.02
50) 1,4-difluorobenzene	10.368	114	245936	50.00	ug/L	-0.01
79) chlorobenzene-d5	13.778	117	234169	50.00	ug/L	-0.01
95) 1,4-dichlorobenzene-d4	16.393	152	133520	50.00	ug/L	0.00
System Monitoring Compounds						
46) dibromofluoromethane (s)	9.489	113	75167	49.71	ug/L	-0.02
Spiked Amount 50.000	Range 48 - 141		Recovery = 99.42%			
47) 1,2-dichloroethane-d4 (s)	9.918	65	78792	48.24	ug/L	-0.02
Spiked Amount 50.000	Range 70 - 120		Recovery = 96.48%			
71) toluene-d8 (s)	12.099	98	296196	54.34	ug/L	-0.01
Spiked Amount 50.000	Range 78 - 129		Recovery = 108.68%			
94) 4-bromofluorobenzene (s)	15.080	95	114269	52.46	ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 104.92%			
Target Compounds						Qvalue
18) acetone	6.612	43	14236	36.17	ug/L	98

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

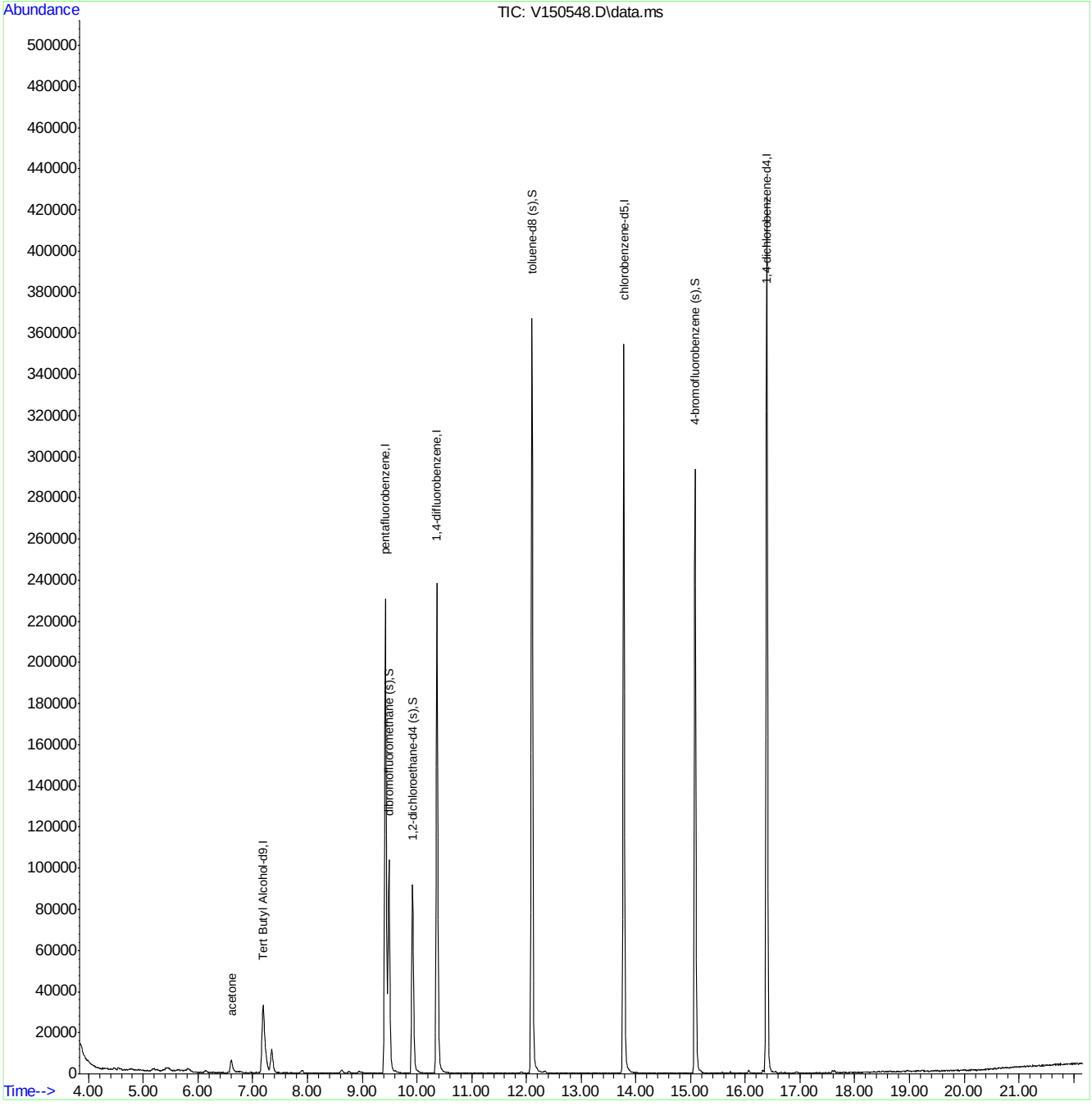
7.1.3

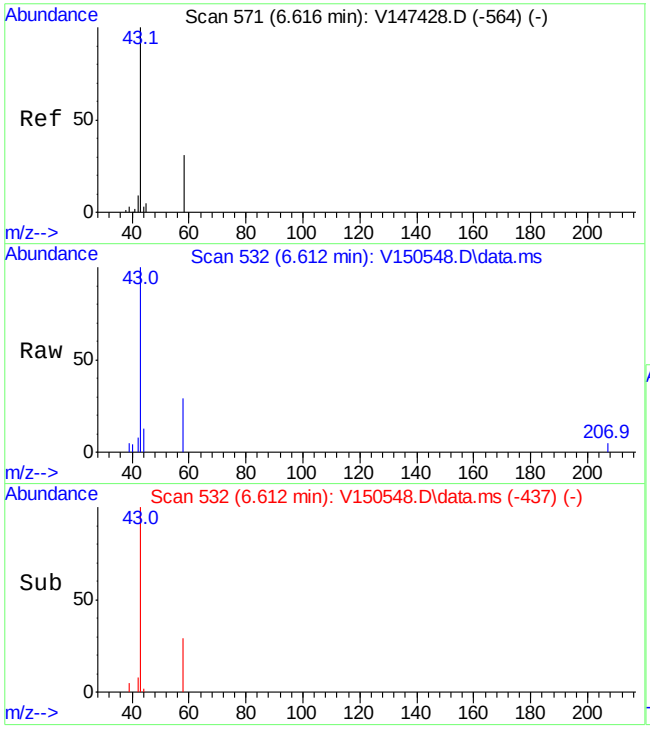
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6379-6380\
Data File : V150548.D
Acq On : 12 Jan 2015 1:50 pm
Operator : BenM
Sample : jb85833-3
Misc : MS79479,VV6380,6.9,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 13 14:54:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Jan 05 10:48:07 2015
Response via : Initial Calibration

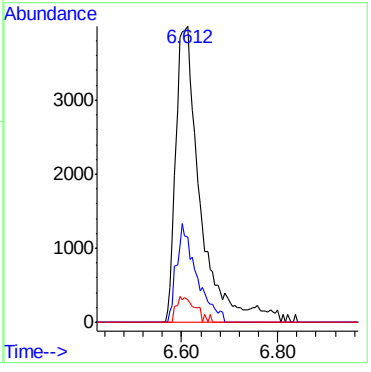




#18
acetone
Concen: 36.17 ug/L
RT: 6.612 min Scan# 532
Delta R.T. -0.004 min
Lab File: V150548.D
Acq: 12 Jan 2015 1:50 pm

Tgt Ion: 43 Resp: 14236

Ion	Ratio	Lower	Upper
43	100		
58	29.0	21.0	39.0
42	7.6	5.9	10.9



7.1.3

7

Manual Integrations APPROVED (compounds with "m" flag)
Mei Chen
01/16/15 16:05

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222895.D
Acq On : 15 Jan 2015 6:32 pm
Operator : ThienN
Sample : jb85833-4
Misc : MS79479,VE9772,6.3,,100,10,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jan 16 11:23:22 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.989	65	125519	500.00	ug/L	0.02
4) pentafluorobenzene	10.144	168	158853	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.075	114	189112	50.00	ug/L	0.00
84) chlorobenzene-d5	14.402	117	196260	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	143415	50.00	ug/L	0.00
System Monitoring Compounds						
47) dibromofluoromethane (s)	10.238	113	61016	48.84	ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 97.68%			
48) 1,2-dichloroethane-d4 (s)	10.662	65	144498	77.60	ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 155.20%#			
76) toluene-d8 (s)	12.754	98	226972	48.37	ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 96.74%			
103) 4-bromofluorobenzene (s)	15.678	95	101664	44.89	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 89.78%			
Target Compounds						Qvalue
52) Cyclohexane	10.322	84	12334	8.72	ug/L #	1
61) hexane	8.601	57	1661	1.51	ug/L	78
96) m,p-xylene	14.585	106	555	0.24	ug/L #	66
102) isopropylbenzene	15.421	105	4939	0.78	ug/L	91
109) n-propylbenzene	15.876	91	25785	3.29	ug/L	97
113) 1,3,5-trimethylbenzene	16.039	105	1333	0.21	ug/L	82
116) 1,2,4-trimethylbenzene	16.488	105	3596	0.54	ug/L	84
117) sec-butylbenzene	16.671	105	15878	2.01	ug/L	91
124) n-butylbenzene	17.252	92	50762	13.70	ug/L #	72
130) naphthalene	19.569	128	17943m	2.29	ug/L	

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

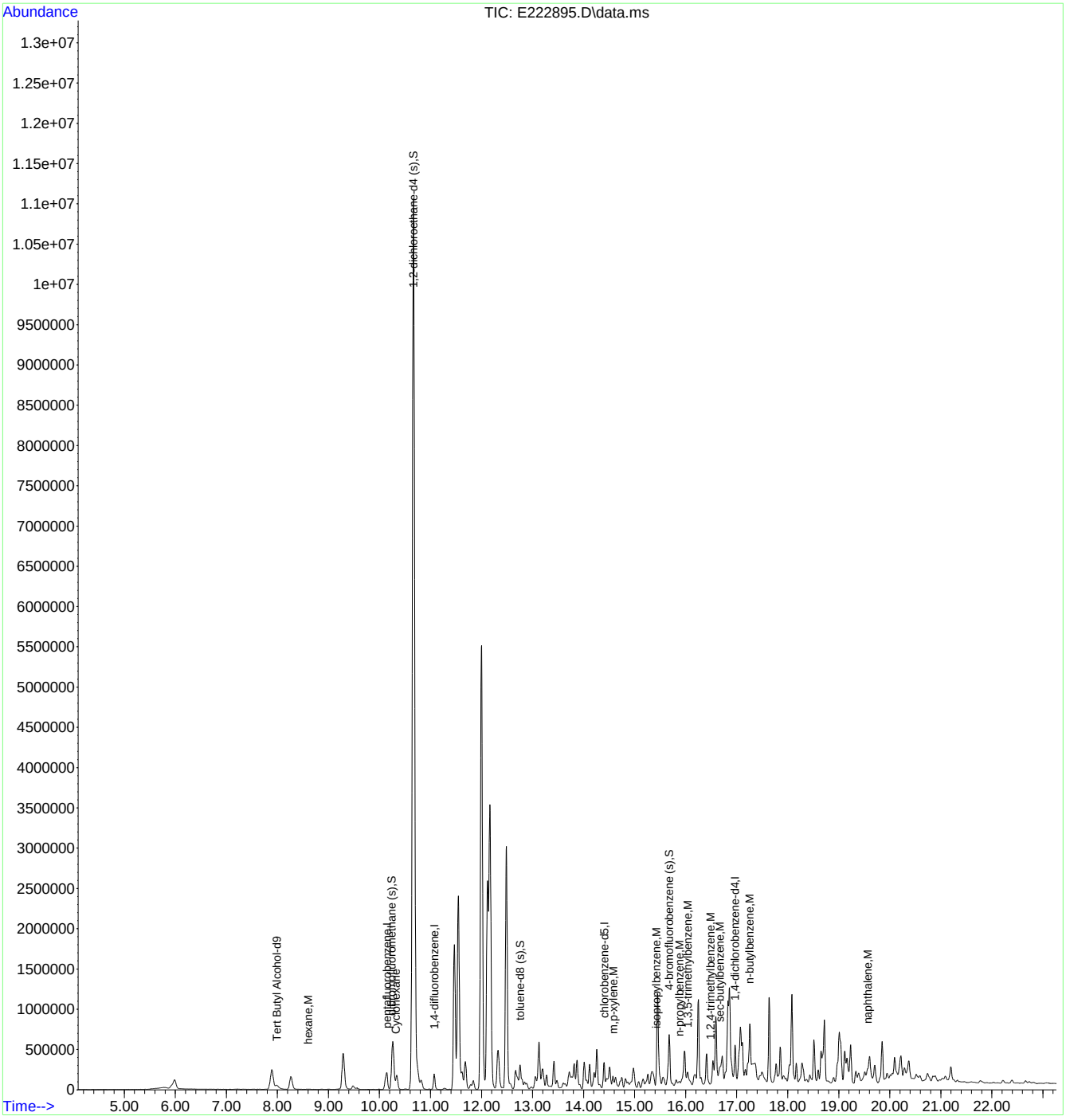
7.1.4

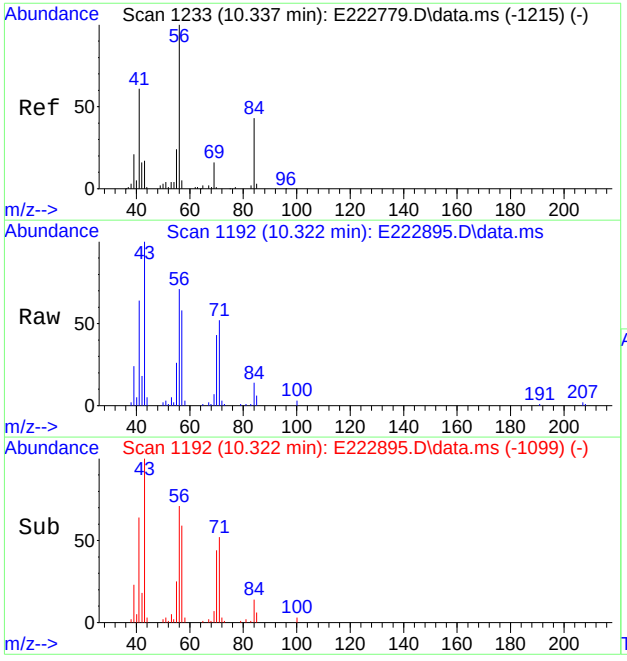
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222895.D
Acq On : 15 Jan 2015 6:32 pm
Operator : ThienN
Sample : jb85833-4
Misc : MS79479,VE9772,6.3,,100,10,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jan 16 11:23:22 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

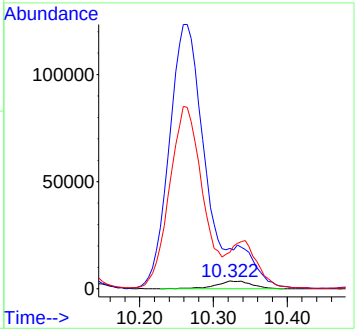


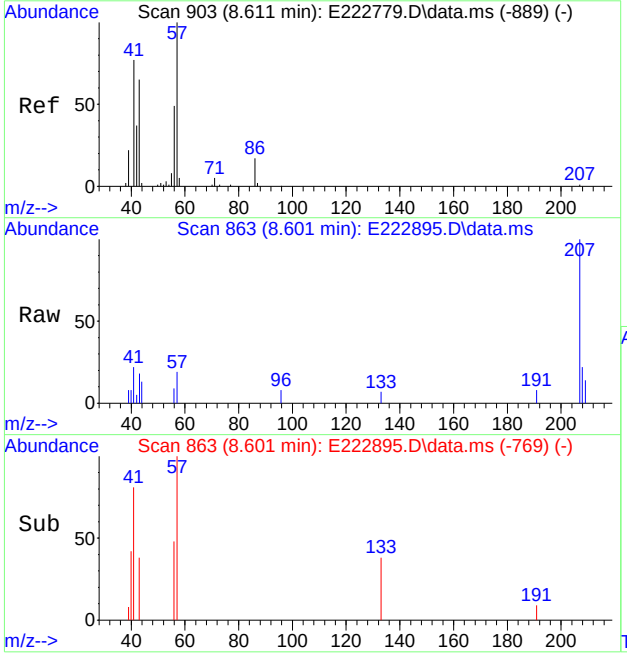


#52
Cyclohexane
Concen: 8.72 ug/L
RT: 10.322 min Scan# 1192
Delta R.T. -0.014 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion: 84 Resp: 12334

Ion	Ratio	Lower	Upper
84	100		
56	0.0	179.7	333.7#
41	449.4	108.2	201.0#

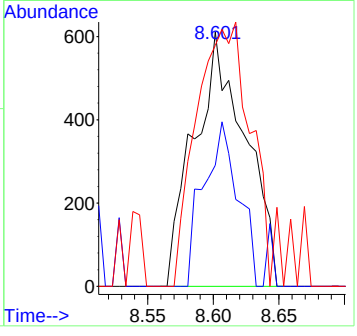




#61
hexane
Concen: 1.51 ug/L
RT: 8.601 min Scan# 863
Delta R.T. -0.009 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

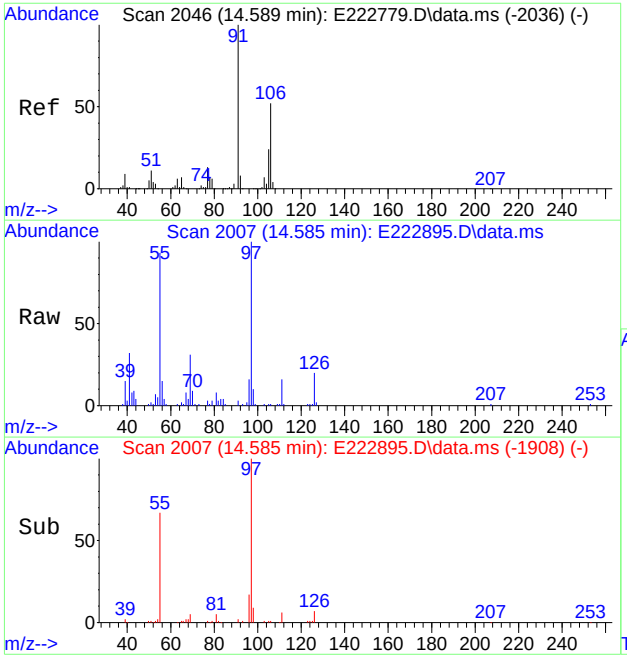
Tgt Ion: 57 Resp: 1661

Ion	Ratio	Lower	Upper
57	100		
56	47.6	19.5	79.5
43	94.8	35.5	95.5



7.1.4

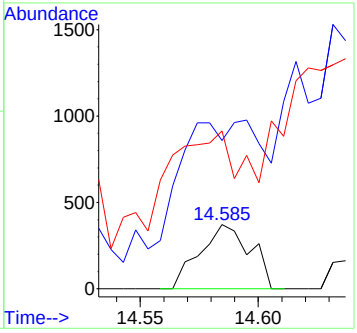
7

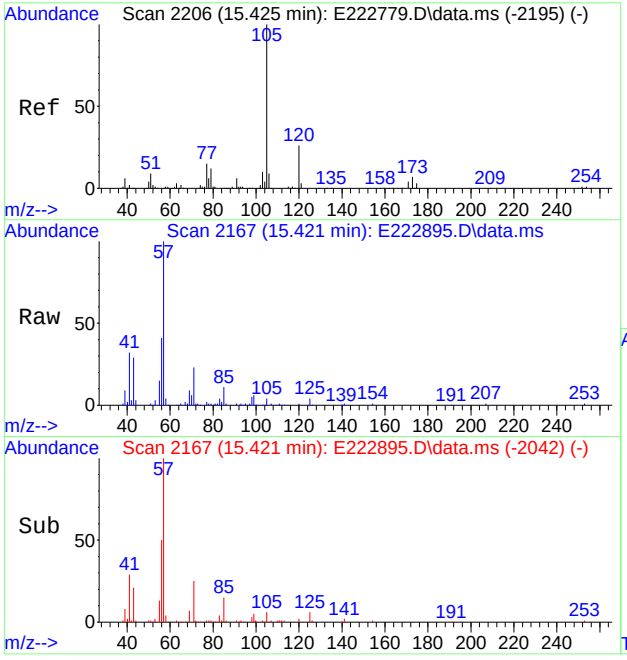


#96
m,p-xylene
Concen: 0.24 ug/L
RT: 14.585 min Scan# 2007
Delta R.T. -0.004 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion:106 Resp: 555

Ion	Ratio	Lower	Upper
106	100		
91	155.4	162.1	222.1#
77	76.3	0.0	54.7#

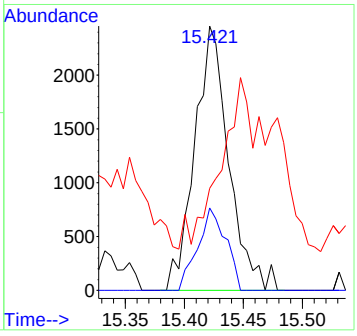


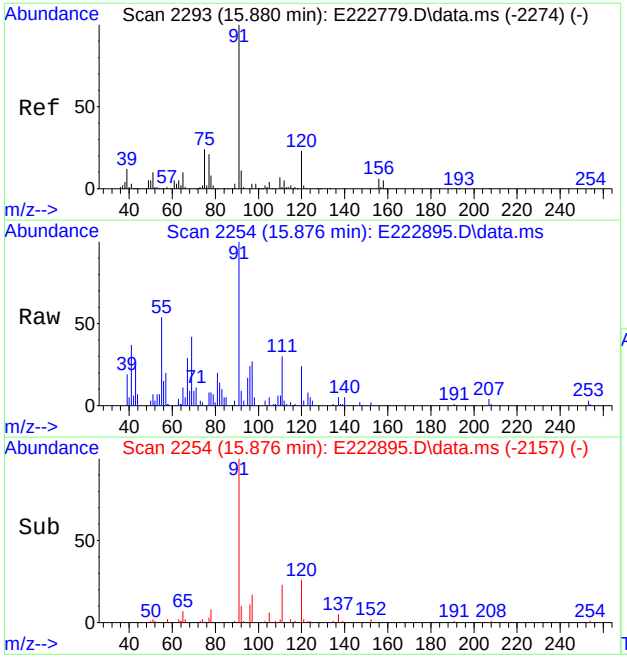


#102
isopropylbenzene
Concen: 0.78 ug/L
RT: 15.421 min Scan# 2167
Delta R.T. -0.004 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion:105 Resp: 4939

Ion	Ratio	Lower	Upper
105	100		
120	31.2	0.0	56.4
77	11.8	0.0	45.2

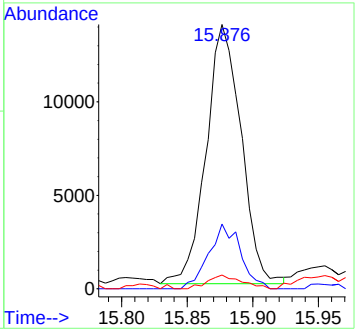


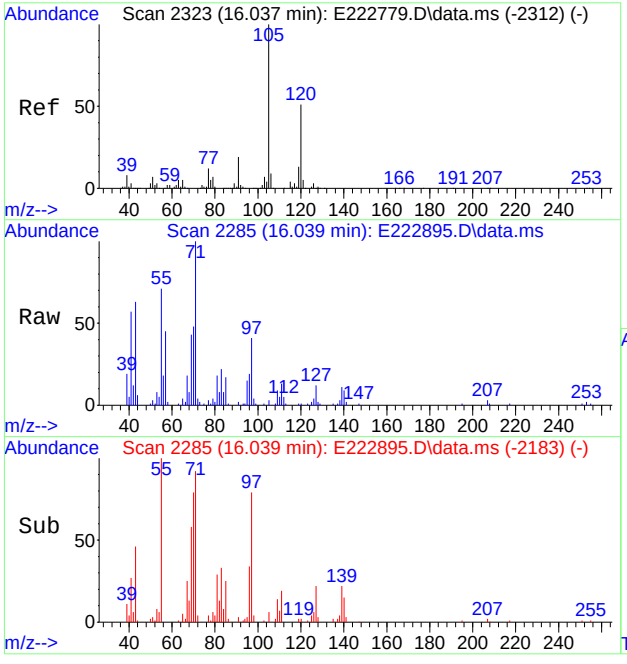


#109
n-propylbenzene
Concen: 3.29 ug/L
RT: 15.876 min Scan# 2254
Delta R.T. -0.004 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion: 91 Resp: 25785

Ion	Ratio	Lower	Upper
91	100		
120	25.0	0.0	53.4
105	5.3	0.0	33.9

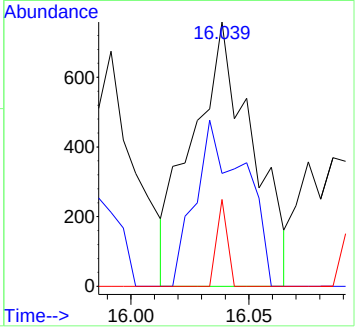




#113
1,3,5-trimethylbenzene
Concen: 0.21 ug/L
RT: 16.039 min Scan# 2285
Delta R.T. 0.001 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

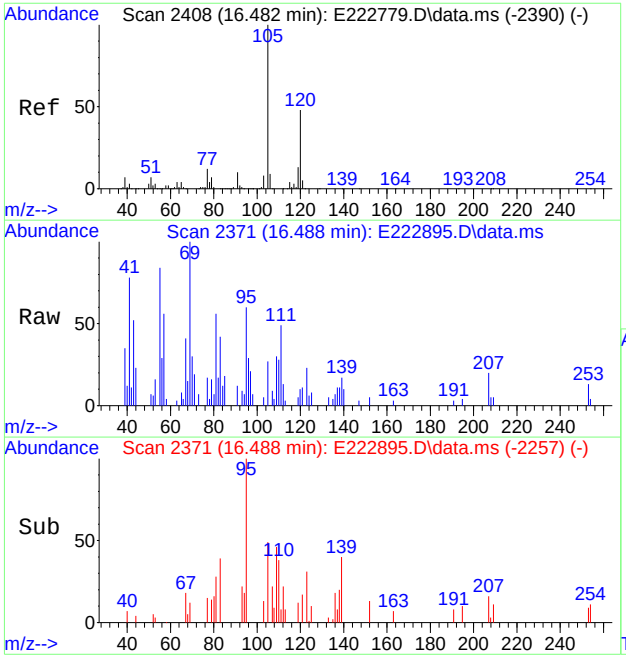
Tgt Ion:105 Resp: 1333

Ion	Ratio	Lower	Upper
105	100		
120	54.2	21.4	81.4
119	41.6	0.0	43.3



7.1.4

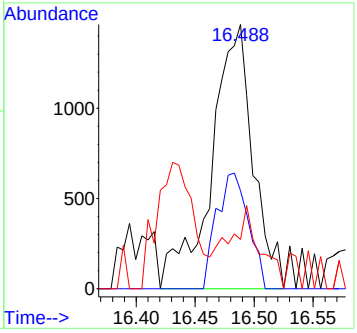
7

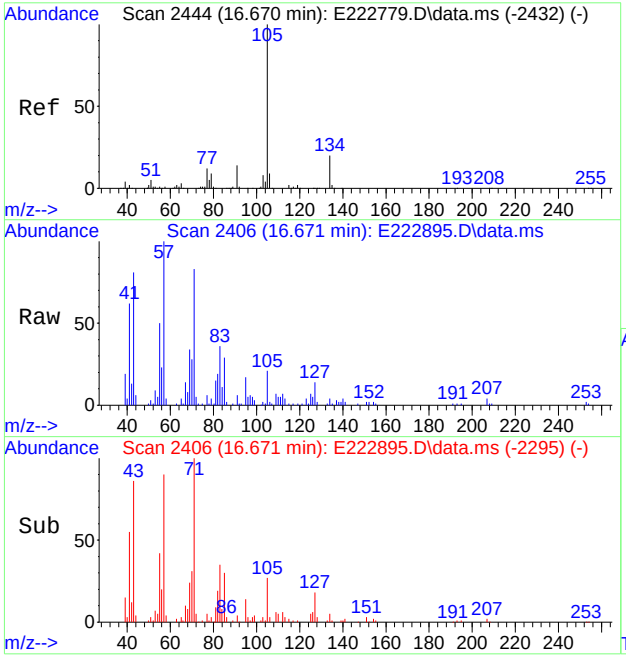


#116
1,2,4-trimethylbenzene
Concen: 0.54 ug/L
RT: 16.488 min Scan# 2371
Delta R.T. 0.006 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion:105 Resp: 3596

Ion	Ratio	Lower	Upper
105	100		
120	37.1	18.4	78.4
119	18.7	0.0	43.2

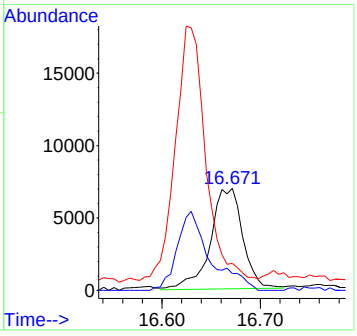




#117
sec-butylbenzene
Concen: 2.01 ug/L
RT: 16.671 min Scan# 2406
Delta R.T. 0.001 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

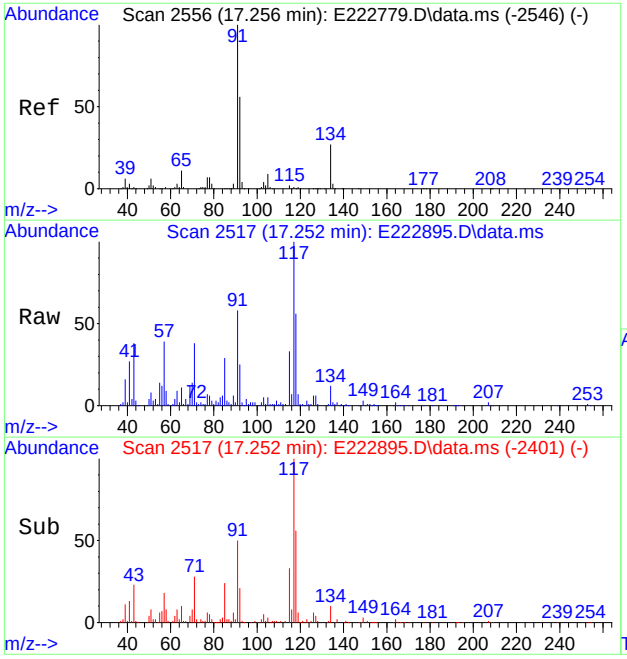
Tgt Ion:105 Resp: 15878

Ion	Ratio	Lower	Upper
105	100		
134	17.1	0.0	50.3
91	9.0	0.0	44.2



7.1.4

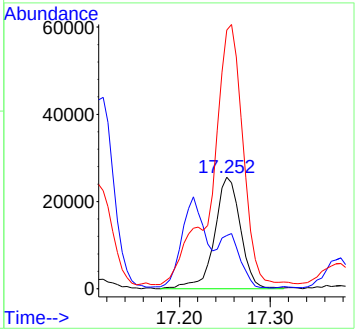
7

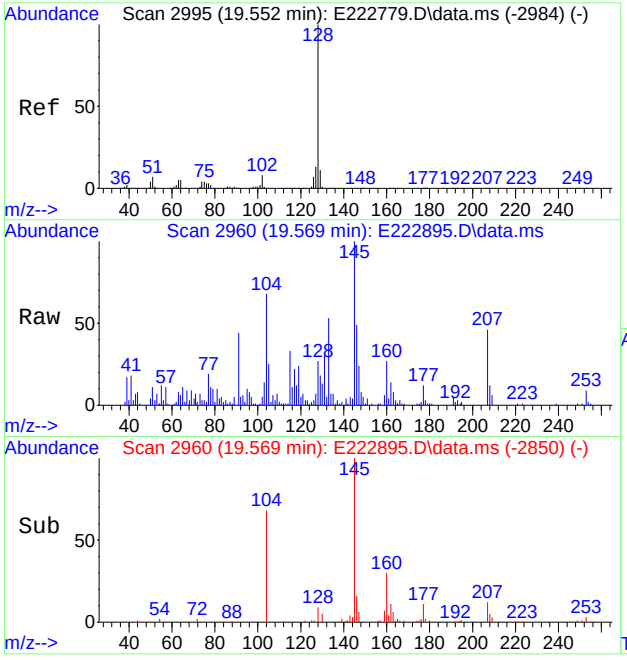


#124
n-butylbenzene
Concen: 13.70 ug/L
RT: 17.252 min Scan# 2517
Delta R.T. -0.004 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion: 92 Resp: 50762

Ion	Ratio	Lower	Upper
92	100		
134	45.9	18.8	78.8
91	228.1	150.0	210.0#

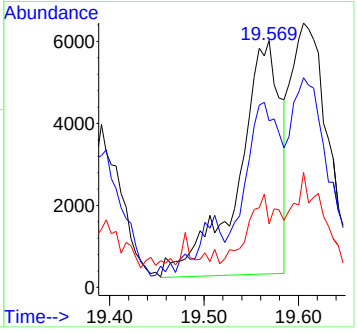




#130
naphthalene
Concen: 2.29 ug/L m
RT: 19.569 min Scan# 2960
Delta R.T. 0.017 min
Lab File: E222895.D
Acq: 15 Jan 2015 6:32 pm

Tgt Ion:128 Resp: 17943

Ion	Ratio	Lower	Upper
128	100		
129	67.4	0.0	41.1#
127	25.7	0.0	42.8



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E222922.D
Acq On : 16 Jan 2015 2:59 pm
Operator : ThienN
Sample : jb85833-4
Misc : MS79479,VE9774,6.3,,20,10,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 16 15:42:55 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.958	65	125949	500.00	ug/L	-0.01
4) pentafluorobenzene	10.150	168	153506	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.075	114	181007	50.00	ug/L	0.00
84) chlorobenzene-d5	14.402	117	191299	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	134174	50.00	ug/L	0.00

System Monitoring Compounds						
47) dibromofluoromethane (s)	10.239	113	62112	51.45	ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 102.90%			
48) 1,2-dichloroethane-d4 (s)	10.662	65	92069	51.16	ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 102.32%			
76) toluene-d8 (s)	12.760	98	215254	47.93	ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 95.86%			
103) 4-bromofluorobenzene (s)	15.678	95	96445	45.52	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 91.04%			

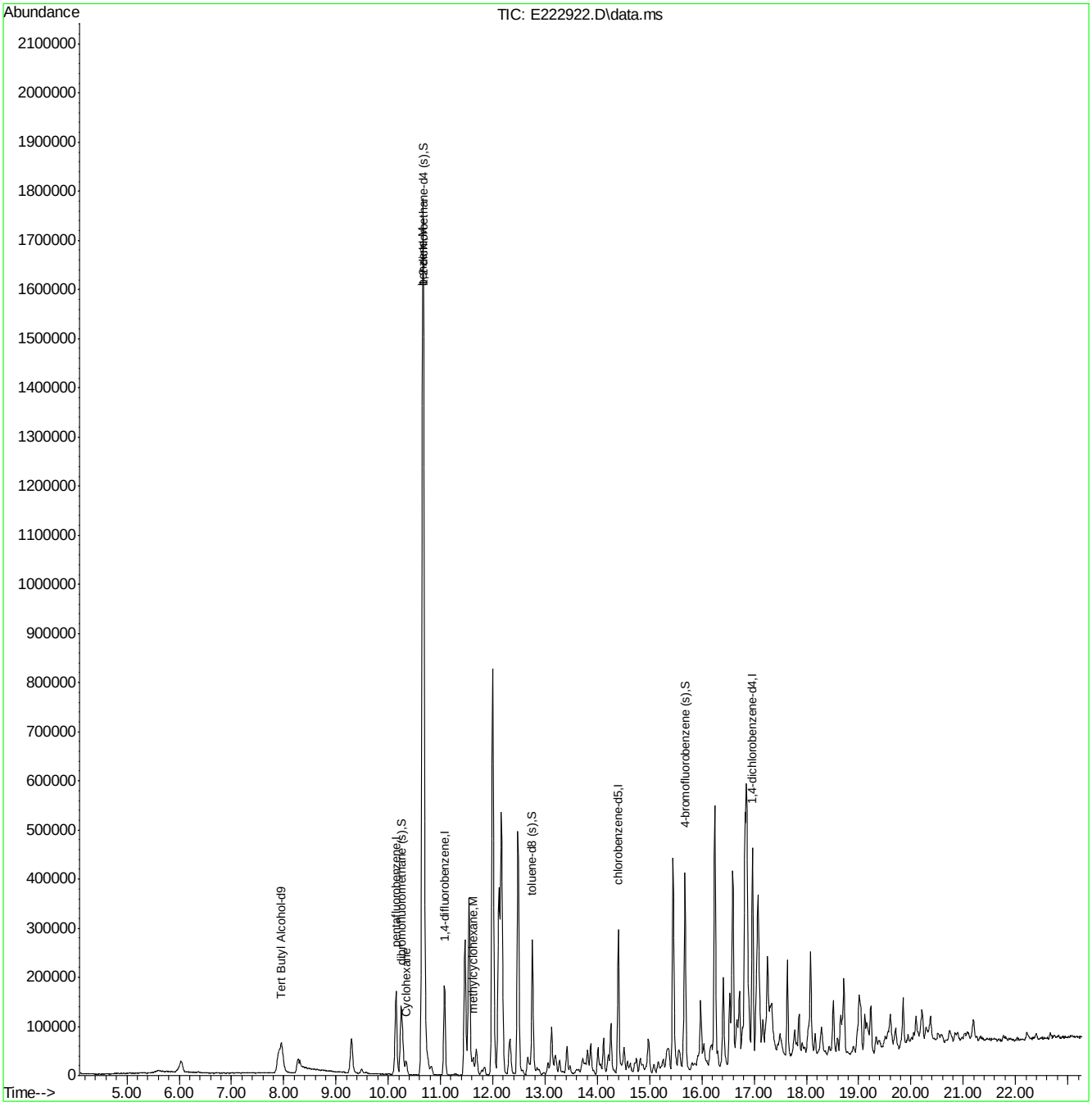
Target Compounds						Qvalue
52) Cyclohexane	10.333	84	1924	1.41	ug/L #	1
62) benzene	10.657	78	1061	0.23	ug/L #	1
70) methylcyclohexane	11.619	83	18560	12.98	ug/L	88

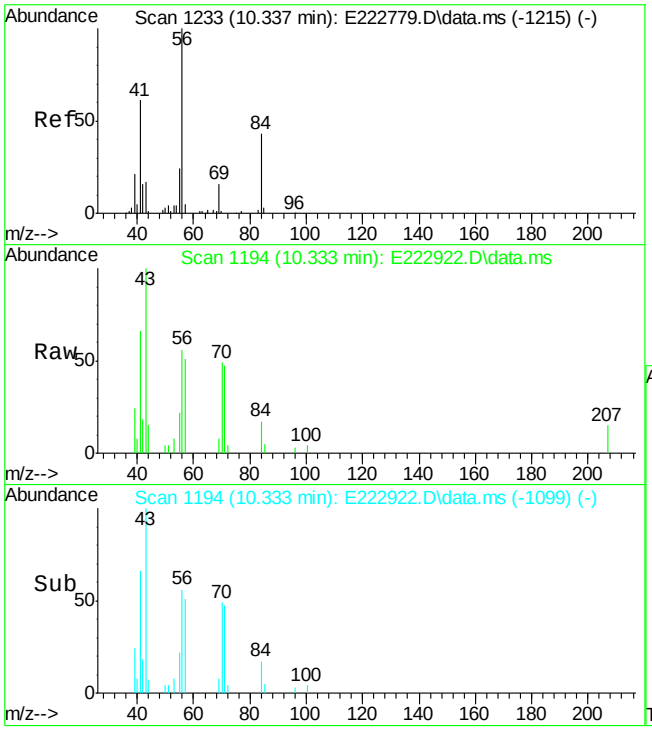
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E222922.D
Acq On : 16 Jan 2015 2:59 pm
Operator : ThienN
Sample : jb85833-4
Misc : MS79479,VE9774,6.3,,20,10,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 16 15:42:55 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

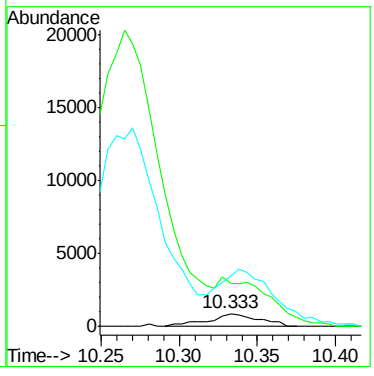


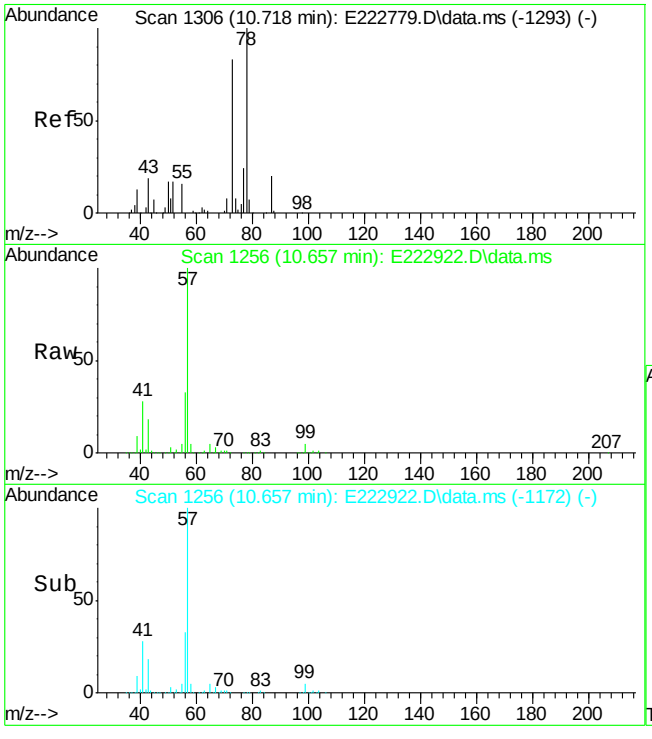


#52
Cyclohexane
Concen: 1.41 ug/L
RT: 10.333 min Scan# 1194
Delta R.T. -0.004 min
Lab File: E222922.D
Acq: 16 Jan 2015 2:59 pm

Tgt Ion: 84 Resp: 1924

Ion	Ratio	Lower	Upper
84	100		
56	379.8	179.7	333.7#
41	513.8	108.2	201.0#

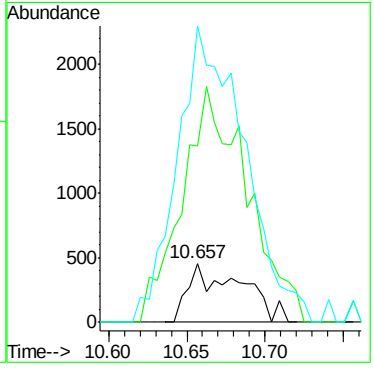


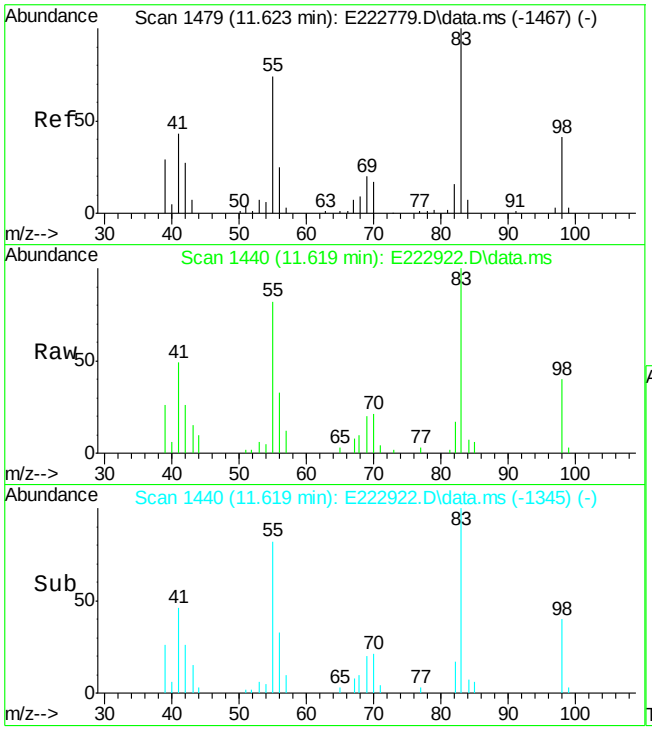


#62
benzene
Concen: 0.23 ug/L
RT: 10.657 min Scan# 1256
Delta R.T. -0.061 min
Lab File: E222922.D
Acq: 16 Jan 2015 2:59 pm

Tgt Ion: 78 Resp: 1061

Ion	Ratio	Lower	Upper
78	100		
77	247.6	0.0	54.4#
52	456.4	0.0	47.4#

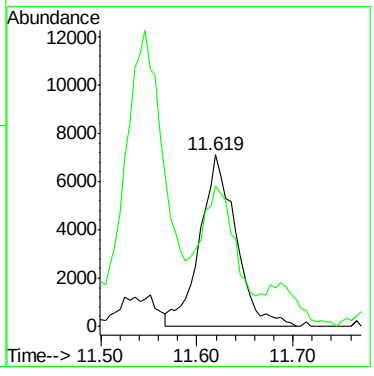




#70
methylcyclohexane
Concen: 12.98 ug/L
RT: 11.619 min Scan# 1440
Delta R.T. -0.004 min
Lab File: E222922.D
Acq: 16 Jan 2015 2:59 pm

Tgt Ion: 83 Resp: 18560

Ion	Ratio	Lower	Upper
83	100		
55	76.5	61.0	113.4



7.1.5

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 01/13/15 17:31

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6379-6380\
Data File : V150549.D
Acq On : 12 Jan 2015 2:19 pm
Operator : BenM
Sample : jb85833-5
Misc : MS79479,VV6380,6.8,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 13 15:00:13 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Jan 05 10:48:07 2015
Response via : Initial Calibration

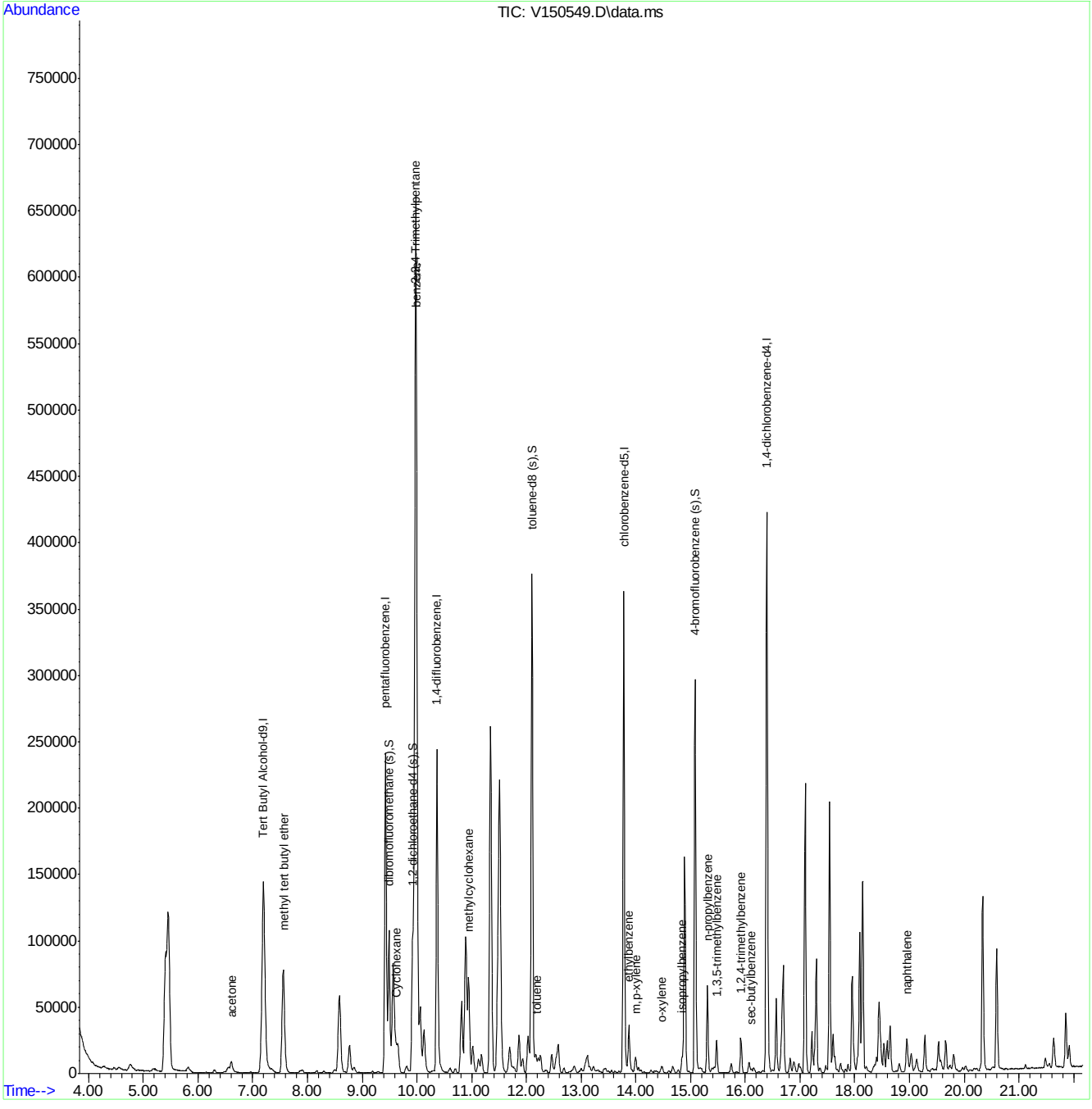
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.193	65	66400	500.00	ug/L	-0.01
4) pentafluorobenzene	9.426	168	217171	50.00	ug/L	-0.01
50) 1,4-difluorobenzene	10.368	114	244082	50.00	ug/L	-0.01
79) chlorobenzene-d5	13.778	117	236597	50.00	ug/L	-0.01
95) 1,4-dichlorobenzene-d4	16.393	152	134972	50.00	ug/L	0.00
System Monitoring Compounds						
46) dibromofluoromethane (s)	9.489	113	76993	50.65	ug/L	-0.02
Spiked Amount 50.000	Range 48 - 141		Recovery = 101.30%			
47) 1,2-dichloroethane-d4 (s)	9.923	65	82852	50.46	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 120		Recovery = 100.92%			
71) toluene-d8 (s)	12.099	98	297900	55.07	ug/L	-0.01
Spiked Amount 50.000	Range 78 - 129		Recovery = 110.14%			
94) 4-bromofluorobenzene (s)	15.080	95	116034	52.72	ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 105.44%			
Target Compounds						Qvalue
18) acetone	6.607	43	20969m	54.77	ug/L	
27) methyl tert butyl ether	7.564	73	2464	0.59	ug/L #	1
49) Cyclohexane	9.614	84	9053	3.99	ug/L #	50
51) methylcyclohexane	10.943	83	42294m	18.93	ug/L	
57) 2,2,4-Trimethylpentane	9.975	57	836035	168.60	ug/L	90
58) benzene	9.991	78	52171	9.28	ug/L	94
73) toluene	12.183	92	885	0.25	ug/L #	75
88) ethylbenzene	13.877	91	24368	3.32	ug/L	100
89) m,p-xylene	13.997	106	3464	1.21	ug/L	93
90) o-xylene	14.468	106	1316	0.46	ug/L	91
96) isopropylbenzene	14.845	105	9896	1.31	ug/L	96
101) n-propylbenzene	15.305	91	64039	7.54	ug/L	100
104) 1,3,5-trimethylbenzene	15.478	105	16872	2.59	ug/L	99
107) 1,2,4-trimethylbenzene	15.922	105	17717	2.71	ug/L	94
108) sec-butylbenzene	16.110	105	2867	0.33	ug/L	91
121) naphthalene	18.950	128	23876	3.49	ug/L	99

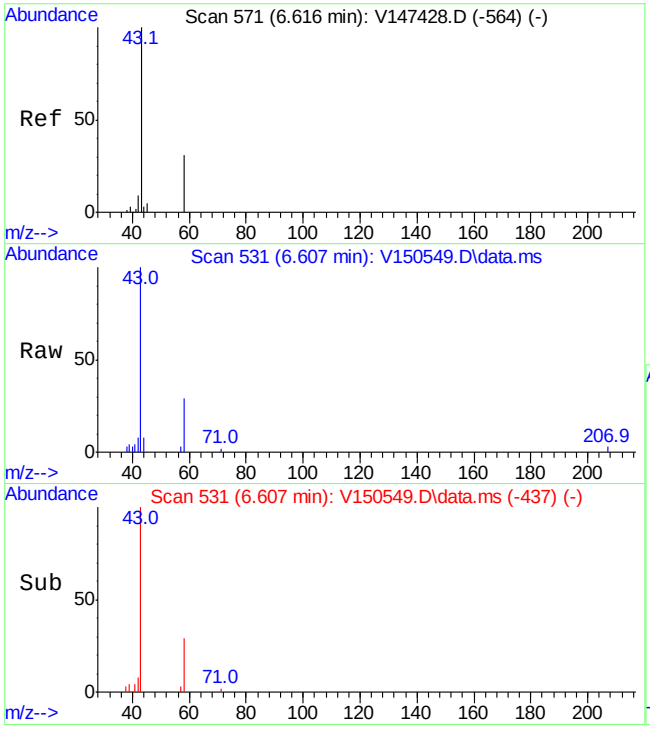
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6379-6380\
Data File : V150549.D
Acq On : 12 Jan 2015 2:19 pm
Operator : BenM
Sample : jb85833-5
Misc : MS79479,VV6380,6.8,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 13 15:00:13 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Jan 05 10:48:07 2015
Response via : Initial Calibration

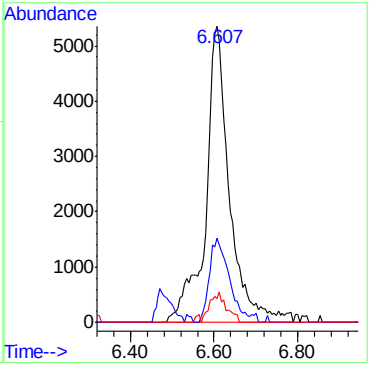


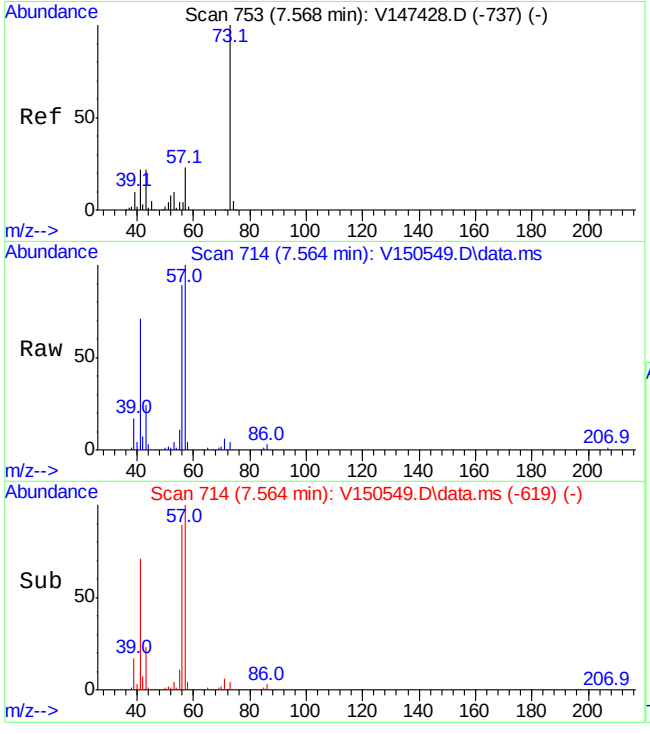


#18
acetone
Concen: 54.77 ug/L m
RT: 6.607 min Scan# 531
Delta R.T. -0.009 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 43 Resp: 20969

Ion	Ratio	Lower	Upper
43	100		
58	28.5	21.0	39.0
42	7.8	5.9	10.9

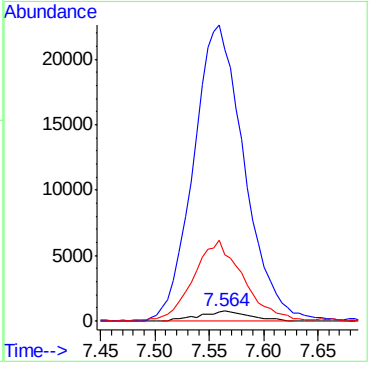


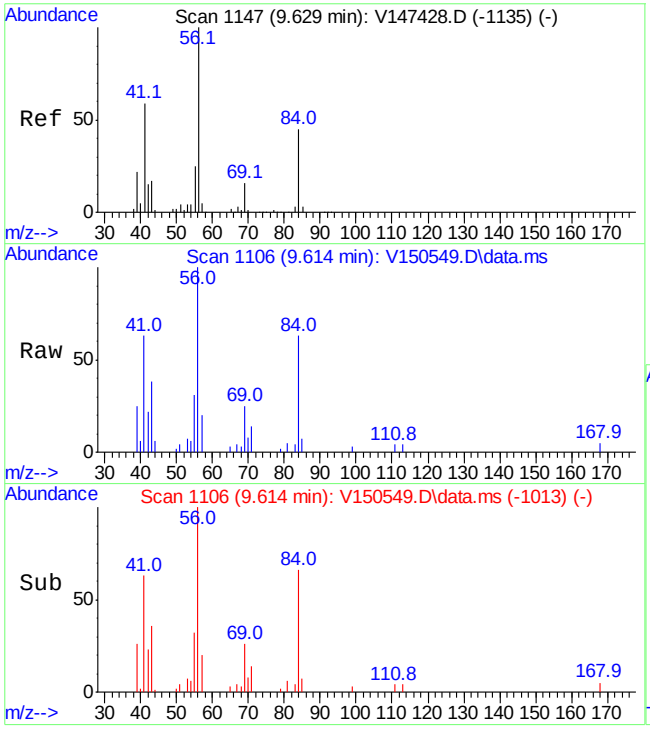


#27
methyl tert butyl ether
Concen: 0.59 ug/L
RT: 7.564 min Scan# 714
Delta R.T. -0.004 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 73 Resp: 2464

Ion	Ratio	Lower	Upper
73	100		
57	3019.9	0.0	51.9#
43	805.5	0.0	51.1#

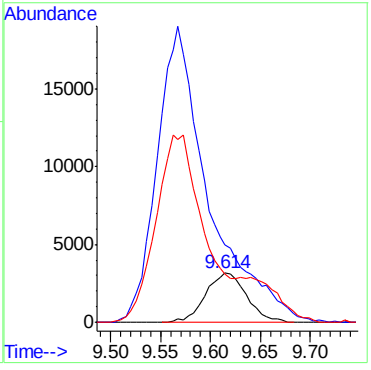


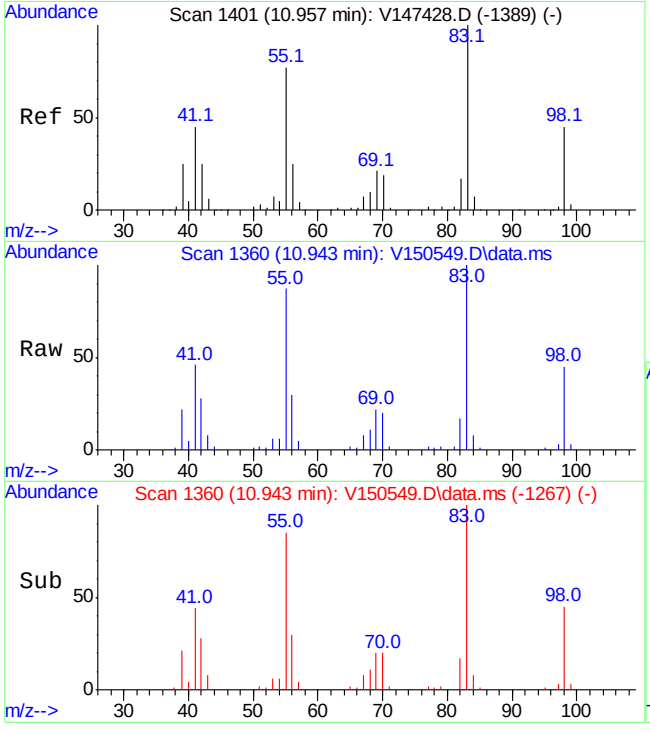


#49
Cyclohexane
Concen: 3.99 ug/L
RT: 9.614 min Scan# 1106
Delta R.T. -0.014 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 84 Resp: 9053

Ion	Ratio	Lower	Upper
84	100		
56	139.1	156.3	290.3#
41	75.8	91.7	170.3#

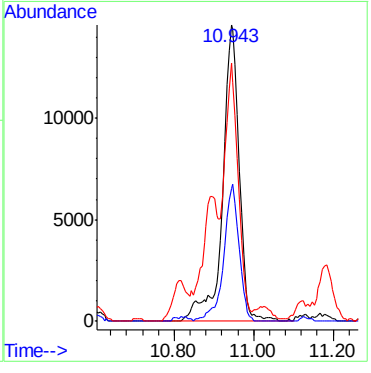


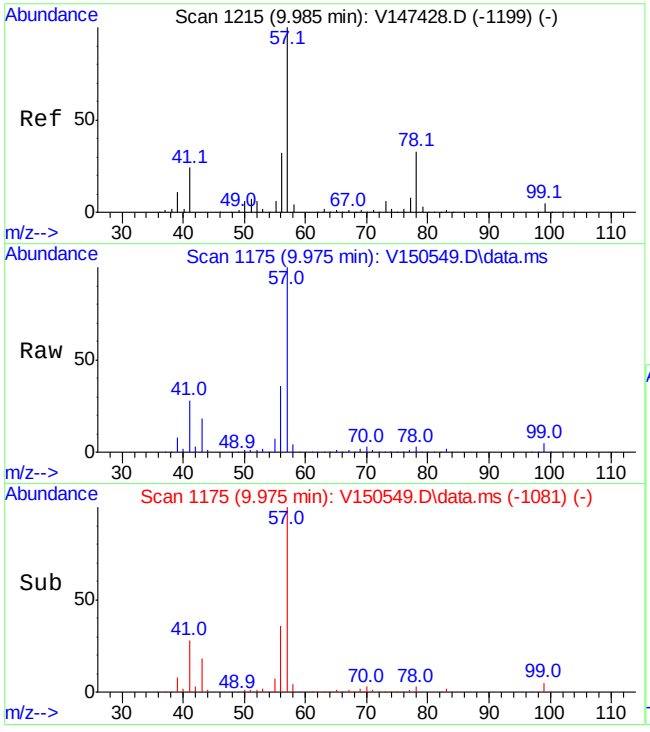


#51
methylcyclohexane
Concen: 18.93 ug/L m
RT: 10.943 min Scan# 1360
Delta R.T. -0.014 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 83 Resp: 42294

Ion	Ratio	Lower	Upper
83	100		
98	42.8	30.7	57.1
55	72.9	56.6	105.0

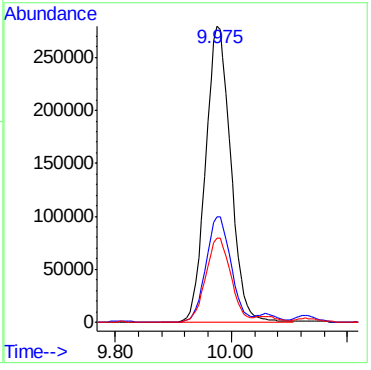


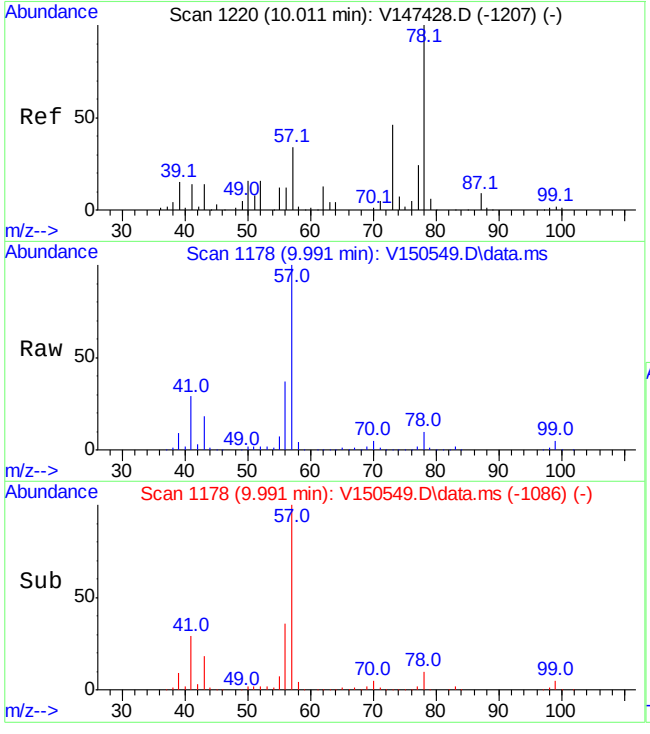


#57
2,2,4-Trimethylpentane
Concen: 168.60 ug/L
RT: 9.975 min Scan# 1175
Delta R.T. -0.009 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 57 Resp: 836035

Ion	Ratio	Lower	Upper
57	100		
56	35.8	23.6	43.8
41	28.5	26.3	48.9

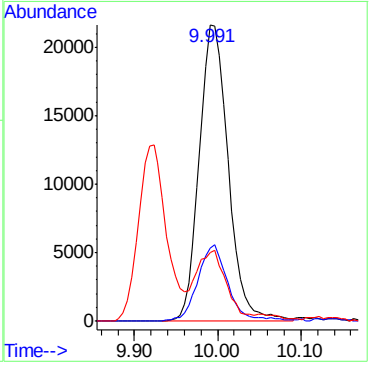


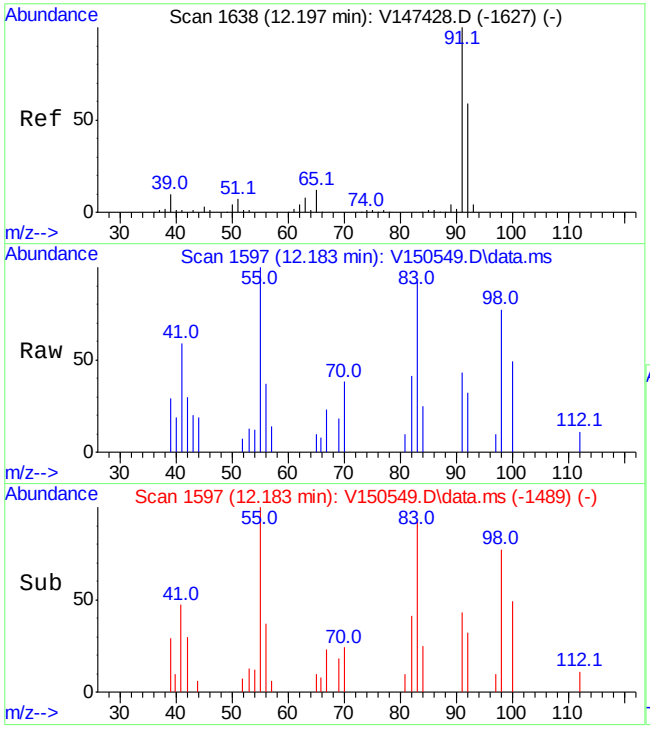


#58
benzene
Concen: 9.28 ug/L
RT: 9.991 min Scan# 1178
Delta R.T. -0.020 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 78 Resp: 52171

Ion	Ratio	Lower	Upper
78	100		
77	24.8	0.0	53.8
51	22.6	0.0	48.1

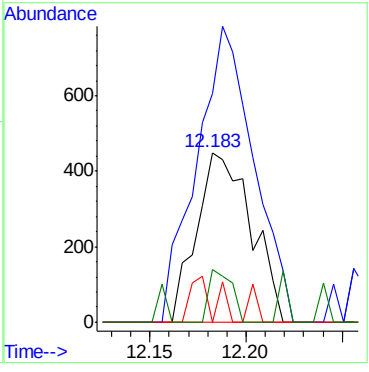


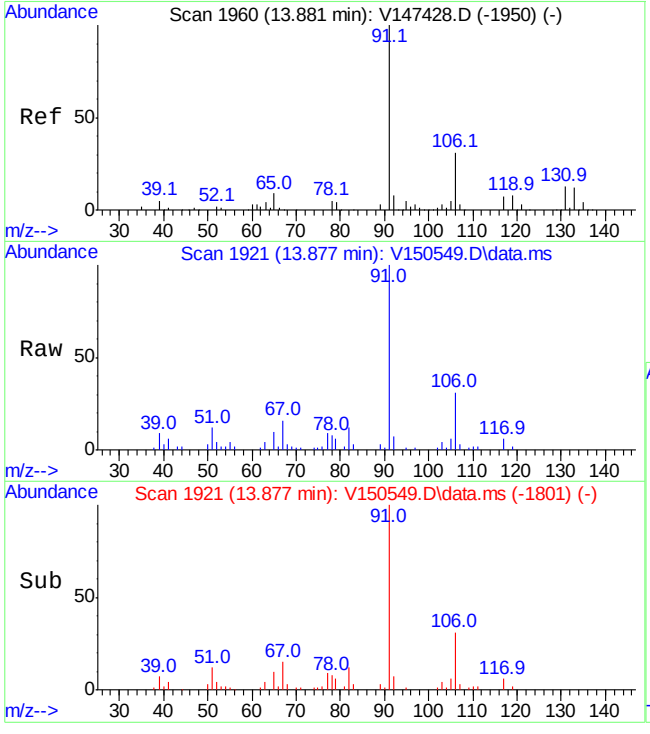


#73
toluene
Concen: 0.25 ug/L
RT: 12.183 min Scan# 1597
Delta R.T. -0.014 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 92 Resp: 885

Ion	Ratio	Lower	Upper
92	100		
91	134.7	117.7	218.7
51	0.0	7.8	14.6#
65	31.2	14.0	26.0#

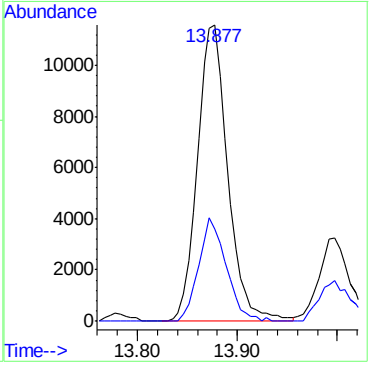


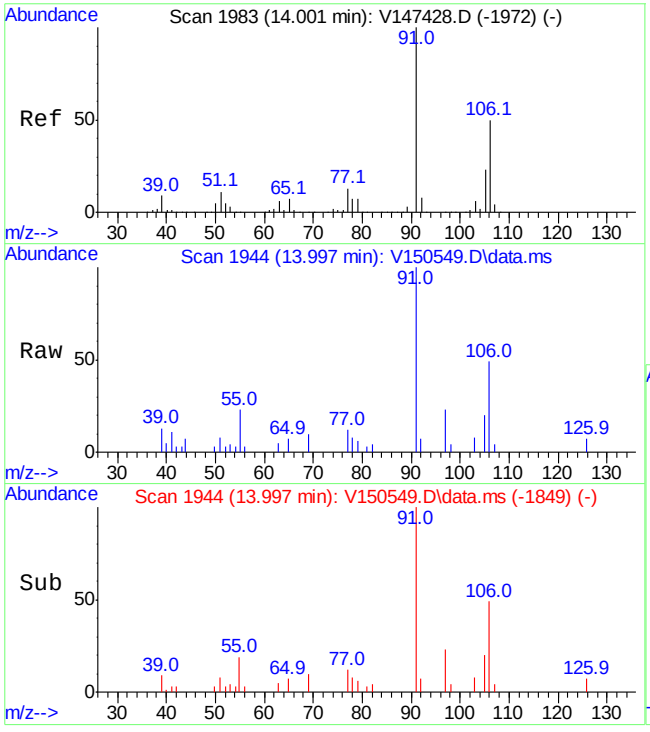


#88
ethylbenzene
Concen: 3.32 ug/L
RT: 13.877 min Scan# 1921
Delta R.T. -0.004 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 91 Resp: 24368

Ion	Ratio	Lower	Upper
91	100		
106	31.2	1.1	61.1

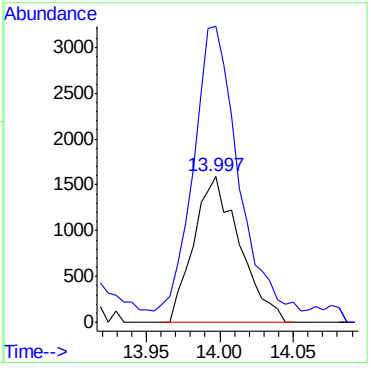


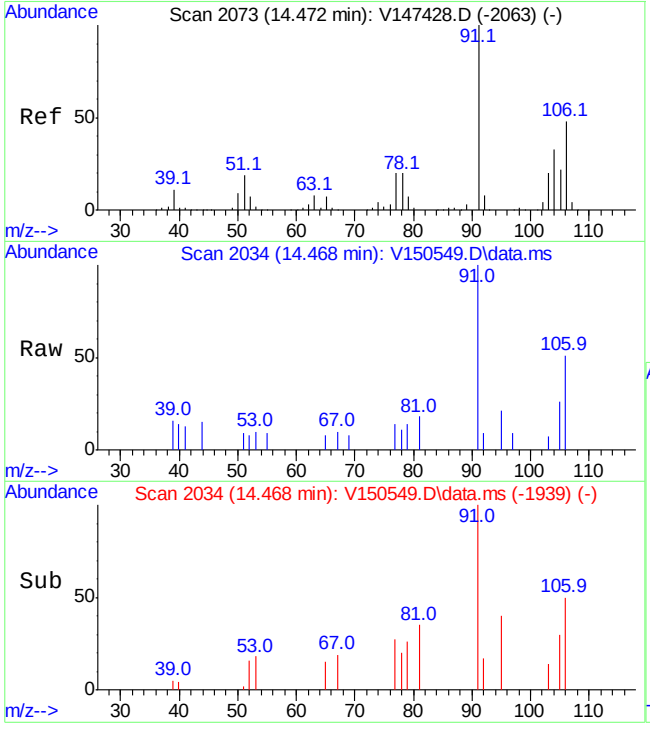


#89
m,p-xylene
Concen: 1.21 ug/L
RT: 13.997 min Scan# 1944
Delta R.T. -0.004 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:106 Resp: 3464

Ion	Ratio	Lower	Upper
106	100		
91	190.2	140.7	261.3

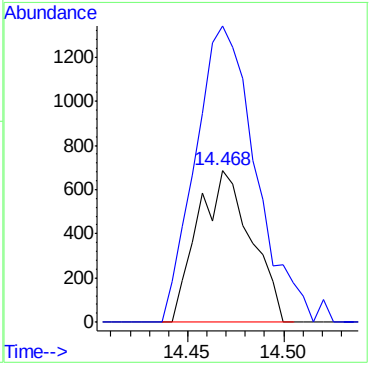


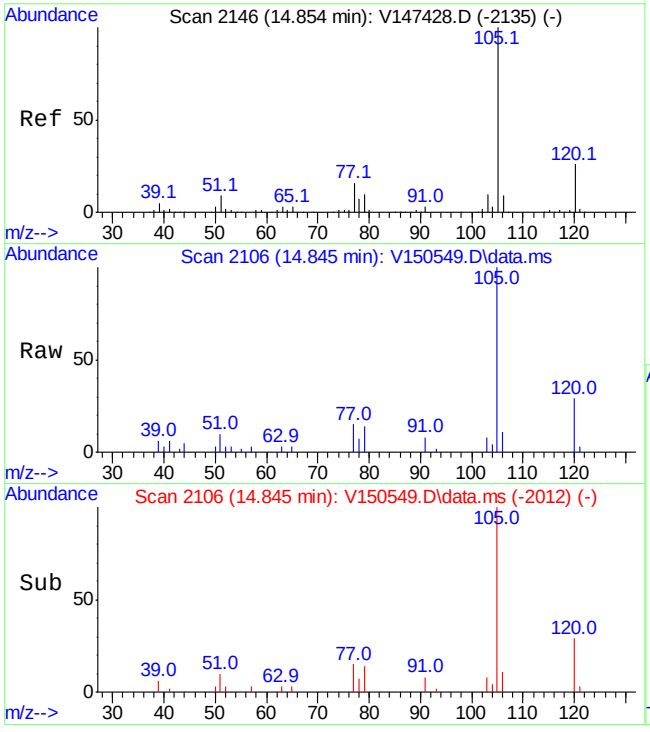


#90
o-xylene
Concen: 0.46 ug/L
RT: 14.468 min Scan# 2034
Delta R.T. -0.004 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:106 Resp: 1316

Ion	Ratio	Lower	Upper
106	100		
91	194.9	146.7	272.5

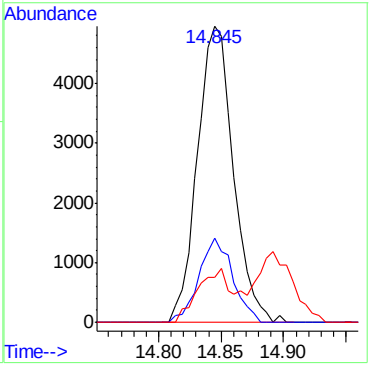


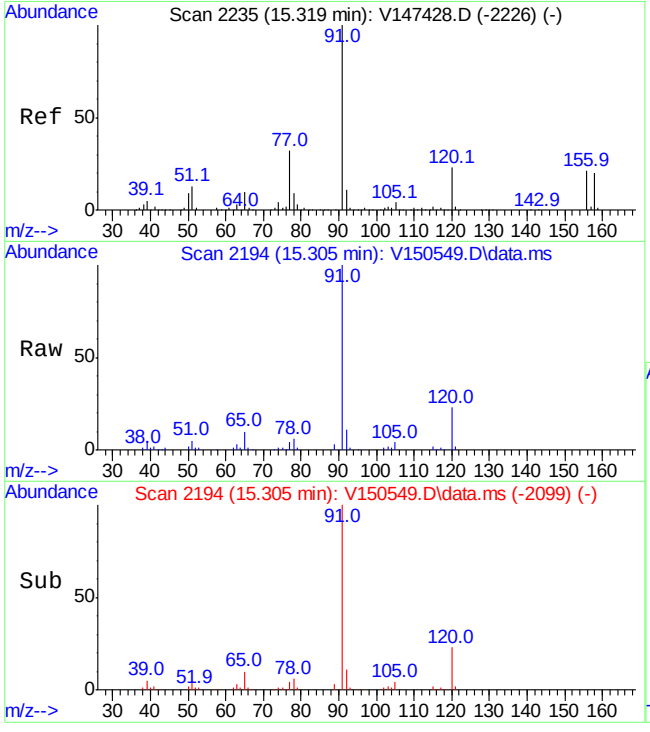


#96
isopropylbenzene
Concen: 1.31 ug/L
RT: 14.845 min Scan# 2106
Delta R.T. -0.009 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:105 Resp: 9896

Ion	Ratio	Lower	Upper
105	100		
120	28.6	0.0	55.8
77	15.1	0.0	45.6

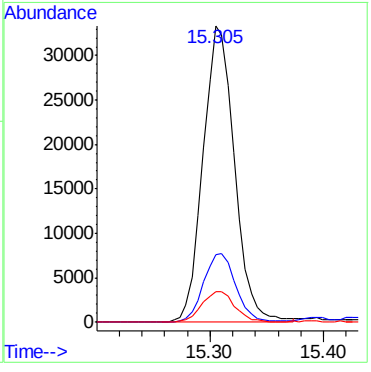


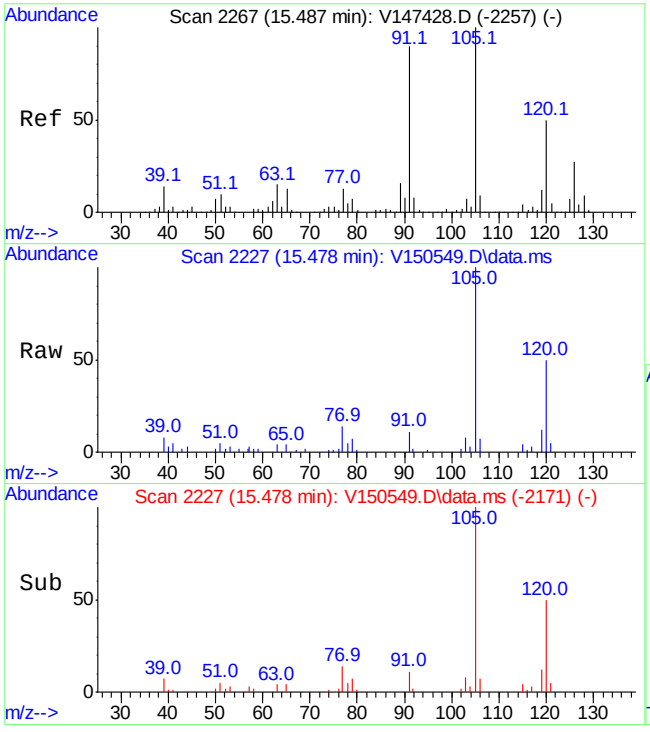


#101
n-propylbenzene
Concen: 7.54 ug/L
RT: 15.305 min Scan# 2194
Delta R.T. -0.014 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion: 91 Resp: 64039

Ion	Ratio	Lower	Upper
91	100		
120	22.9	0.0	52.7
65	10.4	0.0	40.4

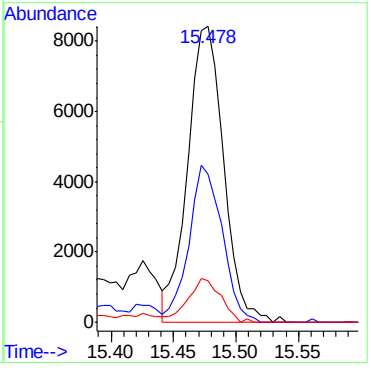


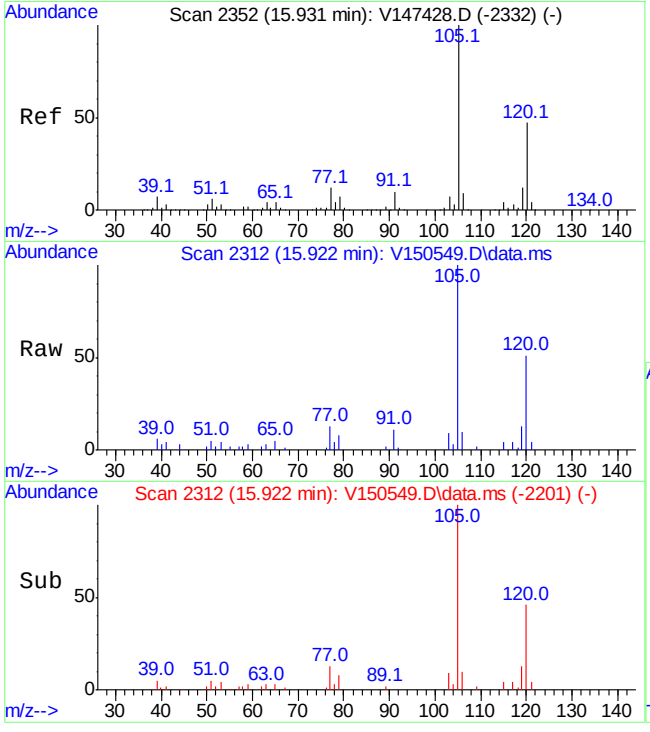


#104
1,3,5-trimethylbenzene
Concen: 2.59 ug/L
RT: 15.478 min Scan# 2227
Delta R.T. -0.009 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:105 Resp: 16872

Ion	Ratio	Lower	Upper
105	100		
120	50.2	19.9	79.9
77	14.0	0.0	43.2

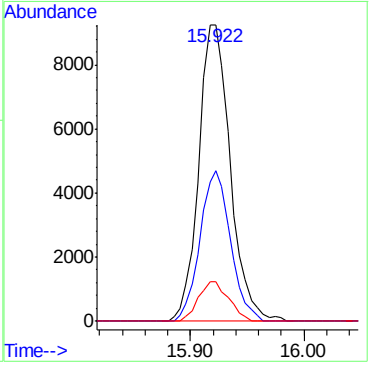


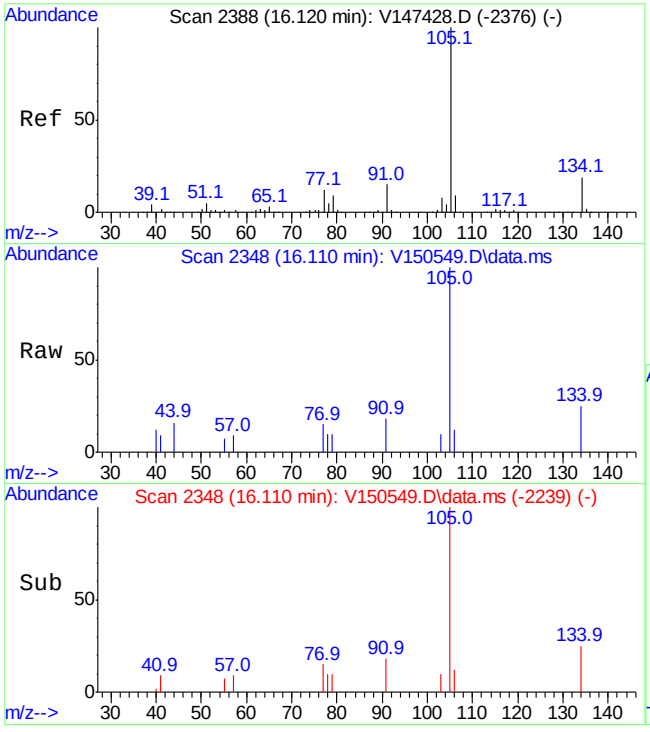


#107
1,2,4-trimethylbenzene
Concen: 2.71 ug/L
RT: 15.922 min Scan# 2312
Delta R.T. -0.009 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:105 Resp: 17717

Ion	Ratio	Lower	Upper
105	100		
120	50.8	16.6	76.6
77	13.3	0.0	41.9

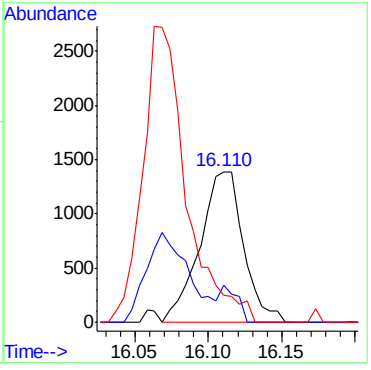


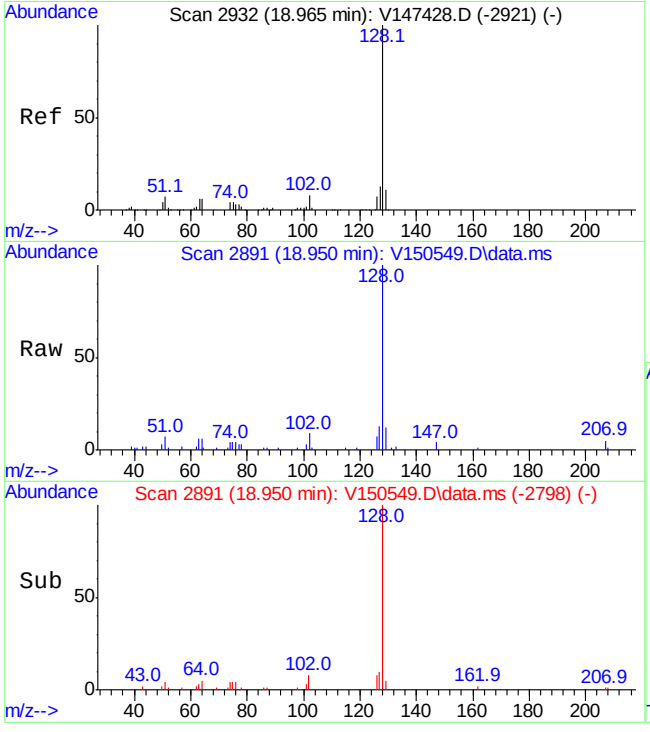


#108
sec-butylbenzene
Concen: 0.33 ug/L
RT: 16.110 min Scan# 2348
Delta R.T. -0.009 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:105 Resp: 2867

Ion	Ratio	Lower	Upper
105	100		
134	24.5	0.0	49.4
91	17.9	0.0	45.4

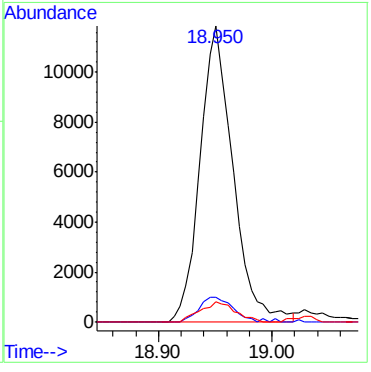




#121
naphthalene
Concen: 3.49 ug/L
RT: 18.950 min Scan# 2891
Delta R.T. -0.014 min
Lab File: V150549.D
Acq: 12 Jan 2015 2:19 pm

Tgt Ion:128 Resp: 23876

Ion	Ratio	Lower	Upper
128	100		
102	8.5	0.0	37.7
51	6.9	0.0	36.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222896.D
Acq On : 15 Jan 2015 7:02 pm
Operator : ThienN
Sample : jb85833-6
Misc : MS79479,VE9772,6.3,,100,10,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jan 16 11:24:17 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

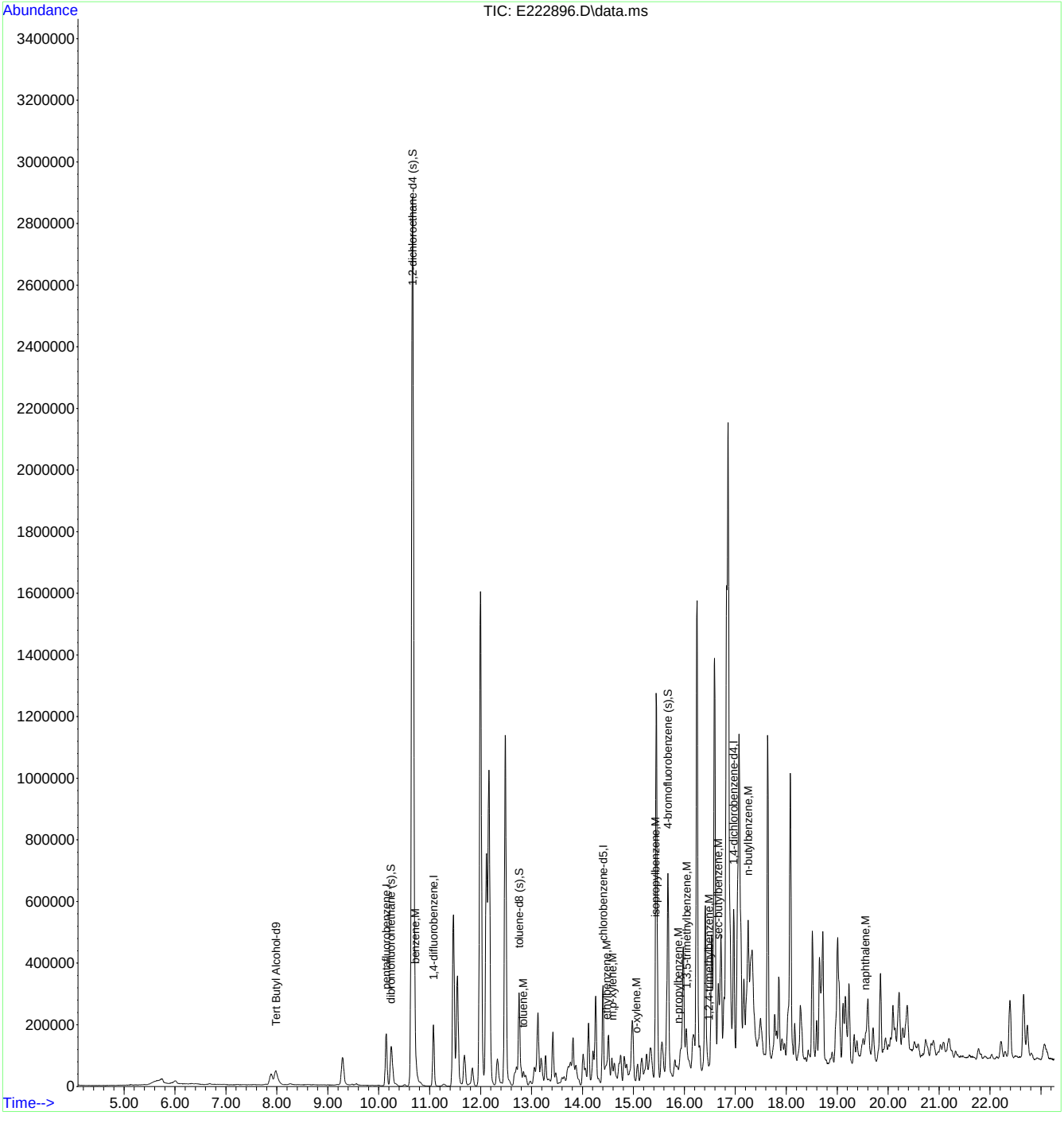
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.979	65	127620	500.00	ug/L	0.00
4) pentafluorobenzene	10.145	168	162029	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.075	114	197117	50.00	ug/L	0.00
84) chlorobenzene-d5	14.402	117	203453	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	148630	50.00	ug/L	0.00
System Monitoring Compounds						
47) dibromofluoromethane (s)	10.239	113	64473	50.60	ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 101.20%			
48) 1,2-dichloroethane-d4 (s)	10.662	65	100882	53.11	ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 106.22%			
76) toluene-d8 (s)	12.754	98	234496	47.95	ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 95.90%			
103) 4-bromofluorobenzene (s)	15.678	95	104234	44.41	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 88.82%			
Target Compounds						Qvalue
62) benzene	10.715	78	12004	2.38	ug/L	87
78) toluene	12.833	92	4728	1.45	ug/L	98
95) ethylbenzene	14.475	91	7338	1.15	ug/L	93
96) m,p-xylene	14.590	106	4962	2.03	ug/L	94
97) o-xylene	15.056	106	793	0.31	ug/L #	65
102) isopropylbenzene	15.427	105	10483	1.59	ug/L	91
109) n-propylbenzene	15.877	91	8366	1.03	ug/L	86
113) 1,3,5-trimethylbenzene	16.044	105	2605	0.40	ug/L	85
116) 1,2,4-trimethylbenzene	16.483	105	8769	1.26	ug/L	97
117) sec-butylbenzene	16.666	105	9783	1.20	ug/L	94
124) n-butylbenzene	17.252	92	25027	6.52	ug/L	91
130) naphthalene	19.554	128	13030	1.61	ug/L	61

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

Quantitation Report (QT Reviewed)

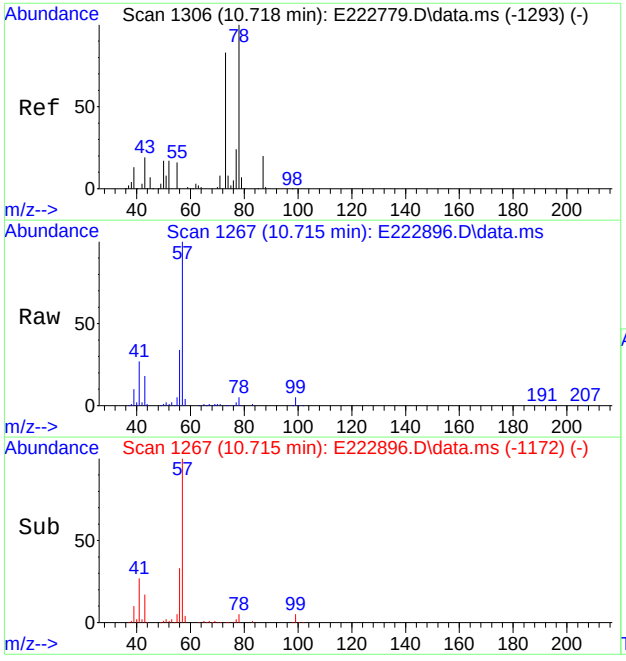
Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222896.D
Acq On : 15 Jan 2015 7:02 pm
Operator : ThienN
Sample : jb85833-6
Misc : MS79479,VE9772,6.3,,100,10,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jan 16 11:24:17 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration



ME9767.M Fri Jan 16 11:36:27 2015 T

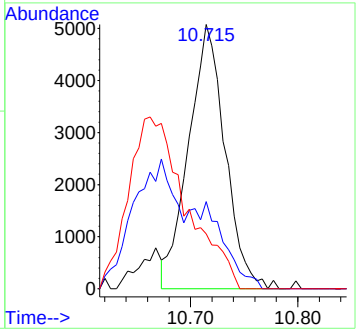
Page: 2

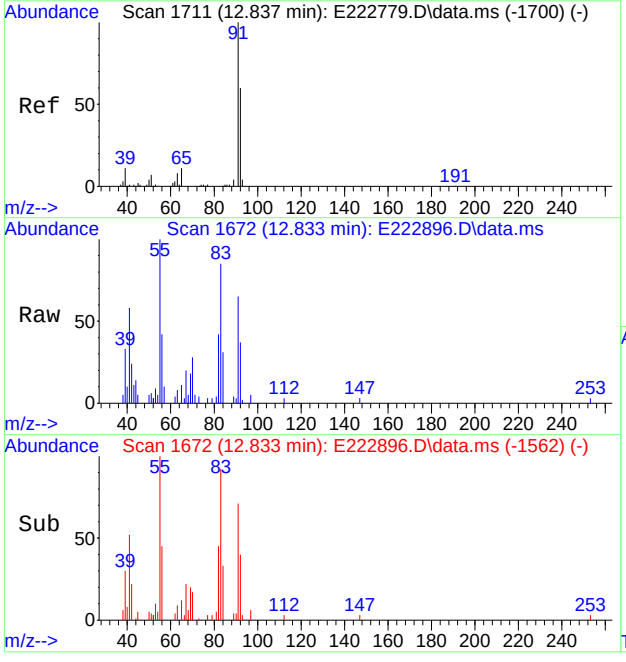


#62
benzene
Concen: 2.38 ug/L
RT: 10.715 min Scan# 1267
Delta R.T. -0.004 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion: 78 Resp: 12004

Ion	Ratio	Lower	Upper
78	100		
77	33.0	0.0	54.4
52	20.8	0.0	47.4

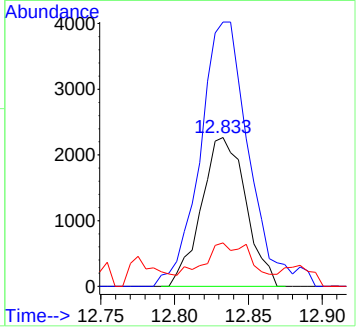


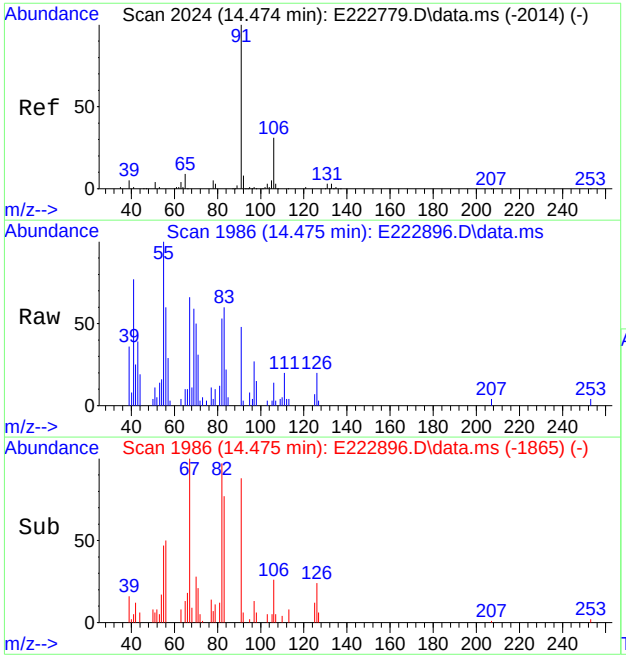


#78
toluene
Concen: 1.45 ug/L
RT: 12.833 min Scan# 1672
Delta R.T. -0.004 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion: 92 Resp: 4728

Ion	Ratio	Lower	Upper
92	100		
91	169.9	136.6	196.6
65	19.3	0.0	48.5

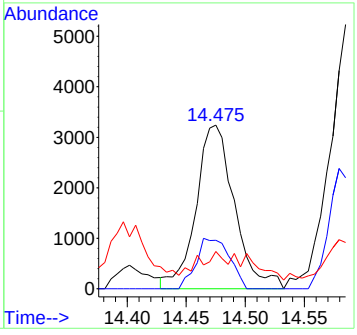


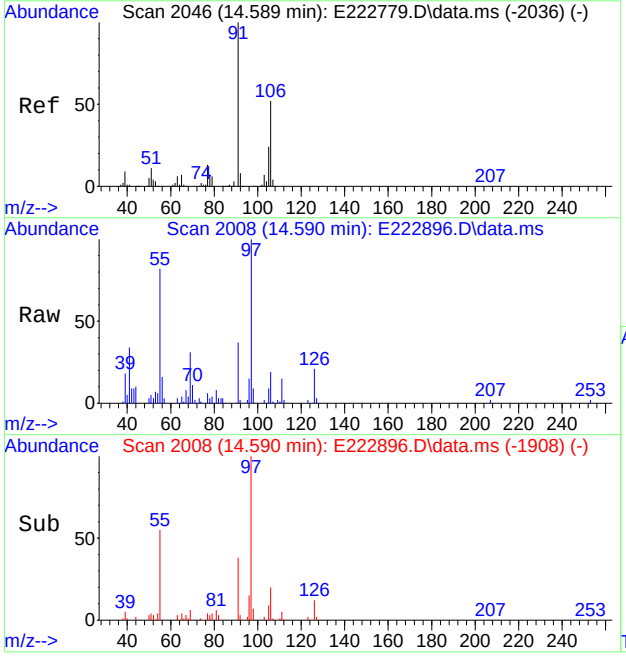


#95
ethylbenzene
Concen: 1.15 ug/L
RT: 14.475 min Scan# 1986
Delta R.T. 0.002 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion: 91 Resp: 7338

Ion	Ratio	Lower	Upper
91	100		
106	29.7	1.4	61.4
77	17.4	0.0	39.7

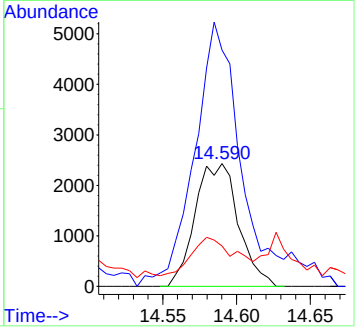


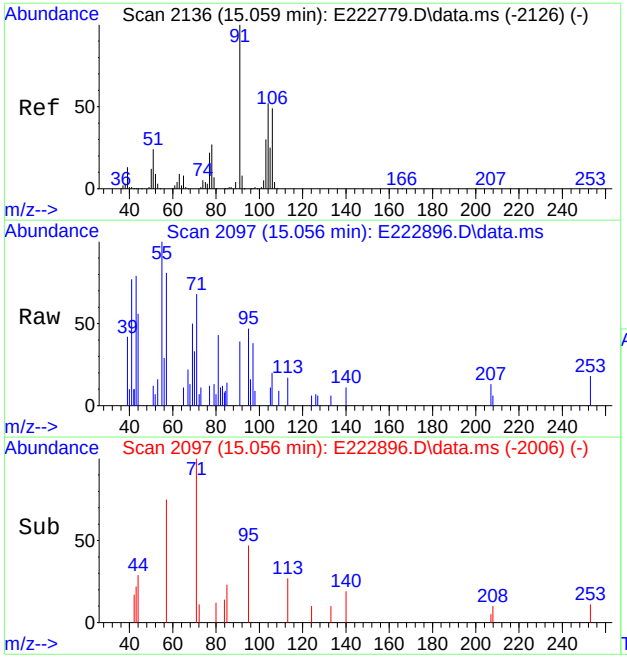


#96
m,p-xylene
Concen: 2.03 ug/L
RT: 14.590 min Scan# 2008
Delta R.T. 0.002 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion:106 Resp: 4962

Ion	Ratio	Lower	Upper
106	100		
91	181.6	162.1	222.1
77	24.2	0.0	54.7

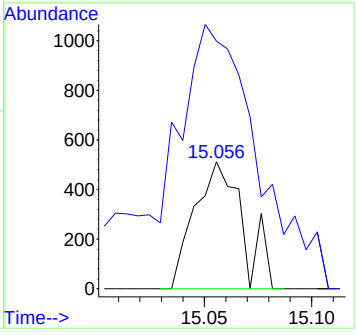


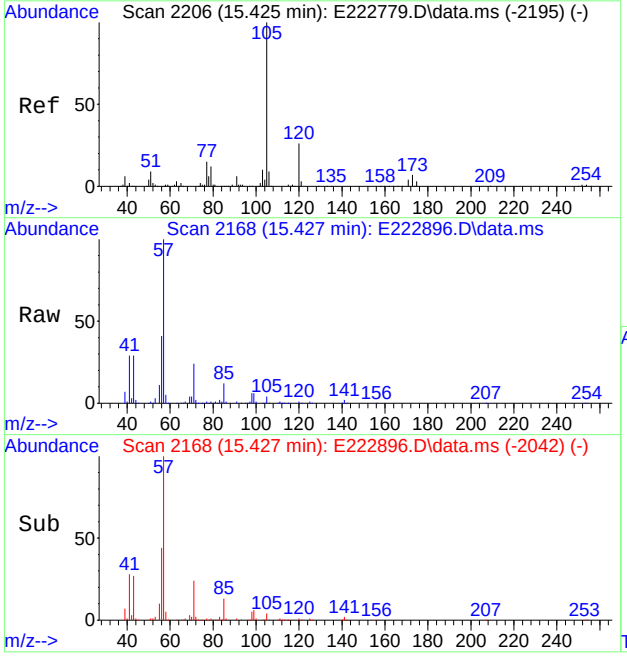


#97
o-xylene
Concen: 0.31 ug/L
RT: 15.056 min Scan# 2097
Delta R.T. -0.004 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion:106 Resp: 793

Ion	Ratio	Lower	Upper
106	100		
91	152.3	176.1	236.1#

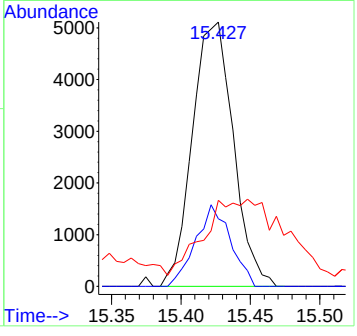




#102
isopropylbenzene
Concen: 1.59 ug/L
RT: 15.427 min Scan# 2168
Delta R.T. 0.001 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

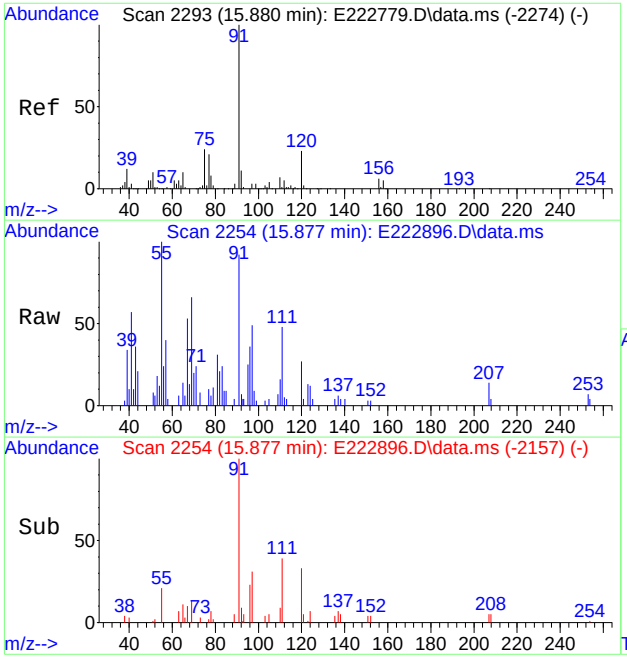
Tgt Ion:105 Resp: 10483

Ion	Ratio	Lower	Upper
105	100		
120	25.6	0.0	56.4
77	24.7	0.0	45.2



7.1.7

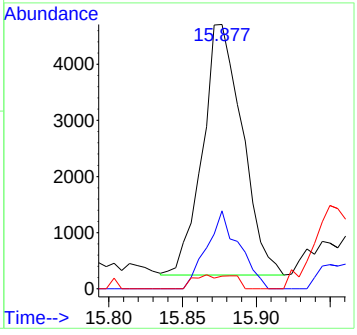
7

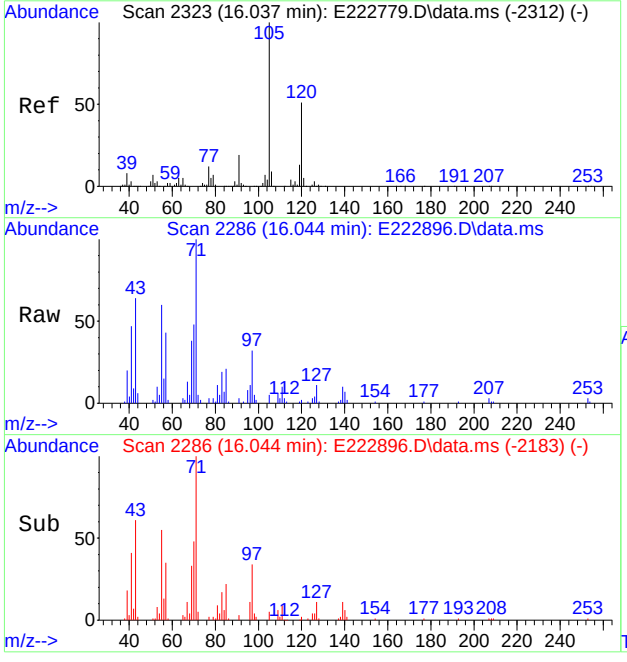


#109
n-propylbenzene
Concen: 1.03 ug/L
RT: 15.877 min Scan# 2254
Delta R.T. -0.004 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion: 91 Resp: 8366

Ion	Ratio	Lower	Upper
91	100		
120	31.1	0.0	53.4
105	5.0	0.0	33.9

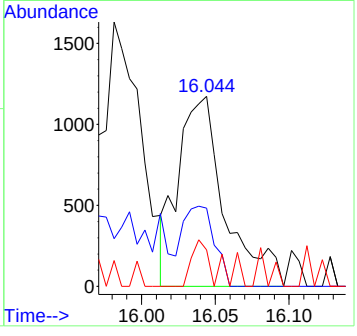


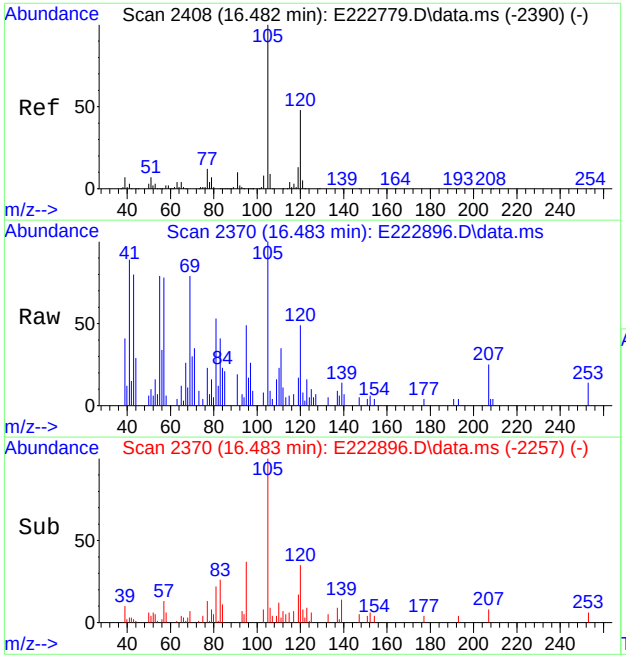


#113
1,3,5-trimethylbenzene
Concen: 0.40 ug/L
RT: 16.044 min Scan# 2286
Delta R.T. 0.007 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion:105 Resp: 2605

Ion	Ratio	Lower	Upper
105	100		
120	41.2	21.4	81.4
119	19.3	0.0	43.3

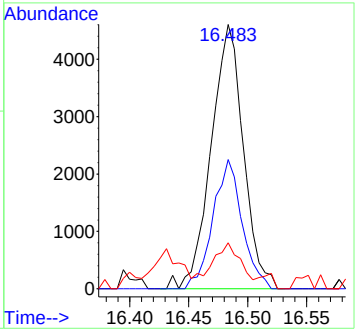


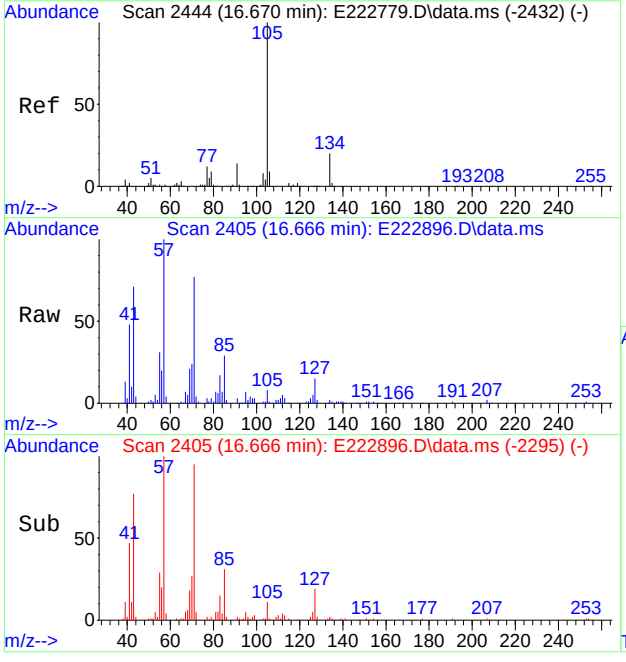


#116
1,2,4-trimethylbenzene
Concen: 1.26 ug/L
RT: 16.483 min Scan# 2370
Delta R.T. 0.001 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion:105 Resp: 8769

Ion	Ratio	Lower	Upper
105	100		
120	48.8	18.4	78.4
119	17.4	0.0	43.2

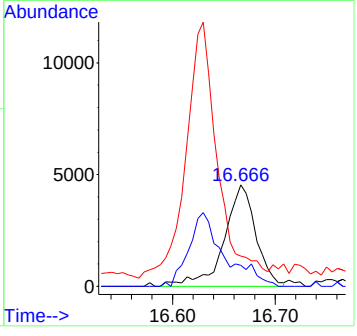




#117
sec-butylbenzene
Concen: 1.20 ug/L
RT: 16.666 min Scan# 2405
Delta R.T. -0.004 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion:105 Resp: 9783

Ion	Ratio	Lower	Upper
105	100		
134	20.9	0.0	50.3
91	8.7	0.0	44.2



7.1.7

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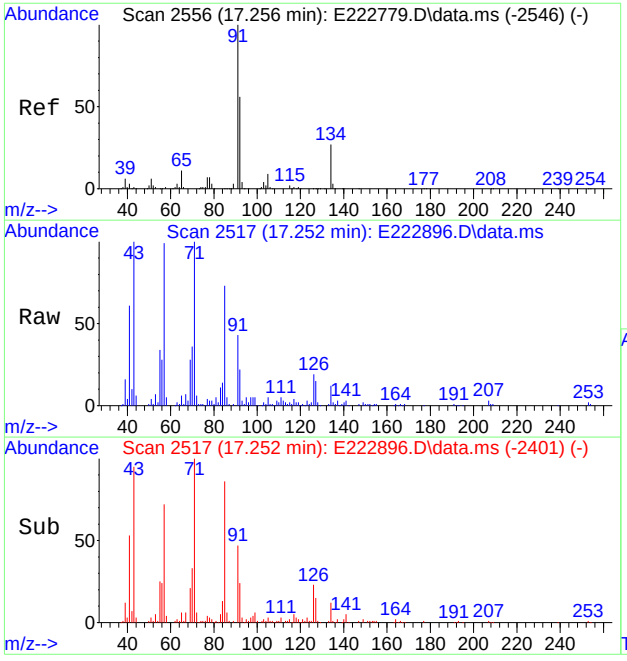
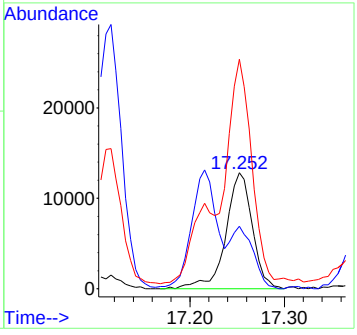
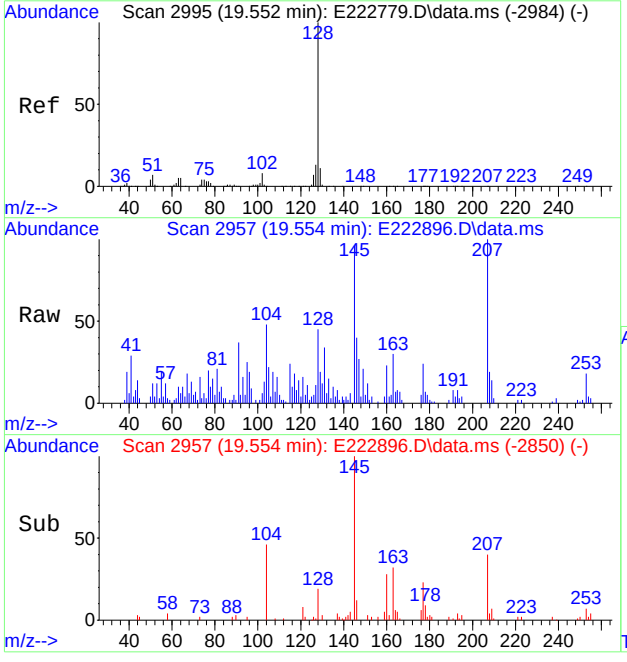


#124
n-butylbenzene
Concen: 6.52 ug/L
RT: 17.252 min Scan# 2517
Delta R.T. -0.004 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion: 92 Resp: 25027

Ion	Ratio	Lower	Upper
92	100		
134	53.8	18.8	78.8
91	193.1	150.0	210.0

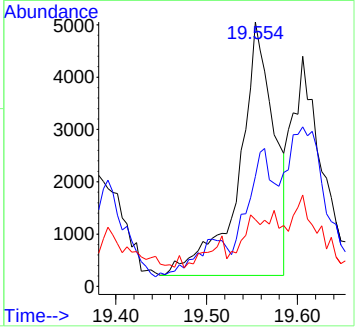




#130
naphthalene
Concen: 1.61 ug/L
RT: 19.554 min Scan# 2957
Delta R.T. 0.002 min
Lab File: E222896.D
Acq: 15 Jan 2015 7:02 pm

Tgt Ion:128 Resp: 13030

Ion	Ratio	Lower	Upper
128	100		
129	38.0	0.0	41.1
127	17.6	0.0	42.8



Manual Integrations APPROVED (compounds with "m" flag)
Mei Chen
01/16/15 16:06

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222898.D
Acq On : 15 Jan 2015 8:02 pm
Operator : ThienN
Sample : jb85833-7
Misc : MS79479,VE9772,5.2,,20,10,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 16 11:35:33 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.964	65	137175	500.00 ug/L	0.00
4) pentafluorobenzene	10.151	168	170810	50.00 ug/L	0.00
54) 1,4-difluorobenzene	11.076	114	200479	50.00 ug/L	0.00
84) chlorobenzene-d5	14.403	117	208010	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.971	152	145863	50.00 ug/L	0.00
System Monitoring Compounds					
47) dibromofluoromethane (s)	10.239	113	66051	49.17 ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 98.34%		
48) 1,2-dichloroethane-d4 (s)	10.663	65	100362	50.12 ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 100.24%		
76) toluene-d8 (s)	12.760	98	239715	48.19 ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 96.38%		
103) 4-bromofluorobenzene (s)	15.679	95	103308	44.85 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 89.70%		
Target Compounds					Qvalue
52) Cyclohexane	10.334	84	68989	45.34 ug/L #	62
61) hexane	8.613	57	69248	59.33 ug/L	97
62) benzene	10.721	78	91900	17.92 ug/L	99
78) toluene	12.839	92	5961	1.79 ug/L	87
95) ethylbenzene	14.476	91	14624	2.25 ug/L	90
96) m,p-xylene	14.586	106	18170	7.28 ug/L	98
97) o-xylene	15.056	106	13867	5.22 ug/L	93
102) isopropylbenzene	15.422	105	37744	5.84 ug/L	98
109) n-propylbenzene	15.878	91	363250	45.59 ug/L	99
113) 1,3,5-trimethylbenzene	16.040	105	237833	37.09 ug/L	98
116) 1,2,4-trimethylbenzene	16.484	105	64468	9.45 ug/L	99
117) sec-butylbenzene	16.667	105	32239	4.02 ug/L	94
119) p-isopropyltoluene	16.793	119	12153	1.63 ug/L	93
124) n-butylbenzene	17.253	92	101440	26.91 ug/L	83
130) naphthalene	19.554	128	88803m	11.15 ug/L	

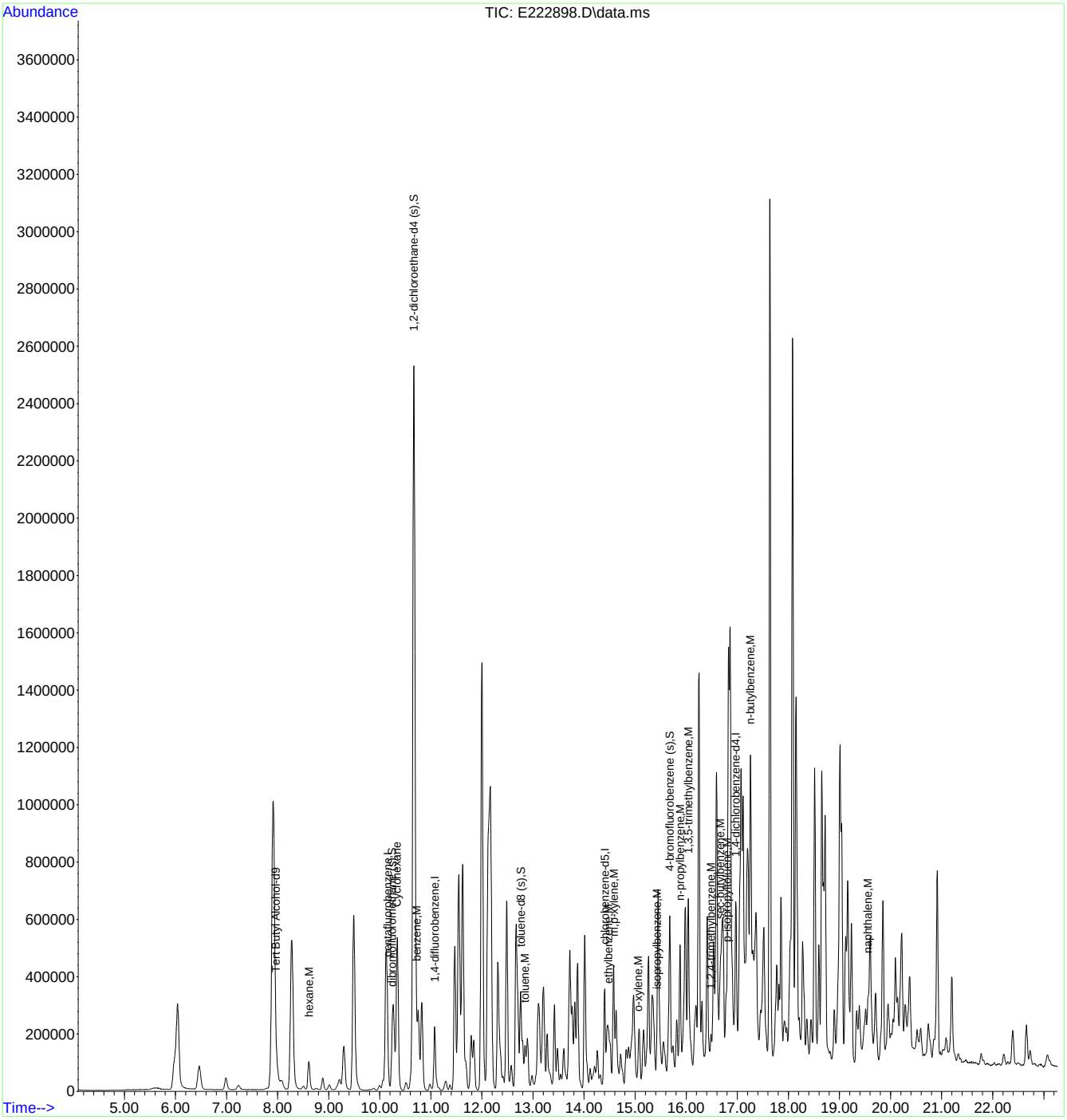
(#) = qualifier out of range (m) = manual integration (+) = signals summed

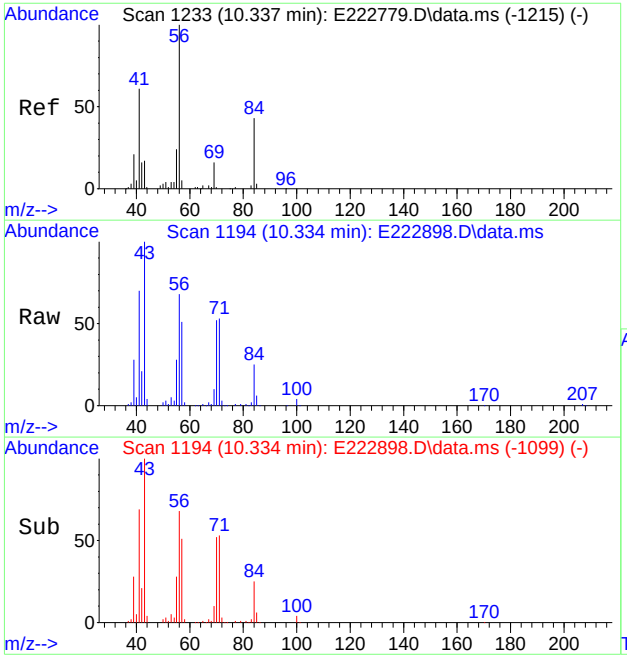
7.1.8
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222898.D
Acq On : 15 Jan 2015 8:02 pm
Operator : ThienN
Sample : jb85833-7
Misc : MS79479,VE9772,5.2,,20,10,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 16 11:35:33 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

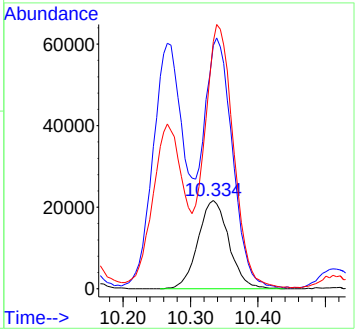


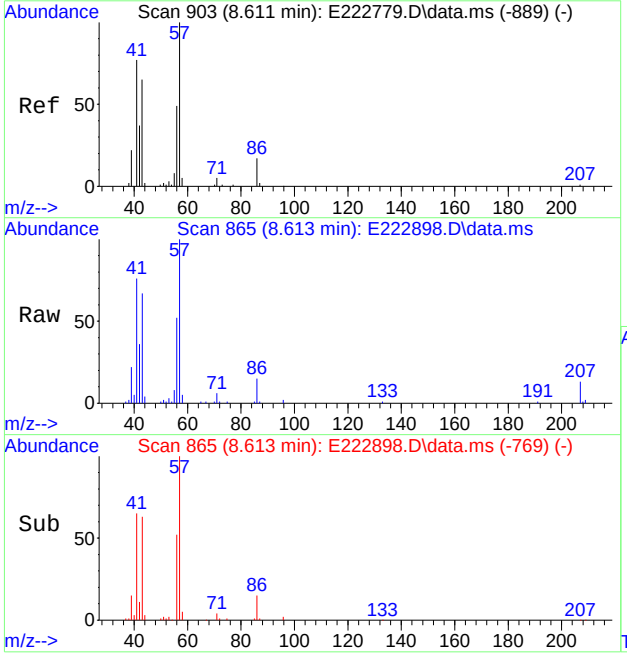


#52
Cyclohexane
Concen: 45.34 ug/L
RT: 10.334 min Scan# 1194
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 84 Resp: 68989

Ion	Ratio	Lower	Upper
84	100		
56	260.5	179.7	333.7
41	279.8	108.2	201.0#

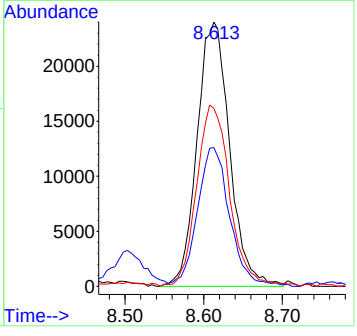


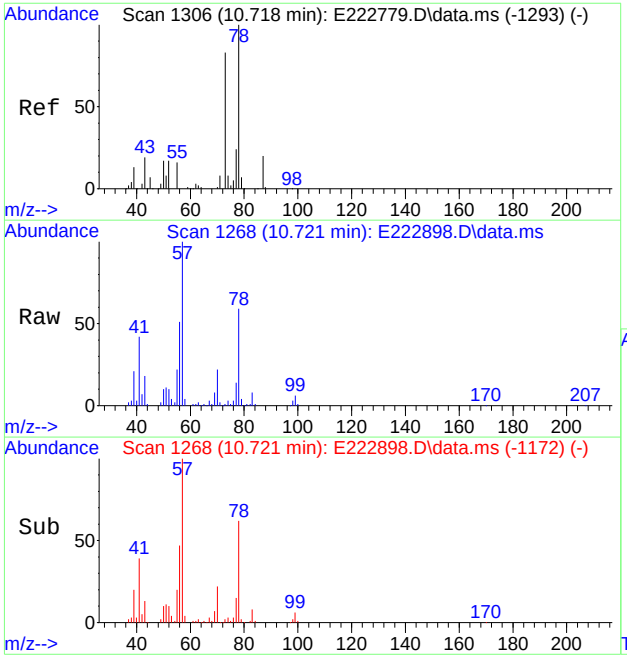


#61
hexane
Concen: 59.33 ug/L
RT: 8.613 min Scan# 865
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 57 Resp: 69248

Ion	Ratio	Lower	Upper
57	100		
56	51.8	19.5	79.5
43	67.3	35.5	95.5

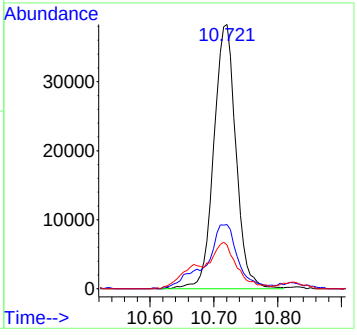


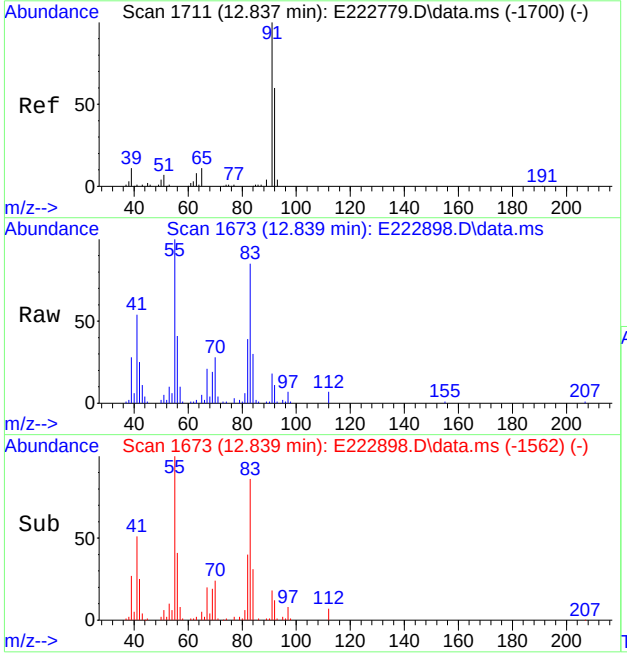


#62
benzene
Concen: 17.92 ug/L
RT: 10.721 min Scan# 1268
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 78 Resp: 91900

Ion	Ratio	Lower	Upper
78	100		
77	24.2	0.0	54.4
52	16.5	0.0	47.4

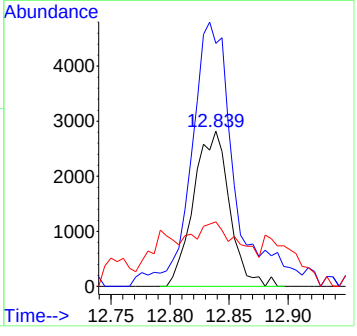




#78
toluene
Concen: 1.79 ug/L
RT: 12.839 min Scan# 1673
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 92 Resp: 5961

Ion	Ratio	Lower	Upper
92	100		
91	148.0	136.6	196.6
65	15.5	0.0	48.5



7.1.8

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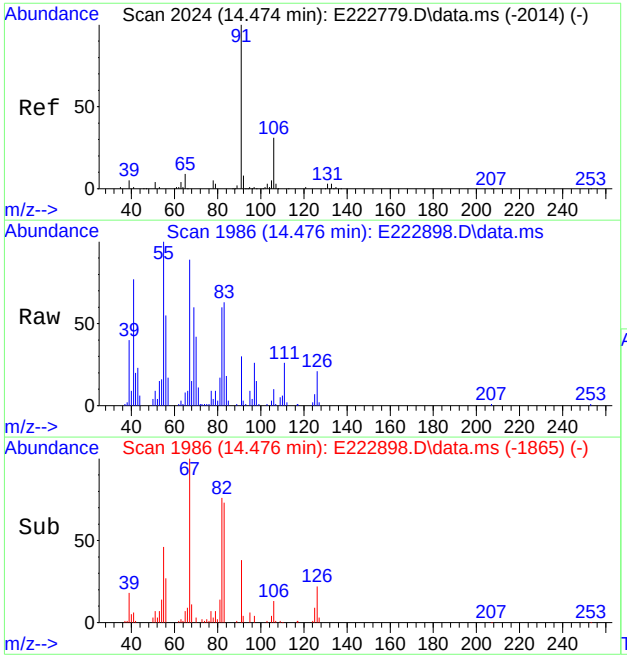
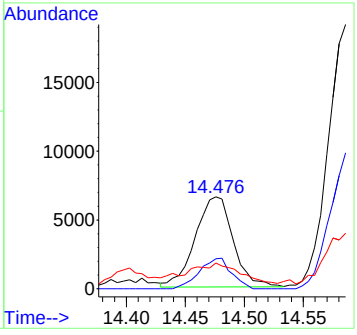
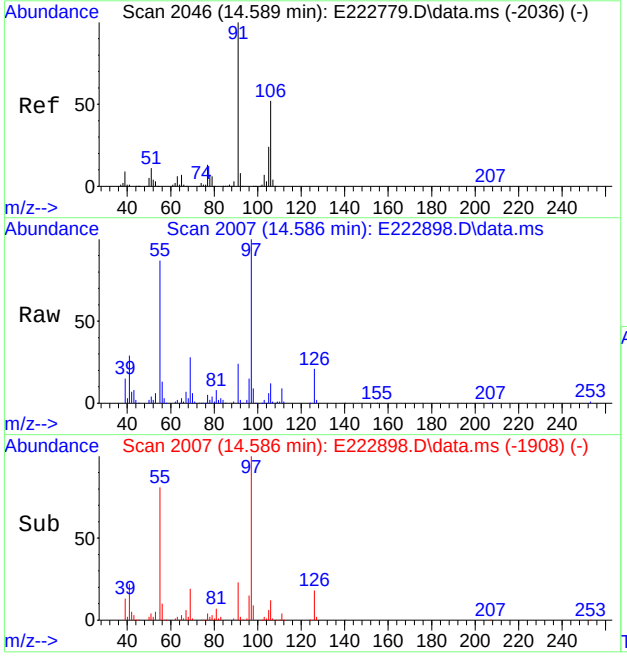


#95
ethylbenzene
Concen: 2.25 ug/L
RT: 14.476 min Scan# 1986
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 91 Resp: 14624

Ion	Ratio	Lower	Upper
91	100		
106	33.5	1.4	61.4
77	20.6	0.0	39.7

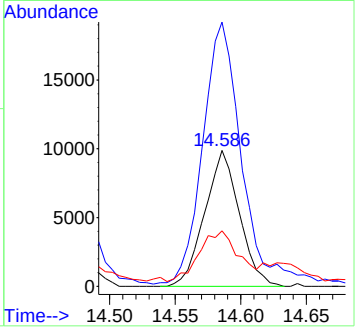




#96
m,p-xylene
Concen: 7.28 ug/L
RT: 14.586 min Scan# 2007
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:106 Resp: 18170

Ion	Ratio	Lower	Upper
106	100		
91	191.8	162.1	222.1
77	34.2	0.0	54.7



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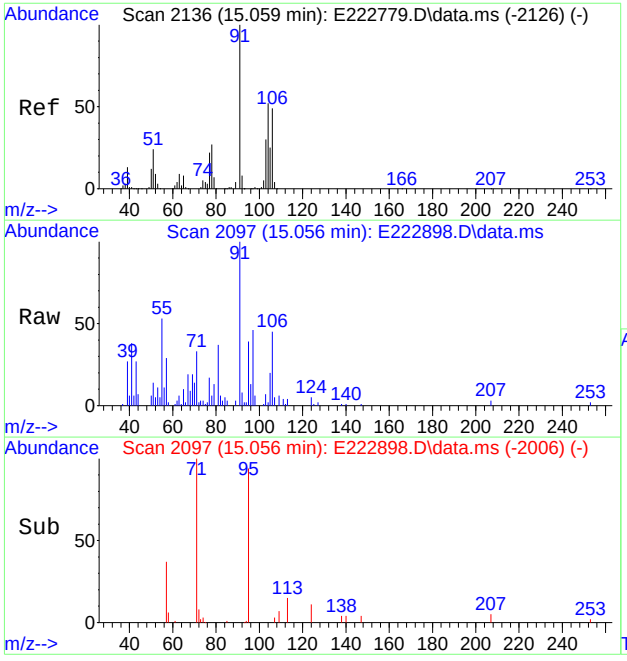
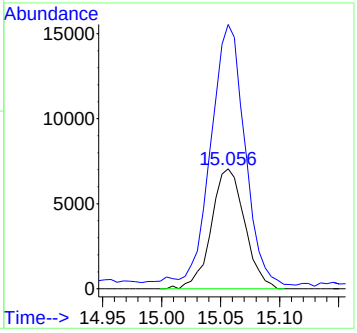
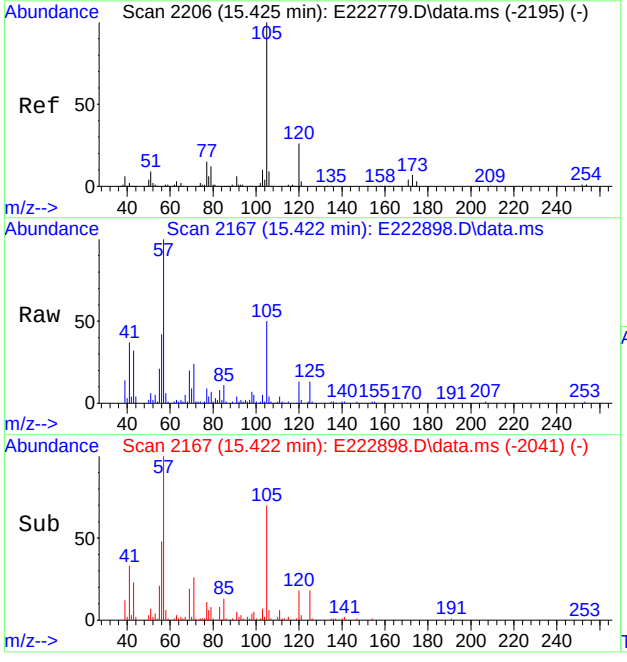


#97
o-xylene
Concen: 5.22 ug/L
RT: 15.056 min Scan# 2097
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:106 Resp: 13867

Ion	Ratio	Lower	Upper
106	100		
91	216.7	176.1	236.1

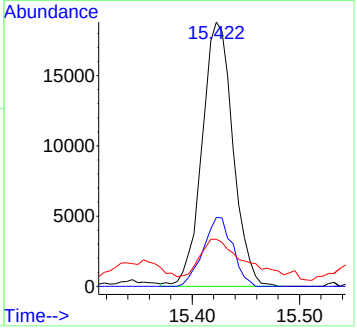




#102
isopropylbenzene
Concen: 5.84 ug/L
RT: 15.422 min Scan# 2167
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:105 Resp: 37744

Ion	Ratio	Lower	Upper
105	100		
120	26.1	0.0	56.4
77	13.5	0.0	45.2



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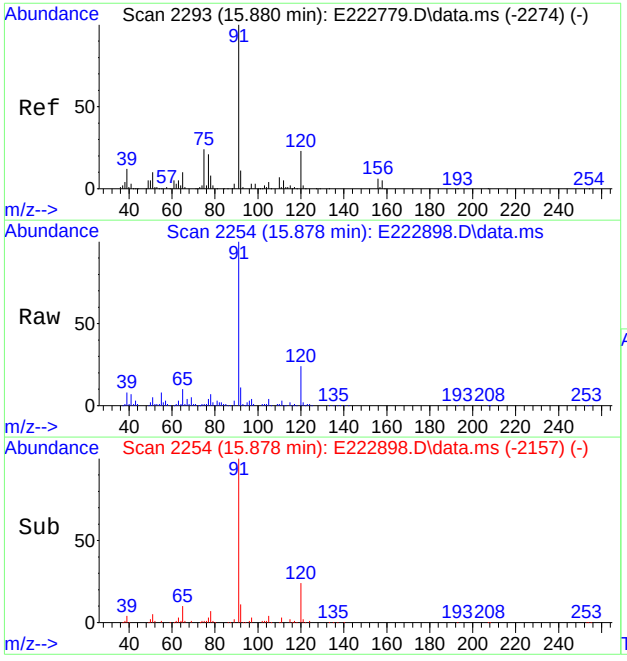
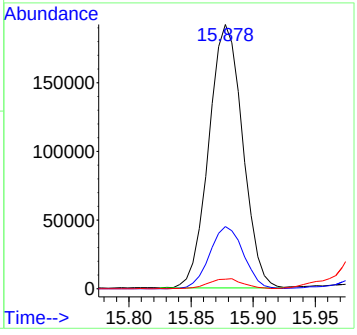
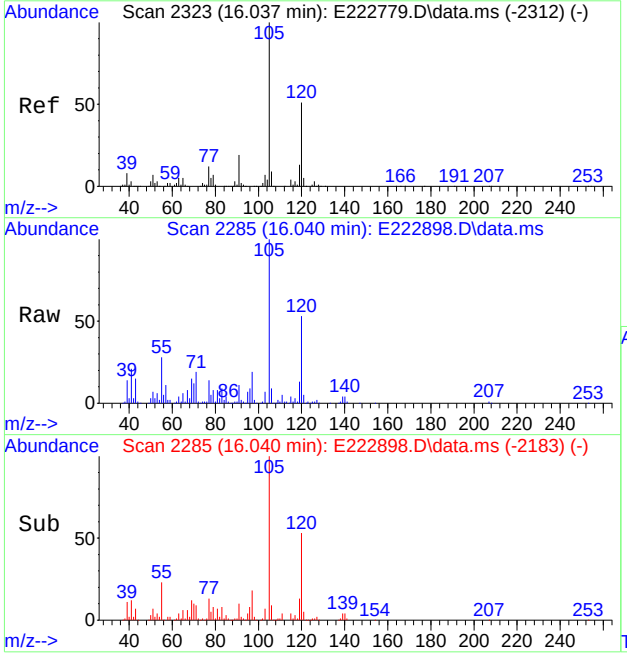


#109
n-propylbenzene
Concen: 45.59 ug/L
RT: 15.878 min Scan# 2254
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 91 Resp: 363250

Ion	Ratio	Lower	Upper
91	100		
120	23.6	0.0	53.4
105	3.5	0.0	33.9

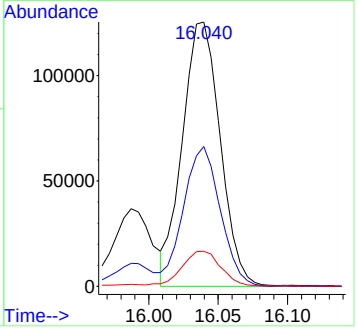




#113
1,3,5-trimethylbenzene
Concen: 37.09 ug/L
RT: 16.040 min Scan# 2285
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:105 Resp: 237833

Ion	Ratio	Lower	Upper
105	100		
120	52.9	21.4	81.4
119	12.9	0.0	43.3



7.1.8

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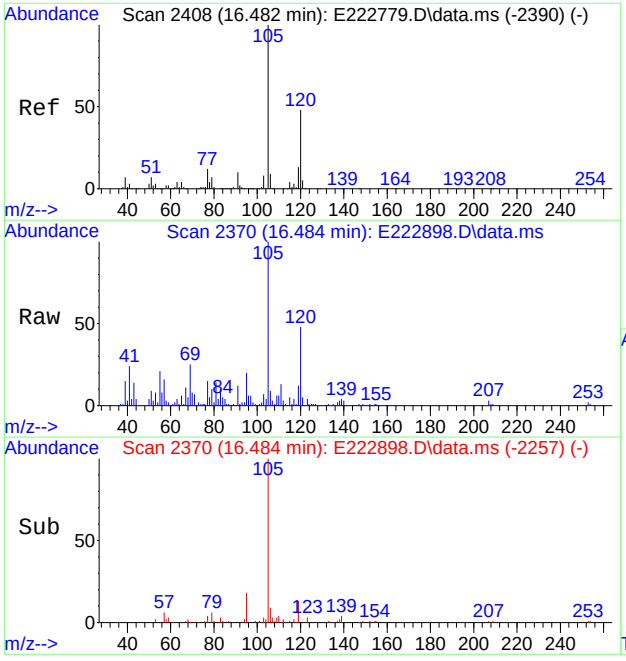
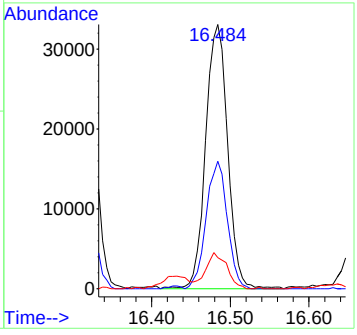
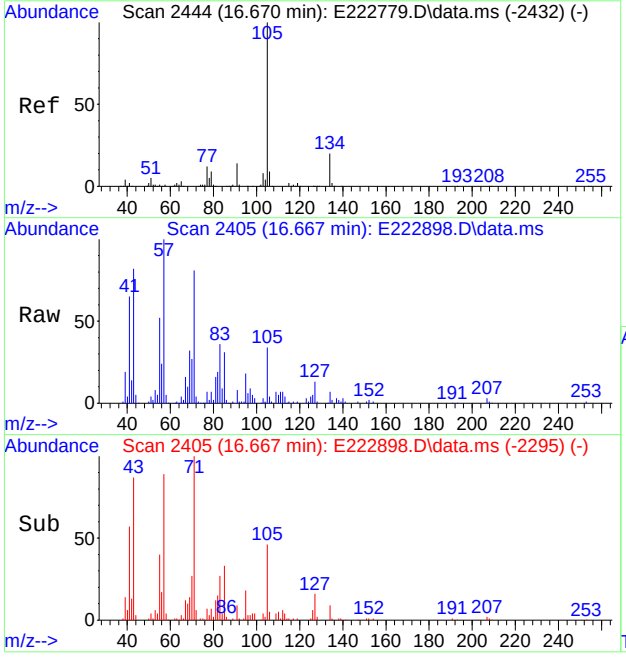


#116
1,2,4-trimethylbenzene
Concen: 9.45 ug/L
RT: 16.484 min Scan# 2370
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:105 Resp: 64468

Ion	Ratio	Lower	Upper
105	100		
120	48.2	18.4	78.4
119	11.8	0.0	43.2

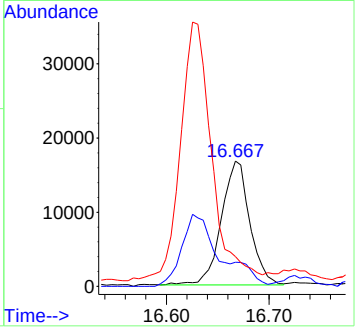


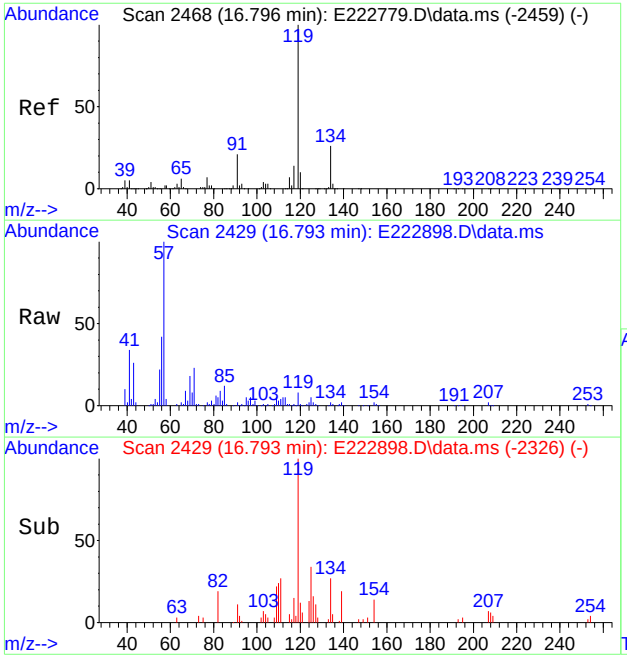


#117
sec-butylbenzene
Concen: 4.02 ug/L
RT: 16.667 min Scan# 2405
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:105 Resp: 32239

Ion	Ratio	Lower	Upper
105	100		
134	17.4	0.0	50.3
91	12.0	0.0	44.2

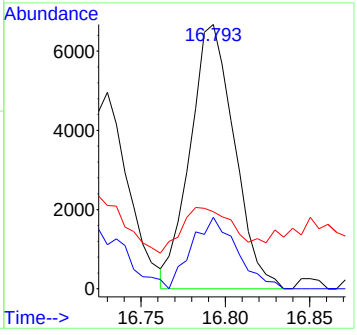


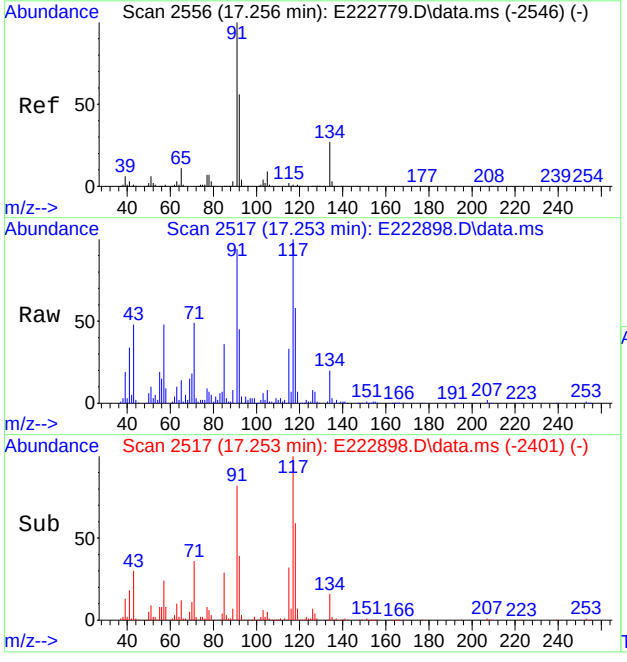


#119
p-isopropyltoluene
Concen: 1.63 ug/L
RT: 16.793 min Scan# 2429
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:119 Resp: 12153

Ion	Ratio	Lower	Upper
119	100		
134	27.1	0.0	55.5
91	15.7	0.0	51.1

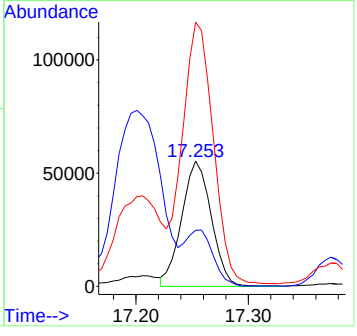




#124
n-butylbenzene
Concen: 26.91 ug/L
RT: 17.253 min Scan# 2517
Delta R.T. -0.003 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion: 92 Resp: 101440

Ion	Ratio	Lower	Upper
92	100		
134	44.6	18.8	78.8
91	208.5	150.0	210.0



7.1.8

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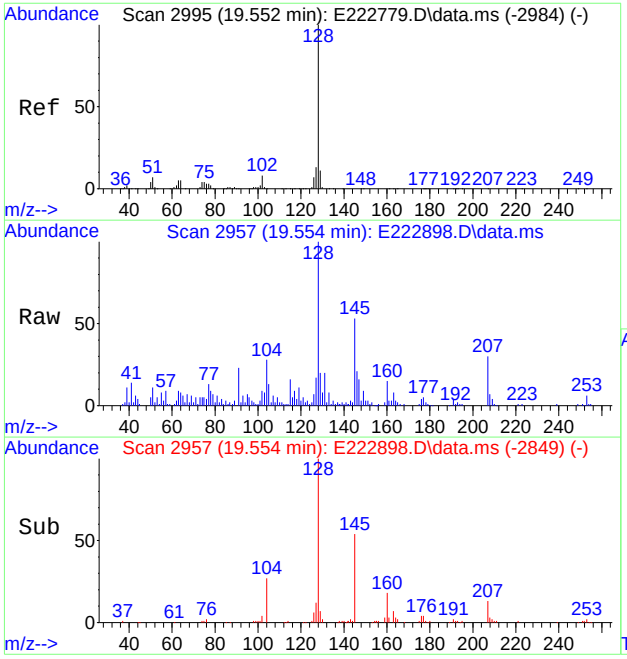
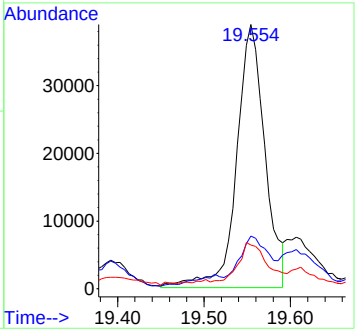


#130
naphthalene
Concen: 11.15 ug/L m
RT: 19.554 min Scan# 2957
Delta R.T. 0.002 min
Lab File: E222898.D
Acq: 15 Jan 2015 8:02 pm

Tgt Ion:128 Resp: 88803

Ion	Ratio	Lower	Upper
128	100		
129	20.0	0.0	41.1
127	16.5	0.0	42.8



7.1.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222897.D
Acq On : 15 Jan 2015 7:32 pm
Operator : ThienN
Sample : jb85833-8
Misc : MS79479,VE9772,6.0,,20,10,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jan 16 11:34:36 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Tert Butyl Alcohol-d9	7.959	65	134206	500.00 ug/L	-0.01
4) pentafluorobenzene	10.145	168	160442	50.00 ug/L	0.00
54) 1,4-difluorobenzene	11.076	114	189080	50.00 ug/L	0.00
84) chlorobenzene-d5	14.402	117	200041	50.00 ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	142719	50.00 ug/L	0.00
System Monitoring Compounds					
47) dibromofluoromethane (s)	10.239	113	63513	50.34 ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 100.68%		
48) 1,2-dichloroethane-d4 (s)	10.663	65	89626	47.65 ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 95.30%		
76) toluene-d8 (s)	12.755	98	226188	48.22 ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 96.44%		
103) 4-bromofluorobenzene (s)	15.678	95	100139	44.44 ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 88.88%		
Target Compounds					Qvalue
52) Cyclohexane	10.333	84	124399	87.03 ug/L #	52
95) ethylbenzene	14.475	91	4557	0.73 ug/L #	78
97) o-xylene	15.051	106	631	0.25 ug/L #	77
102) isopropylbenzene	15.427	105	40605	6.42 ug/L	96
109) n-propylbenzene	15.877	91	162818	20.89 ug/L	99
114) tert-butylbenzene	16.431	134	1053	0.84 ug/L #	84
116) 1,2,4-trimethylbenzene	16.473	105	2043	0.31 ug/L	87
117) sec-butylbenzene	16.667	105	42400	5.40 ug/L	97
119) p-isopropyltoluene	16.787	119	10065	1.38 ug/L	95
124) n-butylbenzene	17.253	92	36848	9.99 ug/L	87

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

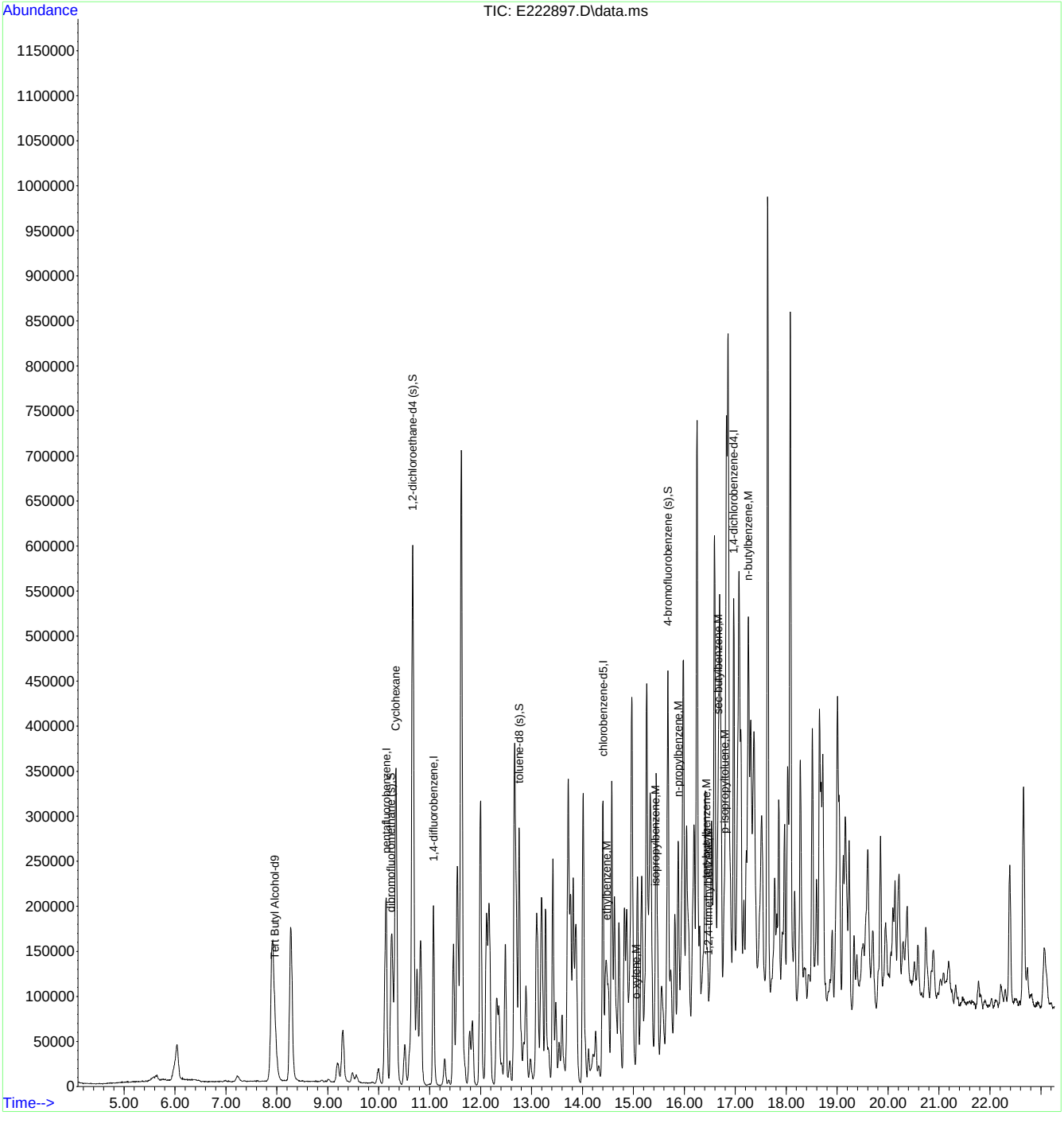
7.1.9

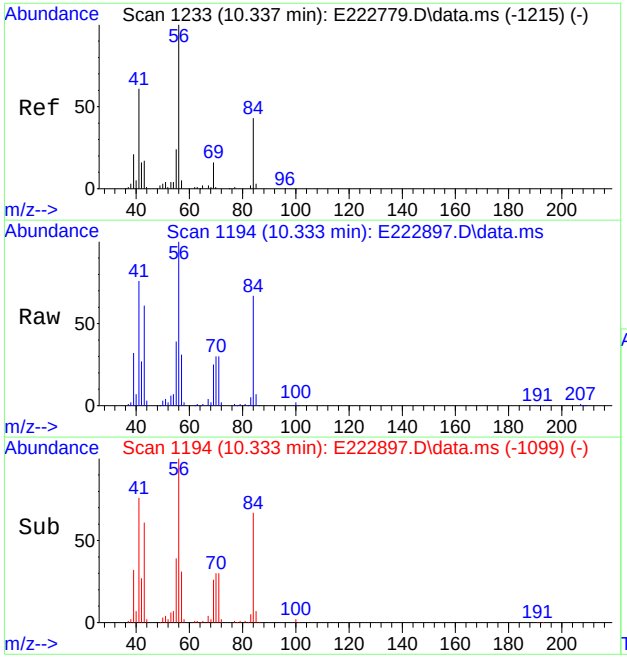
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E\ve9772\
Data File : E222897.D
Acq On : 15 Jan 2015 7:32 pm
Operator : ThienN
Sample : jb85833-8
Misc : MS79479,VE9772,6.0,,20,10,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jan 16 11:34:36 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

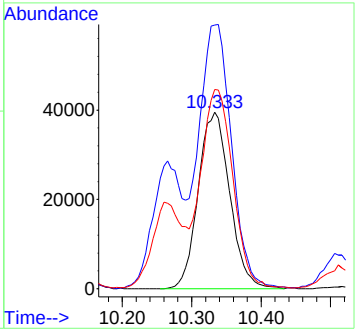


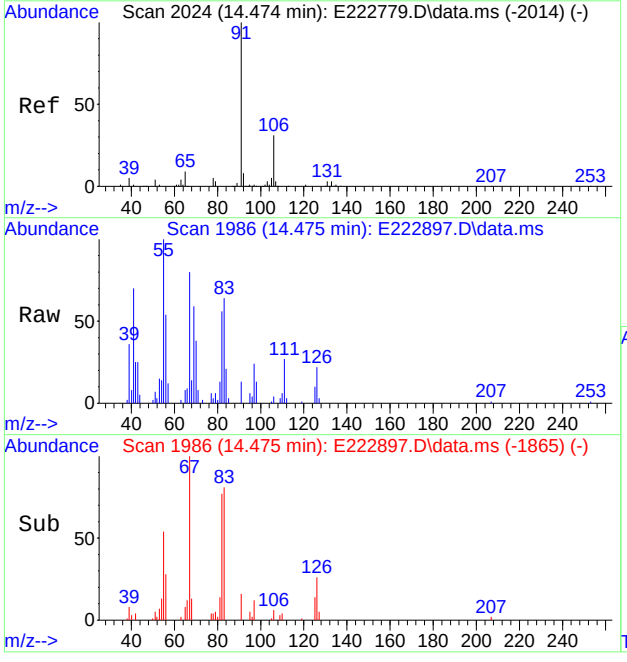


#52
Cyclohexane
Concen: 87.03 ug/L
RT: 10.333 min Scan# 1194
Delta R.T. -0.003 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion: 84 Resp: 124399

Ion	Ratio	Lower	Upper
84	100		
56	154.8	179.7	333.7#
41	112.7	108.2	201.0

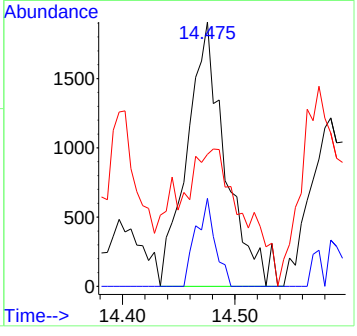


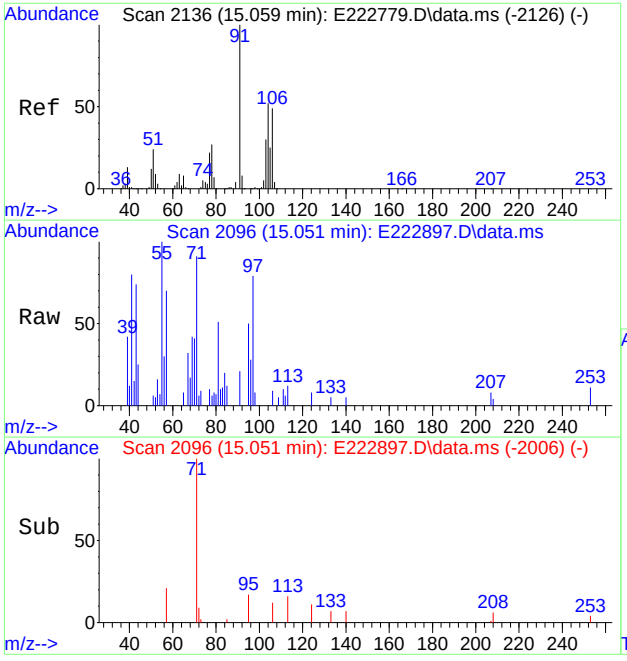


#95
ethylbenzene
Concen: 0.73 ug/L
RT: 14.475 min Scan# 1986
Delta R.T. 0.002 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion: 91 Resp: 4557

Ion	Ratio	Lower	Upper
91	100		
106	33.3	1.4	61.4
77	39.8	0.0	39.7#

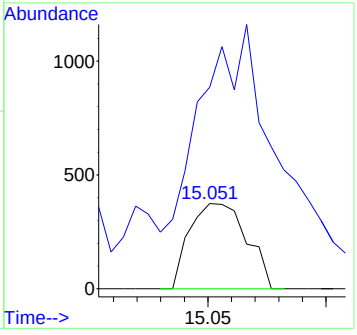


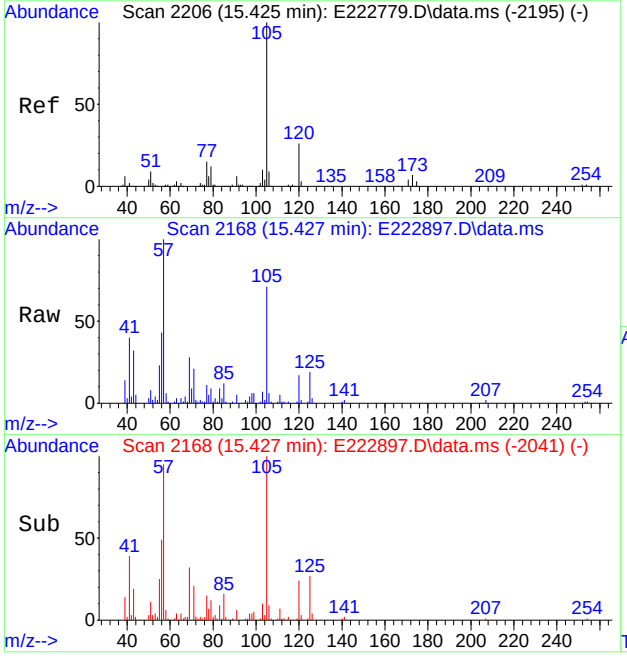


#97
o-xylene
Concen: 0.25 ug/L
RT: 15.051 min Scan# 2096
Delta R.T. -0.009 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion:106 Resp: 631

Ion	Ratio	Lower	Upper
106	100		
91	169.9	176.1	236.1#

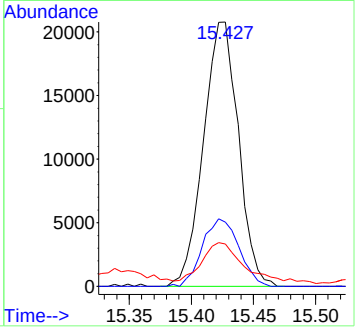




#102
isopropylbenzene
Concen: 6.42 ug/L
RT: 15.427 min Scan# 2168
Delta R.T. 0.002 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion:105 Resp: 40605

Ion	Ratio	Lower	Upper
105	100		
120	24.3	0.0	56.4
77	13.9	0.0	45.2



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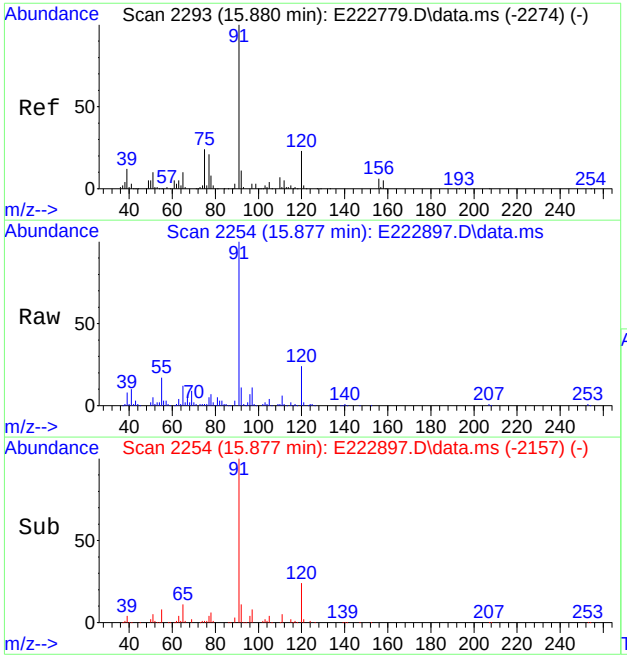
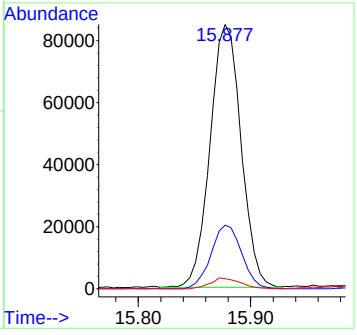
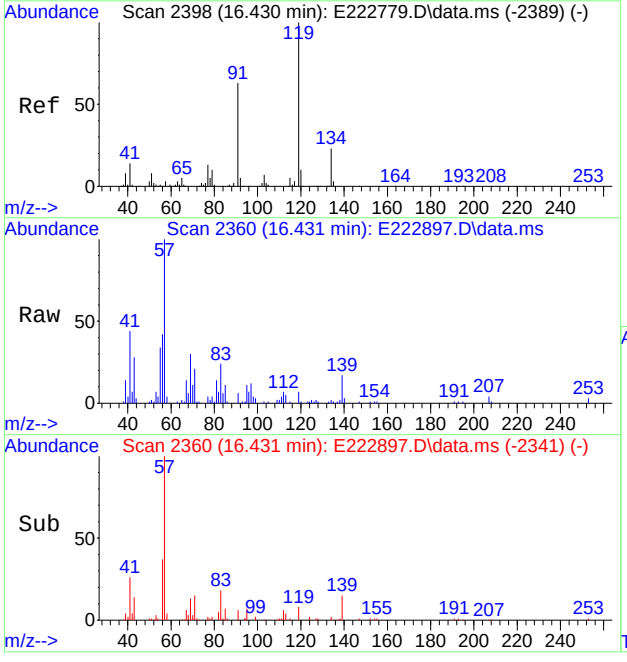


#109
n-propylbenzene
Concen: 20.89 ug/L
RT: 15.877 min Scan# 2254
Delta R.T. -0.003 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion: 91 Resp: 162818

Ion	Ratio	Lower	Upper
91	100		
120	24.2	0.0	53.4
105	3.8	0.0	33.9

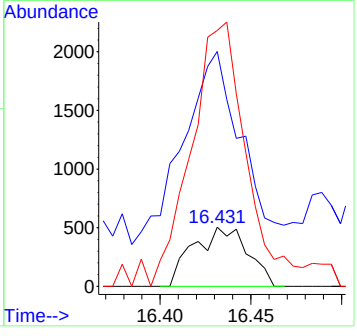




#114
tert-butylbenzene
Concen: 0.84 ug/L
RT: 16.431 min Scan# 2360
Delta R.T. 0.002 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion:134 Resp: 1053

Ion	Ratio	Lower	Upper
134	100		
91	293.7	242.7	302.7
119	387.5	403.3	463.3#



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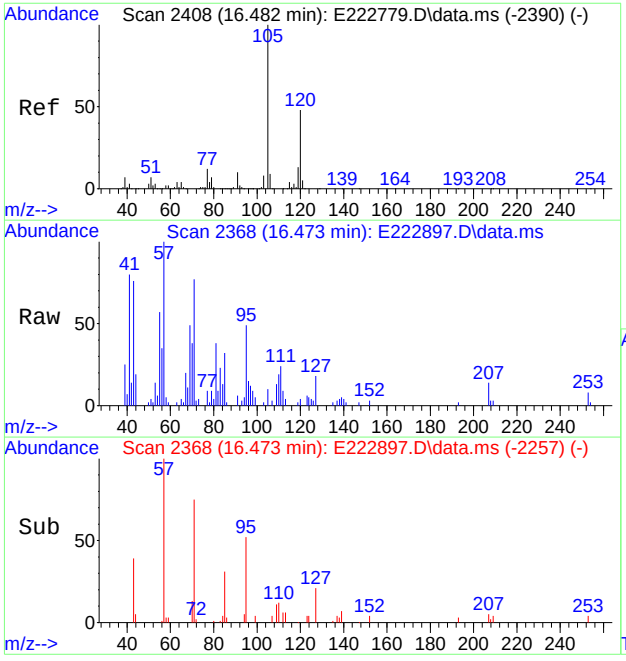
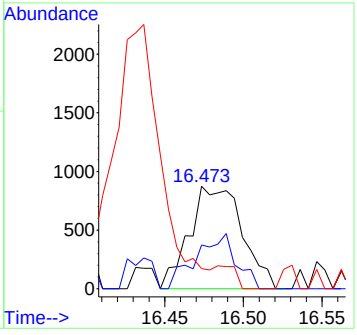
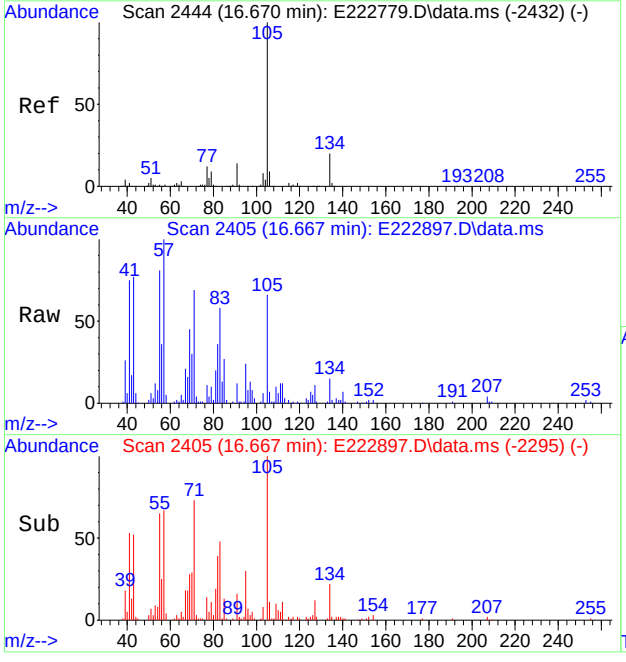


#116
1,2,4-trimethylbenzene
Concen: 0.31 ug/L
RT: 16.473 min Scan# 2368
Delta R.T. -0.009 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion:105 Resp: 2043

Ion	Ratio	Lower	Upper
105	100		
120	42.5	18.4	78.4
119	1.0	0.0	43.2

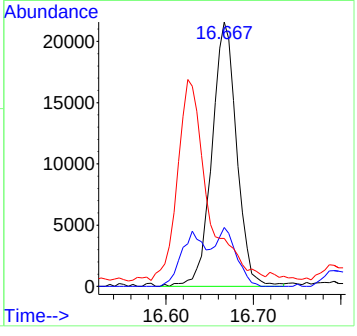


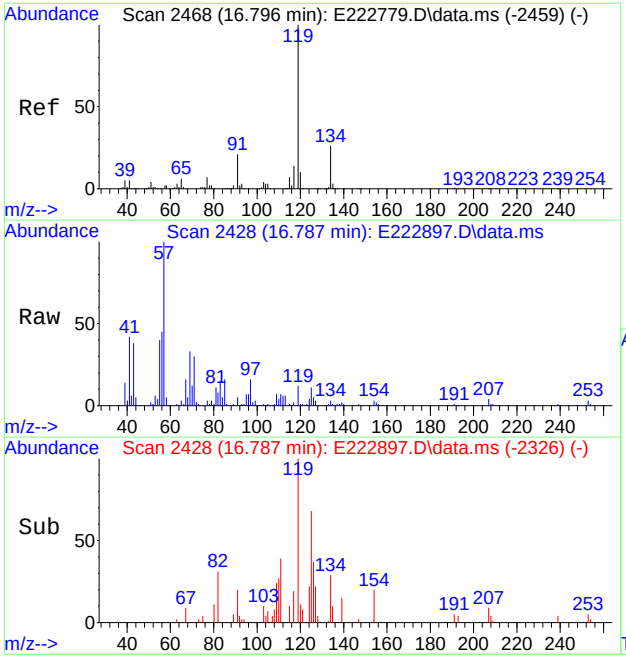


#117
sec-butylbenzene
Concen: 5.40 ug/L
RT: 16.667 min Scan# 2405
Delta R.T. -0.003 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion:105 Resp: 42400

Ion	Ratio	Lower	Upper
105	100		
134	22.3	0.0	50.3
91	14.3	0.0	44.2

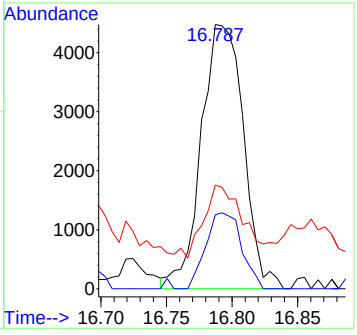


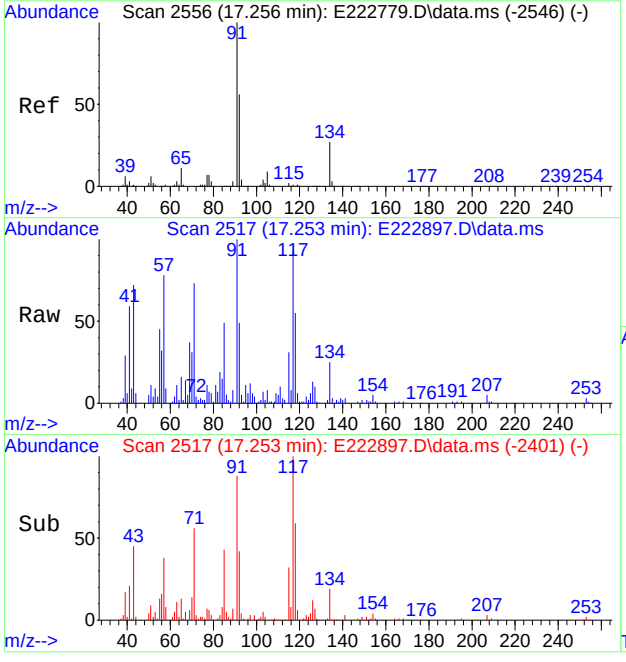


#119
p-isopropyltoluene
Concen: 1.38 ug/L
RT: 16.787 min Scan# 2428
Delta R.T. -0.009 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion:119 Resp: 10065

Ion	Ratio	Lower	Upper
119	100		
134	28.0	0.0	55.5
91	23.2	0.0	51.1

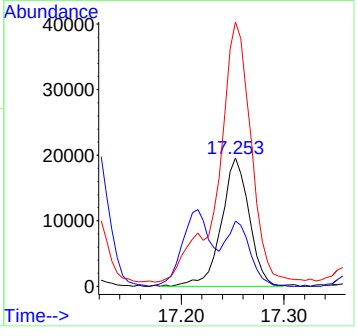




#124
n-butylbenzene
Concen: 9.99 ug/L
RT: 17.253 min Scan# 2517
Delta R.T. -0.003 min
Lab File: E222897.D
Acq: 15 Jan 2015 7:32 pm

Tgt Ion: 92 Resp: 36848

Ion	Ratio	Lower	Upper
92	100		
134	50.1	18.8	78.8
91	202.1	150.0	210.0



7.1.9

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E222879.D
Acq On : 15 Jan 2015 10:27 am
Operator : ThienN
Sample : mb1
Misc : MS79544,VE9772,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 15 14:01:38 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.990	65	111034	500.00	ug/L	0.02
4) pentafluorobenzene	10.145	168	140252	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.076	114	167863	50.00	ug/L	0.00
84) chlorobenzene-d5	14.402	117	174990	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.970	152	127711	50.00	ug/L	0.00

System Monitoring Compounds

47) dibromofluoromethane (s)	10.239	113	56397	51.13	ug/L	0.00
Spiked Amount 50.000	Range 48 - 141		Recovery = 102.26%			
48) 1,2-dichloroethane-d4 (s)	10.663	65	79100	48.11	ug/L	0.00
Spiked Amount 50.000	Range 70 - 120		Recovery = 96.22%			
76) toluene-d8 (s)	12.755	98	199162	47.82	ug/L	0.00
Spiked Amount 50.000	Range 78 - 129		Recovery = 95.64%			
103) 4-bromofluorobenzene (s)	15.679	95	87636	43.46	ug/L	0.00
Spiked Amount 50.000	Range 72 - 130		Recovery = 86.92%			

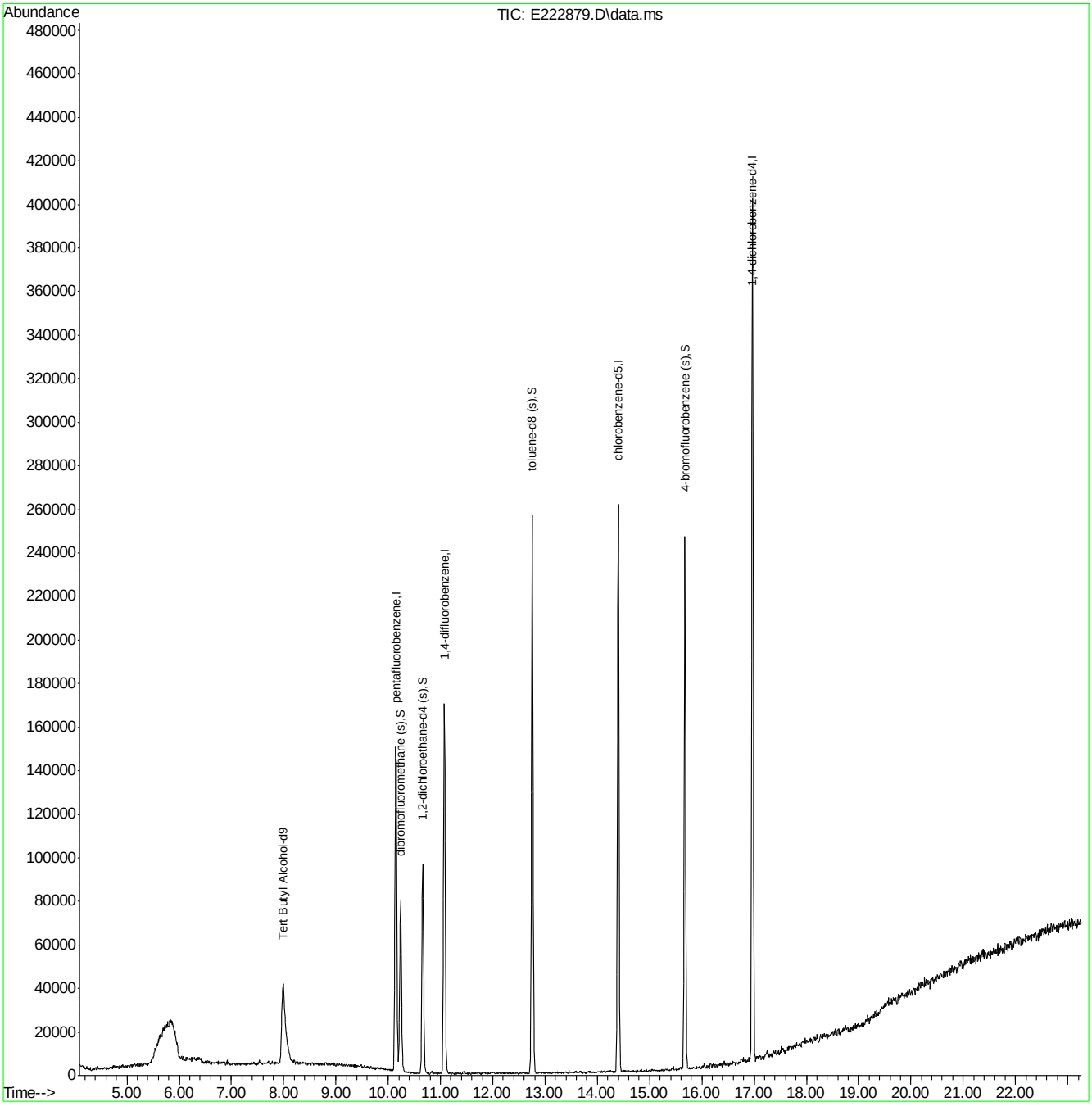
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E222879.D
Acq On : 15 Jan 2015 10:27 am
Operator : ThienN
Sample : mb1
Misc : MS79544,VE9772,5,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 15 14:01:38 2015
Quant Method : C:\msdchem\1\METHODS\ME9767.M
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jan 13 14:28:03 2015
Response via : Initial Calibration



ME9767.M Thu Jan 15 14:08:00 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6378\
Data File : V150488.D
Acq On : 9 Jan 2015 1:48 pm
Operator : BenM
Sample : mb
Misc : MS79439,VV6378,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 10 11:11:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Sep 03 15:49:49 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.188	65	63613	500.00	ug/L	-0.02
4) pentafluorobenzene	9.426	168	212939	50.00	ug/L	-0.01
50) 1,4-difluorobenzene	10.368	114	245039	50.00	ug/L	-0.01
79) chlorobenzene-d5	13.778	117	229209	50.00	ug/L	-0.01
95) 1,4-dichlorobenzene-d4	16.393	152	131020	50.00	ug/L	0.00
System Monitoring Compounds						
46) dibromofluoromethane (s)	9.489	113	74573	50.03	ug/L	-0.02
Spiked Amount 50.000	Range 59 - 130		Recovery = 100.06%			
47) 1,2-dichloroethane-d4 (s)	9.923	65	76686	47.63	ug/L	-0.01
Spiked Amount 50.000	Range 65 - 123		Recovery = 95.26%			
71) toluene-d8 (s)	12.099	98	295836	54.47	ug/L	-0.01
Spiked Amount 50.000	Range 77 - 125		Recovery = 108.94%			
94) 4-bromofluorobenzene (s)	15.080	95	111073	52.09	ug/L	-0.01
Spiked Amount 50.000	Range 71 - 132		Recovery = 104.18%			

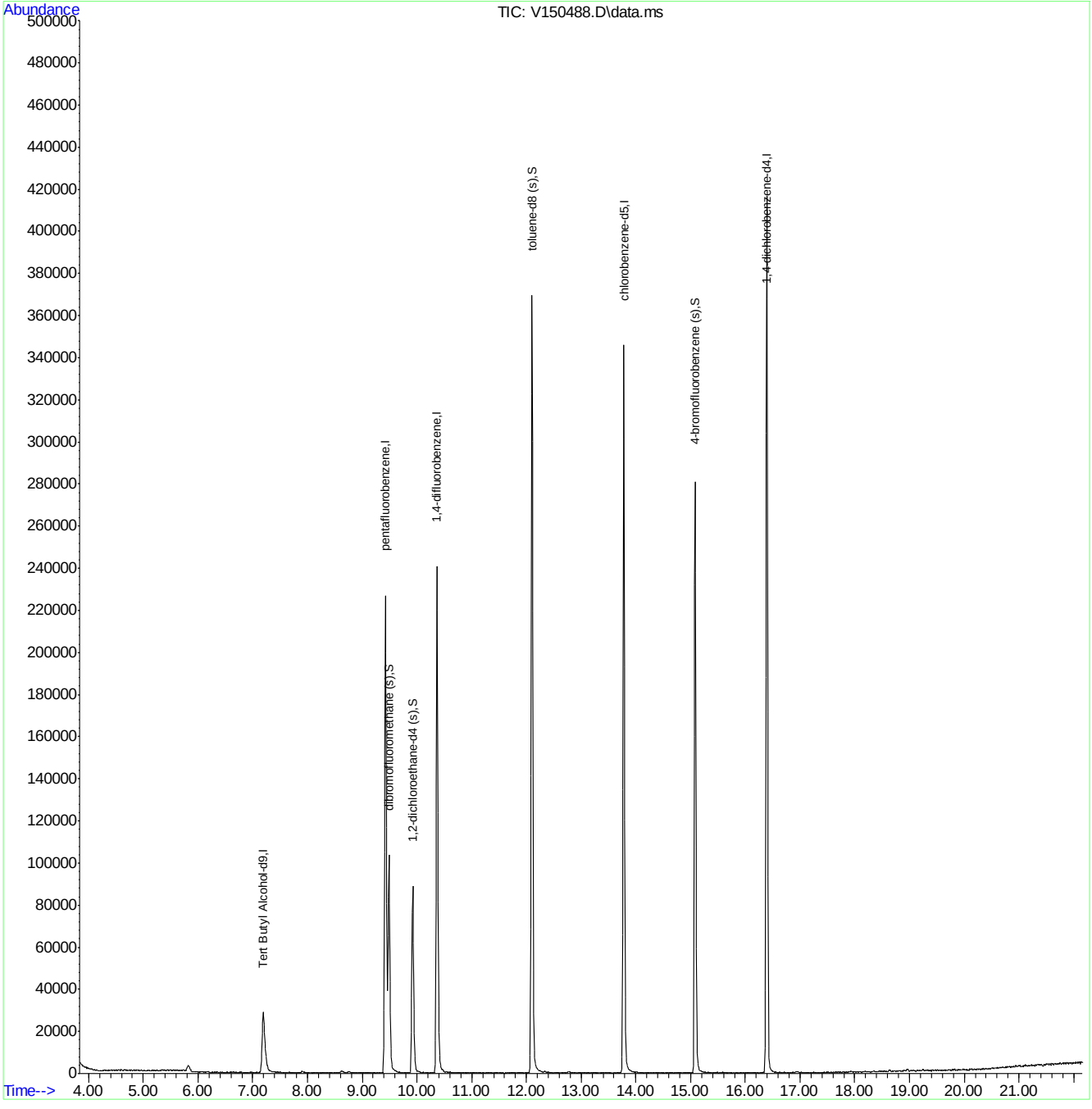
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6378\
Data File : V150488.D
Acq On : 9 Jan 2015 1:48 pm
Operator : BenM
Sample : mb
Misc : MS79439,VV6378,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 10 11:11:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Sep 03 15:49:49 2014
Response via : Initial Calibration



ACCUTEST LABORATORIES JB85833

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6379-6380\
Data File : V150545.D
Acq On : 12 Jan 2015 12:24 pm
Operator : BenM
Sample : mb
Misc : MS79556,VV6380,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 13 14:52:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Jan 05 10:48:07 2015
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.188	65	61411	500.00	ug/L	-0.02
4) pentafluorobenzene	9.421	168	206452	50.00	ug/L	-0.02
50) 1,4-difluorobenzene	10.368	114	230968	50.00	ug/L	-0.01
79) chlorobenzene-d5	13.778	117	219802	50.00	ug/L	-0.01
95) 1,4-dichlorobenzene-d4	16.393	152	124697	50.00	ug/L	0.00
System Monitoring Compounds						
46) dibromofluoromethane (s)	9.484	113	70770	48.98	ug/L	-0.02
Spiked Amount 50.000	Range 48 - 141		Recovery = 97.96%			
47) 1,2-dichloroethane-d4 (s)	9.918	65	71072	45.53	ug/L	-0.02
Spiked Amount 50.000	Range 70 - 120		Recovery = 91.06%			
71) toluene-d8 (s)	12.099	98	278168	54.34	ug/L	-0.01
Spiked Amount 50.000	Range 78 - 129		Recovery = 108.68%			
94) 4-bromofluorobenzene (s)	15.080	95	106896	52.28	ug/L	-0.01
Spiked Amount 50.000	Range 72 - 130		Recovery = 104.56%			

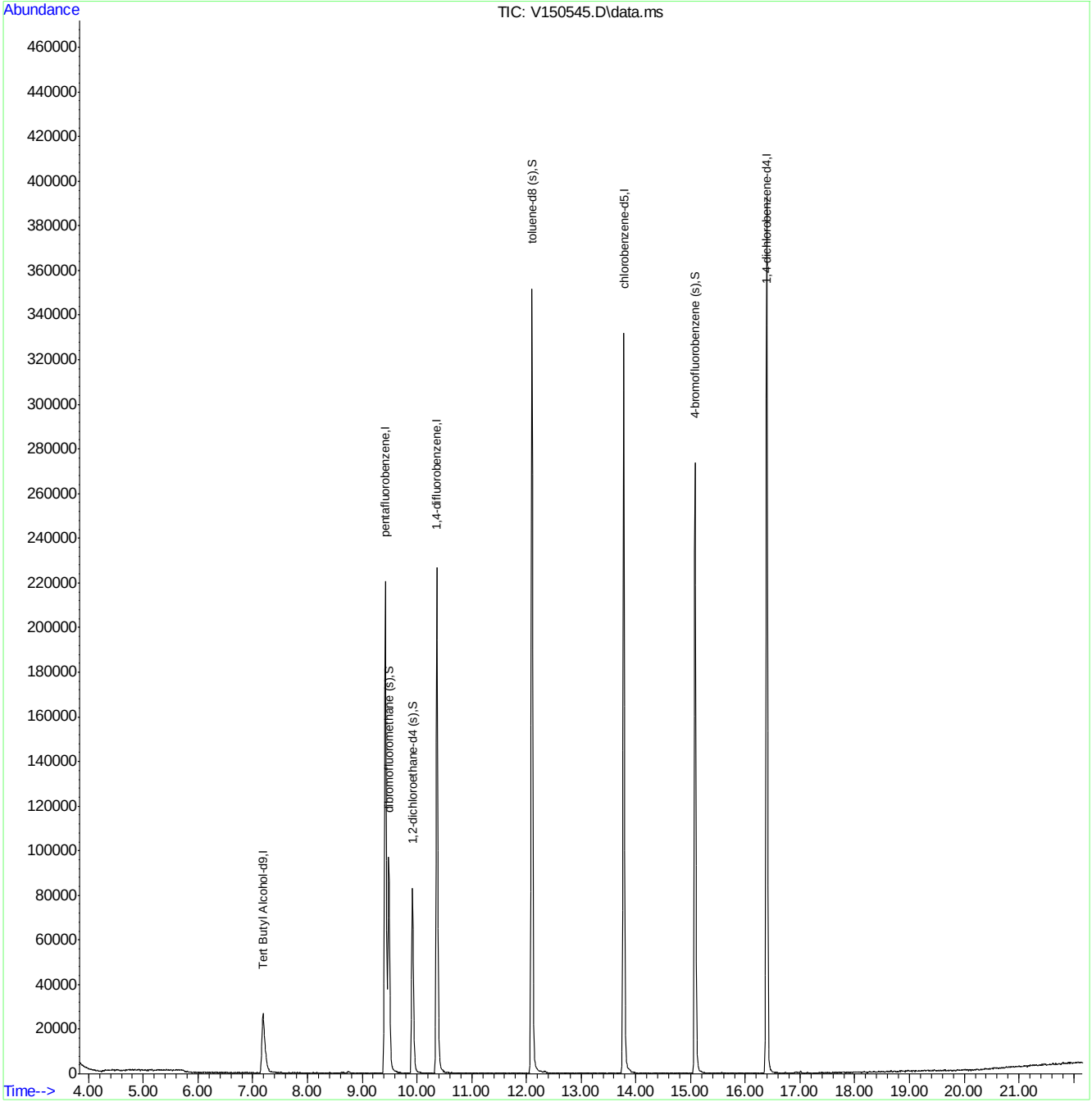
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\v\vv6379-6380\
Data File : V150545.D
Acq On : 12 Jan 2015 12:24 pm
Operator : BenM
Sample : mb
Misc : MS79556,VV6380,5,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 13 14:52:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\MVS6266.M
Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Mon Jan 05 10:48:07 2015
Response via : Initial Calibration



New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81001-MB1	3E68589.D	1	01/09/15	AD	01/09/15	OP81001	E3E2944

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

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	Result	RL	MDL	Units	Q
105-67-9	2,4-Dimethylphenol	ND	170	56	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	670	41	ug/kg	
95-48-7	2-Methylphenol	ND	67	38	ug/kg	
	3&4-Methylphenol	ND	67	42	ug/kg	
100-02-7	4-Nitrophenol	ND	330	56	ug/kg	
108-95-2	Phenol	ND	67	35	ug/kg	
83-32-9	Acenaphthene	ND	33	9.7	ug/kg	
120-12-7	Anthracene	ND	33	12	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	10	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	11	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	13	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	3.9	ug/kg	
218-01-9	Chrysene	ND	33	11	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	11	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	7.4	ug/kg	
84-66-2	Diethyl phthalate	ND	67	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	29	ug/kg	
206-44-0	Fluoranthene	ND	33	15	ug/kg	
86-73-7	Fluorene	ND	33	11	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	12	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	19	ug/kg	
91-20-3	Naphthalene	ND	33	9.1	ug/kg	
85-01-8	Phenanthrene	ND	33	15	ug/kg	
129-00-0	Pyrene	ND	33	13	ug/kg	
110-86-1	Pyridine	ND	67	13	ug/kg	
91-22-5	Quinoline	ND	170	31	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	75%	22-121%
4165-62-2	Phenol-d5	71%	27-119%
118-79-6	2,4,6-Tribromophenol	74%	17-158%
4165-60-0	Nitrobenzene-d5	67%	33-127%

Method Blank Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81001-MB1	3E68589.D	1	01/09/15	AD	01/09/15	OP81001	E3E2944

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

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Surrogate Recoveries		Limits
321-60-8	2-Fluorobiphenyl	63%	41-121%
1718-51-0	Terphenyl-d14	76%	44-137%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.16	4300	ug/kg	J
	system artifact	2.22	250	ug/kg	J
	system artifact	3.33	210	ug/kg	J
	system artifact/aldol-condensation	3.39	400	ug/kg	J
	Total TIC, Semi-Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81001-BS1	3E68590.D	1	01/09/15	AD	01/09/15	OP81001	E3E2944

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

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
105-67-9	2,4-Dimethylphenol	1670	1240	74	53-140
51-28-5	2,4-Dinitrophenol	3330	2030	61	38-145
95-48-7	2-Methylphenol	1670	1200	72	55-116
	3&4-Methylphenol	1670	1170	70	55-114
100-02-7	4-Nitrophenol	1670	1270	76	37-171
108-95-2	Phenol	1670	1190	71	50-114
83-32-9	Acenaphthene	1670	1210	73	58-123
120-12-7	Anthracene	1670	1210	73	58-123
56-55-3	Benzo(a)anthracene	1670	1140	68	56-119
50-32-8	Benzo(a)pyrene	1670	1280	77	55-129
205-99-2	Benzo(b)fluoranthene	1670	1250	75	54-130
191-24-2	Benzo(g,h,i)perylene	1670	1140	68	49-130
207-08-9	Benzo(k)fluoranthene	1670	1280	77	53-124
92-52-4	1,1'-Biphenyl	1670	1140	68	59-121
218-01-9	Chrysene	1670	1180	71	58-125
53-70-3	Dibenzo(a,h)anthracene	1670	1140	68	52-128
84-74-2	Di-n-butyl phthalate	1670	1220	73	59-146
84-66-2	Diethyl phthalate	1670	1190	71	56-132
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1300	78	60-142
206-44-0	Fluoranthene	1670	1150	69	58-125
86-73-7	Fluorene	1670	1210	73	58-124
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1150	69	50-129
91-57-6	2-Methylnaphthalene	1670	1010	61	50-111
91-20-3	Naphthalene	1670	1090	65	48-116
85-01-8	Phenanthrene	1670	1150	69	55-120
129-00-0	Pyrene	1670	1190	71	55-123
110-86-1	Pyridine	1670	958	57	27-103
91-22-5	Quinoline	1670	1020	61	56-125

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	68%	22-121%
4165-62-2	Phenol-d5	71%	27-119%
118-79-6	2,4,6-Tribromophenol	77%	17-158%
4165-60-0	Nitrobenzene-d5	55%	33-127%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81001-BS1	3E68590.D	1	01/09/15	AD	01/09/15	OP81001	E3E2944

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

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	64%	41-121%
1718-51-0	Terphenyl-d14	75%	44-137%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81001-MS	3E68638.D	1	01/12/15	AN	01/09/15	OP81001	E3E2946
OP81001-MSD	3E68592.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
JB85833-1	3E68593.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944

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

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	JB85833-1 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		1990	1200	60	1990	1480	75	21	32-153/36
51-28-5	2,4-Dinitrophenol	ND		3970	317	8* [a]	3970	1480	37	129* [b]	10-138/52
95-48-7	2-Methylphenol	ND		1990	1060	53	1990	1410	71	28	34-129/36
	3&4-Methylphenol	ND		1990	1030	52	1990	1380	69	29	35-129/35
100-02-7	4-Nitrophenol	ND		1990	1420	72	1990	1720	87	19	15-178/41
108-95-2	Phenol	ND		1990	1040	52	1990	1410	71	30	29-126/36
83-32-9	Acenaphthene	20.4	J	1990	1070	53	1990	1480	74	32	32-140/36
120-12-7	Anthracene	18.2	J	1990	1070	53	1990	1490	74	33	32-142/38
56-55-3	Benzo(a)anthracene	76.2		1990	992	46	1990	1460	70	38	30-139/42
50-32-8	Benzo(a)pyrene	61.2		1990	1050	50	1990	1580	76	40	32-145/42
205-99-2	Benzo(b)fluoranthene	57.0		1990	933	44	1990	1460	71	44* [b]	30-147/43
191-24-2	Benzo(g,h,i)perylene	47.4		1990	1040	50	1990	1490	73	36	27-148/41
207-08-9	Benzo(k)fluoranthene	45.1		1990	1050	51	1990	1570	77	40	32-138/41
92-52-4	1,1'-Biphenyl	ND		1990	1050	53	1990	1460	74	33	41-133/35
218-01-9	Chrysene	94.6		1990	948	43	1990	1470	69	43* [b]	31-144/42
53-70-3	Dibenzo(a,h)anthracene	ND		1990	1030	52	1990	1470	74	35	35-141/39
84-74-2	Di-n-butyl phthalate	ND		1990	1160	58	1990	1530	77	28	42-153/37
84-66-2	Diethyl phthalate	ND		1990	1210	61	1990	1500	76	21	45-136/35
117-81-7	bis(2-Ethylhexyl)phthalate	277		1990	1300	52	1990	1880	81	36	42-161/38
206-44-0	Fluoranthene	126		1990	1090	49	1990	1480	68	30	27-146/42
86-73-7	Fluorene	24.1	J	1990	1090	54	1990	1490	74	31	37-138/39
193-39-5	Indeno(1,2,3-cd)pyrene	33.8	J	1990	1010	49	1990	1470	72	37	28-151/41
91-57-6	2-Methylnaphthalene	93.2		1990	910	41	1990	1300	61	35	30-123/36
91-20-3	Naphthalene	19.7	J	1990	946	47	1990	1240	61	27	29-125/38
85-01-8	Phenanthrene	105		1990	1110	51	1990	1550	73	33	28-142/42
129-00-0	Pyrene	169		1990	971	40	1990	1570	71	47* [b]	27-150/42
110-86-1	Pyridine	ND		1990	550	28	1990	983	50	56* [b]	10-110/43
91-22-5	Quinoline	ND		1990	896	45	1990	1270	64	35	27-140/36

CAS No.	Surrogate Recoveries	MS	MSD	JB85833-1	Limits
367-12-4	2-Fluorophenol	52%	69%	64%	22-121%
4165-62-2	Phenol-d5	51%	70%	64%	27-119%
118-79-6	2,4,6-Tribromophenol	49%	60%	60%	17-158%
4165-60-0	Nitrobenzene-d5	44%	57%	60%	33-127%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81001-MS	3E68638.D	1	01/12/15	AN	01/09/15	OP81001	E3E2946
OP81001-MSD	3E68592.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944
JB85833-1	3E68593.D	1	01/10/15	AD	01/09/15	OP81001	E3E2944

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

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Surrogate Recoveries	MS	MSD	JB85833-1	Limits
321-60-8	2-Fluorobiphenyl	46%	64%	60%	41-121%
1718-51-0	Terphenyl-d14	45%	73%	72%	44-137%

(a) Outside control limits due to matrix interference.
(b) Analytical precision exceeds in-house control limits.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2929-DFTPP
Lab File ID: 3E68231.D
Instrument ID: GCMS3E
Injection Date: 12/30/14
Injection Time: 21:11

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	155502	47.5		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	149965	45.8		Pass
70	Less than 2.0% of mass 69	549	0.17	(0.37) [a]	Pass
127	40.0 - 60.0% of mass 198	145106	44.3		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	327680	100.0		Pass
199	5.0 - 9.0% of mass 198	22208	6.78		Pass
275	10.0 - 30.0% of mass 198	92554	28.2		Pass
365	1.0 - 100.0% of mass 198	10298	3.14		Pass
441	Present, but less than mass 443	40141	12.3	(89.4) [b]	Pass
442	40.0 - 100.0% of mass 198	240213	73.3		Pass
443	17.0 - 23.0% of mass 442	44906	13.7	(18.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2929-IC2929	3E68232.D	12/30/14	21:28	00:17	Initial cal 100
E3E2929-IC2929	3E68233.D	12/30/14	21:55	00:44	Initial cal 1
E3E2929-ICC2929	3E68234.D	12/30/14	22:21	01:10	Initial cal 50
E3E2929-IC2929	3E68235.D	12/30/14	22:48	01:37	Initial cal 25
E3E2929-IC2929	3E68236.D	12/30/14	23:14	02:03	Initial cal 80
E3E2929-IC2929	3E68237.D	12/30/14	23:41	02:30	Initial cal 10
E3E2929-IC2929	3E68238.D	12/31/14	00:08	02:57	Initial cal 5
E3E2929-IC2929	3E68239.D	12/31/14	00:34	03:23	Initial cal 2

Instrument Performance Check (DFTPP)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-DFTPP
Lab File ID: 3E68240.D
Instrument ID: GCMS3E
Injection Date: 12/31/14
Injection Time: 08:05

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	98446	54.0		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	90507	49.6		Pass
70	Less than 2.0% of mass 69	459	0.25	(0.51) [a]	Pass
127	40.0 - 60.0% of mass 198	84122	46.1		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	182453	100.0		Pass
199	5.0 - 9.0% of mass 198	12573	6.89		Pass
275	10.0 - 30.0% of mass 198	47490	26.0		Pass
365	1.0 - 100.0% of mass 198	4828	2.65		Pass
441	Present, but less than mass 443	17167	9.41	(76.4) [b]	Pass
442	40.0 - 100.0% of mass 198	112570	61.7		Pass
443	17.0 - 23.0% of mass 442	22470	12.3	(20.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2930-IC2930	3E68241.D	12/31/14	08:37	00:32	Initial cal 100
E3E2930-IC2930	3E68242.D	12/31/14	09:06	01:01	Initial cal 80
E3E2930-ICC2930	3E68243.D	12/31/14	09:33	01:28	Initial cal 50
E3E2930-IC2930	3E68244.D	12/31/14	10:00	01:55	Initial cal 25
E3E2930-IC2930	3E68245.D	12/31/14	10:27	02:22	Initial cal 10
E3E2930-IC2930	3E68246.D	12/31/14	10:54	02:49	Initial cal 5
E3E2930-IC2930	3E68247.D	12/31/14	11:21	03:16	Initial cal 2
E3E2930-IC2930	3E68248.D	12/31/14	11:48	03:43	Initial cal 1
E3E2930-ICV2929	3E68249.D	12/31/14	12:15	04:10	Initial cal verification 50
E3E2930-ICV2929	3E68250.D	12/31/14	12:42	04:37	Initial cal verification 50
E3E2930-ICV2930	3E68250A.D	12/31/14	12:42	04:37	Initial cal verification 50
E3E2930-ICV2930	3E68251A.D	12/31/14	13:09	05:04	Initial cal verification 50
E3E2930-ICV2929	3E68251.D	12/31/14	13:09	05:04	Initial cal verification 50
E3E2930-ICV2929	3E68252.D	12/31/14	13:36	05:31	Initial cal verification 50
E3E2930-ICV2929	3E68253.D	12/31/14	14:03	05:58	Initial cal verification 50
E3E2930-ICV2929	3E68254A.D	12/31/14	14:30	06:25	Initial cal verification 50
E3E2930-ICV2930	3E68254.D	12/31/14	14:30	06:25	Initial cal verification 50
E3E2930-ICV2930	3E68255.D	12/31/14	14:57	06:52	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2944-DFTPP
Lab File ID: 3E68584.D
Instrument ID: GCMS3E
Injection Date: 01/09/15
Injection Time: 20:41

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	175276	53.8		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	163149	50.1		Pass
70	Less than 2.0% of mass 69	641	0.20	(0.39) [a]	Pass
127	40.0 - 60.0% of mass 198	147293	45.2		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	325866	100.0		Pass
199	5.0 - 9.0% of mass 198	21519	6.60		Pass
275	10.0 - 30.0% of mass 198	90954	27.9		Pass
365	1.0 - 100.0% of mass 198	10636	3.26		Pass
441	Present, but less than mass 443	38628	11.9	(90.2) [b]	Pass
442	40.0 - 100.0% of mass 198	226096	69.4		Pass
443	17.0 - 23.0% of mass 442	42834	13.1	(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
E3E2944-CC2929	3E68585.D	01/09/15	20:55	00:14	Continuing cal 25
E3E2944-CC2930	3E68586.D	01/09/15	21:26	00:45	Continuing cal 25
OP81001-MB1	3E68589.D	01/09/15	22:46	02:05	Method Blank
OP81001-BS1	3E68590.D	01/09/15	23:13	02:32	Blank Spike
OP81001-MSD	3E68592.D	01/10/15	00:08	03:27	Matrix Spike Duplicate
JB85833-1	3E68593.D	01/10/15	00:35	03:54	AOI5_BH-15-01_0-2_01072015
ZZZZZZ	3E68594.D	01/10/15	01:01	04:20	(unrelated sample)
JB85833-2	3E68595.D	01/10/15	01:28	04:47	AOI5_BH-15-01_2-4_01072015
JB85833-3	3E68596.D	01/10/15	01:54	05:13	AOI5_BH-15-02_0-2_01072015
JB85833-4	3E68597.D	01/10/15	02:21	05:40	AOI5_BH-15-02_12-14_01072015
JB85833-5	3E68598.D	01/10/15	02:47	06:06	AOI5_BH-15-03_0-2_01072015

Instrument Performance Check (DFTPP)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2945-DFTPP
Lab File ID: 3E68612.D
Instrument ID: GCMS3E
Injection Date: 01/10/15
Injection Time: 08:25

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	152662	48.3		Pass
68	Less than 2.0% of mass 69	352	0.11	(0.24) [a]	Pass
69	Mass 69 relative abundance	146955	46.4		Pass
70	Less than 2.0% of mass 69	538	0.17	(0.37) [a]	Pass
127	40.0 - 60.0% of mass 198	142888	45.2		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	316394	100.0		Pass
199	5.0 - 9.0% of mass 198	21256	6.72		Pass
275	10.0 - 30.0% of mass 198	89749	28.4		Pass
365	1.0 - 100.0% of mass 198	10876	3.44		Pass
441	Present, but less than mass 443	37973	12.0	(84.8) [b]	Pass
442	40.0 - 100.0% of mass 198	236885	74.9		Pass
443	17.0 - 23.0% of mass 442	44797	14.2	(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
E3E2945-CC2929	3E68613.D	01/10/15	08:36	00:11	Continuing cal 50
E3E2945-CC2930	3E68614.D	01/10/15	09:03	00:38	Continuing cal 50
ZZZZZZ	3E68616.D	01/10/15	09:56	01:31	(unrelated sample)
ZZZZZZ	3E68617.D	01/10/15	10:23	01:58	(unrelated sample)
ZZZZZZ	3E68618.D	01/10/15	10:49	02:24	(unrelated sample)
ZZZZZZ	3E68619.D	01/10/15	11:16	02:51	(unrelated sample)
ZZZZZZ	3E68620.D	01/10/15	11:42	03:17	(unrelated sample)
JB85833-6	3E68621.D	01/10/15	12:09	03:44	AOI5_BH-15-03_4-6_01072015
ZZZZZZ	3E68622.D	01/10/15	12:35	04:10	(unrelated sample)
JB85833-8	3E68624.D	01/10/15	13:28	05:03	AOI5_BH-15-04_4-6_01072015
ZZZZZZ	3E68625.D	01/10/15	13:54	05:29	(unrelated sample)
ZZZZZZ	3E68626.D	01/10/15	14:21	05:56	(unrelated sample)
ZZZZZZ	3E68627.D	01/10/15	14:47	06:22	(unrelated sample)
JB85833-7	3E68628.D	01/10/15	15:14	06:49	AOI5_BH-15-04_0-2_01072015

Instrument Performance Check (DFTPP)

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2946-DFTPP
Lab File ID: 3E68629.D
Instrument ID: GCMS3E
Injection Date: 01/12/15
Injection Time: 08:47

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	136198	46.3		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	134729	45.8		Pass
70	Less than 2.0% of mass 69	398	0.14	(0.30) [a]	Pass
127	40.0 - 60.0% of mass 198	129618	44.1		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	294037	100.0		Pass
199	5.0 - 9.0% of mass 198	20541	6.99		Pass
275	10.0 - 30.0% of mass 198	80336	27.3		Pass
365	1.0 - 100.0% of mass 198	8878	3.02		Pass
441	Present, but less than mass 443	33848	11.5	(82.9) [b]	Pass
442	40.0 - 100.0% of mass 198	211605	72.0		Pass
443	17.0 - 23.0% of mass 442	40808	13.9	(19.3) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2946-CC2929	3E68630.D	01/12/15	09:01	00:14	Continuing cal 25
E3E2946-CC2930	3E68631.D	01/12/15	09:32	00:45	Continuing cal 25
JB85833-7	3E68635.D	01/12/15	11:24	02:37	AOI5_BH-15-04_0-2_01072015
ZZZZZZ	3E68636.D	01/12/15	11:51	03:04	(unrelated sample)
ZZZZZZ	3E68637.D	01/12/15	12:18	03:31	(unrelated sample)
OP81001-MS	3E68638.D	01/12/15	12:45	03:58	Matrix Spike
ZZZZZZ	3E68639.D	01/12/15	13:12	04:25	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E3E2944-CC2929	**Injection Date:**	01/09/15
Lab File ID:	3E68585.D	**Injection Time:**	20:55
Instrument ID:	GCMS3E	**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	172065	4.58	657331	5.66	429716	7.74	796480	9.87	867965	14.05	777646	16.17
Upper Limit [a]	344130	5.08	1314662	6.16	859432	8.24	1592960	10.37	1735930	14.55	1555292	16.67
Lower Limit [b]	86033	4.08	328666	5.16	214858	7.24	398240	9.37	433983	13.55	388823	15.67

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
OP81001-MB1	209943	4.58	800198	5.66	503356	7.73	908519	9.87	917588	14.05	802512	16.17
OP81001-BS1	212378	4.58	921595	5.66	512662	7.73	896134	9.87	927986	14.05	745249	16.17
OP81001-MSD	219561	4.58	936305	5.66	495537	7.74	846341	9.88	855892	14.06	718357	16.18
JB85833-1	200497	4.58	747945	5.66	459210	7.74	802446	9.87	743141	14.06	678141	16.17
ZZZZZZ	320010	4.58	1205245	5.67	747719	7.74	1325683	9.88	1571331	14.09	1598674*	16.24
JB85833-2	232622	4.58	846033	5.67	471915	7.74	786854	9.88	729542	14.06	698328	16.18
JB85833-3	222885	4.58	824649	5.66	504590	7.74	856044	9.88	788727	14.05	726879	16.17
JB85833-4	225818	4.58	856314	5.67	471381	7.75	758406	9.89	695844	14.07	647659	16.18
JB85833-5	235921	4.58	851271	5.67	477244	7.74	797612	9.88	750413	14.06	682344	16.17

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: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E3E2945-CC2929	**Injection Date:**	01/10/15
Lab File ID:	3E68613.D	**Injection Time:**	08:36
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	189640	4.58	751312	5.66	485734	7.74	896748	9.88	1008603	14.06	861870	16.18
Upper Limit [a]	379280	5.08	1502624	6.16	971468	8.24	1793496	10.38	2017206	14.56	1723740	16.68
Lower Limit [b]	94820	4.08	375656	5.16	242867	7.24	448374	9.38	504302	13.56	430935	15.68

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
ZZZZZZ	193963	4.58	750754	5.66	464000	7.74	828012	9.87	816187	14.06	692715	16.17
ZZZZZZ	202656	4.58	852061	5.67	470443	7.75	799001	9.89	791139	14.05	732218	16.17
ZZZZZZ	209548	4.58	815172	5.66	509912	7.73	920243	9.87	894839	14.05	784063	16.17
ZZZZZZ	346486	4.59	1201957	5.69	877622	7.88	1115171	10.02	964571	14.11	930551	16.25
ZZZZZZ	205862	4.58	909141	5.67	467933	7.77	773381	9.90	738161	14.05	686594	16.17
JB85833-6	201349	4.58	751642	5.66	459615	7.74	781713	9.88	775353	14.05	712957	16.17
ZZZZZZ	208514	4.58	779848	5.66	491534	7.73	875295	9.87	820571	14.05	731580	16.17
JB85833-8	262967	4.59	1051765	5.69	575421	7.78	946603	9.94	932172	14.11	844834	16.22
ZZZZZZ	233436	4.58	853767	5.67	538831	7.74	943794	9.88	983712	14.07	942299	16.18
ZZZZZZ	208745	4.58	762923	5.66	472719	7.74	824720	9.88	810139	14.07	788999	16.18
ZZZZZZ	193229	4.58	728029	5.66	448439	7.74	795838	9.88	765139	14.06	746751	16.18
JB85833-7 [c]	279555	4.59	1004220	5.71	627015	7.81	919345	9.96	840126	14.13	792137	16.25

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) Dilution required due to viscosity of the extract matrix

Semivolatile Internal Standard Area Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Check Std:	E3E2946-CC2929	**Injection Date:**	01/12/15
Lab File ID:	3E68630.D	**Injection Time:**	09:01
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	204060	4.58	800009	5.66	510185	7.73	944631	9.87	1108107	14.06	1079104	16.17
Upper Limit [a]	408120	5.08	1600018	6.16	1020370	8.23	1889262	10.37	2216214	14.56	2158208	16.67
Lower Limit [b]	102030	4.08	400005	5.16	255093	7.23	472316	9.37	554054	13.56	539552	15.67

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
JB85833-7	168422	4.57	652625	5.66	416903	7.73	751073	9.86	856505	14.04	825926	16.17
ZZZZZZ	160843	4.57	619410	5.66	383534	7.73	687424	9.86	752980	14.04	727350	16.17
ZZZZZZ	174255	4.57	697247	5.66	396209	7.73	707096	9.87	767558	14.04	727408	16.16
OP81001-MS	367936	4.58	1511966	5.66	830687	7.73	1450451	9.87	1730947	14.06	1504257	16.18
ZZZZZZ	161248	4.57	633459	5.66	403313	7.73	731710	9.86	828135	14.05	790437	16.18

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: JB85833
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
JB85833-1	3E68593.D	64	64	60	60	60	72
JB85833-2	3E68595.D	64	62	78	70	65	69
JB85833-3	3E68596.D	66	67	63	64	63	77
JB85833-4	3E68597.D	59	63	87	61	61	72
JB85833-5	3E68598.D	67	66	78	66	63	73
JB85833-6	3E68621.D	69	68	74	63	62	76
JB85833-7	3E68635.D	66	128* [a]	54	41	53	51
JB85833-7	3E68628.D	49	134* [a]	90	123	65	80
JB85833-8	3E68624.D	58	72	94	122	73	81
OP81001-BS1	3E68590.D	68	71	77	55	64	75
OP81001-MB1	3E68589.D	75	71	74	67	63	76
OP81001-MS	3E68638.D	52	51	49	44	46	45
OP81001-MSD	3E68592.D	69	70	60	57	64	73

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

(a) Outside control limits due to dilution and matrix interference.

Initial Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2929-ICC2929
Lab FileID: 3E68234.D

Response Factor Report MS3E

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 10:43:46 2014
Last Update : Wed Dec 31 10:43:46 2014
Response via : Initial Calibration

Calibration Files
2 =3E68239.D 5 =3E68238.D 25 =3E68235.D 80 =3E68236.D
100 =3E68232.D 50 =3E68234.D 1 =3E68233.D 10 =3E68237.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.927	0.677	0.692	0.674	0.670	0.684	0.848	0.770	0.743	13.06
3) Pyridine	2.122	1.857	1.816	1.886	1.859	1.885	1.984	2.087	1.937	5.90
4) N-Nitrosodim	1.380	1.087	1.147	1.150	1.126	1.148	1.317	1.328	1.210	9.25
5) 2-Fluorophen	1.776	1.419	1.484	1.545	1.542	1.522	1.632	1.667	1.573	7.18
6) Indene	3.238	2.438	2.537	2.666	2.676	2.572	2.921	2.934	2.748	9.61
7) Cumene	5.054	3.818	3.898	3.994	3.935	3.905	4.624	4.405	4.204	10.59
8) Phenol-d5	2.415	1.931	1.988	2.100	2.062	2.026	2.372	2.273	2.146	8.53
9) Phenol	2.915	2.277	2.361	2.460	2.456	2.396	2.658	2.692	2.527	8.35
10) Aniline	3.422	2.645	2.822	2.563	2.470	2.835	3.163	3.096	2.877	11.37
11) bis(2-Chloro	1.983	1.523	1.550	1.595	1.602	1.565	1.860	1.799	1.685	10.18
12) 2-Chlorophen	1.907	1.423	1.467	1.522	1.528	1.491	1.663	1.669	1.584	9.94
13) Decane	3.088	2.389	2.383	2.306	2.232	2.327	2.941	2.804	2.559	12.97
14) 1,3-Dichloro	2.174	1.583	1.625	1.673	1.672	1.609	1.905	1.865	1.763	11.57
15) 1,4-Dichloro	2.150	1.649	1.631	1.718	1.713	1.651	1.867	1.915	1.787	10.07
16) Benzyl alcoh	1.357	1.025	1.085	1.107	1.113	1.078	1.204	1.231	1.150	9.33
17) 1,2-Dichloro	2.016	1.506	1.535	1.622	1.633	1.557	1.740	1.774	1.673	10.02
18) Acetophenone	2.848	2.167	2.235	2.286	2.290	2.254	2.596	2.601	2.410	10.00
19) 2-Methylphen	1.839	1.383	1.500	1.565	1.577	1.555	1.631	1.701	1.594	8.50
20) 2,2'-oxybis(	0.697	0.524	0.520	0.554	0.559	0.540	0.603	0.600	0.574	10.16
21) 3&4-Methylph	1.794	1.502	1.639	1.715	1.742	1.692	1.659	1.871	1.702	6.47
22) n-Nitroso-di	1.708	1.278	1.349	1.357	1.355	1.352	1.662	1.559	1.452	11.37
23) Hexachloroet	0.814	0.631	0.645	0.681	0.677	0.653	0.726	0.765	0.699	9.18
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.736	0.563	0.577	0.617	0.612	0.598	0.665	0.678	0.631	9.24
26) Nitrobenzene	0.658	0.504	0.506	0.544	0.541	0.532	0.591	0.609	0.561	9.64
27) Quinoline	0.865	0.687	0.716	0.752	0.749	0.757	0.787	0.860	0.772	8.23
28) Isophorone	1.009	0.801	0.819	0.869	0.864	0.870	0.931	0.957	0.890	7.91
29) 2-Nitropheno	0.236	0.196	0.212	0.238	0.240	0.224	0.243	0.250	0.230	7.81
30) 2,4-Dimethyl	0.417	0.331	0.388	0.410	0.413	0.415	0.355	0.411	0.392	8.31
31) Benzoic acid		0.215	0.294	0.350	0.358	0.327		0.313	0.309	16.74
32) bis(2-Chloro	0.593	0.463	0.477	0.513	0.508	0.505	0.545	0.565	0.521	8.43
33) 2,4-Dichloro	0.322	0.286	0.312	0.353	0.354	0.341	0.303	0.357	0.328	8.12
34) 2,6-Dichloro	0.391	0.300	0.320	0.348	0.351	0.342	0.319	0.369	0.343	8.54
35) 1,3,5-Trichl	0.504	0.398	0.401	0.446	0.446	0.432	0.495	0.471	0.449	8.75
36) 1,2,4-Trichl	0.478	0.371	0.369	0.402	0.400	0.387	0.454	0.432	0.412	9.61
37) 1,2,3-Trichl	0.490	0.386	0.377	0.423	0.419	0.408	0.440	0.444	0.423	8.46
38) Naphthalene	1.396	1.095	1.074	1.178	1.185	1.146	1.283	1.279	1.205	8.96
39) 4-Chloroanil	0.569	0.453	0.477	0.492	0.484	0.506	0.537	0.544	0.508	7.71
40) 2,3-Dichloro	0.498	0.397	0.401	0.432	0.437	0.424	0.456	0.471	0.439	7.78
41) Caprolactam	0.309	0.244	0.257	0.271	0.274	0.267	0.296	0.307	0.278	8.54
42) Hexachlorobu	0.282	0.216	0.220	0.242	0.237	0.232	0.264	0.263	0.244	9.44
43) 4-Chloro-3-m	0.440	0.337	0.354	0.367	0.369	0.364	0.397	0.415	0.380	8.95
44) 2-Methylnaph	0.830	0.668	0.672	0.717	0.720	0.706	0.762	0.793	0.734	7.81
45) 1-Methylnaph	0.842	0.634	0.645	0.702	0.699	0.689	0.754	0.765	0.716	9.52

Initial Calibration Summary

Job Number: JB85833 **Sample:** E3E2929-ICC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68234.D
Project: Sunoco - Marcus Hook Facility, PA

```
 46) Dimethylnaph 0.910 0.701 0.724 0.770 0.764 0.761 0.807 0.853 0.786   8.71

 47) I   Acenaphthene-d10      ----------------ISTD---------------------
 48) Hexachlorocy 0.293 0.267 0.338 0.446 0.444 0.402       0.375 0.367  19.24
 49) 2,4,6-Trichl 0.421 0.351 0.377 0.450 0.454 0.414 0.435 0.437 0.417   8.64
 50) 2,4,5-Trichl 0.483 0.400 0.411 0.472 0.485 0.455 0.484 0.495 0.461   7.81
 51) 2-Fluorobiph 1.987 1.591 1.553 1.767 1.758 1.668 1.903 1.855 1.760   8.61
 52) 2-Chloronaph 1.404 1.150 1.094 1.237 1.250 1.190 1.348 1.318 1.249   8.35
 53) Biphenyl     1.924 1.524 1.491 1.709 1.706 1.605 1.852 1.757 1.696   8.92
 54) 2-Nitroanili 0.584 0.481 0.490 0.535 0.540 0.514 0.562 0.586 0.536   7.42
 55) Dimethylphth 1.576 1.267 1.267 1.371 1.379 1.342 1.532 1.512 1.406   8.54
 56) Acenaphthyle 2.087 1.687 1.707 1.933 1.934 1.837 2.096 2.037 1.915   8.36
 57) 2,6-Dinitrot 0.353 0.285 0.292 0.341 0.344 0.321 0.327 0.348 0.326   7.91
 58) 3-Nitroanili 0.363 0.313 0.322 0.352 0.351 0.343 0.360 0.367 0.346   5.61
 59) Acenaphthene 1.424 1.149 1.132 1.244 1.256 1.200 1.400 1.373 1.272   8.96
 60) 2,4-Dinitrop             0.190 0.250 0.248 0.212       0.202 0.220  12.31
 61) 4-Nitropheno 0.143 0.154 0.166 0.186 0.186 0.173 0.168 0.189 0.171   9.62
 62) Dibenzofuran 2.085 1.665 1.637 1.812 1.828 1.723 1.993 1.967 1.839   8.86
 63) 2,4-Dinitrot 0.426 0.370 0.397 0.427 0.431 0.418 0.430 0.462 0.420   6.40
 64) 2,3,4,6-Tetr 0.373 0.317 0.344 0.397 0.406 0.371 0.354 0.423 0.373   9.34
 65) Diethylphtha 1.397 1.158 1.171 1.255 1.256 1.208 1.388 1.385 1.277   7.80
 66) Fluorene     1.591 1.299 1.283 1.425 1.452 1.365 1.529 1.537 1.435   7.92
 67) 4-Chlorophen 0.897 0.741 0.721 0.795 0.788 0.758 0.848 0.861 0.801   7.78
 68) 4-Nitroanili 0.353 0.311 0.319 0.347 0.336 0.337 0.315 0.382 0.337   6.93

 69) I   Phenanthrene-d10      ----------------ISTD---------------------
 70) 4,6-Dinitro- 0.124 0.118 0.151 0.187 0.191 0.170       0.166 0.158  18.17
 71) n-Nitrosodip 0.644 0.540 0.523 0.598 0.608 0.565 0.626 0.628 0.592   7.49
 72) 1,2-Diphenyl 0.954 0.823 0.786 0.899 0.916 0.872 0.917 0.950 0.889   6.70
 73) 2,4,6-Tribro 0.102 0.092 0.093 0.117 0.122 0.107 0.110 0.108 0.106  10.01
 74) 4-Bromopheny 0.274 0.220 0.214 0.251 0.257 0.237 0.253 0.258 0.245   8.35
 75) Hexachlorobe 0.261 0.222 0.214 0.252 0.255 0.236 0.262 0.261 0.245   7.82
 76) Pentachlorop 0.127 0.121 0.144 0.189 0.200 0.165 0.126 0.162 0.154  19.21
 77) Phenanthrene 1.343 1.085 1.035 1.176 1.191 1.106 1.316 1.263 1.189   9.37
 78) Anthracene   1.294 1.085 1.074 1.194 1.203 1.147 1.274 1.265 1.192   7.10
 79) Carbazole    1.166 0.969 0.946 1.068 1.093 1.013 1.106 1.136 1.062   7.43
 80) Di-n-butylph 1.213 1.017 1.043 1.220 1.242 1.126 1.162 1.258 1.160   7.85
 81) Fluoranthene 1.385 1.164 1.178 1.386 1.409 1.280 1.412 1.440 1.332   8.25
 82) Octadecane   0.750 0.640 0.628 0.727 0.734 0.692 0.720 0.757 0.706   6.89

 83) I   Chrysene-d12          ----------------ISTD---------------------
 84) Pyrene       1.460 1.204 1.114 1.204 1.215 1.134 1.354 1.358 1.255   9.69
 85) Terphenyl-d1 1.066 0.909 0.841 0.939 0.944 0.874 1.023 1.013 0.951   8.15
 86) Butylbenzylp 0.494 0.422 0.407 0.455 0.450 0.429 0.479 0.496 0.454   7.40
 87) Butyl steara 0.425 0.366 0.378 0.424 0.421 0.398 0.438 0.459 0.414   7.50
 88) Benzo[a]anth 1.305 1.083 1.026 1.141 1.152 1.067 1.328 1.252 1.169   9.69
 89) 3,3'-Dichlor 0.481 0.408 0.403 0.465 0.457 0.423 0.473 0.493 0.450   7.66
 90) Chrysene     1.295 1.052 0.974 1.056 1.039 1.009 1.227 1.205 1.107  10.64
 91) bis(2-Ethylh 0.640 0.559 0.564 0.623 0.624 0.592 0.660 0.689 0.619   7.30

 92) I   Perylene-d12          ----------------ISTD---------------------
 93) Di-n-octylph 1.064 0.993 1.035 1.265 1.292 1.134 1.160 1.206 1.144   9.46
 94) Benzo[b]fluo 1.430 1.193 1.102 1.420 1.533 1.235 1.309 1.380 1.325  10.74
 95) Benzo[k]fluo 1.364 1.162 1.215 1.364 1.284 1.251 1.308 1.372 1.290   5.98
 96) Benzo[a]pyre 1.193 1.044 1.041 1.206 1.208 1.102 1.244 1.245 1.160   7.34
 97) Indeno[1,2,3 1.444 1.218 1.222 1.432 1.458 1.304 1.405 1.453 1.367   7.56
 98) Dibenz(a,h)a 1.040 0.899 0.913 1.076 1.116 0.976 1.043 1.073 1.017   7.78
 99) Dibenz[a,h]a 1.233 1.031 1.037 1.228 1.256 1.119 1.187 1.236 1.166   7.87
100) 7,12-Dimethy 0.606 0.526 0.610 0.754 0.767 0.667 0.571 0.661 0.645  13.10
101) Benzo[g,h,i] 1.202 0.999 0.984 1.116 1.136 1.041 1.150 1.158 1.098   7.28
```

8.7.1

8

Initial Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2929-ICC2929
Lab FileID: 3E68234.D

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

          M3E2929.M         Wed Dec 31 10:49:33 2014   MS3E
```

Initial Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICC2930
Lab FileID: 3E68243.D

```
                          Response Factor Report  MS3E

  Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
  Last Update  : Wed Dec 31 12:28:44 2014
  Response via : Initial Calibration

  Calibration Files
  2   =3E68247.D   5   =3E68246.D   25  =3E68244.D   80  =3E68242.D
  100 =3E68241.D   50  =3E68243.D   1   =3E68248.D   10  =3E68245.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  ---------------------------------------------------------------------------


102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.738 1.183 1.572 1.030       1.136 1.409 1.393 1.352  18.65

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.854 0.608 0.684 0.584 0.572 0.642 0.714 0.676 0.667  13.62

106)     Phenanthrene-d10a     ----------------ISTD---------------------
107) Atrazine     0.150 0.107 0.132 0.118 0.115 0.128 0.124 0.133 0.126  10.45
108) o-Terphenyl  0.826 0.603 0.671 0.603 0.591 0.642 0.696 0.692 0.666  11.54
109) 1-Chloroocta 0.494 0.387 0.461 0.403 0.404 0.435 0.405 0.464 0.432   8.79

110) I   Chrysene-d12a         ----------------ISTD---------------------
111) benzidine    0.624 0.553 0.581 0.225       0.358 0.415 0.694 0.493  33.65

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone             0.507 0.438 0.403 0.469       0.391 0.442  10.77

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

           M3E2929.M         Wed Dec 31 13:24:37 2014   MS3E
```

8.7.2

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2929
Lab FileID: 3E68249.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2930\3E68249.D          Vial: 18
Acq On    : 31 Dec 2014  12:15 pm                    Operator: ashleyn
Sample    : icv2929-50                               Inst    : MS3E
Misc      : op80758,e3e2930,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update  : Wed Dec 31 12:28:44 2014
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	92	0.00	4.70
9	t	Phenol	2.527	2.055	18.7	79	0.00	4.48
12	t	2-Chlorophenol	1.584	1.417	10.5	88	0.00	4.57
19	t	2-Methylphenol	1.594	1.400	12.2	83	0.00	4.93
21	t	3&4-Methylphenol	1.702	1.486	12.7	81	0.00	5.04
24	I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	5.81
29	t	2-Nitrophenol	0.230	0.202	12.2	85	0.00	5.47
30	t	2,4-Dimethylphenol	0.392	0.406	-3.6	92	0.00	5.50
31	t	Benzoic acid	0.309	0.269	12.9	77	0.00	5.61
33	t	2,4-Dichlorophenol	0.328	0.318	3.0	87	0.00	5.69
34	t	2,6-Dichlorophenol	0.343	0.322	6.1	88	0.00	5.91
43	t	4-Chloro-3-methylphenol	0.380	0.353	7.1	91	-0.01	6.42
47	I	Acenaphthene-d10	1.000	1.000	0.0	92	0.00	7.91
49	t	2,4,6-Trichlorophenol	0.417	0.380	8.9	85	0.00	6.94
50	t	2,4,5-Trichlorophenol	0.461	0.409	11.3	83	0.00	6.99
60	t	2,4-Dinitrophenol	0.220	0.160	27.3	70	0.00	8.03
61	t	4-Nitrophenol	0.171	0.168	1.8	90	0.00	8.16
64		2,3,4,6-Tetrachlorophenol	0.373	0.337	9.7	84	0.00	8.43
69	I	Phenanthrene-d10	1.000	1.000	0.0	94	0.00	10.06
70	t	4,6-Dinitro-2-methylpheno	0.158	0.136	13.9	75	-0.01	8.83
76	t	Pentachlorophenol	0.154	0.144	6.5	82	0.00	9.90

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 13:32:12 2014 MS3E

8.7.3

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2929
Lab FileID: 3E68250.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E2930\3E68250.D Vial: 19
Acq On : 31 Dec 2014 12:42 pm Operator: ashleyn
Sample : icv2929-50 Inst : MS3E
Misc : op80758,e3e2930, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update : Wed Dec 31 12:28:44 2014
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	109	0.00	4.70
4	t	N-Nitrosodimethylamine	1.210	1.098	9.3	104	0.00	2.62
11	t	bis(2-Chloroethyl)ether	1.685	1.523	9.6	106	0.00	4.52
14	t	1,3-Dichlorobenzene	1.763	1.527	13.4	103	0.00	4.67
15	t	1,4-Dichlorobenzene	1.787	1.611	9.8	106	0.00	4.71
17	t	1,2-Dichlorobenzene	1.673	1.495	10.6	105	0.00	4.86
20	t	2,2'-oxybis(1-Chloropropa	0.574	0.504	12.2	102	0.00	4.94
22	t	n-Nitroso-di-n-propylamin	1.452	1.219	16.0	98	0.00	5.05
23	t	Hexachloroethane	0.699	0.626	10.4	104	0.00	5.11
24	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	5.81
26	t	Nitrobenzene	0.561	0.504	10.2	102	0.00	5.18
28	t	Isophorone	0.890	0.898	-0.9	111	0.00	5.38
32	t	bis(2-Chloroethoxy)methan	0.521	0.499	4.2	107	0.00	5.58
36	t	1,2,4-Trichlorobenzene	0.412	0.377	8.5	105	0.00	5.77
38	t	Naphthalene	1.205	1.095	9.1	103	0.00	5.83
42	t	Hexachlorobutadiene	0.244	0.220	9.8	102	0.00	6.02
47	I	Acenaphthene-d10	1.000	1.000	0.0	104	0.00	7.91
48	t	Hexachlorocyclopentadiene	0.367	0.368	-0.3	96	0.00	6.84
52	t	2-Chloronaphthalene	1.249	1.122	10.2	98	0.00	7.16
55	t	Dimethylphthalate	1.406	1.276	9.2	99	0.00	7.62
56	t	Acenaphthylene	1.915	1.698	11.3	96	0.00	7.71
57	t	2,6-Dinitrotoluene	0.326	0.295	9.5	96	0.00	7.70
59	t	Acenaphthene	1.272	1.219	4.2	106	0.00	7.96
63	t	2,4-Dinitrotoluene	0.420	0.373	11.2	93	0.00	8.25
65	t	Diethylphthalate	1.277	1.168	8.5	101	0.00	8.63
66	t	Fluorene	1.435	1.339	6.7	102	0.00	8.67
67	t	4-Chlorophenyl-phenylethe	0.801	0.720	10.1	99	0.00	8.69
69	I	Phenanthrene-d10	1.000	1.000	0.0	105	0.00	10.06
71	t	n-Nitrosodiphenylamine	0.592	0.500	15.5	93	0.00	8.88
72	t	1,2-Diphenylhydrazine	0.889	0.874	1.7	105	0.00	8.92
74	t	4-Bromophenyl-phenylether	0.245	0.225	8.2	100	0.00	9.41
75	t	Hexachlorobenzene	0.245	0.220	10.2	98	0.00	9.62
77	t	Phenanthrene	1.189	1.074	9.7	102	0.00	10.10
78	t	Anthracene	1.192	1.115	6.5	102	0.00	10.17
80	t	Di-n-butylphthalate	1.160	1.056	9.0	98	0.00	11.15
81	t	Fluoranthene	1.332	1.216	8.7	100	0.00	11.96
83	I	Chrysene-d12	1.000	1.000	0.0	97	0.00	14.26
84	t	Pyrene	1.255	1.149	8.4	99	0.00	12.31

Initial Calibration Verification

Job Number: JB85833 **Sample:** E3E2930-ICV2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68250.D
Project: Sunoco - Marcus Hook Facility, PA

86	t	Butylbenzylphthalate	0.454	0.418	7.9	95	0.00	13.51
88	t	Benzo[a]anthracene	1.169	1.030	11.9	94	0.00	14.24
90	t	Chrysene	1.107	1.033	6.7	100	0.00	14.30
91	t	bis(2-Ethylhexyl)phthalat	0.619	0.572	7.6	94	0.00	14.51
92	I	Perylene-d12	1.000	1.000	0.0	93	0.00	16.38
93	t	Di-n-octylphthalate	1.144	1.125	1.7	93	0.00	15.43
94	t	Benzo[b]fluoranthene	1.325	1.201	9.4	91	0.00	15.86
95	t	Benzo[k]fluoranthene	1.290	1.189	7.8	89	0.00	15.90
96	t	Benzo[a]pyrene	1.160	1.137	2.0	96	0.00	16.30
97	t	Indeno[1,2,3-cd]pyrene	1.367	1.218	10.9	87	-0.01	17.97
99	t	Dibenz[a,h]anthracene	1.166	1.059	9.2	88	0.00	18.01
101	t	Benzo[g,h,i]perylene	1.098	1.006	8.4	90	0.00	18.41

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 13:36:51 2014 MS3E

8.7.4
8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA
Sample: E3E2930-ICV2930
Lab FileID: 3E68250A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2930\3E68250a.D         Vial: 19
Acq On    : 31 Dec 2014  12:42 pm                    Operator: ashleyn
Sample    : icv2930-50                               Inst    : MS3E
Misc      : op80758,e3e2930,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update  : Wed Dec 31 12:28:44 2014
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	89	0.00	7.91
105	1,2,4,5-Tetrachlorobenzen	0.667	0.623	6.6	86	0.00	6.82

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 13:40:25 2014 MS3E

8.7.5

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2930
Lab FileID: 3E68251A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2930\3E68251a.D         Vial: 20
Acq On    : 31 Dec 2014   1:09 pm                    Operator: ashleyn
Sample    : icv2930-50                               Inst    : MS3E
Misc      : op80758,e3e2930,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update  : Wed Dec 31 12:28:44 2014
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	98	0.00	4.70
103	Benzaldehyde	1.352	1.210	10.5	105	0.00	4.38
104	Acenaphthene-d10a	1.000	1.000	0.0	86	0.00	7.91
106	Phenanthrene-d10a	1.000	1.000	0.0	86	0.00	10.06
107	Atrazine	0.126	0.122	3.2	82	0.00	9.75

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 13:43:52 2014 MS3E

8.7.6

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2929
Lab FileID: 3E68251.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E2930\3E68251.D Vial: 20
Acq On : 31 Dec 2014 1:09 pm Operator: ashleyn
Sample : icv2929-50 Inst : MS3E
Misc : op80758,e3e2930, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update : Wed Dec 31 12:28:44 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	4.70
2	t	1,4-Dioxane	0.743	0.646	13.1	96	0.00	2.29
6	t	Indene	2.748	2.568	6.6	101	0.00	4.92
7	t	Cumene	4.204	3.717	11.6	96	0.00	4.14
13	t	Decane	2.559	2.158	15.7	94	0.00	4.59
18	t	Acetophenone	2.410	2.102	12.8	94	0.00	5.03
24	I	Naphthalene-d8	1.000	1.000	0.0	117	0.00	5.81
27	t	Quinoline	0.772	0.607	21.4	94	0.00	6.18
40	t	2,3-Dichloroaniline	0.439	0.295	32.8#	81	0.00	6.95
41	t	Caprolactam	0.278	0.202	27.3	88	-0.03	6.21
45	t	1-Methylnaphthalene	0.716	0.550	23.2	94	0.00	6.70
46	t	Dimethylnaphthalene	0.786	0.608	22.6	94	0.00	7.34
47	I	Acenaphthene-d10	1.000	1.000	0.0	100	0.00	7.91
53	t	Biphenyl	1.696	1.499	11.6	94	0.00	7.14
69	I	Phenanthrene-d10	1.000	1.000	0.0	102	0.00	10.06
82	t	Octadecane	0.706	0.625	11.5	92	0.00	10.01
92	I	Perylene-d12	1.000	1.000	0.0	87	0.00	16.38
100	t	7,12-Dimethylbenz(a)anthr	0.645	0.526	18.4	69	-0.01	15.89

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 13:42:23 2014 MS3E

8.7.7

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2929
Lab FileID: 3E68252.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E2930\3E68252.D Vial: 21
Acq On : 31 Dec 2014 1:36 pm Operator: ashleyn
Sample : icv2929-50 Inst : MS3E
Misc : op80758,e3e2930, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update : Wed Dec 31 12:28:44 2014
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	83	0.00	4.71
3	t	Pyridine	1.937	1.983	-2.4	87	0.07	2.71
10		Aniline	2.877	2.611	9.2	76	0.00	4.49
16	t	Benzyl alcohol	1.150	1.043	9.3	80	0.00	4.83
24	I	Naphthalene-d8	1.000	1.000	0.0	87	0.00	5.81
39	t	4-Chloroaniline	0.508	0.399	21.5	69	0.00	5.90
44	t	2-Methylnaphthalene	0.734	0.640	12.8	79	0.00	6.57
47	I	Acenaphthene-d10	1.000	1.000	0.0	88	0.00	7.91
54	t	2-Nitroaniline	0.536	0.429	20.0	74	0.00	7.33
58	t	3-Nitroaniline	0.346	0.294	15.0	76	0.00	7.89
62	t	Dibenzofuran	1.839	1.582	14.0	81	0.00	8.18
68	t	4-Nitroaniline	0.337	0.299	11.3	78	-0.01	8.77
69	I	Phenanthrene-d10	1.000	1.000	0.0	88	0.00	10.06
79	t	Carbazole	1.062	0.955	10.1	83	0.00	10.44

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 15:19:41 2014 MS3E

8.7.8

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2929
Lab FileID: 3E68253.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2930\3E68253.D          Vial: 22
Acq On    : 31 Dec 2014   2:03 pm                    Operator: ashleyn
Sample    : icv2929-50                               Inst    : MS3E
Misc      : op80758,e3e2930,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update  : Wed Dec 31 12:28:44 2014
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	4.70
5	S	2-Fluorophenol	1.573	1.646	-4.6	109	0.00	3.78
8	S	Phenol-d5	2.146	2.063	3.9	102	0.00	4.47
24	I	Naphthalene-d8	1.000	1.000	0.0	101	0.00	5.81
25	S	Nitrobenzene-d5	0.631	0.525	16.8	89	0.00	5.17
47	I	Acenaphthene-d10	1.000	1.000	0.0	100	0.00	7.91
51	S	2-Fluorobiphenyl	1.760	1.451	17.6	87	0.00	7.04
69	I	Phenanthrene-d10	1.000	1.000	0.0	100	0.00	10.06
73	S	2,4,6-Tribromophenol	0.106	0.098	7.5	91	0.00	9.05
83	I	Chrysene-d12	1.000	1.000	0.0	89	-0.01	14.25
85	S	Terphenyl-d14	0.951	0.913	4.0	93	0.00	12.63

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3E68243.D  M3E2929.M        Wed Dec 31 15:22:16 2014   MS3E
```

8.7.9

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2930
Lab FileID: 3E68254.D

```
                    Evaluate Continuing Calibration Report

  Data File : C:\msdchem\1\DATA\E3E2930\3E68254.D          Vial: 23
  Acq On    : 31 Dec 2014   2:30 pm                    Operator: ashleyn
  Sample    : icv2930-50                               Inst    : MS3E
  Misc      : op80758,e3e2930,                         Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
  Last Update  : Wed Dec 31 12:28:44 2014
  Response via : Multiple Level Calibration

  Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
  Max. RRF Dev :  30%     Max. Rel. Area : 200%

         Compound                   AvgRF   CCRF      %Dev Area%  Dev(min)R.T.
  ---------------------------------------------------------------------------

110 I   Chrysene-d12a               1.000   1.000      0.0  159   0.00   14.26
111 T   benzidine                   0.493   1.072    -117.4# 475#  0.01   12.23

 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range               SPCC's out = 0  CCC's out = 0
     3E68243.D  M3E2929.M        Wed Dec 31 15:25:19 2014   MS3E
```

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2929
Lab FileID: 3E68254A.D

```
                    Evaluate Continuing Calibration Report

 Data File : C:\msdchem\1\DATA\E3E2930\3E68254a.D         Vial: 23
 Acq On    : 31 Dec 2014   2:30 pm                    Operator: ashleyn
 Sample    : icv2929-50                               Inst    : MS3E
 Misc      : op80758,e3e2930,                         Multiplr: 1.00
 MS Integration Params: lscint.p

 Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
 Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
 Last Update  : Wed Dec 31 12:28:44 2014
 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  184   0.00   14.26
89 t   3,3'-Dichlorobenzidine       0.450   0.621    -38.0# 271#  0.00   14.26

 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

   (#) = Out of Range               SPCC's out = 0  CCC's out = 0
    3E68243.D  M3E2929.M        Wed Dec 31 15:26:00 2014   MS3E
```

8.7.11

8

Initial Calibration Verification

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2930-ICV2930
Lab FileID: 3E68255.D

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\E3E2930\3E68255.D          Vial: 24
  Acq On    : 31 Dec 2014   2:57 pm                    Operator: ashleyn
  Sample    : icv2930-50                               Inst    : MS3E
  Misc      : op80758,e3e2930,                         Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
  Last Update  : Wed Dec 31 12:28:44 2014
  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	164	0.00	5.81
113 T	Hydroquinone	0.442	0.354	19.9	124	0.01	6.26

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Wed Dec 31 15:27:03 2014 MS3E

8.7.12

8

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2944-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68585.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E2944\3E68585.D Vial: 2
Acq On : 9 Jan 2015 8:55 pm Operator: ashleyd
Sample : cc2929-25 Inst : MS3E
Misc : op80963,e3e2944 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update : Wed Dec 31 12:28:44 2014
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	97	-0.12	4.58
2	t	1,4-Dioxane	0.743	0.673	9.4	94	-0.15	2.14
3	t	Pyridine	1.937	1.773	8.5	94	-0.14	2.49
4	t	N-Nitrosodimethylamine	1.210	1.096	9.4	92	-0.14	2.49
5	S	2-Fluorophenol	1.573	1.426	9.3	93	-0.11	3.67
6	t	Indene	2.748	2.533	7.8	96	-0.13	4.80
7	t	Cumene	4.204	3.949	6.1	98	-0.12	4.02
8	S	Phenol-d5	2.146	2.006	6.5	97	-0.10	4.37
9	t	Phenol	2.527	2.383	5.7	97	-0.11	4.38
10		Aniline	2.877	2.758	4.1	94	-0.12	4.37
11	t	bis(2-Chloroethyl)ether	1.685	1.545	8.3	96	-0.12	4.41
12	t	2-Chlorophenol	1.584	1.443	8.9	95	-0.11	4.46
13	t	Decane	2.559	2.490	2.7	101	-0.12	4.48
14	t	1,3-Dichlorobenzene	1.763	1.589	9.9	94	-0.12	4.56
15	t	1,4-Dichlorobenzene	1.787	1.613	9.7	96	-0.12	4.59
16	t	Benzyl alcohol	1.150	1.078	6.3	96	-0.12	4.71
17	t	1,2-Dichlorobenzene	1.673	1.531	8.5	96	-0.12	4.74
18	t	Acetophenone	2.410	2.236	7.2	97	-0.12	4.91
19	t	2-Methylphenol	1.594	1.524	4.4	98	-0.12	4.82
20	t	2,2'-oxybis(1-Chloropropa	0.574	0.527	8.2	98	-0.12	4.82
21	t	3&4-Methylphenol	1.702	1.655	2.8	97	-0.12	4.93
22	t	n-Nitroso-di-n-propylamin	1.452	1.412	2.8	101	-0.13	4.93
23	t	Hexachloroethane	0.699	0.635	9.2	95	-0.13	4.98
24	I	Naphthalene-d8	1.000	1.000	0.0	94	-0.15	5.66
25	S	Nitrobenzene-d5	0.631	0.627	0.6	103	-0.13	5.04
26	t	Nitrobenzene	0.561	0.541	3.6	101	-0.13	5.05
27	t	Quinoline	0.772	0.747	3.2	98	-0.15	6.03
28	t	Isophorone	0.890	0.879	1.2	101	-0.14	5.25
29	t	2-Nitrophenol	0.230	0.218	5.2	97	-0.13	5.33
30	t	2,4-Dimethylphenol	0.392	0.424	-8.2	103	-0.13	5.37
31	t	Benzoic acid	0.309	0.306	1.0	98	-0.14	5.48
32	t	bis(2-Chloroethoxy)methan	0.521	0.497	4.6	98	-0.14	5.44
33	t	2,4-Dichlorophenol	0.328	0.326	0.6	99	-0.13	5.56
34	t	2,6-Dichlorophenol	0.343	0.331	3.5	98	-0.14	5.77
35		1,3,5-Trichlorobenzene	0.449	0.403	10.2	95	-0.14	5.34
36	t	1,2,4-Trichlorobenzene	0.412	0.377	8.5	96	-0.14	5.63
37		1,2,3-Trichlorobenzene	0.423	0.391	7.6	98	-0.15	5.87
38	t	Naphthalene	1.205	1.110	7.9	97	-0.14	5.68
39	t	4-Chloroaniline	0.508	0.495	2.6	98	-0.14	5.76
40	t	2,3-Dichloroaniline	0.439	0.412	6.2	97	-0.17	6.79
41	t	Caprolactam	0.278	0.274	1.4	101	-0.17	6.08

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2944-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68585.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.244	0.228	6.6	98	-0.15	5.86
43	t	4-Chloro-3-methylphenol	0.380	0.378	0.5	101	-0.15	6.28
44	t	2-Methylnaphthalene	0.734	0.687	6.4	96	-0.16	6.41
45	t	1-Methylnaphthalene	0.716	0.675	5.7	99	-0.17	6.53
46	t	Dimethylnaphthalene	0.786	0.737	6.2	96	-0.18	7.17
47	I	Acenaphthene-d10	1.000	1.000	0.0	94	-0.18	7.74
48	t	Hexachlorocyclopentadiene	0.367	0.286	22.1#	79	-0.17	6.67
49	t	2,4,6-Trichlorophenol	0.417	0.388	7.0	97	-0.16	6.79
50	t	2,4,5-Trichlorophenol	0.461	0.426	7.6	97	-0.16	6.84
51	S	2-Fluorobiphenyl	1.760	1.614	8.3	98	-0.18	6.87
52	t	2-Chloronaphthalene	1.249	1.140	8.7	98	-0.17	6.99
53	t	Biphenyl	1.696	1.542	9.1	97	-0.17	6.98
54	t	2-Nitroaniline	0.536	0.553	-3.2	106	-0.17	7.17
55	t	Dimethylphthalate	1.406	1.338	4.8	99	-0.18	7.45
56	t	Acenaphthylene	1.915	1.769	7.6	97	-0.18	7.53
57	t	2,6-Dinitrotoluene	0.326	0.309	5.2	100	-0.18	7.53
58	t	3-Nitroaniline	0.346	0.332	4.0	97	-0.18	7.72
59	t	Acenaphthene	1.272	1.180	7.2	98	-0.19	7.78
60	t	2,4-Dinitrophenol	0.220	0.165	25.0#	81	-0.17	7.87
61	t	4-Nitrophenol	0.171	0.172	-0.6	98	-0.15	8.02
62	t	Dibenzofuran	1.839	1.666	9.4	96	-0.19	8.00
63	t	2,4-Dinitrotoluene	0.420	0.424	-1.0	100	-0.17	8.08
64		2,3,4,6-Tetrachlorophenol	0.373	0.328	12.1	90	-0.18	8.26
65	t	Diethylphthalate	1.277	1.290	-1.0	103	-0.19	8.44
66	t	Fluorene	1.435	1.325	7.7	97	-0.19	8.49
67	t	4-Chlorophenyl-phenylethe	0.801	0.736	8.1	96	-0.19	8.50
68	t	4-Nitroaniline	0.337	0.330	2.1	97	-0.19	8.59
69	I	Phenanthrene-d10	1.000	1.000	0.0	93	-0.20	9.87
70	t	4,6-Dinitro-2-methylpheno	0.158	0.149	5.7	92	-0.18	8.67
71	t	n-Nitrosodiphenylamine	0.592	0.548	7.4	98	-0.19	8.69
72	t	1,2-Diphenylhydrazine	0.889	0.884	0.6	105	-0.19	8.73
73	S	2,4,6-Tribromophenol	0.106	0.095	10.4	95	-0.19	8.87
74	t	4-Bromophenyl-phenylether	0.245	0.225	8.2	98	-0.19	9.22
75	t	Hexachlorobenzene	0.245	0.219	10.6	96	-0.19	9.43
76	t	Pentachlorophenol	0.154	0.127	17.5	82	-0.19	9.72
77	t	Phenanthrene	1.189	1.080	9.2	97	-0.20	9.90
78	t	Anthracene	1.192	1.105	7.3	96	-0.20	9.97
79	t	Carbazole	1.062	0.966	9.0	95	-0.20	10.25
80	t	Di-n-butylphthalate	1.160	1.130	2.6	101	-0.19	10.95
81	t	Fluoranthene	1.332	1.205	9.5	95	-0.20	11.77
82	t	Octadecane	0.706	0.696	1.4	103	-0.19	9.82
83	I	Chrysene-d12	1.000	1.000	0.0	90	-0.21	14.05
84	t	Pyrene	1.255	1.168	6.9	94	-0.21	12.10
85	S	Terphenyl-d14	0.951	0.869	8.6	93	-0.20	12.43
86	t	Butylbenzylphthalate	0.454	0.460	-1.3	101	-0.20	13.31
87		Butyl stearate	0.414	0.427	-3.1	101	-0.20	13.41
88	t	Benzo[a]anthracene	1.169	1.038	11.2	91	-0.21	14.03
89	t	3,3'-Dichlorobenzidine	0.450	0.408	9.3	91	-0.21	14.05
90	t	Chrysene	1.107	0.955	13.7	88	-0.21	14.09
91	t	bis(2-Ethylhexyl)phthalat	0.619	0.626	-1.1	100	-0.21	14.30
92	I	Perylene-d12	1.000	1.000	0.0	86	-0.21	16.17
93	t	Di-n-octylphthalate	1.144	1.178	-3.0	98	-0.21	15.23
94	t	Benzo[b]fluoranthene	1.325	1.154	12.9	90	-0.21	15.65
95	t	Benzo[k]fluoranthene	1.290	1.170	9.3	83	-0.21	15.69
96	t	Benzo[a]pyrene	1.160	1.043	10.1	86	-0.22	16.09
97	t	Indeno[1,2,3-cd]pyrene	1.367	1.240	9.3	87	-0.29	17.69

Continuing Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2944-CC2929
Lab FileID: 3E68585.D

98	t	Dibenz(a,h)acridine	1.017	0.922	9.3	87	-0.28	17.34
99	t	Dibenz[a,h]anthracene	1.166	1.044	10.5	87	-0.30	17.71
100	t	7,12-Dimethylbenz(a)anthr	0.645	0.607	5.9	86	-0.22	15.68
101	t	Benzo[g,h,i]perylene	1.098	0.990	9.8	87	-0.32	18.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68244.D M3E2929.M Mon Jan 12 10:12:22 2015 MS3E

8.7.13

8

Continuing Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2944-CC2930
Lab FileID: 3E68586.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2944\3E68586.D          Vial: 3
Acq On    :  9 Jan 2015   9:26 pm                    Operator: ashleyd
Sample    : cc2930-25                                Inst    : MS3E
Misc      : op80963,e3e2944                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update  : Wed Dec 31 12:28:44 2014
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	75	-0.12	4.58
103	Benzaldehyde	1.352	1.082	20.0	52	-0.11	4.27
104	Acenaphthene-d10a	1.000	1.000	0.0	69	-0.18	7.73
105	1,2,4,5-Tetrachlorobenzen	0.667	0.552	17.2	55	-0.17	6.65
106	Phenanthrene-d10a	1.000	1.000	0.0	69	-0.19	9.87
107	Atrazine	0.126	0.113	10.3	59	-0.19	9.57
108 I	Chrysene-d12a	1.000	1.000	0.0	75	-0.21	14.05
109 T	benzidine	0.493	0.380	22.9#	49#	-0.20	12.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68244.D M3E2929.M Mon Jan 12 10:13:48 2015 MS3E

8.7.14

8

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2945-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68613.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E2945\3E68613.D Vial: 2
Acq On : 10 Jan 2015 8:36 am Operator: kristis
Sample : cc2929-50 Inst : MS3E
Misc : op80963,e3e2945,1000,,,1,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuSat Jan 10 15:53:18 2015
Last Update : Sat Jan 10 15:53:18 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	94	-0.12	4.58
2	t	1,4-Dioxane	0.743	0.667	10.2	91	-0.16	2.14
3	t	Pyridine	1.937	1.776	8.3	88	-0.14	2.49
4	t	N-Nitrosodimethylamine	1.210	1.120	7.4	91	-0.14	2.49
5	S	2-Fluorophenol	1.573	1.491	5.2	92	-0.11	3.67
6	t	Indene	2.748	2.652	3.5	97	-0.13	4.80
7	t	Cumene	4.204	4.051	3.6	97	-0.12	4.02
8	S	Phenol-d5	2.146	2.111	1.6	98	-0.11	4.37
9	t	Phenol	2.527	2.500	1.1	98	-0.11	4.38
10		Aniline	2.877	2.631	8.6	87	-0.12	4.37
11	t	bis(2-Chloroethyl)ether	1.685	1.591	5.6	95	-0.11	4.41
12	t	2-Chlorophenol	1.584	1.527	3.6	96	-0.11	4.46
13	t	Decane	2.559	2.469	3.5	99	-0.12	4.48
14	t	1,3-Dichlorobenzene	1.763	1.643	6.8	96	-0.12	4.56
15	t	1,4-Dichlorobenzene	1.787	1.723	3.6	98	-0.12	4.59
16	t	Benzyl alcohol	1.150	1.053	8.4	92	-0.12	4.71
17	t	1,2-Dichlorobenzene	1.673	1.608	3.9	97	-0.12	4.74
18	t	Acetophenone	2.410	2.370	1.7	99	-0.12	4.91
19	t	2-Methylphenol	1.594	1.628	-2.1	98	-0.12	4.82
20	t	2,2'-oxybis(1-Chloropropa	0.574	0.553	3.7	96	-0.12	4.82
21	t	3&4-Methylphenol	1.702	1.738	-2.1	96	-0.12	4.93
22	t	n-Nitroso-di-n-propylamin	1.452	1.460	-0.6	101	-0.12	4.94
23	t	Hexachloroethane	0.699	0.682	2.4	98	-0.13	4.98
24	I	Naphthalene-d8	1.000	1.000	0.0	99	-0.15	5.66
25	S	Nitrobenzene-d5	0.631	0.630	0.2	104	-0.13	5.04
26	t	Nitrobenzene	0.561	0.549	2.1	102	-0.13	5.05
27	t	Quinoline	0.772	0.749	3.0	98	-0.15	6.03
28	t	Isophorone	0.890	0.881	1.0	100	-0.13	5.25
29	t	2-Nitrophenol	0.230	0.225	2.2	100	-0.13	5.33
30	t	2,4-Dimethylphenol	0.392	0.397	-1.3	95	-0.13	5.37
31	t	Benzoic acid	0.309	0.331	-7.1	100	-0.11	5.51
32	t	bis(2-Chloroethoxy)methan	0.521	0.497	4.6	98	-0.13	5.45
33	t	2,4-Dichlorophenol	0.328	0.336	-2.4	98	-0.13	5.56
34	t	2,6-Dichlorophenol	0.343	0.332	3.2	96	-0.14	5.77
35		1,3,5-Trichlorobenzene	0.449	0.420	6.5	96	-0.14	5.34
36	t	1,2,4-Trichlorobenzene	0.412	0.383	7.0	98	-0.14	5.63
37		1,2,3-Trichlorobenzene	0.423	0.404	4.5	98	-0.15	5.87
38	t	Naphthalene	1.205	1.137	5.6	98	-0.14	5.68
39	t	4-Chloroaniline	0.508	0.494	2.8	97	-0.14	5.76
40	t	2,3-Dichloroaniline	0.439	0.432	1.6	101	-0.17	6.78
41	t	Caprolactam	0.278	0.269	3.2	100	-0.14	6.10

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2945-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68613.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.244	0.239	2.0	102	-0.16	5.86
43	t	4-Chloro-3-methylphenol	0.380	0.383	-0.8	104	-0.14	6.29
44	t	2-Methylnaphthalene	0.734	0.706	3.8	99	-0.16	6.41
45	t	1-Methylnaphthalene	0.716	0.691	3.5	99	-0.17	6.53
46	t	Dimethylnaphthalene	0.786	0.762	3.1	99	-0.17	7.18
47	I	Acenaphthene-d10	1.000	1.000	0.0	100	-0.18	7.74
48	t	Hexachlorocyclopentadiene	0.367	0.355	3.3	88	-0.17	6.67
49	t	2,4,6-Trichlorophenol	0.417	0.412	1.2	100	-0.16	6.79
50	t	2,4,5-Trichlorophenol	0.461	0.449	2.6	98	-0.16	6.84
51	S	2-Fluorobiphenyl	1.760	1.672	5.0	100	-0.17	6.87
52	t	2-Chloronaphthalene	1.249	1.198	4.1	101	-0.17	6.99
53	t	Biphenyl	1.696	1.638	3.4	102	-0.17	6.98
54	t	2-Nitroaniline	0.536	0.567	-5.8	110	-0.17	7.17
55	t	Dimethylphthalate	1.406	1.370	2.6	102	-0.18	7.45
56	t	Acenaphthylene	1.915	1.851	3.3	101	-0.18	7.53
57	t	2,6-Dinitrotoluene	0.326	0.331	-1.5	103	-0.17	7.53
58	t	3-Nitroaniline	0.346	0.349	-0.9	102	-0.17	7.72
59	t	Acenaphthene	1.272	1.198	5.8	100	-0.18	7.78
60	t	2,4-Dinitrophenol	0.220	0.219	0.5	103	-0.16	7.88
61	t	4-Nitrophenol	0.171	0.181	-5.8	105	-0.14	8.02
62	t	Dibenzofuran	1.839	1.737	5.5	101	-0.18	8.01
63	t	2,4-Dinitrotoluene	0.420	0.433	-3.1	103	-0.17	8.09
64		2,3,4,6-Tetrachlorophenol	0.373	0.346	7.2	93	-0.18	8.26
65	t	Diethylphthalate	1.277	1.303	-2.0	108	-0.18	8.45
66	t	Fluorene	1.435	1.376	4.1	101	-0.19	8.49
67	t	4-Chlorophenyl-phenylethe	0.801	0.770	3.9	102	-0.19	8.51
68	t	4-Nitroaniline	0.337	0.351	-4.2	104	-0.17	8.60
69	I	Phenanthrene-d10	1.000	1.000	0.0	103	-0.19	9.88
70	t	4,6-Dinitro-2-methylpheno	0.158	0.169	-7.0	102	-0.17	8.68
71	t	n-Nitrosodiphenylamine	0.592	0.556	6.1	101	-0.18	8.70
72	t	1,2-Diphenylhydrazine	0.889	0.894	-0.6	106	-0.19	8.74
73	S	2,4,6-Tribromophenol	0.106	0.103	2.8	99	-0.18	8.88
74	t	4-Bromophenyl-phenylether	0.245	0.232	5.3	101	-0.19	9.23
75	t	Hexachlorobenzene	0.245	0.233	4.9	102	-0.19	9.43
76	t	Pentachlorophenol	0.154	0.142	7.8	89	-0.18	9.73
77	t	Phenanthrene	1.189	1.102	7.3	103	-0.19	9.91
78	t	Anthracene	1.192	1.122	5.9	101	-0.19	9.98
79	t	Carbazole	1.062	1.012	4.7	103	-0.19	10.26
80	t	Di-n-butylphthalate	1.160	1.173	-1.1	107	-0.19	10.96
81	t	Fluoranthene	1.332	1.254	5.9	101	-0.20	11.77
82	t	Octadecane	0.706	0.702	0.6	104	-0.18	9.82
83	I	Chrysene-d12	1.000	1.000	0.0	98	-0.20	14.06
84	t	Pyrene	1.255	1.166	7.1	101	-0.20	12.11
85	S	Terphenyl-d14	0.951	0.900	5.4	101	-0.20	12.43
86	t	Butylbenzylphthalate	0.454	0.457	-0.7	105	-0.20	13.31
87		Butyl stearate	0.414	0.422	-1.9	104	-0.19	13.42
88	t	Benzo[a]anthracene	1.169	1.061	9.2	98	-0.20	14.03
89	t	3,3'-Dichlorobenzidine	0.450	0.441	2.0	102	-0.20	14.06
90	t	Chrysene	1.107	0.999	9.8	97	-0.20	14.10
91	t	bis(2-Ethylhexyl)phthalat	0.619	0.637	-2.9	106	-0.20	14.31
92	I	Perylene-d12	1.000	1.000	0.0	92	-0.20	16.18
93	t	Di-n-octylphthalate	1.144	1.275	-11.5	103	-0.20	15.24
94	t	Benzo[b]fluoranthene	1.325	1.271	4.1	95	-0.20	15.66
95	t	Benzo[k]fluoranthene	1.290	1.328	-2.9	98	-0.20	15.70
96	t	Benzo[a]pyrene	1.160	1.116	3.8	93	-0.21	16.10
97	t	Indeno[1,2,3-cd]pyrene	1.367	1.335	2.3	94	-0.28	17.70

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2945-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68613.D
Project: Sunoco - Marcus Hook Facility, PA

98	t	Dibenz(a,h)acridine	1.017	0.989	2.8	93	-0.26	17.36
99	t	Dibenz[a,h]anthracene	1.166	1.141	2.1	94	-0.28	17.73
100	t	7,12-Dimethylbenz(a)anthr	0.645	0.686	-6.4	94	-0.20	15.70
101	t	Benzo[g,h,i]perylene	1.098	1.047	4.6	92	-0.30	18.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Sat Jan 10 15:58:51 2015 MS3E

8.7.15

8

Continuing Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2945-CC2930
Lab FileID: 3E68614.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2945\3E68614.D          Vial: 3
Acq On    : 10 Jan 2015   9:03 am                    Operator: kristis
Sample    : cc2930-50                                Inst    : MS3E
Misc      : op80963,e3e2945,1000,,,1,1               Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuSat Jan 10 16:04:22 2015
Last Update  : Sat Jan 10 16:04:22 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	87	-0.12	4.58
103	Benzaldehyde	1.352	1.012	25.1#	78	-0.11	4.27
104	Acenaphthene-d10a	1.000	1.000	0.0	83	-0.18	7.73
105	1,2,4,5-Tetrachlorobenzen	0.667	0.555	16.8	72	-0.17	6.65
106	Phenanthrene-d10a	1.000	1.000	0.0	85	-0.19	9.87
107	Atrazine	0.126	0.114	9.5	76	-0.18	9.58
108 I	Chrysene-d12a	1.000	1.000	0.0	89	-0.21	14.05
109 T	benzidine	0.493	0.362	26.6#	90	-0.19	12.03
110 I	Naphthalene-d8a	1.000	1.000	0.0	89	-0.14	5.66
111 T	Hydroquinone	0.442	0.399	9.7	76	-0.13	6.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68243.D M3E2929.M Mon Jan 12 08:19:02 2015 MS3E

8.7.16

8

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2946-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68630.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E2946\3E68630.D Vial: 2
Acq On : 12 Jan 2015 9:01 am Operator: ashleyn
Sample : cc2929-25 Inst : MS3E
Misc : op81001,e3e2946, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E2929.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update : Wed Dec 31 12:28:44 2014
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	115	-0.12	4.58
2	t	1,4-Dioxane	0.743	0.667	10.2	110	-0.15	2.14
3	t	Pyridine	1.937	1.810	6.6	114	-0.14	2.49
4	t	N-Nitrosodimethylamine	1.210	1.128	6.8	113	-0.14	2.49
5	S	2-Fluorophenol	1.573	1.479	6.0	114	-0.11	3.67
6	t	Indene	2.748	2.560	6.8	116	-0.13	4.79
7	t	Cumene	4.204	3.898	7.3	115	-0.12	4.02
8	S	Phenol-d5	2.146	2.039	5.0	117	-0.11	4.37
9	t	Phenol	2.527	2.412	4.6	117	-0.11	4.37
10		Aniline	2.877	2.770	3.7	112	-0.12	4.36
11	t	bis(2-Chloroethyl)ether	1.685	1.567	7.0	116	-0.12	4.41
12	t	2-Chlorophenol	1.584	1.476	6.8	115	-0.12	4.45
13	t	Decane	2.559	2.290	10.5	110	-0.12	4.47
14	t	1,3-Dichlorobenzene	1.763	1.583	10.2	112	-0.13	4.55
15	t	1,4-Dichlorobenzene	1.787	1.660	7.1	117	-0.12	4.59
16	t	Benzyl alcohol	1.150	1.105	3.9	117	-0.13	4.70
17	t	1,2-Dichlorobenzene	1.673	1.509	9.8	113	-0.13	4.73
18	t	Acetophenone	2.410	2.301	4.5	118	-0.13	4.90
19	t	2-Methylphenol	1.594	1.563	1.9	119	-0.12	4.81
20	t	2,2'-oxybis(1-Chloropropa	0.574	0.545	5.1	120	-0.13	4.81
21	t	3&4-Methylphenol	1.702	1.696	0.4	118	-0.12	4.92
22	t	n-Nitroso-di-n-propylamin	1.452	1.386	4.5	118	-0.13	4.92
23	t	Hexachloroethane	0.699	0.657	6.0	117	-0.14	4.97
24	I	Naphthalene-d8	1.000	1.000	0.0	115	-0.15	5.66
25	S	Nitrobenzene-d5	0.631	0.597	5.4	119	-0.14	5.03
26	t	Nitrobenzene	0.561	0.519	7.5	118	-0.14	5.05
27	t	Quinoline	0.772	0.742	3.9	119	-0.17	6.02
28	t	Isophorone	0.890	0.841	5.5	118	-0.14	5.24
29	t	2-Nitrophenol	0.230	0.221	3.9	120	-0.14	5.33
30	t	2,4-Dimethylphenol	0.392	0.416	-6.1	123	-0.13	5.37
31	t	Benzoic acid	0.309	0.292	5.5	114	-0.14	5.48
32	t	bis(2-Chloroethoxy)methan	0.521	0.480	7.9	115	-0.14	5.44
33	t	2,4-Dichlorophenol	0.328	0.321	2.1	118	-0.14	5.55
34	t	2,6-Dichlorophenol	0.343	0.322	6.1	116	-0.15	5.76
35		1,3,5-Trichlorobenzene	0.449	0.399	11.1	114	-0.14	5.33
36	t	1,2,4-Trichlorobenzene	0.412	0.363	11.9	113	-0.15	5.62
37		1,2,3-Trichlorobenzene	0.423	0.383	9.5	116	-0.16	5.86
38	t	Naphthalene	1.205	1.113	7.6	119	-0.15	5.68
39	t	4-Chloroaniline	0.508	0.492	3.1	118	-0.15	5.75
40	t	2,3-Dichloroaniline	0.439	0.401	8.7	115	-0.18	6.78
41	t	Caprolactam	0.278	0.250	10.1	112	-0.16	6.09

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2946-CC2929
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68630.D
Project: Sunoco - Marcus Hook Facility, PA

42	t	Hexachlorobutadiene	0.244	0.227	7.0	118	-0.16	5.86
43	t	4-Chloro-3-methylphenol	0.380	0.377	0.8	122	-0.15	6.28
44	t	2-Methylnaphthalene	0.734	0.676	7.9	115	-0.17	6.40
45	t	1-Methylnaphthalene	0.716	0.660	7.8	117	-0.18	6.52
46	t	Dimethylnaphthalene	0.786	0.734	6.6	116	-0.18	7.17
47	I	Acenaphthene-d10	1.000	1.000	0.0	112	-0.19	7.73
48	t	Hexachlorocyclopentadiene	0.367	0.267	27.2#	88	-0.18	6.67
49	t	2,4,6-Trichlorophenol	0.417	0.393	5.8	116	-0.17	6.78
50	t	2,4,5-Trichlorophenol	0.461	0.425	7.8	115	-0.16	6.84
51	S	2-Fluorobiphenyl	1.760	1.643	6.6	118	-0.18	6.86
52	t	2-Chloronaphthalene	1.249	1.156	7.4	118	-0.18	6.98
53	t	Biphenyl	1.696	1.542	9.1	115	-0.18	6.97
54	t	2-Nitroaniline	0.536	0.534	0.4	122	-0.18	7.16
55	t	Dimethylphthalate	1.406	1.342	4.6	118	-0.19	7.44
56	t	Acenaphthylene	1.915	1.789	6.6	117	-0.19	7.52
57	t	2,6-Dinitrotoluene	0.326	0.321	1.5	123	-0.18	7.52
58	t	3-Nitroaniline	0.346	0.337	2.6	117	-0.18	7.71
59	t	Acenaphthene	1.272	1.163	8.6	115	-0.19	7.77
60	t	2,4-Dinitrophenol	0.220	0.171	22.3#	100	-0.17	7.87
61	t	4-Nitrophenol	0.171	0.165	3.5	111	-0.15	8.02
62	t	Dibenzofuran	1.839	1.683	8.5	115	-0.19	8.00
63	t	2,4-Dinitrotoluene	0.420	0.433	-3.1	122	-0.18	8.08
64		2,3,4,6-Tetrachlorophenol	0.373	0.318	14.7	103	-0.18	8.25
65	t	Diethylphthalate	1.277	1.249	2.2	119	-0.19	8.44
66	t	Fluorene	1.435	1.331	7.2	116	-0.20	8.48
67	t	4-Chlorophenyl-phenylethe	0.801	0.731	8.7	113	-0.20	8.50
68	t	4-Nitroaniline	0.337	0.337	0.0	118	-0.19	8.58
69	I	Phenanthrene-d10	1.000	1.000	0.0	111	-0.20	9.87
70	t	4,6-Dinitro-2-methylpheno	0.158	0.145	8.2	106	-0.18	8.66
71	t	n-Nitrosodiphenylamine	0.592	0.543	8.3	115	-0.20	8.68
72	t	1,2-Diphenylhydrazine	0.889	0.850	4.4	120	-0.20	8.73
73	S	2,4,6-Tribromophenol	0.106	0.097	8.5	114	-0.19	8.87
74	t	4-Bromophenyl-phenylether	0.245	0.225	8.2	116	-0.20	9.21
75	t	Hexachlorobenzene	0.245	0.220	10.2	114	-0.20	9.42
76	t	Pentachlorophenol	0.154	0.109	29.2#	84	-0.19	9.71
77	t	Phenanthrene	1.189	1.083	8.9	116	-0.21	9.90
78	t	Anthracene	1.192	1.091	8.5	112	-0.20	9.97
79	t	Carbazole	1.062	0.983	7.4	115	-0.20	10.25
80	t	Di-n-butylphthalate	1.160	1.154	0.5	122	-0.20	10.95
81	t	Fluoranthene	1.332	1.214	8.9	114	-0.21	11.76
82	t	Octadecane	0.706	0.644	8.8	113	-0.19	9.81
83	I	Chrysene-d12	1.000	1.000	0.0	115	-0.21	14.06
84	t	Pyrene	1.255	1.092	13.0	112	-0.21	12.10
85	S	Terphenyl-d14	0.951	0.848	10.8	116	-0.20	12.43
86	t	Butylbenzylphthalate	0.454	0.441	2.9	124	-0.20	13.31
87		Butyl stearate	0.414	0.380	8.2	115	-0.20	13.41
88	t	Benzo[a]anthracene	1.169	1.039	11.1	116	-0.21	14.03
89	t	3,3'-Dichlorobenzidine	0.450	0.413	8.2	118	-0.21	14.05
90	t	Chrysene	1.107	0.972	12.2	114	-0.21	14.09
91	t	bis(2-Ethylhexyl)phthalat	0.619	0.606	2.1	123	-0.21	14.30
92	I	Perylene-d12	1.000	1.000	0.0	119	-0.21	16.17
93	t	Di-n-octylphthalate	1.144	1.121	2.0	129	-0.21	15.23
94	t	Benzo[b]fluoranthene	1.325	1.130	14.7	123	-0.21	15.66
95	t	Benzo[k]fluoranthene	1.290	1.211	6.1	119	-0.21	15.69
96	t	Benzo[a]pyrene	1.160	1.068	7.9	123	-0.21	16.09
97	t	Indeno[1,2,3-cd]pyrene	1.367	1.304	4.6	127	-0.29	17.69

Continuing Calibration Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: E3E2946-CC2929
Lab FileID: 3E68630.D

98	t	Dibenz(a,h)acridine	1.017	0.981	3.5	128	-0.27	17.35
99	t	Dibenz[a,h]anthracene	1.166	1.113	4.5	128	-0.29	17.72
100	t	7,12-Dimethylbenz(a)anthr	0.645	0.611	5.3	120	-0.22	15.68
101	t	Benzo[g,h,i]perylene	1.098	1.038	5.5	126	-0.31	18.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68244.D M3E2929.M Mon Jan 12 11:57:32 2015 MS3E

8.7.17

8

Continuing Calibration Summary

Job Number: JB85833 **Sample:** E3E2946-CC2930
Account: SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3E68631.D
Project: Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3E2946\3E68631.D          Vial: 3
Acq On    : 12 Jan 2015   9:32 am                    Operator: ashleyn
Sample    : cc2930-25                                Inst    : MS3E
Misc      : op81001,e3e2946,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2929eph.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
Last Update  : Wed Dec 31 12:28:44 2014
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	73	-0.13	4.57
103		Benzaldehyde	1.352	1.069	20.9#	49#	-0.12	4.26
104		Acenaphthene-d10a	1.000	1.000	0.0	65	-0.19	7.73
105		1,2,4,5-Tetrachlorobenzen	0.667	0.568	14.8	54	-0.17	6.65
106		Phenanthrene-d10a	1.000	1.000	0.0	63	-0.20	9.87
107		Atrazine	0.126	0.117	7.1	56	-0.19	9.56
108	s	o-Terphenyl	0.666	0.583	12.5	55	-0.21	10.57
109	s	1-Chlorooctadecane	0.432	0.413	4.4	57	-0.20	11.69
110	I	Chrysene-d12a	1.000	1.000	0.0	70	-0.21	14.05
111	T	benzidine	0.493	0.334	32.3#	40#	-0.20	12.02
112	I	Naphthalene-d8a	1.000	1.000	0.0	73	-0.15	5.66
113	T	Hydroquinone	0.442	0.403	8.8	58	-0.14	6.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3E68244.D M3E2929eph.M Mon Jan 12 12:00:57 2015 MS3E

8.7.18

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:39

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68593.D
Acq On : 10 Jan 2015 12:35 am
Operator : ashleyd
Sample : jb85833-1
Misc : op81001,e3e2944,30.4
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 10:23:02 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Mon Jan 12 09:05:24 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.583	152	200497	40.00 ppb	0.00
24) Naphthalene-d8	5.663	136	747945	40.00 ppb	0.00
47) Acenaphthene-d10	7.738	164	459210	40.00 ppb	0.00
69) Phenanthrene-d10	9.872	188	802446	40.00 ppb	0.00
83) Chrysene-d12	14.055	240	743141	40.00 ppb	0.00
92) Perylene-d12	16.173	264	678141	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	4.583	152	200497	40.00 ppb	0.00
104) Acenaphthene-d10a	7.738	164	459210	40.00 ppb	0.00
106) Phenanthrene-d10a	9.872	188	802446	40.00 ppb	0.00
108) Chrysene-d12a	14.055	240	743141	40.00 ppb	0.00
110) Naphthalene-d8a	5.663	136	747945	40.00 ppb	0.00
112) Chrysene-d12b	14.055	240	743141	40.00 ppb	0.00

System Monitoring Compounds					
5) 2-Fluorophenol	3.679	112	254179	32.23 ppb	0.00
Spiked Amount 50.000			Recovery = 64.46%		
8) Phenol-d5	4.379	99	342495	31.84 ppb	0.00
Spiked Amount 50.000			Recovery = 63.68%		
25) Nitrobenzene-d5	5.037	82	353741	30.00 ppb	0.00
Spiked Amount 50.000			Recovery = 60.00%		
51) 2-Fluorobiphenyl	6.872	172	601276	29.75 ppb	0.00
Spiked Amount 50.000			Recovery = 59.50%		
73) 2,4,6-Tribromophenol	8.872	330	63774	29.85 ppb	0.00
Spiked Amount 50.000			Recovery = 59.70%		
85) Terphenyl-d14	12.434	244	632241	35.77 ppb	0.00
Spiked Amount 50.000			Recovery = 71.54%		

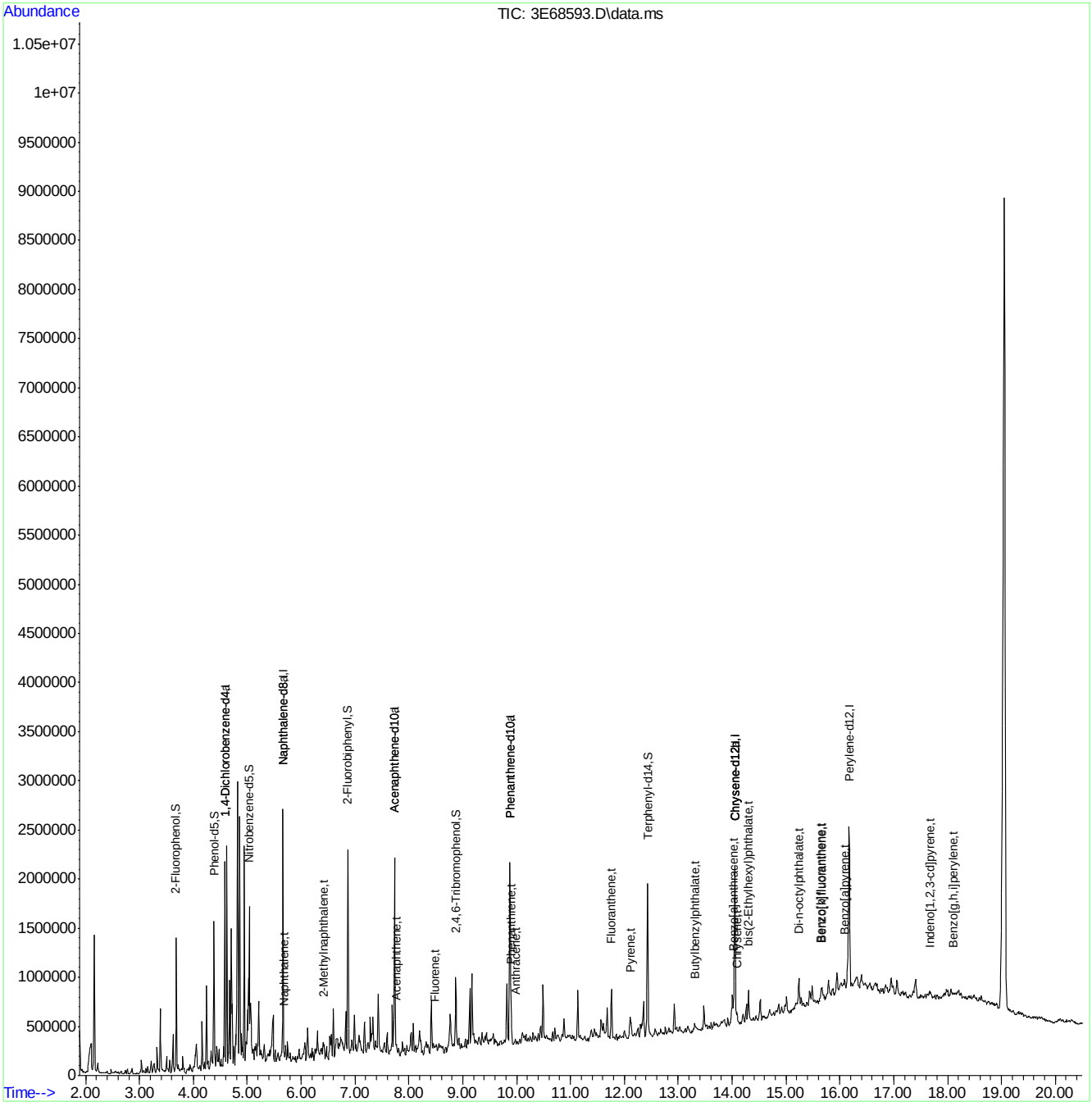
Target Compounds					Qvalue
38) Naphthalene	5.684	128	11236	0.50 ppb	97
44) 2-Methylnaphthalene	6.412	141	32293	2.35 ppb	98
59) Acenaphthene	7.776	153	7531	0.52 ppb	88
66) Fluorene	8.487	166	10034	0.61 ppb	74
77) Phenanthrene	9.904	178	63461	2.66 ppb	97
78) Anthracene	9.974	178	10989	0.46 ppb	95
81) Fluoranthene	11.766	202	85333	3.19 ppb	97
84) Pyrene	12.103	202	99582	4.27 ppb	97
86) Butylbenzylphthalate	13.306	149	20354	2.41 ppb	96
88) Benzo[a]anthracene	14.028	228	41797	1.92 ppb	94
90) Chrysene	14.092	228	49133	2.39 ppb	93
91) bis(2-Ethylhexyl)phtha...	14.306	149	80500	7.00 ppb	99
93) Di-n-octylphthalate	15.237	149	144314	7.44 ppb	92
94) Benzo[b]fluoranthene	15.654	252	32359m	1.44 ppb	
95) Benzo[k]fluoranthene	15.676	252	24920m	1.14 ppb	
96) Benzo[a]pyrene	16.087	252	30416	1.55 ppb	99
97) Indeno[1,2,3-cd]pyrene	17.687	276	19819	0.86 ppb	89
101) Benzo[g,h,i]perylene	18.104	276	22305	1.20 ppb	89

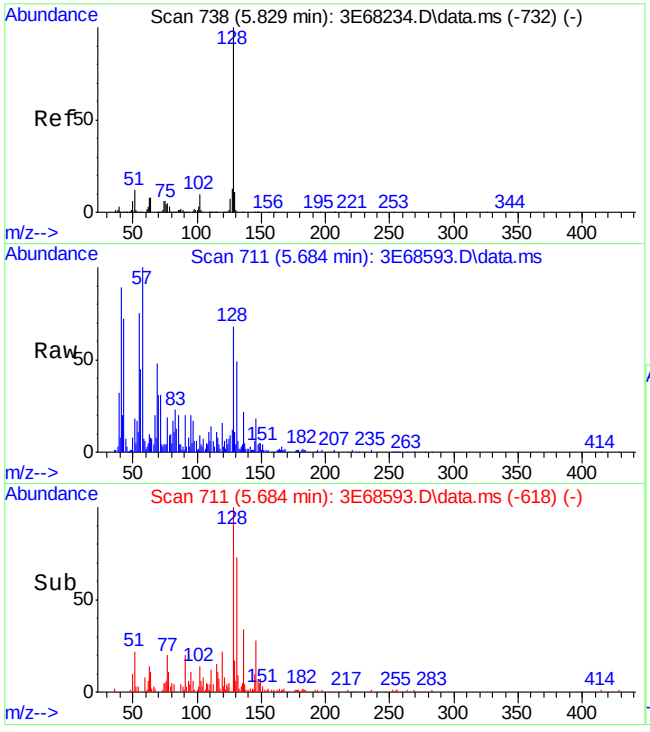
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68593.D
Acq On : 10 Jan 2015 12:35 am
Operator : ashleyd
Sample : jb85833-1
Misc : op81001,e3e2944,30.4
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 10:23:02 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Mon Jan 12 09:05:24 2015
Response via : Initial Calibration

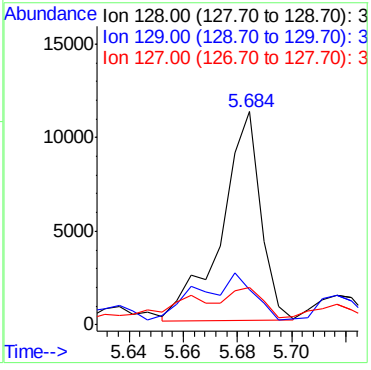


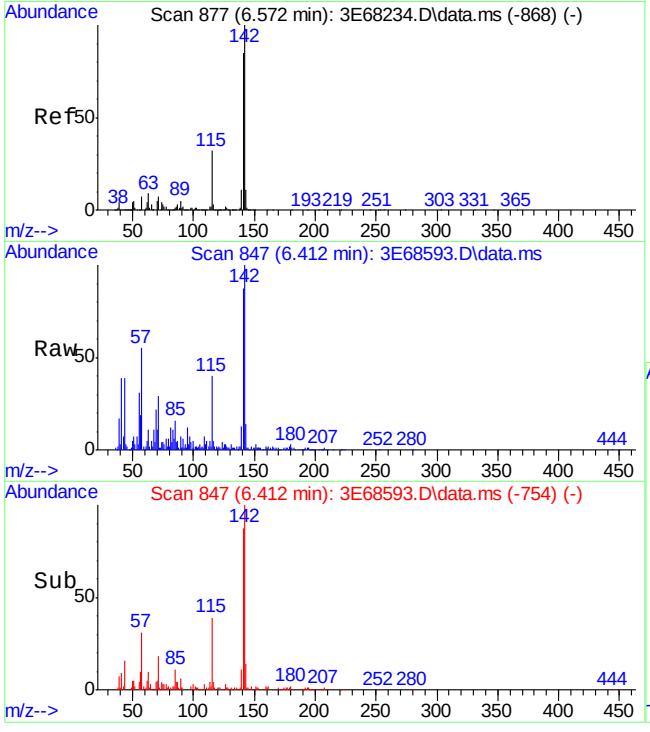


#38
Naphthalene
Concen: 0.50 ppb
RT: 5.684 min Scan# 711
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:128 Resp: 11236

Ion	Ratio	Lower	Upper
128	100		
129	13.3	0.0	41.1
127	12.8	0.0	43.3

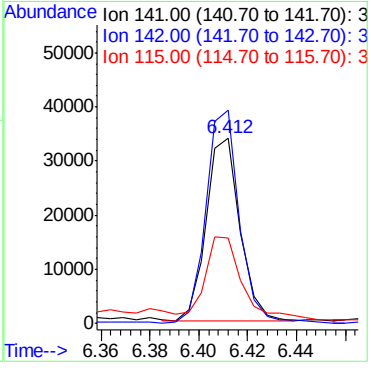


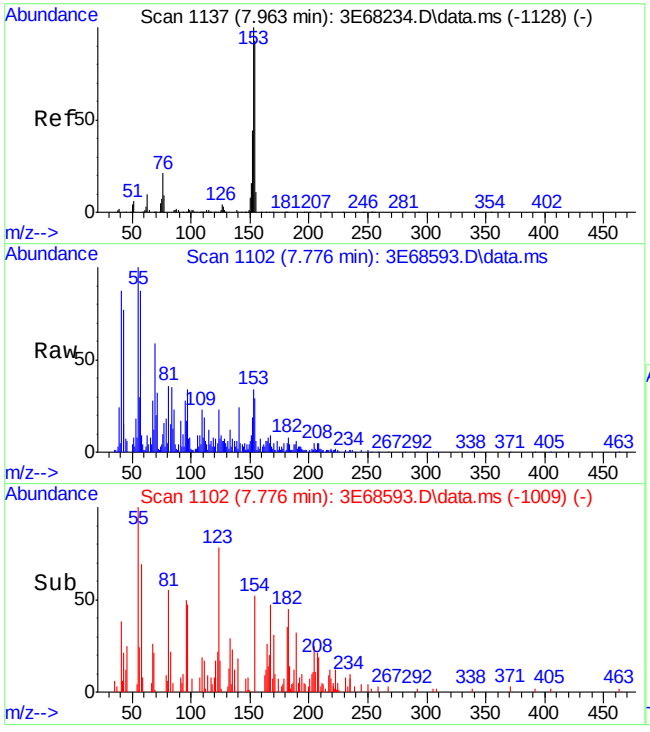


#44
2-Methylnaphthalene
Concen: 2.35 ppb
RT: 6.412 min Scan# 847
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:141 Resp: 32293

Ion	Ratio	Lower	Upper
141	100		
142	116.0	87.1	147.1
115	41.2	7.4	67.4

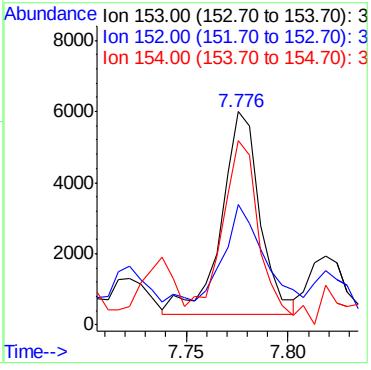


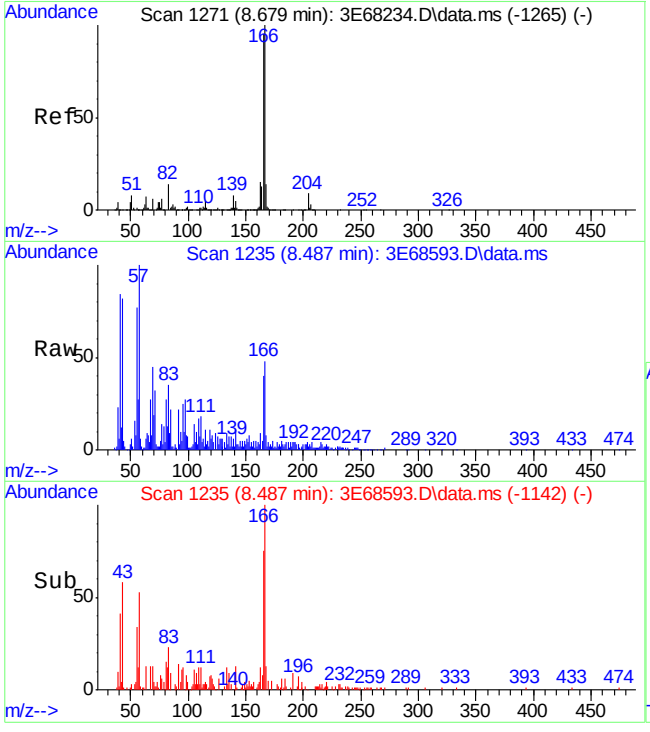


#59
Acenaphthene
Concen: 0.52 ppb
RT: 7.776 min Scan# 1102
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:153 Resp: 7531

Ion	Ratio	Lower	Upper
153	100		
152	47.4	13.9	73.9
154	75.2	58.8	118.8

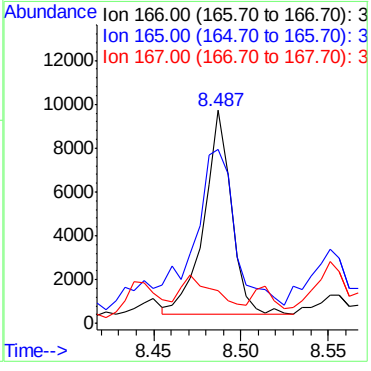




#66
Fluorene
Concen: 0.61 ppb
RT: 8.487 min Scan# 1235
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

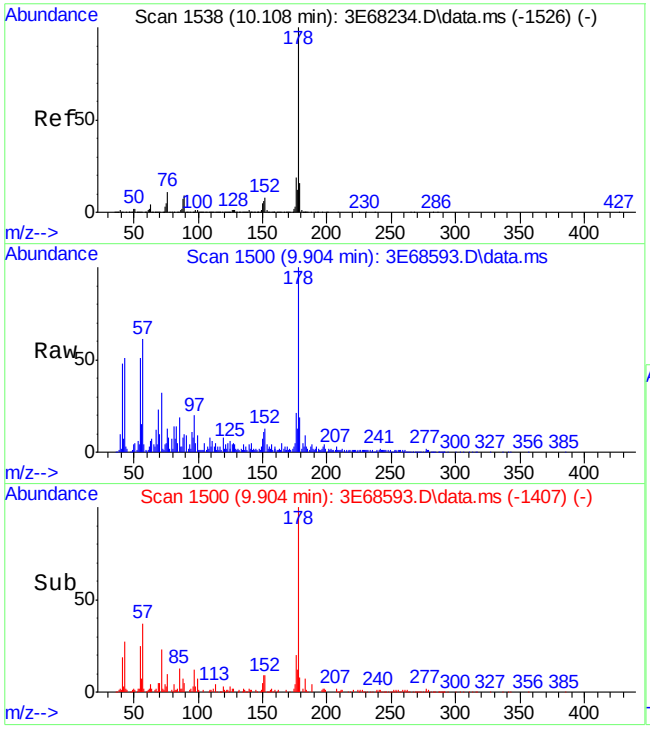
Tgt Ion:166 Resp: 10034

Ion	Ratio	Lower	Upper
166	100		
165	68.0	64.7	124.7
167	6.6	0.0	43.6



9.1.1

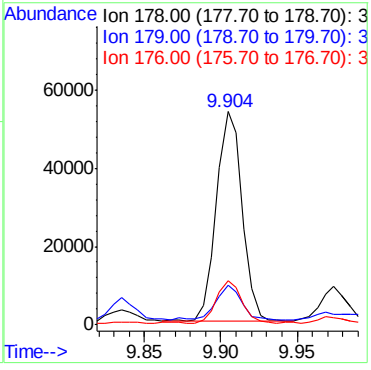
9

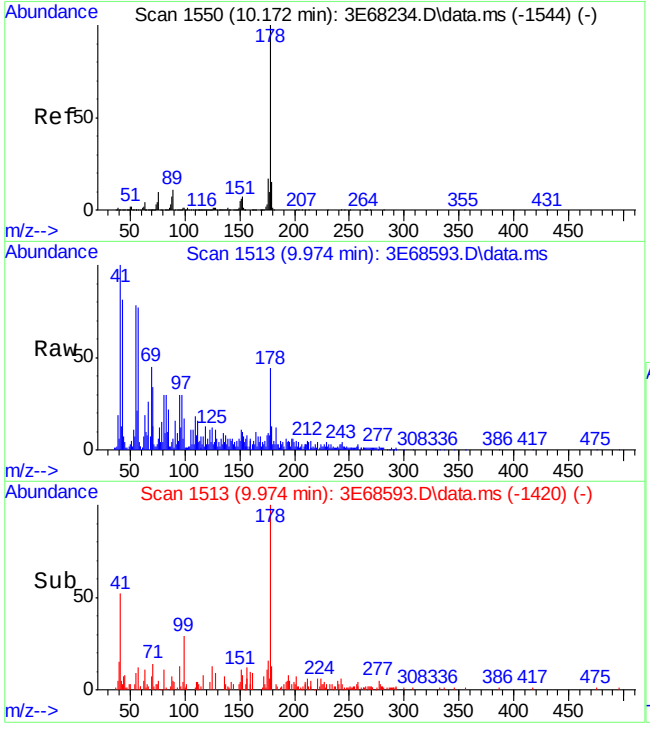


#77
Phenanthrene
Concen: 2.66 ppb
RT: 9.904 min Scan# 1500
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:178 Resp: 63461

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	45.5
176	19.9	0.0	48.5

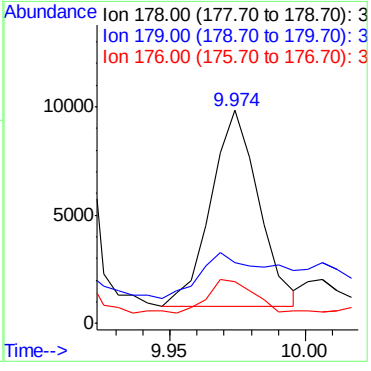


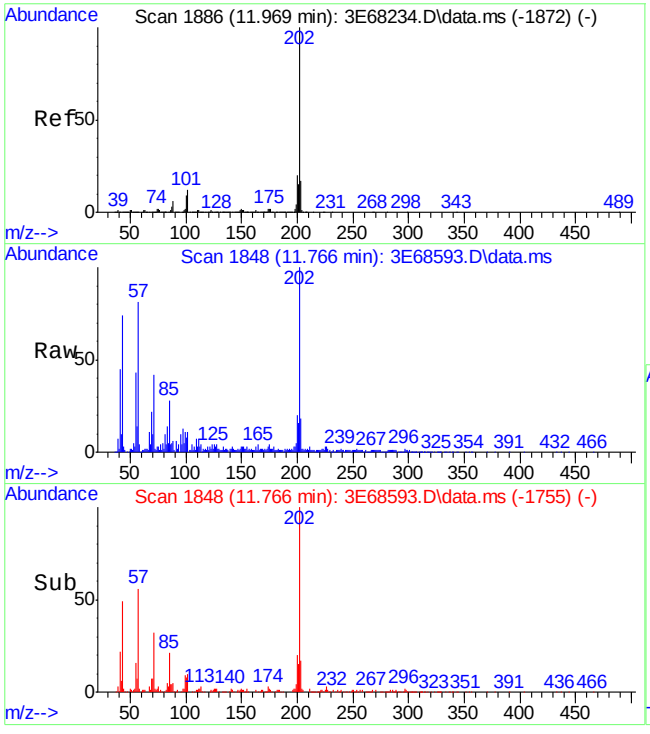


#78
Anthracene
Concen: 0.46 ppb
RT: 9.974 min Scan# 1513
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:178 Resp: 10989

Ion	Ratio	Lower	Upper
178	100		
179	11.7	0.0	44.8
176	16.0	0.0	47.2

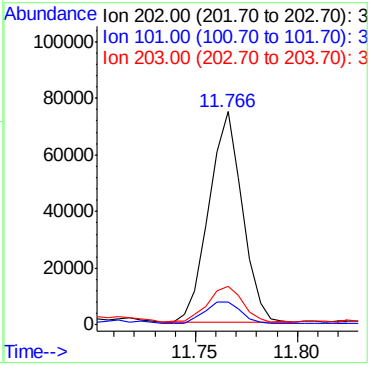


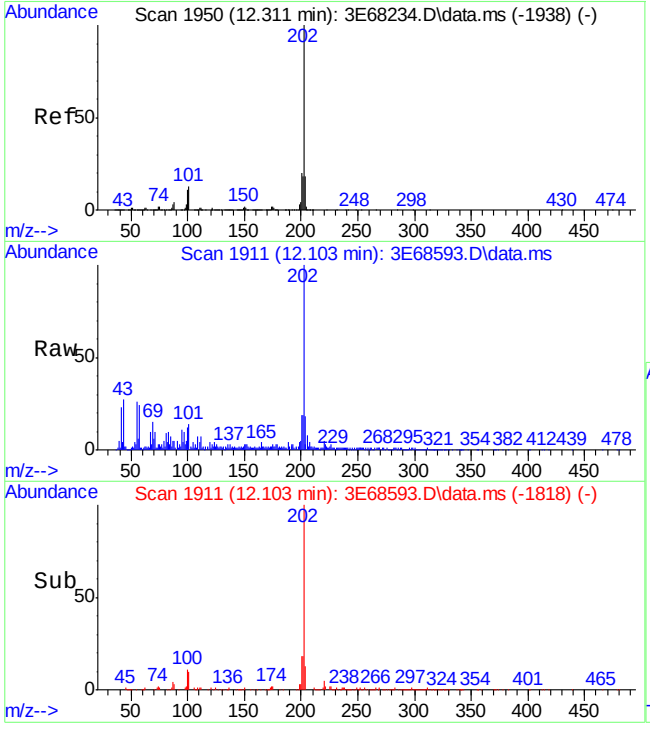


#81
Fluoranthene
Concen: 3.19 ppb
RT: 11.766 min Scan# 1848
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:202 Resp: 85333

Ion	Ratio	Lower	Upper
202	100		
101	10.1	0.0	41.9
203	16.9	0.0	47.4

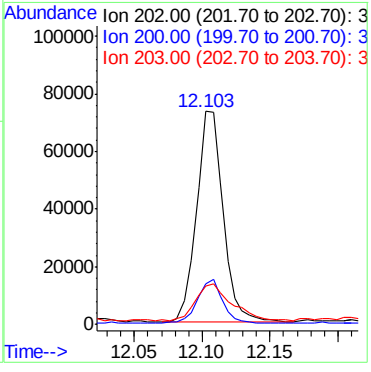




#84
Pyrene
Concen: 4.27 ppb
RT: 12.103 min Scan# 1911
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

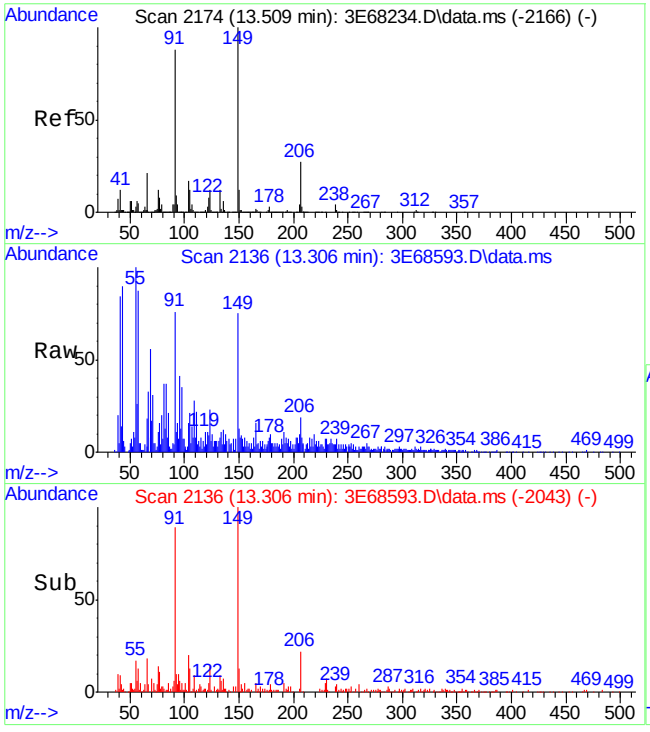
Tgt Ion:202 Resp: 99582

Ion	Ratio	Lower	Upper
202	100		
200	18.6	0.0	50.0
203	16.2	0.0	47.6



9.1.1

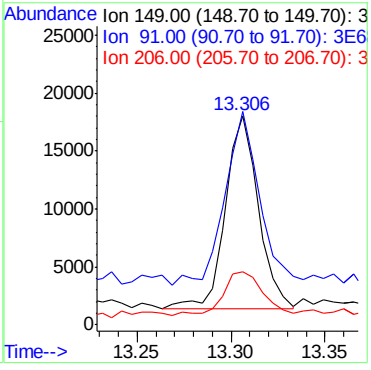
9

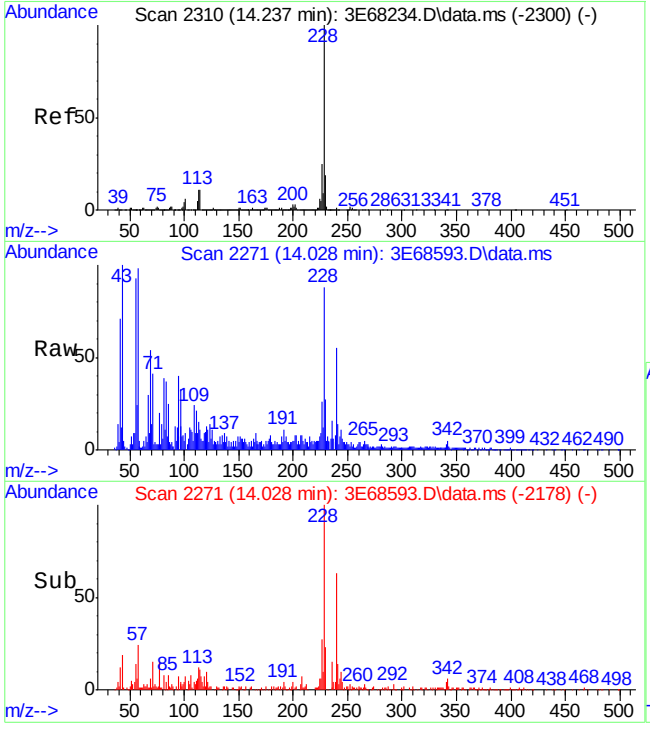


#86
Butylbenzylphthalate
Concen: 2.41 ppb
RT: 13.306 min Scan# 2136
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:149 Resp: 20354

Ion	Ratio	Lower	Upper
149	100		
91	85.6	57.8	117.8
206	21.9	0.0	56.5

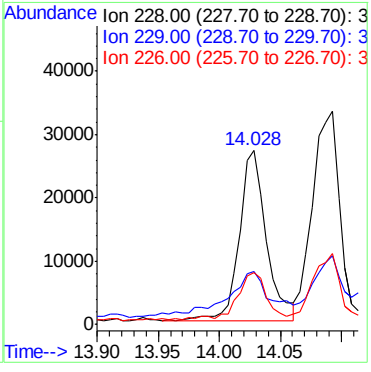




#88
Benzo[a]anthracene
Concen: 1.92 ppb
RT: 14.028 min Scan# 2271
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

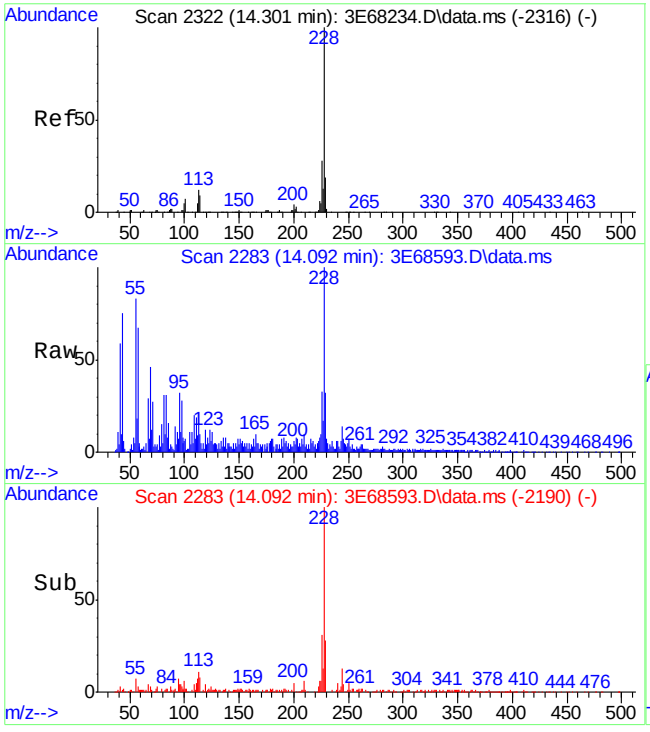
Tgt Ion:228 Resp: 41797

Ion	Ratio	Lower	Upper
228	100		
229	23.2	0.0	49.4
226	27.4	0.0	55.3



9.1.1

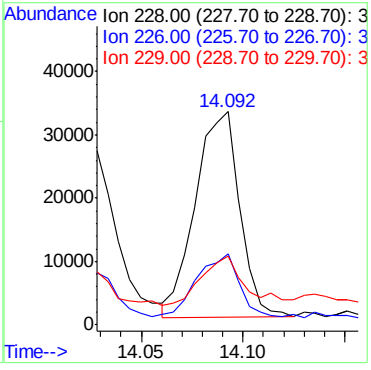
9

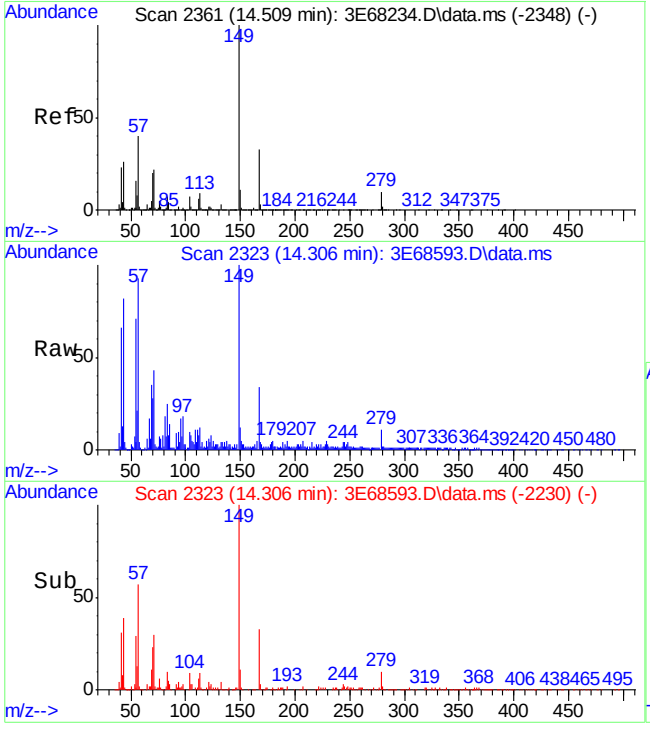


#90
Chrysene
Concen: 2.39 ppb
RT: 14.092 min Scan# 2283
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:228 Resp: 49133

Ion	Ratio	Lower	Upper
228	100		
226	30.5	0.0	57.9
229	23.5	0.0	49.5

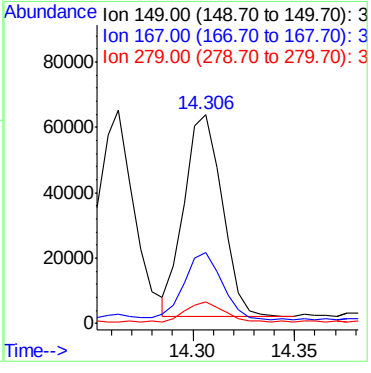


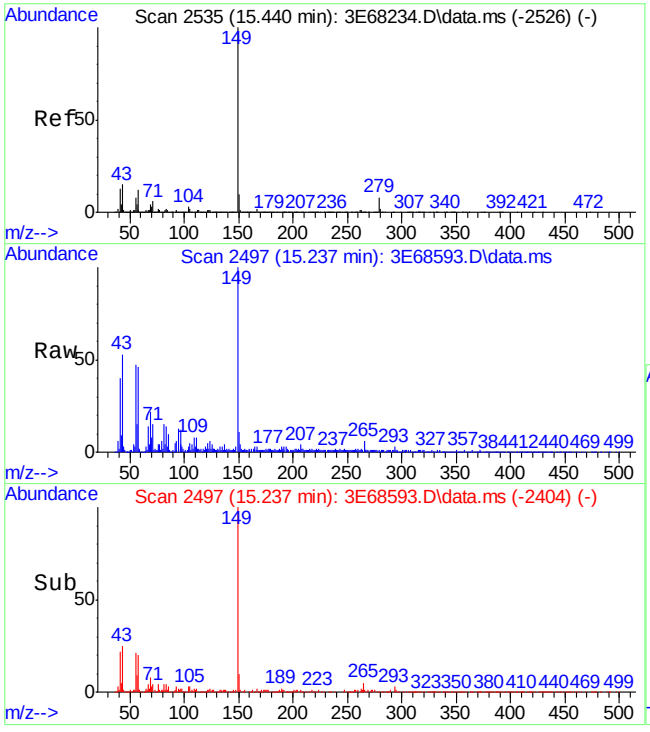


#91
bis(2-Ethylhexyl)phthalate
Concen: 7.00 ppb
RT: 14.306 min Scan# 2323
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:149 Resp: 80500

Ion	Ratio	Lower	Upper
149	100		
167	33.7	2.9	62.9
279	10.5	0.0	39.9

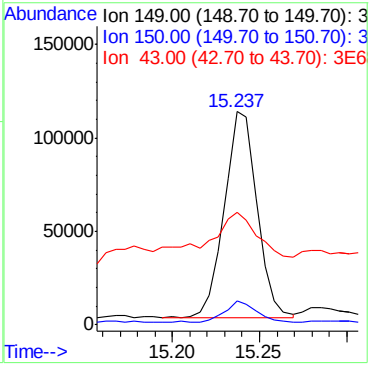


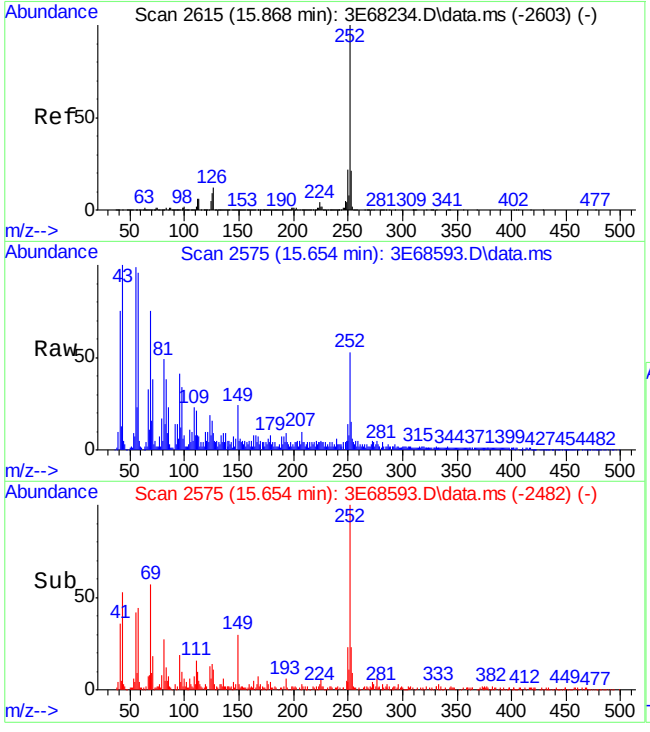


#93
Di-n-octylphthalate
Concen: 7.44 ppb
RT: 15.237 min Scan# 2497
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:149 Resp: 144314

Ion	Ratio	Lower	Upper
149	100		
150	10.4	0.0	39.9
43	19.5	0.0	44.6

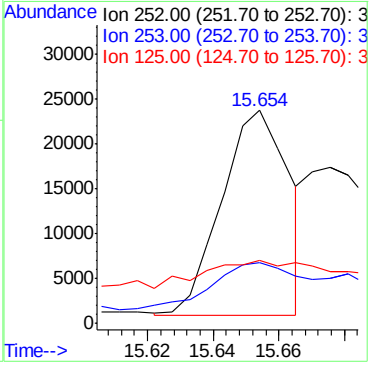


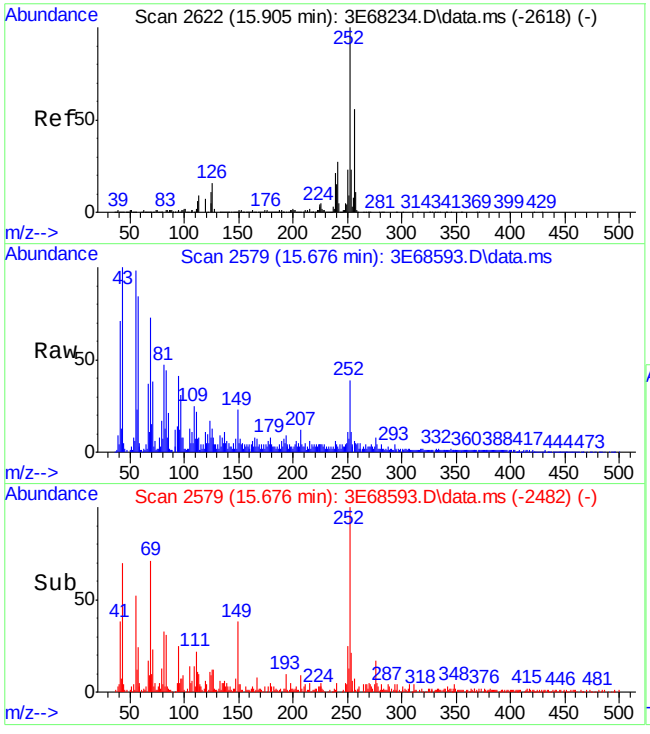


#94
Benzo[b]fluoranthene
Concen: 1.44 ppb m
RT: 15.654 min Scan# 2575
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:252 Resp: 32359

Ion	Ratio	Lower	Upper
252	100		
253	28.8	0.0	50.5
125	29.6	0.0	38.5

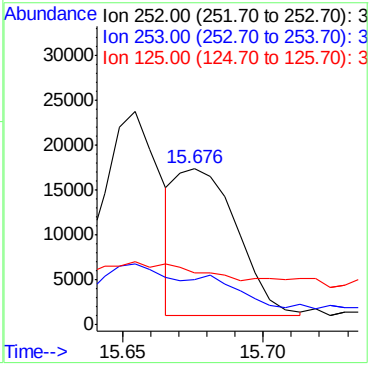


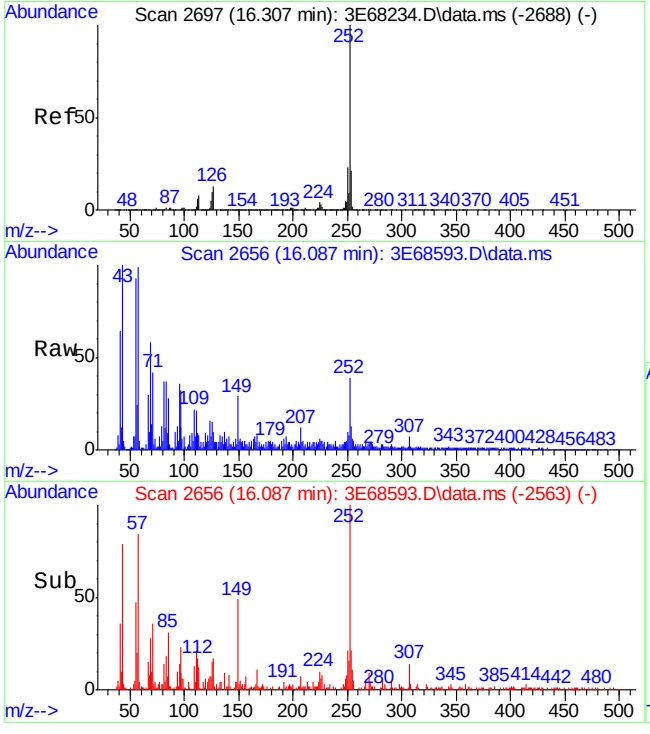


#95
Benzo[k]fluoranthene
Concen: 1.14 ppb m
RT: 15.676 min Scan# 2579
Delta R.T. 0.021 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:252 Resp: 24920

Ion	Ratio	Lower	Upper
252	100		
253	28.6	0.0	53.1
125	33.1	0.0	41.1

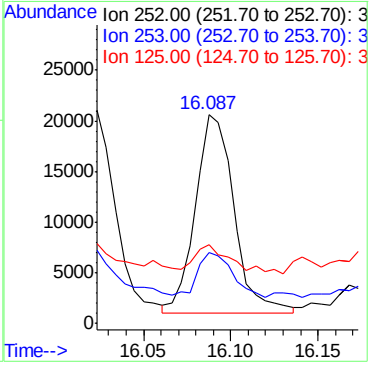




#96
Benzo[a]pyrene
Concen: 1.55 ppb
RT: 16.087 min Scan# 2656
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

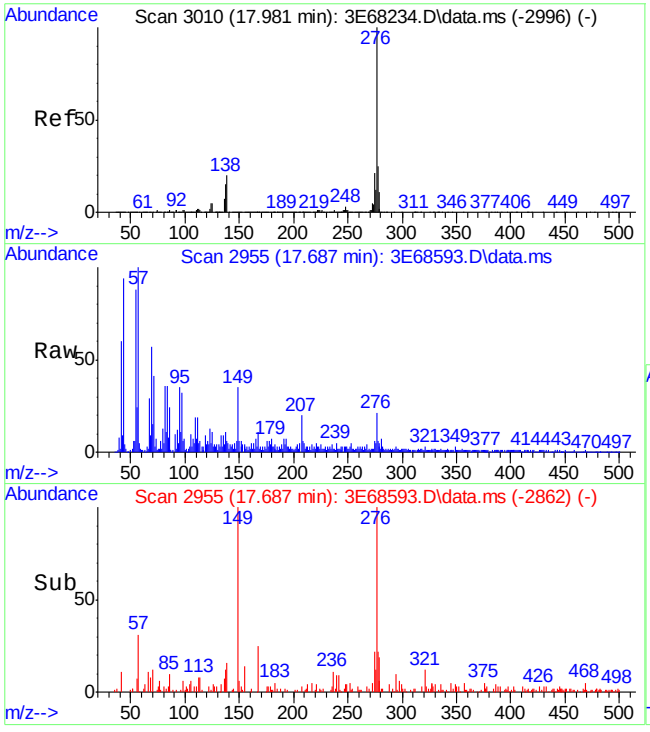
Tgt Ion:252 Resp: 30416

Ion	Ratio	Lower	Upper
252	100		
253	21.4	0.0	51.3
125	9.7	0.0	40.2



9.1.1

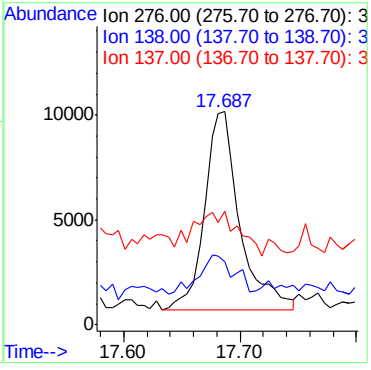
9

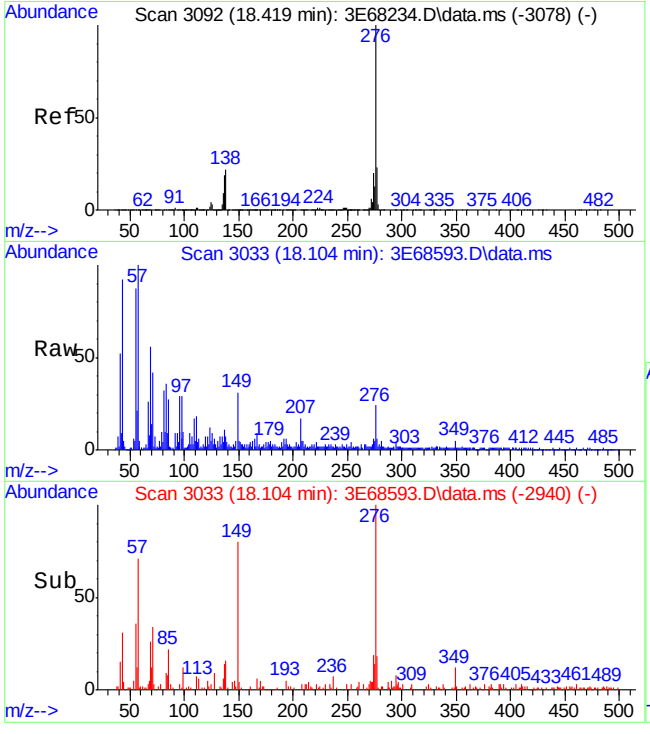


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.86 ppb
RT: 17.687 min Scan# 2955
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:276 Resp: 19819

Ion	Ratio	Lower	Upper
276	100		
138	12.7	0.0	50.4
137	16.8	0.0	45.2

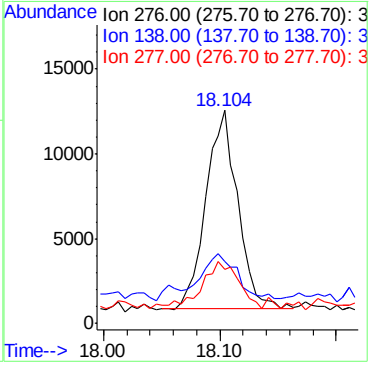




#101
Benzo[g,h,i]perylene
Concen: 1.20 ppb
RT: 18.104 min Scan# 3033
Delta R.T. 0.000 min
Lab File: 3E68593.D
Acq: 10 Jan 2015 12:35 am

Tgt Ion:276 Resp: 22305

Ion	Ratio	Lower	Upper
276	100		
138	16.5	0.0	51.8
277	17.8	0.0	52.7



9.1.1

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:39

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68595.D
Acq On : 10 Jan 2015 1:28 am
Operator : ashleyd
Sample : jb85833-2
Misc : op81001,e3e2944,30.3
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 12 10:50:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Jan 12 09:06:26 2015
QLast Update : Mon Jan 12 09:07:12 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.582	152	232622	40.00	ppb	0.00
24) Naphthalene-d8	5.668	136	846033	40.00	ppb	0.00
47) Acenaphthene-d10	7.743	164	471915	40.00	ppb	0.00
69) Phenanthrene-d10	9.883	188	786854	40.00	ppb	0.00
83) Chrysene-d12	14.060	240	729542	40.00	ppb	0.00
92) Perylene-d12	16.184	264	698328	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	4.582	152	232622	40.00	ppb	0.00
104) Acenaphthene-d10a	7.743	164	471915	40.00	ppb	0.00
106) Phenanthrene-d10a	9.883	188	786854	40.00	ppb	0.00
108) Chrysene-d12a	14.060	240	729542	40.00	ppb	0.00
110) Naphthalene-d8a	5.668	136	846033	40.00	ppb	0.00
112) Chrysene-d12b	14.060	240	729542	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	3.678	112	291313	31.84	ppb	0.00
Spiked Amount 50.000			Recovery = 63.68%			
8) Phenol-d5	4.379	99	388211	31.11	ppb	0.00
Spiked Amount 50.000			Recovery = 62.22%			
25) Nitrobenzene-d5	5.042	82	465088	34.87	ppb	0.00
Spiked Amount 50.000			Recovery = 69.74%			
51) 2-Fluorobiphenyl	6.877	172	672783	32.40	ppb	0.00
Spiked Amount 50.000			Recovery = 64.80%			
73) 2,4,6-Tribromophenol	8.883	330	82005	39.15	ppb	0.00
Spiked Amount 50.000			Recovery = 78.30%			
85) Terphenyl-d14	12.440	244	601921	34.69	ppb	0.00
Spiked Amount 50.000			Recovery = 69.38%			

Target Compounds							Qvalue
38) Naphthalene	5.690	128	23332m	0.92	ppb		
44) 2-Methylnaphthalene	6.417	141	48745	3.14	ppb		94
59) Acenaphthene	7.786	153	10097	0.67	ppb	#	73
77) Phenanthrene	9.915	178	41299	1.77	ppb		94
81) Fluoranthene	11.776	202	33377	1.27	ppb		94
84) Pyrene	12.119	202	58821	2.57	ppb		97
88) Benzo[a]anthracene	14.033	228	21551	1.01	ppb		91
90) Chrysene	14.098	228	25049	1.24	ppb		82
91) bis(2-Ethylhexyl)phtha...	14.312	149	22818	2.02	ppb		92
93) Di-n-octylphthalate	15.248	149	54977	2.75	ppb		82
94) Benzo[b]fluoranthene	15.659	252	16327	0.71	ppb		86
95) Benzo[k]fluoranthene	15.686	252	12811m	0.57	ppb		
96) Benzo[a]pyrene	16.098	252	20305	1.00	ppb		83
97) Indeno[1,2,3-cd]pyrene	17.697	276	10542m	0.44	ppb		
101) Benzo[g,h,i]perylene	18.109	276	24885	1.30	ppb		94

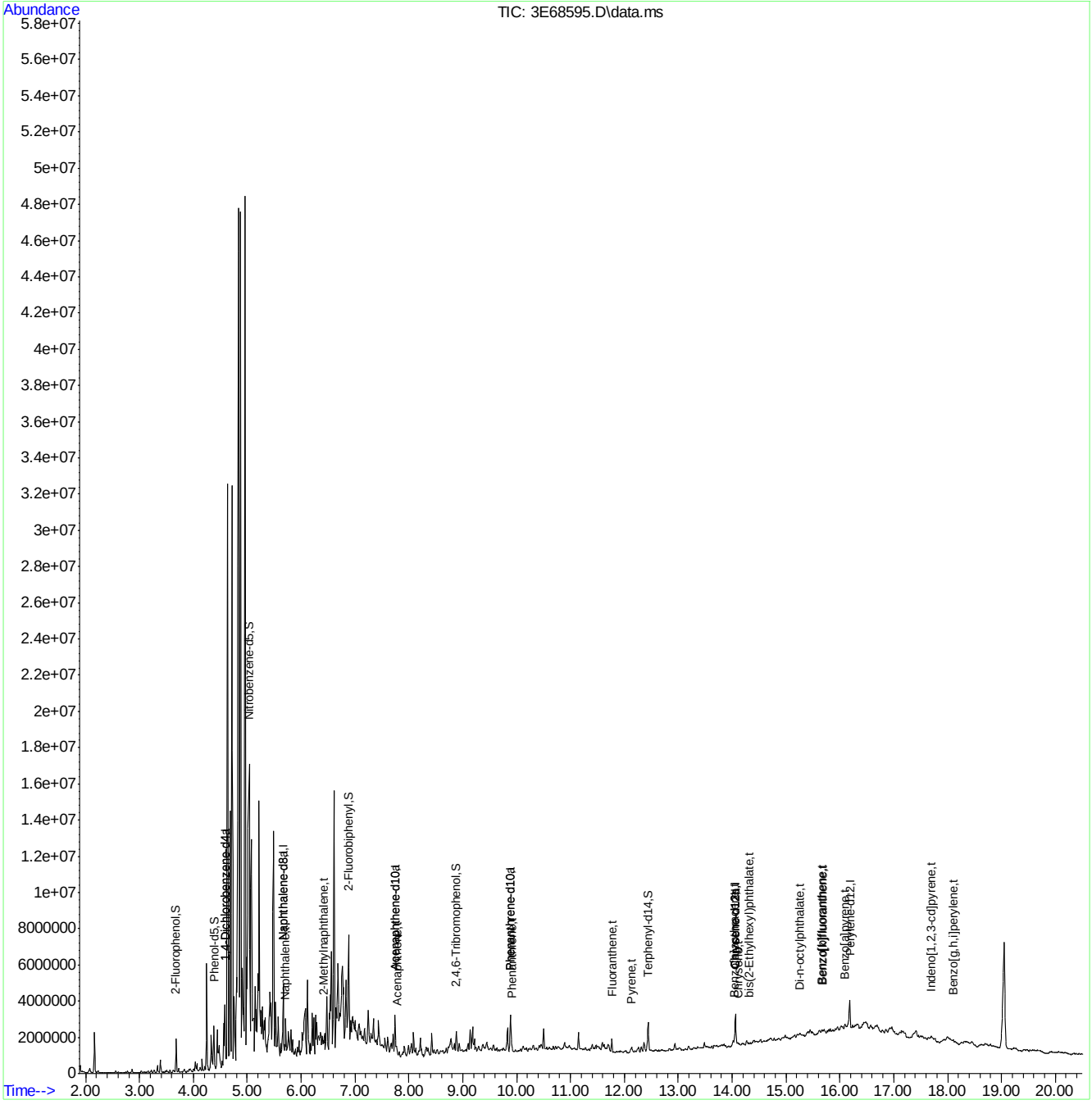
(#) = qualifier out of range (m) = manual integration (+) = signals summed

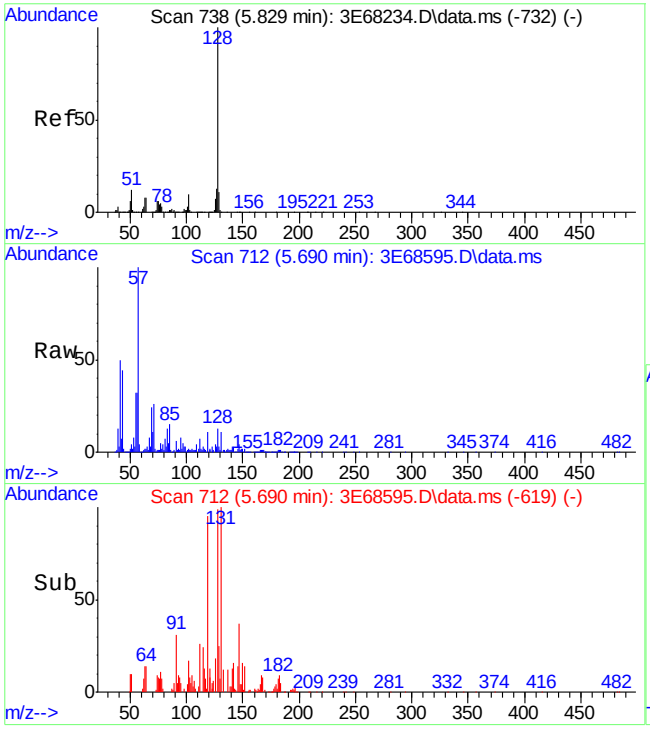
9.1.2
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68595.D
Acq On : 10 Jan 2015 1:28 am
Operator : ashleyd
Sample : jb85833-2
Misc : op81001,e3e2944,30.3
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 12 10:50:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Jan 12 09:06:26 2015
QLast Update : Mon Jan 12 09:07:12 2015
Response via : Initial Calibration

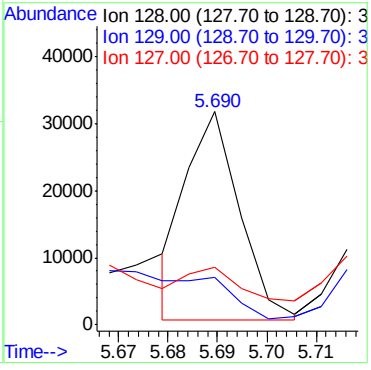


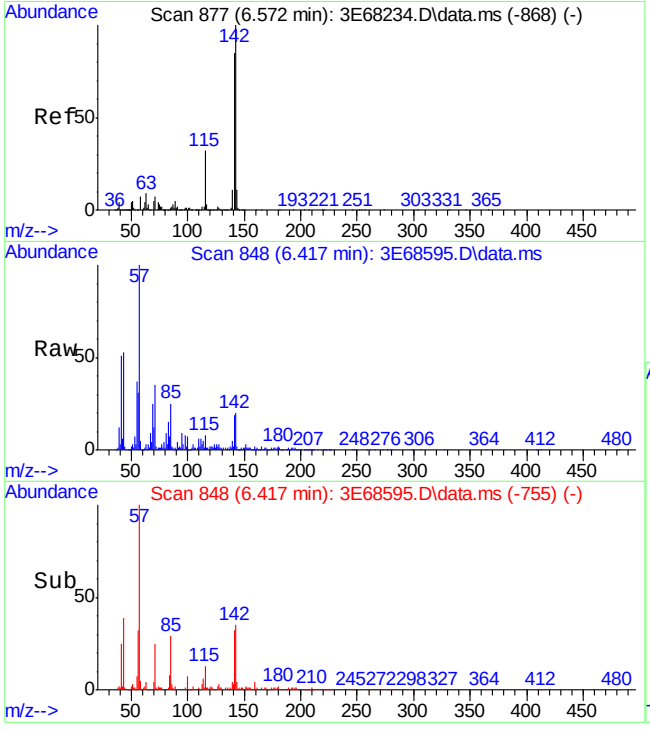


#38
Naphthalene
Concen: 0.92 ppb m
RT: 5.690 min Scan# 712
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:128 Resp: 23332

Ion	Ratio	Lower	Upper
128	100		
129	22.2	0.0	41.1
127	27.2	0.0	43.3

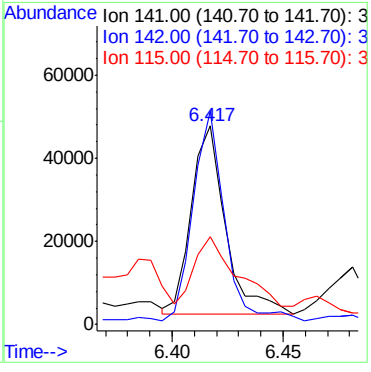




#44
2-Methylnaphthalene
Concen: 3.14 ppb
RT: 6.417 min Scan# 848
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

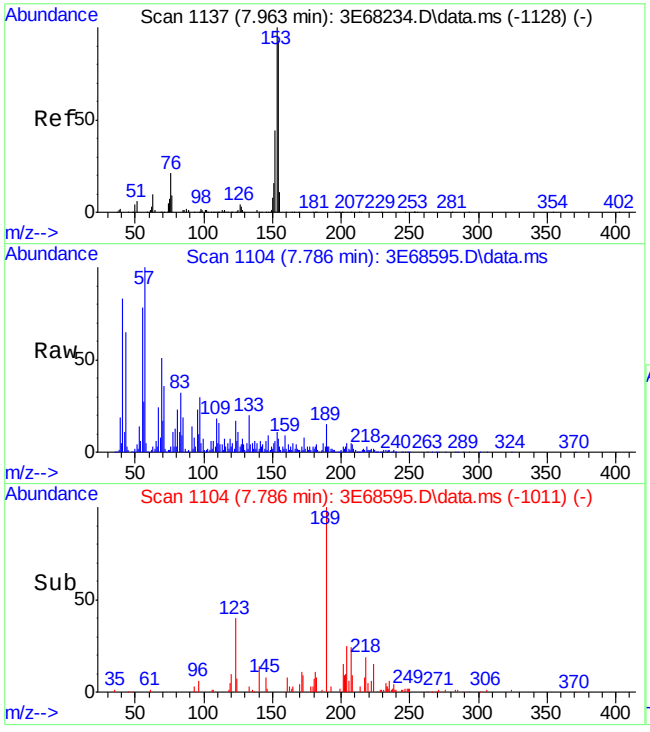
Tgt Ion:141 Resp: 48745

Ion	Ratio	Lower	Upper
141	100		
142	111.9	87.1	147.1
115	32.0	7.4	67.4



9.1.2

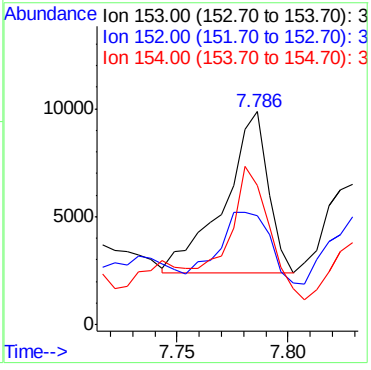
9

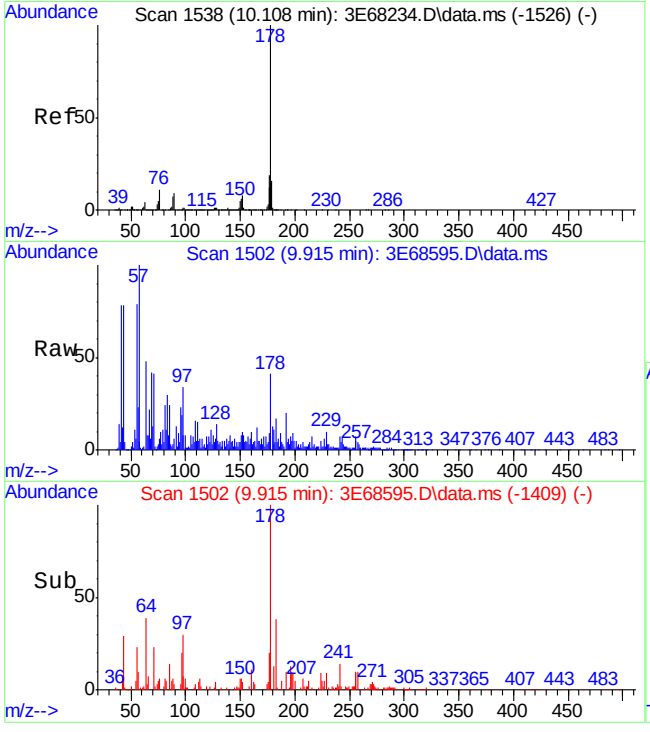


#59
Acenaphthene
Concen: 0.67 ppb
RT: 7.786 min Scan# 1104
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:153 Resp: 10097

Ion	Ratio	Lower	Upper
153	100		
152	36.5	13.9	73.9
154	56.3	58.8	118.8#

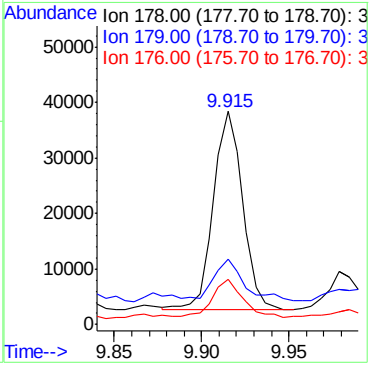


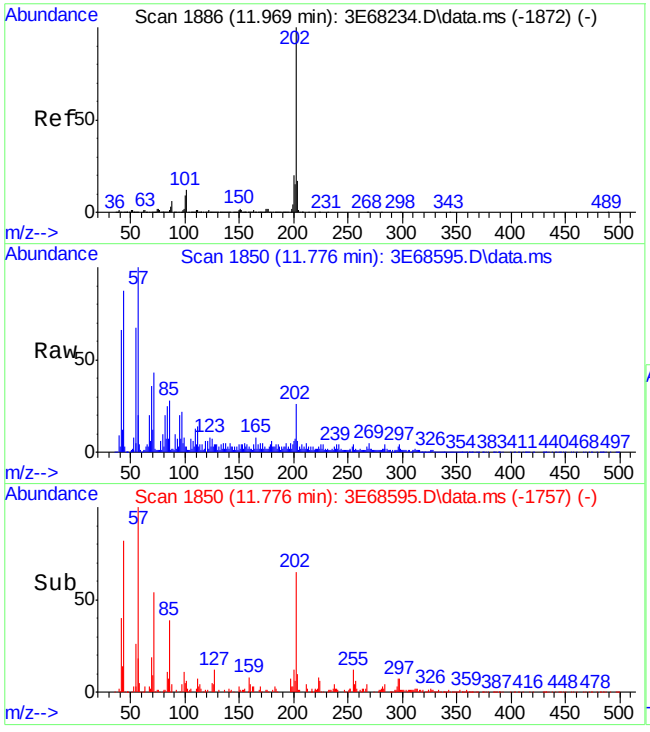


#77
Phenanthrene
Concen: 1.77 ppb
RT: 9.915 min Scan# 1502
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:178 Resp: 41299

Ion	Ratio	Lower	Upper
178	100		
179	20.1	0.0	45.5
176	19.0	0.0	48.5

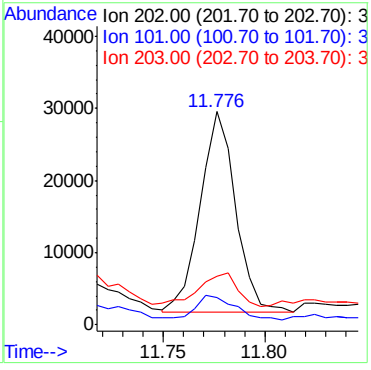


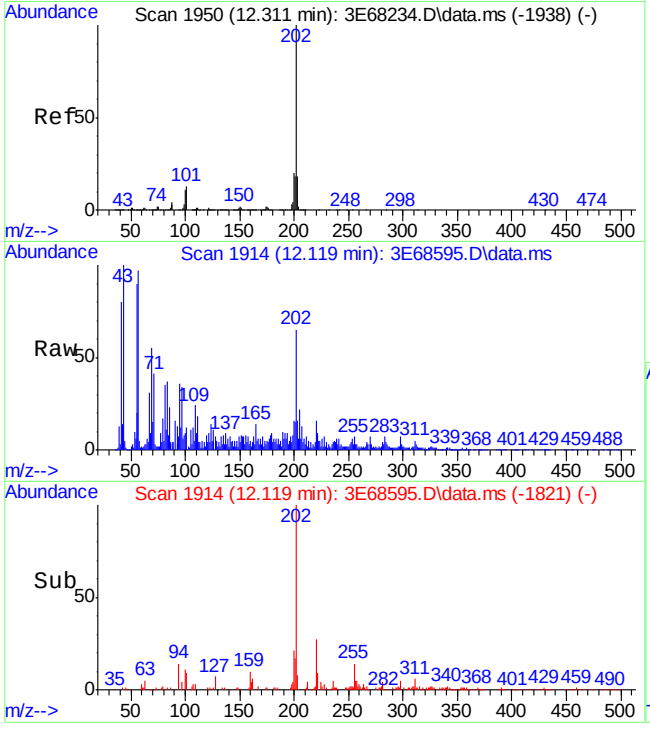


#81
Fluoranthene
Concen: 1.27 ppb
RT: 11.776 min Scan# 1850
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:202 Resp: 33377

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	41.9
203	13.9	0.0	47.4

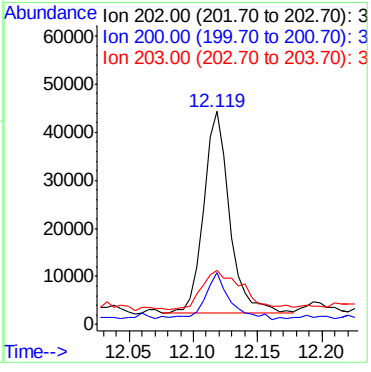




#84
Pyrene
Concen: 2.57 ppb
RT: 12.119 min Scan# 1914
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

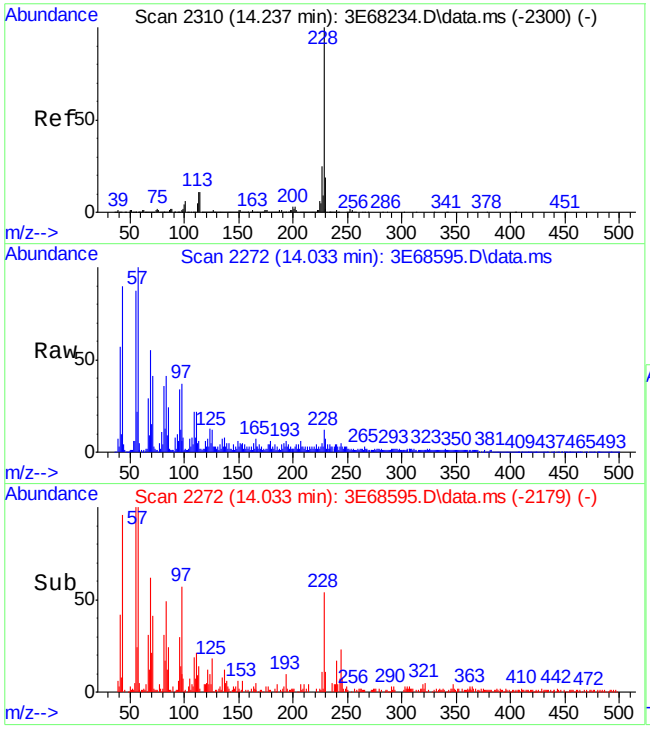
Tgt Ion:202 Resp: 58821

Ion	Ratio	Lower	Upper
202	100		
200	21.9	0.0	50.0
203	18.4	0.0	47.6



9.1.2

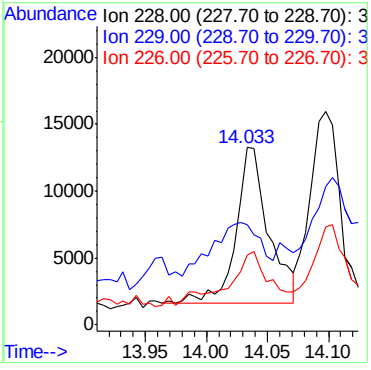
9

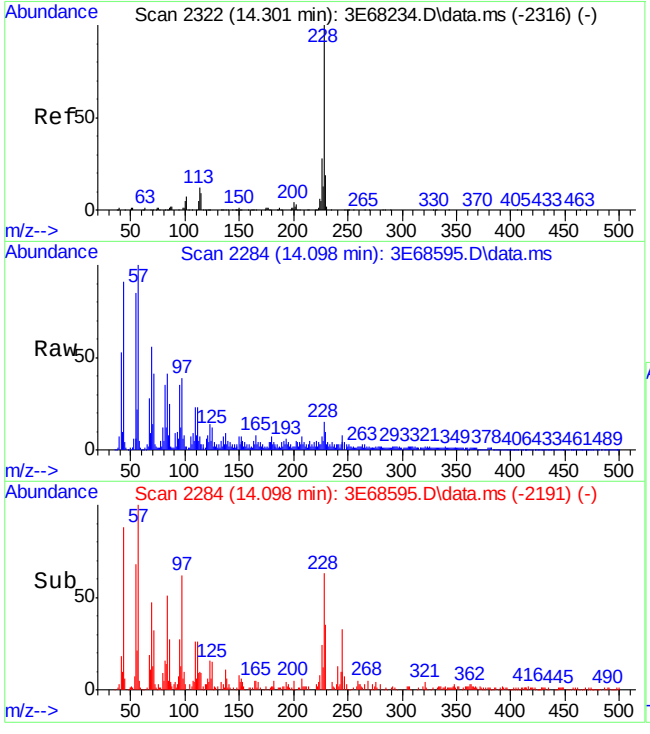


#88
Benzo[a]anthracene
Concen: 1.01 ppb
RT: 14.033 min Scan# 2272
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:228 Resp: 21551

Ion	Ratio	Lower	Upper
228	100		
229	21.6	0.0	49.4
226	31.5	0.0	55.3

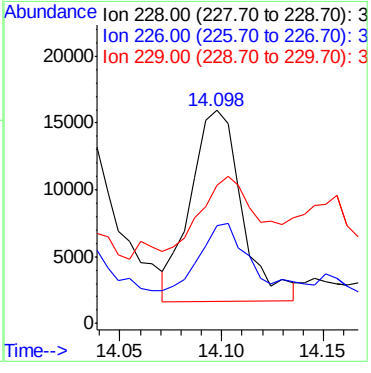


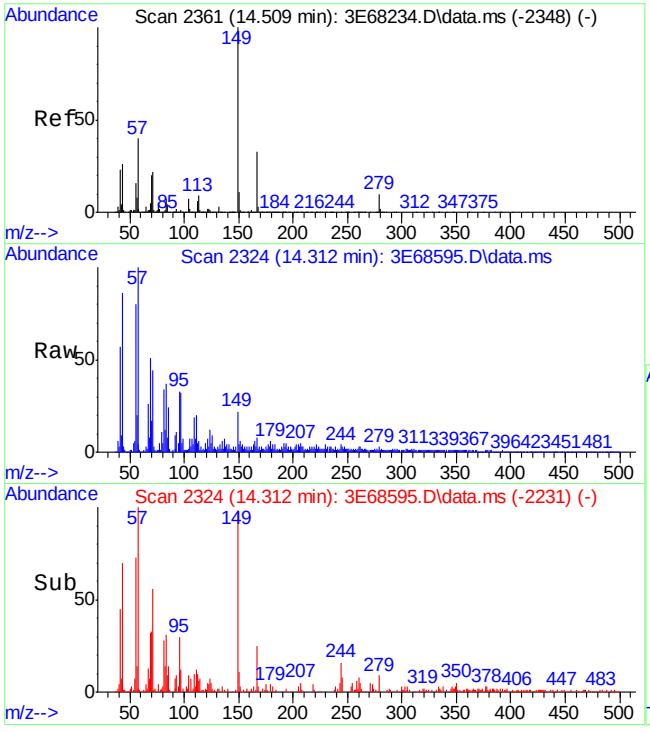


#90
Chrysene
Concen: 1.24 ppb
RT: 14.098 min Scan# 2284
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:228 Resp: 25049

Ion	Ratio	Lower	Upper
228	100		
226	36.3	0.0	57.9
229	29.4	0.0	49.5

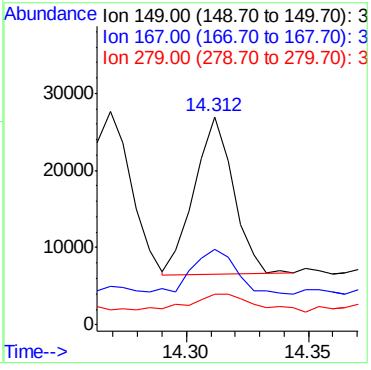


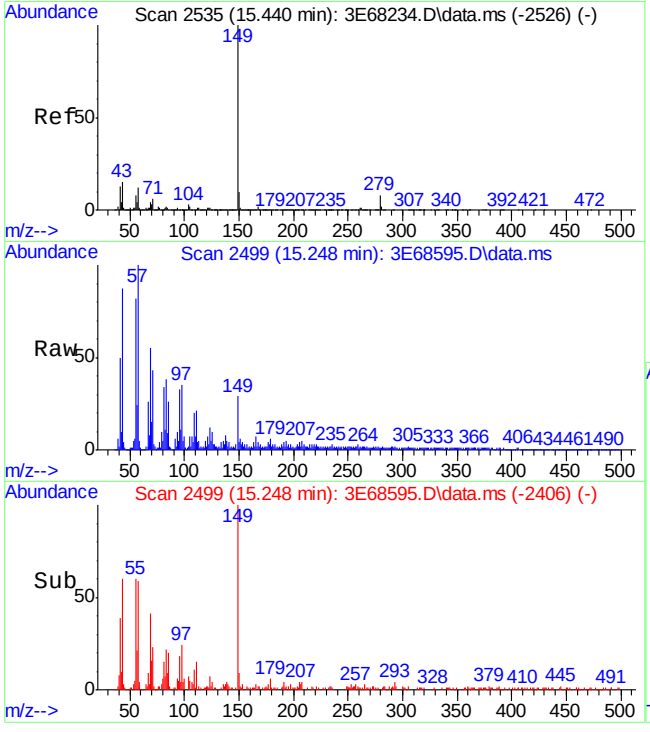


#91
bis(2-Ethylhexyl)phthalate
Concen: 2.02 ppb
RT: 14.312 min Scan# 2324
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:149 Resp: 22818

Ion	Ratio	Lower	Upper
149	100		
167	27.5	2.9	62.9
279	9.1	0.0	39.9

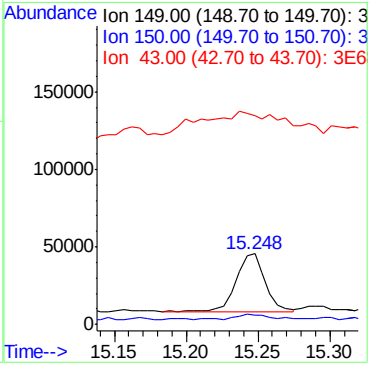




#93
Di-n-octylphthalate
Concen: 2.75 ppb
RT: 15.248 min Scan# 2499
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

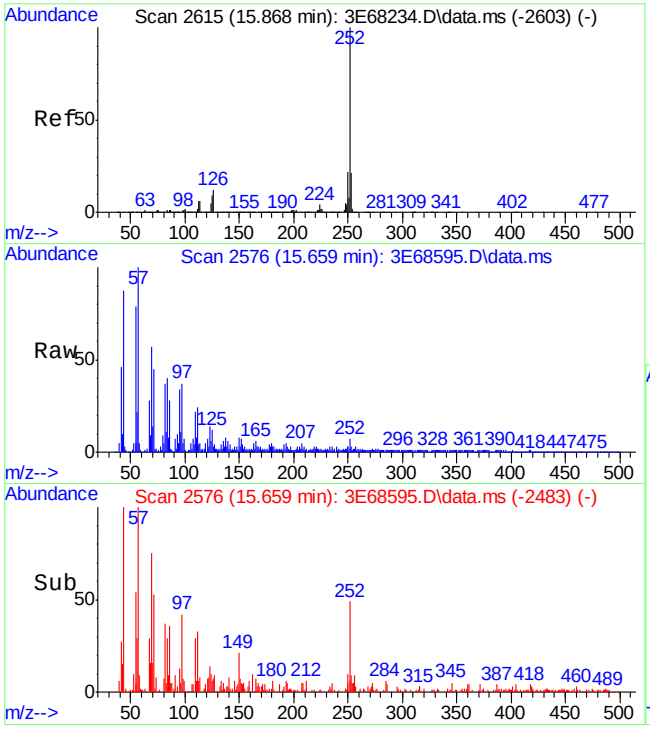
Tgt Ion:149 Resp: 54977

Ion	Ratio	Lower	Upper
149	100		
150	7.5	0.0	39.9
43	25.2	0.0	44.6



9.1.2

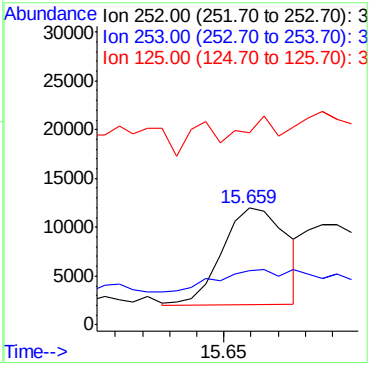
9

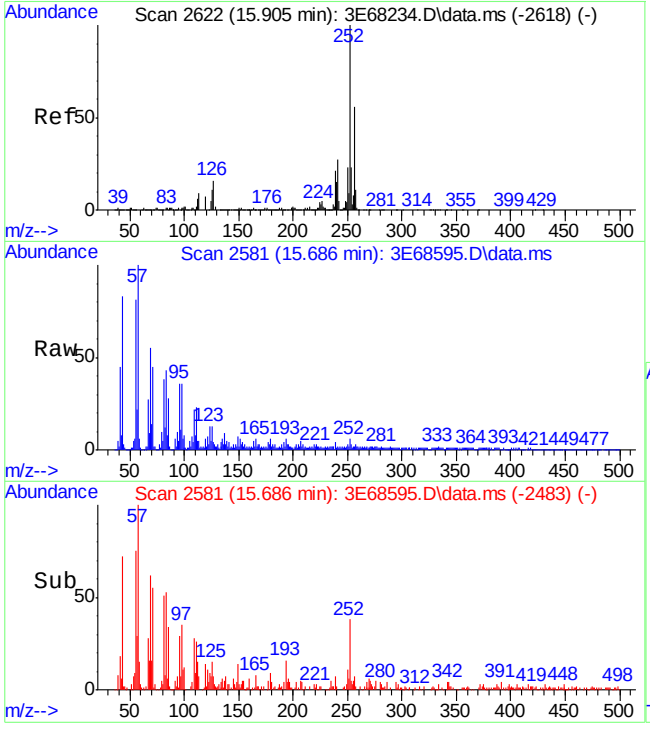


#94
Benzo[b]fluoranthene
Concen: 0.71 ppb
RT: 15.659 min Scan# 2576
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:252 Resp: 16327

Ion	Ratio	Lower	Upper
252	100		
253	16.1	0.0	50.5
125	0.0	0.0	38.5

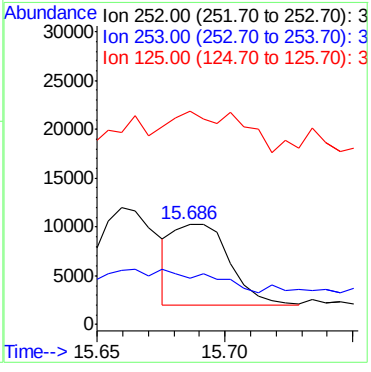




#95
Benzo[k]fluoranthene
Concen: 0.57 ppb m
RT: 15.686 min Scan# 2581
Delta R.T. 0.027 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

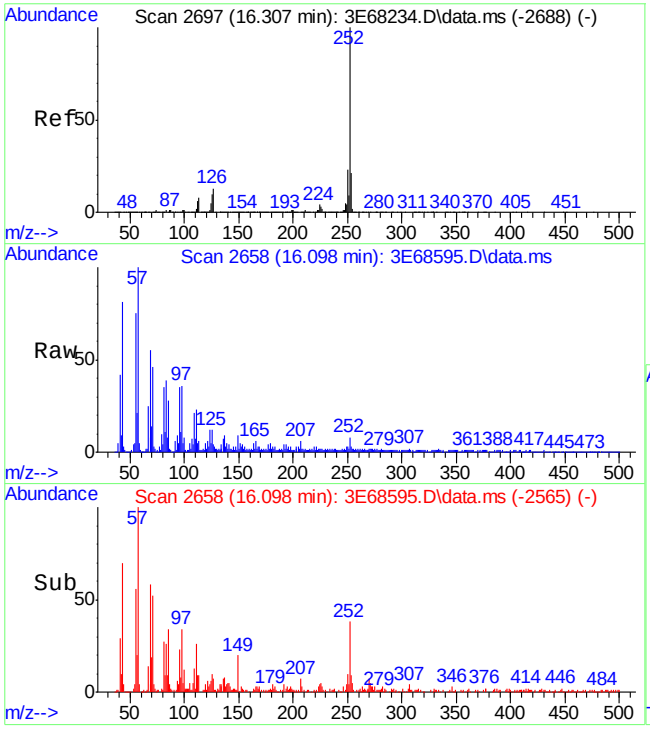
Tgt Ion:252 Resp: 12811

Ion	Ratio	Lower	Upper
252	100		
253	45.8	0.0	53.1
125	212.1	0.0	41.1#



9.1.2

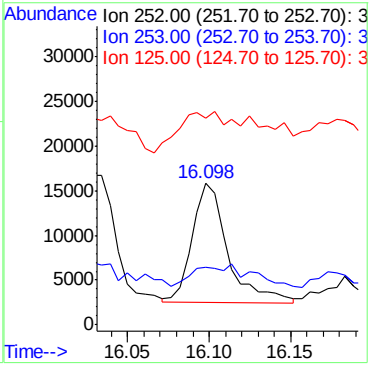
9

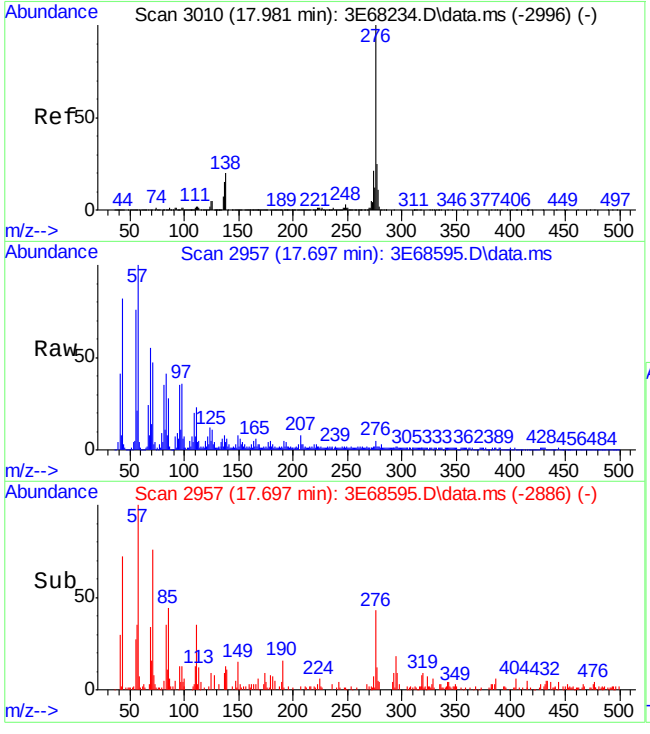


#96
Benzo[a]pyrene
Concen: 1.00 ppb
RT: 16.098 min Scan# 2658
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:252 Resp: 20305

Ion	Ratio	Lower	Upper
252	100		
253	14.0	0.0	51.3
125	18.2	0.0	40.2

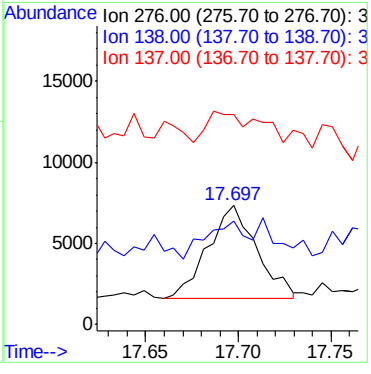


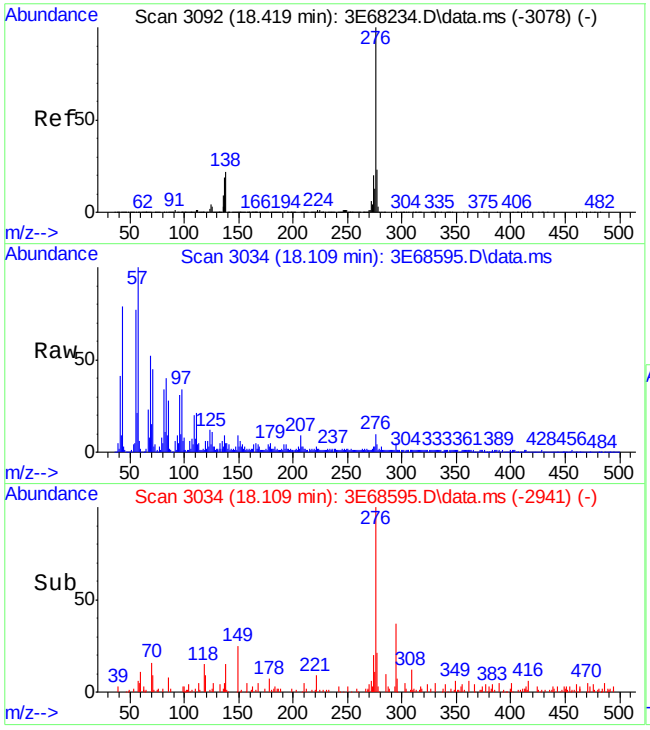


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.44 ppb m
RT: 17.697 min Scan# 2957
Delta R.T. -0.118 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:276 Resp: 10542

Ion	Ratio	Lower	Upper
276	100		
138	86.2	0.0	50.4#
137	175.3	0.0	45.2#

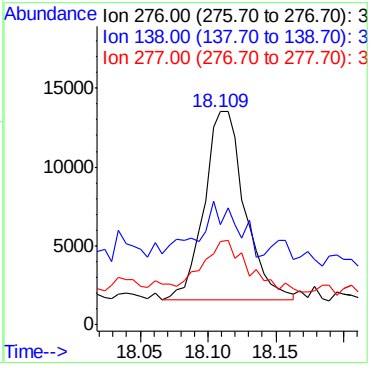




#101
Benzo[g,h,i]perylene
Concen: 1.30 ppb
RT: 18.109 min Scan# 3034
Delta R.T. 0.000 min
Lab File: 3E68595.D
Acq: 10 Jan 2015 1:28 am

Tgt Ion:276 Resp: 24885

Ion	Ratio	Lower	Upper
276	100		
138	17.1	0.0	51.8
277	23.9	0.0	52.7



9.1.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68596.D
Acq On : 10 Jan 2015 1:54 am
Operator : ashleyd
Sample : jb85833-3
Misc : op81001,e3e2944,30.5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 12 10:52:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.582	152	222885	40.00 ppb	-0.12
24) Naphthalene-d8	5.663	136	824649	40.00 ppb	-0.15
47) Acenaphthene-d10	7.738	164	504590	40.00 ppb	-0.18
69) Phenanthrene-d10	9.878	188	856044	40.00 ppb	-0.19
83) Chrysene-d12	14.055	240	788727	40.00 ppb	-0.21
92) Perylene-d12	16.173	264	726879	40.00 ppb	-0.21
102) 1,4-Dichlorobenzene-d4a	4.582	152	222885	40.00 ppb	-0.12
104) Acenaphthene-d10a	7.738	164	504590	40.00 ppb	-0.18
106) Phenanthrene-d10a	9.878	188	856044	40.00 ppb	-0.19
108) Chrysene-d12a	14.055	240	788727	40.00 ppb	-0.20
110) Naphthalene-d8a	5.663	136	824649	40.00 ppb	-0.14
112) Chrysene-d12b	14.055	240	788727	40.00 ppb	-0.21

System Monitoring Compounds					
5) 2-Fluorophenol	3.679	112	290622	33.15 ppb	-0.10
Spiked Amount 50.000			Recovery = 66.30%		
8) Phenol-d5	4.379	99	398364	33.32 ppb	-0.10
Spiked Amount 50.000			Recovery = 66.64%		
25) Nitrobenzene-d5	5.037	82	415820	31.98 ppb	-0.13
Spiked Amount 50.000			Recovery = 63.96%		
51) 2-Fluorobiphenyl	6.872	172	695444	31.32 ppb	-0.17
Spiked Amount 50.000			Recovery = 62.64%		
73) 2,4,6-Tribromophenol	8.872	330	71604	31.42 ppb	-0.19
Spiked Amount 50.000			Recovery = 62.84%		
85) Terphenyl-d14	12.434	244	726416	38.73 ppb	-0.20
Spiked Amount 50.000			Recovery = 77.46%		

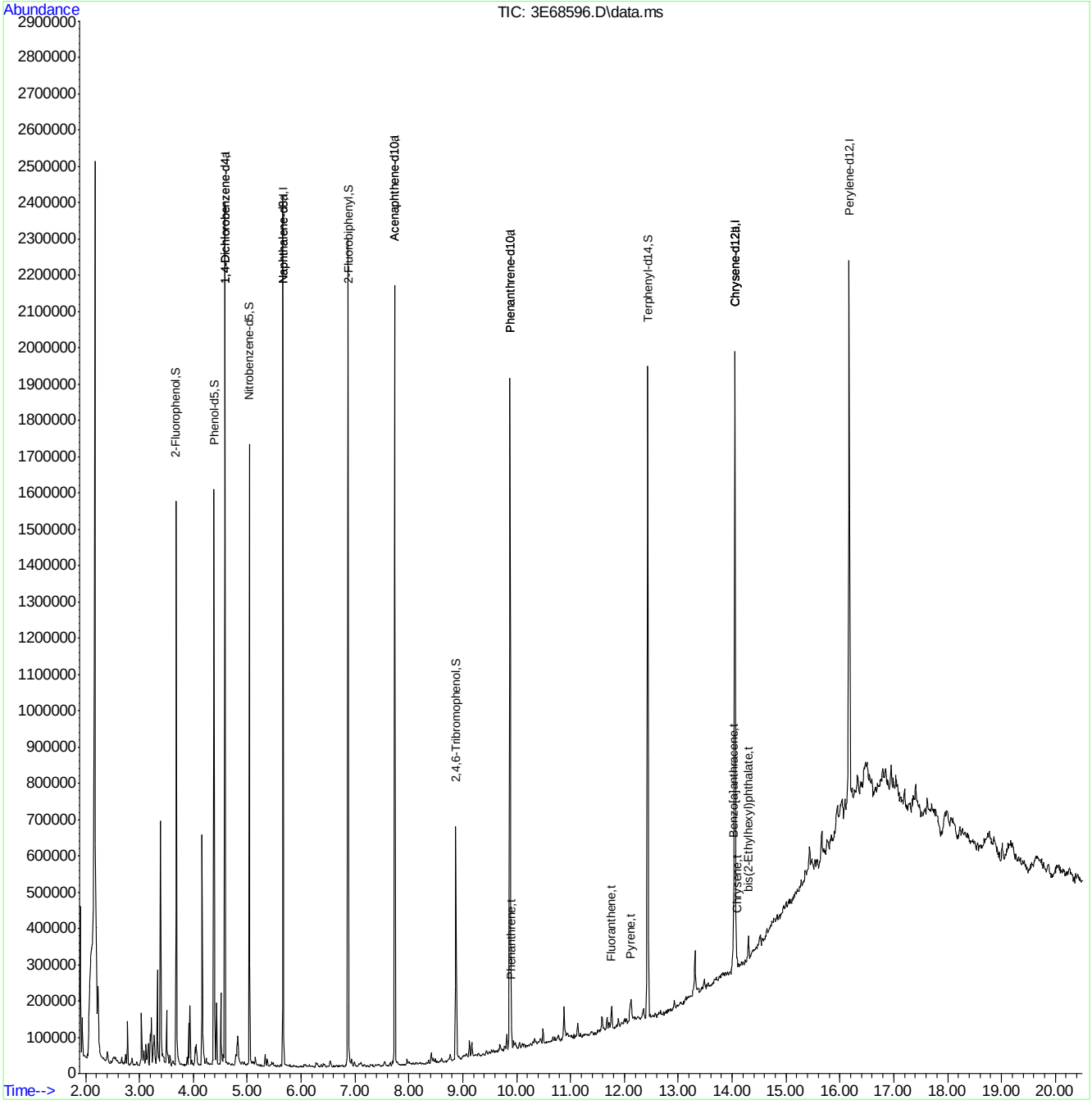
Target Compounds					Qvalue
77) Phenanthrene	9.904	178	23559	0.93 ppb	99
81) Fluoranthene	11.766	202	20685	0.73 ppb	99
84) Pyrene	12.108	202	18749	0.76 ppb	95
88) Benzo[a]anthracene	14.028	228	10766	0.47 ppb	88
90) Chrysene	14.092	228	8660	0.40 ppb	92
91) bis(2-Ethylhexyl)phtha...	14.301	149	17501	1.43 ppb	98

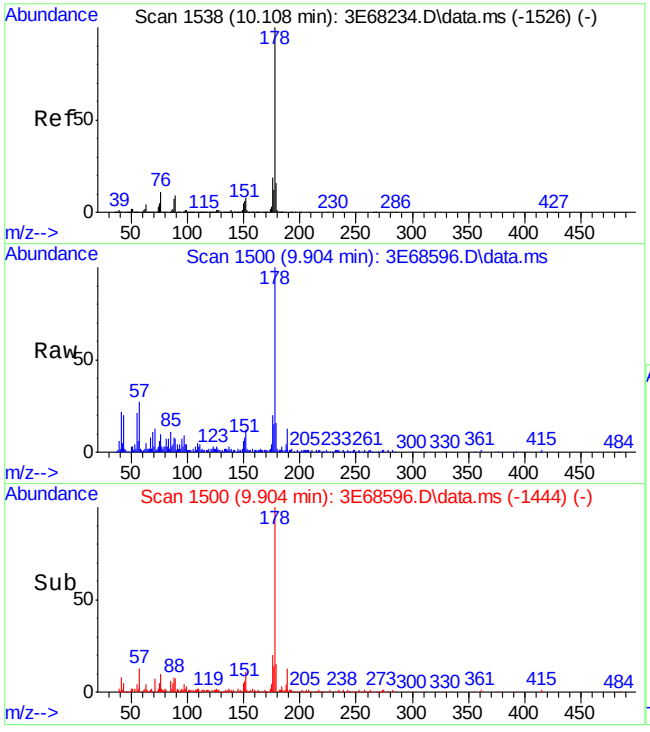
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68596.D
Acq On : 10 Jan 2015 1:54 am
Operator : ashleyd
Sample : jb85833-3
Misc : op81001,e3e2944,30.5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 12 10:52:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

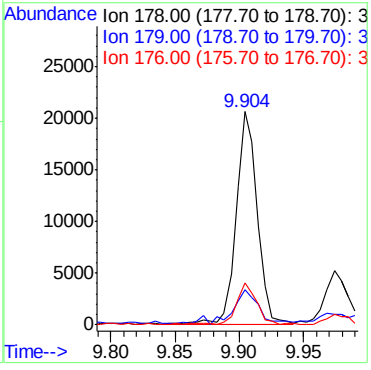


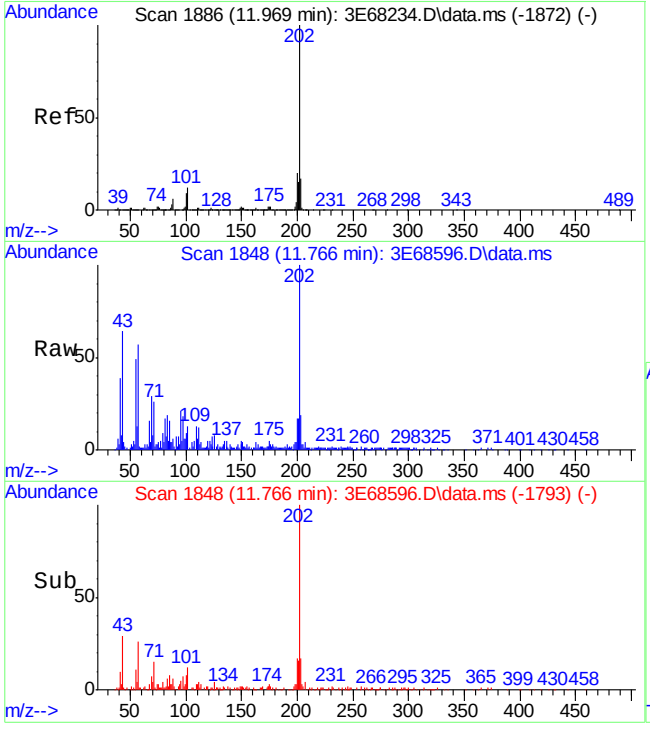


#77
Phenanthrene
Concen: 0.93 ppb
RT: 9.904 min Scan# 1500
Delta R.T. -0.203 min
Lab File: 3E68596.D
Acq: 10 Jan 2015 1:54 am

Tgt Ion:178 Resp: 23559

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.5
176	19.5	0.0	48.5

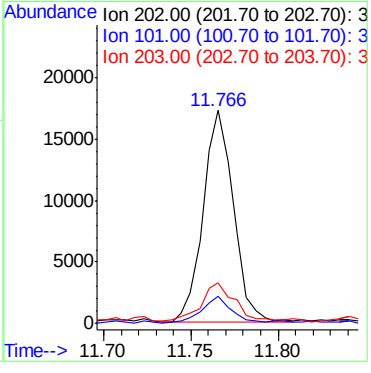


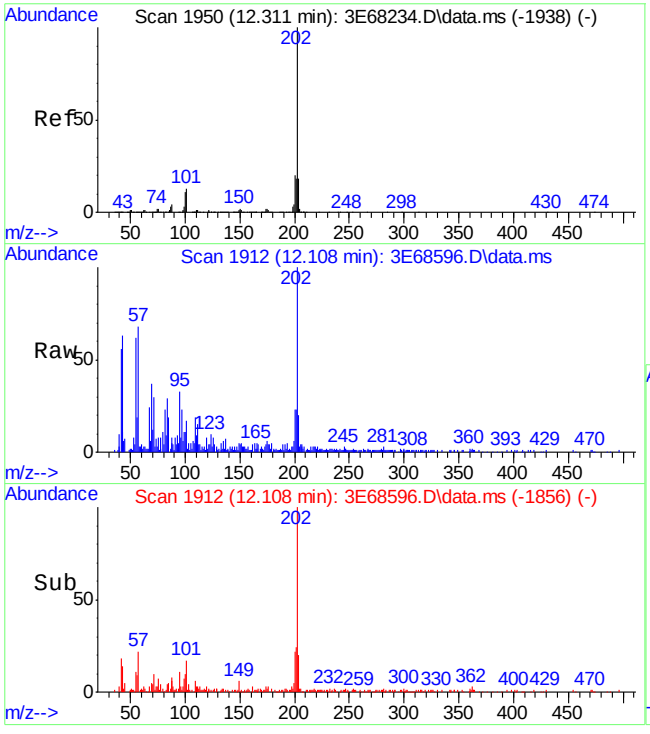


#81
Fluoranthene
Concen: 0.73 ppb
RT: 11.766 min Scan# 1848
Delta R.T. -0.203 min
Lab File: 3E68596.D
Acq: 10 Jan 2015 1:54 am

Tgt Ion:202 Resp: 20685

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	41.9
203	17.6	0.0	47.4

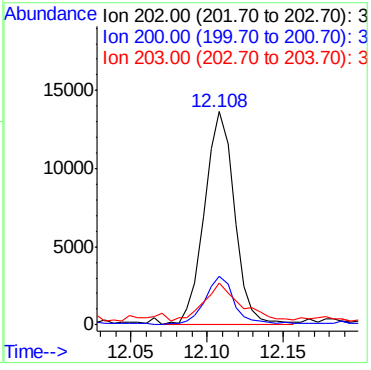


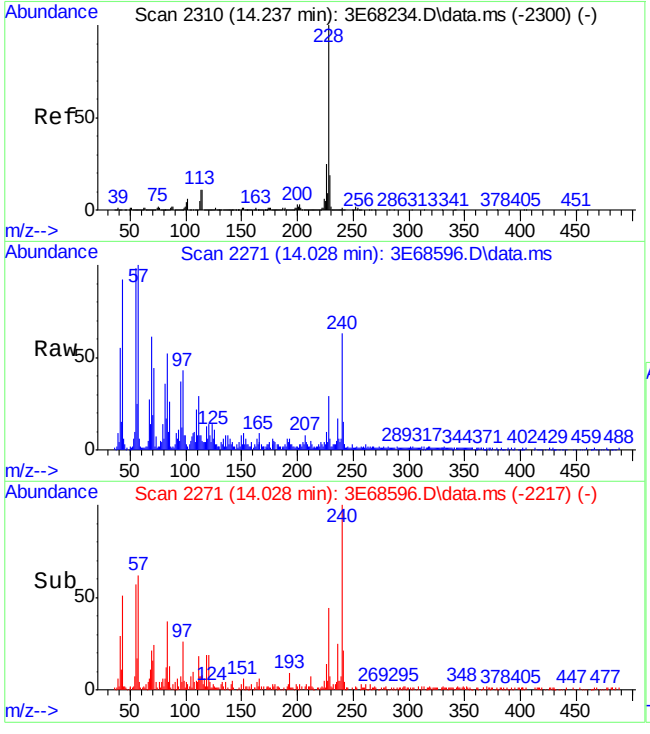


#84
Pyrene
Concen: 0.76 ppb
RT: 12.108 min Scan# 1912
Delta R.T. -0.203 min
Lab File: 3E68596.D
Acq: 10 Jan 2015 1:54 am

Tgt Ion:202 Resp: 18749

Ion	Ratio	Lower	Upper
202	100		
200	22.4	0.0	50.0
203	15.9	0.0	47.6

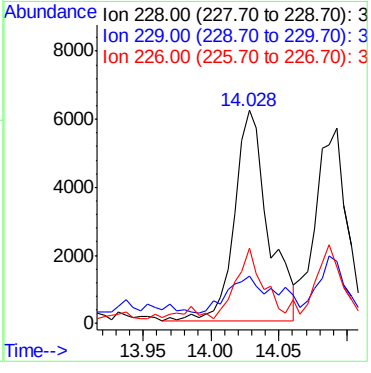


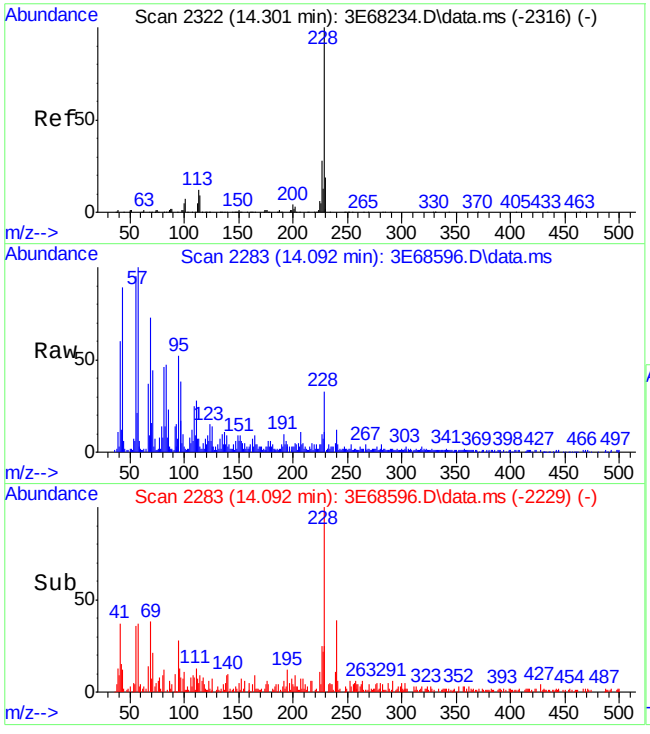


#88
Benzo[a]anthracene
Concen: 0.47 ppb
RT: 14.028 min Scan# 2271
Delta R.T. -0.209 min
Lab File: 3E68596.D
Acq: 10 Jan 2015 1:54 am

Tgt Ion:228 Resp: 10766

Ion	Ratio	Lower	Upper
228	100		
229	13.9	0.0	49.4
226	31.1	0.0	55.3

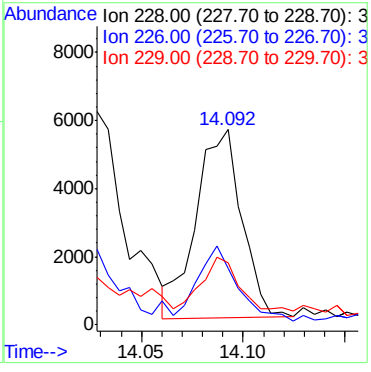


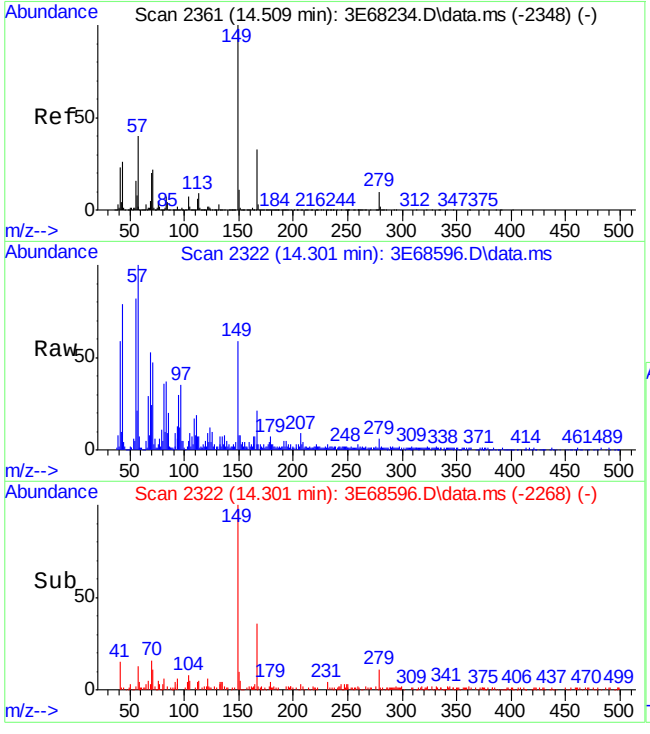


#90
Chrysene
Concen: 0.40 ppb
RT: 14.092 min Scan# 2283
Delta R.T. -0.208 min
Lab File: 3E68596.D
Acq: 10 Jan 2015 1:54 am

Tgt Ion:228 Resp: 8660

Ion	Ratio	Lower	Upper
228	100		
226	24.3	0.0	57.9
229	24.2	0.0	49.5

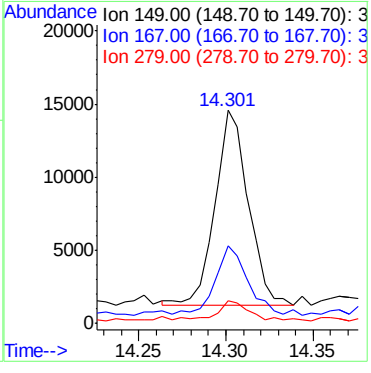




#91
bis(2-Ethylhexyl)phthalate
Concen: 1.43 ppb
RT: 14.301 min Scan# 2322
Delta R.T. -0.209 min
Lab File: 3E68596.D
Acq: 10 Jan 2015 1:54 am

Tgt Ion:149 Resp: 17501

Ion	Ratio	Lower	Upper
149	100		
167	33.5	2.9	62.9
279	8.8	0.0	39.9



9.1.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68597.D
Acq On : 10 Jan 2015 2:21 am
Operator : ashleyd
Sample : jb85833-4
Misc : op81001,e3e2944,30.0
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 12 10:55:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Jan 12 09:07:12 2015
QLast Update : Mon Jan 12 09:07:51 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.583	152	225818	40.00	ppb	0.00
24) Naphthalene-d8	5.674	136	856314	40.00	ppb	0.00
47) Acenaphthene-d10	7.754	164	471381	40.00	ppb	0.00
69) Phenanthrene-d10	9.894	188	758406	40.00	ppb	0.00
83) Chrysene-d12	14.071	240	695844	40.00	ppb	0.00
92) Perylene-d12	16.184	264	647659	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	4.583	152	225818	40.00	ppb	0.00
104) Acenaphthene-d10a	7.754	164	471381	40.00	ppb	0.00
106) Phenanthrene-d10a	9.894	188	758406	40.00	ppb	0.00
108) Chrysene-d12a	14.071	240	695844	40.00	ppb	0.00
110) Naphthalene-d8a	5.674	136	856314	40.00	ppb	0.00
112) Chrysene-d12b	14.071	240	695844	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	3.684	112	260068	29.28	ppb	0.00
Spiked Amount 50.000			Recovery = 58.56%			
8) Phenol-d5	4.379	99	379333	31.31	ppb	0.00
Spiked Amount 50.000			Recovery = 62.62%			
25) Nitrobenzene-d5	5.043	82	409937	30.36	ppb	0.00
Spiked Amount 50.000			Recovery = 60.72%			
51) 2-Fluorobiphenyl	6.882	172	636251	30.67	ppb	0.00
Spiked Amount 50.000			Recovery = 61.34%			
73) 2,4,6-Tribromophenol	8.894	330	87343	43.26	ppb	0.00
Spiked Amount 50.000			Recovery = 86.52%			
85) Terphenyl-d14	12.450	244	597167	36.09	ppb	0.00
Spiked Amount 50.000			Recovery = 72.18%			

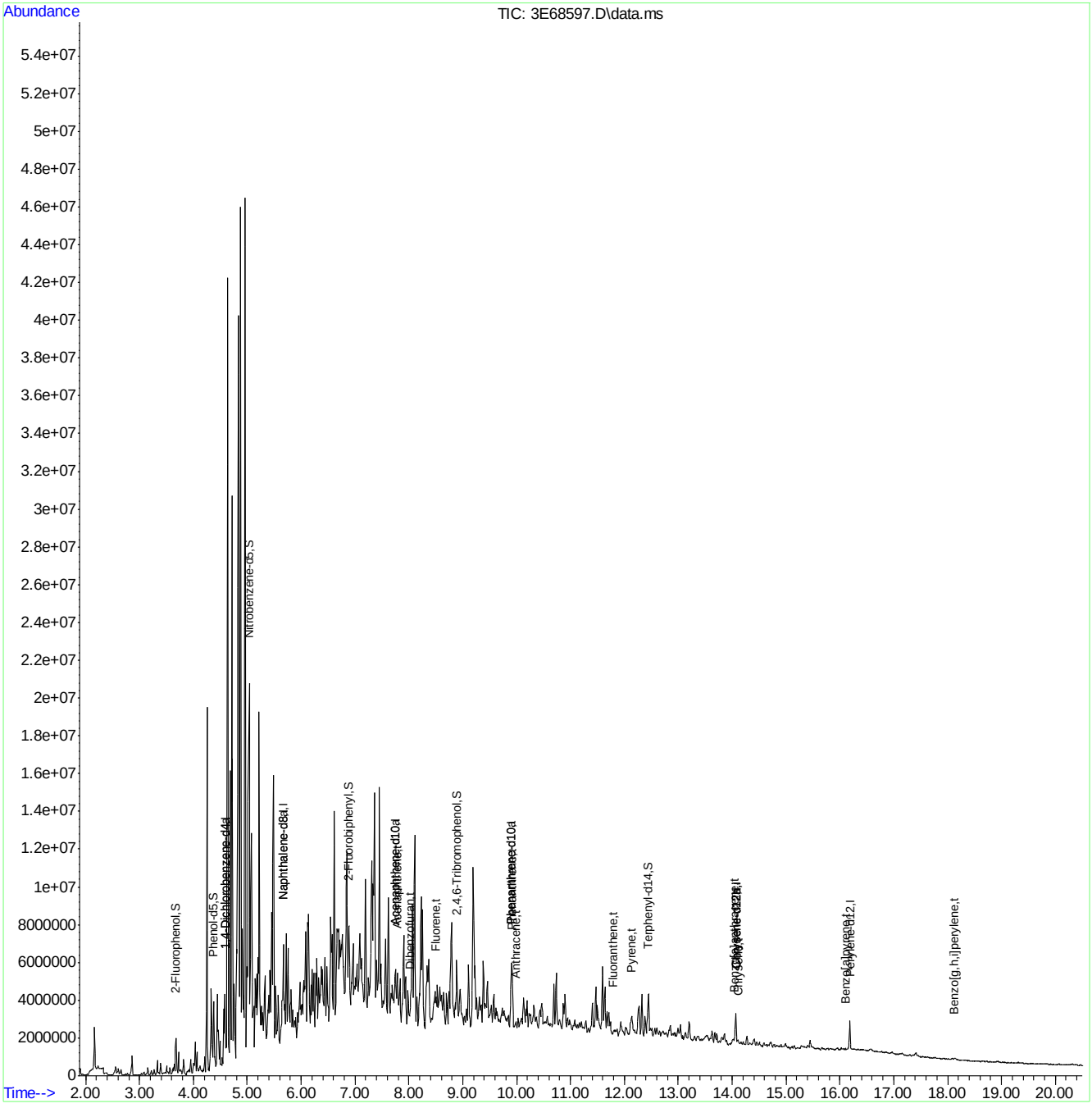
Target Compounds						Qvalue
59) Acenaphthene	7.792	153	93655	6.25	ppb	89
62) Dibenzofuran	8.016	168	123241	5.69	ppb	73
66) Fluorene	8.508	166	215235	12.73	ppb	92
77) Phenanthrene	9.926	178	636101	28.21	ppb	98
78) Anthracene	9.995	178	45527	2.01	ppb	81
81) Fluoranthene	11.787	202	24804	0.98	ppb	99
84) Pyrene	12.124	202	254709	11.66	ppb	96
88) Benzo[a]anthracene	14.044	228	40492	1.99	ppb	76
90) Chrysene	14.103	228	62262	3.23	ppb	88
96) Benzo[a]pyrene	16.104	252	27874	1.48	ppb	87
101) Benzo[g,h,i]perylene	18.115	276	22471	1.26	ppb	89

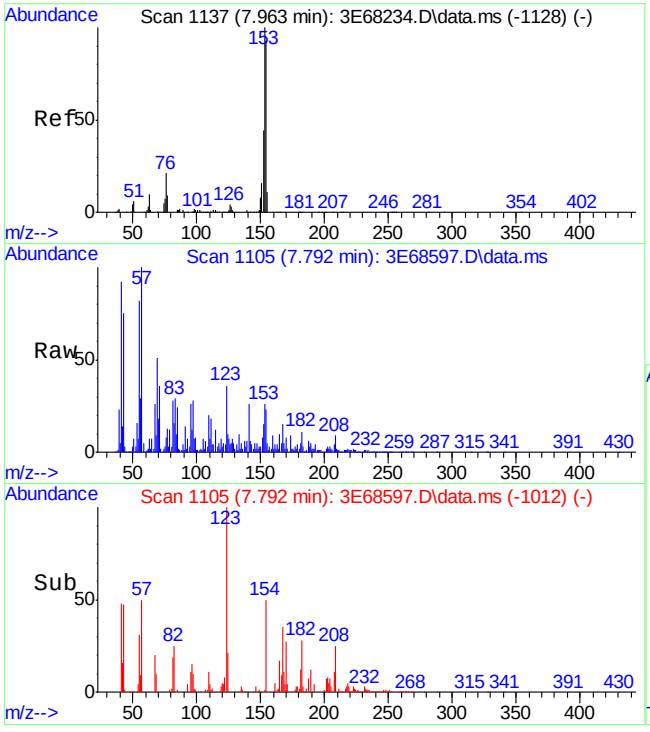
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68597.D
Acq On : 10 Jan 2015 2:21 am
Operator : ashleyd
Sample : jb85833-4
Misc : op81001,e3e2944,30.0
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 12 10:55:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Jan 12 09:07:12 2015
QLast Update : Mon Jan 12 09:07:51 2015
Response via : Initial Calibration

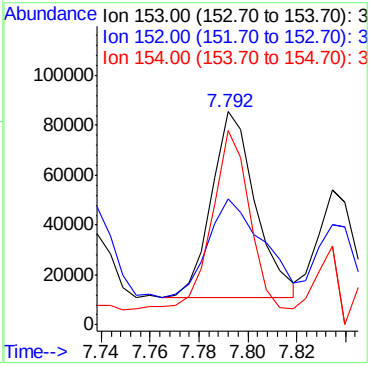


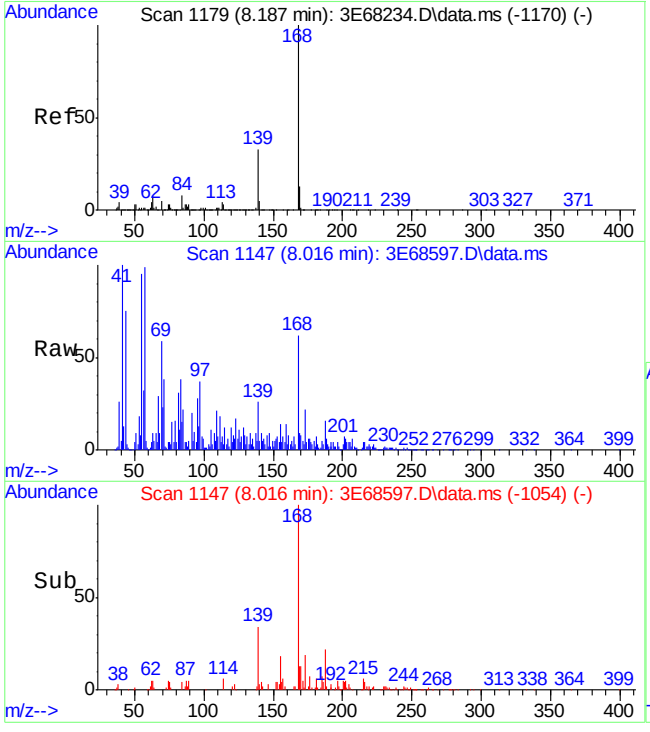


#59
Acenaphthene
Concen: 6.25 ppb
RT: 7.792 min Scan# 1105
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:153 Resp: 93655

Ion	Ratio	Lower	Upper
153	100		
152	51.0	13.9	73.9
154	98.8	58.8	118.8

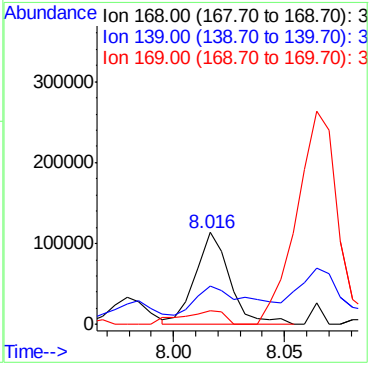


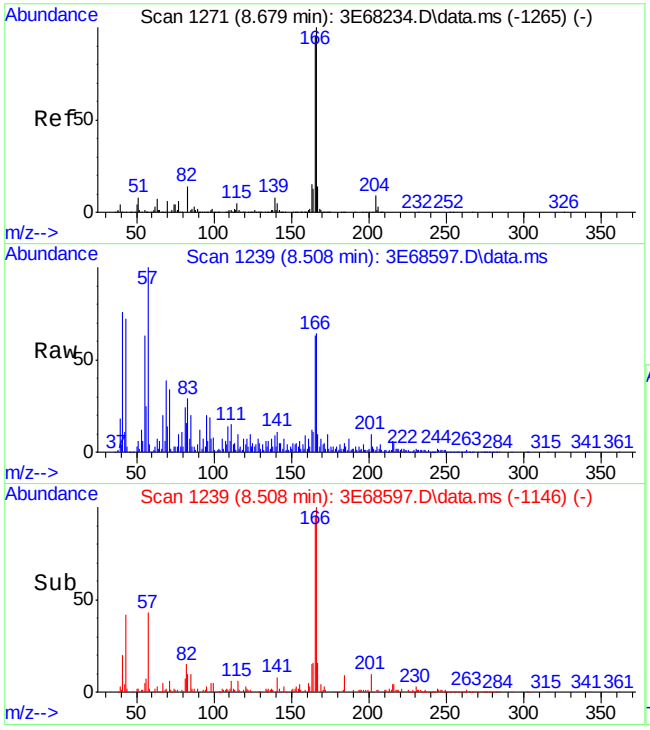


#62
Dibenzofuran
Concen: 5.69 ppb
RT: 8.016 min Scan# 1147
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:168 Resp: 123241

Ion	Ratio	Lower	Upper
168	100		
139	19.2	3.4	63.4
169	0.0	0.0	42.9

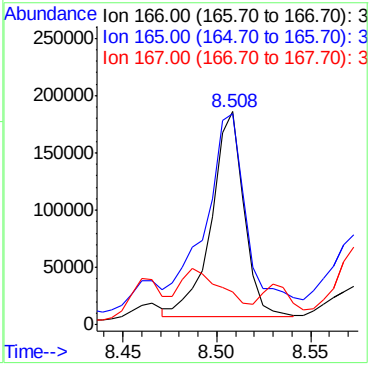


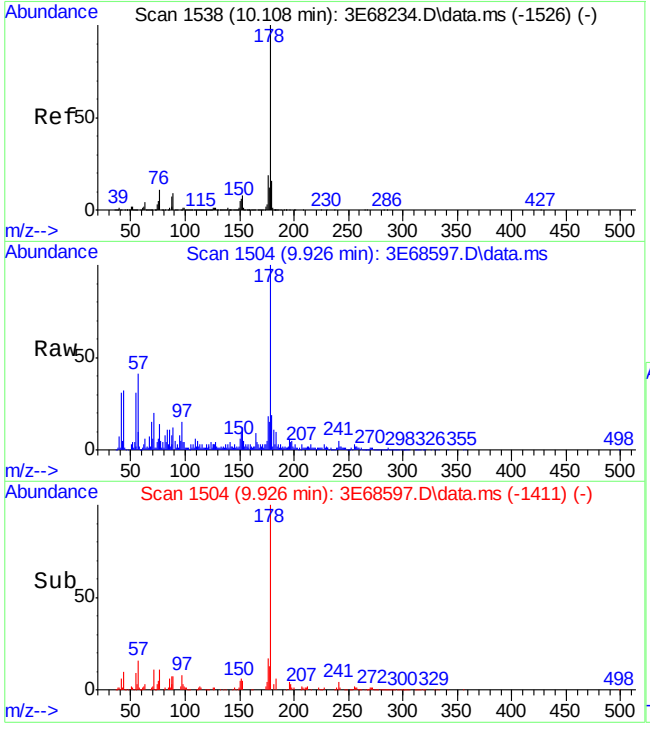


#66
Fluorene
Concen: 12.73 ppb
RT: 8.508 min Scan# 1239
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:166 Resp: 215235

Ion	Ratio	Lower	Upper
166	100		
165	89.8	64.7	124.7
167	3.7	0.0	43.6

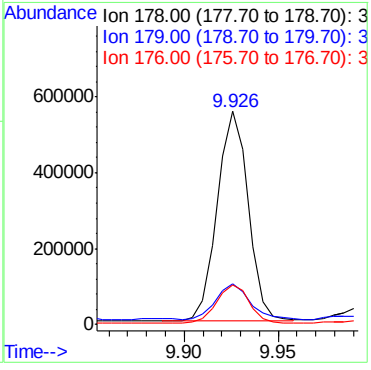


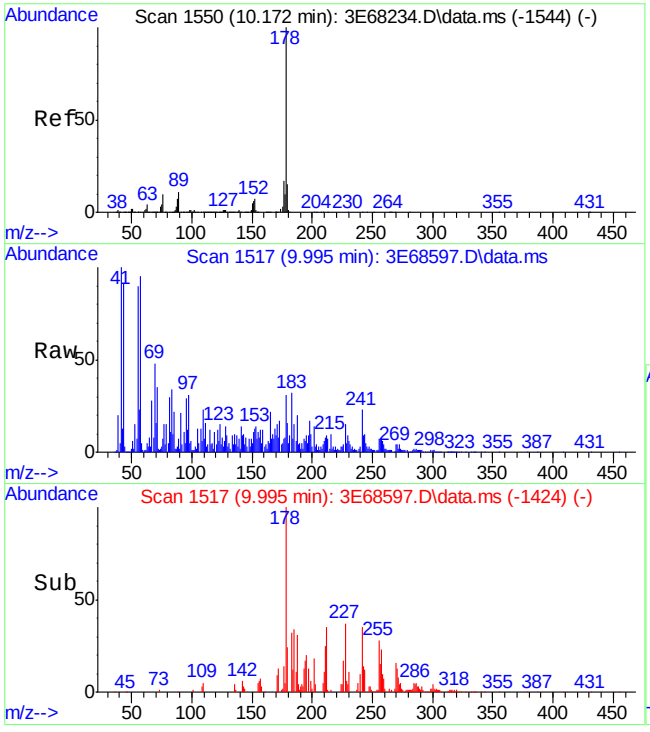


#77
Phenanthrene
Concen: 28.21 ppb
RT: 9.926 min Scan# 1504
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:178 Resp: 636101

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	45.5
176	18.0	0.0	48.5

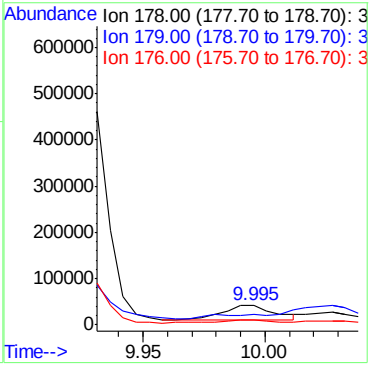


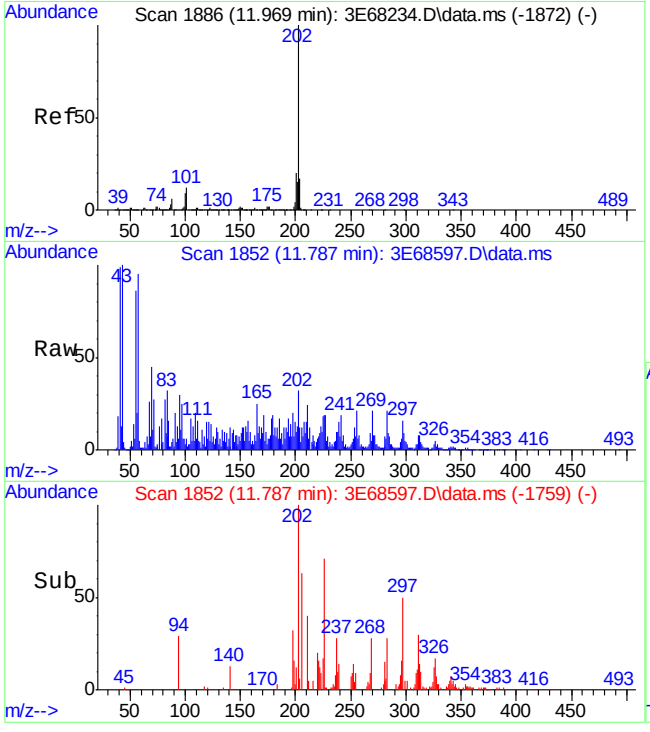


#78
Anthracene
Concen: 2.01 ppb
RT: 9.995 min Scan# 1517
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:178 Resp: 45527

Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	44.8
176	19.3	0.0	47.2

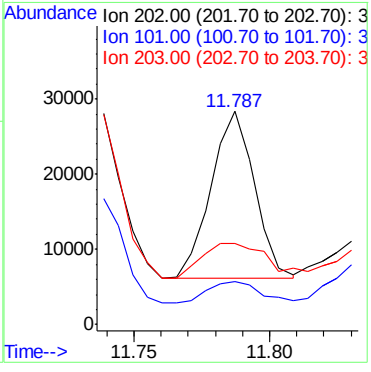


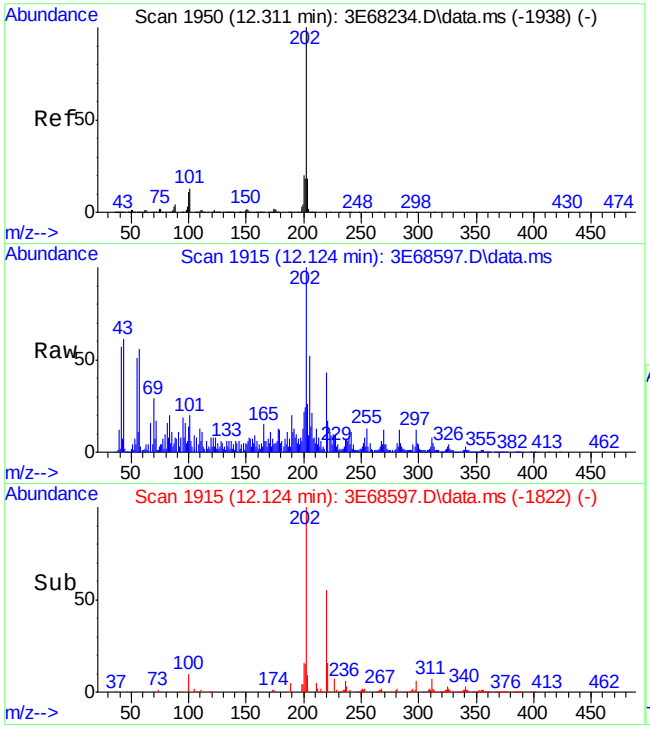


#81
Fluoranthene
Concen: 0.98 ppb
RT: 11.787 min Scan# 1852
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:202 Resp: 24804

Ion	Ratio	Lower	Upper
202	100		
101	11.9	0.0	41.9
203	18.0	0.0	47.4

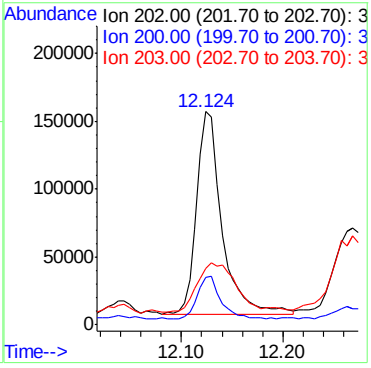


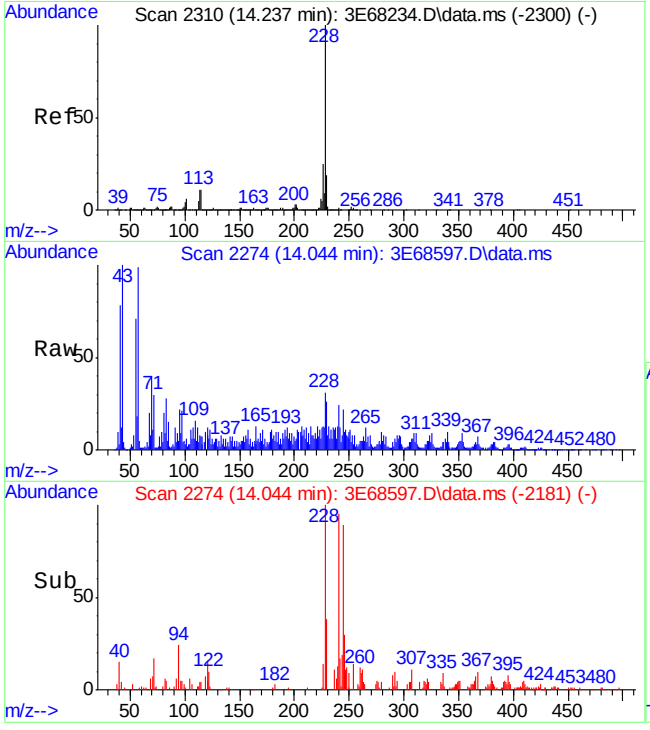


#84
Pyrene
Concen: 11.66 ppb
RT: 12.124 min Scan# 1915
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:202 Resp: 254709

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	21.1	0.0	47.6

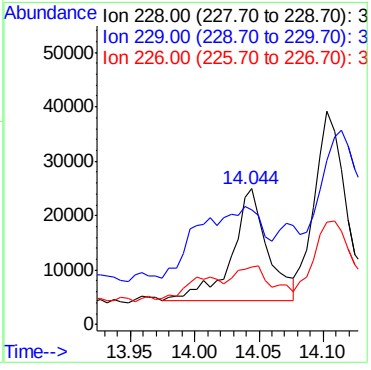


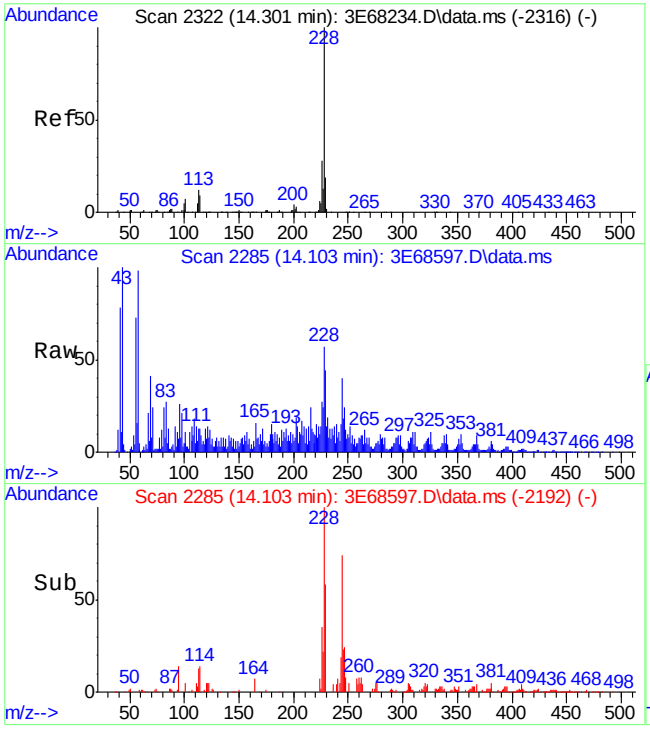


#88
Benzo[a]anthracene
Concen: 1.99 ppb
RT: 14.044 min Scan# 2274
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:228 Resp: 40492

Ion	Ratio	Lower	Upper
228	100		
229	42.1	0.0	49.4
226	27.3	0.0	55.3

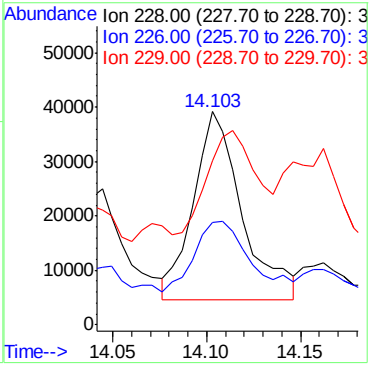


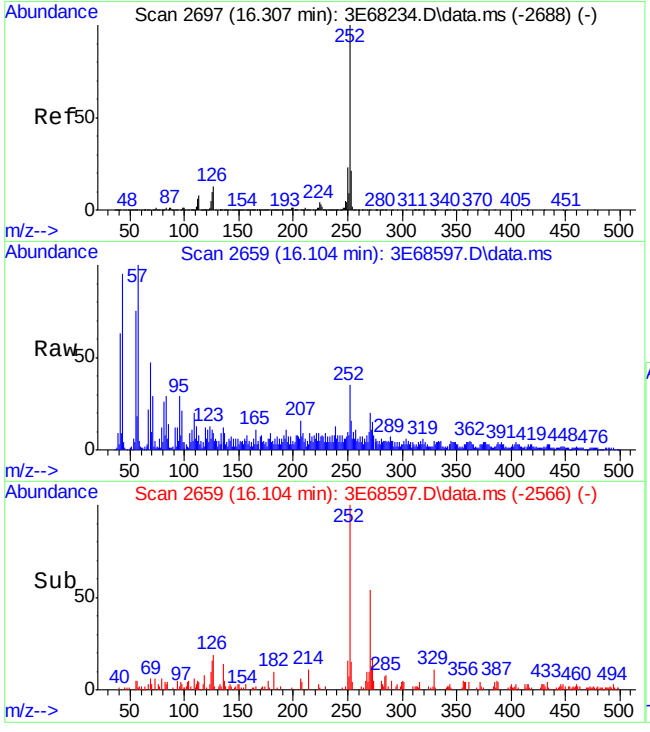


#90
Chrysene
Concen: 3.23 ppb
RT: 14.103 min Scan# 2285
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:228 Resp: 62262

Ion	Ratio	Lower	Upper
228	100		
226	38.5	0.0	57.9
229	19.6	0.0	49.5

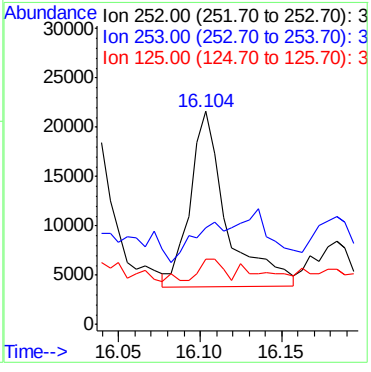


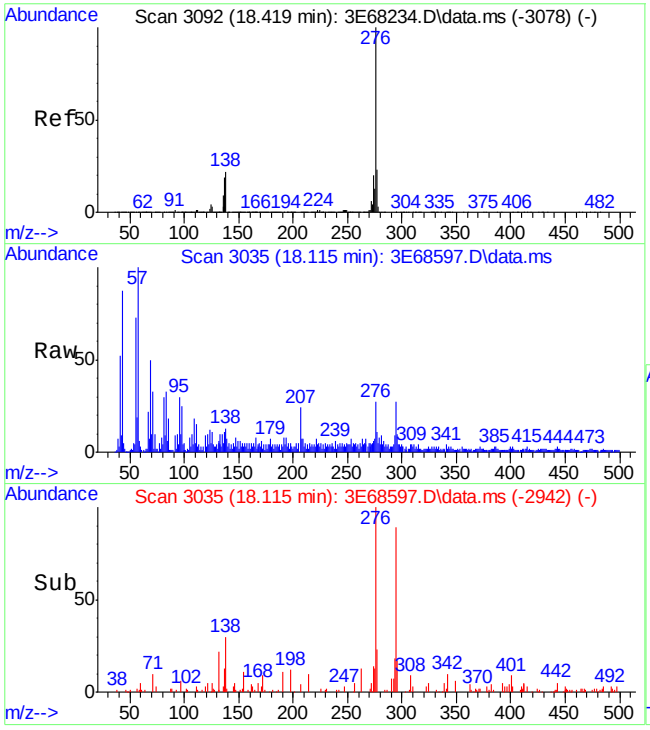


#96
Benzo[a]pyrene
Concen: 1.48 ppb
RT: 16.104 min Scan# 2659
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:252 Resp: 27874

Ion	Ratio	Lower	Upper
252	100		
253	13.3	0.0	51.3
125	11.9	0.0	40.2

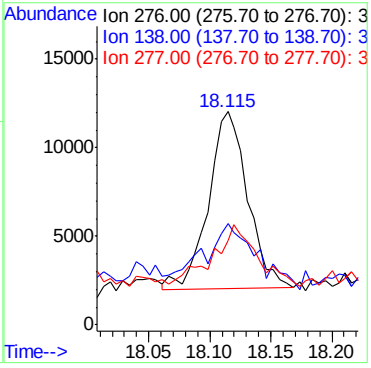




#101
Benzo[g,h,i]perylene
Concen: 1.26 ppb
RT: 18.115 min Scan# 3035
Delta R.T. 0.000 min
Lab File: 3E68597.D
Acq: 10 Jan 2015 2:21 am

Tgt Ion:276 Resp: 22471

Ion	Ratio	Lower	Upper
276	100		
138	31.7	0.0	51.8
277	23.1	0.0	52.7



9.1.4

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:39

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68598.D
Acq On : 10 Jan 2015 2:47 am
Operator : ashleyd
Sample : jb85833-5
Misc : op81001,e3e2944,34.0
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 12 10:58:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.583	152	235921	40.00 ppb	-0.12
24) Naphthalene-d8	5.668	136	851271	40.00 ppb	-0.14
47) Acenaphthene-d10	7.744	164	477244	40.00 ppb	-0.18
69) Phenanthrene-d10	9.878	188	797612	40.00 ppb	-0.19
83) Chrysene-d12	14.060	240	750413	40.00 ppb	-0.20
92) Perylene-d12	16.173	264	682344	40.00 ppb	-0.21
102) 1,4-Dichlorobenzene-d4a	4.583	152	235921	40.00 ppb	-0.12
104) Acenaphthene-d10a	7.744	164	477244	40.00 ppb	-0.17
106) Phenanthrene-d10a	9.878	188	797612	40.00 ppb	-0.19
108) Chrysene-d12a	14.060	240	750413	40.00 ppb	-0.20
110) Naphthalene-d8a	5.668	136	851271	40.00 ppb	-0.14
112) Chrysene-d12b	14.060	240	750413	40.00 ppb	-0.20

System Monitoring Compounds					
5) 2-Fluorophenol	3.679	112	312023	33.62 ppb	-0.10
Spiked Amount 50.000			Recovery = 67.24%		
8) Phenol-d5	4.374	99	415367	32.82 ppb	-0.10
Spiked Amount 50.000			Recovery = 65.64%		
25) Nitrobenzene-d5	5.043	82	442105	32.94 ppb	-0.13
Spiked Amount 50.000			Recovery = 65.88%		
51) 2-Fluorobiphenyl	6.872	172	662012	31.52 ppb	-0.17
Spiked Amount 50.000			Recovery = 63.04%		
73) 2,4,6-Tribromophenol	8.878	330	82674	38.93 ppb	-0.18
Spiked Amount 50.000			Recovery = 77.86%		
85) Terphenyl-d14	12.440	244	649919	36.42 ppb	-0.19
Spiked Amount 50.000			Recovery = 72.84%		

Target Compounds					Qvalue
38) Naphthalene	5.684	128	58367m	2.28 ppb	
44) 2-Methylnaphthalene	6.417	141	494979	31.71 ppb	98
59) Acenaphthene	7.781	153	8705	0.57 ppb	87
66) Fluorene	8.492	166	20110	1.17 ppb	93
77) Phenanthrene	9.910	178	66246	2.79 ppb	97
84) Pyrene	12.113	202	30891	1.31 ppb	96
90) Chrysene	14.087	228	10672m	0.51 ppb	

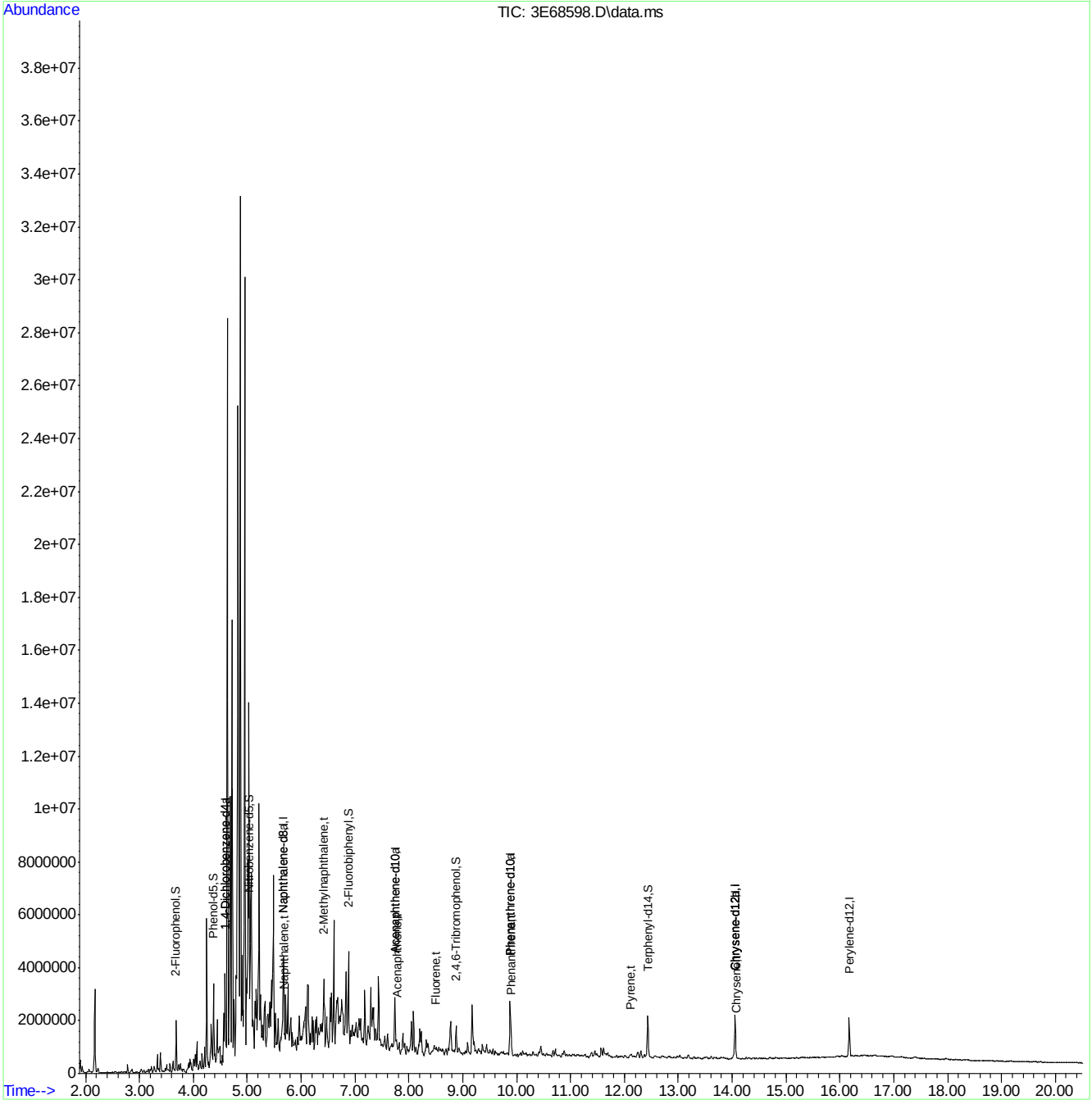
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.5
9

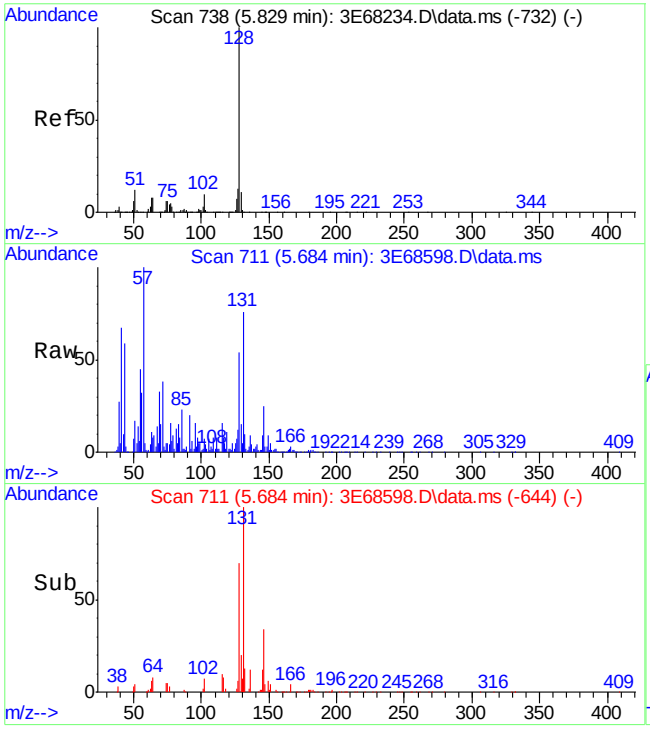
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68598.D
Acq On : 10 Jan 2015 2:47 am
Operator : ashleyd
Sample : jb85833-5
Misc : op81001,e3e2944,34.0
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 12 10:58:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration



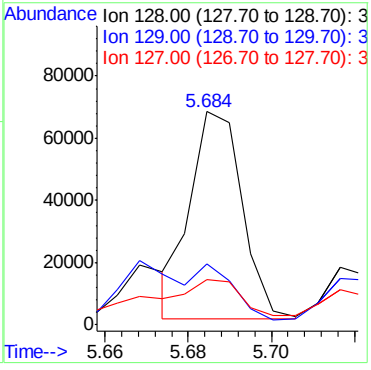
M3E2929.M Mon Jan 12 10:58:59 2015 MS3E Page: 2

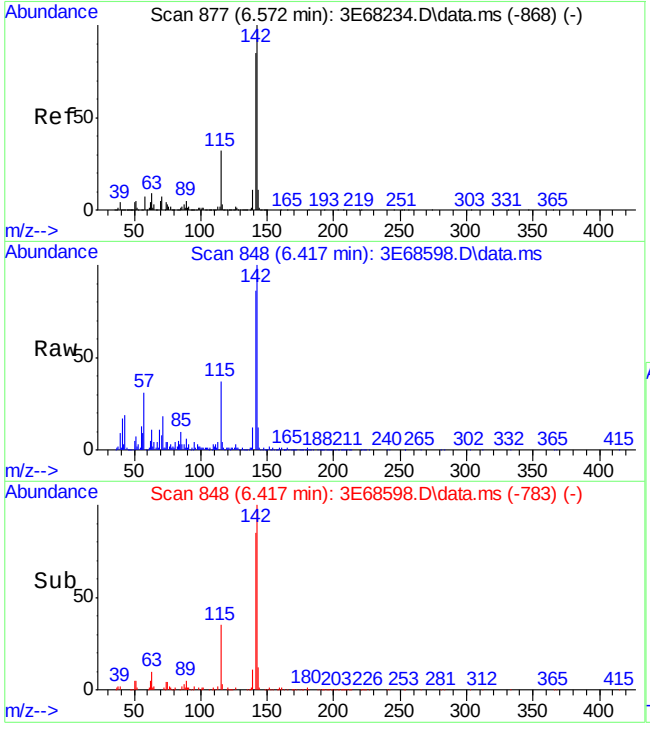


#38
Naphthalene
Concen: 2.28 ppb m
RT: 5.684 min Scan# 711
Delta R.T. -0.144 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

Tgt Ion:128 Resp: 58367

Ion	Ratio	Lower	Upper
128	100		
129	28.5	0.0	41.1
127	21.4	0.0	43.3

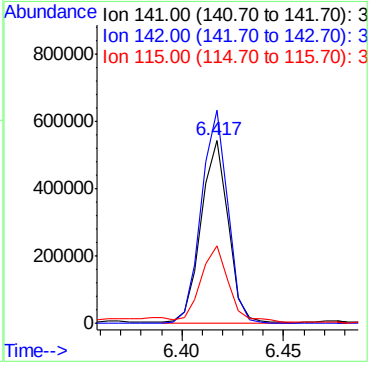




#44
2-Methylnaphthalene
Concen: 31.71 ppb
RT: 6.417 min Scan# 848
Delta R.T. -0.155 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

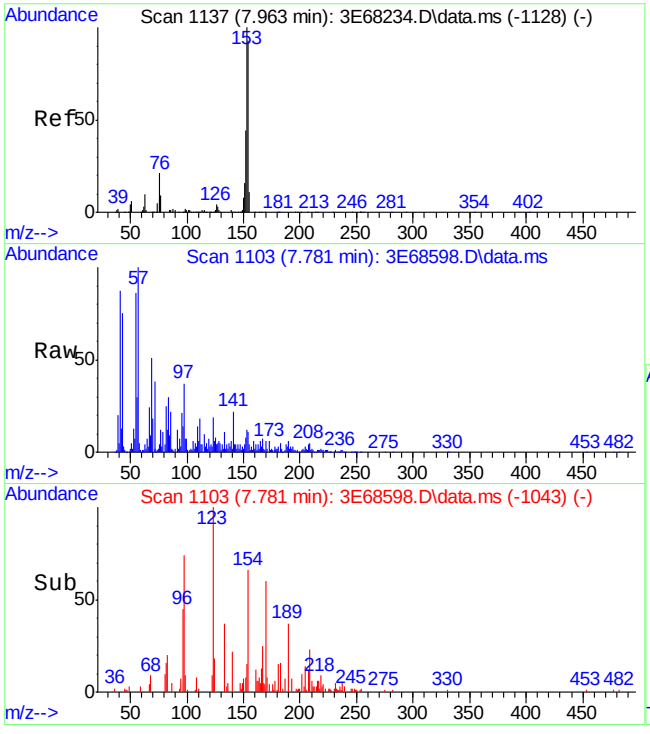
Tgt Ion:141 Resp: 494979

Ion	Ratio	Lower	Upper
141	100		
142	116.9	87.1	147.1
115	41.1	7.4	67.4



9.1.5

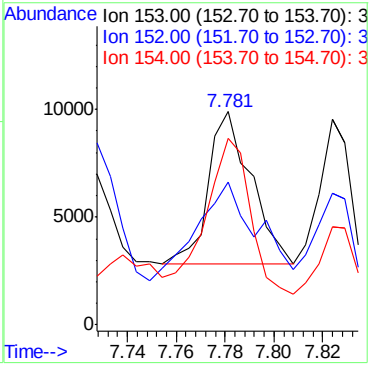
9

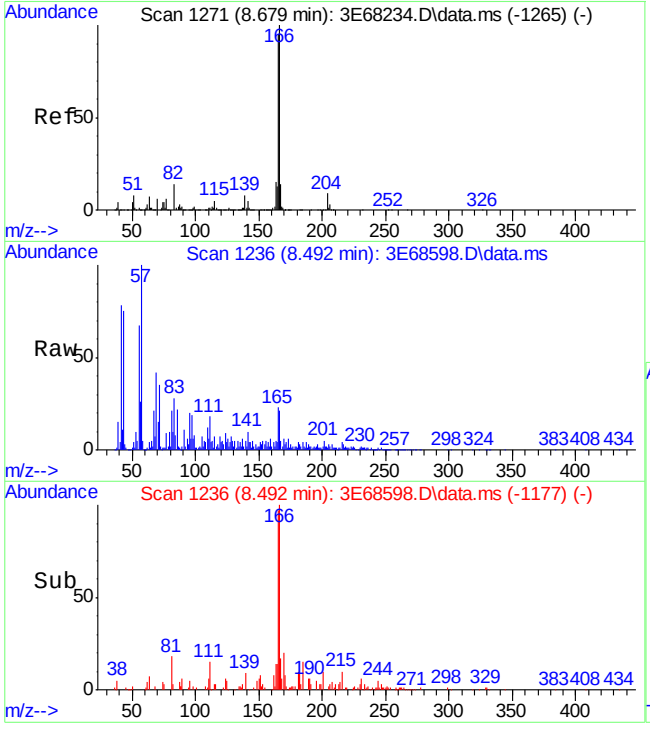


#59
Acenaphthene
Concen: 0.57 ppb
RT: 7.781 min Scan# 1103
Delta R.T. -0.182 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

Tgt Ion:153 Resp: 8705

Ion	Ratio	Lower	Upper
153	100		
152	57.1	13.9	73.9
154	96.9	58.8	118.8

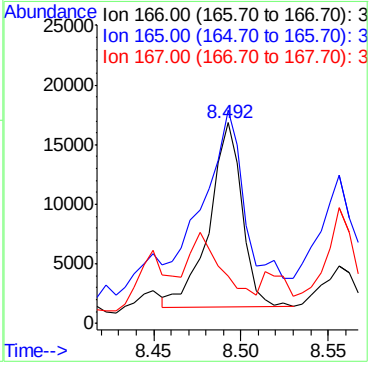




#66
Fluorene
Concen: 1.17 ppb
RT: 8.492 min Scan# 1236
Delta R.T. -0.187 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

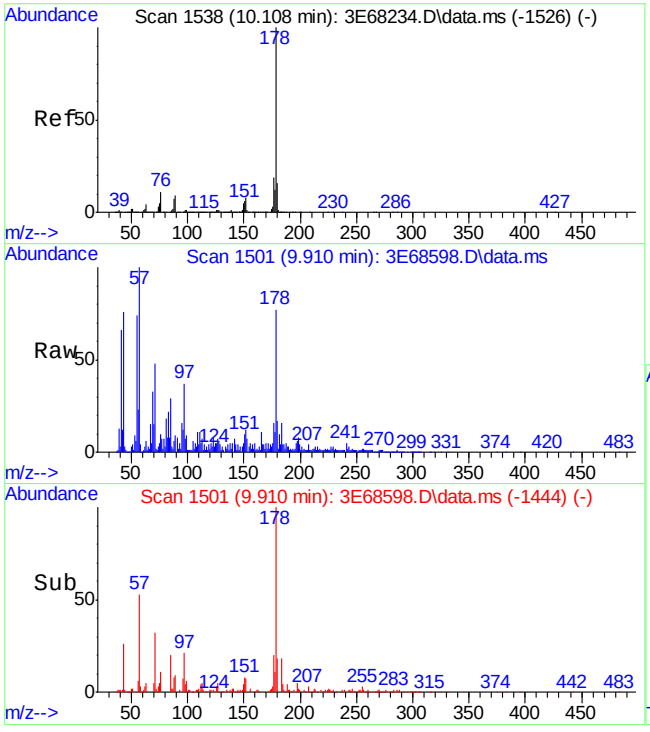
Tgt Ion:166 Resp: 20110

Ion	Ratio	Lower	Upper
166	100		
165	90.0	64.7	124.7
167	5.6	0.0	43.6



9.1.5

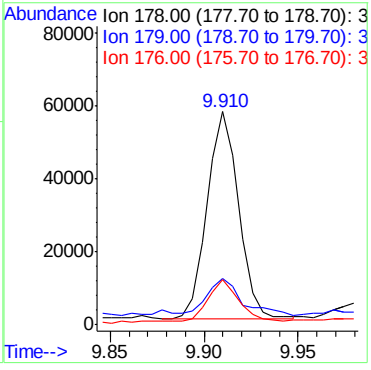
9

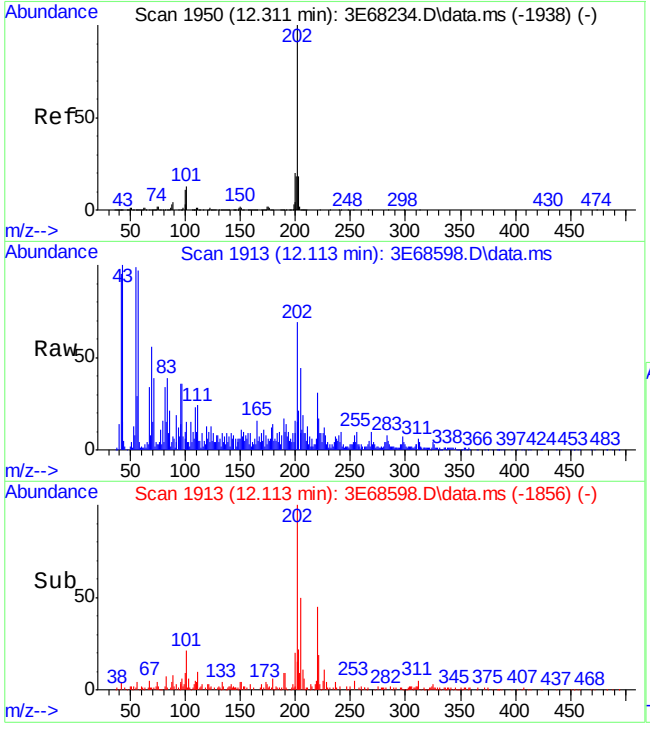


#77
Phenanthrene
Concen: 2.79 ppb
RT: 9.910 min Scan# 1501
Delta R.T. -0.198 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

Tgt Ion:178 Resp: 66246

Ion	Ratio	Lower	Upper
178	100		
179	16.8	0.0	45.5
176	19.7	0.0	48.5

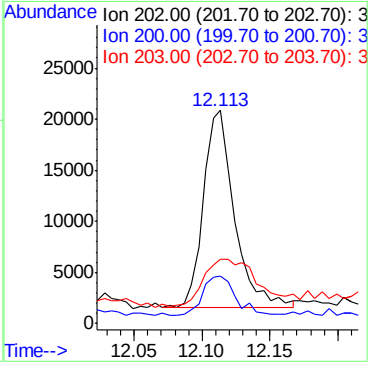


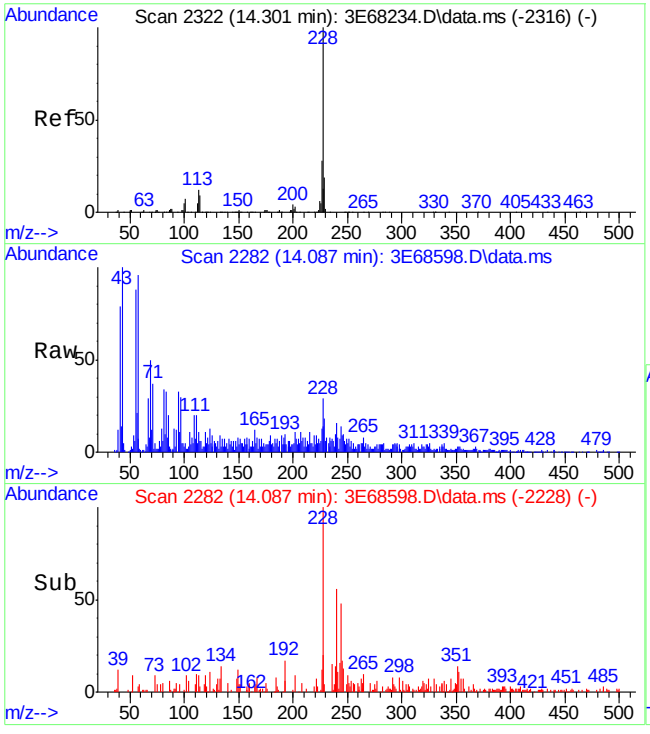


#84
Pyrene
Concen: 1.31 ppb
RT: 12.113 min Scan# 1913
Delta R.T. -0.198 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

Tgt Ion:202 Resp: 30891

Ion	Ratio	Lower	Upper
202	100		
200	18.8	0.0	50.0
203	20.4	0.0	47.6

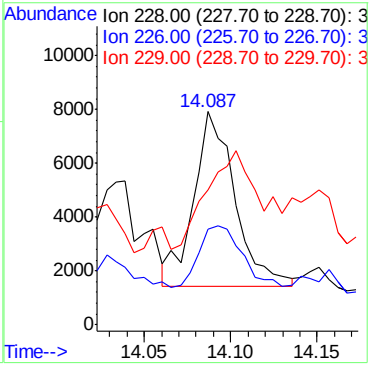




#90
Chrysene
Concen: 0.51 ppb m
RT: 14.087 min Scan# 2282
Delta R.T. -0.214 min
Lab File: 3E68598.D
Acq: 10 Jan 2015 2:47 am

Tgt Ion:228 Resp: 10672

Ion	Ratio	Lower	Upper
228	100		
226	45.1	0.0	57.9
229	63.2	0.0	49.5#



9.1.5

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:39

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2945\
Data File : 3E68621.D
Acq On : 10 Jan 2015 12:09 pm
Operator : kristis
Sample : jb85833-6
Misc : op81001,e3e2945,34.1,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 11:34:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.582	152	201349	40.00 ppb	-0.12
24) Naphthalene-d8	5.663	136	751642	40.00 ppb	-0.15
47) Acenaphthene-d10	7.738	164	459615	40.00 ppb	-0.18
69) Phenanthrene-d10	9.878	188	781713	40.00 ppb	-0.19
83) Chrysene-d12	14.055	240	775353	40.00 ppb	-0.21
92) Perylene-d12	16.173	264	712957	40.00 ppb	-0.21
102) 1,4-Dichlorobenzene-d4a	4.582	152	201349	40.00 ppb	-0.12
104) Acenaphthene-d10a	7.738	164	459615	40.00 ppb	-0.18
106) Phenanthrene-d10a	9.878	188	781713	40.00 ppb	-0.19
108) Chrysene-d12a	14.055	240	775353	40.00 ppb	-0.20
110) Naphthalene-d8a	5.663	136	751642	40.00 ppb	-0.14
112) Chrysene-d12b	14.055	240	775353	40.00 ppb	-0.21
System Monitoring Compounds					
5) 2-Fluorophenol	3.673	112	271583	34.29 ppb	-0.11
Spiked Amount 50.000			Recovery	= 68.58%	
8) Phenol-d5	4.368	99	366014	33.89 ppb	-0.11
Spiked Amount 50.000			Recovery	= 67.78%	
25) Nitrobenzene-d5	5.037	82	374093	31.57 ppb	-0.13
Spiked Amount 50.000			Recovery	= 63.14%	
51) 2-Fluorobiphenyl	6.872	172	625372	30.92 ppb	-0.17
Spiked Amount 50.000			Recovery	= 61.84%	
73) 2,4,6-Tribromophenol	8.877	330	77401	37.19 ppb	-0.18
Spiked Amount 50.000			Recovery	= 74.38%	
85) Terphenyl-d14	12.434	244	699029	37.91 ppb	-0.20
Spiked Amount 50.000			Recovery	= 75.82%	

Target Compounds					Qvalue
59) Acenaphthene	7.781	153	18945	1.30 ppb	90
62) Dibenzofuran	8.000	168	17569	0.83 ppb	86
66) Fluorene	8.492	166	34740	2.11 ppb	90
77) Phenanthrene	9.910	178	93374	4.02 ppb	98
78) Anthracene	9.979	178	10411	0.45 ppb	82
81) Fluoranthene	11.766	202	17885	0.69 ppb	92
84) Pyrene	12.108	202	68205	2.80 ppb	98
88) Benzo[a]anthracene	14.028	228	17550	0.77 ppb	82
90) Chrysene	14.092	228	20106	0.94 ppb	78
96) Benzo[a]pyrene	16.087	252	9003m	0.44 ppb	

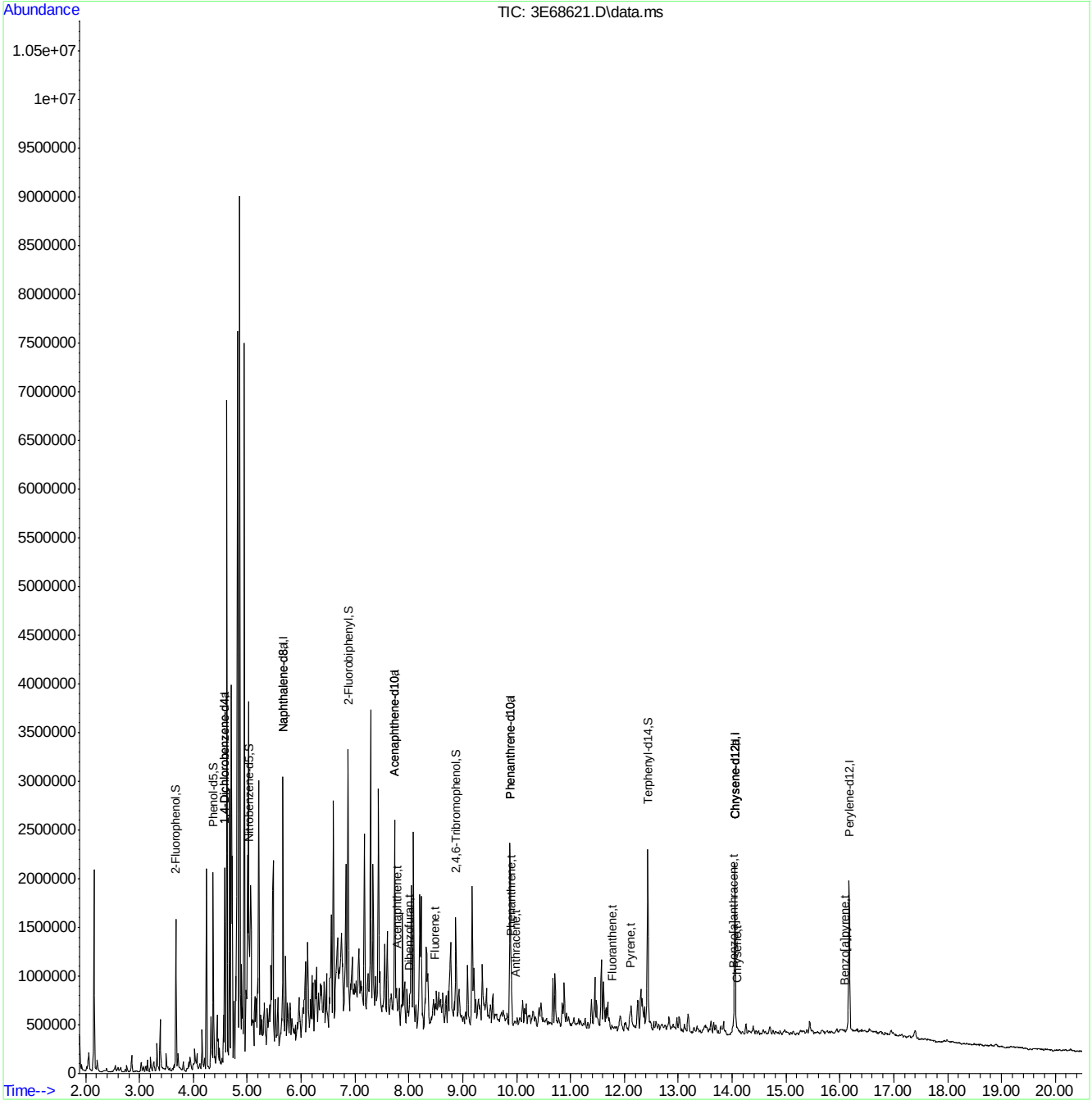
(#) = qualifier out of range (m) = manual integration (+) = signals summed

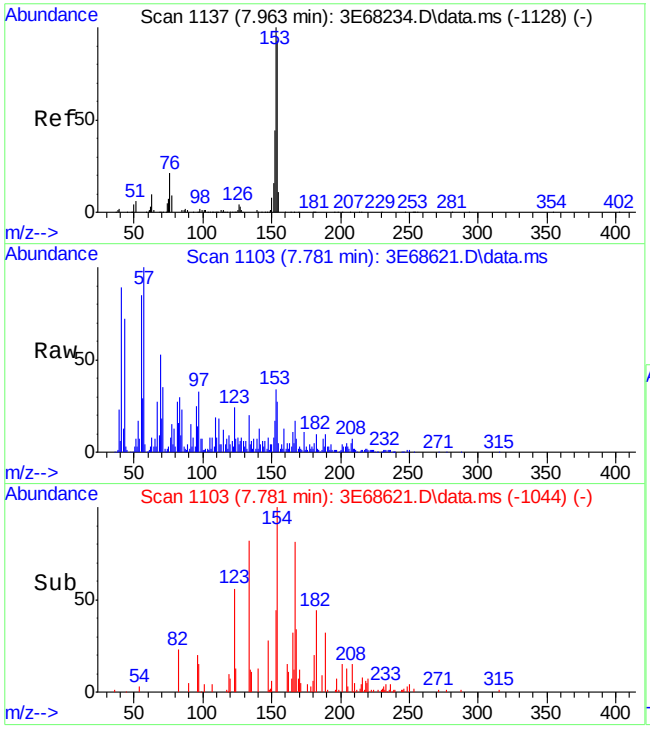
9.1.6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2945\
Data File : 3E68621.D
Acq On : 10 Jan 2015 12:09 pm
Operator : kristis
Sample : jb85833-6
Misc : op81001,e3e2945,34.1,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 11:34:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

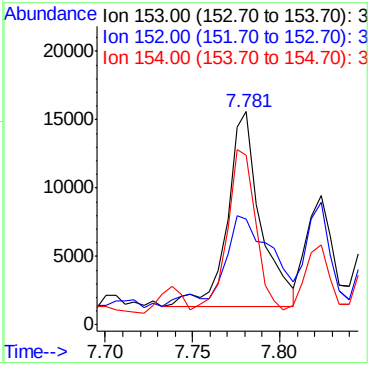


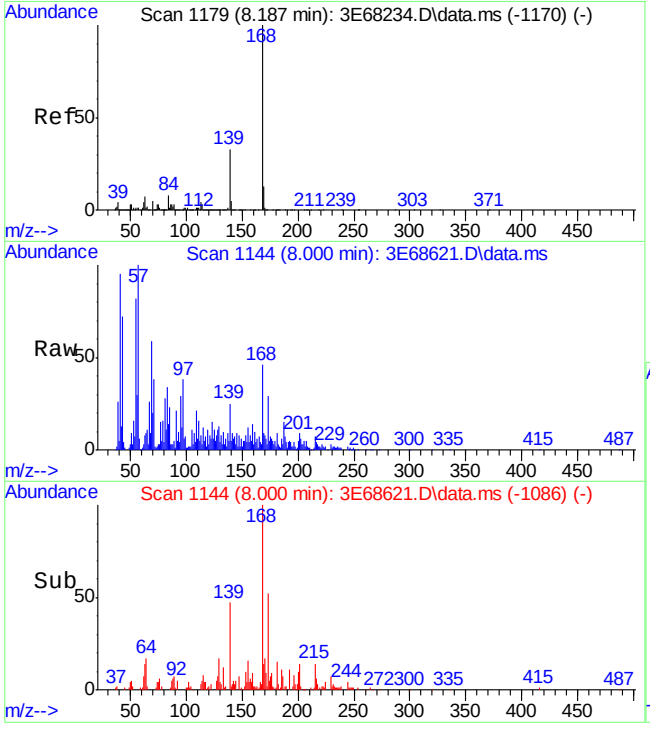


#59
Acenaphthene
Concen: 1.30 ppb
RT: 7.781 min Scan# 1103
Delta R.T. -0.182 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:153 Resp: 18945

Ion	Ratio	Lower	Upper
153	100		
152	40.4	13.9	73.9
154	77.9	58.8	118.8

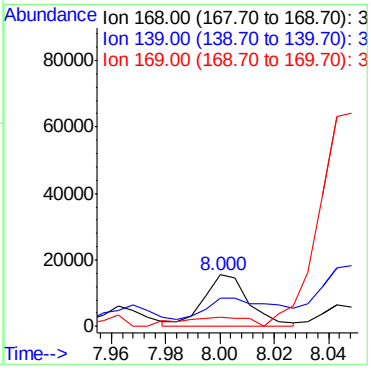


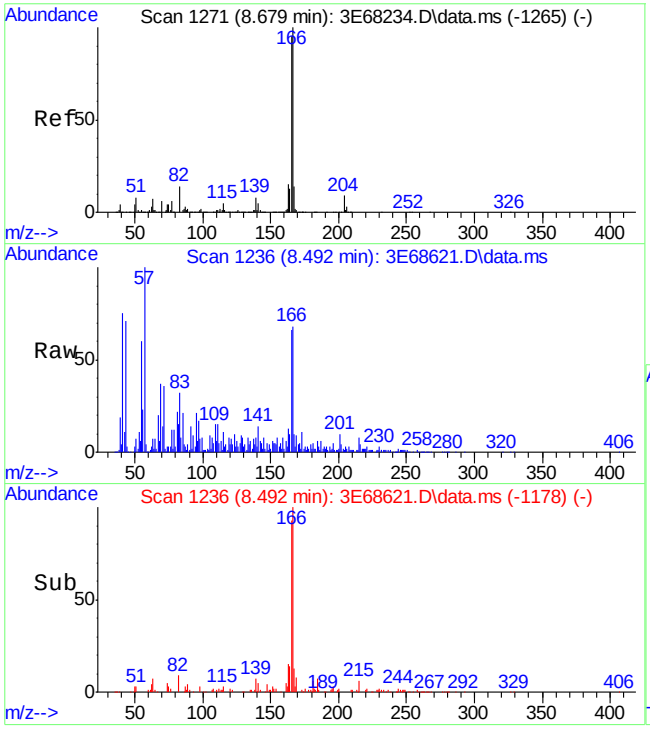


#62
Dibenzofuran
Concen: 0.83 ppb
RT: 8.000 min Scan# 1144
Delta R.T. -0.187 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:168 Resp: 17569

Ion	Ratio	Lower	Upper
168	100		
139	29.9	3.4	63.4
169	0.0	0.0	42.9

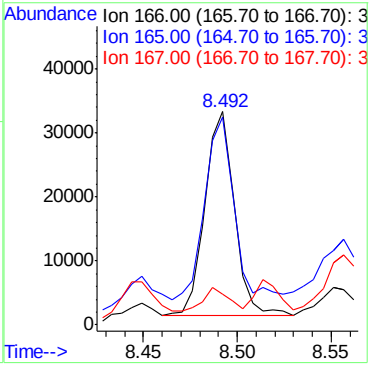


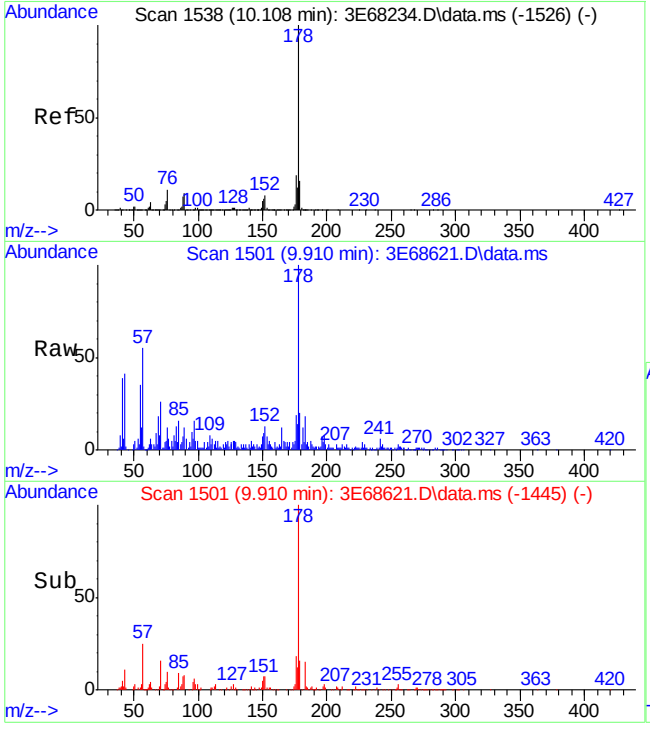


#66
Fluorene
Concen: 2.11 ppb
RT: 8.492 min Scan# 1236
Delta R.T. -0.187 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:166 Resp: 34740

Ion	Ratio	Lower	Upper
166	100		
165	86.3	64.7	124.7
167	6.7	0.0	43.6

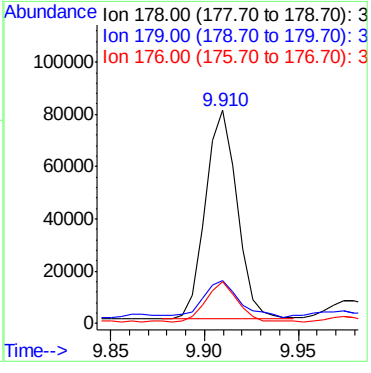


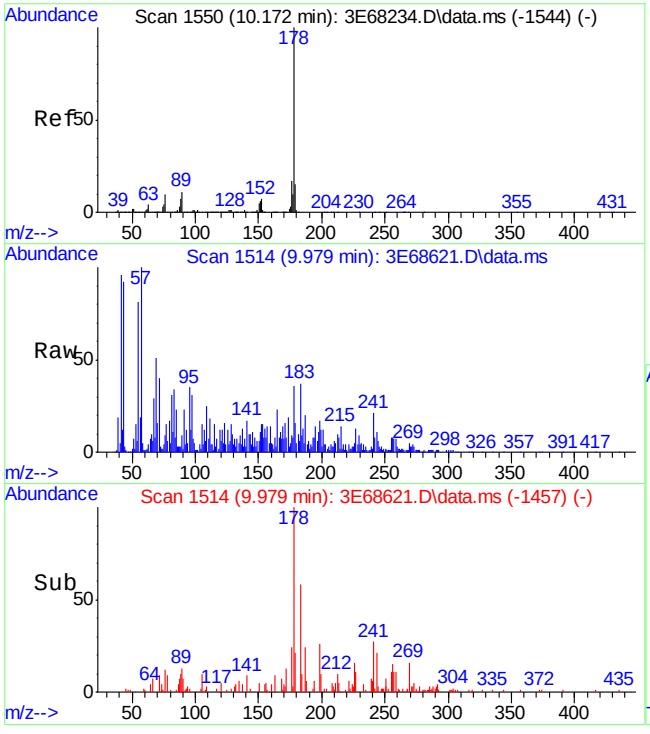


#77
Phenanthrene
Concen: 4.02 ppb
RT: 9.910 min Scan# 1501
Delta R.T. -0.198 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:178 Resp: 93374

Ion	Ratio	Lower	Upper
178	100		
179	16.9	0.0	45.5
176	18.6	0.0	48.5

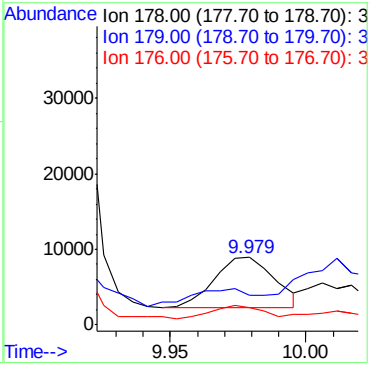


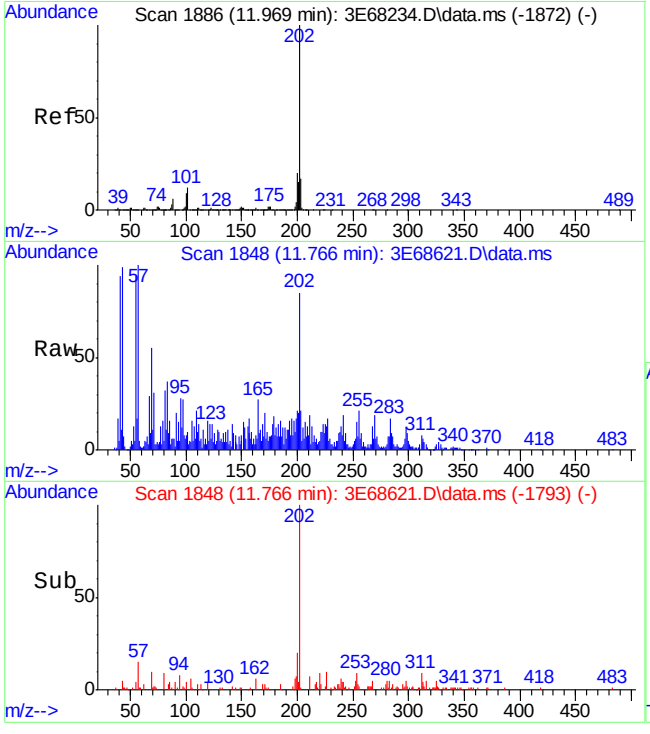


#78
Anthracene
Concen: 0.45 ppb
RT: 9.979 min Scan# 1514
Delta R.T. -0.193 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:178 Resp: 10411

Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	44.8
176	18.7	0.0	47.2

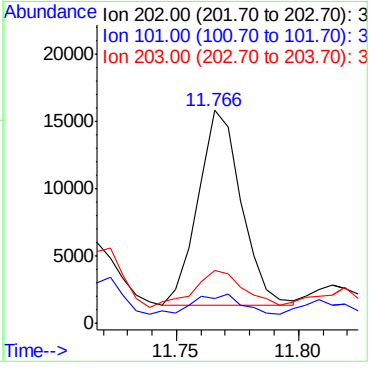


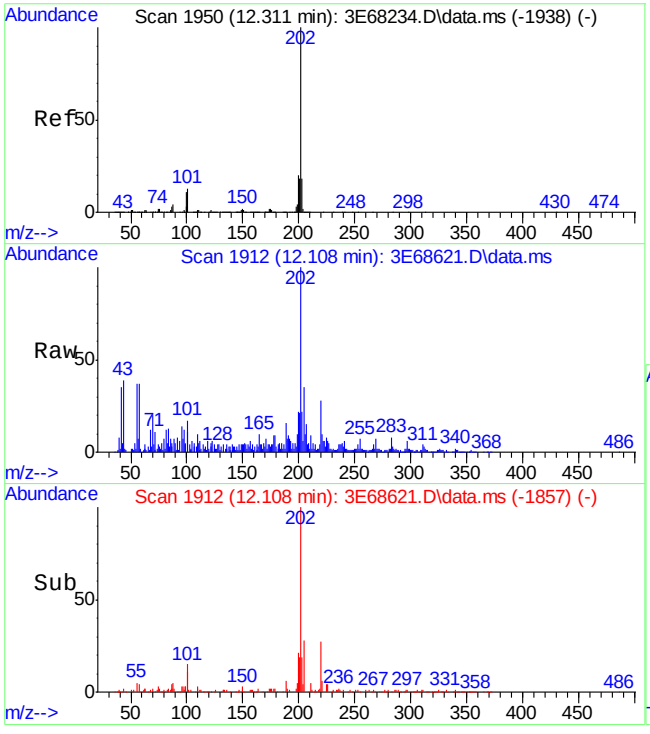


#81
Fluoranthene
Concen: 0.69 ppb
RT: 11.766 min Scan# 1848
Delta R.T. -0.203 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:202 Resp: 17885

Ion	Ratio	Lower	Upper
202	100		
101	6.1	0.0	41.9
203	16.0	0.0	47.4

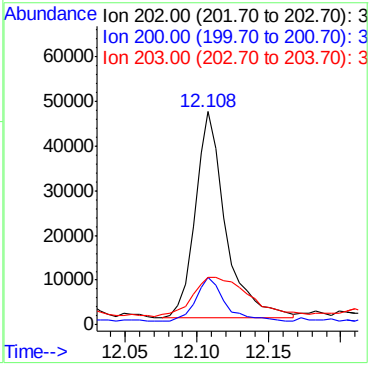


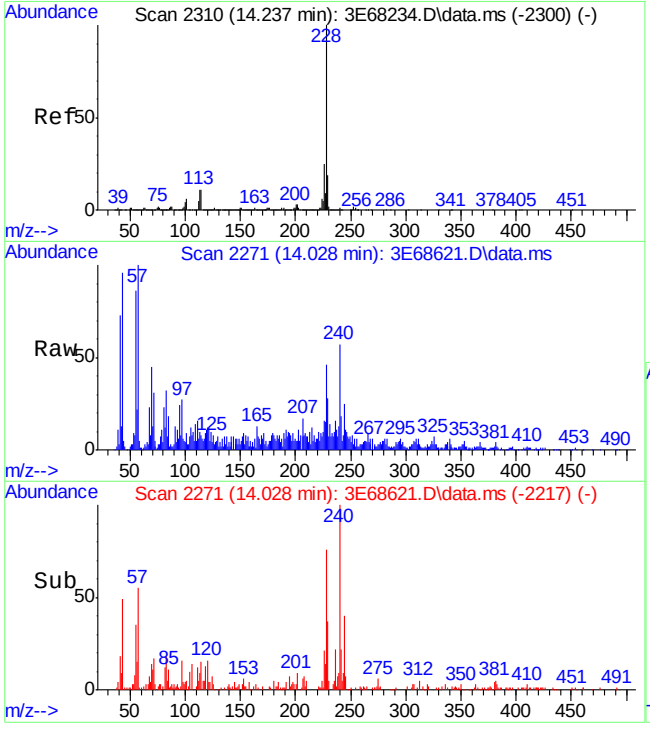


#84
Pyrene
Concen: 2.80 ppb
RT: 12.108 min Scan# 1912
Delta R.T. -0.203 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:202 Resp: 68205

Ion	Ratio	Lower	Upper
202	100		
200	21.6	0.0	50.0
203	17.6	0.0	47.6

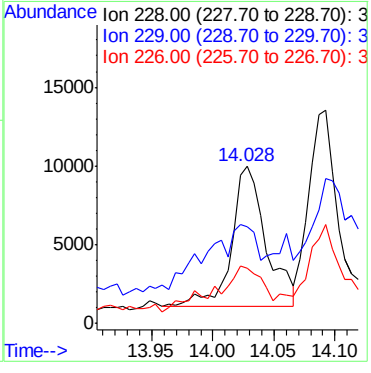




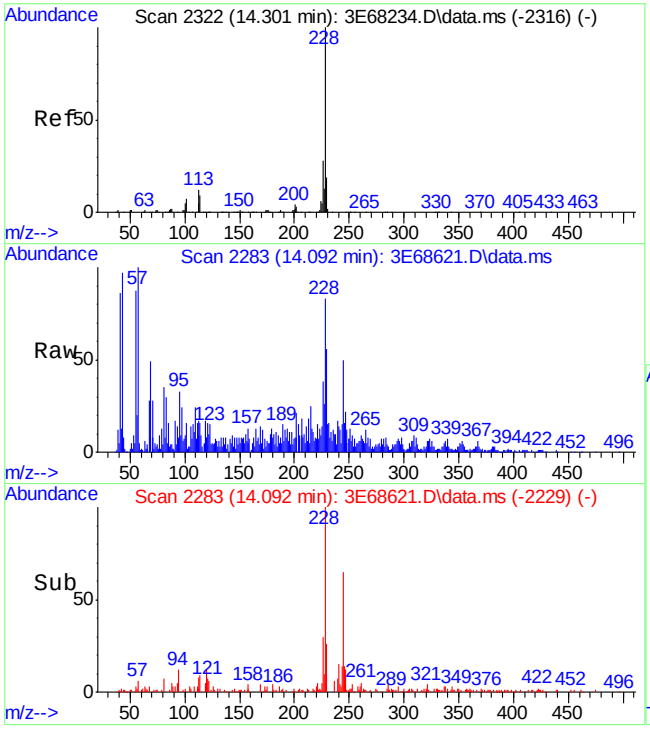
#88
Benzo[a]anthracene
Concen: 0.77 ppb
RT: 14.028 min Scan# 2271
Delta R.T. -0.209 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:228 Resp: 17550

Ion	Ratio	Lower	Upper
228	100		
229	34.7	0.0	49.4
226	28.0	0.0	55.3



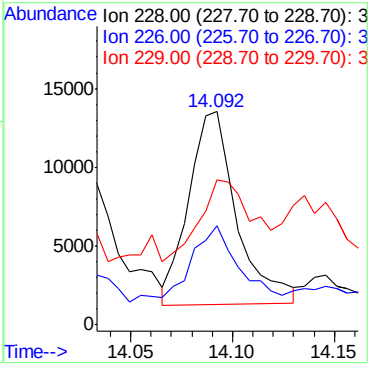
9.1.6

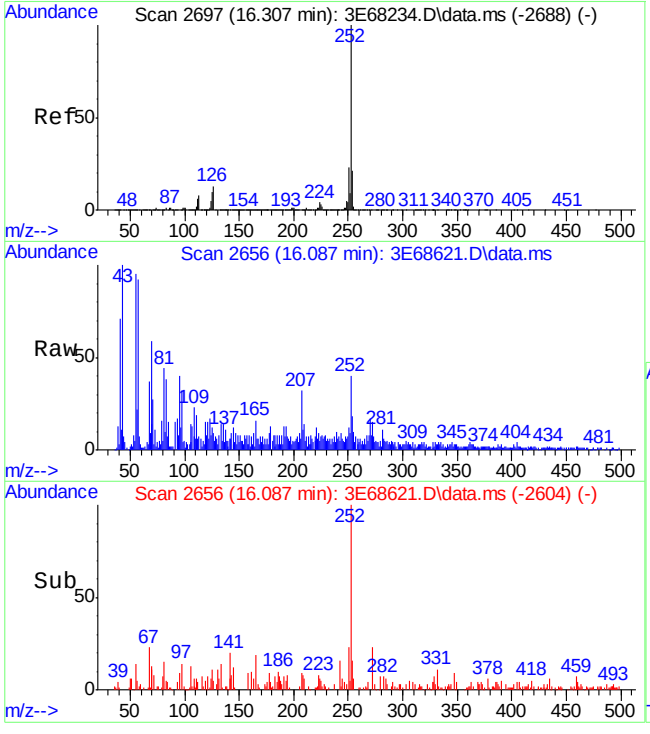


#90
Chrysene
Concen: 0.94 ppb
RT: 14.092 min Scan# 2283
Delta R.T. -0.209 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:228 Resp: 20106

Ion	Ratio	Lower	Upper
228	100		
226	38.9	0.0	57.9
229	30.4	0.0	49.5

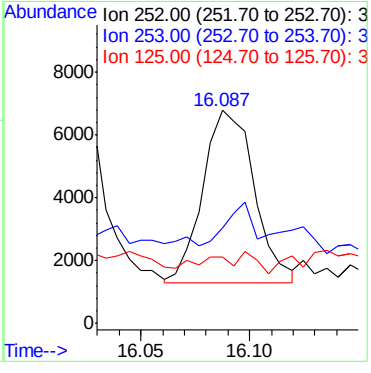




#96
Benzo[a]pyrene
Concen: 0.44 ppb m
RT: 16.087 min Scan# 2656
Delta R.T. -0.219 min
Lab File: 3E68621.D
Acq: 10 Jan 2015 12:09 pm

Tgt Ion:252 Resp: 9003

Ion	Ratio	Lower	Upper
252	100		
253	45.1	0.0	51.3
125	31.1	0.0	40.2



Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:51

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2945\
Data File : 3E68628.D
Acq On : 10 Jan 2015 3:14 pm
Operator : kristis
Sample : jb85833-7
Misc : op81001,e3e2945,34.2,,,1,2
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jan 12 15:09:09 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.593	152	279555	40.00 ppb	-0.11
24) Naphthalene-d8	5.706	136	1004220	40.00 ppb	-0.11
47) Acenaphthene-d10	7.808	164	627015	40.00 ppb	-0.11
69) Phenanthrene-d10	9.958	188	919345	40.00 ppb	-0.11
83) Chrysene-d12	14.130	240	840126	40.00 ppb	-0.13
92) Perylene-d12	16.248	264	792137	40.00 ppb	-0.13
102) 1,4-Dichlorobenzene-d4a	4.593	152	279555	40.00 ppb	-0.11
104) Acenaphthene-d10a	7.808	164	622775	40.00 ppb	-0.11
106) Phenanthrene-d10a	9.958	188	919345	40.00 ppb	-0.11
108) Chrysene-d12a	14.130	240	840126	40.00 ppb	-0.13
110) Naphthalene-d8a	5.706	136	1026489	40.00 ppb	-0.10
112) Chrysene-d12b	14.130	240	836857	40.00 ppb	-0.13

System Monitoring Compounds					
5) 2-Fluorophenol	3.684	112	134307	12.21 ppb	-0.10
Spiked Amount 50.000			Recovery = 24.42%		
8) Phenol-d5	4.385	99	502168	33.49 ppb	-0.09
Spiked Amount 50.000			Recovery = 66.98%		
25) Nitrobenzene-d5	5.064	82	487251	30.77 ppb	-0.11
Spiked Amount 50.000			Recovery = 61.54%		
51) 2-Fluorobiphenyl	6.914	172	450894	16.34 ppb	-0.13
Spiked Amount 50.000			Recovery = 32.68%		
73) 2,4,6-Tribromophenol	8.958	330	55367	22.62 ppb	-0.10
Spiked Amount 50.000			Recovery = 45.24%		
85) Terphenyl-d14	12.509	244	400997	20.07 ppb	-0.12
Spiked Amount 50.000			Recovery = 40.14%		

Target Compounds					Qvalue
38) Naphthalene	5.727	128	1818795m	60.14 ppb	
44) 2-Methylnaphthalene	6.476	141	13817620	750.27 ppb	98
59) Acenaphthene	7.845	153	247254	12.40 ppb	91
66) Fluorene	8.573	166	594798	26.44 ppb	95
77) Phenanthrene	9.995	178	1749903	64.01 ppb	98
81) Fluoranthene	11.851	202	194428	6.35 ppb	95
84) Pyrene	12.194	202	789644	29.95 ppb	92
88) Benzo[a]anthracene	14.108	228	198244	8.07 ppb	69
90) Chrysene	14.167	228	281918	12.13 ppb	82
94) Benzo[b]fluoranthene	15.729	252	78753m	3.00 ppb	
95) Benzo[k]fluoranthene	15.740	252	59752m	2.34 ppb	
96) Benzo[a]pyrene	16.168	252	137564	5.99 ppb	96
97) Indeno[1,2,3-cd]pyrene	17.783	276	44255	1.63 ppb	87
99) Dibenz[a,h]anthracene	17.804	278	26130	1.13 ppb	64
101) Benzo[g,h,i]perylene	18.211	276	102066	4.69 ppb	94

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

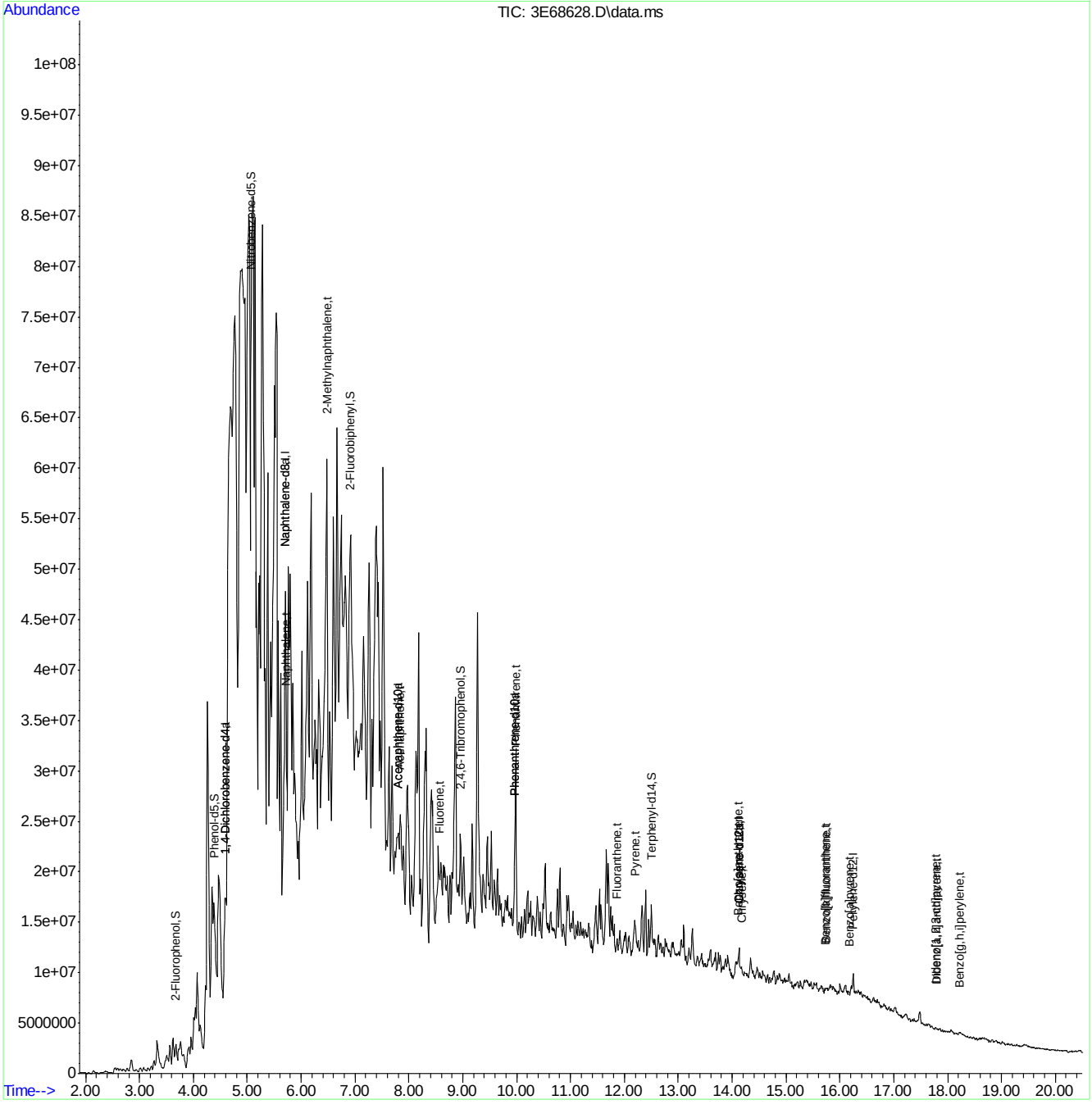
9.1.7

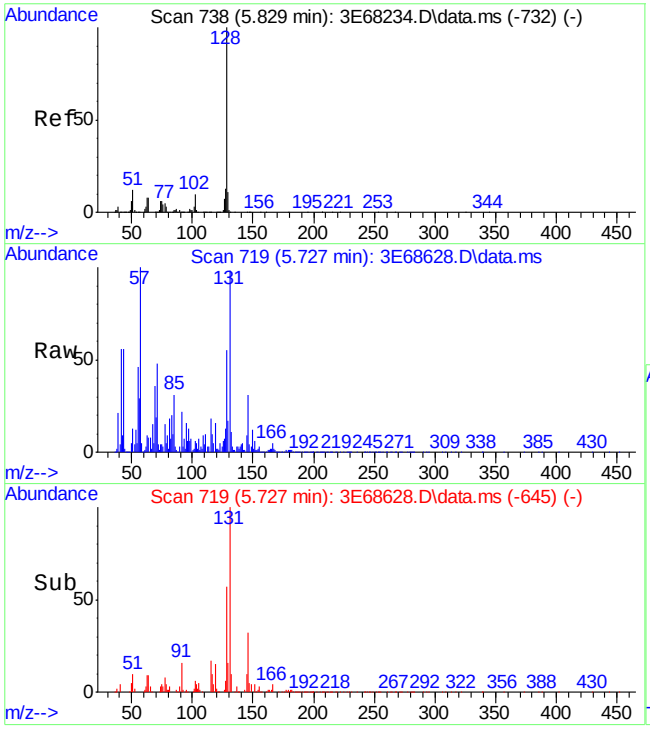
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2945\
Data File : 3E68628.D
Acq On : 10 Jan 2015 3:14 pm
Operator : kristis
Sample : jb85833-7
Misc : op81001,e3e2945,34.2,,,1,2
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jan 12 15:09:09 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

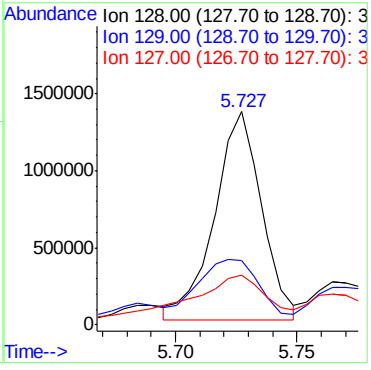


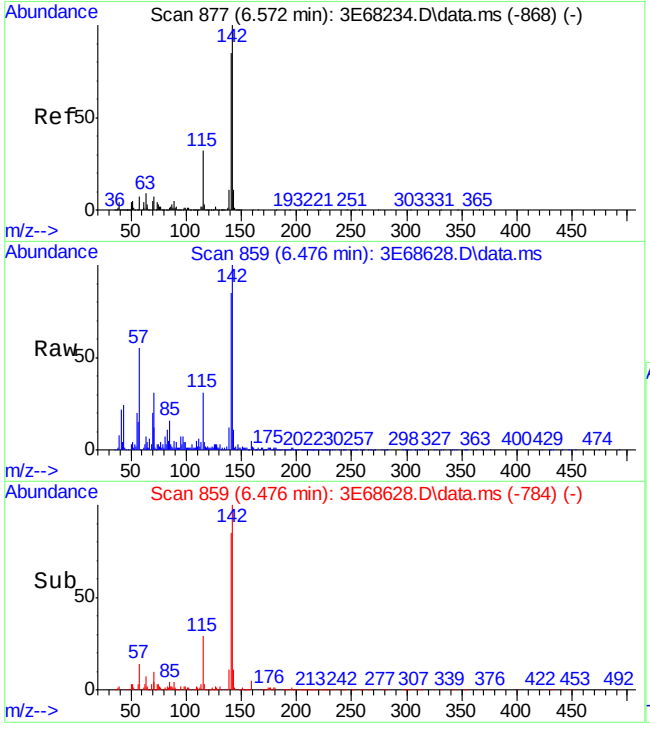


#38
Naphthalene
Concen: 60.14 ppb m
RT: 5.727 min Scan# 719
Delta R.T. -0.102 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:128 Resp: 1818795

Ion	Ratio	Lower	Upper
128	100		
129	29.9	0.0	41.1
127	23.2	0.0	43.3

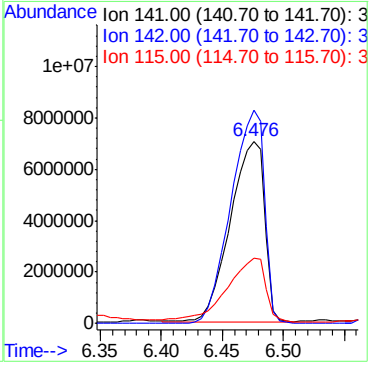


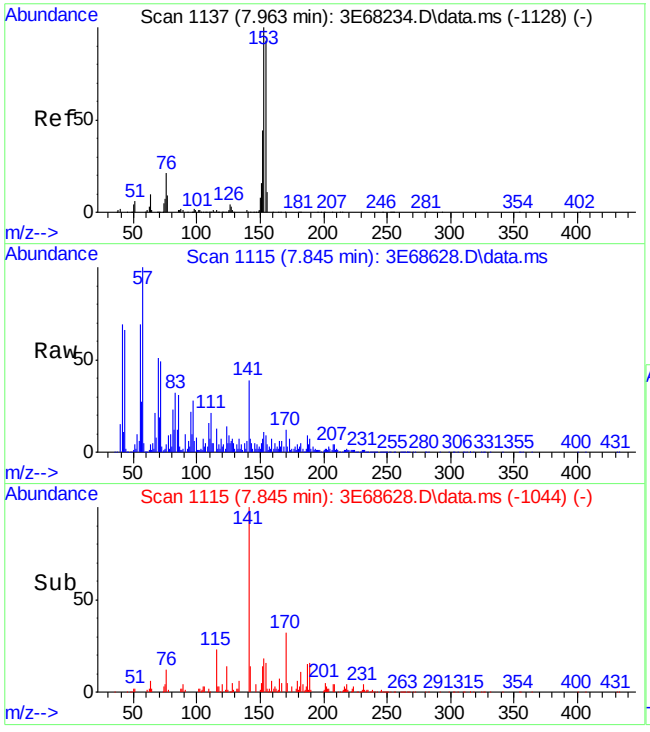


#44
2-Methylnaphthalene
Concen: 750.27 ppb
RT: 6.476 min Scan# 859
Delta R.T. -0.096 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:141 Resp:13817620

Ion	Ratio	Lower	Upper
141	100		
142	118.1	87.1	147.1
115	34.8	7.4	67.4

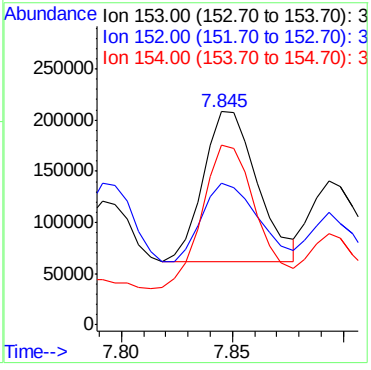


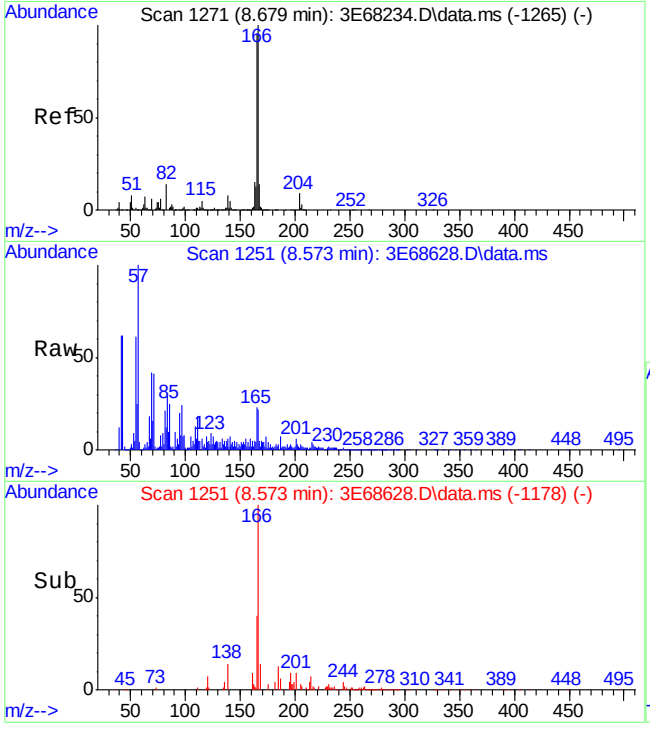


#59
Acenaphthene
Concen: 12.40 ppb
RT: 7.845 min Scan# 1115
Delta R.T. -0.118 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:153 Resp: 247254

Ion	Ratio	Lower	Upper
153	100		
152	52.7	13.9	73.9
154	95.7	58.8	118.8

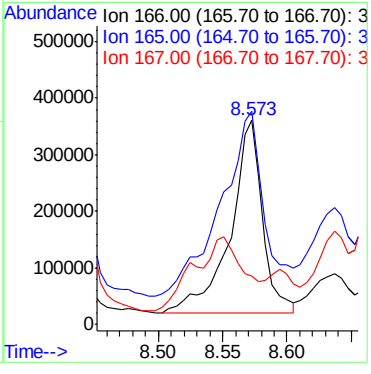




#66
Fluorene
Concen: 26.44 ppb
RT: 8.573 min Scan# 1251
Delta R.T. -0.107 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:166 Resp: 594798

Ion	Ratio	Lower	Upper
166	100		
165	90.2	64.7	124.7
167	10.4	0.0	43.6



9.1.7

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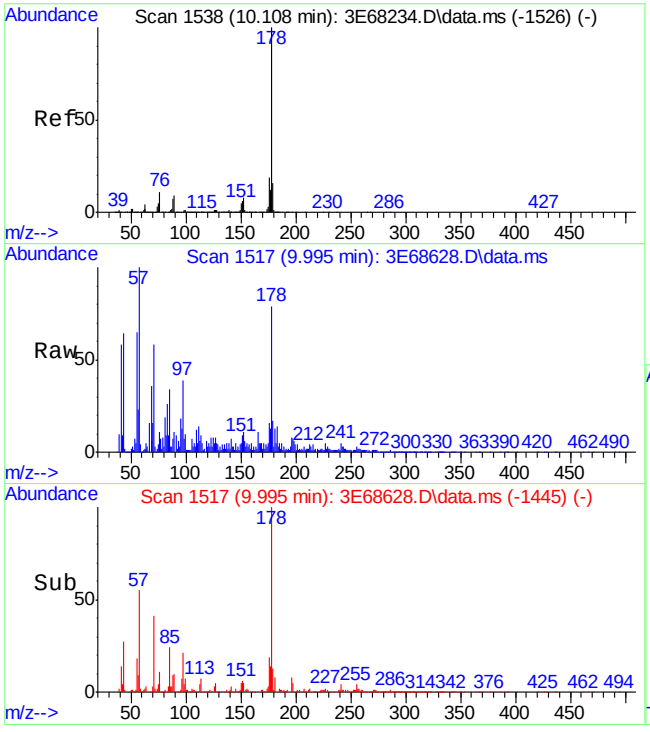
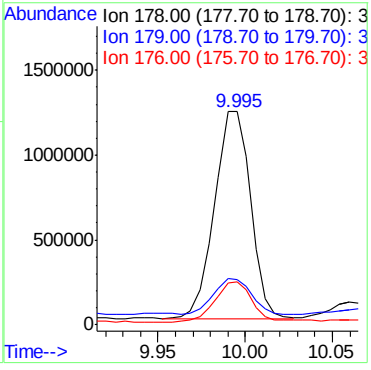
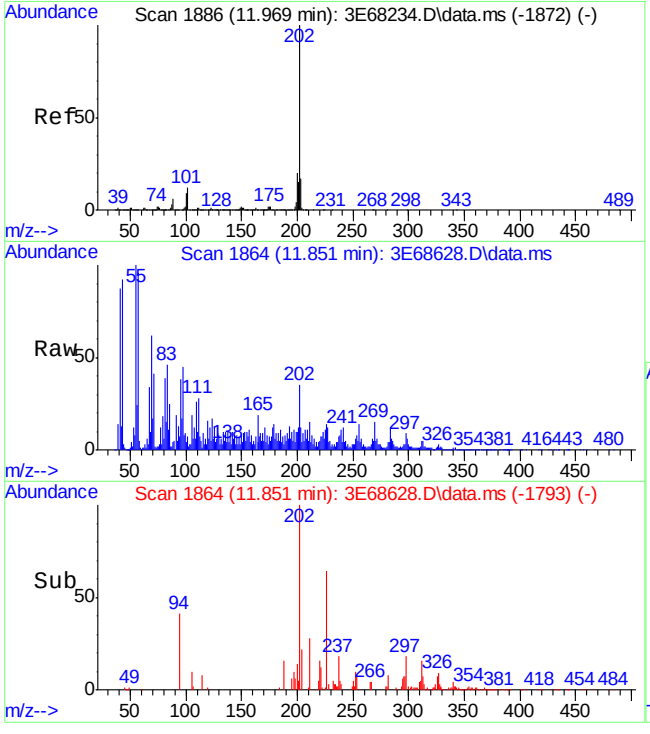


#77
Phenanthrene
Concen: 64.01 ppb
RT: 9.995 min Scan# 1517
Delta R.T. -0.112 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:178 Resp: 1749903

Ion	Ratio	Lower	Upper
178	100		
179	16.4	0.0	45.5
176	19.0	0.0	48.5

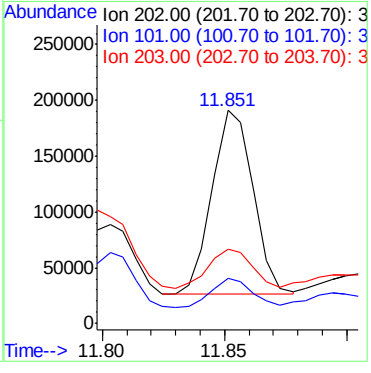


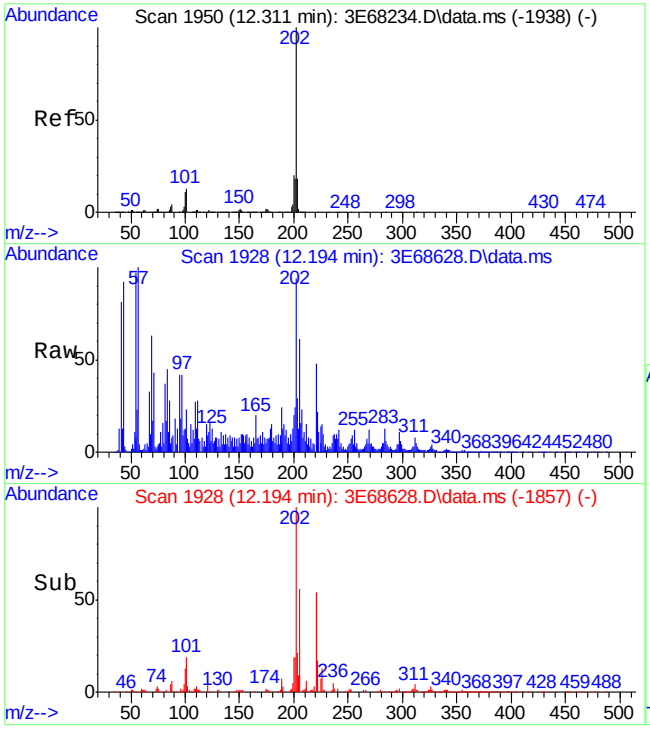


#81
Fluoranthene
Concen: 6.35 ppb
RT: 11.851 min Scan# 1864
Delta R.T. -0.118 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:202 Resp: 194428

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	41.9
203	19.5	0.0	47.4

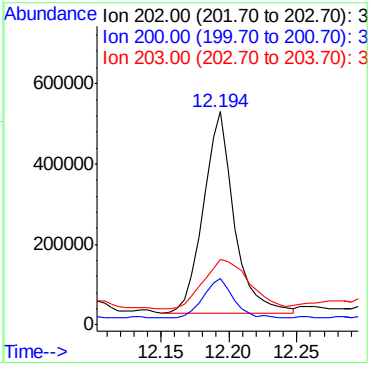


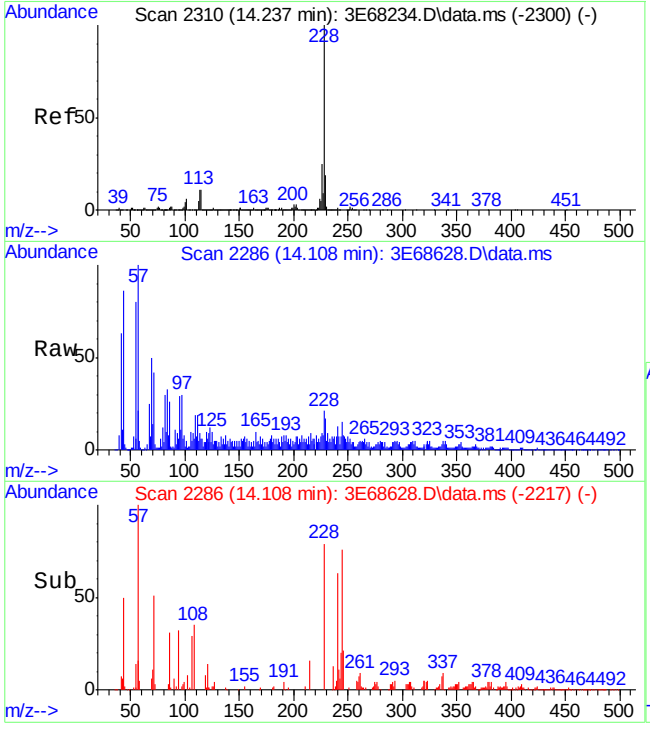


#84
Pyrene
Concen: 29.95 ppb
RT: 12.194 min Scan# 1928
Delta R.T. -0.118 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:202 Resp: 789644

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	50.0
203	24.1	0.0	47.6

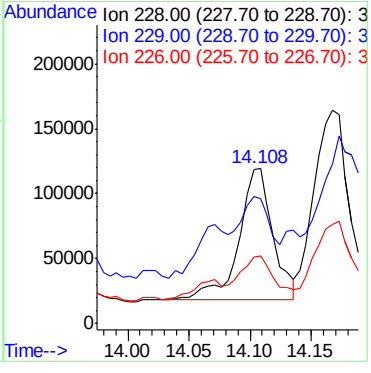




#88
Benzo[a]anthracene
Concen: 8.07 ppb
RT: 14.108 min Scan# 2286
Delta R.T. -0.128 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:228 Resp: 198244

Ion	Ratio	Lower	Upper
228	100		
229	44.6	0.0	49.4
226	31.6	0.0	55.3



9.1.7

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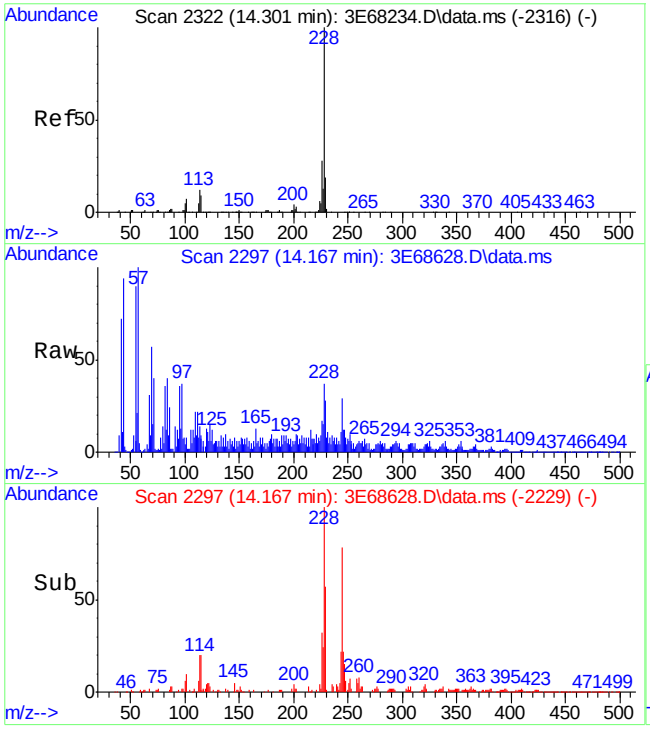
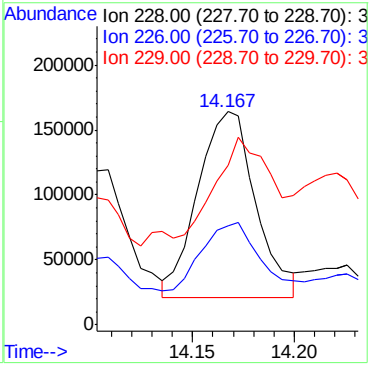
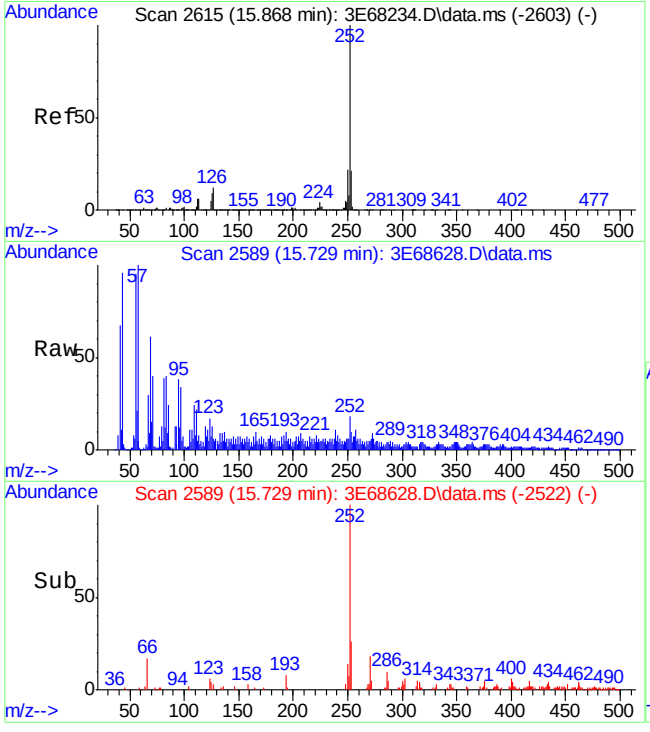


#90
Chrysene
Concen: 12.13 ppb
RT: 14.167 min Scan# 2297
Delta R.T. -0.134 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:228 Resp: 281918

Ion	Ratio	Lower	Upper
228	100		
226	36.1	0.0	57.9
229	29.4	0.0	49.5

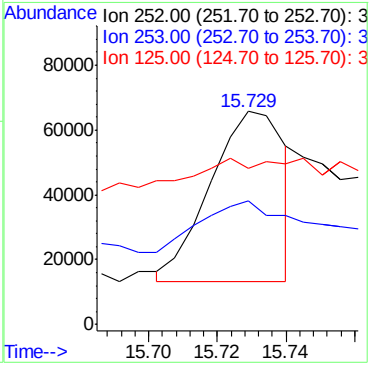




#94
Benzo[b]fluoranthene
Concen: 3.00 ppb m
RT: 15.729 min Scan# 2589
Delta R.T. -0.139 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:252 Resp: 78753

Ion	Ratio	Lower	Upper
252	100		
253	57.8	0.0	50.5#
125	73.1	0.0	38.5#



9.1.7

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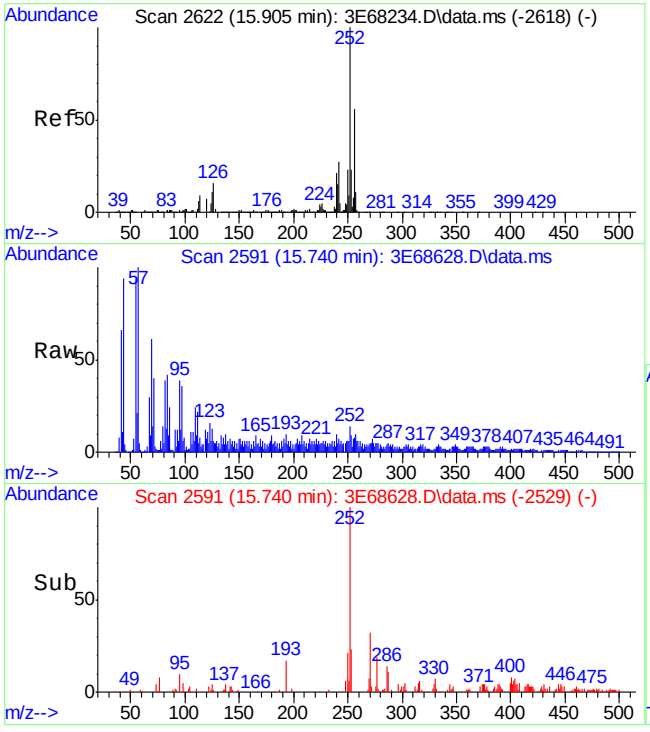
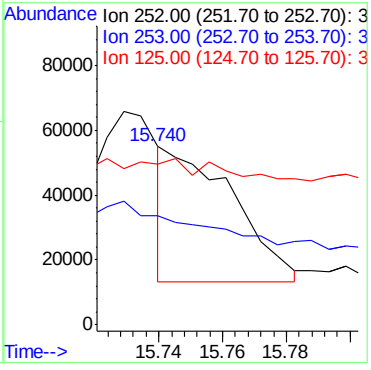
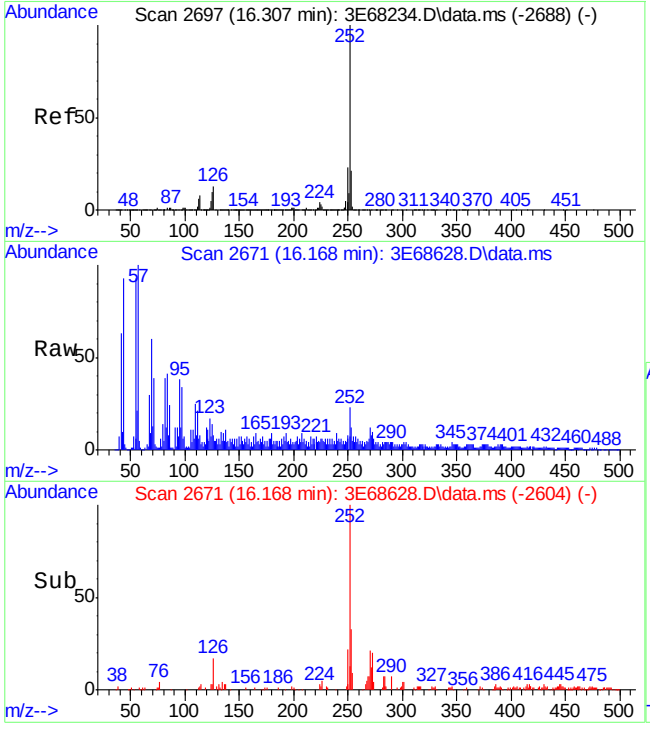


#95
Benzo[k]fluoranthene
Concen: 2.34 ppb m
RT: 15.740 min Scan# 2591
Delta R.T. -0.166 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:252 Resp: 59752

Ion	Ratio	Lower	Upper
252	100		
253	61.0	0.0	53.1#
125	89.9	0.0	41.1#

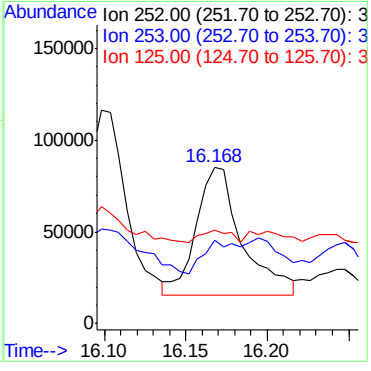




#96
Benzo[a]pyrene
Concen: 5.99 ppb
RT: 16.168 min Scan# 2671
Delta R.T. -0.139 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:252 Resp: 137564

Ion	Ratio	Lower	Upper
252	100		
253	20.6	0.0	51.3
125	6.6	0.0	40.2



9.1.7

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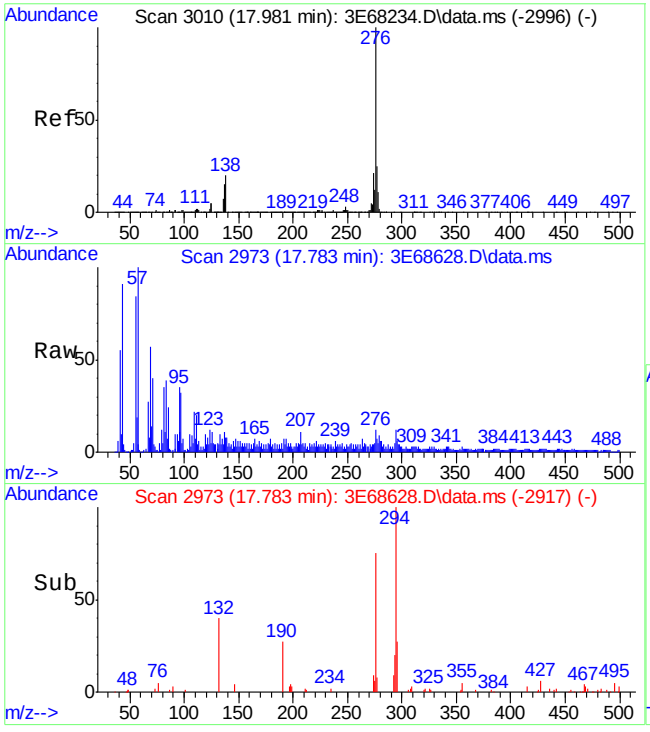
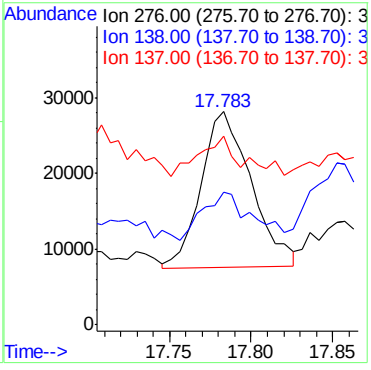
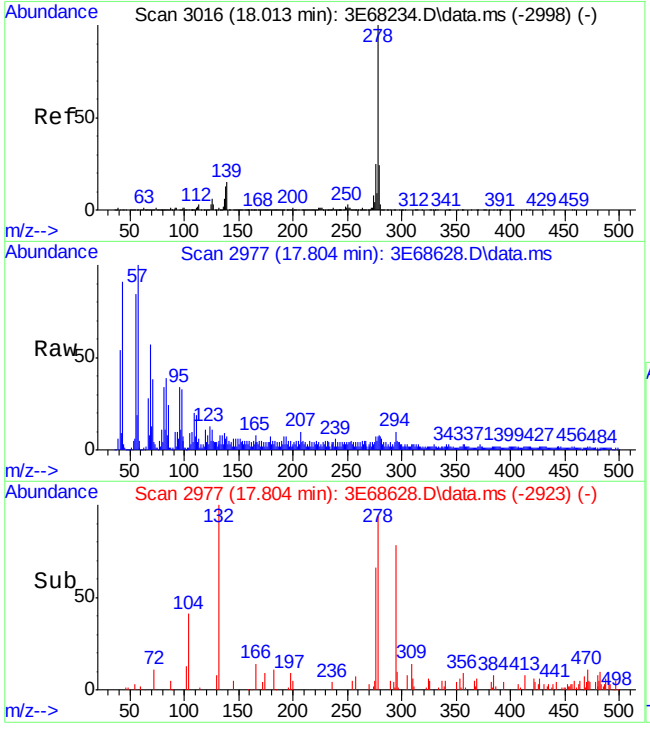


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.63 ppb
RT: 17.783 min Scan# 2973
Delta R.T. -0.198 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:276 Resp: 44255

Ion	Ratio	Lower	Upper
276	100		
138	25.6	0.0	50.4
137	21.8	0.0	45.2

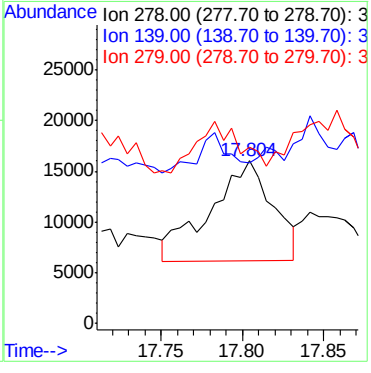


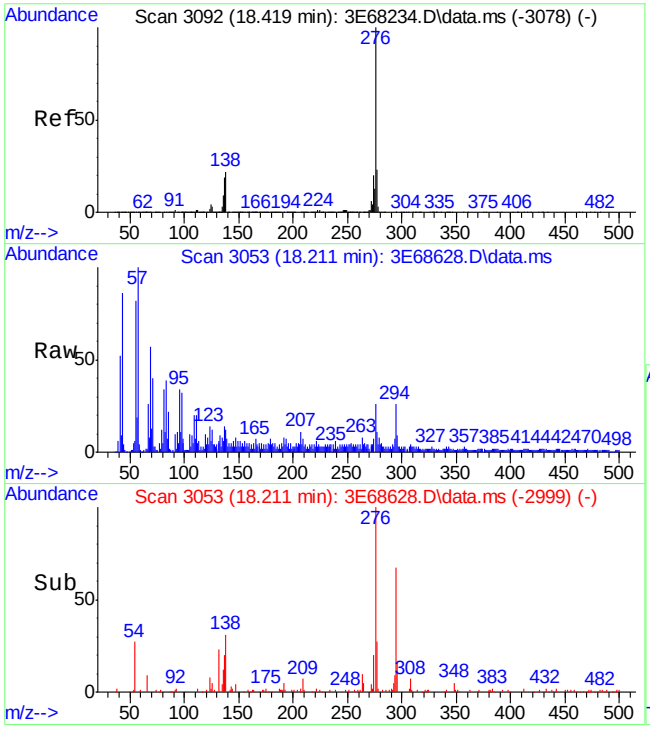


#99
Dibenz[a,h]anthracene
Concen: 1.13 ppb
RT: 17.804 min Scan# 2977
Delta R.T. -0.209 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:278 Resp: 26130

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	45.5
279	6.5	0.0	53.9

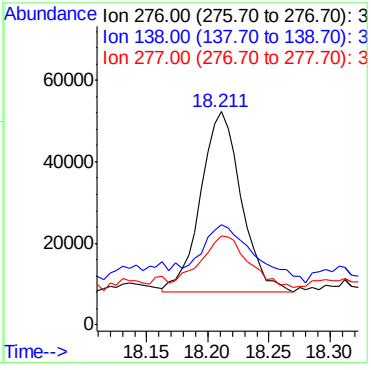




#101
Benzo[g,h,i]perylene
Concen: 4.69 ppb
RT: 18.211 min Scan# 3053
Delta R.T. -0.209 min
Lab File: 3E68628.D
Acq: 10 Jan 2015 3:14 pm

Tgt Ion:276 Resp: 102066

Ion	Ratio	Lower	Upper
276	100		
138	24.4	0.0	51.8
277	25.9	0.0	52.7



9.1.7

9

Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:51

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2946\
Data File : 3E68635.D
Acq On : 12 Jan 2015 11:24 am
Operator : ashleyn
Sample : jb85833-7
Misc : op81001,e3e2946,34.2,,,1,40
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 12 15:09:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Mon Jan 12 13:04:35 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.572	152	168422	40.00	ppb	0.00
24) Naphthalene-d8	5.658	136	652625	40.00	ppb	0.00
47) Acenaphthene-d10	7.727	164	416903	40.00	ppb	0.00
69) Phenanthrene-d10	9.862	188	751073	40.00	ppb	0.00
83) Chrysene-d12	14.044	240	856505	40.00	ppb	-0.01
92) Perylene-d12	16.168	264	825926	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	4.572	152	168422	40.00	ppb	0.00
104) Acenaphthene-d10a	7.727	164	416903	40.00	ppb	0.00
106) Phenanthrene-d10a	9.862	188	751073	40.00	ppb	0.00
108) Chrysene-d12a	14.044	240	856505	40.00	ppb	-0.01
110) Naphthalene-d8a	5.658	136	652625	40.00	ppb	0.00
112) Chrysene-d12b	14.044	240	856505	40.00	ppb	-0.01

System Monitoring Compounds						
5) 2-Fluorophenol	3.673	112	5465	0.82	ppb	0.00
Spiked Amount 50.000			Recovery = 1.64%			
8) Phenol-d5	4.363	99	14469	1.60	ppb	0.00
Spiked Amount 50.000			Recovery = 3.20%			
25) Nitrobenzene-d5	5.037	82	5278m	0.51	ppb	0.00
Spiked Amount 50.000			Recovery = 1.02%			
51) 2-Fluorobiphenyl	6.861	172	12193	0.66	ppb	0.00
Spiked Amount 50.000			Recovery = 1.32%			
73) 2,4,6-Tribromophenol	8.867	330	1349	0.67	ppb	0.00
Spiked Amount 50.000			Recovery = 1.34%			
85) Terphenyl-d14	12.424	244	12925	0.63	ppb	0.00
Spiked Amount 50.000			Recovery = 1.26%			

Target Compounds						Qvalue
38) Naphthalene	5.674	128	39151m	1.99	ppb	
44) 2-Methylnaphthalene	6.401	141	354779	29.64	ppb	97
59) Acenaphthene	7.770	153	7213	0.54	ppb	86
66) Fluorene	8.482	166	19605	1.31	ppb	82
77) Phenanthrene	9.899	178	54227	2.43	ppb	98
84) Pyrene	12.097	202	27935	1.04	ppb	96

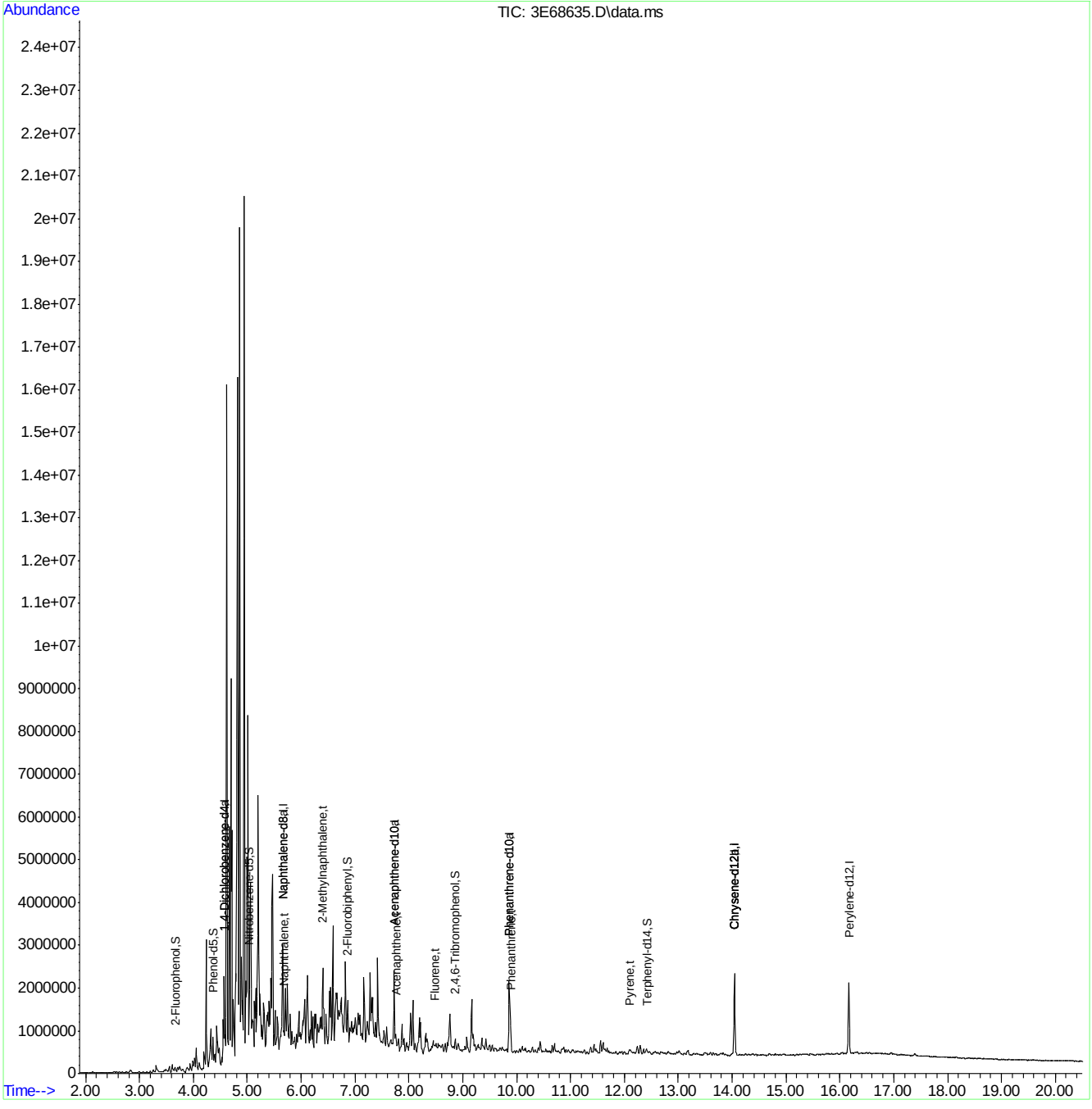
(#) = qualifier out of range (m) = manual integration (+) = signals summed

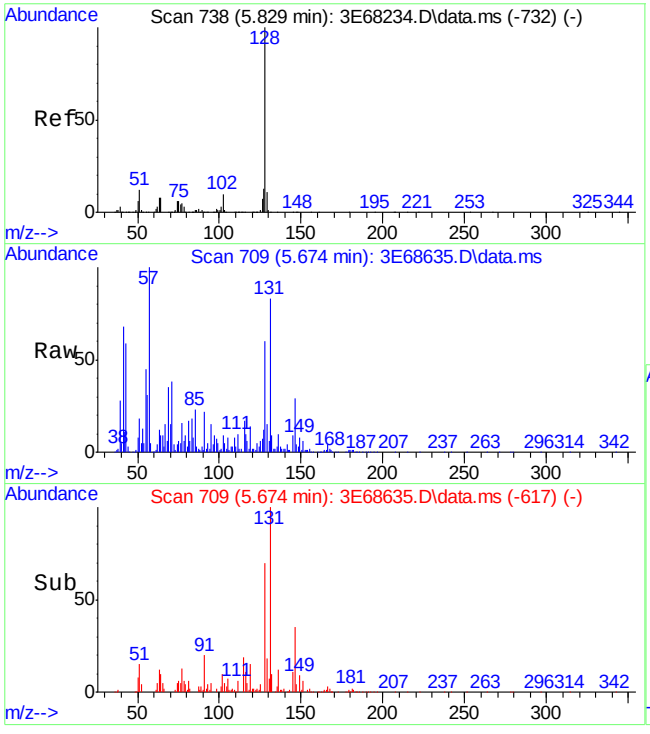
9.1.8
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2946\
Data File : 3E68635.D
Acq On : 12 Jan 2015 11:24 am
Operator : ashleyn
Sample : jb85833-7
Misc : op81001,e3e2946,34.2,,,1,40
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 12 15:09:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Mon Jan 12 13:04:35 2015
Response via : Initial Calibration

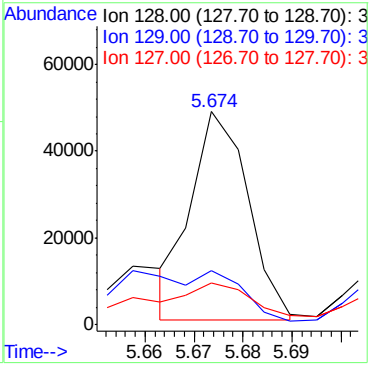


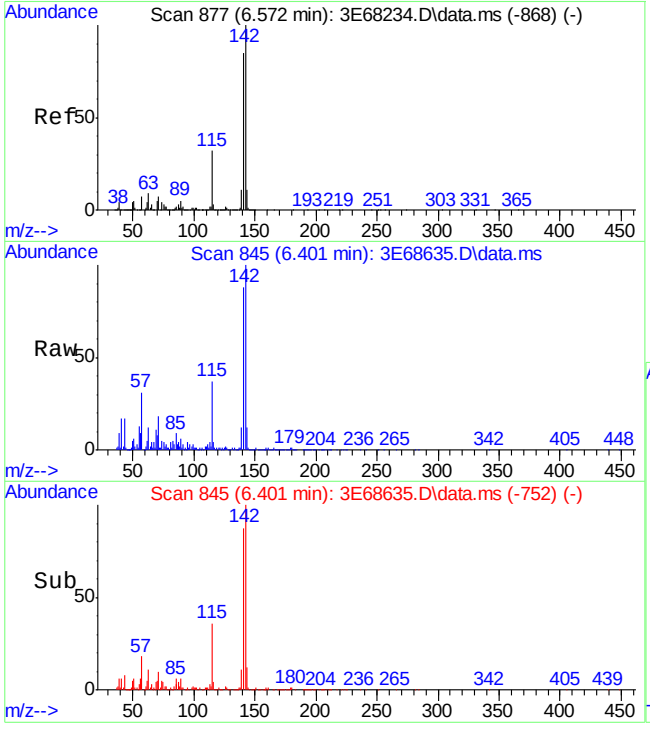


#38
Naphthalene
Concen: 1.99 ppb m
RT: 5.674 min Scan# 709
Delta R.T. -0.005 min
Lab File: 3E68635.D
Acq: 12 Jan 2015 11:24 am

Tgt Ion:128 Resp: 39151

Ion	Ratio	Lower	Upper
128	100		
129	25.5	0.0	41.1
127	19.5	0.0	43.3

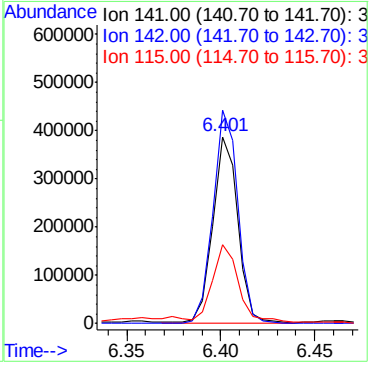


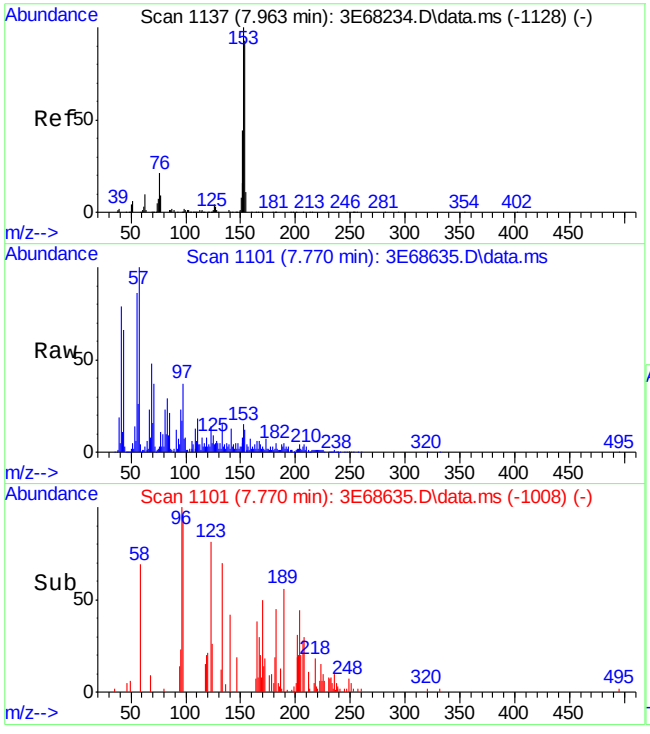


#44
2-Methylnaphthalene
Concen: 29.64 ppb
RT: 6.401 min Scan# 845
Delta R.T. -0.000 min
Lab File: 3E68635.D
Acq: 12 Jan 2015 11:24 am

Tgt Ion:141 Resp: 354779

Ion	Ratio	Lower	Upper
141	100		
142	114.7	87.1	147.1
115	40.5	7.4	67.4

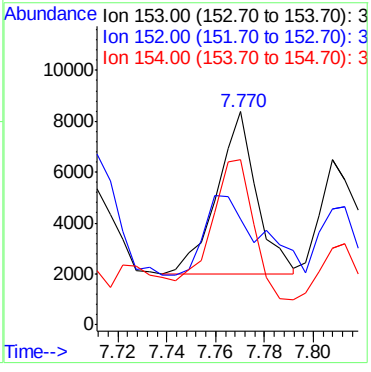


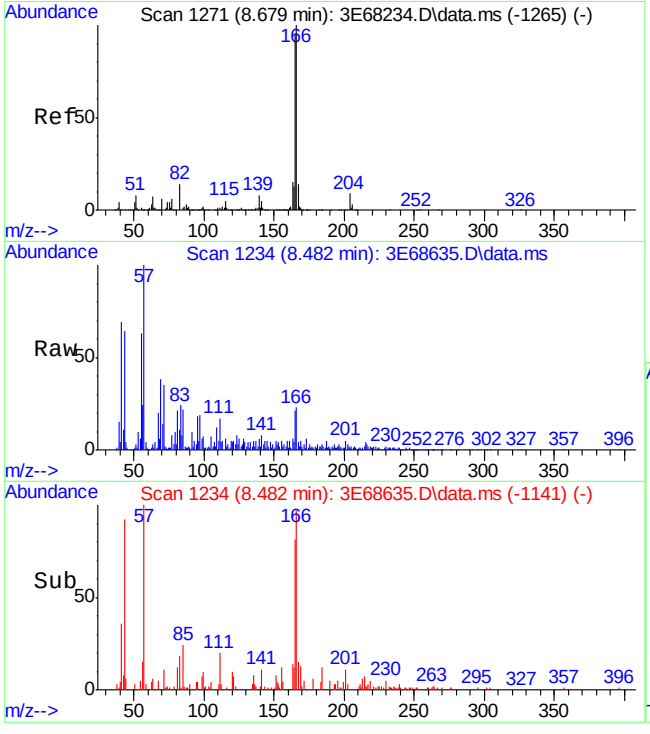


#59
Acenaphthene
Concen: 0.54 ppb
RT: 7.770 min Scan# 1101
Delta R.T. -0.000 min
Lab File: 3E68635.D
Acq: 12 Jan 2015 11:24 am

Tgt Ion:153 Resp: 7213

Ion	Ratio	Lower	Upper
153	100		
152	27.7	13.9	73.9
154	80.8	58.8	118.8

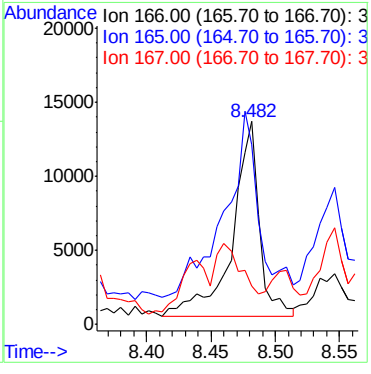




#66
Fluorene
Concen: 1.31 ppb
RT: 8.482 min Scan# 1234
Delta R.T. -0.000 min
Lab File: 3E68635.D
Acq: 12 Jan 2015 11:24 am

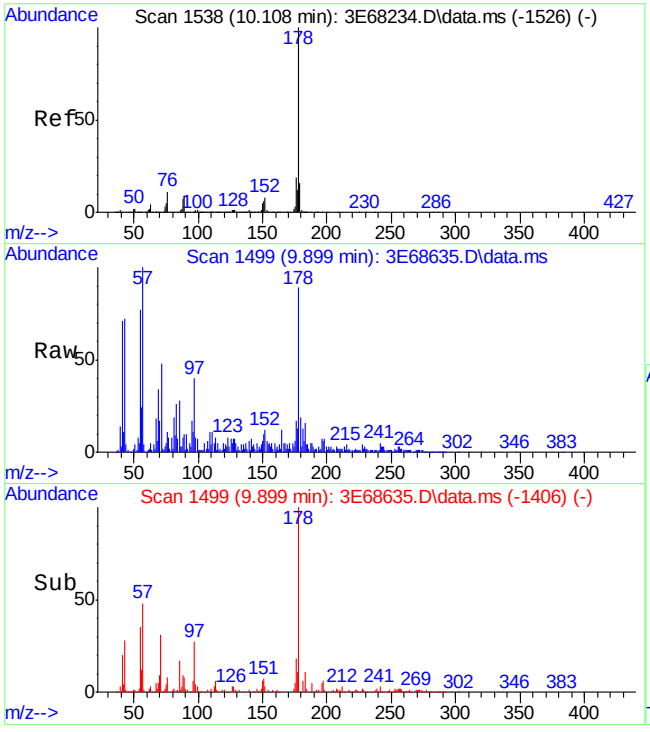
Tgt Ion:166 Resp: 19605

Ion	Ratio	Lower	Upper
166	100		
165	76.8	64.7	124.7
167	7.1	0.0	43.6



9.1.8

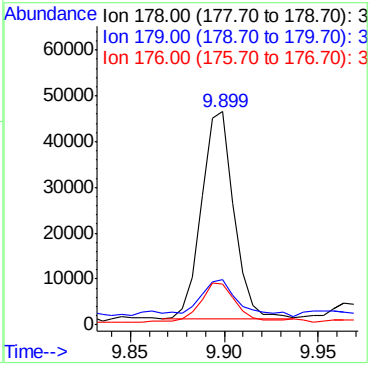
9

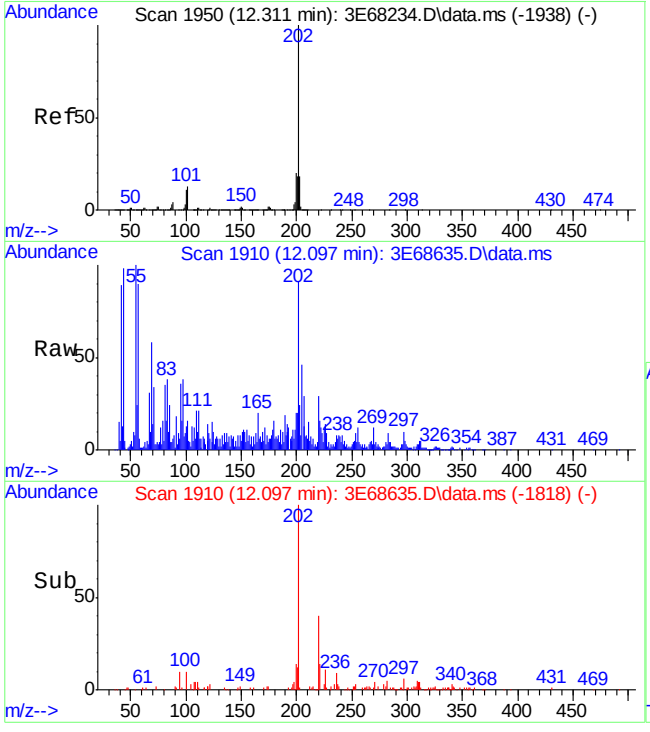


#77
Phenanthrene
Concen: 2.43 ppb
RT: 9.899 min Scan# 1499
Delta R.T. -0.000 min
Lab File: 3E68635.D
Acq: 12 Jan 2015 11:24 am

Tgt Ion:178 Resp: 54227

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	45.5
176	17.6	0.0	48.5

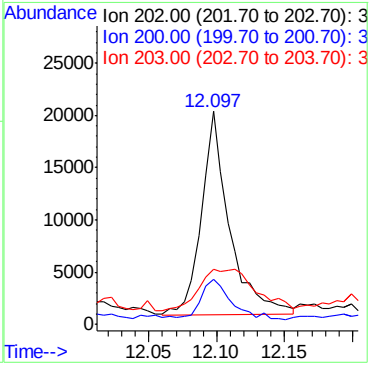




#84
Pyrene
Concen: 1.04 ppb
RT: 12.097 min Scan# 1910
Delta R.T. -0.005 min
Lab File: 3E68635.D
Acq: 12 Jan 2015 11:24 am

Tgt Ion:202 Resp: 27935

Ion	Ratio	Lower	Upper
202	100		
200	19.2	0.0	50.0
203	20.2	0.0	47.6



Manual Integrations APPROVED (compounds with "m" flag)
Cheng-Hwan Ao
01/12/15 14:39

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2945\
Data File : 3E68624.D
Acq On : 10 Jan 2015 1:28 pm
Operator : kristis
Sample : jb85833-8
Misc : op81001,e3e2945,31.8,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 12 15:08:40 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Jan 12 09:56:57 2015
QLast Update : Mon Jan 12 09:56:57 2015
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.588	152	262967	40.00	ppb	0.00
24) Naphthalene-d8	5.690	136	1051765	40.00	ppb	0.00
47) Acenaphthene-d10	7.781	164	575421	40.00	ppb	-0.10
69) Phenanthrene-d10	9.937	188	946603	40.00	ppb	-0.08
83) Chrysene-d12	14.108	240	932172	40.00	ppb	0.00
92) Perylene-d12	16.221	264	844834	40.00	ppb	-0.03
102) 1,4-Dichlorobenzene-d4a	4.588	152	262967	40.00	ppb	0.00
104) Acenaphthene-d10a	7.781	164	575421	40.00	ppb	-0.10
106) Phenanthrene-d10a	9.937	188	946603	40.00	ppb	-0.08
108) Chrysene-d12a	14.108	240	932172	40.00	ppb	0.00
110) Naphthalene-d8a	5.690	136	1043406	40.00	ppb	0.00
112) Chrysene-d12b	14.108	240	932172	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	3.684	112	302154	29.21	ppb	0.01
Spiked Amount 50.000			Recovery = 58.42%			
8) Phenol-d5	4.379	99	509078	36.09	ppb	0.00
Spiked Amount 50.000			Recovery = 72.18%			
25) Nitrobenzene-d5	5.048	82	1011171	60.98	ppb	0.00
Spiked Amount 50.000			Recovery = 121.96%			
51) 2-Fluorobiphenyl	6.899	172	921816	36.40	ppb	-0.07
Spiked Amount 50.000			Recovery = 72.80%			
73) 2,4,6-Tribromophenol	8.931	330	118437	47.00	ppb	-0.10
Spiked Amount 50.000			Recovery = 94.00%			
85) Terphenyl-d14	12.488	244	898826	40.55	ppb	-0.03
Spiked Amount 50.000			Recovery = 81.10%			

Target Compounds						Qvalue
66) Fluorene	8.541	166	296059	14.34	ppb	95
77) Phenanthrene	9.969	178	888243	31.56	ppb	98
78) Anthracene	10.038	178	77742	2.76	ppb	73
81) Fluoranthene	11.830	202	44077	1.40	ppb	95
84) Pyrene	12.167	202	316927	10.83	ppb	96
88) Benzo[a]anthracene	14.082	228	89471	3.28	ppb	71
90) Chrysene	14.135	228	133197	5.16	ppb	95
94) Benzo[b]fluoranthene	15.702	252	19361m	0.69	ppb	
95) Benzo[k]fluoranthene	15.718	252	11376m	0.42	ppb	
96) Benzo[a]pyrene	16.136	252	54234	2.21	ppb	82
101) Benzo[g,h,i]perylene	18.168	276	44993	1.94	ppb	91

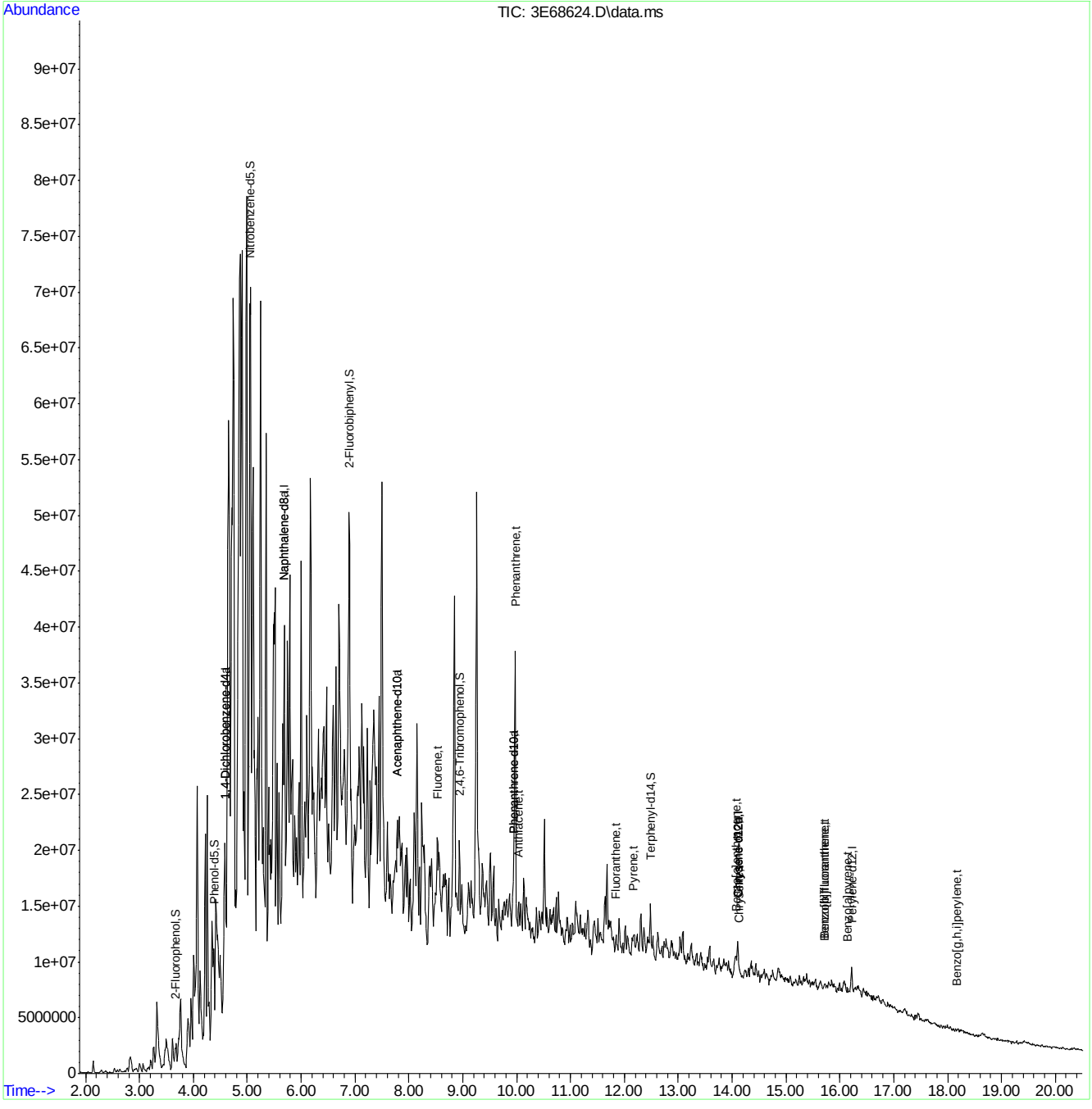
(#) = qualifier out of range (m) = manual integration (+) = signals summed

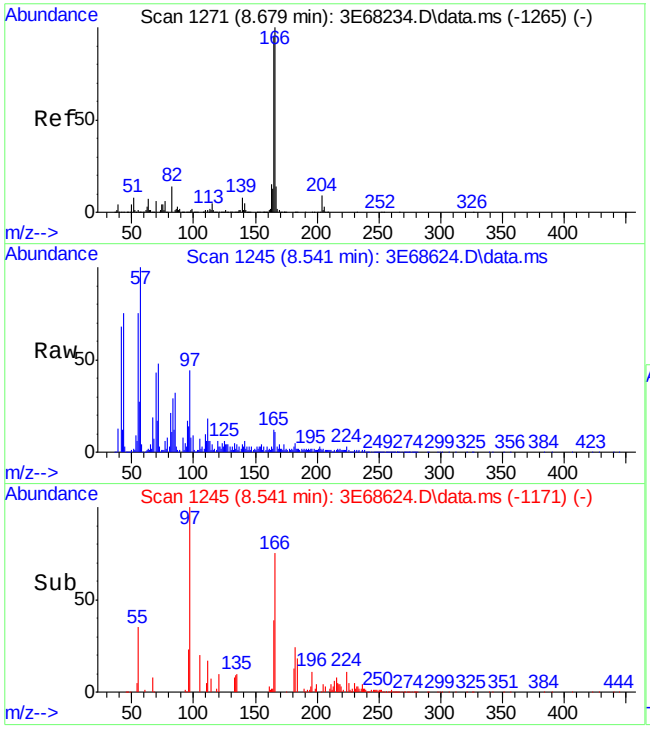
9.1.9
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2945\
Data File : 3E68624.D
Acq On : 10 Jan 2015 1:28 pm
Operator : kristis
Sample : jb85833-8
Misc : op81001,e3e2945,31.8,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 12 15:08:40 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuMon Jan 12 09:56:57 2015
QLast Update : Mon Jan 12 09:56:57 2015
Response via : Initial Calibration

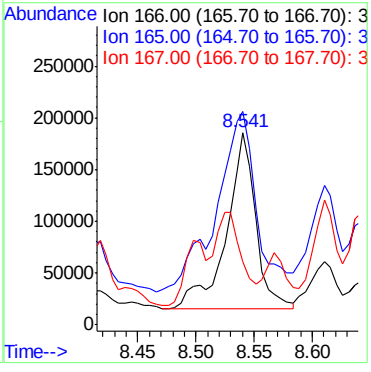


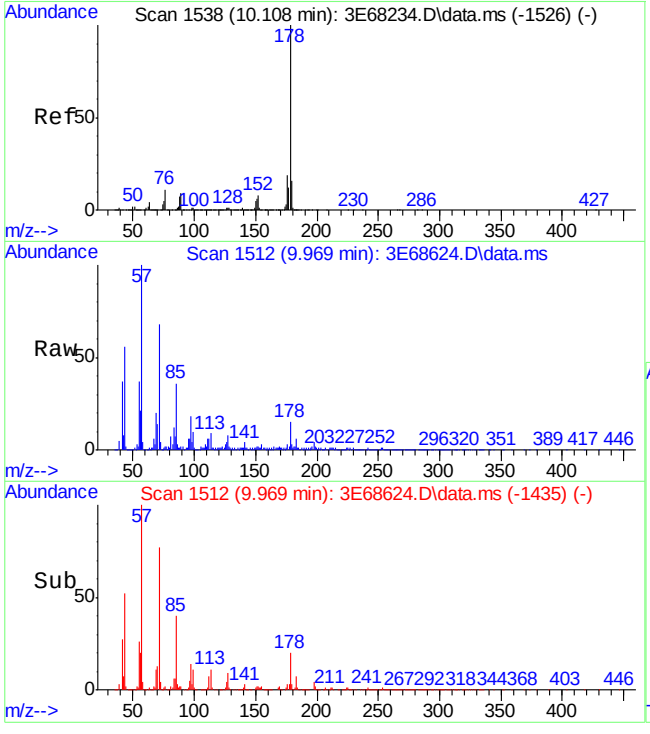


#66
Fluorene
Concen: 14.34 ppb
RT: 8.541 min Scan# 1245
Delta R.T. -0.107 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:166 Resp: 296059

Ion	Ratio	Lower	Upper
166	100		
165	97.8	64.7	124.7
167	19.7	0.0	43.6

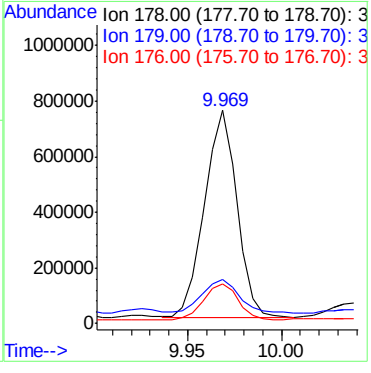


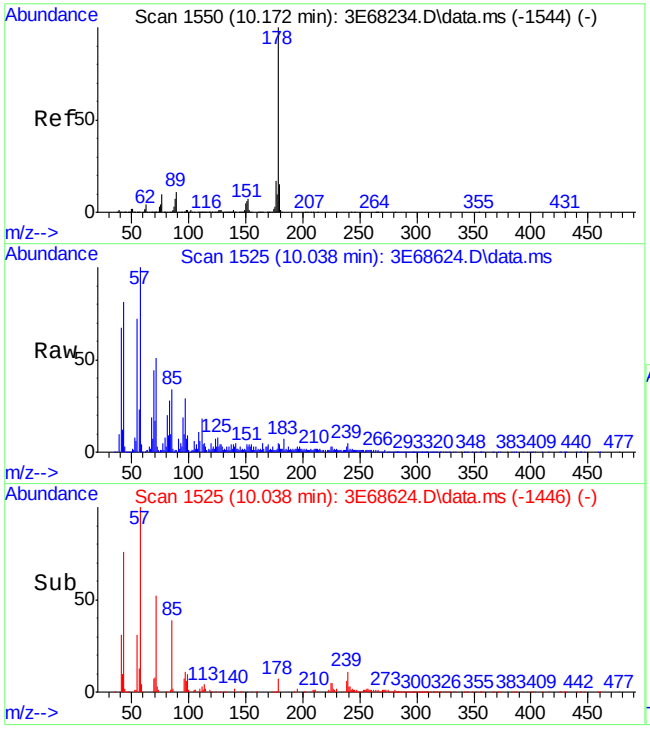


#77
Phenanthrene
Concen: 31.56 ppb
RT: 9.969 min Scan# 1512
Delta R.T. -0.091 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:178 Resp: 888243

Ion	Ratio	Lower	Upper
178	100		
179	16.1	0.0	45.5
176	17.6	0.0	48.5

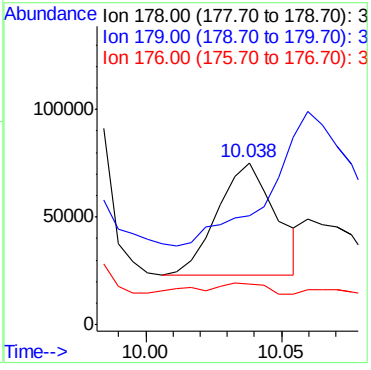


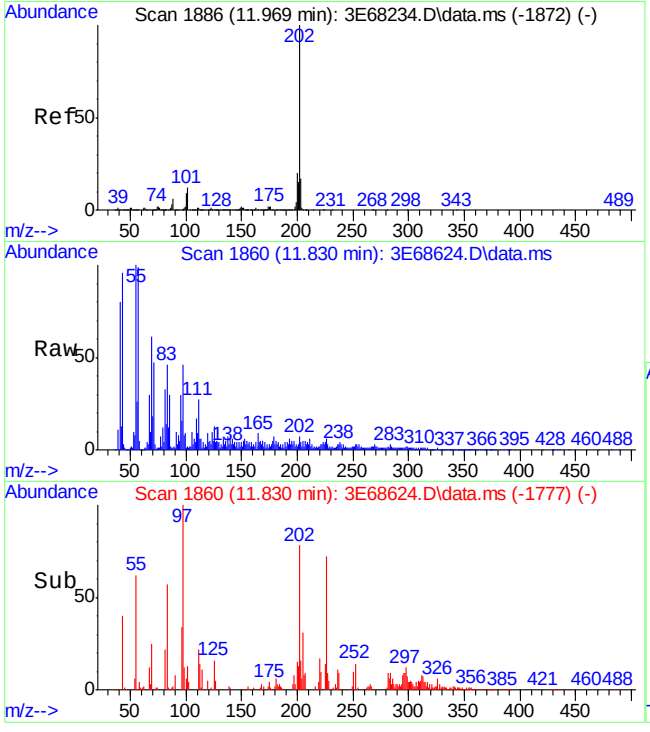


#78
Anthracene
Concen: 2.76 ppb
RT: 10.038 min Scan# 1525
Delta R.T. -0.080 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:178 Resp: 77742

Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	44.8
176	9.1	0.0	47.2

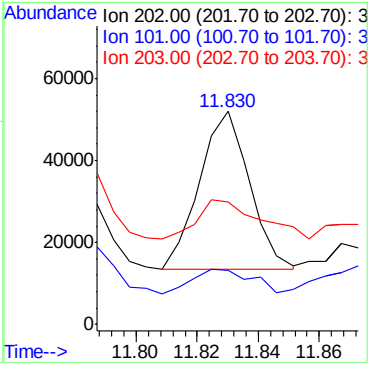


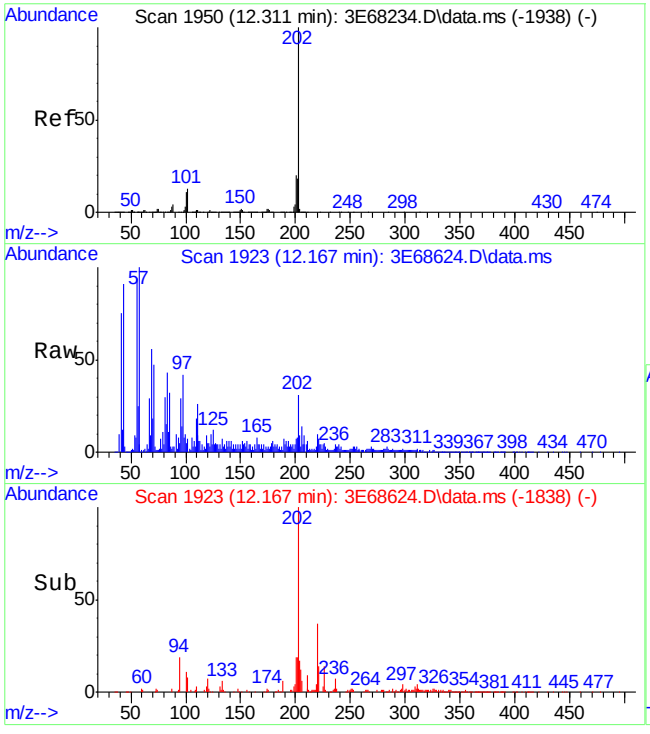


#81
Fluoranthene
Concen: 1.40 ppb
RT: 11.830 min Scan# 1860
Delta R.T. -0.059 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:202 Resp: 44077

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	41.9
203	20.0	0.0	47.4

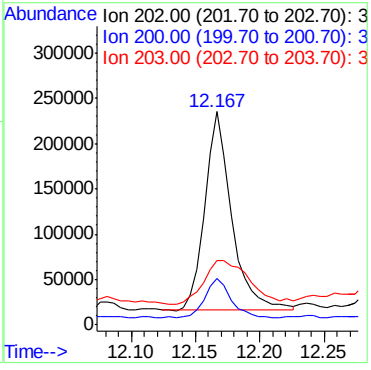


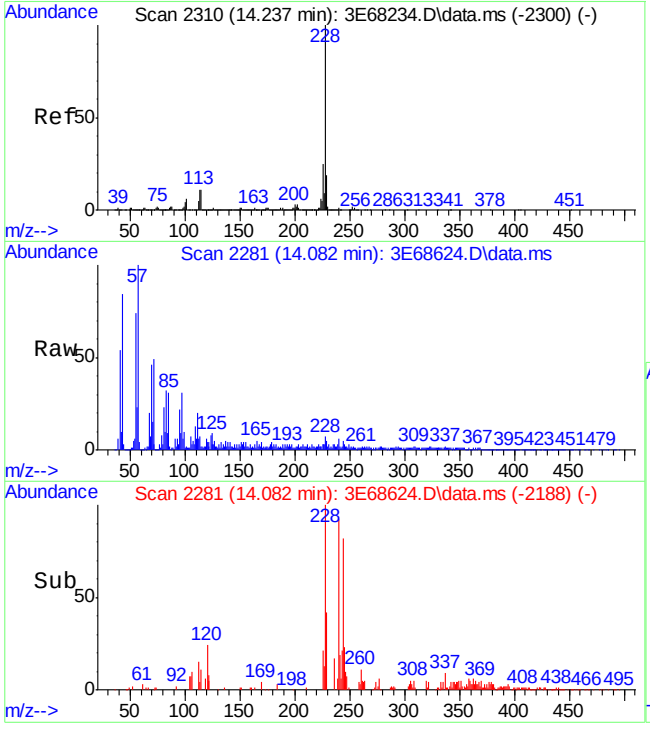


#84
Pyrene
Concen: 10.83 ppb
RT: 12.167 min Scan# 1923
Delta R.T. -0.048 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:202 Resp: 316927

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	50.0
203	21.0	0.0	47.6

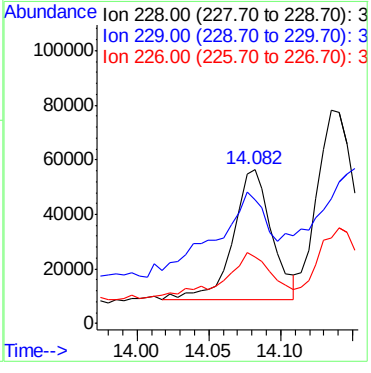


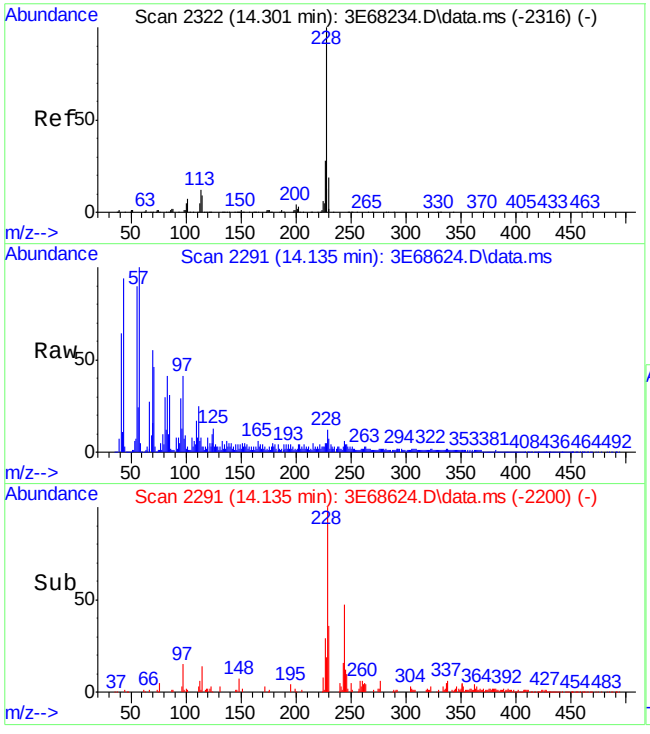


#88
Benzo[a]anthracene
Concen: 3.28 ppb
RT: 14.082 min Scan# 2281
Delta R.T. -0.005 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:228 Resp: 89471

Ion	Ratio	Lower	Upper
228	100		
229	44.7	0.0	49.4
226	29.7	0.0	55.3

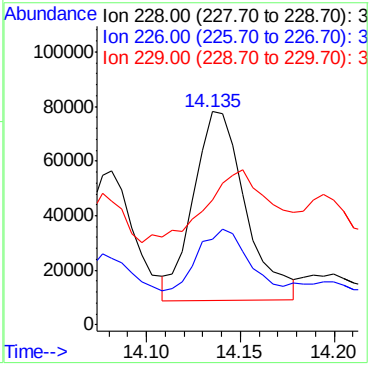


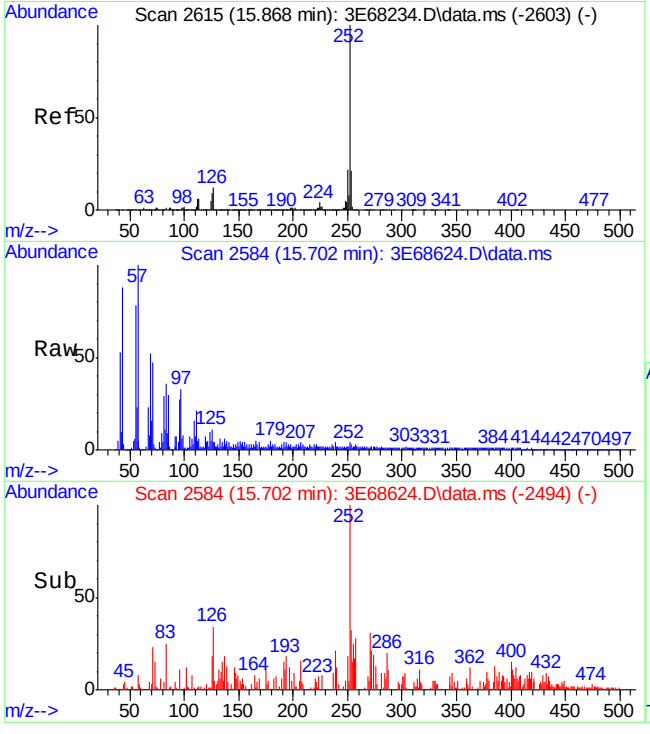


#90
Chrysene
Concen: 5.16 ppb
RT: 14.135 min Scan# 2291
Delta R.T. -0.016 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:228 Resp: 133197

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	57.9
229	14.7	0.0	49.5

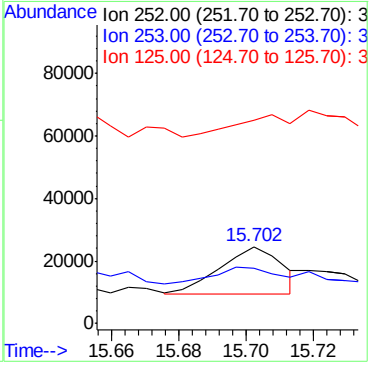


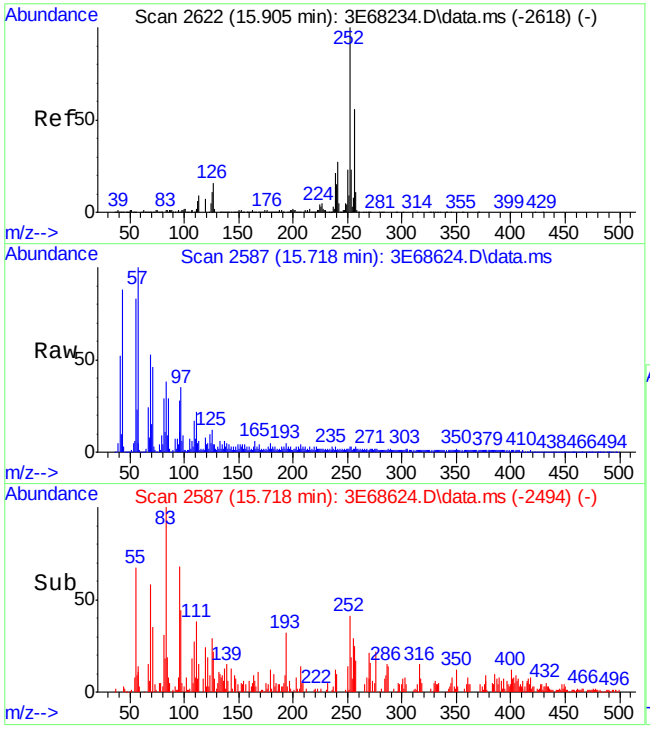


#94
Benzo[b]fluoranthene
Concen: 0.69 ppb m
RT: 15.702 min Scan# 2584
Delta R.T. -0.021 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:252 Resp: 19361

Ion	Ratio	Lower	Upper
252	100		
253	72.1	0.0	50.5#
125	263.5	0.0	38.5#

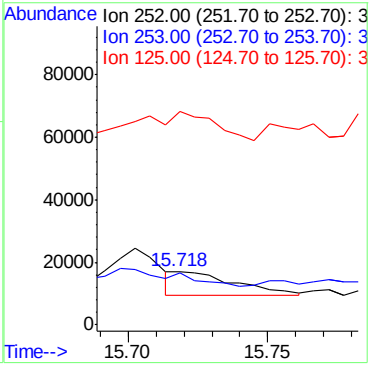


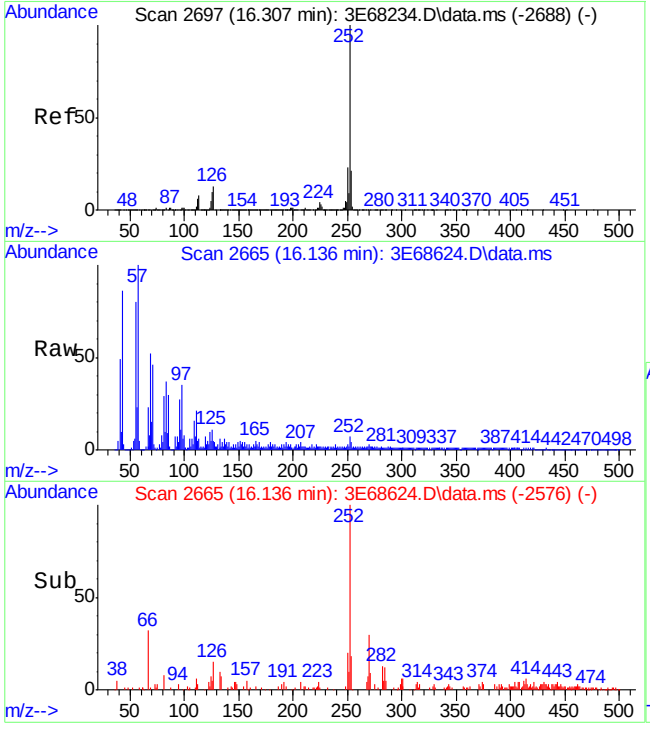


#95
Benzo[k]fluoranthene
Concen: 0.42 ppb m
RT: 15.718 min Scan# 2587
Delta R.T. -0.005 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:252 Resp: 11376

Ion	Ratio	Lower	Upper
252	100		
253	97.4	0.0	53.1#
125	400.8	0.0	41.1#

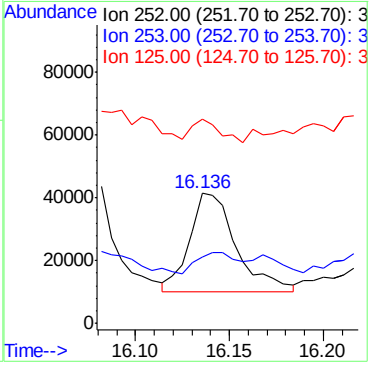


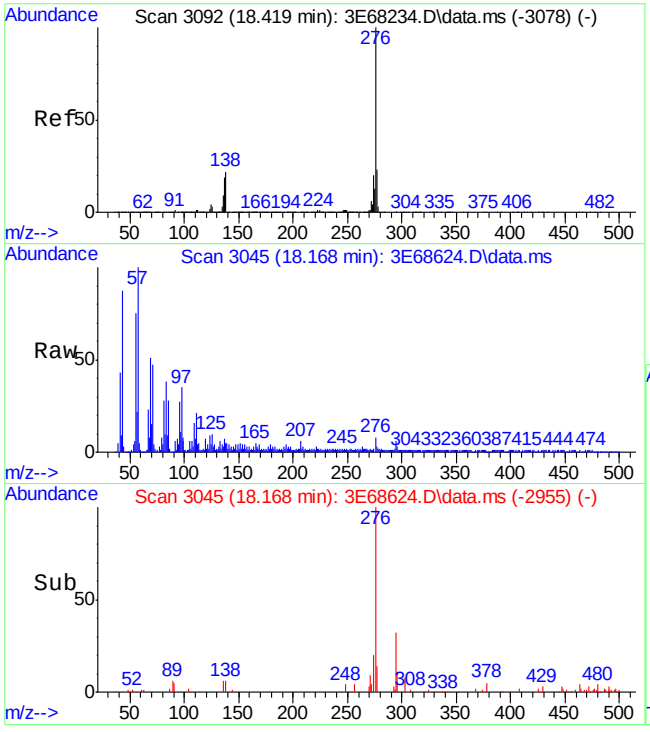


#96
Benzo[a]pyrene
Concen: 2.21 ppb
RT: 16.136 min Scan# 2665
Delta R.T. -0.027 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:252 Resp: 54234

Ion	Ratio	Lower	Upper
252	100		
253	12.1	0.0	51.3
125	15.2	0.0	40.2

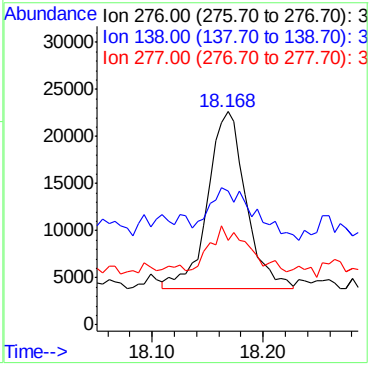




#101
Benzo[g,h,i]perylene
Concen: 1.94 ppb
RT: 18.168 min Scan# 3045
Delta R.T. -0.021 min
Lab File: 3E68624.D
Acq: 10 Jan 2015 1:28 pm

Tgt Ion:276 Resp: 44993

Ion	Ratio	Lower	Upper
276	100		
138	19.4	0.0	51.8
277	16.9	0.0	52.7



9.1.9

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68589.D
Acq On : 9 Jan 2015 10:46 pm
Operator : ashleyd
Sample : op81001-mb1
Misc : op81001,e3e2944,30.0
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 12 10:15:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.582	152	209943	40.00 ppb	-0.12
24) Naphthalene-d8	5.663	136	800198	40.00 ppb	-0.15
47) Acenaphthene-d10	7.733	164	503356	40.00 ppb	-0.19
69) Phenanthrene-d10	9.872	188	908519	40.00 ppb	-0.20
83) Chrysene-d12	14.049	240	917588	40.00 ppb	-0.21
92) Perylene-d12	16.168	264	802512	40.00 ppb	-0.21
102) 1,4-Dichlorobenzene-d4a	4.582	152	209943	40.00 ppb	-0.12
104) Acenaphthene-d10a	7.733	164	503356	40.00 ppb	-0.18
106) Phenanthrene-d10a	9.872	188	908519	40.00 ppb	-0.19
108) Chrysene-d12a	14.049	240	917588	40.00 ppb	-0.21
110) Naphthalene-d8a	5.663	136	800198	40.00 ppb	-0.14
112) Chrysene-d12b	14.049	240	917588	40.00 ppb	-0.21

System Monitoring Compounds					
5) 2-Fluorophenol	3.678	112	309187	37.44 ppb	-0.10
Spiked Amount 50.000			Recovery = 74.88%		
8) Phenol-d5	4.374	99	400213	35.54 ppb	-0.10
Spiked Amount 50.000			Recovery = 71.08%		
25) Nitrobenzene-d5	5.037	82	419766	33.27 ppb	-0.13
Spiked Amount 50.000			Recovery = 66.54%		
51) 2-Fluorobiphenyl	6.866	172	701971	31.69 ppb	-0.18
Spiked Amount 50.000			Recovery = 63.38%		
73) 2,4,6-Tribromophenol	8.872	330	90018	37.22 ppb	-0.19
Spiked Amount 50.000			Recovery = 74.44%		
85) Terphenyl-d14	12.429	244	830252	38.05 ppb	-0.20
Spiked Amount 50.000			Recovery = 76.10%		

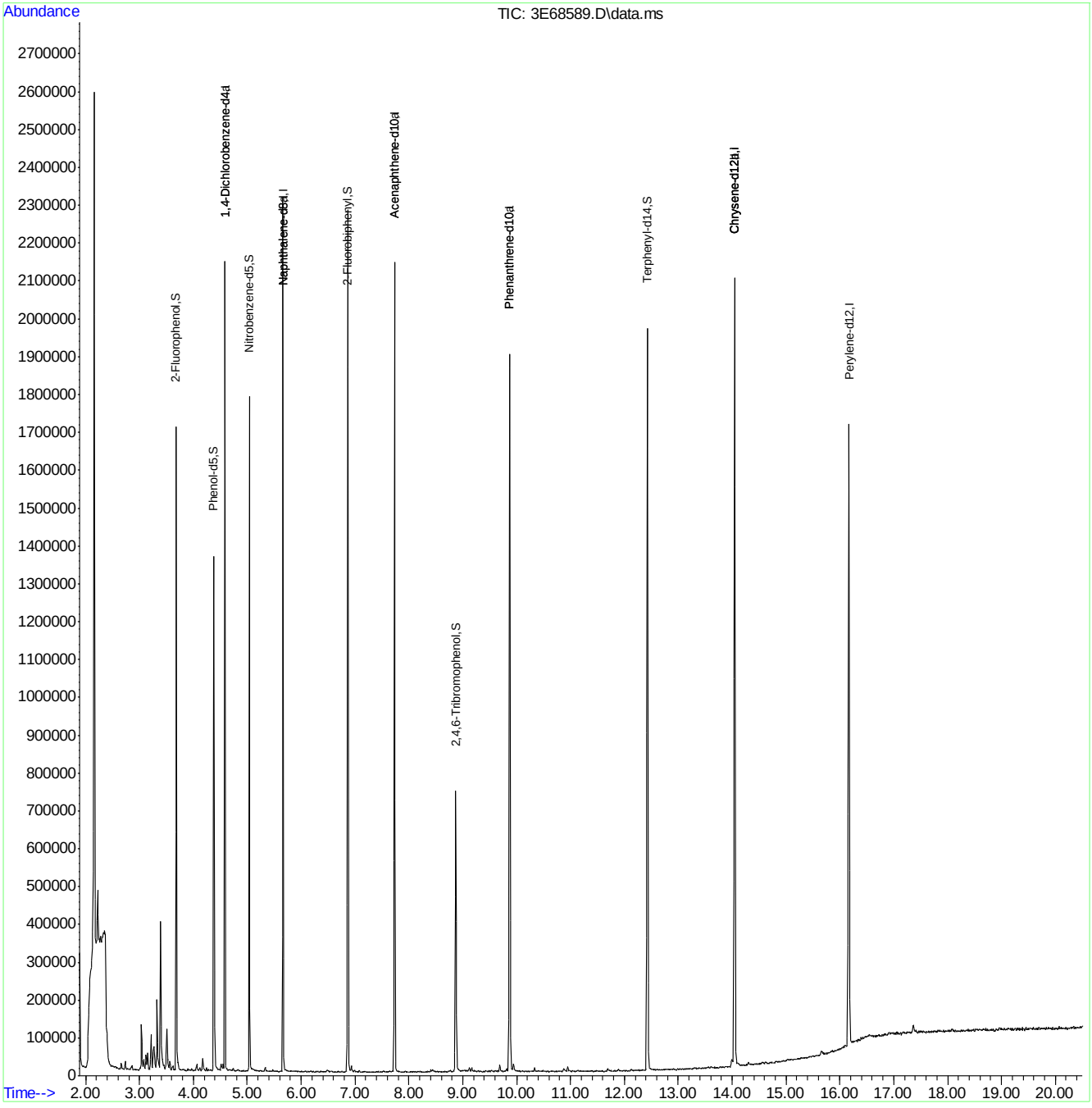
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E2944\
Data File : 3E68589.D
Acq On : 9 Jan 2015 10:46 pm
Operator : ashleyd
Sample : op81001-mb1
Misc : op81001,e3e2944,30.0
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 12 10:15:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3E2929.M
Quant Title : Semi Volatile GC/MS,zb-5msi 30m x .25mm x .25MoTuWed Dec 31 12:28:44 2014
QLast Update : Wed Dec 31 12:28:44 2014
Response via : Initial Calibration



M3E2929.M Mon Jan 12 10:15:53 2015 MS3E

Page: 2

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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:48	MA35827-STD1	1		STDA
09:55	MA35827-STD2	1		STDB
10:01	ZZZZZZ	1		
10:07	ZZZZZZ	1		
10:14	MA35827-ICV1	1		
10:30	MA35827-ICB1	1		
10:35	MA35827-ICCV1	1		
10:43	MA35827-ICCV2	1		
11:00	MA35827-CCB1	1		
11:05	MA35827-CRI1	1		
11:11	MA35827-CRID1	1		
11:17	MA35827-CRIA1	1		
11:23	MA35827-CRID2	1		
11:29	MA35827-ICSA1	1		
11:36	MA35827-ICSAB1	1		
11:42	ZZZZZZ	1		
11:48	ZZZZZZ	1		
11:54	MA35827-CCV1	1		
12:00	MA35827-CCB2	1		
12:07	ZZZZZZ	1		
12:13	ZZZZZZ	1		
12:19	MP84309-MB1	1		
12:25	MP84309-B1	1		
12:31	MP84309-LC1	1		
12:37	MP84309-S1	1		
12:43	MP84309-S2	1		
12:49	JB85851-1A	1		(sample used for QC only; not part of login JB85833)
12:55	MP84309-SD1	5		
13:01	MA35827-CCV2	1		
13:07	MA35827-CCB3	1		
13:14	ZZZZZZ	1		
13:20	ZZZZZZ	1		
13:26	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:32	ZZZZZZ	1		
13:38	ZZZZZZ	1		
13:44	ZZZZZZ	1		
13:50	ZZZZZZ	1		
13:56	ZZZZZZ	1		
14:02	ZZZZZZ	1		
14:08	MA35827-CCV3	1		
14:14	MA35827-CCB4	1		
14:21	ZZZZZZ	1		
14:27	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:39	ZZZZZZ	1		
14:45	ZZZZZZ	1		
14:51	ZZZZZZ	1		
14:57	ZZZZZZ	1		
15:03	ZZZZZZ	1		
15:09	ZZZZZZ	1		
15:16	MA35827-CCV4	1		
15:22	MA35827-CCB5	1		
15:28	MA35827-CRI2	1		
15:34	ZZZZZZ	1		
15:40	MA35827-CRIA2	1		
15:47	MA35827-CRID3	1		
15:53	MA35827-ICSA2	1		
15:59	MA35827-ICSAB2	1		
16:05	MA35827-CCV5	1		
16:11	MA35827-CCB6	1		
16:17	ZZZZZZ	1		
16:24	MP84309-LC1	1		
16:30	ZZZZZZ	1		
16:36	ZZZZZZ	3		
16:42	JB85851-1A	1		(sample used for QC only; not part of login JB85833)
16:48	ZZZZZZ	2		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:54	ZZZZZZ	1		
17:00	MP84315-MB1	1		
17:07	MP84315-MB2	1		
17:13	MA35827-CCV6	1		
17:19	MA35827-CCB7	1		
17:25	MP84315-B1	1		
17:31	MP84315-B2	1		
17:37	MP84315-S1	1		
17:43	MP84315-S2	1		
17:49	JB85775-2	1		(sample used for QC only; not part of login JB85833)
17:55	MP84315-SD1	5		
18:01	ZZZZZZ	1		
18:07	ZZZZZZ	1		
18:14	ZZZZZZ	1		
18:20	MA35827-CCV7	1		
18:26	MA35827-CCB8	1		
18:32	ZZZZZZ	1		
18:38	ZZZZZZ	1		
18:44	ZZZZZZ	1		
18:51	ZZZZZZ	1		
18:57	ZZZZZZ	1		
19:03	ZZZZZZ	1		
19:09	ZZZZZZ	1		
19:15	ZZZZZZ	1		
19:21	ZZZZZZ	1		
19:28	MA35827-CCV8	1		
19:34	MA35827-CCB9	1		
19:40	ZZZZZZ	1		
19:46	ZZZZZZ	1		
19:52	ZZZZZZ	1		
19:58	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:11	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:17	MP84326-MB1	1		
20:23	MP84326-B1	1		
20:29	MP84326-S1	1		
20:35	MA35827-CCV9	1		
20:41	MA35827-CCB10	1		
20:48	MP84326-S2	1		
20:54	JB85833-4	1		
21:00	MP84326-SD1	5		
21:06	ZZZZZZ	1		
21:12	JB85833-1	1		
21:18	JB85833-2	1		
21:24	ZZZZZZ	1		
21:30	JB85833-5	1		
21:36	JB85833-6	1		
21:42	MA35827-CCV10	1		
21:48	MA35827-CCB11	1		
21:55	JB85833-3	1		
22:01	JB85833-7	1		
22:07	JB85833-8	1		
22:13	ZZZZZZ	1		
22:19	ZZZZZZ	1		
22:25	ZZZZZZ	1		
22:31	MP84326-S2	1		
---------->	Last reportable sample/prep for job JB85833			
22:37	ZZZZZZ	1		
22:43	ZZZZZZ	3		
22:49	MA35827-CCV11	1		
22:56	MA35827-CCB12	1		
23:02	MA35827-CRI3	1		
23:08	MA35827-CRID4	1		
23:14	MA35827-CRIA3	1		
23:20	ZZZZZZ	1		
23:27	MA35827-ICSA3	1		
23:33	MA35827-ICSAB3	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	23:39	MA35827-CCV12	1		
	23:45	MA35827-CCB13	1		
---------->	Last reportable CCB for job JB85833				
	23:51	ZZZZZZ	1		
	23:58	ZZZZZZ	1		
	00:04	ZZZZZZ	1		
	00:10	ZZZZZZ	1		
	00:16	ZZZZZZ	1		
	00:23	ZZZZZZ	1		
	00:29	ZZZZZZ	1		
	00:35	ZZZZZZ	1		
	00:41	ZZZZZZ	1		
	00:48	ZZZZZZ	1		
	00:54	ZZZZZZ	1		
	01:00	ZZZZZZ	1		
	01:06	ZZZZZZ	1		
	01:13	MA35827-CCV13	1		
	01:19	MA35827-CCB14	1		
	01:25	ZZZZZZ	1		
	01:31	ZZZZZZ	1		
	01:37	ZZZZZZ	1		
	01:43	ZZZZZZ	1		
	01:49	ZZZZZZ	1		
	01:55	MP84278-SD1	5		
	02:02	ZZZZZZ	2		
	02:08	ZZZZZZ	1		
	02:14	ZZZZZZ	10		
	02:20	ZZZZZZ	1		
	02:26	MA35827-CCV14	1		
	02:32	MA35827-CCB15	1		
	02:38	MP84308-S1	2		CRID out
	02:44	MP84308-S2	2		CRID out
	02:50	JB85736-5	2		(sample used for QC only; not part of login JB85833)
	02:56	MP84308-SD1	10		CRID out

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
03:03	ZZZZZZ	1		
03:09	ZZZZZZ	2		
03:15	ZZZZZZ	2		
03:21	MP84325-B1	1		
03:27	MP84325-MB1	1		
03:33	MA35827-CCV15	1		
03:39	MA35827-CCB16	1		
03:46	MP84325-S1	1		
03:52	MP84325-S2	1		
03:57	JB85660-1	1		(sample used for QC only; not part of login JB85833)
04:04	MP84325-SD1	5		
04:10	ZZZZZZ	1		
04:16	ZZZZZZ	1		
04:22	ZZZZZZ	1		
04:28	ZZZZZZ	1		
04:34	ZZZZZZ	1		
04:41	ZZZZZZ	1		
04:47	MA35827-CCV16	1		
04:53	MA35827-CCB17	1		
04:59	MA35827-CRI4	1		
05:05	MA35827-CRID5	1		
05:11	MA35827-CRIA4	1		
05:18	MA35827-CRID6	1		
05:24	MA35827-ICSA4	1		
05:30	MA35827-ICSAB4	1		
05:36	MA35827-CCV17	1		
05:42	MA35827-CCB18	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
09:48	MA35827-STD1	3279 R	69204 R	14456 R	11774 R
09:55	MA35827-STD2	3066	60424	14083	9800
10:01	ZZZZZZ	3161	63703	14274	10283
10:07	ZZZZZZ	3328	67786	14205	11954
10:14	MA35827-ICV1	3156	63464	14208	10314
10:30	MA35827-ICB1	3315	67835	14380	11913
10:35	MA35827-ICCV1	No results reported for the elements associated with this internal standard.			
10:43	MA35827-ICCV2	3169	63949	14300	10325
11:00	MA35827-CCB1	3306	67093	14393	11897
11:05	MA35827-CRI1	3233	66186	14290	11424
11:11	MA35827-CRID1	No results reported for the elements associated with this internal standard.			
11:17	MA35827-CRIA1	3236	67076	14326	11608
11:23	MA35827-CRID2	3260	67520	14414	11708
11:29	MA35827-ICSA1	2873	57767	13897	8853
11:36	MA35827-ICSAB1	2859	57101	13801	8810
11:42	ZZZZZZ	2942	59962	14453	9247
11:48	ZZZZZZ	2929	59623	14408	9194
11:54	MA35827-CCV1	3126	63472	14332	10201
12:00	MA35827-CCB2	3329	68012	14280	11970
12:07	ZZZZZZ	3168	65680	14350	11372
12:13	ZZZZZZ	3195	66778	14375	11625
12:19	MP84309-MB1	3210	67037	14466	11506
12:25	MP84309-B1	3128	64063	14349	10460
12:31	MP84309-LC1	No results reported for the elements associated with this internal standard.			
12:37	MP84309-S1	3210	64536	15009	10039
12:43	MP84309-S2	3255	65572	14926	10067
12:49	JB85851-1A	No results reported for the elements associated with this internal standard.			
12:55	MP84309-SD1	3272	67301	14512	11314
13:01	MA35827-CCV2	3142	63873	14252	10231
13:07	MA35827-CCB3	3268	67729	14519	11748
13:14	ZZZZZZ	3268	66824	14597	10937
13:20	ZZZZZZ	3216	67583	14359	11300
13:26	ZZZZZZ	3276	66831	15061	10467

INTERNAL STANDARD SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:32	ZZZZZZ	3222	65275	14772	10479
13:38	ZZZZZZ	3278	66896	14702	10823
13:44	ZZZZZZ	3192	64587	14475	10067
13:50	ZZZZZZ	3245	66212	14654	10449
13:56	ZZZZZZ	3253	65487	14879	10524
14:02	ZZZZZZ	3195	65428	14854	10039
14:08	MA35827-CCV3	3144	63532	14272	10247
14:14	MA35827-CCB4	3269	67535	14260	11746
14:21	ZZZZZZ	3200	65321	14753	10181
14:27	ZZZZZZ	3247	66162	14956	10461
14:33	ZZZZZZ	3247	66039	14889	10485
14:39	ZZZZZZ	No results reported for the elements associated with this internal standard.			
14:45	ZZZZZZ	3195	65071	14877	9917
14:51	ZZZZZZ	3247	65546	14951	10172
14:57	ZZZZZZ	3286	66237	14958	10318
15:03	ZZZZZZ	2933	59715	14115	8683
15:09	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:16	MA35827-CCV4	3159	64095	14270	10282
15:22	MA35827-CCB5	3301	67407	15769	11851
15:28	MA35827-CRI2	3276	66872	14345	11554
15:34	ZZZZZZ	3373	67876	14405	12054
15:40	MA35827-CRIA2	3268	67330	14401	11717
15:47	MA35827-CRID3	3319	67544	14564	11896
15:53	MA35827-ICSA2	2916	57987	14084	8961
15:59	MA35827-ICSAB2	2871	60916	13789	8853
16:05	MA35827-CCV5	3167	64443	14297	10360
16:11	MA35827-CCB6	3310	68127	14439	11929
16:17	ZZZZZZ	2911	60541	14174	8756
16:24	MP84309-LC1	3256	66135	14534	10630
16:30	ZZZZZZ	No results reported for the elements associated with this internal standard.			
16:36	ZZZZZZ	3218	65243	14722	10543
16:42	JB85851-1A	3348	67419	14699	10911
16:48	ZZZZZZ	3267	65820	14429	10670

INTERNAL STANDARD SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:54	ZZZZZZ	3025	61255	14207	9194
17:00	MP84315-MB1	3279	68162	14605	11824
17:07	MP84315-MB2	3285	68041	14519	11849
17:13	MA35827-CCV6	3189	64597	14057	10381
17:19	MA35827-CCB7	3301	67657	14125	11852
17:25	MP84315-B1	3176	65264	14297	10597
17:31	MP84315-B2	3192	65291	14239	10665
17:37	MP84315-S1	3185	64859	14316	10581
17:43	MP84315-S2	3174	64694	14690	10560
17:49	JB85775-2	3302	67336	14423	11720
17:55	MP84315-SD1	3296	67725	14325	11849
18:01	ZZZZZZ	2968	60241	13957	9570
18:07	ZZZZZZ	3303	67605	14439	11652
18:14	ZZZZZZ	3314	66952	14366	11671
18:20	MA35827-CCV7	3219	64425	14121	10463
18:26	MA35827-CCB8	3345	68189	14297	11993
18:32	ZZZZZZ	2912	57751	13895	9144
18:38	ZZZZZZ	3132	63439	14166	10361
18:44	ZZZZZZ	3127	63740	14118	10467
18:51	ZZZZZZ	3178	64857	14258	10634
18:57	ZZZZZZ	3080	62495	14133	10132
19:03	ZZZZZZ	3305	67341	14345	11387
19:09	ZZZZZZ	3114	63378	13906	10373
19:15	ZZZZZZ	3097	63276	14055	10225
19:21	ZZZZZZ	2993	60644	13470	9494
19:28	MA35827-CCV8	3234	64317	13969	10485
19:34	MA35827-CCB9	3376	68460	14060	12062
19:40	ZZZZZZ	3243	66062	13338	11192
19:46	ZZZZZZ	3029	60452	13772	9602
19:52	ZZZZZZ	3084	60581	13940	10112
19:58	ZZZZZZ	3252	66315	14151	11205
20:05	ZZZZZZ	3096	62080	13802	10082
20:11	ZZZZZZ	3352	68598	14095	12020

INTERNAL STANDARD SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:17	MP84326-MB1	3351	68449	14267	12061
20:23	MP84326-B1	3264	65675	14211	10871
20:29	MP84326-S1	3334	65065	14697	10314
20:35	MA35827-CCV9	3250	64708	13918	10530
20:41	MA35827-CCB10	3381	68539	13854	12087
20:48	MP84326-S2	No results reported for the elements associated with this internal standard.			
20:54	JB85833-4	3451	67547	14740	10947
21:00	MP84326-SD1	3384	67481	14328	11486
21:06	ZZZZZZ	3513	69785	15185	10664
21:12	JB85833-1	3156	64323	14406	10159
21:18	JB85833-2	3346	65524	14430	10625
21:24	ZZZZZZ	10290 !	178630 !	24668 !	34487 !
21:30	JB85833-5	3377	66377	14503	10910
21:36	JB85833-6	3370	66361	14648	10733
21:42	MA35827-CCV10	3215	63543	13910	10451
21:48	MA35827-CCB11	3352	67817	13832	12001
21:55	JB85833-3	3439	67562	14739	10887
22:01	JB85833-7	3423	67917	14837	11167
22:07	JB85833-8	3352	66225	14640	10851
22:13	ZZZZZZ	3400	68024	14538	11421
22:19	ZZZZZZ	3378	67037	14362	11365
22:25	ZZZZZZ	3388	70212	14405	11353
22:31	MP84326-S2	3317	64865	14348	10289
22:37	ZZZZZZ	3472	66844	15002	10909
22:43	ZZZZZZ	3102	60967	13697	10010
22:49	MA35827-CCV11	3265	64814	13813	10584
22:56	MA35827-CCB12	3380	68449	13946	12070
23:02	MA35827-CRI3	3331	67203	13910	11697
23:08	MA35827-CRID4	3346	67815	13757	11918
23:14	MA35827-CRIA3	3352	67513	13862	11915
23:20	ZZZZZZ	3398	68658	14073	12082
23:27	MA35827-ICSA3	2955	58267	13285	9044
23:33	MA35827-ICSAB3	2982	58260	13152	9115

INTERNAL STANDARD SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:39	MA35827-CCV12	3247	64724	13726	10503
23:45	MA35827-CCB13	3429	68834	13888	12223
23:51	ZZZZZZ	3358	67873	13728	11950
23:58	ZZZZZZ	3385	68289	13825	12075
00:04	ZZZZZZ	3394	68508	13813	12086
00:10	ZZZZZZ	3360	67545	13630	11970
00:16	ZZZZZZ	3352	68968	13822	11916
00:23	ZZZZZZ	3088	61833	13368	10007
00:29	ZZZZZZ	3400	68578	13745	12100
00:35	ZZZZZZ	3362	69025	13768	11931
00:41	ZZZZZZ	3436	62877	14392	10429
00:48	ZZZZZZ	3075	61328	13248	10065
00:54	ZZZZZZ	3457	68926	14144	12534
01:00	ZZZZZZ	3378	67797	13724	12039
01:06	ZZZZZZ	3425	69122	13798	12177
01:13	MA35827-CCV13	3295	65177	13663	10629
01:19	MA35827-CCB14	3420	68816	13768	12185
01:25	ZZZZZZ	3454	67879	14148	11563
01:31	ZZZZZZ	3412	68260	14388	11401
01:37	ZZZZZZ	3441	68068	14048	11499
01:43	ZZZZZZ	3461	68242	14110	11526
01:49	ZZZZZZ	3373	68660	13869	12088
01:55	MP84278-SD1	3403	66736	13779	11335
02:02	ZZZZZZ	3299	63997	13850	10830
02:08	ZZZZZZ	3398	67094	14320	11290
02:14	ZZZZZZ	3448	68650	13829	11903
02:20	ZZZZZZ	3395	68692	13873	12123
02:26	MA35827-CCV14	3292	64639	13475	10617
02:32	MA35827-CCB15	3429	68616	13576	12196
02:38	MP84308-S1	No results reported for the elements associated with this internal standard.			
02:44	MP84308-S2	No results reported for the elements associated with this internal standard.			
02:50	JB85736-5	No results reported for the elements associated with this internal standard.			
02:56	MP84308-SD1	No results reported for the elements associated with this internal standard.			

INTERNAL STANDARD SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
Analyst: BS Run ID: MA35827
Parameters: Co,Pb,Ni,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
03:03	ZZZZZZ	3109	62015	13484	10142
03:09	ZZZZZZ	3048	59984	13144	9575
03:15	ZZZZZZ	3053	59898	13138	9587
03:21	MP84325-B1	3345	65939	13792	11108
03:27	MP84325-MB1	3489	69695	14073	12594
03:33	MA35827-CCV15	3305	65032	13526	10647
03:39	MA35827-CCB16	3437	68660	13585	12205
03:46	MP84325-S1	3308	65740	13768	10839
03:52	MP84325-S2	3317	65622	13895	10867
03:57	JB85660-1	3376	67696	13917	11689
04:04	MP84325-SD1	3429	68322	13732	12113
04:10	ZZZZZZ	3412	67642	13850	11806
04:16	ZZZZZZ	3368	66380	13752	11653
04:22	ZZZZZZ	3407	67359	13844	11755
04:28	ZZZZZZ	3377	67564	13839	11679
04:34	ZZZZZZ	3353	65790	13931	11616
04:41	ZZZZZZ	3382	66820	13653	11706
04:47	MA35827-CCV16	3303	64898	13593	10630
04:53	MA35827-CCB17	3425	68834	13649	12161
04:59	MA35827-CRI4	3425	68482	13717	11930
05:05	MA35827-CRID5	3452	68608	13561	12190
05:11	MA35827-CRIA4	3456	68864	13589	12207
05:18	MA35827-CRID6	3457	68136	13475	12200
05:24	MA35827-ICSA4	3060	59053	13047	9276
05:30	MA35827-ICSAB4	3044	58644	13003	9232
05:36	MA35827-CCV17	3334	65519	13527	10704
05:42	MA35827-CCB18	3460	68692	13416	12249

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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			10:30		11:00		12:00		13:07	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	10	anr							
Antimony	6.0	1.3	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.33	anr							
Beryllium	1.0	.076	anr							
Bismuth	20	1.7								
Boron	100	1.2								
Cadmium	3.0	.21	anr							
Calcium	5000	13	anr							
Chromium	10	.42	anr							
Cobalt	50	.31	0.10	<50	0.10	<50	0.10	<50	0.10	<50
Copper	10	.39	anr							
Iron	100	3.7	anr							
Lead	3.0	.69	-0.20	<3.0	-0.60	<3.0	0.10	<3.0	0.0	<3.0
Lithium	20	1.8								
Magnesium	5000	23	anr							
Manganese	15	.11	anr							
Molybdenum	20	.67	anr							
Nickel	10	.31	0.20	<10	0.40	<10	0.20	<10	0.40	<10
Palladium	50	1.6								
Potassium	10000	32	anr							
Selenium	10	1.7	anr							
Silicon	200	2.4								
Silver	10	.61	anr							
Sodium	10000	7.8	anr							
Sulfur	50	3.4								
Strontium	10	.17								
Thallium	2.0	1.6	anr							
Tin	10	.87								
Titanium	10	.61								
Tungsten	50	1.1								
Vanadium	50	.25	-0.10	<50	0.20	<50	0.10	<50	0.0	<50
Zinc	20	5.7	0.0	<20	0.0	<20	0.10	<20	0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			10:30		11:00		12:00		13:07	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.25								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			14:14		15:22		16:11		17:19	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	10	anr							
Antimony	6.0	1.3	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.33	anr							
Beryllium	1.0	.076	anr							
Bismuth	20	1.7								
Boron	100	1.2								
Cadmium	3.0	.21	anr							
Calcium	5000	13	anr							
Chromium	10	.42	anr							
Cobalt	50	.31	0.20	<50	0.10	<50	0.0	<50	0.10	<50
Copper	10	.39	anr							
Iron	100	3.7	anr							
Lead	3.0	.69	-0.10	<3.0	0.10	<3.0	0.0	<3.0	-0.30	<3.0
Lithium	20	1.8								
Magnesium	5000	23	anr							
Manganese	15	.11	anr							
Molybdenum	20	.67	anr							
Nickel	10	.31	0.30	<10	0.20	<10	0.10	<10	0.10	<10
Palladium	50	1.6								
Potassium	10000	32	anr							
Selenium	10	1.7	anr							
Silicon	200	2.4								
Silver	10	.61	anr							
Sodium	10000	7.8	anr							
Sulfur	50	3.4								
Strontium	10	.17								
Thallium	2.0	1.6	anr							
Tin	10	.87								
Titanium	10	.61								
Tungsten	50	1.1								
Vanadium	50	.25	0.30	<50	0.20	<50	0.10	<50	0.10	<50
Zinc	20	5.7	-0.10	<20	0.0	<20	0.10	<20	-0.10	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			14:14		15:22		16:11		17:19	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.25								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			18:26		19:34		20:41		21:48	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	10	anr							
Antimony	6.0	1.3	anr							
Arsenic	3.0	1.1	anr							
Barium	200	.33	anr							
Beryllium	1.0	.076	anr							
Bismuth	20	1.7								
Boron	100	1.2								
Cadmium	3.0	.21	anr							
Calcium	5000	13	anr							
Chromium	10	.42	anr							
Cobalt	50	.31	0.0	<50	0.10	<50	0.10	<50	0.0	<50
Copper	10	.39	anr							
Iron	100	3.7	anr							
Lead	3.0	.69	-0.40	<3.0	-0.70	<3.0	-0.10	<3.0	-0.40	<3.0
Lithium	20	1.8								
Magnesium	5000	23	anr							
Manganese	15	.11	anr							
Molybdenum	20	.67	anr							
Nickel	10	.31	0.0	<10	0.10	<10	-0.20	<10	0.10	<10
Palladium	50	1.6								
Potassium	10000	32	anr							
Selenium	10	1.7	anr							
Silicon	200	2.4								
Silver	10	.61	anr							
Sodium	10000	7.8	anr							
Sulfur	50	3.4								
Strontium	10	.17								
Thallium	2.0	1.6	anr							
Tin	10	.87								
Titanium	10	.61								
Tungsten	50	1.1								
Vanadium	50	.25	0.10	<50	0.0	<50	0.20	<50	0.10	<50
Zinc	20	5.7	0.0	<20	0.0	<20	0.0	<20	0.0	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			18:26		19:34		20:41		21:48	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	10	.25								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			22:56		23:45	
Sample ID:			CCB12		CCB13	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	10	anr			
Antimony	6.0	1.3	anr			
Arsenic	3.0	1.1	anr			
Barium	200	.33	anr			
Beryllium	1.0	.076	anr			
Bismuth	20	1.7				
Boron	100	1.2				
Cadmium	3.0	.21	anr			
Calcium	5000	13	anr			
Chromium	10	.42	anr			
Cobalt	50	.31	0.0	<50	0.10	<50
Copper	10	.39	anr			
Iron	100	3.7	anr			
Lead	3.0	.69	0.0	<3.0	-0.30	<3.0
Lithium	20	1.8				
Magnesium	5000	23	anr			
Manganese	15	.11	anr			
Molybdenum	20	.67	anr			
Nickel	10	.31	0.20	<10	0.10	<10
Palladium	50	1.6				
Potassium	10000	32	anr			
Selenium	10	1.7	anr			
Silicon	200	2.4				
Silver	10	.61	anr			
Sodium	10000	7.8	anr			
Sulfur	50	3.4				
Strontium	10	.17				
Thallium	2.0	1.6	anr			
Tin	10	.87				
Titanium	10	.61				
Tungsten	50	1.1				
Vanadium	50	.25	0.10	<50	0.0	<50
Zinc	20	5.7	0.0	<20	0.0	<20

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA35827 Units: ug/l

Time:			22:56		23:45	
Sample ID:			CCB12		CCB13	
Metal	RL	IDL	raw	final	raw	final
Zirconium	10	.25				

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		10:43	
Sample ID:	ICCV	ICCV2	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	2000	2000	100.0
Copper	anr		
Iron	anr		
Lead	2000	2010	100.5
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum	anr		
Nickel	2000	2010	100.5
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	1960	98.0
Zinc	2000	2030	101.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		10:43	
Sample ID:	ICCV	ICCV2	
Metal	True	Results	% Rec
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

10.1.3
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		10:14			11:54			13:01	
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	1940	97.0	2000	2010	100.5	2000	2020	101.0
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	2020	101.0	2000	2030	101.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	1960	98.0	2000	2020	101.0	2000	2010	100.5
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1940	97.0	2000	1960	98.0	2000	1940	97.0
Zinc	2000	2030	101.5	2000	2040	102.0	2000	2050	102.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		10:14			11:54			13:01	
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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		14:08			15:16			16:05	
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	2020	101.0	2000	2010	100.5	2000	1980	99.0
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2020	101.0	2000	2000	100.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	2020	101.0	2000	2010	100.5	2000	2000	100.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1950	97.5	2000	1940	97.0	2000	1910	95.5
Zinc	2000	2050	102.5	2000	2040	102.0	2000	2030	101.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		14:08			15:16			16:05	
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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		17:13			18:20			19:28	
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	1990	99.5	2000	1980	99.0	2000	1990	99.5
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	2000	100.0	2000	2010	100.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	2000	100.0	2000	2010	100.5	2000	2020	101.0
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1930	96.5	2000	1940	97.0	2000	1960	98.0
Zinc	2000	2030	101.5	2000	2030	101.5	2000	2040	102.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		17:13			18:20			19:28	
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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		20:35			21:42			22:49	
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	2000	100.0	2000	1990	99.5
Copper	anr								
Iron	anr								
Lead	2000	2000	100.0	2000	2020	101.0	2000	2010	100.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	2000	2020	101.0	2000	2040	102.0	2000	2030	101.5
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	2000	1960	98.0	2000	2010	100.5	2000	1980	99.0
Zinc	2000	2030	101.5	2000	2050	102.5	2000	2040	102.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		20:35			21:42			22:49	
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

10.1.4
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		23:39	
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	2000	2010	100.5
Copper	anr		
Iron	anr		
Lead	2000	2040	102.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum	anr		
Nickel	2000	2050	102.5
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	2000	1980	99.0
Zinc	2000	2070	103.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA35827 Units: ug/l

Time:		23:39	
Sample ID:	CCV	CCV12	
Metal	True	Results	% Rec
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

10.1.4
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA35827 Units: ug/l

Time:				11:05		11:17		11:23	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	48.9	97.8			2.9	96.7
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.7	90.0	20.5	102.5	1.8	72.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	9.9	99.0			4.0	100.0
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	49.6	99.2			1.9	95.0
Zinc	20		10	22.6	113.0			11.5	115.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA35827 Units: ug/l

Time:				11:05		11:17		11:23	
Sample ID:	CRI	CRIA	CRID	CRI1		CRIA1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

10.1.5
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA35827 Units: ug/l

Time:				15:28		15:40		15:47	
Sample ID:	CRI	CRIA	CRID	CRI2		CRIA2		CRID3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	48.3	96.6			3.0	100.0
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.7	90.0	19.4	97.0	2.3	92.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	9.8	98.0			4.0	100.0
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	48.4	96.8			2.0	100.0
Zinc	20		10	22.4	112.0			11.3	113.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA35827 Units: ug/l

Time:				15:28		15:40		15:47	
Sample ID:	CRI	CRIA	CRID	CRI2		CRIA2		CRID3	
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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA35827 Units: ug/l

Time:				23:02		23:08		23:14	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID4		CRIA3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	48.6	97.2	2.8	93.3		
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.5	83.3	2.0	80.0	20.2	101.0
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	10.1	101.0	4.2	105.0		
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	50.2	100.4	2.2	110.0		
Zinc	20		10	22.9	114.5	11.7	117.0		

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA35827 Units: ug/l

Time:				23:02		23:08		23:14	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID4		CRIA3	
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: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA35827 Units: ug/l

Time:			11:29		11:36		15:53		15:59	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	484000	96.8	500000	100.0	478000	95.6	493000	98.6
Antimony		1000	5.5		1040	104.0	6.4		1040	104.0
Arsenic		1000	2.4		1010	101.0	0.0		1010	101.0
Barium		500	-0.80		503	100.6	-1.0		503	100.6
Beryllium		500	-0.40		505	101.0	-0.40		502	100.4
Bismuth		500	9.0		549	109.8	9.3		550	110.0
Boron			-4.4		-3.2		-5.8		-5.7	
Cadmium		1000	-0.30		1020	102.0	0.0		1010	101.0
Calcium	400000	400000	350000	87.5	363000	90.8	334000	83.5	352000	88.0
Chromium		500	4.8		491	98.2	4.9		454	90.8
Cobalt		500	-0.20		488	97.6	0.0		486	97.2
Copper		500	8.9		506	101.2	7.7		475	95.0
Iron	200000	200000	182000	91.0	191000	95.5	174000	87.0	185000	92.5
Lead		1000	4.9		958	95.8	2.9		950	95.0
Lithium		500	14.3		595	119.0	11.6		598	119.6
Magnesium	500000	500000	485000	97.0	499000	99.8	473000	94.6	497000	99.4
Manganese		500	0.10		493	98.6	-0.50		463	92.6
Molybdenum		500	0.50		482	96.4	0.10		483	96.6
Nickel		1000	2.4		980	98.0	2.2		973	97.3
Palladium		500	19.2		515	103.0	17.3		487	97.4
Potassium			-1.9		2.8		-27		-4.0	
Selenium		1000	4.8		1040	104.0	6.0		1040	104.0
Silicon			-18		-16		-20		-18	
Silver		1000	3.5		1100	110.0	-0.80		1040	104.0
Sodium			20.0		29.8		9.2		9.4	
Sulfur		500	-9.8		473	94.6	-9.3		475	95.0
Strontium			0.0		-0.10		0.40		0.20	
Thallium		1000	-0.50		965	96.5	-3.8		954	95.4
Tin			1.7		3.2		2.6		1.5	
Titanium			2.9		6.0		3.2		5.5	
Tungsten		500	15.5		489	97.8	14.7		487	97.4
Vanadium		500	4.0		484	96.8	3.6		448	89.6
Zinc		1000	-1.4		967	96.7	-1.5		964	96.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA35827 Units: ug/l

Time:			11:29		11:36		15:53		15:59	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Zirconium		500	3.4		634	126.8*	3.4		600	120.0

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA35827 Units: ug/l

Time:			23:27		23:33	
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	492000	98.4	506000	101.2
Antimony		1000	6.6		1010	101.0
Arsenic		1000	-1.0		989	98.9
Barium		500	-0.90		504	100.8
Beryllium		500	-0.40		493	98.6
Bismuth		500	11.9		544	108.8
Boron			-5.4		-4.9	
Cadmium		1000	-0.20		992	99.2
Calcium	400000	400000	351000	87.8	361000	90.3
Chromium		500	4.5		489	97.8
Cobalt		500	0.10		481	96.2
Copper		500	7.9		500	100.0
Iron	200000	200000	179000	89.5	188000	94.0
Lead		1000	1.8		945	94.5
Lithium		500	14.1		605	121.0*
Magnesium	500000	500000	475000	95.0	491000	98.2
Manganese		500	0.50		497	99.4
Molybdenum		500	0.20		469	93.8
Nickel		1000	1.9		977	97.7
Palladium		500	17.1		519	103.8
Potassium			-31		-54	
Selenium		1000	12.0		1030	103.0
Silicon			-16		-18	
Silver		1000	-3.9		1110	111.0
Sodium			16.4		14.5	
Sulfur		500	-13		467	93.4
Strontium			0.10		0.0	
Thallium		1000	-1.2		943	94.3
Tin			1.8		1.8	
Titanium			3.0		6.0	
Tungsten		500	14.8		480	96.0
Vanadium		500	3.6		486	97.2
Zinc		1000	-1.7		959	95.9

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB010915M1.ICP Date Analyzed: 01/09/15 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA35827 Units: ug/l

Time:			23:27		23:33	
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3	
Metal	True	True	Results	% Rec	Results	% Rec
Zirconium		500	3.9		624	124.8*

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	49	1	1.3		
Antimony	2.0	.13	.26		
Arsenic	2.0	.1	.28		
Barium	20	.032	.078		
Beryllium	0.20	.0075	.02		
Bismuth	2.0	.17	.23		
Boron	9.8	.12	.18		
Cadmium	0.49	.021	.049		
Calcium	490	1.2	3		
Chromium	0.98	.041	.069		
Cobalt	4.9	.03	.059	0.0	<4.9
Copper	2.5	.038	.15		
Iron	49	.36	.94		
Lead	2.0	.068	.21	-0.0098	<2.0
Lithium	2.0	.18	.2		
Magnesium	490	2.2	3.3		
Manganese	1.5	.011	.059		
Molybdenum	2.0	.066	.069		
Nickel	3.9	.03	.098	0.029	<3.9
Palladium	4.9	.15	.25		
Potassium	980	3.2	3.9		
Selenium	2.0	.17	.32		
Silicon	20	.24	3.9		
Silver	0.49	.06	.14		
Sodium	980	.76	1.8		
Strontium	0.98	.017	.029		
Sulfur	4.9	.33	1		
Thallium	0.98	.16	.4		
Tin	4.9	.085	1.2		
Titanium	0.98	.06	.098		
Tungsten	4.9	.1	4.4		
Vanadium	4.9	.025	.088	0.0	<4.9
Zinc	4.9	.56	.37	0.42	<4.9

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.025	.25		

Associated samples MP84326: JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	JB85833-4 Original	MS	Spikelot MPSPK	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium					
Beryllium	anr				
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt	8.7	220	234	90.4	75-125
Copper	anr				
Iron					
Lead	10.5	217	234	88.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	20.9	236	234	92.0	75-125
Palladium					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Sulfur					
Thallium	anr				
Tin					
Titanium					
Tungsten					
Vanadium	41.2	252	234	90.2	75-125
Zinc	44.1	255	234	90.2	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	JB85833-4 Original MS	Spikelot MPSPK	% Rec	QC Limits
Zirconium				

Associated samples MP84326: JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	JB85833-4 Original	MSD	Spikelot MPSPK	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium						
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	8.7	217	234	89.1	1.4	20
Copper	anr					
Iron						
Lead	10.5	214	234	87.1	1.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	20.9	233	234	90.8	1.3	20
Palladium						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	41.2	250	234	89.3	0.8	20
Zinc	44.1	249	234	87.7	2.4	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date: 01/09/15

Metal	JB85833-4 Original MSD	Spikelot MPSPK	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP84326: JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	BSP Result	Spikelot MPSPK	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium				
Beryllium	anr			
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	177	200	88.5	80-120
Copper	anr			
Iron				
Lead	180	200	90.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	180	200	90.0	80-120
Palladium				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	176	200	88.0	80-120
Zinc	184	200	92.0	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 01/09/15

Metal	BSP Result	Spikelot MPSPK	% Rec	QC Limits
Zirconium				

Associated samples MP84326: JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/09/15

Metal	JB85833-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium				
Beryllium	anr			
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	75.7	78.6	3.8	0-10
Copper	anr			
Iron				
Lead	91.2	90.0	1.3	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	182	186	1.9	0-10
Palladium				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	360	379	5.3	0-10
Zinc	384	404	5.1	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB85833
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP84326
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/09/15

Metal	JB85833-4 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP84326: JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

New Jersey
ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JB85833-1 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-01_0-2_01072015

Wet Weight (Total)	29.51	g
Tare Weight	23.43	g
Dry Weight (Total)	28.48	g
Solids, Percent	83.1	%

Sample: JB85833-2 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-01_2-4_01072015

Wet Weight (Total)	22.31	g
Tare Weight	15.75	g
Dry Weight (Total)	20.9	g
Solids, Percent	78.5	%

Sample: JB85833-3 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-02_0-2_01072015

Wet Weight (Total)	26.43	g
Tare Weight	19	g
Dry Weight (Total)	25.33	g
Solids, Percent	85.2	%

Sample: JB85833-4 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-02_12-14_01072015

Wet Weight (Total)	31.73	g
Tare Weight	25.75	g
Dry Weight (Total)	30.77	g
Solids, Percent	83.9	%

Sample: JB85833-5 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-03_0-2_01072015

Wet Weight (Total)	25.22	g
Tare Weight	17.63	g
Dry Weight (Total)	24.17	g
Solids, Percent	86.2	%

Sample: JB85833-6 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-03_4-6_01072015

Wet Weight (Total)	27.84	g
Tare Weight	22.69	g
Dry Weight (Total)	27.02	g
Solids, Percent	84.1	%

Percent Solids Raw Data Summary

Job Number: JB85833
Account: SECORPAE Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

Sample: JB85833-7 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-04_0-2_01072015

Wet Weight (Total)	24.39	g
Tare Weight	18.7	g
Dry Weight (Total)	23.65	g
Solids, Percent	87	%

Sample: JB85833-8 **Analyzed:** 09-JAN-15 by KP **Method:** SM2540 G-97
ClientID: AOI5_BH-15-04_4-6_01072015

Wet Weight (Total)	31.12	g
Tare Weight	24.08	g
Dry Weight (Total)	29.68	g
Solids, Percent	79.5	%

New Jersey

ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

NE

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

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB85833

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): JD Phone:

Project Information

Project Name: Sunoco - Marcus Hook Facility, PA
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	V8011EDB										LAB USE ONLY
1	AOI5_BH-15-01_0-2_01072015		1/7/15	12:35:00 PM	JD	SO	1					1				X										SUB
2	AOI5_BH-15-01_2-4_01072015		1/7/15	12:40:00 PM	JD	SO	1					1				X										SUB
3	AOI5_BH-15-02_0-2_01072015		1/7/15	9:15:00 AM	JD	SO	1					1				X										SUB
4	AOI5_BH-15-02_12-14_01072015		1/7/15	9:25:00 AM	JD	SO	1					1				X										SUB
5	AOI5_BH-15-03_0-2_01072015		1/7/15	12:50:00 PM	JD	SO	1					1				X										SUB
6	AOI5_BH-15-03_4-6_01072015		1/7/15	12:55:00 PM	JD	SO	1					1				X										SUB
7	AOI5_BH-15-04_0-2_01072015		1/7/15	1:05:00 PM	JD	SO	1					1				X										SUB
8	AOI5_BH-15-04_4-6_01072015		1/7/15	1:10:00 PM	JD	SO	1					1				X										SUB
																										13A

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 1/21/2015

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	1-8-14 1700	1 FEDEX	2 FEDEX	1/9/15 8:30	2
3		3	4		4
5		5			

Custody Seals: 203 [ ] Intact [ ] Not Intact
Preserved where applicable [ ]
On Ice [X]
Cooler Temp: 0.7C

12.1 12

JB85833: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB85833 **Client:** ACNJ **Project:** SUB

Date / Time Received: 1/9/2015 9:30:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (0.7/0.7);

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

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	G1;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

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

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

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

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

Comments

Accutest Laboratories
V:(508) 481-6200
495 Technology Center West, Bldg One
F: (508) 481-7753
Marlborough, MA 01752
www/accutest.com

JB85833: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB85833

SECORPAE: Sunoco - Marcus Hook Facility, PA
Project No: SECORPAE33099

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB85833-1 Collected: 07-JAN-15 12:35 By: JD AOI5_BH-15-01_0-2_01072015			Received: 07-JAN-15 By:			
JB85833-1	SW846 8011	14-JAN-15 01:07	NK	10-JAN-15	MT	V8011EDB
JB85833-2 Collected: 07-JAN-15 12:40 By: JD AOI5_BH-15-01_2-4_01072015			Received: 07-JAN-15 By:			
JB85833-2	SW846 8011	14-JAN-15 01:30	NK	10-JAN-15	MT	V8011EDB
JB85833-3 Collected: 07-JAN-15 09:15 By: JD AOI5_BH-15-02_0-2_01072015			Received: 07-JAN-15 By:			
JB85833-3	SW846 8011	14-JAN-15 01:52	NK	10-JAN-15	MT	V8011EDB
JB85833-4 Collected: 07-JAN-15 09:25 By: JD AOI5_BH-15-02_12-14_01072015			Received: 07-JAN-15 By:			
JB85833-4	SW846 8011	14-JAN-15 02:15	NK	10-JAN-15	MT	V8011EDB
JB85833-5 Collected: 07-JAN-15 12:50 By: JD AOI5_BH-15-03_0-2_01072015			Received: 07-JAN-15 By:			
JB85833-5	SW846 8011	14-JAN-15 03:00	NK	10-JAN-15	MT	V8011EDB
JB85833-6 Collected: 07-JAN-15 12:55 By: JD AOI5_BH-15-03_4-6_01072015			Received: 07-JAN-15 By:			
JB85833-6	SW846 8011	14-JAN-15 03:22	NK	10-JAN-15	MT	V8011EDB
JB85833-7 Collected: 07-JAN-15 13:05 By: JD AOI5_BH-15-04_0-2_01072015			Received: 07-JAN-15 By:			
JB85833-7	SW846 8011	14-JAN-15 03:45	NK	10-JAN-15	MT	V8011EDB
JB85833-8 Collected: 07-JAN-15 13:10 By: JD AOI5_BH-15-04_4-6_01072015			Received: 07-JAN-15 By:			
JB85833-8	SW846 8011	14-JAN-15 04:08	NK	10-JAN-15	MT	V8011EDB

Accutest Internal Chain of Custody

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Received: 01/07/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB85833-1.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-1.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-2.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-2.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-3.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-3.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-4.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-4.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-5.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-5.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-6.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-6.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-7.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-7.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	Return to Storage
JB85833-8.1	Walk In Ref #9	Marc Tahtamoni	01/10/15 17:23	Retrieve from Storage
JB85833-8.1	Marc Tahtamoni	Walk In Ref #9	01/11/15 13:00	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: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP41590-MB	BB61454.D	1	01/13/15	NK	01/10/15	OP41590	GBB3376

The QC reported here applies to the following samples: **Method:** SW846 8011

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.5	0.61	ug/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	Bromofluorobenzene (S)	95%	61-167%
460-00-4	Bromofluorobenzene (S)	103%	61-167%

Blank Spike/Blank Spike Duplicate Summary

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP41590-BS	BB61455.D	1	01/13/15	NK	01/10/15	OP41590	GBB3376
OP41590-BSD	BB61456.D	1	01/13/15	NK	01/10/15	OP41590	GBB3376

The QC reported here applies to the following samples: **Method:** SW846 8011

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	33	33.8	103	34.7	105	3	56-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	Bromofluorobenzene (S)	84%	103%	61-167%
460-00-4	Bromofluorobenzene (S)	104%	108%	61-167%

13.2.1

13

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP41590-MS	BB61457.D	1	01/13/15	NK	01/10/15	OP41590	GBB3376
OP41590-MSD	BB61458.D	1	01/14/15	NK	01/10/15	OP41590	GBB3376
JB85833-1	BB61460.D	1	01/14/15	NK	01/10/15	OP41590	GBB3376

The QC reported here applies to the following samples: **Method:** SW846 8011

JB85833-1, JB85833-2, JB85833-3, JB85833-4, JB85833-5, JB85833-6, JB85833-7, JB85833-8

CAS No.	Compound	JB85833-1 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		39.5	42.0	106	39.7	43.1	109	3	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	JB85833-1	Limits
460-00-4	Bromofluorobenzene (S)	107%	109%	116%	61-167%
460-00-4	Bromofluorobenzene (S)	112%	112%	109%	61-167%

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB85833
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]
JB85833-1	BB61460.D	116	109
JB85833-2	BB61461.D	104	109
JB85833-3	BB61462.D	119	106
JB85833-4	BB61463.D	120	119
JB85833-5	BB61465.D	134	118
JB85833-6	BB61466.D	125	119
JB85833-7	BB61467.D	114	150
JB85833-8	BB61468.D	116	118
OP41590-BS	BB61455.D	84	104
OP41590-BSD	BB61456.D	103	108
OP41590-MB	BB61454.D	95	103
OP41590-MS	BB61457.D	107	112
OP41590-MSD	BB61458.D	109	112

Surrogate Compounds	Recovery Limits
S1 = Bromofluorobenzene (S)	61-167%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3376-ICC3376	**Injection Date:**	01/13/15
Lab File ID:	BB61451.D	**Injection Time:**	21:44
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.81	4.93

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP41590-MB	BB61454.D	01/13/15	22:51	4.81	4.93
OP41590-BS	BB61455.D	01/13/15	23:13	4.81	4.93
OP41590-BSD	BB61456.D	01/13/15	23:37	4.81	4.93
OP41590-MS	BB61457.D	01/13/15	23:59	4.81	4.93
OP41590-MSD	BB61458.D	01/14/15	00:22	4.81	4.93
ZZZZZZ	BB61459.D	01/14/15	00:45	4.81	4.93
JB85833-1	BB61460.D	01/14/15	01:07	4.81	4.93
JB85833-2	BB61461.D	01/14/15	01:30	4.81	4.93
JB85833-3	BB61462.D	01/14/15	01:52	4.81	4.93
JB85833-4	BB61463.D	01/14/15	02:15	4.81	4.93

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: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Check Std:	GBB3376-CC3376	**Injection Date:**	01/14/15
Lab File ID:	BB61464.D	**Injection Time:**	02:38
Instrument ID:	GCBB	**Method:**	SW846 8011

	S1 [a] RT	S1 [b] RT
Check Std	4.81	4.93

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
JB85833-5	BB61465.D	01/14/15	03:00	4.81	4.93
JB85833-6	BB61466.D	01/14/15	03:22	4.81	4.93
JB85833-7	BB61467.D	01/14/15	03:45	4.81	4.93
JB85833-8	BB61468.D	01/14/15	04:08	4.81	4.93

Surrogate Compounds

S1 = Bromofluorobenzene (S)

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

Sample: GBB3376-ICC3376
Lab FileID: BB61451.D

```
                         Response Factor Report  GCBB

  Method       : C:\msdchem\1\METHODS\EDS150113.M (ChemStation Integrator)
  Title        : v8011edb soil
  Last Update  : Wed Jan 14 08:22:54 2015
  Response via : Initial Calibration

  Calibration Files
  1   =BB61452.d   2   =BB61451.d   3   =BB61450.d   4   =BB61449.d
  5      =BB61448.d    6      =BB61447.d

        Compound              1     2     3     4     5     6     Avg    %RSD
  ---------------------------------------------------------------------------
  1)     1,2-Dibromoethane   6.314 6.293 6.271 6.416 7.277 7.585 6.693 E5   8.71
  2) s   4-Bromofluorobenzen 1.782 1.882 1.895 1.965 2.194 1.989 1.951 E4   7.15
  3)     1,2-Dibromo-3-chlor 1.293 1.265 1.231 1.182 1.308 1.081 1.227 E6   6.90

Signal #2

  5)     1,2-Dibromoethane # 2.332 2.299 2.225 2.172 2.205 2.663 2.316 E6   7.77
  6) s   4-Bromofluorobenzen 0.935 1.008 1.057 1.076 1.091 1.140 1.051 E5   6.80
  7)     1,2-Dibromo-3-chlor 5.866 5.714 5.461 5.157 5.111 4.813 5.354 E6   7.45
 ---------------------------------------------------------------------------
 (#) = Out of Range

           EDS150113.M        Wed Jan 14 08:25:34 2015
```

13.6.1

13

Initial Calibration Verification

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Sample: GBB3376-ICV3376
Lab FileID: BB61453.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...13\BB61453.d\ECD1B.CH Vial: 57
 Signal #2 : C:\msdchem\1\DATA\BB150113\BB61453.d\ECD2A.CH
 Acq On    : 13-Jan-15, 22:30:07                      Operator: nickk
 Sample    : icv3376-20,edb soil                      Inst    : GCBB
 Misc      : op41590,gbb3376,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150113.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Wed Jan 14 08:22:54 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      669.262 642.351 E3   4.0  102   0.00    3.91- 3.97
 2 s   4-Bromofluorobenzene    19.513  18.751 E3   3.9  100   0.00    4.90- 4.96
 3     1,2-Dibromo-3-chloropr   1.227   1.250 E6  -1.9   99   0.00    5.96- 6.02

*****  Signal #2   *****

 1     1,2-Dibromoethane        2.316   2.339 E6  -1.0  102   0.00    3.90- 3.96
 2 s   4-Bromofluorobenzene   105.098 101.217 E3   3.7  100   0.00    4.78- 4.84
 3     1,2-Dibromo-3-chloropr   5.354   5.658 E6  -5.7   99   0.00    6.03- 6.09
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB61451.d  EDS150113.M       Wed Jan 14 08:25:26 2015
```

13.6.2

13

Continuing Calibration Summary

Job Number: JB85833 **Sample:** GBB3376-CC3376
Account: ALNJ Accutest New Jersey **Lab FileID:** BB61464.D
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...13\BB61464.d\ECD1B.CH Vial: 60
 Signal #2 : C:\msdchem\1\DATA\BB150113\BB61464.d\ECD2A.CH
 Acq On    : 14-Jan-15, 02:38:24                      Operator: nickk
 Sample    : cc3376-20,edb soil                       Inst    : GCBB
 Misc      : op41590,gbb3376,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150113.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Wed Jan 14 08:22:54 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      669.262 632.924 E3   5.4  101   0.00    3.91- 3.97
 2 s   4-Bromofluorobenzene    19.513  18.350 E3   6.0   97   0.00    4.90- 4.96
 3     1,2-Dibromo-3-chloropr   1.227   1.213 E6   1.1   96   0.00    5.96- 6.02

*****  Signal #2   *****

 1     1,2-Dibromoethane        2.316   2.412 E6  -4.1  105   0.00    3.91- 3.97
 2 s   4-Bromofluorobenzene   105.098 105.670 E3  -0.5  105   0.00    4.78- 4.84
 3     1,2-Dibromo-3-chloropr   5.354   5.423 E6  -1.3   95   0.00    6.03- 6.09
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB61451.d  EDS150113.M       Wed Jan 14 08:25:11 2015
```

13.6.3

13

Continuing Calibration Summary

Job Number: JB85833
Account: ALNJ Accutest New Jersey
Project: SECORPAE: Sunoco - Marcus Hook Facility, PA
Sample: GBB3376-CC3376
Lab FileID: BB61469.D

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\BB...13\BB61469.d\ECD1B.CH Vial: 60
 Signal #2 : C:\msdchem\1\DATA\BB150113\BB61469.d\ECD2A.CH
 Acq On    : 14-Jan-15, 04:31:25                      Operator: nickk
 Sample    : cc3376-20,edb soil                       Inst    : GCBB
 Misc      : op41590,gbb3376,30,,,50,,s               Multiplr: 1.00
 IntFile Signal #1: events.e     IntFile Signal #2: events2.e

 Method       : C:\msdchem\1\METHODS\EDS150113.M (ChemStation Integrator)
 Title        : v8011edb soil
 Last Update  : Wed Jan 14 08:22:54 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      669.262 628.557 E3   6.1  100   0.00    3.91- 3.97
 2 s   4-Bromofluorobenzene    19.513  18.166 E3   6.9   97   0.00    4.90- 4.96
 3     1,2-Dibromo-3-chloropr   1.227   1.187 E6   3.3   94   0.00    5.96- 6.02

*****  Signal #2   *****

 1     1,2-Dibromoethane        2.316   2.324 E6  -0.3  101   0.00    3.90- 3.96
 2 s   4-Bromofluorobenzene   105.098  97.862 E3   6.9   97   0.00    4.78- 4.84
 3     1,2-Dibromo-3-chloropr   5.354   5.411 E6  -1.1   95   0.00    6.03- 6.09
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    BB61451.d  EDS150113.M       Wed Jan 14 08:24:52 2015
```

13.6.4

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\BB150113\
Data File : BB61460.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 01:07:55
Operator : nickk
Sample : jb85833-1,op41590
Misc : op41590,gbb3376,30.38,,,50,,s
ALS Vial : 27 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:26:49 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.934	4.813	1060325	6088107	54.340	57.928
Spiked Amount	50.000	Range	60 - 140	Recovery	= 108.68%	115.86%
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

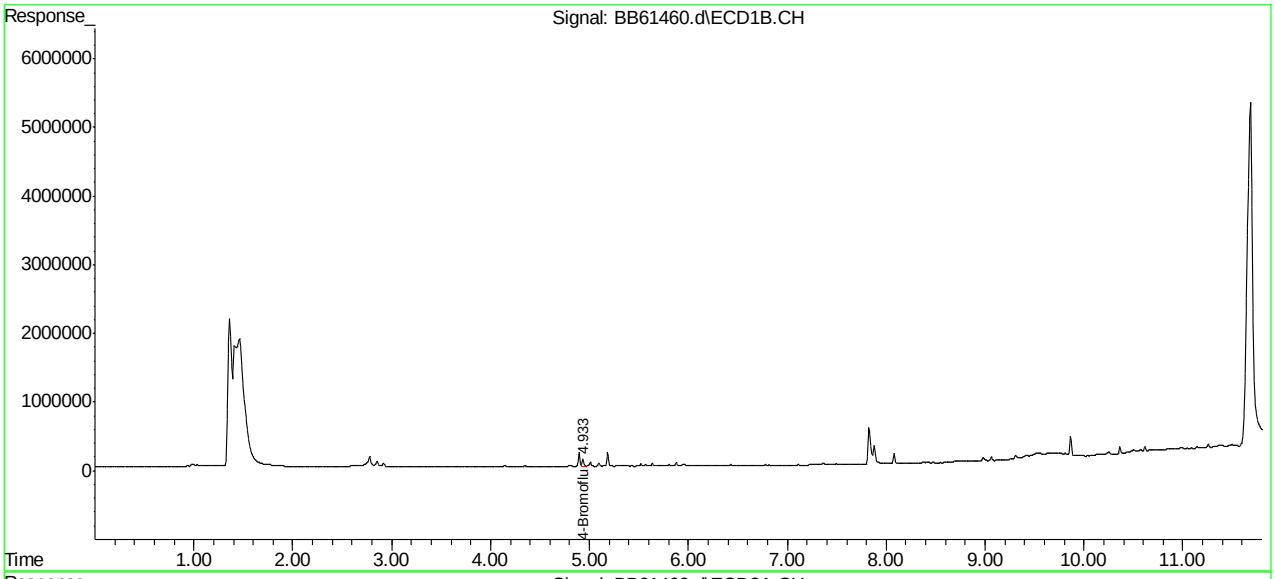
14

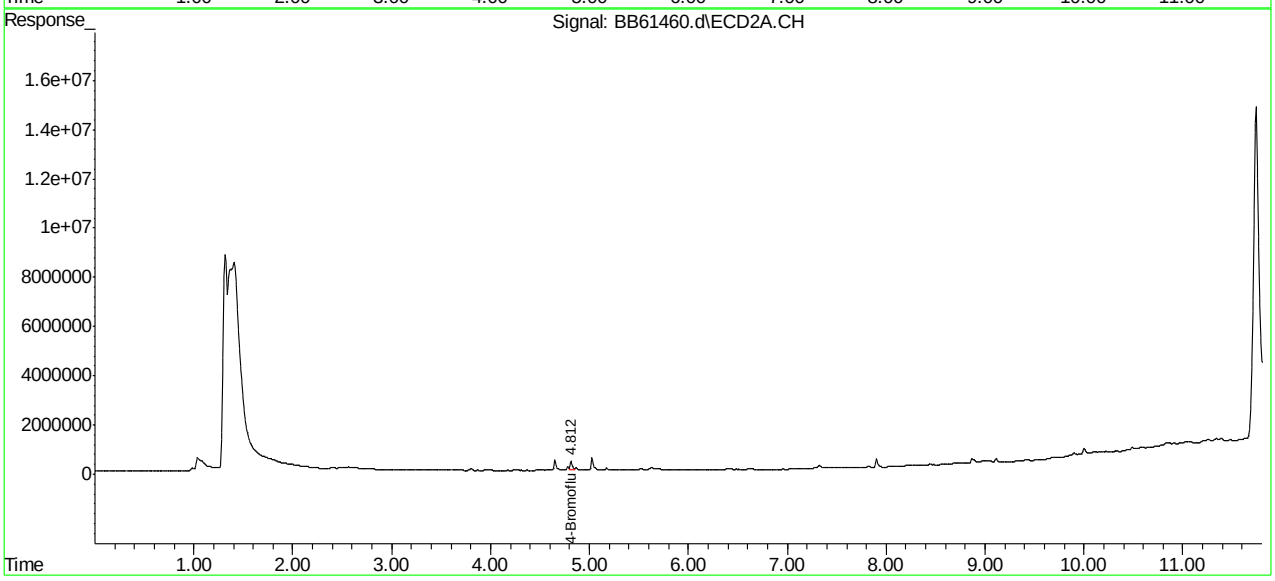
Quantitation Report (QT Reviewed)

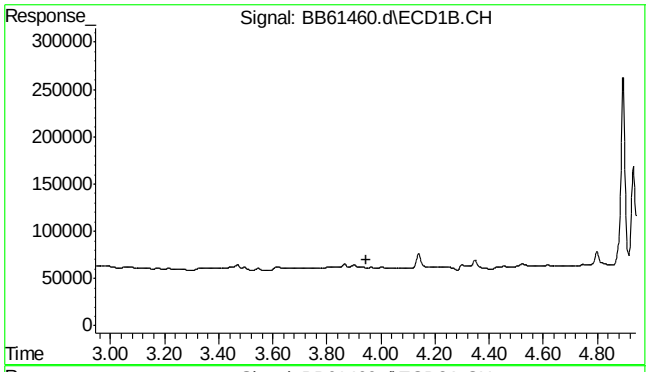
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61460.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 01:07:55
Operator : nickk
Sample : jb85833-1,op41590
Misc : op41590,gbb3376,30.38,,,50,,s
ALS Vial : 27 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:26:49 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

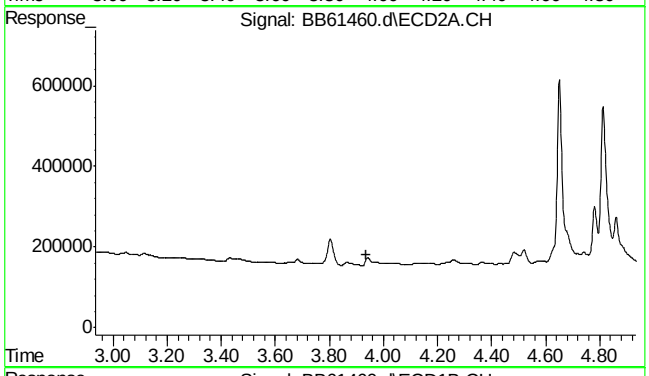






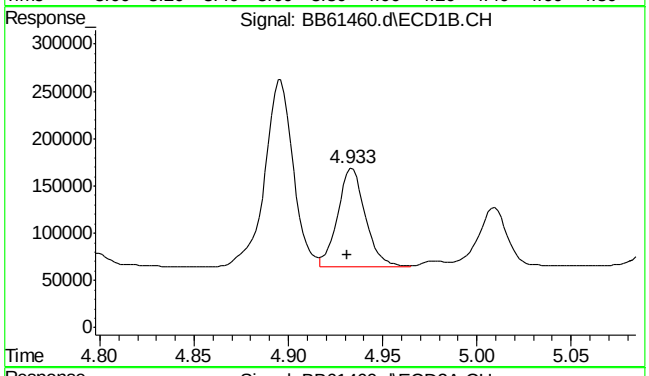
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



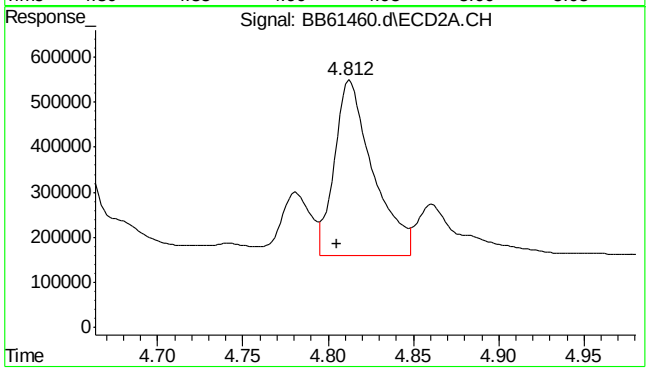
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1060325
Conc: 54.34 ug/L

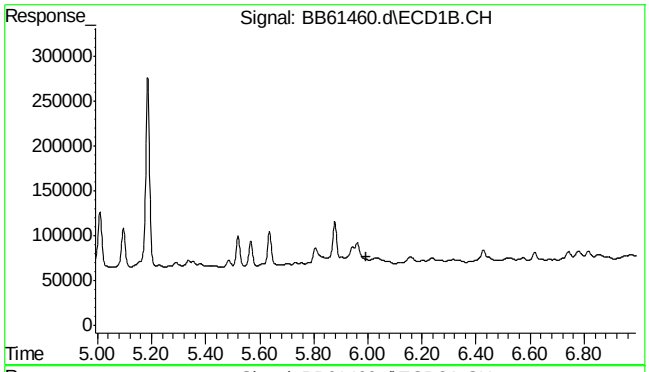


#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 6088107
Conc: 57.93 ug/L

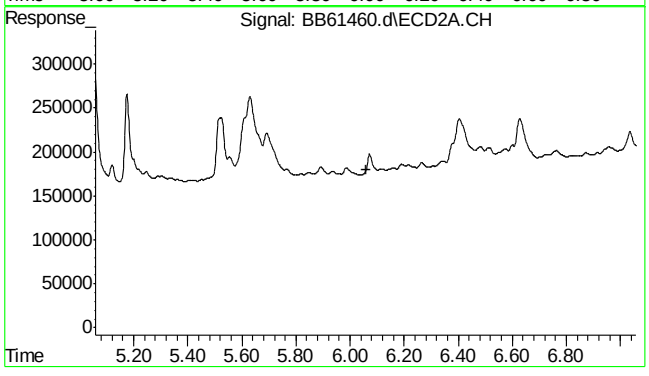
14.1.1

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61461.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 01:30:23
Operator : nickk
Sample : jb85833-2,op41590
Misc : op41590,gbb3376,30.18,,,50,,s
ALS Vial : 28 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:11 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.933	4.813	1059318	5451072	54.288	51.867
Spiked Amount	50.000 Range	60 - 140	Recovery	=	108.58%	103.73%
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

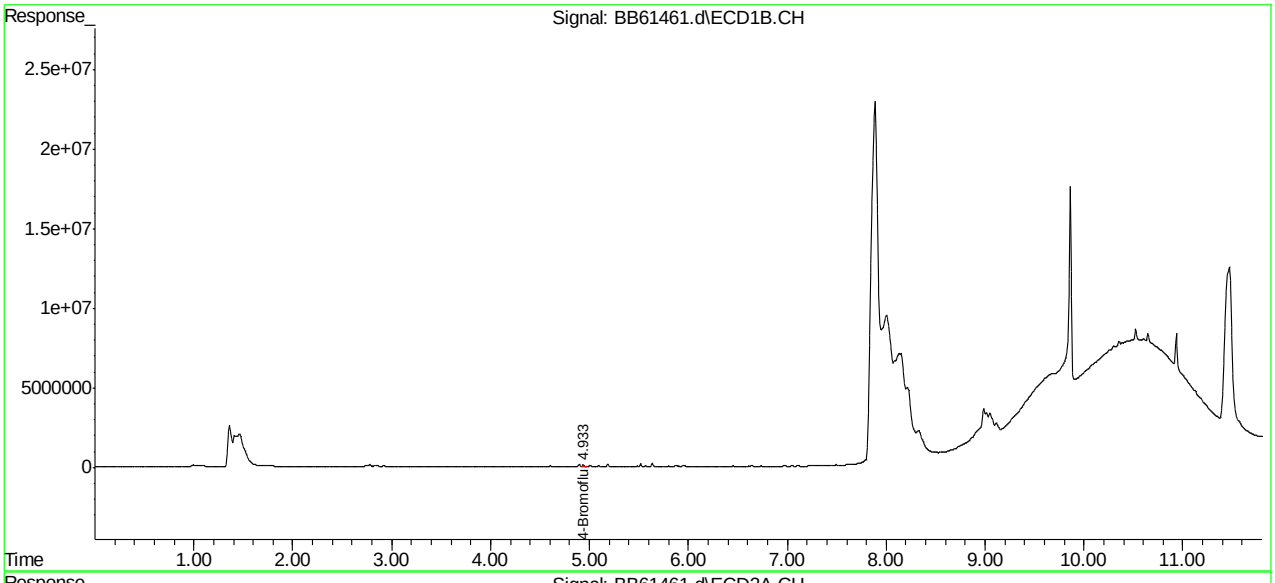
14

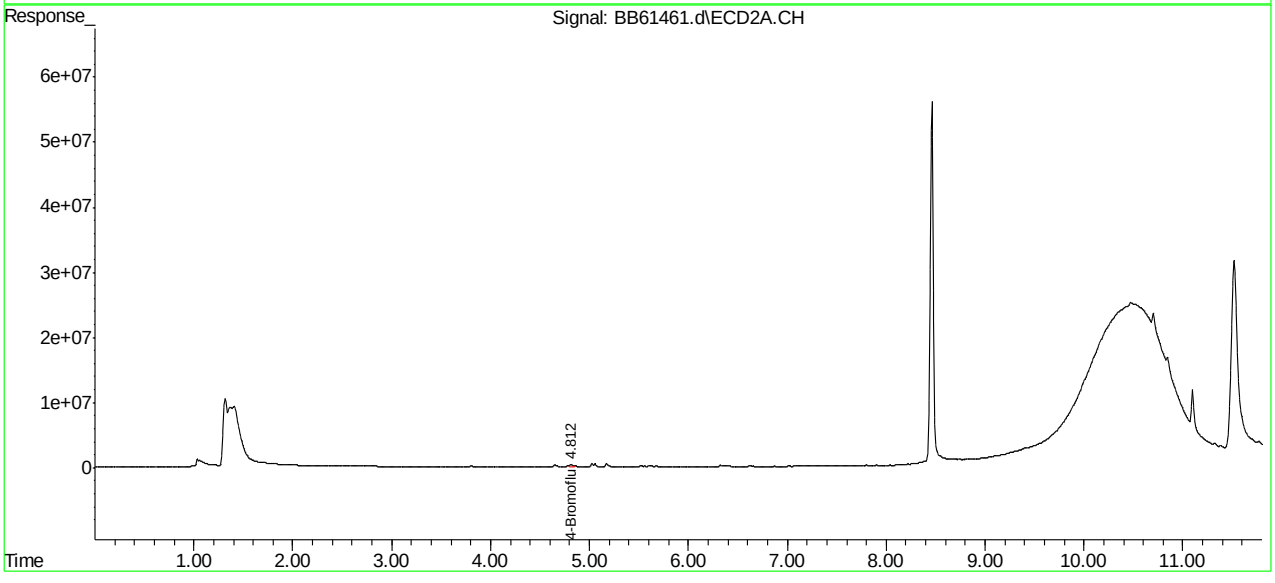
Quantitation Report (QT Reviewed)

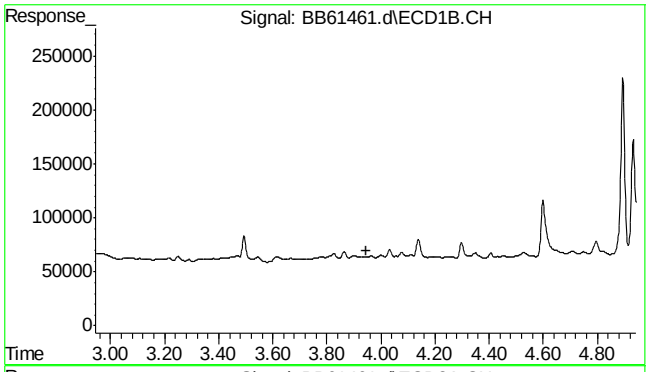
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61461.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 01:30:23
Operator : nickk
Sample : jb85833-2,op41590
Misc : op41590,gbb3376,30.18,,,50,,s
ALS Vial : 28 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:11 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

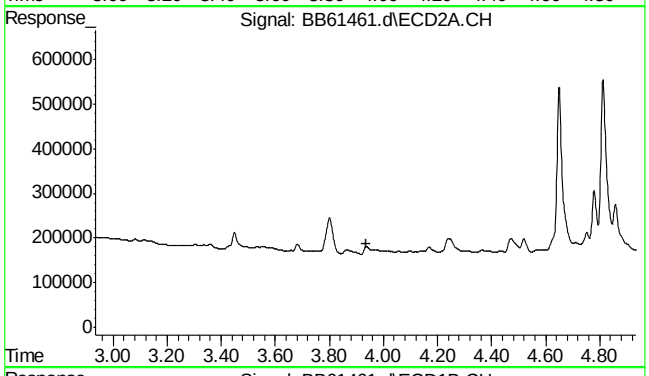






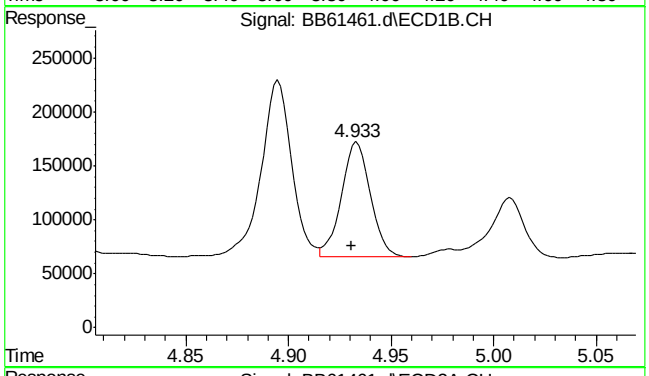
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



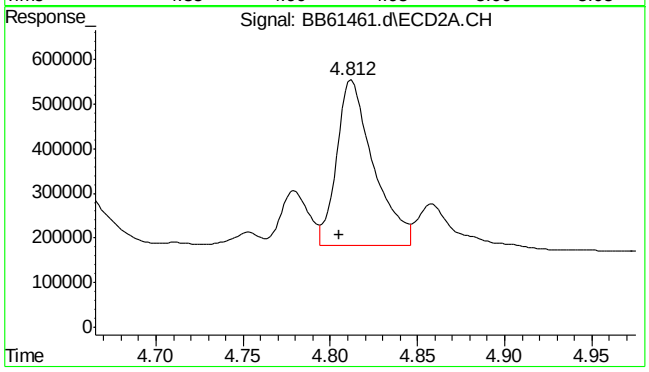
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.933 min
Delta R.T.: 0.002 min
Response: 1059318
Conc: 54.29 ug/L

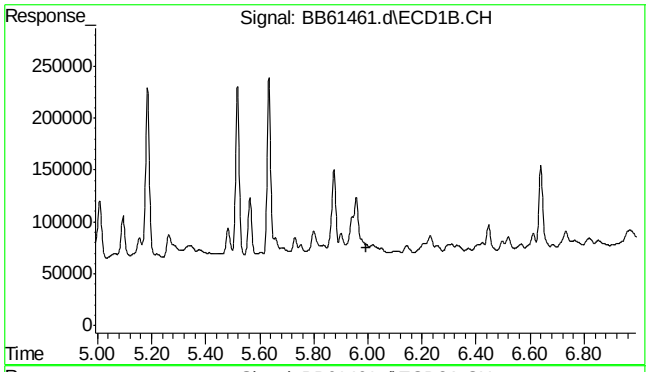


#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 5451072
Conc: 51.87 ug/L

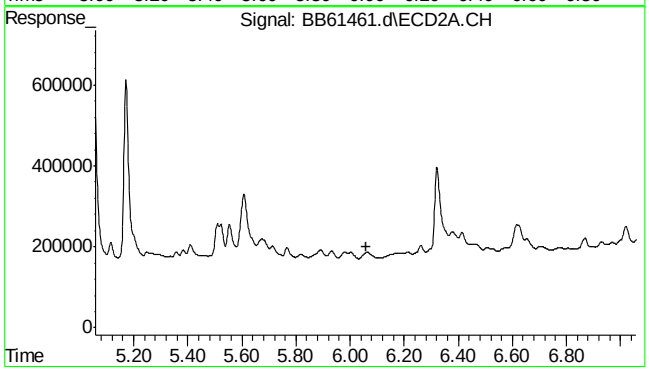
14.1.2

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61462.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 01:52:46
Operator : nickk
Sample : jb85833-3,op41590
Misc : op41590,gbb3376,30.44,,,50,,s
ALS Vial : 29 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:21 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.934	4.813	1029943	6277487	52.783	59.730
Spiked Amount 50.000 Range 60 - 140 Recovery = 105.57% 119.46%						
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.

14.1.3

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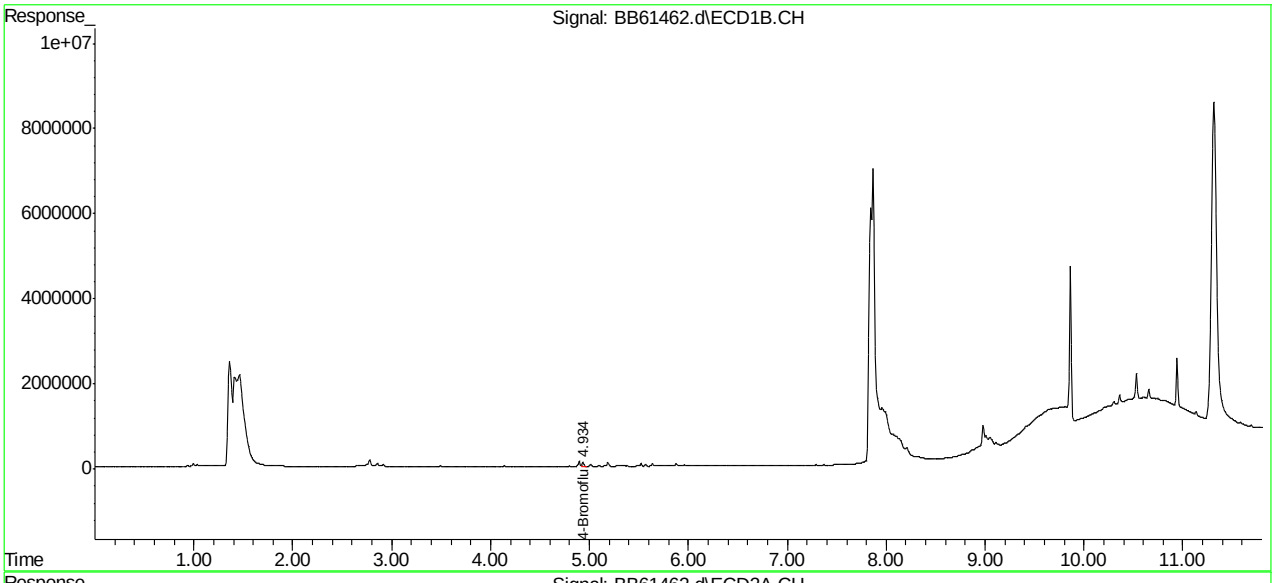
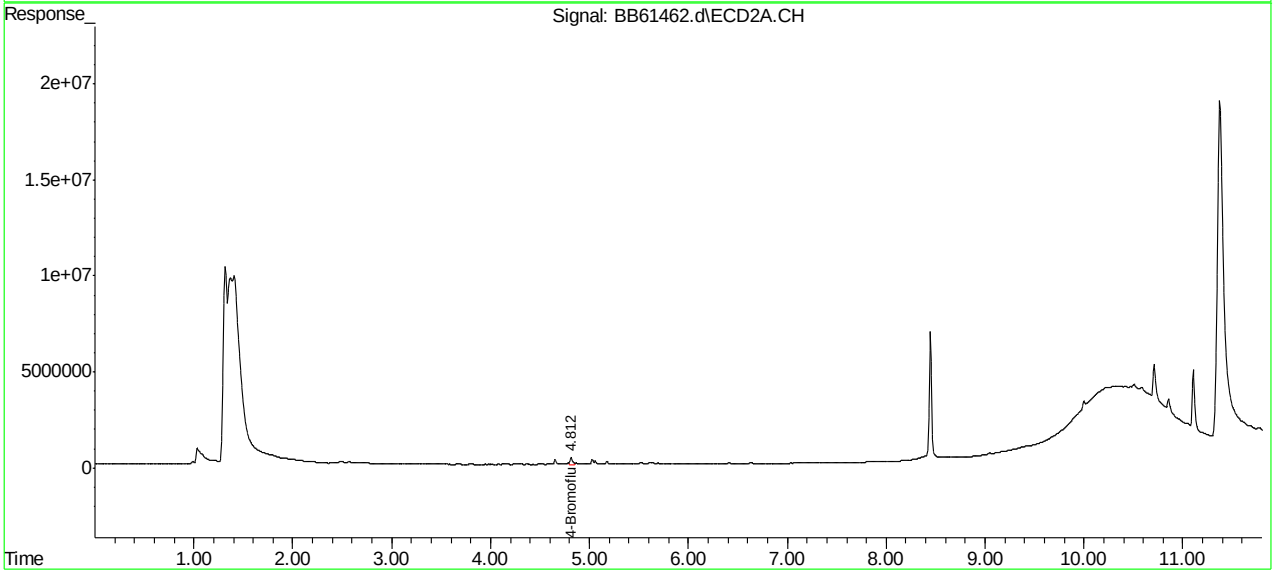
Quantitation Report (QT Reviewed)

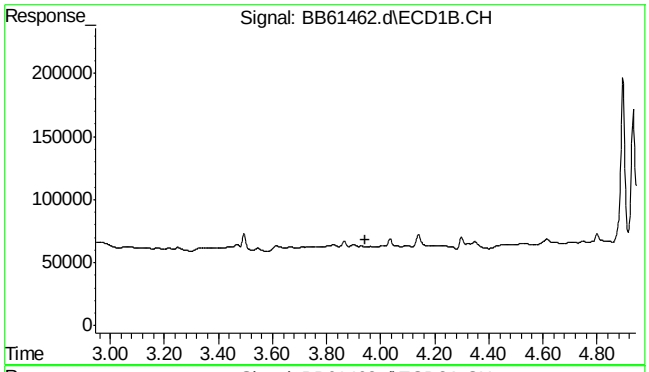
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61462.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 01:52:46
Operator : nickk
Sample : jb85833-3,op41590
Misc : op41590,gbb3376,30.44,,,50,,s
ALS Vial : 29 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:21 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

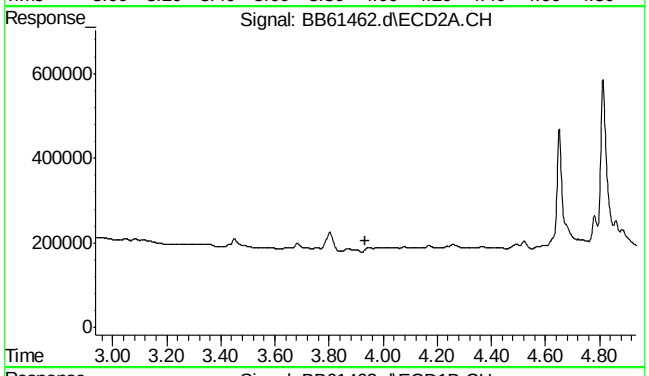






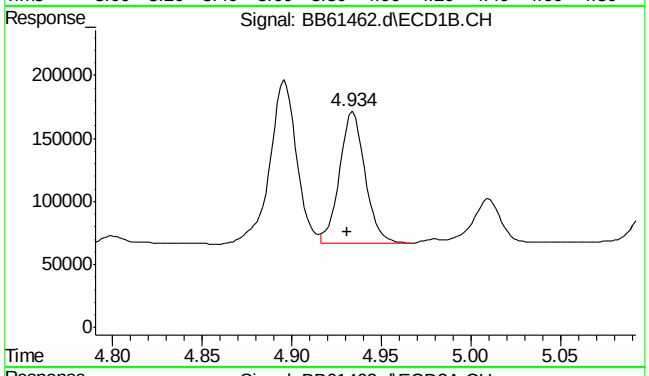
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



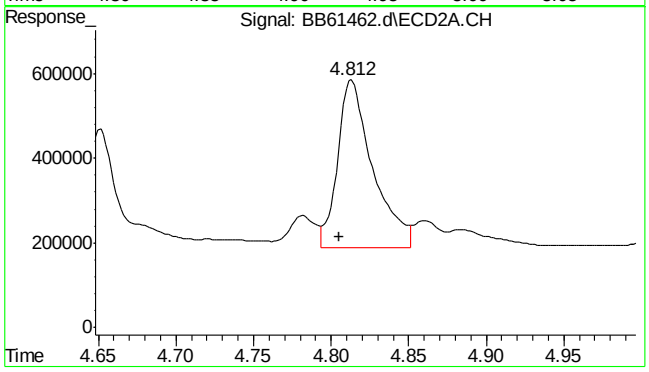
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1029943
Conc: 52.78 ug/L

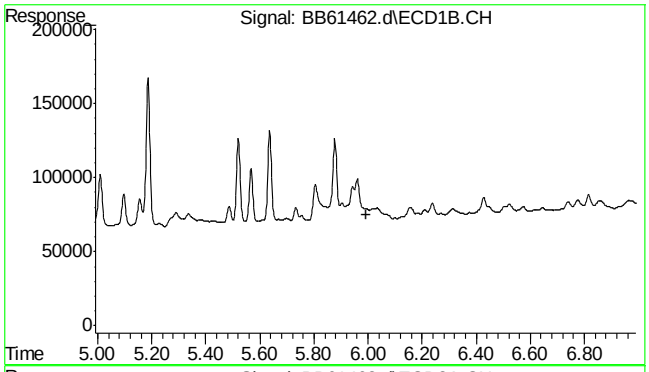


#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 6277487
Conc: 59.73 ug/L

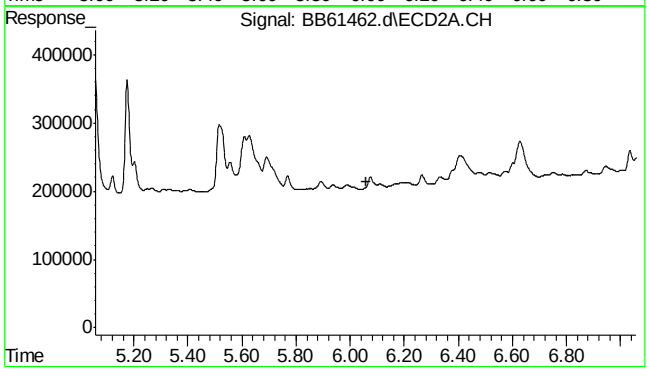
14.1.3

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

14.1.3

14

Quantitation Report (QT Reviewed)

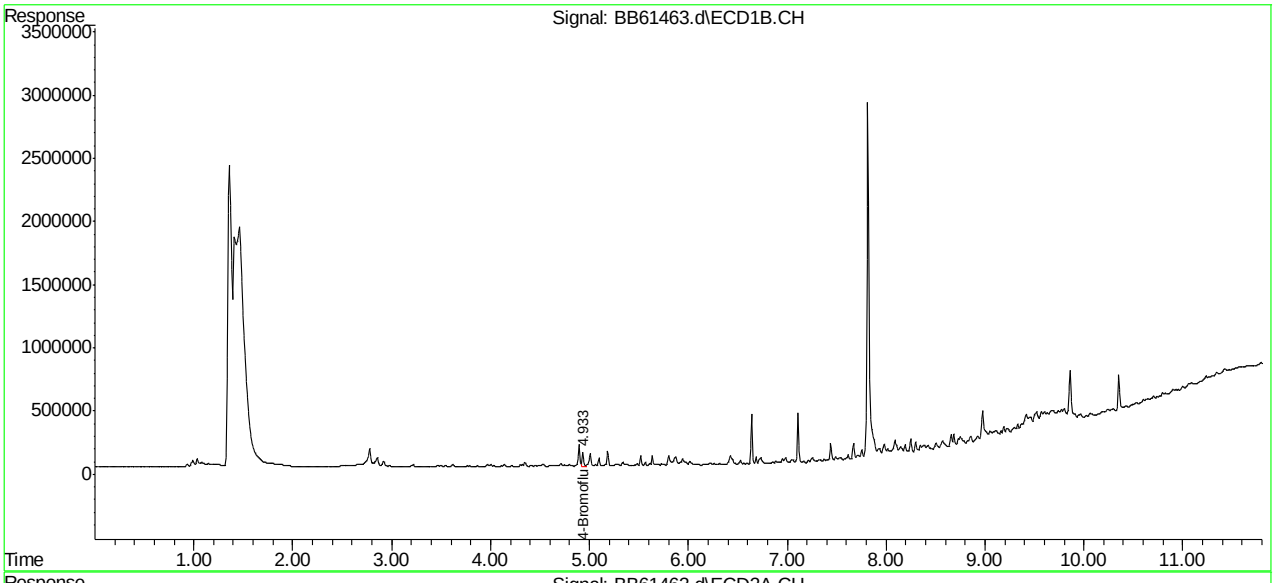
```
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61463.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 14-Jan-15, 02:15:28
Operator  : nickk
Sample    : jb85833-4,op41590
Misc      : op41590,gbb3376,30.17,,,50,,s
ALS Vial  : 30 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:36 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title  : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...    4.934     4.813   1157288  6324451   59.309    60.177
 Spiked Amount     50.000 Range  60 - 140  Recovery   =  118.62%   120.35%

  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.
```

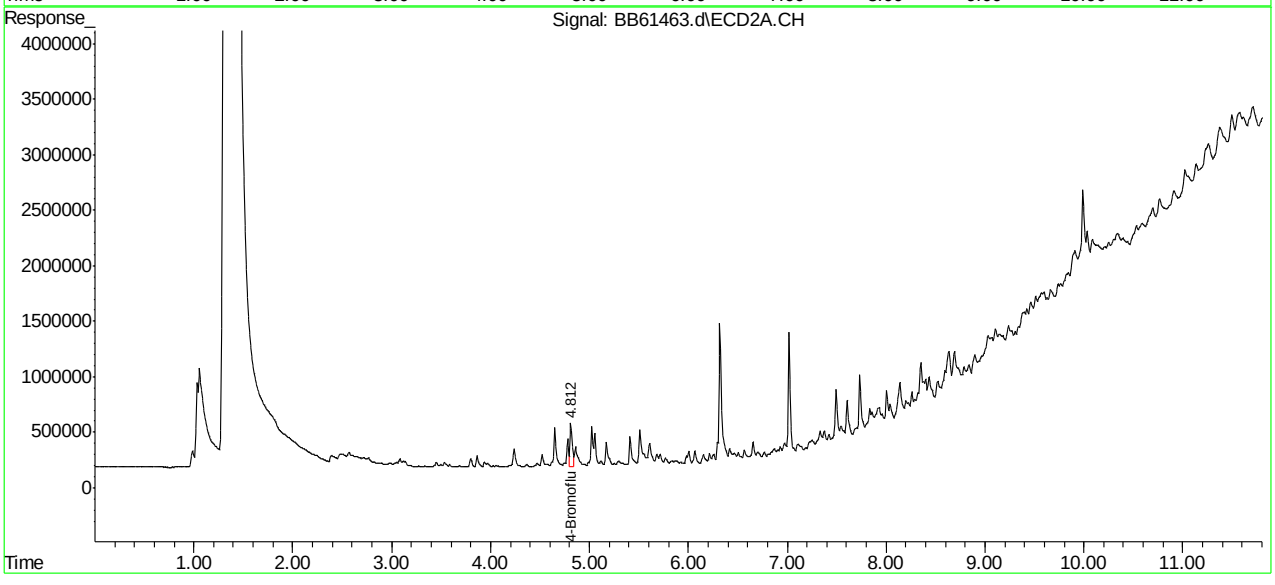
Quantitation Report (QT Reviewed)

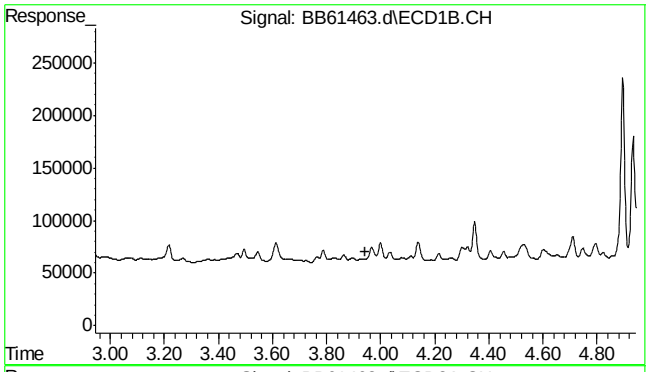
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61463.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 02:15:28
Operator : nickk
Sample : jb85833-4,op41590
Misc : op41590,gbb3376,30.17,,,50,,s
ALS Vial : 30 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:36 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

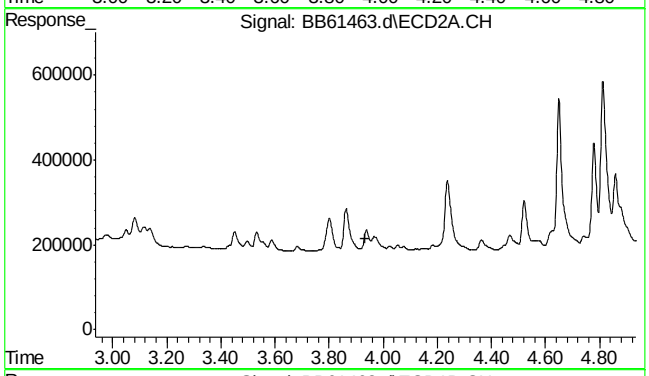






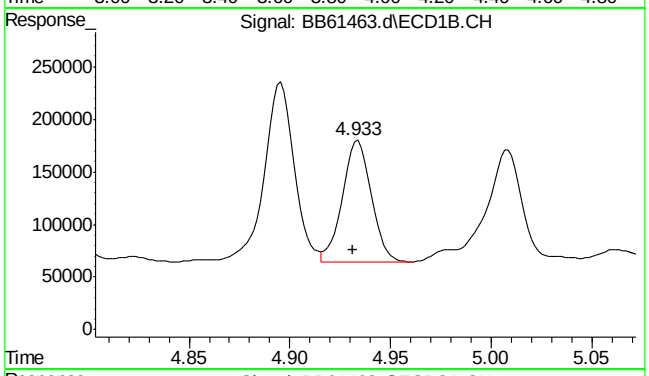
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



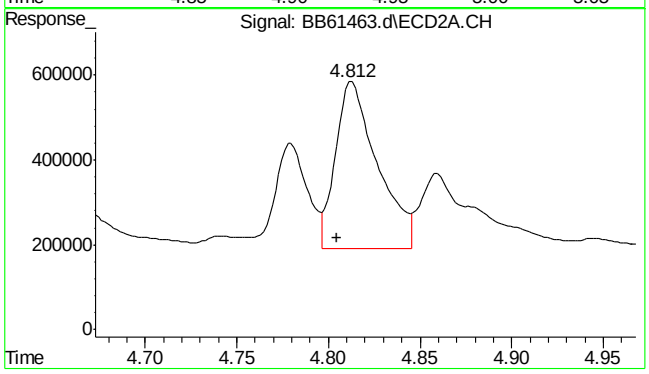
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



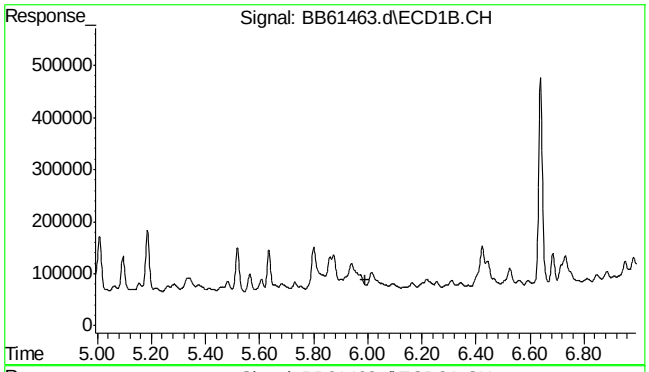
#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1157288
Conc: 59.31 ug/L



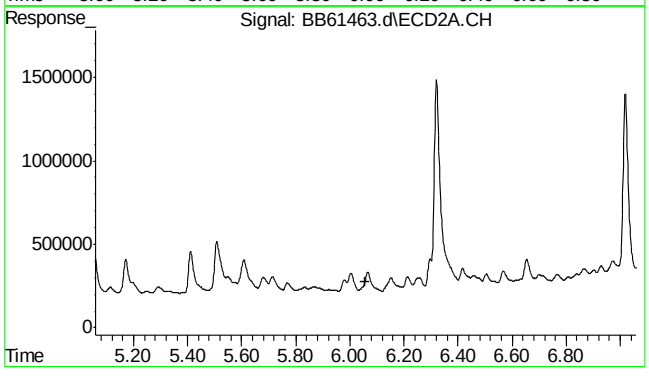
#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 6324451
Conc: 60.18 ug/L



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61465.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 03:00:45
Operator : nickk
Sample : jb85833-5,op41590
Misc : op41590,gbb3376,30.17,,,50,,s
ALS Vial : 31 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:50 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.934	4.813	1151969	7035081	59.036	66.939
Spiked Amount	50.000	Range	60 - 140	Recovery	= 118.07%	133.88%
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

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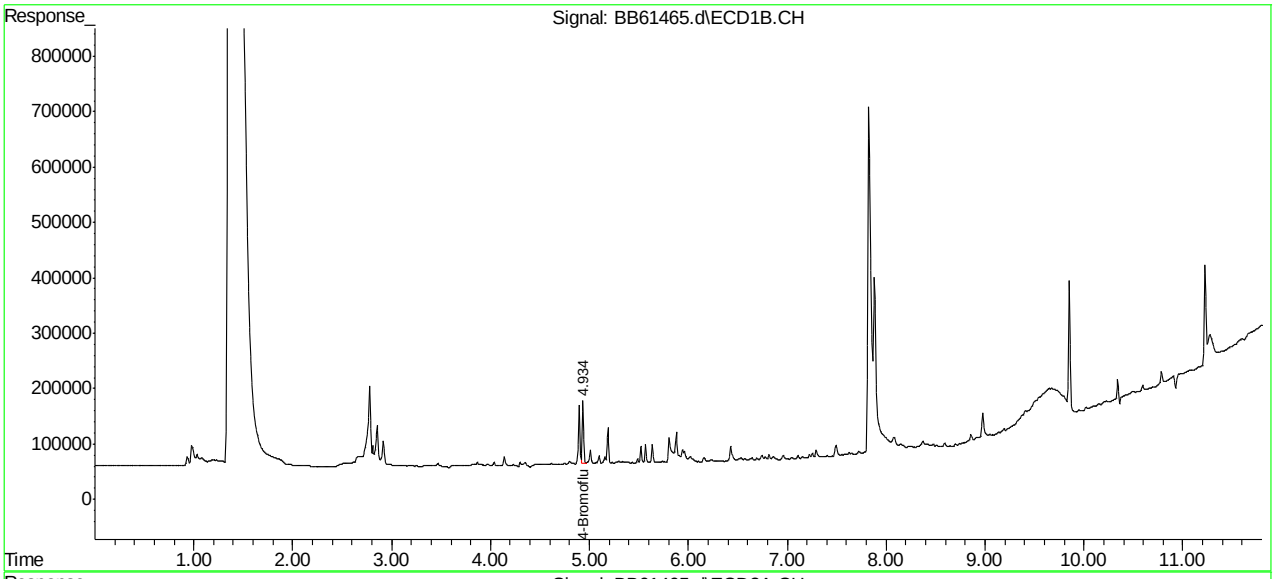
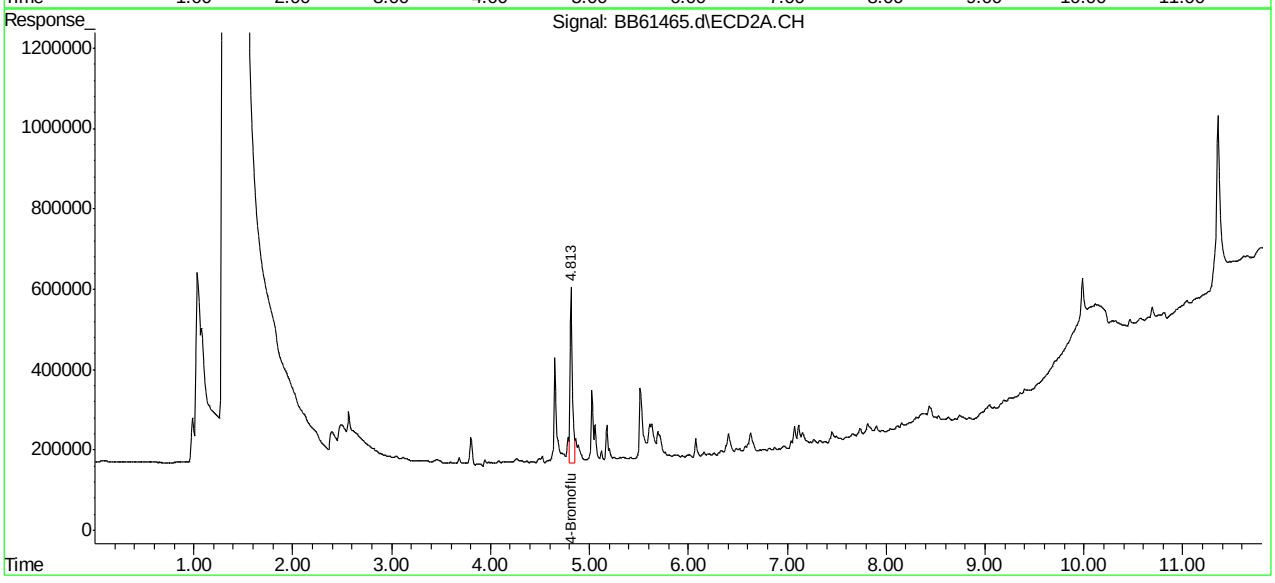
Quantitation Report (QT Reviewed)

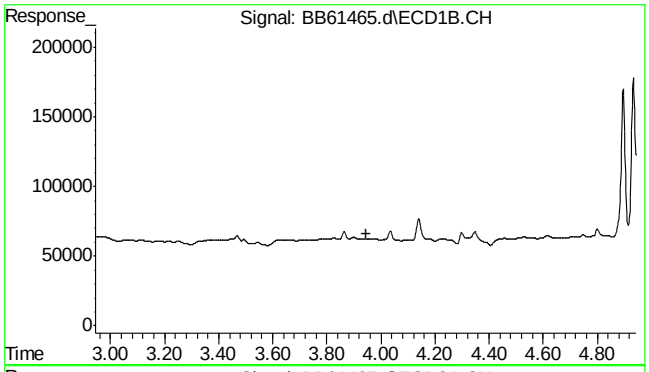
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61465.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 03:00:45
Operator : nickk
Sample : jb85833-5,op41590
Misc : op41590,gbb3376,30.17,,,50,,s
ALS Vial : 31 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:27:50 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

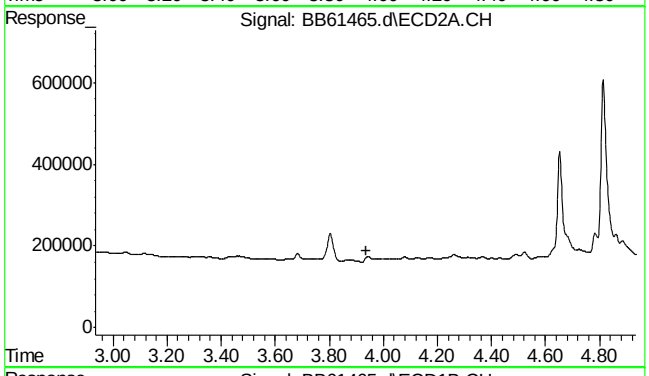






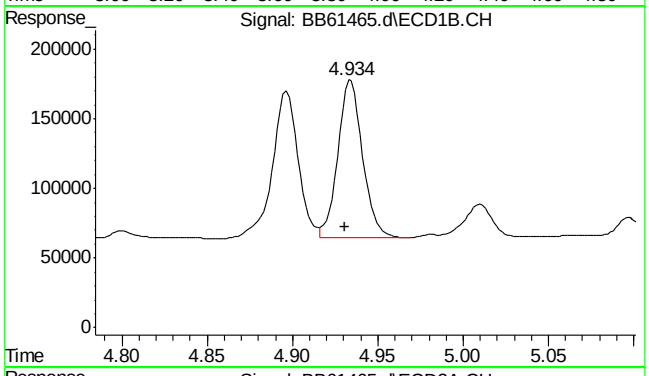
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



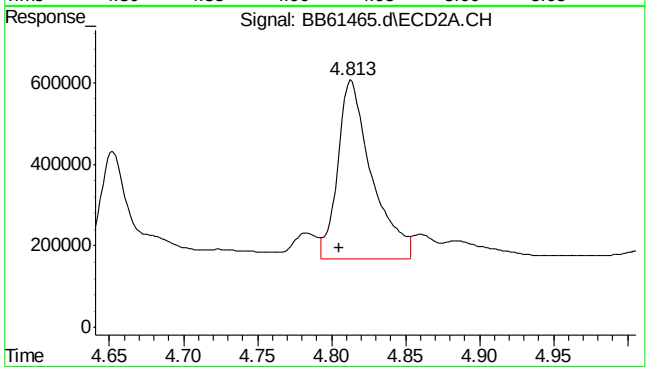
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1151969
Conc: 59.04 ug/L



#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 7035081
Conc: 66.94 ug/L

14.1.5

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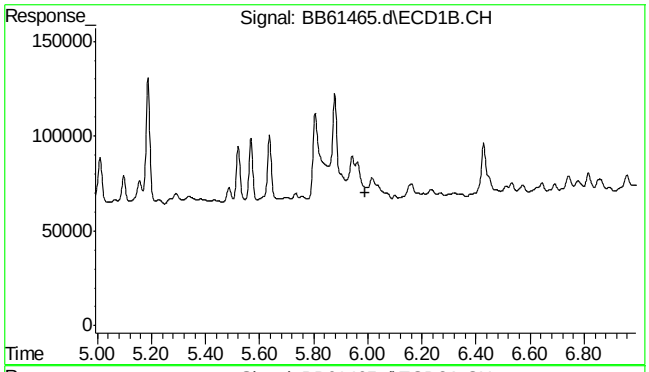
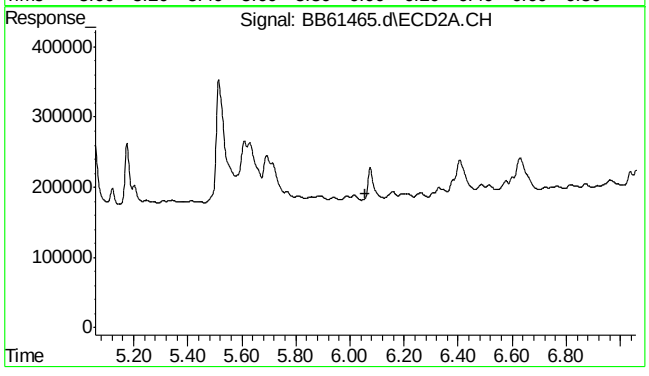


#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61466.d
Signal(s) : Signal #1: ECD1B.CH  Signal #2: ECD2A.CH
Acq On    : 14-Jan-15, 03:22:56
Operator  : nickk
Sample    : jb85833-6,op41590
Misc      : op41590,gbb3376,30.23,,,50,,s
ALS Vial  : 32 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:28:03 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title  : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.934	4.813	1161226	6544358	59.511	62.269
Spiked Amount 50.000 Range 60 - 140 Recovery = 119.02% 124.54%						
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.

14.1.6

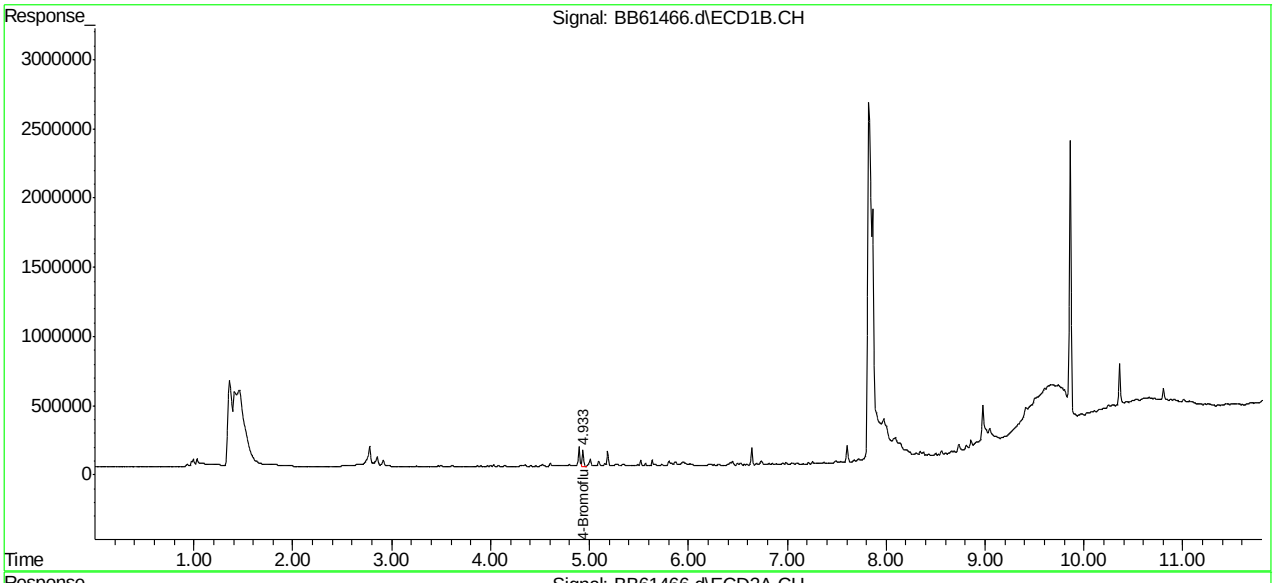
14

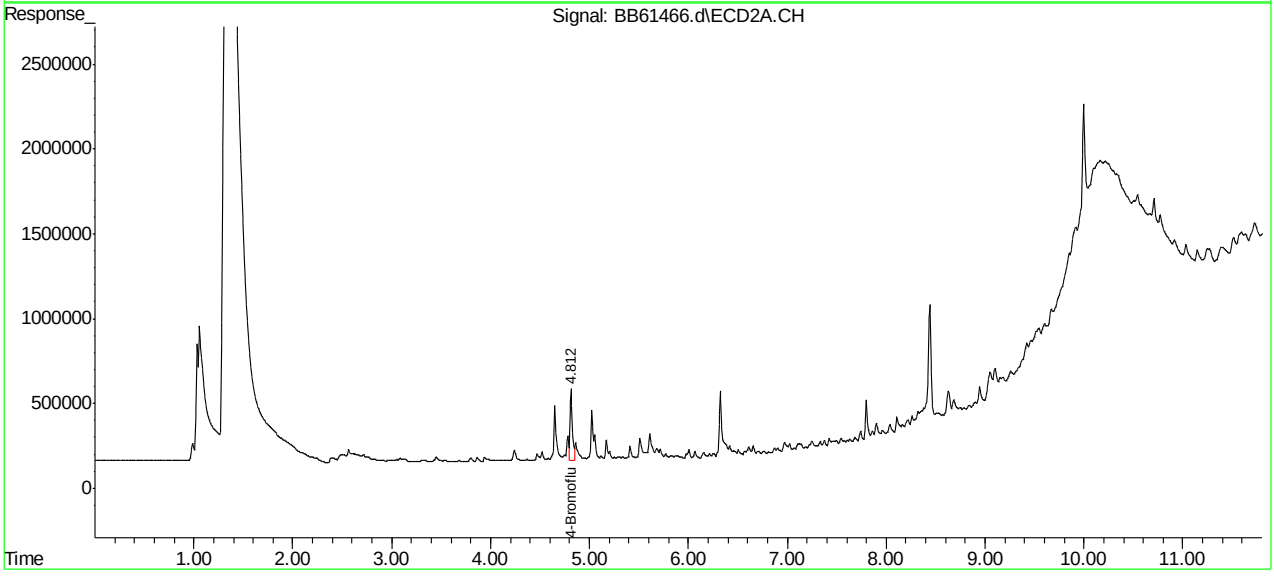
Quantitation Report (QT Reviewed)

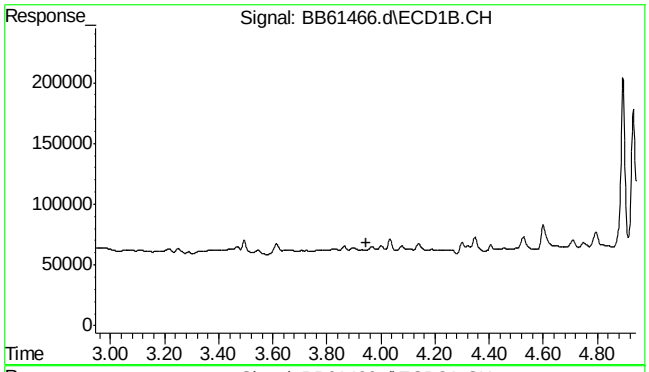
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61466.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 03:22:56
Operator : nickk
Sample : jb85833-6,op41590
Misc : op41590,gbb3376,30.23,,,50,,s
ALS Vial : 32 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:28:03 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

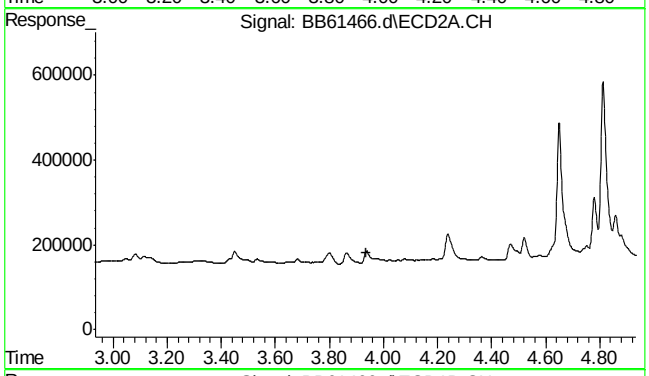






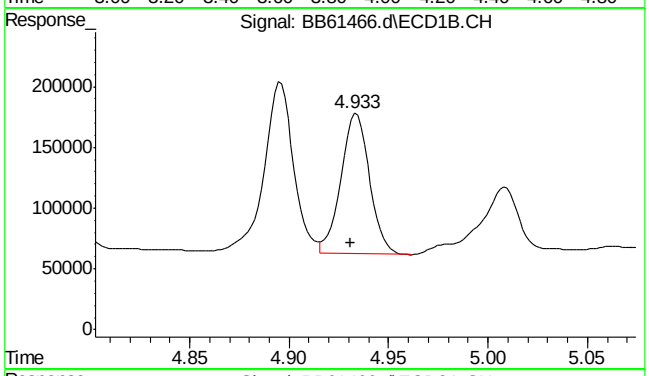
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



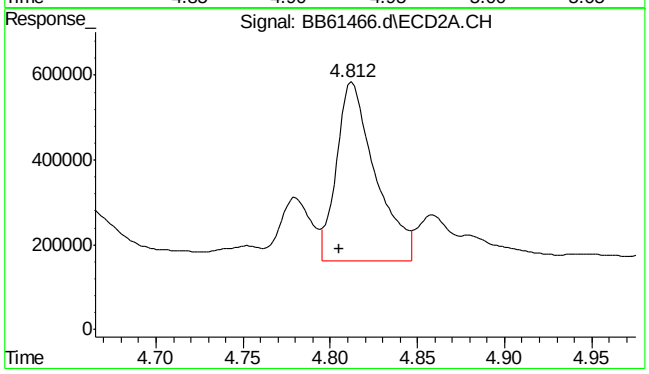
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1161226
Conc: 59.51 ug/L

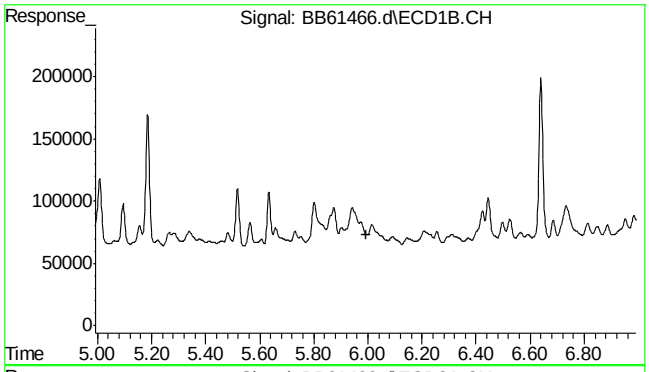


#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 6544358
Conc: 62.27 ug/L

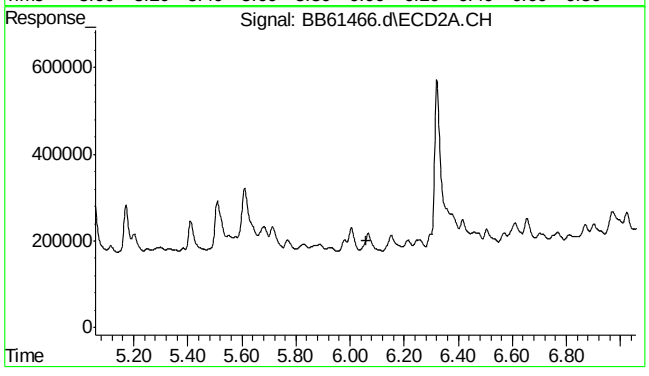
14.1.6

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

14.1.6

14

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
01/16/15 13:35

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61467.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 03:45:52
Operator : nickk
Sample : jb85833-7,op41590
Misc : op41590,gbb3376,30.26,,,50,,s
ALS Vial : 33 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:28:41 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.934	4.814	1467062	5983883	75.184	56.936m
Spiked Amount	50.000	Range	60 - 140	Recovery	= 150.37%#	113.87%
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.

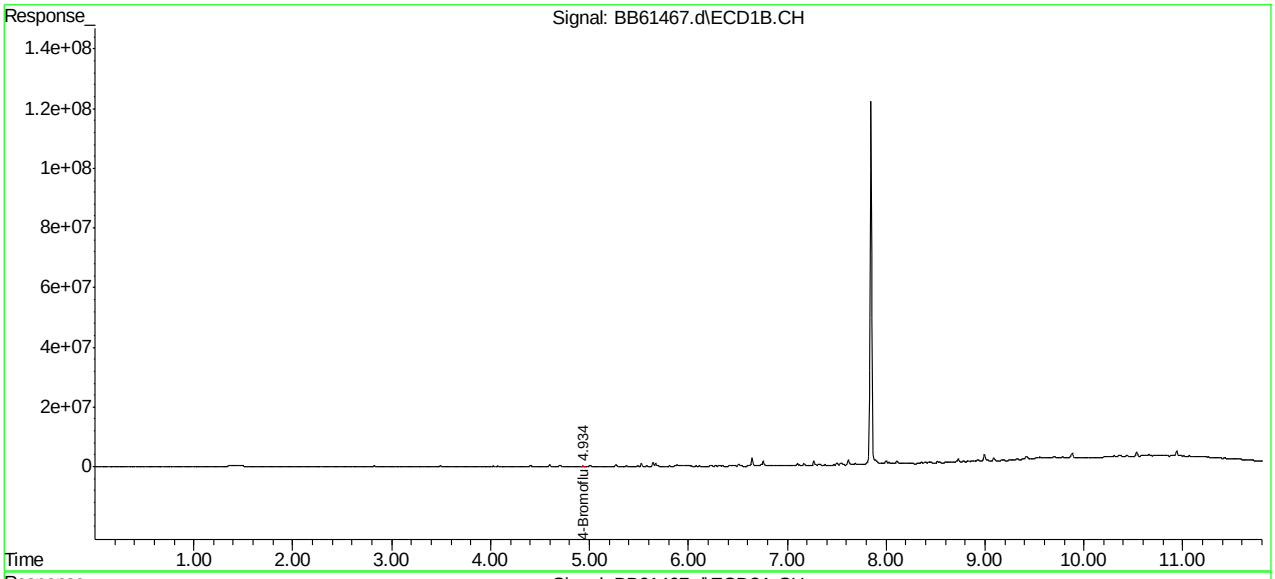
14.1.7
14

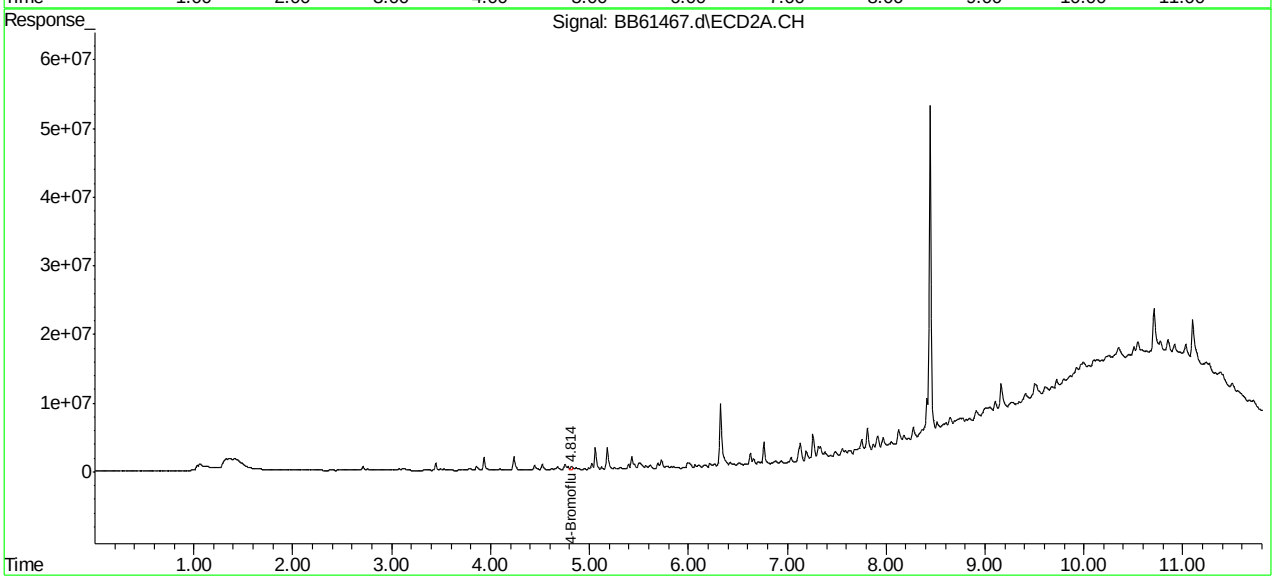
Quantitation Report (QT Reviewed)

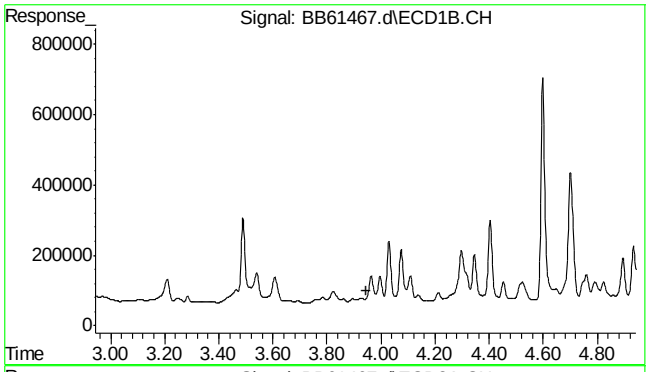
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61467.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 03:45:52
Operator : nickk
Sample : jb85833-7,op41590
Misc : op41590,gbb3376,30.26,,,50,,s
ALS Vial : 33 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:28:41 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

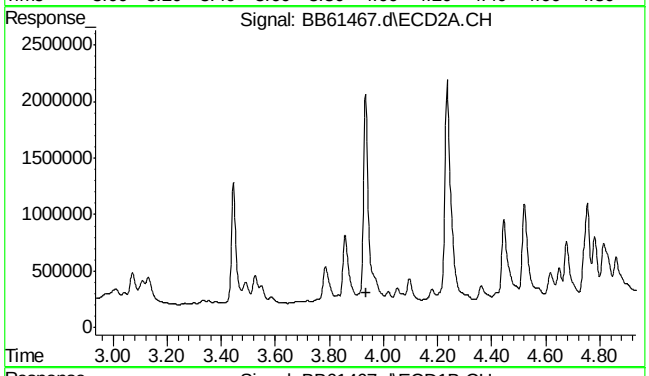






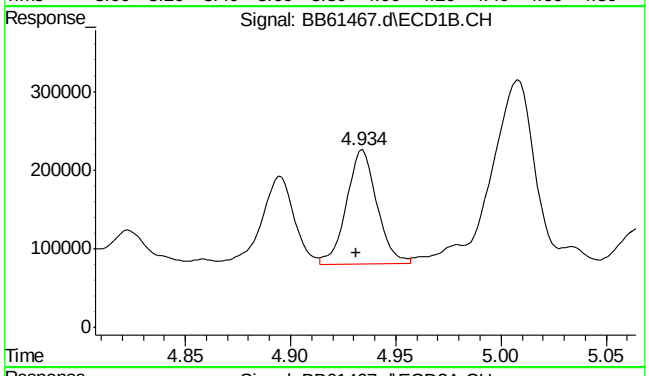
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



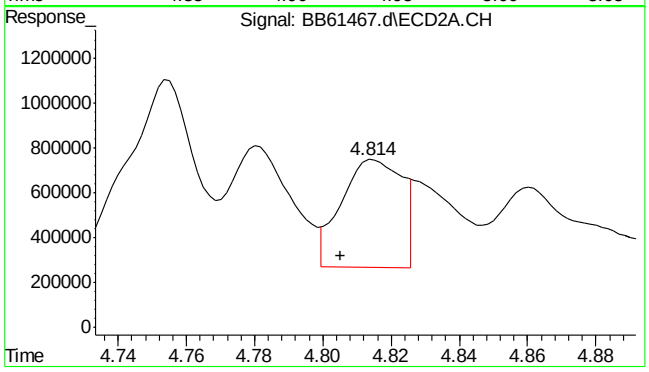
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1467062
Conc: 75.18 ug/L

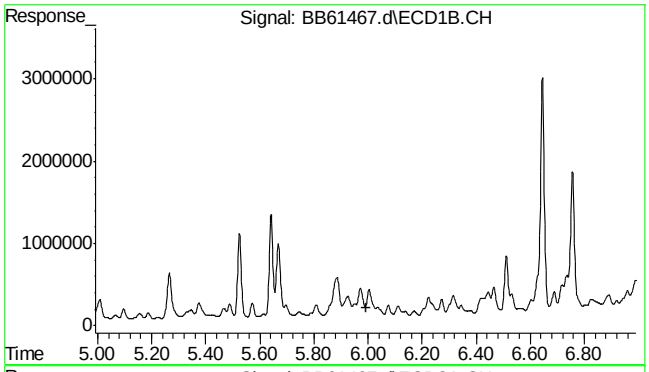


#2 4-Bromofluorobenzene

R.T.: 4.814 min
Delta R.T.: 0.009 min
Response: 5983883
Conc: 56.94 ug/L m

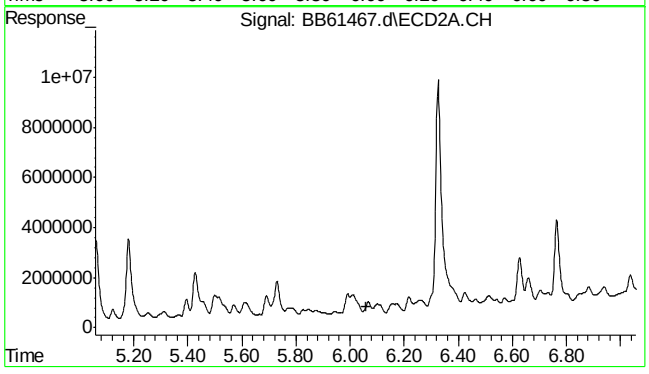
14.1.7

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

Manual Integrations APPROVED (compounds with "m" flag)
Andri Piluri
01/16/15 13:35

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61468.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 04:08:44
Operator : nickk
Sample : jb85833-8,op41590
Misc : op41590,gbb3376,30.42,,,50,,s
ALS Vial : 34 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:29:04 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.934	4.812	1153675	6097465	59.124	58.017m
	Spiked Amount	50.000	Range	60 - 140	Recovery	= 118.25%	116.03%
	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

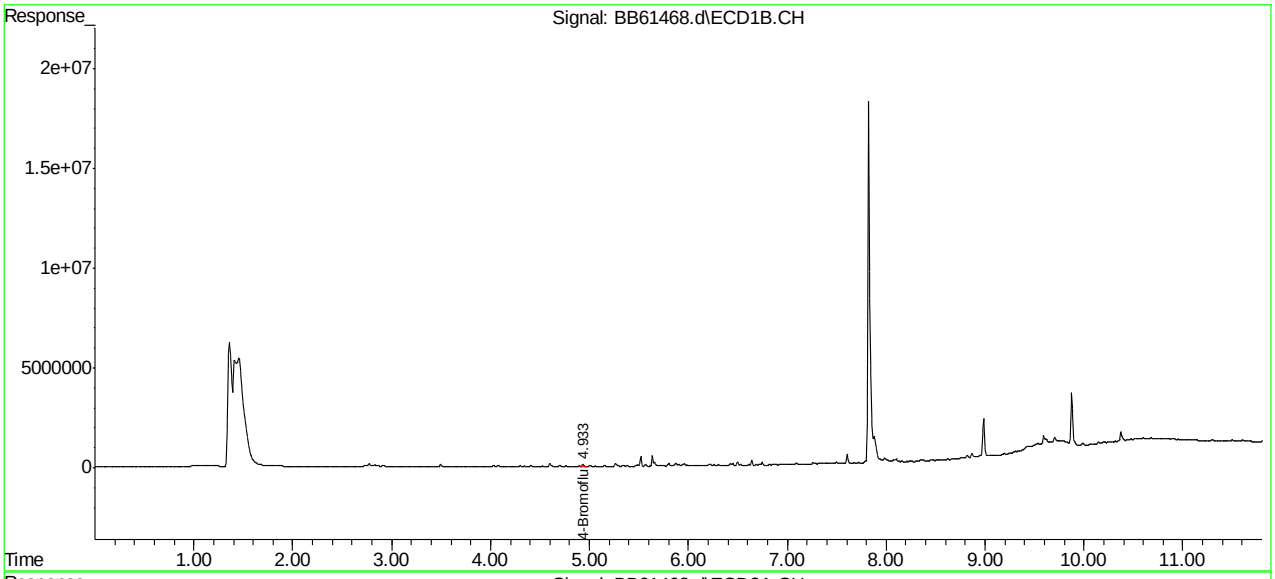
14

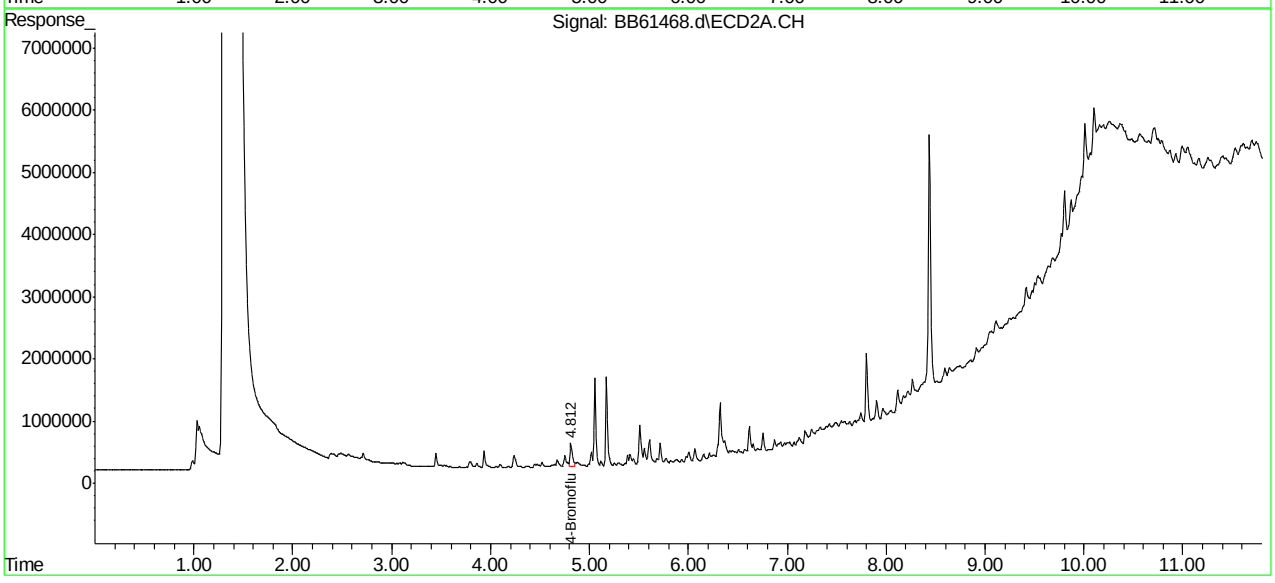
Quantitation Report (QT Reviewed)

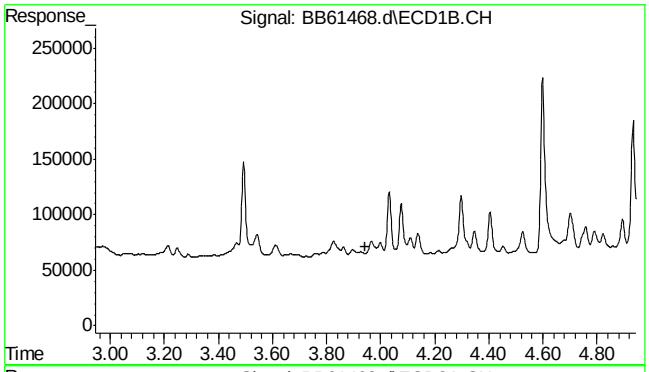
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61468.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 14-Jan-15, 04:08:44
Operator : nickk
Sample : jb85833-8,op41590
Misc : op41590,gbb3376,30.42,,,50,,s
ALS Vial : 34 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:29:04 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

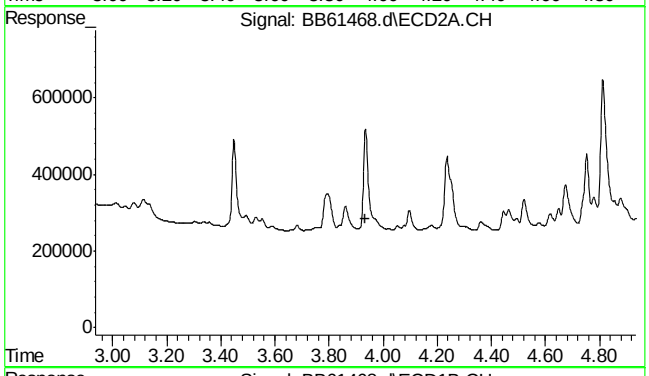






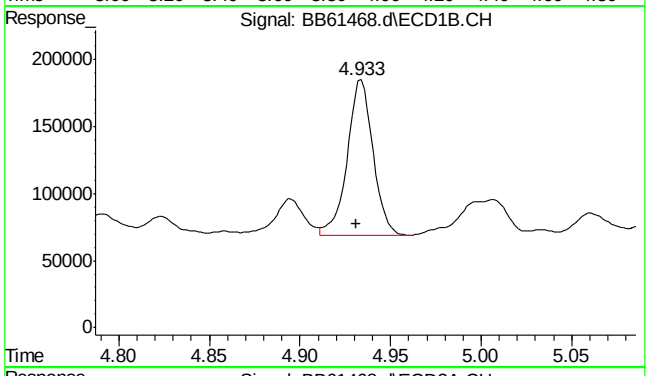
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



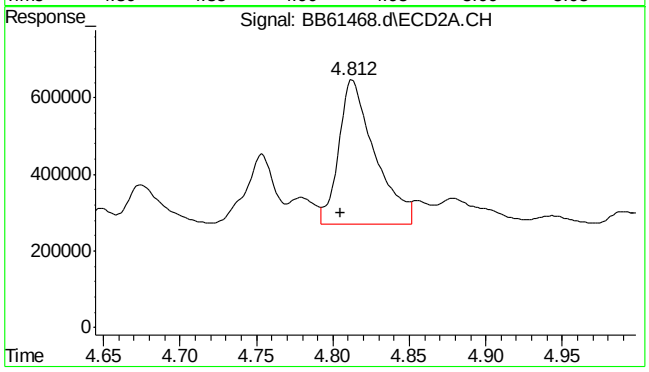
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.934 min
Delta R.T.: 0.003 min
Response: 1153675
Conc: 59.12 ug/L

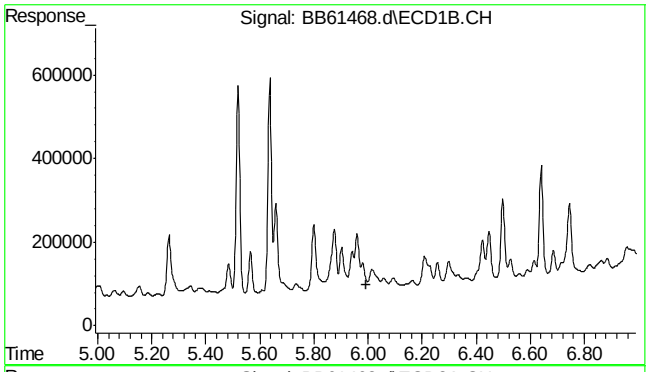


#2 4-Bromofluorobenzene

R.T.: 4.812 min
Delta R.T.: 0.007 min
Response: 6097465
Conc: 58.02 ug/L m

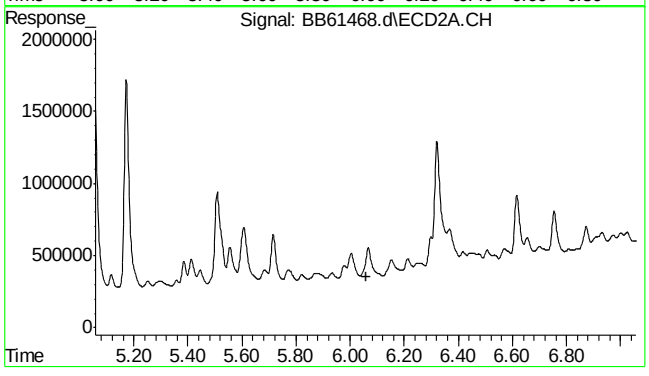
14.1.8

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

14.1.8

14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61454.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 13-Jan-15, 22:51:04
Operator : nickk
Sample : op41590-mb
Misc : op41590,gbb3376,30.08,,,50,,s
ALS Vial : 21 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:25:52 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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...	4.935	4.813	1008967	4991441	51.708	47.493
Spiked Amount	50.000 Range	60 - 140	Recovery	=	103.42%	94.99%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

14.2.1

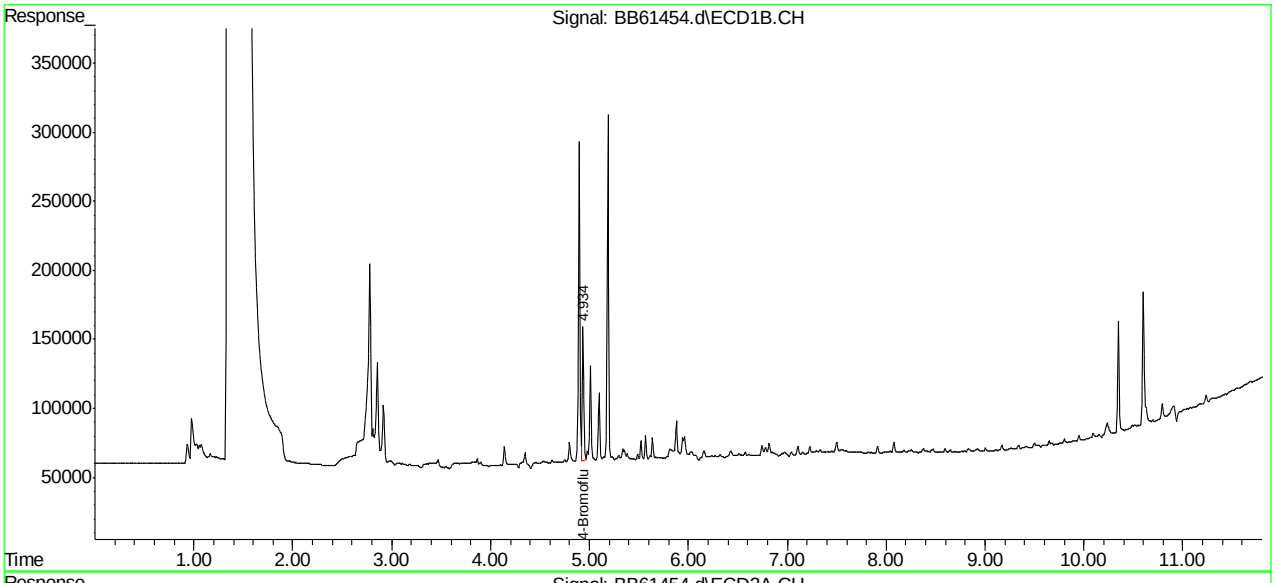
14

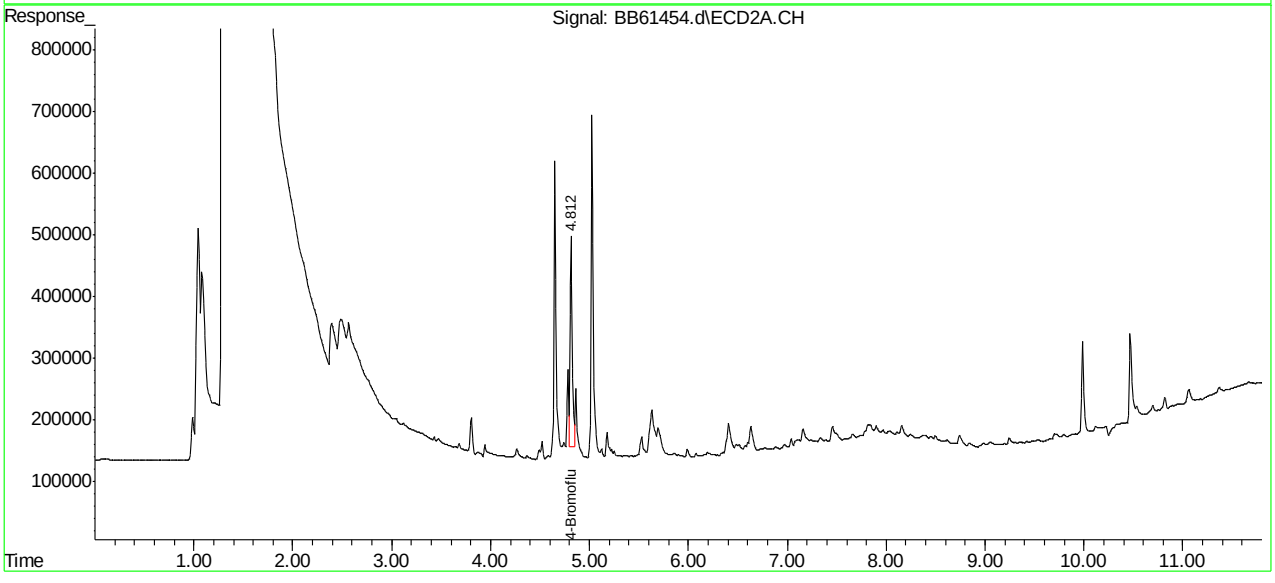
Quantitation Report (QT Reviewed)

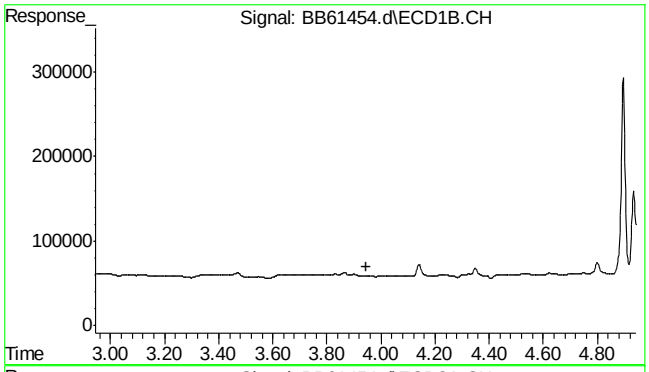
Data Path : C:\msdchem\1\DATA\BB150113\
Data File : BB61454.d
Signal(s) : Signal #1: ECD1B.CH Signal #2: ECD2A.CH
Acq On : 13-Jan-15, 22:51:04
Operator : nickk
Sample : op41590-mb
Misc : op41590,gbb3376,30.08,,,50,,s
ALS Vial : 21 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 14 08:25:52 2015
Quant Method : C:\msdchem\1\METHODS\EDS150113.M
Quant Title : v8011edb soil
QLast Update : Wed Jan 14 08:22:54 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 :

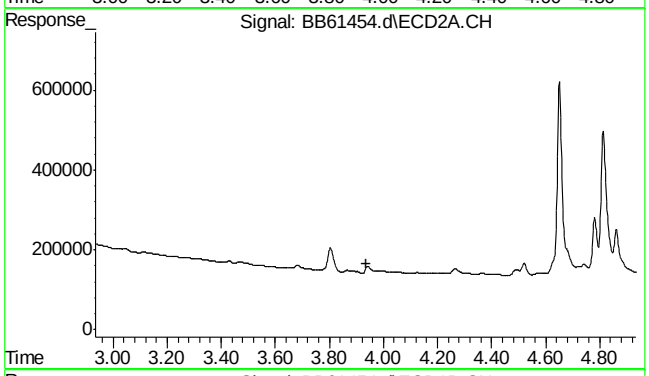






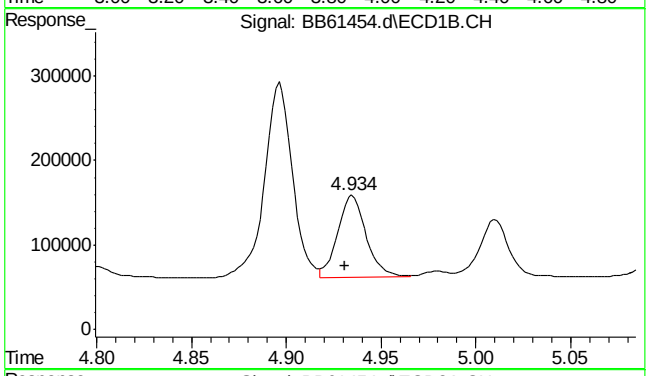
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.944 min
Response: 0
Conc: N.D.



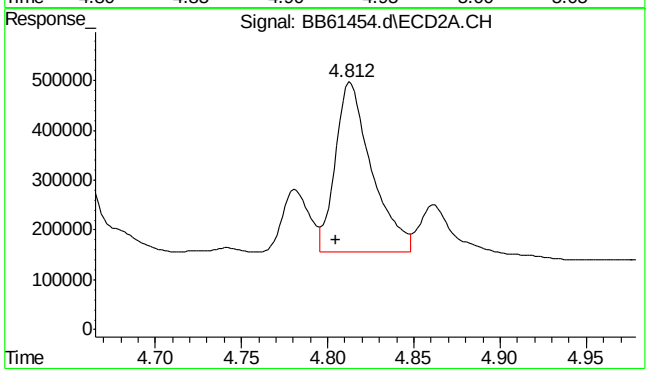
#1 1,2-Dibromoethane

R.T.: 0.000 min
Exp R.T. : 3.935 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene

R.T.: 4.935 min
Delta R.T.: 0.004 min
Response: 1008967
Conc: 51.71 ug/L

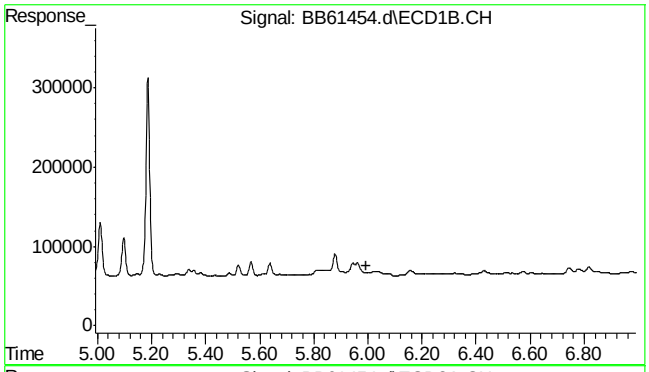


#2 4-Bromofluorobenzene

R.T.: 4.813 min
Delta R.T.: 0.008 min
Response: 4991441
Conc: 47.49 ug/L

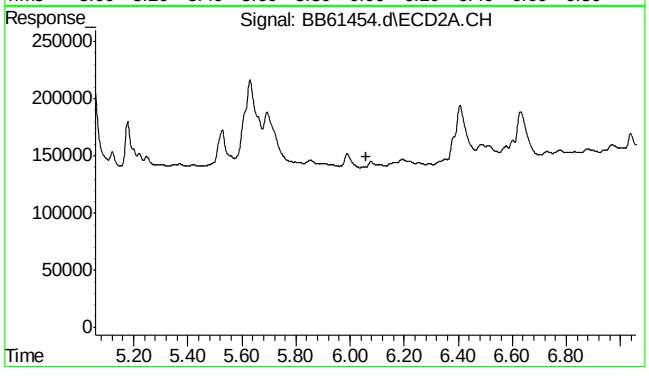
14.2.1

14



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 5.992 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane

R.T.: 0.000 min
Exp R.T. : 6.058 min
Response: 0
Conc: N.D.

14.2.1

14