New Jersey
ACCUTEST LABORATORIES

04/11/13

Technical Report for

Aquaterra Technologies, Inc.

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

AOI-2/4 Sampling

Accutest Job Number: JB31121

Sampling Dates: 03/11/13 - 03/12/13

Report to:

AquaTerra Technologies
122 South Church Street P.O. Box 744
West Chester, PA 19382
jennifer.menges@stantec.com; kward@langan.com;
ptroy@langan.com; ajelinek@langan.com;
ATTN: Tiffani Doerr

Total number of pages in report: **832**

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Nancy Cole
Laboratory Director

Client Service contact: Kristin Beebe 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Sample Summary

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB31121-1	03/11/13	08:55	PT	03/12/13	SO	Soil	AOI2_BH-13-74_2-3_31113
JB31121-2	03/11/13	10:50	PT	03/12/13	SO	Soil	AOI2_BH-13-70_7-8_31113
JB31121-3	03/11/13	11:25	PT	03/12/13	SO	Soil	AOI2_BH-13-80_0-1_31113
JB31121-4	03/11/13	11:35	PT	03/12/13	SO	Soil	AOI2_BH-13-80_2-3_31113
JB31121-5	03/11/13	09:00	PT	03/12/13	SO	Soil	AOI5_BH-13-16_1.5-2_031113
JB31121-6	03/11/13	09:30	PT	03/12/13	SO	Soil	AOI5_BH-13-16_3.5-4_031113
JB31121-7	03/11/13	10:40	PT	03/12/13	SO	Soil	AOI5_BH-13-17_1.5-2_031113
JB31121-8	03/11/13	11:00	PT	03/12/13	SO	Soil	AOI5_BH-13-17_5-5.5_031113
JB31121-9	03/11/13	13:30	PT	03/12/13	SO	Soil	AOI5_BH-13-15_1.5-2_031113
JB31121-10	03/11/13	14:00	PT	03/12/13	SO	Soil	AOI5_BH-13-15_4.5-5_031113
JB31121-11	03/11/13	16:00	PT	03/12/13	SO	Soil	AOI5_BH-13-08_1.5-2_031113
JB31121-12	03/11/13	16:20	PT	03/12/13	SO	Soil	AOI5_BH-13-08_3.5-4_031113
JB31121-13	03/11/13	09:00	PT	03/12/13	SO	Soil	BH-13-75_4-6'

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

Sample Summary
(continued)

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB31121-14	03/11/13	10:00	PT	03/12/13	SO	Soil	BH-13-72_2-4'
JB31121-15	03/11/13	10:30	PT	03/12/13	SO	Soil	BH-13-72_8-10'
JB31121-16	03/11/13	12:30	PT	03/12/13	SO	Soil	BH-13-73_8-10'
JB31121-17	03/12/13	09:30	PT	03/12/13	SO	Soil	AOI5_BH-13-01_1.5-2_031213
JB31121-18	03/12/13	08:15	PT	03/12/13	SO	Soil	AOI2_BH-13-69_0-1_31213
JB31121-19	03/12/13	08:40	PT	03/12/13	SO	Soil	AOI2_BH-13-68_1-1.5_31213
JB31121-20	03/12/13	09:20	PT	03/12/13	SO	Soil	AOI2_BH-13-68_8-9_31213
JB31121-21	03/12/13	10:20	PT	03/12/13	SO	Soil	AOI2_BH-13-63_4-5_31213
JB31121-22	03/12/13	11:50	PT	03/12/13	SO	Soil	AOI2_BH-13-61_8.5-9_31213
JB31121-23	03/12/13	12:30	PT	03/12/13	SO	Soil	BH-13-53_8-10'
JB31121-24	03/12/13	09:30	PT	03/12/13	SO	Soil	BH-13-79_4-6'

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Aquaterra Technologies, Inc.	**Job No**	JB31121
Site:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, P	**Report Date**	4/11/2013 12:12:26 P

On 03/12/2013, 24 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 4.6 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB31121 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:** VC6461

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB31810-5MS, JB31810-5MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VD8429

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31121-5MS, JB31121-5MSD were used as the QC samples indicated.
- JB31121-3: Dilution required due to matrix interference.
- JB31121-2: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VD8431

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB30589-13MS, JB30589-13MSD were used as the QC samples indicated.
- JB31121-18: Diluted due to high concentration of target compound.
- JB31121-20: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VD8432

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31121-6MS, JB31121-6MSD were used as the QC samples indicated.
- JB31121-6: Diluted due to high concentration of target compound.

Matrix: SO **Batch ID:** VD8438

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31975-4MS, JB31975-4MSD were used as the QC samples indicated.
- Matrix Spike Duplicate Recovery(s) for Toluene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- Matrix Spike Recovery(s) for Toluene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- JB31121-23: Dilution required due to matrix interference.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO **Batch ID:** VD8440

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31239-3MS, JB31239-3MSD were used as the QC samples indicated.
- JB31121-21: Dilution required due to matrix interference.
- JB31121-24: Dilution required due to matrix interference.
- JB31121-4: Dilution required due to matrix interference.

Matrix: SO **Batch ID:** VX5806

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB31121-19DUP, JB31121-22MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270D

2

Matrix: SO **Batch ID:** OP64463

- All samples were extracted within the recommended method holding time.
- Sample(s) JB30942-2MS, JB30942-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Duplicate Recovery(s) for Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Chrysene, Phenanthrene, Pyrene are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for Phenanthrene, Pyrene are outside control limits for sample OP64463-MSD. Outside control limits due to matrix interference.
- Sample(s) JB31121-14, JB31121-15, JB31121-16 have surrogates outside control limits. Confirmation run for surrogate recoveries.

Matrix: SO **Batch ID:** OP64464

- All samples were extracted within the recommended method holding time.
- Sample(s) JB31121-1MS, JB31121-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Pyrene are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Chrysene, Pyrene are outside control limits. Outside control limits due to matrix interference.
- Sample(s) JB31121-14, JB31121-15, JB31121-16 have surrogates outside control limits. Confirmation run for surrogate recoveries.
- JB31121-3: Confirmation run for internal standard areas.
- JB31121-16 for 2-Fluorobiphenyl: Outside in house control limits biased low. The results confirmed by re-extraction outside the holding time.
- JB31121-14 for 2-Fluorobiphenyl: Outside control limits due to matrix interference. Confirmed by re-extraction.
- JB31121-14 for Terphenyl-d14: Outside control limits due to matrix interference. Confirmed by re-extraction.
- JB31121-15 for 2-Fluorobiphenyl: Outside in house control limits biased low. The results confirmed by re-extraction outside the holding time.

Matrix: SO **Batch ID:** OP64736

- The data for SW846 8270D meets quality control requirements.
- The following samples were extracted outside of holding time for method SW846 8270D: JB31121-14
- Sample(s) JB31121-14, JB31121-15, JB31121-16 have surrogates outside control limits. Confirmation run for surrogate recoveries.
- JB31121-14: Confirmation run for surrogate recoveries.

Matrix: SO **Batch ID:** OP64768

- The data for SW846 8270D meets quality control requirements.
- The following samples were extracted outside of holding time for method SW846 8270D: JB31121-15, JB31121-16
- Sample(s) JB31121-14, JB31121-15, JB31121-16 have surrogates outside control limits. Confirmation run for surrogate recoveries.
- JB31121-16: Confirmation run.
- JB31121-15: Confirmation run.

Metals By Method SW846 6010C

Matrix: SO	Batch ID: MP70600

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31846-42MS, JB31846-42MSD, JB31846-42SDL were used as the QC samples for metals.

Matrix: SO	Batch ID: MP70607

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB31121-9MS, JB31121-9MSD, JB31121-9SDL were used as the QC samples for metals.

Wet Chemistry By Method ASTM 4643-00

Matrix: SO	Batch ID: GN81795

- The data for ASTM 4643-00 meets quality control requirements.

Wet Chemistry By Method SM2540 G-97

Matrix: SO	Batch ID: GN81800

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

Matrix: SO	Batch ID: GN81809

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

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

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

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

Summary of Hits

Job Number: JB31121
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/11/13 thru 03/12/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB31121-1	**AOI2_BH-13-74_2-3_31113**					
Anthracene		0.142	0.034		mg/kg	SW846 8270D
Benzo(a)anthracene		0.609	0.034		mg/kg	SW846 8270D
Benzo(a)pyrene		0.639	0.034		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.718	0.034		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.404	0.034		mg/kg	SW846 8270D
Chrysene		0.674	0.034		mg/kg	SW846 8270D
Fluorene		0.0548	0.034		mg/kg	SW846 8270D
Phenanthrene		0.529	0.034		mg/kg	SW846 8270D
Pyrene		0.822	0.034		mg/kg	SW846 8270D
Lead		9.9	2.4		mg/kg	SW846 6010C
JB31121-2	**AOI2_BH-13-70_7-8_31113**					
Fluorene		0.311	0.039		mg/kg	SW846 8270D
Phenanthrene		0.321	0.039		mg/kg	SW846 8270D
Lead		22.7	2.0		mg/kg	SW846 6010C
JB31121-3	**AOI2_BH-13-80_0-1_31113**					
Benzene [a]		11.7	0.12		mg/kg	SW846 8260B
Toluene [a]		4.18	0.12		mg/kg	SW846 8260B
Ethylbenzene [a]		1.59	0.12		mg/kg	SW846 8260B
Xylene (total) [a]		3.05	0.12		mg/kg	SW846 8260B
Isopropylbenzene [a]		1.26	0.62		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [a]		2.29	0.62		mg/kg	SW846 8260B
Benzo(a)anthracene		0.0742	0.035		mg/kg	SW846 8270D
Benzo(a)pyrene		0.0644	0.035		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.131	0.035		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.120	0.035		mg/kg	SW846 8270D
Chrysene		0.172	0.035		mg/kg	SW846 8270D
Fluorene		0.215	0.035		mg/kg	SW846 8270D
Naphthalene		0.917	0.035		mg/kg	SW846 8270D
Phenanthrene		0.351	0.035		mg/kg	SW846 8270D
Pyrene		0.152	0.035		mg/kg	SW846 8270D
Lead		119	2.2		mg/kg	SW846 6010C
JB31121-4	**AOI2_BH-13-80_2-3_31113**					
Benzene [a]		5.14	0.13		mg/kg	SW846 8260B
Toluene [a]		1.86	0.13		mg/kg	SW846 8260B
Ethylbenzene [a]		2.30	0.13		mg/kg	SW846 8260B
Xylene (total) [a]		4.17	0.13		mg/kg	SW846 8260B
Isopropylbenzene [a]		1.52	0.63		mg/kg	SW846 8260B

Summary of Hits

Job Number: JB31121
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/11/13 thru 03/12/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
1,2,4-Trimethylbenzene [a]		2.64	0.63		mg/kg	SW846 8260B
1,3,5-Trimethylbenzene [a]		1.86	0.63		mg/kg	SW846 8260B
Anthracene		0.728	0.037		mg/kg	SW846 8270D
Benzo(a)anthracene		1.30	0.037		mg/kg	SW846 8270D
Benzo(a)pyrene		0.740	0.037		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.877	0.037		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.414	0.037		mg/kg	SW846 8270D
Chrysene		1.27	0.037		mg/kg	SW846 8270D
Fluorene		7.97	0.37		mg/kg	SW846 8270D
Naphthalene		1.92	0.037		mg/kg	SW846 8270D
Phenanthrene		12.7	0.37		mg/kg	SW846 8270D
Pyrene		3.75	0.37		mg/kg	SW846 8270D
Lead		156	2.1		mg/kg	SW846 6010C
JB31121-5	**AOI5_BH-13-16_1.5-2_031113**					
Benzene		0.183	0.11		mg/kg	SW846 8260B
Toluene		0.366	0.11		mg/kg	SW846 8260B
Xylene (total)		0.294	0.11		mg/kg	SW846 8260B
Anthracene		0.691	0.035		mg/kg	SW846 8270D
Benzo(a)anthracene		2.15	0.035		mg/kg	SW846 8270D
Benzo(a)pyrene		2.38	0.035		mg/kg	SW846 8270D
Benzo(b)fluoranthene		2.51	0.035		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		1.49	0.035		mg/kg	SW846 8270D
Chrysene		2.12	0.035		mg/kg	SW846 8270D
Fluorene		0.224	0.035		mg/kg	SW846 8270D
Naphthalene		0.338	0.035		mg/kg	SW846 8270D
Phenanthrene		1.49	0.035		mg/kg	SW846 8270D
Pyrene		2.21	0.035		mg/kg	SW846 8270D
Lead		349	2.0		mg/kg	SW846 6010C
JB31121-6	**AOI5_BH-13-16_3.5-4_031113**					
Benzene [b]		0.736	0.12		mg/kg	SW846 8260B
Toluene [b]		2.20	0.12		mg/kg	SW846 8260B
Ethylbenzene [b]		0.831	0.12		mg/kg	SW846 8260B
Xylene (total) [b]		2.83	0.12		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [b]		0.686	0.60		mg/kg	SW846 8260B
Anthracene		0.817	0.040		mg/kg	SW846 8270D
Benzo(a)anthracene		3.45	0.040		mg/kg	SW846 8270D
Benzo(a)pyrene		3.56	0.040		mg/kg	SW846 8270D
Benzo(b)fluoranthene		3.19	0.080		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		2.06	0.040		mg/kg	SW846 8270D
Chrysene		3.33	0.040		mg/kg	SW846 8270D
Fluorene		0.322	0.040		mg/kg	SW846 8270D

Summary of Hits

Job Number: JB31121
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/11/13 thru 03/12/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Naphthalene		0.507	0.040		mg/kg	SW846 8270D
Phenanthrene		1.25	0.040		mg/kg	SW846 8270D
Pyrene		3.81	0.040		mg/kg	SW846 8270D
Lead		260	1.9		mg/kg	SW846 6010C
JB31121-7	**AOI5_BH-13-17_1.5-2_031113**					
Anthracene		0.127	0.034		mg/kg	SW846 8270D
Benzo(a)anthracene		0.354	0.034		mg/kg	SW846 8270D
Benzo(a)pyrene		0.354	0.034		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.431	0.034		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.298	0.034		mg/kg	SW846 8270D
Chrysene		0.443	0.034		mg/kg	SW846 8270D
Naphthalene		0.0656	0.034		mg/kg	SW846 8270D
Phenanthrene		0.363	0.034		mg/kg	SW846 8270D
Pyrene		0.492	0.034		mg/kg	SW846 8270D
Lead		783	2.3		mg/kg	SW846 6010C
JB31121-8	**AOI5_BH-13-17_5-5.5_031113**					
Anthracene		0.0931	0.038		mg/kg	SW846 8270D
Benzo(a)anthracene		0.190	0.038		mg/kg	SW846 8270D
Benzo(a)pyrene		0.170	0.038		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.256	0.038		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.155	0.038		mg/kg	SW846 8270D
Chrysene		0.307	0.038		mg/kg	SW846 8270D
Naphthalene		0.0508	0.038		mg/kg	SW846 8270D
Phenanthrene		0.316	0.038		mg/kg	SW846 8270D
Pyrene		0.297	0.038		mg/kg	SW846 8270D
Lead		896	2.6		mg/kg	SW846 6010C
JB31121-9	**AOI5_BH-13-15_1.5-2_031113**					
Anthracene		0.108	0.031		mg/kg	SW846 8270D
Benzo(a)anthracene		0.242	0.031		mg/kg	SW846 8270D
Benzo(a)pyrene		0.236	0.031		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.272	0.031		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.173	0.031		mg/kg	SW846 8270D
Chrysene		0.236	0.031		mg/kg	SW846 8270D
Fluorene		0.0418	0.031		mg/kg	SW846 8270D
Phenanthrene		0.367	0.031		mg/kg	SW846 8270D
Pyrene		0.450	0.031		mg/kg	SW846 8270D
Lead		28.6	2.3		mg/kg	SW846 6010C

Summary of Hits

Job Number: JB31121
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/11/13 thru 03/12/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB31121-10	**AOI5_BH-13-15_4.5-5_031113**					
Anthracene		0.0631	0.038		mg/kg	SW846 8270D
Benzo(a)anthracene		0.0985	0.038		mg/kg	SW846 8270D
Benzo(a)pyrene		0.0824	0.038		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.112	0.038		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0524	0.038		mg/kg	SW846 8270D
Chrysene		0.100	0.038		mg/kg	SW846 8270D
Phenanthrene		0.263	0.038		mg/kg	SW846 8270D
Pyrene		0.202	0.038		mg/kg	SW846 8270D
Lead		15.6	2.0		mg/kg	SW846 6010C
JB31121-11	**AOI5_BH-13-08_1.5-2_031113**					
Lead		15.7	2.4		mg/kg	SW846 6010C
JB31121-12	**AOI5_BH-13-08_3.5-4_031113**					
Lead		34.5	2.1		mg/kg	SW846 6010C
JB31121-13	**BH-13-75_4-6'**					
Lead		8.1	2.0		mg/kg	SW846 6010C
JB31121-14	**BH-13-72_2-4'**					
Lead		15.0	2.2		mg/kg	SW846 6010C
JB31121-15	**BH-13-72_8-10'**					
Lead		6.3	2.4		mg/kg	SW846 6010C
JB31121-16	**BH-13-73_8-10'**					
Lead		10	2.0		mg/kg	SW846 6010C
JB31121-17	**AOI5_BH-13-01_1.5-2_031213**					
Anthracene		0.0813	0.033		mg/kg	SW846 8270D
Benzo(a)anthracene		0.200	0.033		mg/kg	SW846 8270D
Benzo(a)pyrene		0.213	0.033		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.273	0.033		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.191	0.033		mg/kg	SW846 8270D
Chrysene		0.216	0.033		mg/kg	SW846 8270D
Phenanthrene		0.192	0.033		mg/kg	SW846 8270D

Summary of Hits

Job Number: JB31121
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/11/13 thru 03/12/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Pyrene		0.264	0.033		mg/kg	SW846 8270D
Lead		331	2.4		mg/kg	SW846 6010C
JB31121-18	**AOI2_BH-13-69_0-1_31213**					
Benzene [b]		0.248	0.14		mg/kg	SW846 8260B
Toluene [b]		0.931	0.14		mg/kg	SW846 8260B
Ethylbenzene [b]		1.56	0.14		mg/kg	SW846 8260B
Xylene (total) [b]		2.78	0.14		mg/kg	SW846 8260B
1,2,4-Trimethylbenzene [b]		0.810	0.69		mg/kg	SW846 8260B
Benzo(a)anthracene		0.111	0.032		mg/kg	SW846 8270D
Benzo(a)pyrene		0.165	0.032		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.152	0.032		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.332	0.032		mg/kg	SW846 8270D
Chrysene		0.168	0.032		mg/kg	SW846 8270D
Naphthalene		0.136	0.032		mg/kg	SW846 8270D
Phenanthrene		0.142	0.032		mg/kg	SW846 8270D
Pyrene		0.0730	0.032		mg/kg	SW846 8270D
Lead		433	2.2		mg/kg	SW846 6010C
JB31121-19	**AOI2_BH-13-68_1-1.5_31213**					
Benzo(b)fluoranthene		0.0311	0.029		mg/kg	SW846 8270D
Chrysene		0.0292	0.029		mg/kg	SW846 8270D
Pyrene		0.0320	0.029		mg/kg	SW846 8270D
Lead		6.2	2.2		mg/kg	SW846 6010C
JB31121-20	**AOI2_BH-13-68_8-9_31213**					
Anthracene		0.0627	0.038		mg/kg	SW846 8270D
Fluorene		0.332	0.038		mg/kg	SW846 8270D
Phenanthrene		0.414	0.038		mg/kg	SW846 8270D
Lead		9.3	2.4		mg/kg	SW846 6010C
JB31121-21	**AOI2_BH-13-63_4-5_31213**					
Anthracene		1.29	0.032		mg/kg	SW846 8270D
Benzo(a)anthracene		1.62	0.032		mg/kg	SW846 8270D
Benzo(a)pyrene		1.11	0.032		mg/kg	SW846 8270D
Benzo(b)fluoranthene		1.20	0.032		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.468	0.032		mg/kg	SW846 8270D
Chrysene		1.64	0.032		mg/kg	SW846 8270D
Fluorene		0.777	0.032		mg/kg	SW846 8270D
Naphthalene		0.0770	0.032		mg/kg	SW846 8270D
Phenanthrene		3.64	0.065		mg/kg	SW846 8270D

Summary of Hits

Job Number: JB31121
Account: Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Collected: 03/11/13 thru 03/12/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Pyrene		2.26	0.032		mg/kg	SW846 8270D
Lead		10.9	2.2		mg/kg	SW846 6010C
JB31121-22	**AOI2_BH-13-61_8.5-9_31213**					
Lead		8.3	2.4		mg/kg	SW846 6010C
JB31121-23	**BH-13-53_8-10'**					
Isopropylbenzene [a]		0.861	0.19		mg/kg	SW846 8260B
Benzo(a)anthracene		0.0535	0.033		mg/kg	SW846 8270D
Chrysene		0.0473	0.033		mg/kg	SW846 8270D
Fluorene		0.220	0.033		mg/kg	SW846 8270D
Phenanthrene		0.602	0.033		mg/kg	SW846 8270D
Pyrene		0.132	0.033		mg/kg	SW846 8270D
Lead		7.9	2.3		mg/kg	SW846 6010C
JB31121-24	**BH-13-79_4-6'**					
Xylene (total) [a]		0.0651	0.056		mg/kg	SW846 8260B
Benzo(a)anthracene		0.0788	0.032		mg/kg	SW846 8270D
Benzo(a)pyrene		0.0592	0.032		mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0704	0.032		mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0422	0.032		mg/kg	SW846 8270D
Chrysene		0.0903	0.032		mg/kg	SW846 8270D
Phenanthrene		0.148	0.032		mg/kg	SW846 8270D
Pyrene		0.210	0.032		mg/kg	SW846 8270D
Lead		117	2.2		mg/kg	SW846 6010C

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

New Jersey

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-74_2-3_31113		
Lab Sample ID:	JB31121-1	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180181.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	6.3 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00093	mg/kg	
108-88-3	Toluene	ND	0.00093	mg/kg	
100-41-4	Ethylbenzene	ND	0.00093	mg/kg	
1330-20-7	Xylene (total)	ND	0.00093	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00093	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00093	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00093	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0046	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0046	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0046	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	88%		70-122%
2037-26-5	Toluene-D8	98%		81-127%
460-00-4	4-Bromofluorobenzene	98%		66-132%

ND = Not detected
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:	AOI2_BH-13-74_2-3_31113		
Lab Sample ID:	JB31121-1	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48847.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	34.6 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.142	0.034	mg/kg	
56-55-3	Benzo(a)anthracene	0.609	0.034	mg/kg	
50-32-8	Benzo(a)pyrene	0.639	0.034	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.718	0.034	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.404	0.034	mg/kg	
218-01-9	Chrysene	0.674	0.034	mg/kg	
86-73-7	Fluorene	0.0548	0.034	mg/kg	
91-20-3	Naphthalene	ND	0.034	mg/kg	
85-01-8	Phenanthrene	0.529	0.034	mg/kg	
129-00-0	Pyrene	0.822	0.034	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	28%		21-122%
321-60-8	2-Fluorobiphenyl	35%		30-117%
1718-51-0	Terphenyl-d14	40%		31-129%

ND = Not detected
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:	AOI2_BH-13-74_2-3_31113		
Lab Sample ID:	JB31121-1	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	9.9	2.4	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-70_7-8_31113		
Lab Sample ID:	JB31121-2	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	77.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206612.D	1	03/17/13	ET	n/a	n/a	VD8429
Run #2							

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

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.12	mg/kg	
108-88-3	Toluene	ND	0.12	mg/kg	
100-41-4	Ethylbenzene	ND	0.12	mg/kg	
1330-20-7	Xylene (total)	ND	0.12	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.12	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.12	mg/kg	
98-82-8	Isopropylbenzene	ND	0.60	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.60	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.60	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	102%		70-122%
2037-26-5	Toluene-D8	113%		81-127%
460-00-4	4-Bromofluorobenzene	100%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	AOI2_BH-13-70_7-8_31113		
Lab Sample ID:	JB31121-2	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	77.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48835.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	32.9 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.039	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.039	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.039	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.039	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.039	mg/kg	
218-01-9	Chrysene	ND	0.039	mg/kg	
86-73-7	Fluorene	0.311	0.039	mg/kg	
91-20-3	Naphthalene	ND	0.039	mg/kg	
85-01-8	Phenanthrene	0.321	0.039	mg/kg	
129-00-0	Pyrene	ND	0.039	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	44%		21-122%
321-60-8	2-Fluorobiphenyl	46%		30-117%
1718-51-0	Terphenyl-d14	56%		31-129%

ND = Not detected
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:	AOI2_BH-13-70_7-8_31113		
Lab Sample ID:	JB31121-2	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	77.6
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	22.7	2.0	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-80_0-1_31113		
Lab Sample ID:	JB31121-3	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206611.D	1	03/17/13	ET	n/a	n/a	VD8429
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	11.7	0.12	mg/kg	
108-88-3	Toluene	4.18	0.12	mg/kg	
100-41-4	Ethylbenzene	1.59	0.12	mg/kg	
1330-20-7	Xylene (total)	3.05	0.12	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.12	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.12	mg/kg	
98-82-8	Isopropylbenzene	1.26	0.62	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	2.29	0.62	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.62	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	103%		70-122%
2037-26-5	Toluene-D8	121%		81-127%
460-00-4	4-Bromofluorobenzene	95%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	AOI2_BH-13-80_0-1_31113		
Lab Sample ID:	JB31121-3	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48849.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2 [a]	3E48865.D	5	03/27/13	OYA	03/25/13	OP64464	E3E2112

	Initial Weight	Final Volume
Run #1	33.5 g	1.0 ml
Run #2	33.5 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.035	mg/kg	
56-55-3	Benzo(a)anthracene	0.0742	0.035	mg/kg	
50-32-8	Benzo(a)pyrene	0.0644	0.035	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.131	0.035	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.120	0.035	mg/kg	
218-01-9	Chrysene	0.172	0.035	mg/kg	
86-73-7	Fluorene	0.215	0.035	mg/kg	
91-20-3	Naphthalene	0.917	0.035	mg/kg	
85-01-8	Phenanthrene	0.351	0.035	mg/kg	
129-00-0	Pyrene	0.152	0.035	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	80%	57%	21-122%
321-60-8	2-Fluorobiphenyl	36%	50%	30-117%
1718-51-0	Terphenyl-d14	47%	52%	31-129%

(a) Confirmation run for internal standard areas.

ND = Not detected
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:	AOI2_BH-13-80_0-1_31113		
Lab Sample ID:	JB31121-3	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	119	2.2	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-80_2-3_31113		
Lab Sample ID:	JB31121-4	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	76.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206878.D	1	03/23/13	ET	n/a	n/a	VD8440
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.9 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	5.14	0.13	mg/kg	
108-88-3	Toluene	1.86	0.13	mg/kg	
100-41-4	Ethylbenzene	2.30	0.13	mg/kg	
1330-20-7	Xylene (total)	4.17	0.13	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.13	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.13	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.13	mg/kg	
98-82-8	Isopropylbenzene	1.52	0.63	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	2.64	0.63	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	1.86	0.63	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-130%
17060-07-0	1,2-Dichloroethane-D4	105%		70-122%
2037-26-5	Toluene-D8	126%		81-127%
460-00-4	4-Bromofluorobenzene	113%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	AOI2_BH-13-80_2-3_31113		
Lab Sample ID:	JB31121-4	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	76.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48850.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2	3E48866.D	10	03/27/13	OYA	03/25/13	OP64464	E3E2112

	Initial Weight	Final Volume
Run #1	35.6 g	1.0 ml
Run #2	35.6 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.728	0.037	mg/kg	
56-55-3	Benzo(a)anthracene	1.30	0.037	mg/kg	
50-32-8	Benzo(a)pyrene	0.740	0.037	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.877	0.037	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.414	0.037	mg/kg	
218-01-9	Chrysene	1.27	0.037	mg/kg	
86-73-7	Fluorene	7.97 [a]	0.37	mg/kg	
91-20-3	Naphthalene	1.92	0.037	mg/kg	
85-01-8	Phenanthrene	12.7 [a]	0.37	mg/kg	
129-00-0	Pyrene	3.75 [a]	0.37	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	84%	68%	21-122%
321-60-8	2-Fluorobiphenyl	65%	69%	30-117%
1718-51-0	Terphenyl-d14	64%	60%	31-129%

(a) Result is from Run# 2

ND = Not detected
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:	AOI2_BH-13-80_2-3_31113		
Lab Sample ID:	JB31121-4	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	76.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	156	2.1	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-16_1.5-2_031113		
Lab Sample ID:	JB31121-5	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	79.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D206609.D	1	03/17/13	ET	n/a	n/a	VD8429
Run #2							

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

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	0.183	0.11	mg/kg	
108-88-3	Toluene	0.366	0.11	mg/kg	
100-41-4	Ethylbenzene	ND	0.11	mg/kg	
1330-20-7	Xylene (total)	0.294	0.11	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.11	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.11	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.11	mg/kg	
98-82-8	Isopropylbenzene	ND	0.56	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.56	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.56	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		70-130%
17060-07-0	1,2-Dichloroethane-D4	102%		70-122%
2037-26-5	Toluene-D8	104%		81-127%
460-00-4	4-Bromofluorobenzene	92%		66-132%

ND = Not detected
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-13-16_1.5-2_031113		
Lab Sample ID:	JB31121-5	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	79.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48851.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	36.0 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.691	0.035	mg/kg	
56-55-3	Benzo(a)anthracene	2.15	0.035	mg/kg	
50-32-8	Benzo(a)pyrene	2.38	0.035	mg/kg	
205-99-2	Benzo(b)fluoranthene	2.51	0.035	mg/kg	
191-24-2	Benzo(g,h,i)perylene	1.49	0.035	mg/kg	
218-01-9	Chrysene	2.12	0.035	mg/kg	
86-73-7	Fluorene	0.224	0.035	mg/kg	
91-20-3	Naphthalene	0.338	0.035	mg/kg	
85-01-8	Phenanthrene	1.49	0.035	mg/kg	
129-00-0	Pyrene	2.21	0.035	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	29%		21-122%
321-60-8	2-Fluorobiphenyl	38%		30-117%
1718-51-0	Terphenyl-d14	51%		31-129%

ND = Not detected
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-13-16_1.5-2_031113		
Lab Sample ID:	JB31121-5	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	79.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	349	2.0	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-16_3.5-4_031113		
Lab Sample ID:	JB31121-6	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	78.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206690.D	1	03/19/13	ET	n/a	n/a	VD8432
Run #2							

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

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	0.736	0.12	mg/kg	
108-88-3	Toluene	2.20	0.12	mg/kg	
100-41-4	Ethylbenzene	0.831	0.12	mg/kg	
1330-20-7	Xylene (total)	2.83	0.12	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.12	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.12	mg/kg	
98-82-8	Isopropylbenzene	ND	0.60	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.686	0.60	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.60	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		70-130%
17060-07-0	1,2-Dichloroethane-D4	98%		70-122%
2037-26-5	Toluene-D8	102%		81-127%
460-00-4	4-Bromofluorobenzene	90%		66-132%

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

ND = Not detected
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-13-16_3.5-4_031113		
Lab Sample ID:	JB31121-6	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	78.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48852.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2	3E48867.D	2	03/27/13	OYA	03/25/13	OP64464	E3E2112

	Initial Weight	Final Volume
Run #1	32.1 g	1.0 ml
Run #2	32.1 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.817	0.040	mg/kg	
56-55-3	Benzo(a)anthracene	3.45	0.040	mg/kg	
50-32-8	Benzo(a)pyrene	3.56	0.040	mg/kg	
205-99-2	Benzo(b)fluoranthene	3.19 [a]	0.080	mg/kg	
191-24-2	Benzo(g,h,i)perylene	2.06	0.040	mg/kg	
218-01-9	Chrysene	3.33	0.040	mg/kg	
86-73-7	Fluorene	0.322	0.040	mg/kg	
91-20-3	Naphthalene	0.507	0.040	mg/kg	
85-01-8	Phenanthrene	1.25	0.040	mg/kg	
129-00-0	Pyrene	3.81	0.040	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	40%	40%	21-122%
321-60-8	2-Fluorobiphenyl	46%	45%	30-117%
1718-51-0	Terphenyl-d14	52%	54%	31-129%

(a) Result is from Run# 2

ND = Not detected
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-13-16_3.5-4_031113		
Lab Sample ID:	JB31121-6	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	78.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	260	1.9	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-17_1.5-2_031113		
Lab Sample ID:	JB31121-7	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	83.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180182.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	5.2 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0012	mg/kg	
108-88-3	Toluene	ND	0.0012	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0012	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0058	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0058	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0058	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	90%		70-122%
2037-26-5	Toluene-D8	96%		81-127%
460-00-4	4-Bromofluorobenzene	101%		66-132%

ND = Not detected
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-13-17_1.5-2_031113		
Lab Sample ID:	JB31121-7	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	83.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48853.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	35.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.127	0.034	mg/kg	
56-55-3	Benzo(a)anthracene	0.354	0.034	mg/kg	
50-32-8	Benzo(a)pyrene	0.354	0.034	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.431	0.034	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.298	0.034	mg/kg	
218-01-9	Chrysene	0.443	0.034	mg/kg	
86-73-7	Fluorene	ND	0.034	mg/kg	
91-20-3	Naphthalene	0.0656	0.034	mg/kg	
85-01-8	Phenanthrene	0.363	0.034	mg/kg	
129-00-0	Pyrene	0.492	0.034	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	33%		21-122%
321-60-8	2-Fluorobiphenyl	38%		30-117%
1718-51-0	Terphenyl-d14	39%		31-129%

ND = Not detected
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-13-17_1.5-2_031113		
Lab Sample ID:	JB31121-7	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	83.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	783	2.3	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-17_5-5.5_031113		
Lab Sample ID:	JB31121-8	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	80.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180183.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0012	mg/kg	
108-88-3	Toluene	ND	0.0012	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0012	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0062	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0062	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0062	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	87%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	100%		66-132%

ND = Not detected
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-13-17_5-5.5_031113		
Lab Sample ID:	JB31121-8	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	80.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48854.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	32.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.0931	0.038	mg/kg	
56-55-3	Benzo(a)anthracene	0.190	0.038	mg/kg	
50-32-8	Benzo(a)pyrene	0.170	0.038	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.256	0.038	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.155	0.038	mg/kg	
218-01-9	Chrysene	0.307	0.038	mg/kg	
86-73-7	Fluorene	ND	0.038	mg/kg	
91-20-3	Naphthalene	0.0508	0.038	mg/kg	
85-01-8	Phenanthrene	0.316	0.038	mg/kg	
129-00-0	Pyrene	0.297	0.038	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	26%		21-122%
321-60-8	2-Fluorobiphenyl	33%		30-117%
1718-51-0	Terphenyl-d14	59%		31-129%

ND = Not detected
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-13-17_5-5.5_031113		
Lab Sample ID:	JB31121-8	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	80.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	896	2.6	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-15_1.5-2_031113		
Lab Sample ID:	JB31121-9	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	91.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180184.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	6.1 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00090	mg/kg	
108-88-3	Toluene	ND	0.00090	mg/kg	
100-41-4	Ethylbenzene	ND	0.00090	mg/kg	
1330-20-7	Xylene (total)	ND	0.00090	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00090	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00090	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00090	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0045	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0045	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0045	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
17060-07-0	1,2-Dichloroethane-D4	96%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	97%		66-132%

ND = Not detected
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-13-15_1.5-2_031113		
Lab Sample ID:	JB31121-9	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	91.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48848.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	35.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.108	0.031	mg/kg	
56-55-3	Benzo(a)anthracene	0.242	0.031	mg/kg	
50-32-8	Benzo(a)pyrene	0.236	0.031	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.272	0.031	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.173	0.031	mg/kg	
218-01-9	Chrysene	0.236	0.031	mg/kg	
86-73-7	Fluorene	0.0418	0.031	mg/kg	
91-20-3	Naphthalene	ND	0.031	mg/kg	
85-01-8	Phenanthrene	0.367	0.031	mg/kg	
129-00-0	Pyrene	0.450	0.031	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	32%		21-122%
321-60-8	2-Fluorobiphenyl	36%		30-117%
1718-51-0	Terphenyl-d14	85%		31-129%

ND = Not detected
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-13-15_1.5-2_031113		
Lab Sample ID:	JB31121-9	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	91.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	28.6	2.3	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-15_4.5-5_031113		
Lab Sample ID:	JB31121-10	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	78.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180185.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	6.4 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00099	mg/kg	
108-88-3	Toluene	ND	0.00099	mg/kg	
100-41-4	Ethylbenzene	ND	0.00099	mg/kg	
1330-20-7	Xylene (total)	ND	0.00099	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00099	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00099	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00099	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0050	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0050	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0050	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	89%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	96%		66-132%

ND = Not detected
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-13-15_4.5-5_031113		
Lab Sample ID:	JB31121-10	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	78.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48836.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	33.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.0631	0.038	mg/kg	
56-55-3	Benzo(a)anthracene	0.0985	0.038	mg/kg	
50-32-8	Benzo(a)pyrene	0.0824	0.038	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.112	0.038	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0524	0.038	mg/kg	
218-01-9	Chrysene	0.100	0.038	mg/kg	
86-73-7	Fluorene	ND	0.038	mg/kg	
91-20-3	Naphthalene	ND	0.038	mg/kg	
85-01-8	Phenanthrene	0.263	0.038	mg/kg	
129-00-0	Pyrene	0.202	0.038	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	28%		21-122%
321-60-8	2-Fluorobiphenyl	30%		30-117%
1718-51-0	Terphenyl-d14	47%		31-129%

ND = Not detected
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-13-15_4.5-5_031113		
Lab Sample ID:	JB31121-10	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	78.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	15.6	2.0	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-08_1.5-2_031113		
Lab Sample ID:	JB31121-11	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180186.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	6.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00087	mg/kg	
108-88-3	Toluene	ND	0.00087	mg/kg	
100-41-4	Ethylbenzene	ND	0.00087	mg/kg	
1330-20-7	Xylene (total)	ND	0.00087	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00087	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00087	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00087	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0044	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0044	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0044	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-130%
17060-07-0	1,2-Dichloroethane-D4	94%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	97%		66-132%

ND = Not detected
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-13-08_1.5-2_031113		
Lab Sample ID:	JB31121-11	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48837.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	36.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.032	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.032	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.032	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.032	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.032	mg/kg	
218-01-9	Chrysene	ND	0.032	mg/kg	
86-73-7	Fluorene	ND	0.032	mg/kg	
91-20-3	Naphthalene	ND	0.032	mg/kg	
85-01-8	Phenanthrene	ND	0.032	mg/kg	
129-00-0	Pyrene	ND	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	46%		21-122%
321-60-8	2-Fluorobiphenyl	43%		30-117%
1718-51-0	Terphenyl-d14	51%		31-129%

ND = Not detected
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-13-08_1.5-2_031113		
Lab Sample ID:	JB31121-11	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.3
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	15.7	2.4	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-08_3.5-4_031113		
Lab Sample ID:	JB31121-12	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	79.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180187.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	6.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00094	mg/kg	
108-88-3	Toluene	ND	0.00094	mg/kg	
100-41-4	Ethylbenzene	ND	0.00094	mg/kg	
1330-20-7	Xylene (total)	ND	0.00094	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00094	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00094	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00094	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0047	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0047	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0047	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	91%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	96%		66-132%

ND = Not detected
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-13-08_3.5-4_031113		
Lab Sample ID:	JB31121-12	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	79.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48838.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	35.0 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.036	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.036	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.036	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.036	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.036	mg/kg	
218-01-9	Chrysene	ND	0.036	mg/kg	
86-73-7	Fluorene	ND	0.036	mg/kg	
91-20-3	Naphthalene	ND	0.036	mg/kg	
85-01-8	Phenanthrene	ND	0.036	mg/kg	
129-00-0	Pyrene	ND	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	33%		21-122%
321-60-8	2-Fluorobiphenyl	35%		30-117%
1718-51-0	Terphenyl-d14	51%		31-129%

ND = Not detected
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-13-08_3.5-4_031113		
Lab Sample ID:	JB31121-12	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	79.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	34.5	2.1	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	BH-13-75_4-6'		
Lab Sample ID:	JB31121-13	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	79.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180188.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	13.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00045	mg/kg	
108-88-3	Toluene	ND	0.00045	mg/kg	
100-41-4	Ethylbenzene	ND	0.00045	mg/kg	
1330-20-7	Xylene (total)	ND	0.00045	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00045	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00045	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00045	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0023	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0023	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
17060-07-0	1,2-Dichloroethane-D4	97%		70-122%
2037-26-5	Toluene-D8	98%		81-127%
460-00-4	4-Bromofluorobenzene	97%		66-132%

ND = Not detected
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:	BH-13-75_4-6'		
Lab Sample ID:	JB31121-13	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	79.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48839.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	34.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.036	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.036	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.036	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.036	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.036	mg/kg	
218-01-9	Chrysene	ND	0.036	mg/kg	
86-73-7	Fluorene	ND	0.036	mg/kg	
91-20-3	Naphthalene	ND	0.036	mg/kg	
85-01-8	Phenanthrene	ND	0.036	mg/kg	
129-00-0	Pyrene	ND	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	44%		21-122%
321-60-8	2-Fluorobiphenyl	43%		30-117%
1718-51-0	Terphenyl-d14	58%		31-129%

ND = Not detected
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:	BH-13-75_4-6'		
Lab Sample ID:	JB31121-13	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	79.8
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.1	2.0	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	BH-13-72_2-4'		
Lab Sample ID:	JB31121-14	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180189.D	1	03/20/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	8.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00066	mg/kg	
108-88-3	Toluene	ND	0.00066	mg/kg	
100-41-4	Ethylbenzene	ND	0.00066	mg/kg	
1330-20-7	Xylene (total)	ND	0.00066	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00066	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00066	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00066	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0033	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0033	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
17060-07-0	1,2-Dichloroethane-D4	98%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	98%		66-132%

ND = Not detected
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:	BH-13-72_2-4'		
Lab Sample ID:	JB31121-14	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48840.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2 [a]	M92677.D	1	04/04/13	OYA	03/27/13	OP64736	EM3758

	Initial Weight	Final Volume
Run #1	35.2 g	1.0 ml
Run #2	35.3 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.033	mg/kg	
218-01-9	Chrysene	ND	0.033	mg/kg	
86-73-7	Fluorene	ND	0.033	mg/kg	
91-20-3	Naphthalene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	ND	0.033	mg/kg	
129-00-0	Pyrene	ND	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	21%	23%	21-122%
321-60-8	2-Fluorobiphenyl	21% [c]	19% [b]	30-117%
1718-51-0	Terphenyl-d14	23% [c]	48%	31-129%

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

ND = Not detected
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:	BH-13-72_2-4'		
Lab Sample ID:	JB31121-14	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	15.0	2.2	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	BH-13-72_8-10'		
Lab Sample ID:	JB31121-15	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	86.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180200.D	1	03/21/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	14.2 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00041	mg/kg	
108-88-3	Toluene	ND	0.00041	mg/kg	
100-41-4	Ethylbenzene	ND	0.00041	mg/kg	
1330-20-7	Xylene (total)	ND	0.00041	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00041	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00041	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00041	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0020	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
17060-07-0	1,2-Dichloroethane-D4	83%		70-122%
2037-26-5	Toluene-D8	96%		81-127%
460-00-4	4-Bromofluorobenzene	96%		66-132%

ND = Not detected
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:	BH-13-72_8-10'		
Lab Sample ID:	JB31121-15	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48841.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2 [a]	2M51089.D	1	03/28/13	OYA	03/28/13	OP64768	E2M2175

	Initial Weight	Final Volume
Run #1	35.0 g	1.0 ml
Run #2	31.9 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.033	mg/kg	
218-01-9	Chrysene	ND	0.033	mg/kg	
86-73-7	Fluorene	ND	0.033	mg/kg	
91-20-3	Naphthalene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	ND	0.033	mg/kg	
129-00-0	Pyrene	ND	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	22%	57%	21-122%
321-60-8	2-Fluorobiphenyl	20% [b]	55%	30-117%
1718-51-0	Terphenyl-d14	54%	103%	31-129%

(a) Confirmation run.
(b) Outside in house control limits biased low. The results confirmed by re-extraction outside the holding time.

ND = Not detected
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:	BH-13-72_8-10'		
Lab Sample ID:	JB31121-15	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	86.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	6.3	2.4	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	BH-13-73_8-10'		
Lab Sample ID:	JB31121-16	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	79.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180201.D	1	03/21/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	16.5 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00038	mg/kg	
108-88-3	Toluene	ND	0.00038	mg/kg	
100-41-4	Ethylbenzene	ND	0.00038	mg/kg	
1330-20-7	Xylene (total)	ND	0.00038	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00038	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00038	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00038	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0019	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0019	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
17060-07-0	1,2-Dichloroethane-D4	106%		70-122%
2037-26-5	Toluene-D8	98%		81-127%
460-00-4	4-Bromofluorobenzene	95%		66-132%

ND = Not detected
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:	BH-13-73_8-10'		
Lab Sample ID:	JB31121-16	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	79.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48842.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2 [a]	2M51100.D	1	03/29/13	OYA	03/28/13	OP64768	E2M2176

	Initial Weight	Final Volume
Run #1	35.5 g	1.0 ml
Run #2	30.6 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.036	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.036	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.036	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.036	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.036	mg/kg	
218-01-9	Chrysene	ND	0.036	mg/kg	
86-73-7	Fluorene	ND	0.036	mg/kg	
91-20-3	Naphthalene	ND	0.036	mg/kg	
85-01-8	Phenanthrene	ND	0.036	mg/kg	
129-00-0	Pyrene	ND	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	29%	66%	21-122%
321-60-8	2-Fluorobiphenyl	27% [b]	57%	30-117%
1718-51-0	Terphenyl-d14	39%	90%	31-129%

(a) Confirmation run.
(b) Outside in house control limits biased low. The results confirmed by re-extraction outside the holding time.

ND = Not detected
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:	BH-13-73_8-10'		
Lab Sample ID:	JB31121-16	**Date Sampled:**	03/11/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	79.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	10	2.0	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI5_BH-13-01_1.5-2_031213		
Lab Sample ID:	JB31121-17	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C180202.D	1	03/21/13	TYG	n/a	n/a	VC6461
Run #2							

	Initial Weight
Run #1	7.5 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00078	mg/kg	
108-88-3	Toluene	ND	0.00078	mg/kg	
100-41-4	Ethylbenzene	ND	0.00078	mg/kg	
1330-20-7	Xylene (total)	ND	0.00078	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00078	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00078	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00078	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0039	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0039	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0039	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		70-130%
17060-07-0	1,2-Dichloroethane-D4	87%		70-122%
2037-26-5	Toluene-D8	97%		81-127%
460-00-4	4-Bromofluorobenzene	98%		66-132%

ND = Not detected
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-13-01_1.5-2_031213		
Lab Sample ID:	JB31121-17	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	85.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48855.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	35.0 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.0813	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	0.200	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	0.213	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.273	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.191	0.033	mg/kg	
218-01-9	Chrysene	0.216	0.033	mg/kg	
86-73-7	Fluorene	ND	0.033	mg/kg	
91-20-3	Naphthalene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	0.192	0.033	mg/kg	
129-00-0	Pyrene	0.264	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	38%		21-122%
321-60-8	2-Fluorobiphenyl	48%		30-117%
1718-51-0	Terphenyl-d14	62%		31-129%

ND = Not detected
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-13-01_1.5-2_031213		
Lab Sample ID:	JB31121-17	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	331	2.4	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-69_0-1_31213		
Lab Sample ID:	JB31121-18	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	88.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206672.D	1	03/19/13	ET	n/a	n/a	VD8431
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.3 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	0.248	0.14	mg/kg	
108-88-3	Toluene	0.931	0.14	mg/kg	
100-41-4	Ethylbenzene	1.56	0.14	mg/kg	
1330-20-7	Xylene (total)	2.78	0.14	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.14	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.14	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.14	mg/kg	
98-82-8	Isopropylbenzene	ND	0.69	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	0.810	0.69	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.69	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		70-130%
17060-07-0	1,2-Dichloroethane-D4	96%		70-122%
2037-26-5	Toluene-D8	102%		81-127%
460-00-4	4-Bromofluorobenzene	90%		66-132%

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

ND = Not detected
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:	AOI2_BH-13-69_0-1_31213		
Lab Sample ID:	JB31121-18	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	88.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48856.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	34.8 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.032	mg/kg	
56-55-3	Benzo(a)anthracene	0.111	0.032	mg/kg	
50-32-8	Benzo(a)pyrene	0.165	0.032	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.152	0.032	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.332	0.032	mg/kg	
218-01-9	Chrysene	0.168	0.032	mg/kg	
86-73-7	Fluorene	ND	0.032	mg/kg	
91-20-3	Naphthalene	0.136	0.032	mg/kg	
85-01-8	Phenanthrene	0.142	0.032	mg/kg	
129-00-0	Pyrene	0.0730	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	30%		21-122%
321-60-8	2-Fluorobiphenyl	35%		30-117%
1718-51-0	Terphenyl-d14	34%		31-129%

ND = Not detected
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:	AOI2_BH-13-69_0-1_31213		
Lab Sample ID:	JB31121-18	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	88.7
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	433	2.2	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-68_1-1.5_31213		
Lab Sample ID:	JB31121-19	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	94.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X134017.D	1	03/19/13	MS	n/a	n/a	VX5806
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.0011	mg/kg	
108-88-3	Toluene	ND	0.0011	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0054	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0054	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0054	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
17060-07-0	1,2-Dichloroethane-D4	84%		70-122%
2037-26-5	Toluene-D8	106%		81-127%
460-00-4	4-Bromofluorobenzene	105%		66-132%

ND = Not detected
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:	AOI2_BH-13-68_1-1.5_31213		
Lab Sample ID:	JB31121-19	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	94.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48843.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	36.0 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.029	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.029	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.029	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0311	0.029	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.029	mg/kg	
218-01-9	Chrysene	0.0292	0.029	mg/kg	
86-73-7	Fluorene	ND	0.029	mg/kg	
91-20-3	Naphthalene	ND	0.029	mg/kg	
85-01-8	Phenanthrene	ND	0.029	mg/kg	
129-00-0	Pyrene	0.0320	0.029	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	37%		21-122%
321-60-8	2-Fluorobiphenyl	39%		30-117%
1718-51-0	Terphenyl-d14	65%		31-129%

ND = Not detected
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:	AOI2_BH-13-68_1-1.5_31213		
Lab Sample ID:	JB31121-19	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	94.4
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	6.2	2.2	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-68_8-9_31213		
Lab Sample ID:	JB31121-20	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	81.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206673.D	1	03/19/13	ET	n/a	n/a	VD8431
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.5 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.11	mg/kg	
108-88-3	Toluene	ND	0.11	mg/kg	
100-41-4	Ethylbenzene	ND	0.11	mg/kg	
1330-20-7	Xylene (total)	ND	0.11	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.11	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.11	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.11	mg/kg	
98-82-8	Isopropylbenzene	ND	0.53	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		70-130%
17060-07-0	1,2-Dichloroethane-D4	98%		70-122%
2037-26-5	Toluene-D8	103%		81-127%
460-00-4	4-Bromofluorobenzene	100%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	AOI2_BH-13-68_8-9_31213		
Lab Sample ID:	JB31121-20	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	81.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3E48844.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
Run #2							

	Initial Weight	Final Volume
Run #1	32.7 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	0.0627	0.038	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.038	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.038	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.038	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.038	mg/kg	
218-01-9	Chrysene	ND	0.038	mg/kg	
86-73-7	Fluorene	0.332	0.038	mg/kg	
91-20-3	Naphthalene	ND	0.038	mg/kg	
85-01-8	Phenanthrene	0.414	0.038	mg/kg	
129-00-0	Pyrene	ND	0.038	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	51%		21-122%
321-60-8	2-Fluorobiphenyl	44%		30-117%
1718-51-0	Terphenyl-d14	49%		31-129%

ND = Not detected
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:	AOI2_BH-13-68_8-9_31213		
Lab Sample ID:	JB31121-20	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	81.2
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	9.3	2.4	mg/kg	1	03/21/13	03/23/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30773
(2) Prep QC Batch: MP70607

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-63_4-5_31213		
Lab Sample ID:	JB31121-21	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	87.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206877.D	1	03/23/13	ET	n/a	n/a	VD8440
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.9 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.091	mg/kg	
108-88-3	Toluene	ND	0.091	mg/kg	
100-41-4	Ethylbenzene	ND	0.091	mg/kg	
1330-20-7	Xylene (total)	ND	0.091	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.091	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.091	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.091	mg/kg	
98-82-8	Isopropylbenzene	ND	0.45	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.45	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.45	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-130%
17060-07-0	1,2-Dichloroethane-D4	103%		70-122%
2037-26-5	Toluene-D8	102%		81-127%
460-00-4	4-Bromofluorobenzene	99%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	AOI2_BH-13-63_4-5_31213		
Lab Sample ID:	JB31121-21	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550B	**Percent Solids:**	87.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P21552.D	1	03/26/13	AD	03/21/13	OP64463	E2P947
Run #2	2P21883.D	2	04/04/13	ALS	03/21/13	OP64463	E2P963

	Initial Weight	Final Volume
Run #1	35.5 g	1.0 ml
Run #2	35.5 g	1.0 ml

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	1.29	0.032	mg/kg	
56-55-3	Benzo(a)anthracene	1.62	0.032	mg/kg	
50-32-8	Benzo(a)pyrene	1.11	0.032	mg/kg	
205-99-2	Benzo(b)fluoranthene	1.20	0.032	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.468	0.032	mg/kg	
218-01-9	Chrysene	1.64	0.032	mg/kg	
86-73-7	Fluorene	0.777	0.032	mg/kg	
91-20-3	Naphthalene	0.0770	0.032	mg/kg	
85-01-8	Phenanthrene	3.64 [a]	0.065	mg/kg	
129-00-0	Pyrene	2.26	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%	63%	21-122%
321-60-8	2-Fluorobiphenyl	65%	69%	30-117%
1718-51-0	Terphenyl-d14	70%	81%	31-129%

(a) Result is from Run# 2

ND = Not detected
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:	AOI2_BH-13-63_4-5_31213		
Lab Sample ID:	JB31121-21	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	87.0
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	10.9	2.2	mg/kg	1	03/21/13	03/21/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30761
(2) Prep QC Batch: MP70600

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	AOI2_BH-13-61_8.5-9_31213		
Lab Sample ID:	JB31121-22	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X134010.D	1	03/19/13	MS	n/a	n/a	VX5806
Run #2							

	Initial Weight
Run #1	6.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.00085	mg/kg	
108-88-3	Toluene	ND	0.00085	mg/kg	
100-41-4	Ethylbenzene	ND	0.00085	mg/kg	
1330-20-7	Xylene (total)	ND	0.00085	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00085	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00085	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00085	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0043	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0043	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0043	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
17060-07-0	1,2-Dichloroethane-D4	95%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	103%		66-132%

ND = Not detected
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:	AOI2_BH-13-61_8.5-9_31213		
Lab Sample ID:	JB31121-22	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550B	**Percent Solids:**	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P21553.D	1	03/27/13	AD	03/21/13	OP64463	E2P947
Run #2							

	Initial Weight	Final Volume
Run #1	35.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.033	mg/kg	
218-01-9	Chrysene	ND	0.033	mg/kg	
86-73-7	Fluorene	ND	0.033	mg/kg	
91-20-3	Naphthalene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	ND	0.033	mg/kg	
129-00-0	Pyrene	ND	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	33%		21-122%
321-60-8	2-Fluorobiphenyl	45%		30-117%
1718-51-0	Terphenyl-d14	82%		31-129%

ND = Not detected
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:	AOI2_BH-13-61_8.5-9_31213		
Lab Sample ID:	JB31121-22	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.1
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.3	2.4	mg/kg	1	03/21/13	03/21/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30761
(2) Prep QC Batch: MP70600

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	BH-13-53_8-10'		
Lab Sample ID:	JB31121-23	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	85.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206830.D	1	03/22/13	ET	n/a	n/a	VD8438
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	19.5 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.038	mg/kg	
108-88-3	Toluene	ND	0.038	mg/kg	
100-41-4	Ethylbenzene	ND	0.038	mg/kg	
1330-20-7	Xylene (total)	ND	0.038	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.038	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.038	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.038	mg/kg	
98-82-8	Isopropylbenzene	0.861	0.19	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.19	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.19	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
17060-07-0	1,2-Dichloroethane-D4	110%		70-122%
2037-26-5	Toluene-D8	118%		81-127%
460-00-4	4-Bromofluorobenzene	109%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	BH-13-53_8-10'		
Lab Sample ID:	JB31121-23	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550B	**Percent Solids:**	85.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P21554.D	1	03/27/13	AD	03/21/13	OP64463	E2P947
Run #2							

	Initial Weight	Final Volume
Run #1	35.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.033	mg/kg	
56-55-3	Benzo(a)anthracene	0.0535	0.033	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.033	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.033	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.033	mg/kg	
218-01-9	Chrysene	0.0473	0.033	mg/kg	
86-73-7	Fluorene	0.220	0.033	mg/kg	
91-20-3	Naphthalene	ND	0.033	mg/kg	
85-01-8	Phenanthrene	0.602	0.033	mg/kg	
129-00-0	Pyrene	0.132	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		21-122%
321-60-8	2-Fluorobiphenyl	66%		30-117%
1718-51-0	Terphenyl-d14	76%		31-129%

ND = Not detected
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:	BH-13-53_8-10'		
Lab Sample ID:	JB31121-23	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	85.9
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	7.9	2.3	mg/kg	1	03/21/13	03/21/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30761
(2) Prep QC Batch: MP70600

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	BH-13-79_4-6'		
Lab Sample ID:	JB31121-24	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8260B	**Percent Solids:**	87.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D206879.D	1	03/23/13	ET	n/a	n/a	VD8440
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	11.8 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.056	mg/kg	
108-88-3	Toluene	ND	0.056	mg/kg	
100-41-4	Ethylbenzene	ND	0.056	mg/kg	
1330-20-7	Xylene (total)	0.0651	0.056	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.056	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.056	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.056	mg/kg	
98-82-8	Isopropylbenzene	ND	0.28	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.28	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.28	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-130%
17060-07-0	1,2-Dichloroethane-D4	103%		70-122%
2037-26-5	Toluene-D8	104%		81-127%
460-00-4	4-Bromofluorobenzene	108%		66-132%

(a) Dilution required due to matrix interference.

ND = Not detected
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:	BH-13-79_4-6'		
Lab Sample ID:	JB31121-24	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
Method:	SW846 8270D SW846 3550B	**Percent Solids:**	87.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P21555.D	1	03/27/13	AD	03/21/13	OP64463	E2P947
Run #2							

	Initial Weight	Final Volume
Run #1	35.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	0.032	mg/kg	
56-55-3	Benzo(a)anthracene	0.0788	0.032	mg/kg	
50-32-8	Benzo(a)pyrene	0.0592	0.032	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0704	0.032	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0422	0.032	mg/kg	
218-01-9	Chrysene	0.0903	0.032	mg/kg	
86-73-7	Fluorene	ND	0.032	mg/kg	
91-20-3	Naphthalene	ND	0.032	mg/kg	
85-01-8	Phenanthrene	0.148	0.032	mg/kg	
129-00-0	Pyrene	0.210	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		21-122%
321-60-8	2-Fluorobiphenyl	66%		30-117%
1718-51-0	Terphenyl-d14	66%		31-129%

ND = Not detected
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:	BH-13-79_4-6'		
Lab Sample ID:	JB31121-24	**Date Sampled:**	03/12/13
Matrix:	SO - Soil	**Date Received:**	03/12/13
		Percent Solids:	87.5
Project:	Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	117	2.2	mg/kg	1	03/21/13	03/21/13	ND	SW846 6010C [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA30761
(2) Prep QC Batch: MP70600

RL = Reporting Limit

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

SLC

CHAIN OF CUSTODY

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

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # JB31121

Client / Reporting Information

Company Name: Aquaterra Tech Inc
Street Address: 122 Church Road
City: West Chester State: PA Zip:
Project Contact: Tiffani Doerr E-mail:
Phone #: Fax #:
Sampler(s) Name(s): Pat Troy Phone #:

Project Information

Project Name: Sunoco Phil'ly Refinery
Street:
City: Philadelphia State: PA
Project #: A012 Soil Sampling
Client Purchase Order #:
Project Manager: Jim Oppenheim

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	6010C: LEAD	8260B: BTEX, MTBE, EDB, EDC, TMB's	8270C: Anthracene, benzo(a) anthracene, benzo(a) pyrene, benzo(b) fluoranthene, chrysene, fluorene, naphthalene, phenanthrene, pyrene							LAB USE ONLY
1	A012_BH-13-74-2-3_311 13	8981/ 9023 9038	3/11/13	8:55	PT	SO	4					X	X	X		X	X	X				-1			E46
2	A012_BH-13-70-7-8_311 13	8980/ 9102 9103	3/11/13	10:50	PT	SO	4					X	X	X		X	X	X				-2			M40T2
3	A012_BH-13-80_0-1_311 13	8901/ 9064 9084	3/11/13	11:25	PT	SO	4					X	X	X		X	X	X				-3			1402
4	A012_BH-13-80_2-3_311 13	8953/ 9765 9765	3/11/13	11:35	PT	SO	4					X	X	X		X	X	X				-4			4995
5	A015-BH-13-16-1.5-2_031113	6784/ 7957 7933	3/11/13	9:06	ED	SO	5					2	2	1		X	X	X				-5			
6	A015-BH-13-16-3.5-4_031113	6786/ 7938 7939	3/11/13	9:30	ED	SO	5					2	2	1		X	X	X				-6			
7	A015-BH-13-17-1.5-2_031113	6786/ 7956 7957	3/11/13	10:40	ED	SO	5					2	2	1		X	X	X				-7			
8	A015-BH-13-17-5-5.5_031113	6723/ 9667 9668	3/11/13	11:00	ED	SO	5					2	2	1		X	X	X				-8			
9	A015-BH-13-15-1.5-2_031113	6694/ 9679 9680	3/11/13	13:30	ED	SO	5					2	2	1		X	X	X				-9			
10	A015-BH-13-15-4.5-5_031113	6819/ 7950 7951	3/11/13	14:00	ED	SO	5					2	2	1		X	X	X				-10			
11	A015-BH-13-08-1.5-2_031113	6777/ 7918 7919	3/11/13	16:06	ED	SO	5					2	2	1		X	X	X				-11			
12	A015-BH-13-08-3.5-4_031113	6774/ 7912 7913	3/11/13	16:20	ED	SO	5					2	2	1		X	X	X				-12			

Matrix Codes

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

DI slurry VOC vials frozen storage
Initials: JK
Date: 3/12/13 Time: 12:00
Field Kits Received

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- [x] Std. 10 Business Days (by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

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"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other: EDD

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

Comments / Special Instructions

Rec'd at Exton Service Center
3/12/13

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	3-11-13/16:30	1	2	3/12/13 1:00	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. 4.6°C

LIA

5.1 5

JB31121: Chain of Custody
Page 1 of 3

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

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

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB31121

Client / Reporting Information

Company Name: AQUATERRA TECH, INC
Street Address: 122 SO. CHURCH ST
City / State / Zip: WESTCHESTER PA 19382
Project Contact: TIFFANY DOLER
E-mail:
Phone #:
Fax #:
Sampler(s) Name(s): Luke Mokrycki
Phone #:

Project Information

Project Name: PHILA REFINERY
Street:
City / State: Philadelphia PA
Project #: AOI-2/4 Soil Sampling
Client Purchase Order #:
Project Manager: Jim Oppenheim

Billing Information (if different from Report to)
Company Name:
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

6010C: LEAD
8260B: BTEX, MTBE, Cumene, EDB, EDC, TMB's
8270C: Anthracene, benzo(a) pyrene, benzo(a) anthracene, benzo(b) fluoranthene, chrysene, fluoranthene, naphthalene, pyrene

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	6010C: LEAD	8260B: BTEX, MTBE, Cumene, EDB, EDC, TMB's	8270C: Anthracene, benzo(a) pyrene, benzo(a) anthracene, benzo(b) fluoranthene, chrysene, fluoranthene, naphthalene, pyrene		LAB USE ONLY
1	BH-13-75_4-6'	8992 / 9748 9749	3-11-13	0900	LM	SO	4					1	2	1		X	X	X		-13
2	BH-13-72_2-4'	8984 / 9774 9775	3-11-13	1000	LM	SO	4					1	2	1		X	X	X		-14
3	BH-13-72_8-10'	8945 / 9762 9810	3-11-13	1030	LM	SO	4					1	2	1		X	X	X		-15
4	BH-13-73_8-10'	9004 / 9778 9779	3-11-13	1230	LM	SO	4					1	2	1		X	X	X		-16
5	AOI5-BH-13-01-1.5-2_031213	6776 / 7916 7917	3-12-13	9:30	ED	SO	5					2	2	1		X	X	X		-17
6	AOI2-BH-13-69-0-1_31213	9002 / 9802 9803	3-12-13	8:15	PT	SO	4					1	2	1		X	X	X		-18
7	AOI2-BH-13-68-1-1.5_31213	8958 / 9015 9033	3-12-13	8:40	PT	SO	4					1	2	1		X	X	X		-19
8	AOI2-BH-13-68-8-9_31213	8916 / 9804 9805	3-12-13	9:20	PT	SO	4					1	2	1		X	X	X		-20
9	AOI2-BH-13-63_4-5_31213	8965 / 9794 9795	3-12-13	10:20	PT	SO	4					1	2	1		X	X	X		21
10	AOI2-BH-13-61_8.5-9_31213	8979 / 9062 9072	3-12-13	11:50	PT	SO	4					1	2	1		X	X	X		22
11	BH-13-53_8-10'	8949 / 9061 9087	3-12-13	12:30	LM	SO	4					1	2	1		X	X	X		23
12	BH-13-79_4-6'	8967 / 9105 9109	3-12-13	9:30	LM	SO	4					1	2	1		X	X	X		24

Turnaround Time (Business days)

- [x] Std. 15 Business Days
- [ ] Std. 10 Business Days (by Contract only)
- [ ] 10 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*

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"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other RED T2

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

Comments / Special Instructions

Rec'd at Exton Service Center
3/12/13

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 Luke Mokrycki	3/11/13 1500	1	2	3/12/13 1905	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. 4.6 oc

CT1

5.1 5

JB31121: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB31121 **Client:** **Project:**

Date / Time Received: 3/12/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (4.6/4.6); 0

Cooler Security	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. COC Present:	☑		☐
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 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:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB31121: Chain of Custody
Page 3 of 3

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31121-1	Collected: 11-MAR-13 08:55 By: PT		Received: 12-MAR-13 By: AS			
AOI2_BH-13-74_2-3_31113						
JB31121-1	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-1	SW846 8260B	20-MAR-13 18:00	TYG			V8260SL
JB31121-1	SW846 6010C	23-MAR-13 05:57	ND	21-MAR-13	NS	PB
JB31121-1	SW846 8270D	26-MAR-13 17:39	OYA	25-MAR-13	LP	B8270SL
JB31121-2	Collected: 11-MAR-13 10:50 By: PT		Received: 12-MAR-13 By: AS			
AOI2_BH-13-70_7-8_31113						
JB31121-2	SW846 8260B	17-MAR-13 02:43	ET			V8260SL
JB31121-2	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-2	SW846 6010C	23-MAR-13 06:03	ND	21-MAR-13	NS	PB
JB31121-2	SW846 8270D	26-MAR-13 12:13	OYA	25-MAR-13	LP	B8270SL
JB31121-3	Collected: 11-MAR-13 11:25 By: PT		Received: 12-MAR-13 By: AS			
AOI2_BH-13-80_0-1_31113						
JB31121-3	SW846 8260B	17-MAR-13 02:13	ET			V8260SL
JB31121-3	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-3	SW846 6010C	23-MAR-13 06:10	ND	21-MAR-13	NS	PB
JB31121-3	SW846 8270D	26-MAR-13 18:25	OYA	25-MAR-13	LP	B8270SL
JB31121-3	SW846 8270D	27-MAR-13 12:25	OYA	25-MAR-13	LP	B8270SL
JB31121-4	Collected: 11-MAR-13 11:35 By: PT		Received: 12-MAR-13 By: AS			
AOI2_BH-13-80_2-3_31113						
JB31121-4	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-4	SW846 6010C	23-MAR-13 06:17	ND	21-MAR-13	NS	PB
JB31121-4	SW846 8260B	23-MAR-13 18:01	ET			V8260SL
JB31121-4	SW846 8270D	26-MAR-13 18:48	OYA	25-MAR-13	LP	B8270SL
JB31121-4	SW846 8270D	27-MAR-13 12:49	OYA	25-MAR-13	LP	B8270SL
JB31121-5	Collected: 11-MAR-13 09:00 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-16_1.5-2_031113						
JB31121-5	SW846 8260B	17-MAR-13 01:14	ET			V8260SL
JB31121-5	ASTM 4643-00	20-MAR-13 12:32	AR			%SOL
JB31121-5	SW846 6010C	23-MAR-13 06:23	ND	21-MAR-13	NS	PB

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31121-5	SW846 8270D	26-MAR-13 19:12	OYA	25-MAR-13	LP	B8270SL
JB31121-6	Collected: 11-MAR-13 09:30 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-16_3.5-4_031113						
JB31121-6	SW846 8260B	19-MAR-13 17:39	ET			V8260SL
JB31121-6	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-6	SW846 6010C	23-MAR-13 06:42	ND	21-MAR-13	NS	PB
JB31121-6	SW846 8270D	26-MAR-13 19:35	OYA	25-MAR-13	LP	B8270SL
JB31121-6	SW846 8270D	27-MAR-13 13:12	OYA	25-MAR-13	LP	B8270SL
JB31121-7	Collected: 11-MAR-13 10:40 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-17_1.5-2_031113						
JB31121-7	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-7	SW846 8260B	20-MAR-13 18:26	TYG			V8260SL
JB31121-7	SW846 6010C	23-MAR-13 06:49	ND	21-MAR-13	NS	PB
JB31121-7	SW846 8270D	26-MAR-13 19:58	OYA	25-MAR-13	LP	B8270SL
JB31121-8	Collected: 11-MAR-13 11:00 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-17_5-5.5_031113						
JB31121-8	SM2540 G-97	20-MAR-13 14:40	PD			%SOL
JB31121-8	SW846 8260B	20-MAR-13 18:53	TYG			V8260SL
JB31121-8	SW846 6010C	23-MAR-13 06:55	ND	21-MAR-13	NS	PB
JB31121-8	SW846 8270D	26-MAR-13 20:21	OYA	25-MAR-13	LP	B8270SL
JB31121-9	Collected: 11-MAR-13 13:30 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-15_1.5-2_031113						
JB31121-9	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-9	SW846 8260B	20-MAR-13 19:20	TYG			V8260SL
JB31121-9	SW846 6010C	23-MAR-13 05:44	ND	21-MAR-13	NS	PB
JB31121-9	SW846 8270D	26-MAR-13 18:02	OYA	25-MAR-13	LP	B8270SL
JB31121-10	Collected: 11-MAR-13 14:00 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-15_4.5-5_031113						
JB31121-10	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-10	SW846 8260B	20-MAR-13 19:46	TYG			V8260SL

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31121-10	SW846 6010C	23-MAR-13 07:01	ND	21-MAR-13	NS	PB
JB31121-10	SW846 8270D	26-MAR-13 12:36	OYA	25-MAR-13	LP	B8270SL
JB31121-11	Collected: 11-MAR-13 16:00 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-08_1.5-2_031113						
JB31121-11	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-11	SW846 8260B	20-MAR-13 20:13	TYG			V8260SL
JB31121-11	SW846 6010C	23-MAR-13 07:08	ND	21-MAR-13	NS	PB
JB31121-11	SW846 8270D	26-MAR-13 13:00	OYA	25-MAR-13	LP	B8270SL
JB31121-12	Collected: 11-MAR-13 16:20 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-08_3.5-4_031113						
JB31121-12	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-12	SW846 8260B	20-MAR-13 20:39	TYG			V8260SL
JB31121-12	SW846 6010C	23-MAR-13 07:15	ND	21-MAR-13	NS	PB
JB31121-12	SW846 8270D	26-MAR-13 13:23	OYA	25-MAR-13	LP	B8270SL
JB31121-13	Collected: 11-MAR-13 09:00 By: PT		Received: 12-MAR-13 By: AS			
BH-13-75_4-6'						
JB31121-13	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-13	SW846 8260B	20-MAR-13 21:06	TYG			V8260SL
JB31121-13	SW846 6010C	23-MAR-13 07:21	ND	21-MAR-13	NS	PB
JB31121-13	SW846 8270D	26-MAR-13 13:47	OYA	25-MAR-13	LP	B8270SL
JB31121-14	Collected: 11-MAR-13 10:00 By: PT		Received: 12-MAR-13 By: AS			
BH-13-72_2-4'						
JB31121-14	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-14	SW846 8260B	20-MAR-13 21:32	TYG			V8260SL
JB31121-14	SW846 6010C	23-MAR-13 07:27	ND	21-MAR-13	NS	PB
JB31121-14	SW846 8270D	26-MAR-13 14:56	OYA	25-MAR-13	LP	B8270SL
JB31121-14	SW846 8270D	04-APR-13 11:13	OYA	27-MAR-13	KS	B8270SL
JB31121-15	Collected: 11-MAR-13 10:30 By: PT		Received: 12-MAR-13 By: AS			
BH-13-72_8-10'						
JB31121-15	SM2540 G-97	20-MAR-13 04:10	PD			%SOL

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31121-15	SW846 8260B	21-MAR-13 14:27	TYG			V8260SL
JB31121-15	SW846 6010C	23-MAR-13 07:34	ND	21-MAR-13	NS	PB
JB31121-15	SW846 8270D	26-MAR-13 15:20	OYA	25-MAR-13	LP	B8270SL
JB31121-15	SW846 8270D	28-MAR-13 20:47	OYA	28-MAR-13	TM	B8270SL
JB31121-16	Collected: 11-MAR-13 12:30 By: PT		Received: 12-MAR-13 By: AS			
BH-13-73_8-10'						
JB31121-16	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-16	SW846 8260B	21-MAR-13 14:53	TYG			V8260SL
JB31121-16	SW846 6010C	23-MAR-13 07:40	ND	21-MAR-13	NS	PB
JB31121-16	SW846 8270D	26-MAR-13 15:43	OYA	25-MAR-13	LP	B8270SL
JB31121-16	SW846 8270D	29-MAR-13 13:28	OYA	28-MAR-13	TM	B8270SL
JB31121-17	Collected: 12-MAR-13 09:30 By: PT		Received: 12-MAR-13 By: AS			
AOI5_BH-13-01_1.5-2_031213						
JB31121-17	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-17	SW846 8260B	21-MAR-13 15:20	TYG			V8260SL
JB31121-17	SW846 6010C	23-MAR-13 07:59	ND	21-MAR-13	NS	PB
JB31121-17	SW846 8270D	26-MAR-13 20:45	OYA	25-MAR-13	LP	B8270SL
JB31121-18	Collected: 12-MAR-13 08:15 By: PT		Received: 12-MAR-13 By: AS			
AOI2_BH-13-69_0-1_31213						
JB31121-18	SW846 8260B	19-MAR-13 07:36	ET			V8260SL
JB31121-18	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-18	SW846 6010C	23-MAR-13 08:06	ND	21-MAR-13	NS	PB
JB31121-18	SW846 8270D	26-MAR-13 21:08	OYA	25-MAR-13	LP	B8270SL
JB31121-19	Collected: 12-MAR-13 08:40 By: PT		Received: 12-MAR-13 By: AS			
AOI2_BH-13-68_1-1.5_31213						
JB31121-19	SW846 8260B	19-MAR-13 18:55	MS			V8260SL
JB31121-19	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-19	SW846 6010C	23-MAR-13 08:12	ND	21-MAR-13	NS	PB
JB31121-19	SW846 8270D	26-MAR-13 16:06	OYA	25-MAR-13	LP	B8270SL

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31121-20 Collected: 12-MAR-13 09:20 By: PT Received: 12-MAR-13 By: AS AOI2_BH-13-68_8-9_31213						
JB31121-20	SW846 8260B	19-MAR-13 08:05	ET			V8260SL
JB31121-20	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-20	SW846 6010C	23-MAR-13 08:19	ND	21-MAR-13	NS	PB
JB31121-20	SW846 8270D	26-MAR-13 16:29	OYA	25-MAR-13	LP	B8270SL
JB31121-21 Collected: 12-MAR-13 10:20 By: PT Received: 12-MAR-13 By: AS AOI2_BH-13-63_4-5_31213						
JB31121-21	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-21	SW846 6010C	21-MAR-13 19:20	ND	21-MAR-13	NS	PB
JB31121-21	SW846 8260B	23-MAR-13 17:31	ET			V8260SL
JB31121-21	SW846 8270D	26-MAR-13 23:38	AD	21-MAR-13	MP	B8270SL
JB31121-21	SW846 8270D	04-APR-13 17:17	ALS	21-MAR-13	MP	B8270SL
JB31121-22 Collected: 12-MAR-13 11:50 By: PT Received: 12-MAR-13 By: AS AOI2_BH-13-61_8.5-9_31213						
JB31121-22	SW846 8260B	19-MAR-13 15:29	MS			V8260SL
JB31121-22	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-22	SW846 6010C	21-MAR-13 19:25	ND	21-MAR-13	NS	PB
JB31121-22	SW846 8270D	27-MAR-13 00:01	AD	21-MAR-13	MP	B8270SL
JB31121-23 Collected: 12-MAR-13 12:30 By: PT Received: 12-MAR-13 By: AS BH-13-53_8-10'						
JB31121-23	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-23	SW846 6010C	21-MAR-13 19:31	ND	21-MAR-13	NS	PB
JB31121-23	SW846 8260B	22-MAR-13 17:33	ET			V8260SL
JB31121-23	SW846 8270D	27-MAR-13 00:24	AD	21-MAR-13	MP	B8270SL
JB31121-24 Collected: 12-MAR-13 09:30 By: PT Received: 12-MAR-13 By: AS BH-13-79_4-6'						
JB31121-24	SM2540 G-97	20-MAR-13 04:10	PD			%SOL
JB31121-24	SW846 6010C	21-MAR-13 19:37	ND	21-MAR-13	NS	PB
JB31121-24	SW846 8260B	23-MAR-13 18:30	ET			V8260SL

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB31121

Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Project No: AOI-2/4 Sampling

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB31121-24	SW846 8270D	27-MAR-13 00:47	AD	21-MAR-13	MP	B8270SL

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-1.1	Secured Storage	Dave Hunkele	03/13/13 14:47	Retrieve from Storage
JB31121-1.1	Dave Hunkele	Secured Staging Area	03/13/13 14:47	Return to Storage
JB31121-1.1	Secured Staging Area	Matt Del Ciello	03/13/13 16:00	Retrieve from Storage
JB31121-1.1	Matt Del Ciello	Secured Storage	03/13/13 19:24	Return to Storage
JB31121-1.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-1.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-1.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-1.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-1.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-1.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-1.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-1.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-1.1
JB31121-1.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-1.1
JB31121-1.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-1.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-1.1
JB31121-1.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-1.1
JB31121-1.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-1.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-1.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-1.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-1.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-1.3	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-1.3	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-1.3	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-1.3	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-1.4	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-1.4	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-1.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-1.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-2.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-2.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-2.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-2.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-2.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-2.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-2.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-2.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-2.1
JB31121-2.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-2.1

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-2.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-2.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-2.1
JB31121-2.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-2.1
JB31121-2.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-2.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-2.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-2.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-2.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-2.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-2.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-3.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-3.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-3.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-3.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-3.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-3.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-3.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-3.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-3.1
JB31121-3.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-3.1
JB31121-3.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-3.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-3.1
JB31121-3.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-3.1
JB31121-3.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-3.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-3.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-3.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-3.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-3.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-3.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-4.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-4.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-4.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-4.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-4.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-4.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-4.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-4.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-4.1
JB31121-4.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-4.1
JB31121-4.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-4.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-4.1
JB31121-4.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-4.1
JB31121-4.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-4.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-4.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-4.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-4.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-4.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-4.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-4.2	Secured Storage	Emily Tran	03/18/13 11:04	Retrieve from Storage
JB31121-4.2	Emily Tran	Secured Storage	03/19/13 09:53	Return to Storage
JB31121-5.1	Secured Storage	Adam Scott	03/20/13 11:54	Retrieve from Storage
JB31121-5.1	Adam Scott	Secured Staging Area	03/20/13 11:55	Return to Storage
JB31121-5.1	Secured Staging Area	Arayna Ramkelawan	03/20/13 11:59	Retrieve from Storage
JB31121-5.1	Arayna Ramkelawan	Secured Storage	03/20/13 14:50	Return to Storage
JB31121-5.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-5.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-5.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-5.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-5.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-5.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-5.1
JB31121-5.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-5.1
JB31121-5.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-5.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-5.1
JB31121-5.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-5.1
JB31121-5.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-5.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-5.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-5.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-5.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-5.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-5.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-5.3	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-5.3	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-6.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-6.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-6.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-6.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-6.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-6.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-6.1
JB31121-6.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-6.1
JB31121-6.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-6.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-6.1
JB31121-6.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-6.1
JB31121-6.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-6.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-6.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-6.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-6.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-6.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-6.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-6.3	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-6.3	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-6.3	Secured Storage	Emily Tran	03/19/13 11:56	Retrieve from Storage
JB31121-6.3	Emily Tran	Secured Storage	03/19/13 16:33	Return to Storage
JB31121-7.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-7.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-7.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-7.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-7.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-7.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-7.1
JB31121-7.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-7.1
JB31121-7.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-7.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-7.1
JB31121-7.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-7.1
JB31121-7.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-7.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-7.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-7.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-7.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-7.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-7.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-7.4	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-7.4	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-7.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-7.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-7.5	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-7.5	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-7.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-7.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-8.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-8.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-8.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-8.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-8.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-8.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-8.1
JB31121-8.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-8.1
JB31121-8.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-8.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-8.1
JB31121-8.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-8.1
JB31121-8.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-8.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-8.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-8.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-8.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-8.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-8.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-8.4	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-8.4	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-8.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-8.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-8.5	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-8.5	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-8.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-8.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-9.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-9.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-9.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-9.1	Secured Storage	Thomas Saddler	03/25/13 13:03	Retrieve from Storage
JB31121-9.1	Thomas Saddler	Secured Storage	03/25/13 13:27	Return to Storage
JB31121-9.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-9.1
JB31121-9.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-9.1
JB31121-9.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-9.1.2	Thomas Saddler	Organics Prep	03/25/13 13:10	Extract from JB31121-9.1
JB31121-9.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-9.1
JB31121-9.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-9.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-9.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-9.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-9.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-9.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-9.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-9.4	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-9.4	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-9.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-9.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-9.5	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-9.5	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-9.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-9.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-10.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-10.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-10.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-10.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-10.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-10.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-10.1
JB31121-10.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-10.1
JB31121-10.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-10.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-10.1
JB31121-10.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-10.1

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-10.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-10.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-10.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-10.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-10.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-10.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-10.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-10.4	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-10.4	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-10.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-10.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-10.5	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-10.5	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-10.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-10.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-11.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-11.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-11.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-11.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-11.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-11.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-11.1
JB31121-11.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-11.1
JB31121-11.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-11.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-11.1
JB31121-11.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-11.1
JB31121-11.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-11.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-11.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-11.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-11.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-11.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-11.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-11.4	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-11.4	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-11.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-11.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-11.5	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-11.5	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-11.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-11.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-12.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-12.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-12.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-12.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-12.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-12.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-12.1
JB31121-12.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-12.1
JB31121-12.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-12.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-12.1
JB31121-12.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-12.1
JB31121-12.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-12.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-12.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-12.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-12.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-12.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-12.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-12.4	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-12.4	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-12.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-12.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-12.5	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-12.5	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-12.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-12.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-13.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-13.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-13.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-13.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-13.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-13.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-13.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-13.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-13.1
JB31121-13.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-13.1
JB31121-13.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-13.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-13.1
JB31121-13.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-13.1
JB31121-13.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-13.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-13.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-13.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-13.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-13.3	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-13.3	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-13.3	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-13.3	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-13.4	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-13.4	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-13.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-13.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-14.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-14.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-14.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-14.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-14.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-14.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-14.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-14.1	Secured Storage	Nick Popow	03/27/13 08:43	Retrieve from Storage
JB31121-14.1	Nick Popow	Secured Staging Area	03/27/13 08:44	Return to Storage
JB31121-14.1	Secured Staging Area	Khusbu Shah	03/27/13 08:57	Retrieve from Storage
JB31121-14.1	Khusbu Shah	Secured Storage	03/27/13 11:00	Return to Storage
JB31121-14.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-14.1
JB31121-14.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-14.1
JB31121-14.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-14.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-14.1
JB31121-14.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-14.1
JB31121-14.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-14.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-14.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-14.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-14.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-14.1.3	Khusbu Shah	Organics Prep	03/27/13 08:58	Extract from JB31121-14.1
JB31121-14.1.3	Organics Prep	Khusbu Shah	03/27/13 15:53	Extract from JB31121-14.1
JB31121-14.1.3	Khusbu Shah	Extract Storage	03/27/13 15:53	Return to Storage
JB31121-14.1.3	Extract Storage	Olga Azarihn	04/04/13 13:28	Retrieve from Storage
JB31121-14.1.3	Olga Azarihn	GCMSM	04/04/13 13:28	Load on Instrument
JB31121-14.1.3	GCMSM	Nina Pandya	04/07/13 11:26	Unload from Instrument
JB31121-14.1.3	Nina Pandya	Extract Freezer	04/07/13 11:26	Return to Storage
JB31121-14.3	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-14.3	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-14.3	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-14.3	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-14.4	Secured Storage	Tamika Yvonne Ginn	03/20/13 16:49	Retrieve from Storage
JB31121-14.4	Tamika Yvonne Ginn	GCMSC	03/20/13 16:49	Load on Instrument
JB31121-14.4	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-14.4	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-15.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-15.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-15.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-15.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-15.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-15.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-15.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-15.1	Secured Storage	Tin Marlar	03/28/13 07:40	Retrieve from Storage
JB31121-15.1	Tin Marlar	Secured Storage	03/28/13 11:36	Return to Storage
JB31121-15.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-15.1
JB31121-15.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-15.1
JB31121-15.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-15.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-15.1
JB31121-15.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-15.1
JB31121-15.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-15.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-15.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-15.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-15.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-15.1.3	Tin Marlar	Organics Prep	03/28/13 07:43	Extract from JB31121-15.1

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-15.1.3	Organics Prep	Tin Marlar	03/28/13 15:05	Extract from JB31121-15.1
JB31121-15.1.3	Tin Marlar	Extract Storage	03/28/13 15:05	Return to Storage
JB31121-15.1.3	Extract Storage	Olga Azarihn	03/28/13 17:26	Retrieve from Storage
JB31121-15.1.3	Olga Azarihn	GCMS2M	03/28/13 17:26	Load on Instrument
JB31121-15.1.3	GCMS2M	Olga Azarihn	04/03/13 09:54	Unload from Instrument
JB31121-15.1.3	Olga Azarihn	Extract Freezer	04/03/13 09:54	Return to Storage
JB31121-15.1.4	Tin Marlar	Organics Prep	03/28/13 07:43	Extract from JB31121-15.1
JB31121-15.1.4	Organics Prep	Tin Marlar	03/28/13 15:05	Extract from JB31121-15.1
JB31121-15.1.4	Tin Marlar	Extract Storage	03/28/13 15:05	Return to Storage
JB31121-15.1.4	Extract Storage	Olga Azarihn	03/28/13 17:26	Retrieve from Storage
JB31121-15.1.4	Olga Azarihn	GCMS2M	03/28/13 17:26	Load on Instrument
JB31121-15.1.4	GCMS2M	Olga Azarihn	04/03/13 09:54	Unload from Instrument
JB31121-15.1.4	Olga Azarihn	Extract Freezer	04/03/13 09:54	Return to Storage
JB31121-15.3	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-15.3	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-15.3	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-15.3	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-16.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-16.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-16.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-16.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-16.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-16.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-16.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-16.1	Secured Storage	Tin Marlar	03/28/13 07:40	Retrieve from Storage
JB31121-16.1	Tin Marlar	Secured Storage	03/28/13 11:36	Return to Storage
JB31121-16.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-16.1
JB31121-16.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-16.1
JB31121-16.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-16.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-16.1
JB31121-16.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-16.1
JB31121-16.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-16.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-16.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-16.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-16.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-16.1.3	Tin Marlar	Organics Prep	03/28/13 07:43	Extract from JB31121-16.1
JB31121-16.1.3	Organics Prep	Tin Marlar	03/28/13 15:05	Extract from JB31121-16.1

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-16.1.3	Tin Marlar	Extract Storage	03/28/13 15:05	Return to Storage
JB31121-16.1.3	Extract Storage	Olga Azarihn	03/28/13 17:26	Retrieve from Storage
JB31121-16.1.3	Olga Azarihn	GCMS2M	03/28/13 17:26	Load on Instrument
JB31121-16.1.3	GCMS2M	Olga Azarihn	04/03/13 09:54	Unload from Instrument
JB31121-16.1.3	Olga Azarihn	Extract Freezer	04/03/13 09:54	Return to Storage
JB31121-16.1.4	Tin Marlar	Organics Prep	03/28/13 07:43	Extract from JB31121-16.1
JB31121-16.1.4	Organics Prep	Tin Marlar	03/28/13 15:05	Extract from JB31121-16.1
JB31121-16.1.4	Tin Marlar	Extract Storage	03/28/13 15:05	Return to Storage
JB31121-16.1.4	Extract Storage	Olga Azarihn	03/28/13 17:26	Retrieve from Storage
JB31121-16.1.4	Olga Azarihn	GCMS2M	03/28/13 17:26	Load on Instrument
JB31121-16.1.4	GCMS2M	Olga Azarihn	04/03/13 09:54	Unload from Instrument
JB31121-16.1.4	Olga Azarihn	Extract Freezer	04/03/13 09:54	Return to Storage
JB31121-16.3	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-16.3	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-16.3	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-16.3	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage
JB31121-17.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-17.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-17.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-17.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-17.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-17.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-17.1
JB31121-17.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-17.1
JB31121-17.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-17.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-17.1
JB31121-17.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-17.1
JB31121-17.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-17.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-17.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-17.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-17.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-17.2	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-17.2	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-17.5	Secured Storage	Tamika Yvonne Ginn	03/15/13 17:27	Retrieve from Storage
JB31121-17.5	Tamika Yvonne Ginn	GCMSC	03/15/13 17:27	Load on Instrument
JB31121-17.5	GCMSC	Tamika Yvonne Ginn	03/28/13 11:44	Unload from Instrument
JB31121-17.5	Tamika Yvonne Ginn	Secured Storage	03/28/13 11:44	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-18.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-18.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-18.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-18.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-18.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-18.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-18.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-18.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-18.1
JB31121-18.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-18.1
JB31121-18.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-18.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-18.1
JB31121-18.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-18.1
JB31121-18.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-18.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-18.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-18.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-18.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-18.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-18.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-19.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-19.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-19.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-19.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-19.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-19.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-19.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-19.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-19.1
JB31121-19.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-19.1
JB31121-19.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-19.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-19.1
JB31121-19.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-19.1
JB31121-19.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-19.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-19.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-19.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-19.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-19.3	Secured Storage	Margaret Starzec	03/19/13 16:51	Retrieve from Storage
JB31121-19.3	Margaret Starzec	GCMSX	03/19/13 16:51	Load on Instrument
JB31121-19.3	GCMSX	Margaret Starzec	03/20/13 09:20	Unload from Instrument
JB31121-19.3	Margaret Starzec	Secured Storage	03/20/13 09:20	Return to Storage
JB31121-19.4	Secured Storage	Margaret Starzec	03/19/13 17:20	Retrieve from Storage
JB31121-19.4	Margaret Starzec	GCMSX	03/19/13 17:20	Load on Instrument
JB31121-19.4	GCMSX	Margaret Starzec	03/20/13 09:20	Unload from Instrument
JB31121-19.4	Margaret Starzec	Secured Storage	03/20/13 09:20	Return to Storage
JB31121-20.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-20.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-20.1	Secured Storage	Nida Saleem	03/21/13 08:27	Retrieve from Storage
JB31121-20.1	Nida Saleem	Michael Bunza	03/21/13 16:04	Custody Transfer
JB31121-20.1	Michael Bunza	Secured Storage	03/21/13 18:20	Return to Storage
JB31121-20.1	Secured Storage	Richa Patel	03/25/13 09:29	Retrieve from Storage
JB31121-20.1	Richa Patel	Secured Storage	03/25/13 15:48	Return to Storage
JB31121-20.1.1	Michael Bunza	Metals Digestion	03/21/13 18:16	Digestate from JB31121-20.1
JB31121-20.1.1	Metals Digestion	Michael Bunza	03/21/13 18:16	Digestate from JB31121-20.1
JB31121-20.1.1	Michael Bunza	Metals Digestate Storage	03/21/13 18:16	Return to Storage
JB31121-20.1.2	Richa Patel	Organics Prep	03/25/13 09:44	Extract from JB31121-20.1
JB31121-20.1.2	Organics Prep	Olga Azarihn	03/26/13 11:40	Extract from JB31121-20.1
JB31121-20.1.2	Olga Azarihn	Extract Storage	03/26/13 11:40	Return to Storage
JB31121-20.1.2	Extract Storage	Olga Azarihn	03/26/13 11:40	Retrieve from Storage
JB31121-20.1.2	Olga Azarihn	GCMS3E	03/26/13 11:40	Load on Instrument
JB31121-20.1.2	GCMS3E	Olga Azarihn	03/27/13 09:28	Unload from Instrument
JB31121-20.1.2	Olga Azarihn	Extract Freezer	03/27/13 09:28	Return to Storage
JB31121-20.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-20.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-20.2	Secured Storage	Emily Tran	03/21/13 11:03	Retrieve from Storage
JB31121-20.2	Emily Tran	Secured Storage	03/21/13 15:53	Return to Storage
JB31121-21.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-21.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-21.1	Secured Storage	Khusbu Shah	03/21/13 08:16	Retrieve from Storage
JB31121-21.1	Khusbu Shah	Secured Storage	03/21/13 14:27	Return to Storage
JB31121-21.1.1	Khusbu Shah	Organics Prep	03/21/13 08:20	Extract from JB31121-21.1
JB31121-21.1.1	Organics Prep	Khusbu Shah	03/21/13 17:02	Extract from JB31121-21.1
JB31121-21.1.1	Khusbu Shah	Extract Storage	03/21/13 17:02	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-21.1.2	Khusbu Shah	Nida Saleem	03/21/13 09:02	Aliquot from JB31121-21.1
JB31121-21.1.2	Wei Zhou		03/22/13 08:06	Depleted
Aliquots depleted.				
JB31121-21.1.3	Nida Saleem	Metals Digestion	03/21/13 11:14	Digestate from JB31121-21.1.2
JB31121-21.1.3	Metals Digestion	Nida Saleem	03/21/13 11:14	Digestate from JB31121-21.1.2
JB31121-21.1.3	Nida Saleem	Metals Digestate Storage	03/21/13 11:14	Return to Storage
JB31121-21.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-21.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-21.2	Secured Storage	Emily Tran	03/22/13 15:26	Retrieve from Storage
JB31121-21.2	Emily Tran	Secured Storage	03/22/13 16:19	Return to Storage
JB31121-22.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-22.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-22.1	Secured Storage	Khusbu Shah	03/21/13 08:16	Retrieve from Storage
JB31121-22.1	Khusbu Shah	Secured Storage	03/21/13 14:27	Return to Storage
JB31121-22.1.1	Khusbu Shah	Organics Prep	03/21/13 08:20	Extract from JB31121-22.1
JB31121-22.1.1	Organics Prep	Khusbu Shah	03/21/13 17:02	Extract from JB31121-22.1
JB31121-22.1.1	Khusbu Shah	Extract Storage	03/21/13 17:02	Return to Storage
JB31121-22.1.2	Khusbu Shah	Nida Saleem	03/21/13 09:02	Aliquot from JB31121-22.1
JB31121-22.1.2	Wei Zhou		03/22/13 08:06	Depleted
Aliquots depleted.				
JB31121-22.1.3	Nida Saleem	Metals Digestion	03/21/13 11:14	Digestate from JB31121-22.1.2
JB31121-22.1.3	Metals Digestion	Nida Saleem	03/21/13 11:14	Digestate from JB31121-22.1.2
JB31121-22.1.3	Nida Saleem	Metals Digestate Storage	03/21/13 11:14	Return to Storage
JB31121-22.3	Secured Storage	Margaret Starzec	03/19/13 17:20	Retrieve from Storage
JB31121-22.3	Margaret Starzec	GCMSX	03/19/13 17:20	Load on Instrument
JB31121-22.3	GCMSX	Margaret Starzec	03/20/13 09:20	Unload from Instrument
JB31121-22.3	Margaret Starzec	Secured Storage	03/20/13 09:20	Return to Storage
JB31121-22.4	Secured Storage	Margaret Starzec	03/19/13 14:42	Retrieve from Storage
JB31121-22.4	Margaret Starzec	GCMSX	03/19/13 14:42	Load on Instrument
JB31121-22.4	GCMSX	Margaret Starzec	03/20/13 09:20	Unload from Instrument
JB31121-22.4	Margaret Starzec	Secured Storage	03/20/13 09:20	Return to Storage
JB31121-23.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-23.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-23.1	Secured Storage	Khusbu Shah	03/21/13 08:16	Retrieve from Storage
JB31121-23.1	Khusbu Shah	Secured Storage	03/21/13 14:27	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA
Received: 03/12/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB31121-23.1.1	Khusbu Shah	Organics Prep	03/21/13 08:20	Extract from JB31121-23.1
JB31121-23.1.1	Organics Prep	Khusbu Shah	03/21/13 17:02	Extract from JB31121-23.1
JB31121-23.1.1	Khusbu Shah	Extract Storage	03/21/13 17:02	Return to Storage
JB31121-23.1.2	Khusbu Shah	Nida Saleem	03/21/13 09:02	Aliquot from JB31121-23.1
JB31121-23.1.2	Wei Zhou		03/22/13 08:06	Depleted
Aliquots depleted.				
JB31121-23.1.3	Nida Saleem	Metals Digestion	03/21/13 11:14	Digestate from JB31121-23.1.2
JB31121-23.1.3	Metals Digestion	Nida Saleem	03/21/13 11:14	Digestate from JB31121-23.1.2
JB31121-23.1.3	Nida Saleem	Metals Digestate Storage	03/21/13 11:14	Return to Storage
JB31121-23.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-23.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-23.2	Secured Storage	Emily Tran	03/21/13 11:03	Retrieve from Storage
JB31121-23.2	Emily Tran	Secured Storage	03/21/13 15:53	Return to Storage
JB31121-24.1	Secured Storage	Pratik Doshi	03/20/13 11:47	Retrieve from Storage
JB31121-24.1	Pratik Doshi	Secured Storage	03/20/13 15:05	Return to Storage
JB31121-24.1	Secured Storage	Khusbu Shah	03/21/13 08:16	Retrieve from Storage
JB31121-24.1	Khusbu Shah	Secured Storage	03/21/13 14:27	Return to Storage
JB31121-24.1.1	Khusbu Shah	Organics Prep	03/21/13 08:20	Extract from JB31121-24.1
JB31121-24.1.1	Organics Prep	Khusbu Shah	03/21/13 17:02	Extract from JB31121-24.1
JB31121-24.1.1	Khusbu Shah	Extract Storage	03/21/13 17:02	Return to Storage
JB31121-24.1.2	Khusbu Shah	Nida Saleem	03/21/13 09:02	Aliquot from JB31121-24.1
JB31121-24.1.2	Wei Zhou		03/22/13 08:06	Depleted
Aliquots depleted.				
JB31121-24.1.3	Nida Saleem	Metals Digestion	03/21/13 11:14	Digestate from JB31121-24.1.2
JB31121-24.1.3	Metals Digestion	Nida Saleem	03/21/13 11:14	Digestate from JB31121-24.1.2
JB31121-24.1.3	Nida Saleem	Metals Digestate Storage	03/21/13 11:14	Return to Storage
JB31121-24.2	Secured Storage	Emily Tran	03/15/13 14:29	Retrieve from Storage
JB31121-24.2	Emily Tran	Secured Storage	03/15/13 15:16	Return to Storage
JB31121-24.2	Secured Storage	Emily Tran	03/21/13 11:03	Retrieve from Storage
JB31121-24.2	Emily Tran	Secured Storage	03/21/13 15:53	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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8429-MB	D206604.D	1	03/16/13	ET	n/a	n/a	VD8429

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

JB31121-2, JB31121-3, JB31121-5

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	103%	70-122%
2037-26-5	Toluene-D8	104%	81-127%
460-00-4	4-Bromofluorobenzene	94%	66-132%

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

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8431-MB	D206656.D	1	03/18/13	ET	n/a	n/a	VD8431

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

JB31121-18, JB31121-20

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	100%	70-122%
2037-26-5	Toluene-D8	104%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8432-MB	D206677.D	1	03/19/13	ET	n/a	n/a	VD8432

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

JB31121-6

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	98%	70-122%
2037-26-5	Toluene-D8	101%	81-127%
460-00-4	4-Bromofluorobenzene	90%	66-132%

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

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX5806-MB	X134007.D	1	03/19/13	MS	n/a	n/a	VX5806

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

JB31121-19, JB31121-22

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	103%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	70-122%
2037-26-5	Toluene-D8	108%	81-127%
460-00-4	4-Bromofluorobenzene	104%	66-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
124-38-9	Carbon dioxide	3.22	260	ug/kg	JN
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC6461-MB	C180169.D	1	03/20/13	TYG	n/a	n/a	VC6461

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

JB31121-1, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	95%	70-130%
17060-07-0	1,2-Dichloroethane-D4	95%	70-122%
2037-26-5	Toluene-D8	97%	81-127%
460-00-4	4-Bromofluorobenzene	97%	66-132%

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

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC6461-MB2	C180197.D	1	03/21/13	TYG	n/a	n/a	VC6461

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

JB31121-15, JB31121-16, JB31121-17

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	88%	70-122%
2037-26-5	Toluene-D8	96%	81-127%
460-00-4	4-Bromofluorobenzene	99%	66-132%

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

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8438-MB	D206822.D	1	03/22/13	ET	n/a	n/a	VD8438

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

JB31121-23

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	95%	70-130%
17060-07-0	1,2-Dichloroethane-D4	105%	70-122%
2037-26-5	Toluene-D8	98%	81-127%
460-00-4	4-Bromofluorobenzene	96%	66-132%

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

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8440-MB	D206867.D	1	03/23/13	ET	n/a	n/a	VD8440

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

JB31121-4, JB31121-21, JB31121-24

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
98-82-8	Isopropylbenzene	ND	250	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	101%	70-122%
2037-26-5	Toluene-D8	103%	81-127%
460-00-4	4-Bromofluorobenzene	112%	66-132%

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

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8429-BS	D206605.D	1	03/16/13	ET	n/a	n/a	VD8429

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

JB31121-2, JB31121-3, JB31121-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2570	103	76-117
106-93-4	1,2-Dibromoethane	2500	2600	104	77-122
107-06-2	1,2-Dichloroethane	2500	2860	114	68-134
100-41-4	Ethylbenzene	2500	2540	102	74-119
98-82-8	Isopropylbenzene	2500	2480	99	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	5170	104	72-124
108-88-3	Toluene	2500	2620	105	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2360	94	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2310	92	69-118
1330-20-7	Xylene (total)	7500	7480	100	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	101%	70-122%
2037-26-5	Toluene-D8	103%	81-127%
460-00-4	4-Bromofluorobenzene	90%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8431-BS	D206657.D	1	03/19/13	ET	n/a	n/a	VD8431

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

JB31121-18, JB31121-20

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2550	102	76-117
106-93-4	1,2-Dibromoethane	2500	2610	104	77-122
107-06-2	1,2-Dichloroethane	2500	2790	112	68-134
100-41-4	Ethylbenzene	2500	2510	100	74-119
98-82-8	Isopropylbenzene	2500	2530	101	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	5040	101	72-124
108-88-3	Toluene	2500	2590	104	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2390	96	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2350	94	69-118
1330-20-7	Xylene (total)	7500	7350	98	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	98%	70-122%
2037-26-5	Toluene-D8	102%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8432-BS	D206678.D	1	03/19/13	ET	n/a	n/a	VD8432

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

JB31121-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2380	95	76-117
106-93-4	1,2-Dibromoethane	2500	2490	100	77-122
107-06-2	1,2-Dichloroethane	2500	2700	108	68-134
100-41-4	Ethylbenzene	2500	2400	96	74-119
98-82-8	Isopropylbenzene	2500	2420	97	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	4730	94	72-124
108-88-3	Toluene	2500	2390	96	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2280	91	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2240	90	69-118
1330-20-7	Xylene (total)	7500	7110	95	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	92%	70-130%
17060-07-0	1,2-Dichloroethane-D4	99%	70-122%
2037-26-5	Toluene-D8	100%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX5806-BS	X134008.D	1	03/19/13	MS	n/a	n/a	VX5806

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

JB31121-19, JB31121-22

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	44.5	89	76-117
106-93-4	1,2-Dibromoethane	50	47.4	95	77-122
107-06-2	1,2-Dichloroethane	50	44.7	89	68-134
100-41-4	Ethylbenzene	50	42.6	85	74-119
98-82-8	Isopropylbenzene	50	43.7	87	71-119
1634-04-4	Methyl Tert Butyl Ether	100	94.6	95	72-124
108-88-3	Toluene	50	45.2	90	77-121
95-63-6	1,2,4-Trimethylbenzene	50	43.7	87	72-118
108-67-8	1,3,5-Trimethylbenzene	50	43.0	86	69-118
1330-20-7	Xylene (total)	150	136	91	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	70-130%
17060-07-0	1,2-Dichloroethane-D4	94%	70-122%
2037-26-5	Toluene-D8	110%	81-127%
460-00-4	4-Bromofluorobenzene	96%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC6461-BS	C180170.D	1	03/20/13	TYG	n/a	n/a	VC6461

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

JB31121-1, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	50.4	101	76-117
106-93-4	1,2-Dibromoethane	50	46.6	93	77-122
107-06-2	1,2-Dichloroethane	50	50.5	101	68-134
100-41-4	Ethylbenzene	50	48.7	97	74-119
98-82-8	Isopropylbenzene	50	51.1	102	71-119
1634-04-4	Methyl Tert Butyl Ether	50	109	109	72-124
108-88-3	Toluene	50	49.6	99	77-121
95-63-6	1,2,4-Trimethylbenzene	50	50.8	102	72-118
108-67-8	1,3,5-Trimethylbenzene	50	49.5	99	69-118
1330-20-7	Xylene (total)	150	158	105	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	93%	70-122%
2037-26-5	Toluene-D8	98%	81-127%
460-00-4	4-Bromofluorobenzene	95%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC6461-BS2	C180198.D	1	03/21/13	TYG	n/a	n/a	VC6461

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

JB31121-15, JB31121-16, JB31121-17

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	42.9	86	76-117
106-93-4	1,2-Dibromoethane	50	40.9	82	77-122
107-06-2	1,2-Dichloroethane	50	43.9	88	68-134
100-41-4	Ethylbenzene	50	41.4	83	74-119
98-82-8	Isopropylbenzene	50	44.1	88	71-119
1634-04-4	Methyl Tert Butyl Ether	100	112	112	72-124
108-88-3	Toluene	50	42.1	84	77-121
95-63-6	1,2,4-Trimethylbenzene	50	44.1	88	72-118
108-67-8	1,3,5-Trimethylbenzene	50	42.4	85	69-118
1330-20-7	Xylene (total)	150	134	89	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	70-130%
17060-07-0	1,2-Dichloroethane-D4	96%	70-122%
2037-26-5	Toluene-D8	97%	81-127%
460-00-4	4-Bromofluorobenzene	94%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8438-BS	D206823.D	1	03/22/13	ET	n/a	n/a	VD8438

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

JB31121-23

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2680	107	76-117
106-93-4	1,2-Dibromoethane	2500	2650	106	77-122
107-06-2	1,2-Dichloroethane	2500	2700	108	68-134
100-41-4	Ethylbenzene	2500	2630	105	74-119
98-82-8	Isopropylbenzene	2500	2690	108	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	5270	106	72-124
108-88-3	Toluene	2500	2680	107	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2530	101	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2510	100	69-118
1330-20-7	Xylene (total)	7500	7590	101	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	98%	70-130%
17060-07-0	1,2-Dichloroethane-D4	101%	70-122%
2037-26-5	Toluene-D8	102%	81-127%
460-00-4	4-Bromofluorobenzene	102%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD8440-BS	D206869.D	1	03/23/13	ET	n/a	n/a	VD8440

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

JB31121-4, JB31121-21, JB31121-24

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2670	107	76-117
106-93-4	1,2-Dibromoethane	2500	2940	118	77-122
107-06-2	1,2-Dichloroethane	2500	2980	119	68-134
100-41-4	Ethylbenzene	2500	2640	106	74-119
98-82-8	Isopropylbenzene	2500	2580	103	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	5080	101	72-124
108-88-3	Toluene	2500	2590	104	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2470	99	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2520	101	69-118
1330-20-7	Xylene (total)	7500	8220	110	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	103%	70-122%
2037-26-5	Toluene-D8	96%	81-127%
460-00-4	4-Bromofluorobenzene	93%	66-132%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31121-22MS	X134015.D	1	03/19/13	MS	n/a	n/a	VX5806
JB31121-22	X134010.D	1	03/19/13	MS	n/a	n/a	VX5806

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

JB31121-19, JB31121-22

CAS No.	Compound	JB31121-22 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	ND		43.2	29.4	68	44-130
106-93-4	1,2-Dibromoethane	ND		43.2	30.6	71	41-139
107-06-2	1,2-Dichloroethane	ND		43.2	27.1	63	43-139
100-41-4	Ethylbenzene	ND		43.2	29.1	67	29-137
98-82-8	Isopropylbenzene	ND		43.2	31.4	73	27-138
1634-04-4	Methyl Tert Butyl Ether	ND		43.2	28.8	67	51-128
108-88-3	Toluene	ND		43.2	30.3	70	40-135
95-63-6	1,2,4-Trimethylbenzene	ND		43.2	30.1	70	17-142
108-67-8	1,3,5-Trimethylbenzene	ND		43.2	30.2	70	20-140
1330-20-7	Xylene (total)	ND		130	91.8	71	28-139

CAS No.	Surrogate Recoveries	MS	JB31121-22	Limits
1868-53-7	Dibromofluoromethane	104%	104%	70-130%
17060-07-0	1,2-Dichloroethane-D4	87%	95%	70-122%
2037-26-5	Toluene-D8	112%	108%	81-127%
460-00-4	4-Bromofluorobenzene	102%	103%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31121-5MS	D206606.D	1	03/16/13	ET	n/a	n/a	VD8429
JB31121-5MSD	D206607.D	1	03/17/13	ET	n/a	n/a	VD8429
JB31121-5	D206609.D	1	03/17/13	ET	n/a	n/a	VD8429

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

JB31121-2, JB31121-3, JB31121-5

CAS No.	Compound	JB31121-5 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	183		5600	5820	101	5880	102	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		5600	5720	102	5740	103	0	41-139/21
107-06-2	1,2-Dichloroethane	ND		5600	6380	114	6260	112	2	43-139/19
100-41-4	Ethylbenzene	108		5600	5710	100	5720	100	0	29-137/25
98-82-8	Isopropylbenzene	206		5600	5720	98	5750	99	1	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		5600	5690	102	5680	101	0	51-128/20
108-88-3	Toluene	366		5600	6230	105	6270	105	1	40-135/22
95-63-6	1,2,4-Trimethylbenzene	127		5600	5260	92	5340	93	2	17-142/28
108-67-8	1,3,5-Trimethylbenzene	138		5600	5290	92	5310	92	0	20-140/27
1330-20-7	Xylene (total)	294		16800	16600	97	16800	98	1	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31121-5	Limits
1868-53-7	Dibromofluoromethane	94%	94%	91%	70-130%
17060-07-0	1,2-Dichloroethane-D4	101%	100%	102%	70-122%
2037-26-5	Toluene-D8	104%	104%	104%	81-127%
460-00-4	4-Bromofluorobenzene	91%	91%	92%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB30589-13MS	D206658.D	1	03/19/13	ET	n/a	n/a	VD8431
JB30589-13MSD	D206659.D	1	03/19/13	ET	n/a	n/a	VD8431
JB30589-13 [a]	D206661.D	1	03/19/13	ET	n/a	n/a	VD8431

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

JB31121-18, JB31121-20

CAS No.	Compound	JB30589-13 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3010	2970	99	3090	103	4	44-130/21
106-93-4	1,2-Dibromoethane	ND		3010	3020	100	3150	105	4	41-139/21
107-06-2	1,2-Dichloroethane	ND		3010	3270	109	3360	112	3	43-139/19
100-41-4	Ethylbenzene	ND		3010	2960	98	3120	104	5	29-137/25
98-82-8	Isopropylbenzene	158		3010	2910	91	3090	97	6	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		3010	2930	97	3000	100	2	51-128/20
108-88-3	Toluene	ND		3010	3040	101	3240	108	6	40-135/22
95-63-6	1,2,4-Trimethylbenzene	18.8		3010	2690	89	2840	94	5	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		3010	2700	90	2860	95	6	20-140/27
1330-20-7	Xylene (total)	65.4		9030	8740	96	9150	101	5	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB30589-13	Limits
1868-53-7	Dibromofluoromethane	94%	92%	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	99%	96%	98%	70-122%
2037-26-5	Toluene-D8	102%	104%	104%	81-127%
460-00-4	4-Bromofluorobenzene	89%	91%	90%	66-132%

(a) Dilution required due to matrix interference.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31121-6MS	D206687.D	1	03/19/13	ET	n/a	n/a	VD8432
JB31121-6MSD	D206688.D	1	03/19/13	ET	n/a	n/a	VD8432
JB31121-6 [a]	D206690.D	1	03/19/13	ET	n/a	n/a	VD8432

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

JB31121-6

CAS No.	Compound	JB31121-6 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	736		6030	6630	98	6360	93	4	44-130/21
106-93-4	1,2-Dibromoethane	ND		6030	6050	100	5800	96	4	41-139/21
107-06-2	1,2-Dichloroethane	ND		6030	6580	109	6240	104	5	43-139/19
100-41-4	Ethylbenzene	831		6030	6710	98	6450	93	4	29-137/25
98-82-8	Isopropylbenzene	310		6030	7380	117	6910	110	7	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		6030	5580	93	5480	91	2	51-128/20
108-88-3	Toluene	2200		6030	8170	99	7880	94	4	40-135/22
95-63-6	1,2,4-Trimethylbenzene	686		6030	6030	89	5730	84	5	17-142/28
108-67-8	1,3,5-Trimethylbenzene	291		6030	5700	90	5410	85	5	20-140/27
1330-20-7	Xylene (total)	2830		18100	20100	96	19300	91	4	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31121-6	Limits
1868-53-7	Dibromofluoromethane	89%	92%	90%	70-130%
17060-07-0	1,2-Dichloroethane-D4	95%	94%	98%	70-122%
2037-26-5	Toluene-D8	102%	102%	102%	81-127%
460-00-4	4-Bromofluorobenzene	91%	89%	90%	66-132%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31810-5MS	C180204.D	1	03/21/13	TYG	n/a	n/a	VC6461
JB31810-5MSD	C180205.D	1	03/21/13	TYG	n/a	n/a	VC6461
JB31810-5	C180203.D	1	03/21/13	TYG	n/a	n/a	VC6461

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

JB31121-1, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17

CAS No.	Compound	JB31810-5 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		57.6	47.8	83	47.4	82	1	44-130/21
106-93-4	1,2-Dibromoethane	ND		57.6	45.6	79	45.0	78	1	41-139/21
107-06-2	1,2-Dichloroethane	ND		57.6	48.2	84	46.6	81	3	43-139/19
100-41-4	Ethylbenzene	ND		57.6	46.4	81	46.4	81	0	29-137/25
98-82-8	Isopropylbenzene	ND		57.6	49.0	85	50.2	87	2	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		57.6	51.8	90	50.4	87	3	51-128/20
108-88-3	Toluene	ND		57.6	47.4	82	46.9	81	1	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		57.6	49.8	86	50.5	88	1	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		57.6	47.8	83	48.8	85	2	20-140/27
1330-20-7	Xylene (total)	ND		173	150	87	151	87	1	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31810-5	Limits
1868-53-7	Dibromofluoromethane	97%	95%	94%	70-130%
17060-07-0	1,2-Dichloroethane-D4	92%	87%	88%	70-122%
2037-26-5	Toluene-D8	97%	97%	97%	81-127%
460-00-4	4-Bromofluorobenzene	94%	95%	96%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31975-4MS	D206832.D	1	03/22/13	ET	n/a	n/a	VD8438
JB31975-4MSD	D206833.D	1	03/22/13	ET	n/a	n/a	VD8438
JB31975-4	D206835.D	1	03/22/13	ET	n/a	n/a	VD8438

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

JB31121-23

CAS No.	Compound	JB31975-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	274	J	31400	30600	96	32600	103	6	44-130/21
106-93-4	1,2-Dibromoethane	ND		31400	31300	100	31900	101	2	41-139/21
107-06-2	1,2-Dichloroethane	ND		31400	33000	105	32400	103	2	43-139/19
100-41-4	Ethylbenzene	781		31400	31100	96	32500	101	4	29-137/25
98-82-8	Isopropylbenzene	ND		31400	33600	107	33200	106	1	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		31400	29600	94	29500	94	0	51-128/20
108-88-3	Toluene	170000	E	31400	115000	-175* [a]	125000	-143* [a]	8	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		31400	28800	92	30800	98	7	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		31400	30300	96	31000	99	2	20-140/27
1330-20-7	Xylene (total)	1190		94300	90300	94	93200	98	3	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31975-4	Limits
1868-53-7	Dibromofluoromethane	94%	95%	95%	70-130%
17060-07-0	1,2-Dichloroethane-D4	104%	98%	103%	70-122%
2037-26-5	Toluene-D8	95%	103%	104%	81-127%
460-00-4	4-Bromofluorobenzene	106%	104%	105%	66-132%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31239-3MS	D206870.D	1	03/23/13	ET	n/a	n/a	VD8440
JB31239-3MSD	D206871.D	1	03/23/13	ET	n/a	n/a	VD8440
JB31239-3	D206873.D	1	03/23/13	ET	n/a	n/a	VD8440

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

JB31121-4, JB31121-21, JB31121-24

CAS No.	Compound	JB31239-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3120	2850	91	3010	96	5	44-130/21
106-93-4	1,2-Dibromoethane	ND		3120	2900	93	3050	98	5	41-139/21
107-06-2	1,2-Dichloroethane	ND		3120	3090	99	3230	103	4	43-139/19
100-41-4	Ethylbenzene	ND		3120	2880	92	3010	96	4	29-137/25
98-82-8	Isopropylbenzene	ND		3120	2990	96	3060	98	2	27-138/26
1634-04-4	Methyl Tert Butyl Ether	ND		3120	2730	87	2880	92	5	51-128/20
108-88-3	Toluene	ND		3120	3010	96	3040	97	1	40-135/22
95-63-6	1,2,4-Trimethylbenzene	ND		3120	2700	86	2850	91	5	17-142/28
108-67-8	1,3,5-Trimethylbenzene	ND		3120	2730	87	2820	90	3	20-140/27
1330-20-7	Xylene (total)	ND		9370	8420	90	8550	91	2	28-139/25

CAS No.	Surrogate Recoveries	MS	MSD	JB31239-3	Limits
1868-53-7	Dibromofluoromethane	97%	96%	93%	70-130%
17060-07-0	1,2-Dichloroethane-D4	102%	100%	100%	70-122%
2037-26-5	Toluene-D8	102%	99%	104%	81-127%
460-00-4	4-Bromofluorobenzene	100%	99%	102%	66-132%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB31121-19DUP	X134018.D	1	03/19/13	MS	n/a	n/a	VX5806
JB31121-19	X134017.D	1	03/19/13	MS	n/a	n/a	VX5806

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

JB31121-19, JB31121-22

CAS No.	Compound	JB31121-19 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	15
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	29
98-82-8	Isopropylbenzene	ND		ND		nc	23
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	23
108-88-3	Toluene	ND		ND		nc	21
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	12
1330-20-7	Xylene (total)	ND		ND		nc	26

CAS No.	Surrogate Recoveries	DUP	JB31121-19	Limits
1868-53-7	Dibromofluoromethane	100%	99%	70-130%
17060-07-0	1,2-Dichloroethane-D4	85%	84%	70-122%
2037-26-5	Toluene-D8	107%	106%	81-127%
460-00-4	4-Bromofluorobenzene	104%	105%	66-132%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VC6448-BFB
Lab File ID: C179991.D
Instrument ID: GCMSC
Injection Date: 03/12/13
Injection Time: 12:07

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	12163	16.6		Pass
75	30.0 - 60.0% of mass 95	33312	45.5		Pass
95	Base peak, 100% relative abundance	73157	100.0		Pass
96	5.0 - 9.0% of mass 95	4684	6.40		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	59685	81.6		Pass
175	5.0 - 9.0% of mass 174	4545	6.21	(7.61) [a]	Pass
176	95.0 - 101.0% of mass 174	58018	79.3	(97.2) [a]	Pass
177	5.0 - 9.0% of mass 176	3847	5.26	(6.63) [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
VC6448-IC6448	C179993.D	03/12/13	13:14	01:07	Initial cal 1
VC6448-IC6448	C179994.D	03/12/13	13:41	01:34	Initial cal 2
VC6448-IC6448	C179995.D	03/12/13	14:08	02:01	Initial cal 5
VC6448-IC6448	C179996.D	03/12/13	14:34	02:27	Initial cal 10
VC6448-IC6448	C179997.D	03/12/13	15:01	02:54	Initial cal 20
VC6448-ICC6448	C179998.D	03/12/13	15:28	03:21	Initial cal 50
VC6448-IC6448	C179999.D	03/12/13	15:55	03:48	Initial cal 100
VC6448-IC6448	C180000.D	03/12/13	16:21	04:14	Initial cal 200
VC6448-IC6448	C180002A.D	03/12/13	17:42	05:35	Initial cal 0.5

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VC6461-BFB
Lab File ID: C180166.D
Instrument ID: GCMSC
Injection Date: 03/20/13
Injection Time: 10:37

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10341	18.5		Pass
75	30.0 - 60.0% of mass 95	26626	47.5		Pass
95	Base peak, 100% relative abundance	56021	100.0		Pass
96	5.0 - 9.0% of mass 95	3761	6.71		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	39250	70.1		Pass
175	5.0 - 9.0% of mass 174	3038	5.42	(7.74) [a]	Pass
176	95.0 - 101.0% of mass 174	37984	67.8	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	2509	4.48	(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
VC6461-CC6448	C180167.D	03/20/13	11:07	00:30	Continuing cal 20
VC6461-MB	C180169.D	03/20/13	12:40	02:03	Method Blank
VC6461-BS	C180170.D	03/20/13	13:07	02:30	Blank Spike
ZZZZZZ	C180172.D	03/20/13	14:00	03:23	(unrelated sample)
ZZZZZZ	C180173.D	03/20/13	14:27	03:50	(unrelated sample)
ZZZZZZ	C180174.D	03/20/13	14:54	04:17	(unrelated sample)
ZZZZZZ	C180175.D	03/20/13	15:20	04:43	(unrelated sample)
ZZZZZZ	C180176.D	03/20/13	15:47	05:10	(unrelated sample)
ZZZZZZ	C180177.D	03/20/13	16:13	05:36	(unrelated sample)
ZZZZZZ	C180178.D	03/20/13	16:40	06:03	(unrelated sample)
JB31121-1	C180181.D	03/20/13	18:00	07:23	AOI2_BH-13-74_2-3_31113
JB31121-7	C180182.D	03/20/13	18:26	07:49	AOI5_BH-13-17_1.5-2_031113
JB31121-8	C180183.D	03/20/13	18:53	08:16	AOI5_BH-13-17_5-5.5_031113
JB31121-9	C180184.D	03/20/13	19:20	08:43	AOI5_BH-13-15_1.5-2_031113
JB31121-10	C180185.D	03/20/13	19:46	09:09	AOI5_BH-13-15_4.5-5_031113
JB31121-11	C180186.D	03/20/13	20:13	09:36	AOI5_BH-13-08_1.5-2_031113
JB31121-12	C180187.D	03/20/13	20:39	10:02	AOI5_BH-13-08_3.5-4_031113
JB31121-13	C180188.D	03/20/13	21:06	10:29	BH-13-75_4-6'
JB31121-14	C180189.D	03/20/13	21:32	10:55	BH-13-72_2-4'

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VC6461-BFB2 **Injection Date:** 03/21/13
Lab File ID: C180193.D **Injection Time:** 10:30
Instrument ID: GCMSC

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9705	17.4		Pass
75	30.0 - 60.0% of mass 95	26218	47.0		Pass
95	Base peak, 100% relative abundance	55770	100.0		Pass
96	5.0 - 9.0% of mass 95	3567	6.40		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	41810	75.0		Pass
175	5.0 - 9.0% of mass 174	3047	5.46	(7.29) [a]	Pass
176	95.0 - 101.0% of mass 174	40645	72.9	(97.2) [a]	Pass
177	5.0 - 9.0% of mass 176	2693	4.83	(6.63) [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
VC6461-CC6448	C180195.D	03/21/13	11:40	01:10	Continuing cal 20
VC6461-MB2	C180197.D	03/21/13	12:35	02:05	Method Blank
VC6461-BS2	C180198.D	03/21/13	13:15	02:45	Blank Spike
JB31121-15	C180200.D	03/21/13	14:27	03:57	BH-13-72_8-10'
JB31121-16	C180201.D	03/21/13	14:53	04:23	BH-13-73_8-10'
JB31121-17	C180202.D	03/21/13	15:20	04:50	AOI5_BH-13-01_1.5-2_031213
JB31810-5	C180203.D	03/21/13	15:46	05:16	(used for QC only; not part of job JB31121)
JB31810-5MS	C180204.D	03/21/13	16:13	05:43	Matrix Spike
JB31810-5MSD	C180205.D	03/21/13	16:40	06:10	Matrix Spike Duplicate

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8379-BFB
Lab File ID: D205384.D
Instrument ID: GCMSD
Injection Date: 02/11/13
Injection Time: 20:00

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	13978	18.7		Pass
75	30.0 - 60.0% of mass 95	35656	47.6		Pass
95	Base peak, 100% relative abundance	74890	100.0		Pass
96	5.0 - 9.0% of mass 95	4864	6.49		Pass
173	Less than 2.0% of mass 174	353	0.47	(0.55) [a]	Pass
174	50.0 - 120.0% of mass 95	64189	85.7		Pass
175	5.0 - 9.0% of mass 174	4784	6.39	(7.45) [a]	Pass
176	95.0 - 101.0% of mass 174	62130	83.0	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	4120	5.50	(6.63) [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
VD8379-IC8379	D205385.D	02/11/13	20:29	00:29	Initial cal 0.5
VD8379-IC8379	D205386.D	02/11/13	20:58	00:58	Initial cal 1
VD8379-IC8379	D205387.D	02/11/13	21:28	01:28	Initial cal 2
VD8379-IC8379	D205388.D	02/11/13	21:57	01:57	Initial cal 5
VD8379-IC8379	D205389.D	02/11/13	22:27	02:27	Initial cal 10
VD8379-IC8379	D205390.D	02/11/13	22:56	02:56	Initial cal 20
VD8379-ICC8379	D205391.D	02/11/13	23:26	03:26	Initial cal 50
VD8379-IC8379	D205392.D	02/11/13	23:55	03:55	Initial cal 100
VD8379-IC8379	D205393.D	02/12/13	00:25	04:25	Initial cal 200

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8429-BFB
Lab File ID: D206601.D
Instrument ID: GCMSD
Injection Date: 03/16/13
Injection Time: 21:18

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15779	23.1		Pass
75	30.0 - 60.0% of mass 95	36877	53.9		Pass
95	Base peak, 100% relative abundance	68394	100.0		Pass
96	5.0 - 9.0% of mass 95	4707	6.88		Pass
173	Less than 2.0% of mass 174	588	0.86	(0.95) [a]	Pass
174	50.0 - 120.0% of mass 95	61674	90.2		Pass
175	5.0 - 9.0% of mass 174	4821	7.05	(7.82) [a]	Pass
176	95.0 - 101.0% of mass 174	60408	88.3	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	3876	5.67	(6.42) [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
VD8429-CC8379	D206602.D	03/16/13	21:48	00:30	Continuing cal 50
VD8429-MB	D206604.D	03/16/13	22:47	01:29	Method Blank
VD8429-BS	D206605.D	03/16/13	23:16	01:58	Blank Spike
JB31121-5MS	D206606.D	03/16/13	23:45	02:27	Matrix Spike
JB31121-5MSD	D206607.D	03/17/13	00:15	02:57	Matrix Spike Duplicate
JB31121-5	D206609.D	03/17/13	01:14	03:56	AOI5_BH-13-16_1.5-2_031113
JB31121-3	D206611.D	03/17/13	02:13	04:55	AOI2_BH-13-80_0-1_31113
JB31121-2	D206612.D	03/17/13	02:43	05:25	AOI2_BH-13-70_7-8_31113
ZZZZZZ	D206613.D	03/17/13	03:12	05:54	(unrelated sample)
ZZZZZZ	D206615.D	03/17/13	04:11	06:53	(unrelated sample)
ZZZZZZ	D206616.D	03/17/13	04:41	07:23	(unrelated sample)
ZZZZZZ	D206617.D	03/17/13	05:11	07:53	(unrelated sample)
ZZZZZZ	D206618.D	03/17/13	05:40	08:22	(unrelated sample)
ZZZZZZ	D206619.D	03/17/13	06:10	08:52	(unrelated sample)
ZZZZZZ	D206620.D	03/17/13	06:39	09:21	(unrelated sample)
ZZZZZZ	D206621.D	03/17/13	07:09	09:51	(unrelated sample)
ZZZZZZ	D206622.D	03/17/13	07:38	10:20	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8431-BFB
Lab File ID: D206653.D
Instrument ID: GCMSD
Injection Date: 03/18/13
Injection Time: 22:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	14808	22.2		Pass
75	30.0 - 60.0% of mass 95	35989	54.0		Pass
95	Base peak, 100% relative abundance	66616	100.0		Pass
96	5.0 - 9.0% of mass 95	4722	7.09		Pass
173	Less than 2.0% of mass 174	428	0.64	(0.68) [a]	Pass
174	50.0 - 120.0% of mass 95	62538	93.9		Pass
175	5.0 - 9.0% of mass 174	4615	6.93	(7.38) [a]	Pass
176	95.0 - 101.0% of mass 174	60736	91.2	(97.1) [a]	Pass
177	5.0 - 9.0% of mass 176	4223	6.34	(6.95) [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
VD8431-CC8379	D206654.D	03/18/13	22:46	00:29	Continuing cal 50
VD8431-MB	D206656.D	03/18/13	23:45	01:28	Method Blank
VD8431-BS	D206657.D	03/19/13	00:14	01:57	Blank Spike
JB30589-13MS	D206658.D	03/19/13	00:44	02:27	Matrix Spike
JB30589-13MSD	D206659.D	03/19/13	01:13	02:56	Matrix Spike Duplicate
JB30589-13	D206661.D	03/19/13	02:11	03:54	(used for QC only; not part of job JB31121)
ZZZZZZ	D206662.D	03/19/13	02:41	04:24	(unrelated sample)
ZZZZZZ	D206663.D	03/19/13	03:10	04:53	(unrelated sample)
ZZZZZZ	D206664.D	03/19/13	03:40	05:23	(unrelated sample)
ZZZZZZ	D206665.D	03/19/13	04:10	05:53	(unrelated sample)
ZZZZZZ	D206670.D	03/19/13	06:37	08:20	(unrelated sample)
JB31121-18	D206672.D	03/19/13	07:36	09:19	AOI2_BH-13-69_0-1_31213
JB31121-20	D206673.D	03/19/13	08:05	09:48	AOI2_BH-13-68_8-9_31213

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8432-BFB
Lab File ID: D206674.D
Instrument ID: GCMSD
Injection Date: 03/19/13
Injection Time: 09:09

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15986	22.3		Pass
75	30.0 - 60.0% of mass 95	38885	54.2		Pass
95	Base peak, 100% relative abundance	71722	100.0		Pass
96	5.0 - 9.0% of mass 95	5071	7.07		Pass
173	Less than 2.0% of mass 174	420	0.59	(0.63) [a]	Pass
174	50.0 - 120.0% of mass 95	66360	92.5		Pass
175	5.0 - 9.0% of mass 174	4956	6.91	(7.47) [a]	Pass
176	95.0 - 101.0% of mass 174	64405	89.8	(97.1) [a]	Pass
177	5.0 - 9.0% of mass 176	4413	6.15	(6.85) [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
VD8432-CC8379	D206675.D	03/19/13	09:42	00:33	Continuing cal 20
VD8432-MB	D206677.D	03/19/13	10:52	01:43	Method Blank
VD8432-BS	D206678.D	03/19/13	11:26	02:17	Blank Spike
ZZZZZZ	D206680.D	03/19/13	12:44	03:35	(unrelated sample)
ZZZZZZ	D206681.D	03/19/13	13:14	04:05	(unrelated sample)
ZZZZZZ	D206682.D	03/19/13	13:43	04:34	(unrelated sample)
ZZZZZZ	D206683.D	03/19/13	14:13	05:04	(unrelated sample)
ZZZZZZ	D206684.D	03/19/13	14:42	05:33	(unrelated sample)
ZZZZZZ	D206685.D	03/19/13	15:12	06:03	(unrelated sample)
ZZZZZZ	D206686.D	03/19/13	15:41	06:32	(unrelated sample)
JB31121-6MS	D206687.D	03/19/13	16:11	07:02	Matrix Spike
JB31121-6MSD	D206688.D	03/19/13	16:41	07:32	Matrix Spike Duplicate
JB31121-6	D206690.D	03/19/13	17:39	08:30	AOI5_BH-13-16_3.5-4_031113
ZZZZZZ	D206691.D	03/19/13	18:09	09:00	(unrelated sample)
ZZZZZZ	D206692.D	03/19/13	18:38	09:29	(unrelated sample)
ZZZZZZ	D206693.D	03/19/13	19:07	09:58	(unrelated sample)
ZZZZZZ	D206694.D	03/19/13	19:37	10:28	(unrelated sample)
ZZZZZZ	D206695.D	03/19/13	20:06	10:57	(unrelated sample)
ZZZZZZ	D206696.D	03/19/13	20:35	11:26	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8438-BFB
Lab File ID: D206818.D
Instrument ID: GCMSD
Injection Date: 03/22/13
Injection Time: 11:22

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	15602	22.9		Pass
75	30.0 - 60.0% of mass 95	36282	53.2		Pass
95	Base peak, 100% relative abundance	68157	100.0		Pass
96	5.0 - 9.0% of mass 95	4752	6.97		Pass
173	Less than 2.0% of mass 174	365	0.54	(0.58) [a]	Pass
174	50.0 - 120.0% of mass 95	63296	92.9		Pass
175	5.0 - 9.0% of mass 174	4748	6.97	(7.50) [a]	Pass
176	95.0 - 101.0% of mass 174	61301	89.9	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	4145	6.08	(6.76) [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
VD8438-CC8379	D206820.D	03/22/13	12:48	01:26	Continuing cal 20
VD8438-MB	D206822.D	03/22/13	13:47	02:25	Method Blank
VD8438-BS	D206823.D	03/22/13	16:57	05:35	Blank Spike
JB31121-23	D206830.D	03/22/13	17:33	06:11	BH-13-53_8-10'
JB31975-4MS	D206832.D	03/22/13	18:32	07:10	Matrix Spike
JB31975-4MSD	D206833.D	03/22/13	19:02	07:40	Matrix Spike Duplicate
JB31975-4	D206835.D	03/22/13	20:01	08:39	(used for QC only; not part of job JB31121)
ZZZZZZ	D206836.D	03/22/13	20:30	09:08	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VD8440-BFB
Lab File ID: D206864.D
Instrument ID: GCMSD
Injection Date: 03/23/13
Injection Time: 10:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	21000	20.2		Pass
75	30.0 - 60.0% of mass 95	52714	50.6		Pass
95	Base peak, 100% relative abundance	104104	100.0		Pass
96	5.0 - 9.0% of mass 95	7279	6.99		Pass
173	Less than 2.0% of mass 174	449	0.43	(0.51) [a]	Pass
174	50.0 - 120.0% of mass 95	87834	84.4		Pass
175	5.0 - 9.0% of mass 174	6465	6.21	(7.36) [a]	Pass
176	95.0 - 101.0% of mass 174	85482	82.1	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	5750	5.52	(6.73) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD8440-CC8379	D206865A.D	03/23/13	11:23	01:11	Continuing cal 50
VD8440-MB	D206867.D	03/23/13	12:28	02:16	Method Blank
ZZZZZZ	D206868.D	03/23/13	12:57	02:45	(unrelated sample)
VD8440-BS	D206869.D	03/23/13	13:27	03:15	Blank Spike
JB31239-3MS	D206870.D	03/23/13	14:06	03:54	Matrix Spike
JB31239-3MSD	D206871.D	03/23/13	14:35	04:23	Matrix Spike Duplicate
ZZZZZZ	D206872.D	03/23/13	15:04	04:52	(unrelated sample)
JB31239-3	D206873.D	03/23/13	15:34	05:22	(used for QC only; not part of job JB31121)
ZZZZZZ	D206874.D	03/23/13	16:03	05:51	(unrelated sample)
ZZZZZZ	D206875.D	03/23/13	16:33	06:21	(unrelated sample)
ZZZZZZ	D206876.D	03/23/13	17:02	06:50	(unrelated sample)
JB31121-21	D206877.D	03/23/13	17:31	07:19	AOI2_BH-13-63_4-5_31213
JB31121-4	D206878.D	03/23/13	18:01	07:49	AOI2_BH-13-80_2-3_31113
JB31121-24	D206879.D	03/23/13	18:30	08:18	BH-13-79_4-6'
ZZZZZZ	D206881.D	03/23/13	19:29	09:17	(unrelated sample)
ZZZZZZ	D206882.D	03/23/13	19:58	09:46	(unrelated sample)
ZZZZZZ	D206883.D	03/23/13	20:27	10:15	(unrelated sample)
ZZZZZZ	D206885.D	03/23/13	21:25	11:13	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VX5795-BFB
Lab File ID: X133695.D
Instrument ID: GCMSX
Injection Date: 03/06/13
Injection Time: 16:43

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	5702	16.6		Pass
75	30.0 - 60.0% of mass 95	15939	46.3		Pass
95	Base peak, 100% relative abundance	34411	100.0		Pass
96	5.0 - 9.0% of mass 95	2154	6.26		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	33373	97.0		Pass
175	5.0 - 9.0% of mass 174	2769	8.05	(8.30) [a]	Pass
176	95.0 - 101.0% of mass 174	32680	95.0	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	2168	6.30	(6.63) [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
VX5795-IC5795	X133696.D	03/06/13	17:21	00:38	Initial cal 0.5
VX5795-IC5795	X133697.D	03/06/13	17:50	01:07	Initial cal 1
VX5795-IC5795	X133698.D	03/06/13	18:20	01:37	Initial cal 2
VX5795-IC5795	X133699.D	03/06/13	18:49	02:06	Initial cal 5
VX5795-IC5795	X133700.D	03/06/13	19:19	02:36	Initial cal 10
VX5795-IC5795	X133701.D	03/06/13	19:49	03:06	Initial cal 20
VX5795-ICC5795	X133702.D	03/06/13	20:18	03:35	Initial cal 50
VX5795-IC5795	X133703.D	03/06/13	20:48	04:05	Initial cal 100
VX5795-IC5795	X133704.D	03/06/13	21:17	04:34	Initial cal 200

Instrument Performance Check (BFB)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: VX5806-BFB
Lab File ID: X134005.D
Instrument ID: GCMSX
Injection Date: 03/19/13
Injection Time: 12:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9404	16.1		Pass
75	30.0 - 60.0% of mass 95	26861	46.1		Pass
95	Base peak, 100% relative abundance	58261	100.0		Pass
96	5.0 - 9.0% of mass 95	3844	6.60		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	57107	98.0		Pass
175	5.0 - 9.0% of mass 174	4800	8.24	(8.41) [a]	Pass
176	95.0 - 101.0% of mass 174	56571	97.1	(99.1) [a]	Pass
177	5.0 - 9.0% of mass 176	3763	6.46	(6.65) [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
VX5806-CC5795	X134006.D	03/19/13	13:19	00:30	Continuing cal 20
VX5806-MB	X134007.D	03/19/13	13:56	01:07	Method Blank
VX5806-BS	X134008.D	03/19/13	14:30	01:41	Blank Spike
JB31121-22	X134010.D	03/19/13	15:29	02:40	AOI2_BH-13-61_8.5-9_31213
ZZZZZZ	X134011.D	03/19/13	15:58	03:09	(unrelated sample)
ZZZZZZ	X134012.D	03/19/13	16:28	03:39	(unrelated sample)
ZZZZZZ	X134013.D	03/19/13	16:57	04:08	(unrelated sample)
ZZZZZZ	X134014.D	03/19/13	17:26	04:37	(unrelated sample)
JB31121-22MS	X134015.D	03/19/13	17:56	05:07	Matrix Spike
JB31121-19	X134017.D	03/19/13	18:55	06:06	AOI2_BH-13-68_1-1.5_31213
JB31121-19DUP	X134018.D	03/19/13	19:25	06:36	Duplicate
ZZZZZZ	X134019.D	03/19/13	19:55	07:06	(unrelated sample)
ZZZZZZ	X134020.D	03/19/13	20:24	07:35	(unrelated sample)
ZZZZZZ	X134021.D	03/19/13	20:54	08:05	(unrelated sample)
ZZZZZZ	X134022.D	03/19/13	21:23	08:34	(unrelated sample)
ZZZZZZ	X134023.D	03/19/13	21:53	09:04	(unrelated sample)
ZZZZZZ	X134024.D	03/19/13	22:22	09:33	(unrelated sample)
ZZZZZZ	X134025.D	03/19/13	22:52	10:03	(unrelated sample)
ZZZZZZ	X134027.D	03/19/13	23:51	11:02	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VC6461-CC6448	**Injection Date:**	03/20/13
Lab File ID:	C180167.D	**Injection Time:**	11:07
Instrument ID:	GCMSC	**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	31428	5.48	133403	8.07	196986	9.06	145582	12.14	68898	14.16
Upper Limit [a]	62856	5.98	266806	8.57	393972	9.56	291164	12.64	137796	14.66
Lower Limit [b]	15714	4.98	66702	7.57	98493	8.56	72791	11.64	34449	13.66

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VC6461-MB	27939	5.48	130189	8.07	190836	9.06	140197	12.13	63427	14.16
VC6461-BS	32738	5.48	142385	8.07	209284	9.06	154551	12.13	73029	14.16
ZZZZZZ	25729	5.47	143605	8.07	208071	9.06	150766	12.14	67667	14.15
ZZZZZZ	19949	5.46	86297	8.07	127255	9.06	94708	12.13	43322	14.16
ZZZZZZ	23890	5.47	143257	8.07	210147	9.06	150665	12.13	67327	14.16
ZZZZZZ	26282	5.48	147556	8.07	216282	9.06	157636	12.14	71414	14.16
ZZZZZZ	23336	5.48	144069	8.07	209816	9.06	150123	12.14	67547	14.15
ZZZZZZ	27152	5.48	147334	8.07	215832	9.06	157993	12.14	72513	14.16
ZZZZZZ	29761	5.49	146374	8.07	215841	9.06	156601	12.13	68688	14.16
JB31121-1	24900	5.49	148017	8.07	216278	9.06	157989	12.14	70554	14.15
JB31121-7	28738	5.48	143844	8.07	210598	9.06	148511	12.14	61282	14.16
JB31121-8	24217	5.48	145158	8.07	211063	9.06	149678	12.13	64620	14.16
JB31121-9	33523	5.48	152109	8.07	225642	9.06	165748	12.14	74742	14.16
JB31121-10	29106	5.49	146825	8.07	216759	9.06	157637	12.13	70886	14.16
JB31121-11	31992	5.48	137711	8.07	204795	9.06	149675	12.14	67967	14.16
JB31121-12	30229	5.48	145224	8.07	213653	9.06	155215	12.13	69906	14.16
JB31121-13	25991	5.49	148374	8.07	221662	9.06	165929	12.13	76051	14.16
JB31121-14	34426	5.49	148735	8.07	222450	9.06	163965	12.13	73548	14.16

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VC6461-CC6448	**Injection Date:**	03/21/13
Lab File ID:	C180195.D	**Injection Time:**	11:40
Instrument ID:	GCMSC	**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	29152	5.48	133742	8.07	194792	9.06	143748	12.13	67422	14.16
Upper Limit [a]	58304	5.98	267484	8.57	389584	9.56	287496	12.63	134844	14.66
Lower Limit [b]	14576	4.98	66871	7.57	97396	8.56	71874	11.63	33711	13.66

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VC6461-MB2	25427	5.48	131518	8.07	188678	9.06	134760	12.13	58023	14.16
VC6461-BS2	35192	5.48	129797	8.07	190945	9.06	142614	12.13	67280	14.16
JB31121-15	18753	5.48	143257	8.07	208463	9.06	149268	12.13	65758	14.16
JB31121-16	26119	5.48	141509	8.07	212711	9.06	161398	12.13	75166	14.16
JB31121-17	20423	5.47	144046	8.07	209298	9.06	150590	12.13	64901	14.16
JB31810-5	29779	5.48	142299	8.07	208255	9.06	152355	12.13	69052	14.16
JB31810-5MS	32897	5.49	146931	8.07	217508	9.06	160690	12.13	75349	14.16
JB31810-5MSD	32725	5.48	141936	8.07	207601	9.06	150959	12.14	69727	14.16

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8429-CC8379	**Injection Date:**	03/16/13
Lab File ID:	D206602.D	**Injection Time:**	21:48
Instrument ID:	GCMSD	**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	106896	8.01	188134	10.25	274706	11.16	265631	14.50	164867	17.09
Upper Limit [a]	213792	8.51	376268	10.75	549412	11.66	531262	15.00	329734	17.59
Lower Limit [b]	53448	7.51	94067	9.75	137353	10.66	132816	14.00	82434	16.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8429-MB	98652	8.02	190396	10.25	275838	11.16	265406	14.50	152774	17.09
VD8429-BS	113211	8.02	190383	10.25	278364	11.16	265545	14.50	165675	17.09
JB31121-5MS	119591	8.03	192087	10.25	279955	11.16	270520	14.50	166937	17.09
JB31121-5MSD	115108	8.03	194385	10.25	279658	11.16	270882	14.50	168127	17.09
JB31121-5	124000	8.03	195603	10.25	286816	11.16	275208	14.50	162605	17.09
JB31121-3 [c]	127372	8.04	200375	10.25	289561	11.16	280928	14.50	192841	17.09
JB31121-2 [c]	123501	8.03	197759	10.25	287489	11.16	280845	14.50	194155	17.09
ZZZZZZ	130964	8.06	200706	10.25	291517	11.16	295982	14.50	203305	17.09
ZZZZZZ	110147	8.03	197988	10.25	283501	11.16	279797	14.50	184418	17.09
ZZZZZZ	119011	8.05	201114	10.25	288524	11.16	287631	14.50	185070	17.09
ZZZZZZ	134141	8.03	200831	10.25	291367	11.16	291255	14.50	180531	17.09
ZZZZZZ	126075	8.03	200949	10.25	290667	11.16	280708	14.50	176250	17.09
ZZZZZZ	175290	8.03	207182	10.25	299744	11.16	297663	14.50	200184	17.09
ZZZZZZ	129479	8.04	201475	10.25	285394	11.16	277710	14.50	192998	17.09
ZZZZZZ	121628	8.04	197657	10.25	279299	11.16	270301	14.50	171994	17.09
ZZZZZZ	119130	8.02	195656	10.25	278044	11.16	270849	14.50	166594	17.09

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8431-CC8379	**Injection Date:**	03/18/13
Lab File ID:	D206654.D	**Injection Time:**	22:46
Instrument ID:	GCMSD	**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	94720	8.12	188640	10.25	273266	11.16	264002	14.50	161746	17.09
Upper Limit [a]	189440	8.62	377280	10.75	546532	11.66	528004	15.00	323492	17.59
Lower Limit [b]	47360	7.62	94320	9.75	136633	10.66	132001	14.00	80873	16.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8431-MB	86932	8.09	183099	10.25	263091	11.16	260053	14.50	155281	17.09
VD8431-BS	90570	8.09	181724	10.25	261545	11.16	251117	14.50	152067	17.09
JB30589-13MS	93617	8.06	183121	10.25	265414	11.16	252782	14.50	158531	17.09
JB30589-13MSD	94161	8.04	190533	10.25	276728	11.16	267555	14.50	164566	17.09
JB30589-13	94910	8.02	193176	10.25	276356	11.16	265886	14.50	162786	17.09
ZZZZZZ	111118	8.02	198342	10.25	281392	11.16	273535	14.50	166285	17.09
ZZZZZZ	106712	8.03	195220	10.25	280239	11.16	269834	14.50	165061	17.09
ZZZZZZ	110913	8.02	195012	10.25	280356	11.16	270782	14.50	163422	17.09
ZZZZZZ	110449	8.03	193779	10.25	277673	11.16	268634	14.50	159779	17.09
ZZZZZZ	159625	8.03	203207	10.25	285576	11.16	297947	14.50	192413	17.09
JB31121-18 [c]	126514	8.03	214401	10.25	303376	11.16	289764	14.50	177001	17.09
JB31121-20 [d]	117062	8.04	205650	10.25	293620	11.16	281446	14.50	199501	17.09

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Diluted due to high concentration of target compound.
(d) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8432-CC8379	**Injection Date:**	03/19/13
Lab File ID:	D206675.D	**Injection Time:**	09:42
Instrument ID:	GCMSD	**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	142339	8.01	216373	10.24	312226	11.16	302192	14.50	176328	17.09
Upper Limit [a]	284678	8.51	432746	10.74	624452	11.66	604384	15.00	352656	17.59
Lower Limit [b]	71170	7.51	108187	9.74	156113	10.66	151096	14.00	88164	16.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8432-MB	114669	8.04	203754	10.24	288666	11.16	274227	14.50	168716	17.09
VD8432-BS	139460	8.01	215573	10.24	310657	11.16	286918	14.50	173850	17.09
ZZZZZZ	120937	8.03	202451	10.25	288833	11.16	275656	14.50	166045	17.09
ZZZZZZ	125804	8.01	200272	10.25	288575	11.16	281519	14.50	171084	17.09
ZZZZZZ	128636	8.02	203999	10.25	288943	11.16	278721	14.50	175291	17.09
ZZZZZZ	131523	8.02	204506	10.25	290756	11.16	279721	14.50	173387	17.09
ZZZZZZ	127423	8.02	202423	10.25	288726	11.16	274761	14.50	171695	17.09
ZZZZZZ	128479	8.03	205479	10.25	291012	11.16	280875	14.50	175031	17.09
ZZZZZZ	131043	8.01	207480	10.25	294978	11.16	283958	14.50	175095	17.09
JB31121-6MS	132108	8.03	216206	10.25	307283	11.16	294046	14.50	180426	17.09
JB31121-6MSD	129674	8.03	211129	10.25	297090	11.16	282941	14.50	177746	17.09
JB31121-6 [c]	127845	8.02	207846	10.25	293632	11.16	282918	14.50	174203	17.09
ZZZZZZ	124874	8.02	203694	10.25	287875	11.16	278179	14.50	169502	17.09
ZZZZZZ	124876	8.02	203126	10.25	289615	11.16	276210	14.50	163975	17.09
ZZZZZZ	124907	8.02	205632	10.25	290990	11.16	278796	14.50	165592	17.09
ZZZZZZ	123928	8.02	198840	10.25	281095	11.16	271411	14.50	161551	17.09
ZZZZZZ	123766	8.02	196275	10.25	281075	11.16	267608	14.50	160796	17.09
ZZZZZZ	126545	8.01	192696	10.25	280730	11.16	266317	14.50	162477	17.09

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Diluted due to high concentration of target compound.

Volatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8438-CC8379	**Injection Date:**	03/22/13
Lab File ID:	D206820.D	**Injection Time:**	12:48
Instrument ID:	GCMSD	**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	151453	8.07	268489	10.25	402691	11.16	413244	14.50	219882	17.09
Upper Limit [a]	302906	8.57	536978	10.75	805382	11.66	826488	15.00	439764	17.59
Lower Limit [b]	75727	7.57	134245	9.75	201346	10.66	206622	14.00	109941	16.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8438-MB	161976	8.04	258987	10.25	396084	11.16	383579	14.50	220936	17.09
VD8438-BS	163914	8.01	261448	10.25	404997	11.16	376412	14.50	222925	17.09
JB31121-23 [c]	235738	8.03	342673	10.24	543761	11.16	508565	14.50	295392	17.09
JB31975-4MS	164882	8.01	249921	10.25	393451	11.16	374587	14.50	214159	17.09
JB31975-4MSD	153939	8.01	262240	10.25	399568	11.16	374893	14.50	218511	17.09
JB31975-4	164628	8.05	247815	10.25	387392	11.16	375061	14.50	209386	17.09
ZZZZZZ	158922	8.03	253572	10.25	393071	11.16	372723	14.50	233164	17.09

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VD8440-CC8379	**Injection Date:**	03/23/13
Lab File ID:	D206865A.D	**Injection Time:**	11:23
Instrument ID:	GCMSD	**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	141849	8.01	259974	10.24	377226	11.16	371354	14.50	231107	17.09
Upper Limit [a]	283698	8.51	519948	10.74	754452	11.66	742708	15.00	462214	17.59
Lower Limit [b]	70925	7.51	129987	9.74	188613	10.66	185677	14.00	115554	16.59

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD8440-MB	125942	8.02	251374	10.25	379067	11.16	363314	14.50	177137	17.09
ZZZZZZ	132389	8.04	244083	10.24	367107	11.16	332286	14.50	192265	17.09
VD8440-BS	129849	8.01	247873	10.25	372516	11.16	342148	14.50	213213	17.08
JB31239-3MS	152865	8.02	277792	10.24	421209	11.16	406440	14.50	238263	17.09
JB31239-3MSD	134449	8.01	252965	10.25	377954	11.16	342823	14.50	213250	17.09
ZZZZZZ	144462	8.02	249223	10.25	361516	11.16	357115	14.50	201691	17.09
JB31239-3	142886	8.04	250587	10.25	379283	11.16	371713	14.50	210955	17.09
ZZZZZZ	144021	8.03	249890	10.25	374481	11.16	372203	14.50	200686	17.09
ZZZZZZ	144973	8.03	247141	10.25	369459	11.16	364416	14.50	190719	17.09
ZZZZZZ	145497	8.03	247320	10.25	369227	11.16	368703	14.50	192646	17.09
JB31121-21 [c]	140471	8.03	244373	10.24	365764	11.16	352328	14.50	204365	17.09
JB31121-4 [c]	155014	8.02	241901	10.25	365124	11.16	357324	14.50	240693	17.09
JB31121-24 [c]	141698	8.02	246893	10.25	375301	11.16	368272	14.50	237052	17.09
ZZZZZZ	142763	8.02	249633	10.25	377468	11.16	374362	14.50	232703	17.09
ZZZZZZ	150470	8.02	247630	10.25	375200	11.16	370658	14.50	227245	17.09
ZZZZZZ	154772	8.01	248761	10.25	373729	11.16	375113	14.50	228572	17.09
ZZZZZZ	138775	8.02	245048	10.25	369040	11.16	360094	14.50	220957	17.09

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

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	VX5806-CC5795	**Injection Date:**	03/19/13
Lab File ID:	X134006.D	**Injection Time:**	13:19
Instrument ID:	GCMSX	**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	51588	7.06	189198	9.74	253945	10.89	234062	15.14	137213	17.96
Upper Limit [a]	103176	7.56	378396	10.24	507890	11.39	468124	15.64	274426	18.46
Lower Limit [b]	25794	6.56	94599	9.24	126973	10.39	117031	14.64	68607	17.46

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VX5806-MB	81921	7.06	187637	9.74	252025	10.89	230402	15.14	126710	17.96
VX5806-BS	74422	7.07	183905	9.73	243124	10.89	235014	15.14	144291	17.96
JB31121-22	62288	7.07	189372	9.74	255449	10.90	236060	15.14	131960	17.96
ZZZZZZ	65007	7.06	188404	9.74	252098	10.89	227307	15.14	119175	17.96
ZZZZZZ	50662	7.06	195950	9.74	261394	10.89	235567	15.14	126082	17.97
ZZZZZZ	64080	7.07	215587	9.74	292003	10.90	257392	15.14	132044	17.97
ZZZZZZ	43754	7.06	213546	9.74	287004	10.90	252741	15.14	126750	17.97
JB31121-22MS	50522	7.06	216783	9.74	292142	10.90	272167	15.14	154069	17.97
JB31121-19	60325	7.06	214845	9.74	287998	10.89	260247	15.14	137694	17.97
JB31121-19DUP	63991	7.06	213744	9.74	285151	10.90	258734	15.14	140226	17.96
ZZZZZZ	50813	7.07	213506	9.74	286343	10.90	263079	15.14	140048	17.96
ZZZZZZ	51056	7.07	196460	9.74	265776	10.90	241984	15.14	132559	17.96
ZZZZZZ	48880	7.07	207399	9.74	279697	10.89	259870	15.14	146918	17.96
ZZZZZZ	52970	7.06	195601	9.74	266073	10.89	243107	15.14	131150	17.96
ZZZZZZ	50783	7.06	192302	9.74	257181	10.89	237415	15.14	121721	17.96
ZZZZZZ	56804	7.06	187829	9.73	253116	10.89	232300	15.13	126141	17.96
ZZZZZZ	63747	7.06	202517	9.73	273803	10.89	257624	15.13	145114	17.96
ZZZZZZ	51093	7.05	197649	9.73	265331	10.89	240468	15.13	128427	17.96

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

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

Volatile Surrogate Recovery Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, 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
JB31121-1	C180181.D	93.0	88.0	98.0	98.0
JB31121-2	D206612.D	92.0	102.0	113.0	100.0
JB31121-3	D206611.D	92.0	103.0	121.0	95.0
JB31121-4	D206878.D	96.0	105.0	126.0	113.0
JB31121-5	D206609.D	91.0	102.0	104.0	92.0
JB31121-6	D206690.D	90.0	98.0	102.0	90.0
JB31121-7	C180182.D	95.0	90.0	96.0	101.0
JB31121-8	C180183.D	93.0	87.0	97.0	100.0
JB31121-9	C180184.D	98.0	96.0	97.0	97.0
JB31121-10	C180185.D	95.0	89.0	97.0	96.0
JB31121-11	C180186.D	96.0	94.0	97.0	97.0
JB31121-12	C180187.D	95.0	91.0	97.0	96.0
JB31121-13	C180188.D	98.0	97.0	98.0	97.0
JB31121-14	C180189.D	99.0	98.0	97.0	98.0
JB31121-15	C180200.D	92.0	83.0	96.0	96.0
JB31121-16	C180201.D	103.0	106.0	98.0	95.0
JB31121-17	C180202.D	93.0	87.0	97.0	98.0
JB31121-18	D206672.D	89.0	96.0	102.0	90.0
JB31121-19	X134017.D	99.0	84.0	106.0	105.0
JB31121-20	D206673.D	90.0	98.0	103.0	100.0
JB31121-21	D206877.D	94.0	103.0	102.0	99.0
JB31121-22	X134010.D	104.0	95.0	108.0	103.0
JB31121-23	D206830.D	98.0	110.0	118.0	109.0
JB31121-24	D206879.D	95.0	103.0	104.0	108.0
JB30589-13MS	D206658.D	94.0	99.0	102.0	89.0
JB30589-13MSD	D206659.D	92.0	96.0	104.0	91.0
JB31121-19DUP	X134018.D	100.0	85.0	107.0	104.0
JB31121-22MS	X134015.D	104.0	87.0	112.0	102.0
JB31121-5MS	D206606.D	94.0	101.0	104.0	91.0
JB31121-5MSD	D206607.D	94.0	100.0	104.0	91.0
JB31121-6MS	D206687.D	89.0	95.0	102.0	91.0
JB31121-6MSD	D206688.D	92.0	94.0	102.0	89.0
JB31239-3MS	D206870.D	97.0	102.0	102.0	100.0
JB31239-3MSD	D206871.D	96.0	100.0	99.0	99.0
JB31810-5MS	C180204.D	97.0	92.0	97.0	94.0
JB31810-5MSD	C180205.D	95.0	87.0	97.0	95.0
JB31975-4MS	D206832.D	94.0	104.0	95.0	106.0
JB31975-4MSD	D206833.D	95.0	98.0	103.0	104.0
VC6461-BS	C180170.D	96.0	93.0	98.0	95.0
VC6461-BS2	C180198.D	97.0	96.0	97.0	94.0

Volatile Surrogate Recovery Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, 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
VC6461-MB	C180169.D	95.0	95.0	97.0	97.0
VC6461-MB2	C180197.D	92.0	88.0	96.0	99.0
VD8429-BS	D206605.D	94.0	101.0	103.0	90.0
VD8429-MB	D206604.D	92.0	103.0	104.0	94.0
VD8431-BS	D206657.D	94.0	98.0	102.0	91.0
VD8431-MB	D206656.D	91.0	100.0	104.0	91.0
VD8432-BS	D206678.D	92.0	99.0	100.0	91.0
VD8432-MB	D206677.D	90.0	98.0	101.0	90.0
VD8438-BS	D206823.D	98.0	101.0	102.0	102.0
VD8438-MB	D206822.D	95.0	105.0	98.0	96.0
VD8440-BS	D206869.D	96.0	103.0	96.0	93.0
VD8440-MB	D206867.D	92.0	101.0	103.0	112.0
VX5806-BS	X134008.D	104.0	94.0	110.0	96.0
VX5806-MB	X134007.D	103.0	96.0	108.0	104.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-130%
S2 = 1,2-Dichloroethane-D4	70-122%
S3 = Toluene-D8	81-127%
S4 = 4-Bromofluorobenzene	66-132%

Initial Calibration Summary

Job Number: JB31121 **Sample:** VC6448-ICC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C179998.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSC

```
Method       : C:\msdchem\1\METHODS\MCS6448.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

Calibration Files
5   =C179995.D   2   =C179994.D   20  =C179997.D   50  =C179998.D
100 =C179999.D   1   =C179993.D   200 =C180000.D   0.5 =C180002A.D
10  =C179996.D       =

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

1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
          0.115       0.111 0.125 0.113       0.101       0.115   0.113    6.80
3)  tertiary butyl alcohol
          1.408       1.288 1.400 1.279       1.173       1.332   1.314    6.67
4)  ethanol
                                                                  0.000#  -1.00

5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  chlorotrifluoroethene
                                                                  0.000#  -1.00
7)  chlorodifluoromethane
          0.454 0.487 0.389 0.403 0.392 0.425 0.397       0.395   0.418    8.54
8)  dichlorodifluoromethane
          0.584 0.570 0.520 0.567 0.561 0.408 0.555       0.548   0.539   10.40
9)  chloromethane
          0.601 0.637 0.511 0.536 0.532 0.613 0.533 0.627 0.540   0.570    8.53
10)  vinyl chloride
          0.627 0.664 0.535 0.577 0.555 0.578 0.565 0.569 0.565   0.582    6.80
11)  acetaldehyde
                                                                  0.000#  -1.00
12)  bromomethane
          0.366 0.361 0.318 0.332 0.297 0.293 0.253       0.340   0.320   11.81
13)  chloroethane
          0.351 0.383 0.301 0.325 0.310 0.341 0.285       0.324   0.327    9.37
14)  VINYL BROMIDE
                                                                  0.000#  -1.00
15)  trichlorofluoromethane
          0.753 0.771 0.650 0.696 0.671       0.661       0.691   0.699    6.58
16)  pentane
          0.879 0.794 0.685 0.685 0.735 0.899 0.656 0.816 0.722   0.763   11.52
17)  ethyl ether
          0.259 0.249 0.216 0.232 0.233       0.227       0.228   0.235    6.22
18)  2-chloropropane
          0.924 0.954 0.805 0.773 0.779 0.938 0.761 0.969 0.826   0.859   10.01
19)  acrolein
          0.053 0.044 0.044 0.048 0.047 0.034 0.048       0.044   0.045   12.24
20)  1,1-dichloroethene
          0.454 0.450 0.401 0.396 0.413 0.402 0.401 0.382 0.412   0.412    5.90
21)  isopropyl alcohol
                                                                  0.000#  -1.00
22)  acetone
          0.079       0.060 0.059 0.057       0.066       0.064   0.064   12.19
23)  allyl chloride
```

```
            0.812 0.818 0.673 0.675 0.693 0.811 0.673 0.818 0.694   0.741    9.55
24)  acetonitrile
                        0.010 0.012 0.011       0.011       0.014   0.011   12.34
25)  iodomethane
            0.777 0.755 0.688 0.694 0.712 0.724 0.693 0.617 0.695   0.706    6.46
26)  iso-butyl alcohol
                        0.004 0.004 0.005       0.005       0.004   0.004#   8.40
27)  carbon disulfide
            1.660 1.651 1.446 1.431 1.475 1.591 1.432 1.941 1.472   1.567   10.71
28)  methylene chloride
            0.552 0.517 0.414 0.416 0.425 0.581 0.413       0.435   0.469   14.83
29)  1-chloropropane
                        0.036 0.036 0.038       0.037       0.036   0.036    2.35
30)  methyl acetate
            0.262       0.169 0.191 0.182       0.183       0.189   0.196   16.95
             ----- Linear regression -----  Coefficient =  0.9996
               Response Ratio = 0.00240 + 0.18256 *A

31)  methyl tert butyl ether
            1.116 1.077 0.941 1.031 1.023 1.127 0.997 0.878 0.985   1.019    7.93
32)  trans-1,2-dichloroethene
            0.512 0.509 0.454 0.461 0.473 0.452 0.458 0.496 0.458   0.475    5.13
33)  di-isopropyl ether
            1.549 1.559 1.329 1.444 1.404 1.493 1.400 1.325 1.378   1.431    6.07
34)  ethyl tert-butyl ether
            1.403 1.361 1.189 1.327 1.288 1.352 1.284 1.168 1.242   1.291    6.17
35)  2-butanone
                        0.022 0.029 0.031       0.031       0.019   0.027   20.26
             ----- Linear regression -----  Coefficient =  0.9993
               Response Ratio = -0.00235 + 0.03138 *A

36)  1,1-dichloroethane
            0.889 0.876 0.789 0.795 0.814 0.854 0.796 0.843 0.801   0.829    4.58
37)  chloroprene
            0.753 0.777 0.672 0.716 0.694 0.705 0.689 0.607 0.676   0.699    7.01
38)  acrylonitrile
            0.086 0.077 0.073 0.082 0.081 0.072 0.080       0.076   0.078    5.95
39)  vinyl acetate
            0.034       0.045 0.059 0.058       0.059       0.039   0.049   23.13
             ----- Linear regression -----  Coefficient =  0.9996
               Response Ratio = -0.00327 + 0.05968 *A

40)  ethyl acetate
            0.024       0.030 0.040 0.034       0.035       0.030   0.032   16.69
             ----- Linear regression -----  Coefficient =  0.9976
               Response Ratio = -0.00041 + 0.03500 *A

41)  2,2-dichloropropane
            0.720 0.727 0.609 0.609 0.654 0.675 0.637 0.703 0.617   0.661    7.16
42)  cis-1,2-dichloroethene
            0.512 0.472 0.455 0.468 0.481 0.452 0.466 0.399 0.454   0.462    6.48
43)  methyl acrylate
            0.189       0.187 0.224 0.220       0.221       0.177   0.203   10.34
44)  propionitrile
            0.032 0.028 0.028 0.033 0.032       0.031       0.029   0.030    6.15
45)  bromochloromethane
            0.192 0.179 0.171 0.182 0.185 0.149 0.180       0.173   0.176    7.40
46)  tetrahydrofuran
            0.083       0.070 0.080 0.077       0.076       0.073   0.077    6.26
47)  chloroform
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VC6448-ICC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C179998.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.813 0.795 0.705 0.711 0.725 0.832 0.701 0.765 0.725   0.753    6.64
48)  t-butyl formate
            0.241 0.226 0.212 0.257 0.252 0.188 0.259       0.225   0.233   10.52
49)  dibromofluoromethane (s)
            0.400 0.491 0.368 0.381 0.374       0.362       0.396   0.396   11.20
50)  1,2-dichloroethane-d4 (s)
            0.384 0.433 0.341 0.360 0.352       0.338       0.373   0.369    8.95
51)  freon 113
            0.313 0.291 0.286 0.309 0.300 0.202 0.298       0.277   0.284   12.47
52)  methacrylonitrile
            0.183       0.158 0.180 0.182       0.183       0.157   0.174    7.29
53)  cyclohexane
            0.794 0.771 0.697 0.667 0.700 0.728 0.679 0.702 0.709   0.716    5.82
54)  1,1,1-trichloroethane
            0.712 0.705 0.624 0.624 0.644 0.696 0.625 0.681 0.634   0.661    5.69
55)  tert-amyl alcohol
            0.019       0.019 0.023 0.022       0.023       0.018   0.020   10.81
56)  tert-amyl methyl ether
            1.223 1.204 1.024 1.170 1.113 1.179 1.119 1.080 1.087   1.133    5.74

57) I   1,4-difluorobenzene   ----------------ISTD---------------------
58)  epichlorohydrin
            0.017       0.014 0.017 0.017       0.017       0.015   0.016    7.82
59)  n-butyl alcohol
            0.004       0.004 0.006 0.005       0.006       0.004   0.005#  15.81
             ----- Linear regression -----  Coefficient =  0.9993
               Response Ratio = -0.01656 + 0.00570 *A

60)  carbon tetrachloride
            0.433 0.451 0.379 0.375 0.395 0.480 0.381 0.535 0.379   0.423   13.33
61)  1,1-dichloropropene
            0.511 0.517 0.443 0.446 0.463 0.528 0.442 0.569 0.447   0.485    9.72
62)  hexane
            0.499 0.504 0.395 0.448 0.449 0.497 0.407 0.449 0.397   0.449    9.72
63)  benzene
            1.474 1.464 1.275 1.287 1.323 1.482 1.259 1.846 1.289   1.411   13.28
64)  heptane
            0.285 0.290 0.241 0.283 0.280 0.235 0.254       0.235   0.263    9.15
65)  isopropyl acetate
            0.114       0.100 0.117 0.114       0.113       0.102   0.110    6.41
66)  1,2-dichloroethane
            0.325 0.307 0.283 0.299 0.301 0.311 0.287 0.288 0.293   0.299    4.43
67)  ethyl acrylate
                                                                    0.000#  -1.00
68)  trichloroethene
            0.355 0.346 0.304 0.311 0.322 0.317 0.305 0.380 0.310   0.328    8.04
69)  2-chloroethyl vinyl ether
            0.088 0.083 0.076 0.090 0.089 0.079 0.090 0.088 0.080   0.085    6.14
70)  methylcyclohexane
            0.570 0.602 0.509 0.534 0.531 0.568 0.514 0.359 0.508   0.522   13.21
71)  tert-amyl ethyl ether
            0.805 0.739 0.689 0.717 0.729 0.755 0.697 0.617 0.714   0.718    7.14
72)  methyl methacrylate
            0.138 0.114 0.125 0.146 0.142       0.138       0.127   0.133    8.44
73)  1,2-dichloropropane
            0.337 0.323 0.290 0.302 0.309 0.334 0.297 0.293 0.296   0.309    5.83
74)  dibromomethane
            0.141 0.131 0.121 0.131 0.134 0.137 0.127       0.124   0.131    5.03
75)  bromodichloromethane
            0.376 0.365 0.335 0.354 0.362 0.396 0.348 0.332 0.333   0.356    6.05
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VC6448-ICC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C179998.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 76)  cis-1,3-dichloropropene
            0.496 0.477 0.432 0.462 0.468 0.529 0.447 0.492 0.440   0.472    6.53
 77)  toluene-d8 (s)
            1.219 1.377 1.088 1.117 1.106       1.030       1.168   1.158    9.79
 78)  4-methyl-2-pentanone
            0.069 0.053 0.062 0.074 0.072       0.070       0.062   0.066   10.76
 79)  toluene
            0.898 0.898 0.771 0.773 0.791 0.929 0.744       0.785   0.824    8.78
 80)  3-methyl-1-butanol
            0.007 0.006 0.006 0.008 0.008       0.008       0.006   0.007#  12.70
 81)  trans-1,3-dichloropropene
            0.383 0.371 0.333 0.364 0.371 0.431 0.353 0.452 0.337   0.377   10.60
 82)  ethyl methacrylate
            0.298 0.287 0.268 0.304 0.300 0.315 0.288       0.263   0.290    6.12
 83)  1,1,2-trichloroethane
            0.185 0.186 0.162 0.169 0.170 0.226 0.157       0.165   0.177   12.55
 84)  2-hexanone
            0.061       0.059 0.070 0.068       0.067       0.055   0.063    9.66

 85) I   chlorobenzene-d5      ----------------ISTD---------------------
 86)  cyclohexanone
            0.016       0.003 0.004 0.007       0.006       0.003   0.007#  72.60
             ----- Linear regression -----  Coefficient =  0.4378
               Response Ratio = 0.00915 + 0.00361 *A

 87)  tetrachloroethene
            0.487 0.496 0.423 0.429 0.441 0.474 0.406 0.573 0.422   0.461   11.34
 88)  1,3-dichloropropane
            0.506 0.516 0.434 0.464 0.457 0.606 0.441 0.490 0.450   0.485   11.09
 89)  butyl acetate
            0.177 0.166 0.151 0.181 0.173       0.172       0.156   0.168    6.61
 90)  3,3-dimethyl-1-butanol
            0.019 0.019 0.017 0.022 0.022 0.019 0.023       0.018   0.020   11.88
 91)  dibromochloromethane
            0.298 0.300 0.274 0.298 0.302 0.374 0.293 0.285 0.277   0.300    9.80
 92)  1,2-dibromoethane
            0.262 0.250 0.226 0.250 0.245 0.305 0.235 0.269 0.235   0.253    9.35
 93)  n-butyl ether
                                                                    0.000#  -1.00
 94)  chlorobenzene
            1.204 1.199 1.042 1.055 1.075 1.369 1.003       1.064   1.126   10.82
 95)  1,1,1,2-tetrachloroethane
            0.369 0.357 0.331 0.344 0.352 0.414 0.337 0.329 0.330   0.351    7.73
 96)  ethylbenzene
            2.228 2.244 1.947 1.941 1.957 2.420 1.822 2.779 1.965   2.145   14.26
 97)  m,p-xylene
            0.862 0.884 0.752 0.748 0.748 0.927 0.677 1.195 0.755   0.839   18.59
             ----- Linear regression -----  Coefficient =  0.9976
               Response Ratio = 0.05143 + 0.68543 *A

 98)  o-xylene
            0.806 0.828 0.710 0.717 0.723 0.890 0.679 0.912 0.718   0.776   11.04
 99)  styrene
            1.334 1.309 1.179 1.203 1.211 1.469 1.131 1.538 1.184   1.284   10.93
100)  bromoform
            0.164 0.178 0.153 0.173 0.176 0.212 0.173       0.154   0.173   10.79

101) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
102)  isopropylbenzene
            4.472 4.547 3.858 3.832 3.884 4.772 3.621 5.158 3.894   4.227   12.45
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VC6448-ICC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C179998.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
103)  4-bromofluorobenzene (s)
            1.328       1.058 1.110 1.079       1.018       1.258   1.142   10.78
104)  bromobenzene
            0.955 0.958 0.826 0.849 0.859 1.128 0.816       0.859   0.906   11.53
105)  1,1,2,2-tetrachloroethane
            0.717 0.768 0.591 0.633 0.618 1.024 0.592 0.678 0.613   0.693   19.91
             ----- Linear regression -----  Coefficient =  0.9994
               Response Ratio = 0.01176 + 0.59455 *A

106)  trans-1,4-dichloro-2-butene
            0.184 0.180 0.152 0.170 0.169 0.222 0.165       0.153   0.174   12.82
107)  1,2,3-trichloropropane
            0.180 0.193 0.147 0.162 0.159       0.153       0.160   0.165    9.83
108)  n-propylbenzene
            5.298 5.544 4.560 4.597 4.683 5.554 4.301 6.602 4.616   5.084   14.40
109)  4-ethyltoluene
            4.198 3.740 3.606 3.632 3.706 3.810 3.369 4.725 3.694   3.831   10.44
110)  2-chlorotoluene
            1.010 1.042 0.874 0.884 0.905 1.155 0.844 1.246 0.888   0.983   14.35
111)  4-chlorotoluene
            3.229 3.276 2.739 2.793 2.834 3.645 2.641       2.807   2.995   11.62
112)  1,3,5-trimethylbenzene
            3.705 3.895 3.223 3.243 3.293 4.002 3.059 4.554 3.282   3.584   13.68
113)  tert-butylbenzene
            3.122 3.268 2.783 2.738 2.775 3.367 2.609 3.757 2.801   3.025   12.53
114)  pentachloroethane
            0.532 0.547 0.483 0.505 0.529 0.619 0.506       0.478   0.525    8.55
115)  1,2,4-trimethylbenzene
            3.640 3.727 3.148 3.200 3.245 4.008 2.995       3.211   3.397   10.32
116)  sec-butylbenzene
            4.825 5.187 4.259 4.220 4.305 4.901 3.988 6.161 4.304   4.683   14.46
117)  1,3-dichlorobenzene
            1.921 1.991 1.676 1.708 1.739 2.374 1.611       1.729   1.844   13.50
118)  p-isopropyltoluene
            3.838 4.113 3.427 3.456 3.529 3.943 3.260 5.004 3.482   3.784   14.14
119)  1,4-dichlorobenzene
            1.922 2.017 1.658 1.723 1.731 2.377 1.603       1.706   1.842   13.90
120)  benzyl chloride
            1.236 1.276 0.985 1.175 1.229 1.334 1.220       1.052   1.188    9.76
121)  p-diethylbenzene
            2.375 2.131 2.054 2.090 2.170 2.020 1.962 2.599 2.073   2.164    9.27
122)  1,2-dichlorobenzene
            1.684 1.725 1.459 1.500 1.524 1.989 1.422       1.509   1.602   11.79
123)  n-butylbenzene
            2.116 2.251 1.902 1.952 2.000 2.073 1.817       1.904   2.002    6.97
124)  1,2,4,5-tetramethylbenzene
            3.344 2.945 2.962 3.000 3.102 2.943 2.842 4.239 3.035   3.157   13.61
125)  1,2-dibromo-3-chloropropane
            0.100 0.100 0.087 0.097 0.096       0.096       0.091   0.095    4.80
126)  1,3,5-trichlorobenzene
            1.463 1.578 1.301 1.366 1.393 1.565 1.259       1.323   1.406    8.48
127)  1,2,4-trichlorobenzene
            1.151 1.197 1.055 1.111 1.122 1.385 1.034       1.069   1.140    9.83
128)  hexachlorobutadiene
            0.729 0.835 0.687 0.658 0.679 0.731 0.668       0.680   0.708    8.17
129)  naphthalene
            2.000 2.049 1.721 1.838 1.818       1.734       1.801   1.851    6.83
130)  1,2,3-trichlorobenzene
            0.951 1.069 0.874 0.897 0.897 1.164 0.844       0.912   0.951   11.52
131)  hexachloroethane
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VC6448-ICC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C179998.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.580 0.643 0.551 0.584 0.615 0.620 0.608 0.809 0.543   0.617   12.79
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MCS6448.M         Thu Mar 21 16:07:21 2013   C
```

Initial Calibration Verification

Job Number: JB31121 **Sample:** VC6450-ICV6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180019.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\C180019.D Vial: 2
Acq On : 13 Mar 2013 11:05 am Operator: tamikag
Sample : icv6448-50 Inst : MSC
Misc : MS44188,VC6450,5.0,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\MCS6448.M (RTE Integrator)
Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Mar 21 15:53:29 2013
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	113	0.00	5.48
2	M	1,4-dioxane	0.113	0.106	6.2	97	0.00	9.82
3	M	tertiary butyl alcohol	1.314	1.322	-0.6	107	0.00	5.61
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	95	0.00	8.07
6	M	chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.418	0.437	-4.5	103	0.00	2.55
8	M	dichlorodifluoromethane	0.539	0.560	-3.9	94	0.00	2.54
9	M	chloromethane	0.570	0.537	5.8	95	0.00	2.73
10	M	vinyl chloride	0.582	0.578	0.7	95	0.00	2.88
11	M	acetaldehyde		----------NA----------				
12	M	bromomethane	0.320	0.322	-0.6	92	0.00	3.35
13	M	chloroethane	0.327	0.327	0.0	96	0.00	3.48
14		VINYL BROMIDE		----------NA----------				
15	M	trichlorofluoromethane	0.699	0.694	0.7	95	0.00	3.79
16		pentane	0.763	0.698	8.5	97	0.00	3.86
17	M	ethyl ether	0.235	0.248	-5.5	102	-0.02	4.21
18	m	2-chloropropane	0.859	0.822	4.3	101	0.00	4.42
19	M	acrolein	0.045	0.054	-20.0	106	0.00	4.54
20	M	1,1-dichloroethene	0.412	0.418	-1.5	100	0.00	4.62
21	M	isopropyl alcohol		----------NA----------				
22	M	acetone	0.064	0.067	-4.7	106	-0.02	4.77
23	M	allyl chloride	0.741	0.709	4.3	100	0.00	5.22
24	M	acetonitrile	0.011	0.012	-9.1	102	-0.02	5.34
25	M	iodomethane	0.706	0.701	0.7	96	0.00	4.89
26	M	iso-butyl alcohol	0.004	0.005	-25.0#	101	0.00	5.77
27	M	carbon disulfide	1.567	1.493	4.7	99	-0.02	4.95
28	M	methylene chloride	0.469	0.437	6.8	100	0.00	5.47
29	m	1-chloropropane	0.036	0.038	-5.6	101	-0.02	5.44
		----------	True	Calc.	% Drift	----------		
30	M	methyl acetate	50.000	53.655	-7.3	99	0.00	5.24
		----------	AvgRF	CCRF	% Dev	----------		
31	M	methyl tert butyl ether	1.019	1.074	-5.3	99	0.00	5.77
32	M	trans-1,2-dichloroethene	0.475	0.468	1.5	97	0.00	5.81
33	M	di-isopropyl ether	1.431	1.503	-5.0	99	0.00	6.46
34	M	ethyl tert-butyl ether	1.291	1.328	-2.9	95	0.00	6.98
		----------	True	Calc.	% Drift	----------		
35	M	2-butanone	50.000	56.038	-12.1	107	0.00	7.36

Initial Calibration Verification

Job Number: JB31121 **Sample:** VC6450-ICV6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180019.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
36	M	1,1-dichloroethane	0.829	0.839	-1.2	100	0.00	6.49
37	M	chloroprene	0.699	0.695	0.6	92	0.00	6.57
38	M	acrylonitrile	0.078	0.090	-15.4	104	0.00	5.93
			True	Calc.	% Drift			
39	M	vinyl acetate	50.000	56.011	-12.0	102	0.00	6.53
40	M	ethyl acetate	50.000	55.105	-10.2	92	0.00	7.39
			AvgRF	CCRF	% Dev			
41	M	2,2-dichloropropane	0.661	0.658	0.5	103	0.00	7.30
42	M	cis-1,2-dichloroethene	0.462	0.482	-4.3	98	0.00	7.35
43	m	methyl acrylate	0.203	0.243	-19.7	103	0.00	7.46
44	M	propionitrile	0.030	0.036	-20.0	104	0.00	7.55
45	M	bromochloromethane	0.176	0.187	-6.3	98	0.00	7.69
46	M	tetrahydrofuran	0.077	0.089	-15.6	105	0.00	7.67
47	M	chloroform	0.753	0.746	0.9	100	0.00	7.78
48	m	t-butyl formate	0.233	0.255	-9.4	94	0.00	7.79
49	S	dibromofluoromethane (s)	0.396	0.378	4.5	94	0.00	8.01
50	S	1,2-dichloroethane-d4 (s)	0.369	0.368	0.3	97	0.00	8.50
51	M	freon 113	0.284	0.264	7.0	81	0.00	4.60
52	M	methacrylonitrile	0.174	0.203	-16.7	107	0.00	7.71
53		cyclohexane	0.716	0.724	-1.1	103	0.00	7.96
54	M	1,1,1-trichloroethane	0.661	0.653	1.2	99	0.00	7.97
55		tert-amyl alcohol	0.020	0.028	-40.0#	116	0.00	8.52
56	M	tert-amyl methyl ether	1.133	1.134	-0.1	92	0.00	8.58
57	I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	9.06
58	M	epichlorohydrin	0.016	0.019	-18.7	107	0.00	10.45
			True	Calc.	% Drift			
59	M	n-butyl alcohol	2500.000	2846.154	-13.8	107	0.00	9.33
			AvgRF	CCRF	% Dev			
60	M	carbon tetrachloride	0.423	0.375	11.3	98	0.00	8.15
61	M	1,1-dichloropropene	0.485	0.455	6.2	100	0.00	8.19
62	M	hexane	0.449	0.381	15.1	83	0.00	6.08
63	M	benzene	1.411	1.302	7.7	99	0.00	8.46
64	M	heptane	0.263	0.235	10.6	81	0.00	8.71
65	M	isopropyl acetate	0.110	0.121	-10.0	101	0.00	8.57
66	M	1,2-dichloroethane	0.299	0.308	-3.0	100	0.00	8.61
67		ethyl acrylate		----------NA----------				
68	M	trichloroethene	0.328	0.313	4.6	98	0.00	9.36
69	M	2-chloroethyl vinyl ether	0.085	0.091	-7.1	99	0.00	10.35
70	M	methylcyclohexane	0.522	0.509	2.5	93	0.00	9.50
71		tert-amyl ethyl ether	0.718	0.754	-5.0	104	0.00	9.59
72	M	methyl methacrylate	0.133	0.149	-12.0	100	0.00	9.79
73	M	1,2-dichloropropane	0.309	0.309	0.0	100	0.00	9.69
74	M	dibromomethane	0.131	0.133	-1.5	99	0.00	9.85
75	M	bromodichloromethane	0.356	0.358	-0.6	99	0.00	10.02
76	M	cis-1,3-dichloropropene	0.472	0.464	1.7	98	0.00	10.50
77	S	toluene-d8 (s)	1.158	1.071	7.5	94	0.00	10.72
78	M	4-methyl-2-pentanone	0.066	0.079	-19.7	104	0.00	10.65
79	M	toluene	0.824	0.775	5.9	98	0.00	10.79
80	M	3-methyl-1-butanol	0.007	0.009#	-28.6#	106	0.00	10.73
81	M	trans-1,3-dichloropropene	0.377	0.369	2.1	99	0.00	11.10
82	M	ethyl methacrylate	0.290	0.310	-6.9	99	0.00	11.11
83	M	1,1,2-trichloroethane	0.177	0.173	2.3	100	0.00	11.27
84	M	2-hexanone	0.063	0.074	-17.5	103	0.00	11.47

Initial Calibration Verification

Job Number: JB31121 **Sample:** VC6450-ICV6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180019.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

85	I	chlorobenzene-d5	1.000	1.000	0.0	100	0.00	12.13
		----------	True	Calc.	% Drift	----------		
86	M	cyclohexanone	500.000	873.417	-74.7#	200	0.00	13.15
		----------	AvgRF	CCRF	% Dev	----------		
87	M	tetrachloroethene	0.461	0.400	13.2	93	0.00	11.31
88	M	1,3-dichloropropane	0.485	0.464	4.3	100	0.00	11.44
89	M	butyl acetate	0.168	0.186	-10.7	102	0.00	11.56
90	m	3,3-dimethyl-1-butanol	0.020	0.024	-20.0	108	0.00	11.65
91	M	dibromochloromethane	0.300	0.288	4.0	96	0.00	11.62
92	M	1,2-dibromoethane	0.253	0.243	4.0	97	0.00	11.74
93	M	n-butyl ether		----------NA----------				
94	M	chlorobenzene	1.126	1.020	9.4	96	0.00	12.16
95	M	1,1,1,2-tetrachloroethane	0.351	0.330	6.0	96	0.00	12.24
96	M	ethylbenzene	2.145	1.889	11.9	97	0.00	12.22
		----------	True	Calc.	% Drift	----------		
97	M	m,p-xylene	100.000	101.105	-1.1	96	0.00	12.33
		----------	AvgRF	CCRF	% Dev	----------		
98	M	o-xylene	0.776	0.690	11.1	96	0.00	12.69
99	M	styrene	1.284	1.149	10.5	95	0.00	12.71
100	M	bromoform	0.173	0.166	4.0	96	0.00	12.92
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	98	0.00	14.15
102	M	isopropylbenzene	4.227	3.774	10.7	97	0.00	12.99
103	S	4-bromofluorobenzene (s)	1.142	1.049	8.1	93	0.00	13.18
104	M	bromobenzene	0.906	0.824	9.1	95	0.00	13.31
		----------	True	Calc.	% Drift	----------		
105	M	1,1,2,2-tetrachloroethane	50.000	52.776	-5.6	99	0.00	13.33
		----------	AvgRF	CCRF	% Dev	----------		
106	M	trans-1,4-dichloro-2-bute	0.174	0.174	0.0	101	0.00	13.38
107	M	1,2,3-trichloropropane	0.165	0.165	0.0	100	0.00	13.38
108	M	n-propylbenzene	5.084	4.507	11.3	96	0.00	13.35
109	M	4-ethyltoluene	3.831	3.511	8.4	95	0.00	13.44
110	M	2-chlorotoluene	0.983	0.859	12.6	95	0.00	13.46
111	M	4-chlorotoluene	2.995	2.708	9.6	95	0.00	13.55
112	M	1,3,5-trimethylbenzene	3.584	3.156	11.9	96	0.00	13.50
113	M	tert-butylbenzene	3.025	2.688	11.1	96	0.00	13.76
114	M	pentachloroethane	0.525	0.489	6.9	95	0.00	13.84
115	M	1,2,4-trimethylbenzene	3.397	3.091	9.0	95	0.00	13.82
116	M	sec-butylbenzene	4.683	4.146	11.5	96	0.00	13.95
117	M	1,3-dichlorobenzene	1.844	1.617	12.3	93	0.00	14.10
118	M	p-isopropyltoluene	3.784	3.329	12.0	95	0.00	14.07
119	M	1,4-dichlorobenzene	1.842	1.615	12.3	92	0.00	14.18
120		benzyl chloride	1.188	1.174	1.2	98	0.00	14.29
121		p-diethylbenzene	2.164	1.992	7.9	94	0.00	14.38
122	M	1,2-dichlorobenzene	1.602	1.438	10.2	94	0.00	14.49
123	M	n-butylbenzene	2.002	1.854	7.4	93	0.00	14.40
124		1,2,4,5-tetramethylbenzen	3.157	2.898	8.2	95	0.00	15.02
125	M	1,2-dibromo-3-chloropropa	0.095	0.099	-4.2	100	0.00	15.14
126	m	1,3,5-trichlorobenzene	1.406	1.249	11.2	90	0.00	15.26
127	M	1,2,4-trichlorobenzene	1.140	1.017	10.8	90	0.00	15.77
128	M	hexachlorobutadiene	0.708	0.632	10.7	94	0.00	15.84
129	M	naphthalene	1.851	1.758	5.0	94	0.00	15.97
130	M	1,2,3-trichlorobenzene	0.951	0.832	12.5	91	0.00	16.17

Initial Calibration Verification

Job Number: JB31121 **Sample:** VC6450-ICV6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180019.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
131 M   hexachloroethane            0.617   0.564      8.6   95   0.00   14.66
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range               SPCC's out = 0  CCC's out = 0
     C179998.D  MCS6448.M        Thu Mar 21 17:25:26 2013   C
```

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180167.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\c-core\vc6461\C180167.D    Vial: 2
Acq On    : 20 Mar 2013  11:07 am                    Operator: tamikag
Sample    : cc6448-20                                Inst    : MSC
Misc      : MS44962,VC6461,5.0,,,,1                  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MCS6448.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Mar 13 09:37:57 2013
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	88	-0.02	5.48
2	M	1,4-dioxane	0.113	0.109	3.5	85	0.00	9.82
3	M	tertiary butyl alcohol	1.314	1.377	-4.8	94	0.00	5.61
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	70	0.00	8.07
6	M	chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.418	0.457	-9.3	82	0.00	2.54
8	M	dichlorodifluoromethane	0.539	0.568	-5.4	76	0.00	2.53
9	M	chloromethane	0.570	0.563	1.2	77	0.00	2.72
10	M	vinyl chloride	0.582	0.685	-17.7	89	0.00	2.88
11	M	acetaldehyde		----------NA----------				
12	M	bromomethane	0.320	0.327	-2.2	72	0.00	3.35
13	M	chloroethane	0.327	0.347	-6.1	80	0.00	3.49
14		VINYL BROMIDE		----------NA----------				
15	M	trichlorofluoromethane	0.699	0.713	-2.0	76	0.00	3.79
16		pentane		----------NA----------				
17	M	ethyl ether	0.235	0.240	-2.1	77	-0.02	4.21
18	m	2-chloropropane	0.859	0.912	-6.2	79	0.00	4.42
19	M	acrolein	0.045	0.045	0.0	71	0.00	4.55
20	M	1,1-dichloroethene	0.412	0.433	-5.1	75	0.00	4.62
21	M	isopropyl alcohol		----------NA----------				
22	M	acetone	0.064	0.072	-12.5	84	0.00	4.79
23	M	allyl chloride	0.741	0.775	-4.6	80	0.00	5.21
24	M	acetonitrile	0.011	0.014	-27.3#	102	-0.01	5.34
25	M	iodomethane	0.706	0.666	5.7	67	0.00	4.89
26	M	iso-butyl alcohol	0.004	0.004#	0.0	68	0.00	5.76
27	M	carbon disulfide	1.567	1.533	2.2	74	0.00	4.96
28	M	methylene chloride	0.469	0.460	1.9	77	0.00	5.47
29	m	1-chloropropane	0.036	0.039	-8.3	76	0.00	5.45
		----------	True	Calc.	% Drift	----------		
30	M	methyl acetate	20.000	24.501	-22.5#	95	0.00	5.24
		----------	AvgRF	CCRF	% Dev	----------		
31	M	methyl tert butyl ether	1.019	1.015	0.4	75	0.00	5.77
32	M	trans-1,2-dichloroethene	0.475	0.482	-1.5	74	0.00	5.81
33	M	di-isopropyl ether	1.431	1.697	-18.6	89	0.00	6.46
34	M	ethyl tert-butyl ether	1.291	1.426	-10.5	83	0.00	6.98
		----------	True	Calc.	% Drift	----------		
35	M	2-butanone	20.000	20.629	-3.1	83	0.00	7.37

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180167.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
36	M	1,1-dichloroethane	0.829	0.875	-5.5	77	0.00	6.50
37	M	chloroprene	0.699	0.822	-17.6	85	0.00	6.57
38	M	acrylonitrile	0.078	0.088	-12.8	84	0.00	5.93
			True	Calc.	% Drift			
39	M	vinyl acetate	20.000	20.682	-3.4	83	0.00	6.53
40	M	ethyl acetate	20.000	22.392	-12.0	87	0.00	7.39
			AvgRF	CCRF	% Dev			
41	M	2,2-dichloropropane	0.661	0.664	-0.5	76	0.00	7.30
42	M	cis-1,2-dichloroethene	0.462	0.466	-0.9	71	0.00	7.35
43	m	methyl acrylate	0.203	0.214	-5.4	80	0.00	7.47
44	M	propionitrile	0.030	0.033	-10.0	81	0.00	7.55
45	M	bromochloromethane	0.176	0.169	4.0	69	0.00	7.70
46	M	tetrahydrofuran	0.077	0.087	-13.0	87	0.00	7.68
47	M	chloroform	0.753	0.731	2.9	72	0.00	7.78
48	m	t-butyl formate	0.233	0.193	17.2	63	0.00	7.79
49	S	dibromofluoromethane (s)	0.396	0.381	3.8	72	0.00	8.01
50	S	1,2-dichloroethane-d4 (s)	0.369	0.352	4.6	72	0.00	8.50
51	M	freon 113	0.284	0.327	-15.1	80	0.00	4.60
52	M	methacrylonitrile	0.174	0.191	-9.8	84	0.00	7.72
53		cyclohexane	0.716	0.758	-5.9	76	0.00	7.95
54	M	1,1,1-trichloroethane	0.661	0.642	2.9	72	0.00	7.97
55		tert-amyl alcohol		----------NA----------				
56	M	tert-amyl methyl ether	1.133	1.119	1.2	76	0.00	8.58
57	I	1,4-difluorobenzene	1.000	1.000	0.0	74	0.00	9.06
58	M	epichlorohydrin	0.016	0.017	-6.3	86	0.00	10.45
			True	Calc.	% Drift			
59	M	n-butyl alcohol	1000.000	1052.660	-5.3	93	0.00	9.33
			AvgRF	CCRF	% Dev			
60	M	carbon tetrachloride	0.423	0.361	14.7	70	0.00	8.15
61	M	1,1-dichloropropene	0.485	0.457	5.8	76	0.00	8.19
62	M	hexane	0.449	0.542	-20.7#	101	0.00	6.09
63	M	benzene	1.411	1.280	9.3	74	0.00	8.47
64	M	heptane	0.263	0.321	-22.1#	99	0.00	8.72
65	M	isopropyl acetate	0.110	0.110	0.0	81	0.00	8.58
66	M	1,2-dichloroethane	0.299	0.274	8.4	71	0.00	8.61
67		ethyl acrylate		----------NA----------				
68	M	trichloroethene	0.328	0.298	9.1	72	0.00	9.36
69	M	2-chloroethyl vinyl ether	0.085	0.047	44.7#	45#	0.00	10.35
70	M	methylcyclohexane	0.522	0.583	-11.7	85	0.00	9.50
71		tert-amyl ethyl ether		----------NA----------				
72	M	methyl methacrylate	0.133	0.124	6.8	73	0.00	9.79
73	M	1,2-dichloropropane	0.309	0.293	5.2	75	0.00	9.69
74	M	dibromomethane	0.131	0.117	10.7	71	0.00	9.85
75	M	bromodichloromethane	0.356	0.321	9.8	71	0.00	10.02
76	M	cis-1,3-dichloropropene	0.472	0.418	11.4	72	0.00	10.51
77	S	toluene-d8 (s)	1.158	1.128	2.6	77	0.00	10.72
78	M	4-methyl-2-pentanone	0.066	0.065	1.5	77	0.00	10.65
79	M	toluene	0.824	0.733	11.0	70	0.00	10.79
80	M	3-methyl-1-butanol	0.007	0.008#	-14.3	88	0.00	10.73
81	M	trans-1,3-dichloropropene	0.377	0.323	14.3	72	0.00	11.10
82	M	ethyl methacrylate	0.290	0.252	13.1	70	0.00	11.11
83	M	1,1,2-trichloroethane	0.177	0.156	11.9	71	0.00	11.27
84	M	2-hexanone	0.063	0.059	6.3	74	0.00	11.47

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180167.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

85	I	chlorobenzene-d5	1.000	1.000	0.0	73	0.00	12.14
		----------	True	Calc.	% Drift	----------		
86	M	cyclohexanone	200.000	693.488	-246.7#	331	0.00	13.15
		----------	AvgRF	CCRF	% Dev	----------		
87	M	tetrachloroethene	0.461	0.386	16.3	67	0.00	11.31
88	M	1,3-dichloropropane	0.485	0.432	10.9	73	0.00	11.44
89	M	butyl acetate	0.168	0.173	-3.0	84	0.00	11.56
90	m	3,3-dimethyl-1-butanol	0.020	0.020	0.0	86	0.00	11.65
91	M	dibromochloromethane	0.300	0.249	17.0	66	0.00	11.62
92	M	1,2-dibromoethane	0.253	0.218	13.8	70	0.00	11.74
93	M	n-butyl ether		----------NA----------				
94	M	chlorobenzene	1.126	0.974	13.5	68	0.00	12.16
95	M	1,1,1,2-tetrachloroethane	0.351	0.305	13.1	67	0.00	12.24
96	M	ethylbenzene	2.145	1.880	12.4	71	0.00	12.22
		----------	True	Calc.	% Drift	----------		
97	M	m,p-xylene	40.000	37.650	5.9	69	0.00	12.33
		----------	AvgRF	CCRF	% Dev	----------		
98	M	o-xylene	0.776	0.667	14.0	69	0.00	12.69
99	M	styrene	1.284	1.080	15.9	67	0.00	12.71
100	M	bromoform	0.173	0.137	20.8#	66	0.00	12.92
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	69	0.00	14.16
102	M	isopropylbenzene	4.227	3.908	7.5	70	0.00	12.99
103	S	4-bromofluorobenzene (s)	1.142	1.082	5.3	71	0.00	13.18
104	M	bromobenzene	0.906	0.767	15.3	64	0.00	13.31
105	M	1,1,2,2-tetrachloroethane	0.693	0.619	10.7	73	0.00	13.33
106	M	trans-1,4-dichloro-2-bute	0.174	0.161	7.5	74	0.00	13.38
107	M	1,2,3-trichloropropane	0.165	0.148	10.3	70	0.00	13.38
108	M	n-propylbenzene	5.084	4.758	6.4	72	0.00	13.35
109	M	4-ethyltoluene		----------NA----------				
110	M	2-chlorotoluene	0.983	0.852	13.3	68	0.00	13.46
111	M	4-chlorotoluene	2.995	2.765	7.7	70	0.00	13.55
112	M	1,3,5-trimethylbenzene	3.584	3.203	10.6	69	0.00	13.50
113	M	tert-butylbenzene	3.025	2.754	9.0	69	0.00	13.76
114	M	pentachloroethane	0.525	0.438	16.6	63	0.00	13.84
115	M	1,2,4-trimethylbenzene	3.397	3.140	7.6	69	0.00	13.82
116	M	sec-butylbenzene	4.683	4.354	7.0	71	0.00	13.95
117	M	1,3-dichlorobenzene	1.844	1.577	14.5	65	0.00	14.10
118	M	p-isopropyltoluene	3.784	3.438	9.1	70	0.00	14.07
119	M	1,4-dichlorobenzene	1.842	1.561	15.3	65	0.00	14.18
120		benzyl chloride	1.188	1.133	4.6	80	0.00	14.29
121		p-diethylbenzene		----------NA----------				
122	M	1,2-dichlorobenzene	1.602	1.385	13.5	66	0.00	14.49
123	M	n-butylbenzene	2.002	1.925	3.8	70	0.00	14.41
124		1,2,4,5-tetramethylbenzen		----------NA----------				
125	M	1,2-dibromo-3-chloropropa	0.095	0.090	5.3	71	0.00	15.14
126	m	1,3,5-trichlorobenzene	1.406	1.204	14.4	64	0.00	15.26
127	M	1,2,4-trichlorobenzene	1.140	0.944	17.2	62	0.00	15.77
128	M	hexachlorobutadiene	0.708	0.639	9.7	65	0.00	15.84
129	M	naphthalene	1.851	1.641	11.3	66	0.00	15.97
130	M	1,2,3-trichlorobenzene	0.951	0.790	16.9	63	0.00	16.17
131	M	hexachloroethane	0.617	0.538	12.8	68	0.00	14.66

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180167.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 C179997.D  MCS6448.M        Wed Mar 20 17:14:38 2013   VOA-CLN-04
```

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180195.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\c-core\vc6461\C180195.D    Vial: 3
Acq On    : 21 Mar 2013  11:40 am                    Operator: tamikag
Sample    : cc6448-20                                Inst    : MSC
Misc      : MS44803,VC6461,5.0,,,,1                  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MCS6448.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Mar 21 15:53:29 2013
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	81	-0.02	5.48
2	M	1,4-dioxane	0.113	0.107	5.3	78	0.00	9.82
3	M	tertiary butyl alcohol	1.314	1.336	-1.7	84	0.00	5.61
4		ethanol		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	70	0.00	8.07
6	M	chlorotrifluoroethene		----------NA----------				
7	M	chlorodifluoromethane	0.418	0.370	11.5	66	0.00	2.55
8	M	dichlorodifluoromethane	0.539	0.516	4.3	69	0.00	2.54
9	M	chloromethane	0.570	0.511	10.4	70	-0.01	2.72
10	M	vinyl chloride	0.582	0.620	-6.5	81	0.00	2.88
11	M	acetaldehyde		----------NA----------				
12	M	bromomethane	0.320	0.309	3.4	68	0.00	3.35
13	M	chloroethane	0.327	0.324	0.9	75	0.00	3.48
14		VINYL BROMIDE		----------NA----------				
15	M	trichlorofluoromethane	0.699	0.658	5.9	71	-0.01	3.79
16		pentane		----------NA----------				
17	M	ethyl ether	0.235	0.234	0.4	75	-0.02	4.21
18	m	2-chloropropane	0.859	0.824	4.1	71	-0.01	4.41
19	M	acrolein	0.045	0.044	2.2	70	0.00	4.55
20	M	1,1-dichloroethene	0.412	0.404	1.9	70	0.00	4.61
21	M	isopropyl alcohol		----------NA----------				
22	M	acetone	0.064	0.063	1.6	74	0.00	4.80
23	M	allyl chloride	0.741	0.729	1.6	76	0.00	5.21
24	M	acetonitrile	0.011	0.012	-9.1	89	0.00	5.35
25	M	iodomethane	0.706	0.636	9.9	64	0.00	4.90
26	M	iso-butyl alcohol	0.004	0.004#	0.0	67	-0.01	5.76
27	M	carbon disulfide	1.567	1.423	9.2	69	-0.01	4.95
28	M	methylene chloride	0.469	0.437	6.8	74	-0.01	5.47
29	m	1-chloropropane	0.036	0.037	-2.8	72	-0.02	5.44
		----------	True	Calc.	% Drift	----------		
30	M	methyl acetate	20.000	20.940	-4.7	82	0.00	5.26
		----------	AvgRF	CCRF	% Dev	----------		
31	M	methyl tert butyl ether	1.019	0.968	5.0	72	-0.01	5.76
32	M	trans-1,2-dichloroethene	0.475	0.454	4.4	70	0.00	5.82
33	M	di-isopropyl ether	1.431	1.545	-8.0	81	-0.01	6.45
34	M	ethyl tert-butyl ether	1.291	1.300	-0.7	76	-0.01	6.98
		----------	True	Calc.	% Drift	----------		
35	M	2-butanone	20.000	18.954	5.2	75	0.00	7.37

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180195.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
36	M	1,1-dichloroethane	0.829	0.826	0.4	73	0.00	6.50
37	M	chloroprene	0.699	0.723	-3.4	75	0.00	6.57
38	M	acrylonitrile	0.078	0.082	-5.1	79	0.00	5.93
			True	Calc.	% Drift			
39	M	vinyl acetate	20.000	19.014	4.9	75	0.00	6.54
40	M	ethyl acetate	20.000	19.666	1.7	76	0.00	7.40
			AvgRF	CCRF	% Dev			
41	M	2,2-dichloropropane	0.661	0.603	8.8	69	0.00	7.30
42	M	cis-1,2-dichloroethene	0.462	0.457	1.1	70	0.00	7.35
43	m	methyl acrylate	0.203	0.198	2.5	74	0.00	7.47
44	M	propionitrile	0.030	0.032	-6.7	78	0.00	7.55
45	M	bromochloromethane	0.176	0.158	10.2	65	0.00	7.69
46	M	tetrahydrofuran	0.077	0.078	-1.3	78	0.00	7.68
47	M	chloroform	0.753	0.705	6.4	70	0.00	7.78
48	m	t-butyl formate	0.233	0.170	27.0#	56	-0.01	7.79
49	S	dibromofluoromethane (s)	0.396	0.377	4.8	71	0.00	8.01
50	S	1,2-dichloroethane-d4 (s)	0.369	0.336	8.9	69	0.00	8.50
51	M	freon 113	0.284	0.281	1.1	69	-0.02	4.59
52	M	methacrylonitrile	0.174	0.168	3.4	74	0.00	7.71
53		cyclohexane	0.716	0.683	4.6	68	0.00	7.96
54	M	1,1,1-trichloroethane	0.661	0.596	9.8	67	0.00	7.98
55		tert-amyl alcohol		----------NA----------				
56	M	tert-amyl methyl ether	1.133	1.032	8.9	70	0.00	8.58
57	I	1,4-difluorobenzene	1.000	1.000	0.0	73	0.00	9.06
58	M	epichlorohydrin	0.016	0.016	0.0	80	0.00	10.46
			True	Calc.	% Drift			
59	M	n-butyl alcohol	1000.000	966.184	3.4	83	0.00	9.33
			AvgRF	CCRF	% Dev			
60	M	carbon tetrachloride	0.423	0.338	20.1#	65	0.00	8.15
61	M	1,1-dichloropropene	0.485	0.426	12.2	70	0.00	8.20
62	M	hexane	0.449	0.477	-6.2	88	0.00	6.08
63	M	benzene	1.411	1.233	12.6	71	0.00	8.47
64	M	heptane	0.263	0.279	-6.1	85	0.00	8.71
65	M	isopropyl acetate	0.110	0.104	5.5	76	0.00	8.58
66	M	1,2-dichloroethane	0.299	0.268	10.4	69	0.00	8.61
67		ethyl acrylate		----------NA----------				
68	M	trichloroethene	0.328	0.288	12.2	69	0.00	9.36
69	M	2-chloroethyl vinyl ether	0.085	0.034	60.0#	33#	0.00	10.36
70	M	methylcyclohexane	0.522	0.516	1.1	74	0.00	9.50
71		tert-amyl ethyl ether		----------NA----------				
72	M	methyl methacrylate	0.133	0.117	12.0	69	0.00	9.79
73	M	1,2-dichloropropane	0.309	0.286	7.4	72	0.00	9.69
74	M	dibromomethane	0.131	0.115	12.2	69	0.00	9.85
75	M	bromodichloromethane	0.356	0.313	12.1	68	0.00	10.02
76	M	cis-1,3-dichloropropene	0.472	0.405	14.2	69	0.00	10.51
77	S	toluene-d8 (s)	1.158	1.127	2.7	76	0.00	10.72
78	M	4-methyl-2-pentanone	0.066	0.061	7.6	71	0.00	10.64
79	M	toluene	0.824	0.719	12.7	68	0.00	10.79
80	M	3-methyl-1-butanol	0.007	0.007#	0.0	82	0.00	10.73
81	M	trans-1,3-dichloropropene	0.377	0.311	17.5	68	0.00	11.10
82	M	ethyl methacrylate	0.290	0.243	16.2	66	0.00	11.11
83	M	1,1,2-trichloroethane	0.177	0.150	15.3	68	0.00	11.27
84	M	2-hexanone	0.063	0.054	14.3	67	0.00	11.48

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180195.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

85	I	chlorobenzene-d5	1.000	1.000	0.0	72	0.00	12.13
		----------	True	Calc.	% Drift	----------		
86	M	cyclohexanone	200.000	423.190	-111.6#	219	0.00	13.15
		----------	AvgRF	CCRF	% Dev	----------		
87	M	tetrachloroethene	0.461	0.372	19.3	63	0.00	11.31
88	M	1,3-dichloropropane	0.485	0.417	14.0	69	0.00	11.44
89	M	butyl acetate	0.168	0.162	3.6	77	0.00	11.56
90	m	3,3-dimethyl-1-butanol	0.020	0.018	10.0	79	0.00	11.65
91	M	dibromochloromethane	0.300	0.247	17.7	65	0.00	11.63
92	M	1,2-dibromoethane	0.253	0.208	17.8	66	0.00	11.74
93	M	n-butyl ether		----------NA----------				
94	M	chlorobenzene	1.126	0.955	15.2	66	0.00	12.16
95	M	1,1,1,2-tetrachloroethane	0.351	0.304	13.4	66	0.00	12.24
96	M	ethylbenzene	2.145	1.843	14.1	68	0.00	12.22
		----------	True	Calc.	% Drift	----------		
97	M	m,p-xylene	40.000	36.763	8.1	67	0.00	12.33
		----------	AvgRF	CCRF	% Dev	----------		
98	M	o-xylene	0.776	0.654	15.7	66	0.00	12.69
99	M	styrene	1.284	1.075	16.3	66	0.00	12.71
100	M	bromoform	0.173	0.135	22.0#	64	0.00	12.92
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	68	0.00	14.16
102	M	isopropylbenzene	4.227	3.836	9.3	68	0.00	12.99
103	S	4-bromofluorobenzene (s)	1.142	1.079	5.5	69	0.00	13.18
104	M	bromobenzene	0.906	0.774	14.6	64	0.00	13.31
		----------	True	Calc.	% Drift	----------		
105	M	1,1,2,2-tetrachloroethane	20.000	19.240	3.8	69	0.00	13.33
		----------	AvgRF	CCRF	% Dev	----------		
106	M	trans-1,4-dichloro-2-bute	0.174	0.154	11.5	69	0.00	13.38
107	M	1,2,3-trichloropropane	0.165	0.153	7.3	71	0.00	13.37
108	M	n-propylbenzene	5.084	4.653	8.5	69	0.00	13.35
109	M	4-ethyltoluene		----------NA----------				
110	M	2-chlorotoluene	0.983	0.851	13.4	66	0.00	13.46
111	M	4-chlorotoluene	2.995	2.761	7.8	69	0.00	13.56
112	M	1,3,5-trimethylbenzene	3.584	3.159	11.9	67	0.00	13.50
113	M	tert-butylbenzene	3.025	2.670	11.7	65	0.00	13.77
114	M	pentachloroethane	0.525	0.443	15.6	62	0.00	13.83
115	M	1,2,4-trimethylbenzene	3.397	3.124	8.0	67	0.00	13.82
116	M	sec-butylbenzene	4.683	4.209	10.1	67	0.00	13.95
117	M	1,3-dichlorobenzene	1.844	1.609	12.7	65	0.00	14.10
118	M	p-isopropyltoluene	3.784	3.385	10.5	67	0.00	14.06
119	M	1,4-dichlorobenzene	1.842	1.588	13.8	65	0.00	14.17
120		benzyl chloride	1.188	1.087	8.5	75	0.00	14.29
121		p-diethylbenzene		----------NA----------				
122	M	1,2-dichlorobenzene	1.602	1.388	13.4	65	0.00	14.49
123	M	n-butylbenzene	2.002	1.875	6.3	67	0.00	14.40
124		1,2,4,5-tetramethylbenzen		----------NA----------				
125	M	1,2-dibromo-3-chloropropa	0.095	0.085	10.5	66	0.00	15.14
126	m	1,3,5-trichlorobenzene	1.406	1.230	12.5	64	0.00	15.26
127	M	1,2,4-trichlorobenzene	1.140	0.964	15.4	62	0.00	15.77
128	M	hexachlorobutadiene	0.708	0.631	10.9	62	0.00	15.84
129	M	naphthalene	1.851	1.664	10.1	66	0.00	15.97
130	M	1,2,3-trichlorobenzene	0.951	0.791	16.8	61	0.00	16.17

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VC6461-CC6448
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** C180195.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
131 M   hexachloroethane            0.617   0.520     15.7   64   0.00   14.66
 ---------------------------------------------------------------------------
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    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     C179997.D  MCS6448.M        Thu Mar 28 09:18:48 2013   VOA-CLN-04
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VD8379-ICC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205391.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSD

```
Method       : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Tue Feb 12 09:12:31 2013
Response via : Initial Calibration

Calibration Files
5   =d205388.D   2   =d205387.D   0.5 =d205385.D   50  =d205391.D
100 =d205392.D   1   =d205386.D   200 =d205393.D   20  =d205390.D
10  =d205389.D       =
```

Compound	5	2	0.5	50	100	1	200	20	10	Avg	%RSD
1) I Tert Butyl Alcohol-d9 ----------ISTD----------											
2) 1,4-dioxane	0.090	0.088		0.080	0.105		0.084	0.100	0.118	0.095	13.98
3) tertiary butyl alcohol	1.069	1.026		1.114	1.111	0.830	1.009	1.154	1.210	1.065	10.84
4) I pentafluorobenzene ----------ISTD----------											
5) 1,2-dichloro-1,2,2-trifluoroet										0.000#	-1.00
6) chlorodifluoromethane	0.568	0.561		0.531	0.550	0.437	0.557	0.551	0.617	0.547	9.26
7) dichlorodifluoromethane	0.680	0.713		0.697	0.658	0.519	0.696	0.716	0.680	0.670	9.55
8) chloromethane	0.768	0.771	0.786	0.734	0.760	0.622	0.805	0.759	0.706	0.746	7.30
9) vinyl chloride	0.784	0.762	0.720	0.787	0.786	0.624	0.813	0.794	0.739	0.757	7.58
10) bromomethane	0.457	0.470	0.398	0.451	0.425	0.380	0.320	0.476	0.435	0.424	11.84
11) chloroethane	0.452	0.454	0.410	0.418	0.451	0.369	0.436	0.436	0.402	0.425	6.66
12) vinyl bromide										0.000#	-1.00
13) trichlorofluoromethane	0.808	0.812		0.836	0.811	0.615	0.869	0.854	0.819	0.803	9.86
14) pentane	0.894	0.909	0.829	0.828	0.920	0.768	0.967	0.906	0.841	0.874	6.99
15) ethyl ether	0.329	0.382	0.471	0.328	0.346	0.361	0.349	0.345	0.295	0.356	13.85
16) acrolein	0.144	0.145		0.130	0.170	0.145	0.145	0.141	0.121	0.143	9.88
17) chlorotrifluoroethene										0.000#	-1.00
18) 2-chloropropane	0.995	1.198	1.253	0.978	1.005	1.195	0.977	1.001	0.831	1.048	13.07
19) 1,1-dichloroethene	0.539	0.568	0.441	0.509	0.522	0.490	0.517	0.516	0.450	0.506	7.94
20) acetone	0.058			0.052	0.059		0.056	0.061	0.050	0.056	7.69
21) allyl chloride	1.299	1.442	0.989	1.206	1.299	1.050	1.187	1.316	1.091	1.209	12.05
22) acetonitrile	0.029	0.032		0.024	0.026		0.025	0.027	0.031	0.028	11.03
23) acetaldehyde											

										0.000#	-1.00
24)	iodomethane										
	0.955	0.929	0.739	0.940	0.982	0.787	0.945	0.959	0.827	0.896	9.79
25)	iso-butyl alcohol										
										0.000#	-1.00
26)	carbon disulfide										
	1.885	1.862	1.458	1.802	1.857	1.602	1.812	1.832	1.557	1.741	9.06
27)	methylene chloride										
	0.640	0.682		0.584	0.609	0.736	0.593	0.613	0.518	0.622	10.57
28)	1-chloropropane										
	1.017	1.185	1.300	0.974	1.003	1.044	0.997	1.025	0.896	1.049	11.51
29)	methyl acetate										
	0.540	0.593	0.484	0.494	0.504	0.560	0.506	0.528	0.527	0.526	6.54
30)	methyl tert butyl ether										
	1.800	1.765	1.547	1.726	1.807	1.510	1.730	1.831	1.534	1.694	7.57
31)	trans-1,2-dichloroethene										
	0.558	0.565	0.452	0.533	0.551	0.530	0.542	0.539	0.470	0.526	7.44
32)	di-isopropyl ether										
	1.871	1.945	1.552	1.821	1.869	1.414	1.844	1.889	1.865	1.786	9.98
33)	ethyl tert-butyl ether										
	1.873	1.875	1.428	1.869	1.918	1.377	1.875	1.919	1.908	1.783	12.16
34)	2-butanone										
	0.067	0.065		0.073	0.076		0.074	0.078	0.066	0.071	7.58
35)	1,1-dichloroethane										
	0.996	1.011	0.802	0.984	1.013	0.823	0.987	1.009	0.842	0.941	9.56
36)	chloroprene										
	0.788	0.817	0.568	0.775	0.810	0.581	0.805	0.793	0.791	0.748	13.25
37)	acrylonitrile										
	0.242	0.245	0.201	0.235	0.250	0.204	0.240	0.256	0.217	0.232	8.52
38)	vinyl acetate										
	0.110	0.105		0.113	0.118		0.116	0.116	0.112	0.113	4.03
39)	ethyl acetate										
	0.092	0.086		0.079	0.082		0.084	0.091	0.087	0.086	5.41
40)	2,2-dichloropropane										
	0.746	0.755	0.678	0.685	0.697	0.662	0.681	0.718	0.617	0.693	6.11
41)	cis-1,2-dichloroethene										
	0.586	0.612	0.479	0.572	0.595	0.531	0.582	0.592	0.505	0.562	8.11
42)	propionitrile										
	0.093	0.094	0.088	0.091	0.099	0.079	0.094	0.101	0.084	0.091	7.81
43)	bromochloromethane										
	0.275	0.269		0.285	0.295	0.220	0.282	0.289	0.247	0.270	9.27
44)	tetrahydrofuran										
	0.083	0.099		0.084	0.086	0.084	0.083	0.088	0.080	0.086	6.61
45)	chloroform										
	0.902	0.923	0.734	0.898	0.929	0.791	0.889	0.930	0.795	0.866	8.38
46)	dibromofluoromethane (s)										
	0.502	0.532		0.481	0.497	0.444	0.482	0.501	0.468	0.488	5.34
47)	1,2-dichloroethane-d4 (s)										
	0.610	0.625		0.583	0.600	0.517	0.584	0.627	0.570	0.590	6.08
48)	freon 113										
	0.347	0.350		0.364	0.384	0.257	0.389	0.360	0.385	0.354	12.01
49)	methacrylonitrile										
	0.398	0.427	0.461	0.366	0.381	0.381	0.360	0.409	0.346	0.392	9.22
50)	t-butyl formate										
	0.566	0.566		0.584	0.593	0.436	0.555	0.593	0.604	0.562	9.51
51)	1,1,1-trichloroethane										
	0.807	0.794	0.673	0.789	0.823	0.639	0.794	0.809	0.698	0.758	9.06
52)	tert-amyl methyl ether										
	1.791	1.841	1.690	1.769	1.875	1.416	1.832	1.845	1.816	1.764	8.00

Initial Calibration Summary

Job Number: JB31121 **Sample:** VD8379-ICC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205391.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
53) I   1,4-difluorobenzene   ----------------ISTD--------------------
54)  cyclohexane
            0.540 0.547 0.415 0.544 0.552 0.482 0.556 0.528 0.497   0.518    8.90
55)  tert amyl alcohol
            0.018 0.019       0.015 0.016 0.014 0.015 0.018 0.017   0.016   10.97
56)  2,2,4-trimethylpentane
            1.209 1.332 1.050 1.237 1.304 1.074 1.403 1.279 1.313   1.245    9.44
57)  epichlorohydrin
            0.042 0.047 0.037 0.041 0.045 0.032 0.044 0.046 0.046   0.042   11.42
58)  n-butyl alcohol
            0.012 0.013 0.013 0.012 0.014 0.012 0.013 0.013 0.013   0.013    4.62
59)  carbon tetrachloride
            0.447 0.461 0.385 0.450 0.467 0.361 0.462 0.447 0.394   0.430    9.17
60)  1,1-dichloropropene
            0.471 0.477 0.393 0.454 0.470 0.389 0.469 0.471 0.409   0.445    8.23
61)  hexane
            0.408 0.456 0.374 0.397 0.399 0.406 0.428 0.397 0.419   0.409    5.66
62)  benzene
            1.378 1.409 1.177 1.359 1.401 1.205 1.379 1.396 1.219   1.325    7.17
63)  heptane
            0.222 0.248 0.198 0.231 0.238 0.189 0.259 0.233 0.248   0.230   10.11
64)  isopropyl acetate
            0.748 0.779 0.686 0.718 0.727 0.624 0.729 0.742 0.765   0.724    6.36
65)  1,2-dichloroethane
            0.469 0.465 0.353 0.468 0.484 0.377 0.480 0.492 0.419   0.445   11.29
66)  Ethyl Acrylate
            0.475 0.488 0.433 0.496 0.523 0.518 0.525 0.536 0.516   0.501    6.41
67)  trichloroethene
            0.334 0.333 0.297 0.342 0.350 0.284 0.348 0.347 0.301   0.326    7.73
68)  2-nitropropane
            0.944 1.004 0.994 0.968 1.026 0.816 1.037 1.012 0.989   0.977    6.82
69)  2-chloroethyl vinyl ether
            0.242 0.244       0.257 0.270 0.173 0.273 0.263 0.267   0.249   13.19
70)  methyl methacrylate
            0.092 0.085       0.104 0.111 0.082 0.111 0.105 0.095   0.098   11.45
71)  tert-amyl ethyl ether
            0.502 0.502       0.526 0.552 0.347 0.542 0.527 0.511   0.501   12.97
72)  1,2-dichloropropane
            0.375 0.363 0.291 0.375 0.397 0.304 0.395 0.381 0.326   0.356   11.07
73)  methylcyclohexane
            0.547 0.585 0.413 0.573 0.607 0.454 0.632 0.557 0.598   0.552   13.13
74)  dibromomethane
            0.217 0.226 0.151 0.224 0.234 0.173 0.228 0.232 0.201   0.210   13.97
75)  bromodichloromethane
            0.435 0.440 0.341 0.469 0.486 0.364 0.478 0.478 0.405   0.433   12.17
76)  cis-1,3-dichloropropene
            0.571 0.567 0.463 0.598 0.622 0.474 0.618 0.620 0.518   0.561   11.08
77)  toluene-d8 (s)
            1.230 1.299       1.200 1.263 1.004 1.275 1.234 1.189   1.212    7.56
78)  4-methyl-2-pentanone
            0.151 0.162       0.156 0.169 0.124 0.172 0.166 0.145   0.156   10.06
79)  toluene
            0.839 0.864 0.738 0.859 0.901 0.706 0.889 0.877 0.758   0.826    8.74
80)  3-methyl-1-butanol
            0.012 0.012 0.010 0.012 0.013 0.010 0.013 0.013 0.013   0.012   11.41
81)  trans-1,3-dichloropropene
            0.533 0.537 0.445 0.559 0.592 0.445 0.591 0.579 0.487   0.530   10.98
82)  ethyl methacrylate
            0.470 0.490 0.483 0.512 0.556 0.400 0.559 0.537 0.452   0.496   10.46
83)  1,1,2-trichloroethane
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VD8379-ICC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205391.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.257 0.256 0.246 0.268 0.285 0.236 0.283 0.279 0.242   0.261    7.04
 84)  2-hexanone
            0.139 0.145 0.116 0.144 0.159 0.116 0.165 0.157 0.137   0.142   12.32

 85) I   chlorobenzene-d5      ----------------ISTD--------------------
 86)  tetrachloroethene
            0.435 0.441 0.339 0.423 0.442 0.370 0.423 0.426 0.385   0.409    8.82
 87)  1,3-dichloropropane
            0.611 0.619 0.532 0.616 0.643 0.529 0.624 0.656 0.568   0.600    7.69
 88)  butyl acetate
            0.268 0.285 0.184 0.273 0.280 0.224 0.283 0.287 0.294   0.264   13.75
 89)  3,3-dimethyl-1-butanol
            0.049 0.048 0.042 0.044 0.049 0.044 0.049 0.050 0.052   0.047    6.83
 90)  dibromochloromethane
            0.373 0.380 0.364 0.408 0.422 0.316 0.406 0.407 0.352   0.381    8.89
 91)  1,2-dibromoethane
            0.369 0.352 0.302 0.374 0.387 0.297 0.369 0.389 0.338   0.353    9.66
 92)  chlorobenzene
            1.050 1.037 0.955 1.058 1.078 0.895 1.047 1.074 0.946   1.016    6.50
 93)  1,1,1,2-tetrachloroethane
            0.384 0.369 0.339 0.403 0.414 0.310 0.404 0.406 0.355   0.376    9.46
 94)  ethylbenzene
            1.806 1.876 1.758 1.802 1.841 1.587 1.795 1.824 1.602   1.766    5.80
 95)  m,p-xylene
            0.697 0.705 0.835 0.706 0.717 0.636 0.701 0.707 0.629   0.704    8.37
 96)  o-xylene
            0.703 0.695 0.769 0.710 0.733 0.609 0.721 0.715 0.631   0.698    7.09
 97)  styrene
            1.205 1.155 1.105 1.237 1.285 1.011 1.252 1.244 1.087   1.176    7.82
 98)  bromoform
            0.282 0.268 0.305 0.315 0.335 0.236 0.331 0.309 0.273   0.295   11.01

 99) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
100)  isopropylbenzene
            3.102 3.181 2.953 2.992 3.051 2.705 3.072 3.077 2.754   2.987    5.36
101)  4-bromofluorobenzene (s)
            0.926 1.004       0.881 0.907 0.804 0.959 0.921 0.866   0.908    6.66
102)  bromobenzene
            0.836 0.847 0.807 0.815 0.834 0.722 0.852 0.841 0.752   0.812    5.61
103)  cyclohexanone
            0.026 0.026       0.021 0.021       0.019 0.027 0.021   0.023   13.40
104)  1,1,2,2-tetrachloroethane
            0.908 0.934 1.143 0.869 0.888 0.909 0.892 0.924 0.824   0.921    9.69
105)  trans-1,4-dichloro-2-butene
            0.249 0.256 0.236 0.258 0.271 0.211 0.274 0.270 0.236   0.251    8.19
106)  1,2,3-trichloropropane
            0.260 0.270 0.311 0.250 0.257 0.240 0.258 0.263 0.244   0.262    7.93
107)  n-propylbenzene
            3.651 3.727 3.954 3.485 3.534 3.366 3.590 3.546 3.183   3.560    6.11
108)  p-ethyltoluene
            2.817 3.025 3.117 2.776 2.883 2.412 2.942 2.860 2.833   2.852    6.91
109)  2-chlorotoluene
            0.751 0.756 0.707 0.745 0.772 0.695 0.791 0.769 0.691   0.742    4.84
110)  4-chlorotoluene
            2.343 2.380 2.504 2.284 2.339 2.235 2.387 2.334 2.109   2.324    4.71
111)  1,3,5-trimethylbenzene
            2.685 2.869 3.546 2.649 2.731 2.675 2.743 2.700 2.396   2.777   11.31
112)  tert-butylbenzene
            2.343 2.436 2.470 2.287 2.345 2.216 2.373 2.384 2.123   2.331    4.64
113)  pentachloroethane
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VD8379-ICC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205391.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
            0.518 0.506 0.591 0.520 0.512 0.487 0.519 0.547 0.478   0.520    6.39
114)  1,2,4-trimethylbenzene
            2.793 3.047       2.728 2.813 3.086 2.799 2.819 2.496   2.823    6.52
115)  sec-butylbenzene
            3.530 3.622 3.632 3.401 3.454 3.285 3.405 3.476 3.095   3.433    4.88
116)  1,3-dichlorobenzene
            1.612 1.643 1.808 1.585 1.617 1.465 1.595 1.632 1.456   1.601    6.47
117)  p-isopropyltoluene
            2.908 2.974 2.979 2.831 2.896 2.650 2.859 2.926 2.569   2.843    5.00
118)  1,4-dichlorobenzene
            1.647 1.664 1.936 1.651 1.685 1.618 1.636 1.699 1.505   1.671    6.83
119)  Benzyl Chloride
            1.497 1.628 1.405 1.557 1.551 1.370 1.523 1.591 1.632   1.528    6.00
120)  p-diethylbenzene
            1.744 1.825       1.704 1.762 1.445 1.745 1.722 1.684   1.704    6.63
121)  1,2-dichlorobenzene
            1.593 1.629 2.018 1.576 1.582 1.568 1.523 1.675 1.481   1.627    9.65
122)  n-butylbenzene
            1.594 1.583 1.733 1.559 1.604 1.419 1.598 1.585 1.381   1.562    6.70
123)  1,2,4,5-tetramethylbenzene
            2.719 2.802 2.910 2.556 2.511 2.098 2.541 2.816 2.737   2.632    9.23
124)  1,2-dibromo-3-chloropropane
            0.187 0.197       0.158 0.153 0.218 0.156 0.190 0.172   0.179   12.94
125)  1,3,5-trichlorobenzene
            1.272 1.289 1.439 1.169 1.113 1.291 1.138 1.303 1.154   1.241    8.49
126)  1,2,4-trichlorobenzene
            0.990 0.993 1.231 0.960 0.917 0.983 0.910 1.120 0.951   1.006   10.36
127)  hexachlorobutadiene
            0.652 0.699       0.517 0.479 0.643 0.508 0.607 0.581   0.586   13.42
128)  naphthalene
            2.291 2.313       2.050 1.910 2.426 1.837 2.624 2.249   2.212   11.98
129)  1,2,3-trichlorobenzene
            0.895 0.881       0.744 0.676 0.821 0.639 0.965 0.856   0.810   14.01
130)  hexachloroethane
            0.527 0.531 0.619 0.516 0.533 0.527 0.541 0.557 0.494   0.538    6.47
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MD8379.M          Tue Feb 12 09:17:14 2013
```

6.9.5

6

Initial Calibration Verification

Job Number: JB31121 **Sample:** VD8380-ICV8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205400.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d205400.D Vial: 3
Acq On : 12 Feb 2013 4:21 pm Operator: EmilyT
Sample : ICV8379-50 Inst : MSD
Misc : ms42807,vd8380,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue Feb 12 09:47:05 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	115	0.01	8.03
2	M	1,4-dioxane	0.095	0.093	2.1	134	0.00	11.89
3	M	tertiary butyl alcohol	1.065	1.077	-1.1	111	0.00	8.13
4	I	pentafluorobenzene	1.000	1.000	0.0	101	0.00	10.25
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.547	0.589	-7.7	112	0.00	4.57
7	M	dichlorodifluoromethane	0.670	0.616	8.1	89	0.00	4.55
8	M	chloromethane	0.746	0.638	14.5	88	0.00	4.92
9	M	vinyl chloride	0.757	0.674	11.0	87	0.00	5.19
10	M	bromomethane	0.424	0.412	2.8	93	0.00	5.87
11	M	chloroethane	0.425	0.385	9.4	93	0.00	6.05
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.803	0.758	5.6	92	0.00	6.57
14		pentane	0.874	0.862	1.4	105	0.00	6.65
15	M	ethyl ether	0.356	0.325	8.7	100	0.00	6.96
16	M	acrolein	0.143	0.125	12.6	98	0.00	7.19
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	1.048	0.958	8.6	99	0.00	7.16
19	M	1,1-dichloroethene	0.506	0.498	1.6	99	0.00	7.39
20	M	acetone	0.056	0.053	5.4	103	0.00	7.40
21	M	allyl chloride	1.209	1.336	-10.5	112	0.00	7.90
22	M	acetonitrile	0.028	0.024	14.3	100	0.02	7.83
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.896	0.939	-4.8	101	0.00	7.66
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.741	1.765	-1.4	99	0.00	7.80
27	M	methylene chloride	0.622	0.590	5.1	102	0.00	8.07
28	M	1-chloropropane	1.049	0.981	6.5	102	0.00	8.14
29	M	methyl acetate	0.526	0.471	10.5	96	0.00	7.87
30	M	methyl tert butyl ether	1.694	1.712	-1.1	100	0.00	8.44
31	M	trans-1,2-dichloroethene	0.526	0.524	0.4	99	0.00	8.46
32	M	di-isopropyl ether	1.786	1.790	-0.2	99	0.00	9.03
33	M	ethyl tert-butyl ether	1.783	1.771	0.7	96	0.00	9.49
34	M	2-butanone	0.071	0.060	15.5	83	0.00	9.69
35	M	1,1-dichloroethane	0.941	0.967	-2.8	99	0.00	9.01
36	M	chloroprene	0.748	0.732	2.1	96	0.00	9.13
37	M	acrylonitrile	0.232	0.246	-6.0	106	0.00	8.37
38	M	vinyl acetate	0.113	0.121	-7.1	108	0.00	8.99
39	M	ethyl acetate	0.086	0.075	12.8	96	0.00	9.72
40	M	2,2-dichloropropane	0.693	0.813	-17.3	120	0.00	9.77
41	M	cis-1,2-dichloroethene	0.562	0.578	-2.8	102	0.00	9.74

Initial Calibration Verification

Job Number: JB31121 **Sample:** VD8380-ICV8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205400.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.091	0.094	-3.3	105	0.00	9.77
43	M	bromochloromethane	0.270	0.287	-6.3	102	0.00	10.03
44	M	tetrahydrofuran	0.086	0.083	3.5	100	0.00	10.10
45	M	chloroform	0.866	0.896	-3.5	101	0.00	10.09
46	S	dibromofluoromethane (s)	0.488	0.479	1.8	101	0.00	10.28
47	S	1,2-dichloroethane-d4 (s)	0.590	0.557	5.6	97	0.00	10.71
48	M	freon 113	0.354	0.336	5.1	93	0.00	7.37
49	M	methacrylonitrile	0.392	0.364	7.1	101	0.00	9.97
50	m	t-butyl formate	0.562	0.589	-4.8	102	0.00	10.16
51	M	1,1,1-trichloroethane	0.758	0.784	-3.4	101	0.00	10.39
52	M	tert-amyl methyl ether	1.764	1.725	2.2	99	0.00	10.86
53	I	1,4-difluorobenzene	1.000	1.000	0.0	101	0.00	11.17
54	M	cyclohexane	0.518	0.546	-5.4	102	0.00	10.48
55		tert amyl alcohol	0.016	0.015	9.4	99	0.00	10.65
56	M	2,2,4-trimethylpentane	1.245	1.280	-2.8	105	0.00	10.86
57	M	epichlorohydrin	0.042	0.043	-2.4	106	0.00	12.43
58	M	n-butyl alcohol	0.013	0.012	7.7	103	0.00	11.25
59	M	carbon tetrachloride	0.430	0.450	-4.7	101	0.00	10.59
60	M	1,1-dichloropropene	0.445	0.448	-0.7	100	0.00	10.55
61	M	hexane	0.409	0.407	0.5	104	0.00	8.79
62	M	benzene	1.325	1.326	-0.1	99	0.00	10.81
63	M	heptane	0.230	0.254	-10.4	111	0.00	11.02
64	M	isopropyl acetate	0.724	0.704	2.8	99	0.00	10.72
65	M	1,2-dichloroethane	0.445	0.459	-3.1	99	0.00	10.80
66		Ethyl Acrylate	0.501	0.451	10.0	92	0.00	11.51
67	M	trichloroethene	0.326	0.328	-0.6	97	0.00	11.52
68	M	2-nitropropane	0.977	0.967	1.0	101	0.00	12.31
69	M	2-chloroethyl vinyl ether	0.249	0.254	-2.0	100	0.00	12.31
70	M	methyl methacrylate	0.098	0.102	-4.1	99	0.00	11.78
71	M	tert-amyl ethyl ether	0.501	0.533	-6.3	103	0.00	11.72
72	M	1,2-dichloropropane	0.356	0.368	-3.4	99	0.00	11.78
73	M	methylcyclohexane	0.552	0.564	-2.2	100	0.00	11.78
74	M	dibromomethane	0.210	0.221	-5.2	100	0.00	11.93
75	M	bromodichloromethane	0.433	0.457	-5.5	99	0.00	12.06
76	M	cis-1,3-dichloropropene	0.561	0.599	-6.8	101	0.00	12.54
77	S	toluene-d8 (s)	1.212	1.222	-0.8	103	0.00	12.88
78	M	4-methyl-2-pentanone	0.156	0.160	-2.6	104	0.00	12.65
79	M	toluene	0.826	0.834	-1.0	98	0.00	12.96
80	M	3-methyl-1-butanol	0.012	0.012	0.0	104	0.00	12.64
81	M	trans-1,3-dichloropropene	0.530	0.566	-6.8	102	0.00	13.13
82	M	ethyl methacrylate	0.496	0.511	-3.0	101	0.00	13.14
83	M	1,1,2-trichloroethane	0.261	0.267	-2.3	101	0.00	13.36
84	M	2-hexanone	0.142	0.130	8.5	91	0.00	13.56
85	I	chlorobenzene-d5	1.000	1.000	0.0	104	0.00	14.51
86	M	tetrachloroethene	0.409	0.391	4.4	96	0.00	13.59
87	M	1,3-dichloropropane	0.600	0.606	-1.0	102	0.00	13.56
88	M	butyl acetate	0.264	0.265	-0.4	101	0.00	13.65
89	m	3,3-dimethyl-1-butanol	0.047	0.056	-19.1	130	0.00	13.73
90	M	dibromochloromethane	0.381	0.393	-3.1	100	0.00	13.84
91	M	1,2-dibromoethane	0.353	0.365	-3.4	101	0.00	14.02
92	M	chlorobenzene	1.016	1.011	0.5	99	0.00	14.55
93	M	1,1,1,2-tetrachloroethane	0.376	0.392	-4.3	101	0.00	14.60
94	M	ethylbenzene	1.766	1.724	2.4	99	0.00	14.61
95	M	m,p-xylene	0.704	0.671	4.7	99	0.00	14.73
96	M	o-xylene	0.698	0.687	1.6	100	0.00	15.20
97	M	styrene	1.176	1.191	-1.3	100	0.00	15.20
98	M	bromoform	0.295	0.305	-3.4	100	0.00	15.47

Initial Calibration Verification

Job Number: JB31121 **Sample:** VD8380-ICV8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D205400.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	17.10
100	M	isopropylbenzene	2.987	2.915	2.4	100	0.00	15.58
101	S	4-bromofluorobenzene (s)	0.908	0.863	5.0	100	0.00	15.79
102	M	bromobenzene	0.812	0.783	3.6	98	0.00	16.01
103	M	cyclohexanone	0.023	0.016	30.4#	78	0.00	15.75
104	M	1,1,2,2-tetrachloroethane	0.921	0.847	8.0	100	0.00	15.88
105	M	trans-1,4-dichloro-2-bute	0.251	0.268	-6.8	106	0.00	15.93
106	M	1,2,3-trichloropropane	0.262	0.244	6.9	100	0.00	15.97
107	M	n-propylbenzene	3.560	3.372	5.3	99	0.00	16.04
108	M	p-ethyltoluene	2.852	2.649	7.1	98	0.00	16.16
109	M	2-chlorotoluene	0.742	0.727	2.0	100	0.00	16.20
110	M	4-chlorotoluene	2.324	2.211	4.9	99	0.00	16.30
111	M	1,3,5-trimethylbenzene	2.777	2.558	7.9	99	0.00	16.21
112	M	tert-butylbenzene	2.331	2.182	6.4	98	0.00	16.60
113	M	pentachloroethane	0.520	0.524	-0.8	103	0.00	16.67
114	M	1,2,4-trimethylbenzene	2.823	2.664	5.6	100	0.00	16.65
115	M	sec-butylbenzene	3.433	3.335	2.9	100	0.00	16.85
116	M	1,3-dichlorobenzene	1.601	1.540	3.8	99	0.00	17.03
117	M	p-isopropyltoluene	2.843	2.766	2.7	100	0.00	16.97
118	M	1,4-dichlorobenzene	1.671	1.604	4.0	99	0.00	17.12
119		Benzyl Chloride	1.528	2.052	-34.3#	135	0.00	17.24
120	M	p-diethylbenzene	1.704	1.640	3.8	98	0.00	17.39
121	M	1,2-dichlorobenzene	1.627	1.540	5.3	100	0.00	17.56
122	M	n-butylbenzene	1.562	1.565	-0.2	103	0.00	17.43
123	M	1,2,4,5-tetramethylbenzen	2.632	2.525	4.1	101	0.00	18.26
124	M	1,2-dibromo-3-chloropropa	0.179	0.161	10.1	105	0.00	18.40
125	M	1,3,5-trichlorobenzene	1.241	1.188	4.3	104	0.00	18.64
126	M	1,2,4-trichlorobenzene	1.006	0.981	2.5	105	0.00	19.37
127	M	hexachlorobutadiene	0.586	0.548	6.5	108	0.00	19.52
128	M	naphthalene	2.212	2.054	7.1	102	0.00	19.69
129	M	1,2,3-trichlorobenzene	0.810	0.760	6.2	104	0.00	19.97
130	M	hexachloroethane	0.538	0.525	2.4	104	0.00	17.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d205391.D MD8379.M Tue Feb 12 16:48:55 2013

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8429-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206602.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d206602.D                    Vial: 26
Acq On    : 16 Mar 2013   9:48 pm                     Operator: EmilyT
Sample    : cc8379-50                                 Inst    : MSD
Misc      : ms44803,vd8429,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Tue Feb 19 09:53:02 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	94	0.00	8.01
2	M	1,4-dioxane	0.095	0.079	16.8	92	0.00	11.89
3	M	tertiary butyl alcohol	1.065	1.390	-30.5#	117	0.00	8.12
4	I	pentafluorobenzene	1.000	1.000	0.0	95	0.00	10.25
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.547	0.696	-27.2#	125	-0.02	4.55
7	M	dichlorodifluoromethane	0.670	0.702	-4.8	96	0.00	4.54
8	M	chloromethane	0.746	0.741	0.7	96	0.02	4.93
9	M	vinyl chloride	0.757	0.770	-1.7	93	0.02	5.22
10	M	bromomethane	0.424	0.525	-23.8#	110	0.02	5.88
11	M	chloroethane	0.425	0.433	-1.9	98	0.01	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.803	0.886	-10.3	101	0.00	6.57
14		pentane		----------NA----------				
15	M	ethyl ether	0.356	0.328	7.9	95	0.00	6.95
16	M	acrolein	0.143	0.087	39.2#	64	0.00	7.18
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	1.048	1.037	1.0	101	-0.02	7.14
19	M	1,1-dichloroethene	0.506	0.469	7.3	87	-0.02	7.38
20	M	acetone	0.056	0.059	-5.4	108	0.00	7.39
21	M	allyl chloride	1.209	1.120	7.4	88	0.00	7.89
22	M	acetonitrile	0.028	0.032	-14.3	128	0.00	7.81
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.896	0.918	-2.5	93	0.00	7.66
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.741	1.636	6.0	86	0.00	7.79
27	M	methylene chloride	0.622	0.583	6.3	95	-0.01	8.06
28	M	1-chloropropane	1.049	0.986	6.0	96	-0.02	8.12
29	M	methyl acetate	0.526	0.493	6.3	95	0.00	7.86
30	M	methyl tert butyl ether	1.694	1.873	-10.6	103	0.00	8.43
31	M	trans-1,2-dichloroethene	0.526	0.510	3.0	91	0.00	8.45
32	M	di-isopropyl ether	1.786	1.851	-3.6	97	0.00	9.02
33	M	ethyl tert-butyl ether	1.783	1.847	-3.6	94	0.00	9.48
34	M	2-butanone	0.071	0.074	-4.2	96	0.00	9.69
35	M	1,1-dichloroethane	0.941	0.942	-0.1	91	0.00	9.01
36	M	chloroprene	0.748	0.769	-2.8	94	0.00	9.13
37	M	acrylonitrile	0.232	0.235	-1.3	95	0.00	8.37
38	M	vinyl acetate	0.113	0.099	12.4	83	0.00	8.99
39	M	ethyl acetate	0.086	0.078	9.3	94	0.00	9.72
40	M	2,2-dichloropropane	0.693	0.674	2.7	93	0.00	9.76
41	M	cis-1,2-dichloroethene	0.562	0.569	-1.2	94	0.00	9.72

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8429-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206602.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.091	0.091	0.0	95	0.00	9.77
43	M	bromochloromethane	0.270	0.290	-7.4	97	0.00	10.03
44	M	tetrahydrofuran	0.086	0.082	4.7	93	0.00	10.09
45	M	chloroform	0.866	0.922	-6.5	98	0.00	10.09
46	S	dibromofluoromethane (s)	0.488	0.460	5.7	91	0.00	10.28
47	S	1,2-dichloroethane-d4 (s)	0.590	0.601	-1.9	98	0.00	10.70
48	M	freon 113	0.354	0.342	3.4	89	0.01	7.38
49	M	methacrylonitrile	0.392	0.390	0.5	101	0.00	9.96
50	m	t-butyl formate	0.562	0.513	8.7	83	0.00	10.15
51	M	1,1,1-trichloroethane	0.758	0.833	-9.9	100	0.00	10.37
52	M	tert-amyl methyl ether	1.764	1.747	1.0	94	0.00	10.86
53	I	1,4-difluorobenzene	1.000	1.000	0.0	91	0.00	11.16
54	M	cyclohexane	0.518	0.531	-2.5	88	0.00	10.47
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.245	1.275	-2.4	93	0.00	10.86
57	M	epichlorohydrin	0.042	0.040	4.8	88	0.00	12.42
58	M	n-butyl alcohol	0.013	0.011	15.4	86	0.00	11.26
59	M	carbon tetrachloride	0.430	0.487	-13.3	98	0.00	10.58
60	M	1,1-dichloropropene	0.445	0.454	-2.0	91	0.00	10.55
61	M	hexane	0.409	0.359	12.2	82	0.00	8.79
62	M	benzene	1.325	1.372	-3.5	92	0.00	10.81
63	M	heptane	0.230	0.236	-2.6	93	0.00	11.01
64	M	isopropyl acetate	0.724	0.807	-11.5	102	0.00	10.72
65	M	1,2-dichloroethane	0.445	0.529	-18.9	103	0.00	10.79
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.326	0.349	-7.1	93	0.00	11.51
68	M	2-nitropropane	0.977	0.898	8.1	84	0.00	12.31
69	M	2-chloroethyl vinyl ether	0.249	0.214	14.1	75	0.00	12.31
70	M	methyl methacrylate	0.098	0.105	-7.1	92	0.00	11.78
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.356	0.382	-7.3	92	0.00	11.78
73	M	methylcyclohexane	0.552	0.560	-1.4	89	0.00	11.78
74	M	dibromomethane	0.210	0.246	-17.1	100	0.00	11.92
75	M	bromodichloromethane	0.433	0.502	-15.9	97	0.00	12.05
76	M	cis-1,3-dichloropropene	0.561	0.602	-7.3	91	0.00	12.54
77	S	toluene-d8 (s)	1.212	1.259	-3.9	95	0.00	12.87
78	M	4-methyl-2-pentanone	0.156	0.182	-16.7	105	0.00	12.65
79	M	toluene	0.826	0.894	-8.2	94	0.00	12.95
80	M	3-methyl-1-butanol	0.012	0.010	16.7	81	0.00	12.65
81	M	trans-1,3-dichloropropene	0.530	0.584	-10.2	95	0.00	13.12
82	M	ethyl methacrylate	0.496	0.567	-14.3	100	0.00	13.14
83	M	1,1,2-trichloroethane	0.261	0.297	-13.8	100	0.00	13.36
84	M	2-hexanone	0.142	0.158	-11.3	100	0.00	13.56
85	I	chlorobenzene-d5	1.000	1.000	0.0	96	0.00	14.50
86	M	tetrachloroethene	0.409	0.439	-7.3	100	0.00	13.58
87	M	1,3-dichloropropane	0.600	0.628	-4.7	98	0.00	13.56
88	M	butyl acetate	0.264	0.289	-9.5	102	0.00	13.65
89	m	3,3-dimethyl-1-butanol	0.047	0.036	23.4#	78	0.00	13.74
90	M	dibromochloromethane	0.381	0.432	-13.4	102	0.00	13.84
91	M	1,2-dibromoethane	0.353	0.387	-9.6	100	0.00	14.02
92	M	chlorobenzene	1.016	1.054	-3.7	96	0.00	14.54
93	M	1,1,1,2-tetrachloroethane	0.376	0.394	-4.8	94	0.00	14.60
94	M	ethylbenzene	1.766	1.819	-3.0	97	0.00	14.61
95	M	m,p-xylene	0.704	0.713	-1.3	97	0.00	14.73
96	M	o-xylene	0.698	0.721	-3.3	98	0.00	15.19
97	M	styrene	1.176	1.215	-3.3	95	0.00	15.19
98	M	bromoform	0.295	0.334	-13.2	102	0.00	15.46

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8429-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206602.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	96	0.00	17.09
100	M	isopropylbenzene	2.987	2.988	-0.0	96	0.00	15.58
101	S	4-bromofluorobenzene (s)	0.908	0.823	9.4	90	0.00	15.78
102	M	bromobenzene	0.812	0.827	-1.8	97	0.00	16.01
103	M	cyclohexanone	0.023	0.021	8.7	94	0.00	15.74
104	M	1,1,2,2-tetrachloroethane	0.921	0.900	2.3	99	0.00	15.87
105	M	trans-1,4-dichloro-2-bute	0.251	0.248	1.2	93	0.00	15.92
106	M	1,2,3-trichloropropane	0.262	0.263	-0.4	101	0.00	15.96
107	M	n-propylbenzene	3.560	3.472	2.5	96	0.00	16.03
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.742	0.725	2.3	93	0.00	16.19
110	M	4-chlorotoluene	2.324	2.217	4.6	93	0.00	16.30
111	M	1,3,5-trimethylbenzene	2.777	2.606	6.2	95	0.00	16.20
112	M	tert-butylbenzene	2.331	2.247	3.6	94	0.00	16.60
113	M	pentachloroethane	0.520	0.531	-2.1	98	0.00	16.67
114	M	1,2,4-trimethylbenzene	2.823	2.691	4.7	95	0.00	16.64
115	M	sec-butylbenzene	3.433	3.319	3.3	94	0.00	16.84
116	M	1,3-dichlorobenzene	1.601	1.574	1.7	95	0.00	17.03
117	M	p-isopropyltoluene	2.843	2.704	4.9	92	0.00	16.97
118	M	1,4-dichlorobenzene	1.671	1.617	3.2	94	0.00	17.12
119		Benzyl Chloride	1.528	1.156	24.3#	71	0.00	17.24
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.627	1.555	4.4	95	0.00	17.55
122	M	n-butylbenzene	1.562	1.368	12.4	84	0.00	17.43
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.179	0.158	11.7	96	0.00	18.39
125	M	1,3,5-trichlorobenzene	1.241	1.145	7.7	94	0.00	18.63
126	M	1,2,4-trichlorobenzene	1.006	0.931	7.5	93	0.00	19.36
127	M	hexachlorobutadiene	0.586	0.508	13.3	94	0.00	19.51
128	M	naphthalene	2.212	1.886	14.7	88	0.00	19.68
129	M	1,2,3-trichlorobenzene	0.810	0.748	7.7	97	0.00	19.96
130	M	hexachloroethane	0.538	0.497	7.6	93	0.00	17.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d205391.D MD8379.M Mon Mar 18 10:11:08 2013

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8431-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206654.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\d206654.D                    Vial: 28
Acq On    : 18 Mar 2013  10:46 pm                     Operator: EmilyT
Sample    : cc8379-50                                 Inst    : MSD
Misc      : ms44470,vd8431,5,,100,5,1                 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title        : SW-846 Method 8260B
Last Update  : Tue Feb 19 09:53:02 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	83	0.11	8.12
2	M	1,4-dioxane	0.095	0.048	49.5#	49#	0.05	11.94
3	M	tertiary butyl alcohol	1.065	0.879	17.5	65	0.08	8.20
4	I	pentafluorobenzene	1.000	1.000	0.0	95	0.00	10.25
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.547	0.732	-33.8#	131	-0.02	4.55
7	M	dichlorodifluoromethane	0.670	0.613	8.5	84	-0.02	4.53
8	M	chloromethane	0.746	0.737	1.2	96	0.01	4.92
9	M	vinyl chloride	0.757	0.784	-3.6	95	0.02	5.22
10	M	bromomethane	0.424	0.473	-11.6	100	0.02	5.89
11	M	chloroethane	0.425	0.437	-2.8	99	0.02	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.803	0.826	-2.9	94	0.00	6.56
14		pentane		----------NA----------				
15	M	ethyl ether	0.356	0.321	9.8	93	0.00	6.96
16	M	acrolein	0.143	0.022	84.6#	16#	0.02	7.20
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	1.048	1.027	2.0	100	-0.02	7.15
19	M	1,1-dichloroethene	0.506	0.483	4.5	90	-0.02	7.38
20	M	acetone	0.056	0.055	1.8	100	0.04	7.44
21	M	allyl chloride	1.209	1.293	-6.9	102	0.00	7.89
22	M	acetonitrile	0.028	0.036	-28.6#	143	0.08	7.89
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.896	0.912	-1.8	92	0.00	7.66
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.741	1.667	4.3	88	0.00	7.79
27	M	methylene chloride	0.622	0.565	9.2	92	-0.01	8.06
28	M	1-chloropropane	1.049	1.010	3.7	99	0.00	8.12
29	M	methyl acetate	0.526	0.489	7.0	94	0.00	7.87
30	M	methyl tert butyl ether	1.694	1.708	-0.8	94	0.00	8.44
31	M	trans-1,2-dichloroethene	0.526	0.520	1.1	93	0.00	8.45
32	M	di-isopropyl ether	1.786	1.857	-4.0	97	0.00	9.03
33	M	ethyl tert-butyl ether	1.783	1.853	-3.9	94	0.00	9.49
34	M	2-butanone	0.071	0.067	5.6	87	0.00	9.70
35	M	1,1-dichloroethane	0.941	0.923	1.9	89	0.00	9.01
36	M	chloroprene	0.748	0.841	-12.4	103	0.00	9.13
37	M	acrylonitrile	0.232	0.217	6.5	88	0.01	8.38
38	M	vinyl acetate	0.113	0.102	9.7	86	0.00	8.99
39	M	ethyl acetate	0.086	0.074	14.0	90	0.00	9.72
40	M	2,2-dichloropropane	0.693	0.744	-7.4	103	0.00	9.76
41	M	cis-1,2-dichloroethene	0.562	0.561	0.2	93	0.00	9.73

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8431-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206654.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.091	0.083	8.8	87	0.02	9.79
43	M	bromochloromethane	0.270	0.280	-3.7	94	0.00	10.03
44	M	tetrahydrofuran	0.086	0.078	9.3	89	0.00	10.09
45	M	chloroform	0.866	0.898	-3.7	95	0.00	10.09
46	S	dibromofluoromethane (s)	0.488	0.464	4.9	92	0.00	10.28
47	S	1,2-dichloroethane-d4 (s)	0.590	0.579	1.9	95	0.00	10.71
48	M	freon 113	0.354	0.397	-12.1	104	0.01	7.38
49	M	methacrylonitrile	0.392	0.347	11.5	90	0.00	9.96
50	m	t-butyl formate	0.562	0.540	3.9	88	0.00	10.16
51	M	1,1,1-trichloroethane	0.758	0.852	-12.4	103	0.00	10.38
52	M	tert-amyl methyl ether	1.764	1.758	0.3	95	0.00	10.86
53	I	1,4-difluorobenzene	1.000	1.000	0.0	90	0.00	11.16
54	M	cyclohexane	0.518	0.562	-8.5	93	0.00	10.48
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.245	1.416	-13.7	103	0.00	10.86
57	M	epichlorohydrin	0.042	0.043	-2.4	95	0.00	12.43
58	M	n-butyl alcohol	0.013	0.007#	46.2#	55	0.04	11.29
59	M	carbon tetrachloride	0.430	0.517	-20.2#	104	0.00	10.58
60	M	1,1-dichloropropene	0.445	0.469	-5.4	93	0.00	10.55
61	M	hexane	0.409	0.423	-3.4	96	0.00	8.79
62	M	benzene	1.325	1.358	-2.5	90	0.00	10.81
63	M	heptane	0.230	0.267	-16.1	104	0.00	11.01
64	M	isopropyl acetate	0.724	0.797	-10.1	100	0.00	10.72
65	M	1,2-dichloroethane	0.445	0.500	-12.4	96	0.00	10.80
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.326	0.350	-7.4	93	0.00	11.51
68	M	2-nitropropane	0.977	0.939	3.9	87	0.00	12.31
69	M	2-chloroethyl vinyl ether	0.249	0.227	8.8	80	0.00	12.31
70	M	methyl methacrylate	0.098	0.100	-2.0	87	0.00	11.78
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.356	0.369	-3.7	89	0.00	11.78
73	M	methylcyclohexane	0.552	0.635	-15.0	100	0.00	11.78
74	M	dibromomethane	0.210	0.231	-10.0	93	0.00	11.92
75	M	bromodichloromethane	0.433	0.482	-11.3	93	0.00	12.05
76	M	cis-1,3-dichloropropene	0.561	0.573	-2.1	86	0.00	12.54
77	S	toluene-d8 (s)	1.212	1.248	-3.0	94	0.00	12.87
78	M	4-methyl-2-pentanone	0.156	0.164	-5.1	95	0.00	12.65
79	M	toluene	0.826	0.879	-6.4	92	0.00	12.95
80	M	3-methyl-1-butanol	0.012	0.009#	25.0#	67	0.02	12.66
81	M	trans-1,3-dichloropropene	0.530	0.553	-4.3	89	0.00	13.12
82	M	ethyl methacrylate	0.496	0.520	-4.8	91	0.00	13.14
83	M	1,1,2-trichloroethane	0.261	0.276	-5.7	93	0.00	13.36
84	M	2-hexanone	0.142	0.144	-1.4	90	0.00	13.56
85	I	chlorobenzene-d5	1.000	1.000	0.0	96	0.00	14.50
86	M	tetrachloroethene	0.409	0.452	-10.5	102	0.00	13.58
87	M	1,3-dichloropropane	0.600	0.585	2.5	91	0.00	13.56
88	M	butyl acetate	0.264	0.278	-5.3	97	0.00	13.65
89	m	3,3-dimethyl-1-butanol	0.047	0.032	31.9#	70	0.01	13.74
90	M	dibromochloromethane	0.381	0.416	-9.2	98	0.00	13.84
91	M	1,2-dibromoethane	0.353	0.368	-4.2	94	0.00	14.02
92	M	chlorobenzene	1.016	1.030	-1.4	93	0.00	14.54
93	M	1,1,1,2-tetrachloroethane	0.376	0.398	-5.9	95	0.00	14.60
94	M	ethylbenzene	1.766	1.811	-2.5	96	0.00	14.61
95	M	m,p-xylene	0.704	0.699	0.7	95	0.00	14.73
96	M	o-xylene	0.698	0.705	-1.0	95	0.00	15.19
97	M	styrene	1.176	1.177	-0.1	91	0.00	15.19
98	M	bromoform	0.295	0.321	-8.8	98	0.00	15.46

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8431-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206654.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	94	0.00	17.09
100	M	isopropylbenzene	2.987	3.080	-3.1	97	0.00	15.58
101	S	4-bromofluorobenzene (s)	0.908	0.820	9.7	88	0.00	15.78
102	M	bromobenzene	0.812	0.814	-0.2	94	0.00	16.01
103	M	cyclohexanone	0.023	0.012	47.8#	55	0.02	15.76
104	M	1,1,2,2-tetrachloroethane	0.921	0.827	10.2	90	0.00	15.87
105	M	trans-1,4-dichloro-2-bute	0.251	0.245	2.4	89	0.00	15.92
106	M	1,2,3-trichloropropane	0.262	0.253	3.4	96	0.00	15.96
107	M	n-propylbenzene	3.560	3.520	1.1	95	0.00	16.03
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.742	0.732	1.3	93	0.00	16.19
110	M	4-chlorotoluene	2.324	2.173	6.5	90	0.00	16.30
111	M	1,3,5-trimethylbenzene	2.777	2.663	4.1	95	0.00	16.20
112	M	tert-butylbenzene	2.331	2.231	4.3	92	0.00	16.60
113	M	pentachloroethane	0.520	0.515	1.0	93	0.00	16.67
114	M	1,2,4-trimethylbenzene	2.823	2.650	6.1	92	0.00	16.64
115	M	sec-butylbenzene	3.433	3.411	0.6	95	0.00	16.84
116	M	1,3-dichlorobenzene	1.601	1.528	4.6	91	0.00	17.03
117	M	p-isopropyltoluene	2.843	2.796	1.7	93	0.00	16.97
118	M	1,4-dichlorobenzene	1.671	1.580	5.4	90	0.00	17.12
119		Benzyl Chloride	1.528	1.436	6.0	87	0.00	17.24
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.627	1.509	7.3	90	0.00	17.55
122	M	n-butylbenzene	1.562	1.423	8.9	86	0.00	17.43
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.179	0.151	15.6	90	0.00	18.39
125	M	1,3,5-trichlorobenzene	1.241	1.225	1.3	99	0.00	18.63
126	M	1,2,4-trichlorobenzene	1.006	1.051	-4.5	103	0.00	19.36
127	M	hexachlorobutadiene	0.586	0.568	3.1	104	0.00	19.51
128	M	naphthalene	2.212	2.155	2.6	99	0.00	19.68
129	M	1,2,3-trichlorobenzene	0.810	0.861	-6.3	109	0.00	19.96
130	M	hexachloroethane	0.538	0.498	7.4	91	0.00	17.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d205391.D MD8379.M Tue Mar 19 15:57:15 2013

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8432-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206675.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d206675.D Vial: 2
Acq On : 19 Mar 2013 9:42 am Operator: EmilyT
Sample : cc8379-20 Inst : MSD
Misc : ms44830,vd8432,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue Feb 19 09:53:02 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	108	0.00	8.01
2	M	1,4-dioxane	0.095	0.104	-9.5	113	0.00	11.89
3	M	tertiary butyl alcohol	1.065	1.281	-20.3#	120	0.00	8.13
4	I	pentafluorobenzene	1.000	1.000	0.0	112	0.00	10.24
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.547	0.682	-24.7#	138	-0.01	4.56
7	M	dichlorodifluoromethane	0.670	0.683	-1.9	106	-0.01	4.54
8	M	chloromethane	0.746	0.669	10.3	98	0.00	4.92
9	M	vinyl chloride	0.757	0.824	-8.9	116	0.01	5.21
10	M	bromomethane	0.424	0.482	-13.7	113	0.01	5.88
11	M	chloroethane	0.425	0.415	2.4	106	0.01	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.803	0.820	-2.1	107	0.00	6.56
14		pentane		----------NA----------				
15	M	ethyl ether	0.356	0.289	18.8	93	0.00	6.95
16	M	acrolein	0.143	0.095	33.6#	75	-0.01	7.17
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	1.048	0.894	14.7	100	-0.02	7.14
19	M	1,1-dichloroethene	0.506	0.418	17.4	90	-0.02	7.38
20	M	acetone	0.056	0.049	12.5	90	0.00	7.40
21	M	allyl chloride	1.209	1.019	15.7	86	-0.01	7.89
22	M	acetonitrile	0.028	0.033	-17.9	135	0.00	7.81
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.896	0.824	8.0	96	0.00	7.66
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.741	1.457	16.3	89	0.00	7.79
27	M	methylene chloride	0.622	0.498	19.9	91	-0.02	8.06
28	M	1-chloropropane	1.049	0.881	16.0	96	-0.01	8.12
29	M	methyl acetate	0.526	0.489	7.0	103	0.00	7.87
30	M	methyl tert butyl ether	1.694	1.564	7.7	95	0.00	8.43
31	M	trans-1,2-dichloroethene	0.526	0.457	13.1	95	-0.01	8.45
32	M	di-isopropyl ether	1.786	1.734	2.9	102	-0.01	9.02
33	M	ethyl tert-butyl ether	1.783	1.741	2.4	101	-0.01	9.48
34	M	2-butanone	0.071	0.066	7.0	94	0.00	9.69
35	M	1,1-dichloroethane	0.941	0.813	13.6	90	0.00	9.01
36	M	chloroprene	0.748	0.761	-1.7	107	0.00	9.13
37	M	acrylonitrile	0.232	0.203	12.5	89	0.00	8.36
38	M	vinyl acetate	0.113	0.097	14.2	93	0.00	8.99
39	M	ethyl acetate	0.086	0.083	3.5	101	-0.01	9.72
40	M	2,2-dichloropropane	0.693	0.747	-7.8	116	-0.02	9.75
41	M	cis-1,2-dichloroethene	0.562	0.495	11.9	93	0.00	9.73

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8432-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206675.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.091	0.081	11.0	89	0.00	9.77
43	M	bromochloromethane	0.270	0.251	7.0	97	-0.01	10.03
44	M	tetrahydrofuran	0.086	0.074	14.0	93	0.00	10.09
45	M	chloroform	0.866	0.807	6.8	97	0.00	10.08
46	S	dibromofluoromethane (s)	0.488	0.446	8.6	99	0.00	10.28
47	S	1,2-dichloroethane-d4 (s)	0.590	0.571	3.2	102	0.00	10.71
48	M	freon 113	0.354	0.378	-6.8	117	0.02	7.39
49	M	methacrylonitrile	0.392	0.337	14.0	92	0.00	9.96
50	m	t-butyl formate	0.562	0.505	10.1	95	-0.01	10.15
51	M	1,1,1-trichloroethane	0.758	0.745	1.7	103	-0.01	10.37
52	M	tert-amyl methyl ether	1.764	1.630	7.6	99	0.00	10.86
53	I	1,4-difluorobenzene	1.000	1.000	0.0	103	-0.01	11.16
54	M	cyclohexane	0.518	0.476	8.1	93	0.00	10.48
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.245	1.344	-8.0	108	0.00	10.86
57	M	epichlorohydrin	0.042	0.044	-4.8	99	0.00	12.43
58	M	n-butyl alcohol	0.013	0.013	0.0	103	0.00	11.25
59	M	carbon tetrachloride	0.430	0.452	-5.1	104	0.00	10.58
60	M	1,1-dichloropropene	0.445	0.426	4.3	93	0.00	10.55
61	M	hexane	0.409	0.427	-4.4	111	0.00	8.79
62	M	benzene	1.325	1.242	6.3	92	-0.01	10.80
63	M	heptane	0.230	0.267	-16.1	118	0.00	11.01
64	M	isopropyl acetate	0.724	0.768	-6.1	107	0.00	10.72
65	M	1,2-dichloroethane	0.445	0.468	-5.2	98	0.00	10.79
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.326	0.314	3.7	94	0.00	11.52
68	M	2-nitropropane	0.977	0.881	9.8	90	0.00	12.31
69	M	2-chloroethyl vinyl ether	0.249	0.208	16.5	82	0.00	12.31
70	M	methyl methacrylate	0.098	0.090	8.2	89	0.00	11.78
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.356	0.337	5.3	91	0.00	11.78
73	M	methylcyclohexane	0.552	0.576	-4.3	107	0.00	11.78
74	M	dibromomethane	0.210	0.214	-1.9	95	0.00	11.92
75	M	bromodichloromethane	0.433	0.438	-1.2	94	-0.01	12.05
76	M	cis-1,3-dichloropropene	0.561	0.556	0.9	93	0.00	12.54
77	S	toluene-d8 (s)	1.212	1.255	-3.5	105	0.00	12.87
78	M	4-methyl-2-pentanone	0.156	0.160	-2.6	99	0.00	12.65
79	M	toluene	0.826	0.817	1.1	96	0.00	12.95
80	M	3-methyl-1-butanol	0.012	0.012	0.0	90	0.00	12.65
81	M	trans-1,3-dichloropropene	0.530	0.537	-1.3	96	0.00	13.13
82	M	ethyl methacrylate	0.496	0.477	3.8	92	0.00	13.14
83	M	1,1,2-trichloroethane	0.261	0.264	-1.1	98	0.00	13.36
84	M	2-hexanone	0.142	0.134	5.6	88	0.00	13.56
85	I	chlorobenzene-d5	1.000	1.000	0.0	110	0.00	14.50
86	M	tetrachloroethene	0.409	0.419	-2.4	108	0.00	13.58
87	M	1,3-dichloropropane	0.600	0.560	6.7	94	0.00	13.56
88	M	butyl acetate	0.264	0.268	-1.5	103	0.00	13.65
89	m	3,3-dimethyl-1-butanol	0.047	0.038	19.1	84	0.00	13.74
90	M	dibromochloromethane	0.381	0.383	-0.5	103	0.00	13.84
91	M	1,2-dibromoethane	0.353	0.346	2.0	98	0.00	14.01
92	M	chlorobenzene	1.016	0.970	4.5	99	0.00	14.54
93	M	1,1,1,2-tetrachloroethane	0.376	0.359	4.5	97	0.00	14.60
94	M	ethylbenzene	1.766	1.682	4.8	101	0.00	14.61
95	M	m,p-xylene	0.704	0.652	7.4	101	0.00	14.73
96	M	o-xylene	0.698	0.651	6.7	100	0.00	15.19
97	M	styrene	1.176	1.042	11.4	92	0.00	15.20
98	M	bromoform	0.295	0.292	1.0	104	0.00	15.46

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8432-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206675.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	17.09
100	M	isopropylbenzene	2.987	2.939	1.6	101	0.00	15.58
101	S	4-bromofluorobenzene (s)	0.908	0.852	6.2	98	0.00	15.78
102	M	bromobenzene	0.812	0.799	1.6	101	0.00	16.01
103	M	cyclohexanone	0.023	0.033	-43.5#	130	0.00	15.74
104	M	1,1,2,2-tetrachloroethane	0.921	0.843	8.5	97	0.00	15.87
105	M	trans-1,4-dichloro-2-bute	0.251	0.247	1.6	97	0.00	15.93
106	M	1,2,3-trichloropropane	0.262	0.249	5.0	101	0.00	15.96
107	M	n-propylbenzene	3.560	3.349	5.9	100	0.00	16.03
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.742	0.697	6.1	96	0.00	16.19
110	M	4-chlorotoluene	2.324	2.082	10.4	95	0.00	16.30
111	M	1,3,5-trimethylbenzene	2.777	2.515	9.4	99	0.00	16.20
112	M	tert-butylbenzene	2.331	2.157	7.5	96	0.00	16.60
113	M	pentachloroethane	0.520	0.503	3.3	98	0.00	16.66
114	M	1,2,4-trimethylbenzene	2.823	2.497	11.5	94	0.00	16.64
115	M	sec-butylbenzene	3.433	3.172	7.6	97	0.00	16.84
116	M	1,3-dichlorobenzene	1.601	1.453	9.2	95	0.00	17.03
117	M	p-isopropyltoluene	2.843	2.603	8.4	95	0.00	16.97
118	M	1,4-dichlorobenzene	1.671	1.500	10.2	94	0.00	17.11
119		Benzyl Chloride	1.528	1.691	-10.7	113	0.00	17.24
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.627	1.434	11.9	91	0.00	17.55
122	M	n-butylbenzene	1.562	1.290	17.4	86	0.00	17.42
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.179	0.147	17.9	82	0.00	18.39
125	M	1,3,5-trichlorobenzene	1.241	1.132	8.8	92	0.00	18.63
126	M	1,2,4-trichlorobenzene	1.006	0.905	10.0	86	0.00	19.36
127	M	hexachlorobutadiene	0.586	0.538	8.2	94	0.00	19.51
128	M	naphthalene	2.212	1.864	15.7	75	0.00	19.68
129	M	1,2,3-trichlorobenzene	0.810	0.747	7.8	82	0.00	19.96
130	M	hexachloroethane	0.538	0.480	10.8	92	0.00	17.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d205390.D MD8379.M Tue Mar 19 16:22:20 2013

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8438-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206820.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d206820.D Vial: 3
Acq On : 22 Mar 2013 12:48 pm Operator: EmilyT
Sample : CC8379-20 Inst : MSD
Misc : ms44804,vd8438,5.0,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue Feb 19 09:53:02 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	115	0.06	8.07
2	M	1,4-dioxane	0.095	0.072	24.2#	84	0.07	11.96
3	M	tertiary butyl alcohol	1.065	0.955	10.3	95	0.06	8.19
4	I	pentafluorobenzene	1.000	1.000	0.0	138	0.00	10.25
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.547	0.608	-11.2	153	-0.02	4.55
7	M	dichlorodifluoromethane	0.670	0.677	-1.0	131	-0.01	4.54
8	M	chloromethane	0.746	0.598	19.8	109	0.01	4.92
9	M	vinyl chloride	0.757	0.737	2.6	128	0.00	5.20
10	M	bromomethane	0.424	0.395	6.8	115	0.02	5.89
11	M	chloroethane	0.425	0.352	17.2	112	0.02	6.06
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.803	0.704	12.3	114	0.00	6.56
14		pentane		----------NA----------				
15	M	ethyl ether	0.356	0.292	18.0	117	0.00	6.95
16	M	acrolein	0.143	0.035	75.5#	35#	0.02	7.20
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	1.048	0.854	18.5	118	-0.02	7.15
19	M	1,1-dichloroethene	0.506	0.435	14.0	117	0.00	7.40
20	M	acetone	0.056	0.051	8.9	116	0.05	7.45
21	M	allyl chloride	1.209	1.147	5.1	121	-0.01	7.89
22	M	acetonitrile	0.028	0.037	-32.1#	186	0.08	7.89
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.896	0.806	10.0	116	0.00	7.66
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.741	1.438	17.4	109	0.00	7.80
27	M	methylene chloride	0.622	0.500	19.6	113	0.00	8.07
28	M	1-chloropropane	1.049	0.915	12.8	124	-0.01	8.12
29	M	methyl acetate	0.526	0.462	12.2	121	0.00	7.87
30	M	methyl tert butyl ether	1.694	1.612	4.8	122	-0.01	8.43
31	M	trans-1,2-dichloroethene	0.526	0.449	14.6	115	-0.01	8.45
32	M	di-isopropyl ether	1.786	1.671	6.4	123	-0.01	9.02
33	M	ethyl tert-butyl ether	1.783	1.820	-2.1	131	-0.01	9.48
34	M	2-butanone	0.071	0.071	0.0	125	0.01	9.70
35	M	1,1-dichloroethane	0.941	0.810	13.9	111	0.00	9.01
36	M	chloroprene	0.748	0.781	-4.4	136	0.00	9.13
37	M	acrylonitrile	0.232	0.203	12.5	110	0.00	8.37
38	M	vinyl acetate	0.113	0.095	15.9	113	0.00	8.99
39	M	ethyl acetate	0.086	0.079	8.1	119	-0.01	9.72
40	M	2,2-dichloropropane	0.693	0.728	-5.1	141	-0.01	9.76
41	M	cis-1,2-dichloroethene	0.562	0.521	7.3	122	0.00	9.73

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8438-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206820.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.091	0.087	4.4	118	0.02	9.79
43	M	bromochloromethane	0.270	0.258	4.4	123	-0.01	10.03
44	M	tetrahydrofuran	0.086	0.082	4.7	129	0.00	10.09
45	M	chloroform	0.866	0.837	3.3	125	0.00	10.08
46	S	dibromofluoromethane (s)	0.488	0.464	4.9	128	0.00	10.28
47	S	1,2-dichloroethane-d4 (s)	0.590	0.611	-3.6	135	-0.01	10.70
48	M	freon 113	0.354	0.329	7.1	126	0.02	7.39
49	M	methacrylonitrile	0.392	0.346	11.7	117	0.00	9.96
50	m	t-butyl formate	0.562	0.502	10.7	117	0.00	10.16
51	M	1,1,1-trichloroethane	0.758	0.731	3.6	125	0.00	10.38
52	M	tert-amyl methyl ether	1.764	1.625	7.9	122	0.00	10.86
53	I	1,4-difluorobenzene	1.000	1.000	0.0	133	-0.01	11.16
54	M	cyclohexane	0.518	0.461	11.0	116	-0.01	10.47
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.245	1.221	1.9	127	0.00	10.86
57	M	epichlorohydrin	0.042	0.047	-11.9	135	0.00	12.43
58	M	n-butyl alcohol	0.013	0.010	23.1#	102	0.05	11.30
59	M	carbon tetrachloride	0.430	0.425	1.2	127	-0.01	10.58
60	M	1,1-dichloropropene	0.445	0.407	8.5	115	0.00	10.55
61	M	hexane	0.409	0.378	7.6	127	0.00	8.79
62	M	benzene	1.325	1.199	9.5	114	-0.01	10.81
63	M	heptane	0.230	0.241	-4.8	137	0.00	11.01
64	M	isopropyl acetate	0.724	0.726	-0.3	130	0.00	10.72
65	M	1,2-dichloroethane	0.445	0.450	-1.1	122	0.00	10.80
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.326	0.327	-0.3	126	-0.01	11.51
68	M	2-nitropropane	0.977	0.850	13.0	112	0.00	12.31
69	M	2-chloroethyl vinyl ether	0.249	0.213	14.5	108	0.00	12.31
70	M	methyl methacrylate	0.098	0.097	1.0	123	0.00	11.78
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.356	0.341	4.2	119	0.00	11.78
73	M	methylcyclohexane	0.552	0.581	-5.3	139	0.00	11.78
74	M	dibromomethane	0.210	0.214	-1.9	123	0.00	11.92
75	M	bromodichloromethane	0.433	0.440	-1.6	123	-0.01	12.05
76	M	cis-1,3-dichloropropene	0.561	0.570	-1.6	123	-0.01	12.54
77	S	toluene-d8 (s)	1.212	1.335	-10.1	144	0.00	12.87
78	M	4-methyl-2-pentanone	0.156	0.169	-8.3	135	0.00	12.66
79	M	toluene	0.826	0.845	-2.3	128	0.00	12.95
80	M	3-methyl-1-butanol	0.012	0.010#	16.7	99	0.03	12.67
81	M	trans-1,3-dichloropropene	0.530	0.534	-0.8	123	-0.01	13.12
82	M	ethyl methacrylate	0.496	0.514	-3.6	127	0.00	13.14
83	M	1,1,2-trichloroethane	0.261	0.268	-2.7	128	0.00	13.36
84	M	2-hexanone	0.142	0.145	-2.1	123	0.00	13.56
85	I	chlorobenzene-d5	1.000	1.000	0.0	150	0.00	14.50
86	M	tetrachloroethene	0.409	0.376	8.1	133	0.00	13.58
87	M	1,3-dichloropropane	0.600	0.555	7.5	127	-0.01	13.56
88	M	butyl acetate	0.264	0.268	-1.5	141	0.00	13.64
89	m	3,3-dimethyl-1-butanol	0.047	0.032	31.9#	95	0.02	13.75
90	M	dibromochloromethane	0.381	0.346	9.2	128	-0.01	13.84
91	M	1,2-dibromoethane	0.353	0.330	6.5	128	0.00	14.02
92	M	chlorobenzene	1.016	0.911	10.3	128	0.00	14.54
93	M	1,1,1,2-tetrachloroethane	0.376	0.337	10.4	125	-0.01	14.60
94	M	ethylbenzene	1.766	1.604	9.2	132	0.00	14.61
95	M	m,p-xylene	0.704	0.612	13.1	130	0.00	14.73
96	M	o-xylene	0.698	0.626	10.3	132	0.00	15.19
97	M	styrene	1.176	1.016	13.6	123	0.00	15.19
98	M	bromoform	0.295	0.264	10.5	128	0.00	15.46

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8438-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206820.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	132	0.00	17.09
100	M	isopropylbenzene	2.987	3.081	-3.1	133	0.00	15.58
101	S	4-bromofluorobenzene (s)	0.908	0.973	-7.2	140	0.00	15.78
102	M	bromobenzene	0.812	0.799	1.6	126	0.00	16.01
103	M	cyclohexanone	0.023	0.029	-26.1#	141	0.02	15.76
104	M	1,1,2,2-tetrachloroethane	0.921	0.860	6.6	123	0.00	15.87
105	M	trans-1,4-dichloro-2-bute	0.251	0.244	2.8	120	0.00	15.92
106	M	1,2,3-trichloropropane	0.262	0.256	2.3	129	0.00	15.97
107	M	n-propylbenzene	3.560	3.489	2.0	130	0.00	16.03
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.742	0.705	5.0	121	0.00	16.19
110	M	4-chlorotoluene	2.324	2.160	7.1	123	-0.01	16.30
111	M	1,3,5-trimethylbenzene	2.777	2.596	6.5	127	0.00	16.20
112	M	tert-butylbenzene	2.331	2.136	8.4	119	0.00	16.60
113	M	pentachloroethane	0.520	0.473	9.0	115	0.00	16.67
114	M	1,2,4-trimethylbenzene	2.823	2.510	11.1	118	0.00	16.64
115	M	sec-butylbenzene	3.433	3.155	8.1	120	0.00	16.84
116	M	1,3-dichlorobenzene	1.601	1.424	11.1	116	0.00	17.03
117	M	p-isopropyltoluene	2.843	2.577	9.4	117	0.00	16.97
118	M	1,4-dichlorobenzene	1.671	1.469	12.1	115	0.00	17.12
119		Benzyl Chloride	1.528	1.520	0.5	127	0.00	17.24
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.627	1.428	12.2	113	0.00	17.55
122	M	n-butylbenzene	1.562	1.284	17.8	107	0.00	17.42
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.179	0.150	16.2	105	0.00	18.40
125	M	1,3,5-trichlorobenzene	1.241	1.099	11.4	112	0.00	18.63
126	M	1,2,4-trichlorobenzene	1.006	0.902	10.3	107	-0.01	19.36
127	M	hexachlorobutadiene	0.586	0.528	9.9	115	0.00	19.51
128	M	naphthalene	2.212	1.946	12.0	98	0.00	19.68
129	M	1,2,3-trichlorobenzene	0.810	0.763	5.8	105	0.00	19.96
130	M	hexachloroethane	0.538	0.480	10.8	114	0.00	17.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d205390.D MD8379.M Fri Mar 22 17:40:23 2013

6.9.10

6

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8440-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206865A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\d206865a.D Vial: 3
Acq On : 23 Mar 2013 11:23 am Operator: EmilyT
Sample : cc8379-50 Inst : MSD
Misc : ms44893,vd8440,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\MD8379.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue Feb 19 09:53:02 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	124	0.00	8.01
2	M	1,4-dioxane	0.095	0.089	6.3	139	0.00	11.88
3	M	tertiary butyl alcohol	1.065	1.222	-14.7	136	0.00	8.11
4	I	pentafluorobenzene	1.000	1.000	0.0	131	0.00	10.24
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.547	0.622	-13.7	154	-0.02	4.55
7	M	dichlorodifluoromethane	0.670	0.732	-9.3	138	0.00	4.54
8	M	chloromethane	0.746	0.675	9.5	121	0.02	4.94
9	M	vinyl chloride	0.757	0.805	-6.3	134	0.00	5.20
10	M	bromomethane	0.424	0.461	-8.7	134	0.01	5.88
11	M	chloroethane	0.425	0.415	2.4	130	0.02	6.07
12	M	vinyl bromide		----------NA----------				
13	M	trichlorofluoromethane	0.803	0.883	-10.0	139	0.00	6.56
14		pentane		----------NA----------				
15	M	ethyl ether	0.356	0.330	7.3	132	0.00	6.95
16	M	acrolein	0.143	0.092	35.7#	93	-0.01	7.17
17	M	chlorotrifluoroethene		----------NA----------				
18	M	2-chloropropane	1.048	0.942	10.1	126	-0.03	7.14
19	M	1,1-dichloroethene	0.506	0.452	10.7	116	-0.02	7.37
20	M	acetone	0.056	0.098	-75.0#	246#	0.00	7.39
21	M	allyl chloride	1.209	1.012	16.3	110	-0.01	7.88
22	M	acetonitrile	0.028	0.027	3.6	149	0.00	7.81
23	M	acetaldehyde		----------NA----------				
24	M	iodomethane	0.896	0.877	2.1	122	-0.01	7.64
25	M	iso-butyl alcohol		----------NA----------				
26	M	carbon disulfide	1.741	1.522	12.6	111	-0.02	7.78
27	M	methylene chloride	0.622	0.522	16.1	117	-0.02	8.06
28	M	1-chloropropane	1.049	0.921	12.2	124	-0.02	8.11
29	M	methyl acetate	0.526	0.434	17.5	115	0.00	7.86
30	M	methyl tert butyl ether	1.694	1.575	7.0	120	-0.02	8.42
31	M	trans-1,2-dichloroethene	0.526	0.500	4.9	123	-0.01	8.45
32	M	di-isopropyl ether	1.786	1.696	5.0	122	-0.01	9.02
33	M	ethyl tert-butyl ether	1.783	1.638	8.1	115	-0.01	9.48
34	M	2-butanone	0.071	0.089	-25.4#	160	0.00	9.68
35	M	1,1-dichloroethane	0.941	0.921	2.1	123	-0.01	9.00
36	M	chloroprene	0.748	0.786	-5.1	133	0.00	9.12
37	M	acrylonitrile	0.232	0.203	12.5	113	0.00	8.36
38	M	vinyl acetate	0.113	0.102	9.7	119	-0.01	8.98
39	M	ethyl acetate	0.086	0.072	16.3	119	-0.01	9.71
40	M	2,2-dichloropropane	0.693	0.760	-9.7	146	-0.02	9.75
41	M	cis-1,2-dichloroethene	0.562	0.545	3.0	125	0.00	9.72

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8440-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206865A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	M	propionitrile	0.091	0.079	13.2	114	-0.01	9.76
43	M	bromochloromethane	0.270	0.277	-2.6	128	-0.01	10.02
44	M	tetrahydrofuran	0.086	0.078	9.3	122	0.00	10.09
45	M	chloroform	0.866	0.906	-4.6	132	-0.01	10.08
46	S	dibromofluoromethane (s)	0.488	0.480	1.6	131	0.00	10.27
47	S	1,2-dichloroethane-d4 (s)	0.590	0.585	0.8	132	-0.01	10.70
48	M	freon 113	0.354	0.375	-5.9	135	0.01	7.38
49	M	methacrylonitrile	0.392	0.350	10.7	125	-0.01	9.95
50	m	t-butyl formate	0.562	0.489	13.0	110	-0.01	10.15
51	M	1,1,1-trichloroethane	0.758	0.807	-6.5	134	0.00	10.37
52	M	tert-amyl methyl ether	1.764	1.582	10.3	117	0.00	10.85
53	I	1,4-difluorobenzene	1.000	1.000	0.0	124	-0.01	11.16
54	M	cyclohexane	0.518	0.477	7.9	109	-0.01	10.47
55		tert amyl alcohol		----------NA----------				
56	M	2,2,4-trimethylpentane	1.245	1.001	19.6	101	0.00	10.85
57	M	epichlorohydrin	0.042	0.041	2.4	122	-0.01	12.42
58	M	n-butyl alcohol	0.013	0.010#	23.1#	105	0.00	11.25
59	M	carbon tetrachloride	0.430	0.480	-11.6	133	-0.01	10.58
60	M	1,1-dichloropropene	0.445	0.468	-5.2	128	-0.01	10.54
61	M	hexane	0.409	0.444	-8.6	139	-0.01	8.78
62	M	benzene	1.325	1.317	0.6	121	-0.01	10.80
63	M	heptane	0.230	0.313	-36.1#	168	0.00	11.01
64	M	isopropyl acetate	0.724	0.688	5.0	119	0.00	10.71
65	M	1,2-dichloroethane	0.445	0.489	-9.9	130	-0.01	10.79
66		Ethyl Acrylate		----------NA----------				
67	M	trichloroethene	0.326	0.349	-7.1	127	0.00	11.51
68	M	2-nitropropane	0.977	0.842	13.8	108	0.00	12.30
69	M	2-chloroethyl vinyl ether	0.249	0.206	17.3	100	0.00	12.30
70	M	methyl methacrylate	0.098	0.103	-5.1	124	0.00	11.77
71	M	tert-amyl ethyl ether		----------NA----------				
72	M	1,2-dichloropropane	0.356	0.363	-2.0	120	0.00	11.77
73	M	methylcyclohexane	0.552	0.597	-8.2	130	0.00	11.77
74	M	dibromomethane	0.210	0.223	-6.2	124	0.00	11.92
75	M	bromodichloromethane	0.433	0.479	-10.6	127	-0.01	12.05
76	M	cis-1,3-dichloropropene	0.561	0.574	-2.3	119	0.00	12.54
77	S	toluene-d8 (s)	1.212	1.300	-7.3	135	0.00	12.87
78	M	4-methyl-2-pentanone	0.156	0.162	-3.8	129	0.00	12.65
79	M	toluene	0.826	0.906	-9.7	131	0.00	12.95
80	M	3-methyl-1-butanol	0.012	0.010	16.7	108	0.00	12.64
81	M	trans-1,3-dichloropropene	0.530	0.586	-10.6	130	-0.01	13.12
82	M	ethyl methacrylate	0.496	0.536	-8.1	130	0.00	13.14
83	M	1,1,2-trichloroethane	0.261	0.278	-6.5	129	0.00	13.35
84	M	2-hexanone	0.142	0.187	-31.7#	162	0.00	13.56
85	I	chlorobenzene-d5	1.000	1.000	0.0	135	0.00	14.50
86	M	tetrachloroethene	0.409	0.421	-2.9	134	0.00	13.58
87	M	1,3-dichloropropane	0.600	0.586	2.3	128	-0.01	13.55
88	M	butyl acetate	0.264	0.261	1.1	129	0.00	13.64
89	m	3,3-dimethyl-1-butanol	0.047	0.034	27.7#	104	0.00	13.73
90	M	dibromochloromethane	0.381	0.400	-5.0	132	0.00	13.84
91	M	1,2-dibromoethane	0.353	0.357	-1.1	129	0.00	14.01
92	M	chlorobenzene	1.016	0.996	2.0	127	0.00	14.53
93	M	1,1,1,2-tetrachloroethane	0.376	0.377	-0.3	126	0.00	14.60
94	M	ethylbenzene	1.766	1.761	0.3	132	0.00	14.61
95	M	m,p-xylene	0.704	0.686	2.6	131	0.00	14.73
96	M	o-xylene	0.698	0.687	1.6	130	0.00	15.19
97	M	styrene	1.176	1.146	2.6	125	0.00	15.19
98	M	bromoform	0.295	0.305	-3.4	131	0.00	15.46

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VD8440-CC8379
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** D206865A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	135	0.00	17.09
100	M	isopropylbenzene	2.987	2.942	1.5	132	0.00	15.57
101	S	4-bromofluorobenzene (s)	0.908	0.869	4.3	133	0.00	15.78
102	M	bromobenzene	0.812	0.778	4.2	129	0.00	16.00
103	M	cyclohexanone	0.023	0.158	-587.0#	1003#	0.00	15.74
104	M	1,1,2,2-tetrachloroethane	0.921	0.815	11.5	126	0.00	15.87
105	M	trans-1,4-dichloro-2-bute	0.251	0.254	-1.2	133	0.00	15.92
106	M	1,2,3-trichloropropane	0.262	0.243	7.3	131	0.00	15.96
107	M	n-propylbenzene	3.560	3.397	4.6	131	0.00	16.03
108	M	p-ethyltoluene		----------NA----------				
109	M	2-chlorotoluene	0.742	0.676	8.9	122	0.00	16.19
110	M	4-chlorotoluene	2.324	2.069	11.0	122	0.00	16.30
111	M	1,3,5-trimethylbenzene	2.777	2.465	11.2	125	0.00	16.20
112	M	tert-butylbenzene	2.331	2.229	4.4	131	0.00	16.59
113	M	pentachloroethane	0.520	0.519	0.2	135	0.00	16.66
114	M	1,2,4-trimethylbenzene	2.823	2.634	6.7	130	0.00	16.64
115	M	sec-butylbenzene	3.433	3.373	1.7	134	0.00	16.83
116	M	1,3-dichlorobenzene	1.601	1.533	4.2	130	0.00	17.02
117	M	p-isopropyltoluene	2.843	2.807	1.3	134	0.00	16.97
118	M	1,4-dichlorobenzene	1.671	1.572	5.9	128	0.00	17.12
119		Benzyl Chloride	1.528	1.822	-19.2	158	0.00	17.24
120	M	p-diethylbenzene		----------NA----------				
121	M	1,2-dichlorobenzene	1.627	1.483	8.9	127	0.00	17.55
122	M	n-butylbenzene	1.562	1.454	6.9	126	0.00	17.43
123	M	1,2,4,5-tetramethylbenzen		----------NA----------				
124	M	1,2-dibromo-3-chloropropa	0.179	0.150	16.2	128	0.00	18.39
125	M	1,3,5-trichlorobenzene	1.241	1.151	7.3	133	0.00	18.63
126	M	1,2,4-trichlorobenzene	1.006	0.896	10.9	126	0.00	19.36
127	M	hexachlorobutadiene	0.586	0.564	3.8	147	0.00	19.51
128	M	naphthalene	2.212	1.751	20.8#	115	0.00	19.68
129	M	1,2,3-trichlorobenzene	0.810	0.780	3.7	141	0.00	19.96
130	M	hexachloroethane	0.538	0.507	5.8	132	0.00	17.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
d205391.D MD8379.M Sat Mar 23 16:34:56 2013

6.9.11

6

Initial Calibration Summary

Job Number: JB31121 **Sample:** VX5795-ICC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133702.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report ACC-VOA-M

```
Method       : C:\MSDCHEM\1\METHODS\MX5795.M (RTE Integrator)
Title        : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update  : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

Calibration Files
1   =X133697.D   2   =X133698.D   100 =X133703.D   50  =X133702.D
20  =X133701.D   200 =X133704.D   5   =X133699.D   10  =X133700.D
0.5 =X133696.D       =
```

Compound	1	2	100	50	20	200	5	10	0.5	Avg	%RSD
1) I tert butyl alcohol-d9 ----------ISTD----------											
2) tertiary butyl alcohol	1.186	1.324	1.365	1.357	1.233	1.300	1.356			1.303	5.29
3) ethyl alcohol	0.103	0.108	0.089	0.094	0.097		0.129	0.104		0.103	12.59
4) 1,4-dioxane	0.085	0.116	0.119	0.116	0.119	0.124	0.110			0.113	11.33
5) I pentafluorobenzene ----------ISTD----------											
6) freon 23										0.000	-1.00
7) freon 115										0.000	-1.00
8) freon 143a										0.000	-1.00
9) freon 152a										0.000	-1.00
10) chlorotrifluoroethene										0.000	-1.00
11) chlorodifluoromethane			0.274	0.289	0.267	0.284	0.250	0.276		0.273	4.99
12) dichlorodifluoromethane			0.476	0.506	0.487	0.467	0.509	0.537		0.497	5.12
13) freon 114										0.000	-1.00
14) freon 142b										0.000	-1.00
15) chloromethane			0.425	0.438	0.431	0.400	0.457	0.446		0.433	4.56
16) vinyl chloride			0.423	0.435	0.423	0.411	0.454	0.455		0.434	4.20
17) acetaldehyde			0.005	0.005	0.005	0.004		0.006		0.005	10.50
18) bromomethane			0.320	0.334	0.325		0.358	0.340		0.335	4.44
19) chloroethane	0.257	0.275	0.212	0.222	0.212	0.200	0.227	0.240		0.231	11.02
20) vinyl bromide										0.000	-1.00
21) trichlorofluoromethane			0.644	0.678	0.652	0.622	0.711	0.718		0.671	5.69
22) pentane										0.000	-1.00
23) ethyl ether											

Initial Calibration Summary

Job Number: JB31121 **Sample:** VX5795-ICC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133702.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

	0.174	0.218	0.208	0.197	0.201	0.195	0.190	0.207		0.199	6.64
24) freon 141b											
										0.000	-1.00
25) freon 123a											
										0.000	-1.00
26) freon 123											
										0.000	-1.00
27) acrolein											
	0.048	0.051	0.060	0.057	0.057	0.053	0.048	0.057		0.054	8.68
28) 1,1-dichloroethene											
			0.329	0.341	0.317	0.327	0.320	0.335		0.328	2.66
29) acetone											
			0.026	0.024	0.021	0.023		0.022		0.023	9.12
30) allyl chloride											
	0.218	0.265	0.226	0.218	0.214	0.218	0.216	0.227		0.225	7.42
31) acetonitrile											
		0.026	0.025	0.024	0.025	0.023	0.021	0.025		0.024	7.48
32) iodomethane											
	0.876	0.936	0.789	0.817	0.761	0.771	0.763	0.805	0.855	0.819	7.21
33) iso-butyl alcohol											
			0.017	0.015	0.015	0.014	0.011	0.016		0.014	14.45
34) carbon disulfide											
			1.173	1.225	1.129	1.162	1.222	1.218		1.188	3.34
35) methylene chloride											
	0.508	0.466	0.416	0.428	0.407	0.409	0.400	0.427	0.475	0.437	8.47
36) methyl acetate											
			0.240	0.224	0.222	0.211	0.167	0.233		0.216	12.18
37) methyl tert butyl ether											
	1.085	1.191	1.201	1.189	1.148	1.106	1.041	1.216	0.958	1.126	7.70
38) trans-1,2-dichloroethene											
	0.469	0.496	0.392	0.400	0.384	0.388	0.384	0.401	0.417	0.415	9.78
39) di-isopropyl ether											
	1.207	1.292	1.225	1.267	1.229	1.214	1.150	1.234	1.170	1.221	3.60
40) 2-butanone											
			0.041	0.039	0.036	0.036		0.036		0.038	5.83
41) 1,1-dichloroethane											
	0.795	0.848	0.706	0.738	0.710	0.691	0.725	0.733	0.739	0.743	6.64
42) chloroprene											
			0.540	0.570	0.549	0.550	0.543	0.556		0.551	1.92
43) acrylonitrile											
		0.090	0.109	0.103	0.101	0.097	0.082	0.106		0.098	9.56
44) vinyl acetate											
			0.057	0.055	0.053	0.055		0.052		0.054	3.55
45) ethyl tert-butyl ether											
	1.185	1.316	1.300	1.330	1.288	1.261	1.189	1.328	1.133	1.259	5.73
46) ethyl acetate											
			0.039	0.036	0.034	0.035	0.027	0.037		0.035	12.47
47) 2,2-dichloropropane											
			0.593	0.629	0.593	0.566	0.641	0.636		0.610	4.92
48) cis-1,2-dichloroethene											
	0.515	0.521	0.455	0.468	0.442	0.445	0.460	0.453	0.405	0.463	7.79
49) propionitrile											
		0.034	0.043	0.040	0.040	0.038	0.031	0.043		0.039	11.86
50) tert-Butyl Formate											
	0.289	0.317	0.367	0.365	0.352	0.338	0.303	0.353		0.336	8.68
51) bromochloromethane											
	0.225	0.248	0.243	0.249	0.238	0.235	0.223	0.232	0.178	0.230	9.38
52) tetrahydrofuran											
	0.126	0.094	0.115	0.108	0.110	0.098	0.096	0.118		0.108	10.56
53) chloroform											

Initial Calibration Summary

Job Number: JB31121 **Sample:** VX5795-ICC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133702.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
           0.874 0.912 0.777 0.803 0.781 0.754 0.787 0.791 0.915   0.822    7.47
54)  dibromofluoromethane (s)
                       0.450 0.456 0.441 0.446 0.504 0.509         0.468    6.59
55)  1,2-dichloroethane-d4 (s)
           0.553 0.588 0.471 0.472 0.469 0.440 0.495 0.532         0.502   10.01
56)  freon 113
                       0.277 0.293 0.271 0.282 0.261 0.294         0.280    4.64
57)  methacrylonitrile
                 0.149 0.195 0.187 0.185 0.174 0.146 0.192         0.175   11.50
58)  1,1,1-trichloroethane
                       0.664 0.696 0.650 0.641 0.692 0.694         0.673    3.60
59)  cyclohexane
                       0.513 0.538 0.484 0.505 0.517 0.528         0.514    3.65
60)  tert amyl alcohol
                                                                   0.000   -1.00
61)  iso-octane
           1.493 1.645 1.242 1.328 1.256 1.288 1.239 1.314         1.351   10.69

62) I   1,4-difluorobenzene   ----------------ISTD---------------------
63)  di-isobutylene
                                                                   0.000   -1.00
64)  epichlorohydrin
                       0.026 0.023 0.023 0.022 0.017 0.025         0.023   12.87
65)  n-butyl alcohol
                 0.006 0.008 0.007 0.007 0.007 0.005 0.008         0.007   16.69
     ----- Quadratic regression -----                Coefficient =  0.9953
          Response Ratio = -0.00901 + 0.00836 *A + -0.00001 *A^2

66)  carbon tetrachloride
                       0.469 0.490 0.460 0.451 0.484 0.480         0.472    3.20
67)  1,1-dichloropropene
                       0.398 0.416 0.396 0.391 0.430 0.417         0.408    3.77
68)  hexane
                       0.307 0.323 0.304 0.317 0.307 0.314         0.312    2.30
69)  benzene
           1.392 1.426 1.171 1.202 1.163 1.147 1.195 1.171         1.233    8.93
70)  tert-amyl methyl ether
           0.851 0.916 0.939 0.946 0.928 0.885 0.817 0.950 0.849   0.898    5.47
71)  heptane
                       0.193 0.205 0.193 0.198 0.189 0.198         0.196    2.88
72)  isopropyl acetate
                       0.510 0.491 0.490 0.439 0.400 0.504         0.472    9.18
73)  1,2-dichloroethane
           0.433 0.456 0.439 0.449 0.443 0.409 0.414 0.450 0.393   0.432    5.01
74)  trichloroethene
                       0.336 0.347 0.328 0.329 0.339 0.344         0.337    2.30
75)  ethyl acrylate
                                                                   0.000   -1.00
76)  tert amyl ethyl ether
                                                                   0.000   -1.00
77)  2-nitropropane
                       0.005 0.005       0.005                     0.005    6.76
78)  2-chloroethyl vinyl ether
                       0.166 0.161 0.159 0.151 0.137 0.163         0.156    6.82
79)  methyl methacrylate
                 0.160 0.187 0.179 0.171 0.165 0.142 0.182         0.169    9.02
80)  1,2-dichloropropane
           0.303 0.338 0.315 0.319 0.307 0.306 0.301 0.315         0.313    3.74
81)  dibromomethane
           0.180 0.189 0.205 0.204 0.199 0.190 0.191 0.204         0.195    4.65
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VX5795-ICC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133702.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 82)  methylcyclohexane
                        0.432 0.456 0.422 0.446 0.412 0.444         0.435    3.79
 83)  bromodichloromethane
              0.473 0.503 0.475 0.487 0.471 0.453 0.461 0.475 0.438   0.471    3.98
 84)  cis-1,3-dichloropropene
              0.532 0.579 0.559 0.565 0.548 0.534 0.543 0.560 0.494   0.546    4.53
 85)  toluene-d8 (s)
                        1.161 1.169 1.132 1.148 1.370 1.337         1.220    8.63
 86)  4-methyl-2-pentanone
                        0.109 0.102 0.100 0.092 0.075 0.104         0.097   12.70
 87)  toluene
              0.923 0.956 0.785 0.813 0.775 0.767 0.796 0.783         0.825    8.82
 88)  3-methyl-1-butanol
                        0.013 0.012 0.012 0.011 0.008 0.012         0.011   14.95
 89)  trans-1,3-dichloropropene
              0.468 0.518 0.525 0.530 0.519 0.492 0.487 0.530 0.472   0.505    4.95
 90)  ethyl methacrylate
                    0.329 0.398 0.382 0.369 0.357 0.322 0.387         0.364    8.04
 91)  1,1,2-trichloroethane
              0.205 0.231 0.237 0.234 0.232 0.220 0.213 0.235 0.188   0.222    7.55
 92)  2-hexanone
                        0.106 0.096 0.093 0.088 0.071 0.102         0.093   13.27

 93) I   chlorobenzene-d5      ----------------ISTD--------------------
 94)  3,3-Dimethyl-1-butanol
              0.018 0.021 0.031 0.027 0.027       0.021 0.029         0.025   19.83
               ----- Linear regression -----  Coefficient =  0.9966
                 Response Ratio = -0.01016 + 0.03115 *A

 95)  tetrachloroethene
                        0.330 0.335 0.325 0.322 0.349 0.331         0.332    2.84
 96)  1,3-dichloropropane
              0.457 0.534 0.504 0.497 0.496 0.469 0.484 0.506 0.439   0.487    5.92
 97)  butyl acetate
                        0.202 0.188 0.189 0.176 0.150 0.190         0.182    9.84
 98)  dibromochloromethane
              0.441 0.453 0.461 0.456 0.443 0.432 0.442 0.449 0.399   0.442    4.12
 99)  1,2-dibromoethane
              0.316 0.329 0.342 0.332 0.335 0.315 0.308 0.338 0.255   0.319    8.37
100)  n-butyl ether
                                                                      0.000   -1.00
101)  chlorobenzene
              1.203 1.235 1.057 1.086 1.047 1.034 1.104 1.070 1.137   1.108    6.36
102)  1,1,1,2-tetrachloroethane
              0.429 0.473 0.428 0.436 0.421 0.412 0.436 0.438 0.420   0.433    4.05
103)  ethylbenzene
              2.171 2.120 1.715 1.741 1.675 1.678 1.790 1.723         1.827   10.98
104)  m,p-xylene
              0.827 0.832 0.671 0.683 0.662 0.657 0.697 0.670 1.044   0.749   17.38
               ----- Linear regression -----  Coefficient =  0.9997
                 Response Ratio = 0.00809 + 0.66196 *A

105)  o-xylene
              0.760 0.789 0.672 0.684 0.660 0.655 0.679 0.668 0.802   0.708    8.27
106)  styrene
              1.164 1.260 1.190 1.199 1.145 1.160 1.146 1.142 1.164   1.175    3.20
107)  bromoform
              0.270 0.308 0.335 0.320 0.313 0.303 0.281 0.317 0.277   0.303    7.28

108) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VX5795-ICC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133702.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
109)  isopropylbenzene
                        2.875 3.048 2.891 2.941 3.227 3.029         3.002    4.36
110)  Cyclohexanone
            0.068 0.065 0.040 0.042 0.061 0.043 0.060 0.067 0.062   0.056   20.28
             ----- Linear regression -----  Coefficient =  0.9959
               Response Ratio = 0.01713 + 0.04216 *A

111)  4-bromofluorobenzene (s)
                        0.887 0.911 0.897 0.898 1.257 1.084         0.989   15.25
             ----- Linear regression -----  Coefficient =  0.9998
               Response Ratio = 0.02444 + 0.88819 *A

112)  bromobenzene
            0.941 1.029 0.874 0.908 0.879 0.874 0.960 0.894 0.885   0.916    5.70
113)  1,1,2,2-tetrachloroethane
            0.671 0.733 0.704 0.688 0.702 0.650 0.678 0.730 0.662   0.691    4.20
114)  trans-1,4-dichloro-2-butene
                        0.193 0.186 0.187 0.174 0.165 0.185         0.182    5.60
115)  1,2,3-trichloropropane
                    0.201 0.192 0.189 0.187 0.174 0.180 0.196       0.188    4.93
116)  n-propylbenzene
                        3.318 3.495 3.339 3.375 3.720 3.456         3.451    4.30
117)  4-ethyltoluene
                                                                    0.000   -1.00
118)  2-chlorotoluene
                        0.754 0.791 0.760 0.764 0.828 0.769         0.778    3.57
119)  4-chlorotoluene
            2.767 2.767 2.217 2.330 2.239 2.229 2.401 2.271 2.682   2.434    9.73
120)  1,3,5-trimethylbenzene
                        2.525 2.655 2.553 2.578 2.786 2.618         2.619    3.59
121)  tert-butylbenzene
                        2.159 2.250 2.191 2.196 2.457 2.268         2.254    4.77
122)  pentachloroethane
            0.643 0.679 0.587 0.612 0.606 0.600 0.623 0.629 0.649   0.625    4.53
123)  1,2,4-trimethylbenzene
                        2.611 2.719 2.601 2.647 2.794 2.685         2.676    2.73
124)  1,2,3-trimethylbenzene
                                                                    0.000   -1.00
125)  sec-butylbenzene
                        3.155 3.299 3.148 3.210 3.479 3.289         3.263    3.78
126)  1,3-dichlorobenzene
            1.904 1.880 1.626 1.690 1.644 1.622 1.710 1.627 1.855   1.729    6.81
127)  p-isopropyltoluene
                        2.740 2.887 2.766 2.784 3.003 2.838         2.836    3.43
128)  1,4-dichlorobenzene
            2.012 1.956 1.653 1.736 1.670 1.652 1.752 1.682 1.974   1.787    8.36
129)  1,2-dichlorobenzene
            1.628 1.755 1.537 1.584 1.556 1.540 1.591 1.575 1.666   1.604    4.38
130)  benzyl chloride
            1.333 1.372 1.486 1.489 1.457 1.369 1.274 1.497 1.241   1.391    6.94
131)  1,4-diethylbenzene
                                                                    0.000   -1.00
132)  n-butylbenzene
            1.705 1.690 1.355 1.428 1.349 1.368 1.441 1.401 1.531   1.474    9.38
133)  1,2,4,5-tetramethylbenzene
                                                                    0.000   -1.00
134)  1,2-dibromo-3-chloropropane
                    0.123 0.110 0.115 0.122 0.111 0.108 0.134       0.118    7.90
135)  1,3,5-trichlorobenzene
            1.284 1.462 1.147 1.272 1.278 1.237 1.293 1.296 1.233   1.278    6.52
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** VX5795-ICC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133702.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
136)  hexachlorobutadiene
                        0.545 0.636 0.651 0.591 0.711 0.670         0.634    9.28
137)  naphthalene
                        1.490 1.717 1.831 1.475 1.420 1.735         1.611   10.56
138)  1,2,4-trichlorobenzene
                  0.830 0.885 1.012 1.037 0.943 0.860 0.965         0.933    8.34
139)  1,2,3-trichlorobenzene
                        0.638 0.792 0.849 0.618 0.683 0.799         0.730   13.13
140)  hexachloroethane
                        0.535 0.568 0.557 0.565 0.614 0.557         0.566    4.62
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          MX5795.M          Thu Mar 07 18:13:12 2013   ACCNJ
```

6.9.12

6

Initial Calibration Verification

Job Number: JB31121 **Sample:** VX5796-ICV5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\X\vx5795FINAL\X133710.D Vial: 3
Acq On : 7 Mar 2013 12:00 pm Operator: margares
Sample : icv5795-50 Inst : ACC-VOA-MSX
Misc : MS43960,VX5796,5.0,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MX5795.M (RTE Integrator)
Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Mar 07 18:00:57 2013
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	104	-0.01	7.05
2		tertiary butyl alcohol	1.303	1.225	6.0	93	0.00	7.19
3		ethyl alcohol	0.103	0.093	9.7	102	0.00	5.73
4		1,4-dioxane	0.113	0.111	1.8	97	0.00	11.83
5	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	9.73
6	m	freon 23		----------NA----------				
7	m	freon 115		----------NA----------				
8	m	freon 143a		----------NA----------				
9	m	freon 152a		----------NA----------				
10	m	chlorotrifluoroethene		----------NA----------				
11		chlorodifluoromethane	0.273	0.316	-15.8	117	0.00	3.64
12		dichlorodifluoromethane	0.497	0.546	-9.9	116	-0.01	3.62
13	m	freon 114		----------NA----------				
14	m	freon 142b		----------NA----------				
15		chloromethane	0.433	0.480	-10.9	118	0.00	3.94
16		vinyl chloride	0.434	0.494	-13.8	122	-0.01	4.18
17	m	acetaldehyde	0.005	0.006	-20.0	118	0.00	4.40
18		bromomethane	0.335	0.355	-6.0	114	0.00	4.80
19		chloroethane	0.231	0.243	-5.2	117	0.00	4.98
20		vinyl bromide		----------NA----------				
21		trichlorofluoromethane	0.671	0.754	-12.4	119	0.01	5.43
22		pentane		----------NA----------				
23		ethyl ether	0.199	0.188	5.5	102	-0.01	5.86
24	m	freon 141b		----------NA----------				
25	m	freon 123a		----------NA----------				
26	m	freon 123		----------NA----------				
27		acrolein	0.054	0.053	1.9	99	0.00	6.12
28		1,1-dichloroethene	0.328	0.370	-12.8	116	0.00	6.30
29		acetone	0.023	0.021	8.7	94	-0.03	6.35
30		allyl chloride	0.225	0.227	-0.9	111	-0.01	6.86
31		acetonitrile	0.024	0.022	8.3	98	-0.02	6.83
32		iodomethane	0.819	0.817	0.2	107	0.00	6.59
33		iso-butyl alcohol	0.014	0.013	7.1	88	-0.01	10.11
34		carbon disulfide	1.188	1.316	-10.8	115	0.00	6.72
35		methylene chloride	0.437	0.412	5.7	103	-0.01	7.08
36		methyl acetate	0.216	0.180	16.7	86	-0.01	6.86
37		methyl tert butyl ether	1.126	1.041	7.5	94	0.00	7.45
38		trans-1,2-dichloroethene	0.415	0.418	-0.7	112	0.00	7.50
39		di-isopropyl ether	1.221	1.163	4.8	98	-0.01	8.15
40		2-butanone	0.038	0.033	13.2	90	-0.01	9.02
41		1,1-dichloroethane	0.743	0.733	1.3	107	0.00	8.15

Initial Calibration Verification

Job Number: JB31121 **Sample:** VX5796-ICV5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42		chloroprene	0.551	0.522	5.3	98	0.00	8.28
43		acrylonitrile	0.098	0.091	7.1	95	-0.01	7.44
44		vinyl acetate	0.054	0.052	3.7	101	-0.01	8.15
45		ethyl tert-butyl ether	1.259	1.162	7.7	94	0.00	8.71
46		ethyl acetate	0.035	0.032	8.6	93	0.00	9.06
47		2,2-dichloropropane	0.610	0.659	-8.0	112	0.00	9.05
48		cis-1,2-dichloroethene	0.463	0.459	0.9	105	-0.01	9.05
49		propionitrile	0.039	0.036	7.7	95	0.00	9.14
50		tert-Butyl Formate	0.336	0.325	3.3	95	0.00	9.55
51		bromochloromethane	0.230	0.228	0.9	98	-0.02	9.43
52		tetrahydrofuran	0.108	0.095	12.0	94	-0.01	9.48
53		chloroform	0.822	0.779	5.2	104	-0.01	9.51
54	S	dibromofluoromethane (s)	0.468	0.457	2.4	108	0.00	9.76
55	S	1,2-dichloroethane-d4 (s)	0.502	0.441	12.2	100	-0.01	10.29
56		freon 113	0.280	0.258	7.9	94	0.00	6.29
57		methacrylonitrile	0.175	0.162	7.4	93	-0.01	9.36
58		1,1,1-trichloroethane	0.673	0.719	-6.8	111	0.00	9.82
59		cyclohexane	0.514	0.579	-12.6	115	-0.01	9.90
60	m	tert amyl alcohol		----------NA----------				
61	m	iso-octane	1.351	1.153	14.7	93	0.00	10.40
62	I	1,4-difluorobenzene	1.000	1.000	0.0	109	-0.01	10.88
63		di-isobutylene		----------NA----------				
64		epichlorohydrin	0.023	0.021	8.7	95	-0.01	12.57
		----------	True	Calc.	% Drift	----------		
65		n-butyl alcohol	2500.000	2027.103	18.9	95	0.00	11.09
		----------	AvgRF	CCRF	% Dev	----------		
66		carbon tetrachloride	0.472	0.503	-6.6	111	0.00	10.07
67		1,1-dichloropropene	0.408	0.431	-5.6	113	-0.01	10.05
68		hexane	0.312	0.246	21.2#	83	-0.01	7.85
69		benzene	1.233	1.189	3.6	107	0.00	10.38
70		tert-amyl methyl ether	0.898	0.820	8.7	94	-0.01	10.44
71		heptane	0.196	0.184	6.1	98	-0.01	10.64
72		isopropyl acetate	0.472	0.362	23.3#	80	0.00	10.33
73		1,2-dichloroethane	0.432	0.393	9.0	95	-0.01	10.40
74		trichloroethene	0.337	0.354	-5.0	111	-0.01	11.32
75	m	ethyl acrylate		----------NA----------				
76	m	tert amyl ethyl ether		----------NA----------				
77		2-nitropropane	0.005	0.004	20.0	88	0.00	12.42
78		2-chloroethyl vinyl ether	0.156	0.138	11.5	93	0.00	12.43
79		methyl methacrylate	0.169	0.153	9.5	93	0.00	11.72
80		1,2-dichloropropane	0.313	0.303	3.2	103	-0.01	11.66
81		dibromomethane	0.195	0.182	6.7	97	0.00	11.88
82		methylcyclohexane	0.435	0.429	1.4	102	0.00	11.59
83		bromodichloromethane	0.471	0.444	5.7	99	0.00	12.07
84		cis-1,3-dichloropropene	0.546	0.525	3.8	101	0.00	12.70
85	S	toluene-d8 (s)	1.220	1.222	-0.2	114	0.00	13.08
86		4-methyl-2-pentanone	0.097	0.087	10.3	92	-0.01	12.84
87		toluene	0.825	0.800	3.0	107	0.00	13.18
88		3-methyl-1-butanol	0.011	0.010	9.1	91	0.00	12.91
89		trans-1,3-dichloropropene	0.505	0.474	6.1	97	-0.01	13.47
90		ethyl methacrylate	0.364	0.336	7.7	96	0.00	13.50
91		1,1,2-trichloroethane	0.222	0.211	5.0	98	0.00	13.76
92		2-hexanone	0.093	0.082	11.8	93	-0.01	14.02
93	I	chlorobenzene-d5	1.000	1.000	0.0	106	-0.01	15.12
		----------	True	Calc.	% Drift	----------		

Initial Calibration Verification

Job Number: JB31121 **Sample:** VX5796-ICV5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94		3,3-Dimethyl-1-butanol	500.000	394.699	21.1#	91	0.00	14.27
		----------	AvgRF	CCRF	% Dev	----------		
95		tetrachloroethene	0.332	0.354	-6.6	112	0.00	13.97
96		1,3-dichloropropane	0.487	0.450	7.6	96	0.00	14.00
97		butyl acetate	0.182	0.163	10.4	92	0.00	14.15
98		dibromochloromethane	0.442	0.413	6.6	96	-0.01	14.35
99		1,2-dibromoethane	0.319	0.300	6.0	96	0.00	14.53
100	m	n-butyl ether		----------NA----------				
101		chlorobenzene	1.108	1.056	4.7	103	0.00	15.16
102		1,1,1,2-tetrachloroethane	0.433	0.408	5.8	99	0.00	15.26
103		ethylbenzene	1.827	1.755	3.9	107	-0.01	15.25
		----------	True	Calc.	% Drift	----------		
104		m,p-xylene	100.000	103.443	-3.4	107	0.00	15.40
		----------	AvgRF	CCRF	% Dev	----------		
105		o-xylene	0.708	0.675	4.7	105	0.00	15.95
106		styrene	1.175	1.149	2.2	102	-0.01	15.96
107		bromoform	0.303	0.283	6.6	94	-0.01	16.29
108	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	17.95
109		isopropylbenzene	3.002	3.099	-3.2	108	-0.01	16.40
		----------	True	Calc.	% Drift	----------		
110		Cyclohexanone	500.000	491.739	1.7	110	0.00	16.59
111	S	4-bromofluorobenzene (s)	50.000	50.540	-1.1	108	0.00	16.64
		----------	AvgRF	CCRF	% Dev	----------		
112		bromobenzene	0.916	0.850	7.2	99	-0.01	16.86
113		1,1,2,2-tetrachloroethane	0.691	0.610	11.7	94	0.00	16.79
114		trans-1,4-dichloro-2-bute	0.182	0.161	11.5	92	0.00	16.85
115		1,2,3-trichloropropane	0.188	0.162	13.8	91	0.00	16.87
116		n-propylbenzene	3.451	3.543	-2.7	108	0.00	16.90
117	m	4-ethyltoluene		----------NA----------				
118		2-chlorotoluene	0.778	0.783	-0.6	105	0.00	17.06
119		4-chlorotoluene	2.434	2.272	6.7	104	0.00	17.18
120		1,3,5-trimethylbenzene	2.619	2.638	-0.7	106	0.00	17.09
121		tert-butylbenzene	2.254	2.283	-1.3	108	0.00	17.47
122		pentachloroethane	0.625	0.567	9.3	98	0.00	17.56
123		1,2,4-trimethylbenzene	2.676	2.680	-0.1	105	0.00	17.53
124	m	1,2,3-trimethylbenzene		----------NA----------				
125		sec-butylbenzene	3.263	3.387	-3.8	109	0.00	17.71
126		1,3-dichlorobenzene	1.729	1.610	6.9	101	0.00	17.89
127		p-isopropyltoluene	2.836	2.904	-2.4	107	0.00	17.84
128		1,4-dichlorobenzene	1.787	1.635	8.5	100	0.00	17.98
129		1,2-dichlorobenzene	1.604	1.470	8.4	99	0.00	18.37
130		benzyl chloride	1.391	1.359	2.3	97	0.00	18.11
131	m	1,4-diethylbenzene		----------NA----------				
132		n-butylbenzene	1.474	1.451	1.6	108	0.00	18.26
133	m	1,2,4,5-tetramethylbenzen		----------NA----------				
134		1,2-dibromo-3-chloropropa	0.118	0.096	18.6	89	-0.01	19.12
135		1,3,5-trichlorobenzene	1.278	1.217	4.8	102	0.00	19.29
136		hexachlorobutadiene	0.634	0.630	0.6	105	0.00	19.99
137		naphthalene	1.611	1.474	8.5	91	0.00	20.15
138		1,2,4-trichlorobenzene	0.933	0.947	-1.5	99	0.00	19.89
139	m	1,2,3-trichlorobenzene	0.730	0.713	2.3	96	0.00	20.38
140		hexachloroethane	0.566	0.569	-0.5	107	0.00	18.62

Initial Calibration Verification

Job Number: JB31121 **Sample:** VX5796-ICV5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X133710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 X133702.D  MX5795.M         Thu Mar 07 18:14:33 2013   ACCNJ
```

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VX5806-CC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X134006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\X\vx5806\X134006.D Vial: 2
Acq On : 19 Mar 2013 1:19 pm Operator: margares
Sample : cc5795-20 Inst : ACC-VOA-MSX
Misc : MS44913,VX5806,5.0,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MX5795.M (RTE Integrator)
Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
Last Update : Thu Mar 07 18:00:57 2013
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	92	0.00	7.06
2		tertiary butyl alcohol	1.303	1.220	6.4	82	0.00	7.19
3		ethyl alcohol		----------NA----------				
4		1,4-dioxane	0.113	0.111	1.8	87	0.00	11.84
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	9.74
6	m	freon 23		----------NA----------				
7	m	freon 115		----------NA----------				
8	m	freon 143a		----------NA----------				
9	m	freon 152a		----------NA----------				
10	m	chlorotrifluoroethene		----------NA----------				
11		chlorodifluoromethane	0.273	0.267	2.2	102	0.00	3.64
12		dichlorodifluoromethane	0.497	0.528	-6.2	111	0.00	3.63
13	m	freon 114		----------NA----------				
14	m	freon 142b		----------NA----------				
15		chloromethane	0.433	0.412	4.8	98	0.00	3.93
16		vinyl chloride	0.434	0.499	-15.0	121	-0.01	4.18
17	m	acetaldehyde	0.005	0.004	20.0	75	0.00	4.39
18		bromomethane	0.335	0.339	-1.2	107	0.00	4.81
19		chloroethane	0.231	0.233	-0.9	113	0.00	4.99
20		vinyl bromide		----------NA----------				
21		trichlorofluoromethane	0.671	0.700	-4.3	110	0.01	5.43
22		pentane		----------NA----------				
23		ethyl ether	0.199	0.188	5.5	96	0.00	5.87
24	m	freon 141b		----------NA----------				
25	m	freon 123a		----------NA----------				
26	m	freon 123		----------NA----------				
27		acrolein	0.054	0.050	7.4	90	0.00	6.13
28		1,1-dichloroethene	0.328	0.376	-14.6	121	0.00	6.31
29		acetone	0.023	0.018	21.7#	89	-0.01	6.37
30		allyl chloride	0.225	0.246	-9.3	118	0.00	6.88
31		acetonitrile	0.024	0.022	8.3	90	0.01	6.87
32		iodomethane	0.819	0.844	-3.1	113	0.00	6.60
33		iso-butyl alcohol	0.014	0.013	7.1	89	0.00	10.12
34		carbon disulfide	1.188	1.293	-8.8	117	0.00	6.73
35		methylene chloride	0.437	0.423	3.2	106	0.00	7.09
36		methyl acetate	0.216	0.189	12.5	87	0.00	6.87
37		methyl tert butyl ether	1.126	1.062	5.7	95	0.00	7.46
38		trans-1,2-dichloroethene	0.415	0.434	-4.6	116	0.00	7.50
39		di-isopropyl ether	1.221	1.184	3.0	99	0.00	8.16
40		2-butanone	0.038	0.033	13.2	92	0.00	9.03
41		1,1-dichloroethane	0.743	0.767	-3.2	111	0.00	8.16

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VX5806-CC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X134006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42		chloroprene	0.551	0.606	-10.0	113	0.00	8.29
43		acrylonitrile	0.098	0.091	7.1	92	0.00	7.45
44		vinyl acetate	0.054	0.047	13.0	91	0.00	8.17
45		ethyl tert-butyl ether	1.259	1.212	3.7	96	0.01	8.72
46		ethyl acetate	0.035	0.031	11.4	93	0.01	9.07
47		2,2-dichloropropane	0.610	0.695	-13.9	120	0.00	9.06
48		cis-1,2-dichloroethene	0.463	0.483	-4.3	112	0.00	9.06
49		propionitrile	0.039	0.036	7.7	93	0.00	9.14
50		tert-Butyl Formate	0.336	0.318	5.4	93	0.00	9.57
51		bromochloromethane	0.230	0.247	-7.4	106	0.00	9.44
52		tetrahydrofuran	0.108	0.093	13.9	87	0.00	9.49
53		chloroform	0.822	0.828	-0.7	108	0.00	9.52
54	S	dibromofluoromethane (s)	0.468	0.467	0.2	108	0.00	9.77
55	S	1,2-dichloroethane-d4 (s)	0.502	0.434	13.5	95	0.00	10.30
56		freon 113	0.280	0.335	-19.6	127	0.00	6.29
57		methacrylonitrile	0.175	0.159	9.1	88	0.00	9.38
58		1,1,1-trichloroethane	0.673	0.751	-11.6	118	0.00	9.83
59		cyclohexane	0.514	0.591	-15.0	125	0.01	9.92
60	m	tert amyl alcohol		----------NA----------				
61	m	iso-octane	1.351	1.505	-11.4	123	0.00	10.40
62	I	1,4-difluorobenzene	1.000	1.000	0.0	102	0.00	10.89
63		di-isobutylene		----------NA----------				
64		epichlorohydrin	0.023	0.020	13.0	86	0.00	12.59
		----------	True	Calc.	% Drift	----------		
65		n-butyl alcohol	1000.000	791.891	20.8#	85	0.00	11.10
		----------	AvgRF	CCRF	% Dev	----------		
66		carbon tetrachloride	0.472	0.539	-14.2	120	0.00	10.08
67		1,1-dichloropropene	0.408	0.454	-11.3	117	0.00	10.06
68		hexane	0.312	0.365	-17.0	123	0.00	7.86
69		benzene	1.233	1.259	-2.1	111	0.00	10.39
70		tert-amyl methyl ether	0.898	0.862	4.0	95	0.00	10.45
71		heptane	0.196	0.235	-19.9	125	0.00	10.65
72		isopropyl acetate	0.472	0.467	1.1	97	0.00	10.34
73		1,2-dichloroethane	0.432	0.418	3.2	97	0.00	10.41
74		trichloroethene	0.337	0.399	-18.4	125	0.00	11.33
75	m	ethyl acrylate		----------NA----------				
76	m	tert amyl ethyl ether		----------NA----------				
77		2-nitropropane	0.005	0.001	80.0#	0#	0.01	12.43
78		2-chloroethyl vinyl ether	0.156	0.159	-1.9	102	0.00	12.44
79		methyl methacrylate	0.169	0.166	1.8	99	0.00	11.73
80		1,2-dichloropropane	0.313	0.324	-3.5	108	0.00	11.67
81		dibromomethane	0.195	0.194	0.5	100	0.00	11.88
82		methylcyclohexane	0.435	0.514	-18.2	125	0.00	11.60
83		bromodichloromethane	0.471	0.478	-1.5	104	0.00	12.08
84		cis-1,3-dichloropropene	0.546	0.565	-3.5	106	0.00	12.71
85	S	toluene-d8 (s)	1.220	1.309	-7.3	118	0.00	13.10
86		4-methyl-2-pentanone	0.097	0.091	6.2	94	0.02	12.87
87		toluene	0.825	0.868	-5.2	115	0.00	13.19
88		3-methyl-1-butanol	0.011	0.009	18.2	82	0.01	12.92
89		trans-1,3-dichloropropene	0.505	0.509	-0.8	100	0.01	13.49
90		ethyl methacrylate	0.364	0.348	4.4	97	0.00	13.51
91		1,1,2-trichloroethane	0.222	0.229	-3.2	101	0.00	13.77
92		2-hexanone	0.093	0.086	7.5	95	0.00	14.03
93	I	chlorobenzene-d5	1.000	1.000	0.0	104	0.00	15.14
		----------	True	Calc.	% Drift	----------		

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VX5806-CC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X134006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94		3,3-Dimethyl-1-butanol	200.000	161.722	19.1	86	0.00	14.29
		----------	AvgRF	CCRF	% Dev	----------		
95		tetrachloroethene	0.332	0.459	-38.3#	146	0.00	13.98
96		1,3-dichloropropane	0.487	0.482	1.0	101	0.00	14.01
97		butyl acetate	0.182	0.167	8.2	91	0.01	14.16
98		dibromochloromethane	0.442	0.452	-2.3	106	0.00	14.36
99		1,2-dibromoethane	0.319	0.322	-0.9	100	0.00	14.54
100	m	n-butyl ether		----------NA----------				
101		chlorobenzene	1.108	1.157	-4.4	115	0.00	15.17
102		1,1,1,2-tetrachloroethane	0.433	0.447	-3.2	110	0.00	15.27
103		ethylbenzene	1.827	1.892	-3.6	117	0.00	15.27
		----------	True	Calc.	% Drift	----------		
104		m,p-xylene	40.000	44.674	-11.7	117	0.00	15.41
		----------	AvgRF	CCRF	% Dev	----------		
105		o-xylene	0.708	0.732	-3.4	115	0.00	15.96
106		styrene	1.175	1.238	-5.4	112	0.00	15.98
107		bromoform	0.303	0.310	-2.3	103	0.00	16.30
108	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	17.96
109		isopropylbenzene	3.002	3.291	-9.6	120	0.00	16.41
		----------	True	Calc.	% Drift	----------		
110		Cyclohexanone	200.000	142.887	28.6#	59	0.01	16.61
111	S	4-bromofluorobenzene (s)	50.000	48.884	2.2	105	0.00	16.65
		----------	AvgRF	CCRF	% Dev	----------		
112		bromobenzene	0.916	0.944	-3.1	114	0.00	16.87
113		1,1,2,2-tetrachloroethane	0.691	0.615	11.0	93	0.00	16.80
114		trans-1,4-dichloro-2-bute	0.182	0.168	7.7	95	0.00	16.86
115		1,2,3-trichloropropane	0.188	0.177	5.9	100	0.00	16.88
116		n-propylbenzene	3.451	3.823	-10.8	121	0.00	16.91
117	m	4-ethyltoluene		----------NA----------				
118		2-chlorotoluene	0.778	0.872	-12.1	121	0.00	17.07
119		4-chlorotoluene	2.434	2.422	0.5	114	0.00	17.19
120		1,3,5-trimethylbenzene	2.619	2.854	-9.0	118	0.00	17.10
121		tert-butylbenzene	2.254	2.497	-10.8	120	0.00	17.48
122		pentachloroethane	0.625	0.508	18.7	89	0.00	17.57
123		1,2,4-trimethylbenzene	2.676	2.879	-7.6	117	0.00	17.54
124	m	1,2,3-trimethylbenzene		----------NA----------				
125		sec-butylbenzene	3.263	3.662	-12.2	123	0.00	17.72
126		1,3-dichlorobenzene	1.729	1.783	-3.1	115	0.00	17.90
127		p-isopropyltoluene	2.836	3.205	-13.0	122	0.00	17.85
128		1,4-dichlorobenzene	1.787	1.810	-1.3	115	0.00	17.99
129		1,2-dichlorobenzene	1.604	1.650	-2.9	112	0.00	18.38
130		benzyl chloride	1.391	1.370	1.5	99	0.00	18.12
131	m	1,4-diethylbenzene		----------NA----------				
132		n-butylbenzene	1.474	1.585	-7.5	124	0.00	18.27
133	m	1,2,4,5-tetramethylbenzen		----------NA----------				
134		1,2-dibromo-3-chloropropa	0.118	0.108	8.5	94	0.00	19.13
135		1,3,5-trichlorobenzene	1.278	1.466	-14.7	121	0.00	19.30
136		hexachlorobutadiene	0.634	0.835	-31.7#	135	0.00	20.00
137		naphthalene	1.611	1.740	-8.0	100	0.00	20.16
138		1,2,4-trichlorobenzene	0.933	1.130	-21.1#	115	0.00	19.89
139	m	1,2,3-trichlorobenzene	0.730	0.908	-24.4#	113	0.01	20.40
140		hexachloroethane	0.566	0.666	-17.7	126	0.00	18.63

Continuing Calibration Summary

Job Number: JB31121 **Sample:** VX5806-CC5795
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** X134006.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 X133701.D  MX5795.M         Wed Mar 20 14:16:25 2013   ACCNJ
```

New Jersey

ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180181.D
Acq On : 20 Mar 2013 6:00 pm
Operator : tamikag
Sample : jb31121-1
Misc : MS44803,VC6461,6.3,,,,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 28 17:40:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

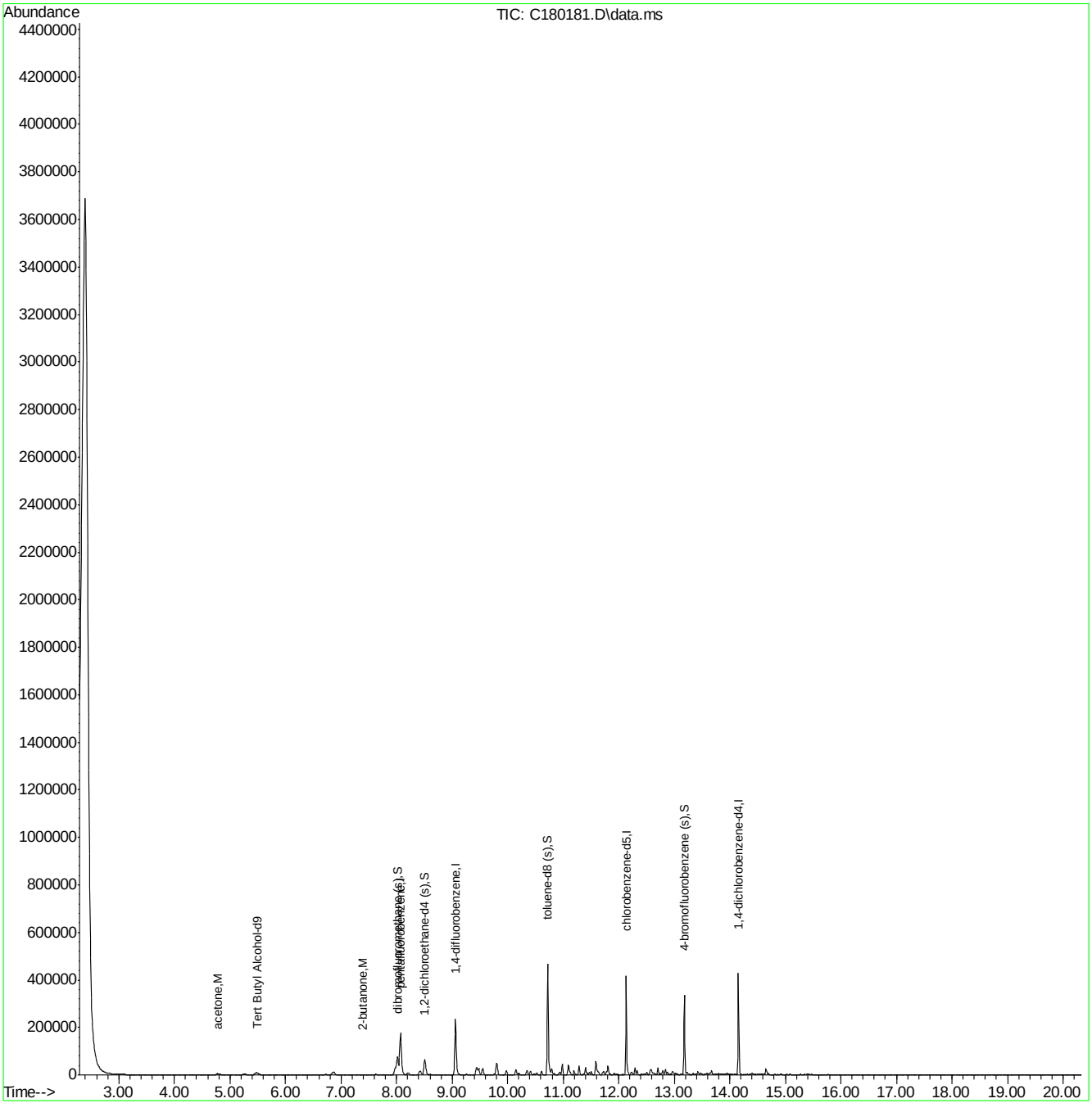
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.488	65	24900	500.00	ug/L	0.00
5) pentafluorobenzene	8.072	168	148017	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.061	114	216278	50.00	ug/L	0.00
85) chlorobenzene-d5	12.136	117	157989	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.155	152	70554	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.020	113	54668	46.64	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.28%			
50) 1,2-dichloroethane-d4 (s)	8.506	65	47883	43.88	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 87.76%			
77) toluene-d8 (s)	10.724	98	244463	48.81	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.62%			
103) 4-bromofluorobenzene (s)	13.182	95	79101	49.09	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.18%			
Target Compounds						Qvalue
22) acetone	4.777	43	18182	95.76	ug/L	99
35) 2-butanone	7.392	72	611	10.33	ug/L #	1

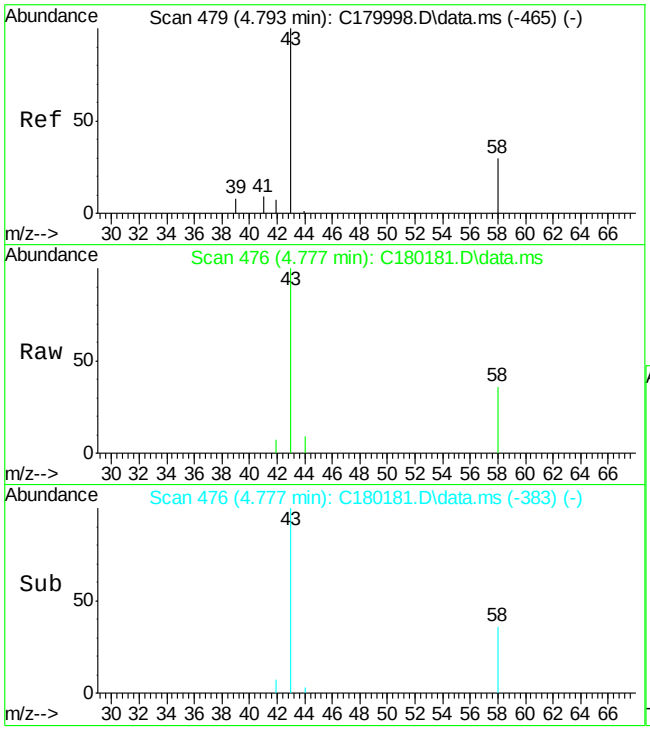
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180181.D
Acq On : 20 Mar 2013 6:00 pm
Operator : tamikag
Sample : jb31121-1
Misc : MS44803,VC6461,6.3,,,,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 28 17:40:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

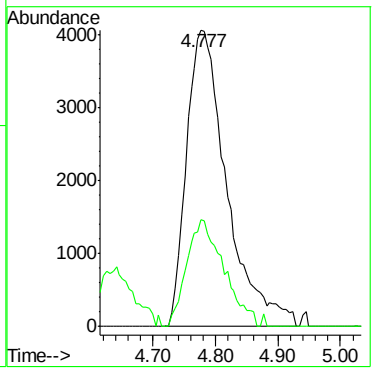


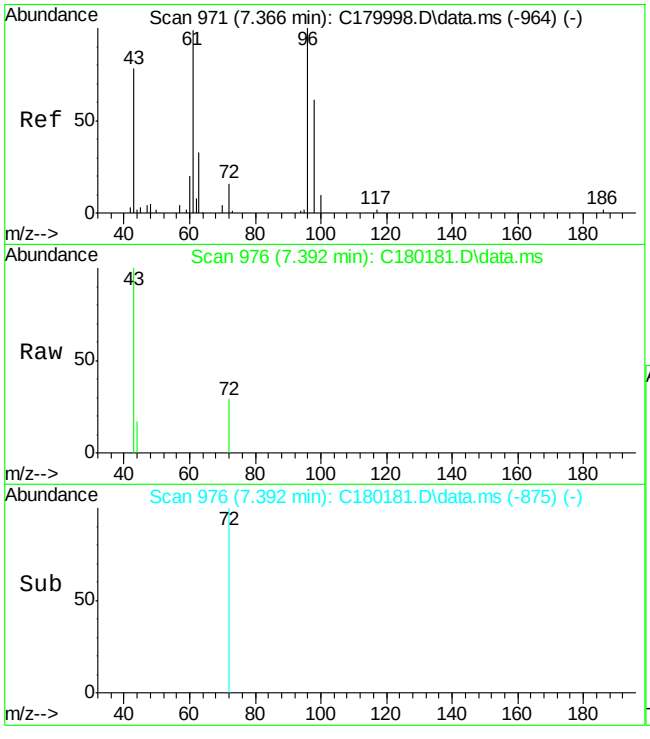


#22
acetone
Concen: 95.76 ug/L
RT: 4.777 min Scan# 476
Delta R.T. -0.015 min
Lab File: C180181.D
Acq: 20 Mar 2013 6:00 pm

Tgt Ion: 43 Resp: 18182

Ion	Ratio	Lower	Upper
43	100		
58	33.2	2.4	62.4

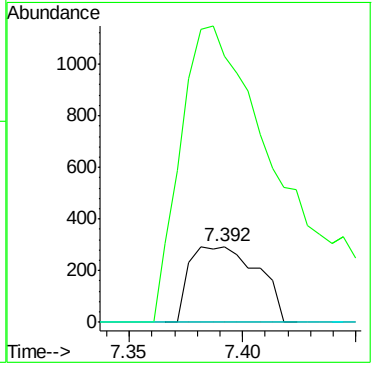




#35
2-butanone
Concen: 10.33 ug/L
RT: 7.392 min Scan# 976
Delta R.T. 0.026 min
Lab File: C180181.D
Acq: 20 Mar 2013 6:00 pm

Tgt Ion: 72 Resp: 611

Ion	Ratio	Lower	Upper
72	100		
43	664.2	891.8	1656.2#
57	0.0	19.2	35.6#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206612.D
Acq On : 17 Mar 2013 2:43 am
Operator : EmilyT
Sample : jb31121-2
Misc : ms44803,vd8429,6.1,,100,10,1
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Mar 18 10:22:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.026	65	123501	500.00 ug/L	0.01
4) pentafluorobenzene	10.247	168	197759	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	287489	50.00 ug/L	0.00
85) chlorobenzene-d5	14.503	117	280845	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.091	152	194155	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.274	113	89167	46.17 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.34%		
47) 1,2-dichloroethane-d4 (s)	10.702	65	118563	50.85 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.70%		
77) toluene-d8 (s)	12.872	98	394346	56.60 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 113.20%		
101) 4-bromofluorobenzene (s)	15.784	95	175683	49.81 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 99.62%		

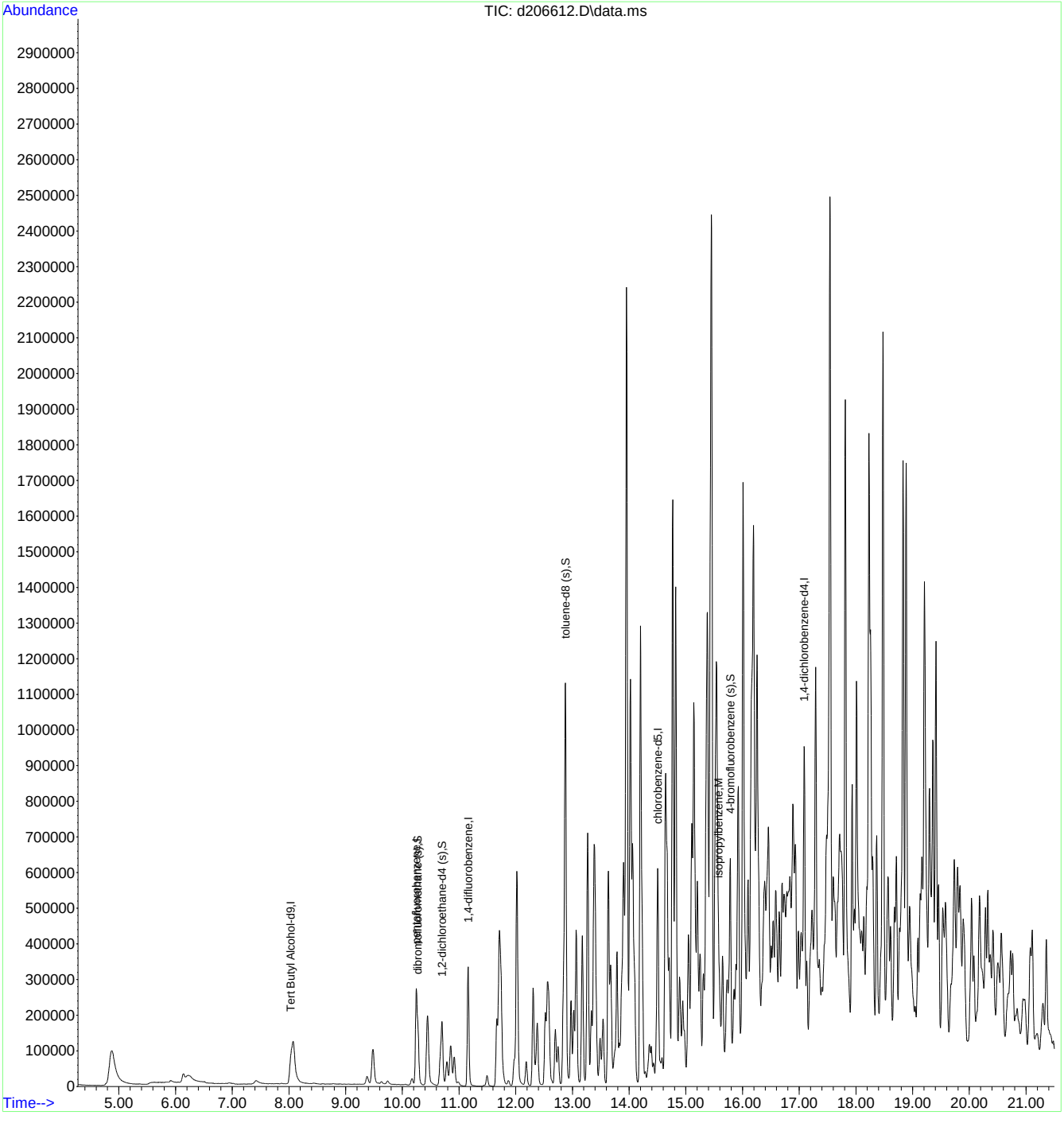
Target Compounds					Qvalue
100) isopropylbenzene	15.580	105	9366	0.81 ug/L	89

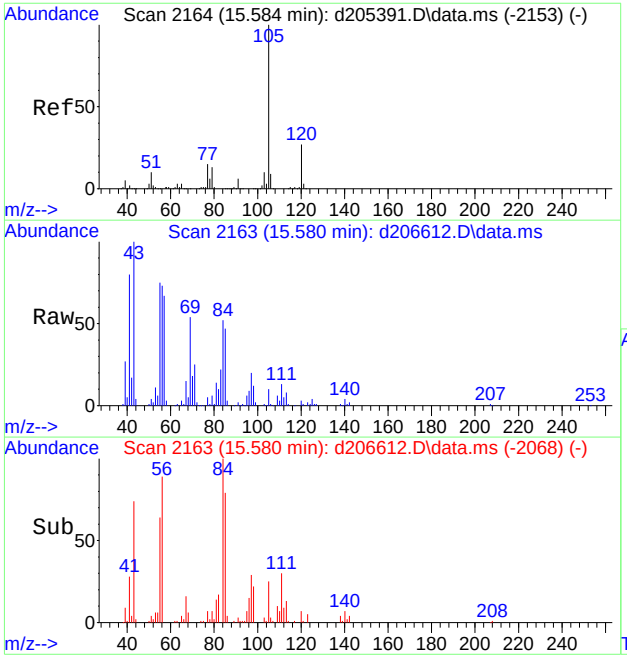
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206612.D
Acq On : 17 Mar 2013 2:43 am
Operator : EmilyT
Sample : jb31121-2
Misc : ms44803,vd8429,6.1,,100,10,1
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Mar 18 10:22:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

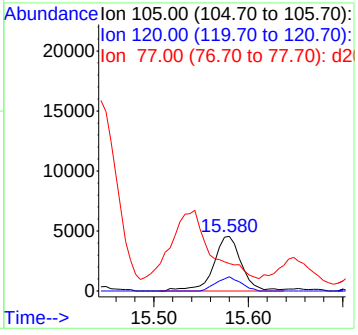




#100
isopropylbenzene
Concen: 0.81 ug/L
RT: 15.580 min Scan# 2163
Delta R.T. -0.004 min
Lab File: d206612.D
Acq: 17 Mar 2013 2:43 am

Tgt Ion:105 Resp: 9366

Ion	Ratio	Lower	Upper
105	100		
120	26.2	0.0	57.4
77	3.8	0.0	45.1



7.1.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206611.D
Acq On : 17 Mar 2013 2:13 am
Operator : EmilyT
Sample : jb31121-3
Misc : ms44803,vd8429,5.1,,100,10,1
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Mar 18 10:21:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

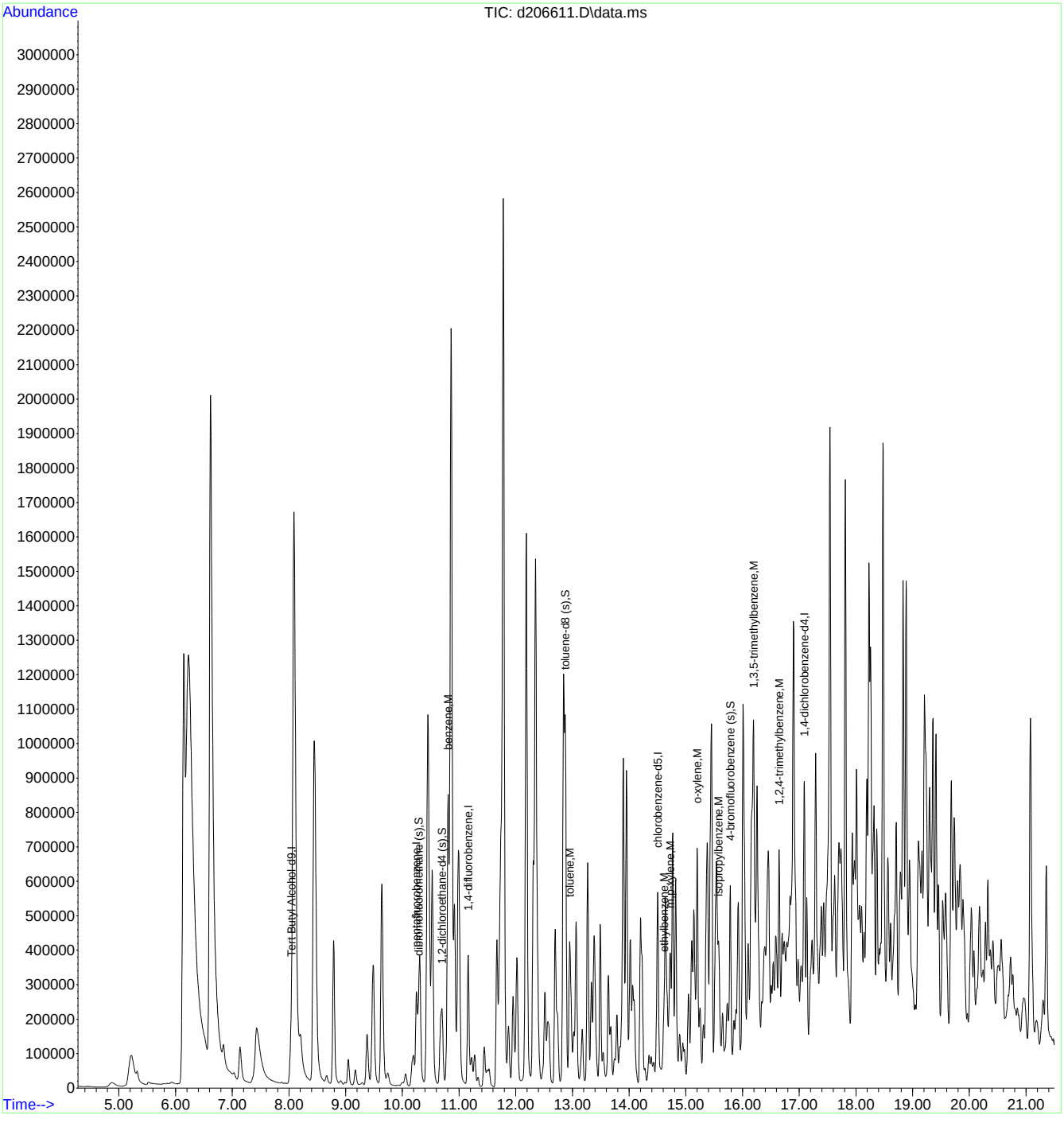
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.036	65	127372	500.00 ug/L	0.02
4) pentafluorobenzene	10.247	168	200375	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	289561	50.00 ug/L	0.00
85) chlorobenzene-d5	14.503	117	280928	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.091	152	192841	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.279	113	90189	46.09 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.18%		
47) 1,2-dichloroethane-d4 (s)	10.702	65	121124	51.27 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 102.54%		
77) toluene-d8 (s)	12.872	98	425853	60.69 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 121.38%		
101) 4-bromofluorobenzene (s)	15.784	95	166856	47.63 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 95.26%		
Target Compounds					Qvalue
62) benzene	10.807	78	730859	95.26 ug/L	99
79) toluene	12.950	92	162301	33.94 ug/L	99
94) ethylbenzene	14.613	91	128479	12.95 ug/L	99
95) m,p-xylene	14.728	106	83893	21.22 ug/L	99
96) o-xylene	15.193	106	14059	3.58 ug/L	94
100) isopropylbenzene	15.580	105	118303	10.27 ug/L	98
111) 1,3,5-trimethylbenzene	16.202	105	43869	4.10 ug/L	97
114) 1,2,4-trimethylbenzene	16.641	105	202389	18.59 ug/L	99

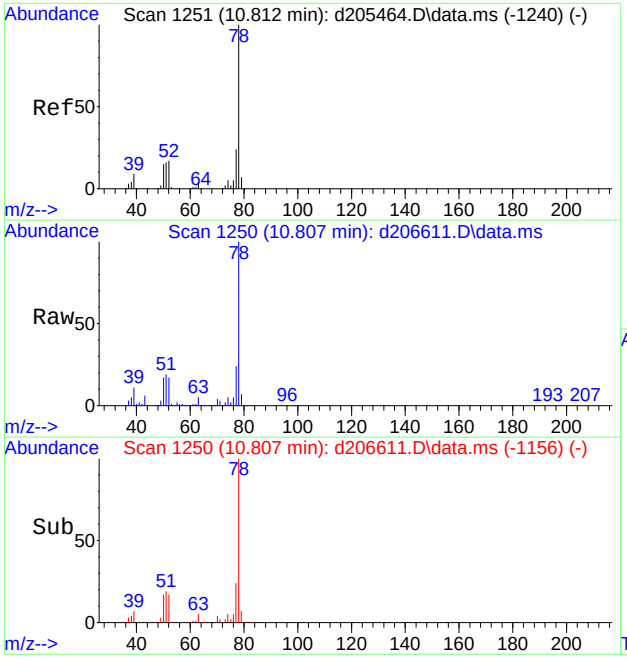
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206611.D
Acq On : 17 Mar 2013 2:13 am
Operator : EmilyT
Sample : jb31121-3
Misc : ms44803,vd8429,5.1,,100,10,1
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Mar 18 10:21:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

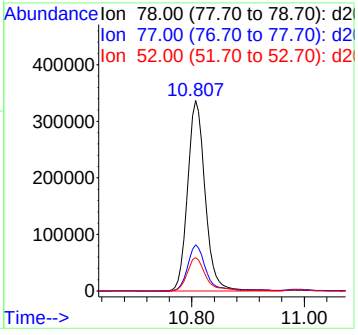


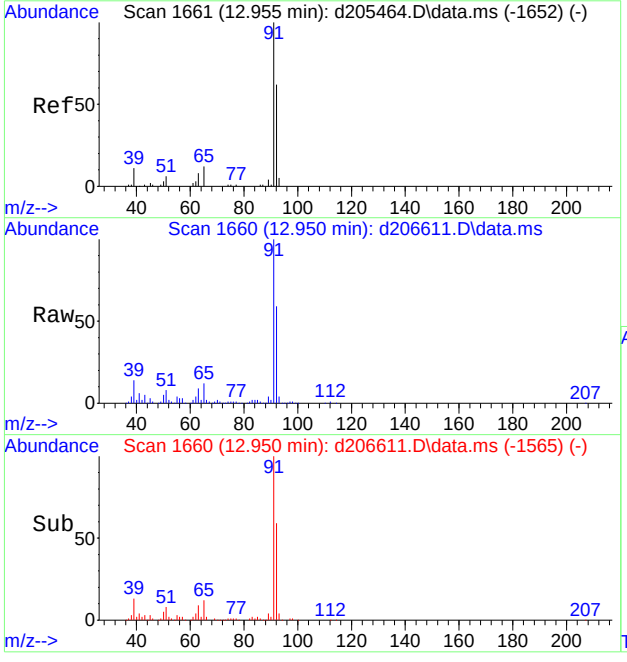


#62
benzene
Concen: 95.26 ug/L
RT: 10.807 min Scan# 1250
Delta R.T. -0.010 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion: 78 Resp: 730859

Ion	Ratio	Lower	Upper
78	100		
77	24.3	0.0	54.1
52	17.5	0.0	46.6

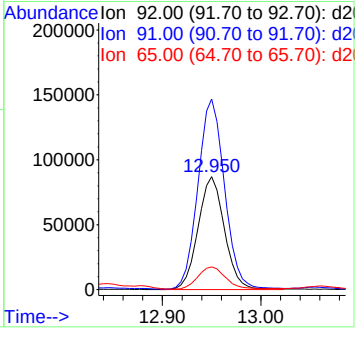


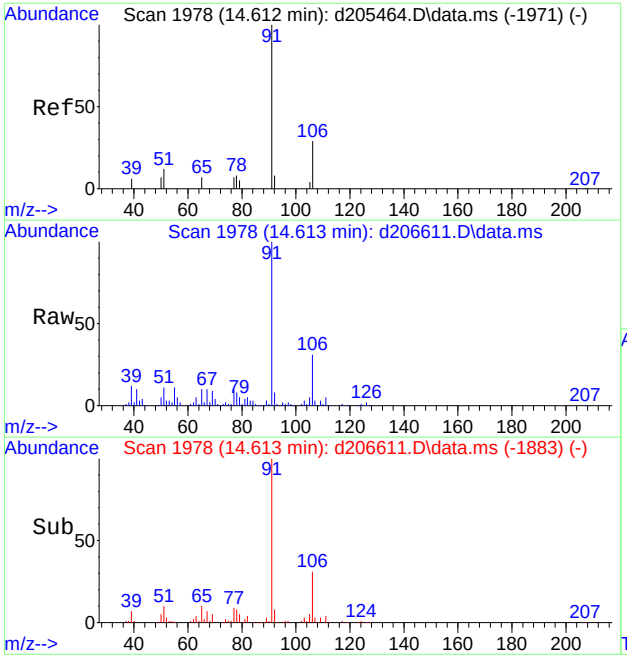


#79
toluene
Concen: 33.94 ug/L
RT: 12.950 min Scan# 1660
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion: 92 Resp: 162301

Ion	Ratio	Lower	Upper
92	100		
91	168.0	136.0	196.0
65	19.1	0.0	49.8

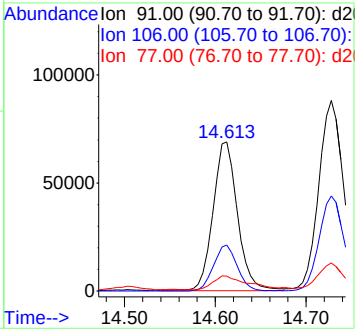


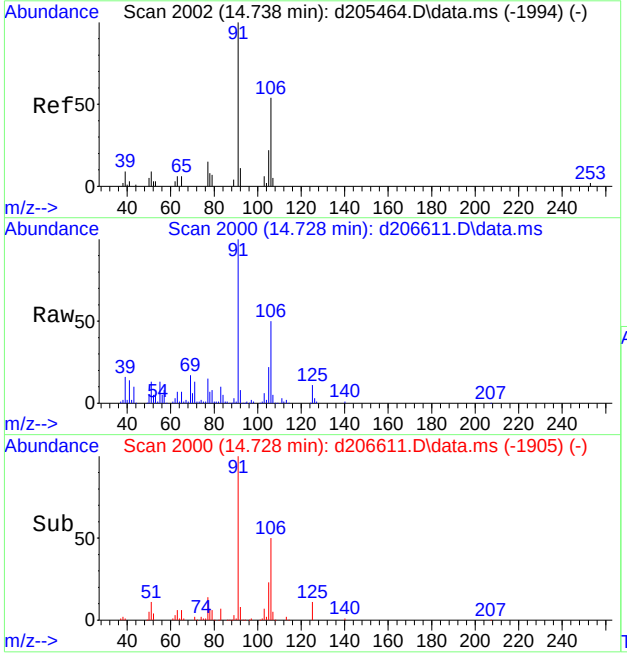


#94
ethylbenzene
Concen: 12.95 ug/L
RT: 14.613 min Scan# 1978
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion: 91 Resp: 128479

Ion	Ratio	Lower	Upper
91	100		
106	31.1	1.6	61.6
77	9.0	0.0	38.8

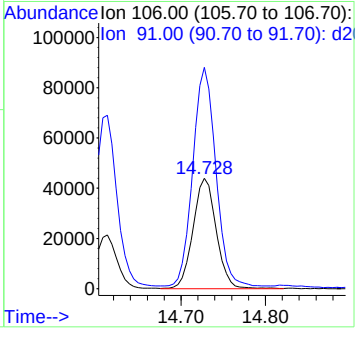




#95
m,p-xylene
Concen: 21.22 ug/L
RT: 14.728 min Scan# 2000
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

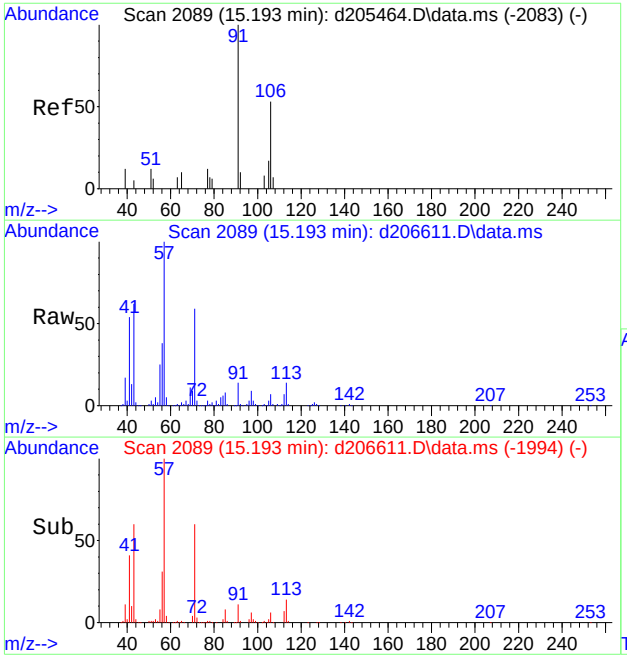
Tgt Ion:106 Resp: 83893

Ion	Ratio	Lower	Upper
106	100		
91	198.8	139.9	259.9



7.1.3

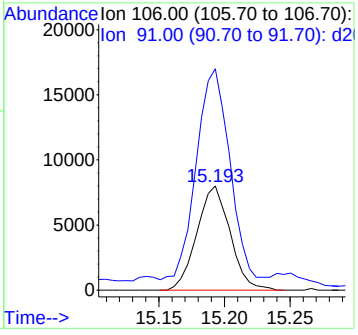
7

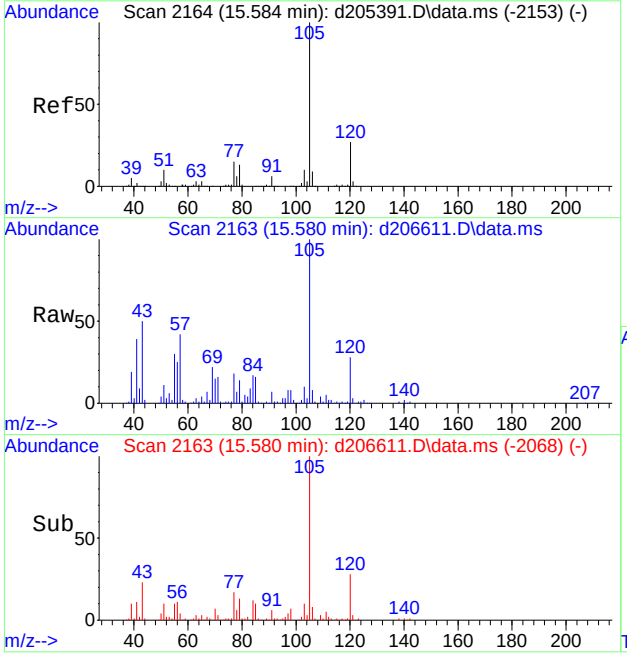


#96
o-xylene
Concen: 3.58 ug/L
RT: 15.193 min Scan# 2089
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion:106 Resp: 14059

Ion	Ratio	Lower	Upper
106	100		
91	202.5	147.9	274.7

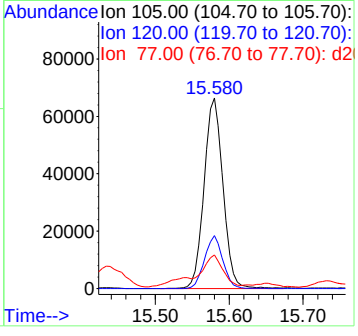


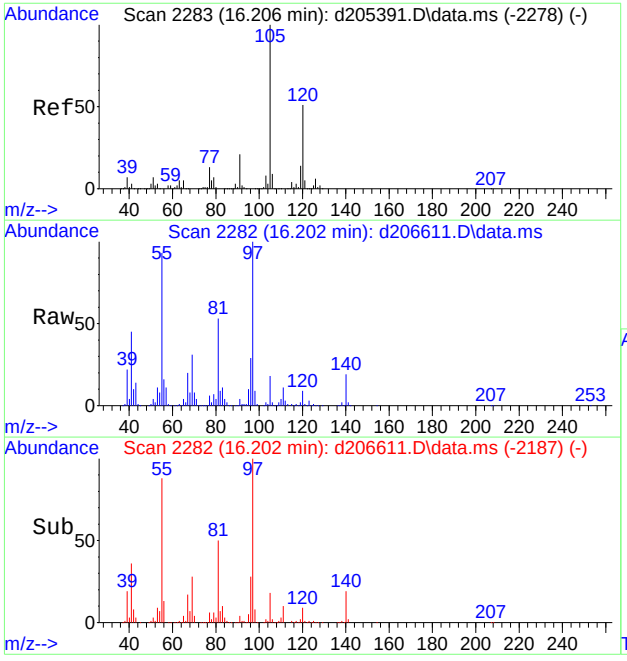


#100
isopropylbenzene
Concen: 10.27 ug/L
RT: 15.580 min Scan# 2163
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion:105 Resp: 118303

Ion	Ratio	Lower	Upper
105	100		
120	27.9	0.0	57.4
77	16.5	0.0	45.1

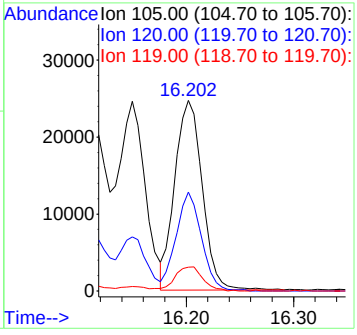


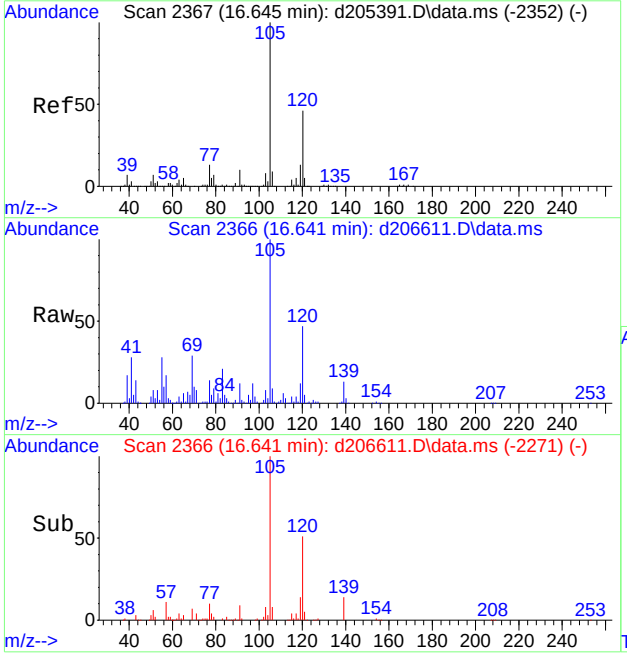


#111
1,3,5-trimethylbenzene
Concen: 4.10 ug/L
RT: 16.202 min Scan# 2282
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion:105 Resp: 43869

Ion	Ratio	Lower	Upper
105	100		
120	52.3	19.5	79.5
119	12.6	0.0	42.6

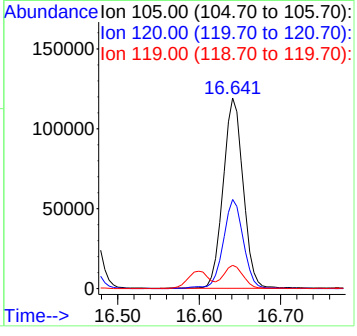




#114
1,2,4-trimethylbenzene
Concen: 18.59 ug/L
RT: 16.641 min Scan# 2366
Delta R.T. -0.004 min
Lab File: d206611.D
Acq: 17 Mar 2013 2:13 am

Tgt Ion:105 Resp: 202389

Ion	Ratio	Lower	Upper
105	100		
120	47.0	16.5	76.5
119	12.2	0.0	43.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206878.D
Acq On : 23 Mar 2013 6:01 pm
Operator : EmilyT
Sample : jb31121-4
Misc : ms44803,vd8440,5.9,,100,10,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 25 10:07:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.019	65	155014	500.00 ug/L	0.00
4) pentafluorobenzene	10.247	168	241901	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.156	114	365124	50.00 ug/L	-0.02
85) chlorobenzene-d5	14.502	117	357324	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.090	152	240693	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.273	113	113207	47.92 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.84%		
47) 1,2-dichloroethane-d4 (s)	10.701	65	150365	52.72 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.44%		
77) toluene-d8 (s)	12.871	98	557339	62.99 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 125.98%		
101) 4-bromofluorobenzene (s)	15.783	95	247248	56.55 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 113.10%		

Target Compounds

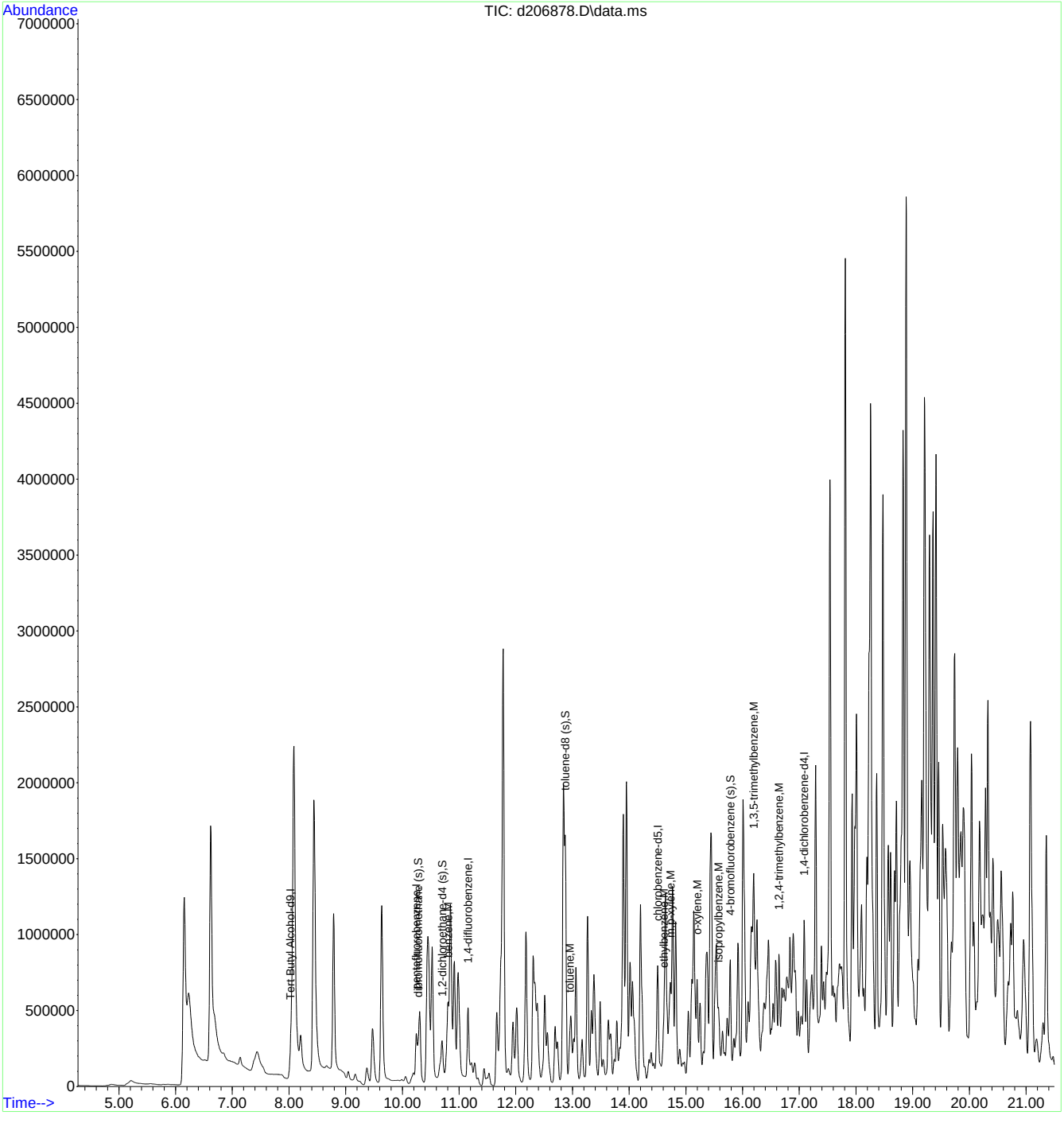
					Qvalue
62) benzene	10.806	78	393731	40.70 ug/L	99
79) toluene	12.944	92	88886	14.74 ug/L	98
94) ethylbenzene	14.607	91	229265	18.17 ug/L	99
95) m,p-xylene	14.727	106	150597	29.95 ug/L	97
96) o-xylene	15.192	106	15331	3.07 ug/L	92
100) isopropylbenzene	15.574	105	172736	12.01 ug/L	97
111) 1,3,5-trimethylbenzene	16.201	105	196877	14.73 ug/L	99
114) 1,2,4-trimethylbenzene	16.640	105	283347	20.85 ug/L	97

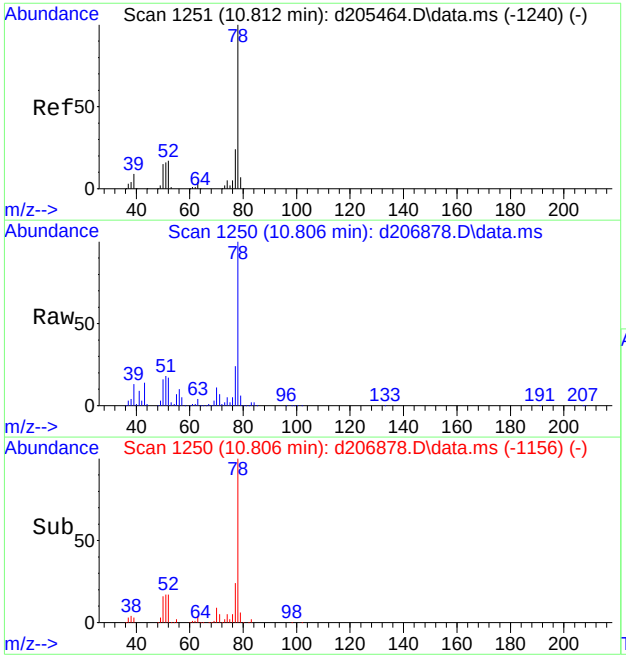
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206878.D
Acq On : 23 Mar 2013 6:01 pm
Operator : EmilyT
Sample : jb31121-4
Misc : ms44803,vd8440,5.9,,100,10,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 25 10:07:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

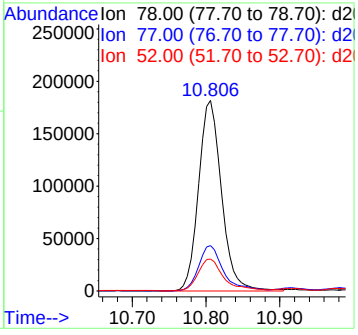


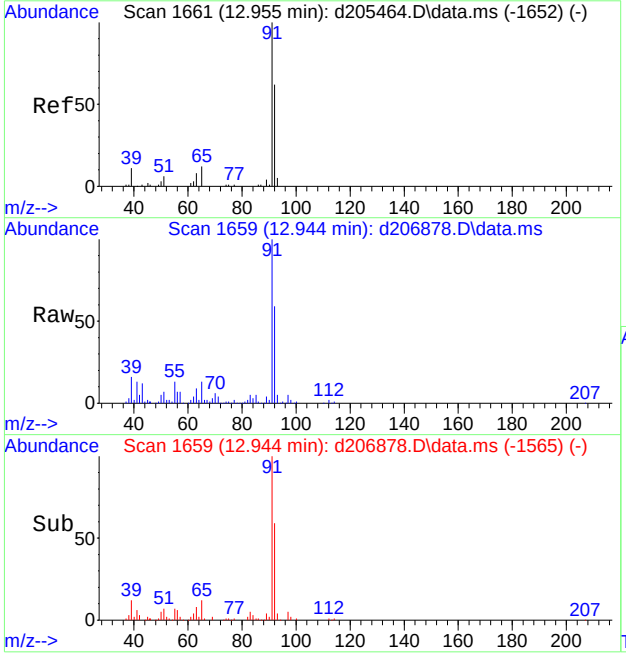


#62
benzene
Concen: 40.70 ug/L
RT: 10.806 min Scan# 1250
Delta R.T. -0.010 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion: 78 Resp: 393731

Ion	Ratio	Lower	Upper
78	100		
77	23.7	0.0	54.1
52	16.7	0.0	46.6

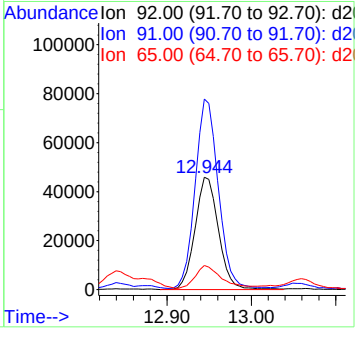


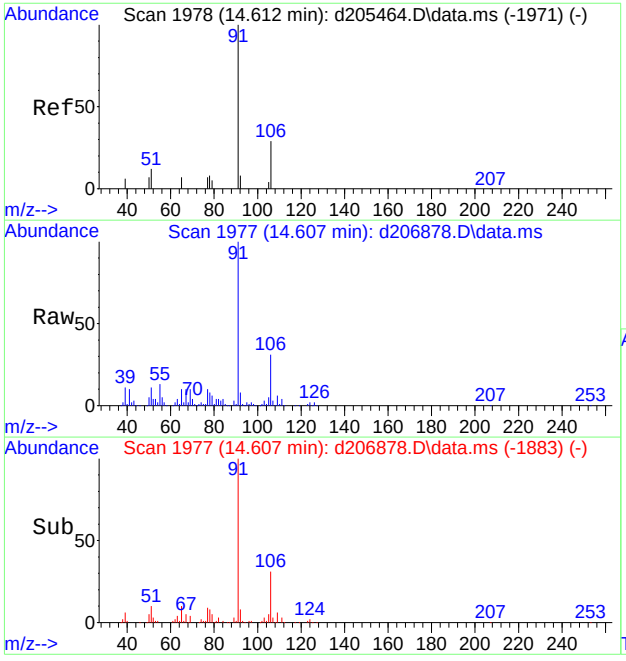


#79
toluene
Concen: 14.74 ug/L
RT: 12.944 min Scan# 1659
Delta R.T. -0.010 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion: 92 Resp: 88886

Ion	Ratio	Lower	Upper
92	100		
91	167.7	136.0	196.0
65	16.7	0.0	49.8

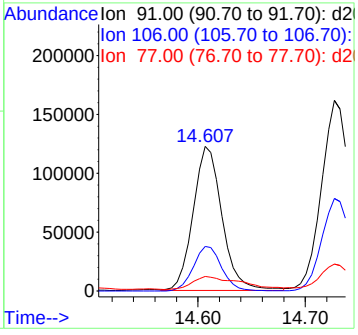


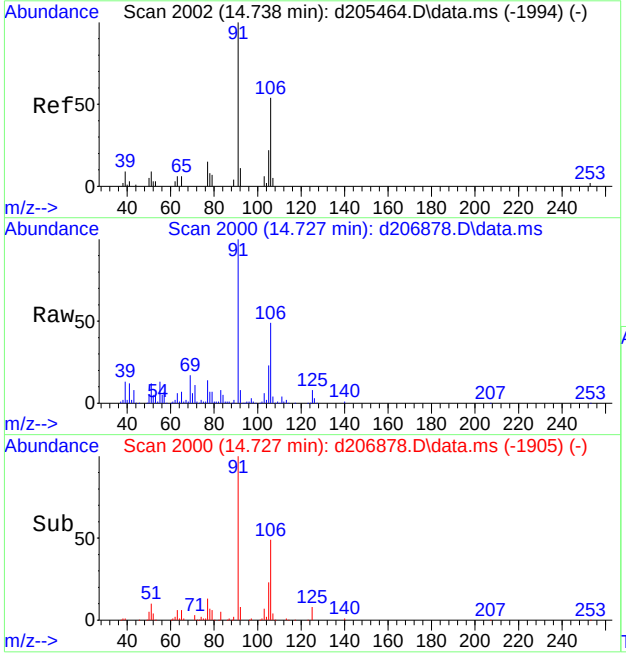


#94
ethylbenzene
Concen: 18.17 ug/L
RT: 14.607 min Scan# 1977
Delta R.T. -0.010 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion: 91 Resp: 229265

Ion	Ratio	Lower	Upper
91	100		
106	31.1	1.6	61.6
77	9.0	0.0	38.8

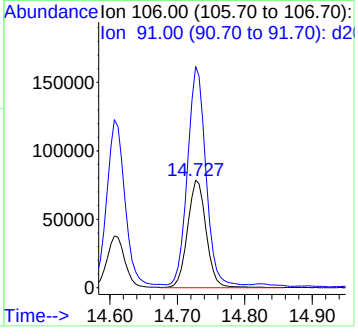




#95
m,p-xylene
Concen: 29.95 ug/L
RT: 14.727 min Scan# 2000
Delta R.T. -0.005 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion:106 Resp: 150597

Ion	Ratio	Lower	Upper
106	100		
91	204.2	139.9	259.9



7.1.4

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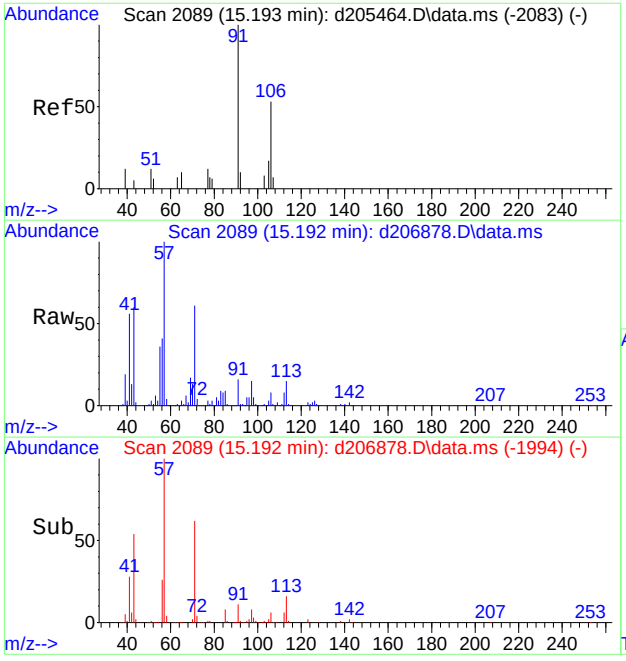
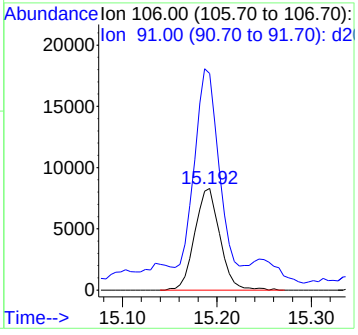
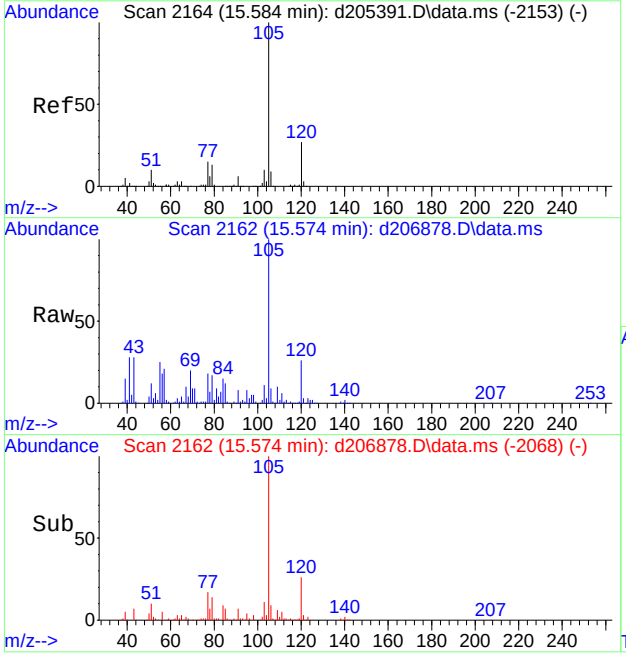


#96
o-xylene
Concen: 3.07 ug/L
RT: 15.192 min Scan# 2089
Delta R.T. -0.005 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion:106 Resp: 15331

Ion	Ratio	Lower	Upper
106	100		
91	199.3	147.9	274.7

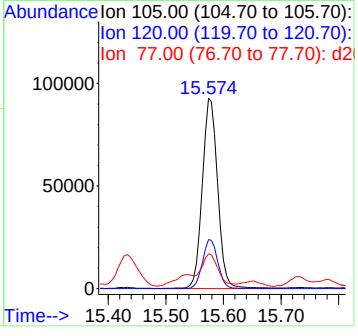




#100
isopropylbenzene
Concen: 12.01 ug/L
RT: 15.574 min Scan# 2162
Delta R.T. -0.010 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

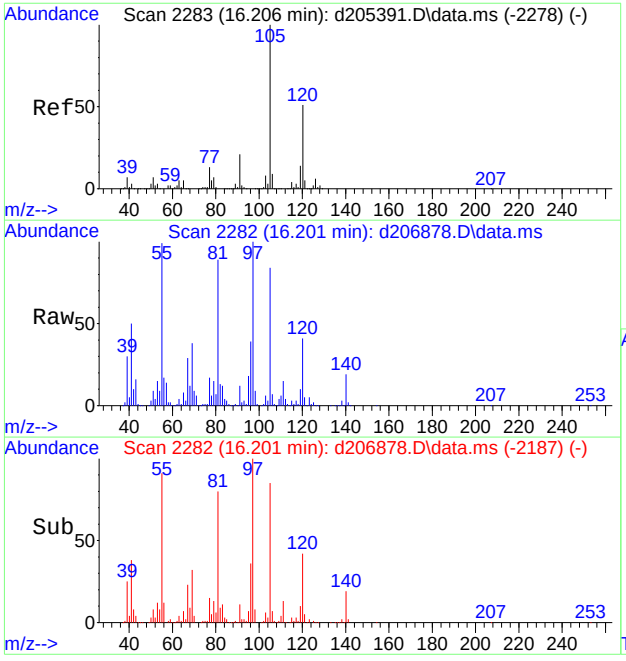
Tgt Ion:105 Resp: 172736

Ion	Ratio	Lower	Upper
105	100		
120	25.7	0.0	57.4
77	16.8	0.0	45.1



7.1.4

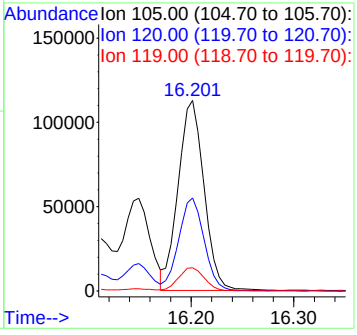
7

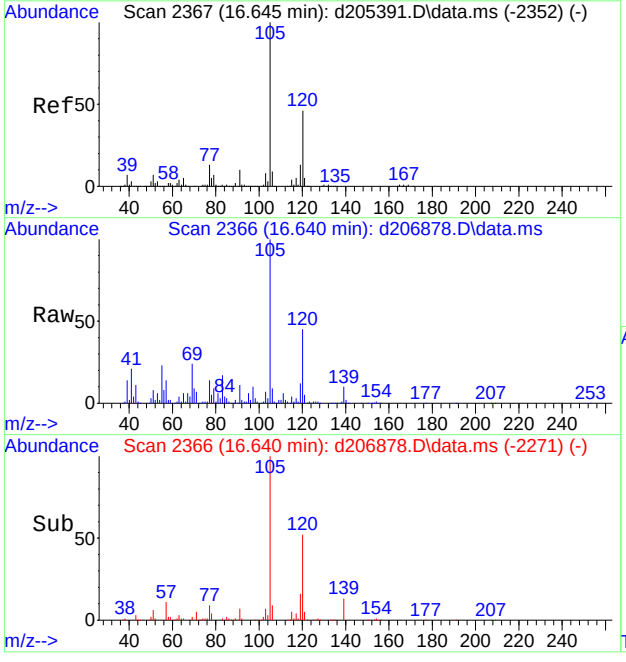


#111
1,3,5-trimethylbenzene
Concen: 14.73 ug/L
RT: 16.201 min Scan# 2282
Delta R.T. -0.005 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion:105 Resp: 196877

Ion	Ratio	Lower	Upper
105	100		
120	49.0	19.5	79.5
119	12.2	0.0	42.6

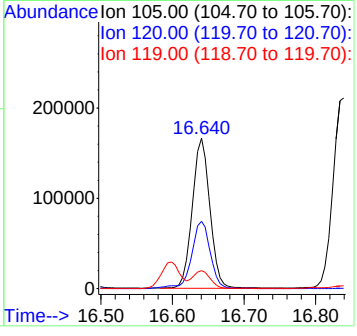




#114
1,2,4-trimethylbenzene
Concen: 20.85 ug/L
RT: 16.640 min Scan# 2366
Delta R.T. -0.005 min
Lab File: d206878.D
Acq: 23 Mar 2013 6:01 pm

Tgt Ion:105 Resp: 283347

Ion	Ratio	Lower	Upper
105	100		
120	44.7	16.5	76.5
119	11.9	0.0	43.9



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat
03/21/13 13:38

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206609.D
Acq On : 17 Mar 2013 1:14 am
Operator : EmilyT
Sample : jb31121-5
Misc : ms44803,vd8429,6.4,,100,10,1
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Mar 18 10:16:27 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.025	65	124000	500.00 ug/L	0.01
4) pentafluorobenzene	10.247	168	195603	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	286816	50.00 ug/L	0.00
85) chlorobenzene-d5	14.503	117	275208	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.091	152	162605	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.273	113	87144	45.62 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.24%		
47) 1,2-dichloroethane-d4 (s)	10.702	65	117397	50.90 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.80%		
77) toluene-d8 (s)	12.872	98	361872	52.06 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 104.12%		
101) 4-bromofluorobenzene (s)	15.784	95	136385	46.17 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 92.34%		

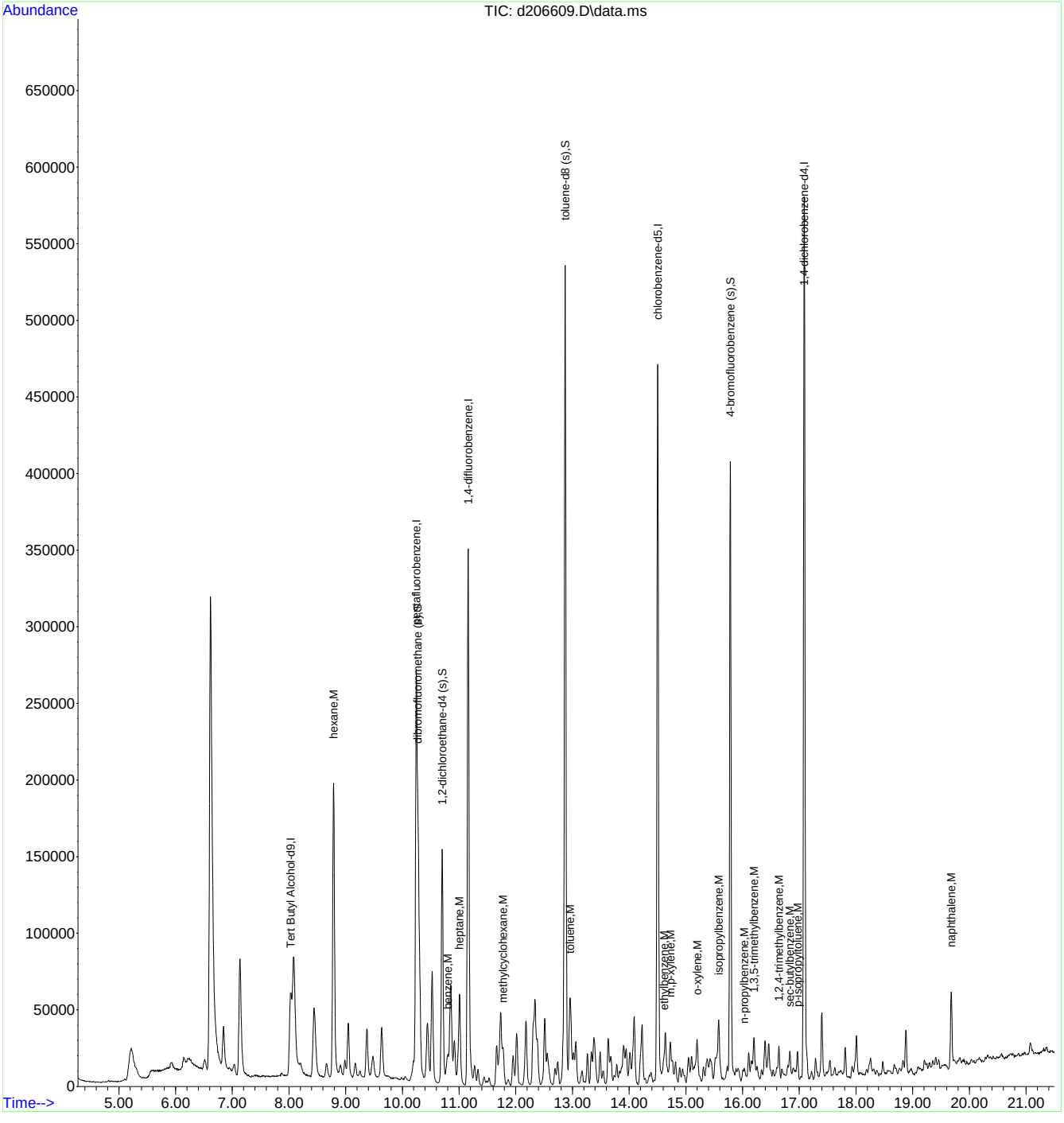
Target Compounds					Qvalue
61) hexane	8.788	57	110879	47.22 ug/L	96
62) benzene	10.806	78	12408	1.63 ug/L	95
63) heptane	11.005	57	13783	10.46 ug/L	84
73) methylcyclohexane	11.774	83	10209m	3.23 ug/L	
79) toluene	12.950	92	15502	3.27 ug/L	97
94) ethylbenzene	14.612	91	9366	0.96 ug/L	99
95) m,p-xylene	14.727	106	7357	1.90 ug/L	96
96) o-xylene	15.193	106	2776	0.72 ug/L	94
100) isopropylbenzene	15.580	105	17834	1.84 ug/L	93
107) n-propylbenzene	16.034	91	5002	0.43 ug/L	95
111) 1,3,5-trimethylbenzene	16.202	105	11098	1.23 ug/L	99
114) 1,2,4-trimethylbenzene	16.641	105	10420	1.14 ug/L	98
115) sec-butylbenzene	16.840	105	5583	0.50 ug/L	95
117) p-isopropyltoluene	16.970	119	10336	1.12 ug/L	99
128) naphthalene	19.678	128	44500	6.18 ug/L	97

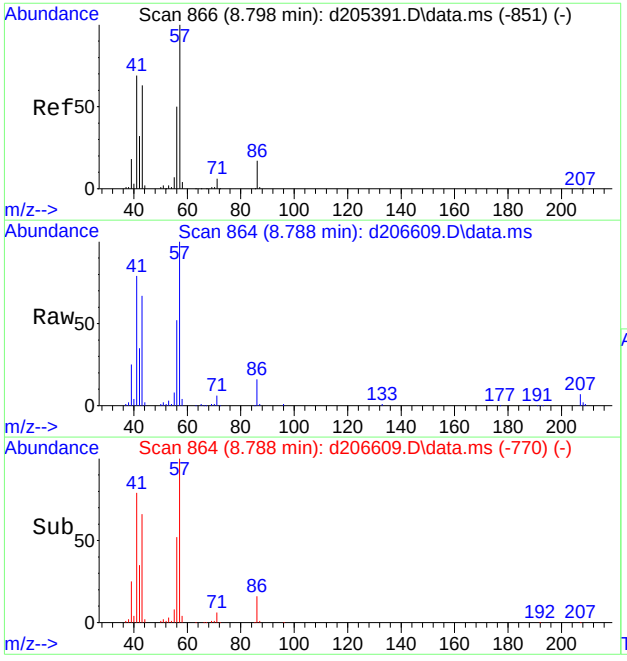
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206609.D
Acq On : 17 Mar 2013 1:14 am
Operator : EmilyT
Sample : jb31121-5
Misc : ms44803,vd8429,6.4,,100,10,1
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Mar 18 10:16:27 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

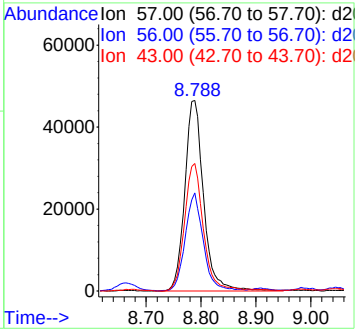


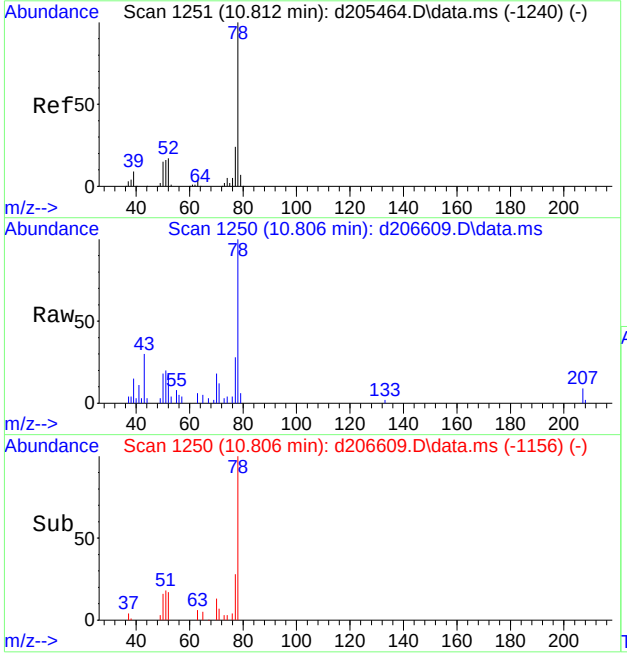


#61
hexane
Concen: 47.22 ug/L
RT: 8.788 min Scan# 864
Delta R.T. -0.010 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 57 Resp: 110879

Ion	Ratio	Lower	Upper
57	100		
56	51.3	19.8	79.8
43	66.9	33.4	93.4

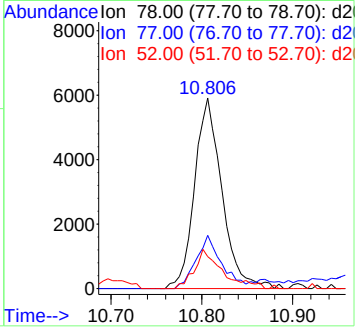


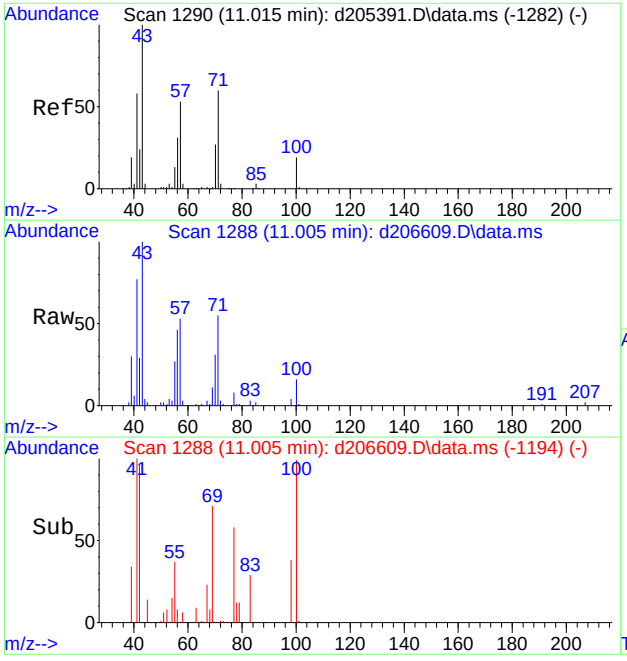


#62
benzene
Concen: 1.63 ug/L
RT: 10.806 min Scan# 1250
Delta R.T. -0.010 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 78 Resp: 12408

Ion	Ratio	Lower	Upper
78	100		
77	27.9	0.0	54.1
52	16.7	0.0	46.6

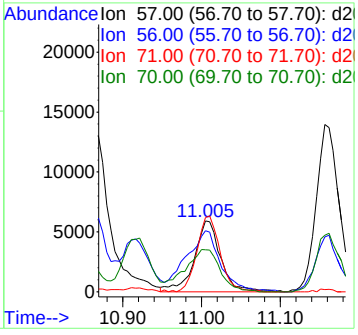


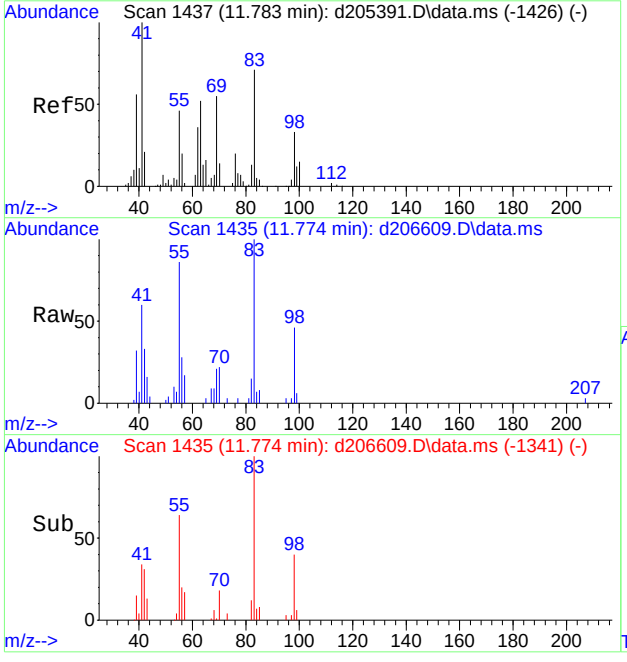


#63
heptane
Concen: 10.46 ug/L
RT: 11.005 min Scan# 1288
Delta R.T. -0.010 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 57 Resp: 13783

Ion	Ratio	Lower	Upper
57	100		
56	86.1	28.4	88.4
71	104.6	79.6	139.6
70	59.1	18.8	78.8

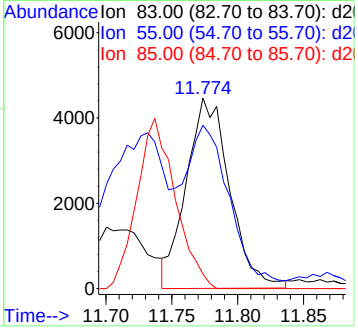


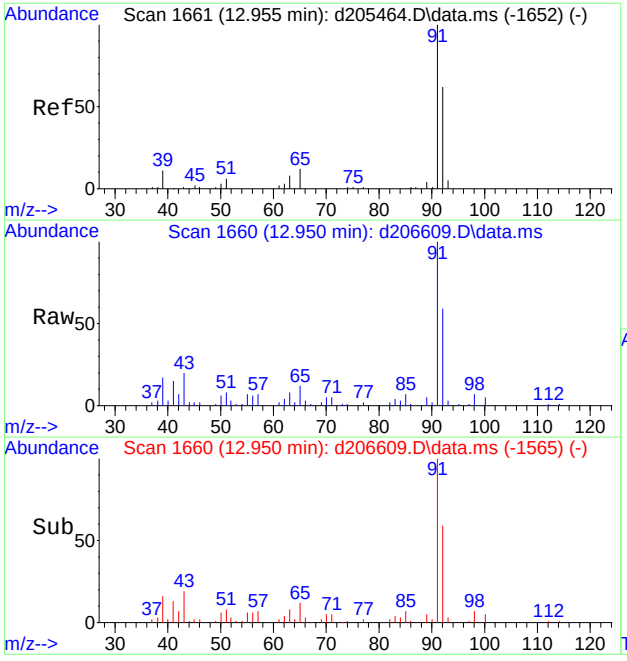


#73
methylcyclohexane
Concen: 3.23 ug/L m
RT: 11.774 min Scan# 1435
Delta R.T. -0.010 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 83 Resp: 10209

Ion	Ratio	Lower	Upper
83	100		
55	85.7	54.1	114.1
85	7.6	0.0	35.2

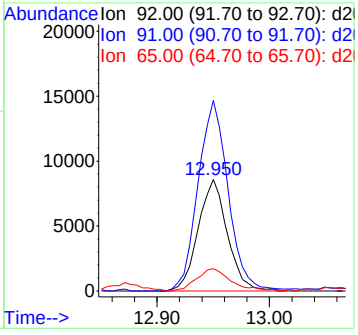


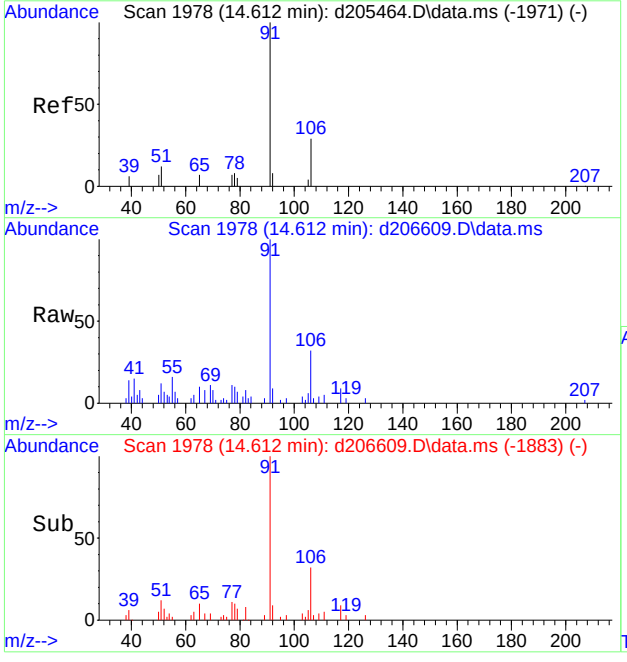


#79
toluene
Concen: 3.27 ug/L
RT: 12.950 min Scan# 1660
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 92 Resp: 15502

Ion	Ratio	Lower	Upper
92	100		
91	170.8	136.0	196.0
65	20.2	0.0	49.8

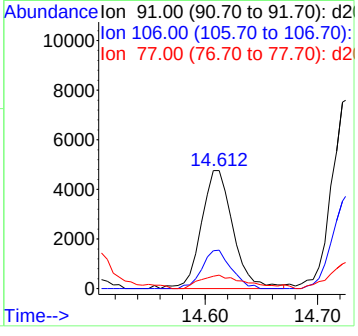




#94
ethylbenzene
Concen: 0.96 ug/L
RT: 14.612 min Scan# 1978
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 91 Resp: 9366

Ion	Ratio	Lower	Upper
91	100		
106	32.5	1.6	61.6
77	8.4	0.0	38.8



7.1.5

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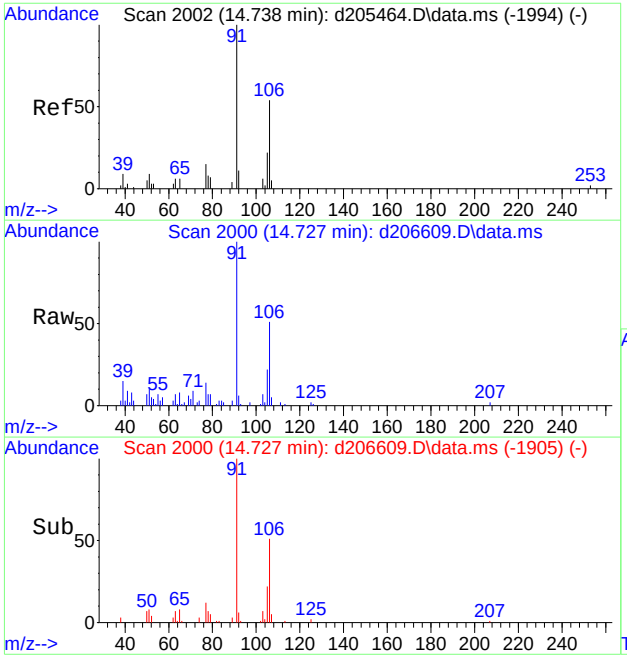
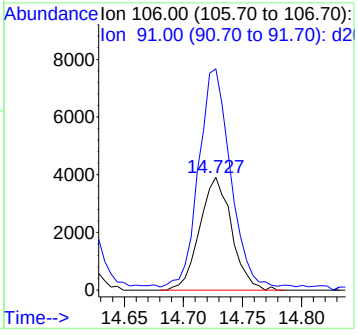
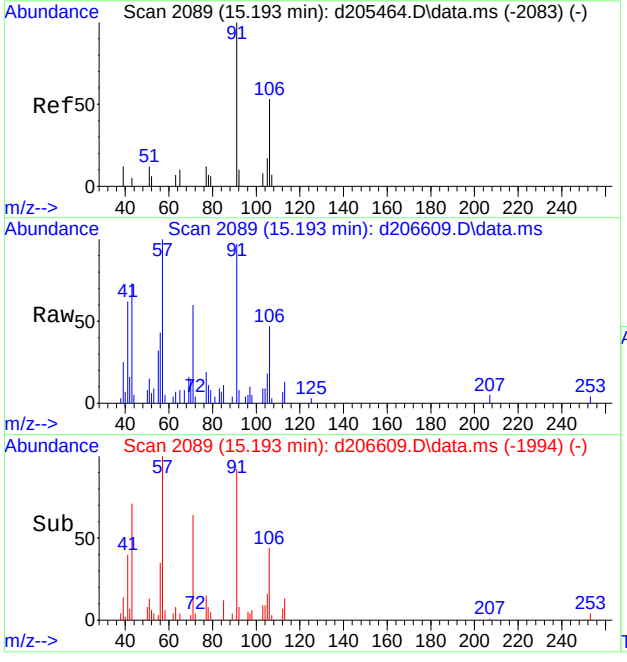


#95
m,p-xylene
Concen: 1.90 ug/L
RT: 14.727 min Scan# 2000
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion:106 Resp: 7357

Ion	Ratio	Lower	Upper
106	100		
91	193.7	139.9	259.9

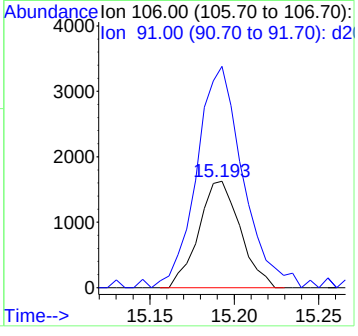




#96
o-xylene
Concen: 0.72 ug/L
RT: 15.193 min Scan# 2089
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion:106 Resp: 2776

Ion	Ratio	Lower	Upper
106	100		
91	201.5	147.9	274.7



7.1.5

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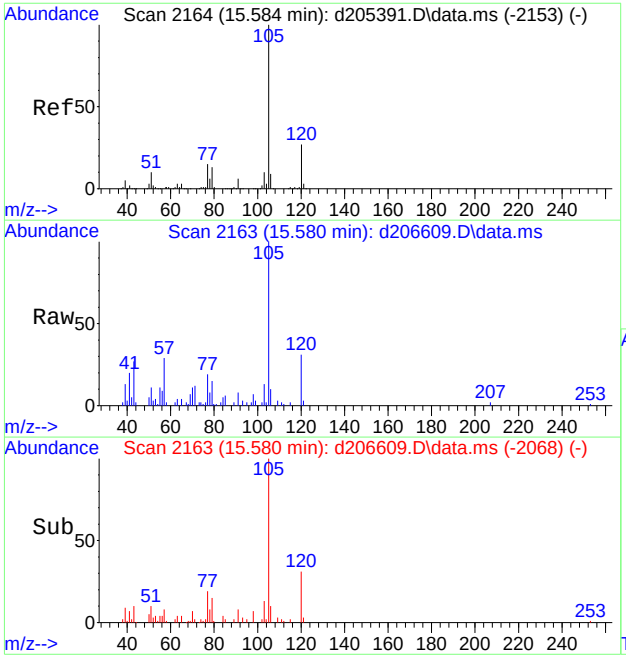
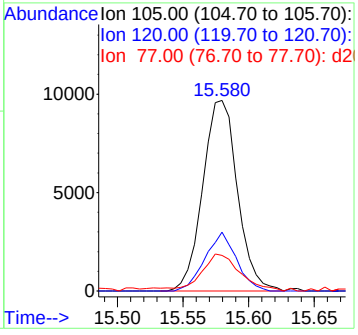
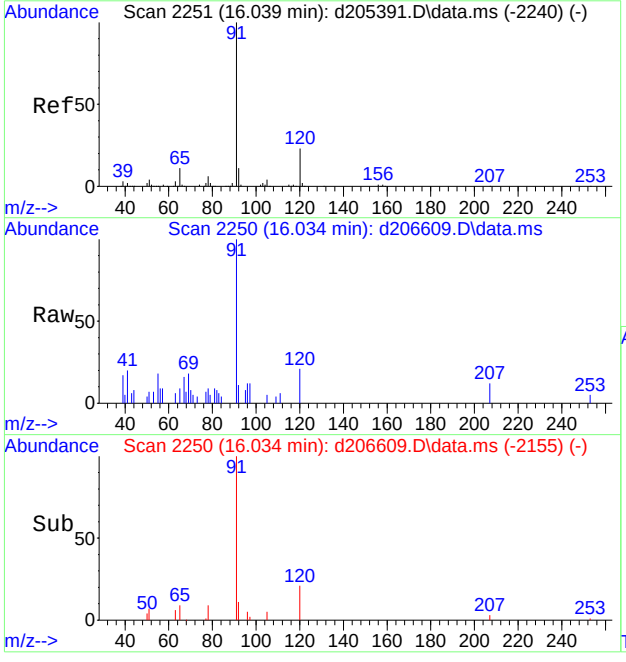


#100
isopropylbenzene
Concen: 1.84 ug/L
RT: 15.580 min Scan# 2163
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion:105 Resp: 17834

Ion	Ratio	Lower	Upper
105	100		
120	30.9	0.0	57.4
77	18.7	0.0	45.1

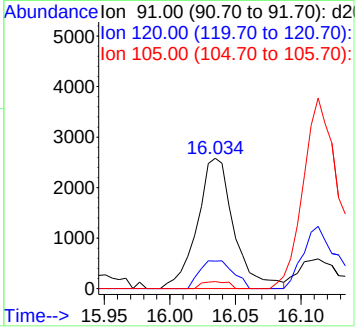


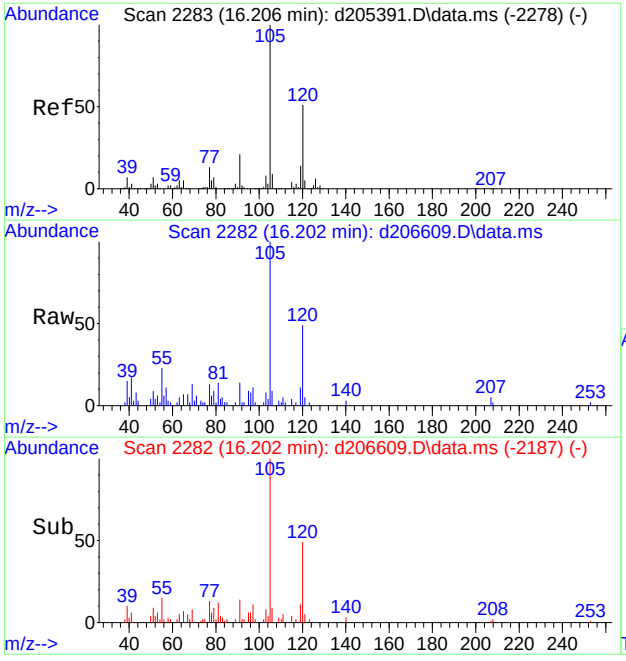


#107
n-propylbenzene
Concen: 0.43 ug/L
RT: 16.034 min Scan# 2250
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion: 91 Resp: 5002

Ion	Ratio	Lower	Upper
91	100		
120	21.1	0.0	53.4
105	5.3	0.0	33.7

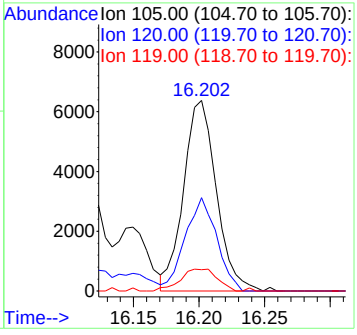


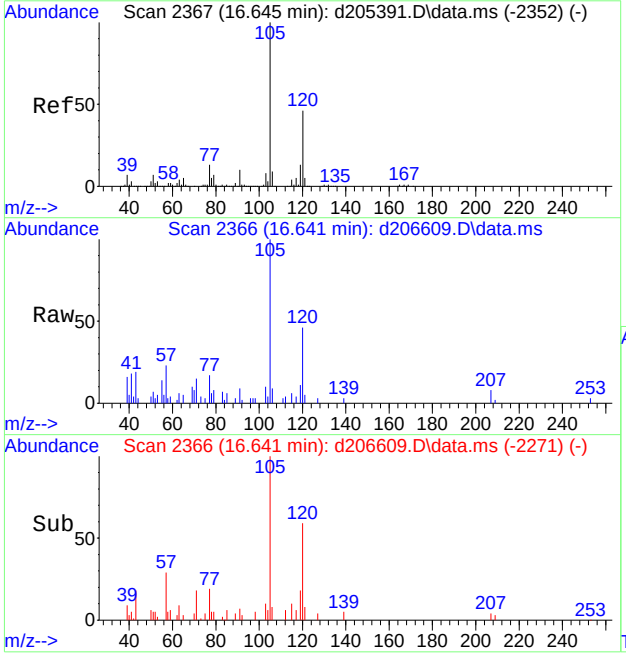


#111
1,3,5-trimethylbenzene
Concen: 1.23 ug/L
RT: 16.202 min Scan# 2282
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion:105 Resp: 11098

Ion	Ratio	Lower	Upper
105	100		
120	49.0	19.5	79.5
119	11.2	0.0	42.6

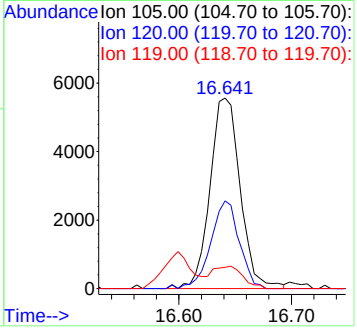




#114
1,2,4-trimethylbenzene
Concen: 1.14 ug/L
RT: 16.641 min Scan# 2366
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

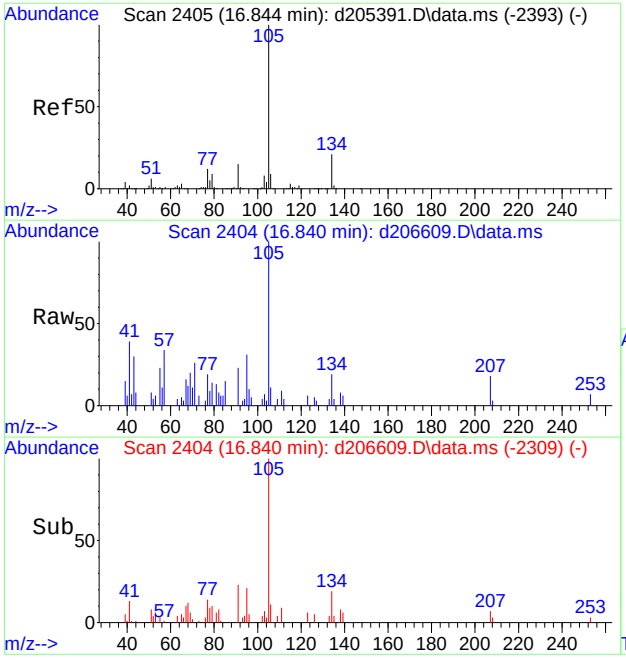
Tgt Ion:105 Resp: 10420

Ion	Ratio	Lower	Upper
105	100		
120	46.1	16.5	76.5
119	11.3	0.0	43.9



7.1.5

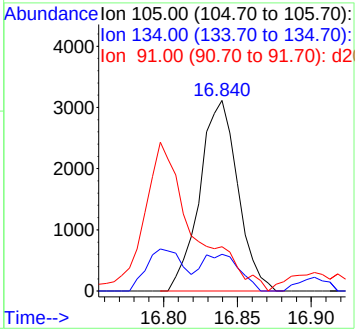
7

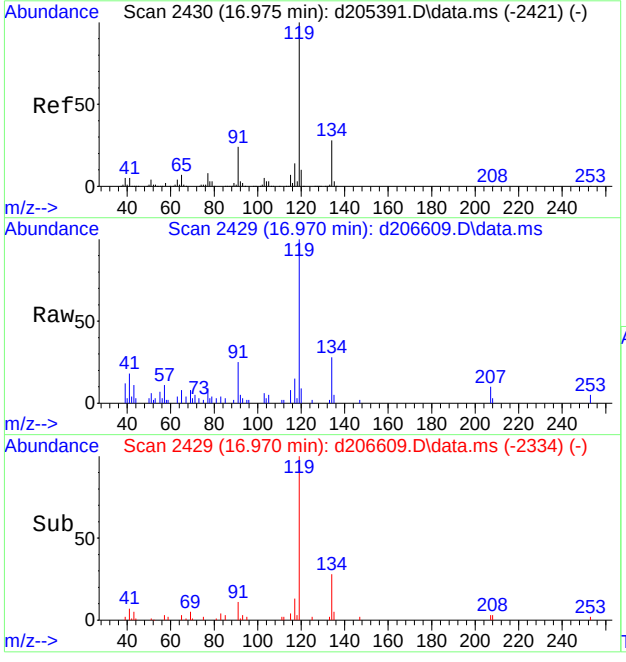


#115
sec-butylbenzene
Concen: 0.50 ug/L
RT: 16.840 min Scan# 2404
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion:105 Resp: 5583

Ion	Ratio	Lower	Upper
105	100		
134	19.3	0.0	51.2
91	18.4	0.0	45.4

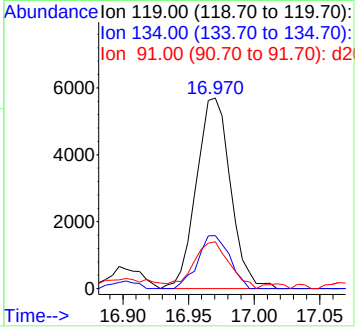




#117
p-isopropyltoluene
Concen: 1.12 ug/L
RT: 16.970 min Scan# 2429
Delta R.T. -0.005 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

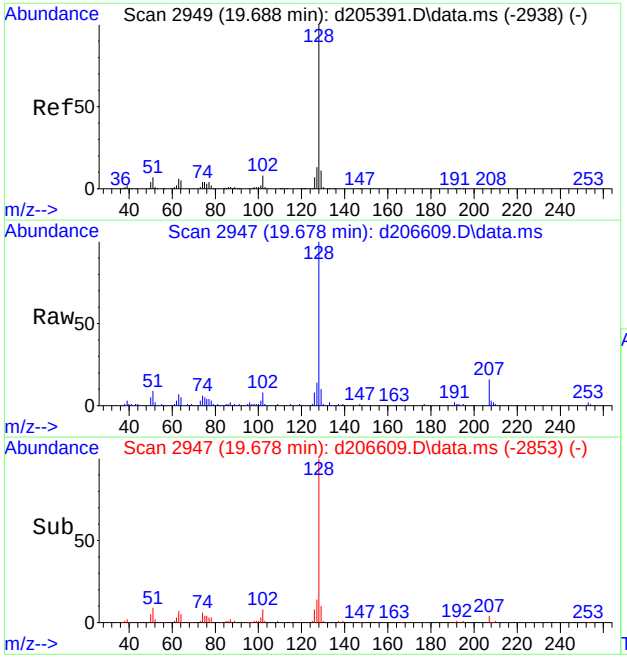
Tgt Ion:119 Resp: 10336

Ion	Ratio	Lower	Upper
119	100		
134	27.8	0.0	57.9
91	22.5	0.0	53.8



7.1.5

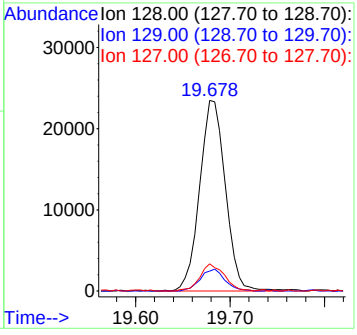
7



#128
naphthalene
Concen: 6.18 ug/L
RT: 19.678 min Scan# 2947
Delta R.T. -0.010 min
Lab File: d206609.D
Acq: 17 Mar 2013 1:14 am

Tgt Ion:128 Resp: 44500

Ion	Ratio	Lower	Upper
128	100		
129	10.4	0.0	41.1
127	14.3	0.0	42.6



7.1.5

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206690.D
Acq On : 19 Mar 2013 5:39 pm
Operator : EmilyT
Sample : jb31121-6
Misc : ms44803,vd8432,6,,100,10,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 20 09:11:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.025	65	127845	500.00 ug/L	0.01
4) pentafluorobenzene	10.247	168	207846	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	293632	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.502	117	282918	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.090	152	174203	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.273	113	91253	44.96 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 89.92%		
47) 1,2-dichloroethane-d4 (s)	10.702	65	119566	48.79 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 97.58%		
77) toluene-d8 (s)	12.871	98	362562	50.95 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 101.90%		
101) 4-bromofluorobenzene (s)	15.783	95	142173	44.93 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 89.86%		

Target Compounds

					Qvalue
61) hexane	8.788	57	201701	83.91 ug/L	97
62) benzene	10.806	78	47510	6.11 ug/L	97
63) heptane	11.010	57	30451	22.58 ug/L	91
73) methylcyclohexane	11.779	83	13032	4.02 ug/L	95
79) toluene	12.950	92	88659	18.28 ug/L	94
94) ethylbenzene	14.612	91	68907	6.90 ug/L	98
95) m,p-xylene	14.727	106	84723	21.28 ug/L	97
96) o-xylene	15.187	106	8841	2.24 ug/L	90
100) isopropylbenzene	15.579	105	26752	2.57 ug/L	99
107) n-propylbenzene	16.034	91	51554	4.16 ug/L	98
111) 1,3,5-trimethylbenzene	16.202	105	23391	2.42 ug/L	99
112) tert-butylbenzene	16.599	119	5118	0.63 ug/L	97
114) 1,2,4-trimethylbenzene	16.641	105	55952	5.69 ug/L	97
115) sec-butylbenzene	16.839	105	10098	0.84 ug/L	90
117) p-isopropyltoluene	16.970	119	3219	0.32 ug/L	91
122) n-butylbenzene	17.425	92	8050	1.48 ug/L	97
128) naphthalene	19.683	128	78845	10.23 ug/L	99

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

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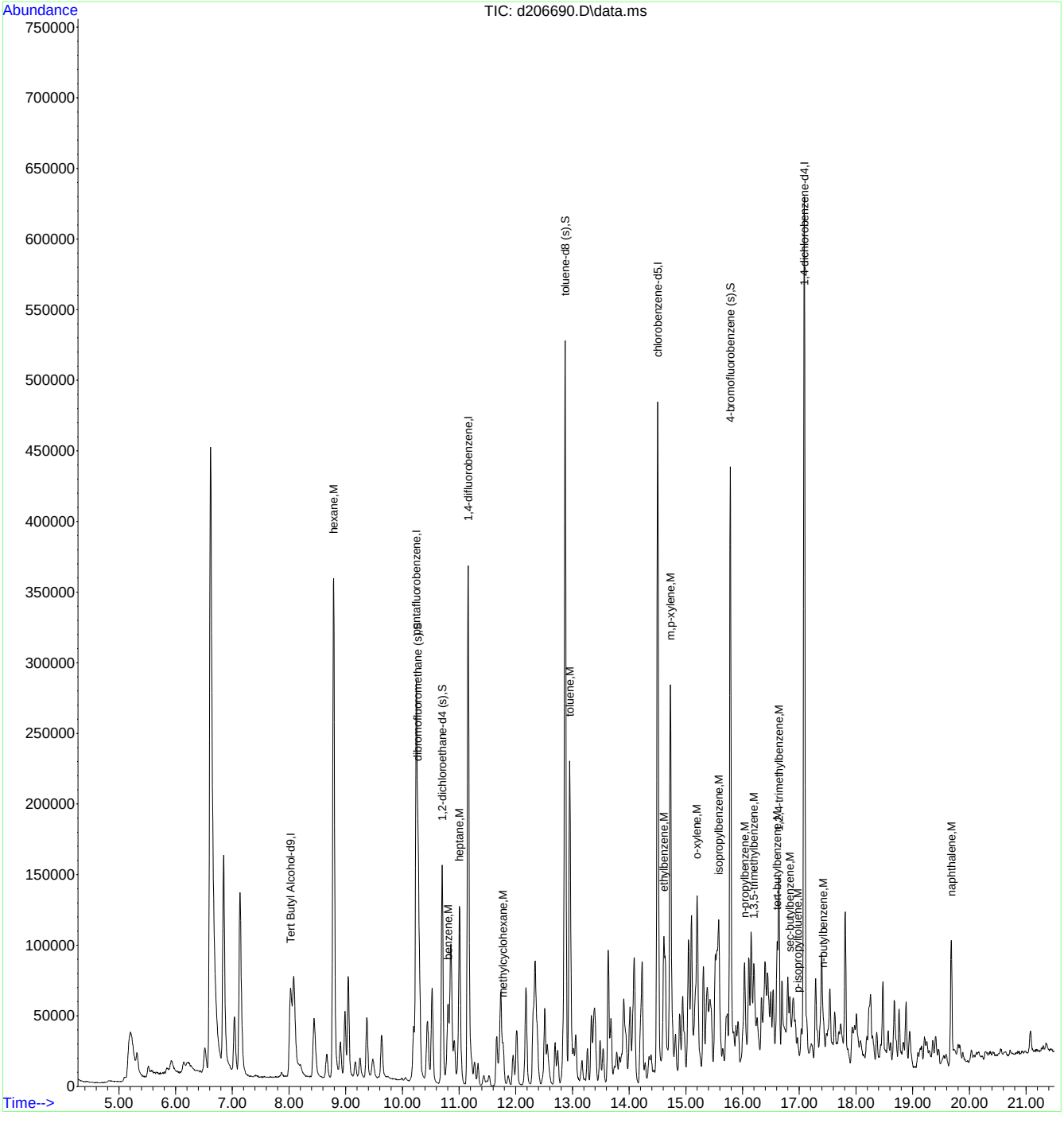
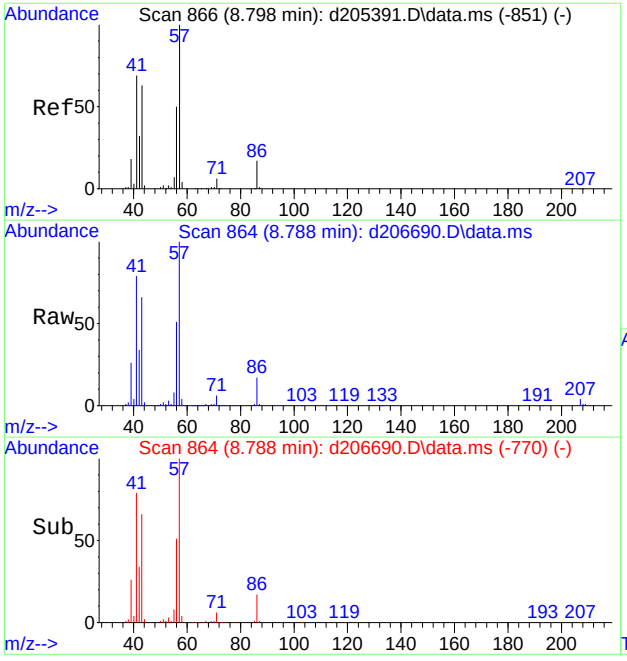
Misc : ms44803,vd8432,6,,100,10,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 20 09:11:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

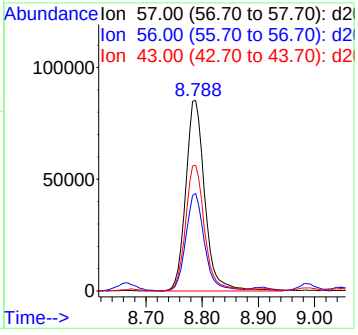


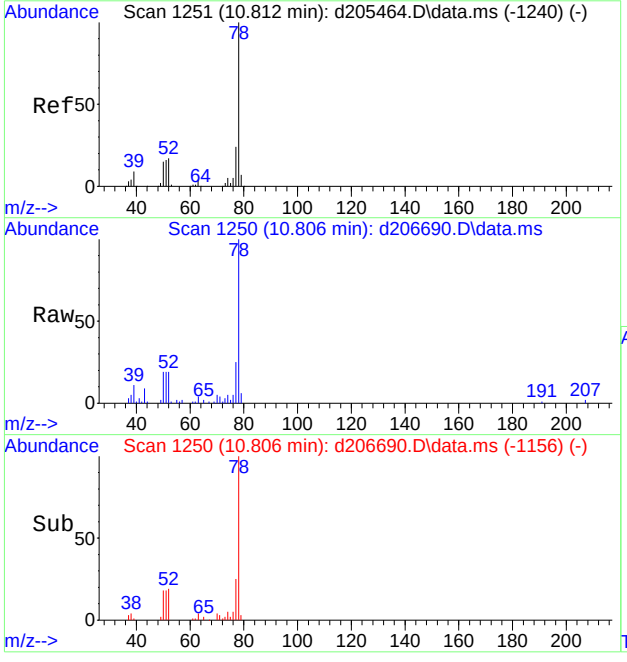


#61
hexane
Concen: 83.91 ug/L
RT: 8.788 min Scan# 864
Delta R.T. -0.010 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 57 Resp: 201701

Ion	Ratio	Lower	Upper
57	100		
56	51.0	19.8	79.8
43	65.9	33.4	93.4

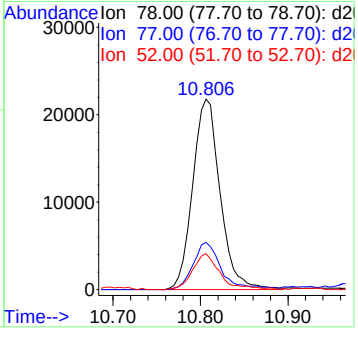


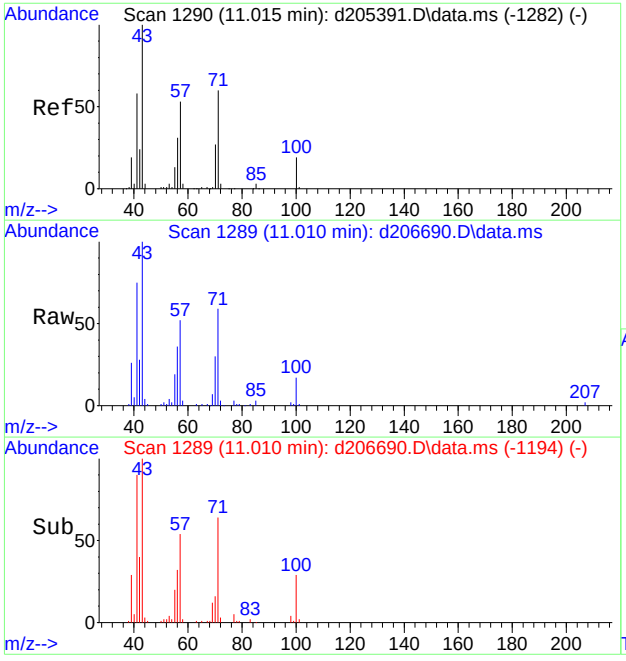


#62
benzene
Concen: 6.11 ug/L
RT: 10.806 min Scan# 1250
Delta R.T. -0.010 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 78 Resp: 47510

Ion	Ratio	Lower	Upper
78	100		
77	24.7	0.0	54.1
52	18.8	0.0	46.6

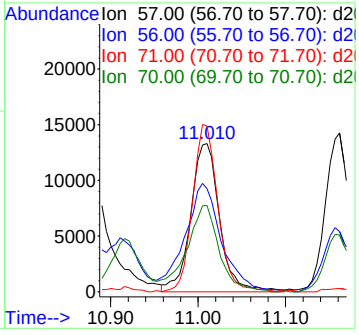


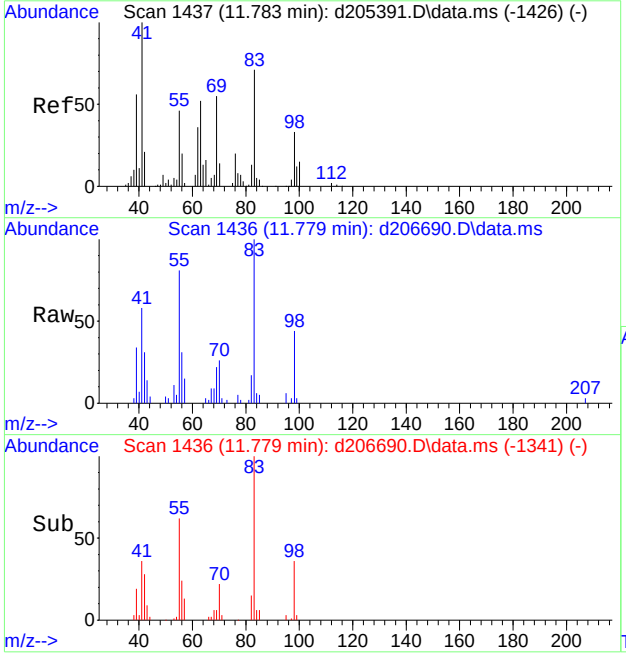


#63
heptane
Concen: 22.58 ug/L
RT: 11.010 min Scan# 1289
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 57 Resp: 30451

Ion	Ratio	Lower	Upper
57	100		
56	69.3	28.4	88.4
71	113.4	79.6	139.6
70	58.1	18.8	78.8

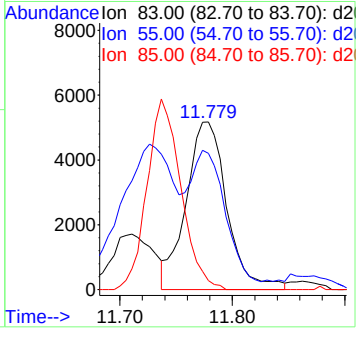


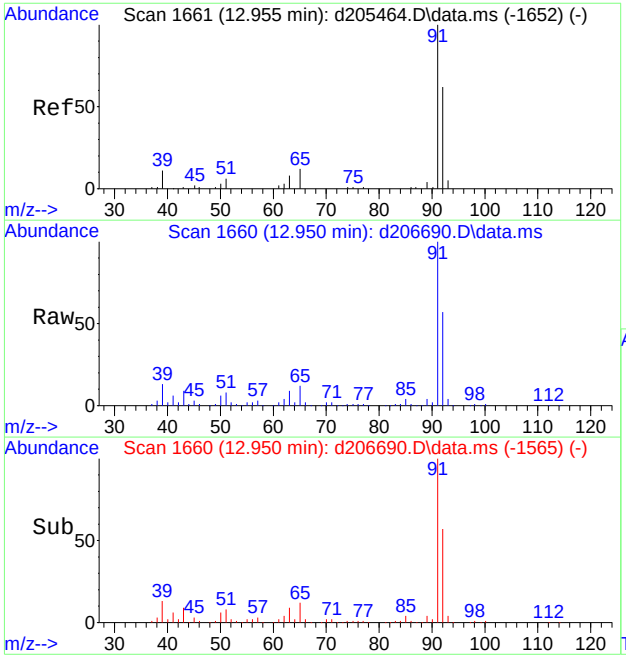


#73
methylcyclohexane
Concen: 4.02 ug/L
RT: 11.779 min Scan# 1436
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 83 Resp: 13032

Ion	Ratio	Lower	Upper
83	100		
55	79.3	54.1	114.1
85	5.6	0.0	35.2

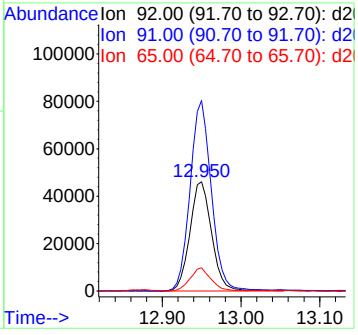


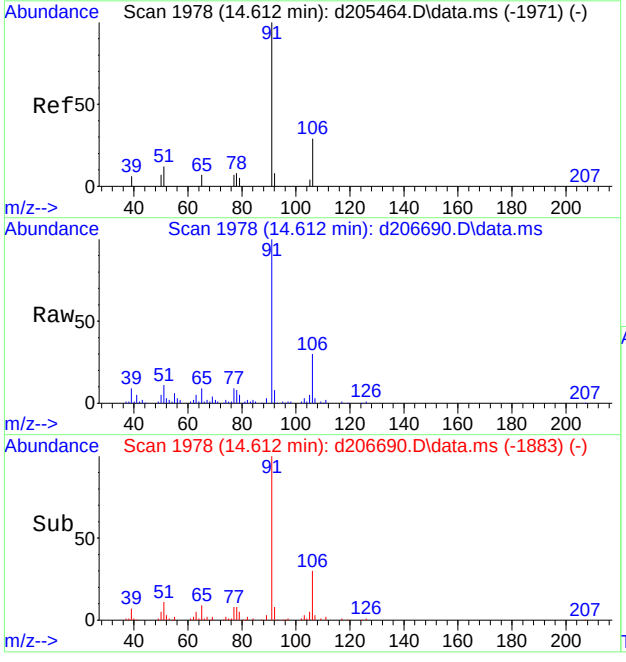


#79
toluene
Concen: 18.28 ug/L
RT: 12.950 min Scan# 1660
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 92 Resp: 88659

Ion	Ratio	Lower	Upper
92	100		
91	174.0	136.0	196.0
65	20.8	0.0	49.8

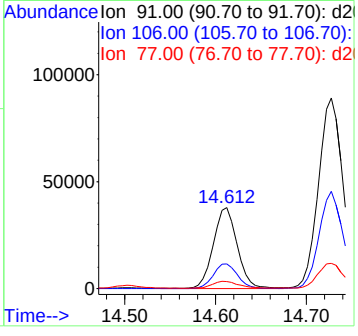


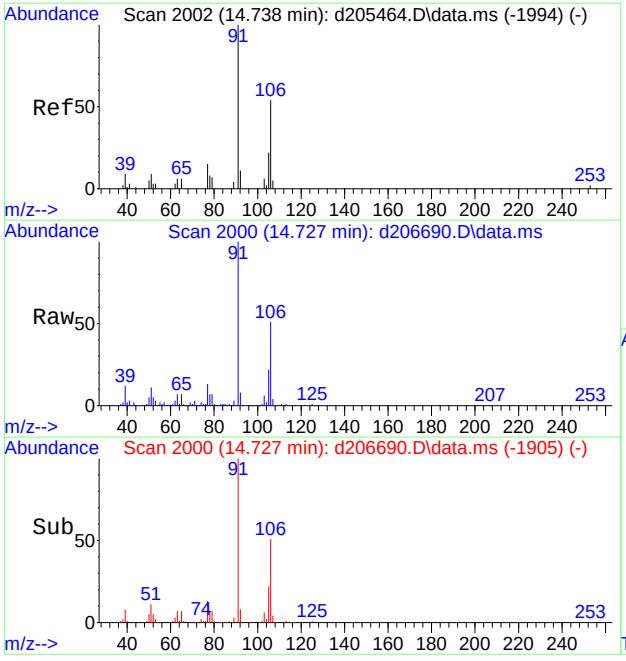


#94
ethylbenzene
Concen: 6.90 ug/L
RT: 14.612 min Scan# 1978
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 91 Resp: 68907

Ion	Ratio	Lower	Upper
91	100		
106	30.4	1.6	61.6
77	8.1	0.0	38.8

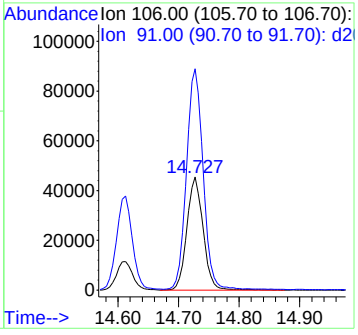


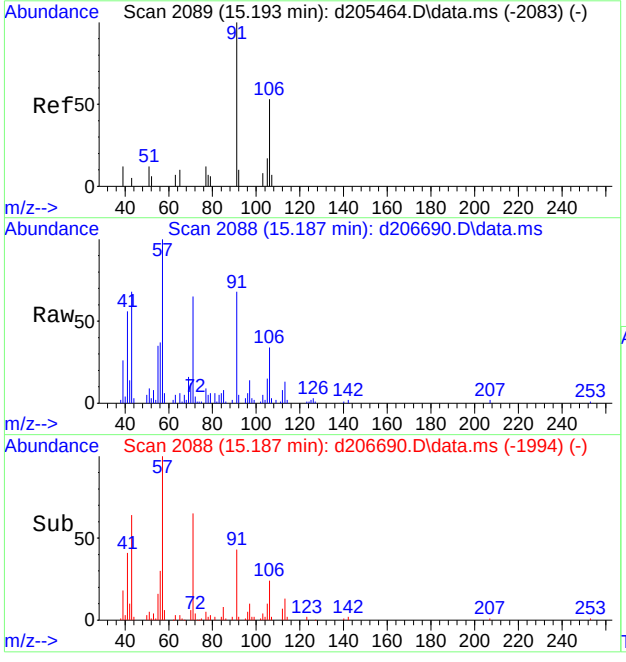


#95
m,p-xylene
Concen: 21.28 ug/L
RT: 14.727 min Scan# 2000
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:106 Resp: 84723

Ion	Ratio	Lower	Upper
106	100		
91	194.9	139.9	259.9

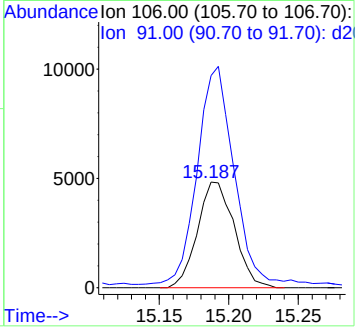


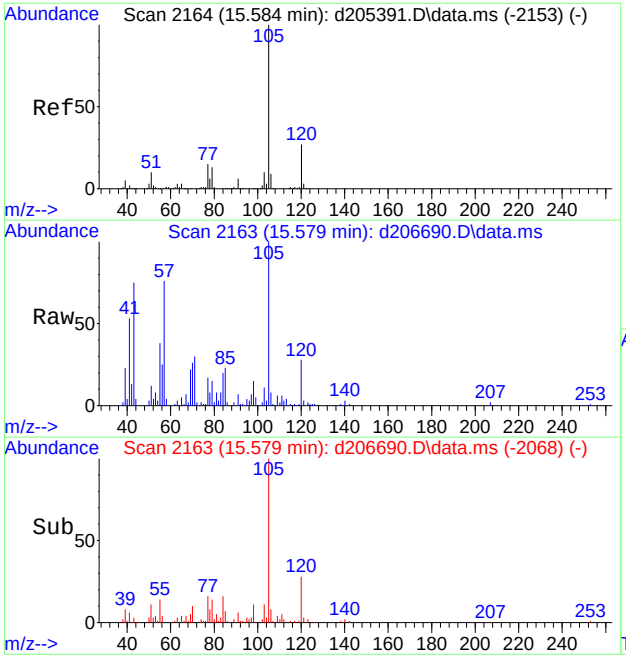


#96
o-xylene
Concen: 2.24 ug/L
RT: 15.187 min Scan# 2088
Delta R.T. -0.010 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:106 Resp: 8841

Ion	Ratio	Lower	Upper
106	100		
91	196.2	147.9	274.7

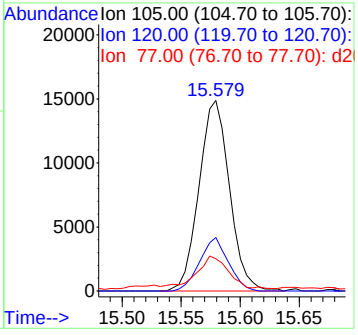


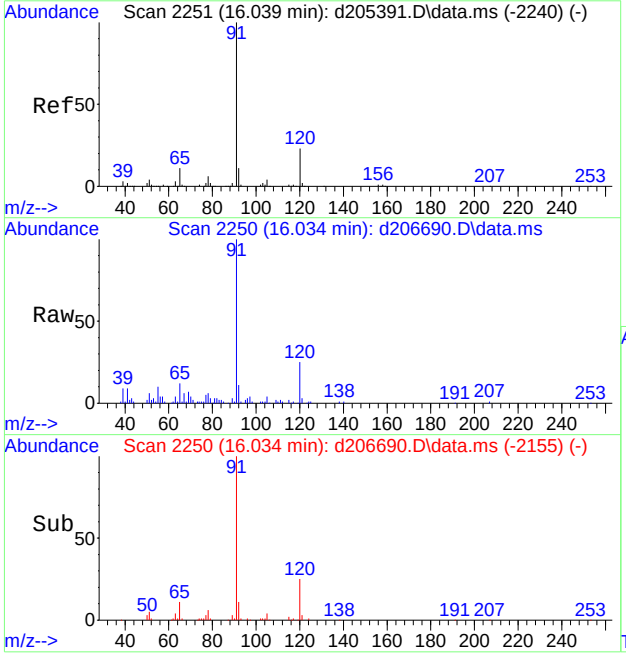


#100
isopropylbenzene
Concen: 2.57 ug/L
RT: 15.579 min Scan# 2163
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:105 Resp: 26752

Ion	Ratio	Lower	Upper
105	100		
120	28.1	0.0	57.4
77	15.0	0.0	45.1

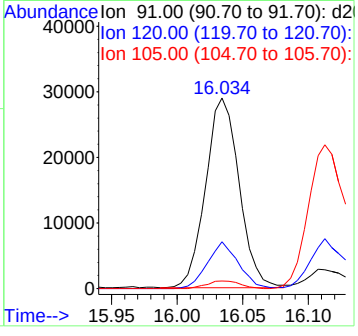


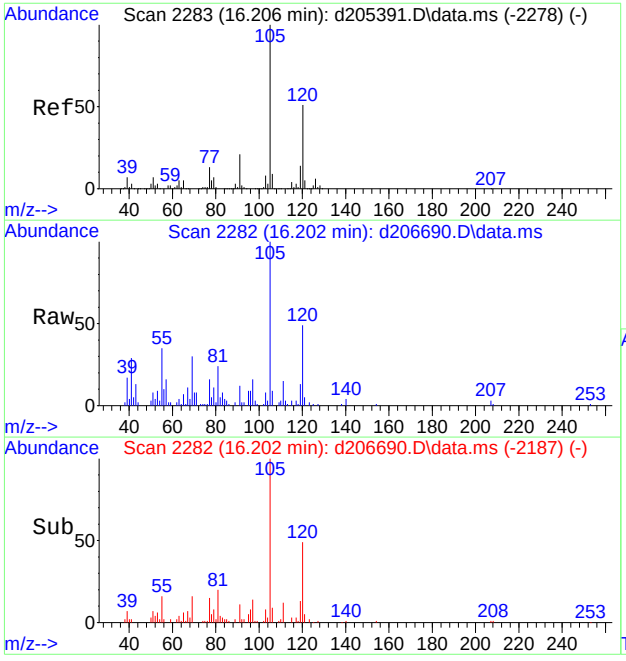


#107
n-propylbenzene
Concen: 4.16 ug/L
RT: 16.034 min Scan# 2250
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 91 Resp: 51554

Ion	Ratio	Lower	Upper
91	100		
120	24.7	0.0	53.4
105	4.0	0.0	33.7

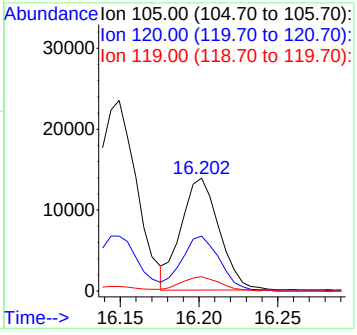


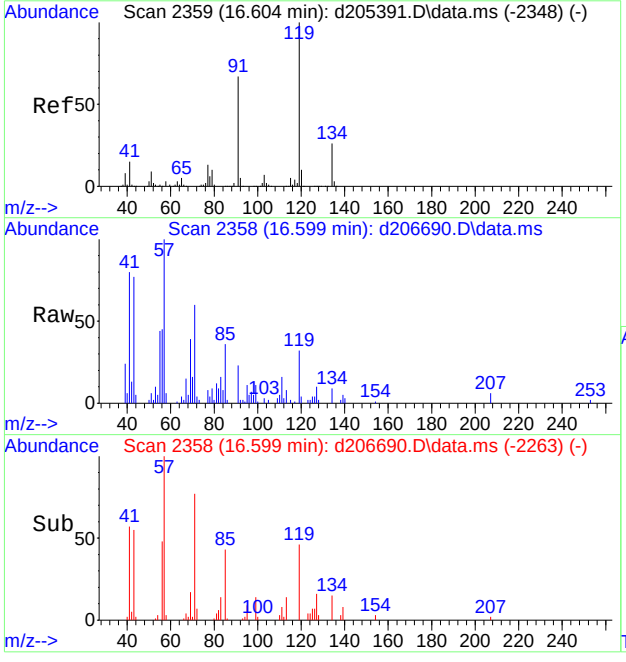


#111
1,3,5-trimethylbenzene
Concen: 2.42 ug/L
RT: 16.202 min Scan# 2282
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:105 Resp: 23391

Ion	Ratio	Lower	Upper
105	100		
120	49.1	19.5	79.5
119	13.0	0.0	42.6

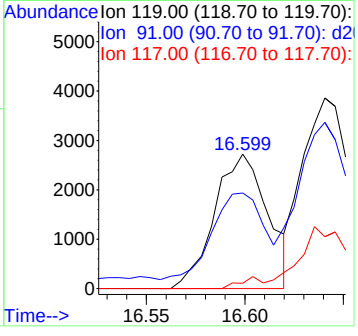


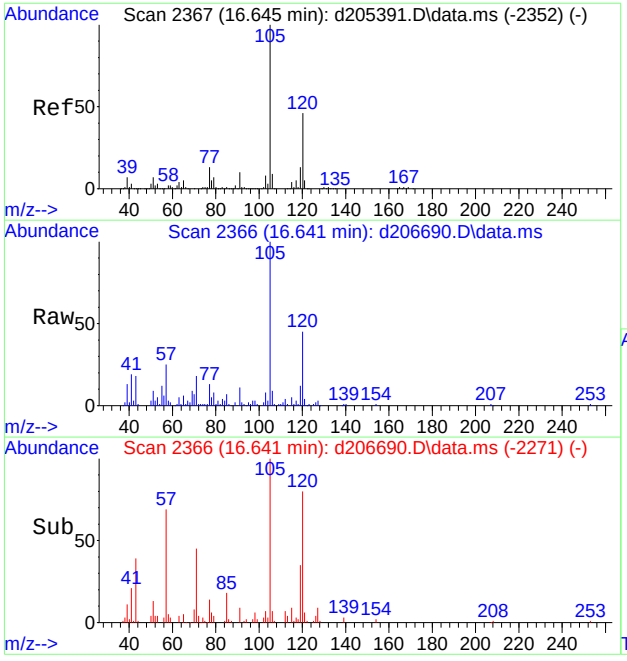


#112
tert-butylbenzene
Concen: 0.63 ug/L
RT: 16.599 min Scan# 2358
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:119 Resp: 5118

Ion	Ratio	Lower	Upper
119	100		
91	64.2	36.6	96.6
117	3.9	0.0	33.6

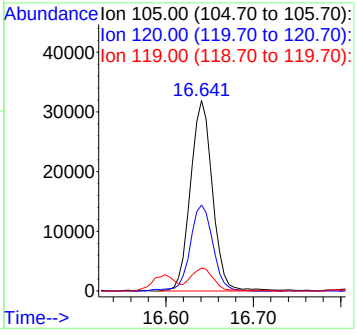


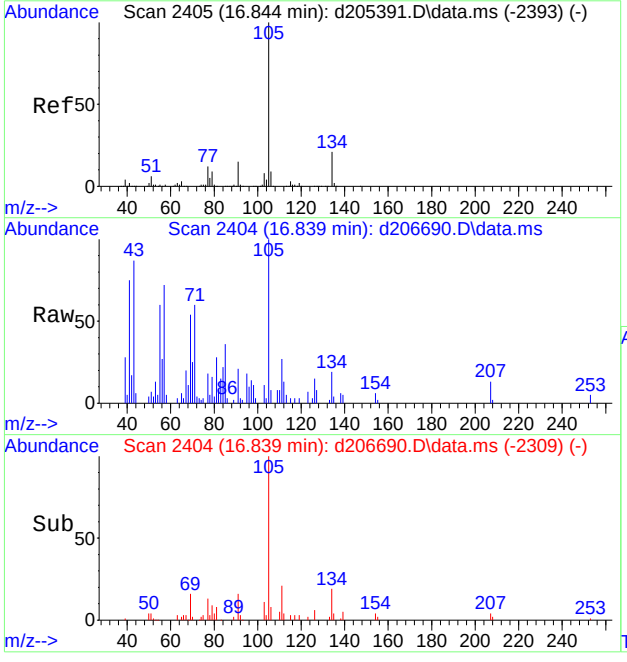


#114
1,2,4-trimethylbenzene
Concen: 5.69 ug/L
RT: 16.641 min Scan# 2366
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:105 Resp: 55952

Ion	Ratio	Lower	Upper
105	100		
120	45.1	16.5	76.5
119	12.1	0.0	43.9

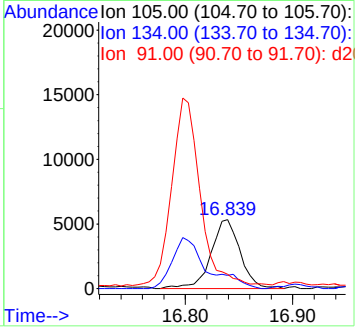


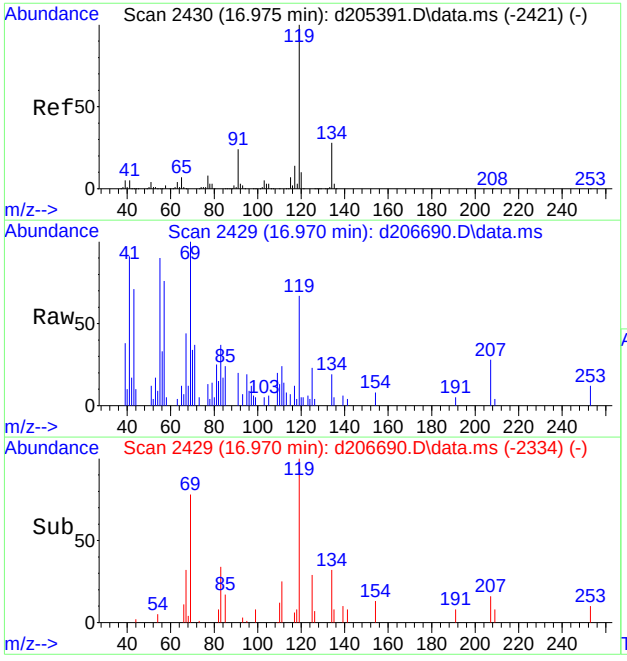


#115
sec-butylbenzene
Concen: 0.84 ug/L
RT: 16.839 min Scan# 2404
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:105 Resp: 10098

Ion	Ratio	Lower	Upper
105	100		
134	16.6	0.0	51.2
91	10.8	0.0	45.4

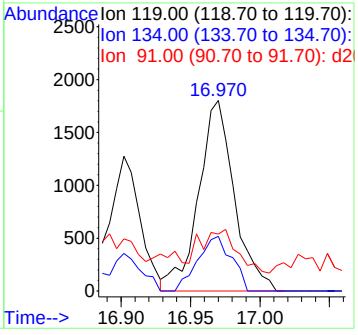


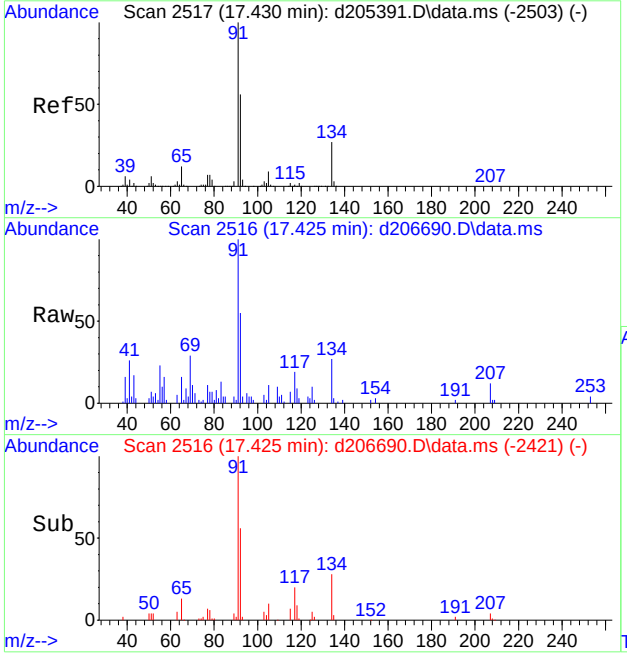


#117
p-isopropyltoluene
Concen: 0.32 ug/L
RT: 16.970 min Scan# 2429
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:119 Resp: 3219

Ion	Ratio	Lower	Upper
119	100		
134	28.7	0.0	57.9
91	15.0	0.0	53.8

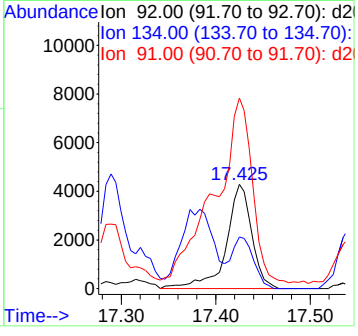


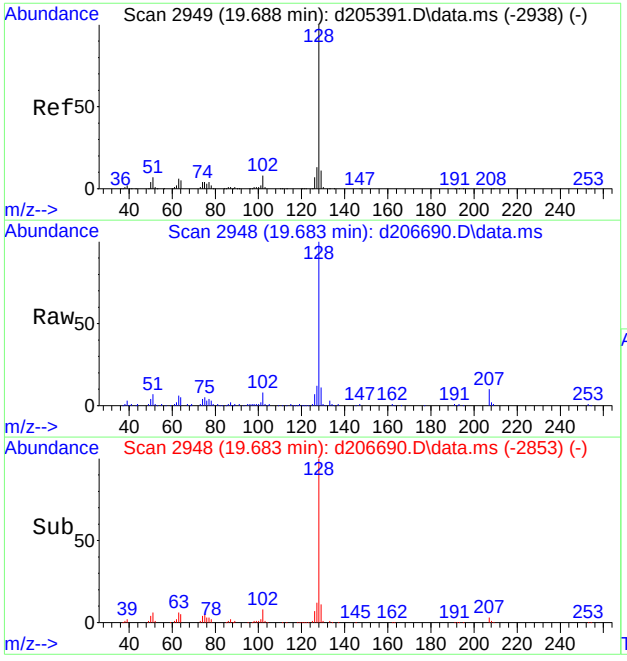


#122
n-butylbenzene
Concen: 1.48 ug/L
RT: 17.425 min Scan# 2516
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion: 92 Resp: 8050

Ion	Ratio	Lower	Upper
92	100		
134	49.4	19.4	79.4
91	175.1	149.8	209.8

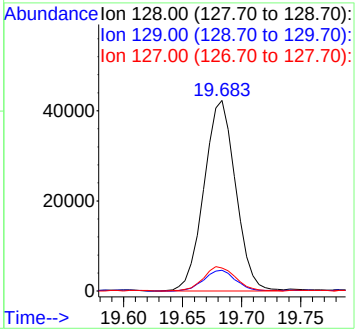




#128
naphthalene
Concen: 10.23 ug/L
RT: 19.683 min Scan# 2948
Delta R.T. -0.005 min
Lab File: d206690.D
Acq: 19 Mar 2013 5:39 pm

Tgt Ion:128 Resp: 78845

Ion	Ratio	Lower	Upper
128	100		
129	10.9	0.0	41.1
127	12.2	0.0	42.6



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180182.D
Acq On : 20 Mar 2013 6:26 pm
Operator : tamikag
Sample : jb31121-7
Misc : MS44803,VC6461,5.2,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 21 11:26:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

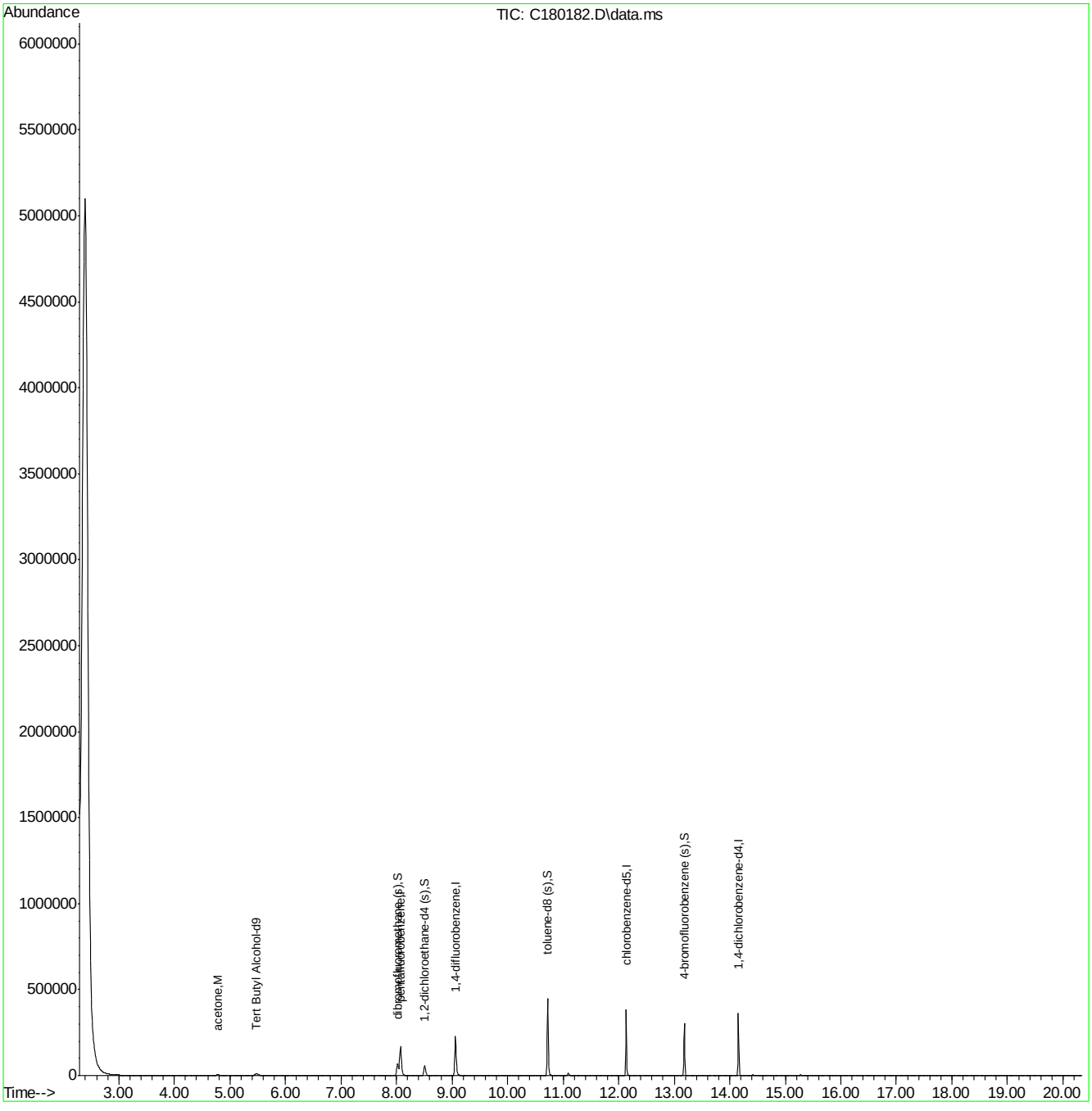
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.484	65	28738	500.00	ug/L	0.00
5) pentafluorobenzene	8.073	168	143844	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.061	114	210598	50.00	ug/L	0.00
85) chlorobenzene-d5	12.136	117	148511	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.155	152	61282	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.020	113	54078	47.47	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.94%			
50) 1,2-dichloroethane-d4 (s)	8.507	65	47921	45.19	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 90.38%			
77) toluene-d8 (s)	10.724	98	233993	47.98	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 95.96%			
103) 4-bromofluorobenzene (s)	13.182	95	70849	50.63	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 101.26%			
Target Compounds						Qvalue
22) acetone	4.783	43	14175	76.82	ug/L	99

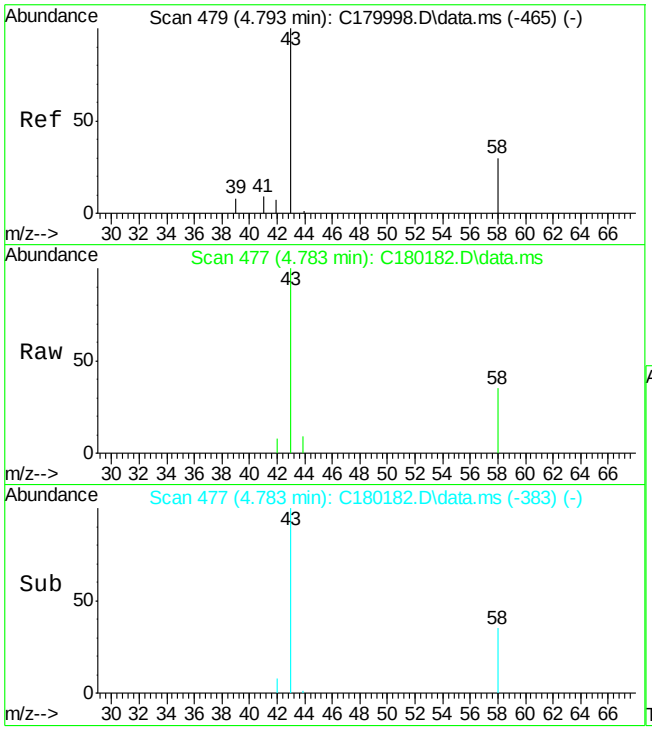
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180182.D
Acq On : 20 Mar 2013 6:26 pm
Operator : tamikag
Sample : jb31121-7
Misc : MS44803,VC6461,5.2,,,,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 21 11:26:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

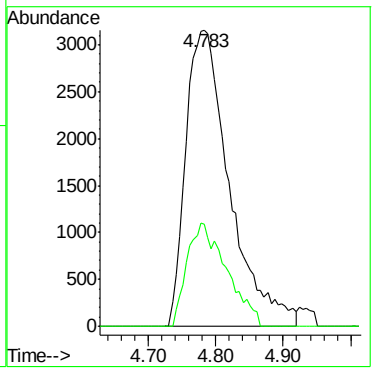




#22
acetone
Concen: 76.82 ug/L
RT: 4.783 min Scan# 477
Delta R.T. -0.010 min
Lab File: C180182.D
Acq: 20 Mar 2013 6:26 pm

Tgt Ion: 43 Resp: 14175

Ion	Ratio	Lower	Upper
43	100		
58	31.6	2.4	62.4



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180183.D
Acq On : 20 Mar 2013 6:53 pm
Operator : tamikag
Sample : jb31121-8
Misc : MS44803,VC6461,5.0,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 21 11:27:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

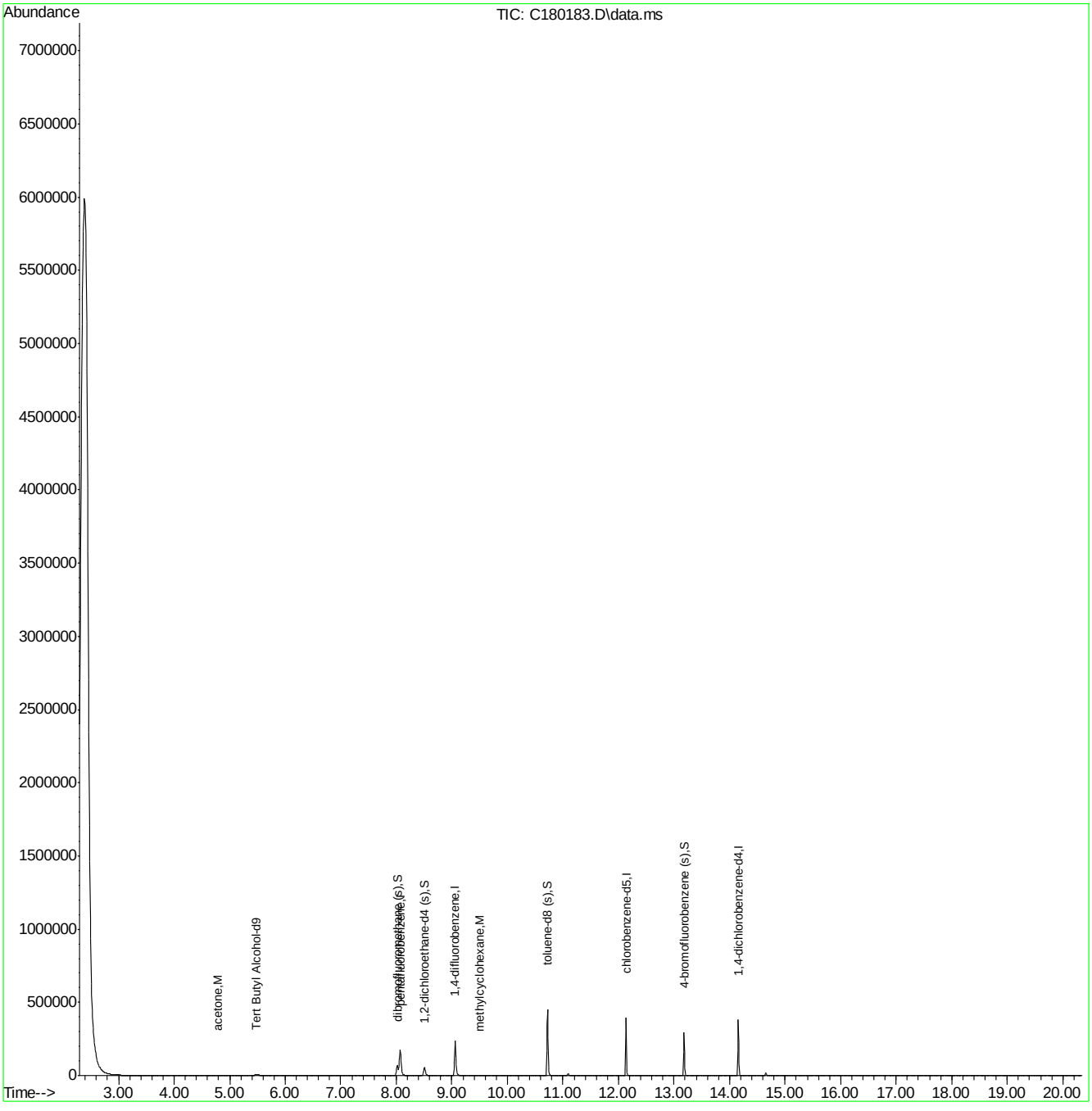
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.482	65	24217	500.00	ug/L	-0.01
5) pentafluorobenzene	8.070	168	145158	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.059	114	211063	50.00	ug/L	0.00
85) chlorobenzene-d5	12.134	117	149678	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.158	152	64620	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.018	113	53247	46.32	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.64%			
50) 1,2-dichloroethane-d4 (s)	8.505	65	46508	43.46	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 86.92%			
77) toluene-d8 (s)	10.722	98	236649	48.42	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.84%			
103) 4-bromofluorobenzene (s)	13.180	95	73599	49.87	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 99.74%			
Target Compounds						Qvalue
22) acetone	4.781	43	5840	31.36	ug/L	93
70) methylcyclohexane	9.504	83	830	0.38	ug/L	98

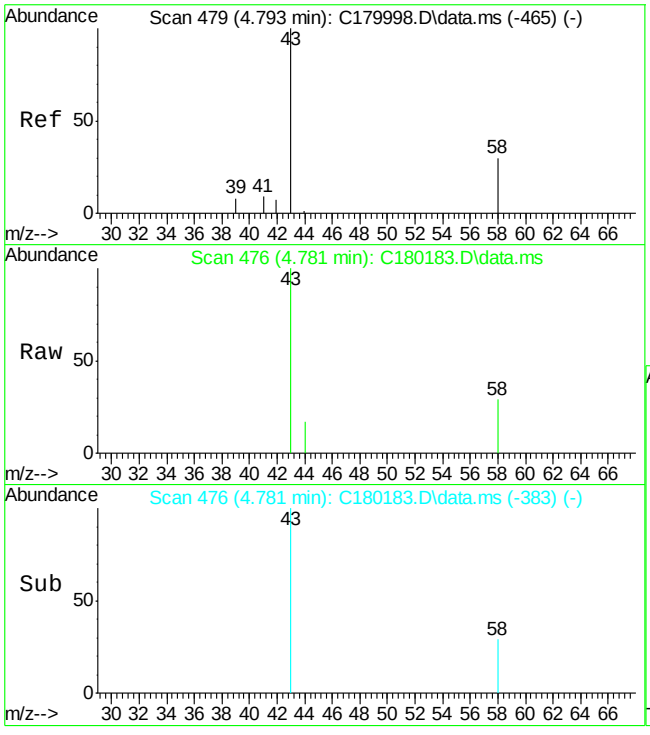
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180183.D
Acq On : 20 Mar 2013 6:53 pm
Operator : tamikag
Sample : jb31121-8
Misc : MS44803,VC6461,5.0,,,,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 21 11:27:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

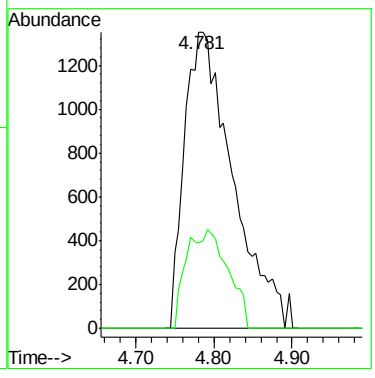


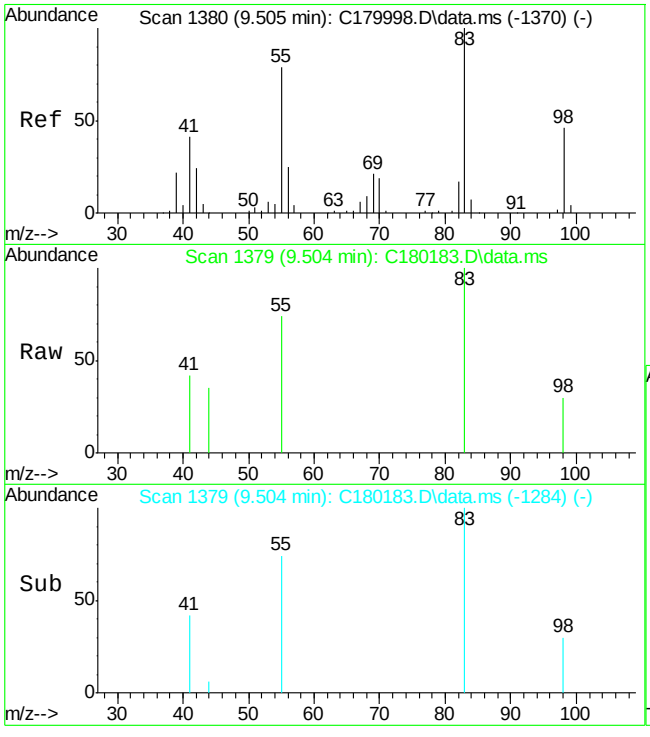


#22
acetone
Concen: 31.36 ug/L
RT: 4.781 min Scan# 476
Delta R.T. -0.012 min
Lab File: C180183.D
Acq: 20 Mar 2013 6:53 pm

Tgt Ion: 43 Resp: 5840

Ion	Ratio	Lower	Upper
43	100		
58	28.5	2.4	62.4

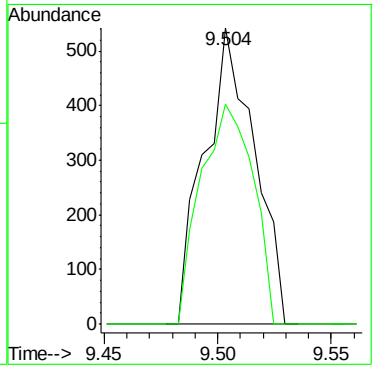




#70
methylcyclohexane
Concen: 0.38 ug/L
RT: 9.504 min Scan# 1379
Delta R.T. -0.001 min
Lab File: C180183.D
Acq: 20 Mar 2013 6:53 pm

Tgt Ion: 83 Resp: 830

Ion	Ratio	Lower	Upper
83	100		
55	77.5	55.7	103.5



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180184.D
Acq On : 20 Mar 2013 7:20 pm
Operator : tamikag
Sample : jb31121-9
Misc : MS44803,VC6461,6.1,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 21 11:27:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.479	65	33523	500.00	ug/L	-0.01
5) pentafluorobenzene	8.074	168	152109	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.062	114	225642	50.00	ug/L	0.00
85) chlorobenzene-d5	12.137	117	165748	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.156	152	74742	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.016	113	58975	48.96	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.92%			
50) 1,2-dichloroethane-d4 (s)	8.508	65	53619	47.81	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 95.62%			
77) toluene-d8 (s)	10.725	98	252832	48.38	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.76%			
103) 4-bromofluorobenzene (s)	13.183	95	82766	48.49	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.98%			
Target Compounds						Qvalue
22) acetone	4.789	43	6633	34.00	ug/L	95

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

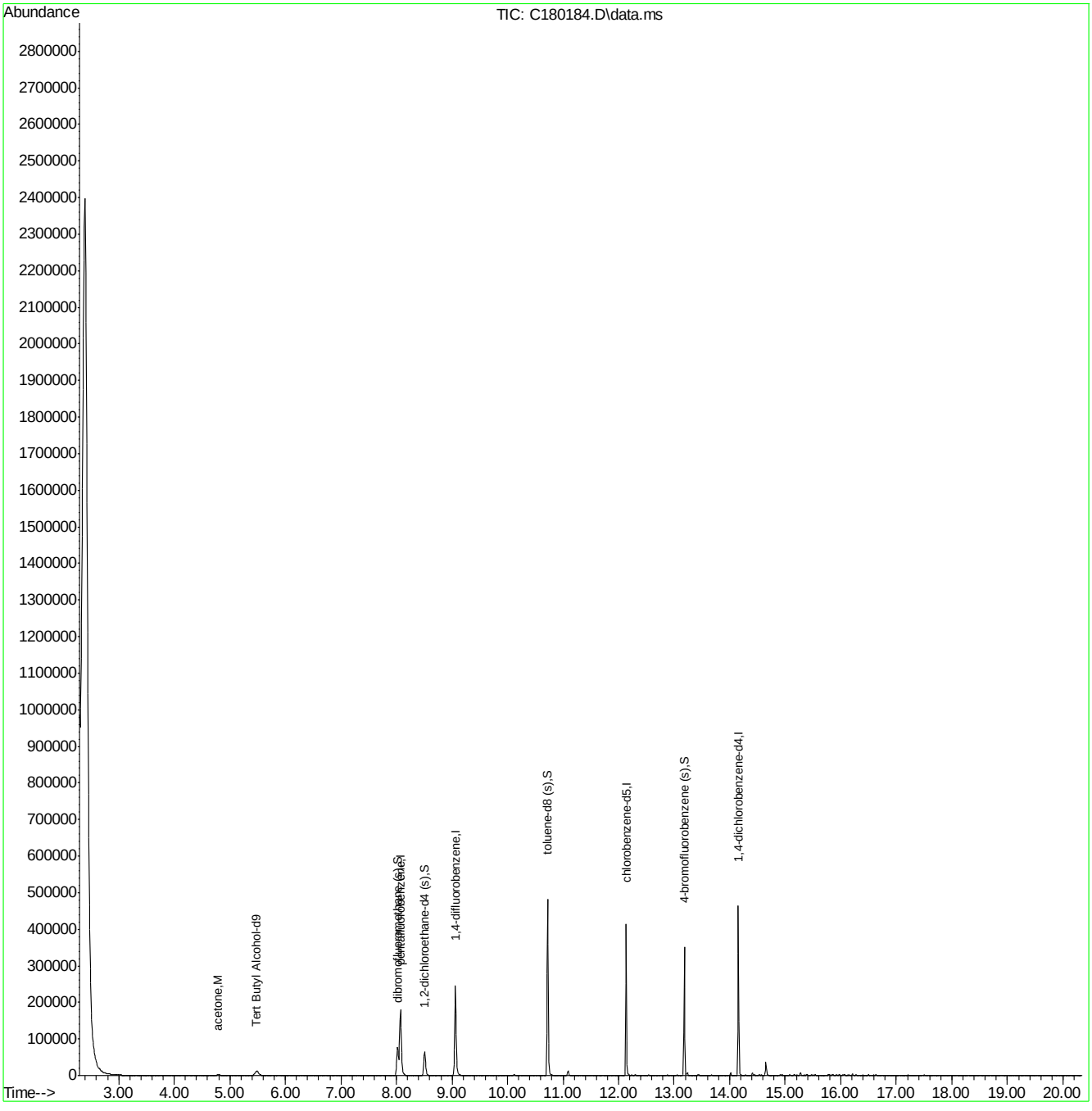
7.1.9

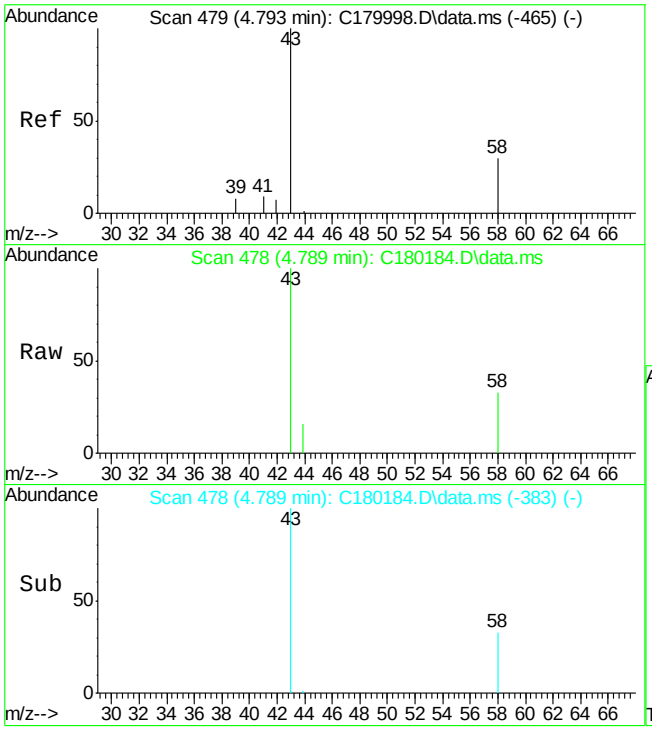
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180184.D
Acq On : 20 Mar 2013 7:20 pm
Operator : tamikag
Sample : jb31121-9
Misc : MS44803,VC6461,6.1,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 21 11:27:28 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

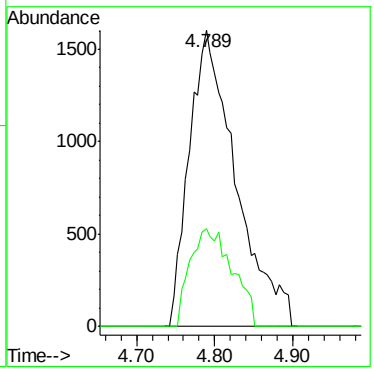




#22
acetone
Concen: 34.00 ug/L
RT: 4.789 min Scan# 478
Delta R.T. -0.003 min
Lab File: C180184.D
Acq: 20 Mar 2013 7:20 pm

Tgt Ion: 43 Resp: 6633

Ion	Ratio	Lower	Upper
43	100		
58	29.9	2.4	62.4



7.1.9

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180185.D
Acq On : 20 Mar 2013 7:46 pm
Operator : tamikag
Sample : jb31121-10
Misc : MS44803,VC6461,6.4,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 21 11:27:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

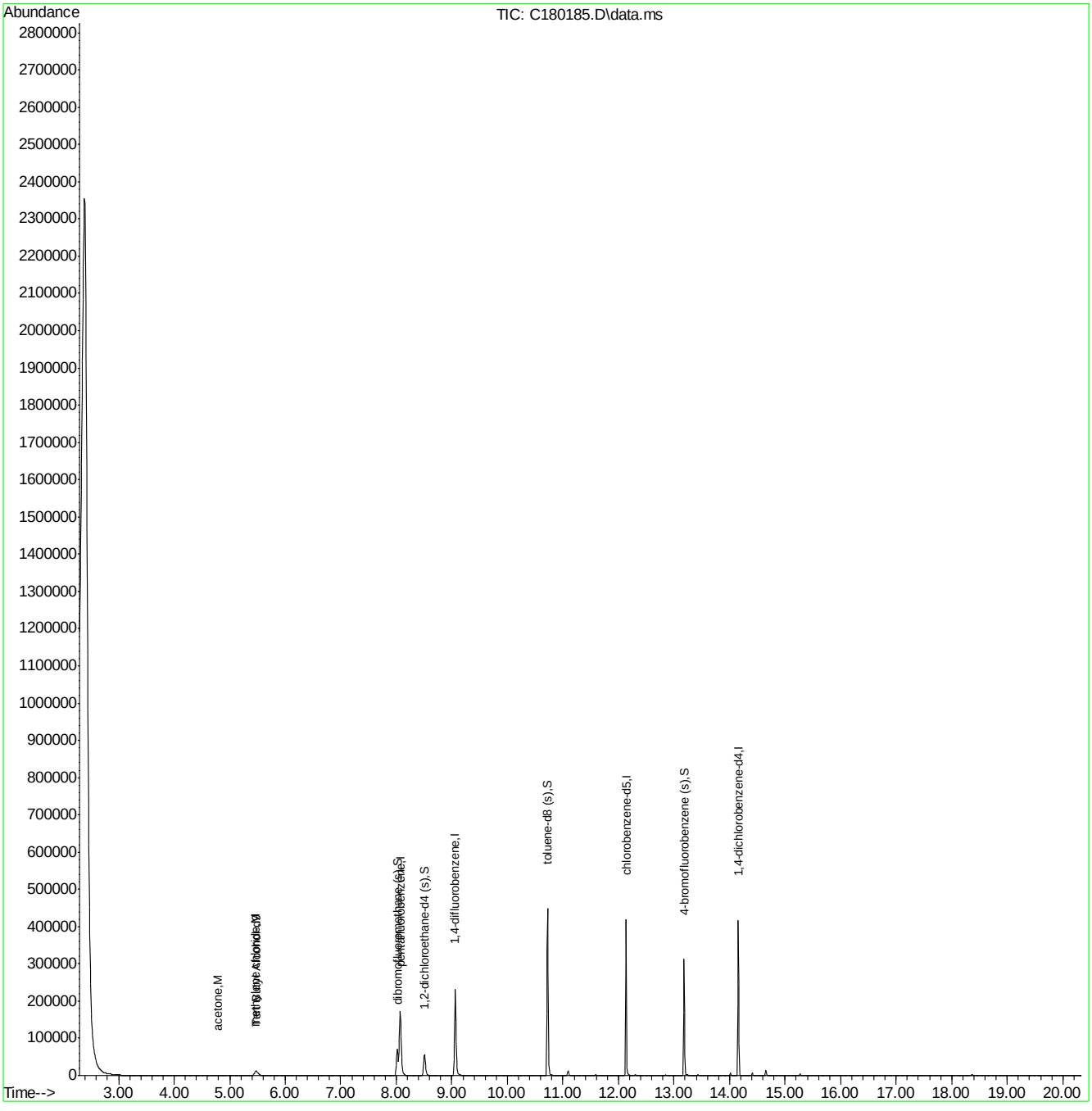
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.487	65	29106	500.00	ug/L	0.00
5) pentafluorobenzene	8.070	168	146825	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.059	114	216759	50.00	ug/L	0.00
85) chlorobenzene-d5	12.134	117	157637	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.158	152	70886	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.018	113	55035	47.33	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.66%			
50) 1,2-dichloroethane-d4 (s)	8.505	65	48314	44.63	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 89.26%			
77) toluene-d8 (s)	10.722	98	242714	48.35	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.70%			
103) 4-bromofluorobenzene (s)	13.180	95	78076	48.23	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.46%			
Target Compounds						Qvalue
22) acetone	4.791	43	2810	14.92	ug/L	71
28) methylene chloride	5.471	84	2023	1.47	ug/L	91

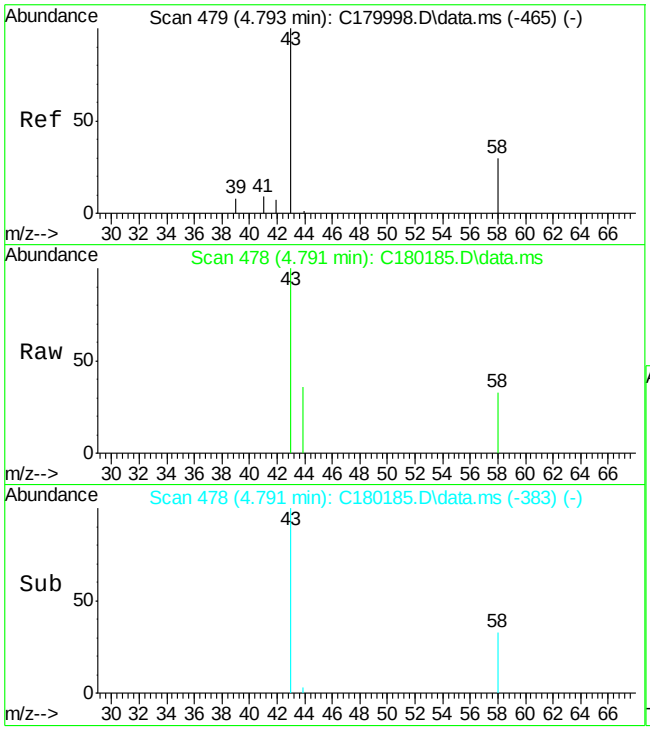
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180185.D
Acq On : 20 Mar 2013 7:46 pm
Operator : tamikag
Sample : jb31121-10
Misc : MS44803,VC6461,6.4,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 21 11:27:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

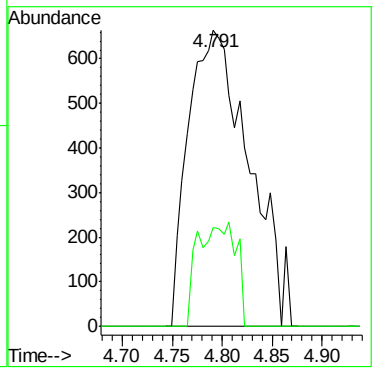


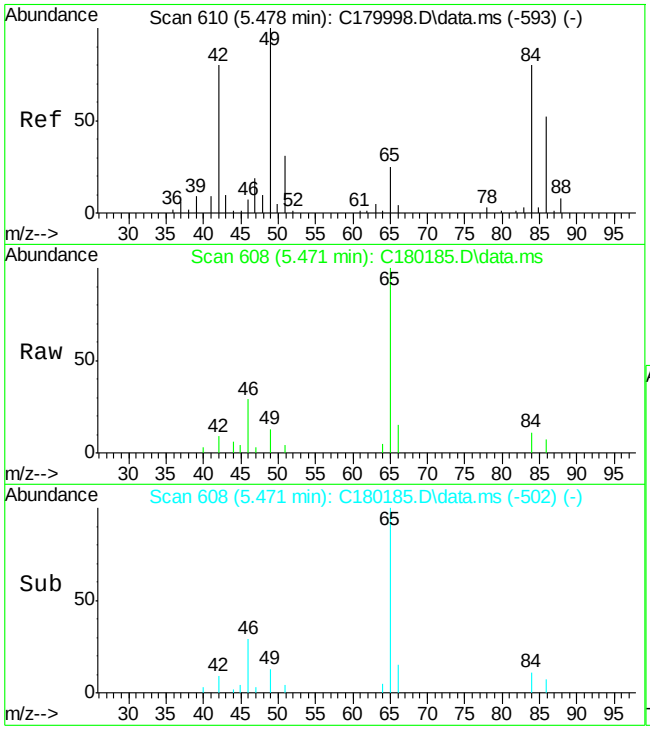


#22
acetone
Concen: 14.92 ug/L
RT: 4.791 min Scan# 478
Delta R.T. -0.001 min
Lab File: C180185.D
Acq: 20 Mar 2013 7:46 pm

Tgt Ion: 43 Resp: 2810

Ion	Ratio	Lower	Upper
43	100		
58	15.9	2.4	62.4

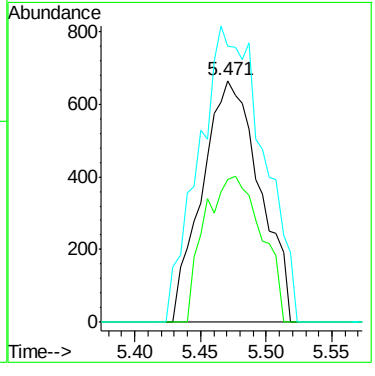




#28
methylene chloride
Concen: 1.47 ug/L
RT: 5.471 min Scan# 608
Delta R.T. -0.007 min
Lab File: C180185.D
Acq: 20 Mar 2013 7:46 pm

Tgt Ion: 84 Resp: 2023

Ion	Ratio	Lower	Upper
84	100		
86	59.2	45.4	84.4
49	114.1	87.9	163.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180186.D
Acq On : 20 Mar 2013 8:13 pm
Operator : tamikag
Sample : jb31121-11
Misc : MS44803,VC6461,6.7,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 21 11:28:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.479	65	31992	500.00	ug/L	-0.01
5) pentafluorobenzene	8.073	168	137711	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.062	114	204795	50.00	ug/L	0.00
85) chlorobenzene-d5	12.137	117	149675	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.156	152	67967	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.016	113	52264	47.93	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.86%			
50) 1,2-dichloroethane-d4 (s)	8.507	65	47873	47.15	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 94.30%			
77) toluene-d8 (s)	10.725	98	229989	48.49	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.98%			
103) 4-bromofluorobenzene (s)	13.183	95	74997	48.32	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.64%			

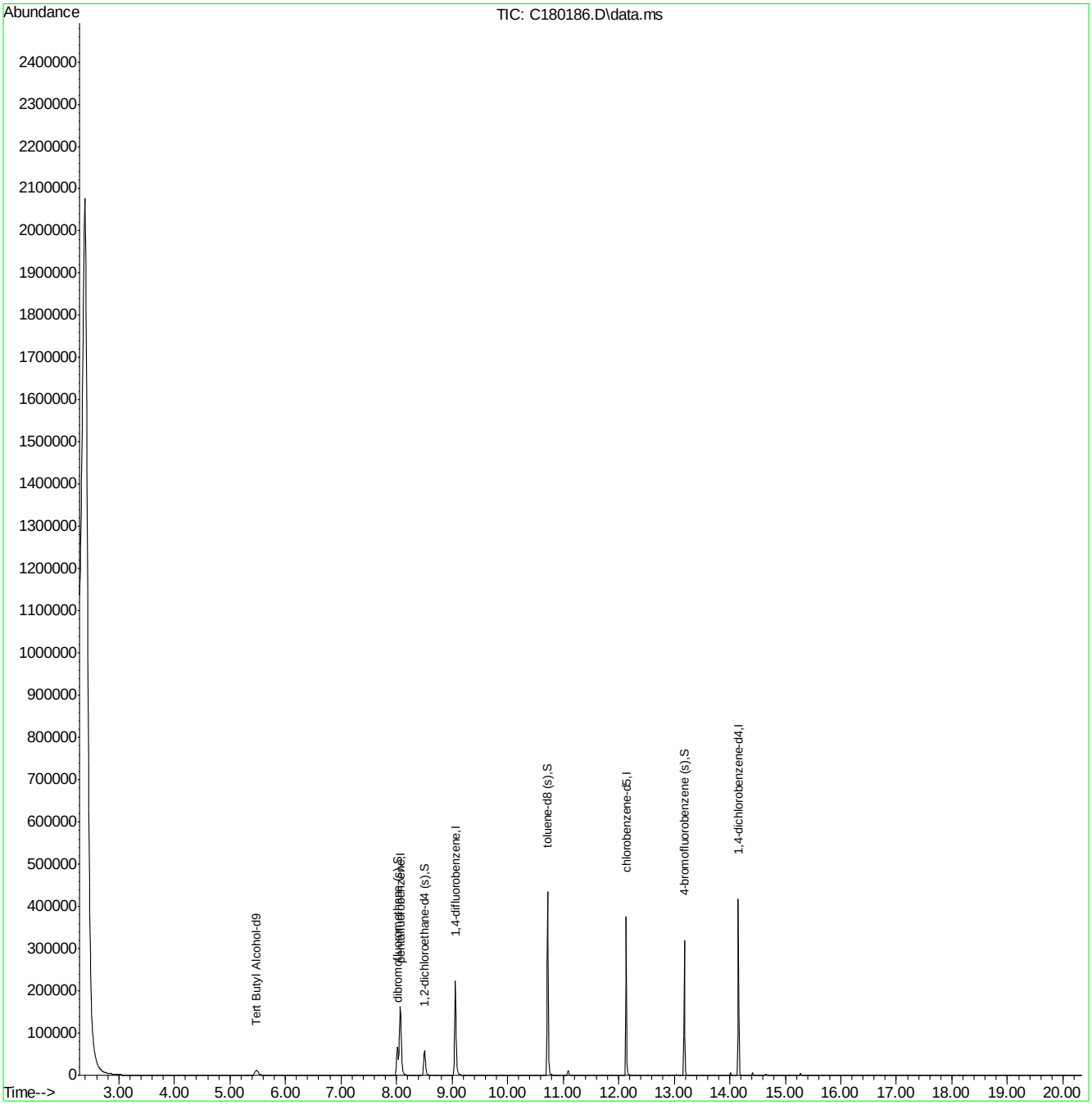
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180186.D
Acq On : 20 Mar 2013 8:13 pm
Operator : tamikag
Sample : jb31121-11
Misc : MS44803,VC6461,6.7,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 21 11:28:20 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration



MCS6448.M Thu Mar 21 11:31:40 2013 VOA-CLN-04 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180187.D
Acq On : 20 Mar 2013 8:39 pm
Operator : tamikag
Sample : jb31121-12
Misc : MS44803,VC6461,6.7,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 21 11:28:46 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

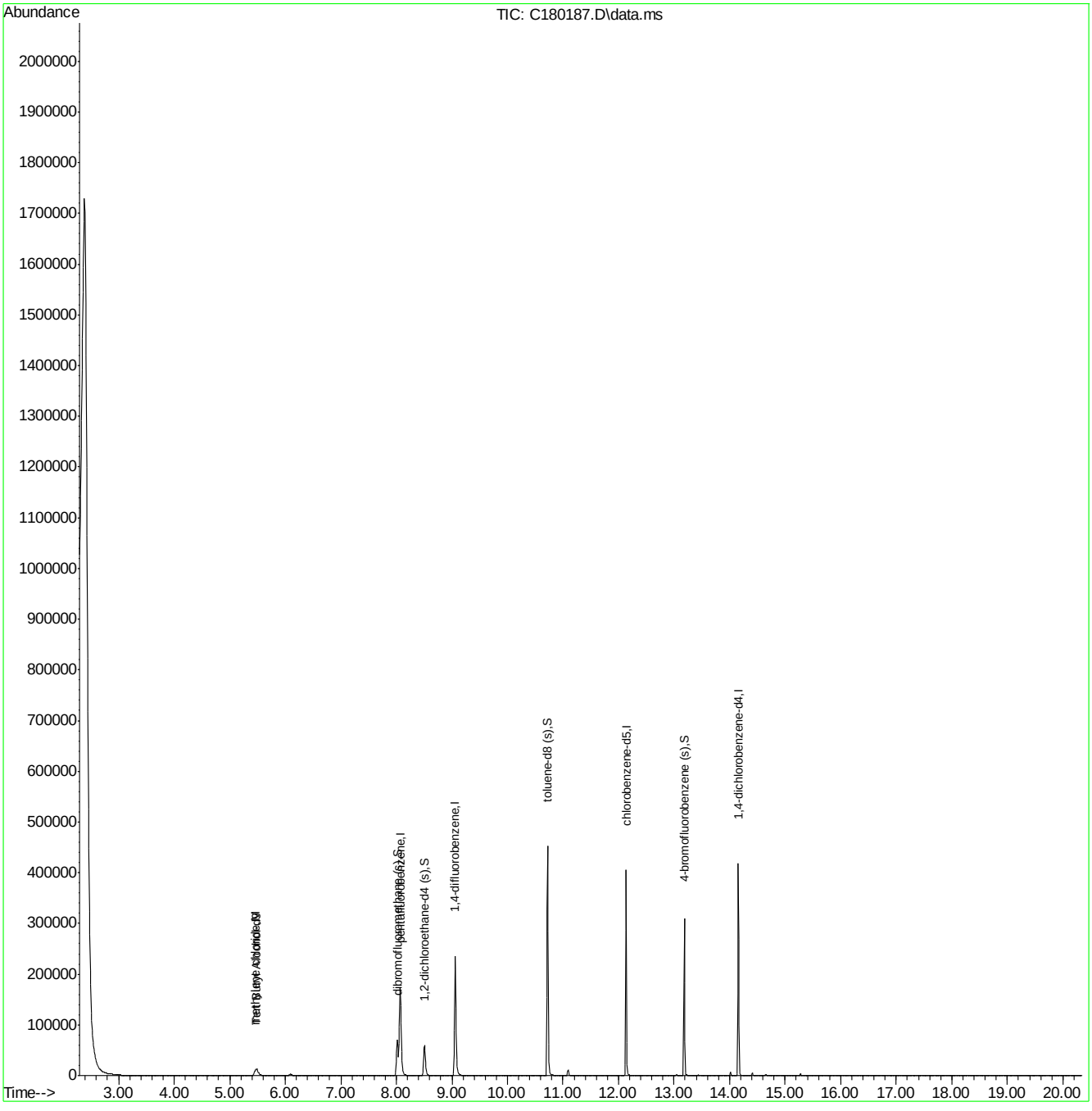
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.481	65	30229	500.00	ug/L	-0.01
5) pentafluorobenzene	8.070	168	145224	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.058	114	213653	50.00	ug/L	0.00
85) chlorobenzene-d5	12.134	117	155215	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.158	152	69906	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.018	113	54796	47.65	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.30%			
50) 1,2-dichloroethane-d4 (s)	8.504	65	48525	45.32	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 90.64%			
77) toluene-d8 (s)	10.722	98	240622	48.63	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.26%			
103) 4-bromofluorobenzene (s)	13.180	95	76599	47.98	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 95.96%			
Target Compounds						Qvalue
28) methylene chloride	5.471	84	2816	2.07	ug/L	90

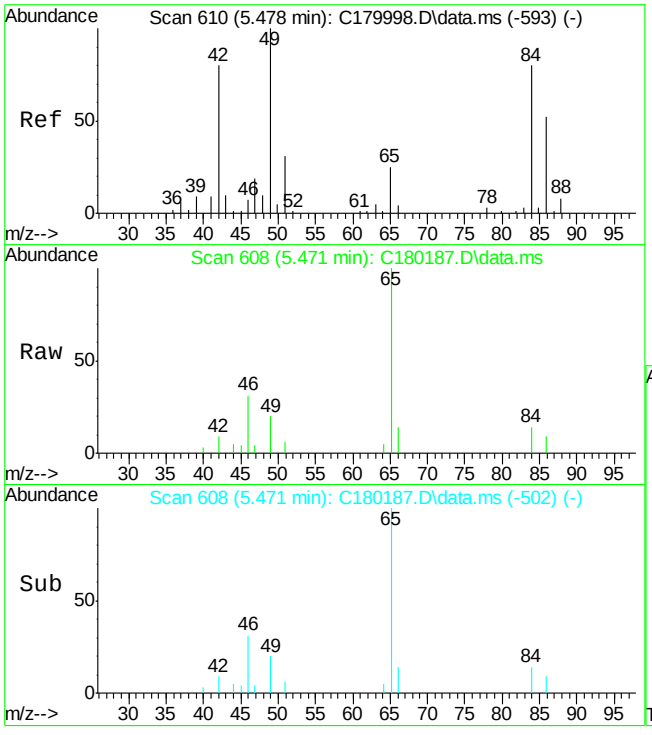
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180187.D
Acq On : 20 Mar 2013 8:39 pm
Operator : tamikag
Sample : jb31121-12
Misc : MS44803,VC6461,6.7,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 21 11:28:46 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

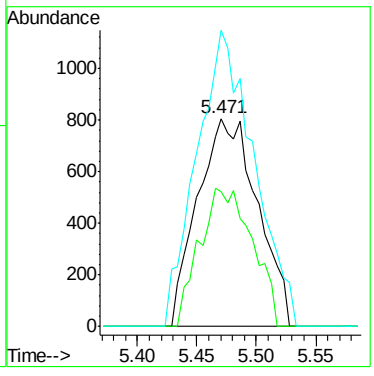




#28
methylene chloride
Concen: 2.07 ug/L
RT: 5.471 min Scan# 608
Delta R.T. -0.007 min
Lab File: C180187.D
Acq: 20 Mar 2013 8:39 pm

Tgt Ion: 84 Resp: 2816

Ion	Ratio	Lower	Upper
84	100		
86	64.9	45.4	84.4
49	142.4	87.9	163.3



7.1.12

7

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 03/27/13 05:19

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180188.D
Acq On : 20 Mar 2013 9:06 pm
Operator : tamikag
Sample : jb31121-13
Misc : MS44803,VC6461,13.9,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 21 11:29:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.485	65	25991	500.00	ug/L	0.00
5) pentafluorobenzene	8.074	168	148374	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.062	114	221662	50.00	ug/L	0.00
85) chlorobenzene-d5	12.133	117	165929	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.157	152	76051	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.016	113	57757	49.16	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.32%			
50) 1,2-dichloroethane-d4 (s)	8.503	65	52946	48.40	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 96.80%			
77) toluene-d8 (s)	10.726	98	251478	48.99	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.98%			
103) 4-bromofluorobenzene (s)	13.184	95	83937	48.33	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.66%			
Target Compounds						Qvalue
22) acetone	4.795	43	2204m	11.58	ug/L	
28) methylene chloride	5.475	84	2775	1.99	ug/L	89

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

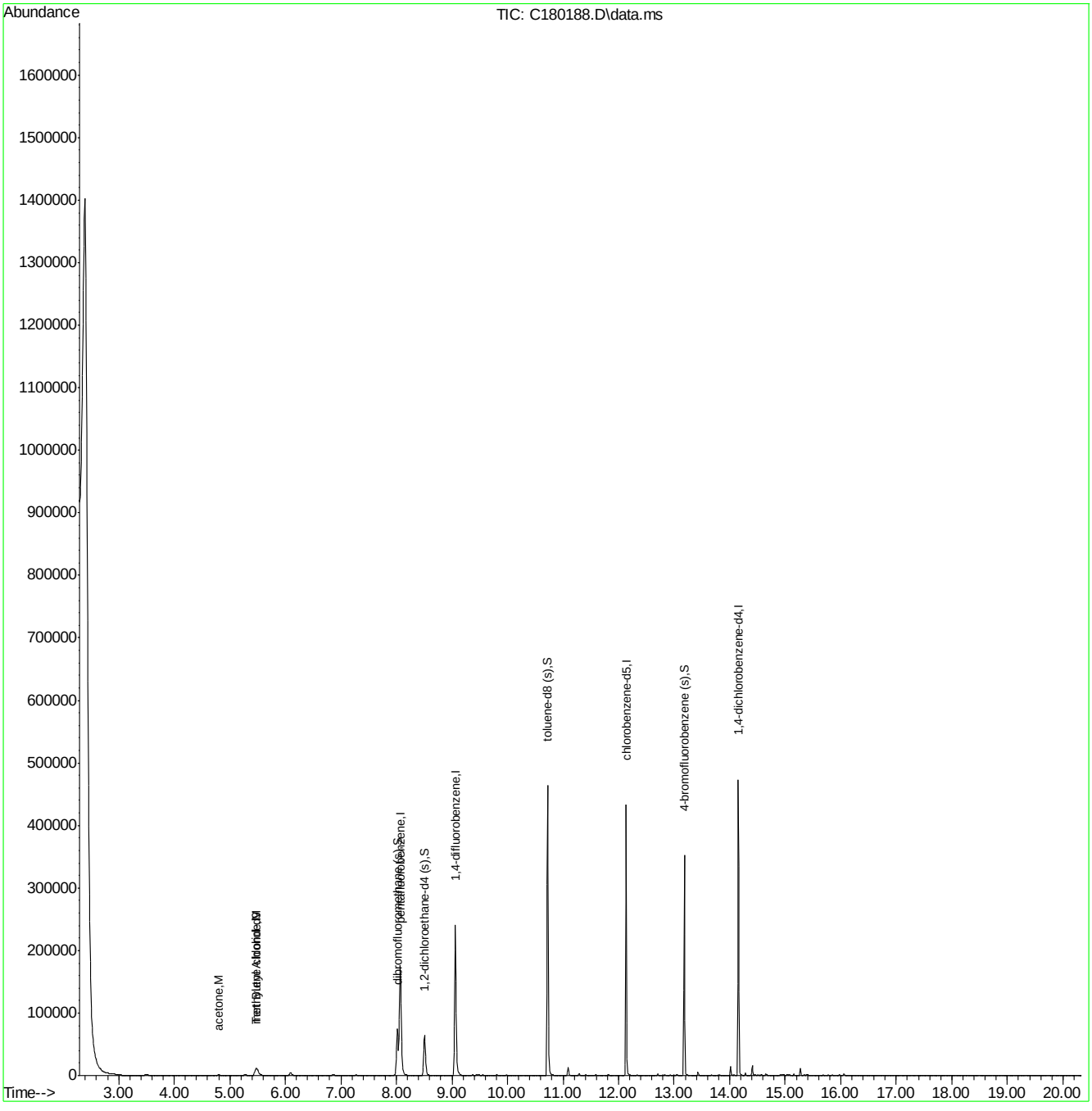
7.1.13

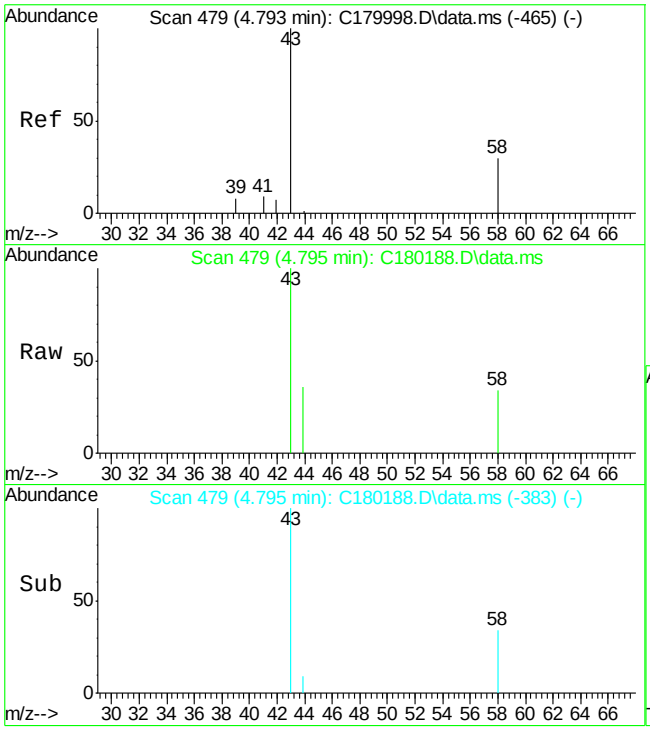
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180188.D
Acq On : 20 Mar 2013 9:06 pm
Operator : tamikag
Sample : jb31121-13
Misc : MS44803,VC6461,13.9,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 21 11:29:21 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

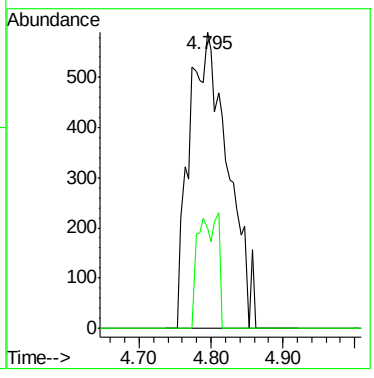


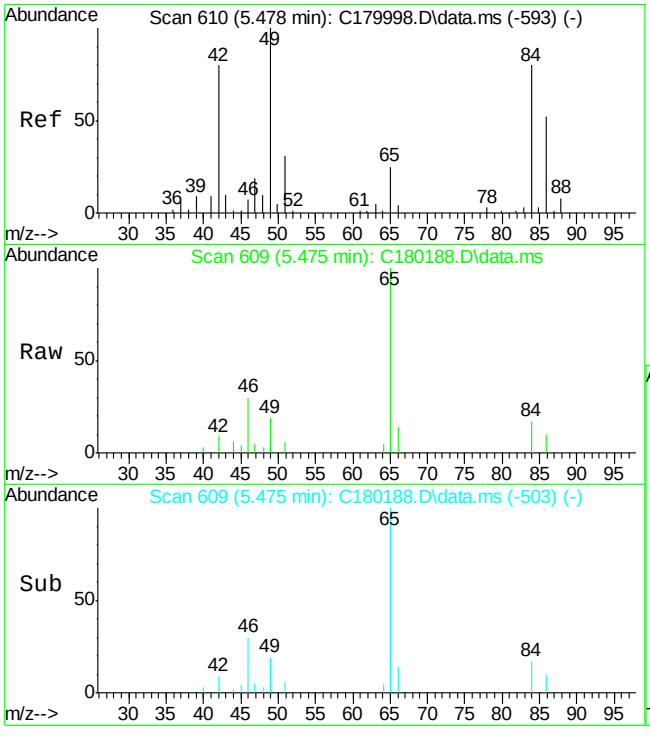


#22
acetone
Concen: 11.58 ug/L m
RT: 4.795 min Scan# 479
Delta R.T. 0.002 min
Lab File: C180188.D
Acq: 20 Mar 2013 9:06 pm

Tgt Ion: 43 Resp: 2204

Ion	Ratio	Lower	Upper
43	100		
58	20.1	2.4	62.4

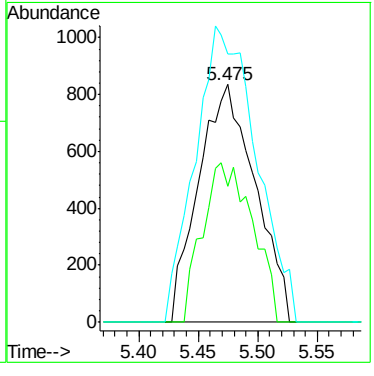




#28
methylene chloride
Concen: 1.99 ug/L
RT: 5.475 min Scan# 609
Delta R.T. -0.003 min
Lab File: C180188.D
Acq: 20 Mar 2013 9:06 pm

Tgt Ion: 84 Resp: 2775

Ion	Ratio	Lower	Upper
84	100		
86	57.2	45.4	84.4
49	112.8	87.9	163.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180189.D
Acq On : 20 Mar 2013 9:32 pm
Operator : tamikag
Sample : jb31121-14
Misc : MS44803,VC6461,8.9,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 28 17:40:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.485	65	34426	500.00	ug/L	0.00
5) pentafluorobenzene	8.074	168	148735	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.063	114	222450	50.00	ug/L	0.00
85) chlorobenzene-d5	12.133	117	163965	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.157	152	73548	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.022	113	58506	49.67	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.34%			
50) 1,2-dichloroethane-d4 (s)	8.508	65	53786	49.05	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 98.10%			
77) toluene-d8 (s)	10.726	98	250514	48.63	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.26%			
103) 4-bromofluorobenzene (s)	13.184	95	81899	48.76	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 97.52%			
Target Compounds						Qvalue
22) acetone	4.795	43	7055	36.98	ug/L	93
27) carbon disulfide	4.973	76	2635	0.57	ug/L	80

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

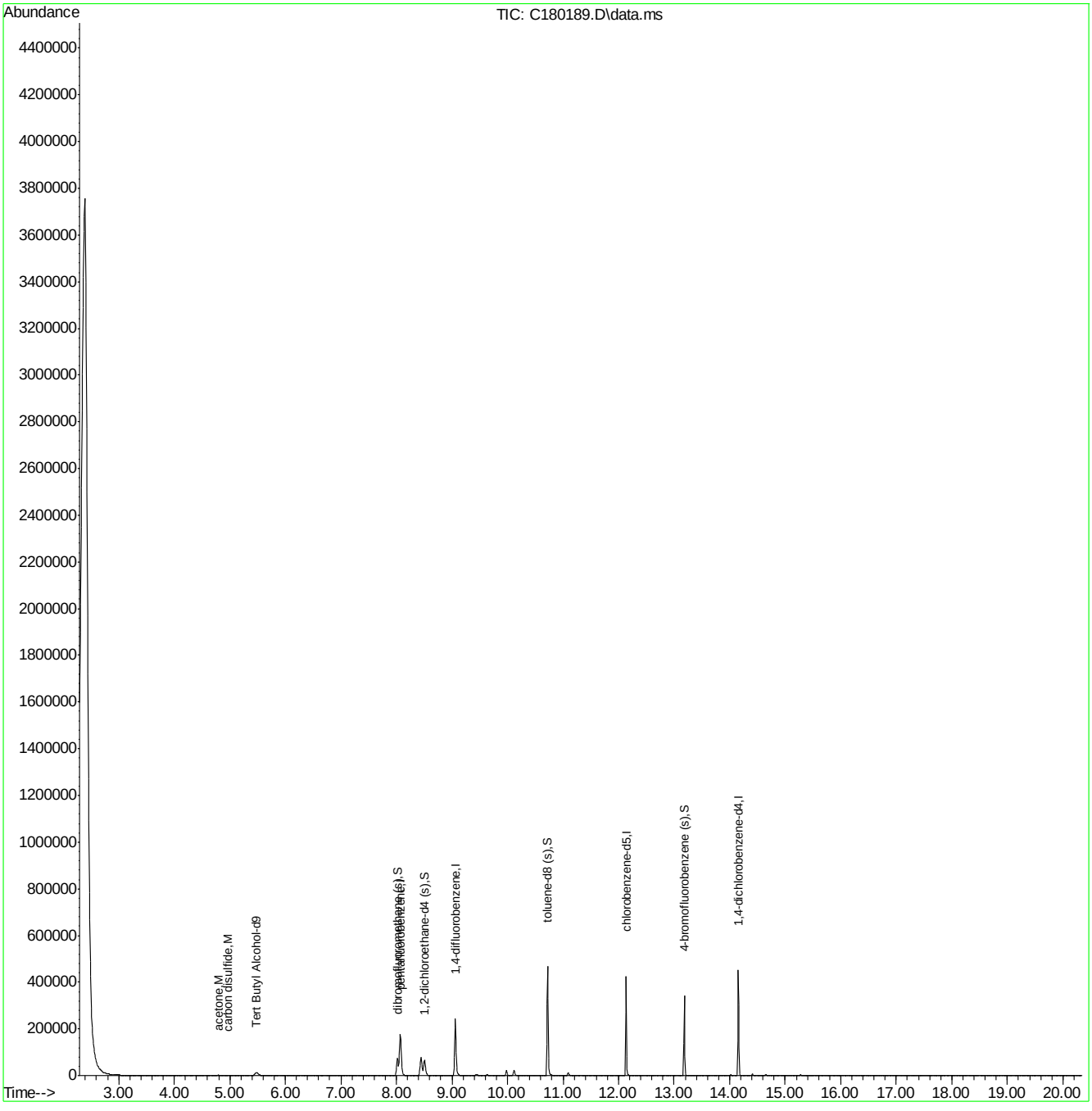
7.1.14

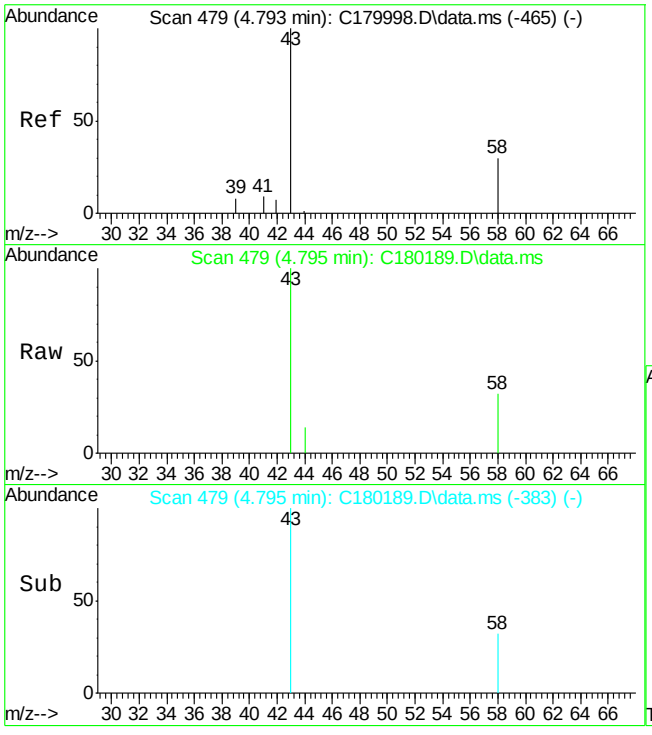
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180189.D
Acq On : 20 Mar 2013 9:32 pm
Operator : tamikag
Sample : jb31121-14
Misc : MS44803,VC6461,8.9,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 28 17:40:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

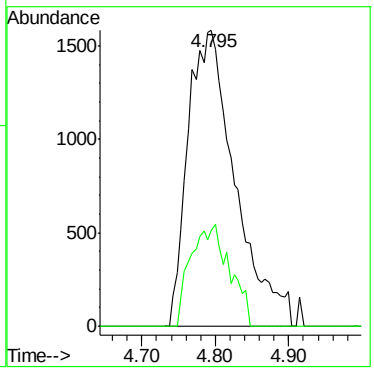


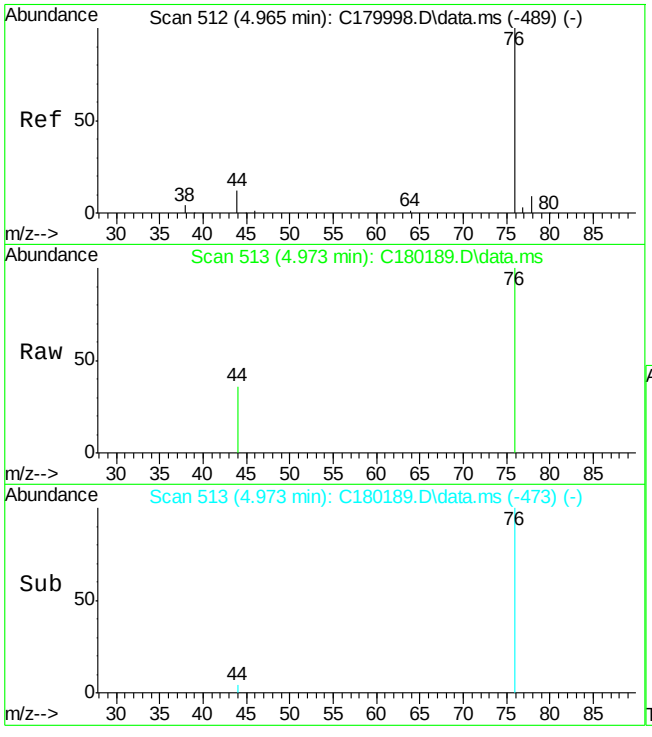


#22
acetone
Concen: 36.98 ug/L
RT: 4.795 min Scan# 479
Delta R.T. 0.002 min
Lab File: C180189.D
Acq: 20 Mar 2013 9:32 pm

Tgt Ion: 43 Resp: 7055

Ion	Ratio	Lower	Upper
43	100		
58	28.5	2.4	62.4

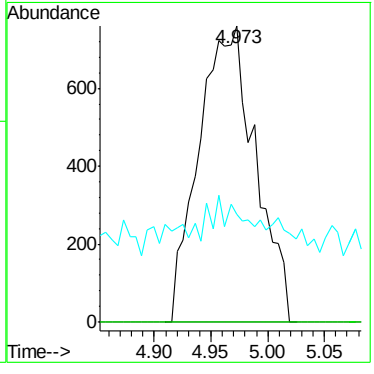




#27
carbon disulfide
Concen: 0.57 ug/L
RT: 4.973 min Scan# 513
Delta R.T. 0.007 min
Lab File: C180189.D
Acq: 20 Mar 2013 9:32 pm

Tgt Ion: 76 Resp: 2635

Ion	Ratio	Lower	Upper
76	100		
78	0.0	0.0	39.4
44	5.9	0.0	42.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180200.D
Acq On : 21 Mar 2013 2:27 pm
Operator : tamikag
Sample : jb31121-15
Misc : MS44803,VC6461,14.2,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 22 16:38:37 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.480	65	18753	500.00	ug/L	-0.01
5) pentafluorobenzene	8.069	168	143257	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.057	114	208463	50.00	ug/L	0.00
85) chlorobenzene-d5	12.132	117	149268	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.156	152	65758	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.011	113	51902	45.75	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.50%			
50) 1,2-dichloroethane-d4 (s)	8.497	65	43976	41.64	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 83.28%			
77) toluene-d8 (s)	10.720	98	232588	48.18	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.36%			
103) 4-bromofluorobenzene (s)	13.184	95	72425	48.23	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.46%			

Target Compounds Qvalue

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

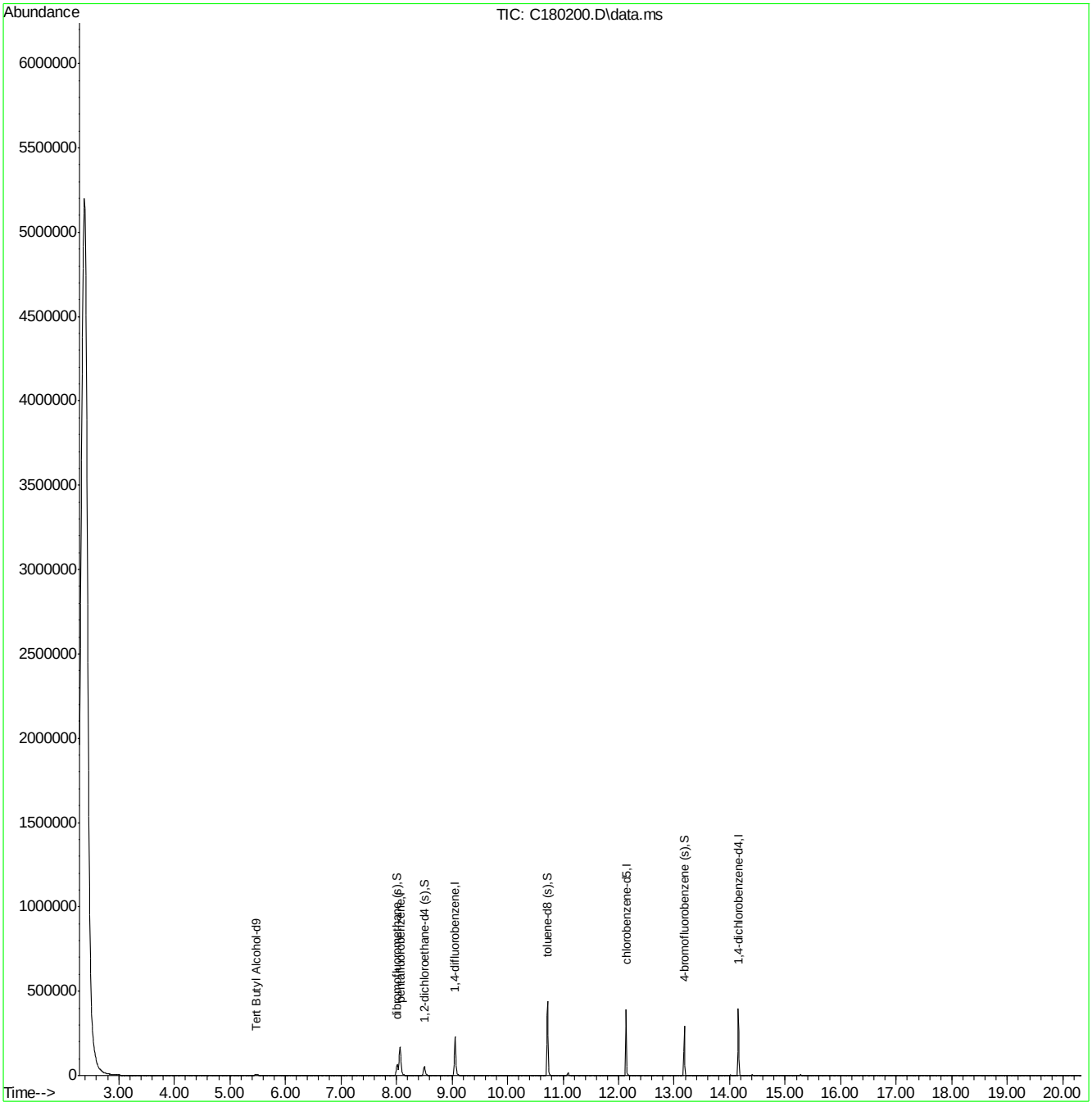
7.1.15

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180200.D
Acq On : 21 Mar 2013 2:27 pm
Operator : tamikag
Sample : jb31121-15
Misc : MS44803,VC6461,14.2,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 22 16:38:37 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180201.D
Acq On : 21 Mar 2013 2:53 pm
Operator : tamikag
Sample : jb31121-16
Misc : MS44803,VC6461,16.5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 22 16:39:19 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

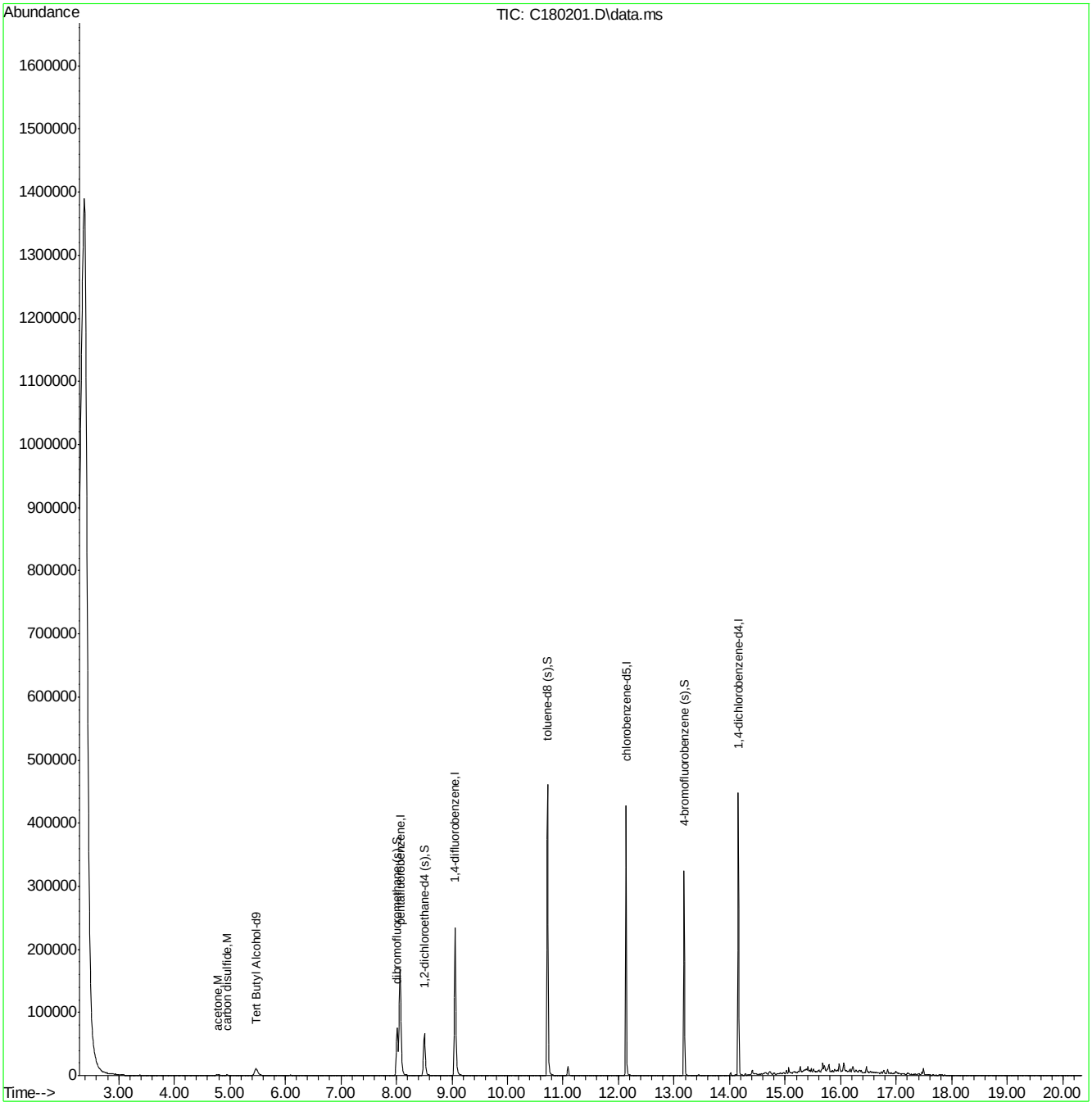
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.475	65	26119	500.00	ug/L	-0.02
5) pentafluorobenzene	8.069	168	141509	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.058	114	212711	50.00	ug/L	0.00
85) chlorobenzene-d5	12.133	117	161398	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.157	152	75166	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.012	113	57649	51.45	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 102.90%			
50) 1,2-dichloroethane-d4 (s)	8.504	65	55078	52.79	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 105.58%			
77) toluene-d8 (s)	10.721	98	240385	48.80	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 97.60%			
103) 4-bromofluorobenzene (s)	13.179	95	81630	47.55	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 95.10%			
Target Compounds						Qvalue
22) acetone	4.785	43	3895	21.46	ug/L	91
27) carbon disulfide	4.958	76	2614	0.59	ug/L	80

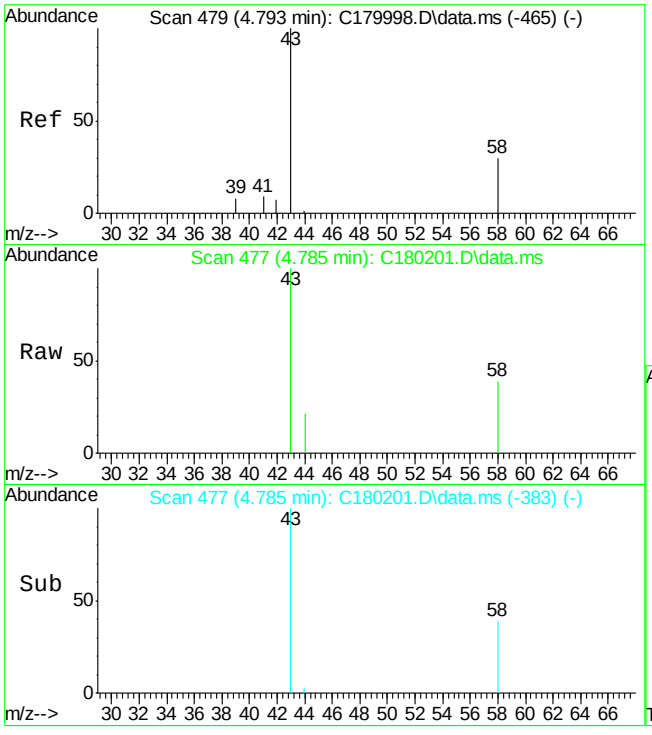
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180201.D
Acq On : 21 Mar 2013 2:53 pm
Operator : tamikag
Sample : jb31121-16
Misc : MS44803,VC6461,16.5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 22 16:39:19 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

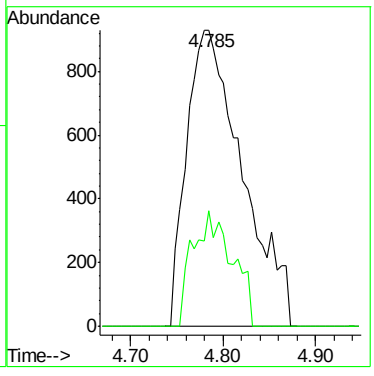


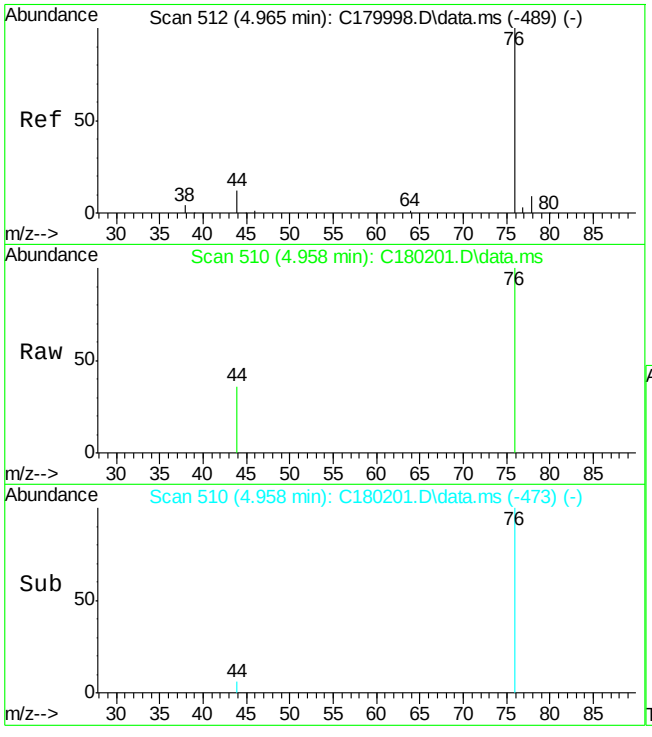


#22
acetone
Concen: 21.46 ug/L
RT: 4.785 min Scan# 477
Delta R.T. -0.008 min
Lab File: C180201.D
Acq: 21 Mar 2013 2:53 pm

Tgt Ion: 43 Resp: 3895

Ion	Ratio	Lower	Upper
43	100		
58	27.6	2.4	62.4

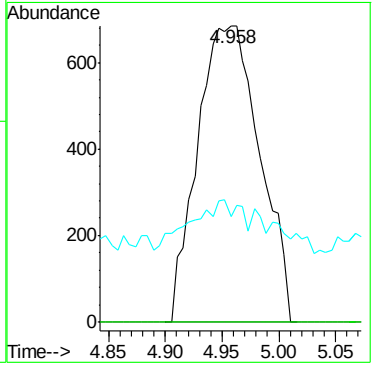




#27
carbon disulfide
Concen: 0.59 ug/L
RT: 4.958 min Scan# 510
Delta R.T. -0.008 min
Lab File: C180201.D
Acq: 21 Mar 2013 2:53 pm

Tgt Ion: 76 Resp: 2614

Ion	Ratio	Lower	Upper
76	100		
78	0.0	0.0	39.4
44	5.7	0.0	42.0



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180202.D
Acq On : 21 Mar 2013 3:20 pm
Operator : tamikag
Sample : jb31121-17
Misc : MS44803,VC6461,7.5,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 22 16:40:02 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.474	65	20423	500.00	ug/L	-0.02
5) pentafluorobenzene	8.068	168	144046	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.056	114	209298	50.00	ug/L	0.00
85) chlorobenzene-d5	12.132	117	150590	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.156	152	64901	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.015	113	53298	46.72	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.44%			
50) 1,2-dichloroethane-d4 (s)	8.502	65	46209	43.51	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 87.02%			
77) toluene-d8 (s)	10.719	98	234540	48.39	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.78%			
103) 4-bromofluorobenzene (s)	13.183	95	72831	49.14	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.28%			
Target Compounds						Qvalue
70) methylcyclohexane	9.501	83	1155	0.53	ug/L	97

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

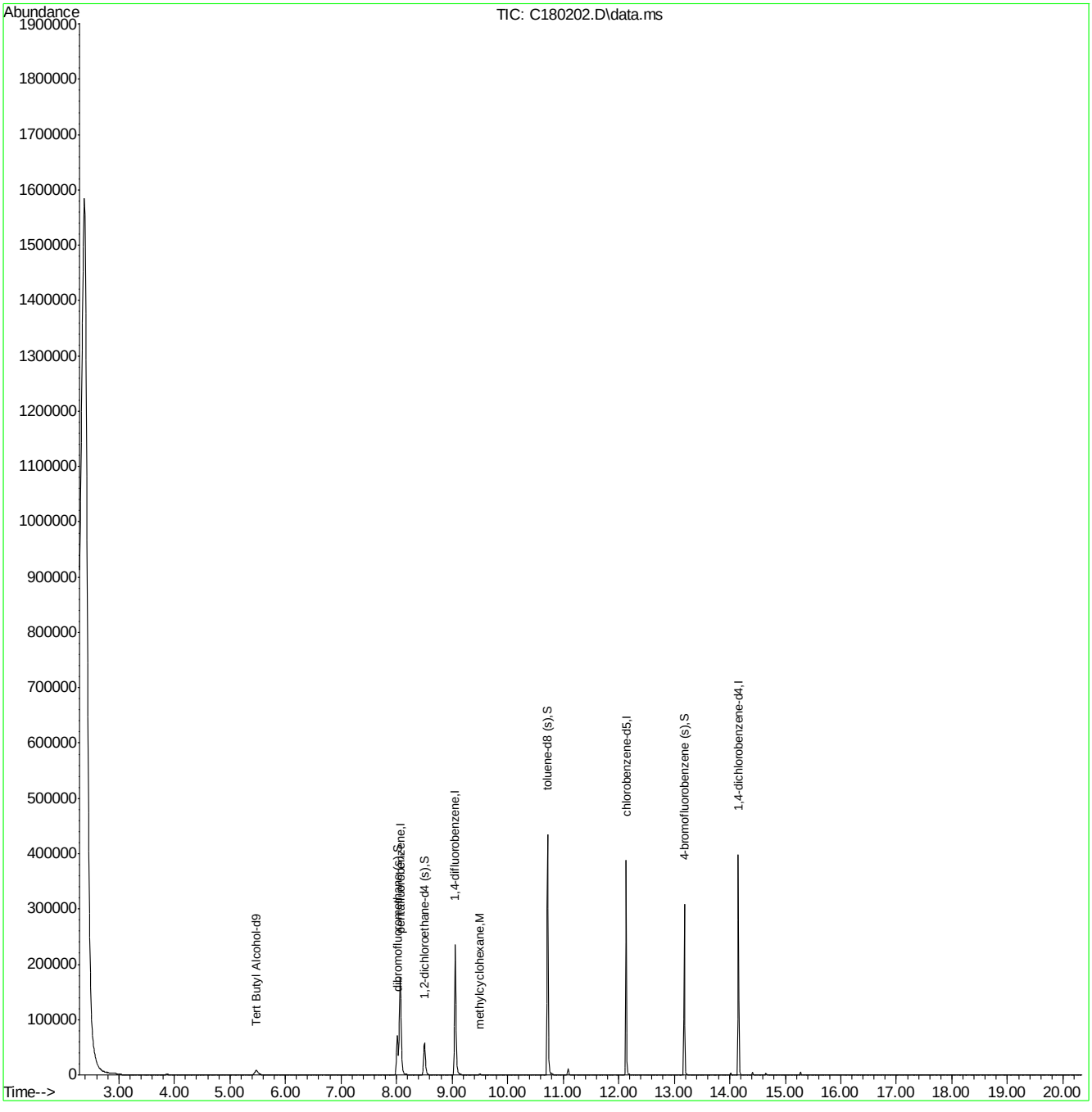
7.1.17

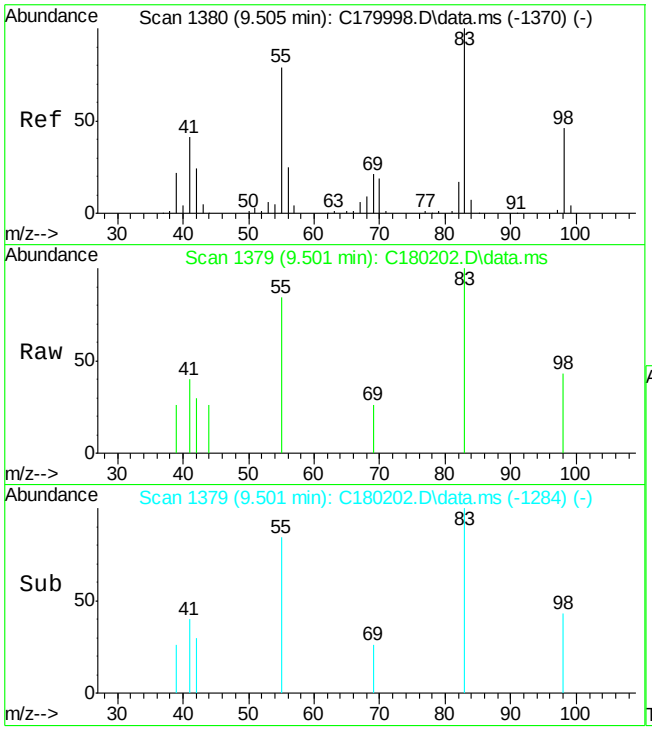
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180202.D
Acq On : 21 Mar 2013 3:20 pm
Operator : tamikag
Sample : jb31121-17
Misc : MS44803,VC6461,7.5,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 22 16:40:02 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

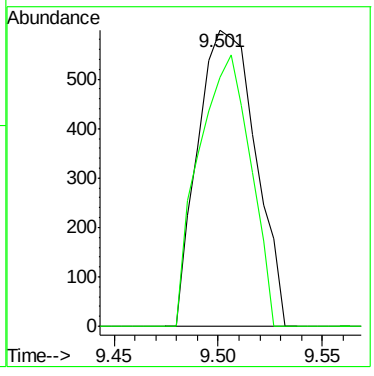




#70
methylcyclohexane
Concen: 0.53 ug/L
RT: 9.501 min Scan# 1379
Delta R.T. -0.004 min
Lab File: C180202.D
Acq: 21 Mar 2013 3:20 pm

Tgt Ion: 83 Resp: 1155

Ion	Ratio	Lower	Upper
83	100		
55	82.1	55.7	103.5



7.1.17

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206672.D
Acq On : 19 Mar 2013 7:36 am
Operator : EmilyT
Sample : jb31121-18
Misc : ms44830,vd8431,4.3,,100,10,1
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Mar 19 16:14:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.026	65	126514	500.00 ug/L	0.01
4) pentafluorobenzene	10.248	168	214401	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.163	114	303376	50.00 ug/L	0.00
85) chlorobenzene-d5	14.504	117	289764	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.086	152	177001	50.00 ug/L	0.00

System Monitoring Compounds					
46) dibromofluoromethane (s)	10.274	113	92932	44.39 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 88.78%		
47) 1,2-dichloroethane-d4 (s)	10.703	65	121524	48.07 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 96.14%		
77) toluene-d8 (s)	12.872	98	375844	51.12 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 102.24%		
101) 4-bromofluorobenzene (s)	15.784	95	144697	45.00 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 90.00%		

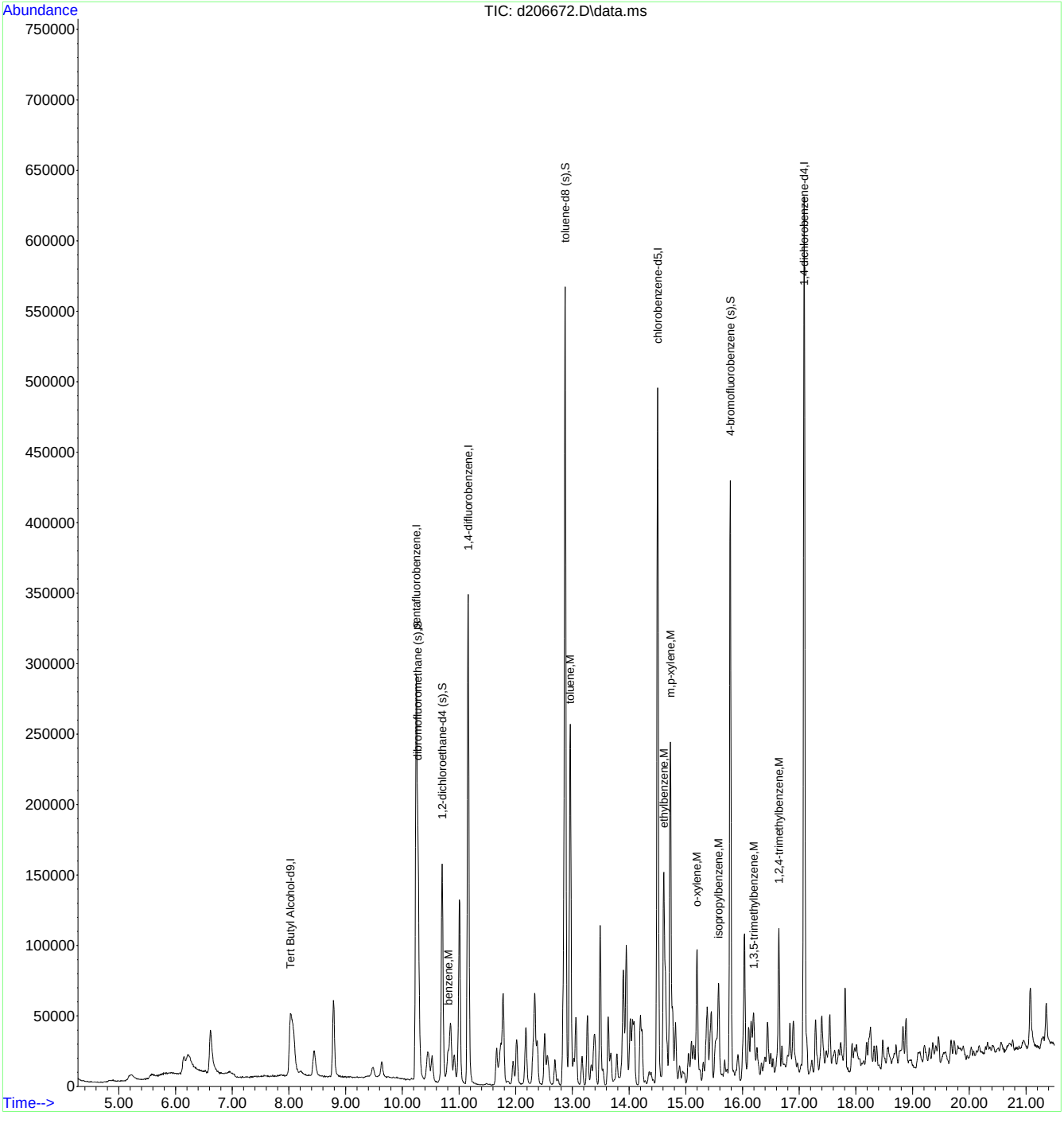
Target Compounds					Qvalue
62) benzene	10.807	78	14489	1.80 ug/L	96
79) toluene	12.951	92	33947	6.78 ug/L	99
94) ethylbenzene	14.608	91	115955	11.33 ug/L	98
95) m,p-xylene	14.728	106	75500	18.52 ug/L	98
96) o-xylene	15.188	106	7017	1.73 ug/L	94
100) isopropylbenzene	15.575	105	36780	3.48 ug/L	99
111) 1,3,5-trimethylbenzene	16.203	105	8926	0.91 ug/L	99
114) 1,2,4-trimethylbenzene	16.642	105	58846	5.89 ug/L	97

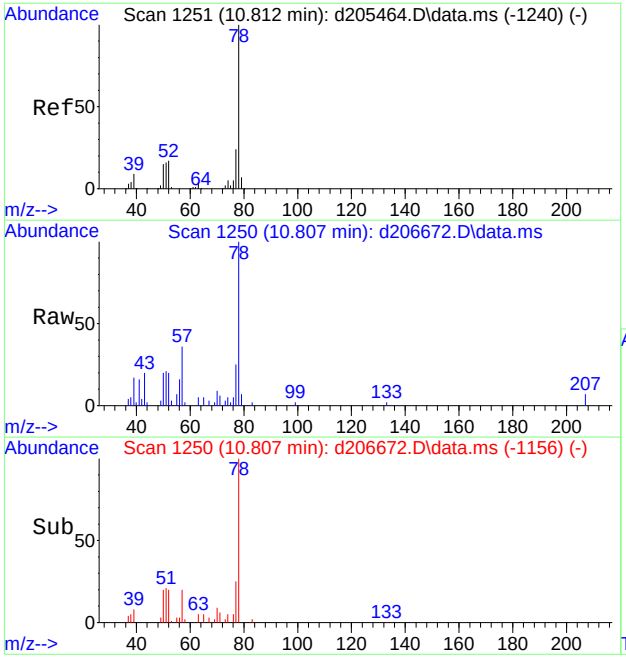
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206672.D
Acq On : 19 Mar 2013 7:36 am
Operator : EmilyT
Sample : jb31121-18
Misc : ms44830,vd8431,4.3,,100,10,1
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Mar 19 16:14:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

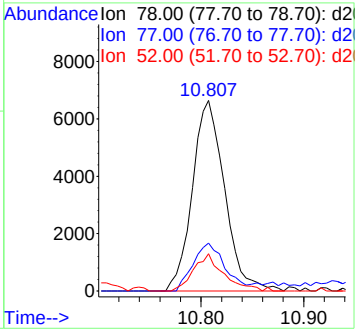


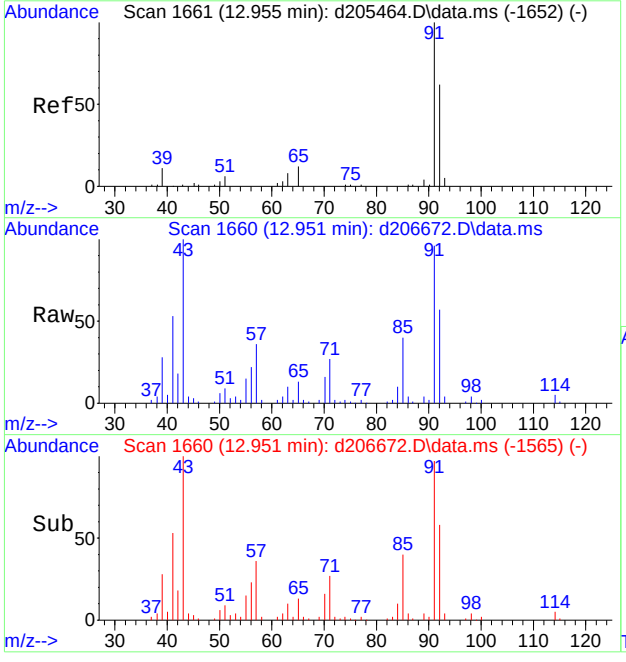


#62
benzene
Concen: 1.80 ug/L
RT: 10.807 min Scan# 1250
Delta R.T. -0.009 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion: 78 Resp: 14489

Ion	Ratio	Lower	Upper
78	100		
77	25.2	0.0	54.1
52	19.5	0.0	46.6

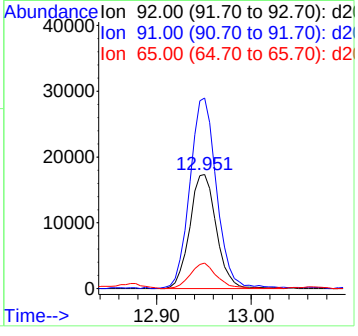




#79
toluene
Concen: 6.78 ug/L
RT: 12.951 min Scan# 1660
Delta R.T. -0.004 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion: 92 Resp: 33947

Ion	Ratio	Lower	Upper
92	100		
91	166.3	136.0	196.0
65	22.5	0.0	49.8



7.1.18

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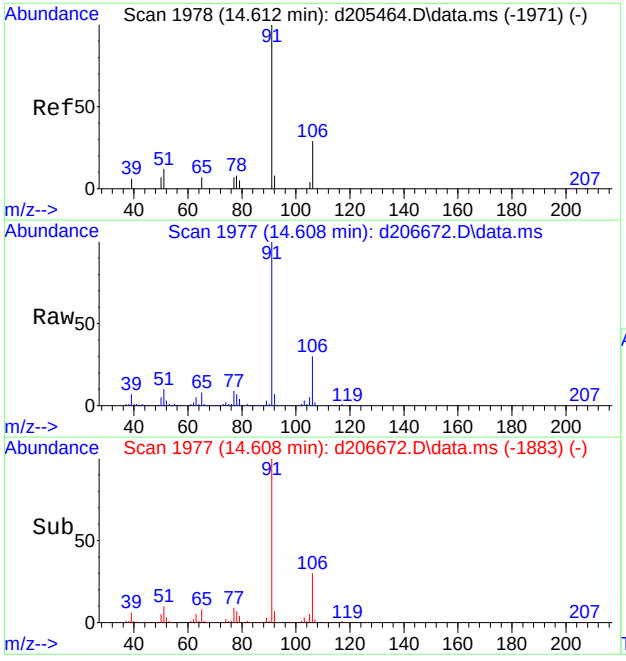
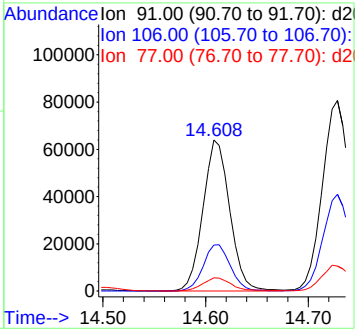
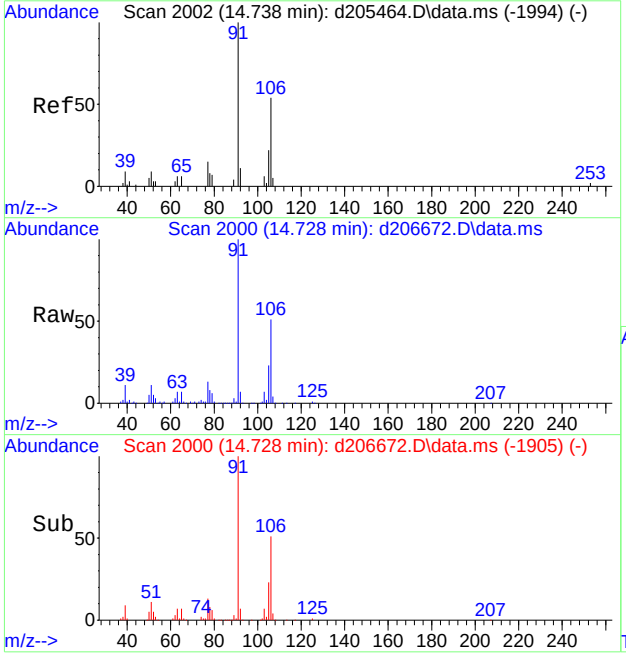


#94
ethylbenzene
Concen: 11.33 ug/L
RT: 14.608 min Scan# 1977
Delta R.T. -0.009 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion: 91 Resp: 115955

Ion	Ratio	Lower	Upper
91	100		
106	30.4	1.6	61.6
77	8.7	0.0	38.8

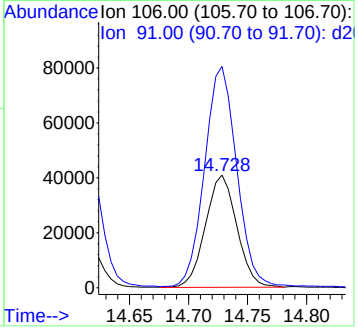




#95
m,p-xylene
Concen: 18.52 ug/L
RT: 14.728 min Scan# 2000
Delta R.T. -0.004 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion:106 Resp: 75500

Ion	Ratio	Lower	Upper
106	100		
91	196.7	139.9	259.9



7.1.18

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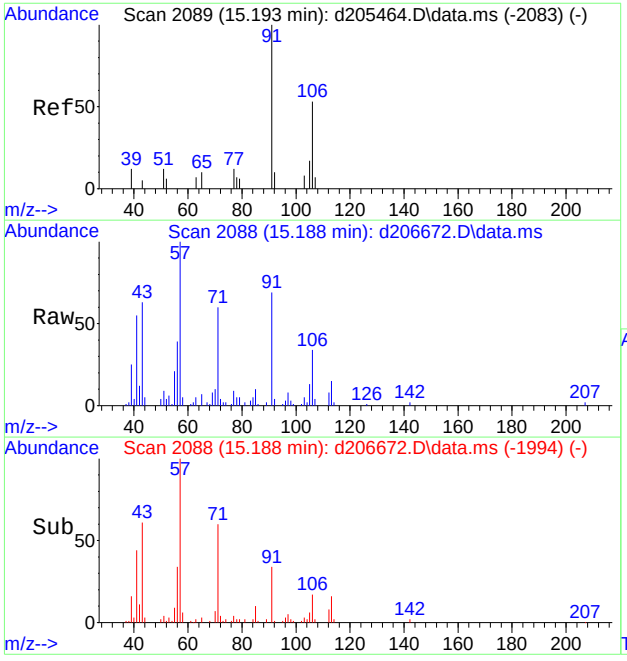
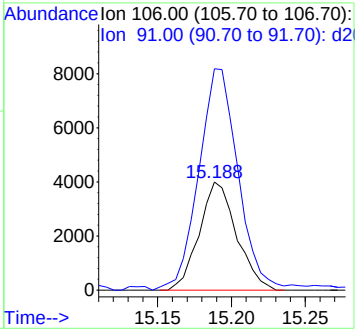
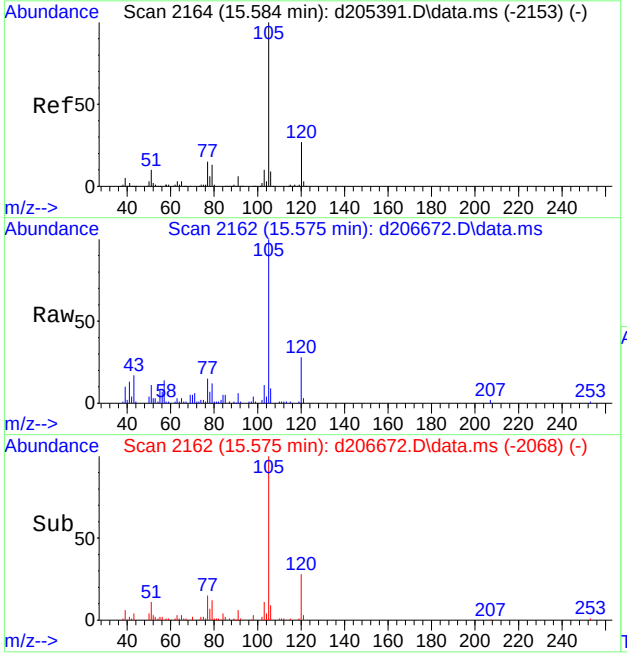


#96
o-xylene
Concen: 1.73 ug/L
RT: 15.188 min Scan# 2088
Delta R.T. -0.009 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion:106 Resp: 7017

Ion	Ratio	Lower	Upper
106	100		
91	201.7	147.9	274.7

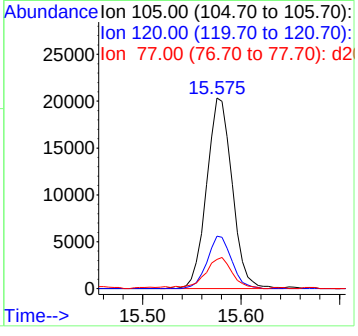




#100
isopropylbenzene
Concen: 3.48 ug/L
RT: 15.575 min Scan# 2162
Delta R.T. -0.009 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

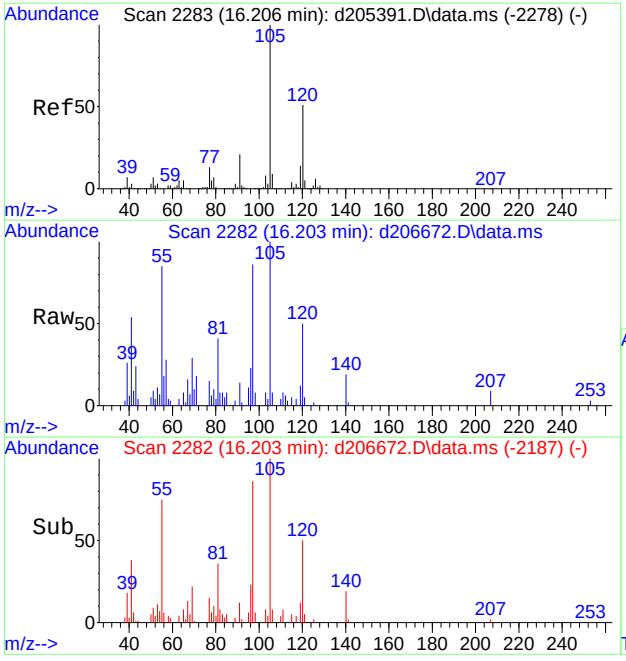
Tgt Ion:105 Resp: 36780

Ion	Ratio	Lower	Upper
105	100		
120	27.5	0.0	57.4
77	14.7	0.0	45.1



7.1.18

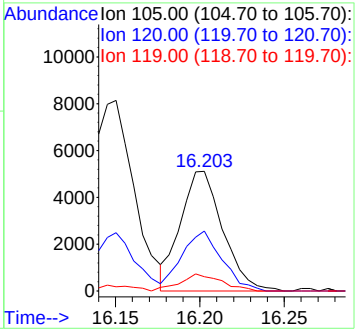
7

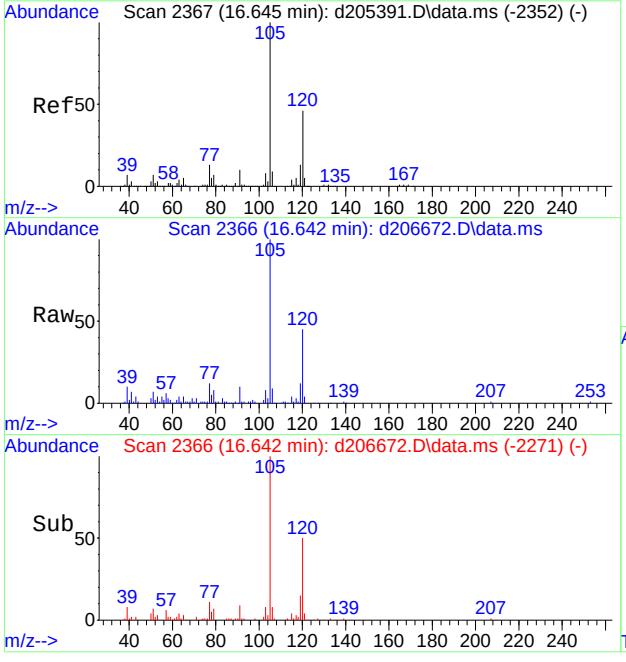


#111
1,3,5-trimethylbenzene
Concen: 0.91 ug/L
RT: 16.203 min Scan# 2282
Delta R.T. -0.004 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion:105 Resp: 8926

Ion	Ratio	Lower	Upper
105	100		
120	50.1	19.5	79.5
119	12.0	0.0	42.6

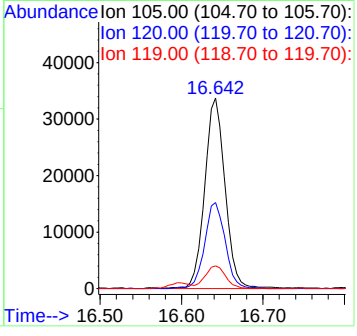




#114
1,2,4-trimethylbenzene
Concen: 5.89 ug/L
RT: 16.642 min Scan# 2366
Delta R.T. -0.004 min
Lab File: d206672.D
Acq: 19 Mar 2013 7:36 am

Tgt Ion:105 Resp: 58846

Ion	Ratio	Lower	Upper
105	100		
120	45.1	16.5	76.5
119	11.9	0.0	43.9



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\X\vx5806\
Data File : X134017.D
Acq On : 19 Mar 2013 6:55 pm
Operator : margares
Sample : jb31121-19
Misc : MS44803,VX5806,4.9,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 20 14:27:36 2013
Quant Method : C:\MSDCHEM\1\METHODS\MX5795.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

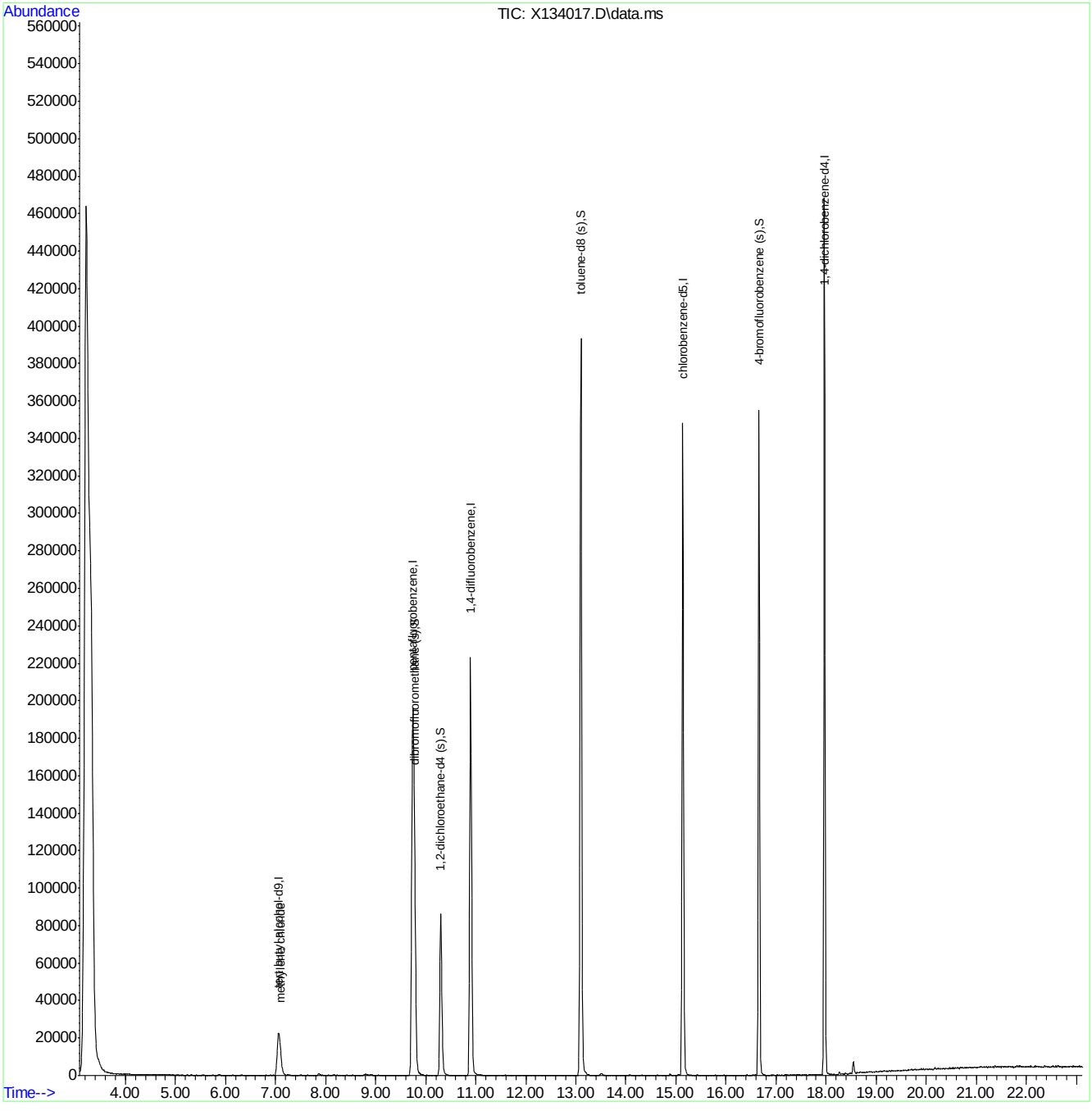
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.060	65	60325	500.00	ug/L	0.00
5) pentafluorobenzene	9.738	168	214845	50.00	ug/L	0.00
62) 1,4-difluorobenzene	10.894	114	287998	50.00	ug/L	0.00
93) chlorobenzene-d5	15.135	117	260247	50.00	ug/L	0.00
108) 1,4-dichlorobenzene-d4	17.970	152	137694	50.00	ug/L	0.01
System Monitoring Compounds						
54) dibromofluoromethane (s)	9.774	113	99655	49.59	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.18%			
55) 1,2-dichloroethane-d4 (s)	10.297	65	90857	42.09	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 84.18%			
85) toluene-d8 (s)	13.101	98	374044	53.25	ug/L	0.01
Spiked Amount 50.000	Range 81 - 127		Recovery = 106.50%			
111) 4-bromofluorobenzene (s)	16.657	95	131606	52.43	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 104.86%			
Target Compounds						Qvalue
35) methylene chloride	7.096	84	3177	1.69	ug/L	93

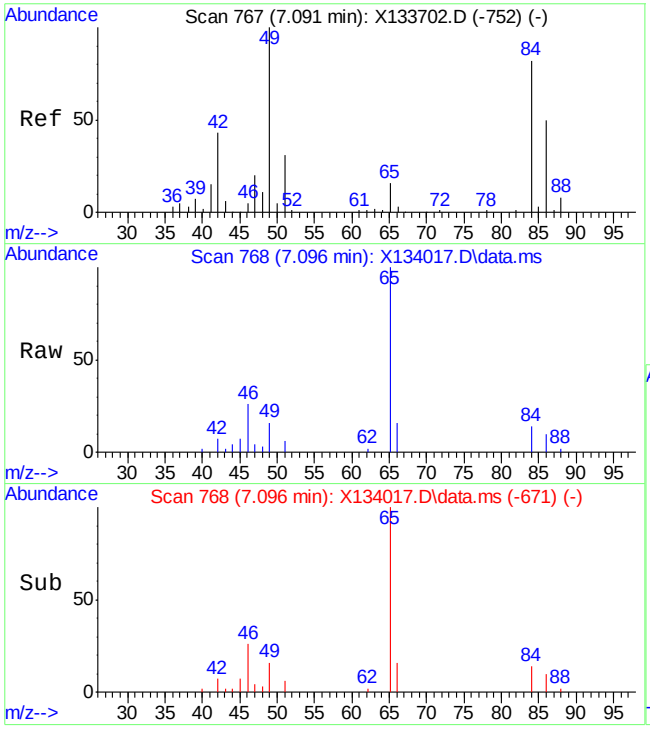
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\X\vx5806\
Data File : X134017.D
Acq On : 19 Mar 2013 6:55 pm
Operator : margares
Sample : jb31121-19
Misc : MS44803,VX5806,4.9,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 20 14:27:36 2013
Quant Method : C:\MSDCHEM\1\METHODS\MX5795.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

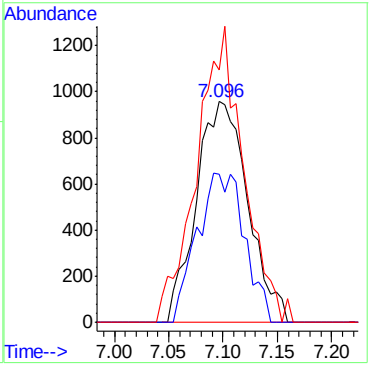




#35
methylene chloride
Concen: 1.69 ug/L
RT: 7.096 min Scan# 768
Delta R.T. 0.005 min
Lab File: X134017.D
Acq: 19 Mar 2013 6:55 pm

Tgt Ion: 84 Resp: 3177

Ion	Ratio	Lower	Upper
84	100		
86	66.8	30.4	90.4
49	114.4	91.3	151.3



7.1.19

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206673.D
Acq On : 19 Mar 2013 8:05 am
Operator : EmilyT
Sample : jb31121-20
Misc : ms44830,vd8431,6.5,,100,10,1
ALS Vial : 47 Sample Multiplier: 1

Quant Time: Mar 19 16:16:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.036	65	117062	500.00 ug/L	0.02
4) pentafluorobenzene	10.247	168	205650	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	293620	50.00 ug/L	0.00
85) chlorobenzene-d5	14.503	117	281446	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.091	152	199501	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.273	113	90359	44.99 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 89.98%		
47) 1,2-dichloroethane-d4 (s)	10.702	65	118982	49.07 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 98.14%		
77) toluene-d8 (s)	12.872	98	367017	51.58 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 103.16%		
101) 4-bromofluorobenzene (s)	15.784	95	181387	50.05 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 100.10%		

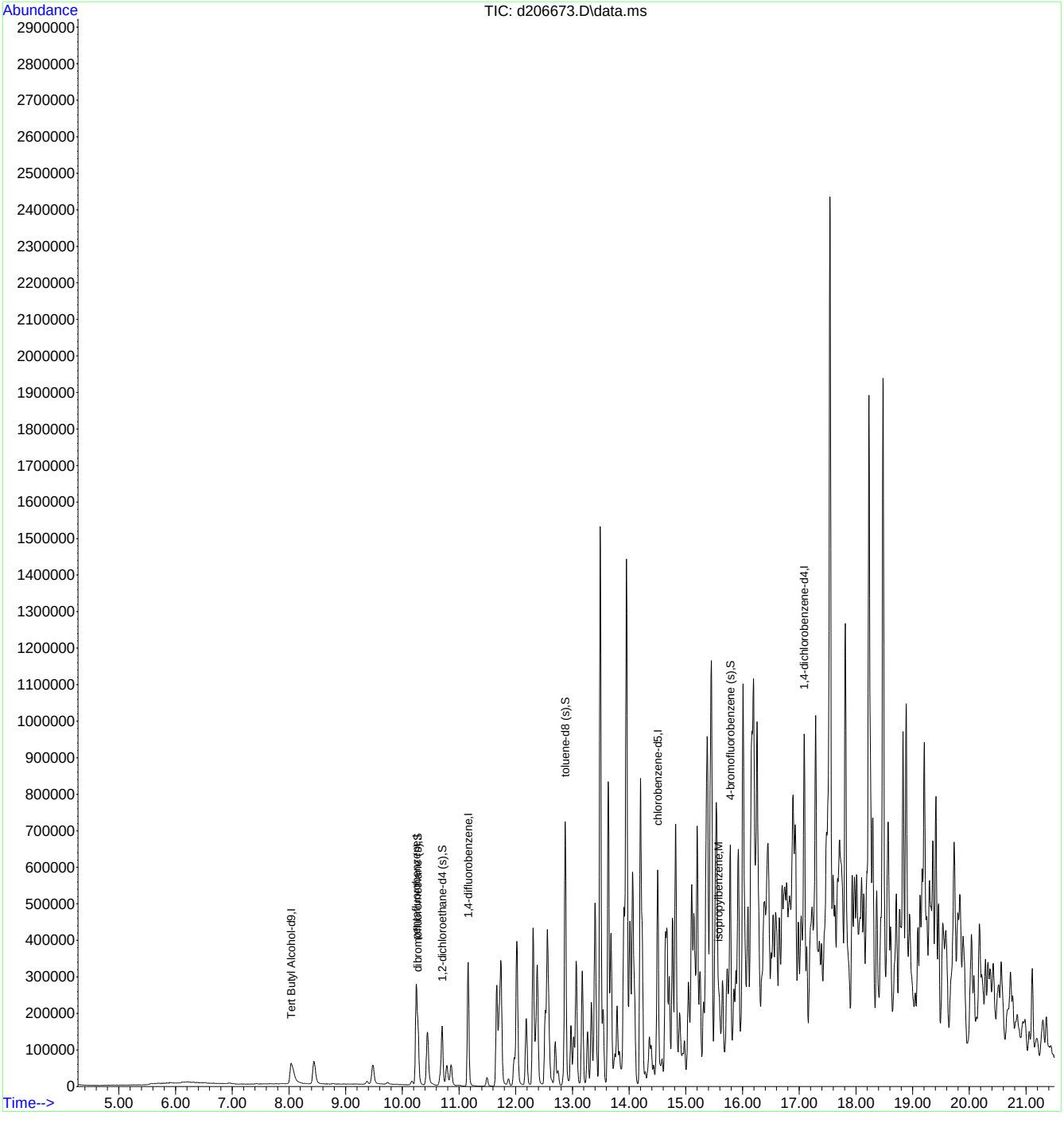
Target Compounds					Qvalue
100) isopropylbenzene	15.580	105	29098	2.44 ug/L	97

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

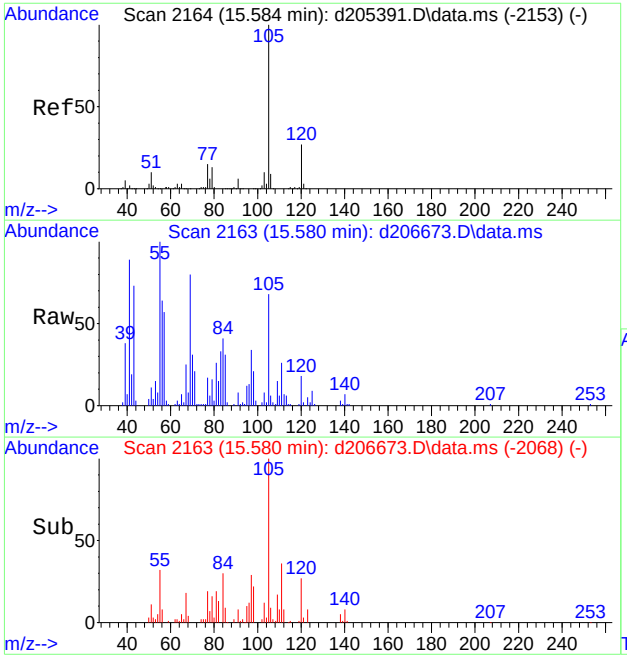
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206673.D
Acq On : 19 Mar 2013 8:05 am
Operator : EmilyT
Sample : jb31121-20
Misc : ms44830,vd8431,6.5,,100,10,1
ALS Vial : 47 Sample Multiplier: 1

Quant Time: Mar 19 16:16:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



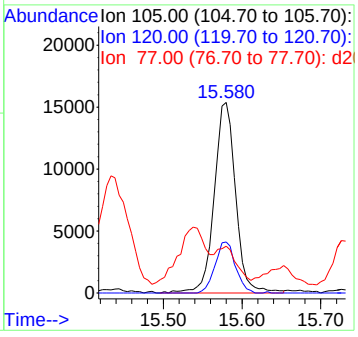
MD8379.M Tue Mar 19 16:17:07 2013 Page: 2



#100
isopropylbenzene
Concen: 2.44 ug/L
RT: 15.580 min Scan# 2163
Delta R.T. -0.004 min
Lab File: d206673.D
Acq: 19 Mar 2013 8:05 am

Tgt Ion:105 Resp: 29098

Ion	Ratio	Lower	Upper
105	100		
120	26.8	0.0	57.4
77	17.5	0.0	45.1



7.1.20

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206877.D
Acq On : 23 Mar 2013 5:31 pm
Operator : EmilyT
Sample : jb31121-21
Misc : ms44803,vd8440,6.9,,100,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 25 10:02:00 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.025	65	140471	500.00 ug/L	0.01
4) pentafluorobenzene	10.242	168	244373	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.157	114	365764	50.00 ug/L	-0.02
85) chlorobenzene-d5	14.503	117	352328	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.085	152	204365	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.273	113	112435	47.11 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.22%		
47) 1,2-dichloroethane-d4 (s)	10.702	65	148702	51.61 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.22%		
77) toluene-d8 (s)	12.872	98	452051	51.00 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 102.00%		
101) 4-bromofluorobenzene (s)	15.784	95	184190	49.62 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 99.24%		

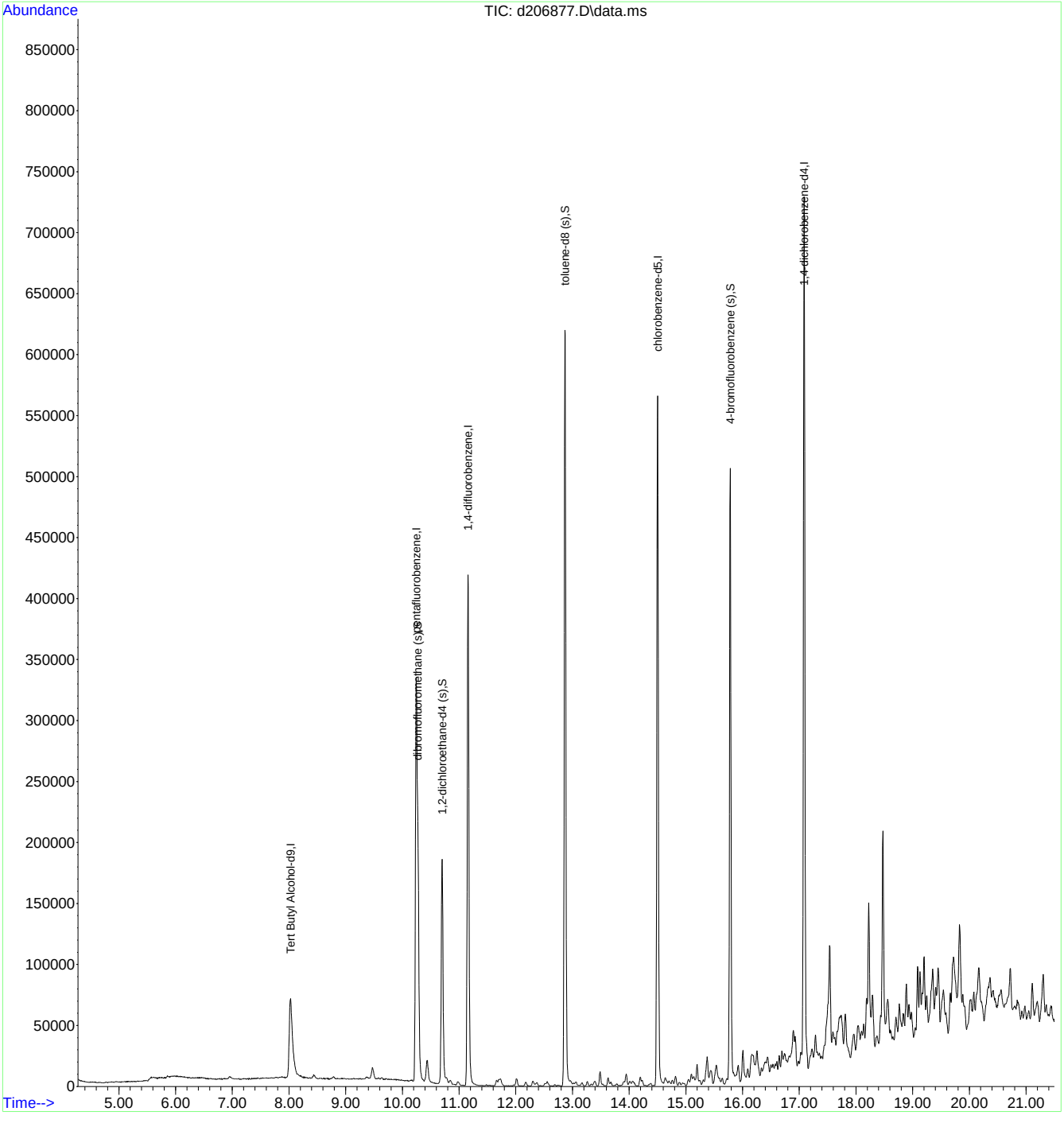
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206877.D
Acq On : 23 Mar 2013 5:31 pm
Operator : EmilyT
Sample : jb31121-21
Misc : ms44803,vd8440,6.9,,100,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 25 10:02:00 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\X\vx5806\
Data File : X134010.D
Acq On : 19 Mar 2013 3:29 pm
Operator : margares
Sample : jb31121-22
Misc : MS44803,VX5806,6.9,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 20 14:20:06 2013
Quant Method : C:\MSDCHEM\1\METHODS\MX5795.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.065	65	62288	500.00	ug/L	0.00
5) pentafluorobenzene	9.743	168	189372	50.00	ug/L	0.01
62) 1,4-difluorobenzene	10.899	114	255449	50.00	ug/L	0.00
93) chlorobenzene-d5	15.135	117	236060	50.00	ug/L	0.00
108) 1,4-dichlorobenzene-d4	17.965	152	131960	50.00	ug/L	0.00
System Monitoring Compounds						
54) dibromofluoromethane (s)	9.780	113	92022	51.96	ug/L	0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 103.92%			
55) 1,2-dichloroethane-d4 (s)	10.303	65	89948	47.27	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 94.54%			
85) toluene-d8 (s)	13.101	98	337963	54.24	ug/L	0.01
Spiked Amount 50.000	Range 81 - 127		Recovery = 108.48%			
111) 4-bromofluorobenzene (s)	16.657	95	124018	51.53	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 103.06%			
Target Compounds						Qvalue
29) acetone	6.390	58	1965	22.48	ug/L	85
82) methylcyclohexane	11.615	83	11612	5.22	ug/L	94

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

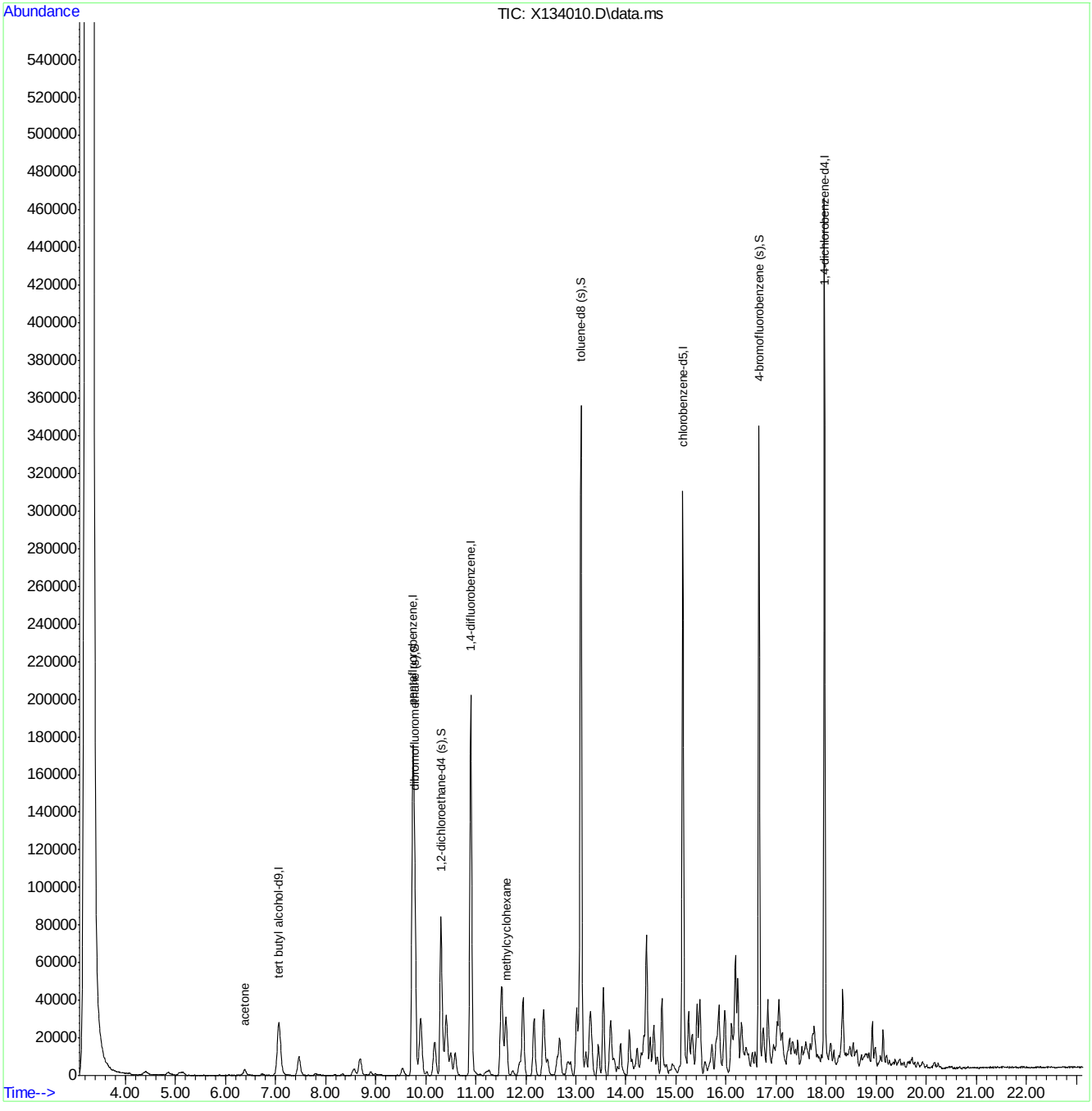
7.1.22

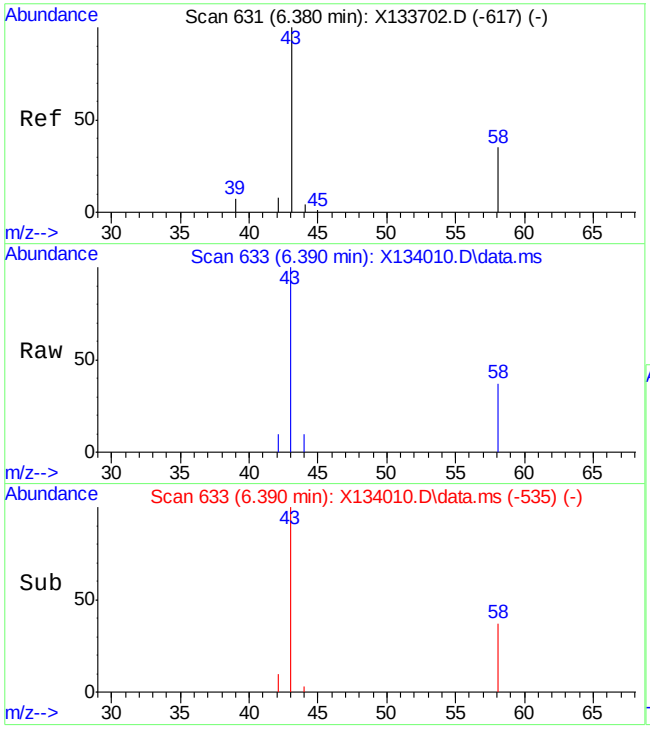
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\X\vx5806\
Data File : X134010.D
Acq On : 19 Mar 2013 3:29 pm
Operator : margares
Sample : jb31121-22
Misc : MS44803,VX5806,6.9,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 20 14:20:06 2013
Quant Method : C:\MSDCHEM\1\METHODS\MX5795.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

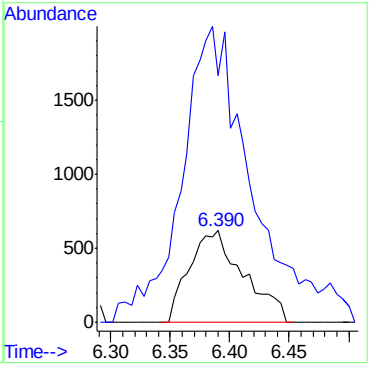


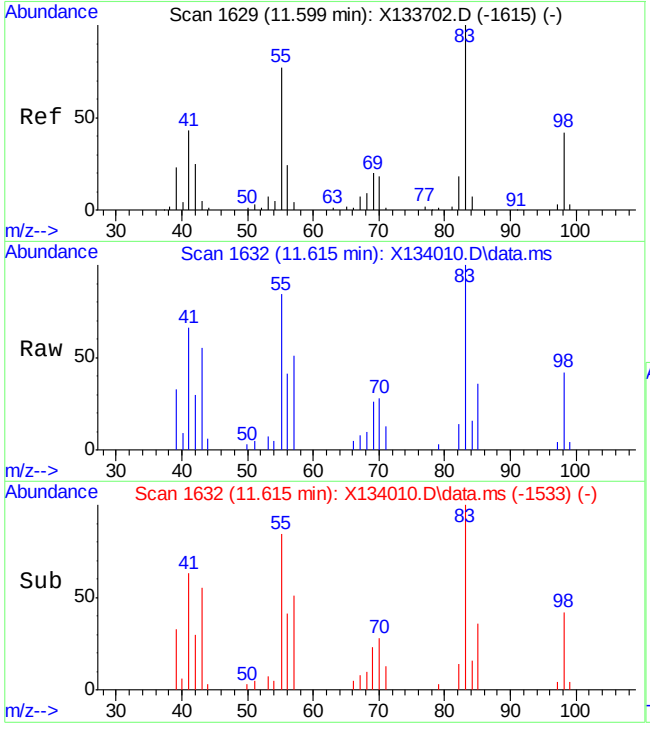


#29
acetone
Concen: 22.48 ug/L
RT: 6.390 min Scan# 633
Delta R.T. 0.011 min
Lab File: X134010.D
Acq: 19 Mar 2013 3:29 pm

Tgt Ion: 58 Resp: 1965

Ion	Ratio	Lower	Upper
58	100		
43	269.6	269.2	329.2

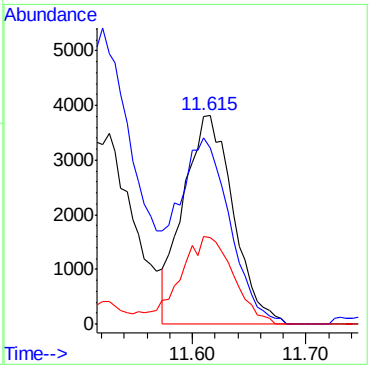




#82
methylcyclohexane
Concen: 5.22 ug/L
RT: 11.615 min Scan# 1632
Delta R.T. 0.016 min
Lab File: X134010.D
Acq: 19 Mar 2013 3:29 pm

Tgt Ion: 83 Resp: 11612

Ion	Ratio	Lower	Upper
83	100		
55	84.5	46.8	106.8
98	41.6	12.1	72.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206830.D
Acq On : 22 Mar 2013 5:33 pm
Operator : EmilyT
Sample : jb31121-23
Misc : ms44803,vd8438,19.5,,100,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 23 15:52:09 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

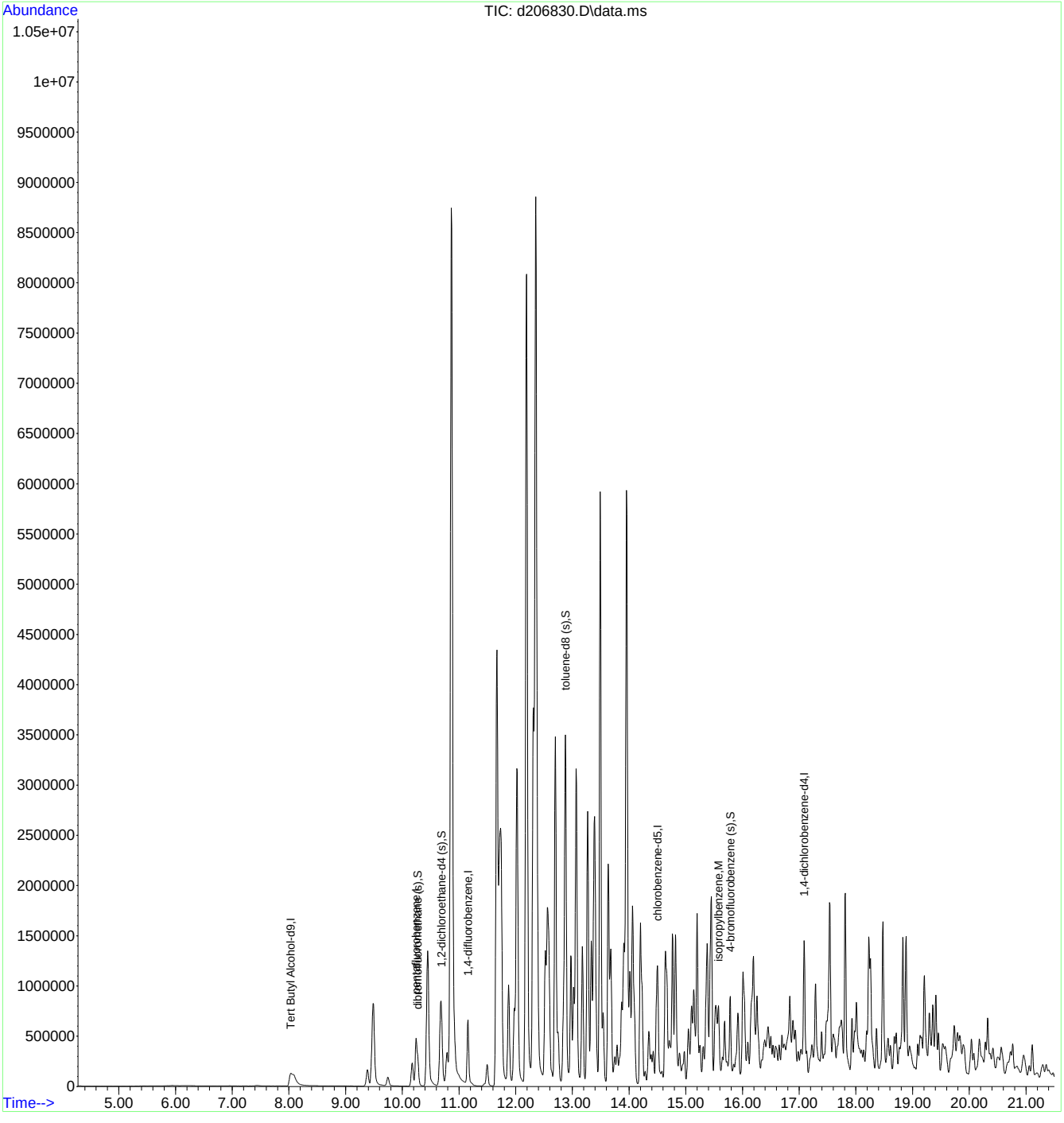
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.026	65	235738	500.00 ug/L	0.01
4) pentafluorobenzene	10.243	168	342673	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.157	114	543761	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.503	117	508565	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.086	152	295392	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.274	113	164213	49.07 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 98.14%		
47) 1,2-dichloroethane-d4 (s)	10.697	65	222633	55.10 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 110.20%		
77) toluene-d8 (s)	12.872	98	775499	58.85 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 117.70%		
101) 4-bromofluorobenzene (s)	15.784	95	292976	54.60 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 109.20%		
Target Compounds					Qvalue
100) isopropylbenzene	15.575	105	399316	22.63 ug/L	98

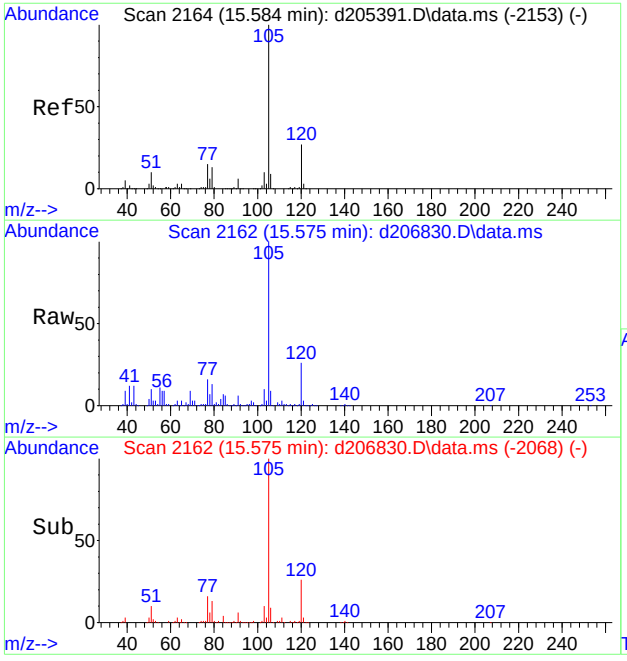
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206830.D
Acq On : 22 Mar 2013 5:33 pm
Operator : EmilyT
Sample : jb31121-23
Misc : ms44803,vd8438,19.5,,100,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 23 15:52:09 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

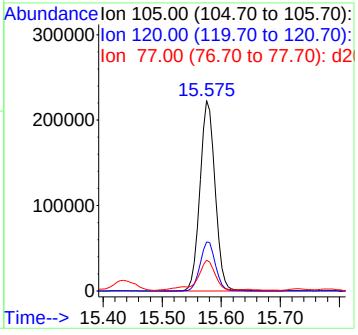




#100
isopropylbenzene
Concen: 22.63 ug/L
RT: 15.575 min Scan# 2162
Delta R.T. -0.009 min
Lab File: d206830.D
Acq: 22 Mar 2013 5:33 pm

Tgt Ion:105 Resp: 399316

Ion	Ratio	Lower	Upper
105	100		
120	25.8	0.0	57.4
77	15.7	0.0	45.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206879.D
Acq On : 23 Mar 2013 6:30 pm
Operator : EmilyT
Sample : jb31121-24
Misc : ms44803,vd8440,11.8,,100,10,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 25 10:10:03 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.019	65	141698	500.00 ug/L	0.00
4) pentafluorobenzene	10.246	168	246893	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.161	114	375301	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.502	117	368272	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.090	152	237052	50.00 ug/L	0.00
System Monitoring Compounds					
46) dibromofluoromethane (s)	10.278	113	114434	47.46 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.92%		
47) 1,2-dichloroethane-d4 (s)	10.701	65	149982	51.52 ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.04%		
77) toluene-d8 (s)	12.871	98	472036	51.90 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 103.80%		
101) 4-bromofluorobenzene (s)	15.783	95	232648	54.03 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 108.06%		

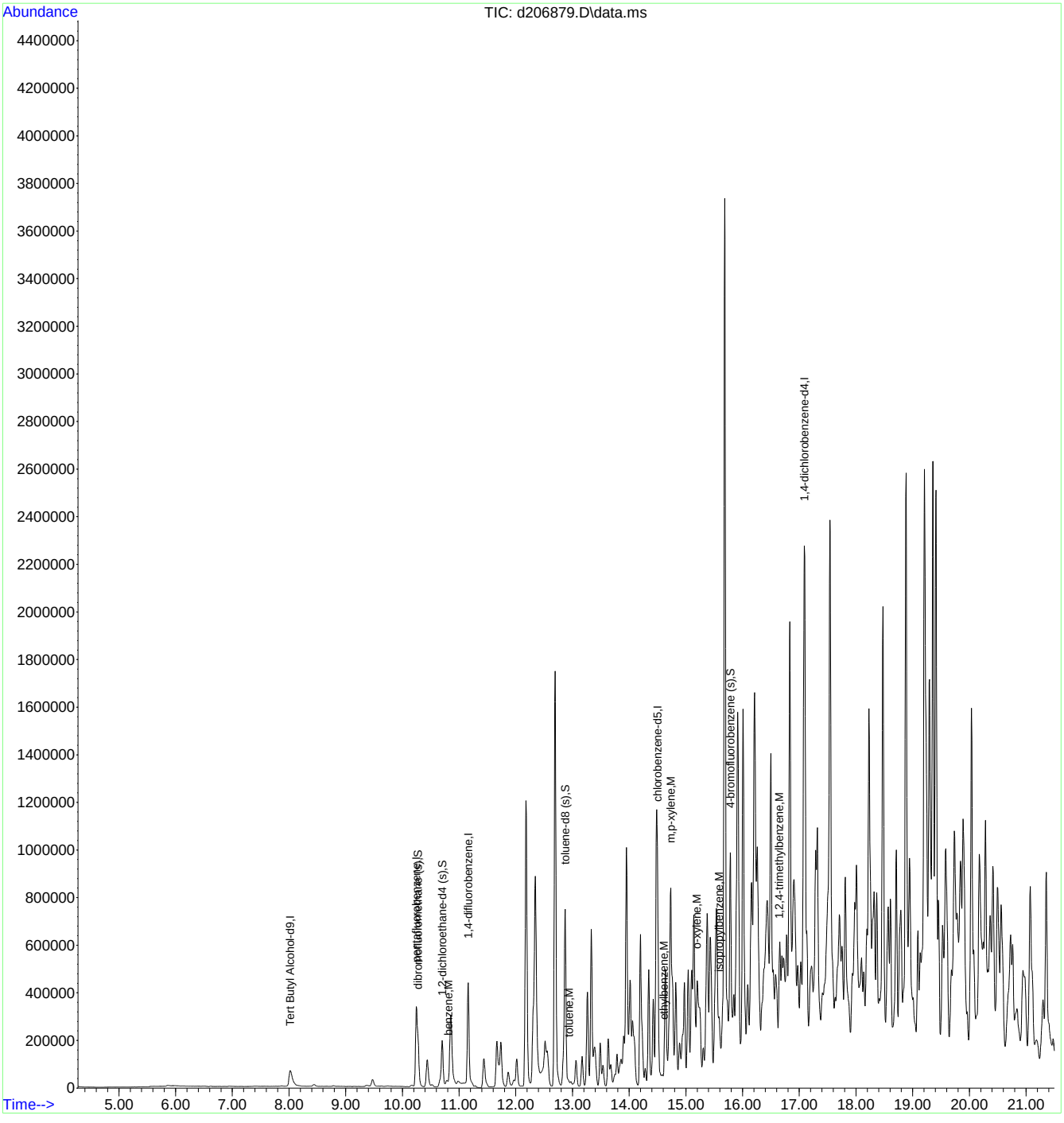
Target Compounds					Qvalue
62) benzene	10.806	78	8708	0.88 ug/L	96
79) toluene	12.944	92	3380	0.55 ug/L	89
94) ethylbenzene	14.606	91	5856	0.45 ug/L	92
95) m,p-xylene	14.732	106	4371	0.84 ug/L	75
96) o-xylene	15.187	106	1683	0.33 ug/L	66
100) isopropylbenzene	15.579	105	5015	0.35 ug/L	95
114) 1,2,4-trimethylbenzene	16.640	105	4791	0.36 ug/L	97

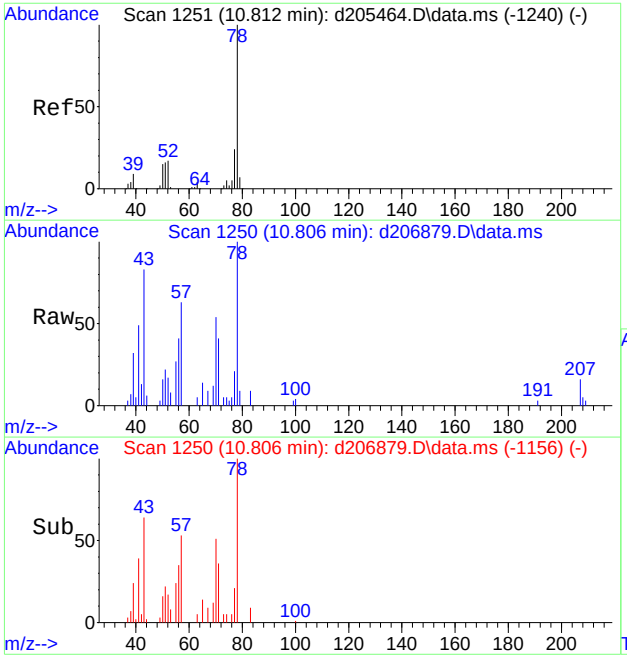
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206879.D
Acq On : 23 Mar 2013 6:30 pm
Operator : EmilyT
Sample : jb31121-24
Misc : ms44803,vd8440,11.8,,100,10,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 25 10:10:03 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

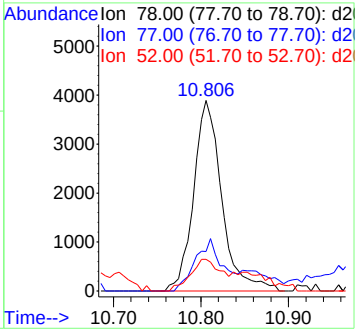


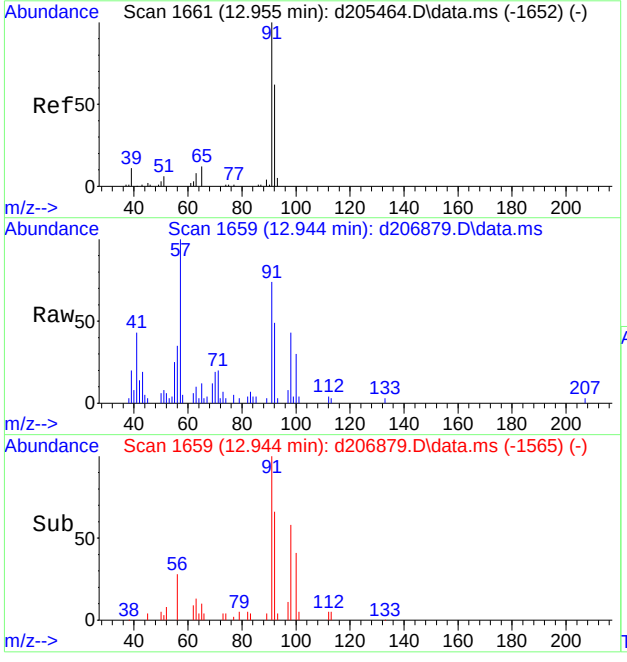


#62
benzene
Concen: 0.88 ug/L
RT: 10.806 min Scan# 1250
Delta R.T. -0.011 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion: 78 Resp: 8708

Ion	Ratio	Lower	Upper
78	100		
77	20.8	0.0	54.1
52	16.6	0.0	46.6

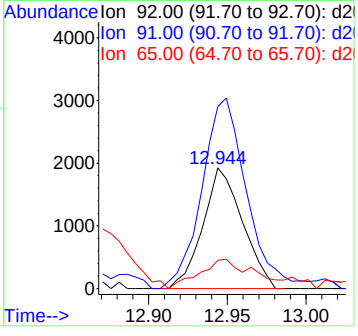


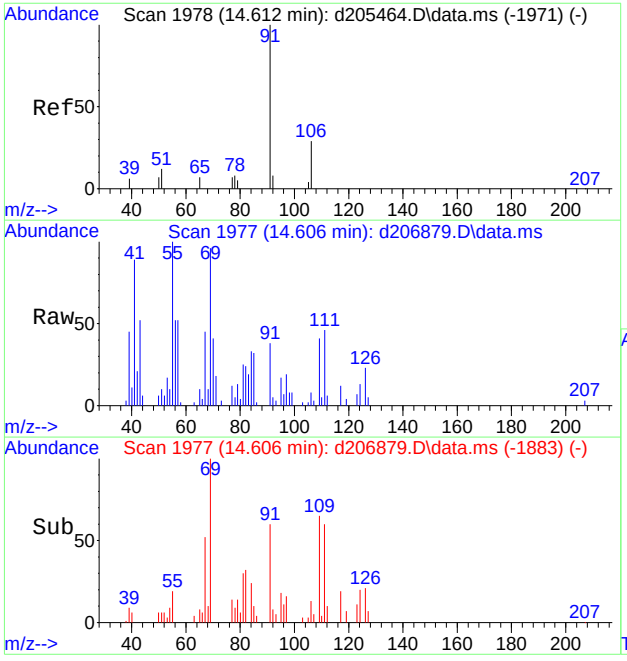


#79
toluene
Concen: 0.55 ug/L
RT: 12.944 min Scan# 1659
Delta R.T. -0.011 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion: 92 Resp: 3380

Ion	Ratio	Lower	Upper
92	100		
91	150.6	136.0	196.0
65	17.1	0.0	49.8

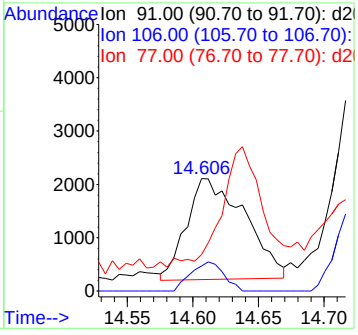


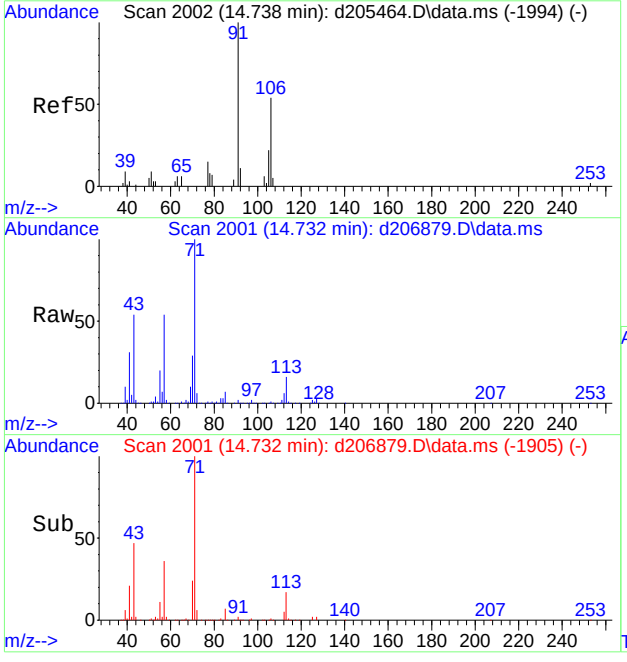


#94
ethylbenzene
Concen: 0.45 ug/L
RT: 14.606 min Scan# 1977
Delta R.T. -0.011 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion: 91 Resp: 5856

Ion	Ratio	Lower	Upper
91	100		
106	26.4	1.6	61.6
77	7.9	0.0	38.8

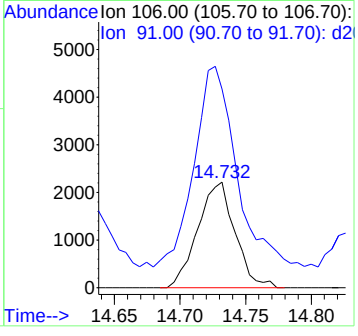


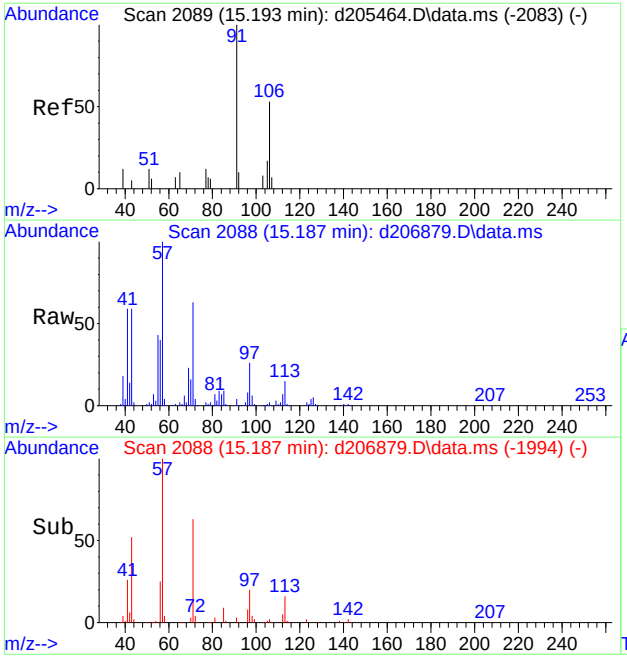


#95
m,p-xylene
Concen: 0.84 ug/L
RT: 14.732 min Scan# 2001
Delta R.T. -0.000 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion:106 Resp: 4371

Ion	Ratio	Lower	Upper
106	100		
91	162.3	139.9	259.9

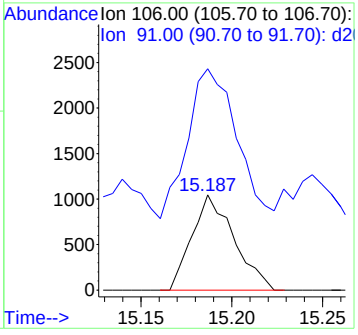


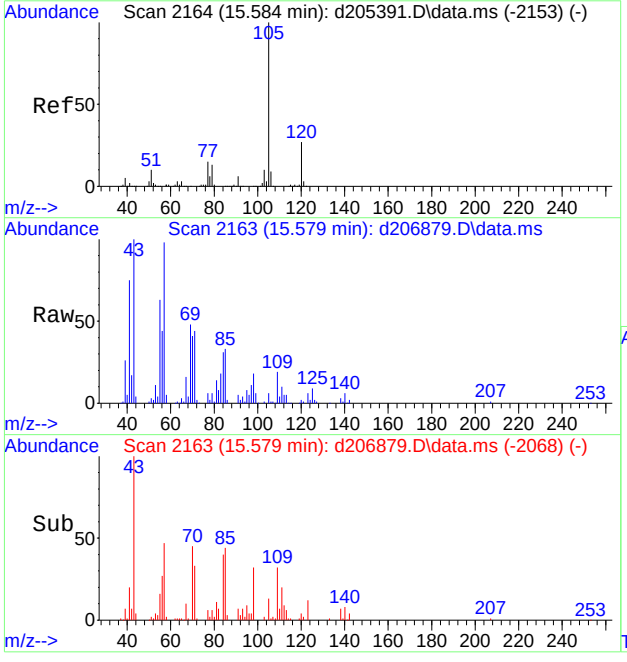


#96
o-xylene
Concen: 0.33 ug/L
RT: 15.187 min Scan# 2088
Delta R.T. -0.011 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion:106 Resp: 1683

Ion	Ratio	Lower	Upper
106	100		
91	157.6	147.9	274.7

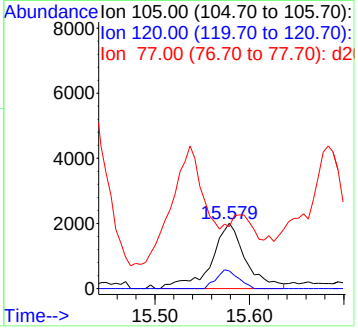


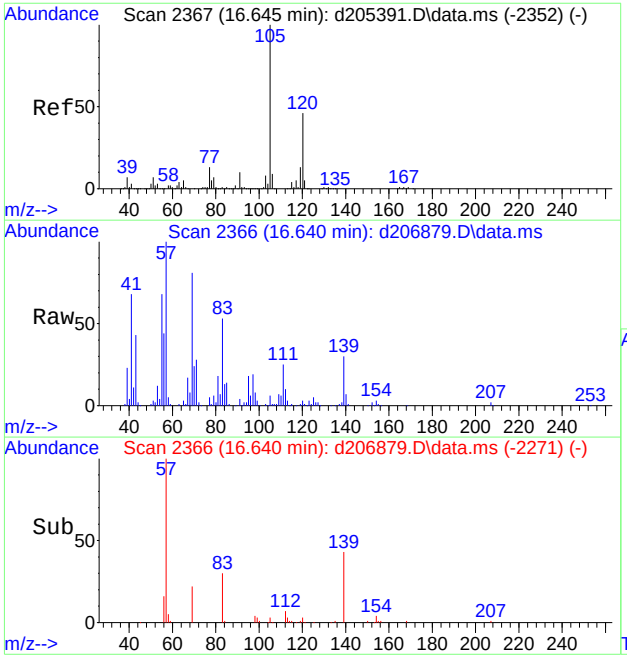


#100
isopropylbenzene
Concen: 0.35 ug/L
RT: 15.579 min Scan# 2163
Delta R.T. -0.005 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion:105 Resp: 5015

Ion	Ratio	Lower	Upper
105	100		
120	27.3	0.0	57.4
77	9.7	0.0	45.1

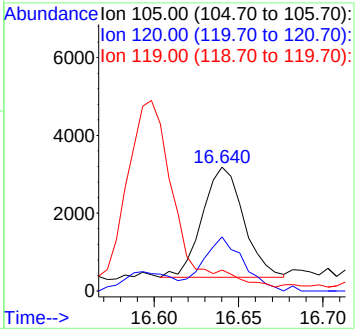




#114
1,2,4-trimethylbenzene
Concen: 0.36 ug/L
RT: 16.640 min Scan# 2366
Delta R.T. -0.005 min
Lab File: d206879.D
Acq: 23 Mar 2013 6:30 pm

Tgt Ion:105 Resp: 4791

Ion	Ratio	Lower	Upper
105	100		
120	49.0	16.5	76.5
119	13.6	0.0	43.9



7.1.24

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180169.D
Acq On : 20 Mar 2013 12:40 pm
Operator : tamikag
Sample : mb
Misc : MS44962,VC6461,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 20 17:17:07 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration

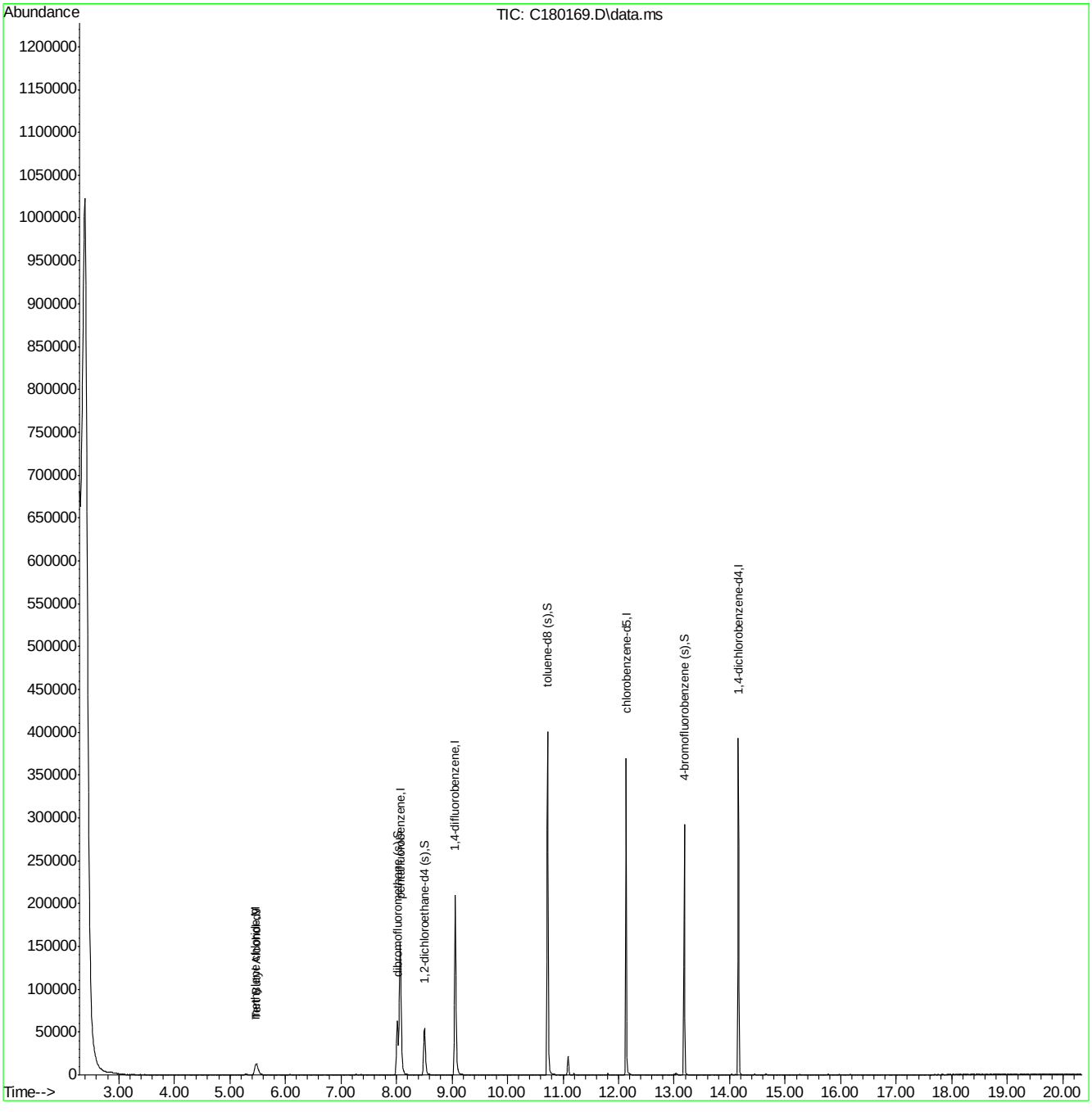
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.480	65	27939	500.00	ug/L	-0.01
5) pentafluorobenzene	8.069	168	130189	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.057	114	190836	50.00	ug/L	0.00
85) chlorobenzene-d5	12.133	117	140197	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.157	152	63427	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.017	113	48958	47.49	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.98%			
50) 1,2-dichloroethane-d4 (s)	8.503	65	45770	47.69	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 95.38%			
77) toluene-d8 (s)	10.721	98	213988	48.42	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.84%			
103) 4-bromofluorobenzene (s)	13.184	95	70360	48.58	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 97.16%			
Target Compounds						Qvalue
28) methylene chloride	5.464	84	3776	3.09	ug/L	91

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

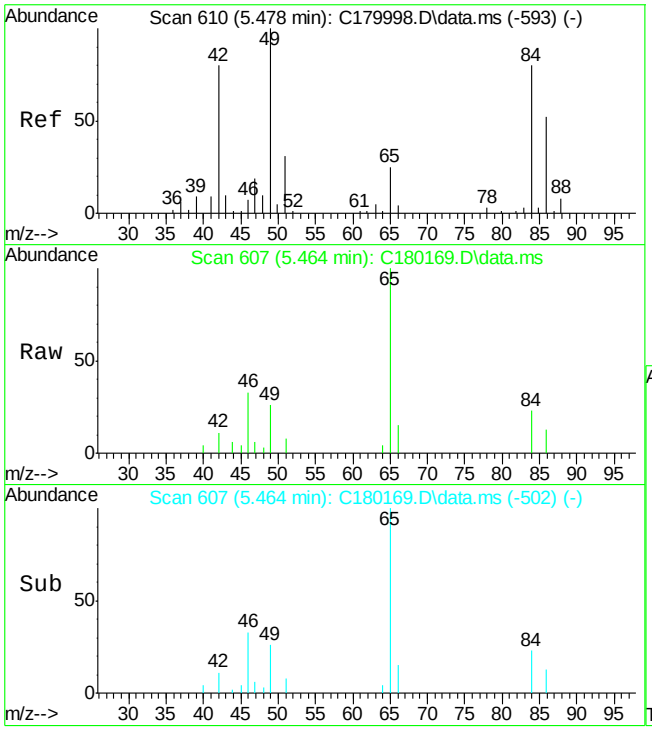
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180169.D
Acq On : 20 Mar 2013 12:40 pm
Operator : tamikag
Sample : mb
Misc : MS44962,VC6461,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 20 17:17:07 2013
Quant Method : C:\MSDCHEM\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Mar 13 09:37:57 2013
Response via : Initial Calibration



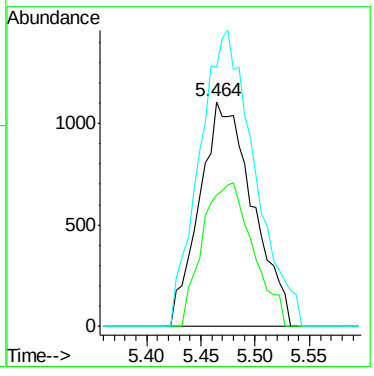
MCS6448.M Wed Mar 20 17:44:12 2013 VOA-CLN-04 Page: 2



#28
methylene chloride
Concen: 3.09 ug/L
RT: 5.464 min Scan# 607
Delta R.T. -0.013 min
Lab File: C180169.D
Acq: 20 Mar 2013 12:40 pm

Tgt Ion: 84 Resp: 3776

Ion	Ratio	Lower	Upper
84	100		
86	58.3	45.4	84.4
49	115.2	87.9	163.3



7.2.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180197.D
Acq On : 21 Mar 2013 12:35 pm
Operator : tamikag
Sample : mb2
Misc : MS45188,VC6461,5.0,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 28 09:20:53 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	5.479	65	25427	500.00	ug/L	-0.01
5) pentafluorobenzene	8.068	168	131518	50.00	ug/L	0.00
57) 1,4-difluorobenzene	9.057	114	188678	50.00	ug/L	0.00
85) chlorobenzene-d5	12.132	117	134760	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	14.156	152	58023	50.00	ug/L	0.00
System Monitoring Compounds						
49) dibromofluoromethane (s)	8.016	113	48120	46.20	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.40%			
50) 1,2-dichloroethane-d4 (s)	8.502	65	42788	44.13	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 88.26%			
77) toluene-d8 (s)	10.725	98	210171	48.10	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 96.20%			
103) 4-bromofluorobenzene (s)	13.183	95	65336	49.31	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 98.62%			

Target Compounds Qvalue

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

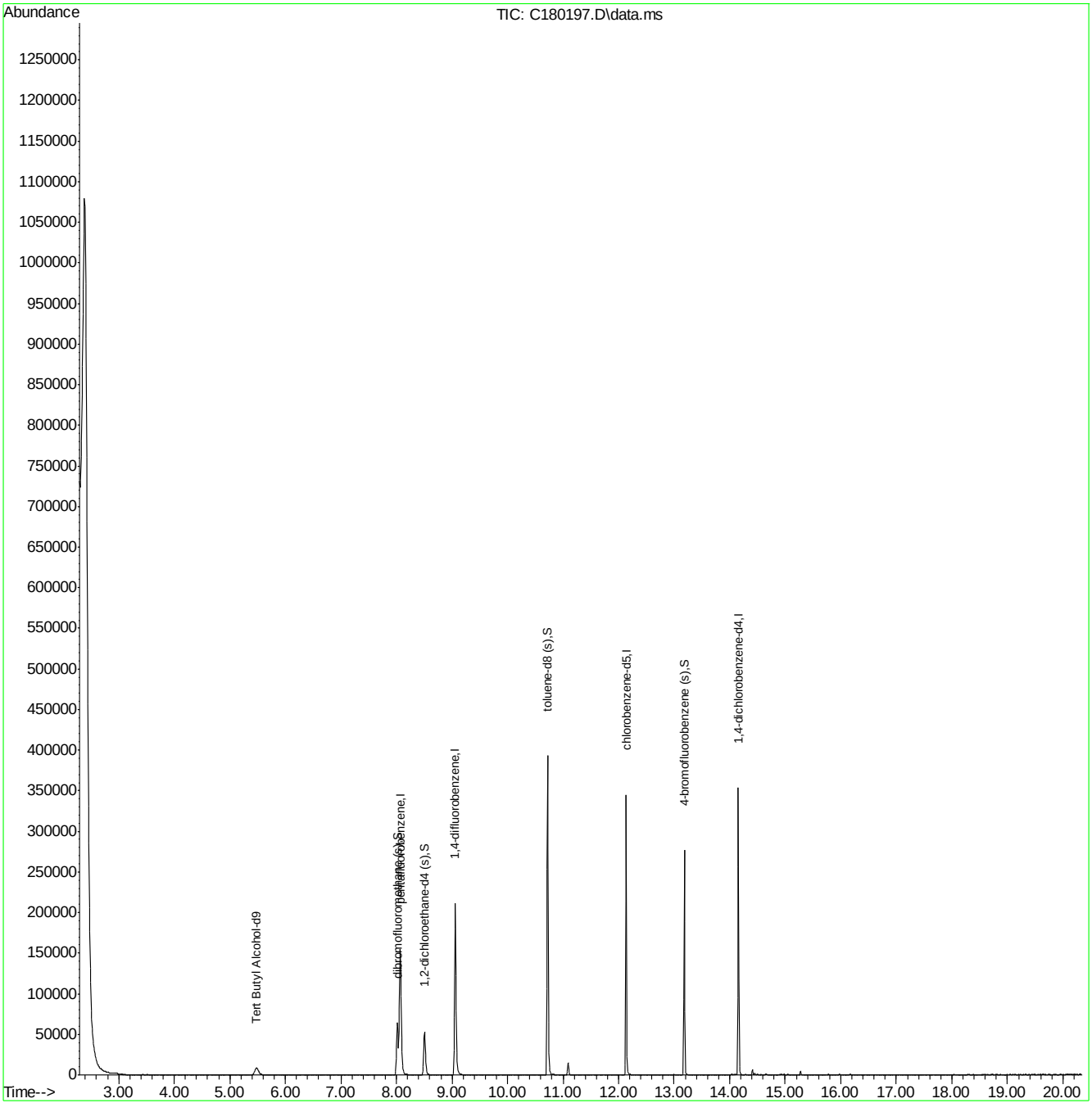
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\c-core\vc6461\
Data File : C180197.D
Acq On : 21 Mar 2013 12:35 pm
Operator : tamikag
Sample : mb2
Misc : MS45188,VC6461,5.0,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 28 09:20:53 2013
Quant Method : C:\msdchem\1\METHODS\MCS6448.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 21 15:53:29 2013
Response via : Initial Calibration



MCS6448.M Thu Mar 28 09:23:42 2013 VOA-CLN-04 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206604.D
Acq On : 16 Mar 2013 10:47 pm
Operator : EmilyT
Sample : mb
Misc : ms44471,vd8429,5,,100,5,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Mar 18 10:11:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.020	65	98652	500.00	ug/L	0.00
4) pentafluorobenzene	10.247	168	190396	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	275838	50.00	ug/L	0.00
85) chlorobenzene-d5	14.503	117	265406	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.090	152	152774	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.278	113	85352	45.90	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.80%			
47) 1,2-dichloroethane-d4 (s)	10.702	65	115885	51.62	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 103.24%			
77) toluene-d8 (s)	12.872	98	349019	52.21	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 104.42%			
101) 4-bromofluorobenzene (s)	15.784	95	130966	47.19	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 94.38%			

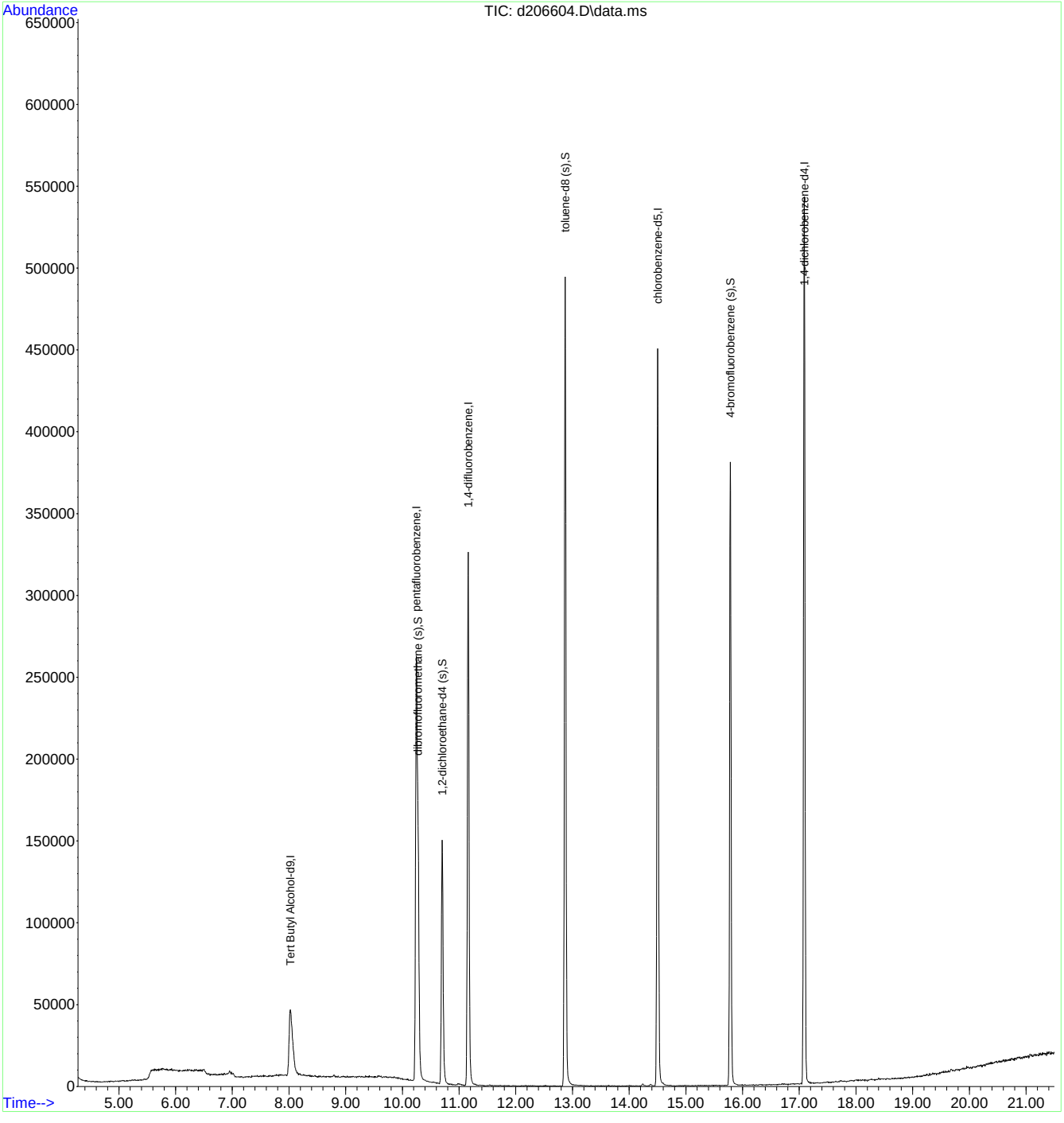
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206604.D
Acq On : 16 Mar 2013 10:47 pm
Operator : EmilyT
Sample : mb
Misc : ms44471,vd8429,5,,100,5,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Mar 18 10:11:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206656.D
Acq On : 18 Mar 2013 11:45 pm
Operator : EmilyT
Sample : mb
Misc : ms44470,vd8431,5,,100,5,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Mar 19 15:57:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.088	65	86932	500.00	ug/L	0.07
4) pentafluorobenzene	10.247	168	183099	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.162	114	263091	50.00	ug/L	0.00
85) chlorobenzene-d5	14.503	117	260053	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.085	152	155281	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.279	113	81242	45.44	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.88%			
47) 1,2-dichloroethane-d4 (s)	10.702	65	108173	50.10	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 100.20%			
77) toluene-d8 (s)	12.872	98	331460	51.99	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 103.98%			
101) 4-bromofluorobenzene (s)	15.784	95	128387	45.52	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 91.04%			

Target Compounds Qvalue

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

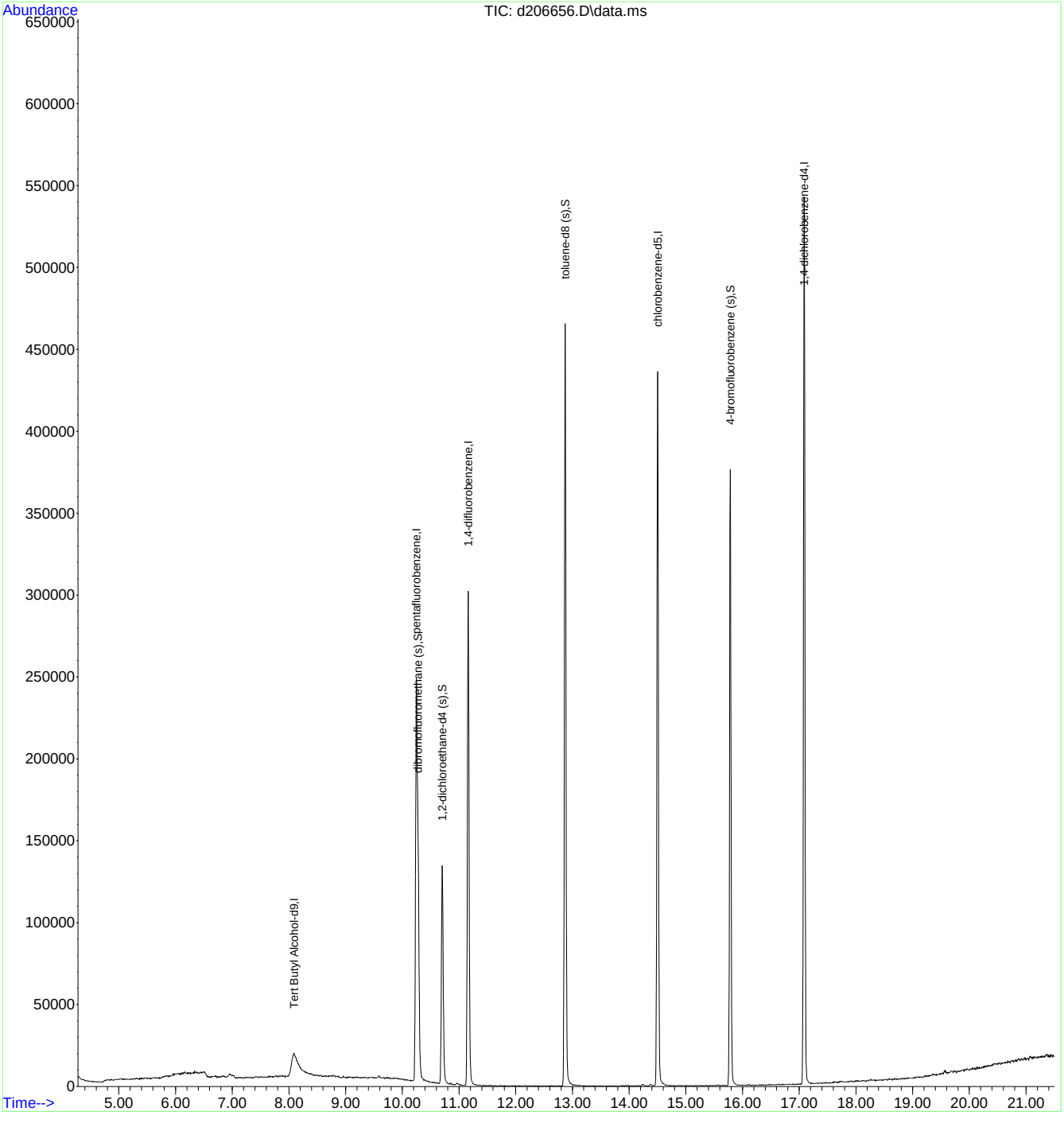
7.2.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206656.D
Acq On : 18 Mar 2013 11:45 pm
Operator : EmilyT
Sample : mb
Misc : ms44470,vd8431,5,,100,5,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Mar 19 15:57:57 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



ACCUTEST LABORATORIES JB31121

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206677.D
Acq On : 19 Mar 2013 10:52 am
Operator : EmilyT
Sample : mb
Misc : ms44830,vd8432,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 19 16:23:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.042	65	114669	500.00 ug/L	0.03
4) pentafluorobenzene	10.243	168	203754	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.158	114	288666	50.00 ug/L	-0.01
85) chlorobenzene-d5	14.504	117	274227	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.086	152	168716	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.274	113	89277	44.87 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 89.74%		
47) 1,2-dichloroethane-d4 (s)	10.703	65	117437	48.88 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 97.76%		
77) toluene-d8 (s)	12.867	98	354811	50.72 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 101.44%		
101) 4-bromofluorobenzene (s)	15.785	95	138191	45.09 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 90.18%		

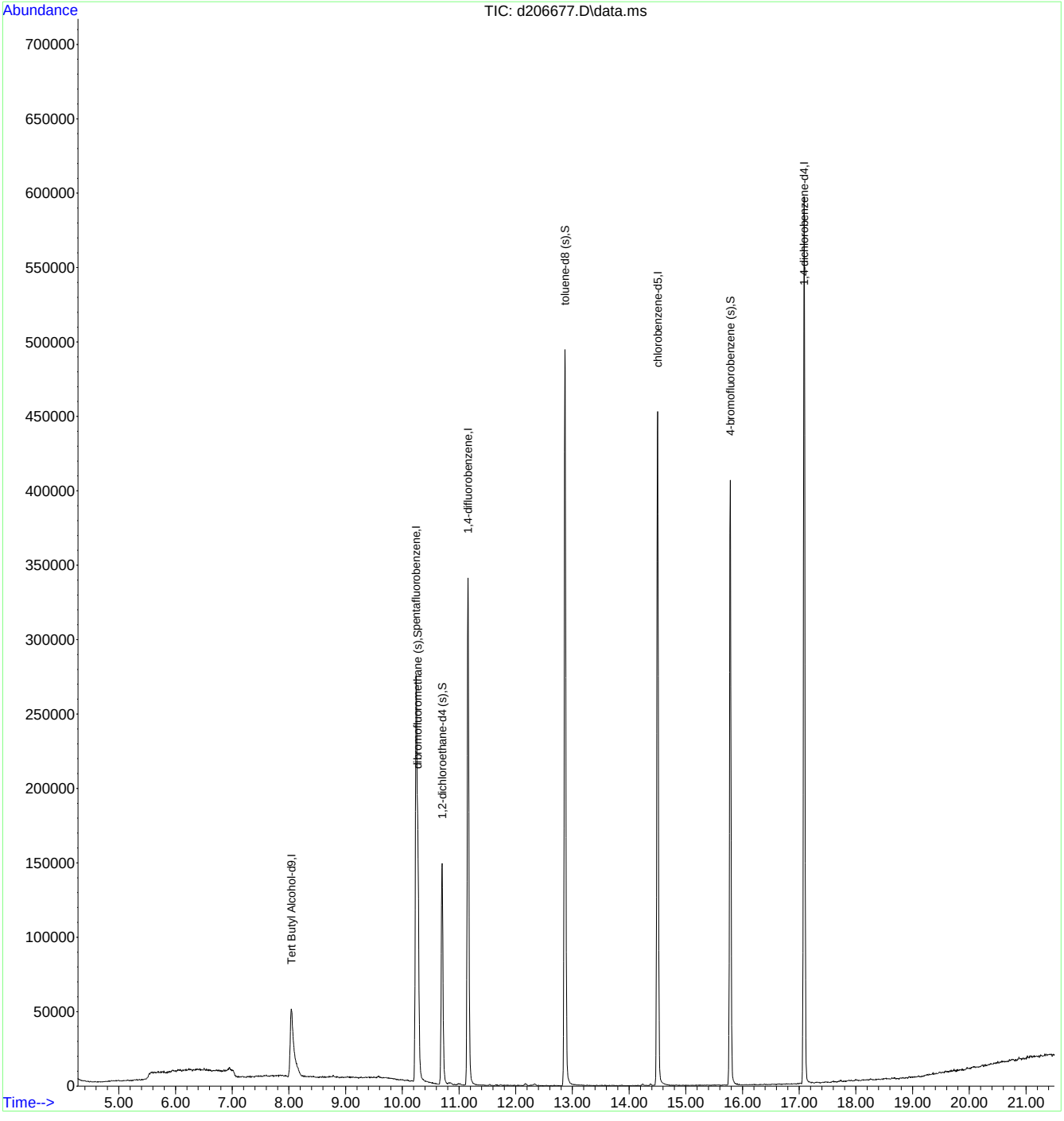
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206677.D
Acq On : 19 Mar 2013 10:52 am
Operator : EmilyT
Sample : mb
Misc : ms44830,vd8432,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 19 16:23:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



MD8379.M Tue Mar 19 16:23:50 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206822.D
Acq On : 22 Mar 2013 1:47 pm
Operator : EmilyT
Sample : mb
Misc : ms44804,vd8438,5.0,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 22 17:41:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.040	65	161976	500.00	ug/L	0.03
4) pentafluorobenzene	10.246	168	258987	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.161	114	396084	50.00	ug/L	-0.01
85) chlorobenzene-d5	14.502	117	383579	50.00	ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.090	152	220936	50.00	ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.272	113	120253	47.55	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 95.10%			
47) 1,2-dichloroethane-d4 (s)	10.701	65	160304	52.49	ug/L	-0.01
Spiked Amount 50.000	Range 70 - 122		Recovery = 104.98%			
77) toluene-d8 (s)	12.871	98	471346	49.11	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 98.22%			
101) 4-bromofluorobenzene (s)	15.783	95	193278	48.16	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 96.32%			

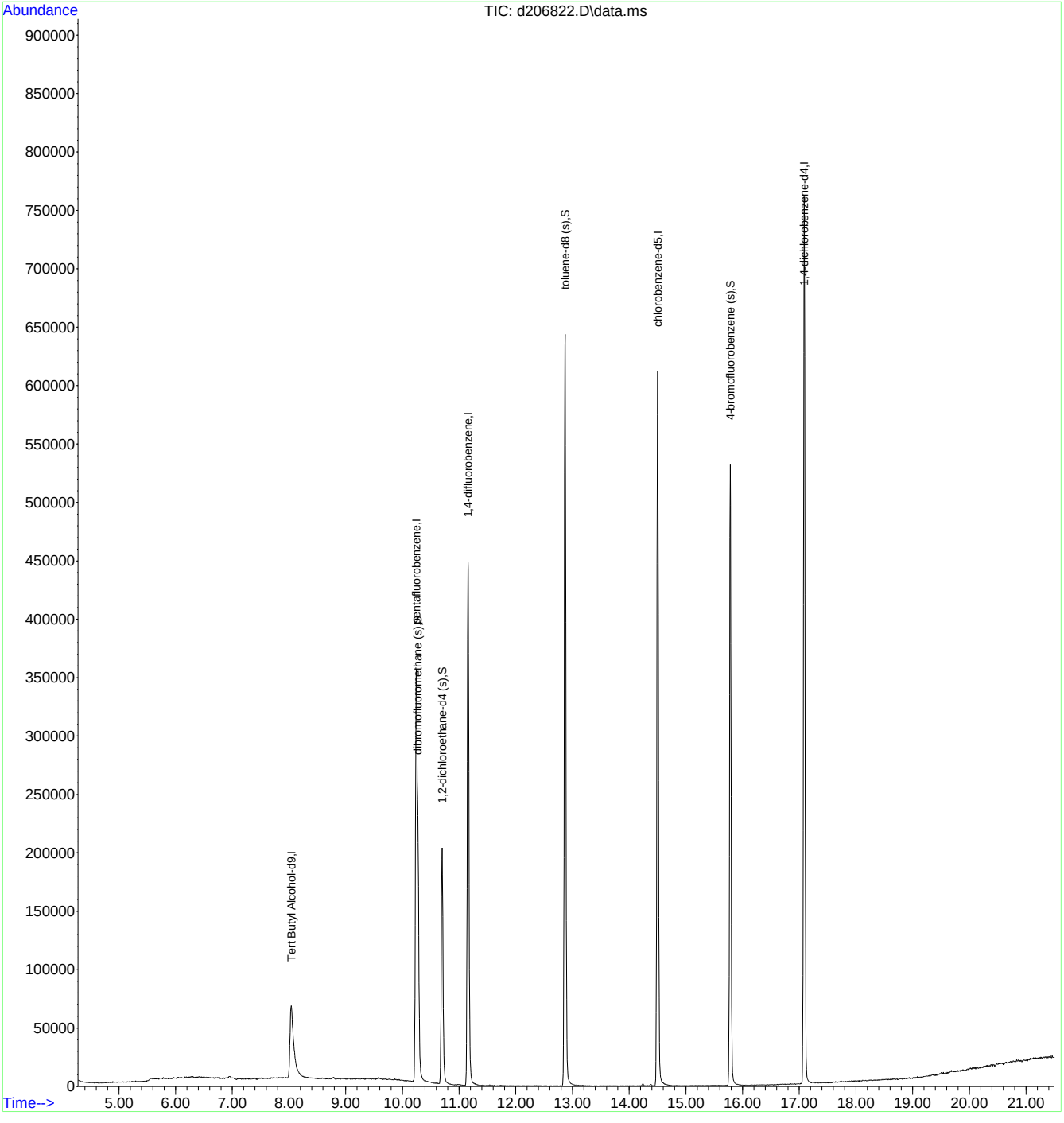
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206822.D
Acq On : 22 Mar 2013 1:47 pm
Operator : EmilyT
Sample : mb
Misc : ms44804,vd8438,5.0,,100,5,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 22 17:41:15 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



ACCUTEST LABORATORIES JB31121

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206867.D
Acq On : 23 Mar 2013 12:28 pm
Operator : EmilyT
Sample : mb
Misc : ms44893,vd8440,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 23 16:35:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.021	65	125942	500.00 ug/L	0.00
4) pentafluorobenzene	10.248	168	251374	50.00 ug/L	0.00
53) 1,4-difluorobenzene	11.163	114	379067	50.00 ug/L	0.00
85) chlorobenzene-d5	14.504	117	363314	50.00 ug/L	0.00
99) 1,4-dichlorobenzene-d4	17.086	152	177137	50.00 ug/L	0.00

System Monitoring Compounds

46) dibromofluoromethane (s)	10.274	113	113342	46.17 ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.34%		
47) 1,2-dichloroethane-d4 (s)	10.703	65	149930	50.58 ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 101.16%		
77) toluene-d8 (s)	12.867	98	472538	51.44 ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 102.88%		
101) 4-bromofluorobenzene (s)	15.784	95	180315	56.04 ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 112.08%		

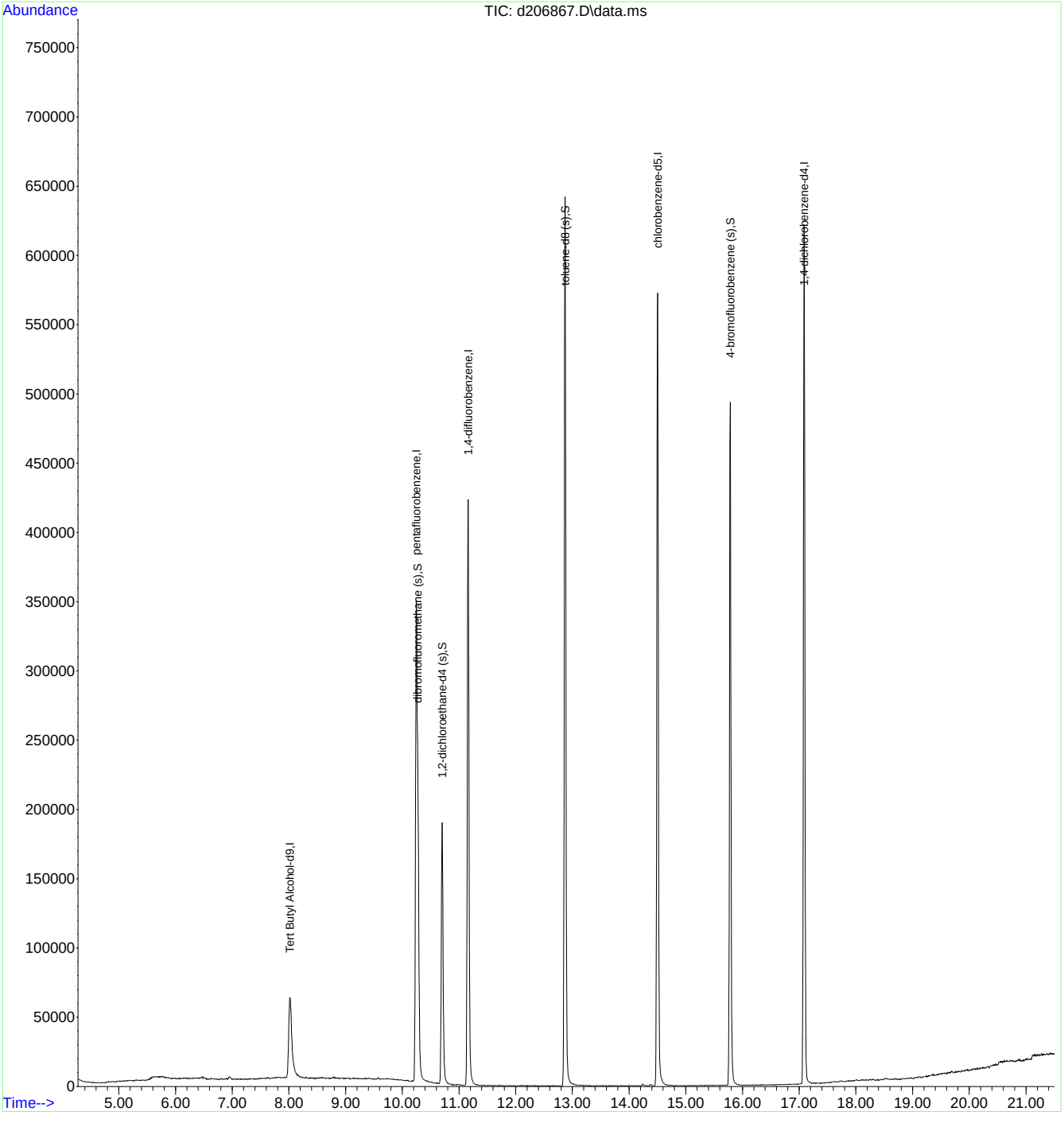
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : d206867.D
Acq On : 23 Mar 2013 12:28 pm
Operator : EmilyT
Sample : mb
Misc : ms44893,vd8440,5,,100,5,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 23 16:35:45 2013
Quant Method : C:\MSDCHEM\1\METHODS\MD8379.M
Quant Title : SW-846 Method 8260B
QLast Update : Tue Feb 19 09:53:02 2013
Response via : Initial Calibration



Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\X\vx5806\
Data File : X134007.D
Acq On : 19 Mar 2013 1:56 pm
Operator : margares
Sample : mb
Misc : MS44803,VX5806,5.0,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 20 14:17:23 2013
Quant Method : C:\MSDCHEM\1\METHODS\MX5795.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

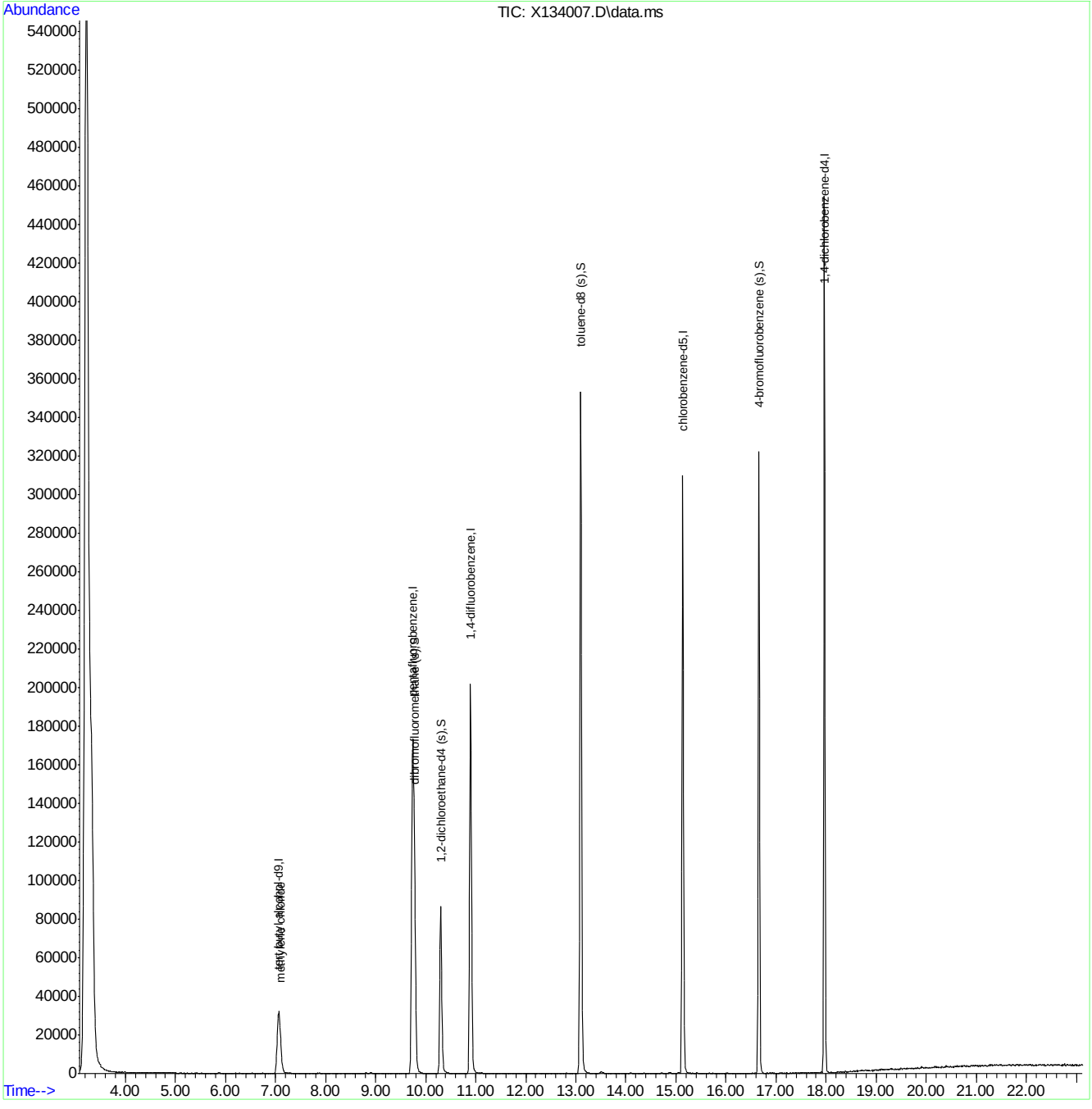
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.060	65	81921	500.00	ug/L	0.00
5) pentafluorobenzene	9.738	168	187637	50.00	ug/L	0.00
62) 1,4-difluorobenzene	10.894	114	252025	50.00	ug/L	0.00
93) chlorobenzene-d5	15.135	117	230402	50.00	ug/L	0.00
108) 1,4-dichlorobenzene-d4	17.965	152	126710	50.00	ug/L	0.00
System Monitoring Compounds						
54) dibromofluoromethane (s)	9.774	113	90657	51.66	ug/L	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 103.32%			
55) 1,2-dichloroethane-d4 (s)	10.303	65	90616	48.06	ug/L	0.00
Spiked Amount 50.000	Range 70 - 122		Recovery = 96.12%			
85) toluene-d8 (s)	13.096	98	331474	53.92	ug/L	0.00
Spiked Amount 50.000	Range 81 - 127		Recovery = 107.84%			
111) 4-bromofluorobenzene (s)	16.657	95	119922	51.90	ug/L	0.00
Spiked Amount 50.000	Range 66 - 132		Recovery = 103.80%			
Target Compounds						Qvalue
35) methylene chloride	7.091	84	5542	3.38	ug/L	92

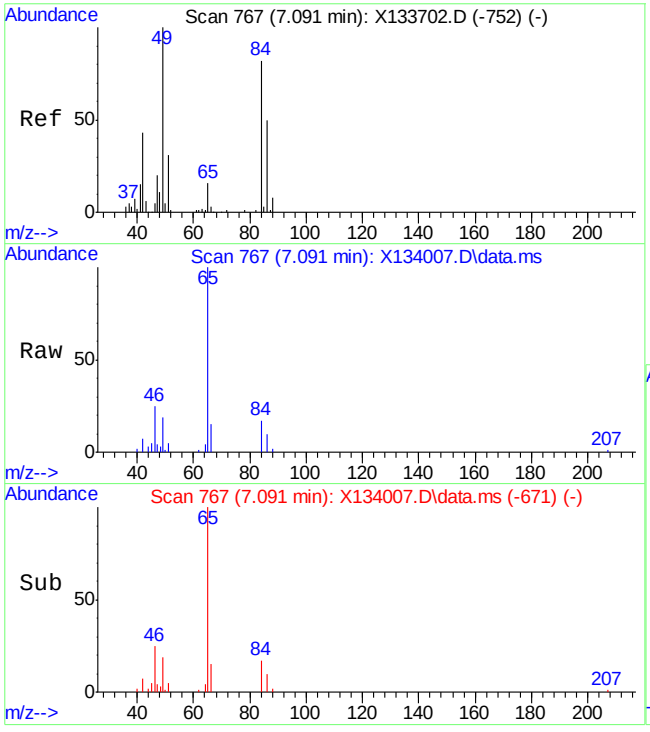
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\X\vx5806\
Data File : X134007.D
Acq On : 19 Mar 2013 1:56 pm
Operator : margares
Sample : mb
Misc : MS44803,VX5806,5.0,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 20 14:17:23 2013
Quant Method : C:\MSDCHEM\1\METHODS\MX5795.M
Quant Title : SW-846 Method 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Thu Mar 07 18:00:57 2013
Response via : Initial Calibration

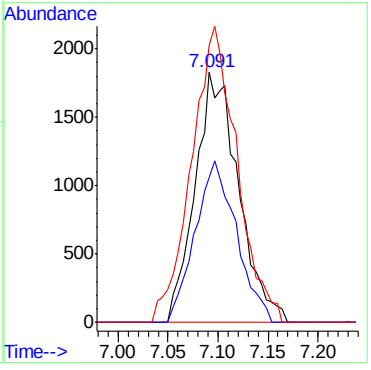




#35
methylene chloride
Concen: 3.38 ug/L
RT: 7.091 min Scan# 767
Delta R.T. 0.000 min
Lab File: X134007.D
Acq: 19 Mar 2013 1:56 pm

Tgt Ion: 84 Resp: 5542

Ion	Ratio	Lower	Upper
84	100		
86	57.7	30.4	90.4
49	110.7	91.3	151.3



7.2.8

7

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64463-MB1	M92408.D	1	03/26/13	OYA	03/21/13	OP64463	EM3746

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

JB31121-21, JB31121-22, JB31121-23, JB31121-24

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	29	ug/kg	
56-55-3	Benzo(a)anthracene	ND	29	ug/kg	
50-32-8	Benzo(a)pyrene	ND	29	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	29	ug/kg	
218-01-9	Chrysene	ND	29	ug/kg	
86-73-7	Fluorene	ND	29	ug/kg	
91-20-3	Naphthalene	ND	29	ug/kg	
85-01-8	Phenanthrene	ND	29	ug/kg	
129-00-0	Pyrene	ND	29	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	45%	21-116%
4165-62-2	Phenol-d5	56%	19-117%
118-79-6	2,4,6-Tribromophenol	87%	24-136%
4165-60-0	Nitrobenzene-d5	48%	21-122%
321-60-8	2-Fluorobiphenyl	73%	30-117%
1718-51-0	Terphenyl-d14	97%	31-129%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	2.92	2200	ug/kg	J
	system artifact	2.99	120	ug/kg	J
	system artifact	3.73	150	ug/kg	J
	system artifact	3.80	190	ug/kg	J
	system artifact	3.94	300	ug/kg	J
	system artifact	4.00	250	ug/kg	J
	system artifact/aldol-condensation	4.05	1300	ug/kg	J
	unknown	4.17	190	ug/kg	J
	unknown	16.35	7700	ug/kg	J
	alkane	16.98	170	ug/kg	J
	unknown	18.92	180	ug/kg	J
	Total TIC, Semi-Volatile		8240	ug/kg	J

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64463-MB1	2P21541.D	1	03/26/13	AD	03/21/13	OP64463	E2P947

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

JB31121-21, JB31121-22, JB31121-23, JB31121-24

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	29	ug/kg	
56-55-3	Benzo(a)anthracene	ND	29	ug/kg	
50-32-8	Benzo(a)pyrene	ND	29	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	29	ug/kg	
218-01-9	Chrysene	ND	29	ug/kg	
86-73-7	Fluorene	ND	29	ug/kg	
91-20-3	Naphthalene	ND	29	ug/kg	
85-01-8	Phenanthrene	ND	29	ug/kg	
129-00-0	Pyrene	ND	29	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	51%	21-116%
4165-62-2	Phenol-d5	61%	19-117%
118-79-6	2,4,6-Tribromophenol	74%	24-136%
4165-60-0	Nitrobenzene-d5	46%	21-122%
321-60-8	2-Fluorobiphenyl	71%	30-117%
1718-51-0	Terphenyl-d14	85%	31-129%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	unknown	12.89	8200	ug/kg	J
	Total TIC, Semi-Volatile		8200	ug/kg	J

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64463-MB1	3P18178.D	1	03/28/13	KH	03/21/13	OP64463	E3P822

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

JB31121-21, JB31121-22, JB31121-23, JB31121-24

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	29	ug/kg	
56-55-3	Benzo(a)anthracene	ND	29	ug/kg	
50-32-8	Benzo(a)pyrene	ND	29	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	29	ug/kg	
218-01-9	Chrysene	ND	29	ug/kg	
86-73-7	Fluorene	ND	29	ug/kg	
91-20-3	Naphthalene	ND	29	ug/kg	
85-01-8	Phenanthrene	ND	29	ug/kg	
129-00-0	Pyrene	ND	29	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	48%	21-116%
4165-62-2	Phenol-d5	54%	19-117%
118-79-6	2,4,6-Tribromophenol	85%	24-136%
4165-60-0	Nitrobenzene-d5	56%	21-122%
321-60-8	2-Fluorobiphenyl	72%	30-117%
1718-51-0	Terphenyl-d14	92%	31-129%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.45	2000	ug/kg	J
	system artifact	1.96	180	ug/kg	J
	system artifact	2.14	220	ug/kg	J
	system artifact	2.17	230	ug/kg	J
	system artifact/aldol-condensation	2.23	1400	ug/kg	J
	system artifact	2.34	150	ug/kg	J
	unknown	13.84	7800	ug/kg	J
	unknown	15.44	160	ug/kg	J
	Total TIC, Semi-Volatile		7960	ug/kg	J

Method Blank Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64464-MB1	3E48833.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111

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

JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

CAS No.	Compound	Result	RL	Units	Q
120-12-7	Anthracene	ND	29	ug/kg	
56-55-3	Benzo(a)anthracene	ND	29	ug/kg	
50-32-8	Benzo(a)pyrene	ND	29	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	29	ug/kg	
218-01-9	Chrysene	ND	29	ug/kg	
86-73-7	Fluorene	ND	29	ug/kg	
91-20-3	Naphthalene	ND	29	ug/kg	
85-01-8	Phenanthrene	ND	29	ug/kg	
129-00-0	Pyrene	ND	29	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzenе-d5	59%	21-122%
321-60-8	2-Fluorobiphenyl	58%	30-117%
1718-51-0	Terphenyl-d14	69%	31-129%

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64463-BS1	3P18179.D	1	03/28/13	KH	03/21/13	OP64463	E3P822

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

JB31121-21, JB31121-22, JB31121-23, JB31121-24

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	1430	1300	91	59-121
56-55-3	Benzo(a)anthracene	1430	1240	87	54-119
50-32-8	Benzo(a)pyrene	1430	1280	90	59-122
205-99-2	Benzo(b)fluoranthene	1430	1130	79	45-133
191-24-2	Benzo(g,h,i)perylene	1430	1380	97	57-122
218-01-9	Chrysene	1430	1260	88	55-120
86-73-7	Fluorene	1430	1290	90	57-117
91-20-3	Naphthalene	1430	1130	79	49-111
85-01-8	Phenanthrene	1430	1230	86	58-118
129-00-0	Pyrene	1430	1190	83	54-122

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	75%	21-116%
4165-62-2	Phenol-d5	80%	19-117%
118-79-6	2,4,6-Tribromophenol	115%	24-136%
4165-60-0	Nitrobenzene-d5	98%	21-122%
321-60-8	2-Fluorobiphenyl	89%	30-117%
1718-51-0	Terphenyl-d14	95%	31-129%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64464-BS1	3E48834.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111

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

JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	1430	1300	91	59-121
56-55-3	Benzo(a)anthracene	1430	1300	91	54-119
50-32-8	Benzo(a)pyrene	1430	1340	94	59-122
205-99-2	Benzo(b)fluoranthene	1430	1440	101	45-133
191-24-2	Benzo(g,h,i)perylene	1430	1370	96	57-122
218-01-9	Chrysene	1430	1310	92	55-120
86-73-7	Fluorene	1430	1410	99	57-117
91-20-3	Naphthalene	1430	1180	83	49-111
85-01-8	Phenanthrene	1430	1270	89	58-118
129-00-0	Pyrene	1430	1220	85	54-122

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	90%	21-122%
321-60-8	2-Fluorobiphenyl	90%	30-117%
1718-51-0	Terphenyl-d14	96%	31-129%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64463-MS	3P18197.D	1	03/28/13	KH	03/21/13	OP64463	E3P822
OP64463-MSD	3P18198.D	1	03/28/13	KH	03/21/13	OP64463	E3P822
JB30942-2	3P18196.D	1	03/28/13	KH	03/21/13	OP64463	E3P822
JB30942-2	3P18242.D	2	03/29/13	ALS	03/21/13	OP64463	E3P823

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

JB31121-21, JB31121-22, JB31121-23, JB31121-24

CAS No.	Compound	JB30942-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	1050		1670	2640	95	3360	139* [a]	24	33-130/30
56-55-3	Benzo(a)anthracene	2210		1670	4030	109	5320	187* [a]	28	29-127/33
50-32-8	Benzo(a)pyrene	2190		1670	3930	104	4870	161* [a]	21	28-134/34
205-99-2	Benzo(b)fluoranthene	2320		1670	4590	136	5850	213* [a]	24	19-143/38
191-24-2	Benzo(g,h,i)perylene	1360		1670	2850	89	3320	118	15	27-135/34
218-01-9	Chrysene	2130		1670	3960	110	5140	181* [a]	26	29-129/32
86-73-7	Fluorene	484		1670	1870	83	2330	111	22	32-125/32
91-20-3	Naphthalene	279		1670	1540	76	1720	87	11	25-117/32
85-01-8	Phenanthrene	4000 [c]		1670	6090	132	9450	334* [b]	43* [a]	28-132/34
129-00-0	Pyrene	3740 [c]		1670	5510	112	7750	248* [b]	34* [a]	27-132/33

CAS No.	Surrogate Recoveries	MS	MSD	JB30942-2	JB30942-2	Limits
367-12-4	2-Fluorophenol	57%	53%	43%	43%	21-116%
4165-62-2	Phenol-d5	65%	59%	51%	52%	19-117%
118-79-6	2,4,6-Tribromophenol	82%	78%	70%	47%	24-136%
4165-60-0	Nitrobenzene-d5	84%	78%	72%	72%	21-122%
321-60-8	2-Fluorobiphenyl	75%	73%	67%	69%	30-117%
1718-51-0	Terphenyl-d14	83%	78%	78%	82%	31-129%

(a) Outside control limits due to matrix interference.
(b) Outside control limits due to high level in sample relative to spike amount.
(c) Result is from Run #2.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP64464-MS	3E48864.D	1	03/27/13	OYA	03/25/13	OP64464	E3E2112
OP64464-MSD	3E48846.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111
JB31121-1	3E48847.D	1	03/26/13	OYA	03/25/13	OP64464	E3E2111

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

JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

CAS No.	Compound	JB31121-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	142		1670	1090	57	1160	59	6	33-130/30
56-55-3	Benzo(a)anthracene	609		1670	1060	27* [a]	1110	29	5	29-127/33
50-32-8	Benzo(a)pyrene	639		1670	1090	27* [a]	1140	29	4	28-134/34
205-99-2	Benzo(b)fluoranthene	718		1670	1050	20	1300	34	21	19-143/38
191-24-2	Benzo(g,h,i)perylene	404		1670	1220	49	1160	44	5	27-135/34
218-01-9	Chrysene	674		1670	1090	25* [a]	1110	25* [a]	2	29-129/32
86-73-7	Fluorene	54.8		1670	1080	61	1170	65	8	32-125/32
91-20-3	Naphthalene	ND		1670	943	56	970	56	3	25-117/32
85-01-8	Phenanthrene	529		1670	1040	31	1120	34	7	28-132/34
129-00-0	Pyrene	822		1670	961	8* [a]	1120	17* [a]	15	27-132/33

CAS No.	Surrogate Recoveries	MS	MSD	JB31121-1	Limits
4165-60-0	Nitrobenzene-d5	39%	39%	28%	21-122%
321-60-8	2-Fluorobiphenyl	42%	39%	35%	30-117%
1718-51-0	Terphenyl-d14	44%	44%	40%	31-129%

(a) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2147-DFTPP
Lab File ID: 2M50362.D
Instrument ID: GCMS2M
Injection Date: 03/06/13
Injection Time: 17:29

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	35429	37.8		Pass
68	Less than 2.0% of mass 69	660	0.70	(1.69) [a]	Pass
69	Mass 69 relative abundance	39022	41.7		Pass
70	Less than 2.0% of mass 69	193	0.21	(0.49) [a]	Pass
127	40.0 - 60.0% of mass 198	52362	55.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	93650	100.0		Pass
199	5.0 - 9.0% of mass 198	6110	6.52		Pass
275	10.0 - 30.0% of mass 198	20579	22.0		Pass
365	1.0 - 100.0% of mass 198	2131	2.28		Pass
441	Present, but less than mass 443	8341	8.91	(72.0) [b]	Pass
442	40.0 - 100.0% of mass 198	58296	62.2		Pass
443	17.0 - 23.0% of mass 442	11584	12.4	(19.9) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2M2147-IC2147	2M50363.D	03/06/13	17:46	00:17	Initial cal 100
E2M2147-IC2147	2M50364.D	03/06/13	18:14	00:45	Initial cal 80
E2M2147-ICC2147	2M50365.D	03/06/13	18:37	01:08	Initial cal 50
E2M2147-IC2147	2M50366.D	03/06/13	19:00	01:31	Initial cal 25
E2M2147-IC2147	2M50367.D	03/06/13	19:23	01:54	Initial cal 10
E2M2147-IC2147	2M50368.D	03/06/13	19:46	02:17	Initial cal 5
E2M2147-IC2147	2M50369.D	03/06/13	20:09	02:40	Initial cal 2
E2M2147-IC2147	2M50370.D	03/06/13	20:32	03:03	Initial cal 1

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2148-DFTPP
Lab File ID: 2M50371.D
Instrument ID: GCMS2M
Injection Date: 03/06/13
Injection Time: 20:51

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	33390	38.8		Pass
68	Less than 2.0% of mass 69	604	0.70	(1.65) [a]	Pass
69	Mass 69 relative abundance	36704	42.7		Pass
70	Less than 2.0% of mass 69	200	0.23	(0.54) [a]	Pass
127	40.0 - 60.0% of mass 198	48688	56.6		Pass
197	Less than 1.0% of mass 198	129	0.15		Pass
198	Base peak, 100% relative abundance	86024	100.0		Pass
199	5.0 - 9.0% of mass 198	5930	6.89		Pass
275	10.0 - 30.0% of mass 198	18201	21.2		Pass
365	1.0 - 100.0% of mass 198	1941	2.26		Pass
441	Present, but less than mass 443	7595	8.83	(73.8) [b]	Pass
442	40.0 - 100.0% of mass 198	52226	60.7		Pass
443	17.0 - 23.0% of mass 442	10286	12.0	(19.7) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2M2148-IC2148	2M50372.D	03/06/13	21:03	00:12	Initial cal 100
E2M2148-IC2148	2M50373.D	03/06/13	21:26	00:35	Initial cal 80
E2M2148-ICC2148	2M50374.D	03/06/13	21:49	00:58	Initial cal 50
E2M2148-IC2148	2M50375.D	03/06/13	22:12	01:21	Initial cal 25
E2M2148-IC2148	2M50376.D	03/06/13	22:35	01:44	Initial cal 10
E2M2148-IC2148	2M50377.D	03/06/13	22:58	02:07	Initial cal 5
E2M2148-IC2148	2M50378.D	03/06/13	23:21	02:30	Initial cal 2
E2M2148-IC2148	2M50379.D	03/06/13	23:44	02:53	Initial cal 1
E2M2148-ICV2147	2M50380.D	03/07/13	00:07	03:16	Initial cal verification 50
E2M2148-ICV2147	2M50381.D	03/07/13	00:30	03:39	Initial cal verification 50
E2M2148-ICV2148	2M50381A.D	03/07/13	00:30	03:39	Initial cal verification 50
E2M2148-ICV2147	2M50382.D	03/07/13	00:53	04:02	Initial cal verification 50
E2M2148-ICV2148	2M50382A.D	03/07/13	00:53	04:02	Initial cal verification 50
E2M2148-ICV2147	2M50383.D	03/07/13	01:16	04:25	Initial cal verification 50
E2M2148-ICV2147	2M50384.D	03/07/13	01:39	04:48	Initial cal verification 50
E2M2148-ICV2148	2M50385.D	03/07/13	02:02	05:11	Initial cal verification 50
E2M2148-ICV2148	2M50386.D	03/07/13	02:25	05:34	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2175-DFTPP
Lab File ID: 2M51061.D
Instrument ID: GCMS2M
Injection Date: 03/28/13
Injection Time: 10:43

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	61210	46.4		Pass
68	Less than 2.0% of mass 69	770	0.58	(1.10) [a]	Pass
69	Mass 69 relative abundance	69765	52.9		Pass
70	Less than 2.0% of mass 69	508	0.38	(0.73) [a]	Pass
127	40.0 - 60.0% of mass 198	77517	58.7		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	131949	100.0		Pass
199	5.0 - 9.0% of mass 198	8855	6.71		Pass
275	10.0 - 30.0% of mass 198	35634	27.0		Pass
365	1.0 - 100.0% of mass 198	3901	2.96		Pass
441	Present, but less than mass 443	16933	12.8	(80.4) [b]	Pass
442	40.0 - 100.0% of mass 198	112949	85.6		Pass
443	17.0 - 23.0% of mass 442	21069	16.0	(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
E2M2175-CC2147	2M51062.D	03/28/13	11:02	00:19	Continuing cal 50
E2M2175-CC2148	2M51063.D	03/28/13	11:25	00:42	Continuing cal 25
OP64725-MB1	2M51065.D	03/28/13	12:11	01:28	Method Blank
OP64725-BS1	2M51066.D	03/28/13	12:34	01:51	Blank Spike
JB32444-1	2M51070.D	03/28/13	13:54	03:11	(used for QC only; not part of job JB31121)
ZZZZZZ	2M51071.D	03/28/13	14:17	03:34	(unrelated sample)
ZZZZZZ	2M51072.D	03/28/13	14:40	03:57	(unrelated sample)
ZZZZZZ	2M51067.D	03/28/13	15:03	04:20	(unrelated sample)
OP64768-MB1	2M51073.D	03/28/13	15:26	04:43	Method Blank
OP64768-BS1	2M51074.D	03/28/13	15:49	05:06	Blank Spike
ZZZZZZ	2M51075.D	03/28/13	16:12	05:29	(unrelated sample)
ZZZZZZ	2M51076.D	03/28/13	16:35	05:52	(unrelated sample)
ZZZZZZ	2M51077.D	03/28/13	16:58	06:15	(unrelated sample)
OP64768-MS	2M51078.D	03/28/13	17:21	06:38	Matrix Spike
OP64768-MSD	2M51079.D	03/28/13	17:44	07:01	Matrix Spike Duplicate
JB31861-1	2M51080.D	03/28/13	18:06	07:23	(used for QC only; not part of job JB31121)
ZZZZZZ	2M51081.D	03/28/13	18:30	07:47	(unrelated sample)
ZZZZZZ	2M51082.D	03/28/13	18:52	08:09	(unrelated sample)
ZZZZZZ	2M51083.D	03/28/13	19:15	08:32	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2175-DFTPP
Lab File ID: 2M51061.D
Instrument ID: GCMS2M
Injection Date: 03/28/13
Injection Time: 10:43

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP64725-MS	2M51084.D	03/28/13	19:38	08:55	Matrix Spike
OP64725-MSD	2M51085.D	03/28/13	20:01	09:18	Matrix Spike Duplicate
JB31121-15	2M51089.D	03/28/13	20:47	10:04	BH-13-72_8-10'
ZZZZZZ	2M51086.D	03/28/13	21:33	10:50	(unrelated sample)
ZZZZZZ	2M51087.D	03/28/13	21:56	11:13	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2176-DFTPP
Lab File ID: 2M51092.D
Instrument ID: GCMS2M
Injection Date: 03/29/13
Injection Time: 10:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	58973	45.4		Pass
68	Less than 2.0% of mass 69	802	0.62	(1.15) [a]	Pass
69	Mass 69 relative abundance	69461	53.5		Pass
70	Less than 2.0% of mass 69	367	0.28	(0.53) [a]	Pass
127	40.0 - 60.0% of mass 198	75242	58.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	129833	100.0		Pass
199	5.0 - 9.0% of mass 198	9239	7.12		Pass
275	10.0 - 30.0% of mass 198	33941	26.1		Pass
365	1.0 - 100.0% of mass 198	3869	2.98		Pass
441	Present, but less than mass 443	17894	13.8	(80.9) [b]	Pass
442	40.0 - 100.0% of mass 198	115693	89.1		Pass
443	17.0 - 23.0% of mass 442	22110	17.0	(19.1) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2M2176-CC2147	2M51093.D	03/29/13	10:30	00:13	Continuing cal 25
E2M2176-CC2148	2M51094.D	03/29/13	11:03	00:46	Continuing cal 25
OP64724-MB1	2M51095.D	03/29/13	11:33	01:16	Method Blank
OP64724-BS1	2M51096.D	03/29/13	11:56	01:39	Blank Spike
ZZZZZZ	2M51097.D	03/29/13	12:19	02:02	(unrelated sample)
ZZZZZZ	2M51098.D	03/29/13	12:42	02:25	(unrelated sample)
ZZZZZZ	2M51099.D	03/29/13	13:05	02:48	(unrelated sample)
JB31121-16	2M51100.D	03/29/13	13:28	03:11	BH-13-73_8-10'
ZZZZZZ	2M51101.D	03/29/13	13:55	03:38	(unrelated sample)
ZZZZZZ	2M51102.D	03/29/13	14:18	04:01	(unrelated sample)
ZZZZZZ	2M51103.D	03/29/13	14:41	04:24	(unrelated sample)
OP64672-MB1	2M51122.D	03/29/13	15:04	04:47	Method Blank
ZZZZZZ	2M51123.D	03/29/13	15:27	05:10	(unrelated sample)
ZZZZZZ	2M51104.D	03/29/13	16:59	06:42	(unrelated sample)
JB32365-1	2M51108.D	03/29/13	17:22	07:05	(used for QC only; not part of job JB31121)
ZZZZZZ	2M51109.D	03/29/13	17:45	07:28	(unrelated sample)
ZZZZZZ	2M51110.D	03/29/13	18:08	07:51	(unrelated sample)
ZZZZZZ	2M51111.D	03/29/13	18:31	08:14	(unrelated sample)
ZZZZZZ	2M51112.D	03/29/13	18:53	08:36	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2M2176-DFTPP
Lab File ID: 2M51092.D
Instrument ID: GCMS2M
Injection Date: 03/29/13
Injection Time: 10:17

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP64724-MS	2M51113.D	03/29/13	19:16	08:59	Matrix Spike
OP64724-MSD	2M51114.D	03/29/13	19:39	09:22	Matrix Spike Duplicate
JB32186-3	2M51115.D	03/29/13	20:02	09:45	(used for QC only; not part of job JB31121)
ZZZZZZ	2M51116.D	03/29/13	20:25	10:08	(unrelated sample)
ZZZZZZ	2M51118.D	03/29/13	21:11	10:54	(unrelated sample)
ZZZZZZ	2M51119.D	03/29/13	21:34	11:17	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P889-DFTPP
Lab File ID: 2P20060.D
Instrument ID: GCMS2P
Injection Date: 02/14/13
Injection Time: 16:49

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	247028	35.5		Pass
68	Less than 2.0% of mass 69	4681	0.67	(1.56) [a]	Pass
69	Mass 69 relative abundance	299285	43.1		Pass
70	Less than 2.0% of mass 69	1593	0.23	(0.53) [a]	Pass
127	40.0 - 60.0% of mass 198	384853	55.4		Pass
197	Less than 1.0% of mass 198	4870	0.70		Pass
198	Base peak, 100% relative abundance	694891	100.0		Pass
199	5.0 - 9.0% of mass 198	46558	6.70		Pass
275	10.0 - 30.0% of mass 198	167576	24.1		Pass
365	1.0 - 100.0% of mass 198	20924	3.01		Pass
441	Present, but less than mass 443	91109	13.1	(78.9) [b]	Pass
442	40.0 - 100.0% of mass 198	615680	88.6		Pass
443	17.0 - 23.0% of mass 442	115464	16.6	(18.8) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P889-IC889	2P20061.D	02/14/13	16:58	00:09	Initial cal 100
E2P889-IC889	2P20062.D	02/14/13	17:21	00:32	Initial cal 80
E2P889-ICC889	2P20063.D	02/14/13	17:44	00:55	Initial cal 50
E2P889-IC889	2P20064.D	02/14/13	18:07	01:18	Initial cal 25
E2P889-IC889	2P20065.D	02/14/13	18:29	01:40	Initial cal 10
E2P889-IC889	2P20066.D	02/14/13	18:52	02:03	Initial cal 5
E2P889-IC889	2P20067.D	02/14/13	19:15	02:26	Initial cal 2
E2P889-IC889	2P20068.D	02/14/13	19:37	02:48	Initial cal 1
E2P889-ICV889	2P20069A.D	02/14/13	20:00	03:11	Initial cal verification 50
E2P889-ICV888	2P20069.D	02/14/13	20:00	03:11	Initial cal verification 50
E2P889-ICV889	2P20070A.D	02/14/13	20:23	03:34	Initial cal verification 50
E2P889-ICV888	2P20070.D	02/14/13	20:23	03:34	Initial cal verification 50
E2P889-ICV888	2P20071.D	02/14/13	20:45	03:56	Initial cal verification 50
E2P889-ICV888	2P20072.D	02/14/13	21:08	04:19	Initial cal verification 50
E2P889-ICV889	2P20073A.D	02/14/13	21:31	04:42	Initial cal verification 50
E2P889-ICV888	2P20073.D	02/14/13	21:31	04:42	Initial cal verification 50
E2P889-ICV888	2P20074.D	02/14/13	21:53	05:04	Initial cal verification 50
E2P889-ICV889	2P20075A.D	02/14/13	22:16	05:27	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P896-DFTPP
Lab File ID: 2P20223.D
Instrument ID: GCMS2P
Injection Date: 02/20/13
Injection Time: 09:14

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	412889	34.8		Pass
68	Less than 2.0% of mass 69	7218	0.61	(1.49) [a]	Pass
69	Mass 69 relative abundance	483367	40.8		Pass
70	Less than 2.0% of mass 69	1932	0.16	(0.40) [a]	Pass
127	40.0 - 60.0% of mass 198	617112	52.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	1186113	100.0		Pass
199	5.0 - 9.0% of mass 198	79203	6.68		Pass
275	10.0 - 30.0% of mass 198	257408	21.7		Pass
365	1.0 - 100.0% of mass 198	31587	2.66		Pass
441	Present, but less than mass 443	128379	10.8	(77.1) [b]	Pass
442	40.0 - 100.0% of mass 198	868651	73.2		Pass
443	17.0 - 23.0% of mass 442	166589	14.0	(19.2) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P896-IC896	2P20224.D	02/20/13	09:22	00:08	Initial cal 100
E2P896-IC896	2P20225.D	02/20/13	09:45	00:31	Initial cal 1
E2P896-IC896	2P20226.D	02/20/13	10:08	00:54	Initial cal 80
E2P896-IC896	2P20227.D	02/20/13	10:30	01:16	Initial cal 2
E2P896-ICC896	2P20228.D	02/20/13	10:54	01:40	Initial cal 50
E2P896-IC896	2P20229.D	02/20/13	11:17	02:03	Initial cal 5
E2P896-IC896	2P20230.D	02/20/13	11:39	02:25	Initial cal 25
E2P896-IC896	2P20231.D	02/20/13	12:02	02:48	Initial cal 10
E2P896-ICV896	2P20232.D	02/20/13	12:26	03:12	Initial cal verification 50
E2P896-ICV896	2P20233.D	02/20/13	12:49	03:35	Initial cal verification 50
E2P896-ICV896	2P20234.D	02/20/13	13:12	03:58	Initial cal verification 50
E2P896-ICV896	2P20235.D	02/20/13	13:35	04:21	Initial cal verification 50
E2P896-ICV896	2P20237.D	02/20/13	14:21	05:07	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P947-DFTPP
Lab File ID: 2P21537.D
Instrument ID: GCMS2P
Injection Date: 03/26/13
Injection Time: 18:12

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	657785	35.7		Pass
68	Less than 2.0% of mass 69	227	0.01	(0.03) [a]	Pass
69	Mass 69 relative abundance	808877	43.9		Pass
70	Less than 2.0% of mass 69	4197	0.23	(0.52) [a]	Pass
127	40.0 - 60.0% of mass 198	864213	46.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	1841257	100.0		Pass
199	5.0 - 9.0% of mass 198	119325	6.48		Pass
275	10.0 - 30.0% of mass 198	444205	24.1		Pass
365	1.0 - 100.0% of mass 198	46483	2.52		Pass
441	Present, but less than mass 443	260523	14.1	(90.0) [b]	Pass
442	40.0 - 100.0% of mass 198	1492203	81.0		Pass
443	17.0 - 23.0% of mass 442	289515	15.7	(19.4) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P947-CC896	2P21538.D	03/26/13	18:21	00:09	Continuing cal 50
E2P947-CC889	2P21539.D	03/26/13	18:43	00:31	Continuing cal 50
OP64465-MB1	2P21540.D	03/26/13	19:06	00:54	Method Blank
OP64463-MB1	2P21541.D	03/26/13	19:28	01:16	Method Blank
ZZZZZZ	2P21542.D	03/26/13	19:51	01:39	(unrelated sample)
ZZZZZZ	2P21543.D	03/26/13	20:13	02:01	(unrelated sample)
ZZZZZZ	2P21544.D	03/26/13	20:36	02:24	(unrelated sample)
ZZZZZZ	2P21545.D	03/26/13	20:59	02:47	(unrelated sample)
ZZZZZZ	2P21546.D	03/26/13	21:21	03:09	(unrelated sample)
ZZZZZZ	2P21547.D	03/26/13	21:44	03:32	(unrelated sample)
ZZZZZZ	2P21548.D	03/26/13	22:07	03:55	(unrelated sample)
ZZZZZZ	2P21549.D	03/26/13	22:29	04:17	(unrelated sample)
ZZZZZZ	2P21550.D	03/26/13	22:53	04:41	(unrelated sample)
ZZZZZZ	2P21551.D	03/26/13	23:16	05:04	(unrelated sample)
JB31121-21	2P21552.D	03/26/13	23:38	05:26	AOI2_BH-13-63_4-5_31213
JB31121-22	2P21553.D	03/27/13	00:01	05:49	AOI2_BH-13-61_8.5-9_31213
JB31121-23	2P21554.D	03/27/13	00:24	06:12	BH-13-53_8-10'
JB31121-24	2P21555.D	03/27/13	00:47	06:35	BH-13-79_4-6'
ZZZZZZ	2P21556.D	03/27/13	01:10	06:58	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P947-DFTPP
Lab File ID: 2P21537.D
Instrument ID: GCMS2P
Injection Date: 03/26/13
Injection Time: 18:12

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	2P21557.D	03/27/13	01:33	07:21	(unrelated sample)
ZZZZZZ	2P21558.D	03/27/13	01:55	07:43	(unrelated sample)
ZZZZZZ	2P21559.D	03/27/13	02:18	08:06	(unrelated sample)
ZZZZZZ	2P21560.D	03/27/13	02:41	08:29	(unrelated sample)
ZZZZZZ	2P21561.D	03/27/13	03:04	08:52	(unrelated sample)
ZZZZZZ	2P21562.D	03/27/13	03:26	09:14	(unrelated sample)
ZZZZZZ	2P21563.D	03/27/13	03:49	09:37	(unrelated sample)
ZZZZZZ	2P21564.D	03/27/13	04:12	10:00	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P954-DFTPP
Lab File ID: 2P21709.D
Instrument ID: GCMS2P
Injection Date: 03/30/13
Injection Time: 09:23

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	263206	35.0		Pass
68	Less than 2.0% of mass 69	5404	0.72	(1.81) [a]	Pass
69	Mass 69 relative abundance	298227	39.7		Pass
70	Less than 2.0% of mass 69	1489	0.20	(0.50) [a]	Pass
127	40.0 - 60.0% of mass 198	382369	50.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	751701	100.0		Pass
199	5.0 - 9.0% of mass 198	49899	6.64		Pass
275	10.0 - 30.0% of mass 198	168781	22.5		Pass
365	1.0 - 100.0% of mass 198	21049	2.80		Pass
441	Present, but less than mass 443	74085	9.86	(76.3) [b]	Pass
442	40.0 - 100.0% of mass 198	481771	64.1		Pass
443	17.0 - 23.0% of mass 442	97051	12.9	(20.1) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P954-ICC954	2P21710.D	03/30/13	10:15	00:52	Initial cal 50
E2P954-IC954	2P21712.D	03/30/13	10:44	01:21	Initial cal 100
E2P954-IC954	2P21717.D	03/30/13	11:13	01:50	Initial cal 1
E2P954-IC954	2P21711.D	03/30/13	11:42	02:19	Initial cal 25
E2P954-IC954	2P21713.D	03/30/13	12:11	02:48	Initial cal 80
E2P954-IC954	2P21714.D	03/30/13	12:40	03:17	Initial cal 10
E2P954-IC954	2P21715.D	03/30/13	13:09	03:46	Initial cal 5
E2P954-IC954	2P21716.D	03/30/13	13:38	04:15	Initial cal 2

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P957-DFTPP
Lab File ID: 2P21745.D
Instrument ID: GCMS2P
Injection Date: 04/01/13
Injection Time: 16:41

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	162162	40.4		Pass
68	Less than 2.0% of mass 69	3129	0.78	(1.89) [a]	Pass
69	Mass 69 relative abundance	165977	41.4		Pass
70	Less than 2.0% of mass 69	1117	0.28	(0.67) [a]	Pass
127	40.0 - 60.0% of mass 198	210061	52.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	400904	100.0		Pass
199	5.0 - 9.0% of mass 198	27178	6.78		Pass
275	10.0 - 30.0% of mass 198	92771	23.1		Pass
365	1.0 - 100.0% of mass 198	12173	3.04		Pass
441	Present, but less than mass 443	42512	10.6	(79.9) [b]	Pass
442	40.0 - 100.0% of mass 198	271259	67.7		Pass
443	17.0 - 23.0% of mass 442	53192	13.3	(19.6) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P957-IC957	2P21746.D	04/01/13	16:51	00:10	Initial cal 100
E2P957-IC957	2P21747.D	04/01/13	17:20	00:39	Initial cal 1
E2P957-IC957	2P21748.D	04/01/13	17:49	01:08	Initial cal 80
E2P957-IC957	2P21749.D	04/01/13	18:18	01:37	Initial cal 2
E2P957-ICC957	2P21750.D	04/01/13	18:47	02:06	Initial cal 50
E2P957-IC957	2P21751.D	04/01/13	19:16	02:35	Initial cal 5
E2P957-IC957	2P21752.D	04/01/13	19:45	03:04	Initial cal 25
E2P957-IC957	2P21753.D	04/01/13	20:14	03:33	Initial cal 10
E2P957-ICV957	2P21754.D	04/01/13	20:43	04:02	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P963-DFTPP
Lab File ID: 2P21857.D
Instrument ID: GCMS2P
Injection Date: 04/04/13
Injection Time: 08:43

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	281052	43.8		Pass
68	Less than 2.0% of mass 69	5278	0.82	(1.86) [a]	Pass
69	Mass 69 relative abundance	284051	44.3		Pass
70	Less than 2.0% of mass 69	1242	0.19	(0.44) [a]	Pass
127	40.0 - 60.0% of mass 198	339584	52.9		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	641792	100.0		Pass
199	5.0 - 9.0% of mass 198	43464	6.77		Pass
275	10.0 - 30.0% of mass 198	143440	22.3		Pass
365	1.0 - 100.0% of mass 198	16986	2.65		Pass
441	Present, but less than mass 443	67781	10.6	(82.7) [b]	Pass
442	40.0 - 100.0% of mass 198	420224	65.5		Pass
443	17.0 - 23.0% of mass 442	81987	12.8	(19.5) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P963-CC954	2P21858.D	04/04/13	09:03	00:20	Continuing cal 25
E2P963-CC957	2P21859.D	04/04/13	09:32	00:49	Continuing cal 25
ZZZZZZ	2P21860.D	04/04/13	10:01	01:18	(unrelated sample)
ZZZZZZ	2P21861.D	04/04/13	10:30	01:47	(unrelated sample)
ZZZZZZ	2P21862.D	04/04/13	10:59	02:16	(unrelated sample)
ZZZZZZ	2P21863.D	04/04/13	11:28	02:45	(unrelated sample)
ZZZZZZ	2P21864.D	04/04/13	11:57	03:14	(unrelated sample)
ZZZZZZ	2P21865.D	04/04/13	12:26	03:43	(unrelated sample)
ZZZZZZ	2P21866.D	04/04/13	12:56	04:13	(unrelated sample)
ZZZZZZ	2P21867.D	04/04/13	13:25	04:42	(unrelated sample)
ZZZZZZ	2P21868.D	04/04/13	13:54	05:11	(unrelated sample)
ZZZZZZ	2P21869.D	04/04/13	14:23	05:40	(unrelated sample)
ZZZZZZ	2P21870.D	04/04/13	14:52	06:09	(unrelated sample)
ZZZZZZ	2P21871.D	04/04/13	15:21	06:38	(unrelated sample)
ZZZZZZ	2P21872.D	04/04/13	15:50	07:07	(unrelated sample)
ZZZZZZ	2P21873.D	04/04/13	16:47	08:04	(unrelated sample)
JB31121-21	2P21883.D	04/04/13	17:17	08:34	AOI2_BH-13-63_4-5_31213
ZZZZZZ	2P21874.D	04/04/13	17:46	09:03	(unrelated sample)
ZZZZZZ	2P21875.D	04/04/13	18:15	09:32	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E2P963-DFTPP
Lab File ID: 2P21857.D
Instrument ID: GCMS2P
Injection Date: 04/04/13
Injection Time: 08:43

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	2P21876.D	04/04/13	18:44	10:01	(unrelated sample)
ZZZZZZ	2P21877.D	04/04/13	19:12	10:29	(unrelated sample)
OP64568-MS	2P21878.D	04/04/13	19:41	10:58	Matrix Spike
ZZZZZZ	2P21879.D	04/04/13	20:10	11:27	(unrelated sample)
ZZZZZZ	2P21880.D	04/04/13	20:39	11:56	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2052-DFTPP
Lab File ID: 3E47318.D
Instrument ID: GCMS3E
Injection Date: 01/29/13
Injection Time: 14:30

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	3131	35.0		Pass
68	Less than 2.0% of mass 69	44	0.49	(1.27) [a]	Pass
69	Mass 69 relative abundance	3455	38.6		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	4844	54.2		Pass
197	Less than 1.0% of mass 198	16	0.18		Pass
198	Base peak, 100% relative abundance	8941	100.0		Pass
199	5.0 - 9.0% of mass 198	559	6.25		Pass
275	10.0 - 30.0% of mass 198	2099	23.5		Pass
365	1.0 - 100.0% of mass 198	218	2.44		Pass
441	Present, but less than mass 443	1006	11.3	(79.1) [b]	Pass
442	40.0 - 100.0% of mass 198	6207	69.4		Pass
443	17.0 - 23.0% of mass 442	1272	14.2	(20.5) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2052-IC2052	3E47319.D	01/29/13	14:48	00:18	Initial cal 100
E3E2052-IC2052	3E47320.D	01/29/13	15:12	00:42	Initial cal 80
E3E2052-ICC2052	3E47321.D	01/29/13	15:36	01:06	Initial cal 50
E3E2052-IC2052	3E47322.D	01/29/13	16:32	02:02	Initial cal 25
E3E2052-IC2052	3E47323.D	01/29/13	16:55	02:25	Initial cal 10
E3E2052-IC2052	3E47324.D	01/29/13	17:19	02:49	Initial cal 5
E3E2052-IC2052	3E47325.D	01/29/13	17:42	03:12	Initial cal 2
E3E2052-IC2052	3E47326.D	01/29/13	18:06	03:36	Initial cal 1
E3E2052-ICV2051	3E47327.D	01/29/13	18:29	03:59	Initial cal verification 50
E3E2052-ICV2051	3E47328.D	01/29/13	18:53	04:23	Initial cal verification 50
E3E2052-ICV2052	3E47328A.D	01/29/13	18:53	04:23	Initial cal verification 50
E3E2052-ICV2051	3E47329.D	01/29/13	19:17	04:47	Initial cal verification 50
E3E2052-ICV2052	3E47329A.D	01/29/13	19:17	04:47	Initial cal verification 50
E3E2052-ICV2051	3E47330.D	01/29/13	19:40	05:10	Initial cal verification 50
E3E2052-ICV2051	3E47331.D	01/29/13	20:04	05:34	Initial cal verification 50
E3E2052-ICV2052	3E47332.D	01/29/13	20:27	05:57	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2061-DFTPP
Lab File ID: 3E47535.D
Instrument ID: GCMS3E
Injection Date: 02/06/13
Injection Time: 16:27

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	3129	30.9		Pass
68	Less than 2.0% of mass 69	47	0.46	(1.30) [a]	Pass
69	Mass 69 relative abundance	3629	35.8		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	5230	51.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	10136	100.0		Pass
199	5.0 - 9.0% of mass 198	697	6.88		Pass
275	10.0 - 30.0% of mass 198	2554	25.2		Pass
365	1.0 - 100.0% of mass 198	305	3.01		Pass
441	Present, but less than mass 443	1102	10.9	(74.3) [b]	Pass
442	40.0 - 100.0% of mass 198	7287	71.9		Pass
443	17.0 - 23.0% of mass 442	1483	14.6	(20.4) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2061-IC2061	3E47536.D	02/06/13	16:52	00:25	Initial cal 100
E3E2061-IC2061	3E47537.D	02/06/13	17:16	00:49	Initial cal 80
E3E2061-ICC2061	3E47538.D	02/06/13	17:40	01:13	Initial cal 50
E3E2061-IC2061	3E47539.D	02/06/13	18:03	01:36	Initial cal 25
E3E2061-IC2061	3E47540.D	02/06/13	18:27	02:00	Initial cal 10
E3E2061-IC2061	3E47541.D	02/06/13	18:50	02:23	Initial cal 5
E3E2061-IC2061	3E47542.D	02/06/13	19:14	02:47	Initial cal 2
E3E2061-IC2061	3E47543.D	02/06/13	19:37	03:10	Initial cal 1
E3E2061-ICV2061	3E47544.D	02/06/13	20:01	03:34	Initial cal verification 50
E3E2061-ICV2061	3E47545.D	02/06/13	20:24	03:57	Initial cal verification 50
E3E2061-ICV2061	3E47546.D	02/06/13	20:48	04:21	Initial cal verification 50
E3E2061-ICV2061	3E47547.D	02/06/13	21:12	04:45	Initial cal verification 50
E3E2061-ICV2061	3E47548.D	02/06/13	21:35	05:08	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2111-DFTPP
Lab File ID: 3E48830.D
Instrument ID: GCMS3E
Injection Date: 03/26/13
Injection Time: 10:14

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	2136	32.7		Pass
68	Less than 2.0% of mass 69	35	0.54	(1.42) [a]	Pass
69	Mass 69 relative abundance	2467	37.8		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	3469	53.1		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	6533	100.0		Pass
199	5.0 - 9.0% of mass 198	436	6.67		Pass
275	10.0 - 30.0% of mass 198	1956	29.9		Pass
365	1.0 - 100.0% of mass 198	261	4.00		Pass
441	Present, but less than mass 443	877	13.4	(75.5) [b]	Pass
442	40.0 - 100.0% of mass 198	5756	88.1		Pass
443	17.0 - 23.0% of mass 442	1161	17.8	(20.2) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2111-CC2061	3E48831.D	03/26/13	10:31	00:17	Continuing cal 50
E3E2111-CC2052	3E48832.D	03/26/13	11:02	00:48	Continuing cal 25
OP64464-MB1	3E48833.D	03/26/13	11:26	01:12	Method Blank
OP64464-BS1	3E48834.D	03/26/13	11:50	01:36	Blank Spike
JB31121-2	3E48835.D	03/26/13	12:13	01:59	AOI2_BH-13-70_7-8_31113
JB31121-10	3E48836.D	03/26/13	12:36	02:22	AOI5_BH-13-15_4.5-5_031113
JB31121-11	3E48837.D	03/26/13	13:00	02:46	AOI5_BH-13-08_1.5-2_031113
JB31121-12	3E48838.D	03/26/13	13:23	03:09	AOI5_BH-13-08_3.5-4_031113
JB31121-13	3E48839.D	03/26/13	13:47	03:33	BH-13-75_4-6'
ZZZZZZ	3E48857.D	03/26/13	14:10	03:56	(unrelated sample)
ZZZZZZ	3E48858.D	03/26/13	14:33	04:19	(unrelated sample)
JB31121-14	3E48840.D	03/26/13	14:56	04:42	BH-13-72_2-4'
JB31121-15	3E48841.D	03/26/13	15:20	05:06	BH-13-72_8-10'
JB31121-16	3E48842.D	03/26/13	15:43	05:29	BH-13-73_8-10'
JB31121-19	3E48843.D	03/26/13	16:06	05:52	AOI2_BH-13-68_1-1.5_31213
JB31121-20	3E48844.D	03/26/13	16:29	06:15	AOI2_BH-13-68_8-9_31213
OP64464-MSD	3E48846.D	03/26/13	17:16	07:02	Matrix Spike Duplicate
JB31121-1	3E48847.D	03/26/13	17:39	07:25	AOI2_BH-13-74_2-3_31113
JB31121-9	3E48848.D	03/26/13	18:02	07:48	AOI5_BH-13-15_1.5-2_031113

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2111-DFTPP
Lab File ID: 3E48830.D
Instrument ID: GCMS3E
Injection Date: 03/26/13
Injection Time: 10:14

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JB31121-3	3E48849.D	03/26/13	18:25	08:11	AOI2_BH-13-80_0-1_31113
JB31121-4	3E48850.D	03/26/13	18:48	08:34	AOI2_BH-13-80_2-3_31113
JB31121-5	3E48851.D	03/26/13	19:12	08:58	AOI5_BH-13-16_1.5-2_031113
JB31121-6	3E48852.D	03/26/13	19:35	09:21	AOI5_BH-13-16_3.5-4_031113
JB31121-7	3E48853.D	03/26/13	19:58	09:44	AOI5_BH-13-17_1.5-2_031113
JB31121-8	3E48854.D	03/26/13	20:21	10:07	AOI5_BH-13-17_5-5.5_031113
JB31121-17	3E48855.D	03/26/13	20:45	10:31	AOI5_BH-13-01_1.5-2_031213
JB31121-18	3E48856.D	03/26/13	21:08	10:54	AOI2_BH-13-69_0-1_31213

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2112-DFTPP
Lab File ID: 3E48860.D
Instrument ID: GCMS3E
Injection Date: 03/27/13
Injection Time: 09:33

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	1685	31.1		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	1975	36.4		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	2875	53.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	5422	100.0		Pass
199	5.0 - 9.0% of mass 198	358	6.60		Pass
275	10.0 - 30.0% of mass 198	1626	30.0		Pass
365	1.0 - 100.0% of mass 198	203	3.74		Pass
441	Present, but less than mass 443	734	13.5	(75.7) [b]	Pass
442	40.0 - 100.0% of mass 198	4896	90.3		Pass
443	17.0 - 23.0% of mass 442	970	17.9	(19.8) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E2112-CC2061	3E48861.D	03/27/13	09:55	00:22	Continuing cal 25
E3E2112-CC2052	3E48862.D	03/27/13	10:19	00:46	Continuing cal 25
OP64468-MB1	3E48863.D	03/27/13	11:26	01:53	Method Blank
OP64464-MS	3E48864.D	03/27/13	12:02	02:29	Matrix Spike
JB31121-3	3E48865.D	03/27/13	12:25	02:52	AOI2_BH-13-80_0-1_31113
JB31121-4	3E48866.D	03/27/13	12:49	03:16	AOI2_BH-13-80_2-3_31113
JB31121-6	3E48867.D	03/27/13	13:12	03:39	AOI5_BH-13-16_3.5-4_031113
ZZZZZZ	3E48868.D	03/27/13	13:35	04:02	(unrelated sample)
ZZZZZZ	3E48869.D	03/27/13	13:58	04:25	(unrelated sample)
ZZZZZZ	3E48870.D	03/27/13	14:22	04:49	(unrelated sample)
OP64644-MB1	3E48887.D	03/27/13	14:45	05:12	Method Blank
ZZZZZZ	3E48891.D	03/27/13	15:08	05:35	(unrelated sample)
ZZZZZZ	3E48888.D	03/27/13	15:31	05:58	(unrelated sample)
ZZZZZZ	3E48889.D	03/27/13	15:55	06:22	(unrelated sample)
ZZZZZZ	3E48890.D	03/27/13	16:18	06:45	(unrelated sample)
ZZZZZZ	3E48871.D	03/27/13	16:41	07:08	(unrelated sample)
ZZZZZZ	3E48872.D	03/27/13	17:04	07:31	(unrelated sample)
ZZZZZZ	3E48873.D	03/27/13	17:27	07:54	(unrelated sample)
ZZZZZZ	3E48874.D	03/27/13	17:50	08:17	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3E2112-DFTPP
Lab File ID: 3E48860.D
Instrument ID: GCMS3E
Injection Date: 03/27/13
Injection Time: 09:33

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3E48875.D	03/27/13	18:14	08:41	(unrelated sample)
ZZZZZZ	3E48876.D	03/27/13	18:37	09:04	(unrelated sample)
ZZZZZZ	3E48877.D	03/27/13	19:00	09:27	(unrelated sample)
ZZZZZZ	3E48886.D	03/27/13	19:23	09:50	(unrelated sample)
ZZZZZZ	3E48878.D	03/27/13	19:46	10:13	(unrelated sample)
ZZZZZZ	3E48879.D	03/27/13	20:09	10:36	(unrelated sample)
ZZZZZZ	3E48880.D	03/27/13	20:32	10:59	(unrelated sample)
ZZZZZZ	3E48881.D	03/27/13	20:55	11:22	(unrelated sample)
ZZZZZZ	3E48882.D	03/27/13	21:18	11:45	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3P782-DFTPP
Lab File ID: 3P17131.D
Instrument ID: GCMS3P
Injection Date: 02/26/13
Injection Time: 09:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	44244	45.7		Pass
68	Less than 2.0% of mass 69	547	0.57	(1.07) [a]	Pass
69	Mass 69 relative abundance	51091	52.8		Pass
70	Less than 2.0% of mass 69	226	0.23	(0.44) [a]	Pass
127	40.0 - 60.0% of mass 198	53456	55.3		Pass
197	Less than 1.04% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	96747	100.0		Pass
199	5.0 - 9.0% of mass 198	6418	6.63		Pass
275	10.0 - 30.0% of mass 198	23148	23.9		Pass
365	1.0 - 100.0% of mass 198	3410	3.52		Pass
441	Present, but less than mass 443	14935	15.4	(96.1) [b]	Pass
442	40.0 - 100.0% of mass 198	80411	83.1		Pass
443	17.0 - 23.0% of mass 442	15545	16.1	(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
E3P782-IC782	3P17132.D	02/26/13	09:26	00:09	Initial cal 100
E3P782-IC782	3P17133.D	02/26/13	09:50	00:33	Initial cal 1
E3P782-IC782	3P17134.D	02/26/13	10:14	00:57	Initial cal 80
E3P782-IC782	3P17135.D	02/26/13	10:38	01:21	Initial cal 2
E3P782-ICC782	3P17136.D	02/26/13	11:01	01:44	Initial cal 50
E3P782-IC782	3P17137.D	02/26/13	11:25	02:08	Initial cal 5
E3P782-IC782	3P17138.D	02/26/13	11:49	02:32	Initial cal 25
E3P782-IC782	3P17139.D	02/26/13	12:13	02:56	Initial cal 10

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3P783-DFTPP
Lab File ID: 3P17140.D
Instrument ID: GCMS3P
Injection Date: 02/26/13
Injection Time: 12:38

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	38368	42.0		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	44592	48.8		Pass
70	Less than 2.0% of mass 69	233	0.26	(0.52) [a]	Pass
127	40.0 - 60.0% of mass 198	48656	53.3		Pass
197	Less than 1.04% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	91291	100.0		Pass
199	5.0 - 9.0% of mass 198	6418	7.03		Pass
275	10.0 - 30.0% of mass 198	22715	24.9		Pass
365	1.0 - 100.0% of mass 198	3379	3.70		Pass
441	Present, but less than mass 443	15903	17.4	(94.6) [b]	Pass
442	40.0 - 100.0% of mass 198	86712	95.0		Pass
443	17.0 - 23.0% of mass 442	16807	18.4	(19.4) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3P783-IC783	3P17141.D	02/26/13	12:47	00:09	Initial cal 100
E3P783-IC783	3P17142.D	02/26/13	13:11	00:33	Initial cal 80
E3P783-ICC783	3P17143.D	02/26/13	13:34	00:56	Initial cal 50
E3P783-IC783	3P17144.D	02/26/13	13:58	01:20	Initial cal 25
E3P783-IC783	3P17145.D	02/26/13	14:22	01:44	Initial cal 10
E3P783-IC783	3P17146.D	02/26/13	14:46	02:08	Initial cal 5
E3P783-IC783	3P17147.D	02/26/13	15:10	02:32	Initial cal 2
E3P783-IC783	3P17148.D	02/26/13	15:33	02:55	Initial cal 1
E3P783-ICV782	3P17149.D	02/26/13	15:57	03:19	Initial cal verification 50
E3P783-ICV783	3P17150A.D	02/26/13	16:21	03:43	Initial cal verification 50
E3P783-ICV782	3P17150.D	02/26/13	16:21	03:43	Initial cal verification 50
E3P783-ICV783	3P17151A.D	02/26/13	16:44	04:06	Initial cal verification 50
E3P783-ICV782	3P17151.D	02/26/13	16:44	04:06	Initial cal verification 50
E3P783-ICV782	3P17152.D	02/26/13	17:08	04:30	Initial cal verification 50
E3P783-ICV783	3P17153.D	02/26/13	17:32	04:54	Initial cal verification 50
E3P783-ICV782	3P17154.D	02/26/13	17:56	05:18	Initial cal verification 50
E3P783-ICV783	3P17155.D	02/26/13	18:20	05:42	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3P822-DFTPP
Lab File ID: 3P18171.D
Instrument ID: GCMS3P
Injection Date: 03/28/13
Injection Time: 08:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	686261	59.9		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	759690	66.3		Pass
70	Less than 2.0% of mass 69	3322	0.29	(0.44) [a]	Pass
127	40.0 - 60.0% of mass 198	658517	57.5		Pass
197	Less than 1.04% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	1145515	100.0		Pass
199	5.0 - 9.0% of mass 198	82331	7.19		Pass
275	10.0 - 30.0% of mass 198	295488	25.8		Pass
365	1.0 - 100.0% of mass 198	47091	4.11		Pass
441	Present, but less than mass 443	187776	16.4	(82.6) [b]	Pass
442	40.0 - 100.0% of mass 198	1138517	99.4		Pass
443	17.0 - 23.0% of mass 442	227328	19.8	(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
E3P822-CC782	3P18172.D	03/28/13	09:05	00:10	Continuing cal 50
E3P822-CC783	3P18173.D	03/28/13	09:29	00:34	Continuing cal 50
OP64616-MB1	3P18174.D	03/28/13	09:53	00:58	Method Blank
OP64616-BS1	3P18175.D	03/28/13	10:16	01:21	Blank Spike
OP64537-MB1	3P18176.D	03/28/13	10:40	01:45	Method Blank
OP64537-BS1	3P18177.D	03/28/13	11:03	02:08	Blank Spike
OP64463-MB1	3P18178.D	03/28/13	11:27	02:32	Method Blank
OP64463-BS1	3P18179.D	03/28/13	11:50	02:55	Blank Spike
ZZZZZZ	3P18180.D	03/28/13	12:14	03:19	(unrelated sample)
ZZZZZZ	3P18181.D	03/28/13	12:37	03:42	(unrelated sample)
ZZZZZZ	3P18182.D	03/28/13	13:01	04:06	(unrelated sample)
ZZZZZZ	3P18183.D	03/28/13	13:24	04:29	(unrelated sample)
ZZZZZZ	3P18184.D	03/28/13	13:48	04:53	(unrelated sample)
ZZZZZZ	3P18185.D	03/28/13	14:11	05:16	(unrelated sample)
ZZZZZZ	3P18186.D	03/28/13	14:34	05:39	(unrelated sample)
OP64616-MS	3P18188.D	03/28/13	15:21	06:26	Matrix Spike
OP64616-MSD	3P18189.D	03/28/13	15:45	06:50	Matrix Spike Duplicate
JB31419-1	3P18190.D	03/28/13	16:08	07:13	(used for QC only; not part of job JB31121)
OP64537-MS	3P18191.D	03/28/13	16:31	07:36	Matrix Spike

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: E3P822-DFTPP
Lab File ID: 3P18171.D
Instrument ID: GCMS3P
Injection Date: 03/28/13
Injection Time: 08:55

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP64537-MSD	3P18192.D	03/28/13	16:55	08:00	Matrix Spike Duplicate
ZZZZZZ	3P18193.D	03/28/13	17:18	08:23	(unrelated sample)
ZZZZZZ	3P18194.D	03/28/13	17:42	08:47	(unrelated sample)
ZZZZZZ	3P18195.D	03/28/13	18:05	09:10	(unrelated sample)
JB30942-2	3P18196.D	03/28/13	18:29	09:34	(used for QC only; not part of job JB31121)
OP64463-MS	3P18197.D	03/28/13	18:52	09:57	Matrix Spike
OP64463-MSD	3P18198.D	03/28/13	19:15	10:20	Matrix Spike Duplicate
ZZZZZZ	3P18199.D	03/28/13	19:39	10:44	(unrelated sample)
ZZZZZZ	3P18200.D	03/28/13	20:02	11:07	(unrelated sample)
ZZZZZZ	3P18201.D	03/28/13	20:26	11:31	(unrelated sample)
ZZZZZZ	3P18202.D	03/28/13	20:49	11:54	(unrelated sample)
OP64473-MB2	3P18204.D	03/28/13	22:00	13:05	Method Blank
ZZZZZZ	3P18205.D	03/28/13	22:23	13:28	(unrelated sample)
OP64614-MB1	3P18206.D	03/28/13	22:47	13:52	Method Blank
ZZZZZZ	3P18207.D	03/28/13	23:10	14:15	(unrelated sample)
ZZZZZZ	3P18208.D	03/28/13	23:34	14:39	(unrelated sample)
OP64762-MB1	3P18209.D	03/28/13	23:57	15:02	Method Blank
ZZZZZZ	3P18210.D	03/29/13	00:20	15:25	(unrelated sample)
ZZZZZZ	3P18211.D	03/29/13	00:44	15:49	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: EM3735-DFTPP
Lab File ID: M92176.D
Instrument ID: GCMSM
Injection Date: 03/19/13
Injection Time: 10:32

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	7894	40.6		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	9182	47.3		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	10377	53.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	19424	100.0		Pass
199	5.0 - 9.0% of mass 198	1297	6.68		Pass
275	10.0 - 30.0% of mass 198	4556	23.5		Pass
365	1.0 - 100.0% of mass 198	515	2.65		Pass
441	Present, but less than mass 443	1707	8.79	(81.0) [b]	Pass
442	40.0 - 100.0% of mass 198	10893	56.1		Pass
443	17.0 - 23.0% of mass 442	2107	10.8	(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
EM3735-IC3735	M92177.D	03/19/13	11:40	01:08	Initial cal 100
EM3735-IC3735	M92178.D	03/19/13	12:07	01:35	Initial cal 1
EM3735-ICC3735	M92179.D	03/19/13	12:57	02:25	Initial cal 50
EM3735-IC3735	M92180.D	03/19/13	13:27	02:55	Initial cal 25
EM3735-IC3735	M92181.D	03/19/13	13:54	03:22	Initial cal 80
EM3735-IC3735	M92182.D	03/19/13	14:38	04:06	Initial cal 2
EM3735-IC3735	M92183.D	03/19/13	15:07	04:35	Initial cal 5
EM3735-IC3735	M92184.D	03/19/13	15:36	05:04	Initial cal 10

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: EM3736-DFTPP
Lab File ID: M92185.D
Instrument ID: GCMSM
Injection Date: 03/19/13
Injection Time: 16:10

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	9774	30.9		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	12531	39.7		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	14985	47.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	31580	100.0		Pass
199	5.0 - 9.0% of mass 198	2266	7.18		Pass
275	10.0 - 30.0% of mass 198	7596	24.1		Pass
365	1.0 - 100.0% of mass 198	847	2.68		Pass
441	Present, but less than mass 443	2863	9.07	(77.8) [b]	Pass
442	40.0 - 100.0% of mass 198	18654	59.1		Pass
443	17.0 - 23.0% of mass 442	3681	11.7	(19.7) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM3736-IC3736	M92186.D	03/19/13	16:21	00:11	Initial cal 100
EM3736-IC3736	M92187.D	03/19/13	16:50	00:40	Initial cal 80
EM3736-ICC3736	M92188.D	03/19/13	17:20	01:10	Initial cal 50
EM3736-IC3736	M92189.D	03/19/13	17:49	01:39	Initial cal 25
EM3736-IC3736	M92190.D	03/19/13	18:19	02:09	Initial cal 10
EM3736-IC3736	M92191.D	03/19/13	18:48	02:38	Initial cal 5
EM3736-IC3736	M92192.D	03/19/13	19:18	03:08	Initial cal 2
EM3736-IC3736	M92193.D	03/19/13	20:02	03:52	Initial cal 1
EM3736-ICV3735	M92194.D	03/19/13	20:32	04:22	Initial cal verification 50
EM3736-ICV3735	M92195.D	03/19/13	21:01	04:51	Initial cal verification 50
EM3736-ICV3736	M92195A.D	03/19/13	21:01	04:51	Initial cal verification 50
EM3736-ICV3735	M92196.D	03/19/13	21:31	05:21	Initial cal verification 50
EM3736-ICV3736	M92196A.D	03/19/13	21:31	05:21	Initial cal verification 50
EM3736-ICV3735	M92197.D	03/19/13	22:01	05:51	Initial cal verification 50
EM3736-ICV3735	M92198.D	03/19/13	22:30	06:20	Initial cal verification 50
EM3736-ICV3736	M92199.D	03/19/13	23:00	06:50	Initial cal verification 50
EM3736-ICV3736	M92200.D	03/19/13	23:29	07:19	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: EM3746-DFTPP
Lab File ID: M92397.D
Instrument ID: GCMSM
Injection Date: 03/26/13
Injection Time: 08:43

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	14617	40.7		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	17377	48.4		Pass
70	Less than 2.0% of mass 69	81	0.23	(0.47) [a]	Pass
127	40.0 - 60.0% of mass 198	18854	52.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	35917	100.0		Pass
199	5.0 - 9.0% of mass 198	2547	7.09		Pass
275	10.0 - 30.0% of mass 198	8847	24.6		Pass
365	1.0 - 100.0% of mass 198	1066	2.97		Pass
441	Present, but less than mass 443	3588	9.99	(80.1) [b]	Pass
442	40.0 - 100.0% of mass 198	22644	63.0		Pass
443	17.0 - 23.0% of mass 442	4482	12.5	(19.8) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM3746-CC3735	M92398.D	03/26/13	09:20	00:37	Continuing cal 25
EM3746-CC3736	M92399.D	03/26/13	10:10	01:27	Continuing cal 25
OP64618-MB1	M92400.D	03/26/13	10:39	01:56	Method Blank
OP64618-BS1	M92401.D	03/26/13	11:09	02:26	Blank Spike
ZZZZZZ	M92402.D	03/26/13	11:55	03:12	(unrelated sample)
OP64455-MS	M92403.D	03/26/13	12:24	03:41	Matrix Spike
OP64455-MSD	M92404.D	03/26/13	12:54	04:11	Matrix Spike Duplicate
OP64463-MB1	M92408.D	03/26/13	13:44	05:01	Method Blank
ZZZZZZ	M92409.D	03/26/13	14:14	05:31	(unrelated sample)
ZZZZZZ	M92407.D	03/26/13	15:48	07:05	(unrelated sample)
ZZZZZZ	M92410.D	03/26/13	16:18	07:35	(unrelated sample)
ZZZZZZ	M92412.D	03/26/13	17:16	08:33	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: EM3758-DFTPP
Lab File ID: M92673.D
Instrument ID: GCMSM
Injection Date: 04/04/13
Injection Time: 09:01

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	13050	45.0		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	15637	53.9		Pass
70	Less than 2.0% of mass 69	67	0.23	(0.43) [a]	Pass
127	40.0 - 60.0% of mass 198	15361	53.0		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	28995	100.0		Pass
199	5.0 - 9.0% of mass 198	1992	6.87		Pass
275	10.0 - 30.0% of mass 198	6794	23.4		Pass
365	1.0 - 100.0% of mass 198	777	2.68		Pass
441	Present, but less than mass 443	2596	8.95	(84.3) [b]	Pass
442	40.0 - 100.0% of mass 198	15487	53.4		Pass
443	17.0 - 23.0% of mass 442	3081	10.6	(19.9) [c]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EM3758-CC3735	M92674.D	04/04/13	09:21	00:20	Continuing cal 50
EM3758-CC3736	M92675.D	04/04/13	09:55	00:54	Continuing cal 25
OP64736-MB1	M92676.D	04/04/13	10:14	01:13	Method Blank
JB31121-14	M92677.D	04/04/13	11:13	02:12	BH-13-72_2-4'
OP64922-MB1	M92678.D	04/04/13	11:44	02:43	Method Blank
ZZZZZZ	M92679.D	04/04/13	12:14	03:13	(unrelated sample)
ZZZZZZ	M92680.D	04/04/13	12:43	03:42	(unrelated sample)
OP64922-MS	M92681.D	04/04/13	13:13	04:12	Matrix Spike
OP64922-MSD	M92682.D	04/04/13	13:45	04:44	Matrix Spike Duplicate
JB32974-1	M92683.D	04/04/13	14:29	05:28	(used for QC only; not part of job JB31121)
ZZZZZZ	M92687.D	04/04/13	16:31	07:30	(unrelated sample)
ZZZZZZ	M92691.D	04/04/13	18:23	09:22	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2M2175-CC2147	**Injection Date:**	03/28/13
Lab File ID:	2M51062.D	**Injection Time:**	11:02
Instrument ID:	GCMS2M	**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	216064	2.73	886906	4.31	528455	6.92	852212	9.16	804499	12.87	708449	14.26
Upper Limit [a]	432128	3.23	1773812	4.81	1056910	7.42	1704424	9.66	1608998	13.37	1416898	14.76
Lower Limit [b]	108032	2.23	443453	3.81	264228	6.42	426106	8.66	402250	12.37	354225	13.76

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
OP64725-MB1	232009	2.73	960662	4.31	528436	6.91	823247	9.15	777727	12.87	691426	14.25
OP64725-BS1	211234	2.73	899875	4.31	506511	6.92	789172	9.15	764250	12.87	689103	14.25
JB32444-1	212300	2.73	899357	4.31	511003	6.91	814429	9.15	757945	12.87	675028	14.25
ZZZZZZ	228293	2.73	967055	4.31	555084	6.91	858615	9.15	814229	12.87	699581	14.25
ZZZZZZ	235534	2.73	1001376	4.31	560017	6.91	884134	9.15	838337	12.87	752184	14.25
ZZZZZZ	254324	2.73	1084861	4.31	630835	6.91	991462	9.15	952028	12.87	847775	14.25
OP64768-MB1	300752	2.73	1272709	4.31	712670	6.91	1081964	9.15	1014625	12.87	915808	14.25
OP64768-BS1	321943	2.73	1431692	4.31	814672	6.92	1295382	9.16	1277059	12.88	1150985	14.26
ZZZZZZ	203687	2.73	871818	4.32	503355	6.91	852919	9.16	1181286	12.92	1138979	14.30
ZZZZZZ	239260	2.73	998505	4.31	575553	6.92	913860	9.16	897908	12.88	904461	14.27
ZZZZZZ	200538	2.73	819835	4.31	477508	6.92	739270	9.16	781122	12.89	761303	14.27
OP64768-MS	219750	2.73	906904	4.31	519818	6.92	824898	9.16	773034	12.88	697884	14.26
OP64768-MSD	233536	2.73	985591	4.31	564543	6.92	911166	9.16	852908	12.87	744869	14.26
JB31861-1	242995	2.73	1027045	4.32	652850	6.93	1084257	9.18	917001	12.87	814334	14.26
ZZZZZZ	279542	2.73	1176187	4.31	703945	6.92	1175241	9.17	1042835	12.87	931963	14.26
ZZZZZZ	268593	2.73	1222529	4.33	915589	6.99	1440396	9.25	1032355	12.89	864984	14.26
ZZZZZZ	246282	2.73	1041633	4.31	591044	6.91	916648	9.15	811435	12.87	679991	14.26
OP64725-MS	207267	2.73	906171	4.32	568447	6.93	944994	9.17	791393	12.88	689730	14.26
OP64725-MSD	218478	2.73	973994	4.31	619917	6.93	973223	9.17	809612	12.87	695188	14.26
JB31121-15 [c]	216511	2.73	881783	4.31	498477	6.91	786599	9.15	721082	12.87	649462	14.26
ZZZZZZ	204271	2.73	901592	4.31	540852	6.91	848981	9.15	746202	12.87	679410	14.26
ZZZZZZ	205242	2.73	868704	4.31	501714	6.91	791612	9.15	733141	12.87	670941	14.25

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) Confirmation run.

Semivolatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2M2176-CC2147	**Injection Date:**	03/29/13
Lab File ID:	2M51093.D	**Injection Time:**	10:30
Instrument ID:	GCMS2M	**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	225067	2.70	929660	4.28	537780	6.88	893955	9.12	881866	12.84	780432	14.23
Upper Limit [a]	450134	3.20	1859320	4.78	1075560	7.38	1787910	9.62	1763732	13.34	1560864	14.73
Lower Limit [b]	112534	2.20	464830	3.78	268890	6.38	446978	8.62	440933	12.34	390216	13.73

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
OP64724-MB1	207307	2.70	880197	4.28	502797	6.88	804066	9.11	770667	12.84	685848	14.23
OP64724-BS1	201145	2.70	866891	4.28	496143	6.88	783341	9.12	775429	12.85	685956	14.23
ZZZZZZ	217806	2.70	897806	4.28	513845	6.88	817251	9.11	760286	12.84	652280	14.23
ZZZZZZ	218715	2.70	922586	4.28	535105	6.88	858066	9.11	813677	12.84	710094	14.23
ZZZZZZ	210461	2.71	947114	4.29	647236	6.92	1110557	9.17	865826	12.85	741480	14.23
JB31121-16 [c]	221065	2.70	928047	4.28	530065	6.88	850049	9.11	801323	12.84	686035	14.23
ZZZZZZ	200239	2.70	876781	4.28	501958	6.88	799855	9.11	753932	12.84	655110	14.23
ZZZZZZ	211769	2.70	914838	4.28	517618	6.88	834342	9.11	795668	12.84	699077	14.23
ZZZZZZ	204072	2.70	859233	4.28	499864	6.88	792015	9.11	721225	12.84	641181	14.23
OP64672-MB1	223314	2.70	967373	4.28	553687	6.88	890444	9.11	827077	12.84	716523	14.23
ZZZZZZ	241723	2.70	996427	4.28	562615	6.88	896517	9.11	842271	12.84	728368	14.23
ZZZZZZ	198875	2.70	852910	4.28	484058	6.88	764837	9.11	720500	12.84	639186	14.23
JB32365-1	238060	2.70	992601	4.28	566671	6.88	897446	9.11	820059	12.84	721890	14.23
ZZZZZZ	239313	2.70	1004636	4.28	570056	6.88	915317	9.11	845635	12.84	744693	14.23
ZZZZZZ	212854	2.70	890949	4.28	502663	6.88	789596	9.11	740288	12.84	646822	14.23
ZZZZZZ	205161	2.70	888276	4.28	512549	6.88	795301	9.11	728326	12.84	662890	14.23
ZZZZZZ	206689	2.70	888628	4.28	516816	6.88	824462	9.11	767500	12.84	660235	14.23
OP64724-MS	213262	2.70	909728	4.28	522558	6.88	833183	9.12	798163	12.85	681073	14.23
OP64724-MSD	227616	2.71	972546	4.28	569217	6.88	913080	9.12	868699	12.85	744438	14.23
JB32186-3	202794	2.71	864976	4.28	498390	6.88	786948	9.11	742062	12.84	663834	14.23
ZZZZZZ	213648	2.71	910308	4.28	515768	6.88	823050	9.11	726277	12.84	627910	14.23
ZZZZZZ	198761	2.70	840933	4.28	482705	6.88	751294	9.12	685783	12.84	605615	14.23
ZZZZZZ	210094	2.70	894423	4.28	508631	6.88	793266	9.11	725279	12.84	648219	14.23

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2P947-CC896	**Injection Date:**	03/26/13
Lab File ID:	2P21538.D	**Injection Time:**	18:21
Instrument ID:	GCMS2P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	72725	2.85	283209	4.45	160361	7.07	263633	9.34	267329	13.23	222006	14.90
Upper Limit [a]	145450	3.35	566418	4.95	320722	7.57	527266	9.84	534658	13.73	444012	15.40
Lower Limit [b]	36363	2.35	141605	3.95	80181	6.57	131817	8.84	133665	12.73	111003	14.40

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
OP64465-MB1	50925	2.85	199647	4.46	111215	7.07	182800	9.34	178038	13.23	153133	14.90
OP64463-MB1	50499	2.85	192767	4.45	103563	7.07	166766	9.34	165244	13.23	145547	14.90
ZZZZZZ	49191	2.85	191193	4.46	105063	7.08	173343	9.34	176557	13.24	173103	14.91
ZZZZZZ	46166	2.85	186020	4.46	106494	7.08	176066	9.34	174361	13.24	161593	14.91
ZZZZZZ	55620	2.85	213494	4.46	118057	7.08	191115	9.35	190230	13.25	169856	14.92
ZZZZZZ	44139	2.85	175208	4.46	98956	7.08	162399	9.35	165975	13.25	144949	14.91
ZZZZZZ	46367	2.87	184055	4.47	103626	7.08	163607	9.35	161132	13.25	147543	14.91
ZZZZZZ	45160	2.91	179679	4.49	99719	7.08	160904	9.35	156619	13.25	140656	14.91
ZZZZZZ	47064	2.92	187833	4.50	106234	7.08	171865	9.35	192102	13.26	180331	14.93
ZZZZZZ	44914	2.90	178357	4.48	100742	7.08	160268	9.35	169872	13.26	157701	14.92
ZZZZZZ	46505	2.86	182175	4.46	101228	7.08	162970	9.35	162711	13.25	154009	14.91
ZZZZZZ	47210	2.85	180770	4.46	102510	7.09	174435	9.38	173473	13.26	159019	14.91
JB31121-21	50245	2.85	195145	4.46	112974	7.09	187735	9.37	206899	13.28	189677	14.95
JB31121-22	42836	2.86	166977	4.46	92970	7.08	152721	9.35	149184	13.25	130023	14.91
JB31121-23	47476	2.85	185822	4.46	104143	7.09	169454	9.36	167568	13.25	148804	14.91
JB31121-24	49806	2.86	200673	4.47	110681	7.11	183598	9.37	181975	13.25	167455	14.92
ZZZZZZ	45495	2.86	174870	4.46	95662	7.08	156420	9.35	158334	13.25	152385	14.93
ZZZZZZ	47048	2.86	185109	4.46	104804	7.08	168215	9.35	168967	13.25	162971	14.93
ZZZZZZ	56422	2.87	222908	4.46	123325	7.08	203131	9.35	189850	13.25	159818	14.91
ZZZZZZ	48191	2.89	192146	4.47	106327	7.08	170157	9.35	175492	13.25	157128	14.92
ZZZZZZ	47827	2.86	187000	4.46	102728	7.08	170749	9.35	174004	13.25	156592	14.91
ZZZZZZ	44841	2.86	176612	4.46	97999	7.08	157864	9.35	159319	13.25	143566	14.91
ZZZZZZ	46232	2.86	179848	4.46	100499	7.08	164833	9.35	159706	13.25	146267	14.92
ZZZZZZ	67815	2.86	268997	4.46	151151	7.08	244395	9.35	246007	13.25	219510	14.91
ZZZZZZ	49833	2.86	196533	4.46	110180	7.08	176989	9.35	183116	13.25	165609	14.91

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E2P963-CC954	**Injection Date:**	04/04/13
Lab File ID:	2P21858.D	**Injection Time:**	09:03
Instrument ID:	GCMS2P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	76272	4.92	298269	6.83	162684	9.56	261891	11.83	255876	16.45	222989	19.28
Upper Limit [a]	152544	5.42	596538	7.33	325368	10.06	523782	12.33	511752	16.95	445978	19.78
Lower Limit [b]	38136	4.42	149135	6.33	81342	9.06	130946	11.33	127938	15.95	111495	18.78

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	115092	4.93	443258	6.83	239572	9.56	383112	11.83	386352	16.45		
ZZZZZZ	66537	4.92	257799	6.82	141690	9.56	229264	11.83	223506	16.44		
ZZZZZZ	74112	4.93	287745	6.82	156775	9.56	247677	11.83	218875	16.44		
ZZZZZZ	68506	4.93	268320	6.82	147172	9.56	236813	11.83	233122	16.45		
ZZZZZZ	68234	4.93	264579	6.83	145478	9.56	235414	11.85	234039	16.45		
ZZZZZZ	88276	4.93	341324	6.83	187047	9.56	296427	11.83	293495	16.45		
ZZZZZZ	63076	4.93	247402	6.82	134790	9.55	217708	11.83	205005	16.44		
ZZZZZZ	67933	4.93	268464	6.83	149134	9.57	239383	11.83	227786	16.46		
ZZZZZZ	77814	4.93	303643	6.83	168445	9.57	268293	11.84	253216	16.46		
ZZZZZZ	86411	4.93	338103	6.82	184788	9.56	295138	11.83	289425	16.45		
ZZZZZZ	89558	4.93	349319	6.83	192006	9.56	307860	11.83	298241	16.45		
ZZZZZZ	67847	4.93	268097	6.83	148297	9.56	238727	11.83	230029	16.45		
ZZZZZZ	67866	4.93	265184	6.83	145463	9.56	232909	11.83	226938	16.44		
ZZZZZZ	71432	4.93	280039	6.82	153625	9.56	247156	11.83	238759	16.44		
JB31121-21	66829	4.93	259781	6.82	139989	9.56	226236	11.84	229729	16.47	211939	19.31
ZZZZZZ	72911	4.93	286632	6.82	156784	9.56	248288	11.83	241411	16.45		
ZZZZZZ	79228	4.93	309916	6.82	170256	9.56	268755	11.83	258924	16.45		
ZZZZZZ	87284	4.93	339640	6.83	186447	9.56	298248	11.83	285730	16.45		
ZZZZZZ	77164	4.93	300975	6.83	163959	9.56	260088	11.83	241763	16.45		
OP64568-MS	88224	4.93	342996	6.83	186997	9.56	299826	11.83	289475	16.45		
ZZZZZZ	85240	4.93	330797	6.82	180118	9.55	285905	11.83	280056	16.44		
ZZZZZZ	83900	4.93	330613	6.82	181090	9.56	284338	11.83	277035	16.45		

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2111-CC2061	**Injection Date:**	03/26/13
Lab File ID:	3E48831.D	**Injection Time:**	10:31
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	86614	2.61	358519	4.16	209620	6.75	399320	8.99	448786	12.74	387147	14.13
Upper Limit [a]	173228	3.11	717038	4.66	419240	7.25	798640	9.49	897572	13.24	774294	14.63
Lower Limit [b]	43307	2.11	179260	3.66	104810	6.25	199660	8.49	224393	12.24	193574	13.63

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
OP64464-MB1	103109	2.61	424828	4.16	251231	6.75	488932	8.98	529131	12.74	505373	14.13
OP64464-BS1	95007	2.60	395979	4.16	239756	6.75	460873	8.99	503047	12.74	468873	14.13
JB31121-2	88245	2.61	361613	4.17	219061	6.76	394433	9.00	425855	12.74	434386	14.14
JB31121-10	103270	2.61	440507	4.16	258506	6.75	489400	8.98	496881	12.74	462190	14.13
JB31121-11	92473	2.61	359444	4.16	226879	6.75	427563	8.98	469463	12.74	391646	14.13
JB31121-12	99602	2.61	386573	4.16	244055	6.75	456261	8.98	468445	12.74	425938	14.13
JB31121-13	104840	2.61	412910	4.16	256089	6.75	478897	8.98	510285	12.74	445609	14.13
ZZZZZZ	134154	2.61	518032	4.16	320096	6.75	578757	8.98	637239	12.74	563248	14.14
ZZZZZZ	124828	2.61	469612	4.16	287417	6.75	544411	8.98	553435	12.74	519412	14.14
JB31121-14	92288	2.61	372256	4.16	227579	6.75	417730	8.99	466683	12.74	417565	14.13
JB31121-15	96614	2.61	392425	4.16	239487	6.75	455549	8.99	460161	12.74	428438	14.13
JB31121-16	118327	2.61	491938	4.16	297589	6.75	532084	8.99	574531	12.74	540153	14.14
JB31121-19	105671	2.61	419576	4.16	260662	6.75	466234	8.99	489644	12.74	464735	14.13
JB31121-20	99386	2.61	429605	4.17	279837	6.77	485303	9.01	499736	12.74	482926	14.14
OP64464-MSD	94487	2.60	396552	4.16	248511	6.75	480862	8.99	499270	12.74	436420	14.14
JB31121-1	99098	2.61	417502	4.16	240569	6.75	453344	8.99	471159	12.74	498048	14.14
JB31121-9	106628	2.61	444527	4.16	273165	6.75	473568	8.99	467297	12.75	458545	14.14
JB31121-3	111470	2.61	459634	4.18	382315	6.82	663947	9.08	738259	12.81	792206*	14.20
JB31121-4	73622	2.62	267798	4.22	138927	6.97	341548	9.16	273540	12.79	292340	14.18
JB31121-5	108146	2.61	425384	4.17	258649	6.76	479339	9.00	533003	12.77	520147	14.18
JB31121-6	88841	2.61	396753	4.17	248522	6.76	439374	9.00	450401	12.77	449933	14.18
JB31121-7	106906	2.61	422247	4.17	256855	6.76	460888	9.00	533211	12.77	533335	14.18
JB31121-8	136631	2.61	539452	4.17	335578	6.76	614458	9.01	634079	12.77	631008	14.17
JB31121-17	131983	2.61	535333	4.17	331918	6.76	573640	9.01	670672	12.77	649418	14.17
JB31121-18	103648	2.61	421944	4.17	256067	6.76	458712	9.01	517181	12.77	526164	14.18

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 Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2112-CC2061	**Injection Date:**	03/27/13
Lab File ID:	3E48861.D	**Injection Time:**	09:55
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	89809	2.59	335356	4.15	226054	6.73	427808	8.97	452733	12.73	359108	14.12
Upper Limit [a]	179618	3.09	670712	4.65	452108	7.23	855616	9.47	905466	13.23	718216	14.62
Lower Limit [b]	44905	2.09	167678	3.65	113027	6.23	213904	8.47	226367	12.23	179554	13.62

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
OP64468-MB1	90732	2.59	362994	4.15	235072	6.73	430542	8.97	457794	12.73	407791	14.12
OP64464-MS	89075	2.59	363043	4.15	213429	6.74	419606	8.97	447882	12.73	389170	14.12
JB31121-3 [c]	84177	2.60	341131	4.15	216699	6.74	410571	8.98	404575	12.73	405483	14.13
JB31121-4	100351	2.60	377314	4.16	248250	6.78	405516	9.00	396395	12.73	389456	14.13
JB31121-6	93924	2.59	419249	4.15	240220	6.73	438347	8.97	454479	12.73	490544	14.13
ZZZZZZ	114144	2.60	446965	4.15	283983	6.73	456485	8.97	468541	12.73	445713	14.13
ZZZZZZ	95422	2.70	300788	4.18	238240	6.74	425107	8.97	436242	12.73	419893	14.13
ZZZZZZ	105468	2.61	406934	4.16	250717	6.73	430037	8.97	465163	12.73	489545	14.14
OP64644-MB1	109134	2.59	443310	4.15	275500	6.73	500301	8.97	496576	12.73	441465	14.13
ZZZZZZ	104669	2.59	412436	4.15	255445	6.73	460989	8.97	496367	12.73	433265	14.12
ZZZZZZ	135606	2.59	555440	4.15	345591	6.73	638463	8.97	636980	12.73	605085	14.13
ZZZZZZ	99657	2.59	408359	4.15	255310	6.73	467680	8.97	469703	12.73	429251	14.12
ZZZZZZ	124178	2.59	488994	4.15	303814	6.73	565272	8.97	557871	12.73	526874	14.13
ZZZZZZ	121345	2.66	489915	4.15	293193	6.74	541178	8.97	530660	12.73	482765	14.13
ZZZZZZ	108670	2.66	439962	4.17	273927	6.74	486195	8.97	486410	12.73	435357	14.13
ZZZZZZ	117946	2.59	464414	4.15	289688	6.74	564107	8.97	580924	12.73	523782	14.13
ZZZZZZ	106333	2.59	453101	4.15	277535	6.74	481019	8.97	466018	12.73	445179	14.13
ZZZZZZ	107625	2.59	434283	4.15	272901	6.74	479519	8.97	486536	12.73	446943	14.13
ZZZZZZ	116486	2.59	468695	4.15	291090	6.74	520104	8.97	501453	12.73	469061	14.13
ZZZZZZ	15764*	2.59	77218*	4.15	64551*	6.73	142215*	8.97	128849*	12.74	111390*	14.13
ZZZZZZ	113778	2.59	432620	4.15	259014	6.74	444599	8.97	499928	12.74	556400	14.15
ZZZZZZ	108841	2.60	453719	4.16	278211	6.75	502754	8.99	495675	12.75	519802	14.15
ZZZZZZ	100470	2.60	423142	4.16	256370	6.75	460787	8.99	465995	12.74	448923	14.14
ZZZZZZ	98771	2.60	409360	4.16	255705	6.75	459085	8.98	476384	12.74	422699	14.14
ZZZZZZ	117077	2.60	469806	4.16	291449	6.75	532406	8.98	571530	12.74	511355	14.14
ZZZZZZ	118394	2.60	486004	4.16	296694	6.75	543023	8.98	587205	12.74	528200	14.14

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.

Semivolatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3E2112-CC2061	**Injection Date:**	03/27/13
Lab File ID:	3E48861.D	**Injection Time:**	09:55
Instrument ID:	GCMS3E	**Method:**	SW846 8270D

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Confirmation run for internal standard areas.

Semivolatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3P822-CC782	**Injection Date:**	03/28/13
Lab File ID:	3P18172.D	**Injection Time:**	09:05
Instrument ID:	GCMS3P	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	124298	3.81	456279	5.52	247513	8.22	404249	10.58	456776	14.35	435227	16.02
Upper Limit [a]	248596	4.31	912558	6.02	495026	8.72	808498	11.08	913552	14.85	870454	16.52
Lower Limit [b]	62149	3.31	228140	5.02	123757	7.72	202125	10.08	228388	13.85	217614	15.52

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
OP64616-MB1	87477	3.81	317986	5.52	169830	8.21	278441	10.57	303166	14.34	298016	16.01
OP64616-BS1	97312	3.81	351770	5.52	184436	8.21	287870	10.57	306942	14.35	293141	16.02
OP64537-MB1	111982	3.81	402703	5.52	216361	8.21	339592	10.57	367151	14.34	360957	16.02
OP64537-BS1	115501	3.81	420129	5.52	215663	8.22	343333	10.57	374128	14.35	358368	16.02
OP64463-MB1	125169	3.81	447260	5.52	238971	8.21	388056	10.57	391571	14.35	397788	16.02
OP64463-BS1	119853	3.81	432812	5.52	222756	8.22	360560	10.57	383835	14.35	380825	16.02
ZZZZZZ	105400	3.81	357200	5.52	189733	8.22	308339	10.57	344157	14.36	338711	16.03
ZZZZZZ	105278	3.81	382998	5.52	193835	8.22	312851	10.57	339835	14.35	344263	16.02
ZZZZZZ	112949	3.81	410240	5.52	211173	8.22	346548	10.57	367345	14.35	369660	16.03
ZZZZZZ	104150	3.84	402921	5.59	216626	8.23	356250	10.58	377250	14.37	380299	16.04
ZZZZZZ	89606	3.85	321892	5.55	175854	8.23	282915	10.58	292640	14.36	328402	16.04
ZZZZZZ	109828	3.82	407436	5.52	215037	8.22	358471	10.58	358760	14.36	375687	16.04
ZZZZZZ	108527	3.82	407365	5.53	205528	8.23	350254	10.58	364552	14.38	382518	16.05
OP64616-MS	121007	3.82	438408	5.53	226062	8.23	376646	10.59	402359	14.37	405054	16.04
OP64616-MSD	124860	3.82	456400	5.53	237072	8.23	395830	10.59	432897	14.37	428449	16.04
JB31419-1	126613	3.81	464772	5.53	245541	8.23	398561	10.59	408499	14.38	417979	16.07
OP64537-MS	129603	3.82	464739	5.53	242996	8.23	400176	10.59	423816	14.38	426560	16.06
OP64537-MSD	114614	3.82	411668	5.53	211712	8.23	352281	10.59	371392	14.38	376619	16.06
ZZZZZZ	135181	3.82	494417	5.53	252507	8.23	409691	10.59	434009	14.37	426149	16.04
ZZZZZZ	131903	3.82	463665	5.53	242395	8.23	395943	10.59	430802	14.36	415088	16.04
ZZZZZZ	133290	3.82	479265	5.53	250082	8.23	419449	10.59	440048	14.36	429672	16.04
JB30942-2	125925	3.81	457966	5.53	238772	8.23	396811	10.59	415512	14.37	411014	16.04
OP64463-MS	119949	3.82	432710	5.53	227923	8.23	373288	10.59	404051	14.38	393979	16.05
OP64463-MSD	127038	3.82	449812	5.53	234012	8.23	390676	10.59	419228	14.38	425010	16.05
ZZZZZZ	125123	3.81	440171	5.53	237503	8.23	384630	10.59	414941	14.38	394615	16.05
ZZZZZZ	110467	3.82	408029	5.53	216921	8.23	354074	10.59	365257	14.38	358480	16.05
ZZZZZZ	134622	3.82	502512	5.53	243071	8.27	389138	10.71	452424	14.43	454313	16.06
ZZZZZZ	134194	3.82	489202	5.53	254395	8.23	420063	10.59	425986	14.37	415789	16.05
OP64473-MB2	128469	3.83	458022	5.53	249463	8.23	403826	10.60	413571	14.37	398073	16.05
ZZZZZZ	149207	3.83	549771	5.53	288134	8.24	466838	10.60	471613	14.37	446136	16.05
OP64614-MB1	151528	3.83	553534	5.53	294224	8.23	473221	10.60	487245	14.37	460336	16.05
ZZZZZZ	129663	3.83	461602	5.53	242426	8.23	406929	10.60	414289	14.37	387816	16.04
ZZZZZZ	138327	3.83	506599	5.53	275788	8.23	448830	10.59	473495	14.37	434163	16.04
OP64762-MB1	131077	3.82	466113	5.53	254302	8.23	409734	10.59	429543	14.37	396720	16.04
ZZZZZZ	119940	3.82	442128	5.53	231360	8.23	388804	10.59	405412	14.37	370998	16.04

Semivolatile Internal Standard Area Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	E3P822-CC782	**Injection Date:**	03/28/13
Lab File ID:	3P18172.D	**Injection Time:**	09:05
Instrument ID:	GCMS3P	**Method:**	SW846 8270D

Lab Sample ID	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT
ZZZZZZ	128607	3.82	470399	5.53	250791	8.23	403993	10.59	435737	14.37	400328	16.04

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	EM3746-CC3735	**Injection Date:**	03/26/13
Lab File ID:	M92398.D	**Injection Time:**	09:20
Instrument ID:	GCMSM	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	111258	5.30	383908	6.59	259721	9.16	422587	11.86	350686	17.11	287431	19.78
Upper Limit [a]	222516	5.80	767816	7.09	519442	9.66	845174	12.36	701372	17.61	574862	20.28
Lower Limit [b]	55629	4.80	191954	6.09	129861	8.66	211294	11.36	175343	16.61	143716	19.28

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
OP64618-MB1	114032	5.30	400898	6.59	252507	9.16	392712	11.85	308446	17.09	214556	19.78
OP64618-BS1	92815	5.29	369597	6.59	210892	9.17	328614	11.85	269402	17.10	196312	19.77
ZZZZZZ	116577	5.29	417300	6.59	268431	9.16	422735	11.85	311974	17.10	228039	19.77
OP64455-MS	96067	5.29	374093	6.59	220695	9.16	334150	11.85	262580	17.10	199481	19.77
OP64455-MSD	99497	5.29	394449	6.59	229513	9.17	337730	11.86	258991	17.10	203126	19.77
OP64463-MB1	111033	5.30	394841	6.59	247235	9.17	385416	11.85	282949	17.10	210864	19.77
ZZZZZZ	105230	5.29	382896	6.59	249880	9.16	398753	11.85	302382	17.10	212806	19.77
ZZZZZZ	86138	5.30	299666	6.60	176532	9.18	347354	11.89	310624	17.20	288272	19.89
ZZZZZZ	101466	5.31	375544	6.59	223834	9.17	304547	11.87	229052	17.13	190969	19.81
ZZZZZZ	94431	5.30	353112	6.59	223991	9.16	332748	11.87	226704	17.12	180802	19.80

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Check Std:	EM3758-CC3735	**Injection Date:**	04/04/13
Lab File ID:	M92674.D	**Injection Time:**	09:21
Instrument ID:	GCMSM	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	148577	5.17	541181	6.43	380603	8.98	608472	11.65	567757	16.91	438297	19.57
Upper Limit [a]	297154	5.67	1082362	6.93	761206	9.48	1216944	12.15	1135514	17.41	876594	20.07
Lower Limit [b]	74289	4.67	270591	5.93	190302	8.48	304236	11.15	283879	16.41	219149	19.07

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
OP64736-MB1	157673	5.17	584746	6.43	382076	8.97	617871	11.65	590161	16.90	462277	19.56
JB31121-14 [c]	152965	5.17	567259	6.43	377756	8.97	590867	11.65	571991	16.89	456259	19.56
OP64922-MB1	144843	5.17	535192	6.42	347804	8.97	568659	11.64	528362	16.89	423793	19.56
ZZZZZZ	138195	5.17	518922	6.43	333205	8.97	538183	11.64	495192	16.89	383257	19.56
ZZZZZZ	140712	5.17	533049	6.42	346338	8.97	552394	11.64	491627	16.89	380699	19.56
OP64922-MS	111347	5.23	575009	6.43	301165	8.98	446157	11.65	338074	16.91	242935	19.57
OP64922-MSD	96401	5.22	395626	6.44	252356	8.98	375668	11.65	267392*	16.91	191118*	19.57
JB32974-1	94395	5.22	369294	6.44	250456	8.98	357846	11.65	251944*	16.90	177194*	19.57
ZZZZZZ	134234	5.17	508419	6.43	307974	8.97	478668	11.65	400700	16.90	235230	19.57
ZZZZZZ	134918	5.17	508254	6.43	311273	8.98	460893	11.66	344966	16.94	236994	19.61

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Surrogate Recovery Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, 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
JB31121-1	3E48847.D	28.0	35.0	40.0
JB31121-2	3E48835.D	44.0	46.0	56.0
JB31121-3	3E48865.D	57.0	50.0	52.0
JB31121-3	3E48849.D	80.0	36.0	47.0
JB31121-4	3E48866.D	68.0	69.0	60.0
JB31121-4	3E48850.D	84.0	65.0	64.0
JB31121-5	3E48851.D	29.0	38.0	51.0
JB31121-6	3E48867.D	40.0	45.0	54.0
JB31121-6	3E48852.D	40.0	46.0	52.0
JB31121-7	3E48853.D	33.0	38.0	39.0
JB31121-8	3E48854.D	26.0	33.0	59.0
JB31121-9	3E48848.D	32.0	36.0	85.0
JB31121-10	3E48836.D	28.0	30.0	47.0
JB31121-11	3E48837.D	46.0	43.0	51.0
JB31121-12	3E48838.D	33.0	35.0	51.0
JB31121-13	3E48839.D	44.0	43.0	58.0
JB31121-14	M92677.D	23.0	19.0* [a]	48.0
JB31121-14	3E48840.D	21.0	21.0* [b]	23.0* [b]
JB31121-15	2M51089.D	57.0	55.0	103.0
JB31121-15	3E48841.D	22.0	20.0* [c]	54.0
JB31121-16	2M51100.D	66.0	57.0	90.0
JB31121-16	3E48842.D	29.0	27.0* [c]	39.0
JB31121-17	3E48855.D	38.0	48.0	62.0
JB31121-18	3E48856.D	30.0	35.0	34.0
JB31121-19	3E48843.D	37.0	39.0	65.0
JB31121-20	3E48844.D	51.0	44.0	49.0
JB31121-21	2P21883.D	63.0	69.0	81.0
JB31121-21	2P21552.D	55.0	65.0	70.0
JB31121-22	2P21553.D	33.0	45.0	82.0
JB31121-23	2P21554.D	56.0	66.0	76.0
JB31121-24	2P21555.D	71.0	66.0	66.0
OP64463-BS1	3P18179.D	98.0	89.0	95.0
OP64463-MB1	M92408.D	48.0	73.0	97.0
OP64463-MB1	2P21541.D	46.0	71.0	85.0
OP64463-MB1	3P18178.D	56.0	72.0	92.0
OP64463-MS	3P18197.D	84.0	75.0	83.0
OP64463-MSD	3P18198.D	78.0	73.0	78.0
OP64464-BS1	3E48834.D	90.0	90.0	96.0
OP64464-MB1	3E48833.D	59.0	58.0	69.0
OP64464-MS	3E48864.D	39.0	42.0	44.0

Semivolatile Surrogate Recovery Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, 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
OP64464-MSD	3E48846.D	39.0	39.0	44.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	21-122%
S2 = 2-Fluorobiphenyl	30-117%
S3 = Terphenyl-d14	31-129%

(a) Outside control limits due to matrix interference.
(b) Outside control limits due to matrix interference. Confirmed by re-extraction.
(c) Outside in house control limits biased low. The results confirmed by re-extraction outside the holding time.

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2M2147-ICC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50365.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS2M

Method : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update : Thu Mar 07 09:32:27 2013
Response via : Initial Calibration

Calibration Files
2 =2m50369.D 5 =2m50368.D 25 =2m50366.D 80 =2m50364.D
100 =2m50363.D 50 =2m50365.D 1 =2m50370.D 10 =2m50367.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.615	0.607	0.595	0.578	0.561	0.591	0.667	0.620	0.604	5.26
3) Pyridine	1.384	1.636	1.616	1.595	1.552	1.661	1.639	1.546	1.579	5.62
4) N-Nitrosodim	0.966	1.021	0.987	0.947	0.928	0.972	1.027	0.996	0.980	3.49
5) 2-Fluorophen	1.266	1.423	1.447	1.449	1.413	1.459	1.424	1.450	1.416	4.43
6) Indene	2.383	2.555	2.532	2.421	2.370	2.486	2.486	2.562	2.474	3.06
7) Cumene	3.262	3.562	3.485	3.379	3.312	3.454	3.576	3.602	3.454	3.66
8) Phenol-d5	1.685	1.843	1.831	1.788	1.747	1.812	1.780	1.847	1.792	3.08
9) Phenol	1.966	2.080	2.088	2.014	1.964	2.073	2.058	2.059	2.038	2.45
10) Aniline	2.416	2.495	2.515	2.045	1.964	2.439	2.454	2.369	2.337	9.04
11) bis(2-Chloro	1.473	1.560	1.523	1.441	1.403	1.482	1.527	1.542	1.494	3.61
12) 2-Chlorophen	1.392	1.542	1.509	1.477	1.442	1.511	1.531	1.511	1.489	3.38
13) Decane	1.369	1.434	1.400	1.345	1.297	1.386	1.432	1.465	1.391	3.90
14) 1,3-Dichloro	1.595	1.687	1.648	1.603	1.554	1.631	1.685	1.687	1.636	3.03
15) 1,4-Dichloro	1.628	1.694	1.655	1.602	1.562	1.649	1.770	1.703	1.658	3.90
16) Benzyl alcoh	0.936	1.013	1.023	0.970	0.950	1.013	0.925	1.032	0.983	4.32
17) 1,2-Dichloro	1.517	1.636	1.558	1.448	1.398	1.517	1.668	1.575	1.540	5.84
18) Acetophenone	1.969	2.121	2.109	2.038	2.000	2.124	2.185	2.118	2.083	3.50
19) 2-Methylphen	1.308	1.417	1.435	1.338	1.316	1.432	1.294	1.425	1.371	4.53
20) 2,2'-oxybis(	1.883	1.975	1.954	1.849	1.768	1.931	1.975	1.953	1.911	3.82
21) 3&4-Methylph	1.383	1.488	1.493	1.399	1.371	1.454	1.343	1.483	1.427	4.19
22) n-Nitroso-di	1.037	1.121	1.122	1.062	1.042	1.093	1.095	1.136	1.089	3.47
23) Hexachloroet	0.443	0.480	0.468	0.440	0.434	0.454	0.465	0.486	0.459	4.17
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.334	0.376	0.383	0.372	0.369	0.379	0.365	0.381	0.370	4.30
26) Nitrobenzene	0.380	0.419	0.411	0.396	0.393	0.406	0.376	0.417	0.400	4.04
27) Quinoline	0.642	0.725	0.730	0.701	0.706	0.724	0.703	0.725	0.707	4.07
28) Isophorone	0.613	0.702	0.708	0.667	0.666	0.693	0.681	0.707	0.680	4.63
29) 2-Nitropheno	0.175	0.199	0.210	0.194	0.195	0.204	0.165	0.202	0.193	8.08
30) 2,4-Dimethyl	0.276	0.334	0.368	0.344	0.347	0.370	0.287	0.326	0.332	10.33
31) Benzoic acid			0.282	0.342	0.346	0.329		0.230	0.306	16.10
32) bis(2-Chloro	0.388	0.437	0.434	0.412	0.410	0.429	0.441	0.428	0.422	4.22
33) 2,4-Dichloro	0.261	0.285	0.302	0.288	0.289	0.299	0.275	0.299	0.287	4.85
34) 2,6-Dichloro	0.259	0.287	0.293	0.275	0.272	0.285	0.265	0.292	0.279	4.52
35) 1,3,5-Trichl	0.316	0.322	0.314	0.286	0.283	0.301	0.327	0.321	0.309	5.43
36) 1,2,4-Trichl	0.296	0.311	0.309	0.291	0.288	0.302	0.318	0.314	0.304	3.66
37) 1,2,3-Trichl	0.290	0.313	0.298	0.282	0.283	0.293	0.300	0.308	0.296	3.77
38) Naphthalene	1.063	1.102	1.084	1.010	1.001	1.055	1.116	1.110	1.068	4.13
39) 4-Chloroanil	0.459	0.492	0.488	0.426	0.418	0.471	0.451	0.481	0.461	5.99
40) 2,3-Dichloro	0.341	0.360	0.363	0.341	0.341	0.361	0.339	0.363	0.351	3.27
41) Caprolactam	0.143	0.157	0.169	0.169	0.172	0.170	0.135	0.169	0.161	8.75
42) Hexachlorobu	0.145	0.152	0.150	0.143	0.144	0.149	0.160	0.154	0.150	3.72
43) 4-Chloro-3-m	0.273	0.301	0.326	0.317	0.324	0.327	0.259	0.318	0.306	8.54
44) 2-Methylnaph	0.594	0.646	0.647	0.605	0.602	0.634	0.625	0.662	0.627	3.94
45) 1-Methylnaph	0.655	0.722	0.718	0.668	0.664	0.690	0.697	0.711	0.691	3.72

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2M2147-ICC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50365.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

46)	Dimethylnaph	0.584	0.647	0.657	0.610	0.609	0.643	0.607	0.658	0.627	4.42
47)	I Acenaphthene-d10	----------ISTD----------									
48)	Hexachlorocy	0.197	0.237	0.281	0.277	0.276	0.284	0.186	0.254	0.249	15.62
49)	2,4,6-Trichl	0.295	0.326	0.354	0.338	0.339	0.353	0.291	0.344	0.330	7.40
50)	2,4,5-Trichl	0.324	0.352	0.393	0.384	0.380	0.395	0.286	0.375	0.361	10.66
51)	2-Fluorobiph	1.252	1.349	1.314	1.232	1.213	1.302	1.369	1.351	1.298	4.55
52)	2-Chloronaph	1.135	1.205	1.199	1.118	1.102	1.163	1.162	1.199	1.160	3.39
53)	Biphenyl	1.524	1.592	1.545	1.465	1.425	1.523	1.598	1.591	1.533	4.10
54)	2-Nitroanili	0.329	0.381	0.396	0.382	0.385	0.395	0.307	0.385	0.370	8.96
55)	Dimethylphth	1.269	1.384	1.338	1.279	1.266	1.317	1.312	1.338	1.313	3.11
56)	Acenaphthyle	1.700	1.897	1.957	1.834	1.817	1.923	1.764	1.908	1.850	4.73
57)	2,6-Dinitrot	0.216	0.284	0.307	0.304	0.304	0.309	0.197	0.289	0.276	16.00
58)	3-Nitroanili	0.317	0.362	0.375	0.350	0.344	0.370	0.319	0.369	0.351	6.54
59)	Acenaphthene	1.170	1.238	1.198	1.095	1.075	1.167	1.252	1.219	1.177	5.47
60)	2,4-Dinitrop			0.170	0.197	0.202	0.190		0.126	0.177	17.56
61)	4-Nitropheno	0.112	0.161	0.183	0.194	0.198	0.194		0.167	0.173	17.57
62)	Dibenzofuran	1.587	1.733	1.702	1.582	1.550	1.646	1.699	1.703	1.650	4.18
63)	2,4-Dinitrot	0.324	0.394	0.428	0.430	0.424	0.439	0.272	0.423	0.392	15.54
64)	2,3,4,6-Tetr	0.207	0.263	0.284	0.287	0.286	0.291	0.206	0.274	0.262	13.47
65)	Diethylphtha	1.394	1.431	1.374	1.329	1.333	1.363	1.493	1.401	1.390	3.89
66)	Fluorene	1.272	1.420	1.407	1.306	1.312	1.387	1.303	1.377	1.348	4.14
67)	4-Chlorophen	0.570	0.602	0.604	0.563	0.555	0.594	0.618	0.604	0.589	3.89
68)	4-Nitroanili	0.309	0.363	0.385	0.381	0.375	0.388	0.285	0.368	0.357	10.74
69)	I Phenanthrene-d10	----------ISTD----------									
70)	4,6-Dinitro-		0.110	0.153	0.169	0.167	0.162		0.130	0.148	15.99
71)	n-Nitrosodip	0.630	0.663	0.663	0.624	0.599	0.643	0.629	0.663	0.639	3.60
72)	1,2-Diphenyl	0.896	0.979	0.981	0.933	0.912	0.955	0.909	0.976	0.943	3.67
73)	2,4,6-Tribro	0.065	0.083	0.092	0.091	0.090	0.091	0.063	0.087	0.083	14.51
74)	4-Bromopheny	0.175	0.194	0.200	0.192	0.186	0.194	0.182	0.198	0.190	4.45
75)	Hexachlorobe	0.184	0.199	0.196	0.189	0.182	0.197	0.192	0.200	0.192	3.62
76)	Pentachlorop	0.081	0.107	0.132	0.134	0.131	0.133		0.121	0.120	16.47
77)	Phenanthrene	1.209	1.268	1.233	1.154	1.127	1.207	1.262	1.262	1.215	4.29
78)	Anthracene	1.164	1.254	1.259	1.162	1.126	1.223	1.147	1.242	1.197	4.41
79)	Carbazole	1.078	1.175	1.175	1.109	1.075	1.142	1.115	1.192	1.133	4.01
80)	Di-n-butylph	1.147	1.339	1.441	1.396	1.362	1.435	1.079	1.410	1.326	10.34
81)	Fluoranthene	1.067	1.211	1.210	1.149	1.140	1.192	1.087	1.219	1.159	5.04
82)	Octadecane	0.498	0.534	0.567	0.532	0.516	0.553	0.457	0.559	0.527	6.92
83)	I Chrysene-d12	----------ISTD----------									
84)	Pyrene	1.318	1.458	1.484	1.386	1.347	1.418	1.323	1.453	1.398	4.62
85)	Terphenyl-d1	0.799	0.886	0.894	0.849	0.829	0.877	0.850	0.882	0.858	3.81
86)	Butylbenzylp	0.540	0.659	0.739	0.718	0.707	0.748	0.529	0.695	0.667	12.93
87)	Butyl steara	0.295	0.389	0.427	0.405	0.391	0.426	0.234	0.398	0.371	18.61
88)	Benzo[a]anth	1.089	1.200	1.222	1.164	1.144	1.212	1.139	1.187	1.169	3.80
89)	3,3'-Dichlor	0.349	0.415	0.431	0.396	0.384	0.422	0.325	0.429	0.394	9.92
90)	Chrysene	1.146	1.204	1.154	1.015	0.988	1.083	1.226	1.183	1.125	7.78
91)	bis(2-Ethylh	0.698	0.890	0.991	0.965	0.957	1.005	0.629	0.924	0.882	15.99
92)	I Perylene-d12	----------ISTD----------									
93)	Di-n-octylph	1.164	1.665	1.961	1.908	1.863	1.933		1.817	1.759	15.92
94)	Benzo[b]fluo	1.018	1.227	1.315	1.457	1.469	1.287	0.996	1.446	1.277	14.72
95)	Benzo[k]fluo	1.393	1.547	1.348	0.991	0.934	1.206	1.464	1.276	1.270	17.12
96)	Benzo[a]pyre	0.998	1.190	1.256	1.192	1.156	1.233	0.978	1.223	1.153	9.24
97)	Indeno[1,2,3	1.158	1.400	1.429	1.397	1.366	1.395	1.152	1.413	1.339	8.58
98)	Dibenz(a,h)a	0.761	0.942	1.030	1.018	0.998	1.012	0.598	0.981	0.918	16.95
99)	Dibenz[a,h]a	0.987	1.139	1.193	1.156	1.136	1.173	0.913	1.161	1.107	9.09
100)	7,12-Dimethy	0.523	0.595	0.643	0.550	0.545	0.593	0.494	0.598	0.568	8.48
101)	Benzo[g,h,i]	1.027	1.222	1.196	1.180	1.156	1.187	1.015	1.197	1.147	6.99

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2M2147-ICC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50365.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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

          M2M2147.M         Thu Mar 07 09:48:39 2013   MS2M
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2M2148-ICC2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50374.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MS2M

  Method       : C:\MSDCHEM\1\METHODS\M2M2148.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
  Last Update  : Thu Mar 07 10:53:54 2013
  Response via : Initial Calibration

  Calibration Files
  2   =2m50378.D   5   =2m50377.D   25  =2m50375.D   80  =2m50373.D
  100 =2m50372.D   50  =2m50374.D   1   =2m50379.D   10  =2m50376.D

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

102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.328 1.297 1.265 1.242 1.145 1.238       1.273 1.256   4.61

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.539 0.494 0.494 0.458 0.443 0.476       0.487 0.484   6.34
106) 2-bromonapht 0.654 0.619 0.641 0.614 0.607 0.634       0.632 0.629   2.62

107)     Chrysene-d12a         ----------------ISTD---------------------
108) Benzidine    0.702 0.832 0.826 0.662 0.503 0.726       0.913 0.738  18.33
109) 1-chloroocta 0.357 0.383 0.448 0.419 0.404 0.435       0.421 0.409   7.63

110)     Phenanthrene-d10a     ----------------ISTD---------------------
111) Atrazine     0.099 0.102 0.120 0.121 0.115 0.119       0.112 0.113   7.86
112) o-terphenyl  0.616 0.593 0.578 0.537 0.512 0.562       0.584 0.569   6.15

113) I   Naphthalene-d8a       ----------------ISTD---------------------
114) hydroquinone 0.252 0.282 0.359 0.407 0.384 0.383       0.325 0.342  16.87
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2M2147.M         Thu Mar 07 10:56:34 2013   MS2M
```

8.7.2

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50380.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50380.D          Vial: 18
Acq On    :  7 Mar 2013  12:07 am                     Operator: olgaa
Sample    : ICv2147-50                                Inst    : MS2M
Misc      : op64036,e2m2148,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 09:32:27 2013
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	122	0.00	3.01
9	t	Phenol	2.038	1.835	10.0	108	0.00	2.72
12	t	2-Chlorophenol	1.489	1.486	0.2	120	0.00	2.81
19	t	2-Methylphenol	1.371	1.308	4.6	111	0.00	3.40
21	t	3&4-Methylphenol	1.427	1.383	3.1	116	0.00	3.59
24	I	Naphthalene-d8	1.000	1.000	0.0	115	0.00	4.63
29	t	2-Nitrophenol	0.193	0.203	-5.2	114	0.00	4.16
30	t	2,4-Dimethylphenol	0.332	0.358	-7.8	111	0.00	4.30
31	t	Benzoic acid	0.306	0.265	13.4	92	0.00	4.55
33	t	2,4-Dichlorophenol	0.287	0.292	-1.7	112	0.00	4.48
34	t	2,6-Dichlorophenol	0.279	0.291	-4.3	117	0.00	4.81
43	t	4-Chloro-3-methylphenol	0.306	0.310	-1.3	108	-0.01	5.61
47	I	Acenaphthene-d10	1.000	1.000	0.0	107	0.00	7.25
49	t	2,4,6-Trichlorophenol	0.330	0.352	-6.7	107	0.00	6.18
50	t	2,4,5-Trichlorophenol	0.361	0.371	-2.8	101	-0.01	6.22
60	t	2,4-Dinitrophenol	0.177	0.124	29.9	70	0.00	7.45
61	t	4-Nitrophenol	0.173	0.173	0.0	96	0.00	7.67
64		2,3,4,6-Tetrachlorophenol	0.262	0.265	-1.1	97	0.00	7.86
69	I	Phenanthrene-d10	1.000	1.000	0.0	100	0.00	9.50
70	t	4,6-Dinitro-2-methylpheno	0.148	0.138	6.8	85	-0.02	8.31
76	t	Pentachlorophenol	0.120	0.124	-3.3	92	0.00	9.37

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50365.D M2M2147.M Thu Mar 07 10:09:39 2013 MS2M

8.7.3

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50381.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50381.D          Vial: 19
Acq On    :  7 Mar 2013  12:30 am                     Operator: olgaa
Sample    : ICv2147-50                                Inst    : MS2M
Misc      : op64036,e2m2148,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 09:32:27 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	115	0.00	3.01
3	t	Pyridine	1.579	1.519	3.8	105	0.00	1.09
4	t	N-Nitrosodimethylamine	0.980	0.961	1.9	113	0.00	1.09
11	t	bis(2-Chloroethyl)ether	1.494	1.600	-7.1	124	0.00	2.79
14	t	1,3-Dichlorobenzene	1.636	1.692	-3.4	119	0.00	2.96
15	t	1,4-Dichlorobenzene	1.658	1.704	-2.8	118	0.00	3.02
16	t	Benzyl alcohol	0.983	0.974	0.9	110	0.00	3.22
17	t	1,2-Dichlorobenzene	1.540	1.601	-4.0	121	0.00	3.23
20	t	2,2'-oxybis(1-Chloropropa	1.911	1.919	-0.4	114	0.00	3.42
22	t	n-Nitroso-di-n-propylamin	1.089	1.061	2.6	111	0.00	3.59
23	t	Hexachloroethane	0.459	0.491	-7.0	124	0.00	3.60
24	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	4.63
26	t	Nitrobenzene	0.400	0.412	-3.0	110	0.00	3.73
28	t	Isophorone	0.680	0.715	-5.1	112	0.00	4.05
36	t	1,2,4-Trichlorobenzene	0.304	0.319	-4.9	114	0.00	4.59
38	t	Naphthalene	1.068	1.108	-3.7	114	0.00	4.65
42	t	Hexachlorobutadiene	0.150	0.160	-6.7	117	0.00	4.97
44	t	2-Methylnaphthalene	0.627	0.605	3.5	103	0.00	5.67
47	I	Acenaphthene-d10	1.000	1.000	0.0	101	0.00	7.26
48	t	Hexachlorocyclopentadiene	0.249	0.244	2.0	86	0.00	6.04
52	t	2-Chloronaphthalene	1.160	1.216	-4.8	106	0.00	6.38
54	t	2-Nitroaniline	0.370	0.359	3.0	92	0.00	6.65
55	t	Dimethylphthalate	1.313	1.317	-0.3	101	0.00	7.06
56	t	Acenaphthylene	1.850	1.754	5.2	92	0.00	7.01
57	t	2,6-Dinitrotoluene	0.276	0.296	-7.2	97	0.00	7.12
58	t	3-Nitroaniline	0.351	0.296	15.7	81	0.00	7.30
59	t	Acenaphthene	1.177	1.182	-0.4	102	0.00	7.31
62	t	Dibenzofuran	1.650	1.627	1.4	100	0.00	7.56
63	t	2,4-Dinitrotoluene	0.392	0.371	5.4	86	0.00	7.70
65	t	Diethylphthalate	1.390	1.292	7.1	96	0.00	8.18
66	t	Fluorene	1.348	1.376	-2.1	100	0.00	8.09
67	t	4-Chlorophenyl-phenylethe	0.589	0.586	0.5	100	0.00	8.17
68	t	4-Nitroaniline	0.357	0.337	5.6	88	0.00	8.25
69	I	Phenanthrene-d10	1.000	1.000	0.0	93	0.00	9.50
71	t	n-Nitrosodiphenylamine	0.639	0.648	-1.4	94	0.00	8.38
72	t	1,2-Diphenylhydrazine	0.943	1.051	-11.5	103	0.00	8.40
74	t	4-Bromophenyl-phenylether	0.190	0.210	-10.5	101	0.00	8.91
75	t	Hexachlorobenzene	0.192	0.202	-5.2	96	0.00	9.06
77	t	Phenanthrene	1.215	1.249	-2.8	97	0.00	9.54

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50381.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

78	t	Anthracene	1.197	1.268	-5.9	97	0.00	9.61
79	t	Carbazole	1.133	1.158	-2.2	95	0.00	9.93
80	t	Di-n-butylphthalate	1.326	1.410	-6.3	92	0.00	10.75
81	t	Fluoranthene	1.159	1.194	-3.0	94	0.00	11.37
83	I	Chrysene-d12	1.000	1.000	0.0	93	0.00	13.15
84	t	Pyrene	1.398	1.459	-4.4	95	0.00	11.66
86	t	Butylbenzylphthalate	0.667	0.700	-4.9	87	0.00	12.71
88	t	Benzo[a]anthracene	1.169	1.188	-1.6	91	0.00	13.13
89	t	3,3'-Dichlorobenzidine	0.394	0.288	26.9	63	0.00	13.18
90	t	Chrysene	1.125	1.137	-1.1	97	0.00	13.17
91	t	bis(2-Ethylhexyl)phthalat	0.882	0.932	-5.7	86	0.00	13.41
92	I	Perylene-d12	1.000	1.000	0.0	91	0.00	14.52
93	t	Di-n-octylphthalate	1.759	1.861	-5.8	87	0.00	14.01
94	t	Benzo[b]fluoranthene	1.277	1.343	-5.2	94	0.00	14.20
95	t	Benzo[k]fluoranthene	1.270	1.220	3.9	92	0.00	14.22
96	t	Benzo[a]pyrene	1.153	1.221	-5.9	90	0.00	14.46
97	t	Indeno[1,2,3-cd]pyrene	1.339	1.462	-9.2	95	0.00	15.34
99	t	Dibenz[a,h]anthracene	1.107	1.201	-8.5	93	0.00	15.36
101	t	Benzo[g,h,i]perylene	1.147	1.268	-10.5	97	0.00	15.52

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50365.D M2M2147.M Thu Mar 07 09:36:58 2013 MS2M

8.7.4

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50381A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50381a.D        Vial: 19
Acq On    :  7 Mar 2013  12:30 am                   Operator: olgaa
Sample    : ICv2148-50                              Inst    : MS2M
Misc      : op64036,e2m2148,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 10:53:54 2013
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	94	0.00	7.26
105	1,2,4,5-Tetrachlorobenzen	0.484	0.488	-0.8	96	0.00	5.99

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50374.D M2M2147.M Thu Mar 07 11:08:54 2013 MS2M

8.7.5

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50382.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50382.D          Vial: 20
Acq On    :  7 Mar 2013  12:53 am                    Operator: olgaa
Sample    : ICv2147-50                               Inst    : MS2M
Misc      : op64036,e2m2148,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 09:32:27 2013
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	130	0.00	3.01
2	t	1,4-Dioxane	0.604	0.538	10.9	118	0.00	0.95
6	t	Indene	2.474	2.524	-2.0	132	0.00	3.33
7	t	Cumene	3.454	3.454	0.0	130	0.00	2.25
13	t	Decane	1.391	1.294	7.0	121	0.00	2.90
18	t	Acetophenone	2.083	2.051	1.5	125	0.00	3.53
24	I	Naphthalene-d8	1.000	1.000	0.0	123	0.00	4.62
27	t	Quinoline	0.707	0.688	2.7	116	-0.01	5.14
40	t	2,3-Dichloroaniline	0.351	0.304	13.4	103	0.00	6.17
41	t	Caprolactam	0.161	0.147	8.7	106	-0.05	5.26
45	t	1-Methylnaphthalene	0.691	0.679	1.7	121	0.00	5.83
46	t	Dimethylnaphthalene	0.627	0.616	1.8	118	0.00	6.63
47	I	Acenaphthene-d10	1.000	1.000	0.0	115	0.00	7.25
53	t	Biphenyl	1.533	1.553	-1.3	118	0.00	6.42
69	I	Phenanthrene-d10	1.000	1.000	0.0	109	0.00	9.51
82	t	Octadecane	0.527	0.560	-6.3	110	0.00	9.65
92	I	Perylene-d12	1.000	1.000	0.0	94	0.00	14.51
100	t	7,12-Dimethylbenz(a)anthr	0.568	0.525	7.6	83	0.00	14.22

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50365.D M2M2147.M Thu Mar 07 09:39:18 2013 MS2M

8.7.6

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50382A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50382a.D        Vial: 20
Acq On    :  7 Mar 2013  12:53 am                   Operator: olgaa
Sample    : ICv2148-50                              Inst    : MS2M
Misc      : op64036,e2m2148,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 10:53:54 2013
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	119	0.00	3.01
103	Benzaldehyde	1.256	1.228	2.2	118	0.00	2.55
110	Phenanthrene-d10a	1.000	1.000	0.0	101	0.00	9.51
111	Atrazine	0.113	0.112	0.9	95	0.00	9.34

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2m50374.D  M2M2147.M        Thu Mar 07 11:10:30 2013   MS2M
```

8.7.7

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50383.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50383.D          Vial: 21
Acq On    :  7 Mar 2013   1:16 am                    Operator: olgaa
Sample    : ICv2147-50                               Inst    : MS2M
Misc      : op64036,e2m2148,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 09:32:27 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	133	0.00	3.00
5	S	2-Fluorophenol	1.416	1.312	7.3	120	0.00	1.85
8	S	Phenol-d5	1.792	1.607	10.3	118	0.00	2.71
24	I	Naphthalene-d8	1.000	1.000	0.0	125	0.00	4.63
25	S	Nitrobenzene-d5	0.370	0.367	0.8	121	0.00	3.71
47	I	Acenaphthene-d10	1.000	1.000	0.0	118	0.00	7.25
51	S	2-Fluorobiphenyl	1.298	1.237	4.7	112	0.00	6.31
69	I	Phenanthrene-d10	1.000	1.000	0.0	109	0.00	9.51
73	S	2,4,6-Tribromophenol	0.083	0.075	9.6	89	0.00	8.49
83	I	Chrysene-d12	1.000	1.000	0.0	100	0.00	13.14
85	S	Terphenyl-d14	0.858	0.830	3.3	95	0.00	12.00

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2m50365.D  M2M2147.M        Thu Mar 07 09:45:35 2013   MS2M
```

8.7.8

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50384.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50384.D          Vial: 22
Acq On    :  7 Mar 2013   1:39 am                    Operator: olgaa
Sample    : ICv2147-50                               Inst    : MS2M
Misc      : op64036,e2m2148,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 09:32:27 2013
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	188	0.00	3.01
10		Aniline	2.337	2.317	0.9	178	0.00	2.71
24	I	Naphthalene-d8	1.000	1.000	0.0	185	0.00	4.63
39	t	4-Chloroaniline	0.461	0.450	2.4	177	0.00	4.82

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50365.D M2M2147.M Thu Mar 07 09:46:55 2013 MS2M

8.7.9

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50385.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50385.D          Vial: 23
Acq On    :  7 Mar 2013   2:02 am                    Operator: olgaa
Sample    : ICv2148-50                               Inst    : MS2M
Misc      : op64036,e2m2148,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 10:53:54 2013
Response via : Multiple Level Calibration

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
107	Chrysene-d12a	1.000	1.000	0.0	169	0.00	13.15
108	Benzidine	0.738	0.867	-17.5	202	0.00	11.67

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50374.D M2M2147.M Thu Mar 07 10:54:11 2013 MS2M

8.7.10

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2M2148-ICV2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M50386.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2147\2m50386.D          Vial: 24
Acq On    :  7 Mar 2013   2:25 am                     Operator: olgaa
Sample    : ICv2148-50                                Inst    : MS2M
Misc      : op64036,e2m2148,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Thu Mar 07 10:53:54 2013
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.
113 I	Naphthalene-d8a	1.000	1.000	0.0	104	0.00	4.63
114	hydroquinone	0.342	0.365	-6.7	99	0.00	5.43

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50374.D M2M2147.M Thu Mar 07 10:55:32 2013 MS2M

8.7.11

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2175-CC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51062.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2175\2m51062.D          Vial: 2
Acq On    : 28 Mar 2013  11:02 am                    Operator: olgaa
Sample    : cc2147-50                                Inst    : MS2M
Misc      : op64668,e2m2175,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Mar 26 16:13:56 2013
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	80	-0.03	2.73
2	t	1,4-Dioxane	0.604	0.559	7.5	75	-0.02	0.81
3	t	Pyridine	1.579	1.645	-4.2	79	-0.02	0.94
4	t	N-Nitrosodimethylamine	0.980	0.990	-1.0	81	-0.02	0.94
5	S	2-Fluorophenol	1.416	1.444	-2.0	79	-0.03	1.66
6	t	Indene	2.474	2.717	-9.8	87	-0.04	3.04
7	t	Cumene	3.454	3.664	-6.1	85	-0.03	2.00
8	S	Phenol-d5	1.792	1.935	-8.0	85	-0.03	2.51
9	t	Phenol	2.038	2.103	-3.2	81	-0.04	2.52
10		Aniline	2.337	2.094	10.4	68	-0.03	2.45
11	t	bis(2-Chloroethyl)ether	1.494	1.538	-2.9	83	-0.03	2.53
12	t	2-Chlorophenol	1.489	1.621	-8.9	86	-0.04	2.56
13	t	Decane	1.391	1.348	3.1	78	-0.03	2.63
14	t	1,3-Dichlorobenzene	1.636	1.609	1.7	79	-0.04	2.69
15	t	1,4-Dichlorobenzene	1.658	1.684	-1.6	81	-0.04	2.74
16	t	Benzyl alcohol	0.983	1.094	-11.3	86	-0.04	2.96
17	t	1,2-Dichlorobenzene	1.540	1.565	-1.6	82	-0.04	2.95
18	t	Acetophenone	2.083	2.208	-6.0	83	-0.04	3.25
19	t	2-Methylphenol	1.371	1.495	-9.0	83	-0.04	3.17
20	t	2,2'-oxybis(1-Chloropropa	1.911	1.688	11.7	70	-0.03	3.14
21	t	3&4-Methylphenol	1.427	1.641	-15.0	90	-0.04	3.36
22	t	n-Nitroso-di-n-propylamin	1.089	1.263	-16.0	92	-0.04	3.31
23	t	Hexachloroethane	0.459	0.507	-10.5	89	-0.04	3.30
24	I	Naphthalene-d8	1.000	1.000	0.0	80	-0.04	4.31
25	S	Nitrobenzene-d5	0.370	0.424	-14.6	89	-0.04	3.42
26	t	Nitrobenzene	0.400	0.446	-11.5	88	-0.04	3.44
27	t	Quinoline	0.707	0.768	-8.6	85	-0.04	4.84
28	t	Isophorone	0.680	0.746	-9.7	86	-0.04	3.76
29	t	2-Nitrophenol	0.193	0.212	-9.8	83	-0.04	3.86
30	t	2,4-Dimethylphenol	0.332	0.388	-16.9	84	-0.04	4.04
31	t	Benzoic acid	0.306	0.263	14.1	64	-0.03	4.36
32	t	bis(2-Chloroethoxy)methan	0.422	0.423	-0.2	79	-0.04	4.12
33	t	2,4-Dichlorophenol	0.287	0.288	-0.3	77	-0.04	4.22
34	t	2,6-Dichlorophenol	0.279	0.288	-3.2	81	-0.04	4.53
35		1,3,5-Trichlorobenzene	0.309	0.313	-1.3	83	-0.04	3.86
36	t	1,2,4-Trichlorobenzene	0.304	0.306	-0.7	81	-0.04	4.28
37		1,2,3-Trichlorobenzene	0.296	0.296	0.0	81	-0.04	4.61
38	t	Naphthalene	1.068	1.166	-9.2	88	-0.04	4.34
39	t	4-Chloroaniline	0.461	0.494	-7.2	84	-0.04	4.52
40	t	2,3-Dichloroaniline	0.351	0.358	-2.0	79	-0.04	5.85
41	t	Caprolactam	0.161	0.155	3.7	73	-0.04	5.02

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2175-CC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51062.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.150	0.165	-10.0	88	-0.04	4.64
43	t	4-Chloro-3-methylphenol	0.306	0.383	-25.2#	94	-0.04	5.37
44	t	2-Methylnaphthalene	0.627	0.689	-9.9	87	-0.04	5.34
45	t	1-Methylnaphthalene	0.691	0.700	-1.3	81	-0.04	5.49
46	t	Dimethylnaphthalene	0.627	0.663	-5.7	82	-0.04	6.30
47	I	Acenaphthene-d10	1.000	1.000	0.0	84	-0.04	6.92
48	t	Hexachlorocyclopentadiene	0.249	0.259	-4.0	77	-0.04	5.70
49	t	2,4,6-Trichlorophenol	0.330	0.348	-5.5	82	-0.04	5.88
50	t	2,4,5-Trichlorophenol	0.361	0.378	-4.7	80	-0.04	5.96
51	S	2-Fluorobiphenyl	1.298	1.263	2.7	81	-0.04	5.98
52	t	2-Chloronaphthalene	1.160	1.158	0.2	83	-0.04	6.06
53	t	Biphenyl	1.533	1.495	2.5	82	-0.04	6.09
54	t	2-Nitroaniline	0.370	0.440	-18.9	93	-0.04	6.34
55	t	Dimethylphthalate	1.313	1.343	-2.3	85	-0.04	6.73
56	t	Acenaphthylene	1.850	1.862	-0.6	81	-0.04	6.67
57	t	2,6-Dinitrotoluene	0.276	0.312	-13.0	85	-0.04	6.80
58	t	3-Nitroaniline	0.351	0.378	-7.7	85	-0.04	6.99
59	t	Acenaphthene	1.177	1.190	-1.1	85	-0.05	6.96
60	t	2,4-Dinitrophenol	0.177	0.158	10.7	70	-0.04	7.17
61	t	4-Nitrophenol	0.173	0.162	6.4	70	-0.05	7.47
62	t	Dibenzofuran	1.650	1.636	0.8	83	-0.05	7.22
63	t	2,4-Dinitrotoluene	0.392	0.436	-11.2	83	-0.04	7.40
64		2,3,4,6-Tetrachlorophenol	0.262	0.251	4.2	72	-0.04	7.55
65	t	Diethylphthalate	1.390	1.396	-0.4	86	-0.04	7.85
66	t	Fluorene	1.348	1.364	-1.2	82	-0.05	7.74
67	t	4-Chlorophenyl-phenylethe	0.589	0.638	-8.3	90	-0.04	7.82
68	t	4-Nitroaniline	0.357	0.373	-4.5	80	-0.04	7.95
69	I	Phenanthrene-d10	1.000	1.000	0.0	85	-0.04	9.16
70	t	4,6-Dinitro-2-methylpheno	0.148	0.156	-5.4	82	-0.04	8.03
71	t	n-Nitrosodiphenylamine	0.639	0.655	-2.5	87	-0.04	8.05
72	t	1,2-Diphenylhydrazine	0.943	1.083	-14.8	97	-0.04	8.06
73	S	2,4,6-Tribromophenol	0.083	0.108	-30.1#	101	-0.05	8.16
74	t	4-Bromophenyl-phenylether	0.190	0.207	-8.9	91	-0.04	8.56
75	t	Hexachlorobenzene	0.192	0.228	-18.8	99	-0.04	8.72
76	t	Pentachlorophenol	0.120	0.112	6.7	72	-0.04	9.06
77	t	Phenanthrene	1.215	1.188	2.2	84	-0.04	9.19
78	t	Anthracene	1.197	1.198	-0.1	84	-0.04	9.26
79	t	Carbazole	1.133	1.124	0.8	84	-0.04	9.60
80	t	Di-n-butylphthalate	1.326	1.424	-7.4	85	-0.04	10.40
81	t	Fluoranthene	1.159	1.234	-6.5	88	-0.05	11.03
82	t	Octadecane	0.527	0.563	-6.8	87	-0.04	9.31
83	I	Chrysene-d12	1.000	1.000	0.0	95	-0.03	12.87
84	t	Pyrene	1.398	1.365	2.4	91	-0.04	11.33
85	S	Terphenyl-d14	0.858	0.897	-4.5	97	-0.03	11.70
86	t	Butylbenzylphthalate	0.667	0.691	-3.6	87	-0.03	12.44
87		Butyl stearate	0.371	0.378	-1.9	84	-0.03	12.56
88	t	Benzo[a]anthracene	1.169	1.204	-3.0	94	-0.03	12.86
89	t	3,3'-Dichlorobenzidine	0.394	0.453	-15.0	102	-0.03	12.92
90	t	Chrysene	1.125	1.140	-1.3	100	-0.03	12.90
91	t	bis(2-Ethylhexyl)phthalat	0.882	0.964	-9.3	91	-0.03	13.15
92	I	Perylene-d12	1.000	1.000	0.0	94	-0.02	14.26
93	t	Di-n-octylphthalate	1.759	1.857	-5.6	90	-0.02	13.76
94	t	Benzo[b]fluoranthene	1.277	1.398	-9.5	102	-0.03	13.94
95	t	Benzo[k]fluoranthene	1.270	1.329	-4.6	103	-0.03	13.97
96	t	Benzo[a]pyrene	1.153	1.231	-6.8	93	-0.03	14.21
97	t	Indeno[1,2,3-cd]pyrene	1.339	1.511	-12.8	101	-0.03	15.09

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2175-CC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51062.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

98	t	Dibenz(a,h)acridine	0.918	1.084	-18.1	100	-0.03	14.94
99	t	Dibenz[a,h]anthracene	1.107	1.266	-14.4	101	-0.02	15.11
100	t	7,12-Dimethylbenz(a)anthr	0.568	0.664	-16.9	105	-0.03	13.96
101	t	Benzo[g,h,i]perylene	1.147	1.278	-11.4	101	-0.02	15.27

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50995.D M2M2147.M Thu Mar 28 14:07:17 2013 MS2M

8.7.12

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2175-CC2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51063.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2175\2m51063.D          Vial: 3
Acq On    : 28 Mar 2013  11:25 am                    Operator: olgaa
Sample    : cc2148-25                                Inst    : MS2M
Misc      : op64668,e2m2175,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Mar 26 16:13:56 2013
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	98	-0.03	2.73
103	Benzaldehyde	1.256	1.147	8.7	88	-0.03	2.30
104	Acenaphthene-d10a	1.000	1.000	0.0	104	-0.04	6.92
105	1,2,4,5-Tetrachlorobenzen	0.484	0.505	-4.3	106	-0.04	5.66
106	Chrysene-d12a	1.000	1.000	0.0	117	-0.03	12.87
107	Benzidine	0.738	0.582	21.1#	82	-0.04	11.35
108	Phenanthrene-d10a	1.000	1.000	0.0	107	-0.04	9.15
109	Atrazine	0.113	0.125	-10.6	111	-0.05	9.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50375.D M2M2147.M Thu Mar 28 14:09:06 2013 MS2M

8.7.13

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2176-CC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51093.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2176\2m51093.D          Vial: 2
Acq On    : 29 Mar 2013  10:30 am                    Operator: olgaa
Sample    : cc2147-25                                Inst    : MS2M
Misc      : op64537,e2m2176,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Tue Mar 26 16:13:56 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	81	-0.06	2.70
3	t	Pyridine	1.579	1.558	1.3	79	-0.03	0.93
4	t	N-Nitrosodimethylamine	0.980	0.997	-1.7	82	-0.03	0.93
5	S	2-Fluorophenol	1.416	1.460	-3.1	82	-0.04	1.65
6	t	Indene	2.474	2.687	-8.6	86	-0.06	3.01
7	t	Cumene	3.454	3.798	-10.0	89	-0.05	1.98
8	S	Phenol-d5	1.792	1.930	-7.7	86	-0.06	2.48
9	t	Phenol	2.038	2.100	-3.0	82	-0.06	2.49
10		Aniline	2.337	2.199	5.9	71	-0.06	2.42
11	t	bis(2-Chloroethyl)ether	1.494	1.581	-5.8	85	-0.05	2.50
12	t	2-Chlorophenol	1.489	1.619	-8.7	87	-0.06	2.54
13	t	Decane	1.391	1.414	-1.7	82	-0.05	2.61
14	t	1,3-Dichlorobenzene	1.636	1.605	1.9	79	-0.06	2.66
15	t	1,4-Dichlorobenzene	1.658	1.666	-0.5	82	-0.06	2.72
16	t	Benzyl alcohol	0.983	1.090	-10.9	87	-0.06	2.93
17	t	1,2-Dichlorobenzene	1.540	1.526	0.9	80	-0.06	2.92
18	t	Acetophenone	2.083	2.286	-9.7	88	-0.06	3.22
19	t	2-Methylphenol	1.371	1.506	-9.8	85	-0.06	3.15
20	t	2,2'-oxybis(1-Chloropropa	1.911	1.755	8.2	73	-0.06	3.11
21	t	3&4-Methylphenol	1.427	1.648	-15.5	90	-0.06	3.34
22	t	n-Nitroso-di-n-propylamin	1.089	1.319	-21.1#	96	-0.07	3.28
23	t	Hexachloroethane	0.459	0.516	-12.4	90	-0.06	3.27
24	I	Naphthalene-d8	1.000	1.000	0.0	83	-0.06	4.28
25	S	Nitrobenzene-d5	0.370	0.439	-18.6	96	-0.06	3.39
26	t	Nitrobenzene	0.400	0.459	-14.8	93	-0.06	3.41
27	t	Quinoline	0.707	0.752	-6.4	86	-0.07	4.80
28	t	Isophorone	0.680	0.756	-11.2	89	-0.07	3.72
29	t	2-Nitrophenol	0.193	0.210	-8.8	83	-0.06	3.83
30	t	2,4-Dimethylphenol	0.332	0.377	-13.6	86	-0.07	4.01
31	t	Benzoic acid	0.306	0.266	13.1	78	-0.10	4.29
32	t	bis(2-Chloroethoxy)methan	0.422	0.423	-0.2	81	-0.06	4.10
33	t	2,4-Dichlorophenol	0.287	0.281	2.1	78	-0.07	4.19
34	t	2,6-Dichlorophenol	0.279	0.285	-2.2	81	-0.07	4.49
35		1,3,5-Trichlorobenzene	0.309	0.305	1.3	81	-0.06	3.83
36	t	1,2,4-Trichlorobenzene	0.304	0.301	1.0	81	-0.07	4.25
37		1,2,3-Trichlorobenzene	0.296	0.289	2.4	81	-0.07	4.58
38	t	Naphthalene	1.068	1.149	-7.6	88	-0.07	4.31
39	t	4-Chloroaniline	0.461	0.492	-6.7	84	-0.07	4.49
40	t	2,3-Dichloroaniline	0.351	0.348	0.9	80	-0.07	5.81
41	t	Caprolactam	0.161	0.153	5.0	75	-0.11	4.95
42	t	Hexachlorobutadiene	0.150	0.159	-6.0	88	-0.07	4.61

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2176-CC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51093.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

43	t	4-Chloro-3-methylphenol	0.306	0.382	-24.8#	98	-0.07	5.34
44	t	2-Methylnaphthalene	0.627	0.679	-8.3	87	-0.07	5.31
45	t	1-Methylnaphthalene	0.691	0.679	1.7	79	-0.07	5.46
46	t	Dimethylnaphthalene	0.627	0.640	-2.1	81	-0.08	6.26
47	I	Acenaphthene-d10	1.000	1.000	0.0	84	-0.08	6.88
48	t	Hexachlorocyclopentadiene	0.249	0.242	2.8	73	-0.07	5.68
49	t	2,4,6-Trichlorophenol	0.330	0.348	-5.5	83	-0.07	5.85
50	t	2,4,5-Trichlorophenol	0.361	0.361	0.0	78	-0.08	5.93
51	S	2-Fluorobiphenyl	1.298	1.252	3.5	80	-0.07	5.94
52	t	2-Chloronaphthalene	1.160	1.133	2.3	80	-0.08	6.02
53	t	Biphenyl	1.533	1.502	2.0	82	-0.07	6.06
54	t	2-Nitroaniline	0.370	0.459	-24.1#	98	-0.08	6.30
55	t	Dimethylphthalate	1.313	1.341	-2.1	85	-0.07	6.70
56	t	Acenaphthylene	1.850	1.905	-3.0	82	-0.07	6.64
57	t	2,6-Dinitrotoluene	0.276	0.312	-13.0	86	-0.07	6.77
58	t	3-Nitroaniline	0.351	0.379	-8.0	85	-0.08	6.95
59	t	Acenaphthene	1.177	1.209	-2.7	85	-0.08	6.93
60	t	2,4-Dinitrophenol	0.177	0.142	19.8	71	-0.07	7.14
61	t	4-Nitrophenol	0.173	0.164	5.2	76	-0.09	7.43
62	t	Dibenzofuran	1.650	1.649	0.1	82	-0.08	7.18
63	t	2,4-Dinitrotoluene	0.392	0.436	-11.2	86	-0.07	7.37
64		2,3,4,6-Tetrachlorophenol	0.262	0.246	6.1	73	-0.08	7.52
65	t	Diethylphthalate	1.390	1.435	-3.2	88	-0.07	7.81
66	t	Fluorene	1.348	1.363	-1.1	82	-0.09	7.70
67	t	4-Chlorophenyl-phenylethe	0.589	0.655	-11.2	92	-0.07	7.79
68	t	4-Nitroaniline	0.357	0.385	-7.8	84	-0.09	7.91
69	I	Phenanthrene-d10	1.000	1.000	0.0	90	-0.07	9.12
70	t	4,6-Dinitro-2-methylpheno	0.148	0.142	4.1	83	-0.08	7.99
71	t	n-Nitrosodiphenylamine	0.639	0.643	-0.6	87	-0.09	8.01
72	t	1,2-Diphenylhydrazine	0.943	1.099	-16.5	100	-0.08	8.02
73	S	2,4,6-Tribromophenol	0.083	0.108	-30.1#	104	-0.09	8.13
74	t	4-Bromophenyl-phenylether	0.190	0.215	-13.2	96	-0.08	8.52
75	t	Hexachlorobenzene	0.192	0.229	-19.3	105	-0.08	8.68
76	t	Pentachlorophenol	0.120	0.105	12.5	71	-0.08	9.02
77	t	Phenanthrene	1.215	1.161	4.4	84	-0.08	9.15
78	t	Anthracene	1.197	1.184	1.1	84	-0.08	9.22
79	t	Carbazole	1.133	1.086	4.1	83	-0.09	9.56
80	t	Di-n-butylphthalate	1.326	1.466	-10.6	91	-0.08	10.37
81	t	Fluoranthene	1.159	1.240	-7.0	92	-0.09	10.99
82	t	Octadecane	0.527	0.570	-8.2	90	-0.07	9.28
83	I	Chrysene-d12	1.000	1.000	0.0	103	-0.06	12.84
84	t	Pyrene	1.398	1.287	7.9	90	-0.08	11.30
85	S	Terphenyl-d14	0.858	0.870	-1.4	101	-0.07	11.67
86	t	Butylbenzylphthalate	0.667	0.659	1.2	92	-0.06	12.40
87		Butyl stearate	0.371	0.377	-1.6	91	-0.05	12.54
88	t	Benzo[a]anthracene	1.169	1.185	-1.4	100	-0.06	12.83
89	t	3,3'-Dichlorobenzidine	0.394	0.455	-15.5	109	-0.06	12.89
90	t	Chrysene	1.125	1.134	-0.8	102	-0.06	12.87
91	t	bis(2-Ethylhexyl)phthalat	0.882	0.940	-6.6	98	-0.05	13.13
92	I	Perylene-d12	1.000	1.000	0.0	105	-0.05	14.23
93	t	Di-n-octylphthalate	1.759	1.796	-2.1	96	-0.05	13.73
94	t	Benzo[b]fluoranthene	1.277	1.348	-5.6	107	-0.06	13.91
95	t	Benzo[k]fluoranthene	1.270	1.300	-2.4	101	-0.06	13.93
96	t	Benzo[a]pyrene	1.153	1.168	-1.3	97	-0.06	14.17
97	t	Indeno[1,2,3-cd]pyrene	1.339	1.452	-8.4	106	-0.06	15.06
98	t	Dibenz(a,h)acridine	0.918	1.056	-15.0	107	-0.05	14.91

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2176-CC2147
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51093.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

99	t	Dibenz[a,h]anthracene	1.107	1.243	-12.3	109	-0.05	15.08
100	t	7,12-Dimethylbenz(a)anthr	0.568	0.611	-7.6	100	-0.06	13.93
101	t	Benzo[g,h,i]perylene	1.147	1.235	-7.7	108	-0.05	15.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2m50375.D M2M2147.M Fri Mar 29 15:12:18 2013 MS2M

8.7.14

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2M2176-CC2148
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2M51094.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E2M2176\2m51094.D          Vial: 3
Acq On    : 29 Mar 2013  11:03 am                    Operator: olgaa
Sample    : cc2148-25                                Inst    : MS2M
Misc      : op64537,e2m2176,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2M2147.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
Last Update  : Fri Mar 29 15:13:23 2013
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	91	0.00	2.70
103	Benzaldehyde	1.256	1.150	8.4	83	-0.05	2.27
104	Acenaphthene-d10a	1.000	1.000	0.0	98	0.00	6.88
105	1,2,4,5-Tetrachlorobenzen	0.484	0.501	-3.5	99	-0.07	5.63
106	Chrysene-d12a	1.000	1.000	0.0	114	0.00	12.84
107	Benzidine	0.738	0.639	13.4	88	-0.07	11.32
108	Phenanthrene-d10a	1.000	1.000	0.0	103	0.00	9.11
109	Atrazine	0.113	0.125	-10.6	107	-0.09	8.98

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2m50375.D  M2M2147.M        Fri Mar 29 15:14:20 2013   MS2M
```

8.7.15

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P889-ICC889
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20063.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MS2P

  Method       : C:\MSDCHEM\1\METHODS\M2P887.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Fri Feb 15 09:21:19 2013
  Response via : Initial Calibration

  Calibration Files
  2   =2p20067.D   5   =2p20066.D   25  =2p20064.D   80  =2p20062.D
  100 =2p20061.D   50  =2p20063.D   1   =2p20068.D   10  =2p20065.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  -------------------------------------------------------------------------------
102) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.172 1.195 1.150 1.096 0.932 0.930 1.090 1.216 1.098  10.18

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) Atrazine     0.128 0.131 0.162 0.173 0.175 0.155 0.103 0.148 0.147  16.88
106) 1,2,4,5-Tetr 0.492 0.499 0.511 0.516 0.515 0.464 0.490 0.509 0.499   3.51

107)     Phenanthrene-d10a     ----------------ISTD---------------------
108) o-terphenyl  0.546 0.559 0.610 0.633 0.642 0.562 0.494 0.593 0.580   8.51

109) O   Chrysene-d12a         ----------------ISTD---------------------
110) 1-chloroocta 0.286 0.296 0.401 0.417 0.414 0.365       0.354 0.362  14.88
111) Benzidine          0.546 0.617 0.425 0.380 0.496       0.680 0.524  21.73
          ----- Quadratic regression -----                 Coefficient =  0.9980
               Response Ratio = 0.01121 + 0.62300 *A + -0.10017 *A^2


112)     Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone       0.211 0.308 0.373 0.377 0.328       0.280 0.313  19.94
 -------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2P887.M          Fri Feb 15 12:23:19 2013   RPT1
```

8.7.16

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P889-ICV889
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20069A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p888\2p20069a.D          Vial: 18
Acq On    : 14 Feb 2013   8:00 pm                   Operator: andrews1
Sample    : icv889-50                               Inst    : MS2P
Misc      : op63249,e2p889,35.0,,,1,1               Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P887.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Feb 15 09:21:19 2013
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	86	0.00	7.58
106	1,2,4,5-Tetrachlorobenzen	0.499	0.475	4.8	88	0.00	6.31

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20063.D M2P887.M Fri Feb 15 12:52:03 2013 RPT1

8.7.17

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P889-ICV889
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20070A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p888\2p20070a.D          Vial: 19
Acq On    : 14 Feb 2013   8:23 pm                   Operator: andrews1
Sample    : icv889-50                               Inst    : MS2P
Misc      : op63249,e2p889,35.0,,,1,1               Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P887.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Feb 15 09:21:19 2013
Response via : Multiple Level Calibration

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102 I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	81	0.00	3.27
103	Benzaldehyde	1.098	1.424	-29.7	124	0.00	2.81
104	Acenaphthene-d10a	1.000	1.000	0.0	75	0.00	7.58
105	Atrazine	0.147	0.189	-28.6	92	0.00	9.66

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20063.D M2P887.M Fri Feb 15 12:52:07 2013 RPT1

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P889-ICV889
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20073A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\2p888\2p20073a.D          Vial: 22
  Acq On    : 14 Feb 2013   9:31 pm                   Operator: andrews1
  Sample    : icv889-50                               Inst    : MS2P
  Misc      : op63249,e2p889,35.0,,,1,1               Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\MSDCHEM\1\METHODS\M2P887.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Fri Feb 15 09:21:19 2013
  Response via : Multiple Level Calibration

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

        Compound                   AvgRF   CCRF      %Dev Area%  Dev(min)R.T.
  ---------------------------------------------------------------------------
109 O   Chrysene-d12a               1.000   1.000      0.0   85   0.00   13.66

            ----------------------- True    Calc.   % Drift  ------------
111     Benzidine                  50.000  80.497    -61.0# 118   0.00   12.01
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     2p20063.D  M2P887.M         Fri Feb 15 12:52:15 2013   RPT1
```

8.7.19

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P889-ICV889
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20075A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p888\2p20075a.D          Vial: 24
Acq On    : 14 Feb 2013  10:16 pm                   Operator: andrews1
Sample    : icv889-50                               Inst    : MS2P
Misc      : op63249,e2p889,35.0,,,1,1               Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P887.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Fri Feb 15 09:21:19 2013
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.
 ---------------------------------------------------------------------------
           ----------------------- AvgRF   CCRF     % Dev   -------------
112     Naphthalene-d8a            1.000   1.000      0.0   65   0.00    4.93
113     Hydroquinone               0.313   0.348    -11.2   69  -0.01    5.71
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     2p20063.D  M2P887.M         Fri Feb 15 12:52:19 2013   RPT1
```

8.7.20

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P896-ICC896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20228.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS2P

Method : C:\msdchem\1\METHODS\M2P896.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Wed Feb 20 13:17:25 2013
Response via : Initial Calibration

Calibration Files
2 =2p20227.D 5 =2p20229.D 25 =2p20230.D 80 =2p20226.D
100 =2p20224.D 50 =2p20228.D 1 =2p20225.D 10 =2p20231.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.684	0.641	0.584	0.540	0.600	0.603	0.688	0.605	0.618	8.15
3) Pyridine	1.725	1.646	1.487	1.490	1.555	1.555	2.151	1.618	1.653	13.10
4) N-Nitrosodim	0.941	0.935	0.893	0.886	0.937	0.923	0.890	0.946	0.919	2.74
5) 2-Fluorophen	1.350	1.456	1.393	1.426	1.467	1.471	1.431	1.461	1.432	2.94
6) Indene	2.388	2.550	2.407	2.428	2.415	2.495	2.581	2.531	2.474	3.00
7) Cumene	3.338	3.440	3.293	3.259	3.308	3.366	3.511	3.448	3.370	2.61
8) Phenol-d5	1.667	1.820	1.758	1.732	1.761	1.788	1.834	1.848	1.776	3.36
9) Phenol	1.975	2.077	1.987	1.976	1.973	2.034	2.130	2.112	2.033	3.22
10) Aniline	2.365	2.426	2.172	2.160	2.148	2.137	2.588	2.413	2.301	7.37
11) bis(2-Chloro	1.453	1.503	1.385	1.389	1.393	1.410	1.649	1.516	1.462	6.24
12) 2-Chlorophen	1.419	1.555	1.461	1.492	1.499	1.536	1.557	1.536	1.507	3.24
13) Decane	1.749	1.788	1.638	1.587	1.611	1.674	1.927	1.746	1.715	6.49
14) 1,3-Dichloro	1.572	1.639	1.576	1.594	1.583	1.632	1.631	1.693	1.615	2.57
15) 1,4-Dichloro	1.619	1.706	1.611	1.617	1.634	1.677	1.732	1.703	1.662	2.87
16) Benzyl alcoh	0.962	0.998	0.985	0.996	0.981	1.035	0.996	1.043	1.000	2.72
17) 1,2-Dichloro	1.523	1.587	1.525	1.518	1.504	1.549	1.680	1.598	1.560	3.76
18) Acetophenone	1.996	2.070	1.978	1.991	1.966	2.031	2.130	2.087	2.031	2.91
19) 2-Methylphen	1.326	1.439	1.363	1.369	1.338	1.388	1.379	1.466	1.383	3.46
20) 2,2'-oxybis(	0.500	0.512	0.486	0.481	0.479	0.500	0.536	0.519	0.502	3.94
21) 3&4-Methylph	1.403	1.533	1.450	1.429	1.401	1.481	1.497	1.557	1.469	3.96
22) n-Nitroso-di	1.025	1.049	1.009	0.995	0.976	1.022	1.148	1.068	1.037	5.16
23) Hexachloroet	0.482	0.536	0.503	0.502	0.490	0.523	0.541	0.524	0.513	4.20
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.343	0.371	0.356	0.362	0.364	0.371	0.400	0.376	0.368	4.47
26) Nitrobenzene	0.371	0.403	0.367	0.376	0.375	0.381	0.421	0.392	0.386	4.77
27) Quinoline	0.703	0.721	0.682	0.714	0.707	0.717	0.741	0.728	0.714	2.47
28) Isophorone	0.654	0.685	0.640	0.654	0.651	0.664	0.705	0.693	0.668	3.47
29) 2-Nitropheno	0.177	0.195	0.191	0.196	0.195	0.200	0.189	0.198	0.193	3.78
30) 2,4-Dimethyl	0.311	0.360	0.321	0.351	0.351	0.343	0.351	0.358	0.343	5.14
31) Benzoic acid			0.175	0.254	0.276	0.233		0.114	0.210	31.26
----- Linear regression ----- Coefficient = 0.9961										
Response Ratio = -0.06372 + 0.29363 *A										
32) bis(2-Chloro	0.387	0.420	0.391	0.401	0.400	0.408	0.433	0.417	0.407	3.84
33) 2,4-Dichloro	0.263	0.283	0.277	0.293	0.292	0.294	0.278	0.290	0.284	3.80
34) 2,6-Dichloro	0.268	0.284	0.277	0.285	0.282	0.285	0.270	0.290	0.280	2.85
35) 1,3,5-Trichl	0.295	0.323	0.303	0.303	0.298	0.310	0.322	0.323	0.310	3.77
36) 1,2,4-Trichl	0.291	0.313	0.296	0.305	0.300	0.308	0.313	0.315	0.305	2.88
37) 1,2,3-Trichl	0.286	0.302	0.288	0.298	0.294	0.301	0.306	0.300	0.297	2.34
38) Naphthalene	1.032	1.107	1.039	1.055	1.043	1.073	1.111	1.109	1.071	3.16
39) 4-Chloroanil	0.451	0.490	0.460	0.459	0.439	0.469	0.465	0.493	0.466	3.95
40) 2,3-Dichloro	0.336	0.360	0.341	0.360	0.355	0.360	0.355	0.360	0.353	2.68
41) Caprolactam	0.107	0.112	0.115	0.124	0.122	0.123	0.104	0.121	0.116	6.65
42) Hexachlorobu	0.151	0.164	0.155	0.159	0.159	0.160	0.168	0.161	0.160	3.17

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P896-ICC896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20228.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
43) 4-Chloro-3-m 0.293 0.316 0.304 0.322 0.315 0.324 0.317 0.320 0.314   3.34
44) 2-Methylnaph 0.577 0.624 0.600 0.606 0.596 0.616 0.634 0.633 0.611   3.24
45) 1-Methylnaph 0.543 0.591 0.559 0.574 0.568 0.587 0.599 0.583 0.575   3.19
46) Dimethylnaph 0.558 0.595 0.577 0.587 0.576 0.593 0.631 0.599 0.589   3.61

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.198 0.258 0.293 0.324 0.327 0.316 0.188 0.282 0.273  19.93
49) 2,4,6-Trichl 0.293 0.357 0.349 0.370 0.371 0.363 0.332 0.350 0.348   7.39
50) 2,4,5-Trichl 0.330 0.383 0.381 0.414 0.412 0.406 0.349 0.391 0.383   7.86
51) 2-Fluorobiph 1.235 1.332 1.243 1.289 1.265 1.275 1.309 1.286 1.279   2.52
52) 2-Chloronaph 1.121 1.241 1.151 1.185 1.162 1.184 1.220 1.206 1.184   3.28
53) Biphenyl     1.374 1.510 1.415 1.457 1.434 1.453 1.454 1.502 1.450   3.04
54) 2-Nitroanili 0.338 0.386 0.379 0.384 0.373 0.387 0.369 0.395 0.376   4.65
55) Dimethylphth 1.239 1.368 1.273 1.288 1.270 1.284 1.374 1.343 1.305   3.84
56) Acenaphthyle 1.759 1.917 1.804 1.842 1.826 1.848 1.932 1.888 1.852   3.14
57) 2,6-Dinitrot 0.232 0.279 0.283 0.304 0.298 0.300 0.249 0.293 0.280   9.34
58) 3-Nitroanili 0.294 0.357 0.358 0.365 0.352 0.368 0.301 0.359 0.344   8.48
59) Acenaphthene 1.116 1.173 1.122 1.132 1.098 1.131 1.141 1.180 1.137   2.43
60) 2,4-Dinitrop       0.059 0.131 0.169 0.175 0.159       0.086 0.130  36.75
            ----- Linear regression -----  Coefficient =  0.9987
              Response Ratio = -0.04860 + 0.18228 *A

61) 4-Nitropheno       0.135 0.161 0.185 0.186 0.178       0.148 0.166  12.80
62) Dibenzofuran 1.565 1.710 1.573 1.598 1.567 1.611 1.674 1.682 1.623   3.58
63) 2,4-Dinitrot 0.324 0.366 0.402 0.420 0.412 0.419 0.303 0.397 0.380  11.83
64) 2,3,4,6-Tetr 0.171 0.213 0.257 0.285 0.289 0.283 0.190 0.242 0.241  18.93
65) Diethylphtha 1.272 1.366 1.254 1.277 1.261 1.283 1.368 1.350 1.304   3.73
66) Fluorene     1.256 1.354 1.276 1.316 1.290 1.317 1.358 1.343 1.314   2.84
67) 4-Chlorophen 0.565 0.630 0.569 0.581 0.565 0.580 0.594 0.609 0.587   3.93
68) 4-Nitroanili 0.299 0.351 0.357 0.369 0.365 0.376 0.290 0.362 0.346   9.51

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.103 0.142 0.165 0.161 0.159       0.121 0.142  17.76
71) n-Nitrosodip 0.582 0.658 0.635 0.633 0.620 0.635 0.675 0.645 0.635   4.28
72) 1,2-Diphenyl 0.931 0.995 0.935 0.933 0.897 0.944 1.016 1.001 0.957   4.40
73) 2,4,6-Tribro 0.078 0.083 0.091 0.100 0.098 0.099 0.074 0.093 0.089  11.38
74) 4-Bromopheny 0.191 0.209 0.199 0.205 0.206 0.207 0.207 0.205 0.204   2.90
75) Hexachlorobe 0.206 0.219 0.211 0.217 0.214 0.217 0.224 0.218 0.216   2.44
76) Pentachlorop       0.059 0.115 0.137 0.143 0.132       0.086 0.112  29.39
            ----- Linear regression -----  Coefficient =  0.9990
              Response Ratio = -0.03198 + 0.14713 *A

77) Phenanthrene 1.162 1.246 1.163 1.190 1.161 1.187 1.308 1.223 1.205   4.29
78) Anthracene   1.161 1.260 1.164 1.153 1.115 1.173 1.266 1.244 1.192   4.74
79) Carbazole    1.075 1.186 1.135 1.150 1.117 1.151 1.224 1.191 1.154   4.05
80) Di-n-butylph 1.323 1.432 1.424 1.434 1.393 1.439 1.405 1.460 1.414   2.97
81) Fluoranthene 1.161 1.253 1.224 1.235 1.203 1.234 1.317 1.269 1.237   3.73
82) Octadecane   0.318 0.359 0.344 0.334 0.315 0.340 0.342 0.362 0.339   5.01

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.282 1.416 1.312 1.351 1.334 1.376 1.446 1.387 1.363   3.96
85) Terphenyl-d1 0.801 0.852 0.814 0.859 0.851 0.874 0.844 0.845 0.843   2.81
86) Butylbenzylp 0.593 0.666 0.647 0.680 0.669 0.686 0.691 0.659 0.661   4.74
87) Butyl steara 0.063 0.076 0.077 0.085 0.082 0.084 0.067 0.077 0.076  10.60
88) Benzo[a]anth 1.139 1.192 1.131 1.170 1.150 1.186 1.402 1.171 1.192   7.33
89) 3,3'-Dichlor 0.442 0.459 0.432 0.445 0.424 0.453 0.472 0.455 0.448   3.44
90) Chrysene     1.117 1.174 1.059 1.100 1.055 1.111 1.343 1.124 1.135   8.09
91) bis(2-Ethylh 0.896 0.944 0.900 0.934 0.908 0.937 1.098 0.919 0.942   6.96

92) I   Perylene-d12          ----------------ISTD---------------------
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P896-ICC896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20228.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

93)	Di-n-octylph	1.604	1.707	1.717	1.774	1.716	1.815	1.915	1.720	1.746	5.22
94)	Benzo[b]fluo	1.267	1.316	1.367	1.432	1.373	1.390	1.463	1.305	1.364	4.84
95)	Benzo[k]fluo	1.187	1.238	1.140	1.104	1.115	1.191	1.294	1.266	1.192	5.89
96)	Benzo[a]pyre	1.113	1.161	1.157	1.203	1.188	1.214	1.263	1.177	1.185	3.76
97)	Indeno[1,2,3	1.275	1.358	1.352	1.396	1.402	1.438	1.413	1.357	1.374	3.66
98)	Dibenz(a,h)a	0.906	0.969	0.976	1.007	1.014	1.032	1.003	0.960	0.983	4.04
99)	Dibenz[a,h]a	1.046	1.149	1.128	1.171	1.171	1.191	1.169	1.137	1.145	3.95
100)	7,12-Dimethy	0.568	0.607	0.582	0.609	0.586	0.604	0.639	0.614	0.601	3.63
101)	Benzo[g,h,i]	1.107	1.160	1.152	1.185	1.178	1.197	1.199	1.160	1.167	2.57

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

M2P896.M Wed Feb 20 15:12:20 2013 RPT1

8.7.21

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P896-ICV896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20232.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p896\2p20232.D            Vial: 10
Acq On    : 20 Feb 2013  12:26 pm                     Operator: andrews1
Sample    : icv896-50                                 Inst    : MS2P
Misc      : op63249,e2p896,35.0,,,1,1                 Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Feb 20 13:17:25 2013
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	95	-0.03	3.25
9	t	Phenol	2.033	2.003	1.5	94	-0.02	2.96
12	t	2-Chlorophenol	1.507	1.622	-7.6	100	-0.03	3.05
19	t	2-Methylphenol	1.383	1.448	-4.7	99	-0.02	3.65
21	t	3&4-Methylphenol	1.469	1.520	-3.5	97	-0.03	3.84
24	I	Naphthalene-d8	1.000	1.000	0.0	95	-0.03	4.90
29	t	2-Nitrophenol	0.193	0.208	-7.8	98	-0.03	4.42
30	t	2,4-Dimethylphenol	0.343	0.384	-12.0	106	-0.02	4.56
		----------	True	Calc.	% Drift		----------	
31	t	Benzoic acid	50.000	41.625	16.8	79	-0.03	4.80
		----------	AvgRF	CCRF	% Dev		----------	
33	t	2,4-Dichlorophenol	0.284	0.310	-9.2	100	-0.02	4.76
34	t	2,6-Dichlorophenol	0.280	0.303	-8.2	101	-0.03	5.09
43	t	4-Chloro-3-methylphenol	0.314	0.333	-6.1	97	-0.02	5.89
47	I	Acenaphthene-d10	1.000	1.000	0.0	94	-0.03	7.56
49	t	2,4,6-Trichlorophenol	0.348	0.370	-6.3	96	-0.03	6.47
50	t	2,4,5-Trichlorophenol	0.383	0.406	-6.0	94	-0.02	6.52
		----------	True	Calc.	% Drift		----------	
60	t	2,4-Dinitrophenol	100.000	102.898	-2.9	84	-0.02	7.75
		----------	AvgRF	CCRF	% Dev		----------	
61	t	4-Nitrophenol	0.166	0.174	-4.8	92	0.00	7.97
64		2,3,4,6-Tetrachlorophenol	0.241	0.282	-17.0	94	-0.02	8.17
69	I	Phenanthrene-d10	1.000	1.000	0.0	95	-0.03	9.82
70	t	4,6-Dinitro-2-methylpheno	0.142	0.153	-7.7	91	-0.03	8.62
		----------	True	Calc.	% Drift		----------	
76	t	Pentachlorophenol	100.000	97.912	2.1	86	-0.02	9.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20228.D M2P896.M Wed Feb 20 14:59:03 2013 RPT1

8.7.22

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P896-ICV896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20233.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p896\2p20233.D            Vial: 11
Acq On    : 20 Feb 2013  12:49 pm                     Operator: andrews1
Sample    : icv896-50                                 Inst    : MS2P
Misc      : op63249,e2p896,35.0,,,1,1                 Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Feb 20 13:17:25 2013
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	122	-0.03	3.25
3	t	Pyridine	1.653	1.277	22.7	100	-0.03	1.23
4	t	N-Nitrosodimethylamine	0.919	0.808	12.1	107	-0.02	1.22
11	t	bis(2-Chloroethyl)ether	1.462	1.428	2.3	124	-0.03	3.02
14	t	1,3-Dichlorobenzene	1.615	1.551	4.0	116	-0.03	3.20
15	t	1,4-Dichlorobenzene	1.662	1.580	4.9	115	-0.03	3.27
16	t	Benzyl alcohol	1.000	1.001	-0.1	118	-0.03	3.46
17	t	1,2-Dichlorobenzene	1.560	1.517	2.8	120	-0.03	3.48
20	t	2,2'-oxybis(1-Chloropropa	0.502	0.495	1.4	121	-0.03	3.67
22	t	n-Nitroso-di-n-propylamin	1.037	0.995	4.1	119	-0.04	3.84
23	t	Hexachloroethane	0.513	0.513	0.0	120	-0.03	3.86
24	I	Naphthalene-d8	1.000	1.000	0.0	125	-0.03	4.90
26	t	Nitrobenzene	0.386	0.367	4.9	120	-0.03	3.99
28	t	Isophorone	0.668	0.643	3.7	121	-0.04	4.31
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.407	0.415	-2.0	127	-0.03	4.68
36	t	1,2,4-Trichlorobenzene	0.305	0.298	2.3	121	-0.03	4.87
38	t	Naphthalene	1.071	1.015	5.2	118	-0.03	4.93
42	t	Hexachlorobutadiene	0.160	0.155	3.1	121	-0.03	5.24
44	t	2-Methylnaphthalene	0.611	0.565	7.5	115	-0.03	5.96
47	I	Acenaphthene-d10	1.000	1.000	0.0	122	-0.03	7.56
48	t	Hexachlorocyclopentadiene	0.273	0.250	8.4	96	-0.03	6.33
52	t	2-Chloronaphthalene	1.184	1.131	4.5	117	-0.03	6.68
54	t	2-Nitroaniline	0.376	0.361	4.0	114	-0.03	6.94
55	t	Dimethylphthalate	1.305	1.229	5.8	117	-0.03	7.34
56	t	Acenaphthylene	1.852	1.588	14.3	105	-0.03	7.31
57	t	2,6-Dinitrotoluene	0.280	0.290	-3.6	118	-0.03	7.41
58	t	3-Nitroaniline	0.344	0.313	9.0	104	-0.03	7.59
59	t	Acenaphthene	1.137	1.071	5.8	116	-0.03	7.61
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.623	1.506	7.2	114	-0.03	7.86
63	t	2,4-Dinitrotoluene	0.380	0.377	0.8	110	-0.02	8.00
65	t	Diethylphthalate	1.304	1.197	8.2	114	-0.04	8.46
66	t	Fluorene	1.314	1.261	4.0	117	-0.03	8.40
67	t	4-Chlorophenyl-phenylethe	0.587	0.541	7.8	114	-0.03	8.47
68	t	4-Nitroaniline	0.346	0.341	1.4	111	-0.03	8.55
69	I	Phenanthrene-d10	1.000	1.000	0.0	120	-0.03	9.83

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P896-ICV896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20233.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

71	t	n-Nitrosodiphenylamine	0.635	0.581	8.5	110	-0.03	8.67
72	t	1,2-Diphenylhydrazine	0.957	0.920	3.9	117	-0.03	8.70
74	t	4-Bromophenyl-phenylether	0.204	0.199	2.5	116	-0.03	9.21
75	t	Hexachlorobenzene	0.216	0.211	2.3	117	-0.03	9.38
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.205	1.140	5.4	116	-0.03	9.86
78	t	Anthracene	1.192	1.150	3.5	118	-0.03	9.93
79	t	Carbazole	1.154	1.099	4.8	115	-0.02	10.25
80	t	Di-n-butylphthalate	1.414	1.355	4.2	113	-0.03	11.05
81	t	Fluoranthene	1.237	1.169	5.5	114	-0.02	11.70
83	I	Chrysene-d12	1.000	1.000	0.0	122	-0.02	13.66
84	t	Pyrene	1.363	1.303	4.4	116	-0.02	12.01
86	t	Butylbenzylphthalate	0.661	0.631	4.5	113	-0.02	13.13
88	t	Benzo[a]anthracene	1.192	1.108	7.0	114	-0.01	13.64
89	t	3,3'-Dichlorobenzidine	0.448	0.335	25.2	90	-0.02	13.69
90	t	Chrysene	1.135	1.075	5.3	118	-0.02	13.69
91	t	bis(2-Ethylhexyl)phthalat	0.942	0.865	8.2	113	-0.02	13.95
92	I	Perylene-d12	1.000	1.000	0.0	121	0.00	15.31
93	t	Di-n-octylphthalate	1.746	1.713	1.9	114	-0.02	14.68
94	t	Benzo[b]fluoranthene	1.364	1.324	2.9	115	-0.01	14.92
95	t	Benzo[k]fluoranthene	1.192	1.092	8.4	111	-0.02	14.94
96	t	Benzo[a]pyrene	1.185	1.139	3.9	113	-0.01	15.25
97	t	Indeno[1,2,3-cd]pyrene	1.374	1.345	2.1	113	0.00	16.33
99	t	Dibenz[a,h]anthracene	1.145	1.115	2.6	113	-0.01	16.36
101	t	Benzo[g,h,i]perylene	1.167	1.133	2.9	114	0.00	16.55

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20228.D M2P896.M Wed Feb 20 14:59:05 2013 RPT1

8.7.23

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P896-ICV896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20234.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p896\2p20234.D            Vial: 12
Acq On    : 20 Feb 2013   1:12 pm                    Operator: andrews1
Sample    : icv896-50                                Inst    : MS2P
Misc      : op63249,e2p896,35.0,,,1,1                Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Feb 20 13:17:25 2013
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	100	-0.03	3.25
2	t	1,4-Dioxane	0.618	0.597	3.4	99	-0.03	1.07
6	t	Indene	2.474	2.897	-17.1	116	-0.03	3.58
7	t	Cumene	3.370	3.755	-11.4	112	-0.03	2.46
13	t	Decane	1.715	1.735	-1.2	104	-0.03	3.13
18	t	Acetophenone	2.031	2.362	-16.3	116	-0.03	3.78
24	I	Naphthalene-d8	1.000	1.000	0.0	100	-0.03	4.90
27	t	Quinoline	0.714	0.811	-13.6	113	-0.04	5.42
		----------	AvgRF	CCRF	% Dev	----------		
40	t	2,3-Dichloroaniline	0.353	0.391	-10.8	109	-0.03	6.45
41	t	Caprolactam	0.116	0.136	-17.2	111	-0.08	5.53
45	t	1-Methylnaphthalene	0.575	0.671	-16.7	115	-0.03	6.11
46	t	Dimethylnaphthalene	0.589	0.687	-16.6	116	-0.03	6.93
47	I	Acenaphthene-d10	1.000	1.000	0.0	101	-0.03	7.56
53	t	Biphenyl	1.450	1.664	-14.8	115	-0.03	6.71
69	I	Phenanthrene-d10	1.000	1.000	0.0	100	-0.03	9.82
82	t	Octadecane	0.339	0.398	-17.4	117	-0.03	9.94
92	I	Perylene-d12	1.000	1.000	0.0	97	-0.01	15.31
100	t	7,12-Dimethylbenz(a)anthr	0.601	0.608	-1.2	97	-0.02	14.95

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20228.D M2P896.M Wed Feb 20 14:59:07 2013 RPT1

8.7.24

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P896-ICV896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20235.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p896\2p20235.D            Vial: 13
Acq On    : 20 Feb 2013   1:35 pm                    Operator: andrews1
Sample    : icv896-50                                Inst    : MS2P
Misc      : op63249,e2p896,35.0,,,1,1                Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Feb 20 13:17:25 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	94	-0.03	3.25
5	S	2-Fluorophenol	1.432	1.489	-4.0	95	-0.01	2.06
8	S	Phenol-d5	1.776	1.848	-4.1	97	-0.02	2.95
24	I	Naphthalene-d8	1.000	1.000	0.0	92	-0.03	4.90
25	S	Nitrobenzene-d5	0.368	0.393	-6.8	98	-0.04	3.96
47	I	Acenaphthene-d10	1.000	1.000	0.0	90	-0.03	7.56
51	S	2-Fluorobiphenyl	1.279	1.343	-5.0	95	-0.03	6.59
69	I	Phenanthrene-d10	1.000	1.000	0.0	89	-0.03	9.82
73	S	2,4,6-Tribromophenol	0.089	0.090	-1.1	81	-0.03	8.80
83	I	Chrysene-d12	1.000	1.000	0.0	90	-0.02	13.65
85	S	Terphenyl-d14	0.843	0.914	-8.4	94	-0.02	12.35

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20228.D M2P896.M Wed Feb 20 14:59:09 2013 RPT1

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P896-ICV896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P20237.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p896\2p20237.D            Vial: 15
Acq On    : 20 Feb 2013   2:21 pm                    Operator: andrews1
Sample    : icv896-50                                Inst    : MS2P
Misc      : op63249,e2p896,35.0,,,1,1                Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed Feb 20 13:17:25 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	163	-0.03	3.25
10		Aniline	2.301	2.060	10.5	157	-0.03	2.94
24	I	Naphthalene-d8	1.000	1.000	0.0	167	-0.03	4.90
39	t	4-Chloroaniline	0.466	0.430	7.7	153	-0.03	5.09

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20228.D M2P896.M Wed Feb 20 14:59:11 2013 RPT1

8.7.26

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P947-CC896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21538.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p947\2p21538.D          Vial: 2
Acq On    : 26 Mar 2013   6:21 pm                  Operator: ashleyd
Sample    : cc896-50                               Inst    : MS2P
Misc      : op64284,e2p947,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Mar 23 13:07:29 2013
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	151	0.04	2.85
2	t	1,4-Dioxane	0.618	0.571	7.6	143	0.11	0.87
3	t	Pyridine	1.653	1.501	9.2	146	0.03	1.01
4	t	N-Nitrosodimethylamine	0.919	0.885	3.7	145	0.11	1.01
5	S	2-Fluorophenol	1.432	1.359	5.1	140	0.08	1.77
6	t	Indene	2.474	2.445	1.2	148	0.03	3.16
7	t	Cumene	3.370	3.382	-0.4	152	0.05	2.10
8	S	Phenol-d5	1.776	1.770	0.3	150	0.06	2.63
9	t	Phenol	2.033	1.952	4.0	145	0.06	2.64
10		Aniline	2.301	1.675	27.2#	119	0.05	2.57
11	t	bis(2-Chloroethyl)ether	1.462	1.428	2.3	153	0.04	2.64
12	t	2-Chlorophenol	1.507	1.507	0.0	149	0.05	2.69
13	t	Decane	1.715	1.478	13.8	134	0.03	2.74
14	t	1,3-Dichlorobenzene	1.615	1.631	-1.0	151	0.03	2.80
15	t	1,4-Dichlorobenzene	1.662	1.676	-0.8	151	0.03	2.87
16	t	Benzyl alcohol	1.000	0.955	4.5	140	0.05	3.09
17	t	1,2-Dichlorobenzene	1.560	1.574	-0.9	154	0.03	3.07
18	t	Acetophenone	2.031	1.910	6.0	142	0.04	3.38
19	t	2-Methylphenol	1.383	1.310	5.3	143	0.05	3.30
20	t	2,2'-oxybis(1-Chloropropa	0.502	0.459	8.6	139	0.03	3.26
21	t	3&4-Methylphenol	1.469	1.434	2.4	147	0.05	3.50
22	t	n-Nitroso-di-n-propylamin	1.037	1.052	-1.4	156	0.04	3.44
23	t	Hexachloroethane	0.513	0.531	-3.5	154	0.02	3.42
24	I	Naphthalene-d8	1.000	1.000	0.0	144	0.08	4.45
25	S	Nitrobenzene-d5	0.368	0.378	-2.7	147	0.03	3.56
26	t	Nitrobenzene	0.386	0.389	-0.8	147	0.03	3.58
27	t	Quinoline	0.714	0.723	-1.3	146	0.03	5.00
28	t	Isophorone	0.668	0.640	4.2	139	0.03	3.90
29	t	2-Nitrophenol	0.193	0.209	-8.3	151	0.03	4.01
30	t	2,4-Dimethylphenol	0.343	0.345	-0.6	145	0.04	4.17
		----------	True	Calc.	% Drift	----------		
31	t	Benzoic acid	50.000	49.951	0.1	150	0.16	4.54
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.407	0.399	2.0	141	0.02	4.25
33	t	2,4-Dichlorophenol	0.284	0.298	-4.9	147	0.04	4.38
34	t	2,6-Dichlorophenol	0.280	0.296	-5.7	150	0.03	4.67
35		1,3,5-Trichlorobenzene	0.310	0.334	-7.7	156	0.02	4.00
36	t	1,2,4-Trichlorobenzene	0.305	0.329	-7.9	154	0.02	4.43
37		1,2,3-Trichlorobenzene	0.297	0.320	-7.7	153	0.00	4.75

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P947-CC896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21538.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	t	Naphthalene	1.071	1.124	-4.9	151	0.00	4.48
39	t	4-Chloroaniline	0.466	0.434	6.9	134	0.03	4.67
40	t	2,3-Dichloroaniline	0.353	0.359	-1.7	144	0.02	6.01
41	t	Caprolactam	0.116	0.117	-0.9	138	0.12	5.21
42	t	Hexachlorobutadiene	0.160	0.172	-7.5	156	0.00	4.77
43	t	4-Chloro-3-methylphenol	0.314	0.337	-7.3	150	0.06	5.54
44	t	2-Methylnaphthalene	0.611	0.660	-8.0	155	0.00	5.50
45	t	1-Methylnaphthalene	0.575	0.633	-10.1	156	0.00	5.64
46	t	Dimethylnaphthalene	0.589	0.627	-6.5	153	0.00	6.46
47	I	Acenaphthene-d10	1.000	1.000	0.0	146	0.00	7.07
48	t	Hexachlorocyclopentadiene	0.273	0.227	16.8	105	0.00	5.84
49	t	2,4,6-Trichlorophenol	0.348	0.355	-2.0	143	0.03	6.05
50	t	2,4,5-Trichlorophenol	0.383	0.400	-4.4	144	0.05	6.15
51	S	2-Fluorobiphenyl	1.279	1.317	-3.0	151	0.00	6.12
52	t	2-Chloronaphthalene	1.184	1.154	2.5	142	0.00	6.21
53	t	Biphenyl	1.450	1.542	-6.3	155	0.00	6.24
54	t	2-Nitroaniline	0.376	0.389	-3.5	147	0.03	6.52
55	t	Dimethylphthalate	1.305	1.319	-1.1	150	0.02	6.88
56	t	Acenaphthylene	1.852	1.953	-5.5	154	0.00	6.83
57	t	2,6-Dinitrotoluene	0.280	0.303	-8.2	148	0.03	6.98
58	t	3-Nitroaniline	0.344	0.357	-3.8	142	0.04	7.18
59	t	Acenaphthene	1.137	1.240	-9.1	160	0.00	7.12
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	79.624	20.4#	115	0.06	7.39
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.166	0.092	44.6#	76	0.11	7.70
62	t	Dibenzofuran	1.623	1.685	-3.8	153	0.00	7.38
63	t	2,4-Dinitrotoluene	0.380	0.424	-11.6	148	0.04	7.60
64		2,3,4,6-Tetrachlorophenol	0.241	0.193	19.9	99	0.02	7.73
65	t	Diethylphthalate	1.304	1.331	-2.1	151	0.00	7.99
66	t	Fluorene	1.314	1.354	-3.0	150	0.00	7.91
67	t	4-Chlorophenyl-phenylethe	0.587	0.640	-9.0	161	0.00	7.98
68	t	4-Nitroaniline	0.346	0.356	-2.9	138	0.05	8.15
69	I	Phenanthrene-d10	1.000	1.000	0.0	156	0.00	9.34
70	t	4,6-Dinitro-2-methylpheno	0.142	0.140	1.4	138	0.06	8.24
71	t	n-Nitrosodiphenylamine	0.635	0.620	2.4	152	0.00	8.21
72	t	1,2-Diphenylhydrazine	0.957	0.920	3.9	152	0.00	8.22
73	S	2,4,6-Tribromophenol	0.089	0.093	-4.5	146	0.00	8.35
74	t	4-Bromophenyl-phenylether	0.204	0.214	-4.9	161	0.00	8.72
75	t	Hexachlorobenzene	0.216	0.224	-3.7	161	0.00	8.90
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	100.000	60.521	39.5#	90	0.02	9.26
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.205	1.189	1.3	156	0.00	9.37
78	t	Anthracene	1.192	1.198	-0.5	159	0.00	9.44
79	t	Carbazole	1.154	1.089	5.6	148	0.02	9.79
80	t	Di-n-butylphthalate	1.414	1.390	1.7	151	0.00	10.56
81	t	Fluoranthene	1.237	1.267	-2.4	160	0.00	11.23
82	t	Octadecane	0.339	0.340	-0.3	156	0.00	9.45
83	I	Chrysene-d12	1.000	1.000	0.0	169	0.03	13.23
84	t	Pyrene	1.363	1.303	4.4	160	0.00	11.54
85	S	Terphenyl-d14	0.843	0.837	0.7	162	0.00	11.89
86	t	Butylbenzylphthalate	0.661	0.600	9.2	148	0.02	12.69

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P947-CC896
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21538.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

87		Butyl stearate	0.076	0.085	-11.8	171	0.02	12.83
88	t	Benzo[a]anthracene	1.192	1.143	4.1	163	0.03	13.21
89	t	3,3'-Dichlorobenzidine	0.448	0.403	10.0	150	0.04	13.27
90	t	Chrysene	1.135	1.096	3.4	167	0.04	13.27
91	t	bis(2-Ethylhexyl)phthalat	0.942	0.843	10.5	152	0.02	13.52
92	I	Perylene-d12	1.000	1.000	0.0	155	0.05	14.90
93	t	Di-n-octylphthalate	1.746	1.754	-0.5	150	0.03	14.25
94	t	Benzo[b]fluoranthene	1.364	1.444	-5.9	161	0.05	14.51
95	t	Benzo[k]fluoranthene	1.192	1.247	-4.6	163	0.05	14.53
96	t	Benzo[a]pyrene	1.185	1.202	-1.4	154	0.05	14.84
97	t	Indeno[1,2,3-cd]pyrene	1.374	1.392	-1.3	150	0.06	15.94
98	t	Dibenz(a,h)acridine	0.983	0.980	0.3	148	0.05	15.74
99	t	Dibenz[a,h]anthracene	1.145	1.153	-0.7	150	0.05	15.95
100	t	7,12-Dimethylbenz(a)anthr	0.601	0.626	-4.2	161	0.03	14.52
101	t	Benzo[g,h,i]perylene	1.167	1.177	-0.9	153	0.05	16.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20856.D M2P896.M Wed Mar 27 12:08:12 2013 RPT1

8.7.27

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P947-CC889
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21539.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p947\2p21539.D          Vial: 3
Acq On    : 26 Mar 2013   6:43 pm                  Operator: ashleyd
Sample    : cc889-50                               Inst    : MS2P
Misc      : op64284,e2p947,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P896.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Mar 23 13:07:29 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102 I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	79	0.04	2.85
103	Benzaldehyde	1.098	0.918	16.4	78	0.05	2.43
104	Acenaphthene-d10a	1.000	1.000	0.0	84	0.00	7.07
105	Atrazine	0.147	0.197	-34.0#	107	0.02	9.18
106	1,2,4,5-Tetrachlorobenzen	0.499	0.549	-10.0	99	0.00	5.82
107 I	Chrysene-d12a	1.000	1.000	0.0	90	0.03	13.23
	----------	True	Calc.	% Drift	----------		
108	Benzidine	50.000	38.794	22.4#	76	-0.18	11.56
	----------	AvgRF	CCRF	% Dev	----------		
109	Naphthalene-d8a	1.000	1.000	0.0	78	0.00	4.45
110	Hydroquinone	0.313	0.335	-7.0	80	0.10	5.42

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p20856.D M2P896.M Wed Mar 27 12:09:00 2013 RPT1

8.7.28

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P954-ICC954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS2P

Method : C:\MSDCHEM\1\METHODS\M2P952.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Mon Apr 01 12:01:07 2013
Response via : Initial Calibration

Calibration Files
2 =2p21725.D 5 =2p21724.D 25 =2p21722.D 80 =2p21720.D
100 =2p21719.D 50 =2p21721.D 1 =2p21726.D 10 =2p21723.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.509	0.581	0.558	0.545	0.546	0.568	0.645	0.521	0.559	7.46
3) Pyridine	1.220	1.486	1.467	1.419	1.439	1.468	1.460	1.370	1.416	6.17
4) N-Nitrosodim	0.779	0.906	0.874	0.858	0.867	0.896	0.896	0.854	0.866	4.63
5) 2-Fluorophen	1.086	1.297	1.299	1.301	1.308	1.354	1.191	1.240	1.260	6.78
6) Indene	2.051	2.367	2.288	2.260	2.237	2.292	2.209	2.185	2.236	4.18
7) Cumene	2.872	3.224	3.139	3.071	3.053	3.198	3.104	3.009	3.084	3.63
8) Phenol-d5	1.363	1.641	1.606	1.597	1.583	1.638	1.489	1.529	1.556	6.02
9) Phenol	1.455	1.702	1.681	1.670	1.665	1.710	1.628	1.604	1.639	5.02
10) Aniline	1.956	2.214	2.129	2.064	2.050	2.144	2.436	2.065	2.132	6.79
11) bis(2-Chloro	1.176	1.324	1.291	1.229	1.208	1.273	1.289	1.233	1.253	3.95
12) 2-Chlorophen	1.276	1.495	1.441	1.410	1.391	1.453	1.400	1.408	1.409	4.52
13) Decane	1.324	1.517	1.461	1.402	1.381	1.457	1.416	1.403	1.420	4.10
14) 1,3-Dichloro	1.495	1.681	1.616	1.575	1.560	1.613	1.571	1.571	1.585	3.38
15) 1,4-Dichloro	1.511	1.719	1.645	1.604	1.593	1.643	1.639	1.576	1.616	3.78
16) Benzyl alcoh	0.768	0.887	0.920	0.917	0.909	0.923	0.834	0.854	0.876	6.22
17) 1,2-Dichloro	1.432	1.607	1.521	1.491	1.468	1.516	1.498	1.484	1.502	3.39
18) Acetophenone	1.622	1.818	1.780	1.780	1.758	1.796	1.789	1.696	1.755	3.68
19) 2-Methylphen	1.068	1.276	1.261	1.233	1.218	1.261	1.195	1.223	1.217	5.40
20) 2,2'-oxybis(	0.403	0.463	0.440	0.436	0.430	0.443	0.442	0.426	0.435	3.94
21) 3&4-Methylph	1.120	1.370	1.363	1.348	1.346	1.367	1.214	1.279	1.301	7.00
22) n-Nitroso-di	0.798	0.917	0.928	0.927	0.919	0.930	0.870	0.890	0.897	5.05
23) Hexachloroet	0.433	0.509	0.500	0.503	0.504	0.506	0.497	0.478	0.491	5.16
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.281	0.336	0.334	0.333	0.335	0.344	0.312	0.317	0.324	6.22
26) Nitrobenzene	0.292	0.347	0.343	0.333	0.335	0.342	0.339	0.329	0.333	5.20
27) Quinoline	0.587	0.674	0.660	0.673	0.670	0.671	0.698	0.636	0.659	5.10
28) Isophorone	0.492	0.577	0.582	0.578	0.575	0.586	0.530	0.554	0.559	5.89
29) 2-Nitropheno	0.145	0.176	0.190	0.192	0.190	0.195	0.152	0.176	0.177	10.81
30) 2,4-Dimethyl	0.265	0.325	0.329	0.327	0.331	0.334	0.304	0.314	0.316	7.18
31) Benzoic acid		0.135	0.223	0.274	0.280	0.272		0.179	0.227	26.21
----- Linear regression ----- Coefficient = 0.9992										
Response Ratio = -0.02795 + 0.28964 *A										
32) bis(2-Chloro	0.331	0.382	0.371	0.366	0.366	0.377	0.365	0.360	0.365	4.22
33) 2,4-Dichloro	0.225	0.281	0.287	0.287	0.289	0.290	0.239	0.276	0.271	9.29
34) 2,6-Dichloro	0.240	0.286	0.280	0.278	0.275	0.280	0.248	0.270	0.270	6.14
35) 1,3,5-Trichl	0.289	0.332	0.316	0.302	0.300	0.311	0.329	0.308	0.311	4.67
36) 1,2,4-Trichl	0.294	0.326	0.311	0.304	0.303	0.310	0.312	0.302	0.308	3.06
37) 1,2,3-Trichl	0.283	0.307	0.299	0.296	0.293	0.300	0.308	0.293	0.297	2.74
38) Naphthalene	0.988	1.104	1.059	1.031	1.019	1.044	1.084	1.031	1.045	3.51
39) 4-Chloroanil	0.399	0.470	0.460	0.449	0.439	0.455	0.467	0.447	0.448	4.99
40) 2,3-Dichloro	0.290	0.346	0.332	0.341	0.336	0.339	0.320	0.324	0.328	5.41
41) Caprolactam	0.073	0.095	0.102	0.108	0.108	0.107	0.071	0.094	0.095	16.11
42) Hexachlorobu	0.152	0.170	0.166	0.165	0.164	0.165	0.167	0.162	0.164	3.34

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P954-ICC954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
43) 4-Chloro-3-m 0.217 0.269 0.282 0.289 0.292 0.294 0.234 0.265 0.268  10.56
44) 2-Methylnaph 0.566 0.638 0.614 0.612 0.604 0.620 0.607 0.602 0.608   3.36
45) 1-Methylnaph 0.515 0.583 0.577 0.572 0.569 0.575 0.559 0.560 0.564   3.78
46) Dimethylnaph 0.500 0.586 0.573 0.579 0.565 0.576 0.543 0.555 0.560   4.96

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.234 0.300 0.337 0.346 0.356 0.362 0.263 0.307 0.313  14.66
49) 2,4,6-Trichl 0.284 0.341 0.363 0.359 0.364 0.370 0.308 0.342 0.341   8.95
50) 2,4,5-Trichl 0.302 0.365 0.383 0.398 0.399 0.410 0.329 0.367 0.369  10.13
51) 2-Fluorobiph 1.192 1.356 1.292 1.260 1.267 1.302 1.295 1.280 1.280   3.62
52) 2-Chloronaph 1.061 1.200 1.157 1.116 1.121 1.158 1.116 1.126 1.132   3.62
53) Biphenyl     1.357 1.547 1.481 1.433 1.429 1.478 1.499 1.482 1.463   3.87
54) 2-Nitroanili 0.243 0.318 0.333 0.342 0.349 0.355 0.249 0.313 0.313  14.01
55) Dimethylphth 1.153 1.306 1.261 1.249 1.262 1.277 1.247 1.243 1.250   3.53
56) Acenaphthyle 1.591 1.915 1.909 1.870 1.873 1.928 1.730 1.839 1.832   6.32
57) 2,6-Dinitrot 0.185 0.243 0.273 0.286 0.290 0.292 0.179 0.244 0.249  18.29
58) 3-Nitroanili 0.259 0.338 0.350 0.356 0.356 0.360 0.264 0.331 0.327  12.67
59) Acenaphthene 1.129 1.260 1.188 1.143 1.128 1.177 1.164 1.165 1.169   3.65
60) 2,4-Dinitrop       0.085 0.147 0.185 0.192 0.189       0.111 0.151  29.89
            ----- Linear regression -----  Coefficient =  0.9984
              Response Ratio = -0.04182 + 0.19863 *A

61) 4-Nitropheno       0.128 0.161 0.174 0.178 0.178       0.140 0.160  13.42
62) Dibenzofuran 1.499 1.719 1.630 1.597 1.582 1.632 1.647 1.582 1.611   3.94
63) 2,4-Dinitrot 0.246 0.354 0.382 0.403 0.402 0.410 0.238 0.361 0.350  19.83
64) 2,3,4,6-Tetr 0.229 0.289 0.307 0.321 0.323 0.322 0.241 0.289 0.290  12.67
65) Diethylphtha 1.123 1.329 1.290 1.288 1.283 1.312 1.205 1.260 1.261   5.32
66) Fluorene     1.133 1.344 1.304 1.270 1.270 1.311 1.205 1.255 1.262   5.28
67) 4-Chlorophen 0.560 0.624 0.588 0.581 0.574 0.587 0.559 0.581 0.582   3.46
68) 4-Nitroanili 0.230 0.317 0.346 0.366 0.373 0.368 0.236 0.330 0.321  17.99

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.092 0.135 0.154 0.155 0.157       0.110 0.134  20.30
            ----- Linear regression -----  Coefficient =  0.9993
              Response Ratio = -0.01046 + 0.15947 *A

71) n-Nitrosodip 0.527 0.617 0.607 0.584 0.573 0.595 0.561 0.585 0.581   4.87
72) 1,2-Diphenyl 0.712 0.849 0.820 0.793 0.786 0.820 0.744 0.793 0.790   5.56
73) 2,4,6-Tribro 0.072 0.091 0.099 0.102 0.102 0.104 0.074 0.091 0.092  13.73
74) 4-Bromopheny 0.180 0.212 0.209 0.208 0.206 0.213 0.199 0.202 0.204   5.20
75) Hexachlorobe 0.206 0.227 0.217 0.215 0.213 0.219 0.226 0.211 0.217   3.31
76) Pentachlorop 0.082 0.123 0.144 0.153 0.151 0.154       0.128 0.134  19.24
77) Phenanthrene 1.118 1.240 1.179 1.131 1.116 1.165 1.188 1.153 1.161   3.60
78) Anthracene   1.038 1.218 1.178 1.110 1.081 1.147 1.087 1.148 1.126   5.17
79) Carbazole    0.910 1.086 1.065 1.029 1.021 1.065 0.996 1.032 1.025   5.36
80) Di-n-butylph 0.935 1.228 1.313 1.308 1.295 1.343 1.101 1.232 1.219  11.30
81) Fluoranthene 0.952 1.183 1.182 1.146 1.138 1.179 1.135 1.149 1.133   6.68
82) Octadecane   0.235 0.296 0.302 0.286 0.279 0.300 0.242 0.286 0.278   9.29

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.106 1.306 1.286 1.251 1.226 1.284 1.279 1.263 1.250   5.04
85) Terphenyl-d1 0.695 0.833 0.837 0.834 0.814 0.845 0.823 0.822 0.813   5.98
86) Butylbenzylp 0.341 0.486 0.578 0.609 0.607 0.624 0.443 0.525 0.527  18.80
87) Butyl steara       0.049 0.069 0.077 0.076 0.078       0.061 0.068  16.69
88) Benzo[a]anth 0.918 1.071 1.105 1.103 1.078 1.128 1.125 1.044 1.072   6.35
89) 3,3'-Dichlor 0.250 0.352 0.401 0.430 0.429 0.433 0.332 0.382 0.376  16.78
90) Chrysene     1.003 1.117 1.074 1.044 1.022 1.073 1.108 1.035 1.059   3.82
91) bis(2-Ethylh 0.382 0.601 0.771 0.837       0.843       0.671 0.684  25.71
            ----- Linear regression -----  Coefficient =  0.9996
              Response Ratio = -0.03590 + 0.85760 *A
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P954-ICC954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21710.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 92) I   Perylene-d12          ----------------ISTD---------------------
 93) Di-n-octylph 0.506 0.947 1.437 1.590       1.603       1.156 1.207  35.51
             ----- Linear regression -----  Coefficient =  0.9993
               Response Ratio = -0.09049 + 1.64119 *A

 94) Benzo[b]fluo 0.859 1.155 1.271 1.280 1.229 1.291 0.985 1.121 1.149  13.58
 95) Benzo[k]fluo 1.048 1.309 1.303 1.259 1.293 1.272 1.129 1.279 1.236   7.71
 96) Benzo[a]pyre 0.760 1.037 1.162 1.181 1.184 1.193 0.832 1.042 1.049  16.11
 97) Indeno[1,2,3 0.569 0.839 1.016 1.073 1.075 1.083 0.845 0.871 0.921  19.27
 98) Dibenz(a,h)a 0.479 0.719 0.889 0.947 0.952 0.954 0.680 0.763 0.798  21.25
 99) Dibenz[a,h]a 0.656 0.892 1.042 1.094 1.084 1.094 0.943 0.922 0.966  15.48
100) 7,12-Dimethy 0.421 0.569 0.606 0.598 0.594 0.601 0.455 0.560 0.551  13.07
101) Benzo[g,h,i] 0.801 1.015 1.109 1.144 1.140 1.143 1.114 1.015 1.060  11.08

102) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.012 1.036 1.100 1.094 1.075 1.101 1.001 1.086 1.063   3.81

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) Atrazine     0.105 0.127 0.159 0.165 0.165 0.163       0.145 0.147  15.78
106) 1,2,4,5-Tetr 0.508 0.533 0.545 0.510 0.514 0.536 0.533 0.546 0.528   2.91

107) I   Chrysene-d12         ----------------ISTD---------------------
108) Benzidine                0.721 0.812 0.809 0.794       0.580 0.743  13.27

109)     Naphthalene-d8a       ----------------ISTD---------------------
110) Hydroquinone             0.297 0.344 0.333 0.318       0.245 0.308  12.73
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2P952.M          Tue Apr 09 13:56:38 2013   RPT1
```

8.7.29

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P955-ICV954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21727.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p954\2p21727.D          Vial: 18
Acq On    : 30 Mar 2013   6:05 pm                  Operator: andrews1
Sample    : ic954-50                               Inst    : MS2P
Misc      : op64284,e2p955,                        Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P952.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Apr 01 12:01:07 2013
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	4.95
3	t	Pyridine	1.416	1.273	10.1	88	-0.02	1.55
4	t	N-Nitrosodimethylamine	0.866	0.859	0.8	97	-0.01	1.56
11	t	bis(2-Chloroethyl)ether	1.253	1.364	-8.9	109	0.00	4.70
14	t	1,3-Dichlorobenzene	1.585	1.683	-6.2	106	0.00	4.89
15	t	1,4-Dichlorobenzene	1.616	1.698	-5.1	105	0.00	4.98
16	t	Benzyl alcohol	0.876	0.905	-3.3	99	0.00	5.26
17	t	1,2-Dichlorobenzene	1.502	1.610	-7.2	108	0.00	5.24
20	t	2,2'-oxybis(1-Chloropropa	0.435	0.461	-6.0	106	0.00	5.50
22	t	n-Nitroso-di-n-propylamin	0.897	0.912	-1.7	99	-0.01	5.70
23	t	Hexachloroethane	0.491	0.526	-7.1	105	0.00	5.69
24	I	Naphthalene-d8	1.000	1.000	0.0	99	0.00	6.85
26	t	Nitrobenzene	0.333	0.354	-6.3	102	0.00	5.85
28	t	Isophorone	0.559	0.618	-10.6	104	0.00	6.22
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.365	0.407	-11.5	106	0.00	6.64
36	t	1,2,4-Trichlorobenzene	0.308	0.335	-8.8	107	0.00	6.82
38	t	Naphthalene	1.045	1.095	-4.8	103	0.00	6.88
42	t	Hexachlorobutadiene	0.164	0.180	-9.8	107	0.00	7.22
44	t	2-Methylnaphthalene	0.608	0.604	0.7	96	0.00	7.96
47	I	Acenaphthene-d10	1.000	1.000	0.0	95	0.00	9.59
48	t	Hexachlorocyclopentadiene	0.313	0.310	1.0	82	0.00	8.34
52	t	2-Chloronaphthalene	1.132	1.201	-6.1	99	0.00	8.70
54	t	2-Nitroaniline	0.313	0.320	-2.2	86	0.00	8.97
55	t	Dimethylphthalate	1.250	1.292	-3.4	96	0.00	9.38
56	t	Acenaphthylene	1.832	1.772	3.3	87	0.00	9.33
57	t	2,6-Dinitrotoluene	0.249	0.290	-16.5	95	0.00	9.44
58	t	3-Nitroaniline	0.327	0.304	7.0	80	0.00	9.63
59	t	Acenaphthene	1.169	1.213	-3.8	98	0.00	9.63
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.611	1.630	-1.2	95	0.00	9.89
63	t	2,4-Dinitrotoluene	1.174	1.265	-7.8	99	0.00	10.43
65	t	Diethylphthalate	1.261	1.292	-2.5	94	-0.01	10.51
66	t	Fluorene	1.262	1.362	-7.9	99	0.00	10.43
67	t	4-Chlorophenyl-phenylethe	0.582	0.599	-2.9	97	0.00	10.50
68	t	4-Nitroaniline	0.321	0.345	-7.5	89	-0.01	10.59
69	I	Phenanthrene-d10	1.000	1.000	0.0	93	0.00	11.86

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P955-ICV954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21727.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

			AvgRF	CCRF	% Dev			
71	t	n-Nitrosodiphenylamine	0.581	0.604	-4.0	94	-0.01	10.71
72	t	1,2-Diphenylhydrazine	0.790	0.862	-9.1	98	0.00	10.74
74	t	4-Bromophenyl-phenylether	0.204	0.221	-8.3	96	0.00	11.24
75	t	Hexachlorobenzene	0.217	0.231	-6.5	98	0.00	11.41
77	t	Phenanthrene	1.161	1.224	-5.4	97	-0.01	11.89
78	t	Anthracene	1.126	1.234	-9.6	100	0.00	11.96
79	t	Carbazole	1.025	1.118	-9.1	97	-0.01	12.28
80	t	Di-n-butylphthalate	1.219	1.346	-10.4	93	0.00	13.08
81	t	Fluoranthene	1.133	1.225	-8.1	96	0.00	13.77
83	I	Chrysene-d12	1.000	1.000	0.0	96	0.00	16.49
84	t	Pyrene	1.250	1.309	-4.7	98	0.00	14.13
86	t	Butylbenzylphthalate	0.527	0.584	-10.8	90	-0.01	15.73
88	t	Benzo[a]anthracene	1.072	1.122	-4.7	96	-0.01	16.45
89	t	3,3'-Dichlorobenzidine	0.376	0.318	15.4	71	-0.01	16.57
90	t	Chrysene	1.059	1.123	-6.0	101	0.00	16.54
			True	Calc.	% Drift			
91	t	bis(2-Ethylhexyl)phthalat	50.000	48.455	3.1	92	-0.01	17.10
			AvgRF	CCRF	% Dev			
92	I	Perylene-d12	1.000	1.000	0.0	95	0.00	19.31
			True	Calc.	% Drift			
93	t	Di-n-octylphthalate	50.000	48.973	2.1	91	-0.01	18.38
			AvgRF	CCRF	% Dev			
94	t	Benzo[b]fluoranthene	1.149	1.338	-16.4	98	-0.01	18.61
95	t	Benzo[k]fluoranthene	1.236	1.253	-1.4	93	-0.01	18.67
96	t	Benzo[a]pyrene	1.049	1.201	-14.5	95	-0.01	19.20
97	t	Indeno[1,2,3-cd]pyrene	0.921	1.072	-16.4	94	-0.01	21.19
99	t	Dibenz[a,h]anthracene	0.966	1.090	-12.8	94	-0.01	21.27
101	t	Benzo[g,h,i]perylene	1.060	1.196	-12.8	99	-0.01	21.59

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21721.D M2P952.M Tue Apr 02 10:14:36 2013 RPT1

8.7.30

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P955-ICV954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21728.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p954\2p21728.D            Vial: 19
Acq On    : 30 Mar 2013   6:34 pm                     Operator: andrews1
Sample    : icv954-50                                 Inst    : MS2P
Misc      : op64284,e2p955,                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P952.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Apr 01 12:01:07 2013
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	80	0.00	4.95
2	t	1,4-Dioxane	0.559	0.637	-14.0	90	-0.01	1.27
6	t	Indene	2.236	2.637	-17.9	92	0.00	5.36
7	t	Cumene	3.084	3.535	-14.6	88	0.00	3.88
13	t	Decane	1.420	1.567	-10.4	86	0.00	4.86
18	t	Acetophenone	1.755	1.956	-11.5	87	-0.01	5.62
24	I	Naphthalene-d8	1.000	1.000	0.0	77	0.00	6.85
27	t	Quinoline	0.659	0.730	-10.8	84	-0.02	7.41
40	t	2,3-Dichloroaniline	0.328	0.320	2.4	73	0.00	8.48
41	t	Caprolactam	0.095	0.104	-9.5	75	-0.07	7.54
45	t	1-Methylnaphthalene	0.564	0.638	-13.1	86	0.00	8.12
46	t	Dimethylnaphthalene	0.560	0.631	-12.7	84	0.00	8.95
47	I	Acenaphthene-d10	1.000	1.000	0.0	74	0.00	9.59
53	t	Biphenyl	1.463	1.684	-15.1	84	0.00	8.73
69	I	Phenanthrene-d10	1.000	1.000	0.0	71	0.00	11.86
82	t	Octadecane	0.278	0.338	-21.6	80	0.00	11.98
		----------	AvgRF	CCRF	% Dev	----------		
92	I	Perylene-d12	1.000	1.000	0.0	66	0.00	19.31
100	t	7,12-Dimethylbenz(a)anthr	0.551	0.659	-19.6	72	-0.02	18.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21721.D M2P952.M Tue Apr 09 12:38:11 2013 RPT1

8.7.31

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P955-ICV954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21729.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p954\2p21729.D            Vial: 20
Acq On    : 30 Mar 2013   7:03 pm                    Operator: andrews1
Sample    : ic954-50                                 Inst    : MS2P
Misc      : op64284,e2p955,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P952.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Apr 01 12:01:07 2013
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	4.95
9	t	Phenol	1.639	1.554	5.2	99	0.00	4.66
12	t	2-Chlorophenol	1.409	1.362	3.3	102	0.00	4.71
19	t	2-Methylphenol	1.217	1.146	5.8	99	0.00	5.51
21	t	3&4-Methylphenol	1.301	1.203	7.5	96	0.00	5.74
24	I	Naphthalene-d8	1.000	1.000	0.0	105	0.00	6.86
29	t	2-Nitrophenol	0.177	0.181	-2.3	97	0.00	6.34
30	t	2,4-Dimethylphenol	0.316	0.316	0.0	99	0.00	6.52
		----------	True	Calc.	% Drift		----------	
31	t	Benzoic acid	50.000	40.077	19.8	81	0.00	6.82
		----------	AvgRF	CCRF	% Dev		----------	
33	t	2,4-Dichlorophenol	0.271	0.278	-2.6	101	0.00	6.71
34	t	2,6-Dichlorophenol	0.270	0.273	-1.1	102	0.00	7.07
43	t	4-Chloro-3-methylphenol	0.268	0.270	-0.7	96	-0.01	7.91
47	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00	9.59
49	t	2,4,6-Trichlorophenol	0.341	0.347	-1.8	96	0.00	8.49
50	t	2,4,5-Trichlorophenol	0.369	0.383	-3.8	95	-0.01	8.54
		----------	True	Calc.	% Drift		----------	
60	t	2,4-Dinitrophenol	100.000	81.278	18.7	70	0.00	9.78
		----------	AvgRF	CCRF	% Dev		----------	
61	t	4-Nitrophenol	0.160	0.149	6.9	86	0.00	10.00
64		2,3,4,6-Tetrachlorophenol	0.290	0.290	0.0	92	0.00	10.20
69	I	Phenanthrene-d10	1.000	1.000	0.0	99	0.00	11.86
		----------	True	Calc.	% Drift		----------	
70	t	4,6-Dinitro-2-methylpheno	50.000	42.969	14.1	81	-0.01	10.65
76	t	Pentachlorophenol	0.134	0.140	-4.4	90	0.00	11.73

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21721.D M2P952.M Mon Apr 01 13:19:43 2013 RPT1

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P955-ICV954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21730.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p954\2p21730.D          Vial: 21
Acq On    : 30 Mar 2013   7:32 pm                   Operator: andrews1
Sample    : ic954-50                                Inst    : MS2P
Misc      : op64284,e2p955,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P952.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Apr 01 12:01:07 2013
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	91	0.00	4.95
5	S	2-Fluorophenol	1.260	1.165	7.5	79	0.00	3.27
8	S	Phenol-d5	1.556	1.384	11.1	77	-0.01	4.64
24	I	Naphthalene-d8	1.000	1.000	0.0	89	0.00	6.85
25	S	Nitrobenzene-d5	0.324	0.306	5.6	79	-0.01	5.82
47	I	Acenaphthene-d10	1.000	1.000	0.0	85	0.00	9.59
51	S	2-Fluorobiphenyl	1.280	1.195	6.6	78	0.00	8.61
69	I	Phenanthrene-d10	1.000	1.000	0.0	81	0.00	11.86
73	S	2,4,6-Tribromophenol	0.092	0.079	14.1	61	-0.01	10.83
83	I	Chrysene-d12	1.000	1.000	0.0	81	0.00	16.48
85	S	Terphenyl-d14	0.813	0.769	5.4	74	0.00	14.59

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 2p21721.D  M2P952.M         Mon Apr 01 13:22:49 2013   RPT1
```

8.7.33

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P955-ICV954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21731.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p954\2p21731.D            Vial: 22
Acq On    : 30 Mar 2013   8:01 pm                    Operator: andrews1
Sample    : ic954-50                                 Inst    : MS2P
Misc      : op64284,e2p955,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P952.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Apr 01 12:01:07 2013
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	96	0.00	4.95
10		Aniline	2.132	1.936	9.2	87	0.00	4.57
24	I	Naphthalene-d8	1.000	1.000	0.0	93	0.00	6.85
39	t	4-Chloroaniline	0.448	0.429	4.2	88	0.00	7.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21721.D M2P952.M Mon Apr 01 13:23:55 2013 RPT1

8.7.34

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E2P957-ICC957
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21750.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MS2P

 Method       : C:\msdchem\1\METHODS\M2p956phm.M (RTE Integrator)
 Title        : Semi Volatile Extractables by GC/MS
 Last Update  : Tue Apr 02 09:28:24 2013
 Response via : Initial Calibration

 Calibration Files
 2   =2p21749.D   5   =2p21751.D   25  =2p21752.D   80  =2p21748.D
 100 =2p21746.D   50  =2p21750.D   1   =2p21747.D   10  =2p21753.D

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

 1) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
 2) 2-Fluorophen 1.086 1.297 1.299 1.301 1.308 1.354 1.191 1.240 1.260   6.78
 3) Phenol-d5    1.363 1.641 1.606 1.597 1.583 1.638 1.489 1.529 1.556   6.02
 4) Phenol       1.455 1.702 1.681 1.670 1.665 1.710 1.628 1.604 1.639   5.02

 5) I   Naphthalene-d8        ----------------ISTD---------------------
 6) Nitrobenzene 0.281 0.336 0.334 0.333 0.335 0.344 0.312 0.317 0.324   6.22
 7) Benzoic acid       0.135 0.223 0.274 0.280 0.272       0.179 0.227  26.21
            ----- Linear regression -----  Coefficient =  0.9992
              Response Ratio = -0.02795 + 0.28964 *A


 8) I   Acenaphthene-d10      ----------------ISTD---------------------
 9) 2-Fluorobiph 1.192 1.356 1.292 1.260 1.267 1.302 1.295 1.280 1.280   3.62

10) I   Phenanthrene-d10      ----------------ISTD---------------------
11) 2,4,6-Tribro 0.072 0.091 0.099 0.102 0.102 0.104 0.074 0.091 0.092  13.73

12) I   Chrysene-d12          ----------------ISTD---------------------
13) Terphenyl-d1 0.695 0.833 0.837 0.834 0.814 0.845 0.823 0.822 0.813   5.98

14)     Naphthalene-d8a       ----------------ISTD---------------------
15) Camphor      0.210 0.250 0.244 0.240 0.234 0.248 0.233 0.245 0.238   5.44
16) Catechol           0.157 0.281 0.342 0.332 0.322       0.198 0.272  28.32
            ----- Linear regression -----  Coefficient =  0.9989
              Response Ratio = -0.03326 + 0.34959 *A

17) Methyl salic 0.193 0.246 0.252 0.245 0.239 0.257 0.210 0.247 0.236   9.45
18) Salicylic ac             0.158 0.199 0.192 0.190       0.106 0.169  22.72
            ----- Linear regression -----  Coefficient =  0.9985
              Response Ratio = -0.09777 + 0.20576 *A


19)     Acenaphthene-d10a     ----------------ISTD---------------------
20) Salicylamide 0.335 0.546 0.653 0.686 0.666 0.698 0.384 0.585 0.569  24.53
            ----- Linear regression -----  Coefficient =  0.9992
              Response Ratio = -0.01247 + 0.68265 *A

21) Guaifenesin        0.637 0.917 0.977 0.948 0.986       0.771 0.873  15.97
---------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M2p956phm.M        Tue Apr 02 11:48:28 2013   RPT1
```

8.7.35

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E2P957-ICV957
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21754.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p957\2p21754.D            Vial: 10
Acq On    :  1 Apr 2013   8:43 pm                     Operator: andrews1
Sample    : icv957-50                                 Inst    : MS2P
Misc      : op64284,e2p957,                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2p956phm.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Apr 02 09:28:24 2013
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.
14	Naphthalene-d8a	1.000	1.000	0.0	114	0.00	6.85
15	Camphor	0.238	0.274	-15.1	127	0.00	6.48
		True	Calc.	% Drift			
16	Catechol	50.000	55.650	-11.3	129	0.00	7.02
		AvgRF	CCRF	% Dev			
17	Methyl salicylate	0.236	0.186	21.2	83	0.00	7.00
		True	Calc.	% Drift			
18	Salicylic acid	200.000	140.065	30.0	75	0.06	8.06
		AvgRF	CCRF	% Dev			
19	Acenaphthene-d10a	1.000	1.000	0.0	113	0.00	9.59
		True	Calc.	% Drift			
20	Salicylamide	50.000	38.169	23.7	83	-0.02	9.42
		AvgRF	CCRF	% Dev			
21	Guaifenesin	0.873	0.924	-5.8	106	-0.02	11.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21750.D M2p956phm.M Tue Apr 02 10:18:48 2013 RPT1

8.7.36

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P963-CC954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21858.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p963\2p21858.D            Vial: 2
Acq On    :  4 Apr 2013   9:03 am                    Operator: andrews1
Sample    : cc954-25                                 Inst    : MS2P
Misc      : op64284,e2p963,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M2P954.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Mon Apr 01 12:01:07 2013
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	69	-0.03	4.92
2	t	1,4-Dioxane	0.559	0.551	1.4	68	-0.01	1.27
3	t	Pyridine	1.416	1.456	-2.8	69	0.00	1.56
4	t	N-Nitrosodimethylamine	0.866	0.899	-3.8	71	-0.01	1.56
5	S	2-Fluorophenol	1.260	1.300	-3.2	69	0.00	3.27
6	t	Indene	2.236	2.320	-3.8	70	-0.03	5.33
7	t	Cumene	3.084	3.198	-3.7	70	-0.03	3.86
8	S	Phenol-d5	1.556	1.621	-4.2	70	0.00	4.64
9	t	Phenol	1.639	1.752	-6.9	72	0.00	4.66
10		Aniline	2.132	1.938	9.1	63	-0.02	4.56
11	t	bis(2-Chloroethyl)ether	1.253	1.331	-6.2	71	-0.03	4.68
12	t	2-Chlorophenol	1.409	1.459	-3.5	70	-0.02	4.70
13	t	Decane	1.420	1.645	-15.8	78	-0.04	4.83
14	t	1,3-Dichlorobenzene	1.585	1.617	-2.0	69	-0.03	4.86
15	t	1,4-Dichlorobenzene	1.616	1.655	-2.4	70	-0.03	4.95
16	t	Benzyl alcohol	0.876	0.911	-4.0	69	-0.02	5.24
17	t	1,2-Dichlorobenzene	1.502	1.543	-2.7	70	-0.03	5.21
18	t	Acetophenone	3.084	3.198	-3.7	70	-0.03	3.86
19	t	2-Methylphenol	1.217	1.279	-5.1	70	-0.02	5.50
20	t	2,2'-oxybis(1-Chloropropa	0.435	0.453	-4.1	71	-0.03	5.47
21	t	3&4-Methylphenol	1.301	1.378	-5.9	70	-0.01	5.73
22	t	n-Nitroso-di-n-propylamin	0.897	0.986	-9.9	73	-0.03	5.68
23	t	Hexachloroethane	0.491	0.509	-3.7	70	-0.03	5.65
24	I	Naphthalene-d8	1.000	1.000	0.0	70	-0.03	6.83
25	S	Nitrobenzene-d5	0.324	0.355	-9.6	74	-0.03	5.80
26	t	Nitrobenzene	0.333	0.364	-9.3	74	-0.03	5.83
27	t	Quinoline	0.659	0.667	-1.2	70	-0.03	7.39
28	t	Isophorone	0.559	0.593	-6.1	71	-0.02	6.21
29	t	2-Nitrophenol	0.177	0.191	-7.9	70	-0.03	6.31
30	t	2,4-Dimethylphenol	0.316	0.310	1.9	65	-0.02	6.51
		----------	True	Calc.	% Drift		----------	
31	t	Benzoic acid	25.000	27.584	-10.3	86	-0.05	6.77
		----------	AvgRF	CCRF	% Dev		----------	
32	t	bis(2-Chloroethoxy)methan	0.365	0.378	-3.6	71	-0.03	6.62
33	t	2,4-Dichlorophenol	0.271	0.289	-6.6	70	-0.02	6.70
34	t	2,6-Dichlorophenol	0.270	0.287	-6.3	71	-0.02	7.05
35		1,3,5-Trichlorobenzene	0.311	0.316	-1.6	70	-0.04	6.31
36	t	1,2,4-Trichlorobenzene	0.308	0.310	-0.6	69	-0.03	6.78
37		1,2,3-Trichlorobenzene	0.297	0.303	-2.0	70	-0.04	7.14

8.7.37

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P963-CC954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21858.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

38	t	Naphthalene	1.045	1.062	-1.6	70	-0.03	6.85
39	t	4-Chloroaniline	0.448	0.452	-0.9	68	-0.02	7.05
40	t	2,3-Dichloroaniline	0.328	0.343	-4.6	72	-0.03	8.45
41	t	Caprolactam	0.095	0.102	-7.4	69	-0.03	7.58
42	t	Hexachlorobutadiene	0.164	0.165	-0.6	69	-0.04	7.19
43	t	4-Chloro-3-methylphenol	0.268	0.294	-9.7	73	-0.01	7.91
44	t	2-Methylnaphthalene	0.608	0.650	-6.9	74	-0.04	7.93
45	t	1-Methylnaphthalene	0.564	0.588	-4.3	71	-0.03	8.09
46	t	Dimethylnaphthalene	0.560	0.591	-5.5	72	-0.04	8.92
47	I	Acenaphthene-d10	1.000	1.000	0.0	70	-0.03	9.56
48	t	Hexachlorocyclopentadiene	0.313	0.351	-12.1	73	-0.03	8.31
49	t	2,4,6-Trichlorophenol	0.341	0.375	-10.0	72	-0.03	8.47
50	t	2,4,5-Trichlorophenol	0.369	0.402	-8.9	74	-0.02	8.53
51	S	2-Fluorobiphenyl	1.280	1.309	-2.3	71	-0.03	8.59
52	t	2-Chloronaphthalene	1.132	1.159	-2.4	70	-0.04	8.67
53	t	Biphenyl	1.463	1.495	-2.2	71	-0.03	8.70
54	t	2-Nitroaniline	0.313	0.381	-21.7#	80	-0.03	8.95
55	t	Dimethylphthalate	1.250	1.280	-2.4	71	-0.03	9.36
56	t	Acenaphthylene	1.832	1.899	-3.7	70	-0.03	9.31
57	t	2,6-Dinitrotoluene	0.249	0.281	-12.9	72	-0.03	9.42
58	t	3-Nitroaniline	0.327	0.358	-9.5	72	-0.02	9.61
59	t	Acenaphthene	1.169	1.201	-2.7	71	-0.03	9.61
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	52.891	-5.8	84	-0.03	9.76
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.160	0.185	-15.6	81	0.00	10.01
62	t	Dibenzofuran	1.611	1.636	-1.6	70	-0.03	9.86
63	t	2,4-Dinitrotoluene	1.174	1.229	-4.7	72	-0.03	10.40
64		2,3,4,6-Tetrachlorophenol	0.290	0.321	-10.7	73	-0.02	10.17
65	t	Diethylphthalate	1.261	1.331	-5.6	72	-0.03	10.48
66	t	Fluorene	1.262	1.320	-4.6	71	-0.03	10.40
67	t	4-Chlorophenyl-phenylethe	0.582	0.586	-0.7	70	-0.03	10.47
68	t	4-Nitroaniline	0.321	0.351	-9.3	71	-0.03	10.58
69	I	Phenanthrene-d10	1.000	1.000	0.0	71	-0.03	11.83
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	25.000	25.796	-3.2	78	-0.03	10.63
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.581	0.604	-4.0	71	-0.03	10.69
72	t	1,2-Diphenylhydrazine	0.790	0.857	-8.5	74	-0.04	10.70
73	S	2,4,6-Tribromophenol	0.092	0.101	-9.8	72	-0.03	10.82
74	t	4-Bromophenyl-phenylether	0.204	0.210	-2.9	72	-0.03	11.22
75	t	Hexachlorobenzene	0.217	0.216	0.5	71	-0.04	11.38
76	t	Pentachlorophenol	0.134	0.156	-16.4	77	-0.03	11.70
77	t	Phenanthrene	1.161	1.185	-2.1	72	-0.04	11.86
78	t	Anthracene	1.126	1.168	-3.7	71	-0.03	11.93
79	t	Carbazole	1.025	1.063	-3.7	71	-0.03	12.26
80	t	Di-n-butylphthalate	1.219	1.357	-11.3	74	-0.03	13.06
81	t	Fluoranthene	1.133	1.198	-5.7	72	-0.04	13.74
82	t	Octadecane	0.278	0.314	-12.9	74	-0.04	11.94
83	I	Chrysene-d12	1.000	1.000	0.0	72	-0.03	16.45
84	t	Pyrene	1.250	1.280	-2.4	72	-0.04	14.10
85	S	Terphenyl-d14	0.813	0.846	-4.1	73	-0.04	14.55
86	t	Butylbenzylphthalate	0.527	0.587	-11.4	73	-0.04	15.69

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P963-CC954
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21858.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

87		Butyl stearate	0.068	0.073	-7.4	76	-0.04	15.93
88	t	Benzo[a]anthracene	1.072	1.107	-3.3	72	-0.04	16.42
89	t	3,3'-Dichlorobenzidine	0.376	0.403	-7.2	73	-0.04	16.54
90	t	Chrysene	1.059	1.064	-0.5	72	-0.05	16.50
		----------	True	Calc.	% Drift	----------		
91	t	bis(2-Ethylhexyl)phthalat	25.000	24.643	1.4	74	-0.05	17.06
		----------	AvgRF	CCRF	% Dev	----------		
92	I	Perylene-d12	1.000	1.000	0.0	73	-0.04	19.28
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	25.000	25.266	-1.1	76	-0.05	18.35
		----------	AvgRF	CCRF	% Dev	----------		
94	t	Benzo[b]fluoranthene	1.149	1.278	-11.2	73	-0.05	18.57
95	t	Benzo[k]fluoranthene	1.236	1.311	-6.1	73	-0.05	18.63
96	t	Benzo[a]pyrene	1.049	1.166	-11.2	73	-0.05	19.15
97	t	Indeno[1,2,3-cd]pyrene	0.921	1.078	-17.0	77	-0.06	21.14
98	t	Dibenz(a,h)acridine	0.798	0.934	-17.0	76	-0.05	20.83
99	t	Dibenz[a,h]anthracene	0.966	1.107	-14.6	77	-0.06	21.22
100	t	7,12-Dimethylbenz(a)anthr	0.551	0.581	-5.4	70	-0.05	18.66
101	t	Benzo[g,h,i]perylene	1.060	1.142	-7.7	75	-0.06	21.54

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21722.D M2P954.M Thu Apr 04 16:11:18 2013 RPT1

8.7.37

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E2P963-CC957
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 2P21859.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2p963\2p21859.D            Vial: 3
Acq On    :  4 Apr 2013   9:32 am                     Operator: andrews1
Sample    : cc957-25                                  Inst    : MS2P
Misc      : op64284,e2p963,                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M2p956phm.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Apr 02 09:28:24 2013
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.
14	Naphthalene-d8a	1.000	1.000	0.0	127	-0.03	6.83
15	Camphor	0.238	0.249	-4.6	129	-0.03	6.46
	----------	True	Calc.	% Drift	----------		
16	Catechol	25.000	27.805	-11.2	152	0.02	7.04
	----------	AvgRF	CCRF	% Dev	----------		
17	Methyl salicylate	0.236	0.257	-8.9	129	-0.03	6.97
	----------	True	Calc.	% Drift	----------		
18	Salicylic acid	100.000	93.925	6.1	124	0.07	8.07
	----------	AvgRF	CCRF	% Dev	----------		
19	Acenaphthene-d10a	1.000	1.000	0.0	127	-0.03	9.56
	----------	True	Calc.	% Drift	----------		
20	Salicylamide	25.000	25.831	-3.3	133	-0.02	9.41
	----------	AvgRF	CCRF	% Dev	----------		
21	Guaifenesin	0.873	0.966	-10.7	134	-0.04	11.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2p21752.D M2p956phm.M Thu Apr 04 16:10:35 2013 RPT1

8.7.38

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3E2052-ICC2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47321.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  MS3E

  Method       : C:\msdchem\1\METHODS\M3E2052.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Wed Jan 30 09:52:40 2013
  Response via : Initial Calibration

  Calibration Files
  2   =3e47325.D   5   =3e47324.D   25  =3e47322.D   80  =3e47320.D
  100 =3e47319.D   50  =3e47321.D   1   =3e47326.D   10  =3e47323.D

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

102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.435 1.274 1.281 1.166 1.077 1.079 1.275 1.313 1.238   9.91

104)     Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.588 0.536 0.553 0.513 0.506 0.521 0.557 0.561 0.542   5.14
106) 2-bromonapht 0.784 0.705 0.703 0.656 0.634 0.669 0.696 0.711 0.695   6.49

107)     Phenanthrene-d10a     ----------------ISTD---------------------
108) Atrazine     0.102 0.098 0.101 0.103 0.101 0.104 0.083 0.100 0.099   6.91
109) o-terphenyl  0.714 0.660 0.646 0.601 0.591 0.614 0.622 0.666 0.639   6.35

110) I   Chrysene-d12a         ----------------ISTD---------------------
111) benzidine          0.728 0.781 0.595 0.524 0.624       0.827 0.680  17.26
112) 1-chloroocta 0.394 0.344 0.355 0.328 0.322 0.335 0.231 0.361 0.334  14.18

113) I   naphthalene-d8a       ----------------ISTD---------------------
114) hydroquinone       0.182 0.295 0.357 0.340 0.328       0.234 0.289  23.58
             ----- Linear regression -----  Coefficient =  0.9981
               Response Ratio = -0.02970 + 0.35826 *A

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

           M3E2051.M         Wed Jan 30 09:53:31 2013   MS3E
```

8.7.39

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2052-ICV2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47328A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2052\3e47328a.D        Vial: 11
Acq On    : 29 Jan 2013   6:53 pm                   Operator: olgaa
Sample    : icv2052-50                              Inst    : MS3E
Misc      : op62959a,e3e2052,bn1                    Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2051.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Wed Jan 30 09:52:40 2013
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	98	0.00	7.20
105	1,2,4,5-Tetrachlorobenzen	0.542	0.499	7.9	94	0.00	5.93

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e47321.D M3E2051.M Wed Jan 30 09:57:39 2013 MS3E

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2052-ICV2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47329A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2052\3e47329a.D        Vial: 12
Acq On    : 29 Jan 2013   7:17 pm                   Operator: olgaa
Sample    : icv2052-50                              Inst    : MS3E
Misc      : op62959a,e3e2052,bn2                    Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2051.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Wed Jan 30 09:52:40 2013
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	93	0.00	2.96
103	Benzaldehyde	1.238	1.183	4.4	102	0.00	2.52
107	Phenanthrene-d10a	1.000	1.000	0.0	83	0.00	9.43
108	Atrazine	0.099	0.097	2.0	77	0.00	9.28

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e47321.D M3E2051.M Wed Jan 30 09:59:06 2013 MS3E

8.7.41

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2052-ICV2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47332.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
  Data File : C:\msdchem\1\DATA\E3e2052\3e47332.D          Vial: 15
  Acq On    : 29 Jan 2013   8:27 pm                     Operator: olgaa
  Sample    : icv2052-50                                Inst    : MS3E
  Misc      : op62959a,e3e2052,benzdn                   Multiplr: 1.00
  MS Integration Params: lscint.p

  Method       : C:\msdchem\1\METHODS\M3E2051.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
  Last Update  : Wed Jan 30 09:52:40 2013
  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  101   0.00   13.08
111 T   benzidine                    0.680   0.760    -11.8  123   0.00   11.60

 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range                SPCC's out = 0  CCC's out = 0
     3e47321.D  M3E2051.M        Wed Jan 30 09:55:56 2013   MS3E
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3E2061-ICC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47538.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MS3E

Method : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update : Fri Feb 08 08:22:18 2013
Response via : Initial Calibration

Calibration Files
2 =3e47542.D 5 =3e47541.D 25 =3e47539.D 80 =3e47537.D
100 =3e47536.D 50 =3e47538.D 1 =3e47543.D 10 =3e47540.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.613	0.573	0.527	0.564	0.568	0.583	0.694	0.530	0.582	9.16
3) Pyridine	1.115	1.556	1.260	1.469	1.320	1.396		1.085	1.314	13.33
4) N-Nitrosodim	0.919	0.867	0.761	0.900	0.795	0.870	0.977	0.915	0.876	7.94
5) 2-Fluorophen	1.409	1.363	1.220	1.289	1.366	1.394	1.358	1.435	1.354	5.11
6) Indene	2.583	2.559	2.357	2.268	2.390	2.386	2.615	2.531	2.461	5.13
7) Cumene	3.558	3.277	3.260	3.140	3.298	3.479	3.620	3.429	3.383	4.88
8) Phenol-d5	1.797	1.803	1.598	1.557	1.588	1.632	1.875	1.750	1.700	7.07
9) Phenol	1.784	1.791	1.616	1.594	1.594	1.658	1.872	1.757	1.708	6.21
10) Aniline	2.175	2.061	1.924	1.599	1.531	1.811	2.219	1.983	1.913	13.17
11) bis(2-Chloro	1.343	1.357	1.234	1.159	1.169	1.216	1.304	1.336	1.265	6.32
12) 2-Chlorophen	1.531	1.495	1.323	1.365	1.377	1.416	1.552	1.514	1.446	6.01
13) Decane	1.235	1.286	1.177	1.075	1.064	1.163	1.333	1.173	1.188	7.93
14) 1,3-Dichloro	1.757	1.760	1.576	1.582	1.567	1.638	1.873	1.761	1.689	6.72
15) 1,4-Dichloro	1.757	1.740	1.610	1.602	1.580	1.657	1.832	1.778	1.694	5.56
16) Benzyl alcoh	1.042	0.990	0.920	0.901	0.948	0.951	0.986	1.030	0.971	5.17
17) 1,2-Dichloro	1.696	1.642	1.494	1.469	1.520	1.549	1.825	1.680	1.610	7.61
18) Acetophenone	2.182	2.139	2.014	1.994	2.019	2.110	2.249	2.205	2.114	4.57
19) 2-Methylphen	1.329	1.257	1.285	1.218	1.266	1.349	1.359	1.392	1.307	4.56
20) 2,2'-oxybis(	0.502	0.450	0.445	0.436	0.458	0.473	0.512	0.511	0.474	6.54
21) 3&4-Methylph	1.480	1.465	1.265	1.400	1.399	1.485	1.465	1.489	1.431	5.32
22) n-Nitroso-di	1.054	1.059	0.871	0.953	0.920	1.015	0.969	1.040	0.985	6.95
23) Hexachloroet	0.627	0.606	0.540	0.582	0.580	0.600	0.651	0.625	0.601	5.72
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.373	0.406	0.340	0.349	0.341	0.355	0.378	0.367	0.364	6.07
26) Nitrobenzene	0.398	0.417	0.349	0.357	0.348	0.370	0.380	0.385	0.375	6.54
27) Quinoline	0.724	0.734	0.686	0.651	0.725	0.660	0.775	0.719	0.709	5.83
28) Isophorone	0.681	0.655	0.608	0.613	0.591	0.582	0.662	0.663	0.632	5.95
29) 2-Nitropheno	0.190	0.205	0.189	0.186	0.193	0.183	0.173	0.212	0.191	6.42
30) 2,4-Dimethyl	0.293	0.344	0.329	0.359	0.350	0.326	0.314	0.306	0.328	6.91
31) Benzoic acid		0.265	0.284	0.318	0.326	0.311		0.255	0.293	10.08
32) bis(2-Chloro	0.396	0.383	0.350	0.367	0.351	0.375	0.397	0.388	0.376	4.90
33) 2,4-Dichloro	0.326	0.310	0.289	0.283	0.297	0.297	0.307	0.317	0.303	4.71
34) 2,6-Dichloro	0.302	0.304	0.286	0.284	0.295	0.287	0.312	0.307	0.297	3.64
35) 1,3,5-Trichl	0.374	0.387	0.333	0.317	0.329	0.318	0.392	0.365	0.352	8.88
36) 1,2,4-Trichl	0.375	0.353	0.330	0.330	0.331	0.328	0.380	0.364	0.349	6.22
37) 1,2,3-Trichl	0.348	0.341	0.320	0.311	0.325	0.316	0.364	0.344	0.334	5.50
38) Naphthalene	1.175	1.147	1.038	1.040	1.025	1.072	1.248	1.130	1.109	7.16
39) 4-Chloroanil	0.473	0.456	0.425	0.401	0.407	0.421	0.493	0.448	0.441	7.39
40) 2,3-Dichloro	0.375	0.372	0.345	0.347	0.352	0.353	0.384	0.372	0.362	4.14
41) Caprolactam	0.117	0.136	0.127	0.124	0.134	0.123	0.141	0.126	0.129	6.06
42) Hexachlorobu	0.227	0.218	0.203	0.200	0.208	0.193	0.247	0.220	0.214	8.09
43) 4-Chloro-3-m	0.334	0.333	0.314	0.303	0.343	0.325	0.322	0.338	0.326	4.03
44) 2-Methylnaph	0.698	0.679	0.625	0.583	0.650	0.630	0.667	0.683	0.652	5.82
45) 1-Methylnaph	0.679	0.651	0.604	0.571	0.633	0.628	0.682	0.652	0.637	5.87

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3E2061-ICC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47538.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

46)	Dimethylnaph	0.684	0.650	0.603	0.595	0.621	0.609	0.657	0.656	0.634	4.97
47)	I Acenaphthene-d10	----------ISTD----------									
48)	Hexachlorocy	0.319	0.333	0.366	0.416	0.409	0.372	0.272	0.388	0.359	13.55
49)	2,4,6-Trichl	0.364	0.374	0.368	0.392	0.388	0.369	0.392	0.393	0.380	3.26
50)	2,4,5-Trichl	0.412	0.414	0.396	0.429	0.424	0.399	0.407	0.420	0.413	2.82
51)	2-Fluorobiph	1.345	1.309	1.260	1.278	1.266	1.219	1.392	1.318	1.298	4.19
52)	2-Chloronaph	1.220	1.152	1.104	1.147	1.087	1.097	1.237	1.174	1.152	4.86
53)	Biphenyl	1.539	1.521	1.443	1.481	1.391	1.399	1.650	1.508	1.492	5.65
54)	2-Nitroanili	0.300	0.297	0.306	0.335	0.327	0.309	0.265	0.316	0.307	6.94
55)	Dimethylphth	1.421	1.351	1.282	1.254	1.250	1.290	1.451	1.356	1.332	5.68
56)	Acenaphthyle	1.989	1.942	1.872	1.815	1.806	1.830	2.007	1.963	1.903	4.30
57)	2,6-Dinitrot	0.260	0.258	0.271	0.279	0.281	0.282	0.209	0.289	0.266	9.57
58)	3-Nitroanili	0.344	0.338	0.320	0.317	0.318	0.339	0.271	0.338	0.323	7.29
59)	Acenaphthene	1.264	1.235	1.155	1.132	1.120	1.201	1.374	1.209	1.211	6.83
60)	2,4-Dinitrop		0.102	0.146	0.178	0.183	0.171		0.162	0.157	19.03
61)	4-Nitropheno	0.170	0.189	0.192	0.202	0.203	0.186	0.144	0.187	0.184	10.44
62)	Dibenzofuran	1.664	1.633	1.514	1.480	1.466	1.486	1.752	1.592	1.573	6.59
63)	2,4-Dinitrot	0.395	0.381	0.383	0.390	0.393	0.369	0.294	0.412	0.377	9.48
64)	2,3,4,6-Tetr	0.366	0.349	0.341	0.345	0.351	0.331	0.326	0.359	0.346	3.91
65)	Diethylphtha	1.533	1.410	1.319	1.284	1.344	1.230	1.562	1.390	1.384	8.37
66)	Fluorene	1.491	1.374	1.321	1.291	1.341	1.225	1.386	1.381	1.351	5.79
67)	4-Chlorophen	0.711	0.638	0.616	0.599	0.619	0.585	0.677	0.650	0.637	6.52
68)	4-Nitroanili	0.376	0.325	0.315	0.322	0.342	0.304	0.286	0.328	0.325	8.25
69)	I Phenanthrene-d10	----------ISTD----------									
70)	4,6-Dinitro-	0.107	0.099	0.128	0.144	0.151	0.139		0.143	0.130	15.36
71)	n-Nitrosodip	0.644	0.568	0.521	0.519	0.527	0.528	0.591	0.561	0.557	7.84
72)	1,2-Diphenyl	0.961	0.752	0.721	0.689	0.716	0.732	0.797	0.754	0.765	11.13
73)	2,4,6-Tribro	0.121	0.115	0.116	0.120	0.122	0.120	0.093	0.121	0.116	8.14
74)	4-Bromopheny	0.241	0.224	0.216	0.219	0.216	0.231	0.232	0.232	0.226	3.98
75)	Hexachlorobe	0.257	0.255	0.238	0.241	0.238	0.251	0.266	0.260	0.251	4.27
76)	Pentachlorop	0.139	0.139	0.159	0.165	0.167	0.163	0.112	0.166	0.151	12.92
77)	Phenanthrene	1.242	1.185	1.115	1.092	1.072	1.133	1.335	1.171	1.168	7.42
78)	Anthracene	1.231	1.205	1.130	1.086	1.064	1.104	1.245	1.201	1.158	6.06
79)	Carbazole	1.053	1.020	0.974	0.947	0.942	0.991	1.015	1.015	0.995	3.88
80)	Di-n-butylph	1.314	1.369	1.305	1.234	1.227	1.339	1.791	1.328	1.363	13.18
81)	Fluoranthene	1.246	1.222	1.292	1.160	1.174	1.207	1.208	1.272	1.223	3.72
82)	Octadecane	0.399	0.387	0.379	0.355	0.353	0.374	0.379	0.399	0.378	4.62
83)	I Chrysene-d12	----------ISTD----------									
84)	Pyrene	1.460	1.261	1.177	1.201	1.236	1.246	1.304	1.277	1.270	6.83
85)	Terphenyl-d1	0.943	0.882	0.800	0.852	0.840	0.869	0.910	0.907	0.875	5.16
86)	Butylbenzylp	0.561	0.547	0.582	0.563	0.551	0.568	0.563	0.630	0.571	4.62
87)	Butyl steara	0.361	0.257	0.273	0.226	0.219	0.228		0.270	0.262	18.60
88)	Benzo[a]anth	1.238	1.169	1.145	1.128	1.122	1.163	1.320	1.181	1.183	5.59
89)	3,3'-Dichlor	0.439	0.435	0.434	0.430	0.427	0.445	0.431	0.451	0.437	1.87
90)	Chrysene	1.129	1.100	1.032	1.005	1.006	1.050	1.166	1.067	1.069	5.45
91)	bis(2-Ethylh	0.875	0.753	0.774	0.755	0.741	0.769	0.721	0.831	0.777	6.52
92)	I Perylene-d12	----------ISTD----------									
93)	Di-n-octylph	1.523	1.460	1.403	1.407	1.269	1.512	1.307	1.496	1.422	6.64
94)	Benzo[b]fluo	1.300	1.268	1.116	1.394	1.417	1.333	1.245	1.379	1.306	7.50
95)	Benzo[k]fluo	1.367	1.330	1.131	1.039	0.801	1.239	1.426	1.129	1.183	17.21
96)	Benzo[a]pyre	1.176	1.169	1.159	1.137	1.113	1.209	1.167	1.182	1.164	2.51
97)	Indeno[1,2,3	1.400	1.359	1.243	1.343	1.273	1.434	1.336	1.385	1.347	4.74
98)	Dibenz(a,h)a	1.005	0.952	0.904	0.995	0.938	1.049	0.921	1.020	0.973	5.31
99)	Dibenz[a,h]a	1.212	1.114	1.028	1.144	1.073	1.197	1.166	1.183	1.140	5.62
100)	7,12-Dimethy	0.426	0.482	0.505	0.561	0.517	0.583	0.518	0.461	0.507	10.09
101)	Benzo[g,h,i]	1.197	1.088	0.994	1.112	1.028	1.190	1.114	1.155	1.110	6.52

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3E2061-ICC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47538.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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

          M3E2061.M         Fri Feb 08 08:26:16 2013   MS3E
```

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2061-ICV2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47544.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2061\3e47544.D          Vial: 10
Acq On    :  6 Feb 2013   8:01 pm                    Operator: olgaa
Sample    : icv2061-50                               Inst    : MS3E
Misc      : op63324,e3e2061,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Feb 07 10:54:16 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	2.92
9	t	Phenol	1.708	1.683	1.5	107	0.00	2.67
12	t	2-Chlorophenol	1.446	1.525	-5.5	113	0.00	2.74
19	t	2-Methylphenol	1.307	1.383	-5.8	108	0.00	3.34
21	t	3&4-Methylphenol	1.431	1.471	-2.8	104	0.00	3.53
24	I	Naphthalene-d8	1.000	1.000	0.0	98	0.00	4.53
29	t	2-Nitrophenol	0.191	0.204	-6.8	109	0.00	4.07
30	t	2,4-Dimethylphenol	0.328	0.400	-22.0	120	0.00	4.22
31	t	Benzoic acid	0.293	0.297	-1.4	94	0.00	4.50
33	t	2,4-Dichlorophenol	0.303	0.323	-6.6	107	0.00	4.40
34	t	2,6-Dichlorophenol	0.297	0.309	-4.0	106	0.00	4.73
43	t	4-Chloro-3-methylphenol	0.326	0.318	2.5	96	-0.02	5.53
47	I	Acenaphthene-d10	1.000	1.000	0.0	97	0.00	7.15
49	t	2,4,6-Trichlorophenol	0.380	0.376	1.1	99	0.00	6.08
50	t	2,4,5-Trichlorophenol	0.413	0.409	1.0	99	-0.01	6.14
60	t	2,4-Dinitrophenol	0.157	0.144	8.3	82	-0.01	7.36
61	t	4-Nitrophenol	0.184	0.200	-8.7	104	0.00	7.60
64		2,3,4,6-Tetrachlorophenol	0.346	0.344	0.6	100	0.00	7.76
69	I	Phenanthrene-d10	1.000	1.000	0.0	96	0.00	9.39
70	t	4,6-Dinitro-2-methylpheno	0.130	0.134	-3.1	93	-0.02	8.21
76	t	Pentachlorophenol	0.151	0.164	-8.6	98	-0.01	9.27

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e47538.D M3E2061.M Thu Feb 07 11:08:38 2013 MS3E

8.7.44
8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2061-ICV2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47545.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2061\3e47545.D          Vial: 11
Acq On    :  6 Feb 2013   8:24 pm                    Operator: olgaa
Sample    : icv2061-50                               Inst    : MS3E
Misc      : op63324,e3e2061,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Fri Feb 08 08:22:18 2013
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	98	0.00	2.92
3	t	Pyridine	1.314	1.497	-13.9	105	0.00	1.05
4	t	N-Nitrosodimethylamine	0.876	0.793	9.5	89	0.00	1.05
11	t	bis(2-Chloroethyl)ether	1.265	1.390	-9.9	112	0.00	2.71
14	t	1,3-Dichlorobenzene	1.689	1.763	-4.4	106	0.00	2.88
15	t	1,4-Dichlorobenzene	1.694	1.709	-0.9	101	0.00	2.94
16	t	Benzyl alcohol	0.971	1.015	-4.5	105	0.00	3.15
17	t	1,2-Dichlorobenzene	1.610	1.646	-2.2	104	0.00	3.15
20	t	2,2'-oxybis(1-Chloropropa	0.474	0.514	-8.4	107	0.00	3.33
22	t	n-Nitroso-di-n-propylamin	0.985	1.023	-3.9	99	-0.01	3.51
23	t	Hexachloroethane	0.601	0.613	-2.0	100	0.00	3.51
24	I	Naphthalene-d8	1.000	1.000	0.0	93	0.00	4.53
26	t	Nitrobenzene	0.375	0.393	-4.8	99	0.00	3.64
28	t	Isophorone	0.632	0.671	-6.2	107	0.00	3.96
32	t	bis(2-Chloroethoxy)methan	0.376	0.411	-9.3	102	0.00	4.33
36	t	1,2,4-Trichlorobenzene	0.349	0.360	-3.2	102	0.00	4.49
38	t	Naphthalene	1.109	1.079	2.7	94	0.00	4.56
42	t	Hexachlorobutadiene	0.214	0.219	-2.3	106	0.00	4.87
44	t	2-Methylnaphthalene	0.652	0.650	0.3	96	0.00	5.57
47	I	Acenaphthene-d10	1.000	1.000	0.0	90	0.00	7.15
48	t	Hexachlorocyclopentadiene	0.359	0.344	4.2	82	0.00	5.93
52	t	2-Chloronaphthalene	1.152	1.223	-6.2	100	0.00	6.28
54	t	2-Nitroaniline	0.307	0.350	-14.0	102	0.00	6.55
55	t	Dimethylphthalate	1.332	1.316	1.2	92	0.00	6.96
56	t	Acenaphthylene	1.903	1.792	5.8	88	0.00	6.90
57	t	2,6-Dinitrotoluene	0.266	0.286	-7.5	91	0.00	7.02
58	t	3-Nitroaniline	0.323	0.292	9.6	77	0.00	7.21
59	t	Acenaphthene	1.211	1.201	0.8	90	0.00	7.20
62	t	Dibenzofuran	1.573	1.651	-5.0	100	0.00	7.45
63	t	2,4-Dinitrotoluene	0.377	0.363	3.7	88	0.00	7.61
65	t	Diethylphthalate	1.384	1.408	-1.7	103	0.00	8.07
66	t	Fluorene	1.351	1.328	1.7	97	0.00	7.98
67	t	4-Chlorophenyl-phenylethe	0.637	0.656	-3.0	101	0.00	8.05
68	t	4-Nitroaniline	0.325	0.343	-5.5	101	0.00	8.16
69	I	Phenanthrene-d10	1.000	1.000	0.0	89	0.00	9.39
71	t	n-Nitrosodiphenylamine	0.557	0.564	-1.3	95	0.00	8.27
72	t	1,2-Diphenylhydrazine	0.765	0.843	-10.2	102	0.00	8.29
74	t	4-Bromophenyl-phenylether	0.226	0.245	-8.4	94	0.00	8.79
75	t	Hexachlorobenzene	0.251	0.262	-4.4	92	0.00	8.95

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2061-ICV2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47545.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	t	Phenanthrene	1.168	1.199	-2.7	94	0.00	9.43
78	t	Anthracene	1.158	1.204	-4.0	97	0.00	9.50
79	t	Carbazole	0.995	1.033	-3.8	92	0.00	9.82
80	t	Di-n-butylphthalate	1.363	1.322	3.0	88	0.00	10.63
81	t	Fluoranthene	1.223	1.212	0.9	89	0.00	11.26
83	I	Chrysene-d12	1.000	1.000	0.0	94	0.00	13.05
84	t	Pyrene	1.270	1.263	0.6	95	0.00	11.56
86	t	Butylbenzylphthalate	0.571	0.569	0.4	94	0.00	12.61
88	t	Benzo[a]anthracene	1.183	1.158	2.1	94	0.00	13.04
89	t	3,3'-Dichlorobenzidine	0.437	0.311	28.8	66	0.00	13.09
90	t	Chrysene	1.069	1.105	-3.4	99	0.00	13.08
91	t	bis(2-Ethylhexyl)phthalat	0.777	0.783	-0.8	96	0.00	13.32
92	I	Perylene-d12	1.000	1.000	0.0	94	0.00	14.43
93	t	Di-n-octylphthalate	1.422	1.493	-5.0	93	0.00	13.92
94	t	Benzo[b]fluoranthene	1.306	1.356	-3.8	96	0.00	14.11
95	t	Benzo[k]fluoranthene	1.183	1.130	4.5	86	0.00	14.13
96	t	Benzo[a]pyrene	1.164	1.191	-2.3	93	0.00	14.37
97	t	Indeno[1,2,3-cd]pyrene	1.347	1.413	-4.9	93	0.00	15.25
99	t	Dibenz[a,h]anthracene	1.140	1.170	-2.6	92	0.00	15.27
101	t	Benzo[g,h,i]perylene	1.110	1.235	-11.3	98	0.00	15.43

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e47538.D M3E2061.M Fri Feb 08 08:22:54 2013 MS3E

8.7.45
8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2061-ICV2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47546.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2061\3e47546.D          Vial: 12
Acq On    :  6 Feb 2013   8:48 pm                    Operator: olgaa
Sample    : icv2061-50                               Inst    : MS3E
Misc      : op63324,e3e2061,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Feb 07 10:54:16 2013
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	110	0.00	2.92
2	t	1,4-Dioxane	0.582	0.599	-2.9	113	0.00	0.91
6	t	Indene	2.461	2.452	0.4	113	0.00	3.24
7	t	Cumene	3.383	3.536	-4.5	112	0.00	2.18
13	t	Decane	1.188	1.073	9.7	102	0.00	2.82
18	t	Acetophenone	2.114	1.991	5.8	104	0.00	3.45
24	I	Naphthalene-d8	1.000	1.000	0.0	101	0.00	4.53
27	t	Quinoline	0.709	0.759	-7.1	116	-0.02	5.05
40	t	2,3-Dichloroaniline	0.362	0.307	15.2	88	0.00	6.07
41	t	Caprolactam	0.129	0.133	-3.1	109	-0.06	5.19
45	t	1-Methylnaphthalene	0.637	0.624	2.0	100	0.00	5.72
46	t	Dimethylnaphthalene	0.634	0.637	-0.5	105	0.00	6.53
47	I	Acenaphthene-d10	1.000	1.000	0.0	94	0.00	7.15
53	t	Biphenyl	1.492	1.600	-7.2	108	0.00	6.31
69	I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00	9.39
82	t	Octadecane	0.378	0.383	-1.3	106	0.00	9.53
92	I	Perylene-d12	1.000	1.000	0.0	102	0.00	14.42
100	t	7,12-Dimethylbenz(a)anthr	0.507	0.631	-24.5	110	-0.01	14.13

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e47538.D  M3E2061.M        Thu Feb 07 11:17:48 2013   MS3E
```

8.7.46

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2061-ICV2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47547.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2061\3e47547.D          Vial: 13
Acq On    :  6 Feb 2013   9:12 pm                    Operator: olgaa
Sample    : icv2061-50                               Inst    : MS3E
Misc      : op63324,e3e2061,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Feb 07 10:54:16 2013
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	97	0.00	2.92
5	S	2-Fluorophenol	1.354	1.296	4.3	90	0.00	1.80
8	S	Phenol-d5	1.700	1.548	8.9	92	0.00	2.65
24	I	Naphthalene-d8	1.000	1.000	0.0	87	0.00	4.53
25	S	Nitrobenzene-d5	0.364	0.363	0.3	89	0.00	3.62
47	I	Acenaphthene-d10	1.000	1.000	0.0	86	0.00	7.15
51	S	2-Fluorobiphenyl	1.298	1.306	-0.6	92	0.00	6.20
69	I	Phenanthrene-d10	1.000	1.000	0.0	89	0.00	9.39
73	S	2,4,6-Tribromophenol	0.116	0.112	3.4	83	0.00	8.38
83	I	Chrysene-d12	1.000	1.000	0.0	93	0.00	13.05
85	S	Terphenyl-d14	0.875	0.923	-5.5	99	0.00	11.90

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e47538.D  M3E2061.M        Thu Feb 07 11:19:35 2013   MS3E
```

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2061-ICV2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47548.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2061\3e47548.D          Vial: 14
Acq On    :  6 Feb 2013   9:35 pm                    Operator: olgaa
Sample    : icv2061-50                               Inst    : MS3E
Misc      : op63324,e3e2061,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Feb 07 10:54:16 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	136	0.00	2.92
10		Aniline	1.913	2.007	-4.9	151	0.00	2.63
24	I	Naphthalene-d8	1.000	1.000	0.0	126	0.00	4.53
39	t	4-Chloroaniline	0.441	0.409	7.3	123	0.00	4.73

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e47538.D M3E2061.M Thu Feb 07 11:21:18 2013 MS3E

8.7.48

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3E2073-ICV2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E47800.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2073\3e47800.D          Vial: 4
Acq On    : 15 Feb 2013  10:19 am                    Operator: olgaa
Sample    : icv2052-50                               Inst    : MS3E
Misc      : op63535,e3e2073,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061a.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Fri Feb 08 11:17:44 2013
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.
 ---------------------------------------------------------------------------

113 I   naphthalene-d8a             1.000   1.000      0.0   66  -0.10    4.47

           ------------------------ True    Calc.   % Drift  ------------
114     hydroquinone               50.000  55.147    -10.3   74  -0.05    5.34
 ---------------------------------------------------------------------------
 ---------------------------------------------------------------------------

    (#) = Out of Range              SPCC's out = 0  CCC's out = 0
     3e47321.D  M3E2061a.M       Fri Feb 15 16:14:07 2013   MS3E
```

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2111-CC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48831.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2111\3e48831.D          Vial: 2
Acq On    : 26 Mar 2013  10:31 am                     Operator: olgaa
Sample    : cc2061-50                                 Inst    : MS3E
Misc      : op64445,e3e2111,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Mar 21 13:58:55 2013
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	129	-0.01	2.61
2	t	1,4-Dioxane	0.582	0.440	24.4#	97	0.00	0.77
3	t	Pyridine	1.314	1.076	18.1	99	0.00	0.88
4	t	N-Nitrosodimethylamine	0.876	0.675	22.9#	100	0.00	0.89
5	S	2-Fluorophenol	1.354	1.246	8.0	115	0.00	1.59
6	t	Indene	2.461	2.278	7.4	123	-0.01	2.91
7	t	Cumene	3.383	3.276	3.2	121	-0.01	1.90
8	S	Phenol-d5	1.700	1.616	4.9	128	0.00	2.40
9	t	Phenol	1.708	1.610	5.7	125	0.00	2.41
10		Aniline	1.913	1.305	31.8#	93	0.00	2.34
11	t	bis(2-Chloroethyl)ether	1.265	1.182	6.6	125	0.00	2.41
12	t	2-Chlorophenol	1.446	1.392	3.7	127	0.00	2.45
13	t	Decane	1.188	0.941	20.8#	104	-0.01	2.51
14	t	1,3-Dichlorobenzene	1.689	1.591	5.8	125	0.00	2.56
15	t	1,4-Dichlorobenzene	1.694	1.676	1.1	130	-0.01	2.62
16	t	Benzyl alcohol	0.971	0.891	8.2	121	0.00	2.85
17	t	1,2-Dichlorobenzene	1.610	1.611	-0.1	134	-0.01	2.82
18	t	Acetophenone	2.114	2.031	3.9	124	-0.01	3.13
19	t	2-Methylphenol	1.307	1.236	5.4	118	0.00	3.06
20	t	2,2'-oxybis(1-Chloropropa	0.474	0.467	1.5	127	-0.01	3.01
21	t	3&4-Methylphenol	1.431	1.329	7.1	115	0.00	3.25
22	t	n-Nitroso-di-n-propylamin	0.985	0.935	5.1	119	-0.01	3.18
23	t	Hexachloroethane	0.601	0.647	-7.7	139	-0.02	3.15
24	I	Naphthalene-d8	1.000	1.000	0.0	124	-0.01	4.16
25	S	Nitrobenzene-d5	0.364	0.358	1.6	125	-0.01	3.29
26	t	Nitrobenzene	0.375	0.378	-0.8	127	0.00	3.32
27	t	Quinoline	0.709	0.650	8.3	122	-0.02	4.70
28	t	Isophorone	0.632	0.592	6.3	126	-0.01	3.62
29	t	2-Nitrophenol	0.191	0.201	-5.2	136	0.00	3.73
30	t	2,4-Dimethylphenol	0.328	0.365	-11.3	139	0.00	3.91
31	t	Benzoic acid	0.293	0.166	43.3#	66	0.06	4.34
32	t	bis(2-Chloroethoxy)methan	0.376	0.338	10.1	112	-0.01	3.99
33	t	2,4-Dichlorophenol	0.303	0.303	0.0	127	0.00	4.09
34	t	2,6-Dichlorophenol	0.297	0.287	3.4	124	0.00	4.38
35		1,3,5-Trichlorobenzene	0.352	0.356	-1.1	139	-0.01	3.71
36	t	1,2,4-Trichlorobenzene	0.349	0.357	-2.3	135	-0.02	4.13
37		1,2,3-Trichlorobenzene	0.334	0.324	3.0	127	-0.01	4.46
38	t	Naphthalene	1.109	1.093	1.4	126	-0.01	4.19
39	t	4-Chloroaniline	0.441	0.382	13.4	112	-0.01	4.39
40	t	2,3-Dichloroaniline	0.362	0.345	4.7	121	-0.01	5.70
41	t	Caprolactam	0.129	0.098	24.0#	99	0.01	4.93

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2111-CC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48831.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.214	0.237	-10.7	153	-0.02	4.48
43	t	4-Chloro-3-methylphenol	0.326	0.340	-4.3	130	0.00	5.24
44	t	2-Methylnaphthalene	0.652	0.603	7.5	119	-0.01	5.19
45	t	1-Methylnaphthalene	0.637	0.605	5.0	119	-0.02	5.33
46	t	Dimethylnaphthalene	0.634	0.626	1.3	127	-0.02	6.14
47	I	Acenaphthene-d10	1.000	1.000	0.0	122	-0.02	6.75
48	t	Hexachlorocyclopentadiene	0.359	0.354	1.4	116	-0.02	5.54
49	t	2,4,6-Trichlorophenol	0.380	0.388	-2.1	128	0.00	5.74
50	t	2,4,5-Trichlorophenol	0.413	0.423	-2.4	129	0.00	5.84
51	S	2-Fluorobiphenyl	1.298	1.286	0.9	129	-0.02	5.82
52	t	2-Chloronaphthalene	1.152	1.158	-0.5	129	-0.01	5.90
53	t	Biphenyl	1.492	1.476	1.1	129	-0.01	5.93
54	t	2-Nitroaniline	0.307	0.352	-14.7	139	0.00	6.21
55	t	Dimethylphthalate	1.332	1.447	-8.6	137	-0.01	6.58
56	t	Acenaphthylene	1.903	1.929	-1.4	128	-0.02	6.51
57	t	2,6-Dinitrotoluene	0.266	0.309	-16.2	134	0.00	6.66
58	t	3-Nitroaniline	0.323	0.333	-3.1	120	0.00	6.86
59	t	Acenaphthene	1.211	1.239	-2.3	126	-0.01	6.79
60	t	2,4-Dinitrophenol	0.157	0.160	-1.9	114	0.02	7.07
61	t	4-Nitrophenol	0.184	0.249	-35.3#	163	0.01	7.38
62	t	Dibenzofuran	1.573	1.632	-3.8	134	-0.02	7.05
63	t	2,4-Dinitrotoluene	0.377	0.459	-21.8#	152	0.00	7.27
64		2,3,4,6-Tetrachlorophenol	0.346	0.341	1.4	126	-0.01	7.40
65	t	Diethylphthalate	1.384	1.592	-15.0	158	-0.02	7.68
66	t	Fluorene	1.351	1.403	-3.8	140	-0.01	7.58
67	t	4-Chlorophenyl-phenylethe	0.637	0.687	-7.8	143	-0.01	7.66
68	t	4-Nitroaniline	0.325	0.322	0.9	129	0.00	7.82
69	I	Phenanthrene-d10	1.000	1.000	0.0	141	0.00	8.99
70	t	4,6-Dinitro-2-methylpheno	0.130	0.118	9.2	119	0.01	7.91
71	t	n-Nitrosodiphenylamine	0.557	0.522	6.3	139	-0.02	7.88
72	t	1,2-Diphenylhydrazine	0.765	0.789	-3.1	152	-0.02	7.89
73	S	2,4,6-Tribromophenol	0.116	0.135	-16.4	158	-0.01	8.00
74	t	4-Bromophenyl-phenylether	0.226	0.236	-4.4	144	-0.01	8.38
75	t	Hexachlorobenzene	0.251	0.279	-11.2	156	-0.01	8.55
76	t	Pentachlorophenol	0.151	0.129	14.6	111	0.00	8.91
77	t	Phenanthrene	1.168	1.141	2.3	142	-0.01	9.02
78	t	Anthracene	1.158	1.135	2.0	145	-0.01	9.09
79	t	Carbazole	0.995	0.960	3.5	136	0.00	9.44
80	t	Di-n-butylphthalate	1.363	1.375	-0.9	145	-0.01	10.23
81	t	Fluoranthene	1.223	1.228	-0.4	143	-0.01	10.86
82	t	Octadecane	0.378	0.348	7.9	131	-0.01	9.14
83	I	Chrysene-d12	1.000	1.000	0.0	166	0.00	12.74
84	t	Pyrene	1.270	1.157	8.9	154	-0.01	11.17
85	S	Terphenyl-d14	0.875	0.862	1.5	164	-0.01	11.54
86	t	Butylbenzylphthalate	0.571	0.565	1.1	165	-0.01	12.29
87		Butyl stearate	0.262	0.190	27.5#	138	-0.01	12.42
88	t	Benzo[a]anthracene	1.183	1.164	1.6	166	0.00	12.73
89	t	3,3'-Dichlorobenzidine	0.437	0.453	-3.7	168	0.00	12.79
90	t	Chrysene	1.069	1.074	-0.5	169	0.00	12.77
91	t	bis(2-Ethylhexyl)phthalat	0.777	0.791	-1.8	170	-0.02	13.01
92	I	Perylene-d12	1.000	1.000	0.0	160	0.00	14.13
93	t	Di-n-octylphthalate	1.422	1.527	-7.4	161	-0.01	13.62
94	t	Benzo[b]fluoranthene	1.306	1.508	-15.5	181	0.00	13.82
95	t	Benzo[k]fluoranthene	1.183	1.279	-8.1	165	0.00	13.84
96	t	Benzo[a]pyrene	1.164	1.219	-4.7	161	-0.01	14.09
97	t	Indeno[1,2,3-cd]pyrene	1.347	1.553	-15.3	173	0.00	14.97

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2111-CC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48831.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

98	t	Dibenz(a,h)acridine	0.973	1.036	-6.5	158	0.00	14.82
99	t	Dibenz[a,h]anthracene	1.140	1.300	-14.0	174	-0.01	14.98
100	t	7,12-Dimethylbenz(a)anthr	0.507	0.605	-19.3	166	-0.01	13.83
101	t	Benzo[g,h,i]perylene	1.110	1.226	-10.5	165	0.00	15.15

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e48718.D M3E2061.M Tue Mar 26 15:04:42 2013 MS3E

8.7.50

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2111-CC2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48832.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2111\3e48832.D          Vial: 3
Acq On    : 26 Mar 2013  11:02 am                    Operator: olgaa
Sample    : cc2052-25                                Inst    : MS3E
Misc      : op64445,e3e2111,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Mar 21 13:58:55 2013
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	137	-0.01	2.61
103	Benzaldehyde	1.238	0.995	19.6	106	0.00	2.21
104	Acenaphthene-d10a	1.000	1.000	0.0	146	-0.02	6.75
105	1,2,4,5-Tetrachlorobenzen	0.542	0.586	-8.1	155	0.00	5.51
106	Phenanthrene-d10a	1.000	1.000	0.0	156	-0.01	8.98
107	Atrazine	0.099	0.111	-12.1	171	-0.02	8.86
108 I	Chrysene-d12a	1.000	1.000	0.0	187	-0.01	12.74
109 T	benzidine	0.680	0.467	31.3#	112	0.00	11.21

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e47322.D  M3E2061.M        Tue Mar 26 15:06:04 2013   MS3E
```

8.7.51

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2112-CC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48861.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2112\3e48861.D          Vial: 2
Acq On    : 27 Mar 2013   9:55 am                    Operator: olgaa
Sample    : cc2061-25                                Inst    : MS3E
Misc      : op64464,e3e2112,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Mar 21 13:58:55 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	124	-0.03	2.59
2	t	1,4-Dioxane	0.582	0.359	38.3#	84	-0.02	0.75
3	t	Pyridine	1.314	0.913	30.5#	90	0.00	0.88
4	t	N-Nitrosodimethylamine	0.876	0.586	33.1#	95	-0.01	0.88
5	S	2-Fluorophenol	1.354	0.986	27.2#	100	0.00	1.58
6	t	Indene	2.461	2.096	14.8	110	-0.02	2.90
7	t	Cumene	3.383	3.034	10.3	115	-0.02	1.88
8	S	Phenol-d5	1.700	1.441	15.2	112	-0.01	2.39
9	t	Phenol	1.708	1.504	11.9	115	-0.01	2.40
10		Aniline	1.913	1.314	31.3#	85	-0.02	2.33
11	t	bis(2-Chloroethyl)ether	1.265	1.108	12.4	111	-0.02	2.40
12	t	2-Chlorophenol	1.446	1.307	9.6	123	-0.02	2.44
13	t	Decane	1.188	0.886	25.4#	93	-0.03	2.49
14	t	1,3-Dichlorobenzene	1.689	1.480	12.4	116	-0.02	2.55
15	t	1,4-Dichlorobenzene	1.694	1.607	5.1	124	-0.03	2.61
16	t	Benzyl alcohol	0.971	0.768	20.9#	104	-0.01	2.84
17	t	1,2-Dichlorobenzene	1.610	1.470	8.7	122	-0.02	2.81
18	t	Acetophenone	2.114	1.815	14.1	112	-0.02	3.12
19	t	2-Methylphenol	1.307	1.111	15.0	107	-0.02	3.05
20	t	2,2'-oxybis(1-Chloropropa	0.474	0.424	10.5	118	-0.02	3.00
21	t	3&4-Methylphenol	1.431	1.202	16.0	118	-0.01	3.24
22	t	n-Nitroso-di-n-propylamin	0.985	0.825	16.2	117	-0.03	3.17
23	t	Hexachloroethane	0.601	0.596	0.8	137	-0.03	3.14
24	I	Naphthalene-d8	1.000	1.000	0.0	123	-0.03	4.15
25	S	Nitrobenzene-d5	0.364	0.353	3.0	127	-0.02	3.28
26	t	Nitrobenzene	0.375	0.396	-5.6	140	-0.02	3.31
27	t	Quinoline	0.709	0.673	5.1	121	-0.03	4.69
28	t	Isophorone	0.632	0.596	5.7	121	-0.02	3.61
29	t	2-Nitrophenol	0.191	0.200	-4.7	130	-0.01	3.72
30	t	2,4-Dimethylphenol	0.328	0.326	0.6	122	-0.02	3.90
31	t	Benzoic acid	0.293	0.162	44.7#	70	0.01	4.29
32	t	bis(2-Chloroethoxy)methan	0.376	0.313	16.8	110	-0.03	3.97
33	t	2,4-Dichlorophenol	0.303	0.280	7.6	119	0.00	4.09
34	t	2,6-Dichlorophenol	0.297	0.282	5.1	122	-0.02	4.37
35		1,3,5-Trichlorobenzene	0.352	0.346	1.7	128	-0.02	3.70
36	t	1,2,4-Trichlorobenzene	0.349	0.336	3.7	125	-0.03	4.12
37		1,2,3-Trichlorobenzene	0.334	0.327	2.1	126	-0.02	4.45
38	t	Naphthalene	1.109	1.033	6.9	122	-0.03	4.17
39	t	4-Chloroaniline	0.441	0.400	9.3	116	-0.02	4.38
40	t	2,3-Dichloroaniline	0.362	0.387	-6.9	138	-0.03	5.69
41	t	Caprolactam	0.129	0.103	20.2#	100	-0.04	4.88

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2112-CC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48861.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.214	0.234	-9.3	142	-0.03	4.47
43	t	4-Chloro-3-methylphenol	0.326	0.349	-7.1	137	-0.01	5.24
44	t	2-Methylnaphthalene	0.652	0.630	3.4	124	-0.03	5.17
45	t	1-Methylnaphthalene	0.637	0.645	-1.3	131	-0.03	5.32
46	t	Dimethylnaphthalene	0.634	0.685	-8.0	140	-0.03	6.13
47	I	Acenaphthene-d10	1.000	1.000	0.0	142	-0.03	6.73
48	t	Hexachlorocyclopentadiene	0.359	0.248	30.9#	96	-0.03	5.52
49	t	2,4,6-Trichlorophenol	0.380	0.343	9.7	132	-0.02	5.73
50	t	2,4,5-Trichlorophenol	0.413	0.400	3.1	144	0.00	5.83
51	S	2-Fluorobiphenyl	1.298	1.225	5.6	138	-0.03	5.80
52	t	2-Chloronaphthalene	1.152	1.081	6.2	139	-0.03	5.88
53	t	Biphenyl	1.492	1.391	6.8	137	-0.03	5.91
54	t	2-Nitroaniline	0.307	0.300	2.3	139	-0.02	6.20
55	t	Dimethylphthalate	1.332	1.321	0.8	146	-0.03	6.56
56	t	Acenaphthylene	1.903	1.772	6.9	135	-0.03	6.50
57	t	2,6-Dinitrotoluene	0.266	0.282	-6.0	148	-0.02	6.65
58	t	3-Nitroaniline	0.323	0.304	5.9	135	-0.02	6.85
59	t	Acenaphthene	1.211	1.152	4.9	142	-0.03	6.78
60	t	2,4-Dinitrophenol	0.157	0.114	27.4#	111	0.03	7.09
61	t	4-Nitrophenol	0.184	0.171	7.1	127	0.03	7.40
62	t	Dibenzofuran	1.573	1.505	4.3	141	-0.03	7.04
63	t	2,4-Dinitrotoluene	0.377	0.405	-7.4	150	-0.02	7.26
64		2,3,4,6-Tetrachlorophenol	0.346	0.258	25.4#	107	-0.02	7.39
65	t	Diethylphthalate	1.384	1.389	-0.4	150	-0.04	7.66
66	t	Fluorene	1.351	1.234	8.7	133	-0.03	7.55
67	t	4-Chlorophenyl-phenylethe	0.637	0.625	1.9	144	-0.03	7.64
68	t	4-Nitroaniline	0.325	0.277	14.8	125	-0.02	7.81
69	I	Phenanthrene-d10	1.000	1.000	0.0	154	-0.03	8.97
70	t	4,6-Dinitro-2-methylpheno	0.130	0.105	19.2	126	0.00	7.90
71	t	n-Nitrosodiphenylamine	0.557	0.466	16.3	138	-0.03	7.86
72	t	1,2-Diphenylhydrazine	0.765	0.687	10.2	147	-0.03	7.87
73	S	2,4,6-Tribromophenol	0.116	0.115	0.9	153	-0.03	7.99
74	t	4-Bromophenyl-phenylether	0.226	0.225	0.4	161	-0.03	8.37
75	t	Hexachlorobenzene	0.251	0.254	-1.2	165	-0.03	8.53
76	t	Pentachlorophenol	0.151	0.097	35.8#	94	-0.02	8.90
77	t	Phenanthrene	1.168	1.091	6.6	151	-0.03	9.00
78	t	Anthracene	1.158	1.089	6.0	148	-0.03	9.07
79	t	Carbazole	0.995	0.933	6.2	148	-0.02	9.43
80	t	Di-n-butylphthalate	1.363	1.255	7.9	148	-0.03	10.21
81	t	Fluoranthene	1.223	1.057	13.6	126	-0.03	10.84
82	t	Octadecane	0.378	0.319	15.6	130	-0.03	9.12
83	I	Chrysene-d12	1.000	1.000	0.0	149	-0.02	12.73
84	t	Pyrene	1.270	1.087	14.4	137	-0.03	11.15
85	S	Terphenyl-d14	0.875	0.866	1.0	161	-0.02	11.53
86	t	Butylbenzylphthalate	0.571	0.538	5.8	137	-0.03	12.27
87		Butyl stearate	0.262	0.186	29.0#	102	-0.03	12.40
88	t	Benzo[a]anthracene	1.183	1.127	4.7	146	-0.02	12.71
89	t	3,3'-Dichlorobenzidine	0.437	0.427	2.3	146	-0.02	12.77
90	t	Chrysene	1.069	1.011	5.4	146	-0.02	12.75
91	t	bis(2-Ethylhexyl)phthalat	0.777	0.750	3.5	144	-0.03	13.00
92	I	Perylene-d12	1.000	1.000	0.0	130	-0.02	14.12
93	t	Di-n-octylphthalate	1.422	1.485	-4.4	137	-0.03	13.60
94	t	Benzo[b]fluoranthene	1.306	1.448	-10.9	168	-0.02	13.80
95	t	Benzo[k]fluoranthene	1.183	1.084	8.4	124	-0.03	13.82
96	t	Benzo[a]pyrene	1.164	1.159	0.4	129	-0.02	14.07
97	t	Indeno[1,2,3-cd]pyrene	1.347	1.458	-8.2	152	-0.02	14.96

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2112-CC2061
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48861.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

98	t	Dibenz(a,h)acridine	0.973	1.038	-6.7	149	-0.02	14.81
99	t	Dibenz[a,h]anthracene	1.140	1.227	-7.6	155	-0.02	14.97
100	t	7,12-Dimethylbenz(a)anthr	0.507	0.483	4.7	124	-0.03	13.81
101	t	Benzo[g,h,i]perylene	1.110	1.185	-6.8	154	-0.02	15.13

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e47322.D M3E2061.M Wed Mar 27 14:55:54 2013 MS3E

8.7.52

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3E2112-CC2052
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3E48862.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3e2112\3e48862.D          Vial: 3
Acq On    : 27 Mar 2013  10:19 am                    Operator: olgaa
Sample    : cc2052-25                                Inst    : MS3E
Misc      : op64464,e3e2112,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3E2061.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MS 15m x .25mm x .25um
Last Update  : Thu Mar 21 13:58:55 2013
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	120	-0.03	2.59
103	Benzaldehyde	1.238	0.971	21.6#	91	-0.01	2.19
104	Acenaphthene-d10a	1.000	1.000	0.0	135	-0.03	6.73
105	1,2,4,5-Tetrachlorobenzen	0.542	0.631	-16.4	154	-0.02	5.50
106	Phenanthrene-d10a	1.000	1.000	0.0	156	-0.02	8.97
107	Atrazine	0.099	0.115	-16.2	177	-0.03	8.84
108 I	Chrysene-d12a	1.000	1.000	0.0	170	-0.02	12.73
109 T	benzidine	0.680	0.513	24.6#	112	-0.02	11.19

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3e47322.D  M3E2061.M        Wed Mar 27 14:57:42 2013   MS3E
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8.7.53

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3P782-ICC782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17136.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report GC3P

Method : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title : Semi Volatile Extractables by GC/MS
Last Update : Tue Feb 26 09:55:13 2013
Response via : Initial Calibration

Calibration Files
2 =3p17135.D 5 =3p17137.D 25 =3p17138.D 80 =3p17134.D
100 =3p17132.D 50 =3p17136.D 1 =3p17133.D 10 =3p17139.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	ISTD									
2) 1,4-Dioxane	0.409	0.513	0.464	0.498	0.513	0.478	0.743	0.486	0.513	19.24
3) Pyridine	1.389	1.391	1.337	1.403	1.449	1.371	1.623	1.334	1.412	6.58
4) N-Nitrosodim	0.675	0.690	0.659	0.707	0.734	0.684	0.777	0.687	0.702	5.38
5) 2-Fluorophen	1.260	1.340	1.330	1.364	1.386	1.338	1.399	1.317	1.342	3.25
6) Indene	2.154	2.203	2.118	2.082	2.045	2.107	2.212	2.187	2.138	2.82
7) Cumene	2.875	2.998	2.880	2.999	3.001	2.898	3.029	2.924	2.950	2.12
8) Phenol-d5	1.477	1.623	1.582	1.659	1.661	1.586	1.636	1.612	1.604	3.70
9) Phenol	1.693	1.815	1.762	1.767	1.806	1.770	1.893	1.784	1.786	3.19
10) Aniline	1.953	2.011	1.991	1.761	1.734	2.011	2.185	1.894	1.942	7.52
11) bis(2-Chloro	1.091	1.162	1.098	1.139	1.146	1.106	1.196	1.110	1.131	3.20
12) 2-Chlorophen	1.417	1.486	1.444	1.455	1.471	1.434	1.447	1.464	1.452	1.50
13) Decane	1.441	1.443	1.406	1.404	1.408	1.368	1.539	1.428	1.429	3.52
14) 1,3-Dichloro	1.530	1.664	1.567	1.585	1.570	1.565	1.714	1.633	1.604	3.83
15) 1,4-Dichloro	1.589	1.659	1.585	1.589	1.598	1.578	1.713	1.645	1.619	2.98
16) Benzyl alcoh	0.830	0.875	0.824	0.846	0.840	0.851	0.871	0.854	0.849	2.11
17) 1,2-Dichloro	1.463	1.563	1.478	1.470	1.457	1.484	1.562	1.545	1.503	3.06
18) Acetophenone	1.712	1.801	1.715	1.706	1.702	1.704	1.861	1.757	1.745	3.33
19) 2-Methylphen	1.147	1.249	1.191	1.154	1.142	1.181	1.247	1.207	1.190	3.56
20) 2,2'-oxybis(	1.996	2.064	1.911	1.921	1.926	1.885	2.154	1.937	1.974	4.65
21) 3&4-Methylph	1.219	1.292	1.278	1.259	1.250	1.243	1.310	1.300	1.269	2.47
22) n-Nitroso-di	0.845	0.881	0.858	0.854	0.856	0.843	0.941	0.863	0.868	3.69
23) Hexachloroet	0.516	0.563	0.524	0.528	0.535	0.527	0.552	0.543	0.536	2.95
24) I Naphthalene-d8	ISTD									
25) Nitrobenzene	0.337	0.346	0.327	0.343	0.343	0.330	0.357	0.345	0.341	2.81
26) Nitrobenzene	0.360	0.358	0.338	0.346	0.349	0.341	0.380	0.351	0.353	3.73
27) Quinoline	0.659	0.683	0.657	0.692	0.688	0.676	0.720	0.677	0.682	2.93
28) Isophorone	0.561	0.567	0.547	0.576	0.577	0.561	0.577	0.578	0.568	1.97
29) 2-Nitropheno	0.186	0.201	0.198	0.210	0.208	0.202	0.191	0.199	0.199	4.02
30) 2,4-Dimethyl	0.265	0.315	0.313	0.318	0.318	0.322	0.293	0.292	0.304	6.45
31) Benzoic acid	0.204	0.240	0.263	0.299	0.312	0.285	0.227	0.258	0.261	14.05
32) bis(2-Chloro	0.359	0.371	0.355	0.368	0.364	0.358	0.369	0.370	0.364	1.68
33) 2,4-Dichloro	0.278	0.291	0.279	0.298	0.294	0.291	0.288	0.291	0.289	2.40
34) 2,6-Dichloro	0.272	0.291	0.280	0.284	0.287	0.283	0.295	0.286	0.285	2.40
35) 1,3,5-Trichl	0.319	0.333	0.325	0.333	0.328	0.323	0.347	0.341	0.331	2.83
36) 1,2,4-Trichl	0.315	0.326	0.316	0.321	0.318	0.317	0.327	0.330	0.321	1.78
37) 1,2,3-Trichl	0.305	0.312	0.306	0.312	0.308	0.305	0.317	0.314	0.310	1.52
38) Naphthalene	1.045	1.083	1.022	1.019	1.016	1.022	1.084	1.061	1.044	2.75
39) 4-Chloroanil	0.451	0.469	0.456	0.450	0.444	0.463	0.455	0.458	0.456	1.69
40) 2,3-Dichloro	0.323	0.345	0.321	0.338	0.339	0.327	0.332	0.338	0.333	2.61
41) Caprolactam	0.139	0.144	0.147	0.157	0.160	0.148	0.158	0.146	0.150	5.04
42) Hexachlorobu	0.170	0.177	0.172	0.173	0.171	0.171	0.175	0.178	0.173	1.75
43) 4-Chloro-3-m	0.246	0.268	0.259	0.279	0.282	0.271	0.257	0.271	0.267	4.47
44) 2-Methylnaph	0.577	0.618	0.599	0.613	0.607	0.597	0.613	0.619	0.605	2.30
45) 1-Methylnaph	0.572	0.593	0.570	0.578	0.573	0.574	0.600	0.589	0.581	1.92

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3P782-ICC782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17136.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

46) Dimethylnaph	0.494	0.537	0.510	0.529	0.528	0.527	0.535	0.541	0.525	3.01
47) I Acenaphthene-d10	----------ISTD----------									
48) Hexachlorocy	0.316	0.358	0.382	0.409	0.405	0.389	0.304	0.384	0.368	10.67
49) 2,4,6-Trichl	0.355	0.366	0.370	0.396	0.387	0.380	0.362	0.394	0.376	4.07
50) 2,4,5-Trichl	0.394	0.422	0.411	0.439	0.440	0.415	0.396	0.436	0.419	4.40
51) 2-Fluorobiph	1.224	1.303	1.216	1.260	1.249	1.240	1.311	1.333	1.267	3.43
52) 2-Chloronaph	1.176	1.231	1.180	1.190	1.157	1.163	1.220	1.259	1.197	3.00
53) Biphenyl	1.408	1.498	1.407	1.468	1.395	1.403	1.488	1.542	1.451	3.81
54) 2-Nitroanili	0.340	0.339	0.340	0.363	0.366	0.346	0.362	0.357	0.352	3.30
55) Dimethylphth	1.258	1.321	1.249	1.302	1.311	1.258	1.354	1.362	1.302	3.37
56) Acenaphthyle	1.907	1.956	1.862	1.909	1.903	1.897	1.927	2.039	1.925	2.76
57) 2,6-Dinitrot	0.264	0.284	0.275	0.301	0.293	0.284	0.259	0.296	0.282	5.34
58) 3-Nitroanili	0.337	0.363	0.359	0.381	0.384	0.373	0.339	0.377	0.364	4.97
59) Acenaphthene	1.190	1.244	1.165	1.221	1.210	1.183	1.247	1.259	1.215	2.77
60) 2,4-Dinitrop		0.120	0.153	0.189	0.197	0.172		0.140	0.162	18.31
61) 4-Nitropheno	0.146	0.165	0.175	0.192	0.191	0.180	0.161	0.181	0.174	9.06
62) Dibenzofuran	1.620	1.679	1.594	1.611	1.599	1.580	1.732	1.689	1.638	3.34
63) 2,4-Dinitrot	0.369	0.386	0.383	0.399	0.403	0.380	0.387	0.399	0.388	2.98
64) 2,3,4,6-Tetr	0.282	0.315	0.316	0.344	0.344	0.330	0.288	0.331	0.319	7.35
65) Diethylphtha	1.296	1.368	1.301	1.374	1.387	1.327	1.440	1.408	1.363	3.75
66) Fluorene	1.178	1.290	1.218	1.258	1.256	1.207	1.269	1.304	1.248	3.45
67) 4-Chlorophen	0.556	0.590	0.565	0.577	0.581	0.571	0.590	0.595	0.578	2.34
68) 4-Nitroanili	0.327	0.345	0.356	0.370	0.368	0.356	0.352	0.371	0.356	4.16
69) I Phenanthrene-d10	----------ISTD----------									
70) 4,6-Dinitro-	0.086	0.114	0.132	0.154	0.154	0.147		0.127	0.131	18.94
71) n-Nitrosodip	0.518	0.559	0.548	0.564	0.561	0.552	0.560	0.574	0.554	3.03
72) 1,2-Diphenyl	0.752	0.808	0.766	0.791	0.801	0.790	0.827	0.819	0.794	3.21
73) 2,4,6-Tribro	0.120	0.133	0.134	0.145	0.148	0.142	0.121	0.139	0.135	7.54
74) 4-Bromopheny	0.198	0.216	0.206	0.219	0.218	0.213	0.214	0.220	0.213	3.46
75) Hexachlorobe	0.255	0.267	0.253	0.264	0.264	0.258	0.274	0.265	0.263	2.65
76) Pentachlorop	0.135	0.162	0.166	0.186	0.193	0.181	0.145	0.171	0.167	11.90
77) Phenanthrene	1.134	1.147	1.086	1.103	1.071	1.100	1.210	1.133	1.123	3.88
78) Anthracene	1.089	1.137	1.091	1.117	1.083	1.122	1.209	1.154	1.125	3.71
79) Carbazole	1.076	1.103	1.044	1.062	1.047	1.057	1.249	1.102	1.093	6.16
80) Di-n-butylph	1.372	1.458	1.428	1.506	1.497	1.457	1.537	1.468	1.465	3.47
81) Fluoranthene	1.195	1.215	1.156	1.216	1.194	1.186	1.416	1.211	1.224	6.54
82) Octadecane	0.484	0.514	0.496	0.518	0.513	0.514	0.496	0.510	0.506	2.40
83) I Chrysene-d12	----------ISTD----------									
84) Pyrene	1.305	1.359	1.202	1.246	1.245	1.221	1.538	1.263	1.298	8.40
85) Terphenyl-d1	0.836	0.838	0.781	0.822	0.823	0.783	0.978	0.817	0.835	7.39
86) Butylbenzylp	0.623	0.654	0.638	0.688	0.677	0.659	0.698	0.635	0.659	4.09
87) Benzo[a]anth	1.175	1.181	1.089	1.122	1.123	1.102	1.435	1.115	1.168	9.68
88) 3,3'-Dichlor	0.401	0.440	0.434	0.458	0.452	0.444	0.439	0.435	0.438	3.87
89) Chrysene	1.053	1.111	0.997	1.027	1.011	1.020	1.300	1.053	1.071	9.22
90) bis(2-Ethylh	0.855	0.922	0.884	0.960	0.921	0.912	0.949	0.905	0.914	3.70
91) I Perylene-d12	----------ISTD----------									
92) Di-n-octylph	1.414	1.631	1.618	1.816	1.774	1.726	1.594	1.631	1.650	7.57
93) Benzo[b]fluo	1.263	1.345	1.257	1.379	1.491	1.253	1.339	1.274	1.325	6.21
94) Benzo[k]fluo	1.077	1.121	1.100	1.141	0.975	1.156	1.234	1.159	1.120	6.72
95) Benzo[a]pyre	1.073	1.127	1.096	1.159	1.173	1.131	1.128	1.122	1.126	2.82
96) Indeno[1,2,3	1.202	1.286	1.303	1.414	1.413	1.337	1.326	1.315	1.325	5.19
97) Dibenz(a,h)a	0.844	0.926	0.938	1.027	1.038	0.969	0.955	0.949	0.956	6.34
98) Dibenz[a,h]a	0.988	1.069	1.068	1.161	1.157	1.110	1.100	1.093	1.093	5.04
99) 7,12-Dimethy	0.489	0.511	0.543	0.578	0.570	0.567	0.532	0.529	0.540	5.75
100) Benzo[g,h,i]	1.014	1.084	1.098	1.189	1.174	1.105	1.097	1.099	1.107	4.90

8.7.54

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3P782-ICC782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17136.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

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

          M3P782.M          Tue Feb 26 12:34:54 2013   RPT1
```

Initial Calibration Summary

Job Number: JB31121 **Sample:** E3P783-ICC783
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17143.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                         Response Factor Report  GC3P

  Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
  Title        : Semi Volatile Extractables by GC/MS
  Last Update  : Tue Feb 26 16:13:24 2013
  Response via : Initial Calibration

  Calibration Files
  2   =3p17147.D   5   =3p17146.D   25  =3p17144.D   80  =3p17142.D
  100 =3p17141.D   50  =3p17143.D   1   =3p17148.D   10  =3p17145.D

   Compound         2     5     25    80    100   50    1     10    Avg %RSD
  -------------------------------------------------------------------------------
101) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
102) Benzaldehyde 1.178 1.154 1.079 1.136 1.083 1.114       1.152 1.128   3.33

103) I   Acenaphthene-d10a     ----------------ISTD---------------------
104) Atrazine     0.134 0.140 0.143 0.147 0.145 0.151       0.145 0.143   3.70
105) 1,2,4,5-Tetr 0.603 0.581 0.577 0.608 0.607 0.608       0.602 0.598   2.24
106) 2-bromonapht 0.636 0.618 0.630 0.635 0.629 0.640       0.630 0.631   1.13

107)     Chrysene-d12a         ----------------ISTD---------------------
108) Benzidine    0.735 0.763 0.614 0.719 0.610 0.671       0.774 0.698   9.68

109) I   Phenanthrene-d10a     ----------------ISTD---------------------
110) o-terphenyl  0.622 0.562 0.546 0.558 0.546 0.577       0.553 0.566   4.69
111) 1-chloroocta 0.369 0.340 0.347 0.357 0.347 0.365       0.345 0.353   3.07

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.223 0.256 0.320 0.333 0.320 0.339 0.434 0.291 0.315  19.99
 -------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3P782.M          Tue Feb 26 16:13:56 2013   RPT1
```

8.7.55

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17149.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17149.D              Vial: 10
Acq On    : 26 Feb 2013   3:57 pm                    Operator: katelynh
Sample    : icv782-50                                Inst    : GC3P
Misc      : op63753,e3p783,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	128	0.00	4.00
9	t	Phenol	1.786	1.653	7.4	119	-0.02	3.59
12	t	2-Chlorophenol	1.452	1.508	-3.9	134	-0.01	3.75
19	t	2-Methylphenol	1.190	1.186	0.3	128	-0.01	4.33
21	t	3&4-Methylphenol	1.269	1.228	3.2	126	-0.02	4.54
24	I	Naphthalene-d8	1.000	1.000	0.0	125	0.00	5.72
29	t	2-Nitrophenol	0.199	0.210	-5.5	130	-0.02	5.18
30	t	2,4-Dimethylphenol	0.304	0.346	-13.8	134	-0.01	5.29
31	t	Benzoic acid	0.261	0.273	-4.6	120	-0.05	5.52
33	t	2,4-Dichlorophenol	0.289	0.321	-11.1	138	-0.01	5.53
34	t	2,6-Dichlorophenol	0.285	0.301	-5.6	133	-0.02	5.86
43	t	4-Chloro-3-methylphenol	0.267	0.285	-6.7	131	-0.04	6.64
47	I	Acenaphthene-d10	1.000	1.000	0.0	127	-0.01	8.42
49	t	2,4,6-Trichlorophenol	0.376	0.400	-6.4	134	-0.01	7.27
50	t	2,4,5-Trichlorophenol	0.419	0.440	-5.0	135	-0.03	7.31
60	t	2,4-Dinitrophenol	0.162	0.162	0.0	118	-0.03	8.56
61	t	4-Nitrophenol	0.174	0.169	2.9	120	-0.03	8.73
64		2,3,4,6-Tetrachlorophenol	0.319	0.335	-5.0	129	-0.02	8.97
69	I	Phenanthrene-d10	1.000	1.000	0.0	127	0.00	10.77
70	t	4,6-Dinitro-2-methylpheno	0.131	0.142	-8.4	123	-0.03	9.42
76	t	Pentachlorophenol	0.167	0.186	11.3	130	-0.02	10.50

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Tue Feb 26 16:44:25 2013 RPT1

8.7.56

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17150.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17150.D              Vial: 11
Acq On    : 26 Feb 2013   4:21 pm                     Operator: katelynh
Sample    : icv782-50                                 Inst    : GC3P
Misc      : op63753,e3p783,                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	114	0.00	4.00
3	t	Pyridine	1.412	1.263	10.6	105	0.00	1.76
4	t	N-Nitrosodimethylamine	0.702	0.622	11.4	104	0.00	1.73
11	t	bis(2-Chloroethyl)ether	1.131	1.184	-4.7	122	-0.01	3.69
14	t	1,3-Dichlorobenzene	1.604	1.691	-5.4	123	0.00	3.93
15	t	1,4-Dichlorobenzene	1.619	1.672	-3.3	121	0.00	4.02
16	t	Benzyl alcohol	0.849	0.857	-0.9	115	-0.02	4.18
17	t	1,2-Dichlorobenzene	1.503	1.617	-7.6	125	0.00	4.21
20	t	2,2'-oxybis(1-Chloropropa	1.974	1.909	3.3	116	-0.01	4.36
22	t	n-Nitroso-di-n-propylamin	0.868	0.872	-0.5	118	-0.02	4.53
23	t	Hexachloroethane	0.536	0.590	-10.1	128	0.00	4.64
24	I	Naphthalene-d8	1.000	1.000	0.0	117	0.00	5.72
26	t	Nitrobenzene	0.353	0.351	0.6	121	-0.02	4.74
28	t	Isophorone	0.568	0.591	-4.0	124	-0.03	5.07
32	t	bis(2-Chloroethoxy)methan	0.364	0.394	-8.2	129	-0.01	5.42
36	t	1,2,4-Trichlorobenzene	0.321	0.354	-10.3	131	-0.01	5.65
38	t	Naphthalene	1.044	1.080	-3.4	124	0.00	5.75
42	t	Hexachlorobutadiene	0.173	0.196	-13.3	135	0.00	5.98
44	t	2-Methylnaphthalene	0.605	0.607	-0.3	119	-0.01	6.81
47	I	Acenaphthene-d10	1.000	1.000	0.0	116	0.00	8.43
48	t	Hexachlorocyclopentadiene	0.368	0.380	3.2	112	0.00	7.08
52	t	2-Chloronaphthalene	1.197	1.269	-6.0	126	-0.01	7.55
54	t	2-Nitroaniline	0.352	0.340	3.4	114	-0.02	7.75
55	t	Dimethylphthalate	1.302	1.340	-2.9	123	-0.01	8.09
56	t	Acenaphthylene	1.925	1.789	7.1	109	-0.01	8.19
57	t	2,6-Dinitrotoluene	0.282	0.301	-6.7	123	-0.01	8.16
58	t	3-Nitroaniline	0.364	0.317	12.9	98	-0.02	8.40
59	t	Acenaphthene	1.215	1.261	-3.8	123	0.00	8.48
62	t	Dibenzofuran	1.638	1.625	0.8	119	-0.01	8.75
63	t	2,4-Dinitrotoluene	0.388	0.384	1.0	117	-0.02	8.78
65	t	Diethylphthalate	1.363	1.379	-1.2	120	-0.02	9.23
66	t	Fluorene	1.248	1.324	-6.1	127	0.00	9.30
67	t	4-Chlorophenyl-phenylethe	0.578	0.601	-4.0	122	0.00	9.34
68	t	4-Nitroaniline	0.356	0.352	1.1	114	-0.04	9.37
69	I	Phenanthrene-d10	1.000	1.000	0.0	114	0.00	10.77
71	t	n-Nitrosodiphenylamine	0.554	0.572	-3.2	118	-0.02	9.54
72	t	1,2-Diphenylhydrazine	0.794	0.831	-4.7	120	-0.01	9.59
74	t	4-Bromophenyl-phenylether	0.213	0.227	-6.6	122	0.00	10.11
75	t	Hexachlorobenzene	0.263	0.282	-7.2	125	-0.01	10.17

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17150.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	t	Phenanthrene	1.123	1.197	-6.6	124	-0.01	10.81
78	t	Anthracene	1.125	1.205	-7.1	123	-0.01	10.89
79	t	Carbazole	1.093	1.104	-1.0	119	-0.01	11.17
80	t	Di-n-butylphthalate	1.465	1.510	-3.1	118	0.00	11.83
81	t	Fluoranthene	1.224	1.243	-1.6	120	0.00	12.59
83	I	Chrysene-d12	1.000	1.000	0.0	114	0.00	14.50
84	t	Pyrene	1.298	1.280	1.4	119	-0.01	12.89
86	t	Butylbenzylphthalate	0.659	0.639	3.0	110	0.00	13.87
87	t	Benzo[a]anthracene	1.168	1.155	1.1	119	-0.01	14.49
88	t	3,3'-Dichlorobenzidine	0.438	0.318	27.4	82	-0.01	14.49
89	t	Chrysene	1.071	1.083	-1.1	121	-0.01	14.53
90	t	bis(2-Ethylhexyl)phthalat	0.914	0.917	-0.3	114	0.00	14.64
91	I	Perylene-d12	1.000	1.000	0.0	111	0.00	16.15
92	t	Di-n-octylphthalate	1.650	1.754	-6.3	112	0.00	15.41
93	t	Benzo[b]fluoranthene	1.325	1.285	3.0	113	-0.03	15.75
94	t	Benzo[k]fluoranthene	1.120	1.195	-6.7	114	-0.02	15.78
95	t	Benzo[a]pyrene	1.126	1.150	-2.1	112	-0.01	16.09
96	t	Indeno[1,2,3-cd]pyrene	1.325	1.462	-10.3	121	-0.02	17.23
98	t	Dibenz[a,h]anthracene	1.093	1.199	-9.7	119	-0.02	17.26
100	t	Benzo[g,h,i]perylene	1.107	1.241	-12.1	124	-0.02	17.53

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Tue Feb 26 17:22:10 2013 RPT1

8.7.57

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV783
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17150A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17150a.D            Vial: 11
Acq On    : 26 Feb 2013   4:21 pm                   Operator: katelynh
Sample    : icv783-50                               Inst    : GC3P
Misc      : op63753,e3p783,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
103 I	Acenaphthene-d10a	1.000	1.000	0.0	111	0.00	8.43
105	1,2,4,5-Tetrachlorobenzen	0.598	0.605	-1.2	110	0.00	7.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Tue Feb 26 17:14:17 2013 RPT1

8.7.58

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17151.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17151.D              Vial: 12
Acq On    : 26 Feb 2013   4:44 pm                     Operator: katelynh
Sample    : icv782-50                                 Inst    : GC3P
Misc      : op63753,e3p783,                           Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	4.00
2	t	1,4-Dioxane	0.513	0.433	15.6	119	0.00	1.58
6	t	Indene	2.138	2.284	-6.8	142	0.00	4.32
7	t	Cumene	2.950	2.968	-0.6	134	0.00	3.12
13	t	Decane	1.429	1.278	10.6	122	0.00	3.83
18	t	Acetophenone	1.745	1.754	-0.5	135	-0.02	4.51
24	I	Naphthalene-d8	1.000	1.000	0.0	131	0.00	5.72
27	t	Quinoline	0.682	0.691	-1.3	134	-0.04	6.24
40	t	2,3-Dichloroaniline	0.333	0.307	7.8	124	0.00	7.25
41	t	Caprolactam	0.150	0.143	4.7	127	-0.10	6.36
45	t	1-Methylnaphthalene	0.581	0.601	-3.4	137	0.00	6.95
46	t	Dimethylnaphthalene	0.525	0.556	-5.9	139	-0.01	7.79
47	I	Acenaphthene-d10	1.000	1.000	0.0	131	-0.01	8.42
53	t	Biphenyl	1.451	1.501	-3.4	140	0.00	7.55
69	I	Phenanthrene-d10	1.000	1.000	0.0	131	0.00	10.77
82	t	Octadecane	0.506	0.497	1.8	127	0.00	10.79
91	I	Perylene-d12	1.000	1.000	0.0	119	0.00	16.15
99	t	7,12-Dimethylbenz(a)anthr	0.540	0.518	4.1	108	-0.02	15.75

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3p17143.D  M3P782.M         Tue Feb 26 17:16:38 2013   RPT1
```

8.7.59

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV783
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17151A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17151a.D            Vial: 12
Acq On    : 26 Feb 2013   4:44 pm                   Operator: katelynh
Sample    : icv783-50                               Inst    : GC3P
Misc      : op63753,e3p783,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
101 I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	126	0.00	4.00
102	Benzaldehyde	1.128	1.141	-1.2	129	0.00	3.49
103 I	Acenaphthene-d10a	1.000	1.000	0.0	126	0.00	8.42
104	Atrazine	0.143	0.146	-2.1	122	-0.01	10.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Tue Feb 26 17:17:32 2013 RPT1

8.7.60

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17152.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17152.D              Vial: 13
Acq On    : 26 Feb 2013   5:08 pm                    Operator: katelynh
Sample    : icv782-50                                Inst    : GC3P
Misc      : op63753,e3p783,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	135	0.00	4.00
5	S	2-Fluorophenol	1.342	1.233	8.1	125	0.00	2.64
8	S	Phenol-d5	1.604	1.443	10.0	123	-0.02	3.57
24	I	Naphthalene-d8	1.000	1.000	0.0	136	0.00	5.72
25	S	Nitrobenzene-d5	0.341	0.329	3.5	136	-0.02	4.71
47	I	Acenaphthene-d10	1.000	1.000	0.0	136	-0.01	8.42
51	S	2-Fluorobiphenyl	1.267	1.234	2.6	136	0.00	7.41
69	I	Phenanthrene-d10	1.000	1.000	0.0	135	0.00	10.77
73	S	2,4,6-Tribromophenol	0.135	0.133	1.5	126	-0.02	9.67
83	I	Chrysene-d12	1.000	1.000	0.0	124	-0.01	14.50
85	S	Terphenyl-d14	0.835	0.831	0.5	131	0.00	13.18

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3p17143.D  M3P782.M         Wed Feb 27 07:54:54 2013   RPT1
```

8.7.61

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV783
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17153.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17153.D              Vial: 14
Acq On    : 26 Feb 2013   5:32 pm                    Operator: katelynh
Sample    : icv783-50                                Inst    : GC3P
Misc      : op63753,e3p783,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
107	Chrysene-d12a	1.000	1.000	0.0	180	0.00	14.50
108	Benzidine	0.698	0.745	-6.7	200	0.00	12.83

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Wed Feb 27 07:55:47 2013 RPT1

8.7.62

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17154.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17154.D              Vial: 15
Acq On    : 26 Feb 2013   5:56 pm                    Operator: katelynh
Sample    : icv782-50                                Inst    : GC3P
Misc      : op63753,e3p783,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

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

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	165	0.00	4.00
10		Aniline	1.942	1.835	5.5	151	0.00	3.61
24	I	Naphthalene-d8	1.000	1.000	0.0	166	0.00	5.72
39	t	4-Chloroaniline	0.456	0.439	3.7	157	-0.02	5.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Wed Feb 27 07:56:36 2013 RPT1

8.7.63

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** E3P783-ICV783
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P17155.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\783\3p17155.D              Vial: 16
Acq On    : 26 Feb 2013   6:20 pm                    Operator: katelynh
Sample    : icv783-50                                Inst    : GC3P
Misc      : op63753,e3p783,                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
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	111	0.00	5.72
113 t	Hydroquinone	0.315	0.329	-4.4	108	-0.02	6.44

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17143.D M3P782.M Wed Feb 27 07:57:11 2013 RPT1

8.7.64

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3P822-CC782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P18172.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\822\3p18172.D              Vial: 2
Acq On    : 28 Mar 2013   9:05 am                    Operator: katelynh
Sample    : cc782-50                                 Inst    : GC3P
Misc      : op64704,e3p822,                          Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
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	91	-0.06	3.81
2	t	1,4-Dioxane	0.513	0.553	-7.8	106	-0.04	1.46
3	t	Pyridine	1.412	1.439	-1.9	96	-0.04	1.63
4	t	N-Nitrosodimethylamine	0.702	1.197	-70.5#	160	-0.03	1.61
5	S	2-Fluorophenol	1.342	1.265	5.7	86	-0.05	2.51
6	t	Indene	2.138	2.082	2.6	90	-0.06	4.13
7	t	Cumene	2.950	3.242	-9.9	102	-0.05	2.94
8	S	Phenol-d5	1.604	1.611	-0.4	93	-0.07	3.45
9	t	Phenol	1.786	1.790	-0.2	92	-0.07	3.46
10		Aniline	1.942	1.632	16.0	74	-0.06	3.45
11	t	bis(2-Chloroethyl)ether	1.131	1.064	5.9	88	-0.05	3.52
12	t	2-Chlorophenol	1.452	1.365	6.0	87	-0.07	3.58
13	t	Decane	1.429	1.550	-8.5	103	-0.06	3.63
14	t	1,3-Dichlorobenzene	1.604	1.573	1.9	92	-0.06	3.75
15	t	1,4-Dichlorobenzene	1.619	1.572	2.9	91	-0.06	3.83
16	t	Benzyl alcohol	0.849	0.795	6.4	85	-0.06	4.02
17	t	1,2-Dichlorobenzene	1.503	1.481	1.5	91	-0.06	4.02
18	t	Acetophenone	1.745	1.750	-0.3	94	-0.06	4.34
19	t	2-Methylphenol	1.190	1.107	7.0	86	-0.07	4.19
20	t	2,2'-oxybis(1-Chloropropa	1.974	1.857	5.9	90	-0.06	4.17
21	t	3&4-Methylphenol	1.269	1.157	8.8	85	-0.07	4.40
22	t	n-Nitroso-di-n-propylamin	0.868	0.991	-14.2	107	-0.06	4.36
23	t	Hexachloroethane	0.536	0.600	-11.9	104	-0.06	4.44
24	I	Naphthalene-d8	1.000	1.000	0.0	91	-0.06	5.52
25	S	Nitrobenzene-d5	0.341	0.410	-20.2#	112	-0.05	4.54
26	t	Nitrobenzene	0.353	0.410	-16.1	109	-0.06	4.56
27	t	Quinoline	0.682	0.642	5.9	86	-0.06	6.08
28	t	Isophorone	0.568	0.639	-12.5	103	-0.06	4.90
29	t	2-Nitrophenol	0.199	0.196	1.5	88	-0.06	5.00
30	t	2,4-Dimethylphenol	0.304	0.344	-13.2	97	-0.07	5.13
31	t	Benzoic acid	0.261	0.220	15.7	70	-0.07	5.44
32	t	bis(2-Chloroethoxy)methan	0.364	0.350	3.8	89	-0.07	5.23
33	t	2,4-Dichlorophenol	0.289	0.298	-3.1	93	-0.07	5.38
34	t	2,6-Dichlorophenol	0.285	0.286	-0.4	92	-0.07	5.69
35		1,3,5-Trichlorobenzene	0.331	0.343	-3.6	96	-0.07	5.01
36	t	1,2,4-Trichlorobenzene	0.321	0.333	-3.7	95	-0.07	5.46
37		1,2,3-Trichlorobenzene	0.310	0.319	-2.9	95	-0.07	5.78
38	t	Naphthalene	1.044	0.999	4.3	89	-0.06	5.55
39	t	4-Chloroaniline	0.456	0.406	11.0	79	-0.07	5.69
40	t	2,3-Dichloroaniline	0.333	0.343	-3.0	95	-0.07	7.07
41	t	Caprolactam	0.150	0.159	-6.0	98	-0.06	6.26

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3P822-CC782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P18172.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.173	0.217	-25.4#	115	-0.07	5.76
43	t	4-Chloro-3-methylphenol	0.267	0.317	-18.7	106	-0.07	6.53
44	t	2-Methylnaphthalene	0.605	0.618	-2.1	94	-0.07	6.60
45	t	1-Methylnaphthalene	0.581	0.591	-1.7	93	-0.07	6.75
46	t	Dimethylnaphthalene	0.525	0.532	-1.3	91	-0.07	7.59
47	I	Acenaphthene-d10	1.000	1.000	0.0	96	-0.07	8.22
48	t	Hexachlorocyclopentadiene	0.368	0.299	18.8	73	-0.07	6.86
49	t	2,4,6-Trichlorophenol	0.376	0.386	-2.7	97	-0.08	7.10
50	t	2,4,5-Trichlorophenol	0.419	0.425	-1.4	98	-0.07	7.19
51	S	2-Fluorobiphenyl	1.267	1.257	0.8	97	-0.07	7.20
52	t	2-Chloronaphthalene	1.197	1.147	4.2	94	-0.07	7.36
53	t	Biphenyl	1.451	1.399	3.6	95	-0.07	7.35
54	t	2-Nitroaniline	0.352	0.487	-38.4#	135	-0.07	7.58
55	t	Dimethylphthalate	1.302	1.322	-1.5	100	-0.07	7.89
56	t	Acenaphthylene	1.925	1.842	4.3	93	-0.08	7.99
57	t	2,6-Dinitrotoluene	0.282	0.285	-1.1	96	-0.07	7.98
58	t	3-Nitroaniline	0.364	0.326	10.4	84	-0.07	8.25
59	t	Acenaphthene	1.215	1.186	2.4	96	-0.07	8.27
60	t	2,4-Dinitrophenol	0.162	0.141	13.0	78	-0.04	8.46
61	t	4-Nitrophenol	0.174	0.161	7.5	86	-0.06	8.69
62	t	Dibenzofuran	1.638	1.578	3.7	96	-0.07	8.55
63	t	2,4-Dinitrotoluene	0.388	0.410	-5.7	103	-0.05	8.64
64		2,3,4,6-Tetrachlorophenol	0.319	0.323	-1.3	94	-0.07	8.81
65	t	Diethylphthalate	1.363	1.419	-4.1	102	-0.07	9.02
66	t	Fluorene	1.248	1.236	1.0	98	-0.07	9.09
67	t	4-Chlorophenyl-phenylethe	0.578	0.592	-2.4	99	-0.07	9.13
68	t	4-Nitroaniline	0.356	0.280	21.3#	75	-0.06	9.24
69	I	Phenanthrene-d10	1.000	1.000	0.0	98	-0.06	10.58
70	t	4,6-Dinitro-2-methylpheno	0.131	0.130	0.8	87	-0.05	9.31
71	t	n-Nitrosodiphenylamine	0.554	0.552	0.4	98	-0.08	9.35
72	t	1,2-Diphenylhydrazine	0.794	0.902	-13.6	112	-0.07	9.38
73	S	2,4,6-Tribromophenol	0.135	0.166	-23.0#	115	-0.08	9.50
74	t	4-Bromophenyl-phenylether	0.213	0.236	-10.8	109	-0.07	9.90
75	t	Hexachlorobenzene	0.263	0.296	-12.5	113	-0.07	9.99
76	t	Pentachlorophenol	0.167	0.148	11.4	81	-0.08	10.35
77	t	Phenanthrene	1.123	1.063	5.3	95	-0.07	10.61
78	t	Anthracene	1.125	1.059	5.9	93	-0.07	10.69
79	t	Carbazole	1.093	1.005	8.1	93	-0.07	11.01
80	t	Di-n-butylphthalate	1.465	1.521	-3.8	103	-0.07	11.62
81	t	Fluoranthene	1.224	1.228	-0.3	102	-0.06	12.42
82	t	Octadecane	0.506	0.569	-12.5	109	-0.07	10.57
83	I	Chrysene-d12	1.000	1.000	0.0	109	-0.05	14.35
84	t	Pyrene	1.298	1.130	12.9	101	-0.06	12.73
85	S	Terphenyl-d14	0.835	0.821	1.7	114	-0.06	13.00
86	t	Butylbenzylphthalate	0.659	0.628	4.7	104	-0.07	13.69
87	t	Benzo[a]anthracene	1.168	1.074	8.0	106	-0.06	14.34
88	t	3,3'-Dichlorobenzidine	0.438	0.442	-0.9	108	-0.06	14.34
89	t	Chrysene	1.071	0.987	7.8	105	-0.06	14.38
90	t	bis(2-Ethylhexyl)phthalat	0.914	0.889	2.7	106	-0.07	14.45
91	I	Perylene-d12	1.000	1.000	0.0	111	-0.05	16.02
92	t	Di-n-octylphthalate	1.650	1.650	0.0	107	-0.07	15.22
93	t	Benzo[b]fluoranthene	1.325	1.258	5.1	112	-0.06	15.61
94	t	Benzo[k]fluoranthene	1.120	1.075	4.0	104	-0.06	15.65
95	t	Benzo[a]pyrene	1.126	1.114	1.1	110	-0.05	15.96
96	t	Indeno[1,2,3-cd]pyrene	1.325	1.356	-2.3	113	-0.05	17.11
97	t	Dibenz(a,h)acridine	0.956	0.998	-4.4	115	-0.06	16.86

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3P822-CC782
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P18172.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

98	t	Dibenz[a,h]anthracene	1.093	1.137	-4.0	114	-0.07	17.11
99	t	7,12-Dimethylbenz(a)anthr	0.540	0.537	0.6	106	-0.07	15.59
100	t	Benzo[g,h,i]perylene	1.107	1.134	-2.4	114	-0.06	17.38

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17909.D M3P782.M Thu Mar 28 12:59:12 2013 RPT1

8.7.65

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** E3P822-CC783
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** 3P18173.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\822\3p18173.D              Vial: 3
Acq On    : 28 Mar 2013   9:29 am                    Operator: katelynh
Sample    : cc783-50                                 Inst    : GC3P
Misc      : op64704,e3p822,                          Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\M3P782.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Tue Feb 26 16:13:24 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
101	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	78	-0.05	3.81
102		Benzaldehyde	1.128	1.040	7.8	73	-0.04	3.32
103	I	Acenaphthene-d10a	1.000	1.000	0.0	85	-0.06	8.22
104		Atrazine	0.143	0.156	-9.1	88	-0.06	10.27
105		1,2,4,5-Tetrachlorobenzen	0.598	0.634	-6.0	88	-0.05	6.88
106		Chrysene-d12a	1.000	1.000	0.0	94	-0.04	14.35
107		Benzidine	0.698	0.372	46.7#	52	-0.04	12.68
108	I	Naphthalene-d8a	1.000	1.000	0.0	80	-0.05	5.52
109	t	Hydroquinone	0.315	0.247	21.6#	58	-0.04	6.36

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3p17909.D M3P782.M Thu Mar 28 12:59:54 2013 RPT1

Initial Calibration Summary

Job Number: JB31121 **Sample:** EM3735-ICC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92179.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Response Factor Report MSM

Method : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Tue Mar 19 16:01:58 2013
Response via : Initial Calibration

Calibration Files
2 =M92182.D 5 =M92183.D 100 =M92177.D 50 =M92179.D
1 =M92178.D 10 =M92184.D 80 =M92181.D 25 =M92180.D

Compound	2	5	100	50	1	10	80	25	Avg	%RSD
1) I 1,4-Dichlorobenzene-d					ISTD					
2) 1,4-Dioxane	0.652	0.674	0.747	0.743	0.825	0.700	0.661	0.725	0.716	7.98
3) Pyridine	1.689	1.795	1.806	1.902	1.897	1.792	1.815	1.818	1.814	3.69
4) N-Nitrosodim	0.834	0.877	0.821	0.858	1.154	0.883	0.798	0.876	0.888	12.60
5) 2-Fluorophen	1.362	1.505	1.477	1.536	1.408	1.529	1.503	1.561	1.485	4.56
6) Indene	2.139	2.365	1.880	2.040	2.305	2.323	1.914	2.199	2.146	8.69
7) Cumene	3.351	3.645	2.727	3.157	3.420	3.716	2.818	3.497	3.291	11.06
8) Phenol-d5	1.790	1.994	1.828	1.890	1.853	1.992	1.843	1.975	1.896	4.27
9) Phenol	1.916	2.057	1.855	2.002	1.870	2.084	1.860	2.011	1.957	4.73
10) Aniline	2.453	2.396	1.754	1.942	2.538	2.249	1.612	2.245	2.149	15.84
11) bis(2-Chloro	1.375	1.462	1.088	1.288	1.467	1.421	1.244	1.312	1.332	9.60
12) 2-Chlorophen	1.405	1.556	1.252	1.311	1.480	1.523	1.257	1.414	1.400	8.37
13) Decane	1.553	1.563	1.039	1.203	1.709	1.530	1.061	1.413	1.384	18.20
14) 1,3-Dichloro	1.715	1.775	1.469	1.590	1.807	1.812	1.502	1.646	1.664	8.10
15) 1,4-Dichloro	1.551	1.598	1.374	1.464	1.645	1.620	1.399	1.593	1.530	6.82
16) Benzyl alcoh	0.816	0.906	0.949	0.928	0.910	0.922	0.940	0.920	0.911	4.51
17) 1,2-Dichloro	1.495	1.591	1.301	1.406	1.544	1.596	1.331	1.514	1.472	7.72
18) Acetophenone	1.748	1.872	1.621	1.705	1.859	1.851	1.617	1.773	1.756	5.84
19) 2-Methylphen	1.115	1.298	1.197	1.207	1.173	1.313	1.200	1.275	1.222	5.54
20) 2,2'-oxybis(	0.461	0.469	0.450	0.435	0.434	0.458	0.441	0.450	0.450	2.82
21) 3&4-Methylph	1.209	1.355	1.383	1.362	1.273	1.380	1.365	1.353	1.335	4.61
22) n-Nitroso-di	0.957	1.025	0.963	0.956	1.086	0.986	0.931	0.968	0.984	5.04
23) Hexachloroet	0.525	0.569	0.540	0.542	0.557	0.560	0.551	0.550	0.549	2.45
24) I Naphthalene-d8					ISTD					
25) Nitrobenzene	0.396	0.413	0.374	0.384	0.426	0.396	0.375	0.393	0.395	4.55
26) Nitrobenzene	0.417	0.443	0.371	0.384	0.450	0.423	0.373	0.410	0.409	7.44
27) Quinoline	0.718	0.793	0.706	0.732	0.793	0.775	0.727	0.757	0.750	4.54
28) Isophorone	0.700	0.764	0.635	0.689	0.728	0.729	0.647	0.711	0.700	6.16
29) 2-Nitropheno	0.204	0.223	0.222	0.221	0.205	0.223	0.225	0.223	0.218	3.93
30) 2,4-Dimethyl	0.254	0.331	0.319	0.327	0.233	0.315	0.321	0.339	0.305	12.74
31) Benzoic acid		0.236	0.335	0.310		0.258	0.334	0.281	0.292	13.93
32) bis(2-Chloro	0.423	0.456	0.384	0.400	0.440	0.433	0.391	0.418	0.418	6.01
33) 2,4-Dichloro	0.297	0.345	0.316	0.332	0.282	0.339	0.324	0.332	0.321	6.78
34) 2,6-Dichloro	0.287	0.330	0.292	0.305	0.271	0.320	0.302	0.314	0.303	6.30
35) 1,3,5-Trichl	0.395	0.411	0.332	0.349	0.399	0.399	0.339	0.372	0.374	8.22
36) 1,2,4-Trichl	0.373	0.408	0.331	0.352	0.379	0.390	0.344	0.371	0.368	6.79
37) 1,2,3-Trichl	0.336	0.370	0.306	0.326	0.316	0.360	0.318	0.343	0.334	6.65
38) Naphthalene	1.063	1.127	0.816	0.940	1.102	1.096	0.869	1.028	1.005	11.59
39) 4-Chloroanil	0.453	0.482	0.415	0.454	0.445	0.475	0.431	0.474	0.454	5.07
40) 2,3-Dichloro	0.409	0.433	0.346	0.377	0.409	0.417	0.357	0.391	0.393	7.73
41) Caprolactam	0.168	0.184	0.189	0.180	0.184	0.172	0.183	0.179	0.180	3.84
42) Hexachlorobu	0.195	0.213	0.194	0.196	0.191	0.206	0.199	0.199	0.199	3.52
43) 4-Chloro-3-m	0.294	0.330	0.323	0.329	0.283	0.327	0.327	0.335	0.319	6.04
44) 2-Methylnaph	0.689	0.768	0.600	0.665	0.717	0.760	0.625	0.704	0.691	8.63
45) 1-Methylnaph	0.744	0.805	0.642	0.699	0.741	0.788	0.675	0.747	0.730	7.56

Initial Calibration Summary

Job Number: JB31121 **Sample:** EM3735-ICC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92179.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
46) Dimethylnaph 0.663 0.721 0.579 0.629 0.675 0.711 0.601 0.663 0.655   7.60

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.253 0.289 0.325 0.324 0.242 0.301 0.323 0.319 0.297  11.11
49) 2,4,6-Trichl 0.338 0.378 0.384 0.381 0.341 0.388 0.382 0.380 0.372   5.36
50) 2,4,5-Trichl 0.401 0.440 0.397 0.398 0.437 0.426 0.404 0.410 0.414   4.21
51) 2-Fluorobiph 1.287 1.371 1.038 1.123 1.320 1.304 1.073 1.216 1.216  10.24
52) 2-Chloronaph 1.141 1.208 0.938 0.991 1.135 1.146 0.955 1.073 1.073   9.38
53) Biphenyl     1.443 1.571 1.201 1.290 1.508 1.488 1.243 1.388 1.392   9.66
54) 2-Nitroanili 0.336 0.356 0.378 0.377 0.353 0.361 0.371 0.374 0.363   3.99
55) Dimethylphth 1.275 1.379 1.183 1.259 1.295 1.363 1.215 1.316 1.286   5.25
56) Acenaphthyle 1.836 1.989 1.433 1.611 1.839 1.937 1.492 1.795 1.742  11.79
57) 2,6-Dinitrot 0.271 0.300 0.311 0.306 0.250 0.295 0.310 0.303 0.293   7.40
58) 3-Nitroanili 0.316 0.349 0.365 0.364 0.323 0.357 0.364 0.358 0.349   5.54
59) Acenaphthene 1.056 1.140 0.984 1.035 1.094 1.131 1.003 1.113 1.070   5.50
60) 2,4-Dinitrop       0.091 0.196 0.178       0.113 0.190 0.149 0.153  28.32
         ----- Quadratic regression -----                Coefficient =  0.9997
              Response Ratio = -0.02739 + 0.17032 *A + 0.00638 *A^2

61) 4-Nitropheno 0.111 0.145 0.192 0.176       0.149 0.183 0.164 0.160  17.27
62) Dibenzofuran 1.548 1.713 1.334 1.461 1.615 1.661 1.380 1.585 1.537   8.75
63) 2,4-Dinitrot 0.317 0.396 0.402 0.401 0.311 0.399 0.405 0.404 0.379  10.68
64) 2,3,4,6-Tetr 0.282 0.331 0.355 0.356 0.277 0.339 0.360 0.349 0.331  10.08
65) Diethylphtha 1.219 1.351 1.158 1.237 1.211 1.323 1.184 1.315 1.250   5.68
66) Fluorene     1.297 1.411 1.151 1.217 1.280 1.359 1.160 1.309 1.273   7.22
67) 4-Chlorophen 0.638 0.695 0.575 0.579 0.634 0.659 0.579 0.610 0.621   6.98
68) 4-Nitroanili 0.304 0.352 0.354 0.347 0.291 0.339 0.350 0.338 0.334   7.17

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro-       0.116 0.170 0.162       0.125 0.171 0.150 0.149  15.80
71) n-Nitrosodip 0.596 0.643 0.530 0.562 0.596 0.628 0.553 0.604 0.589   6.49
72) 1,2-Diphenyl 0.778 0.827 0.671 0.702 0.833 0.797 0.679 0.764 0.756   8.56
73) 2,4,6-Tribro 0.073 0.084 0.096 0.088 0.064 0.085 0.097 0.088 0.084  13.17
74) 4-Bromopheny 0.228 0.245 0.233 0.231 0.226 0.239 0.241 0.237 0.235   2.80
75) Hexachlorobe 0.217 0.231 0.214 0.214 0.222 0.231 0.224 0.221 0.222   3.08
76) Pentachlorop 0.110 0.139 0.159 0.155       0.148 0.162 0.157 0.147  12.23
77) Phenanthrene 1.074 1.159 0.901 0.965 1.180 1.132 0.938 1.065 1.052  10.07
78) Anthracene   1.068 1.171 0.906 0.992 1.095 1.134 0.952 1.089 1.051   8.76
79) Carbazole    1.025 1.150 0.948 1.013 1.064 1.139 0.985 1.087 1.051   6.83
80) Di-n-butylph 1.228 1.403 1.169 1.283 1.202 1.392 1.234 1.397 1.289   7.43
81) Fluoranthene 1.325 1.452 1.135 1.251 1.351 1.419 1.202 1.368 1.313   8.30
82) Octadecane   0.456 0.505 0.438 0.449 0.464 0.504 0.448 0.497 0.470   5.82

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.391 1.490 1.156 1.291 1.444 1.469 1.203 1.404 1.356   9.22
85) Butyl steara 0.286 0.329 0.340 0.356 0.249 0.351 0.337 0.363 0.327  12.00
86) Terphenyl-d1 0.917 0.966 0.865 0.907 0.923 0.983 0.890 0.942 0.924   4.21
87) Butylbenzylp 0.531 0.609 0.638 0.667 0.512 0.632 0.652 0.657 0.612   9.62
88) Benzo[a]anth 1.364 1.389 1.207 1.301 1.430 1.387 1.247 1.367 1.337   5.79
89) 3,3'-Dichlor 0.394 0.455 0.444 0.447 0.371 0.444 0.454 0.461 0.434   7.53
90) Chrysene     1.085 1.183 0.986 1.059 1.185 1.163 1.028 1.113 1.100   6.72
91) bis(2-Ethylh 0.587 0.720 0.781 0.817 0.566 0.746 0.797 0.818 0.729  13.74

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.161 1.453 1.615 1.686 1.097 1.509 1.639 1.620 1.472  15.28
94) Benzo[b]fluo 1.369 1.484 1.416 1.353 1.326 1.471 1.354 1.414 1.399   4.13
95) Benzo[k]fluo 1.298 1.431 1.135 1.252 1.385 1.372 1.221 1.294 1.299   7.44
96) Benzo[a]pyre 1.160 1.277 1.176 1.239 1.160 1.262 1.192 1.248 1.214   3.92
97) Indeno[1,2,3 1.346 1.461 1.395 1.352 1.365 1.463 1.405 1.456 1.405   3.51
98) Dibenz(a,h)a 0.962 1.028 1.054 1.033 1.004 1.053 1.075 1.085 1.037   3.86
```

8.7.67

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** EM3735-ICC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92179.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
 99) Dibenz[a,h]a 1.125 1.228 1.114 1.085 1.190 1.225 1.128 1.205 1.163   4.81
100) 7,12-Dimethy 0.497 0.518 0.698 0.650       0.568 0.670 0.617 0.603  12.79
101) Benzo[g,h,i] 1.083 1.202 1.160 1.106 1.139 1.233 1.171 1.206 1.163   4.42

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

          MM3735.M          Wed Mar 20 11:48:57 2013   GCMSM
```

8.7.67

8

Initial Calibration Summary

Job Number: JB31121 **Sample:** EM3736-ICC3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92188.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

```
                          Response Factor Report  MSM

  Method       : C:\HPCHEM\1\METHODS\MM3736.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
  Last Update  : Wed Mar 20 12:28:08 2013
  Response via : Initial Calibration

  Calibration Files
  2   =M92192.D    5   =M92191.D    100 =M92186.D    50  =M92188.D
  1   =M92193.D    10  =M92190.D    80  =M92187.D    25  =M92189.D

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

102) I   1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.232 1.229 0.835 0.944 1.372 1.235 1.038 1.131 1.127  15.72

104) I   Acenaphthene-d10a     ----------------ISTD---------------------
105) 1,2,4,5-Tetr 0.587 0.617 0.572 0.600 0.688 0.628 0.596 0.637 0.616   5.92
106) 2-bromonapht 0.620 0.636 0.588 0.624 0.663 0.635 0.606 0.638 0.626   3.64

107) I   Phenanthrene-d10a     ----------------ISTD---------------------
108) Atrazine     0.119 0.124 0.130 0.136 0.125 0.136 0.136 0.139 0.131   5.62
109) o-terphenyl  0.756 0.711 0.593 0.652 0.814 0.719 0.621 0.696 0.695  10.40

110) I   Chrysene-d12a         ----------------ISTD---------------------
111) Benzidine    0.630 0.758       0.388 0.661 0.893 0.311 0.577 0.603  33.46
112) 1-chloroocta 0.289 0.317 0.307 0.328 0.320 0.356 0.322 0.345 0.323   6.47

113) I   Naphthalene-d8a       ----------------ISTD---------------------
114) hydroquinone 0.211 0.261 0.350 0.351 0.229 0.319 0.356 0.342 0.302  19.74
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MM3735.M          Wed Mar 20 12:28:55 2013   GCMSM
```

8.7.68

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92194.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92194.D            Vial: 10
Acq On    : 19 Mar 2013   8:32 pm                   Operator: olgaa
Sample    : icv3735-50                              Inst    : MSM
Misc      : op64218,em3736,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Tue Mar 19 16:01:58 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	5.36
9	t	Phenol	1.957	1.896	3.1	124	0.00	5.08
12	t	2-Chlorophenol	1.400	1.403	-0.2	140	0.00	5.21
19	t	2-Methylphenol	1.222	1.187	2.9	128	0.00	5.58
21	t	3&4-Methylphenol	1.335	1.218	8.8	117	0.00	5.71
24	I	Naphthalene-d8	1.000	1.000	0.0	116	0.00	6.66
29	t	2-Nitrophenol	0.218	0.235	-7.8	123	0.00	6.25
30	t	2,4-Dimethylphenol	0.305	0.358	-17.4	127	0.00	6.26
31	t	Benzoic acid	0.292	0.269	7.9	101	0.00	6.37
33	t	2,4-Dichlorophenol	0.321	0.346	-7.8	121	0.00	6.50
34	t	2,6-Dichlorophenol	0.303	0.335	-10.6	128	0.00	6.78
43	t	4-Chloro-3-methylphenol	0.319	0.335	-5.0	118	0.00	7.35
47	I	Acenaphthene-d10	1.000	1.000	0.0	122	0.00	9.25
49	t	2,4,6-Trichlorophenol	0.372	0.392	-5.4	126	0.00	8.03
50	t	2,4,5-Trichlorophenol	0.414	0.398	3.9	122	0.00	8.08
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	81.726	18.3	84	0.00	9.37
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.160	0.151	5.6	105	0.00	9.49
64		2,3,4,6-Tetrachlorophenol	0.331	0.336	-1.5	115	0.00	9.87
69	I	Phenanthrene-d10	1.000	1.000	0.0	113	0.00	11.93
70	t	4,6-Dinitro-2-methylpheno	0.149	0.155	-4.0	108	0.00	10.38
76	t	Pentachlorophenol	0.147	0.162	-10.2	118	0.00	11.70

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92179.D MM3735.M Wed Mar 20 11:55:25 2013 GCMSM

8.7.69

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92195A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92195A.D          Vial: 11
Acq On    : 19 Mar 2013   9:01 pm                  Operator: olgaa
Sample    : icv3736-50                             Inst    : MSM
Misc      : op64218,em3736,                        Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Wed Mar 20 12:28:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
104	I	Acenaphthene-d10a	1.000	1.000	0.0	108	0.00	9.25
105	t	1,2,4,5-Tetrachlorobenzen	0.616	0.601	2.4	108	0.00	7.88

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92188.D MM3735.M Wed Mar 20 12:31:57 2013 GCMSM

8.7.70

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92195.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\EM3736\M92195.D Vial: 11
Acq On : 19 Mar 2013 9:01 pm Operator: olgaa
Sample : icv3735-50 Inst : MSM
Misc : op64218,em3736, Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Tue Mar 19 16:01:58 2013
Response via : Multiple Level Calibration

Min. RRF : 0.049 Min. Rel. Area : 49% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	115	0.01	5.37
3	t	Pyridine	1.814	1.493	17.7	91	0.00	3.31
4	t	N-Nitrosodimethylamine	0.888	0.735	17.2	99	0.01	3.30
11	t	bis(2-Chloroethyl)ether	1.332	1.538	-15.5	138	0.00	5.15
14	t	1,3-Dichlorobenzene	1.664	1.714	-3.0	124	0.00	5.34
15	t	1,4-Dichlorobenzene	1.530	1.512	1.2	119	0.00	5.38
16	t	Benzyl alcohol	0.911	0.926	-1.6	115	0.01	5.49
17	t	1,2-Dichlorobenzene	1.472	1.509	-2.5	124	0.00	5.54
20	t	2,2'-oxybis(1-Chloropropa	0.450	0.486	-8.0	129	0.00	5.63
22	t	n-Nitroso-di-n-propylamin	0.984	1.010	-2.6	122	0.00	5.75
23	t	Hexachloroethane	0.549	0.588	-7.1	125	0.00	5.84
24	I	Naphthalene-d8	1.000	1.000	0.0	112	0.00	6.66
26	t	Nitrobenzene	0.409	0.405	1.0	118	0.00	5.92
28	t	Isophorone	0.700	0.689	1.6	112	0.00	6.14
32	t	bis(2-Chloroethoxy)methan	0.418	0.470	-12.4	131	0.01	6.37
36	t	1,2,4-Trichlorobenzene	0.368	0.396	-7.6	126	0.00	6.61
38	t	Naphthalene	1.005	0.977	2.8	116	0.01	6.69
42	t	Hexachlorobutadiene	0.199	0.221	-11.1	126	0.00	6.90
44	t	2-Methylnaphthalene	0.691	0.642	7.1	108	0.00	7.58
47	I	Acenaphthene-d10	1.000	1.000	0.0	105	0.00	9.25
48	t	Hexachlorocyclopentadiene	0.297	0.296	0.3	96	0.00	7.91
52	t	2-Chloronaphthalene	1.073	1.204	-12.2	127	0.00	8.31
54	t	2-Nitroaniline	0.363	0.363	0.0	101	0.00	8.51
55	t	Dimethylphthalate	1.286	1.330	-3.4	111	0.00	8.86
56	t	Acenaphthylene	1.742	1.556	10.7	101	0.00	8.99
57	t	2,6-Dinitrotoluene	0.293	0.318	-8.5	109	0.00	8.97
58	t	3-Nitroaniline	0.349	0.309	11.5	89	0.00	9.21
59	t	Acenaphthene	1.070	1.091	-2.0	111	0.00	9.30
62	t	Dibenzofuran	1.537	1.550	-0.8	111	0.00	9.58
63	t	2,4-Dinitrotoluene	0.379	0.379	0.0	99	0.00	9.65
65	t	Diethylphthalate	1.250	1.274	-1.9	108	0.00	10.12
66	t	Fluorene	1.273	1.309	-2.8	113	0.00	10.19
67	t	4-Chlorophenyl-phenylethe	0.621	0.624	-0.5	113	0.00	10.20
68	t	4-Nitroaniline	0.334	0.326	2.4	98	0.00	10.30
69	I	Phenanthrene-d10	1.000	1.000	0.0	110	0.00	11.93
71	t	n-Nitrosodiphenylamine	0.589	0.541	8.1	106	0.00	10.43
72	t	1,2-Diphenylhydrazine	0.756	0.702	7.1	110	0.00	10.49
74	t	4-Bromophenyl-phenylether	0.235	0.233	0.9	110	0.00	11.10
75	t	Hexachlorobenzene	0.222	0.213	4.1	109	0.00	11.37

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92195.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

77	t	Phenanthrene	1.052	1.020	3.0	116	0.00	11.98
78	t	Anthracene	1.051	1.000	4.9	111	0.00	12.06
79	t	Carbazole	1.051	0.963	8.4	104	0.00	12.39
80	t	Di-n-butylphthalate	1.289	1.197	7.1	102	0.00	13.25
81	t	Fluoranthene	1.313	1.187	9.6	104	0.00	14.31
83	I	Chrysene-d12	1.000	1.000	0.0	98	0.00	17.18
84	t	Pyrene	1.356	1.362	-0.4	104	0.00	14.74
87	t	Butylbenzylphthalate	0.612	0.654	-6.9	97	0.00	16.21
88	t	Benzo[a]anthracene	1.337	1.313	1.8	99	0.00	17.14
89	t	3,3'-Dichlorobenzidine	0.434	0.332	23.5	73	-0.01	17.16
90	t	Chrysene	1.100	1.120	-1.8	104	0.00	17.23
91	t	bis(2-Ethylhexyl)phthalat	0.729	0.794	-8.9	96	0.00	17.46
92	I	Perylene-d12	1.000	1.000	0.0	97	0.00	19.84
93	t	Di-n-octylphthalate	1.472	1.589	-7.9	91	0.00	18.61
94	t	Benzo[b]fluoranthene	1.399	1.371	2.0	98	0.00	19.17
95	t	Benzo[k]fluoranthene	1.299	1.221	6.0	94	-0.01	19.21
96	t	Benzo[a]pyrene	1.214	1.246	-2.6	97	0.00	19.73
97	t	Indeno[1,2,3-cd]pyrene	1.405	1.535	-9.3	110	0.00	22.03
99	t	Dibenz[a,h]anthracene	1.163	1.192	-2.5	107	0.00	22.08
101	t	Benzo[g,h,i]perylene	1.163	1.255	-7.9	110	0.00	22.65

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92179.D MM3735.M Wed Mar 20 11:50:16 2013 GCMSM

8.7.71
8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92196.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92196.D            Vial: 12
Acq On    : 19 Mar 2013   9:31 pm                   Operator: olgaa
Sample    : icv3735-50                              Inst    : MSM
Misc      : op64218,em3736,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Tue Mar 19 16:01:58 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  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	103	0.00	5.36
2	t	1,4-Dioxane	0.716	0.787	-9.9	109	0.00	2.99
6	t	Indene	2.146	2.483	-15.7	125	0.00	5.62
7	t	Cumene	3.291	3.452	-4.9	113	0.00	4.75
13	t	Decane	1.384	1.429	-3.3	122	0.00	5.21
18	t	Acetophenone	1.756	1.843	-5.0	111	0.00	5.74
24	I	Naphthalene-d8	1.000	1.000	0.0	117	0.00	6.66
27	t	Quinoline	0.750	0.666	11.2	107	0.00	7.10
40	t	2,3-Dichloroaniline	0.393	0.302	23.2	94	0.00	8.04
41	t	Caprolactam	0.180	0.144	20.0	94	-0.04	7.14
45	t	1-Methylnaphthalene	0.730	0.664	9.0	111	0.00	7.74
46	t	Dimethylnaphthalene	0.655	0.585	10.7	109	0.00	8.52
47	I	Acenaphthene-d10	1.000	1.000	0.0	100	0.00	9.25
53	t	Biphenyl	1.392	1.419	-1.9	110	0.00	8.29
69	I	Phenanthrene-d10	1.000	1.000	0.0	89	0.00	11.93
82	t	Octadecane	0.470	0.532	-13.2	105	0.00	11.82
92	I	Perylene-d12	1.000	1.000	0.0	91	0.00	19.83
100	t	7,12-Dimethylbenz(a)anthr	0.603	0.756	-25.4	106	0.00	19.21

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 M92179.D   MM3735.M         Wed Mar 20 11:51:33 2013   GCMSM
```

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92196A.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92196A.D            Vial: 12
Acq On    : 19 Mar 2013   9:31 pm                    Operator: olgaa
Sample    : icv3736-50                               Inst    : MSM
Misc      : op64218,em3736,                          Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Wed Mar 20 12:28:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	92	0.00	5.36
103	t	Benzaldehyde	1.127	1.216	-7.9	118	0.00	5.01
107	I	Phenanthrene-d10a	1.000	1.000	0.0	86	0.00	11.93
108	t	Atrazine	0.131	0.156	-19.1	98	0.00	11.52

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92188.D MM3735.M Wed Mar 20 12:33:14 2013 GCMSM

8.7.73

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92197.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92197.D            Vial: 13
Acq On    : 19 Mar 2013  10:01 pm                   Operator: olgaa
Sample    : icv3735-50                              Inst    : MSM
Misc      : op64218,em3736,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Tue Mar 19 16:01:58 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	5.36
5	S	2-Fluorophenol	1.485	1.277	14.0	109	0.00	4.37
8	S	Phenol-d5	1.896	1.510	20.4	104	0.00	5.06
24	I	Naphthalene-d8	1.000	1.000	0.0	124	0.00	6.66
25	S	Nitrobenzene-d5	0.395	0.358	9.4	116	0.00	5.90
47	I	Acenaphthene-d10	1.000	1.000	0.0	120	0.00	9.24
51	S	2-Fluorobiphenyl	1.216	1.176	3.3	125	0.00	8.14
69	I	Phenanthrene-d10	1.000	1.000	0.0	114	0.00	11.93
73	S	2,4,6-Tribromophenol	0.084	0.078	7.1	100	0.00	10.66
83	I	Chrysene-d12	1.000	1.000	0.0	113	0.00	17.17
86	S	Terphenyl-d14	0.924	0.828	10.4	103	0.00	15.13

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 M92179.D   MM3735.M         Wed Mar 20 11:52:26 2013   GCMSM
```

8.7.74

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92198.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92198.D            Vial: 14
Acq On    : 19 Mar 2013  10:30 pm                   Operator: olgaa
Sample    : icv3735-50                              Inst    : MSM
Misc      : op64218,em3736,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Tue Mar 19 16:01:58 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	128	0.00	5.36
10	t	Aniline	2.149	2.121	1.3	140	0.00	5.11
24	I	Naphthalene-d8	1.000	1.000	0.0	125	0.00	6.66
39	t	4-Chloroaniline	0.454	0.413	9.0	114	0.00	6.76

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 M92179.D   MM3735.M         Wed Mar 20 11:53:18 2013   GCMSM
```

8.7.75

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92199.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
  Data File : C:\HPCHEM\1\DATA\EM3736\M92199.D            Vial: 15
  Acq On    : 19 Mar 2013  11:00 pm                   Operator: olgaa
  Sample    : icv3736-50                              Inst    : MSM
  Misc      : op64218,em3736,                         Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
  Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
  Last Update  : Wed Mar 20 12:28:08 2013
  Response via : Multiple Level Calibration

  Min. RRF     :   0.049  Min. Rel. Area :  49%  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	219	0.01	17.18
111	t	Benzidine	0.603	0.798	-32.3#	451	0.01	14.62

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92188.D MM3735.M Wed Mar 20 12:29:47 2013 GCMSM

8.7.76

8

Initial Calibration Verification

Job Number: JB31121 **Sample:** EM3736-ICV3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92200.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3736\M92200.D            Vial: 16
Acq On    : 19 Mar 2013  11:29 pm                   Operator: olgaa
Sample    : icv3736-50                              Inst    : MSM
Misc      : op64218,em3736,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Wed Mar 20 12:28:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
113 I	Naphthalene-d8a	1.000	1.000	0.0	128	0.00	6.66
114 t	hydroquinone	0.302	0.351	-16.2	128	0.01	7.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92188.D MM3735.M Wed Mar 20 12:30:40 2013 GCMSM

8.7.7

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3746-CC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92398.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3746\M92398.D            Vial: 2
Acq On    : 26 Mar 2013   9:20 am                   Operator: olgaa
Sample    : cc3735-25                               Inst    : MSM
Misc      : op64455,em3746,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Wed Mar 20 12:28:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  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	-0.05	5.30
2	t	1,4-Dioxane	0.716	0.591	17.5	79	-0.05	2.93
3	t	Pyridine	1.814	1.530	15.7	81	-0.04	3.27
4	t	N-Nitrosodimethylamine	0.888	0.918	-3.4	101	-0.04	3.24
5	S	2-Fluorophenol	1.485	1.368	7.9	85	-0.04	4.32
6	t	Indene	2.146	2.145	0.0	94	-0.06	5.55
7	t	Cumene	3.291	3.245	1.4	90	-0.06	4.68
8	S	Phenol-d5	1.896	1.782	6.0	87	-0.05	5.01
9	t	Phenol	1.957	1.901	2.9	91	-0.05	5.02
10	t	Aniline	2.149	1.991	7.4	86	-0.05	5.06
11	t	bis(2-Chloroethyl)ether	1.332	1.098	17.6	81	-0.06	5.09
12	t	2-Chlorophenol	1.400	1.399	0.1	96	-0.06	5.15
13	t	Decane	1.384	1.235	10.8	84	-0.06	5.15
14	t	1,3-Dichlorobenzene	1.664	1.662	0.1	98	-0.06	5.27
15	t	1,4-Dichlorobenzene	1.530	1.593	-4.1	97	-0.06	5.31
16	t	Benzyl alcohol	0.911	0.903	0.9	95	-0.05	5.43
17	t	1,2-Dichlorobenzene	1.472	1.524	-3.5	97	-0.06	5.48
18	t	Acetophenone	1.756	1.735	1.2	95	-0.06	5.68
19	t	2-Methylphenol	1.222	1.197	2.0	91	-0.05	5.53
20	t	2,2'-oxybis(1-Chloropropa	0.450	0.438	2.7	94	-0.06	5.56
21	t	3&4-Methylphenol	1.335	1.316	1.4	94	-0.05	5.67
22	t	n-Nitroso-di-n-propylamin	0.984	0.918	6.7	92	-0.06	5.69
23	t	Hexachloroethane	0.549	0.556	-1.3	98	-0.07	5.77
24	I	Naphthalene-d8	1.000	1.000	0.0	91	-0.07	6.59
25	S	Nitrobenzene-d5	0.395	0.403	-2.0	93	-0.06	5.83
26	t	Nitrobenzene	0.409	0.412	-0.7	91	-0.06	5.85
27	t	Quinoline	0.750	0.762	-1.6	92	-0.07	7.03
28	t	Isophorone	0.700	0.710	-1.4	91	-0.06	6.08
29	t	2-Nitrophenol	0.218	0.236	-8.3	96	-0.06	6.18
30	t	2,4-Dimethylphenol	0.305	0.343	-12.5	92	-0.06	6.19
31	t	Benzoic acid	0.292	0.299	-2.4	97	-0.06	6.31
32	t	bis(2-Chloroethoxy)methan	0.418	0.416	0.5	91	-0.06	6.30
33	t	2,4-Dichlorophenol	0.321	0.361	-12.5	99	-0.06	6.43
34	t	2,6-Dichlorophenol	0.303	0.338	-11.6	98	-0.07	6.70
35	t	1,3,5-Trichlorobenzene	0.374	0.405	-8.3	99	-0.06	6.19
36	t	1,2,4-Trichlorobenzene	0.368	0.397	-7.9	97	-0.07	6.54
37	t	1,2,3-Trichlorobenzene	0.334	0.362	-8.4	96	-0.07	6.84
38	t	Naphthalene	1.005	1.052	-4.7	93	-0.06	6.62
39	t	4-Chloroaniline	0.454	0.466	-2.6	90	-0.06	6.69
40	t	2,3-Dichloroaniline	0.393	0.417	-6.1	97	-0.07	7.96
41	t	Caprolactam	0.180	0.171	5.0	87	-0.08	7.09

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3746-CC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92398.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.199	0.218	-9.5	100	-0.08	6.82
43	t	4-Chloro-3-methylphenol	0.319	0.353	-10.7	96	-0.06	7.30
44	t	2-Methylnaphthalene	0.691	0.735	-6.4	95	-0.07	7.51
45	t	1-Methylnaphthalene	0.730	0.776	-6.3	95	-0.07	7.66
46	t	Dimethylnaphthalene	0.655	0.702	-7.2	96	-0.07	8.45
47	I	Acenaphthene-d10	1.000	1.000	0.0	97	-0.08	9.16
48	t	Hexachlorocyclopentadiene	0.297	0.270	9.1	82	-0.08	7.83
49	t	2,4,6-Trichlorophenol	0.372	0.401	-7.8	102	-0.06	7.96
50	t	2,4,5-Trichlorophenol	0.414	0.420	-1.4	99	-0.06	8.03
51	S	2-Fluorobiphenyl	1.216	1.198	1.5	95	-0.07	8.07
52	t	2-Chloronaphthalene	1.073	1.042	2.9	94	-0.07	8.23
53	t	Biphenyl	1.392	1.377	1.1	96	-0.08	8.20
54	t	2-Nitroaniline	0.363	0.365	-0.6	95	-0.08	8.43
55	t	Dimethylphthalate	1.286	1.275	0.9	94	-0.08	8.78
56	t	Acenaphthylene	1.742	1.747	-0.3	94	-0.08	8.91
57	t	2,6-Dinitrotoluene	0.293	0.308	-5.1	98	-0.07	8.90
58	t	3-Nitroaniline	0.349	0.339	2.9	92	-0.08	9.12
59	t	Acenaphthene	1.070	1.080	-0.9	94	-0.08	9.22
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	49.666	0.7	101	-0.06	9.32
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.160	0.172	-7.5	101	-0.04	9.44
62	t	Dibenzofuran	1.537	1.533	0.3	94	-0.08	9.50
63	t	2,4-Dinitrotoluene	0.379	0.406	-7.1	97	-0.07	9.58
64		2,3,4,6-Tetrachlorophenol	0.331	0.341	-3.0	95	-0.06	9.81
65	t	Diethylphthalate	1.250	1.281	-2.5	94	-0.09	10.02
66	t	Fluorene	1.273	1.285	-0.9	95	-0.07	10.12
67	t	4-Chlorophenyl-phenylethe	0.621	0.625	-0.6	99	-0.08	10.12
68	t	4-Nitroaniline	0.334	0.327	2.1	94	-0.08	10.22
69	I	Phenanthrene-d10	1.000	1.000	0.0	98	-0.07	11.86
70	t	4,6-Dinitro-2-methylpheno	0.149	0.151	-1.3	98	-0.06	10.32
71	t	n-Nitrosodiphenylamine	0.589	0.600	-1.9	97	-0.07	10.35
72	t	1,2-Diphenylhydrazine	0.756	0.691	8.6	88	-0.08	10.41
73	S	2,4,6-Tribromophenol	0.084	0.093	-10.7	104	-0.07	10.59
74	t	4-Bromophenyl-phenylether	0.235	0.238	-1.3	98	-0.08	11.02
75	t	Hexachlorobenzene	0.222	0.220	0.9	97	-0.07	11.30
76	t	Pentachlorophenol	0.147	0.138	6.1	86	-0.06	11.65
77	t	Phenanthrene	1.052	1.056	-0.4	97	-0.08	11.90
78	t	Anthracene	1.051	1.091	-3.8	98	-0.07	11.99
79	t	Carbazole	1.051	1.070	-1.8	96	-0.07	12.32
80	t	Di-n-butylphthalate	1.289	1.337	-3.7	94	-0.08	13.17
81	t	Fluoranthene	1.313	1.287	2.0	92	-0.07	14.24
82	t	Octadecane	0.470	0.435	7.4	85	-0.08	11.73
83	I	Chrysene-d12	1.000	1.000	0.0	83	-0.06	17.11
84	t	Pyrene	1.356	1.566	-15.5	92	-0.07	14.67
85		Butyl stearate	0.327	0.415	-26.9#	94	-0.07	16.24
86	S	Terphenyl-d14	0.924	1.063	-15.0	93	-0.07	15.05
87	t	Butylbenzylphthalate	0.612	0.732	-19.6	92	-0.07	16.14
88	t	Benzo[a]anthracene	1.337	1.302	2.6	79	-0.06	17.08
89	t	3,3'-Dichlorobenzidine	0.434	0.467	-7.6	84	-0.07	17.09
90	t	Chrysene	1.100	1.126	-2.4	84	-0.07	17.16
91	t	bis(2-Ethylhexyl)phthalat	0.729	0.952	-30.6#	96	-0.08	17.37
92	I	Perylene-d12	1.000	1.000	0.0	76	-0.05	19.78
93	t	Di-n-octylphthalate	1.472	1.895	-28.7#	89	-0.08	18.53

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3746-CC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92398.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	t	Benzo[b]fluoranthene	1.399	1.400	-0.1	75	-0.05	19.12
95	t	Benzo[k]fluoranthene	1.299	1.205	7.2	71	-0.06	19.16
96	t	Benzo[a]pyrene	1.214	1.187	2.2	72	-0.05	19.68
97	t	Indeno[1,2,3-cd]pyrene	1.405	1.358	3.3	71	-0.06	21.97
98	t	Dibenz(a,h)acridine	1.037	0.996	4.0	70	-0.07	21.46
99	t	Dibenz[a,h]anthracene	1.163	1.149	1.2	72	-0.07	22.01
100	t	7,12-Dimethylbenz(a)anthr	0.603	0.615	-2.0	76	-0.06	19.15
101	t	Benzo[g,h,i]perylene	1.163	1.108	4.7	70	-0.07	22.58

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92189.D MM3735.M Wed Mar 27 15:26:02 2013 GCMSM

8.7.78

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3746-CC3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92399.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3746\M92399.D            Vial: 3
Acq On    : 26 Mar 2013  10:10 am                   Operator: olgaa
Sample    : cc3736-25                               Inst    : MSM
Misc      : op64455,em3746,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Wed Mar 20 12:28:08 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	78	-0.06	5.30
103	t	Benzaldehyde	1.127	1.003	11.0	69	-0.06	4.94
104	I	Acenaphthene-d10a	1.000	1.000	0.0	81	-0.08	9.17
105	t	1,2,4,5-Tetrachlorobenzen	0.616	0.619	-0.5	79	-0.08	7.80
106	I	Phenanthrene-d10a	1.000	1.000	0.0	80	-0.08	11.85
107	t	Atrazine	0.131	0.140	-6.9	80	-0.07	11.44
108	I	Chrysene-d12a	1.000	1.000	0.0	66	-0.06	17.10
109	t	Benzidine	0.603	0.624	-3.5	71	-0.07	14.54

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 M92189.D   MM3735.M         Tue Mar 26 13:24:28 2013   GCMSM
```

8.7.79

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3758-CC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92674.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3758\M92674.D            Vial: 2
Acq On    :  4 Apr 2013   9:21 am                   Operator: olgaa
Sample    : cc3735-50                               Inst    : MSM
Misc      : op64755,em3758,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Thu Apr 04 11:29:02 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  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	113	0.00	5.17
2	t	1,4-Dioxane	0.716	0.529	26.1#	80	0.00	2.81
3	t	Pyridine	1.814	1.437	20.8#	85	0.00	3.15
4	t	N-Nitrosodimethylamine	0.888	0.940	-5.9	124	0.00	3.13
5	S	2-Fluorophenol	1.485	1.317	11.3	97	0.00	4.23
6	t	Indene	2.146	2.064	3.8	114	0.00	5.42
7	t	Cumene	3.291	2.939	10.7	105	0.00	4.57
8	S	Phenol-d5	1.896	1.739	8.3	104	0.00	4.91
9	t	Phenol	1.957	1.930	1.4	109	0.00	4.92
10	t	Aniline	2.149	1.954	9.1	114	0.00	4.93
11	t	bis(2-Chloroethyl)ether	1.332	1.177	11.6	103	0.00	4.96
12	t	2-Chlorophenol	1.400	1.327	5.2	114	0.00	5.04
13	t	Decane	1.384	1.198	13.4	113	0.00	5.03
14	t	1,3-Dichlorobenzene	1.664	1.529	8.1	109	0.00	5.14
15	t	1,4-Dichlorobenzene	1.530	1.509	1.4	117	0.00	5.18
16	t	Benzyl alcohol	0.911	0.947	-4.0	115	0.00	5.31
17	t	1,2-Dichlorobenzene	1.472	1.414	3.9	114	0.00	5.35
18	t	Acetophenone	1.756	1.705	2.9	113	0.00	5.54
19	t	2-Methylphenol	1.222	1.195	2.2	112	0.00	5.42
20	t	2,2'-oxybis(1-Chloropropa	0.450	0.447	0.7	116	0.00	5.43
21	t	3&4-Methylphenol	1.335	1.377	-3.1	114	0.00	5.54
22	t	n-Nitroso-di-n-propylamin	0.984	0.959	2.5	113	0.00	5.55
23	t	Hexachloroethane	0.549	0.557	-1.5	116	0.00	5.63
24	I	Naphthalene-d8	1.000	1.000	0.0	112	0.00	6.43
25	S	Nitrobenzene-d5	0.395	0.417	-5.6	122	0.00	5.70
26	t	Nitrobenzene	0.409	0.405	1.0	118	0.00	5.71
27	t	Quinoline	0.750	0.772	-2.9	118	0.00	6.88
28	t	Isophorone	0.700	0.706	-0.9	115	0.00	5.94
29	t	2-Nitrophenol	0.218	0.227	-4.1	115	0.00	6.04
30	t	2,4-Dimethylphenol	0.305	0.377	-23.6#	129	0.00	6.06
31	t	Benzoic acid	0.292	0.328	-12.3	119	0.00	6.22
32	t	bis(2-Chloroethoxy)methan	0.418	0.416	0.5	116	0.00	6.15
33	t	2,4-Dichlorophenol	0.321	0.361	-12.5	122	0.00	6.30
34	t	2,6-Dichlorophenol	0.303	0.340	-12.2	125	0.00	6.56
35	t	1,3,5-Trichlorobenzene	0.374	0.372	0.5	120	0.00	6.04
36	t	1,2,4-Trichlorobenzene	0.368	0.364	1.1	116	0.00	6.38
37	t	1,2,3-Trichlorobenzene	0.334	0.338	-1.2	116	0.00	6.67
38	t	Naphthalene	1.005	0.958	4.7	114	0.00	6.45
39	t	4-Chloroaniline	0.454	0.487	-7.3	120	0.00	6.54
40	t	2,3-Dichloroaniline	0.393	0.404	-2.8	120	0.00	7.79
41	t	Caprolactam	0.180	0.188	-4.4	117	0.00	6.96

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3758-CC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92674.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

42	t	Hexachlorobutadiene	0.199	0.218	-9.5	125	0.00	6.66
43	t	4-Chloro-3-methylphenol	0.319	0.375	-17.6	128	0.00	7.16
44	t	2-Methylnaphthalene	0.691	0.679	1.7	114	0.00	7.33
45	t	1-Methylnaphthalene	0.730	0.735	-0.7	118	0.00	7.49
46	t	Dimethylnaphthalene	0.655	0.692	-5.6	123	0.00	8.27
47	I	Acenaphthene-d10	1.000	1.000	0.0	123	0.00	8.98
48	t	Hexachlorocyclopentadiene	0.297	0.183	38.4#	70	0.00	7.66
49	t	2,4,6-Trichlorophenol	0.372	0.379	-1.9	123	0.00	7.79
50	t	2,4,5-Trichlorophenol	0.414	0.405	2.2	125	0.00	7.87
51	S	2-Fluorobiphenyl	1.216	1.096	9.9	120	0.00	7.89
52	t	2-Chloronaphthalene	1.073	0.941	12.3	117	0.00	8.05
53	t	Biphenyl	1.392	1.249	10.3	119	0.00	8.03
54	t	2-Nitroaniline	0.363	0.379	-4.4	124	0.00	8.27
55	t	Dimethylphthalate	1.286	1.259	2.1	123	0.00	8.61
56	t	Acenaphthylene	1.742	1.592	8.6	122	0.00	8.72
57	t	2,6-Dinitrotoluene	0.293	0.311	-6.1	125	0.00	8.72
58	t	3-Nitroaniline	0.349	0.342	2.0	116	0.00	8.96
59	t	Acenaphthene	1.070	1.008	5.8	120	0.00	9.03
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	100.000	95.643	4.4	116	0.00	9.17
		----------	AvgRF	CCRF	% Dev	----------		
61	t	4-Nitrophenol	0.160	0.168	-5.0	118	0.00	9.32
62	t	Dibenzofuran	1.537	1.434	6.7	121	0.00	9.31
63	t	2,4-Dinitrotoluene	0.379	0.413	-9.0	127	0.00	9.41
64		2,3,4,6-Tetrachlorophenol	0.331	0.311	6.0	108	0.00	9.62
65	t	Diethylphthalate	1.250	1.244	0.5	124	0.00	9.85
66	t	Fluorene	1.273	1.188	6.7	120	0.00	9.92
67	t	4-Chlorophenyl-phenylethe	0.621	0.587	5.5	125	0.00	9.92
68	t	4-Nitroaniline	0.334	0.342	-2.4	121	0.00	10.07
69	I	Phenanthrene-d10	1.000	1.000	0.0	120	0.00	11.65
70	t	4,6-Dinitro-2-methylpheno	0.149	0.156	-4.7	116	0.00	10.16
71	t	n-Nitrosodiphenylamine	0.589	0.581	1.4	124	0.00	10.16
72	t	1,2-Diphenylhydrazine	0.756	0.710	6.1	121	0.00	10.21
73	S	2,4,6-Tribromophenol	0.084	0.090	-7.1	122	0.00	10.40
74	t	4-Bromophenyl-phenylether	0.235	0.244	-3.8	127	0.00	10.82
75	t	Hexachlorobenzene	0.222	0.214	3.6	120	0.00	11.09
76	t	Pentachlorophenol	0.147	0.118	19.7	91	0.00	11.46
77	t	Phenanthrene	1.052	0.998	5.1	124	0.00	11.70
78	t	Anthracene	1.051	1.031	1.9	125	0.00	11.78
79	t	Carbazole	1.051	1.013	3.6	120	0.00	12.13
80	t	Di-n-butylphthalate	1.289	1.295	-0.5	121	0.00	12.97
81	t	Fluoranthene	1.313	1.222	6.9	117	0.00	14.03
82	t	Octadecane	0.470	0.450	4.3	120	0.00	11.54
83	I	Chrysene-d12	1.000	1.000	0.0	118	0.00	16.91
84	t	Pyrene	1.356	1.296	4.4	118	0.00	14.47
85		Butyl stearate	0.327	0.347	-6.1	115	0.00	16.04
86	S	Terphenyl-d14	0.924	0.938	-1.5	122	0.00	14.85
87	t	Butylbenzylphthalate	0.612	0.649	-6.0	115	0.00	15.94
88	t	Benzo[a]anthracene	1.337	1.245	6.9	113	0.00	16.87
89	t	3,3'-Dichlorobenzidine	0.434	0.455	-4.8	120	0.00	16.89
90	t	Chrysene	1.100	1.046	4.9	116	0.00	16.96
91	t	bis(2-Ethylhexyl)phthalat	0.729	0.881	-20.9#	127	0.00	17.17
92	I	Perylene-d12	1.000	1.000	0.0	104	0.00	19.57
93	t	Di-n-octylphthalate	1.472	1.828	-24.2#	113	0.00	18.33

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3758-CC3735
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92674.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

94	t	Benzo[b]fluoranthene	1.399	1.573	-12.4	121	0.00	18.92
95	t	Benzo[k]fluoranthene	1.299	1.123	13.5	93	0.00	18.97
96	t	Benzo[a]pyrene	1.214	1.201	1.1	101	0.00	19.47
97	t	Indeno[1,2,3-cd]pyrene	1.405	1.210	13.9	93	0.00	21.68
98	t	Dibenz(a,h)acridine	1.037	0.871	16.0	88	0.00	21.19
99	t	Dibenz[a,h]anthracene	1.163	1.003	13.8	96	0.00	21.70
100	t	7,12-Dimethylbenz(a)anthr	0.603	0.731	-21.2#	117	0.00	18.95
101	t	Benzo[g,h,i]perylene	1.163	0.961	17.4	90	0.00	22.26

(#) = Out of Range SPCC's out = 0 CCC's out = 0
M92674.D MM3735.M Fri Apr 05 17:30:04 2013 GCMSM

8.7.80

8

Continuing Calibration Summary

Job Number: JB31121 **Sample:** EM3758-CC3736
Account: AQTPAW Aquaterra Technologies, Inc. **Lab FileID:** M92675.D
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\EM3758\M92675.D            Vial: 3
Acq On    :  4 Apr 2013   9:55 am                   Operator: olgaa
Sample    : cc3736-25                               Inst    : MSM
Misc      : op64755,em3758,                         Multiplr: 1.00
MS Integration Params: LSCINT.P

Method       : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title        : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update  : Thu Apr 04 11:29:02 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.049  Min. Rel. Area :  49%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	I	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	81	0.00	5.17
103	t	Benzaldehyde	1.127	1.071	5.0	77	-0.07	4.84
104	I	Acenaphthene-d10a	1.000	1.000	0.0	95	-0.01	8.97
105	t	1,2,4,5-Tetrachlorobenzen	0.616	0.551	10.6	83	-0.25	7.63
106	I	Phenanthrene-d10a	1.000	1.000	0.0	94	0.00	11.65
107	t	Atrazine	0.131	0.131	0.0	88	0.00	11.25
108	I	Chrysene-d12a	1.000	1.000	0.0	91	-0.01	16.90
109	t	Benzidine	0.603	0.635	-5.3	100	-0.15	14.34

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 M92189.D   MM3735.M         Fri Apr 05 17:31:21 2013   GCMSM
```

8.7.81

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 15:50

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48847.D
Acq On : 26 Mar 2013 5:39 pm
Operator : olgaa
Sample : jb31121-1
Misc : op64464,e3e2111,34.6
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 27 13:50:28 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	99098	40.00	ppb	-0.01
24) Naphthalene-d8	4.163	136	417502	40.00	ppb	-0.01
47) Acenaphthene-d10	6.747	164	240569	40.00	ppb	-0.02
69) Phenanthrene-d10	8.988	188	453344	40.00	ppb	0.00
83) Chrysene-d12	12.743	240	471159	40.00	ppb	0.00
92) Perylene-d12	14.144	264	498048	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	99098	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.747	164	240569	40.00	ppb	-0.02
106) Phenanthrene-d10a	8.988	188	453344	40.00	ppb	0.00
108) Chrysene-d12a	12.743	240	471159	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	1.601	112	41357	12.33	ppb	0.02
Spiked Amount 50.000			Recovery = 24.66%			
8) Phenol-d5	2.430	99	50860	12.08	ppb	0.03
Spiked Amount 50.000			Recovery = 24.16%			
25) Nitrobenzene-d5	3.313	82	53539	14.10	ppb	0.01
Spiked Amount 50.000			Recovery = 28.20%			
51) 2-Fluorobiphenyl	5.822	172	136075	17.43	ppb	-0.01
Spiked Amount 50.000			Recovery = 34.86%			
73) 2,4,6-Tribromophenol	8.014	330	27248	20.74	ppb	0.00
Spiked Amount 50.000			Recovery = 41.48%			
85) Terphenyl-d14	11.545	244	204519	19.84	ppb	0.00
Spiked Amount 50.000			Recovery = 39.68%			
Target Compounds						Qvalue
59) Acenaphthene	6.795	153	13442	1.85	ppb	88
66) Fluorene	7.587	166	13182	1.62	ppb	90
77) Phenanthrene	9.020	178	207253	15.66	ppb	99
78) Anthracene	9.095	178	55231	4.21	ppb	97
81) Fluoranthene	10.860	202	423197	30.54	ppb	97
84) Pyrene	11.170	202	363994	24.33	ppb	99
88) Benzo[a]anthracene	12.727	228	250921	18.00	ppb	93
90) Chrysene	12.769	228	251163	19.94	ppb	97
94) Benzo[b]fluoranthene	13.823	252	345400m	21.23	ppb	
95) Benzo[k]fluoranthene	13.828	252	190138m	12.91	ppb	
96) Benzo[a]pyrene	14.096	252	274011	18.91	ppb	99
97) Indeno[1,2,3-cd]pyrene	14.989	276	197625	11.79	ppb	89
99) Dibenz[a,h]anthracene	15.000	278	75996m	5.36	ppb	
101) Benzo[g,h,i]perylene	15.160	276	165257	11.96	ppb	95

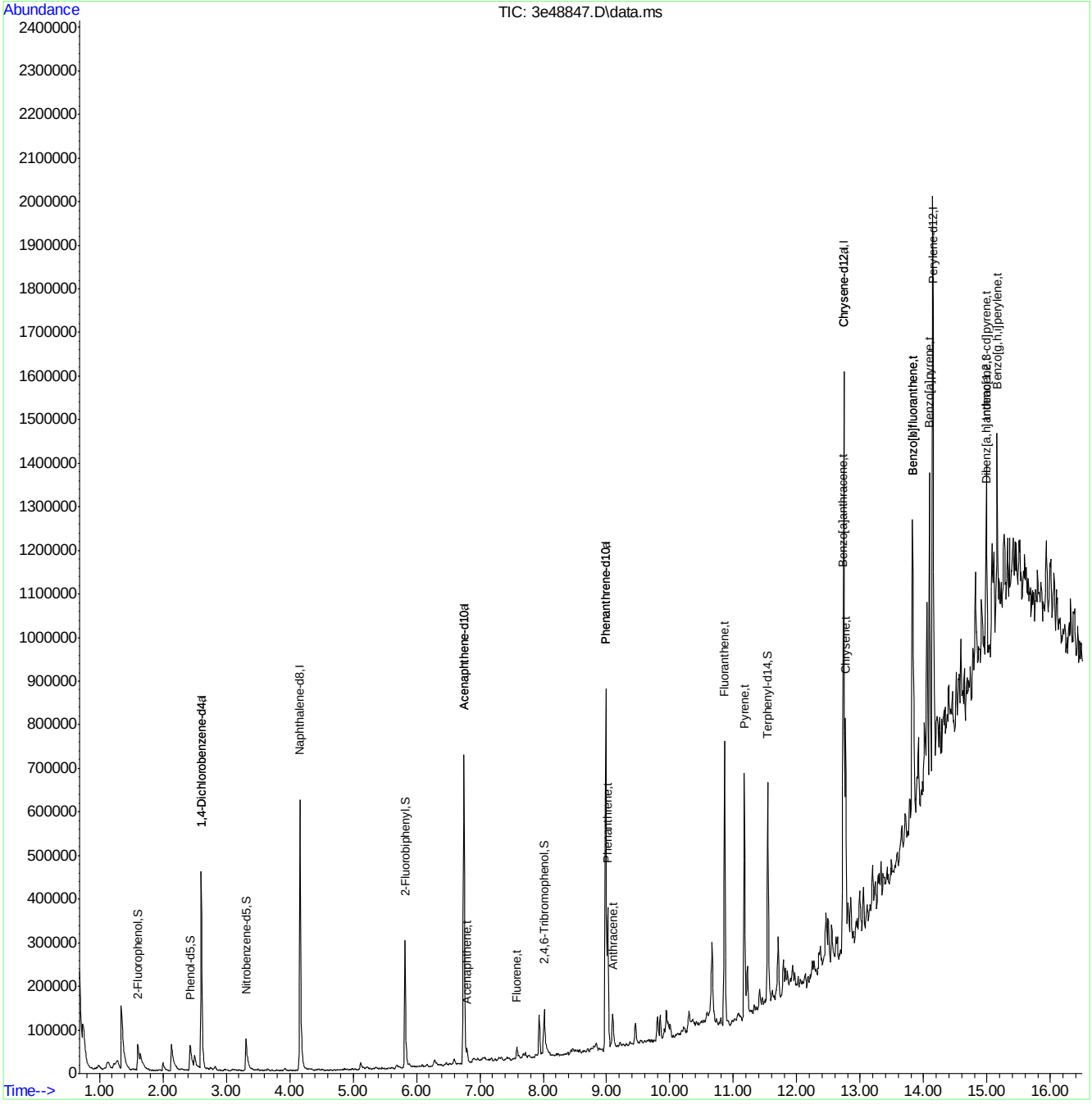
(#) = qualifier out of range (m) = manual integration (+) = signals summed

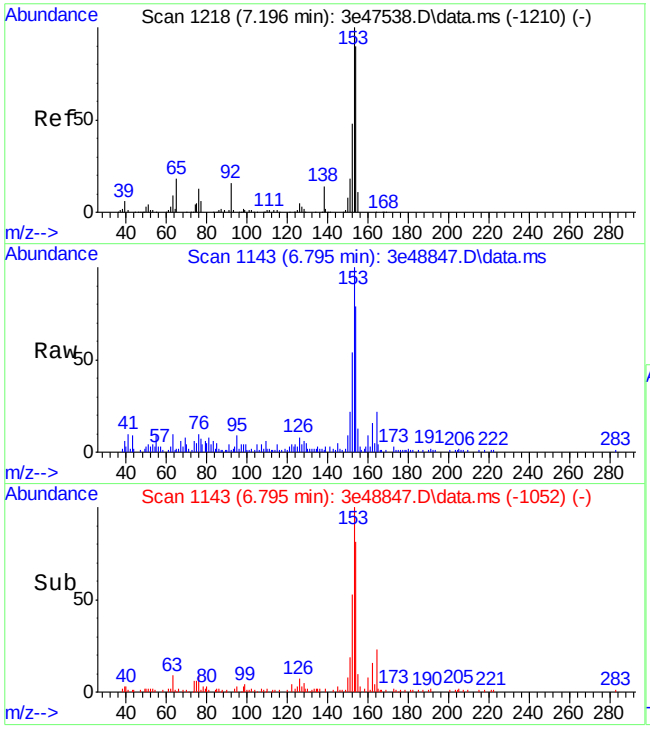
9.1.1
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48847.D
Acq On : 26 Mar 2013 5:39 pm
Operator : olgaa
Sample : jb31121-1
Misc : op64464,e3e2111,34.6
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 27 13:50:28 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

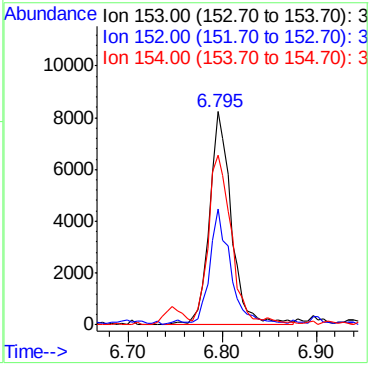


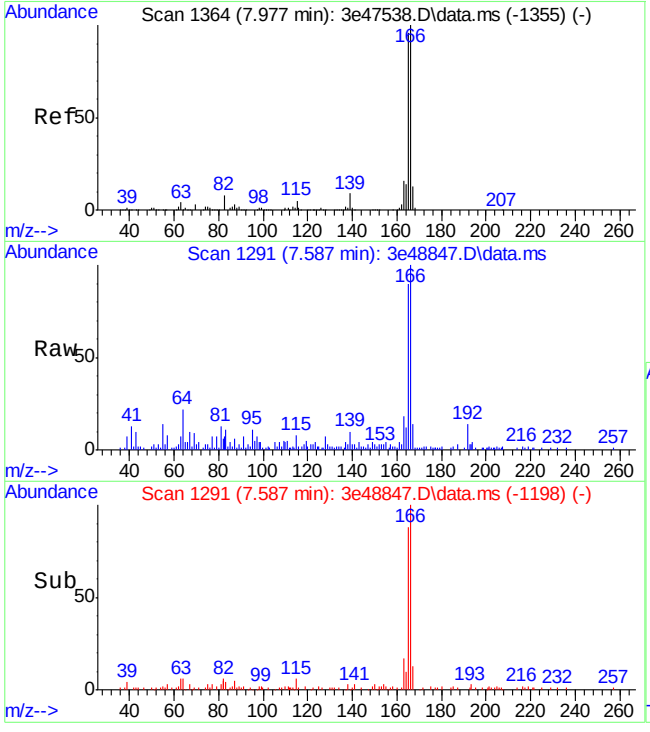


#59
Acenaphthene
Concen: 1.85 ppb
RT: 6.795 min Scan# 1143
Delta R.T. -0.011 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:153 Resp: 13442

Ion	Ratio	Lower	Upper
153	100		
152	53.4	17.8	77.8
154	77.1	60.3	120.3

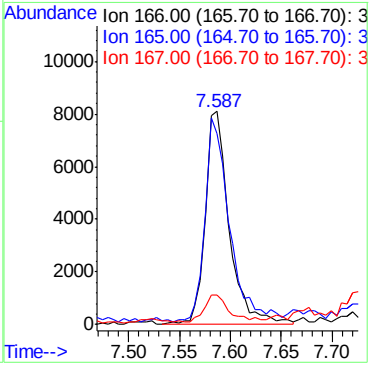




#66
Fluorene
Concen: 1.62 ppb
RT: 7.587 min Scan# 1291
Delta R.T. 0.000 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

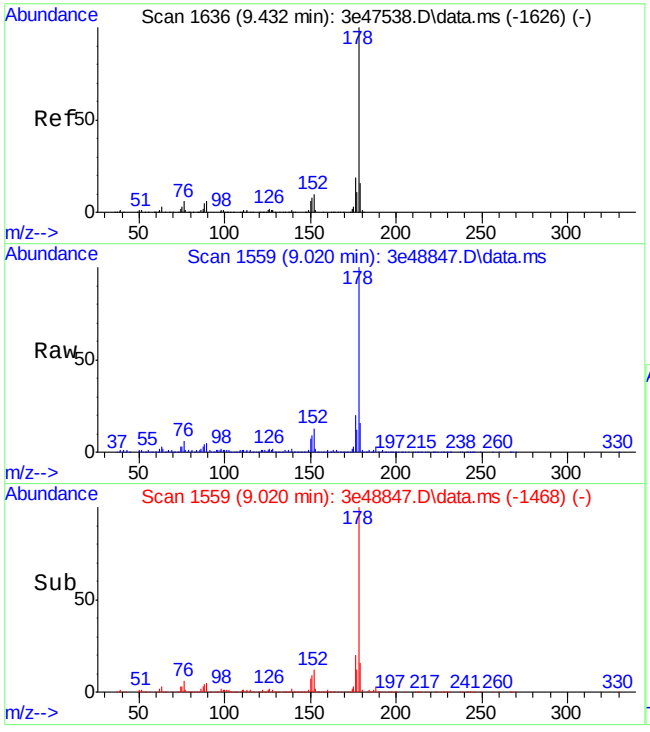
Tgt Ion:166 Resp: 13182

Ion	Ratio	Lower	Upper
166	100		
165	85.6	65.7	125.7
167	10.2	0.0	43.4



9.1.1

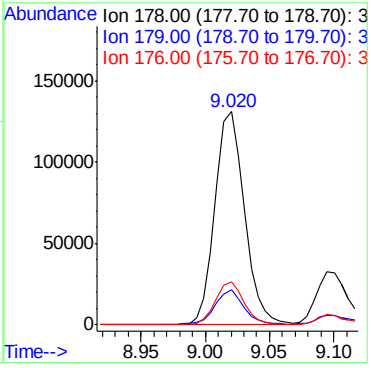
9

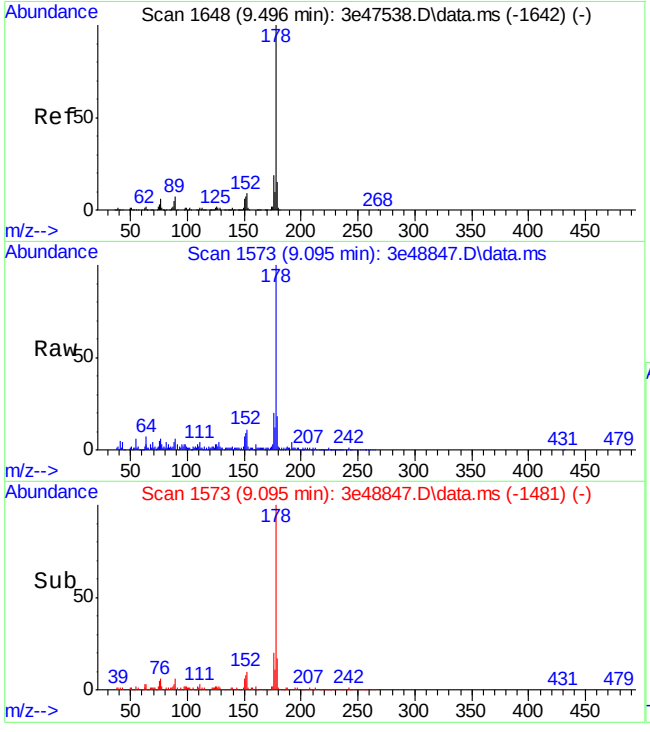


#77
Phenanthrene
Concen: 15.66 ppb
RT: 9.020 min Scan# 1559
Delta R.T. -0.011 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:178 Resp: 207253

Ion	Ratio	Lower	Upper
178	100		
179	16.3	0.0	45.7
176	19.9	0.0	49.5

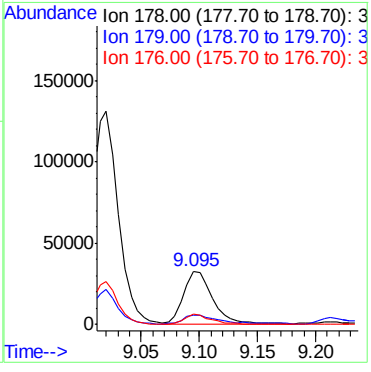




#78
Anthracene
Concen: 4.21 ppb
RT: 9.095 min Scan# 1573
Delta R.T. -0.005 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

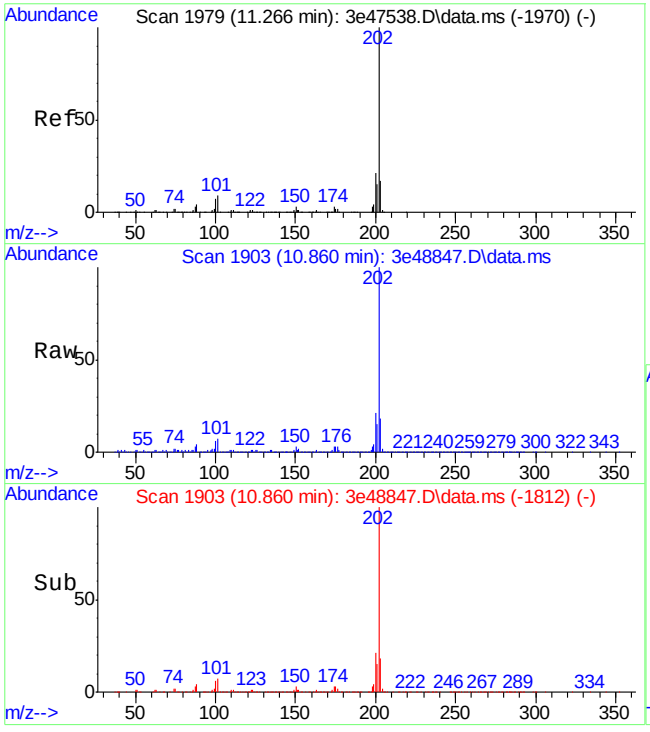
Tgt Ion:178 Resp: 55231

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	45.1
176	19.8	0.0	48.6



9.1.1

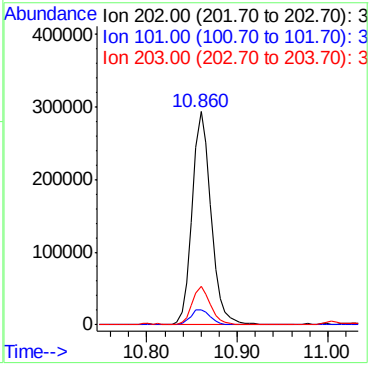
9

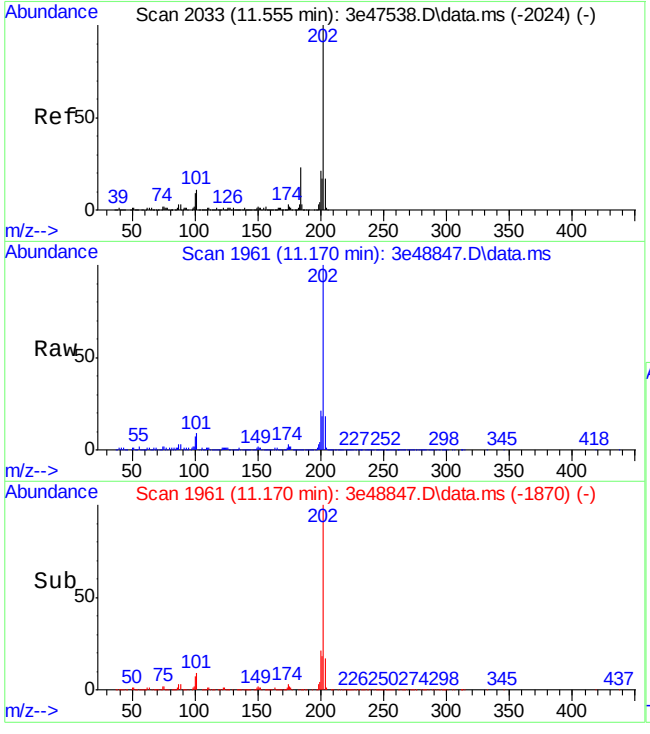


#81
Fluoranthene
Concen: 30.54 ppb
RT: 10.860 min Scan# 1903
Delta R.T. -0.011 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:202 Resp: 423197

Ion	Ratio	Lower	Upper
202	100		
101	7.0	0.0	39.1
203	18.1	0.0	47.3

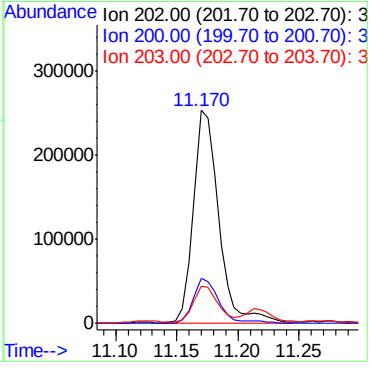


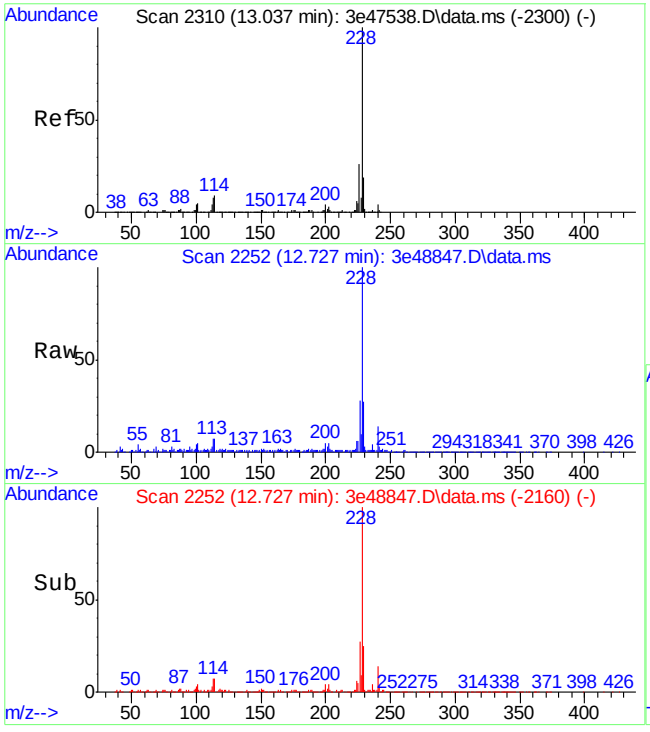


#84
Pyrene
Concen: 24.33 ppb
RT: 11.170 min Scan# 1961
Delta R.T. -0.011 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:202 Resp: 363994

Ion	Ratio	Lower	Upper
202	100		
200	21.4	0.0	50.6
203	16.8	0.0	47.2

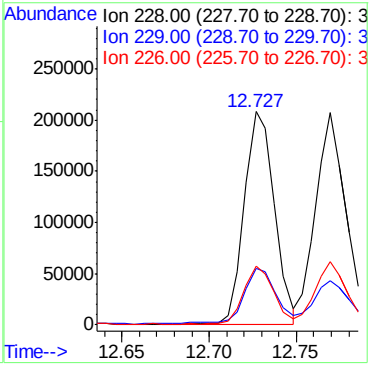


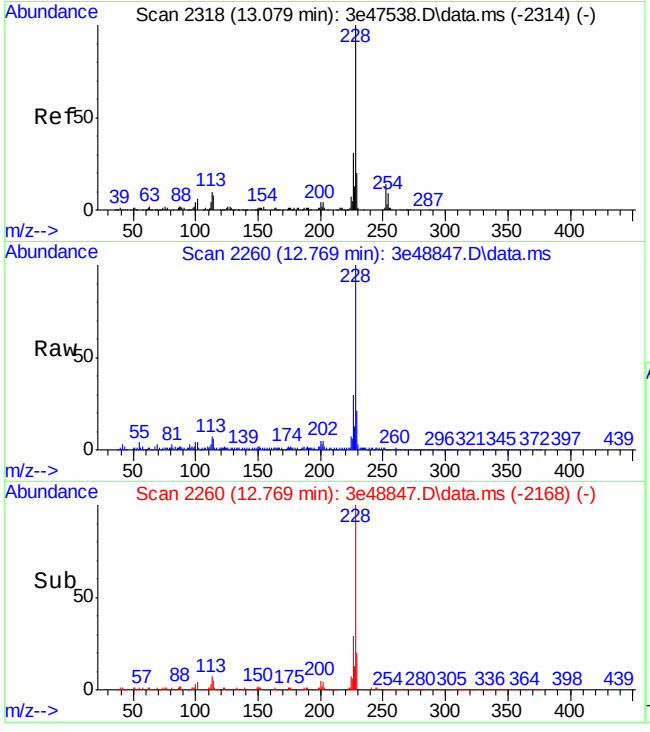


#88
Benzo[a]anthracene
Concen: 18.00 ppb
RT: 12.727 min Scan# 2252
Delta R.T. -0.005 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:228 Resp: 250921

Ion	Ratio	Lower	Upper
228	100		
229	25.1	0.0	49.3
226	27.1	0.0	55.8

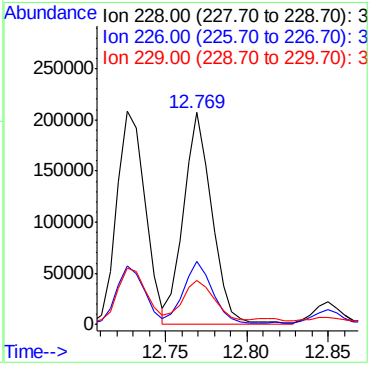




#90
Chrysene
Concen: 19.94 ppb
RT: 12.769 min Scan# 2260
Delta R.T. -0.005 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

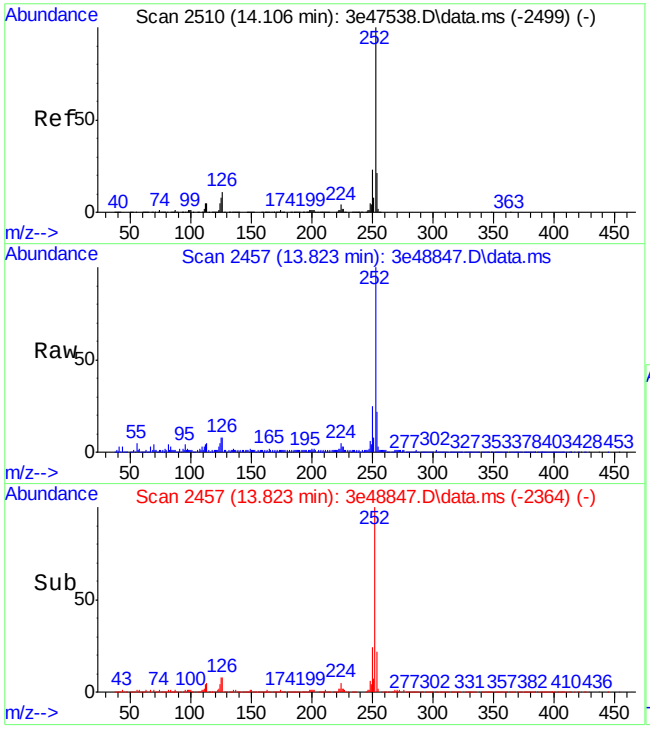
Tgt Ion:228 Resp: 251163

Ion	Ratio	Lower	Upper
228	100		
226	29.1	0.6	60.6
229	18.6	0.0	50.3



9.1.1

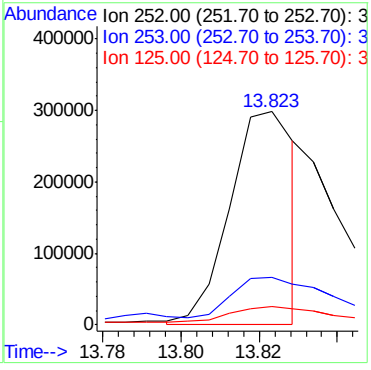
9

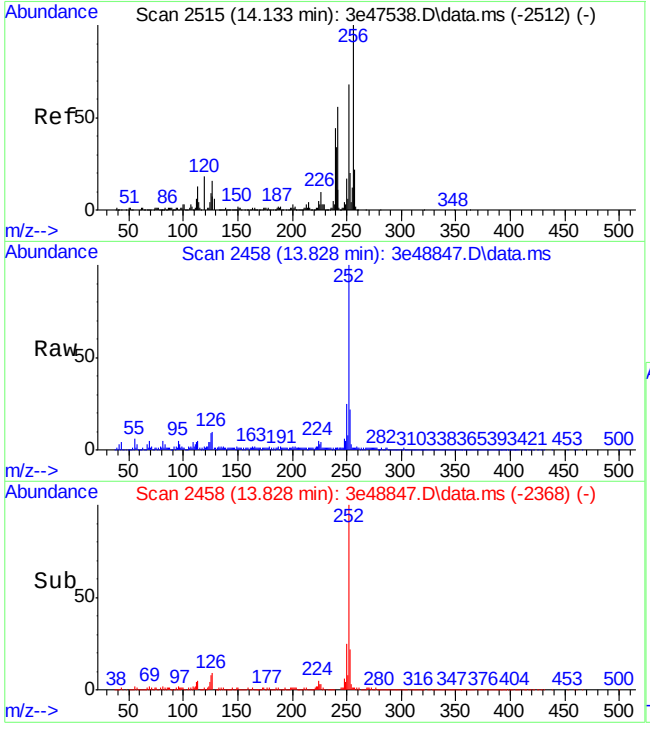


#94
Benzo[b]fluoranthene
Concen: 21.23 ppb m
RT: 13.823 min Scan# 2457
Delta R.T. 0.000 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:252 Resp: 345400

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	51.0
125	8.5	0.0	38.1

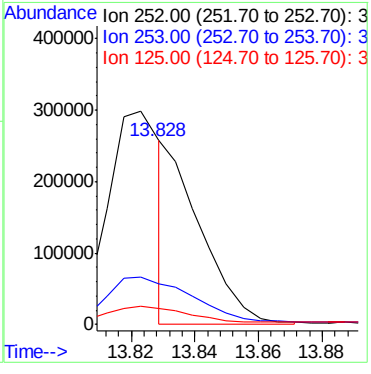




#95
Benzo[k]fluoranthene
Concen: 12.91 ppb m
RT: 13.828 min Scan# 2458
Delta R.T. -0.016 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

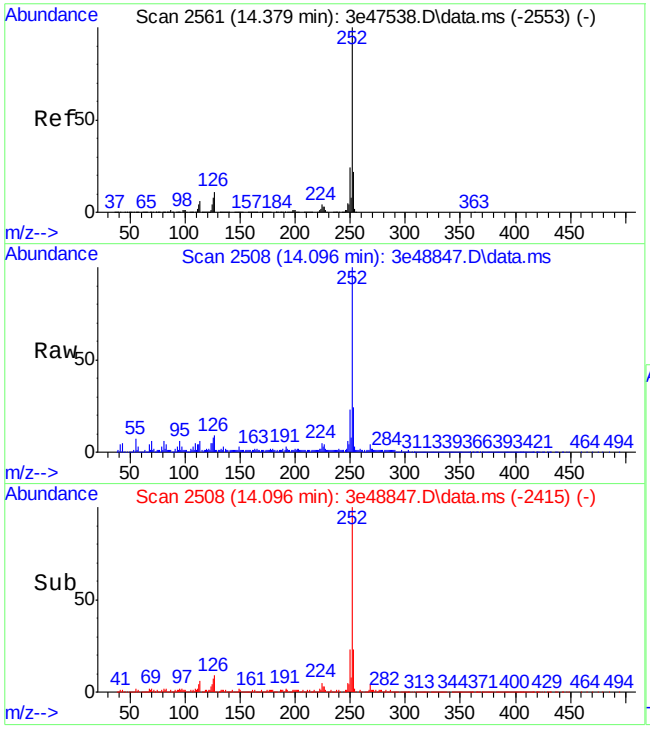
Tgt Ion:252 Resp: 190138

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	56.2
125	9.0	0.0	41.2



9.1.1

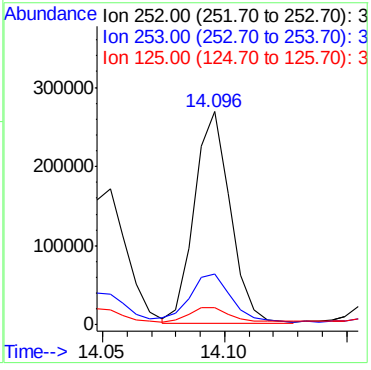
9

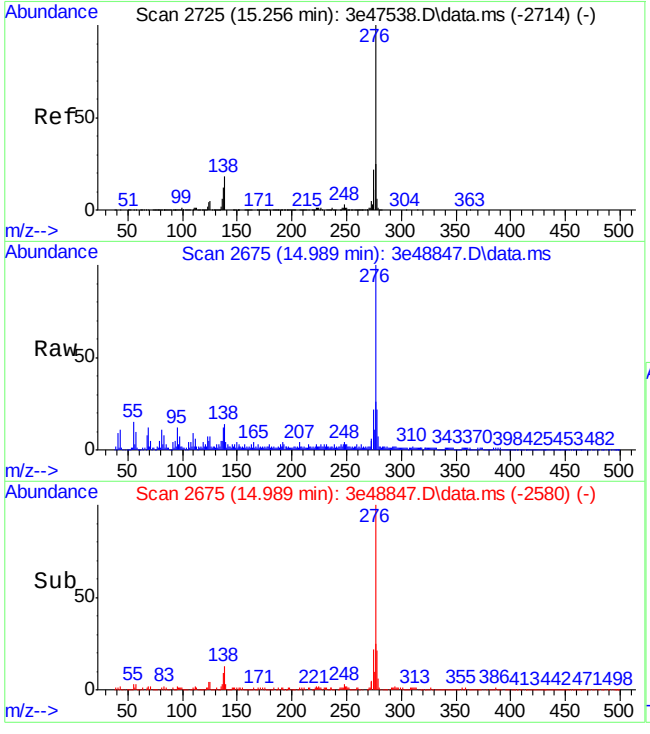


#96
Benzo[a]pyrene
Concen: 18.91 ppb
RT: 14.096 min Scan# 2508
Delta R.T. 0.000 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:252 Resp: 274011

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	6.9	0.0	38.1

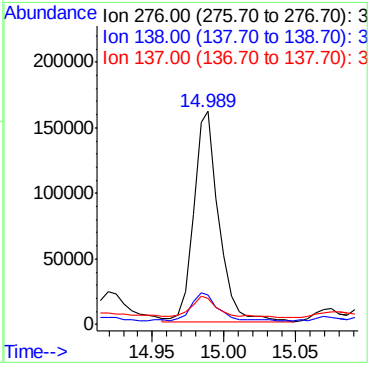




#97
Indeno[1,2,3-cd]pyrene
Concen: 11.79 ppb
RT: 14.989 min Scan# 2675
Delta R.T. 0.011 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

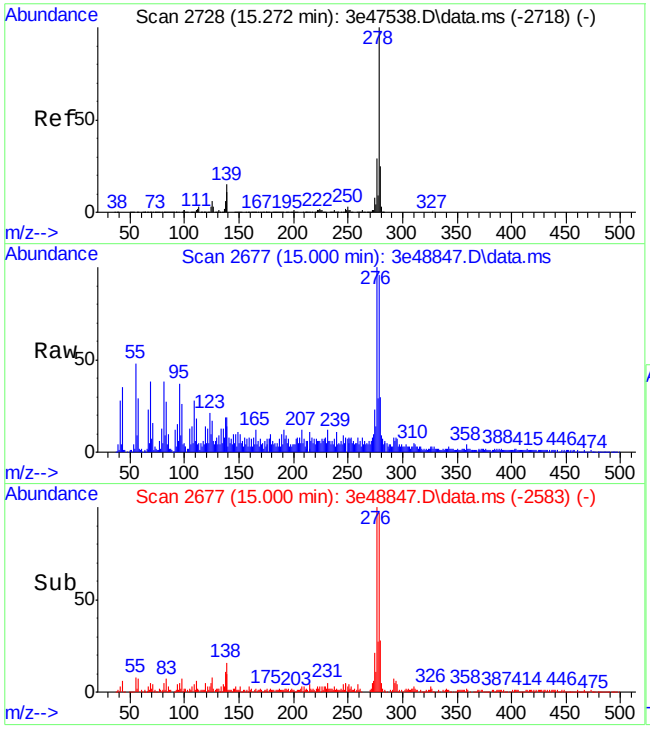
Tgt Ion:276 Resp: 197625

Ion	Ratio	Lower	Upper
276	100		
138	12.2	0.0	47.7
137	8.7	0.0	42.0



9.1.1

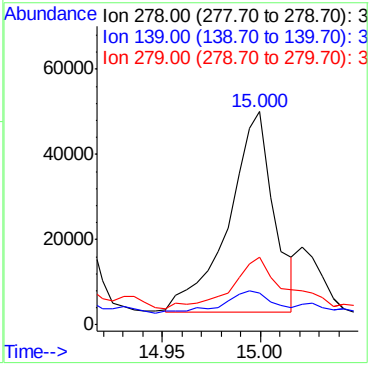
9

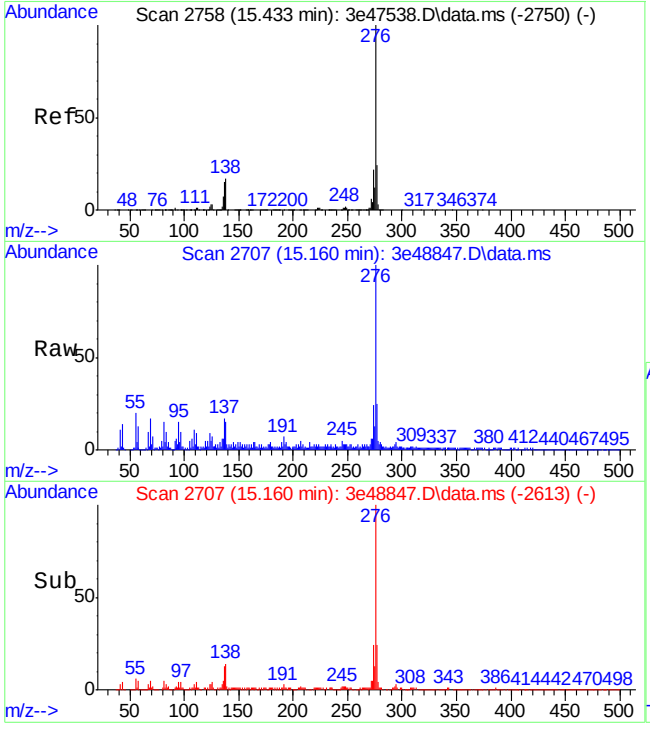


#99
Dibenz[a,h]anthracene
Concen: 5.36 ppb m
RT: 15.000 min Scan# 2677
Delta R.T. 0.005 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:278 Resp: 75996

Ion	Ratio	Lower	Upper
278	100		
139	15.1	0.0	44.8
279	31.6	0.0	54.9

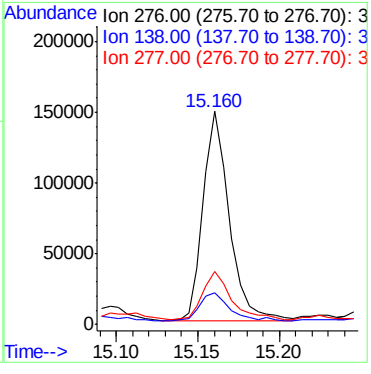




#101
Benzo[g,h,i]perylene
Concen: 11.96 ppb
RT: 15.160 min Scan# 2707
Delta R.T. 0.005 min
Lab File: 3e48847.D
Acq: 26 Mar 2013 5:39 pm

Tgt Ion:276 Resp: 165257

Ion	Ratio	Lower	Upper
276	100		
138	13.3	0.0	47.2
277	22.9	0.0	53.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48835.D
Acq On : 26 Mar 2013 12:13 pm
Operator : olgaa
Sample : jb31121-2
Misc : op64464,e3e2111,32.9
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 26 15:15:47 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	88245	40.00 ppb	-0.01
24) Naphthalene-d8	4.169	136	361613	40.00 ppb	0.00
47) Acenaphthene-d10	6.757	164	219061	40.00 ppb	0.00
69) Phenanthrene-d10	8.999	188	394433	40.00 ppb	0.00
83) Chrysene-d12	12.743	240	425855	40.00 ppb	0.00
92) Perylene-d12	14.139	264	434386	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	88245	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.757	164	219061	40.00 ppb	0.00
106) Phenanthrene-d10a	8.999	188	394433	40.00 ppb	0.00
108) Chrysene-d12a	12.743	240	425855	40.00 ppb	0.00

System Monitoring Compounds					
5) 2-Fluorophenol	1.601	112	50187	16.80 ppb	0.02
Spiked Amount 50.000			Recovery = 33.60%		
8) Phenol-d5	2.425	99	64839	17.29 ppb	0.02
Spiked Amount 50.000			Recovery = 34.58%		
25) Nitrobenzene-d5	3.302	82	72856	22.15 ppb	0.00
Spiked Amount 50.000			Recovery = 44.30%		
51) 2-Fluorobiphenyl	5.821	172	165148	23.23 ppb	-0.01
Spiked Amount 50.000			Recovery = 46.46%		
73) 2,4,6-Tribromophenol	8.025	330	35364	30.94 ppb	0.01
Spiked Amount 50.000			Recovery = 61.88%		
85) Terphenyl-d14	11.544	244	260885	28.00 ppb	0.00
Spiked Amount 50.000			Recovery = 56.00%		

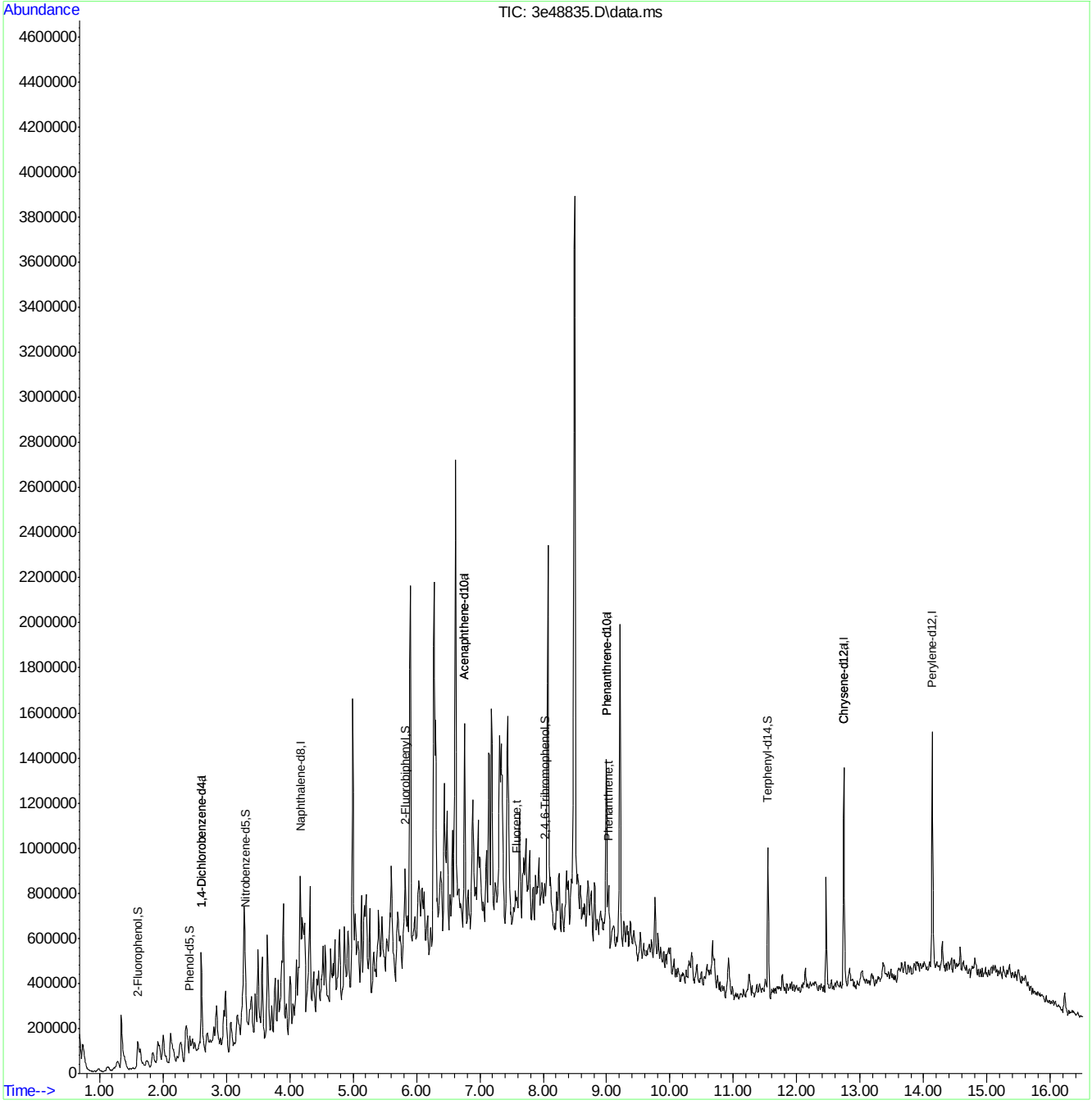
Target Compounds					Qvalue
66) Fluorene	7.587	166	58748	7.94 ppb	96
77) Phenanthrene	9.031	178	94253	8.18 ppb	98

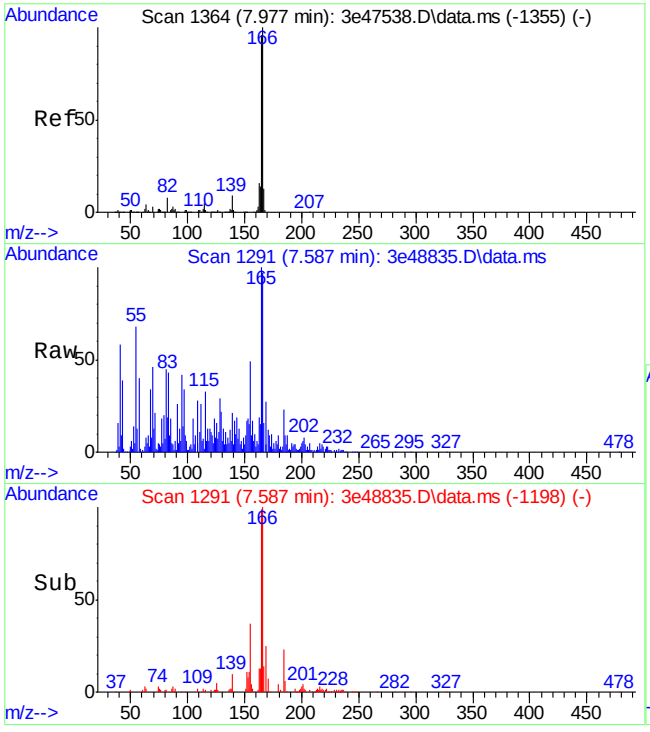
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48835.D
Acq On : 26 Mar 2013 12:13 pm
Operator : olgaa
Sample : jb31121-2
Misc : op64464,e3e2111,32.9
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 26 15:15:47 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

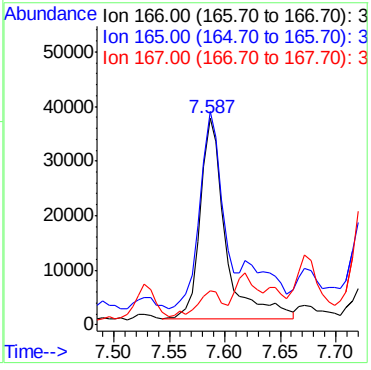


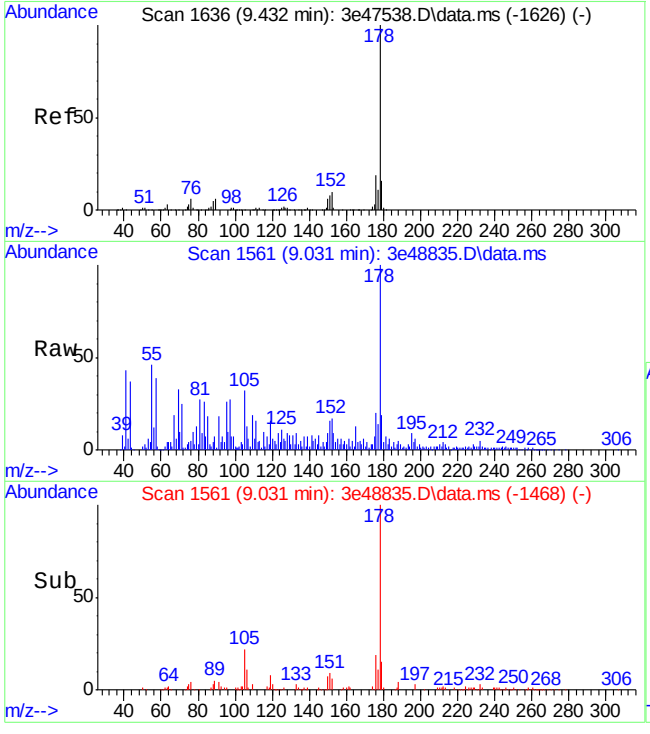


#66
Fluorene
Concen: 7.94 ppb
RT: 7.587 min Scan# 1291
Delta R.T. 0.000 min
Lab File: 3e48835.D
Acq: 26 Mar 2013 12:13 pm

Tgt Ion:166 Resp: 58748

Ion	Ratio	Lower	Upper
166	100		
165	94.0	65.7	125.7
167	4.9	0.0	43.4

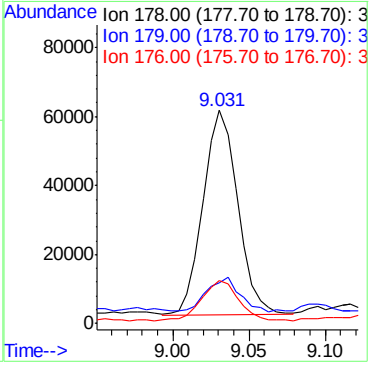




#77
Phenanthrene
Concen: 8.18 ppb
RT: 9.031 min Scan# 1561
Delta R.T. 0.000 min
Lab File: 3e48835.D
Acq: 26 Mar 2013 12:13 pm

Tgt Ion:178 Resp: 94253

Ion	Ratio	Lower	Upper
178	100		
179	13.8	0.0	45.7
176	19.3	0.0	49.5



9.1.2

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 18:51

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48849.D
Acq On : 26 Mar 2013 6:25 pm
Operator : olgaa
Sample : jb31121-3
Misc : op64464,e3e2111,33.5
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 27 17:07:32 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Wed Mar 27 09:23:30 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.612	152	111470	40.00	ppb	0.00
24) Naphthalene-d8	4.185	136	459634	40.00	ppb	0.00
47) Acenaphthene-d10	6.816	164	382315	40.00	ppb	0.00
69) Phenanthrene-d10	9.084	188	663947	40.00	ppb	0.00
83) Chrysene-d12	12.807	240	738259	40.00	ppb	0.00
92) Perylene-d12	14.203	264	792206	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.612	152	111470	40.00	ppb	0.00
104) Acenaphthene-d10a	6.816	164	382315	40.00	ppb	0.00
106) Phenanthrene-d10a	9.084	188	663947	40.00	ppb	0.00
108) Chrysene-d12a	12.807	240	738259	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	1.596	112	52427	13.89	ppb	0.00
Spiked Amount 50.000			Recovery = 27.78%			
8) Phenol-d5	2.420	99	69919	14.76	ppb	0.00
Spiked Amount 50.000			Recovery = 29.52%			
25) Nitrobenzene-d5	3.302	82	166774	39.90	ppb	0.00
Spiked Amount 50.000			Recovery = 79.80%			
51) 2-Fluorobiphenyl	5.854	172	224797	18.12	ppb	0.00
Spiked Amount 50.000			Recovery = 36.24%			
73) 2,4,6-Tribromophenol	8.089	330	57633	29.95	ppb	0.00
Spiked Amount 50.000			Recovery = 59.90%			
85) Terphenyl-d14	11.619	244	379449	23.49	ppb	0.00
Spiked Amount 50.000			Recovery = 46.98%			
Target Compounds						Qvalue
38) Naphthalene	4.211	128	334748m	26.26	ppb	
66) Fluorene	7.651	166	79368	6.15	ppb	86
77) Phenanthrene	9.116	178	195146	10.07	ppb	96
81) Fluoranthene	10.972	202	54528	2.69	ppb	98
84) Pyrene	11.277	202	101982	4.35	ppb	97
88) Benzo[a]anthracene	12.791	228	46410	2.13	ppb	81
90) Chrysene	12.828	228	97481m	4.94	ppb	
94) Benzo[b]fluoranthene	13.876	252	96745m	3.74	ppb	
95) Benzo[k]fluoranthene	13.887	252	32855m	1.40	ppb	
96) Benzo[a]pyrene	14.155	252	42541	1.85	ppb	87
97) Indeno[1,2,3-cd]pyrene	15.037	276	66484	2.49	ppb	83
99) Dibenz[a,h]anthracene	15.048	278	38588	1.71	ppb	93
101) Benzo[g,h,i]perylene	15.214	276	75579	3.44	ppb	98

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

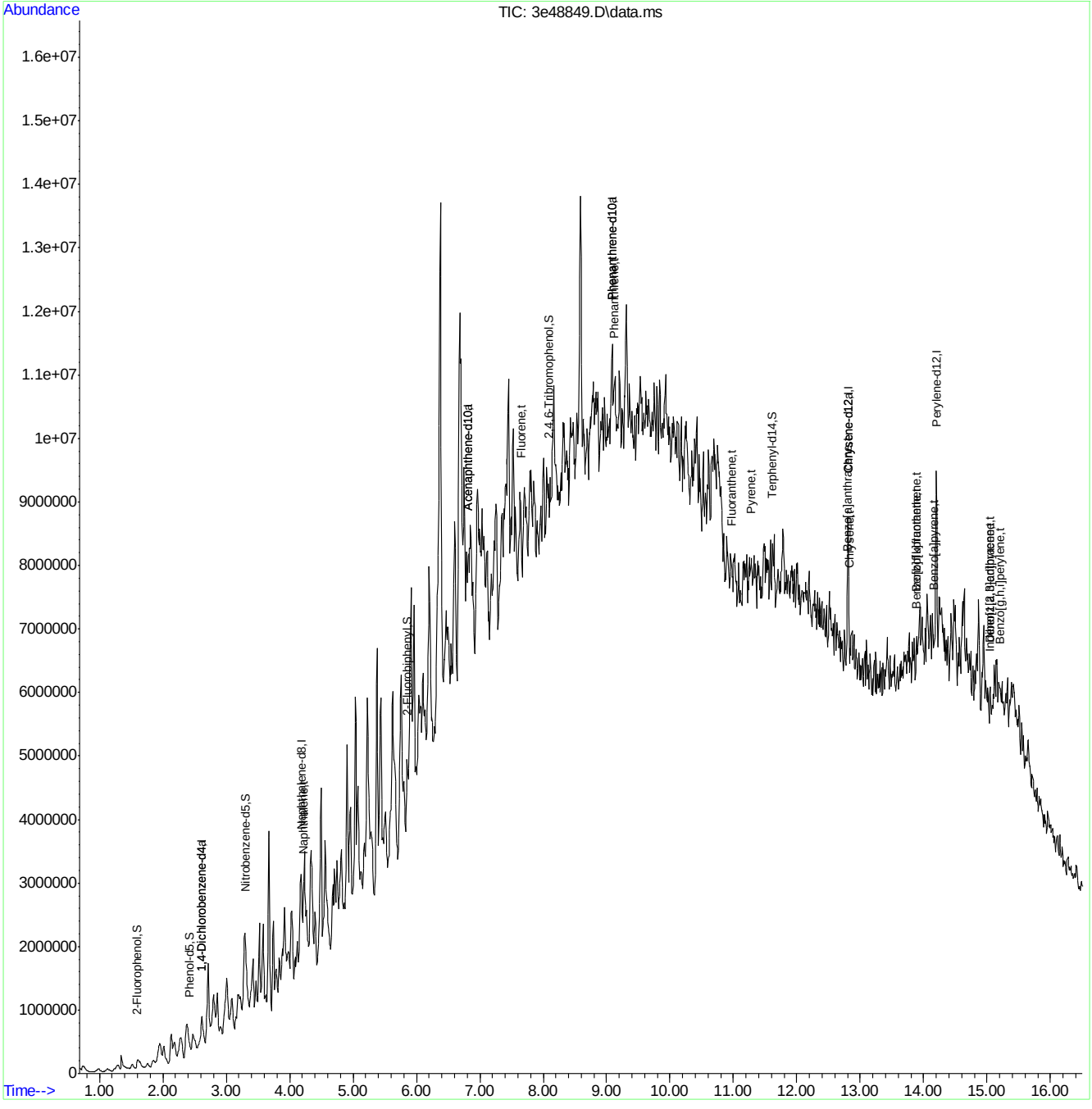
9.1.3

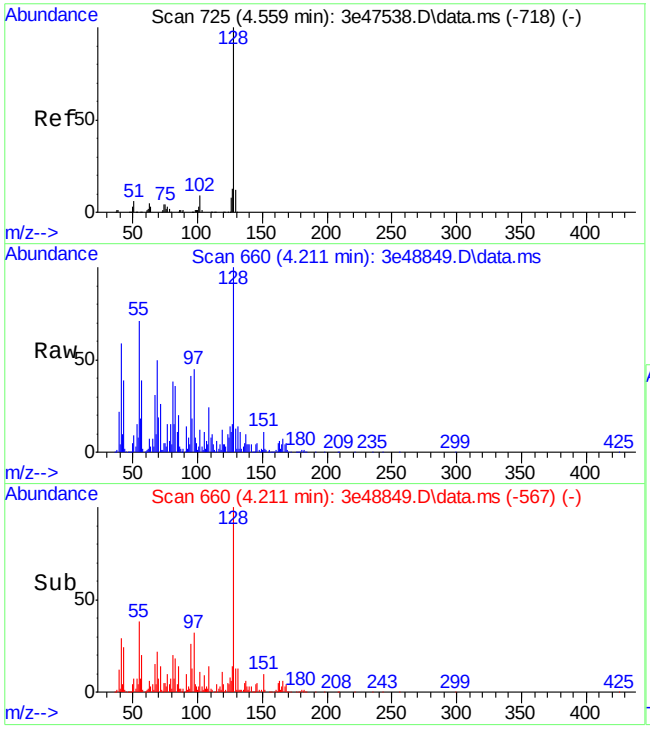
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48849.D
Acq On : 26 Mar 2013 6:25 pm
Operator : olgaa
Sample : jb31121-3
Misc : op64464,e3e2111,33.5
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 27 17:07:32 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Wed Mar 27 09:23:30 2013
Response via : Initial Calibration

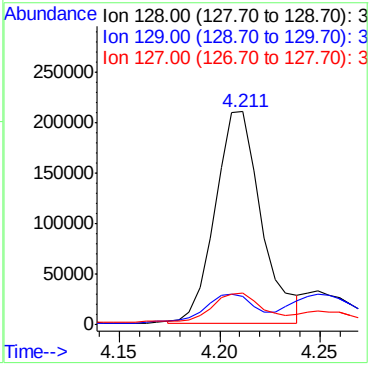


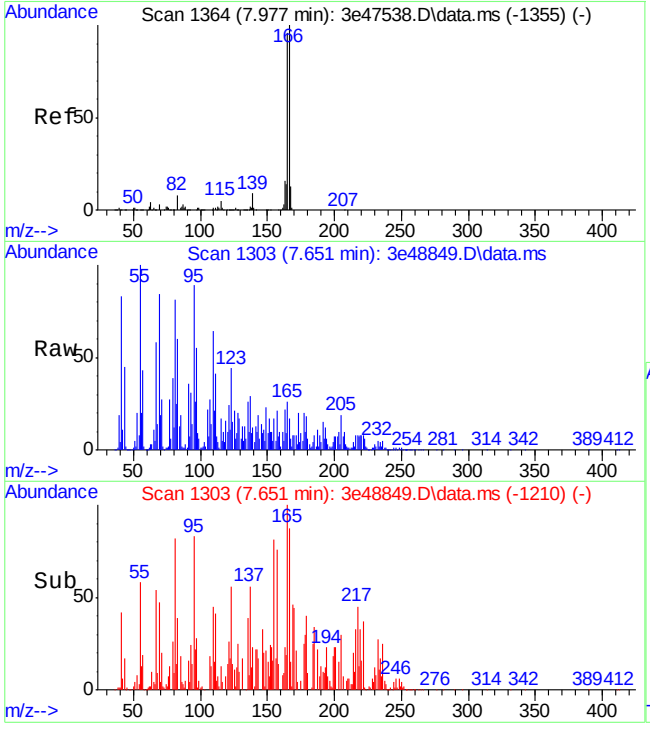


#38
Naphthalene
Concen: 26.26 ppb m
RT: 4.211 min Scan# 660
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:128 Resp: 334748

Ion	Ratio	Lower	Upper
128	100		
129	13.1	0.0	41.7
127	14.7	0.0	42.7

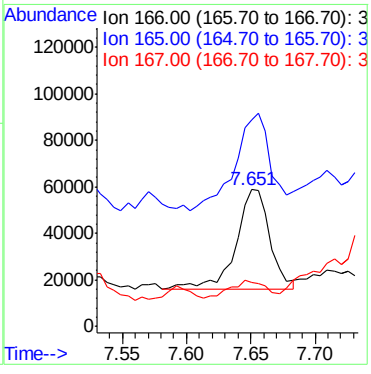




#66
Fluorene
Concen: 6.15 ppb
RT: 7.651 min Scan# 1303
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:166 Resp: 79368

Ion	Ratio	Lower	Upper
166	100		
165	81.9	65.7	125.7
167	7.1	0.0	43.4



9.1.3

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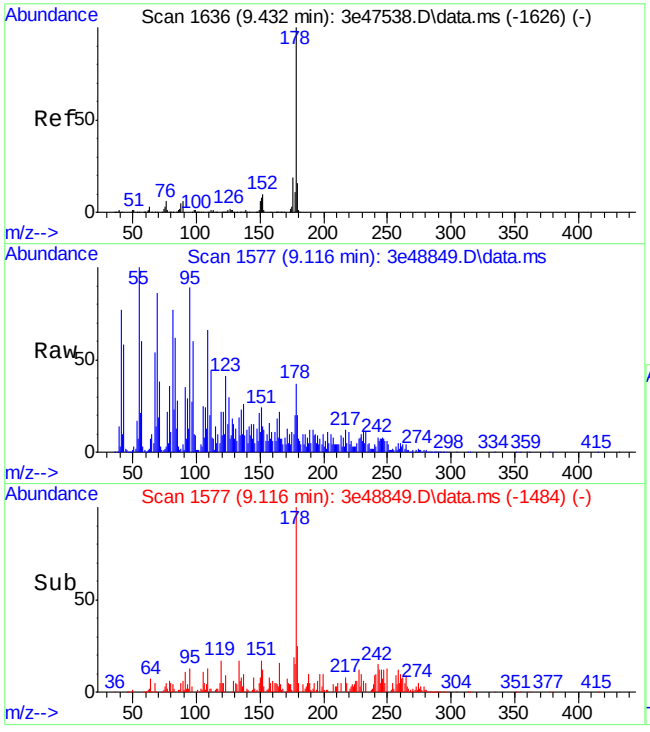
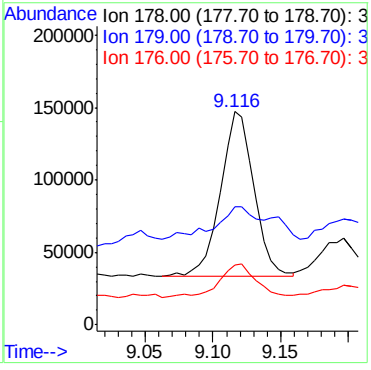
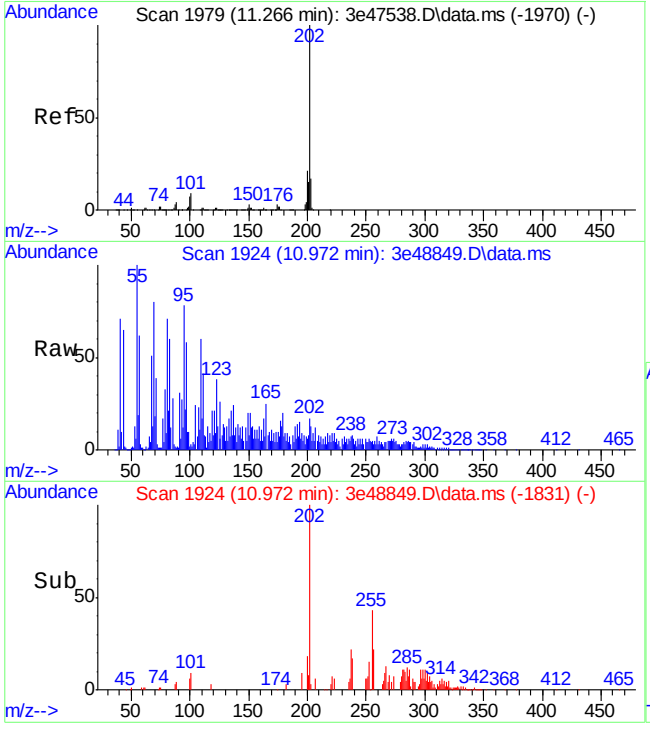


#77
Phenanthrene
Concen: 10.07 ppb
RT: 9.116 min Scan# 1577
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:178 Resp: 195146

Ion	Ratio	Lower	Upper
178	100		
179	18.9	0.0	45.7
176	19.1	0.0	49.5

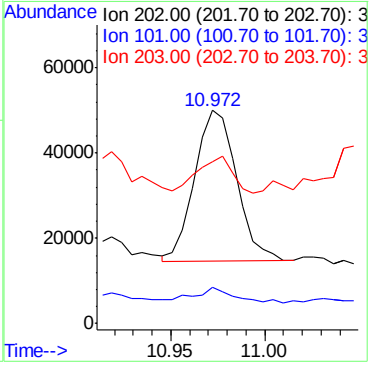


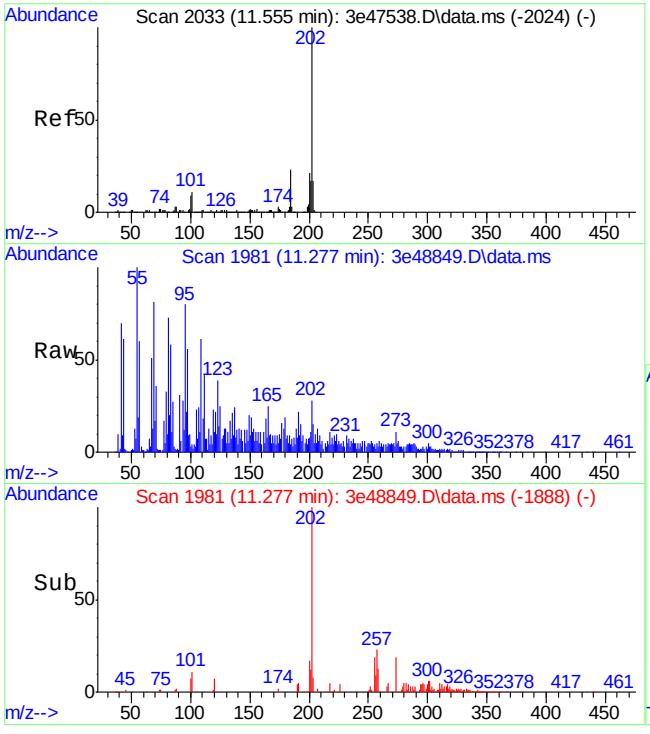


#81
Fluoranthene
Concen: 2.69 ppb
RT: 10.972 min Scan# 1924
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:202 Resp: 54528

Ion	Ratio	Lower	Upper
202	100		
101	8.5	0.0	39.1
203	18.0	0.0	47.3

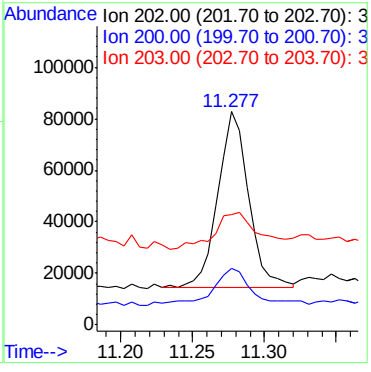


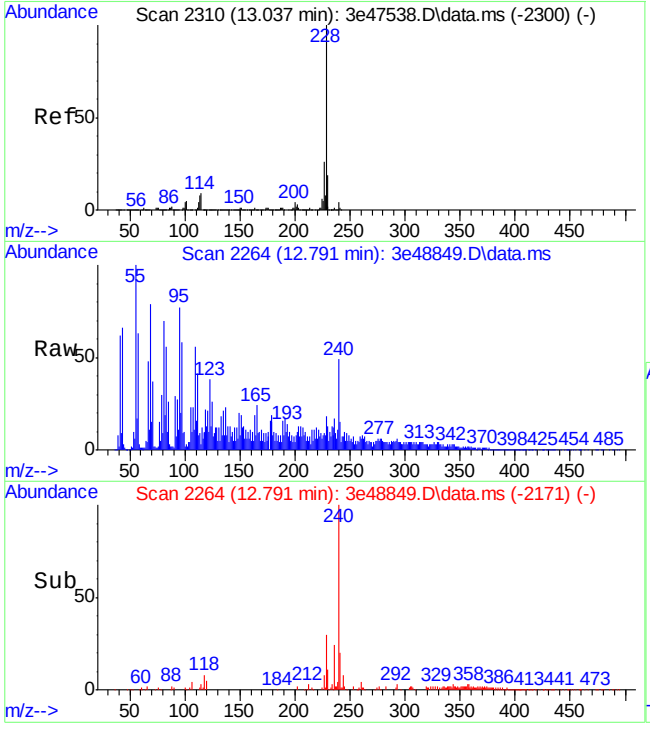


#84
Pyrene
Concen: 4.35 ppb
RT: 11.277 min Scan# 1981
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:202 Resp: 101982

Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	50.6
203	15.8	0.0	47.2

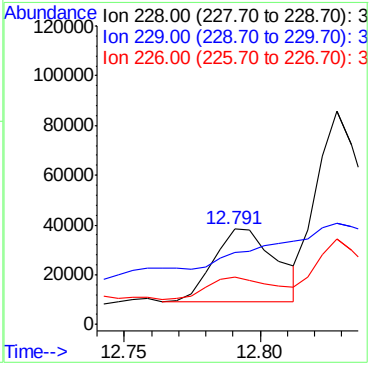


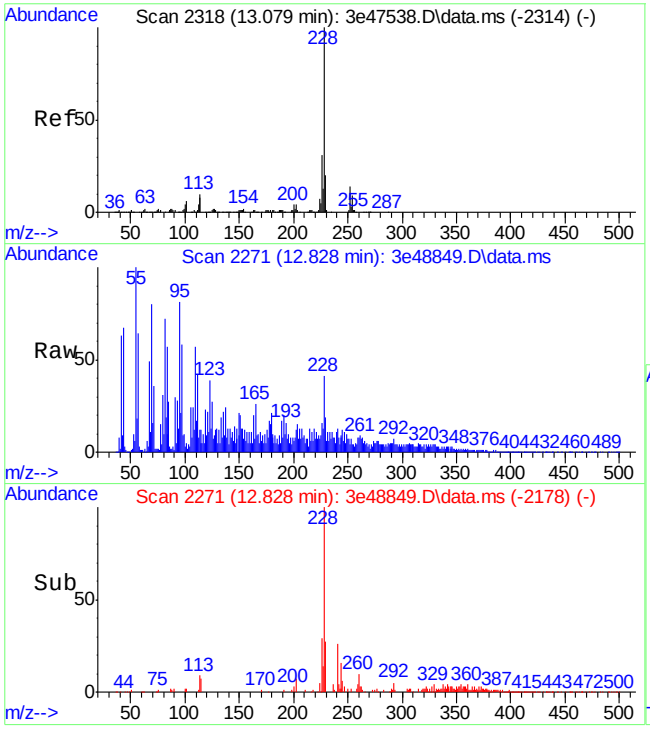


#88
Benzo[a]anthracene
Concen: 2.13 ppb
RT: 12.791 min Scan# 2264
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:228 Resp: 46410

Ion	Ratio	Lower	Upper
228	100		
229	3.6	0.0	49.3
226	29.2	0.0	55.8

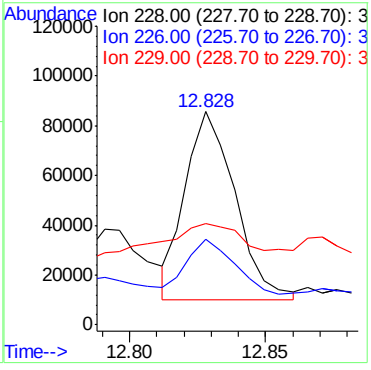


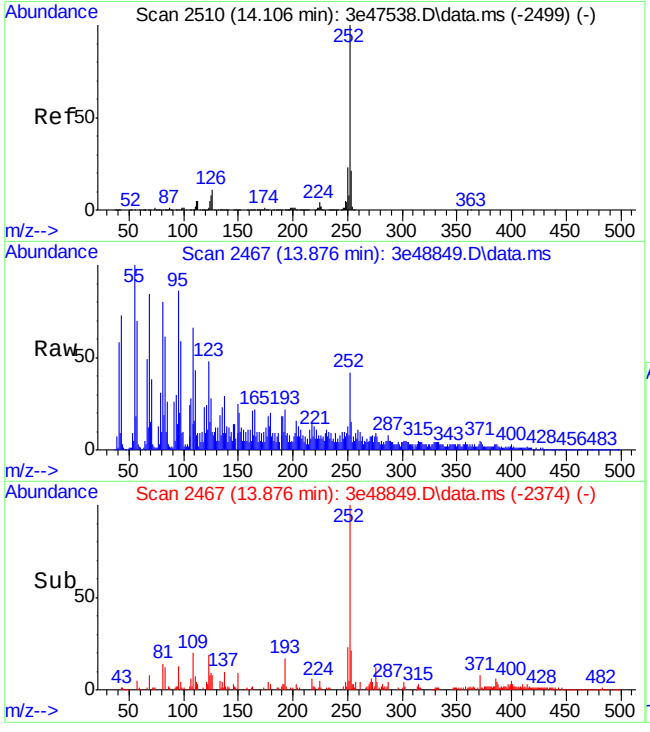


#90
Chrysene
Concen: 4.94 ppb m
RT: 12.828 min Scan# 2271
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:228 Resp: 97481

Ion	Ratio	Lower	Upper
228	100		
226	40.0	0.6	60.6
229	47.4	0.0	50.3

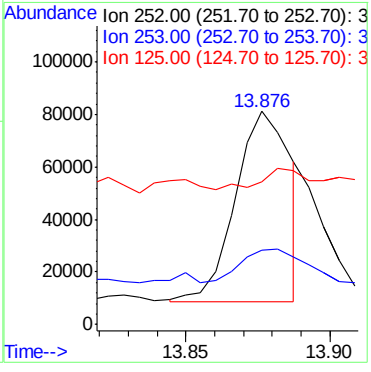




#94
Benzo[b]fluoranthene
Concen: 3.74 ppb m
RT: 13.876 min Scan# 2467
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

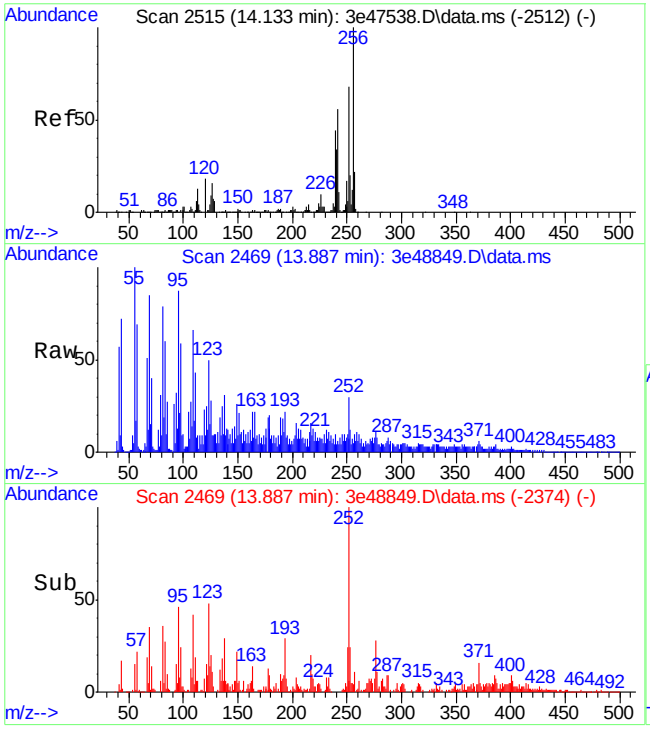
Tgt Ion:252 Resp: 96745

Ion	Ratio	Lower	Upper
252	100		
253	35.0	0.0	51.0
125	66.7	0.0	38.1#



9.1.3

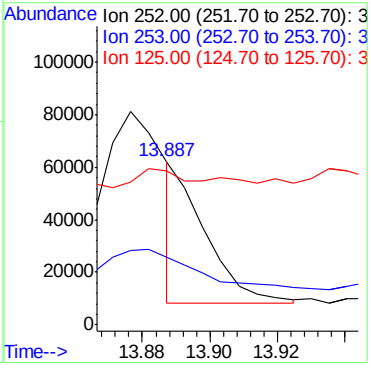
9

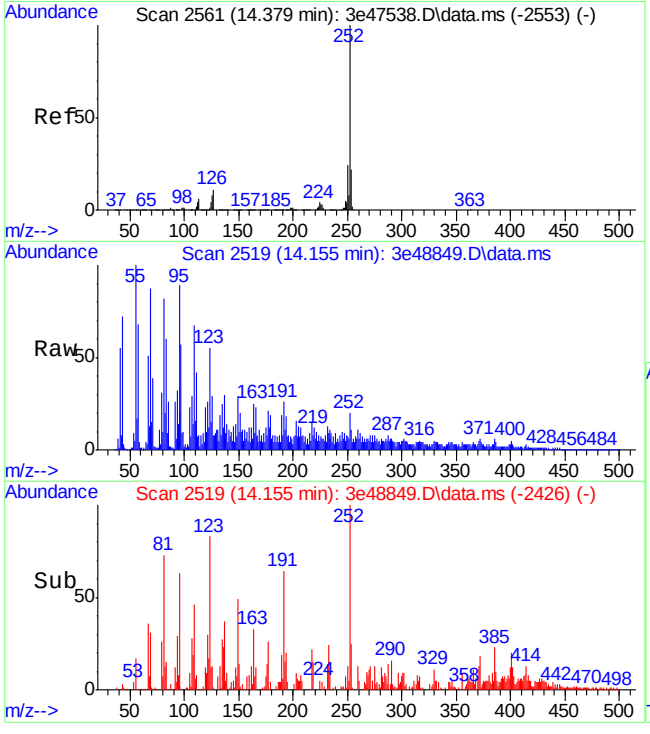


#95
Benzo[k]fluoranthene
Concen: 1.40 ppb m
RT: 13.887 min Scan# 2469
Delta R.T. 0.011 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:252 Resp: 32855

Ion	Ratio	Lower	Upper
252	100		
253	41.5	0.0	56.2
125	94.1	0.0	41.2#

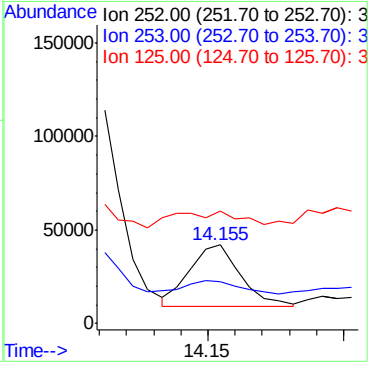


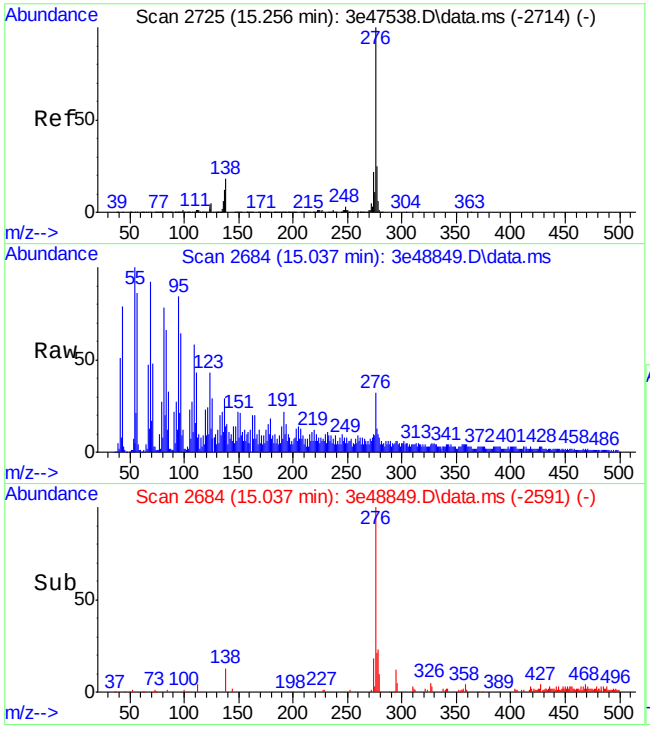


#96
Benzo[a]pyrene
Concen: 1.85 ppb
RT: 14.155 min Scan# 2519
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:252 Resp: 42541

Ion	Ratio	Lower	Upper
252	100		
253	18.9	0.0	52.0
125	18.6	0.0	38.1

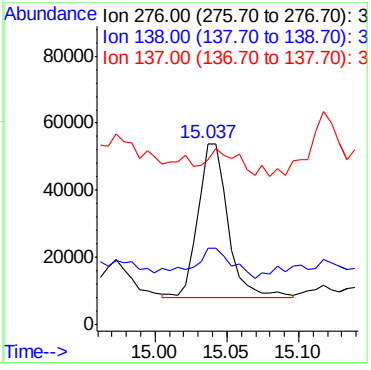


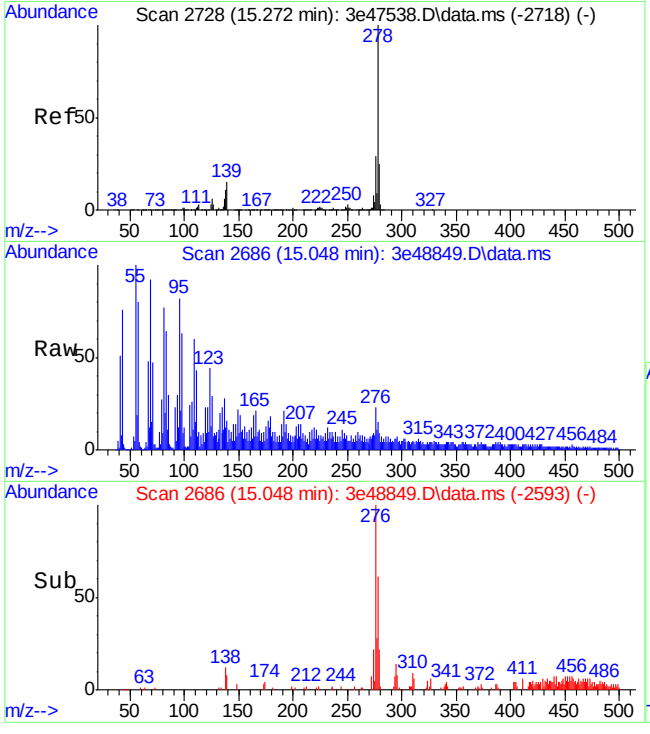


#97
Indeno[1,2,3-cd]pyrene
Concen: 2.49 ppb
RT: 15.037 min Scan# 2684
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:276 Resp: 66484

Ion	Ratio	Lower	Upper
276	100		
138	13.0	0.0	47.7
137	1.9	0.0	42.0

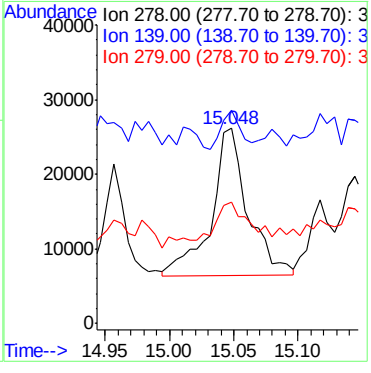


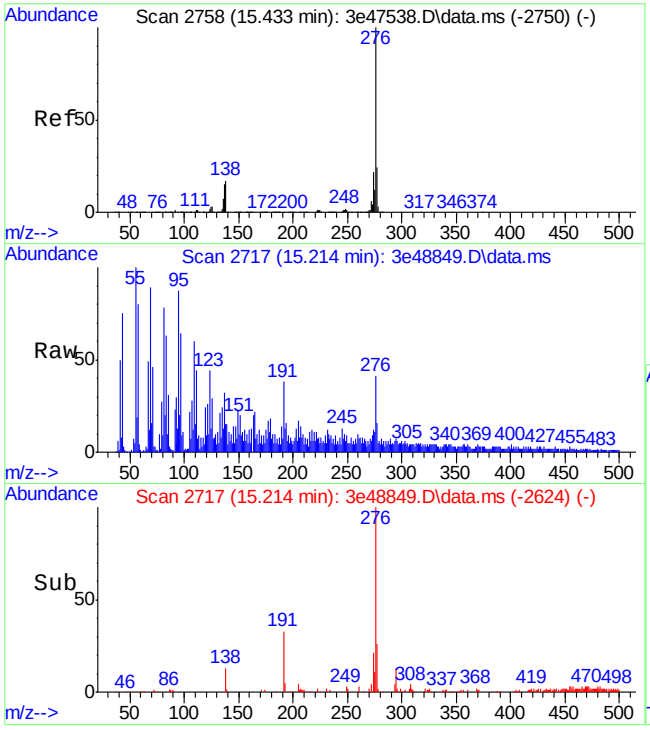


#99
Dibenz[a,h]anthracene
Concen: 1.71 ppb
RT: 15.048 min Scan# 2686
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:278 Resp: 38588

Ion	Ratio	Lower	Upper
278	100		
139	21.0	0.0	44.8
279	26.0	0.0	54.9

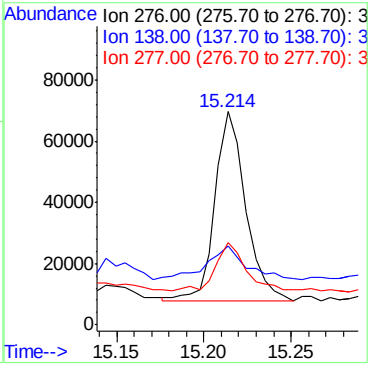




#101
Benzo[g,h,i]perylene
Concen: 3.44 ppb
RT: 15.214 min Scan# 2717
Delta R.T. 0.000 min
Lab File: 3e48849.D
Acq: 26 Mar 2013 6:25 pm

Tgt Ion:276 Resp: 75579

Ion	Ratio	Lower	Upper
276	100		
138	16.6	0.0	47.2
277	24.7	0.0	53.7



9.1.3

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 18:51

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2112\
Data File : 3e48865.D
Acq On : 27 Mar 2013 12:25 pm
Operator : olgaa
Sample : jb31121-3cfi
Misc : op64464,e3e2112,33.5,,,1,5
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 27 17:09:01 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.596	152	84177	40.00	ppb	-0.02
24) Naphthalene-d8	4.153	136	341131	40.00	ppb	-0.02
47) Acenaphthene-d10	6.741	164	216699	40.00	ppb	-0.02
69) Phenanthrene-d10	8.982	188	410571	40.00	ppb	-0.01
83) Chrysene-d12	12.732	240	404575	40.00	ppb	-0.02
92) Perylene-d12	14.128	264	405483	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.596	152	84177	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.741	164	216699	40.00	ppb	-0.02
106) Phenanthrene-d10a	8.982	188	410571	40.00	ppb	-0.01
108) Chrysene-d12a	12.732	240	404575	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.607	112	11672	4.10	ppb	0.02
Spiked Amount 50.000			Recovery	=	8.20%	
8) Phenol-d5	2.436	99	14049	3.93	ppb	0.03
Spiked Amount 50.000			Recovery	=	7.86%	
25) Nitrobenzene-d5	3.308	82	17726	5.71	ppb	0.00
Spiked Amount 50.000			Recovery	=	11.42%	
51) 2-Fluorobiphenyl	5.811	172	35503	5.05	ppb	-0.02
Spiked Amount 50.000			Recovery	=	10.10%	
73) 2,4,6-Tribromophenol	8.014	330	6505	5.47	ppb	0.00
Spiked Amount 50.000			Recovery	=	10.94%	
85) Terphenyl-d14	11.539	244	46142	5.21	ppb	-0.01
Spiked Amount 50.000			Recovery	=	10.42%	

Target Compounds						Qvalue
38) Naphthalene	4.179	128	60616	6.41	ppb	95
66) Fluorene	7.576	166	10433	1.43	ppb	77
77) Phenanthrene	9.015	178	25731	2.15	ppb	98
81) Fluoranthene	10.860	202	7823	0.62	ppb	82
84) Pyrene	11.175	202	13295	1.03	ppb	86
88) Benzo[a]anthracene	12.716	228	6280	0.52	ppb	77
90) Chrysene	12.753	228	11465	1.06	ppb	88
94) Benzo[b]fluoranthene	13.812	252	12432m	0.94	ppb	
97) Indeno[1,2,3-cd]pyrene	14.989	276	7137m	0.52	ppb	
101) Benzo[g,h,i]perylene	15.160	276	7422	0.66	ppb	89

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

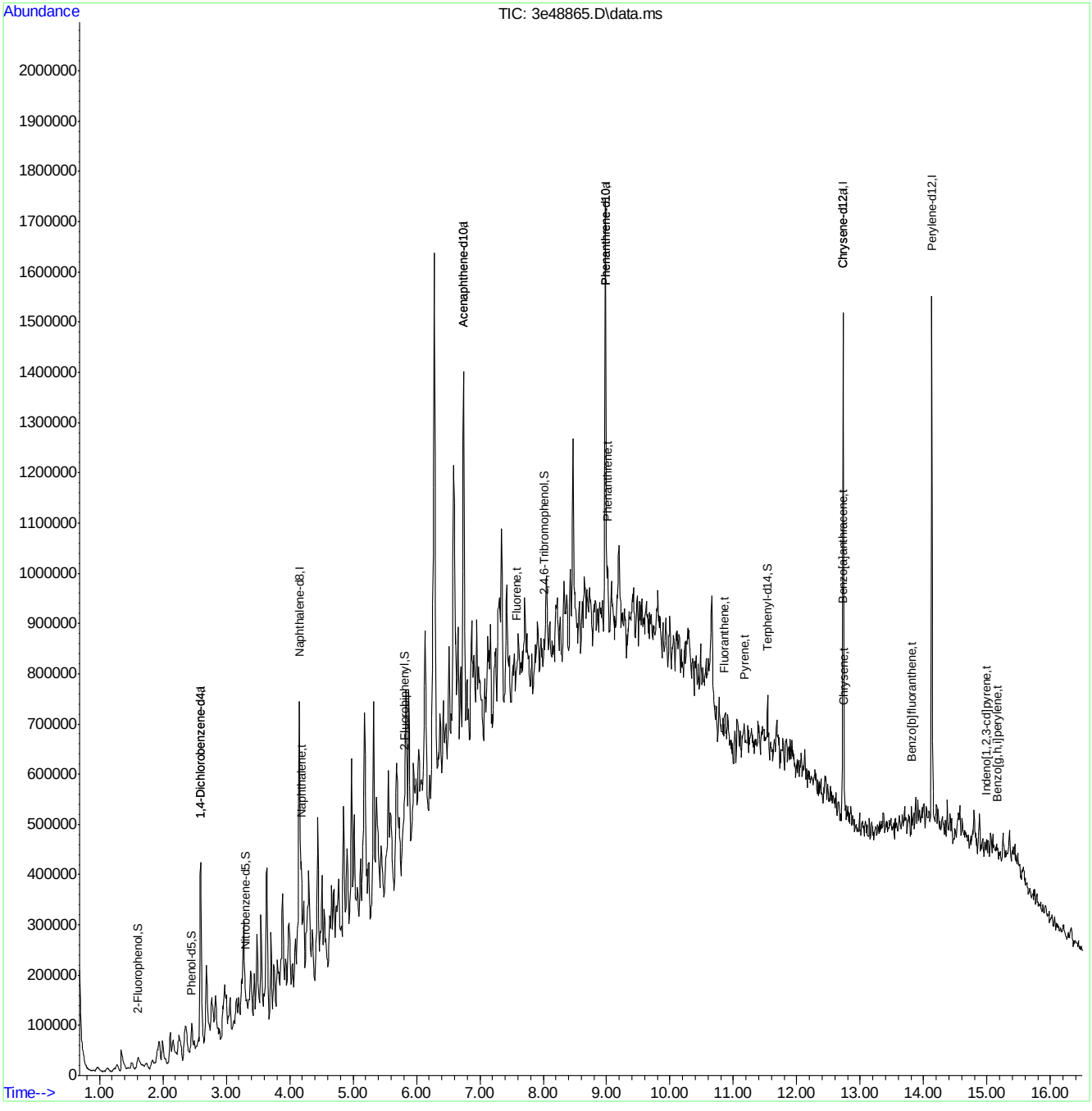
9.1.4

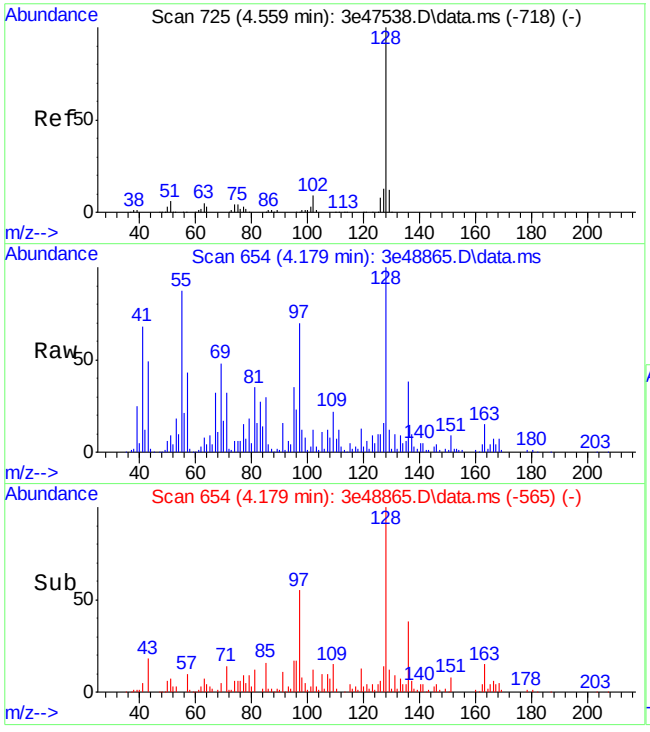
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2112\
Data File : 3e48865.D
Acq On : 27 Mar 2013 12:25 pm
Operator : olgaa
Sample : jb31121-3cfi
Misc : op64464,e3e2112,33.5,,,1,5
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 27 17:09:01 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

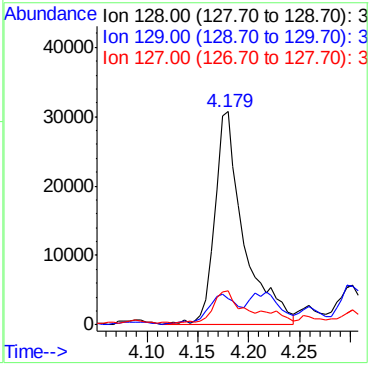


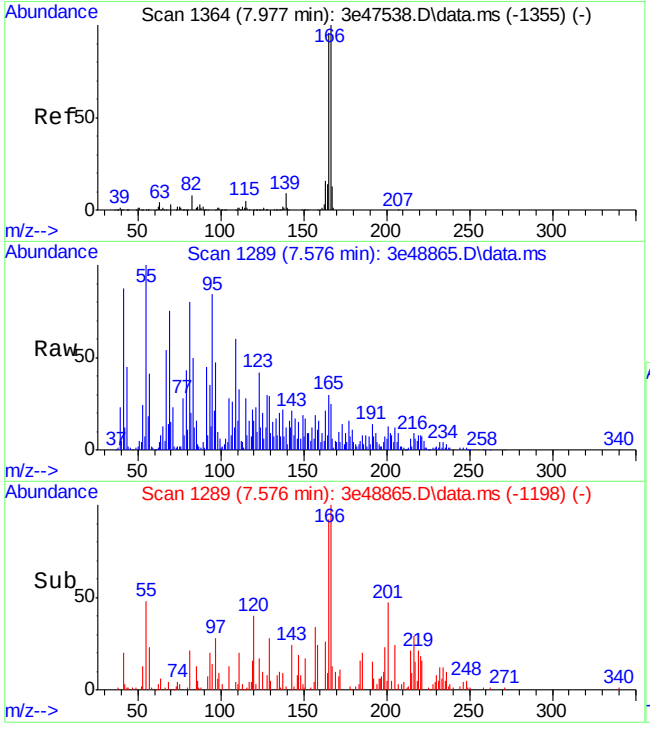


#38
Naphthalene
Concen: 6.41 ppb
RT: 4.179 min Scan# 654
Delta R.T. -0.021 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:128 Resp: 60616

Ion	Ratio	Lower	Upper
128	100		
129	9.9	0.0	41.7
127	14.6	0.0	42.7

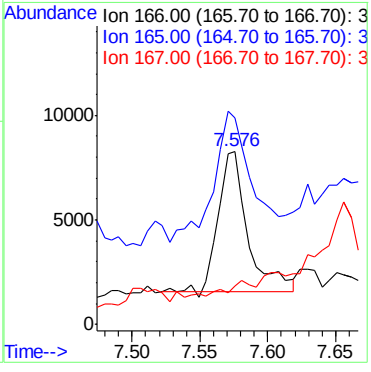


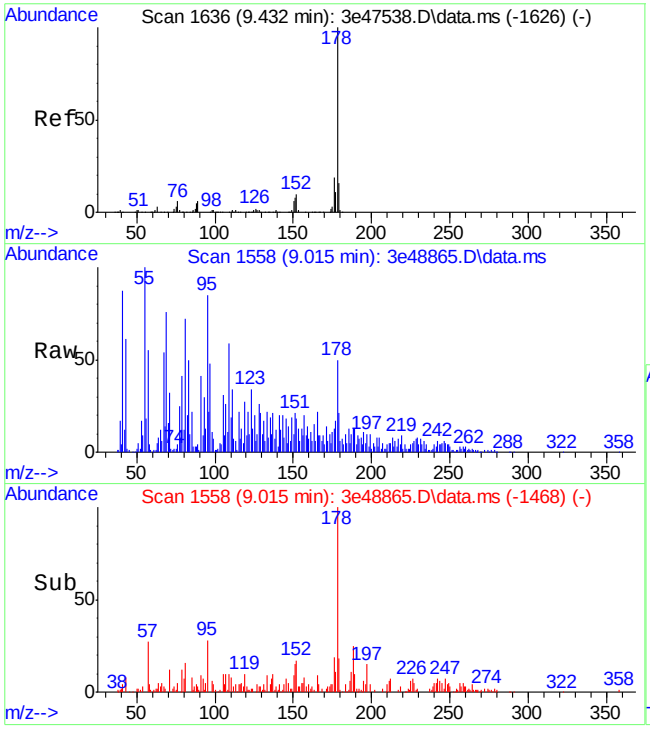


#66
Fluorene
Concen: 1.43 ppb
RT: 7.576 min Scan# 1289
Delta R.T. -0.011 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:166 Resp: 10433

Ion	Ratio	Lower	Upper
166	100		
165	74.7	65.7	125.7
167	0.0	0.0	43.4

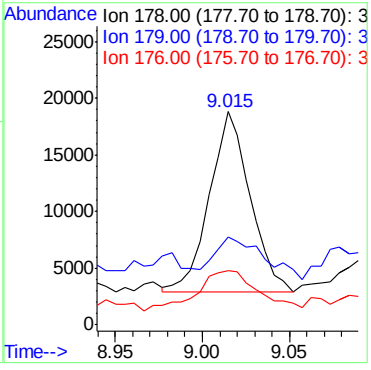


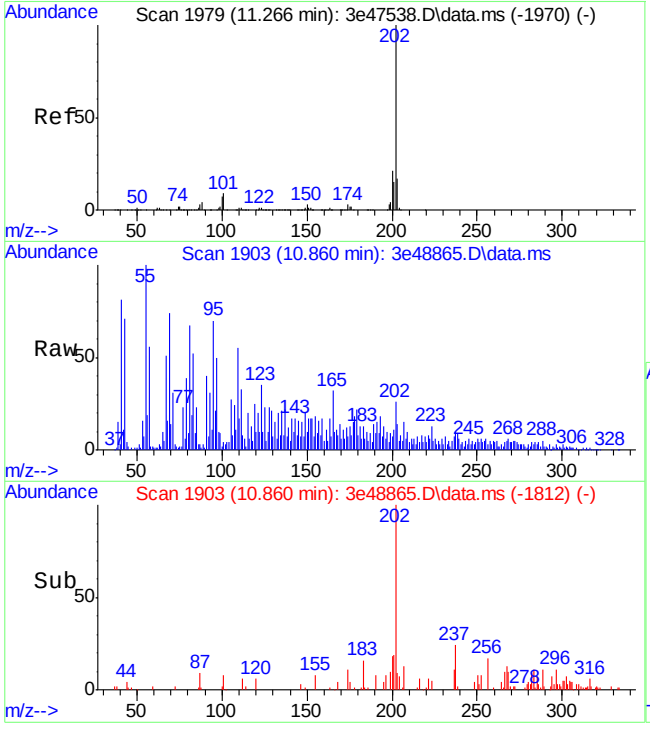


#77
Phenanthrene
Concen: 2.15 ppb
RT: 9.015 min Scan# 1558
Delta R.T. -0.016 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:178 Resp: 25731

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.7
176	18.8	0.0	49.5

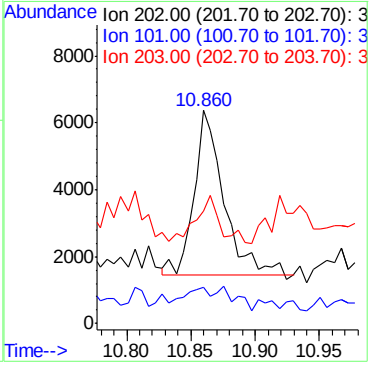


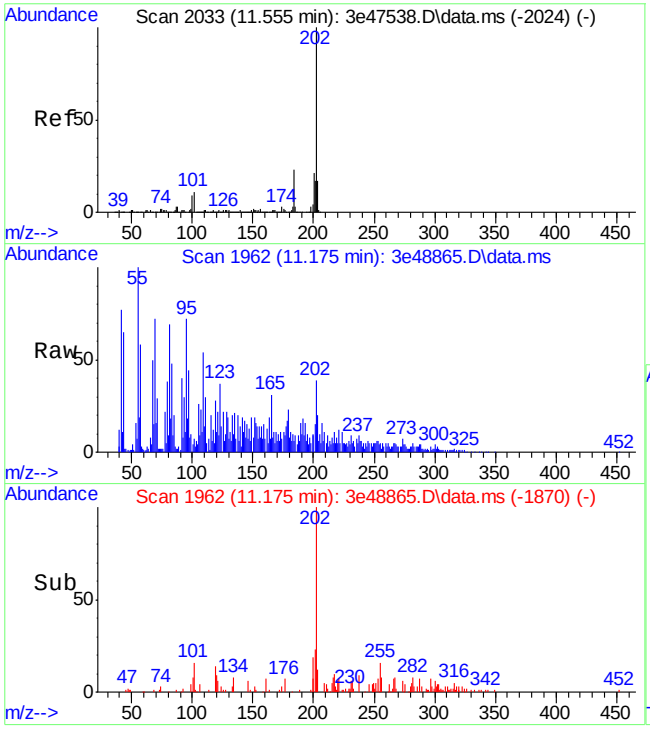


#81
Fluoranthene
Concen: 0.62 ppb
RT: 10.860 min Scan# 1903
Delta R.T. -0.011 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:202 Resp: 7823

Ion	Ratio	Lower	Upper
202	100		
101	6.3	0.0	39.1
203	6.8	0.0	47.3

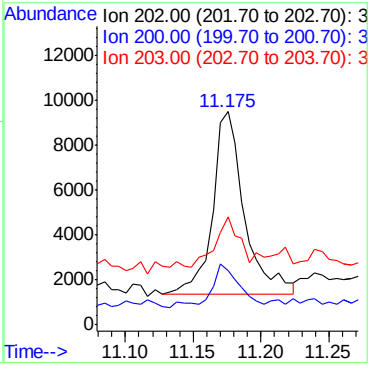


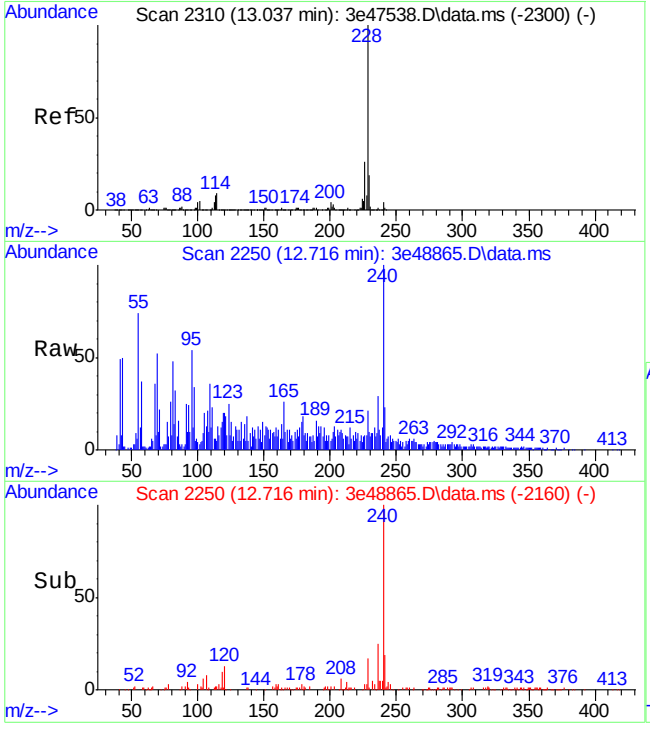


#84
Pyrene
Concen: 1.03 ppb
RT: 11.175 min Scan# 1962
Delta R.T. -0.005 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:202 Resp: 13295

Ion	Ratio	Lower	Upper
202	100		
200	18.4	0.0	50.6
203	27.7	0.0	47.2

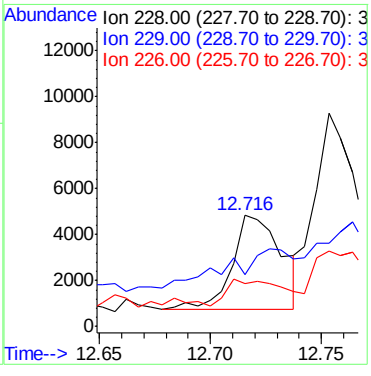




#88
Benzo[a]anthracene
Concen: 0.52 ppb
RT: 12.716 min Scan# 2250
Delta R.T. -0.016 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

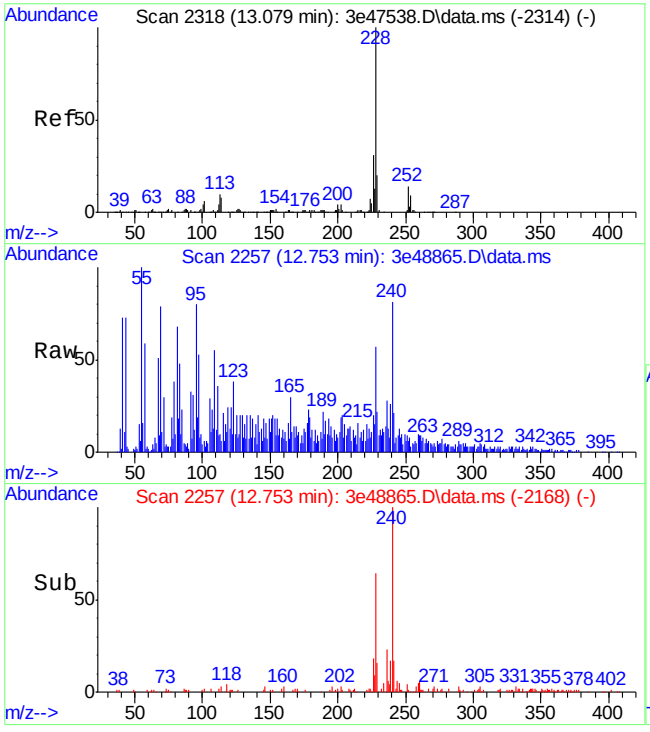
Tgt Ion:228 Resp: 6280

Ion	Ratio	Lower	Upper
228	100		
229	0.0	0.0	49.3
226	21.5	0.0	55.8



9.1.4

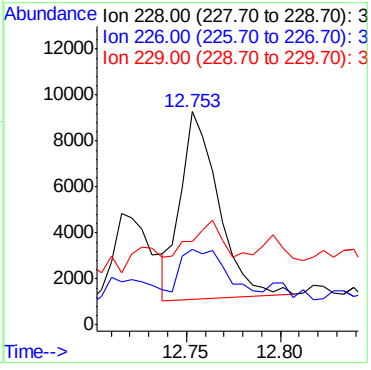
9

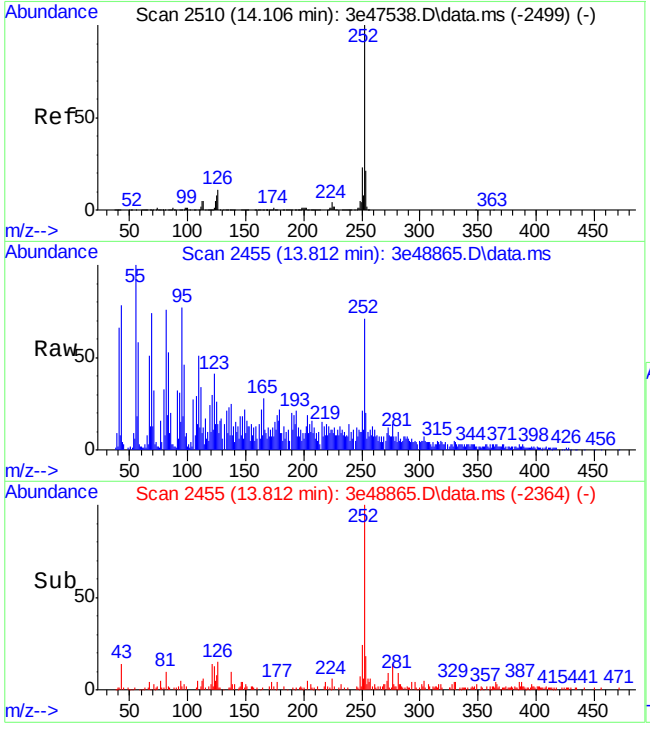


#90
Chrysene
Concen: 1.06 ppb
RT: 12.753 min Scan# 2257
Delta R.T. -0.021 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:228 Resp: 11465

Ion	Ratio	Lower	Upper
228	100		
226	27.5	0.6	60.6
229	10.0	0.0	50.3

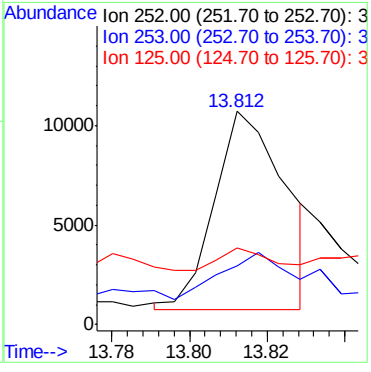


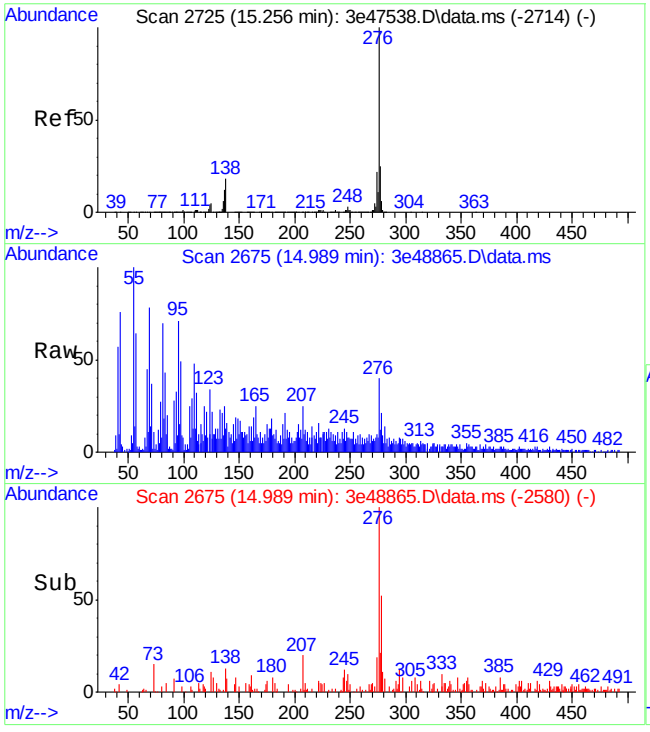


#94
Benzo[b]fluoranthene
Concen: 0.94 ppb m
RT: 13.812 min Scan# 2455
Delta R.T. -0.011 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:252 Resp: 12432

Ion	Ratio	Lower	Upper
252	100		
253	27.8	0.0	51.0
125	35.9	0.0	38.1

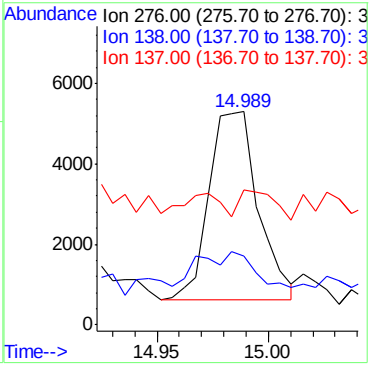


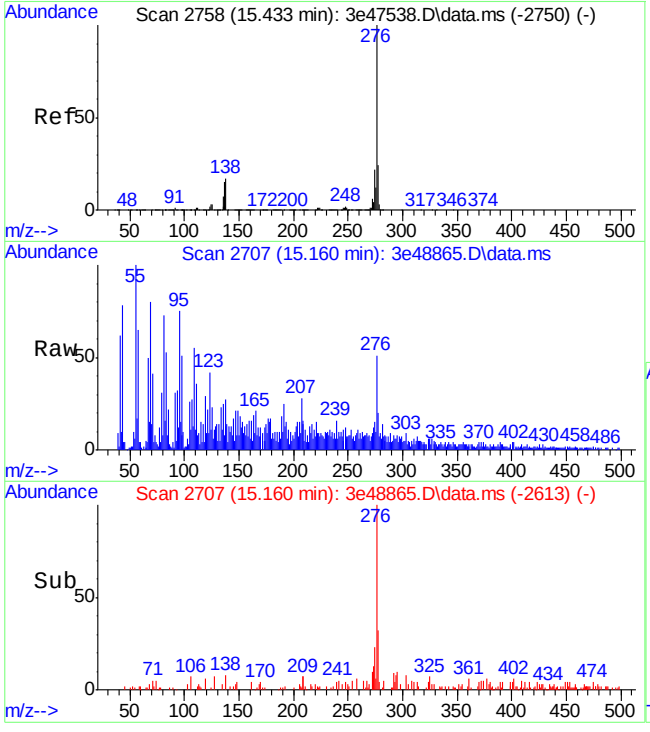


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.52 ppb m
RT: 14.989 min Scan# 2675
Delta R.T. 0.011 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:276 Resp: 7137

Ion	Ratio	Lower	Upper
276	100		
138	32.1	0.0	47.7
137	63.4	0.0	42.0#

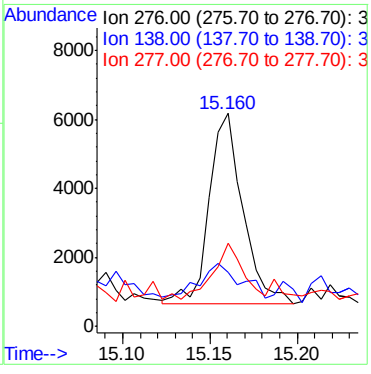




#101
Benzo[g,h,i]perylene
Concen: 0.66 ppb
RT: 15.160 min Scan# 2707
Delta R.T. 0.005 min
Lab File: 3e48865.D
Acq: 27 Mar 2013 12:25 pm

Tgt Ion:276 Resp: 7422

Ion	Ratio	Lower	Upper
276	100		
138	11.4	0.0	47.2
277	28.6	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48850.D
Acq On : 26 Mar 2013 6:48 pm
Operator : olgaa
Sample : jb31121-4
Misc : op64464,e3e2111,35.6
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 27 17:09:48 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Wed Mar 27 09:25:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.623	152	73622	40.00	ppb	0.00
24) Naphthalene-d8	4.222	136	267798	40.00	ppb	0.00
47) Acenaphthene-d10	6.966	164	138927	40.00	ppb	0.00
69) Phenanthrene-d10	9.159	188	341548	40.00	ppb	0.00
83) Chrysene-d12	12.791	240	273540	40.00	ppb	0.00
92) Perylene-d12	14.181	264	292340	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.623	152	73622	40.00	ppb	0.00
104) Acenaphthene-d10a	6.966	164	138927	40.00	ppb	0.00
106) Phenanthrene-d10a	9.159	188	341548	40.00	ppb	0.00
108) Chrysene-d12a	12.791	240	273540	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	1.596	112	32367	12.99	ppb	0.00
Spiked Amount 50.000			Recovery	=	25.98%	
8) Phenol-d5	2.425	99	46071	14.72	ppb	0.00
Spiked Amount 50.000			Recovery	=	29.44%	
25) Nitrobenzene-d5	3.318	82	102336m	42.02	ppb	0.00
Spiked Amount 50.000			Recovery	=	84.04%	
51) 2-Fluorobiphenyl	5.966	172	147509	32.71	ppb	0.00
Spiked Amount 50.000			Recovery	=	65.42%	
73) 2,4,6-Tribromophenol	8.191	330	50998	51.52	ppb	0.00
Spiked Amount 50.000			Recovery	=	103.04%	
85) Terphenyl-d14	11.614	244	192567	32.17	ppb	0.00
Spiked Amount 50.000			Recovery	=	64.34%	
Target Compounds						Qvalue
38) Naphthalene	4.249	128	387982	52.24	ppb	88
66) Fluorene	7.784	166	1730194	368.66	ppb	77
77) Phenanthrene	9.202	178	3066148	307.42	ppb	98
78) Anthracene	9.261	178	195719	19.79	ppb	82
81) Fluoranthene	10.983	202	876572	83.97	ppb	97
84) Pyrene	11.282	202	922940	106.26	ppb	99
88) Benzo[a]anthracene	12.775	228	286239	35.37	ppb	98
90) Chrysene	12.817	228	252089	34.47	ppb	97
94) Benzo[b]fluoranthene	13.860	252	227735m	23.85	ppb	
95) Benzo[k]fluoranthene	13.866	252	168300m	19.47	ppb	
96) Benzo[a]pyrene	14.133	252	171198	20.13	ppb	97
97) Indeno[1,2,3-cd]pyrene	15.021	276	103907	10.56	ppb	87
99) Dibenz[a,h]anthracene	15.026	278	44905m	5.39	ppb	
101) Benzo[g,h,i]perylene	15.197	276	91364	11.26	ppb	95

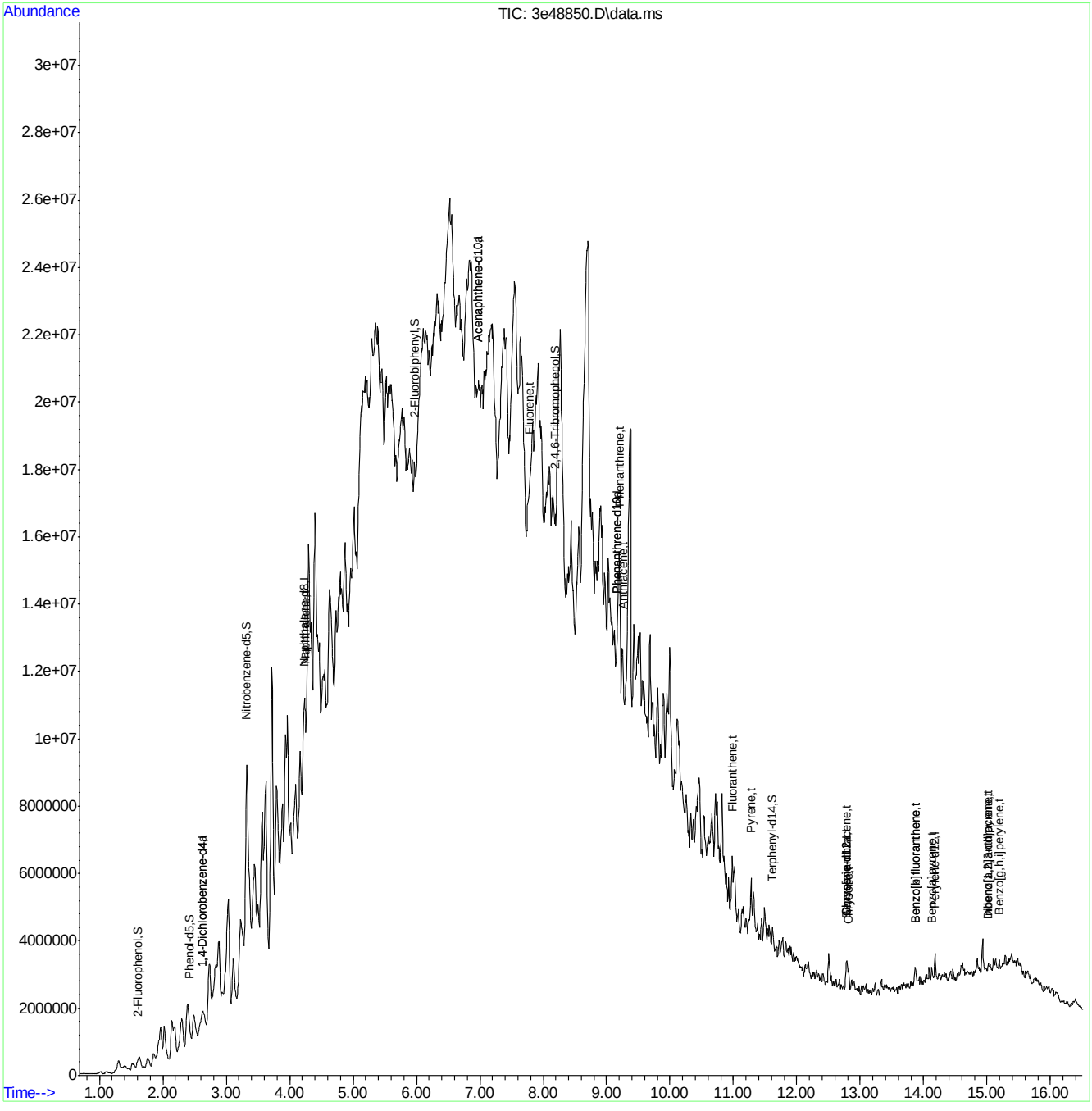
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.5
9

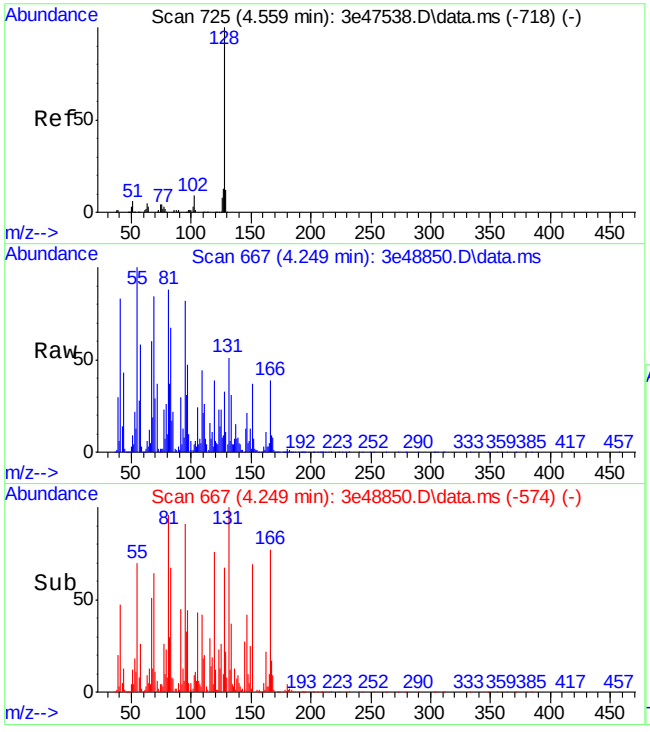
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48850.D
Acq On : 26 Mar 2013 6:48 pm
Operator : olgaa
Sample : jb31121-4
Misc : op64464,e3e2111,35.6
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 27 17:09:48 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Wed Mar 27 09:25:09 2013
Response via : Initial Calibration



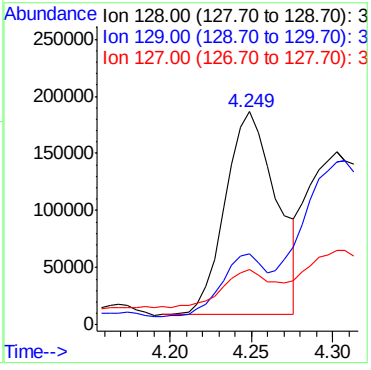
M3E2061.M Wed Mar 27 17:09:56 2013 MS3E Page: 2

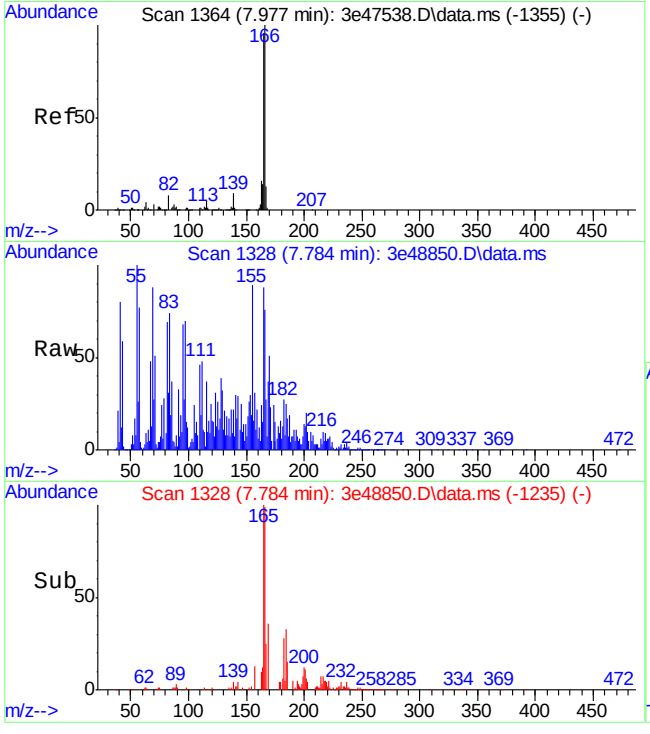


#38
Naphthalene
Concen: 52.24 ppb
RT: 4.249 min Scan# 667
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:128 Resp: 387982

Ion	Ratio	Lower	Upper
128	100		
129	18.1	0.0	41.7
127	16.0	0.0	42.7

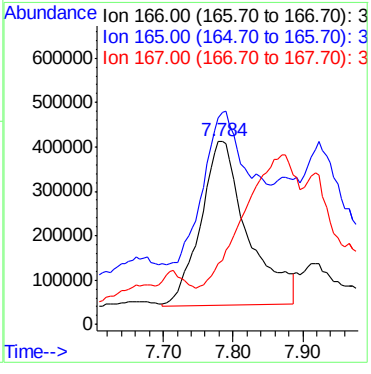


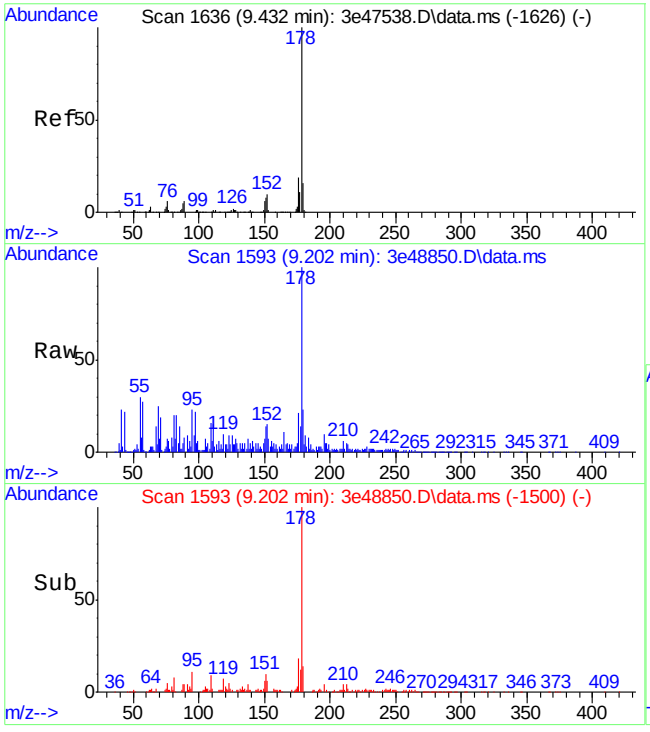


#66
Fluorene
Concen: 368.66 ppb
RT: 7.784 min Scan# 1328
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:166 Resp: 1730194

Ion	Ratio	Lower	Upper
166	100		
165	74.5	65.7	125.7
167	0.0	0.0	43.4

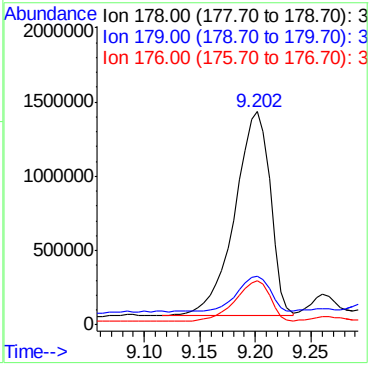


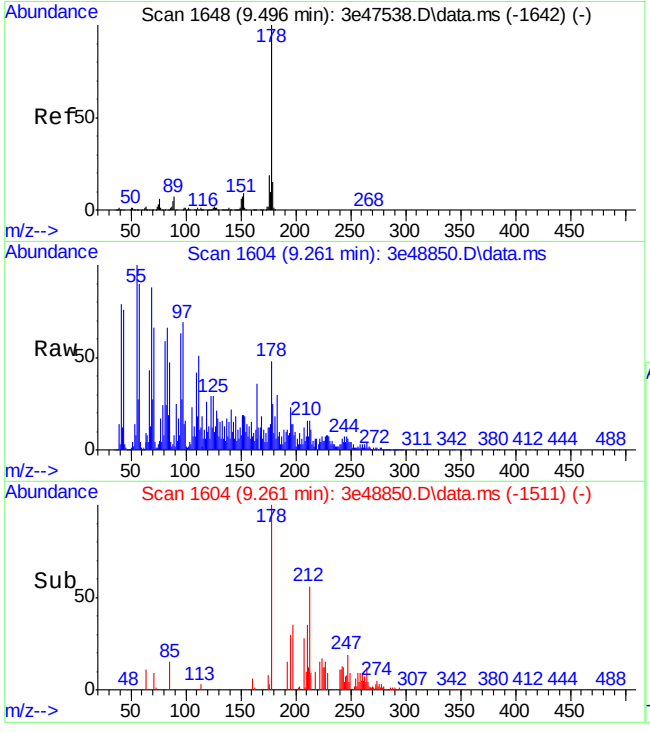


#77
Phenanthrene
Concen: 307.42 ppb
RT: 9.202 min Scan# 1593
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:178 Resp: 3066148

Ion	Ratio	Lower	Upper
178	100		
179	17.3	0.0	45.7
176	19.7	0.0	49.5

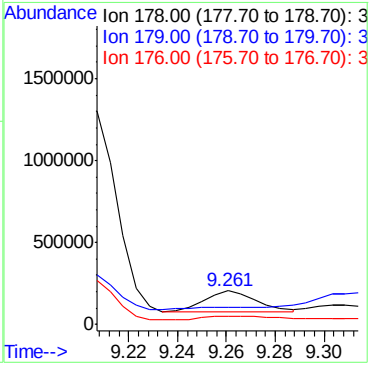




#78
Anthracene
Concen: 19.79 ppb
RT: 9.261 min Scan# 1604
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

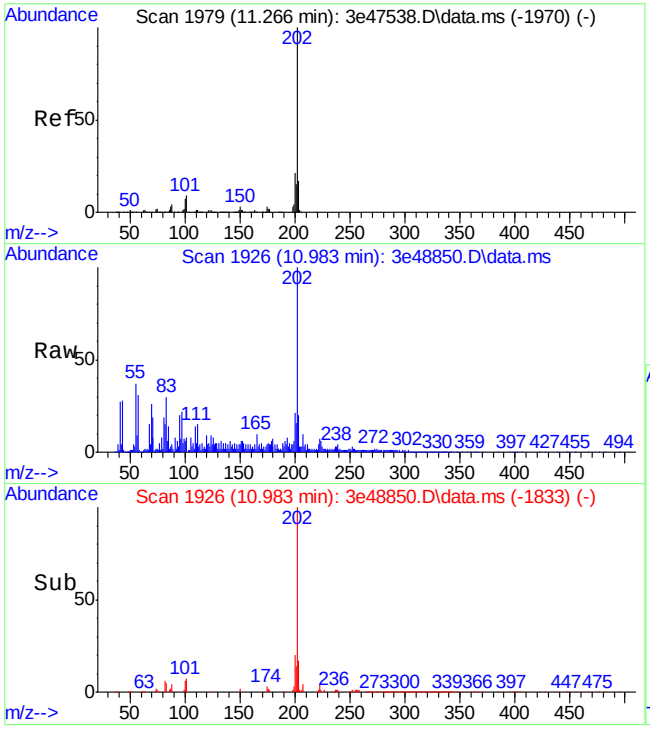
Tgt Ion:178 Resp: 195719

Ion	Ratio	Lower	Upper
178	100		
179	0.3	0.0	45.1
176	17.2	0.0	48.6



9.1.5

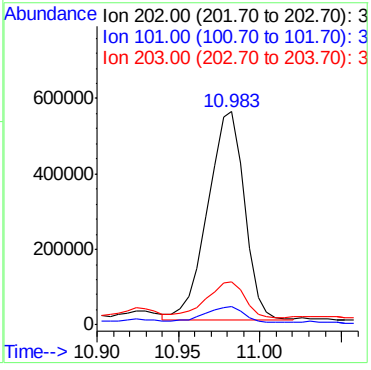
9

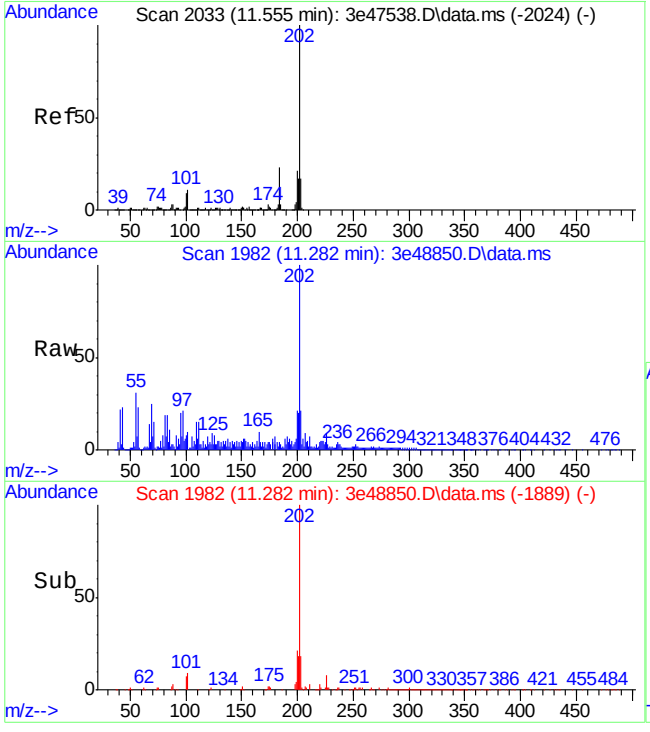


#81
Fluoranthene
Concen: 83.97 ppb
RT: 10.983 min Scan# 1926
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:202 Resp: 876572

Ion	Ratio	Lower	Upper
202	100		
101	7.2	0.0	39.1
203	16.3	0.0	47.3

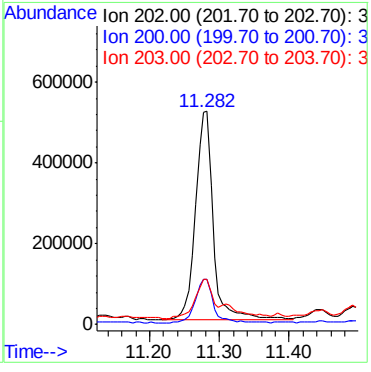


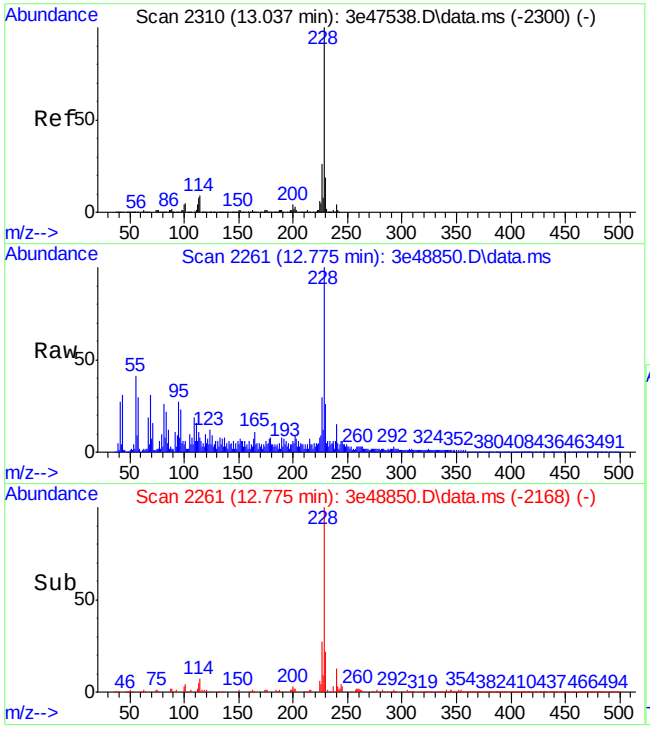


#84
Pyrene
Concen: 106.26 ppb
RT: 11.282 min Scan# 1982
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:202 Resp: 922940

Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.0	50.6
203	17.7	0.0	47.2

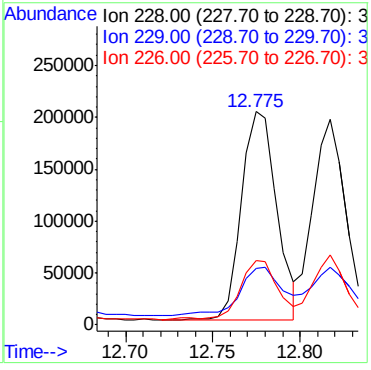


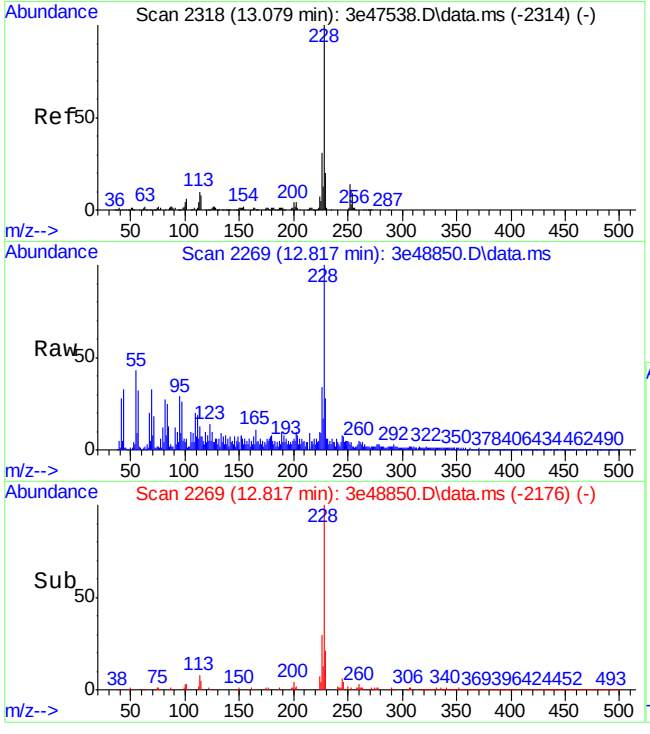


#88
Benzo[a]anthracene
Concen: 35.37 ppb
RT: 12.775 min Scan# 2261
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:228 Resp: 286239

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	49.3
226	27.6	0.0	55.8

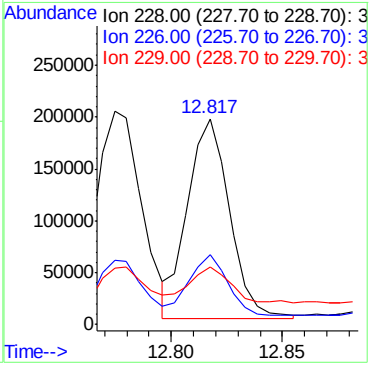


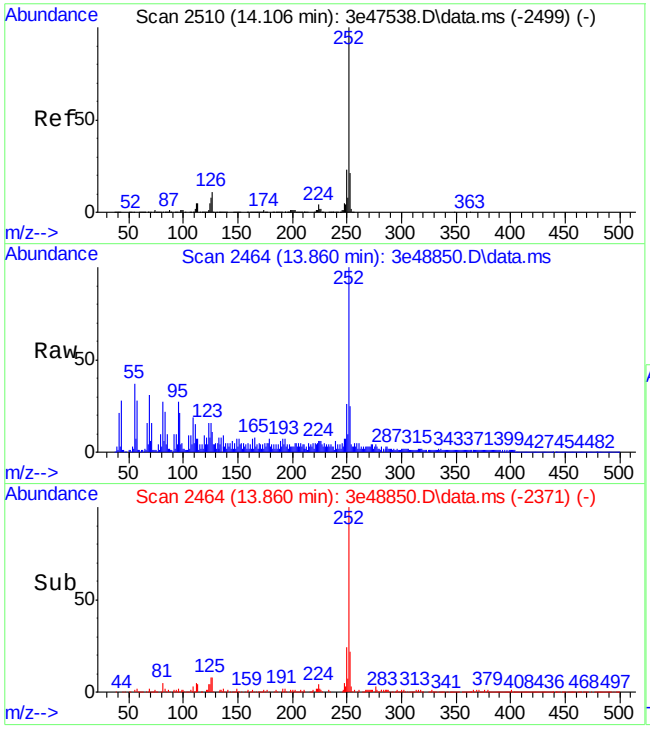


#90
Chrysene
Concen: 34.47 ppb
RT: 12.817 min Scan# 2269
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:228 Resp: 252089

Ion	Ratio	Lower	Upper
228	100		
226	31.5	0.6	60.6
229	18.0	0.0	50.3

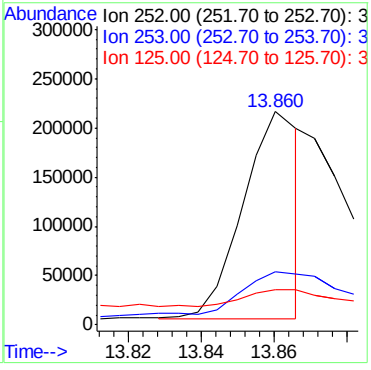


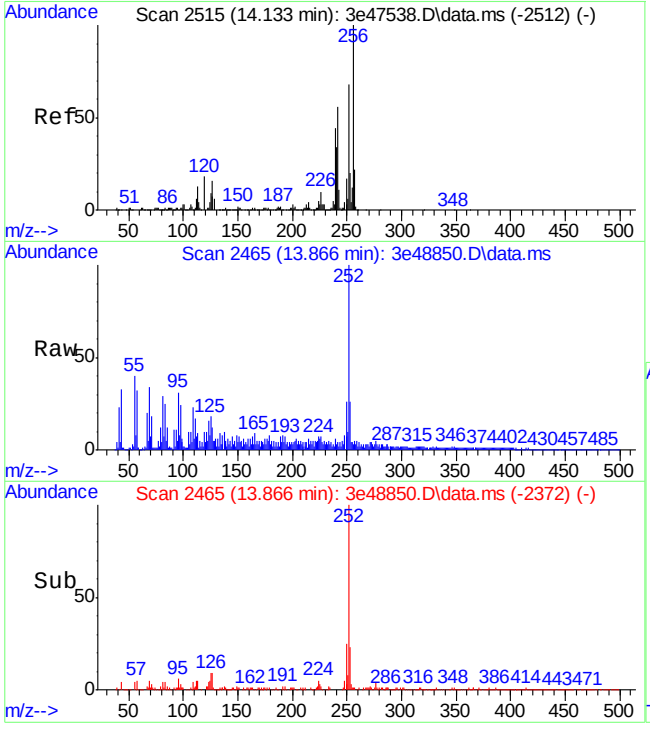


#94
Benzo[b]fluoranthene
Concen: 23.85 ppb m
RT: 13.860 min Scan# 2464
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:252 Resp: 227735

Ion	Ratio	Lower	Upper
252	100		
253	24.7	0.0	51.0
125	16.2	0.0	38.1

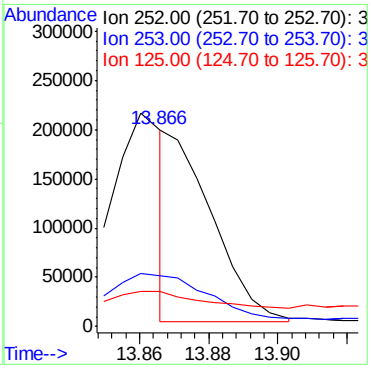


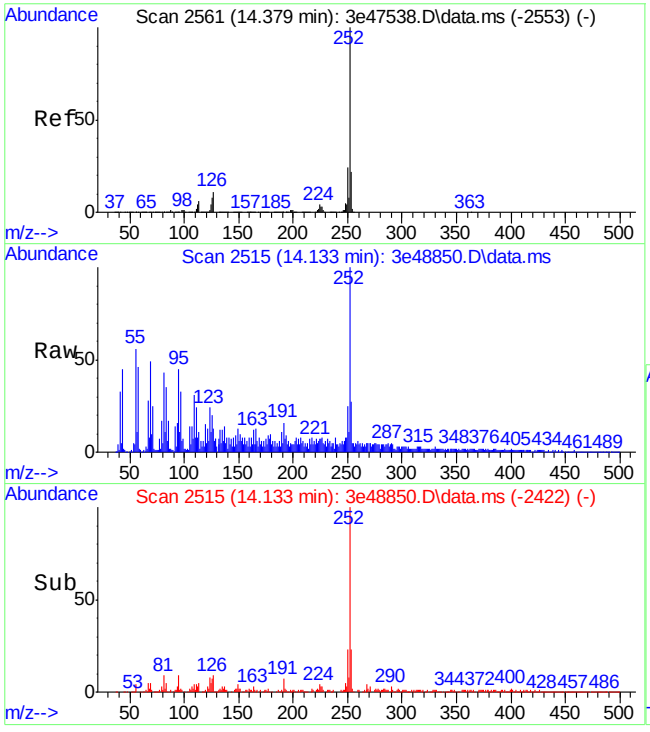


#95
Benzo[k]fluoranthene
Concen: 19.47 ppb m
RT: 13.866 min Scan# 2465
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:252 Resp: 168300

Ion	Ratio	Lower	Upper
252	100		
253	26.0	0.0	56.2
125	17.7	0.0	41.2

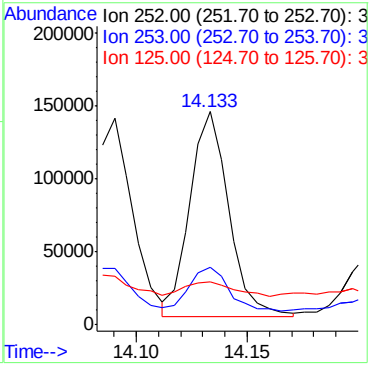


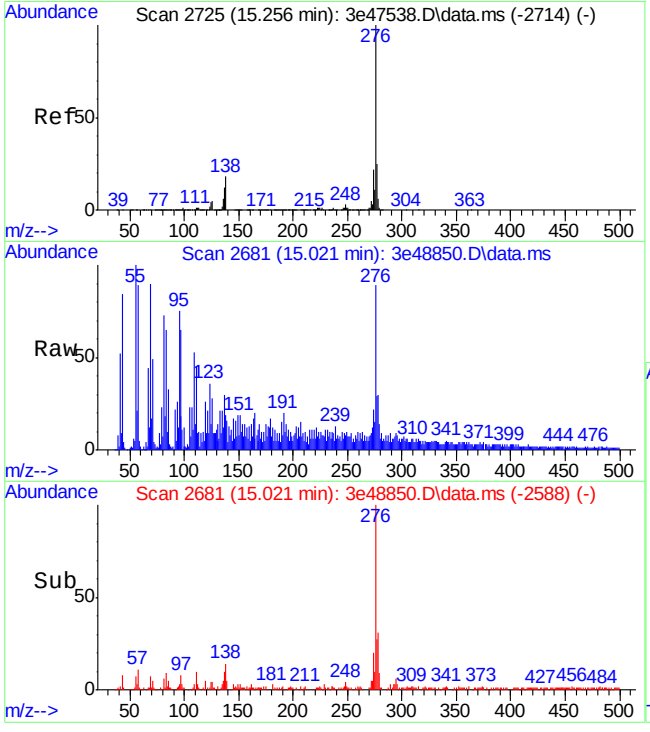


#96
Benzo[a]pyrene
Concen: 20.13 ppb
RT: 14.133 min Scan# 2515
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:252 Resp: 171198

Ion	Ratio	Lower	Upper
252	100		
253	21.3	0.0	52.0
125	6.0	0.0	38.1

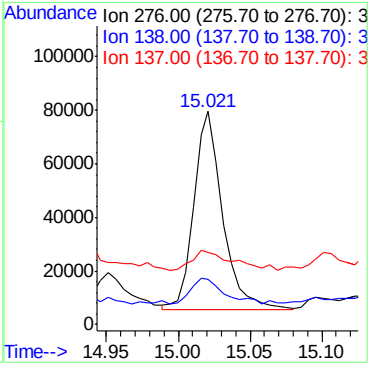


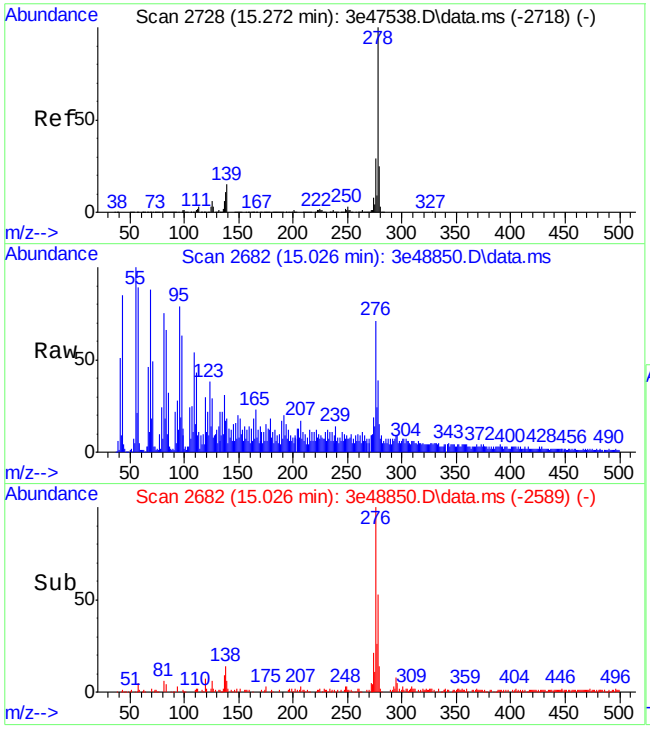


#97
Indeno[1,2,3-cd]pyrene
Concen: 10.56 ppb
RT: 15.021 min Scan# 2681
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:276 Resp: 103907

Ion	Ratio	Lower	Upper
276	100		
138	11.3	0.0	47.7
137	7.9	0.0	42.0

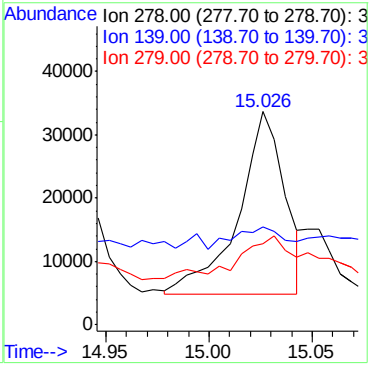


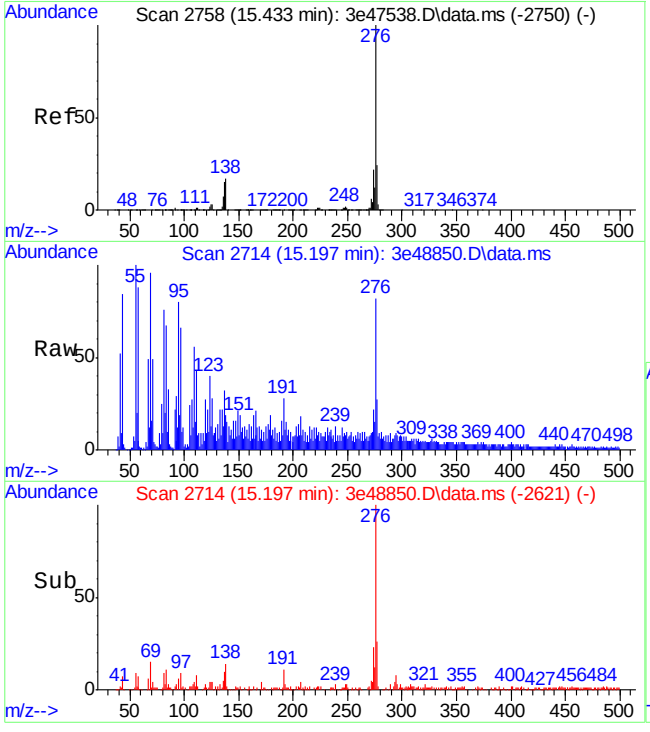


#99
Dibenz[a,h]anthracene
Concen: 5.39 ppb m
RT: 15.026 min Scan# 2682
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:278 Resp: 44905

Ion	Ratio	Lower	Upper
278	100		
139	46.1	0.0	44.8#
279	38.1	0.0	54.9

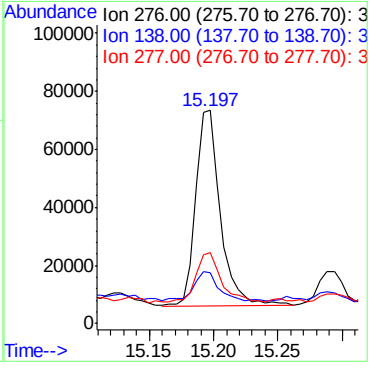




#101
Benzo[g,h,i]perylene
Concen: 11.26 ppb
RT: 15.197 min Scan# 2714
Delta R.T. 0.000 min
Lab File: 3e48850.D
Acq: 26 Mar 2013 6:48 pm

Tgt Ion:276 Resp: 91364

Ion	Ratio	Lower	Upper
276	100		
138	13.5	0.0	47.2
277	25.1	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2112\
Data File : 3e48866.D
Acq On : 27 Mar 2013 12:49 pm
Operator : olgaa
Sample : jb31121-4
Misc : op64464,e3e2112,35.6,,,1,10
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 27 17:09:19 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.596	152	100351	40.00	ppb	-0.02
24) Naphthalene-d8	4.163	136	377314	40.00	ppb	-0.01
47) Acenaphthene-d10	6.779	164	248250	40.00	ppb	0.02
69) Phenanthrene-d10	9.004	188	405516	40.00	ppb	0.01
83) Chrysene-d12	12.732	240	396395	40.00	ppb	-0.02
92) Perylene-d12	14.128	264	389456	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	2.596	152	100351	40.00	ppb	-0.02
104) Acenaphthene-d10a	6.779	164	248250	40.00	ppb	0.02
106) Phenanthrene-d10a	9.004	188	405516	40.00	ppb	0.01
108) Chrysene-d12a	12.732	240	396395	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.617	112	3764	1.11	ppb	0.03
Spiked Amount 50.000			Recovery	=	2.22%	
8) Phenol-d5	2.446	99	8700	2.04	ppb	0.04
Spiked Amount 50.000			Recovery	=	4.08%	
25) Nitrobenzene-d5	3.302	82	11704m	3.41	ppb	0.00
Spiked Amount 50.000			Recovery	=	6.82%	
51) 2-Fluorobiphenyl	5.832	172	27787	3.45	ppb	0.00
Spiked Amount 50.000			Recovery	=	6.90%	
73) 2,4,6-Tribromophenol	8.036	330	4318	3.67	ppb	0.02
Spiked Amount 50.000			Recovery	=	7.34%	
85) Terphenyl-d14	11.539	244	25850	2.98	ppb	-0.01
Spiked Amount 50.000			Recovery	=	5.96%	
Target Compounds						Qvalue
38) Naphthalene	4.185	128	60701	5.80	ppb	79
66) Fluorene	7.602	166	181882	21.69	ppb	91
77) Phenanthrene	9.041	178	407462	34.41	ppb	99
78) Anthracene	9.111	178	35429	3.02	ppb	95
81) Fluoranthene	10.865	202	116033	9.36	ppb	96
84) Pyrene	11.175	202	128398	10.20	ppb	100
88) Benzo[a]anthracene	12.716	228	43927	3.75	ppb	97
90) Chrysene	12.759	228	37135	3.50	ppb	96
94) Benzo[b]fluoranthene	13.812	252	32284m	2.54	ppb	
95) Benzo[k]fluoranthene	13.818	252	20656m	1.79	ppb	
96) Benzo[a]pyrene	14.080	252	22649	2.00	ppb	97
97) Indeno[1,2,3-cd]pyrene	14.978	276	13131	1.00	ppb	95
99) Dibenz[a,h]anthracene	14.984	278	5558m	0.50	ppb	
101) Benzo[g,h,i]perylene	15.149	276	12258	1.13	ppb	87

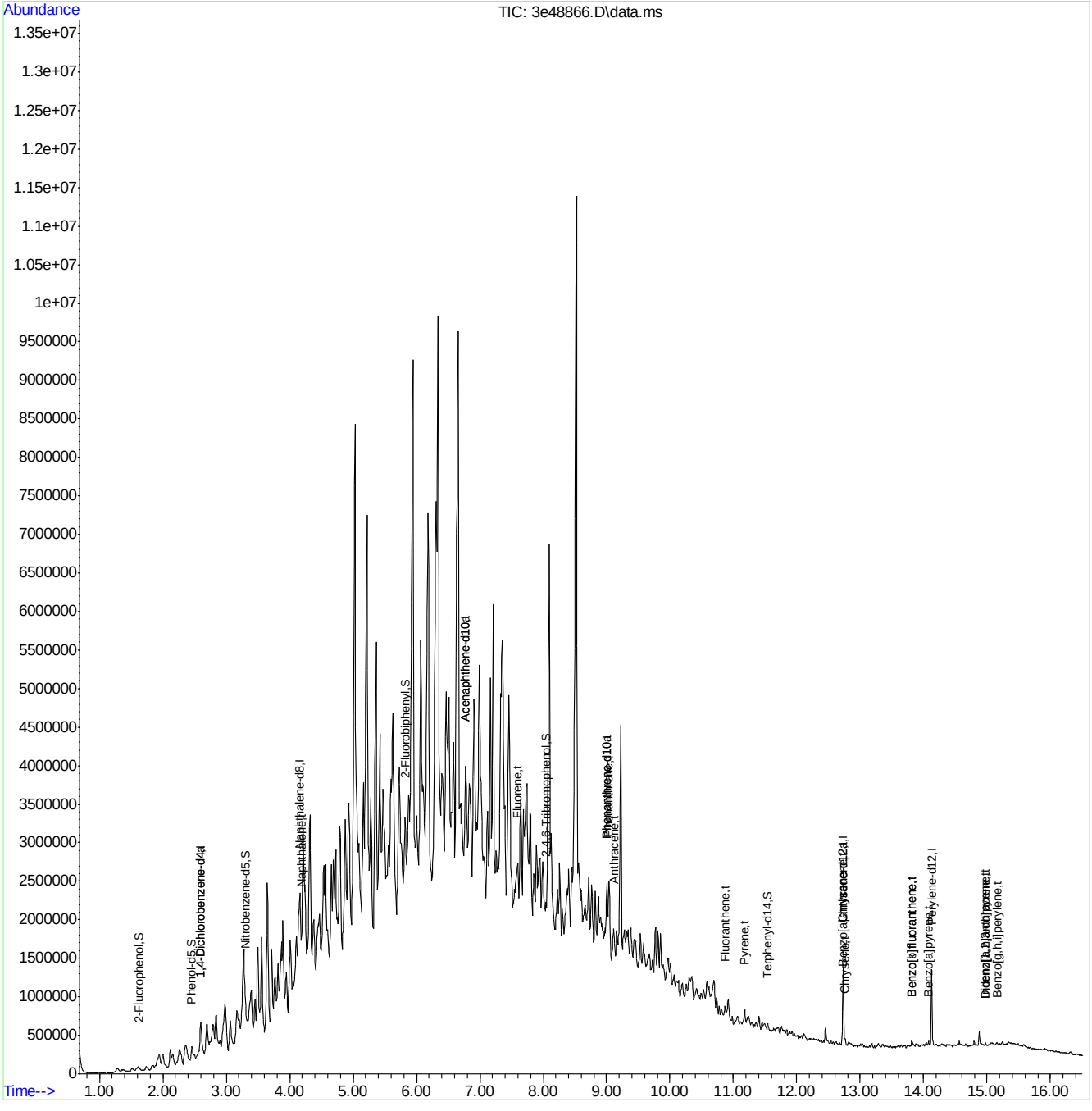
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.6
9

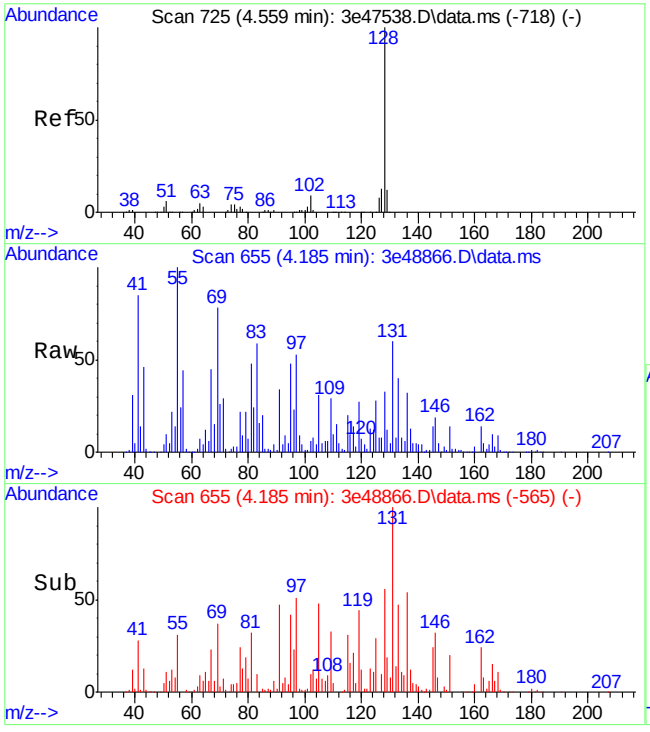
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2112\
Data File : 3e48866.D
Acq On : 27 Mar 2013 12:49 pm
Operator : olgaa
Sample : jb31121-4
Misc : op64464,e3e2112,35.6,,,1,10
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 27 17:09:19 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



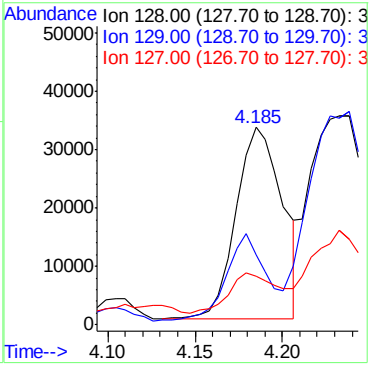
M3E2061.M Wed Mar 27 17:09:25 2013 MS3E Page: 2

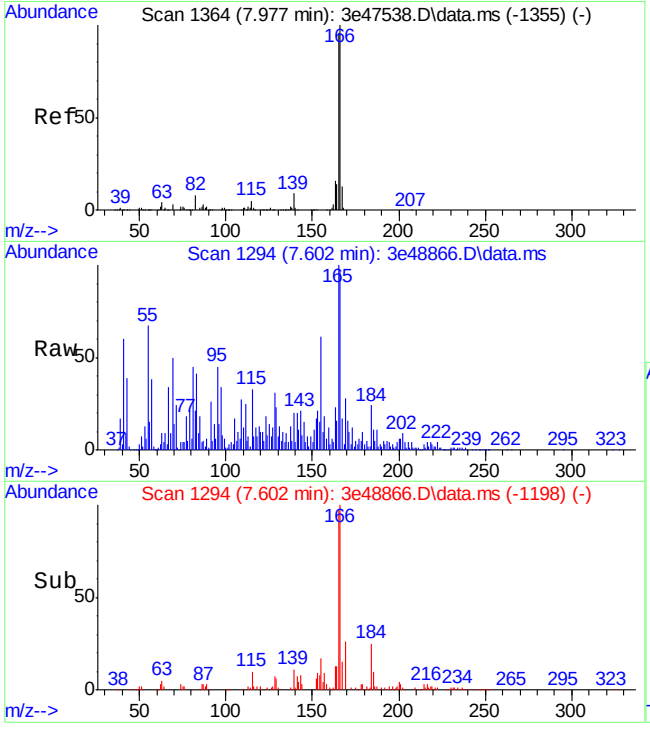


#38
Naphthalene
Concen: 5.80 ppb
RT: 4.185 min Scan# 655
Delta R.T. -0.016 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:128 Resp: 60701

Ion	Ratio	Lower	Upper
128	100		
129	26.9	0.0	41.7
127	14.5	0.0	42.7

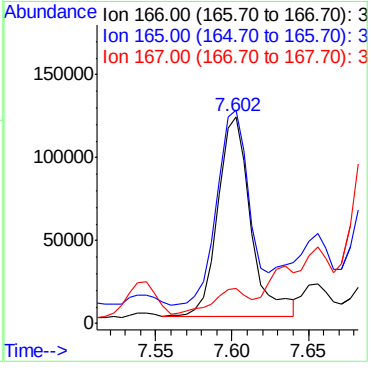


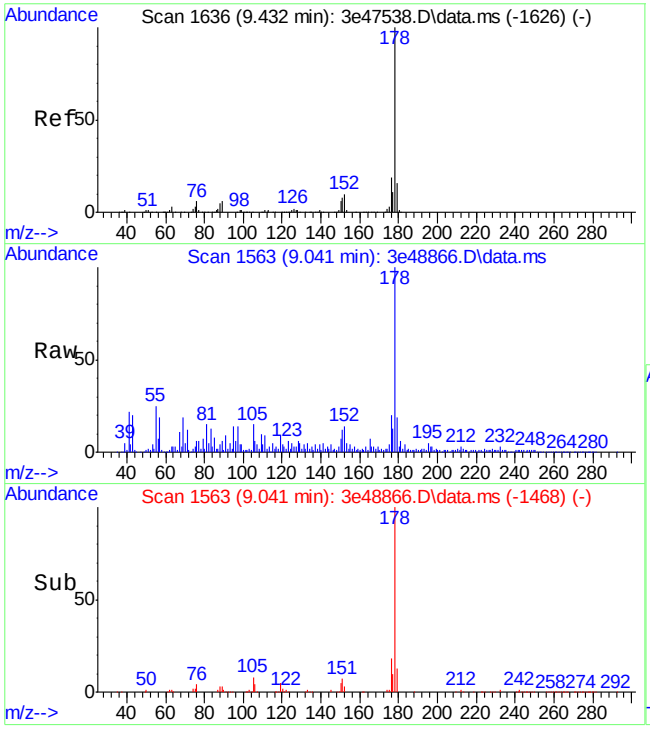


#66
Fluorene
Concen: 21.69 ppb
RT: 7.602 min Scan# 1294
Delta R.T. 0.016 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:166 Resp: 181882

Ion	Ratio	Lower	Upper
166	100		
165	89.6	65.7	125.7
167	0.6	0.0	43.4

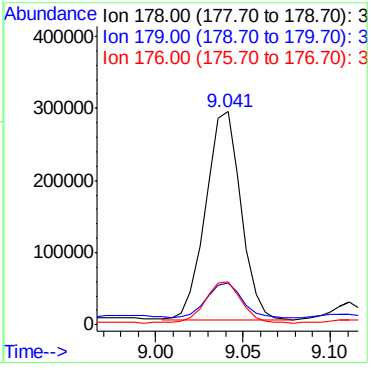


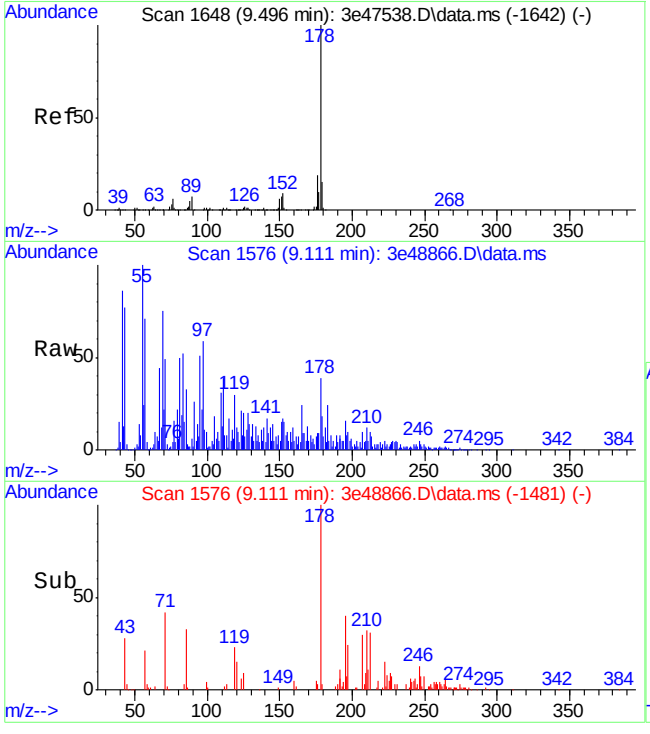


#77
Phenanthrene
Concen: 34.41 ppb
RT: 9.041 min Scan# 1563
Delta R.T. 0.011 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:178 Resp: 407462

Ion	Ratio	Lower	Upper
178	100		
179	16.4	0.0	45.7
176	19.8	0.0	49.5

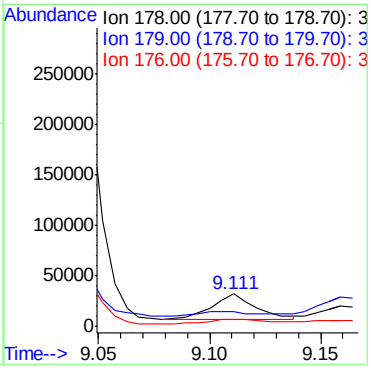


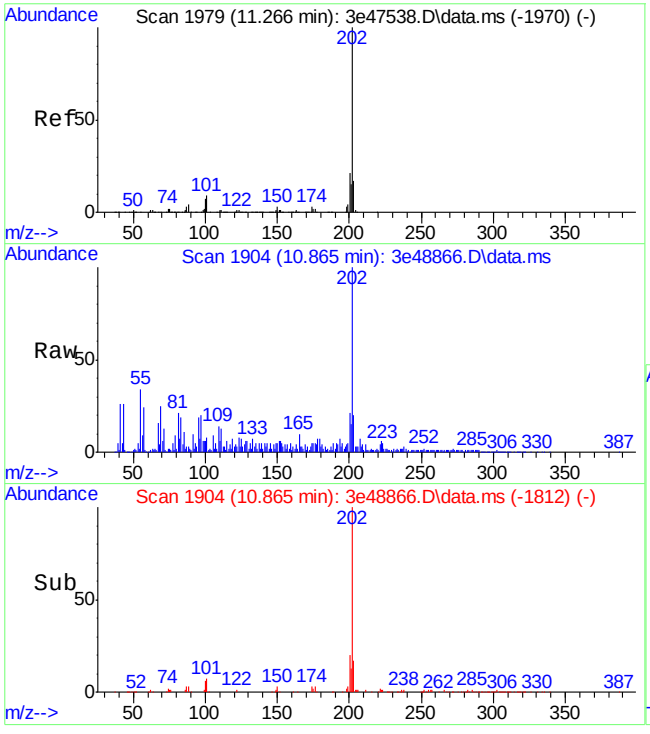


#78
Anthracene
Concen: 3.02 ppb
RT: 9.111 min Scan# 1576
Delta R.T. 0.011 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:178 Resp: 35429

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.1
176	14.9	0.0	48.6

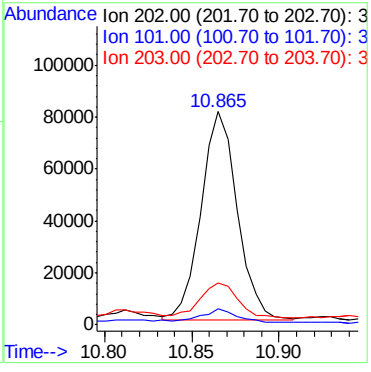


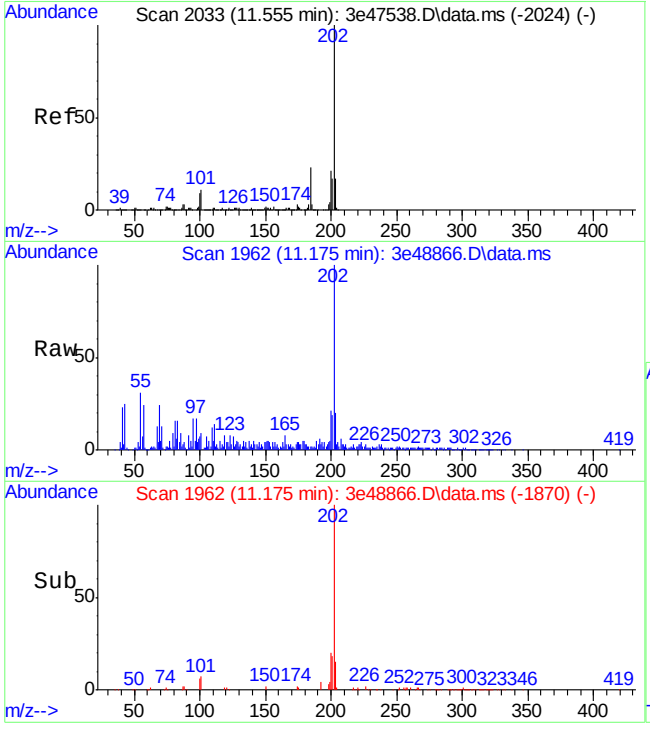


#81
Fluoranthene
Concen: 9.36 ppb
RT: 10.865 min Scan# 1904
Delta R.T. -0.005 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:202 Resp: 116033

Ion	Ratio	Lower	Upper
202	100		
101	5.9	0.0	39.1
203	16.4	0.0	47.3

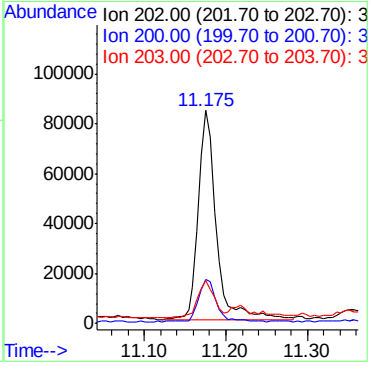


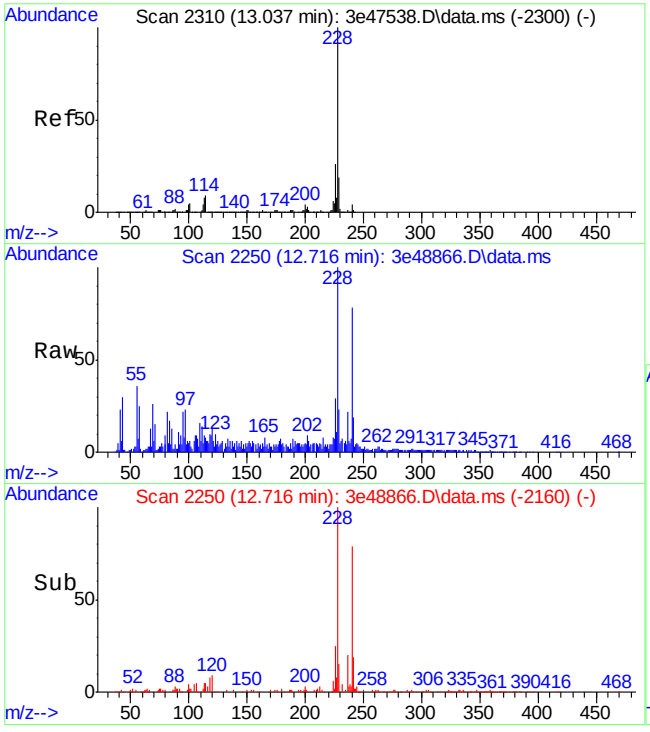


#84
Pyrene
Concen: 10.20 ppb
RT: 11.175 min Scan# 1962
Delta R.T. -0.005 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:202 Resp: 128398

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.6
203	17.3	0.0	47.2

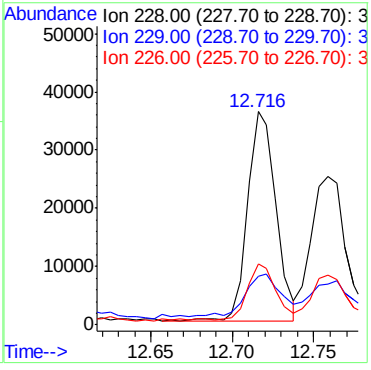


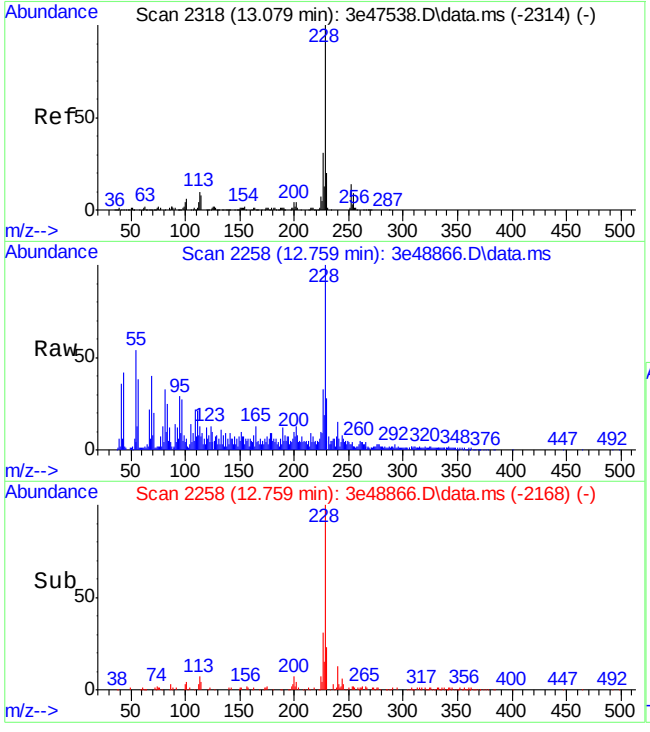


#88
Benzo[a]anthracene
Concen: 3.75 ppb
RT: 12.716 min Scan# 2250
Delta R.T. -0.016 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:228 Resp: 43927

Ion	Ratio	Lower	Upper
228	100		
229	16.9	0.0	49.3
226	26.2	0.0	55.8

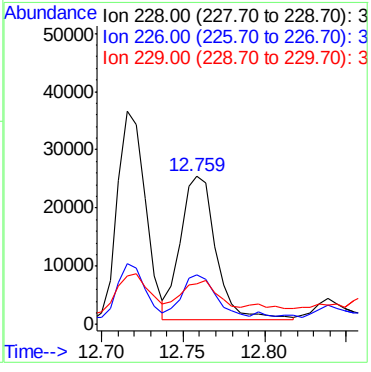


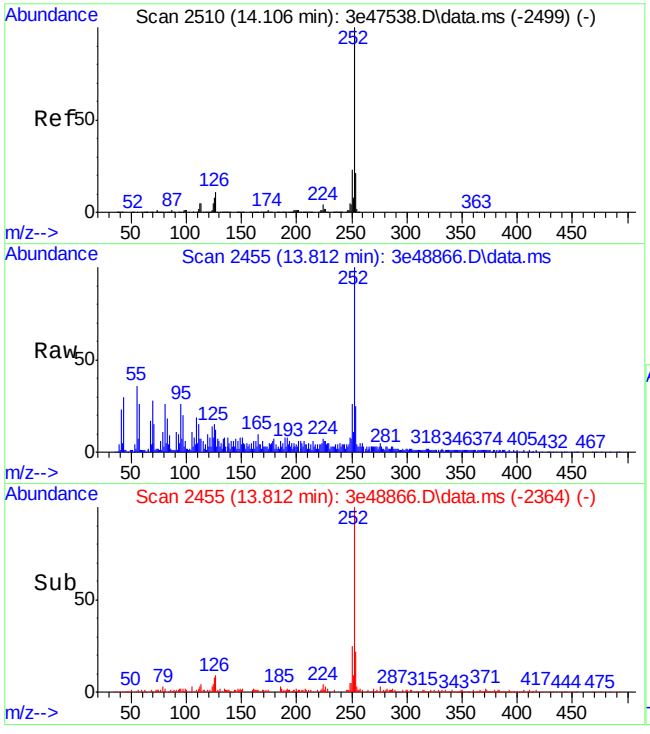


#90
Chrysene
Concen: 3.50 ppb
RT: 12.759 min Scan# 2258
Delta R.T. -0.016 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:228 Resp: 37135

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.6	60.6
229	17.2	0.0	50.3

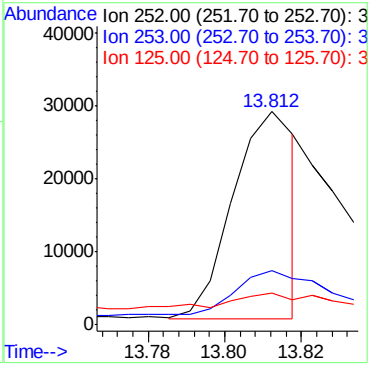


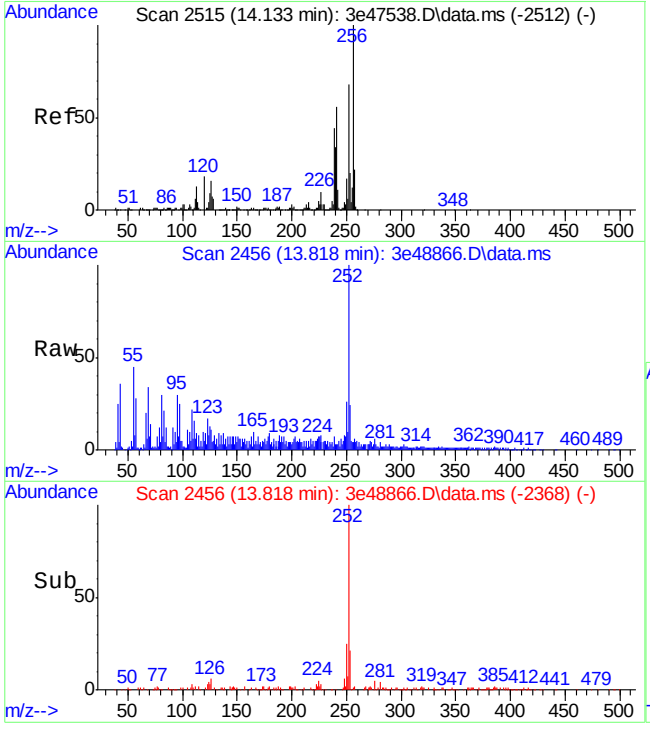


#94
Benzo[b]fluoranthene
Concen: 2.54 ppb m
RT: 13.812 min Scan# 2455
Delta R.T. -0.011 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:252 Resp: 32284

Ion	Ratio	Lower	Upper
252	100		
253	25.1	0.0	51.0
125	14.9	0.0	38.1

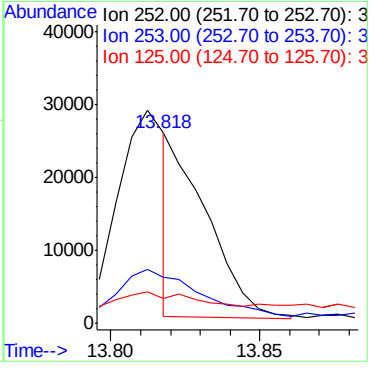




#95
Benzo[k]fluoranthene
Concen: 1.79 ppb m
RT: 13.818 min Scan# 2456
Delta R.T. -0.027 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

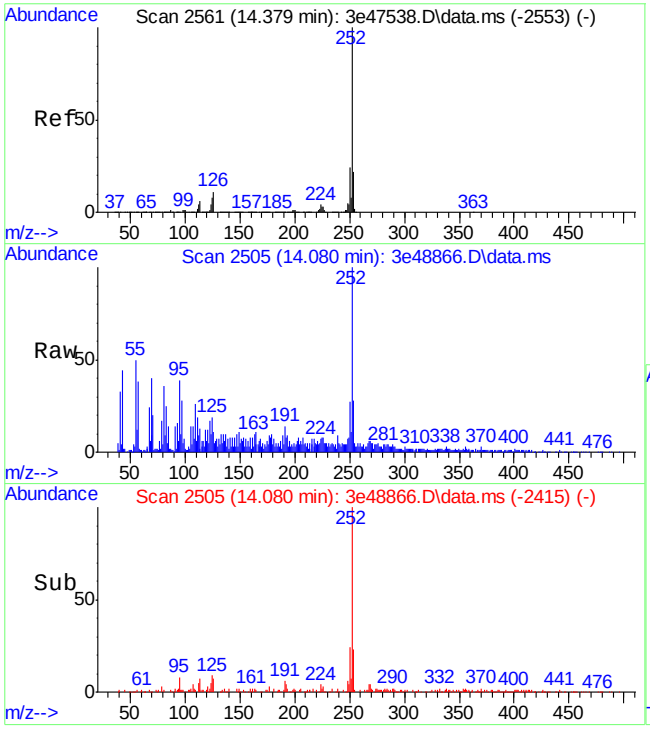
Tgt Ion:252 Resp: 20656

Ion	Ratio	Lower	Upper
252	100		
253	24.0	0.0	56.2
125	13.2	0.0	41.2



9.1.6

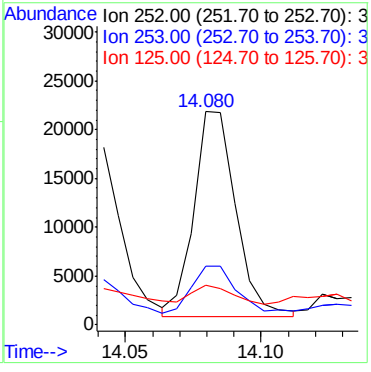
9

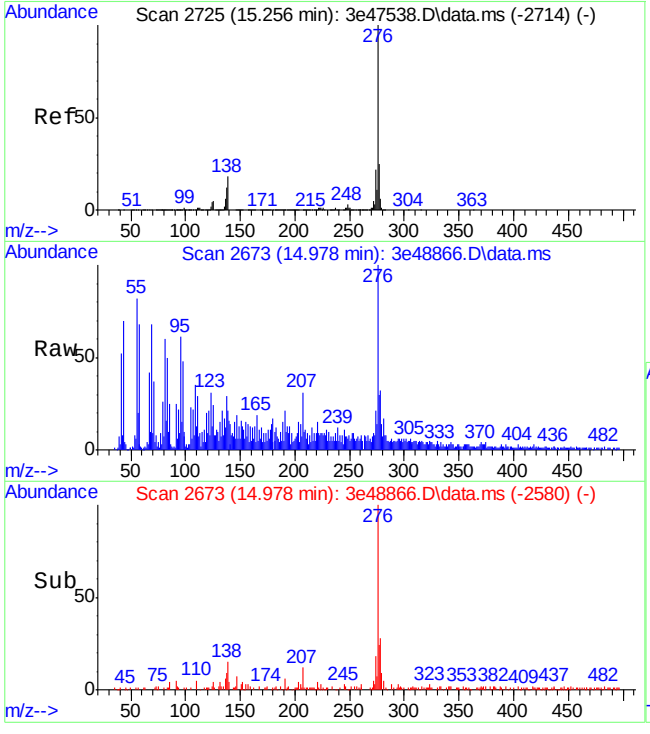


#96
Benzo[a]pyrene
Concen: 2.00 ppb
RT: 14.080 min Scan# 2505
Delta R.T. -0.016 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:252 Resp: 22649

Ion	Ratio	Lower	Upper
252	100		
253	23.2	0.0	52.0
125	6.8	0.0	38.1

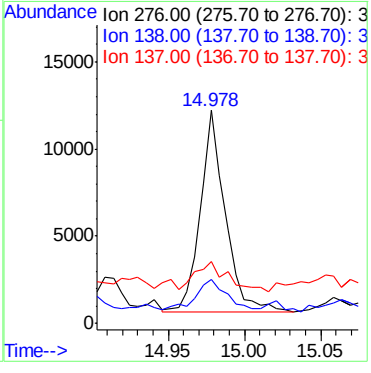


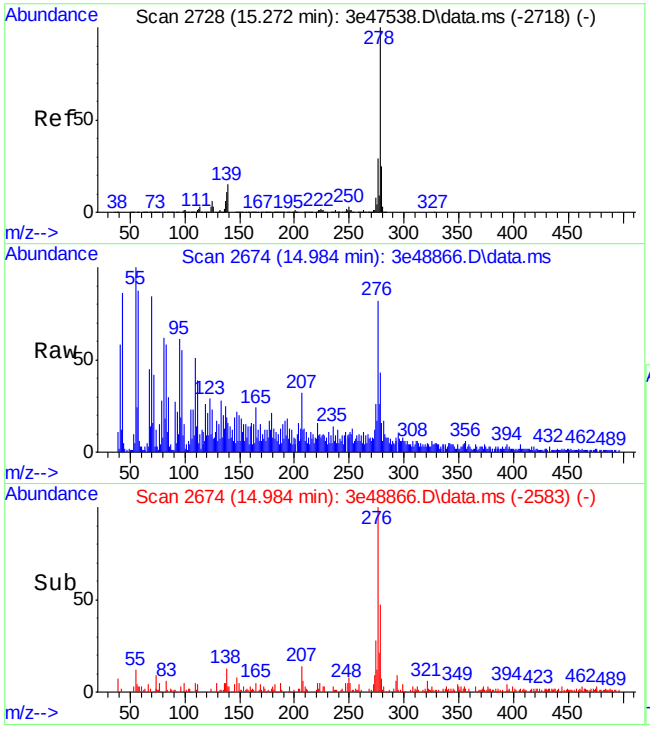


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.00 ppb
RT: 14.978 min Scan# 2673
Delta R.T. -0.000 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:276 Resp: 13131

Ion	Ratio	Lower	Upper
276	100		
138	15.1	0.0	47.7
137	10.7	0.0	42.0

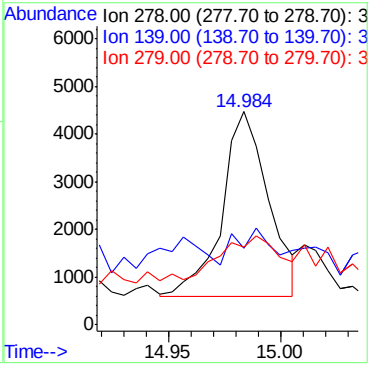


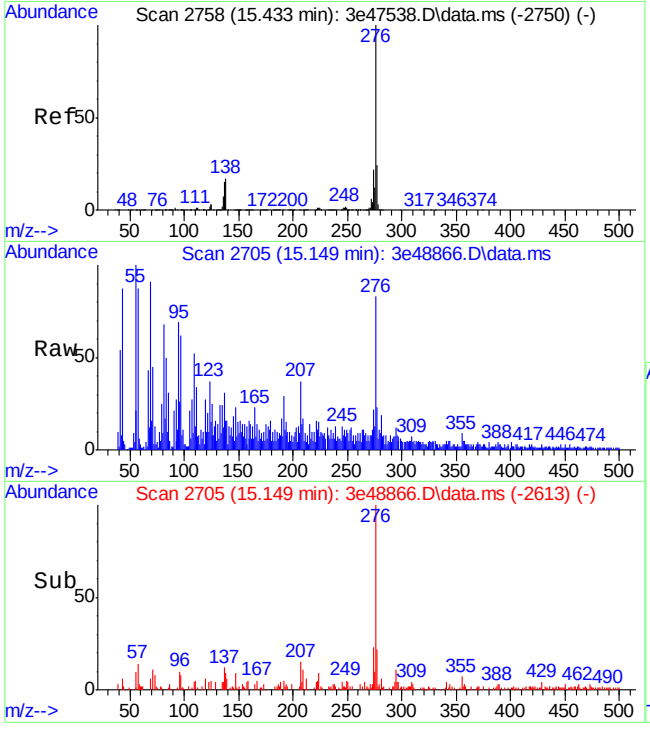


#99
Dibenz[a,h]anthracene
Concen: 0.50 ppb m
RT: 14.984 min Scan# 2674
Delta R.T. -0.011 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:278 Resp: 5558

Ion	Ratio	Lower	Upper
278	100		
139	36.2	0.0	44.8
279	36.5	0.0	54.9

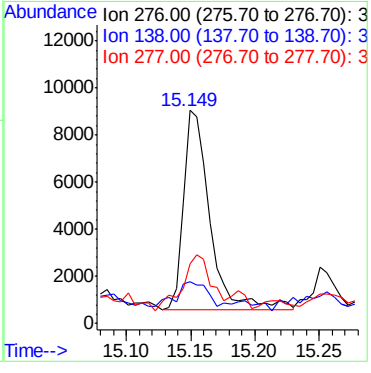




#101
Benzo[g,h,i]perylene
Concen: 1.13 ppb
RT: 15.149 min Scan# 2705
Delta R.T. -0.005 min
Lab File: 3e48866.D
Acq: 27 Mar 2013 12:49 pm

Tgt Ion:276 Resp: 12258

Ion	Ratio	Lower	Upper
276	100		
138	8.3	0.0	47.2
277	20.1	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48851.D
Acq On : 26 Mar 2013 7:12 pm
Operator : olgaa
Sample : jb31121-5
Misc : op64464,e3e2111,36.0
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 27 14:22:28 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.612	152	108146	40.00	ppb	0.00
24) Naphthalene-d8	4.174	136	425384	40.00	ppb	0.00
47) Acenaphthene-d10	6.763	164	258649	40.00	ppb	0.00
69) Phenanthrene-d10	9.004	188	479339	40.00	ppb	0.01
83) Chrysene-d12	12.769	240	533003	40.00	ppb	0.02
92) Perylene-d12	14.176	264	520147	40.00	ppb	0.04
102) 1,4-Dichlorobenzene-d4a	2.612	152	108146	40.00	ppb	0.00
104) Acenaphthene-d10a	6.763	164	258649	40.00	ppb	0.00
106) Phenanthrene-d10a	9.004	188	479339	40.00	ppb	0.01
108) Chrysene-d12a	12.769	240	533003	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.601	112	44886	12.26	ppb	0.02
Spiked Amount 50.000			Recovery = 24.52%			
8) Phenol-d5	2.431	99	63767	13.87	ppb	0.03
Spiked Amount 50.000			Recovery = 27.74%			
25) Nitrobenzene-d5	3.308	82	55166	14.26	ppb	0.00
Spiked Amount 50.000			Recovery = 28.52%			
51) 2-Fluorobiphenyl	5.827	172	159755	19.03	ppb	0.00
Spiked Amount 50.000			Recovery = 38.06%			
73) 2,4,6-Tribromophenol	8.025	330	39644	28.54	ppb	0.01
Spiked Amount 50.000			Recovery = 57.08%			
85) Terphenyl-d14	11.566	244	297490	25.51	ppb	0.02
Spiked Amount 50.000			Recovery = 51.02%			

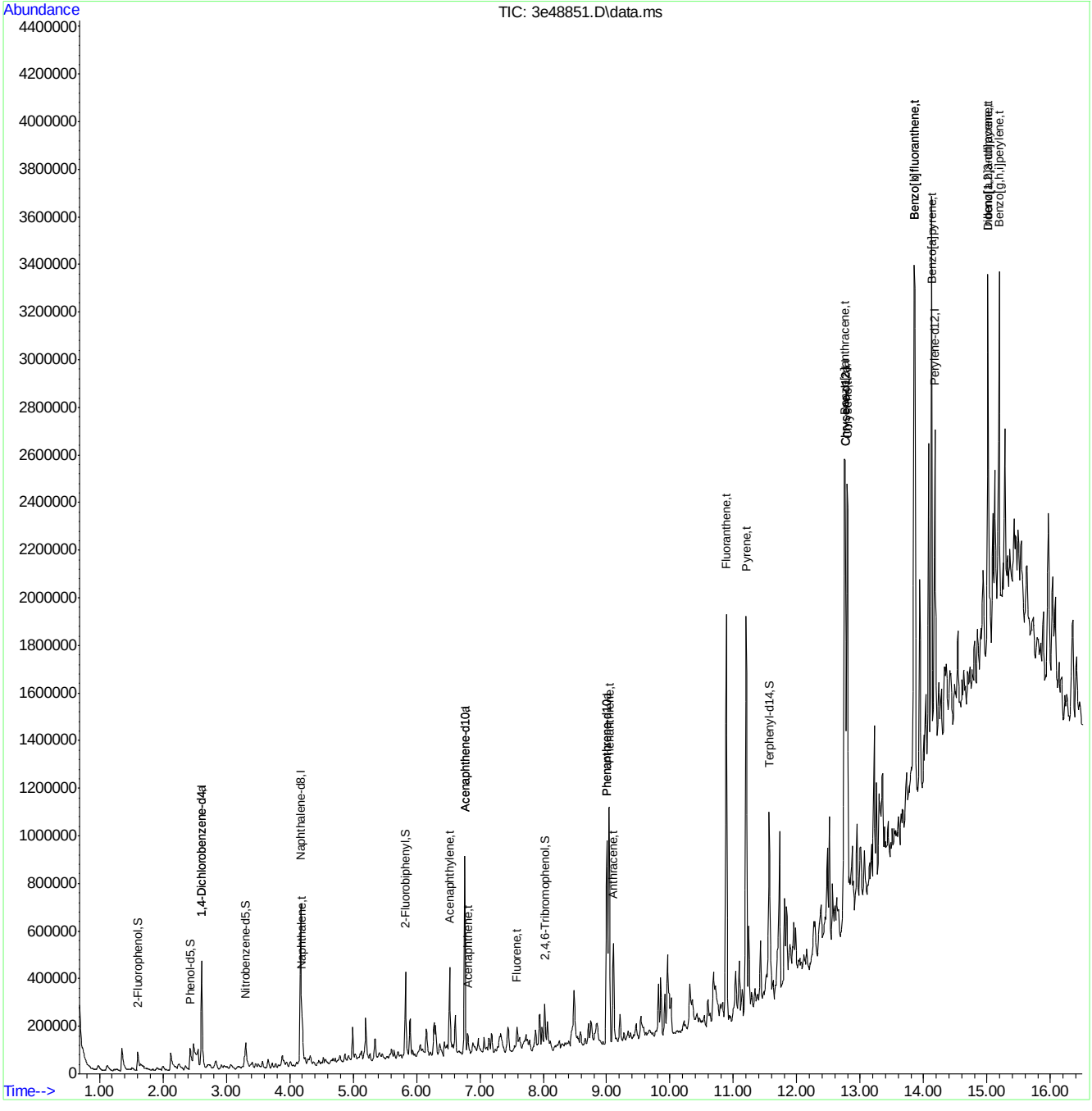
Target Compounds						Qvalue
38) Naphthalene	4.196	128	113597	9.63	ppb	99
56) Acenaphthylene	6.522	152	255691	20.78	ppb	98
59) Acenaphthene	6.806	153	27477	3.51	ppb	91
66) Fluorene	7.587	166	55838	6.39	ppb	100
77) Phenanthrene	9.041	178	595059	42.51	ppb	99
78) Anthracene	9.106	178	272960	19.67	ppb	99
81) Fluoranthene	10.892	202	1130425	77.16	ppb	98
84) Pyrene	11.202	202	1065471	62.95	ppb	99
88) Benzo[a]anthracene	12.753	228	964585	61.18	ppb	92
90) Chrysene	12.796	228	861270	60.44	ppb	98
94) Benzo[b]fluoranthene	13.855	252	1212854m	71.39	ppb	
95) Benzo[k]fluoranthene	13.861	252	560914m	36.48	ppb	
96) Benzo[a]pyrene	14.128	252	1027636	67.90	ppb	98
97) Indeno[1,2,3-cd]pyrene	15.016	276	720371	41.14	ppb	95
99) Dibenz[a,h]anthracene	15.021	278	292543m	19.74	ppb	
101) Benzo[g,h,i]perylene	15.192	276	612540	42.44	ppb	96

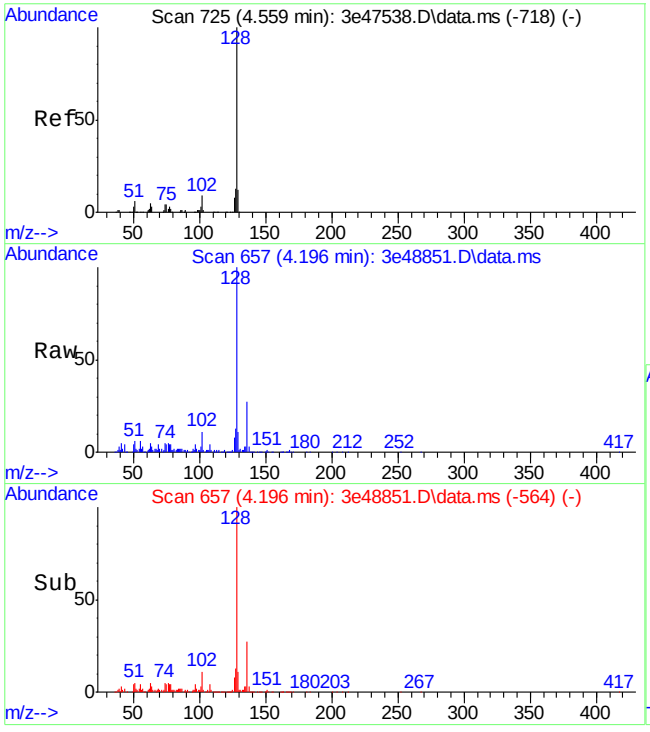
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48851.D
Acq On : 26 Mar 2013 7:12 pm
Operator : olgaa
Sample : jb31121-5
Misc : op64464,e3e2111,36.0
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 27 14:22:28 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

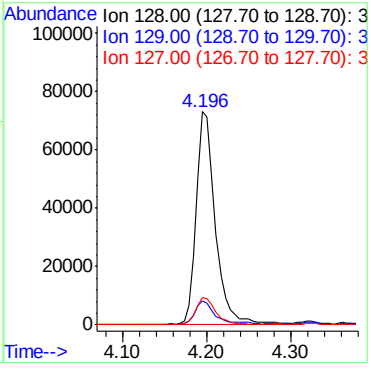


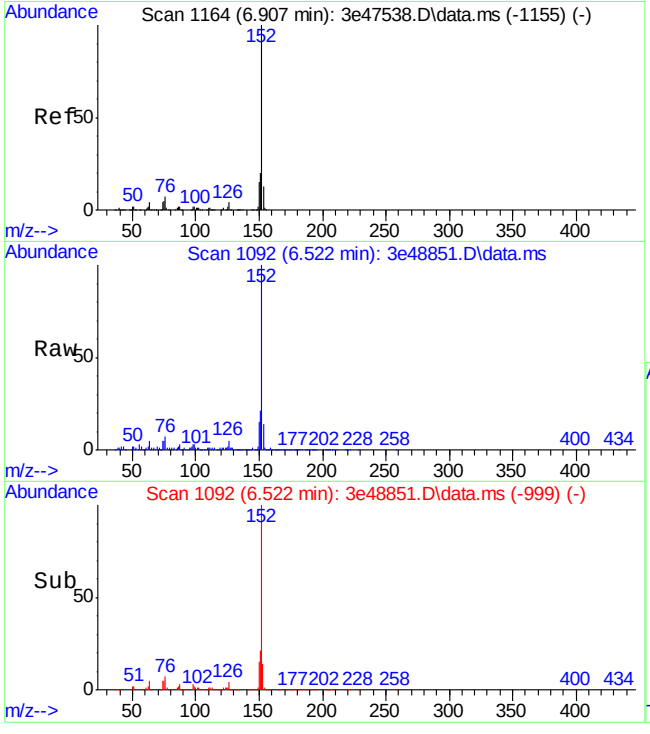


#38
Naphthalene
Concen: 9.63 ppb
RT: 4.196 min Scan# 657
Delta R.T. -0.005 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:128 Resp: 113597

Ion	Ratio	Lower	Upper
128	100		
129	10.7	0.0	41.7
127	12.7	0.0	42.7

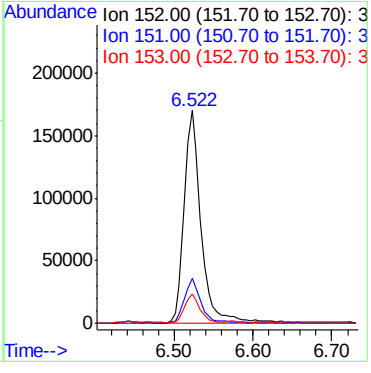


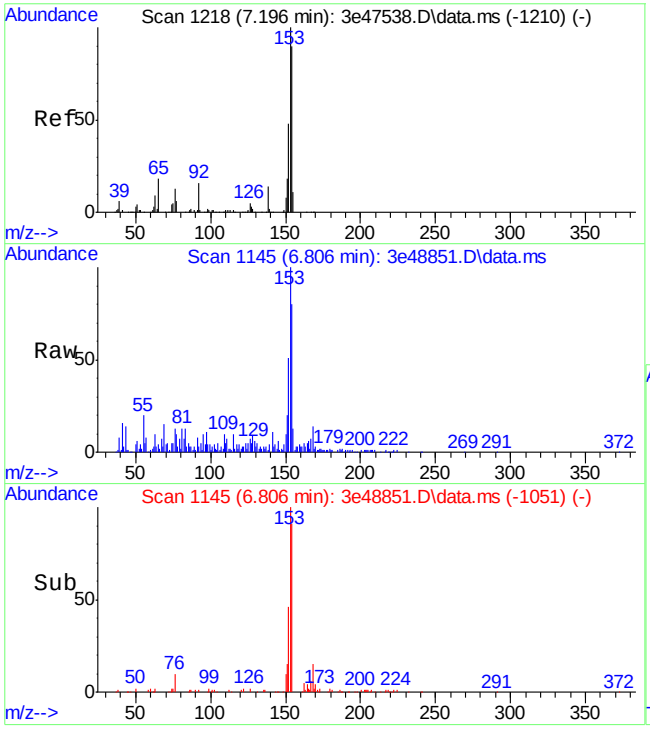


#56
Acenaphthylene
Concen: 20.78 ppb
RT: 6.522 min Scan# 1092
Delta R.T. 0.000 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:152 Resp: 255691

Ion	Ratio	Lower	Upper
152	100		
151	21.0	0.0	49.9
153	13.6	0.0	43.2

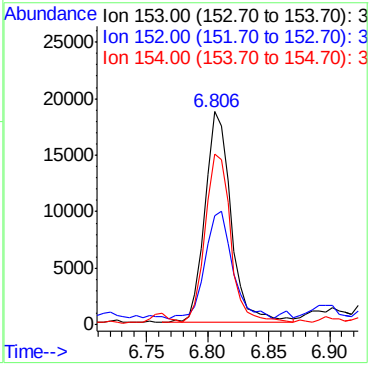


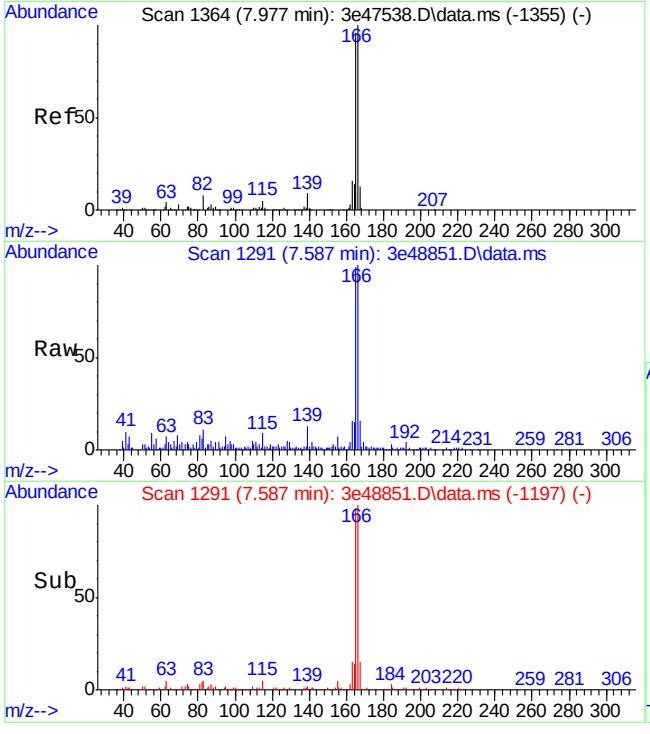


#59
Acenaphthene
Concen: 3.51 ppb
RT: 6.806 min Scan# 1145
Delta R.T. 0.000 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:153 Resp: 27477

Ion	Ratio	Lower	Upper
153	100		
152	48.1	17.8	77.8
154	78.1	60.3	120.3

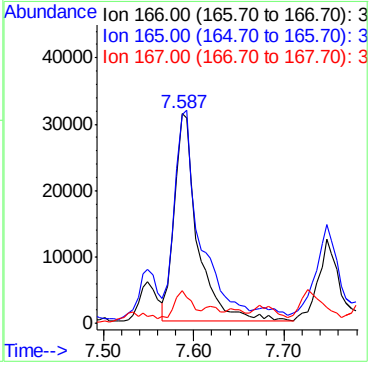


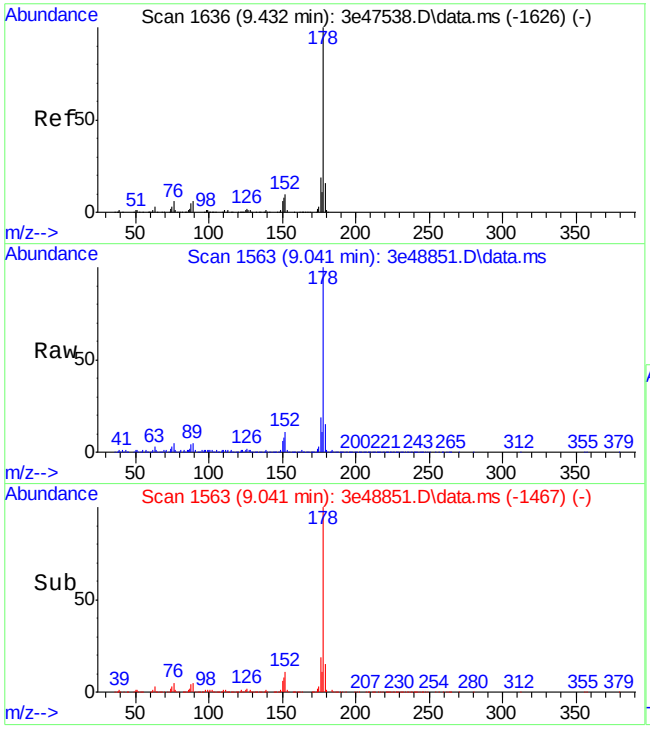


#66
Fluorene
Concen: 6.39 ppb
RT: 7.587 min Scan# 1291
Delta R.T. 0.000 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:166 Resp: 55838

Ion	Ratio	Lower	Upper
166	100		
165	95.9	65.7	125.7
167	12.9	0.0	43.4

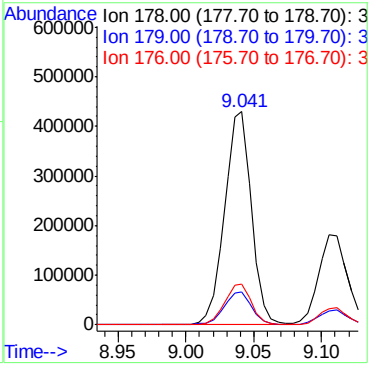


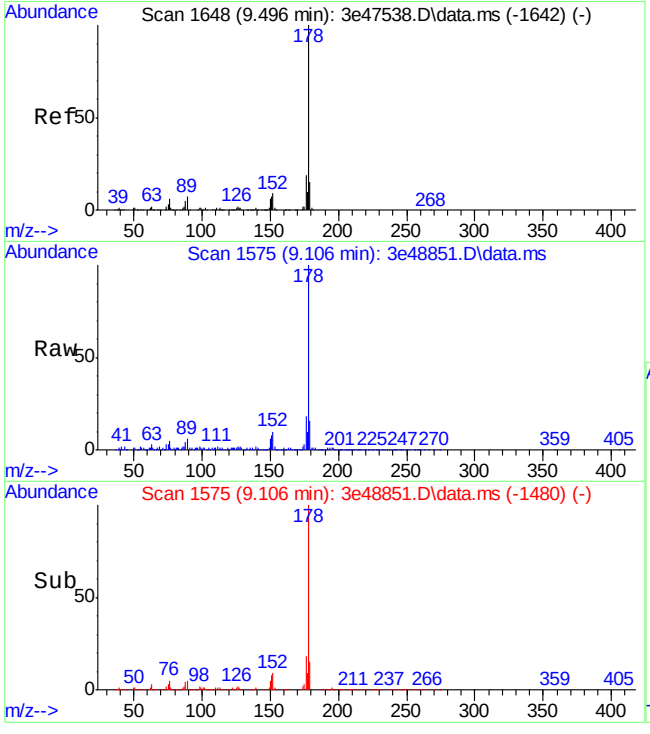


#77
Phenanthrene
Concen: 42.51 ppb
RT: 9.041 min Scan# 1563
Delta R.T. 0.011 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:178 Resp: 595059

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.7
176	19.3	0.0	49.5

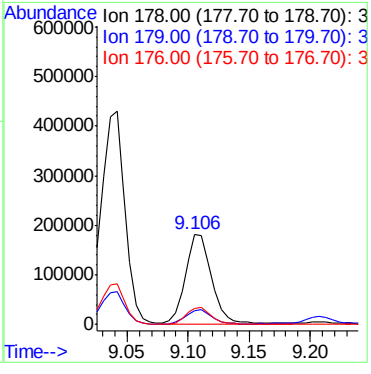


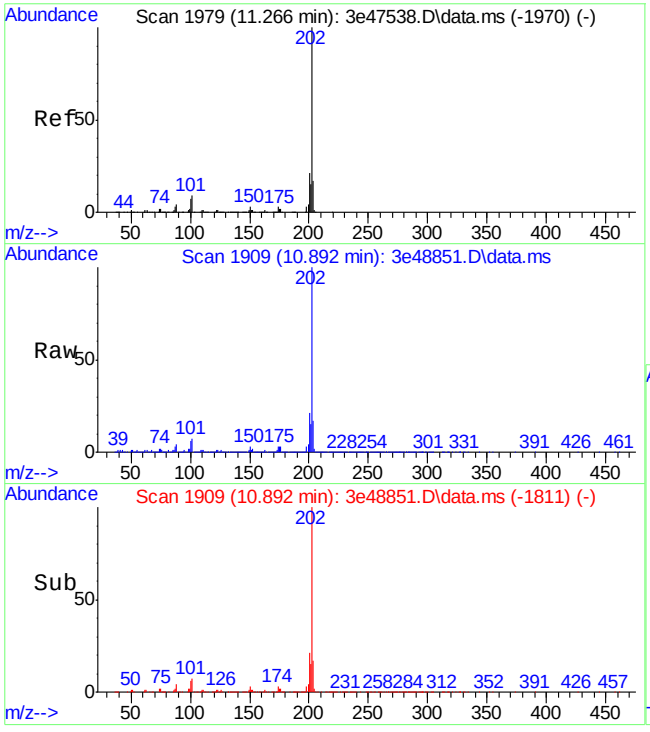


#78
Anthracene
Concen: 19.67 ppb
RT: 9.106 min Scan# 1575
Delta R.T. 0.005 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:178 Resp: 272960

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.1
176	18.2	0.0	48.6

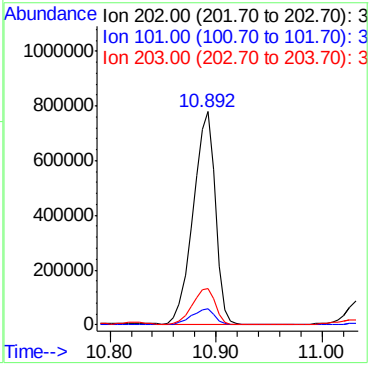


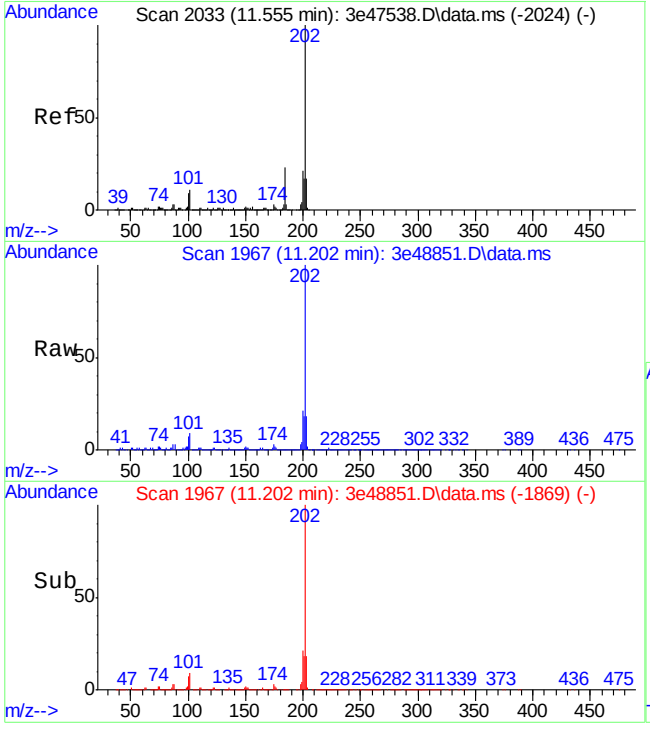


#81
Fluoranthene
Concen: 77.16 ppb
RT: 10.892 min Scan# 1909
Delta R.T. 0.021 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:202 Resp: 1130425

Ion	Ratio	Lower	Upper
202	100		
101	7.4	0.0	39.1
203	17.0	0.0	47.3

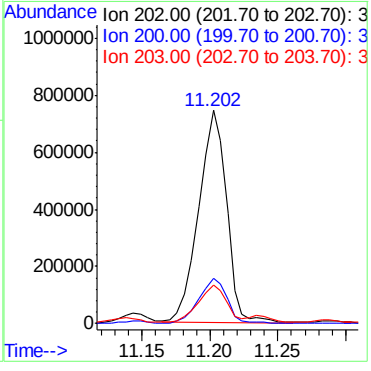




#84
Pyrene
Concen: 62.95 ppb
RT: 11.202 min Scan# 1967
Delta R.T. 0.021 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

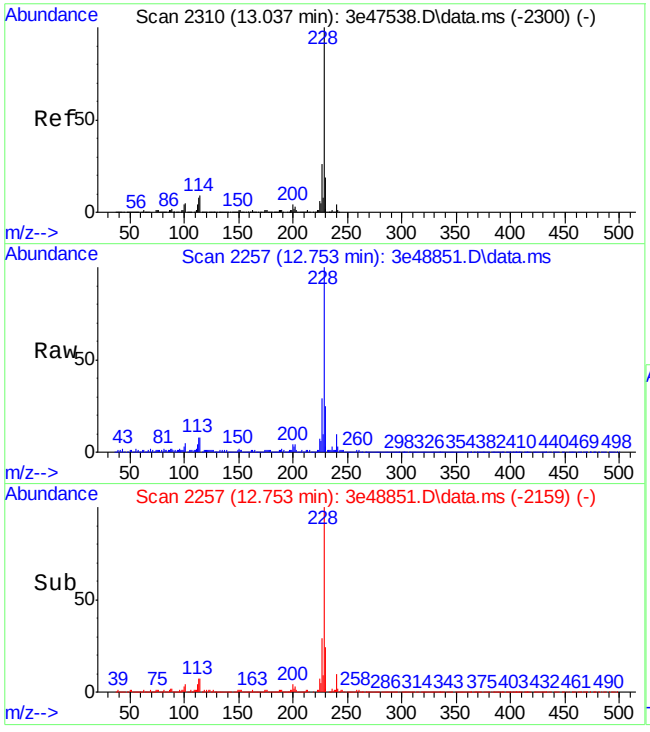
Tgt Ion:202 Resp: 1065471

Ion	Ratio	Lower	Upper
202	100		
200	21.0	0.0	50.6
203	17.9	0.0	47.2



9.1.7

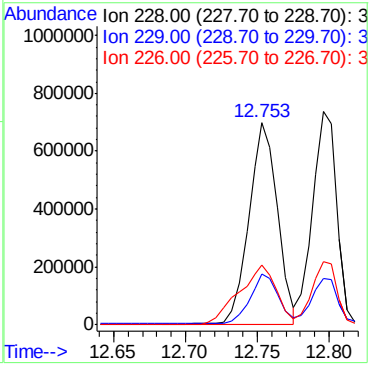
9

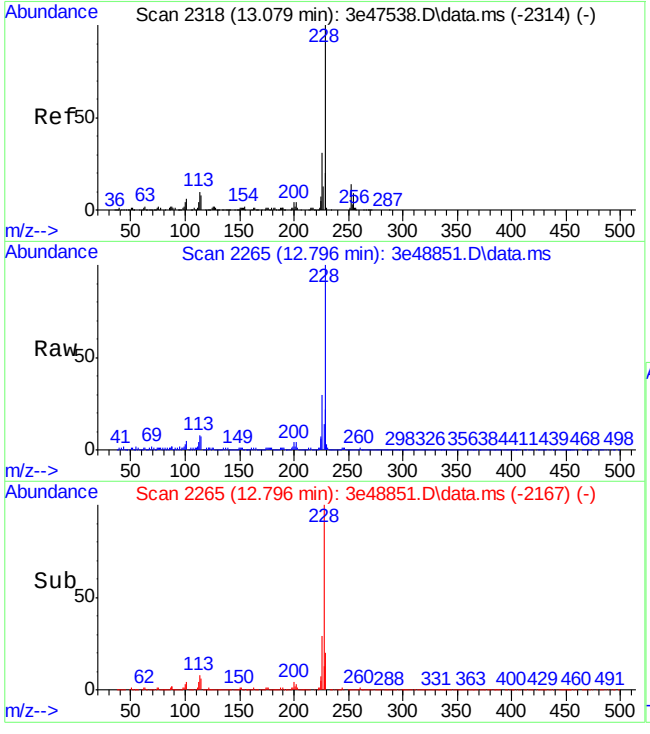


#88
Benzo[a]anthracene
Concen: 61.18 ppb
RT: 12.753 min Scan# 2257
Delta R.T. 0.021 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:228 Resp: 964585

Ion	Ratio	Lower	Upper
228	100		
229	23.8	0.0	49.3
226	28.9	0.0	55.8

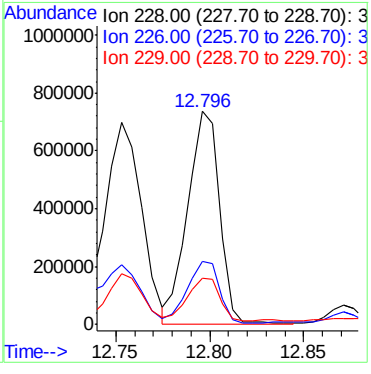


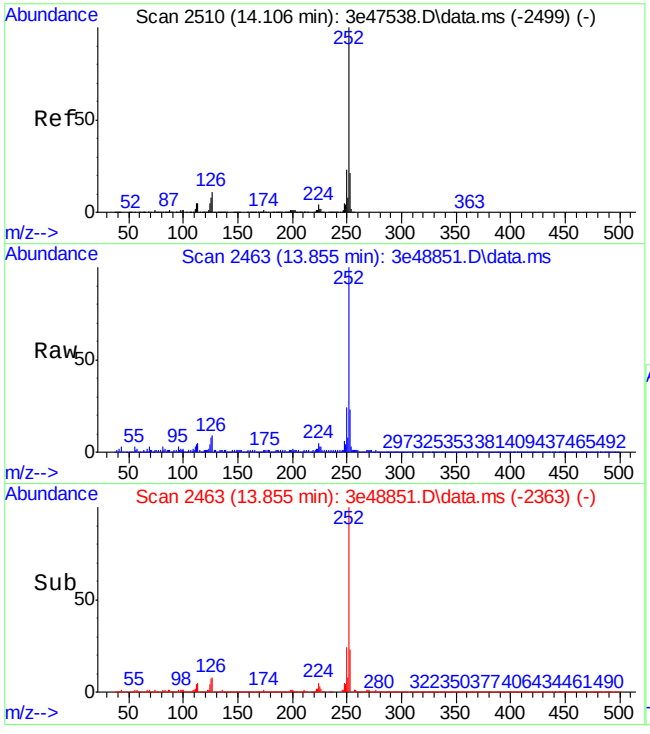


#90
Chrysene
Concen: 60.44 ppb
RT: 12.796 min Scan# 2265
Delta R.T. 0.021 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:228 Resp: 861270

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.6	60.6
229	19.9	0.0	50.3

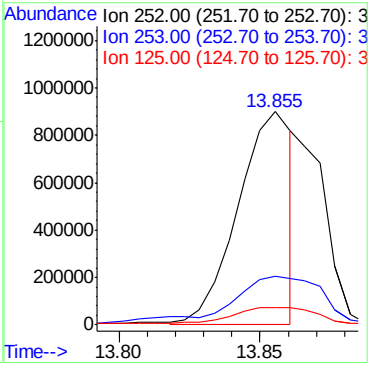


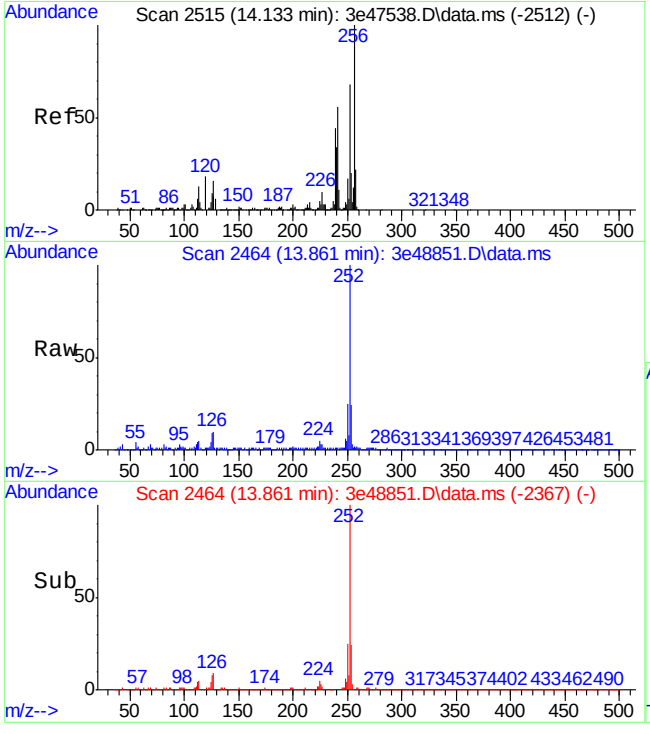


#94
Benzo[b]fluoranthene
Concen: 71.39 ppb m
RT: 13.855 min Scan# 2463
Delta R.T. 0.032 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:252 Resp: 1212854

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	51.0
125	8.0	0.0	38.1

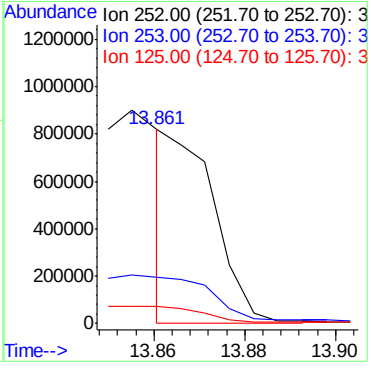


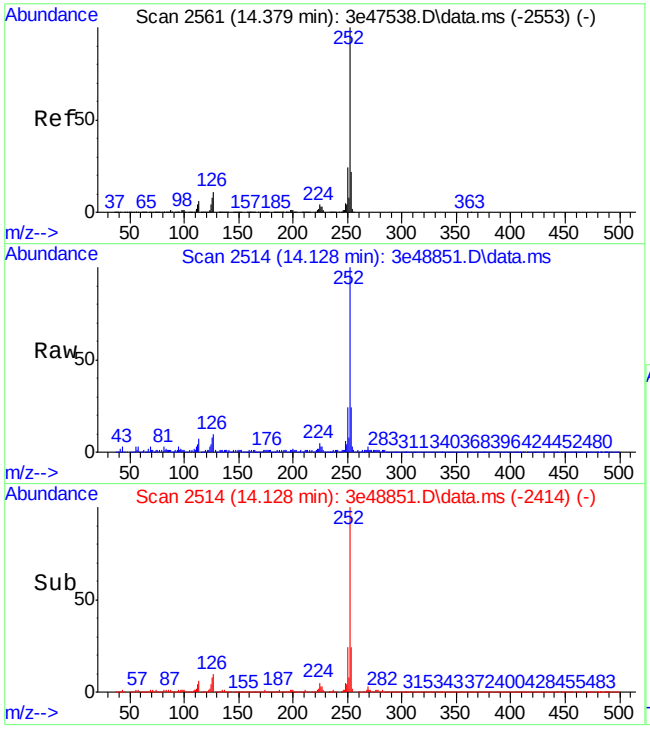


#95
Benzo[k]fluoranthene
Concen: 36.48 ppb m
RT: 13.861 min Scan# 2464
Delta R.T. 0.016 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:252 Resp: 560914

Ion	Ratio	Lower	Upper
252	100		
253	24.0	0.0	56.2
125	9.0	0.0	41.2

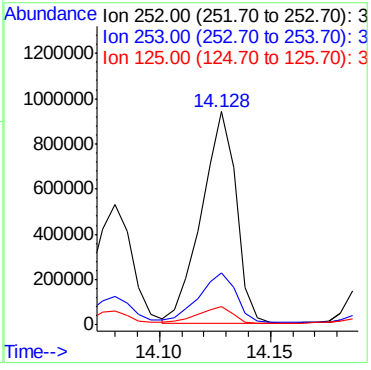


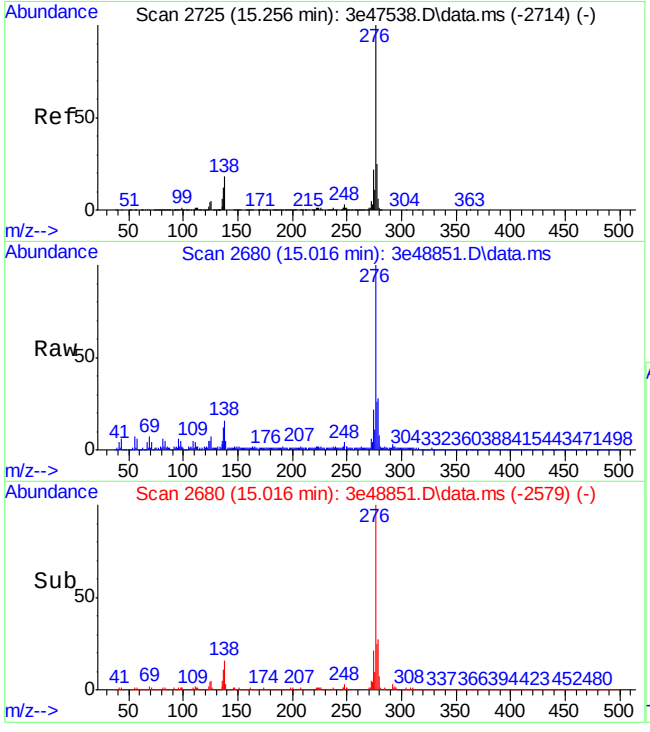


#96
Benzo[a]pyrene
Concen: 67.90 ppb
RT: 14.128 min Scan# 2514
Delta R.T. 0.032 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:252 Resp: 1027636

Ion	Ratio	Lower	Upper
252	100		
253	23.1	0.0	52.0
125	7.5	0.0	38.1

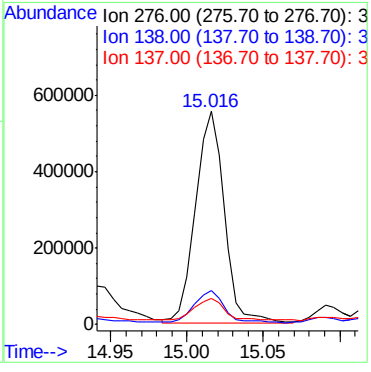


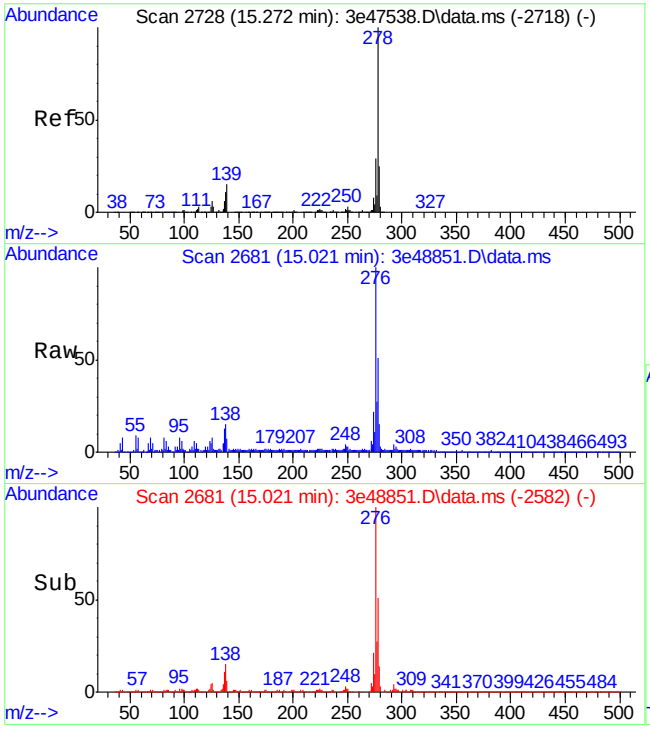


#97
Indeno[1,2,3-cd]pyrene
Concen: 41.14 ppb
RT: 15.016 min Scan# 2680
Delta R.T. 0.038 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:276 Resp: 720371

Ion	Ratio	Lower	Upper
276	100		
138	15.2	0.0	47.7
137	10.2	0.0	42.0

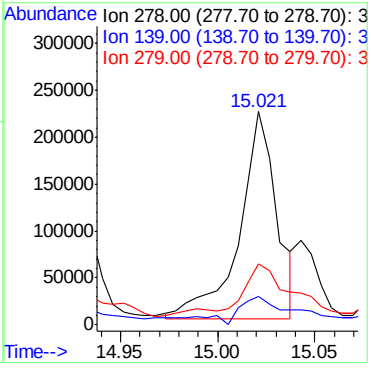


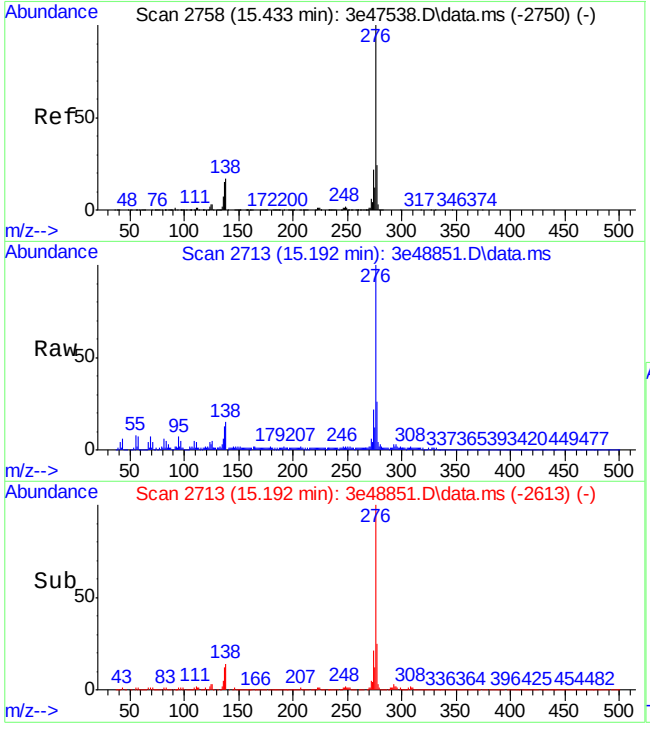


#99
Dibenz[a,h]anthracene
Concen: 19.74 ppb m
RT: 15.021 min Scan# 2681
Delta R.T. 0.027 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:278 Resp: 292543

Ion	Ratio	Lower	Upper
278	100		
139	13.5	0.0	44.8
279	28.5	0.0	54.9

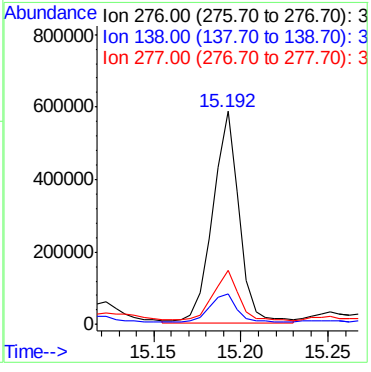




#101
Benzo[g,h,i]perylene
Concen: 42.44 ppb
RT: 15.192 min Scan# 2713
Delta R.T. 0.038 min
Lab File: 3e48851.D
Acq: 26 Mar 2013 7:12 pm

Tgt Ion:276 Resp: 612540

Ion	Ratio	Lower	Upper
276	100		
138	13.7	0.0	47.2
277	24.0	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48852.D
Acq On : 26 Mar 2013 7:35 pm
Operator : olgaa
Sample : jb31121-6
Misc : op64464,e3e2111,32.1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 27 14:21:37 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	88841	40.00	ppb	-0.01
24) Naphthalene-d8	4.174	136	396753	40.00	ppb	0.00
47) Acenaphthene-d10	6.763	164	248522	40.00	ppb	0.00
69) Phenanthrene-d10	9.004	188	439374	40.00	ppb	0.01
83) Chrysene-d12	12.769	240	450401	40.00	ppb	0.02
92) Perylene-d12	14.176	264	449933	40.00	ppb	0.04
102) 1,4-Dichlorobenzene-d4a	2.607	152	88841	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.763	164	248522	40.00	ppb	0.00
106) Phenanthrene-d10a	9.004	188	439374	40.00	ppb	0.01
108) Chrysene-d12a	12.769	240	450401	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.607	112	62587	20.81	ppb	0.02
Spiked Amount 50.000			Recovery = 41.62%			
8) Phenol-d5	2.452	99	80206	21.24	ppb	0.05
Spiked Amount 50.000			Recovery = 42.48%			
25) Nitrobenzene-d5	3.302	82	71270	19.75	ppb	0.00
Spiked Amount 50.000			Recovery = 39.50%			
51) 2-Fluorobiphenyl	5.827	172	187298	23.22	ppb	0.00
Spiked Amount 50.000			Recovery = 46.44%			
73) 2,4,6-Tribromophenol	8.025	330	38076	29.90	ppb	0.01
Spiked Amount 50.000			Recovery = 59.80%			
85) Terphenyl-d14	11.566	244	255725	25.95	ppb	0.02
Spiked Amount 50.000			Recovery = 51.90%			

Target Compounds						Qvalue
38) Naphthalene	4.196	128	140043	12.73	ppb	97
56) Acenaphthylene	6.522	152	287587	24.32	ppb	99
59) Acenaphthene	6.806	153	49537	6.58	ppb	98
66) Fluorene	7.587	166	67838	8.08	ppb	93
77) Phenanthrene	9.036	178	402776	31.39	ppb	98
78) Anthracene	9.106	178	261071	20.52	ppb	99
81) Fluoranthene	10.892	202	1553293	115.67	ppb	98
84) Pyrene	11.208	202	1369230	95.74	ppb	98
88) Benzo[a]anthracene	12.753	228	1155040	86.69	ppb	95
90) Chrysene	12.796	228	1007411	83.67	ppb	98
94) Benzo[b]fluoranthene	13.861	252	1567298m	106.65	ppb	
95) Benzo[k]fluoranthene	13.866	252	445304m	33.48	ppb	
96) Benzo[a]pyrene	14.128	252	1171116	89.45	ppb	98
97) Indeno[1,2,3-cd]pyrene	15.016	276	788190	52.03	ppb	95
99) Dibenz[a,h]anthracene	15.021	278	339142m	26.46	ppb	
101) Benzo[g,h,i]perylene	15.192	276	645830	51.73	ppb	97

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

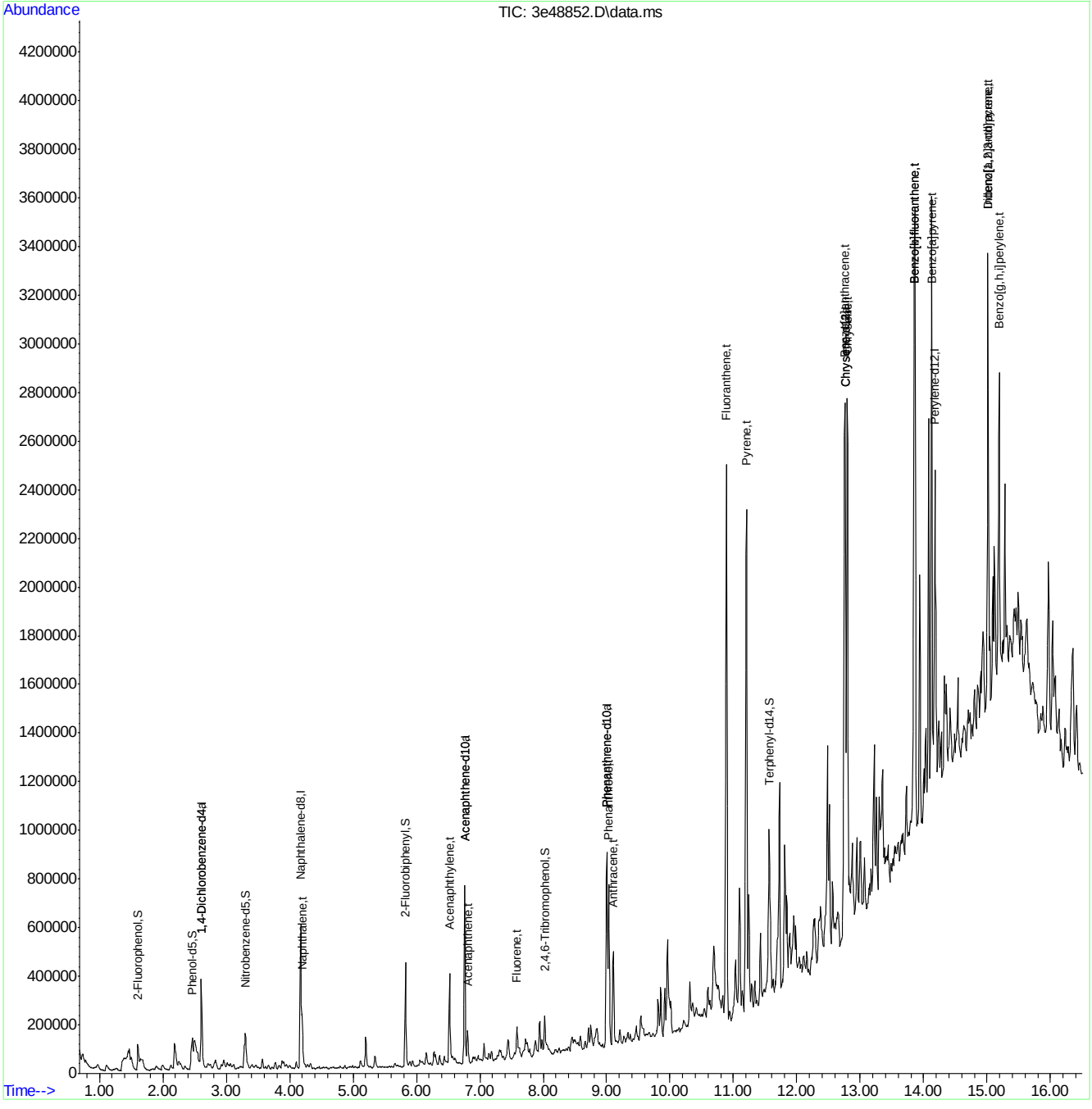
9.1.8

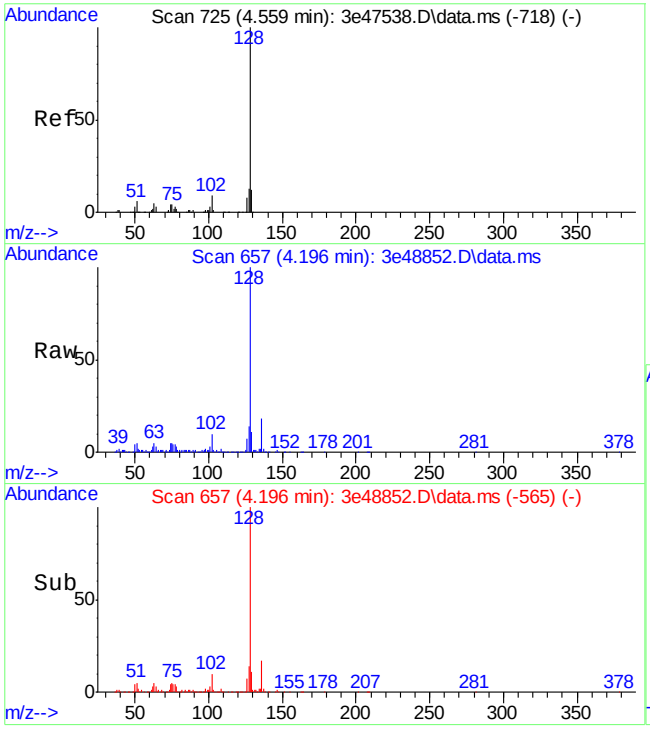
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48852.D
Acq On : 26 Mar 2013 7:35 pm
Operator : olgaa
Sample : jb31121-6
Misc : op64464,e3e2111,32.1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 27 14:21:37 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

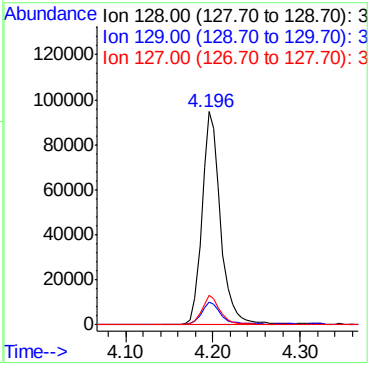


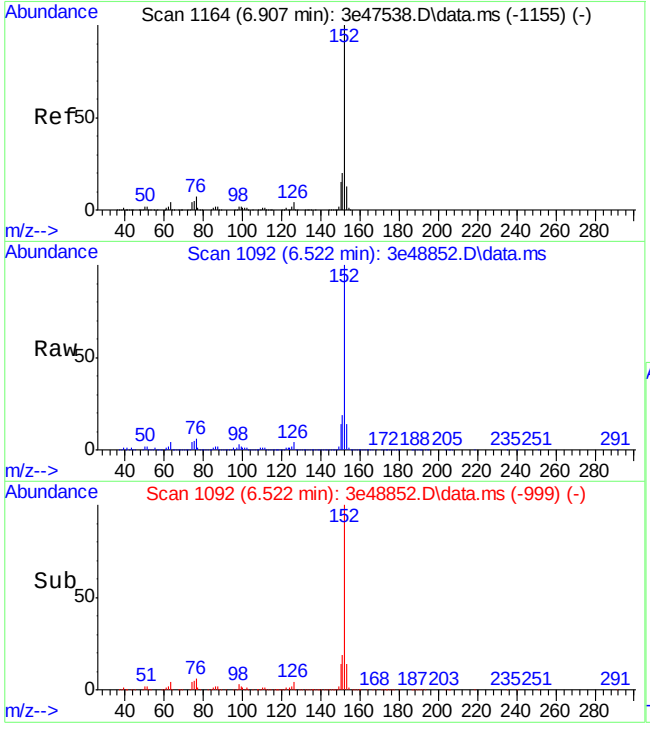


#38
Naphthalene
Concen: 12.73 ppb
RT: 4.196 min Scan# 657
Delta R.T. -0.005 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:128 Resp: 140043

Ion	Ratio	Lower	Upper
128	100		
129	10.5	0.0	41.7
127	13.5	0.0	42.7

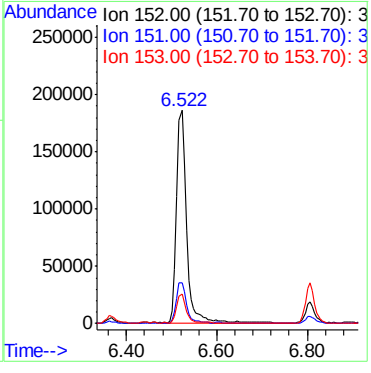




#56
Acenaphthylene
Concen: 24.32 ppb
RT: 6.522 min Scan# 1092
Delta R.T. 0.000 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

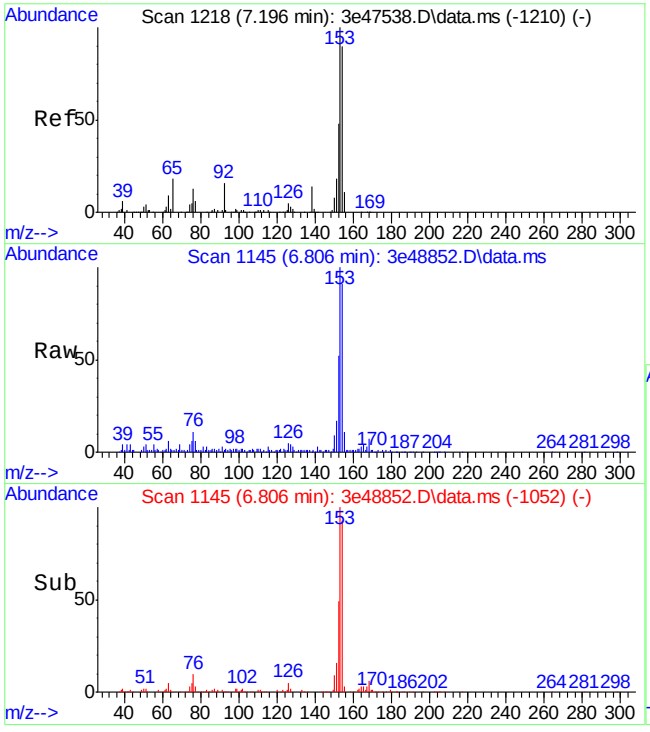
Tgt Ion:152 Resp: 287587

Ion	Ratio	Lower	Upper
152	100		
151	19.0	0.0	49.9
153	13.5	0.0	43.2



9.1.8

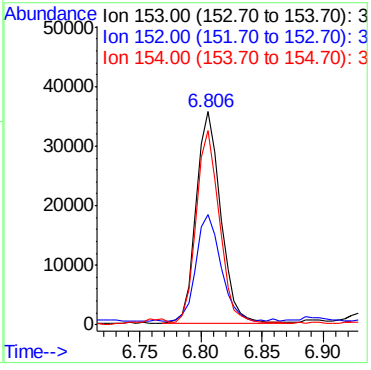
9

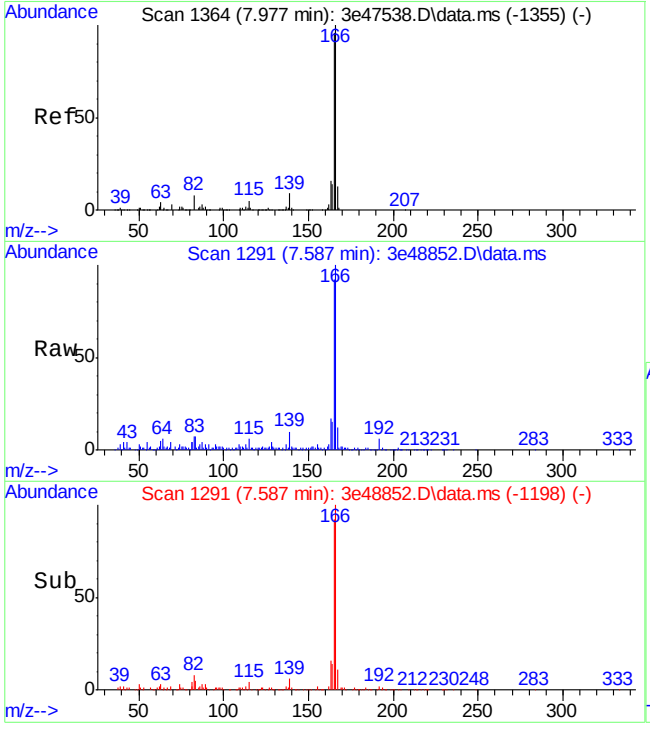


#59
Acenaphthene
Concen: 6.58 ppb
RT: 6.806 min Scan# 1145
Delta R.T. 0.000 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:153 Resp: 49537

Ion	Ratio	Lower	Upper
153	100		
152	50.5	17.8	77.8
154	90.0	60.3	120.3

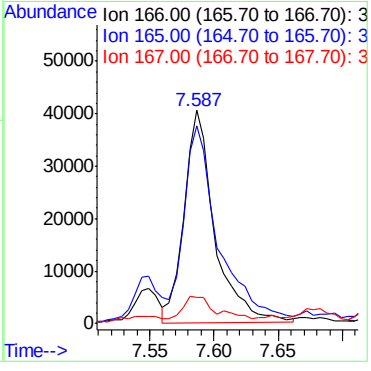




#66
Fluorene
Concen: 8.08 ppb
RT: 7.587 min Scan# 1291
Delta R.T. 0.000 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

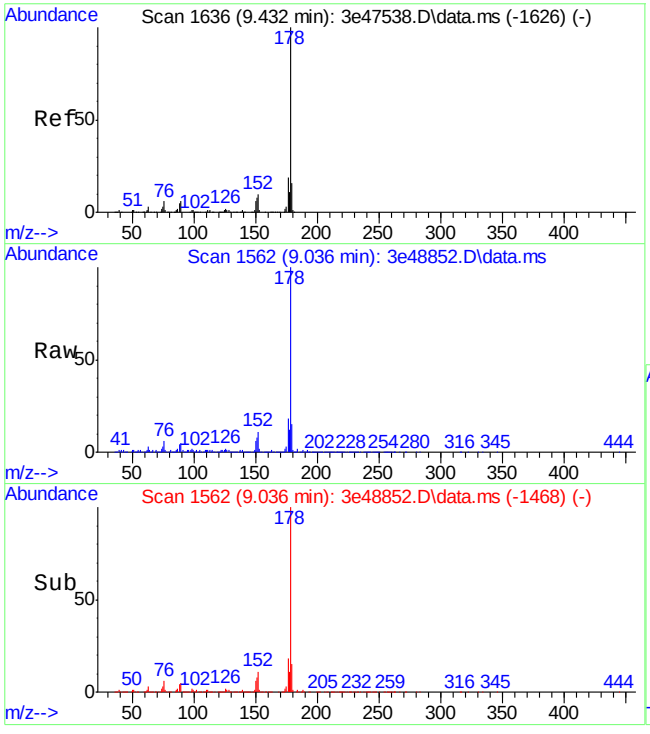
Tgt Ion:166 Resp: 67838

Ion	Ratio	Lower	Upper
166	100		
165	89.4	65.7	125.7
167	10.1	0.0	43.4



9.1.8

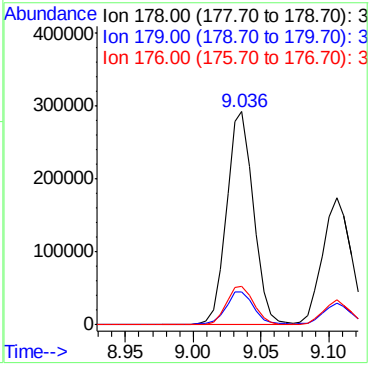
9

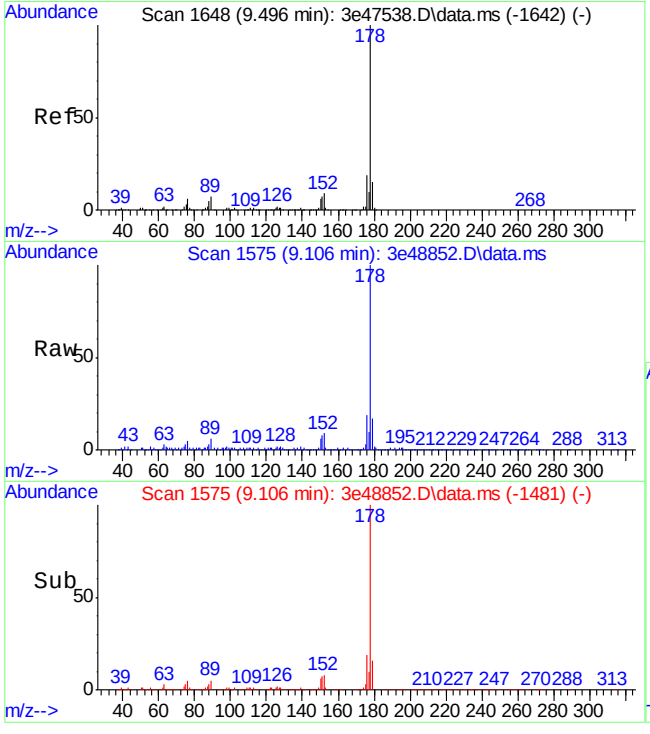


#77
Phenanthrene
Concen: 31.39 ppb
RT: 9.036 min Scan# 1562
Delta R.T. 0.005 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:178 Resp: 402776

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.7
176	18.2	0.0	49.5

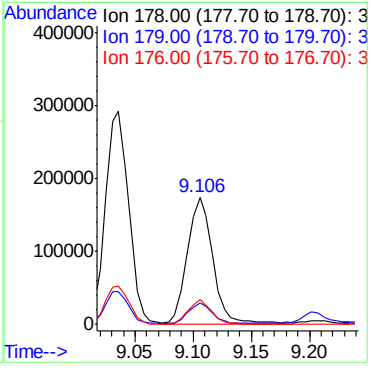




#78
Anthracene
Concen: 20.52 ppb
RT: 9.106 min Scan# 1575
Delta R.T. 0.005 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

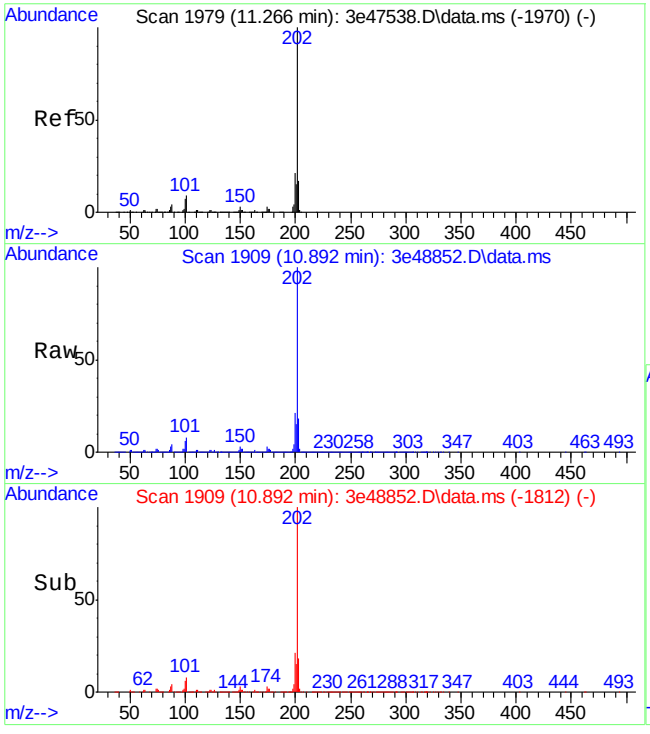
Tgt Ion:178 Resp: 261071

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.1
176	19.3	0.0	48.6



9.1.8

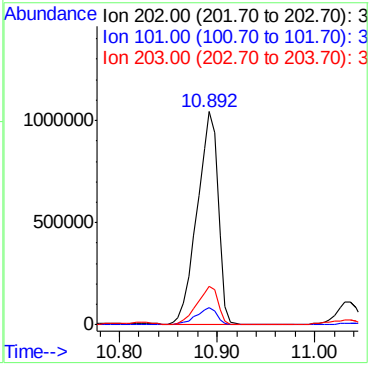
9

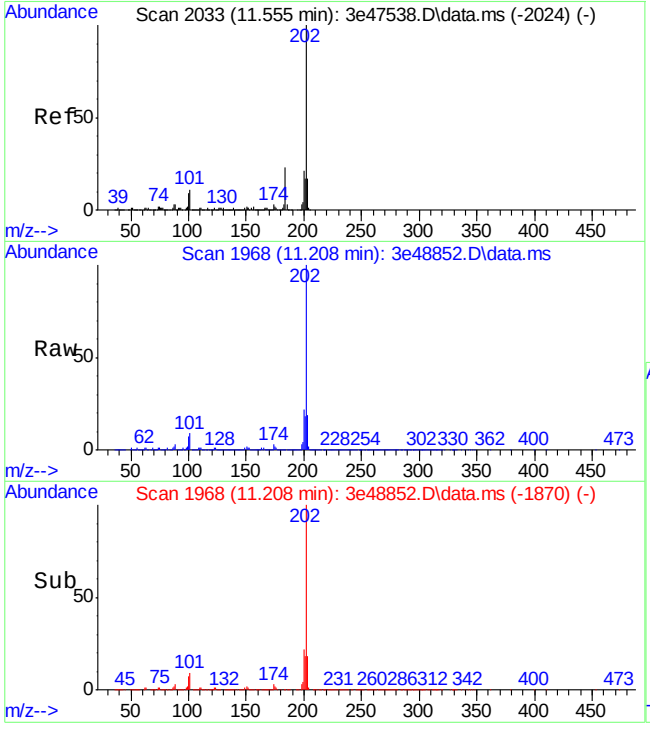


#81
Fluoranthene
Concen: 115.67 ppb
RT: 10.892 min Scan# 1909
Delta R.T. 0.021 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:202 Resp: 1553293

Ion	Ratio	Lower	Upper
202	100		
101	8.0	0.0	39.1
203	17.8	0.0	47.3

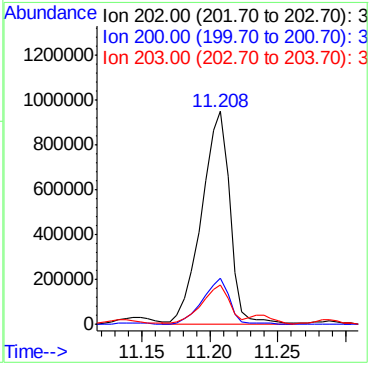


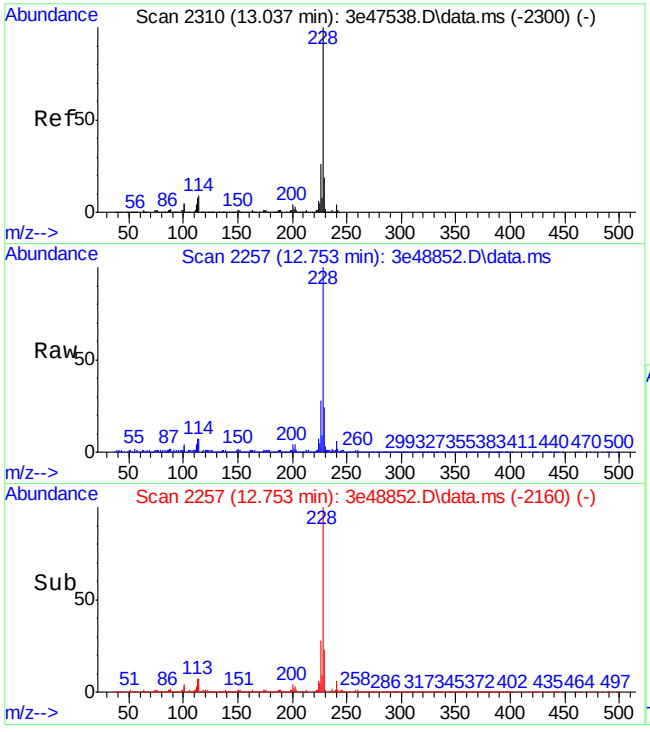


#84
Pyrene
Concen: 95.74 ppb
RT: 11.208 min Scan# 1968
Delta R.T. 0.027 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:202 Resp: 1369230

Ion	Ratio	Lower	Upper
202	100		
200	21.6	0.0	50.6
203	18.2	0.0	47.2

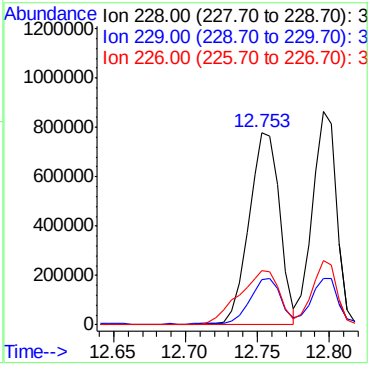


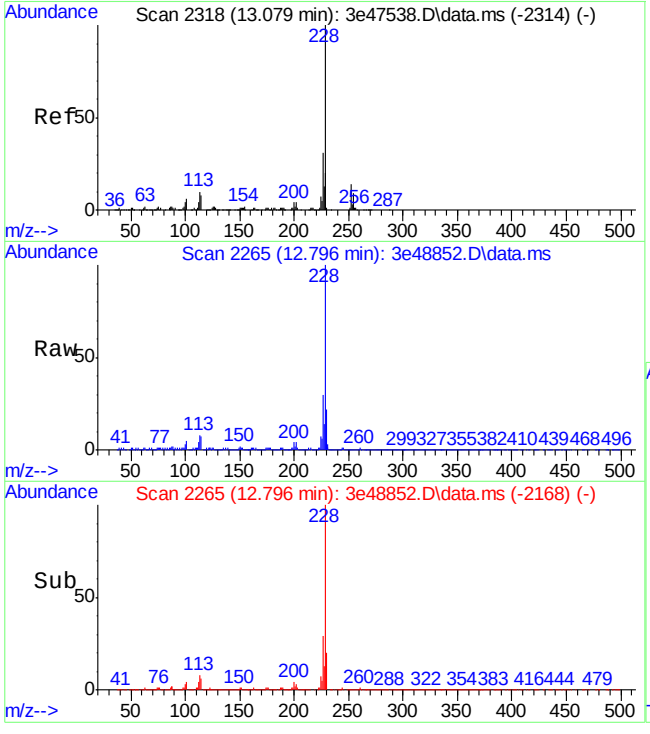


#88
Benzo[a]anthracene
Concen: 86.69 ppb
RT: 12.753 min Scan# 2257
Delta R.T. 0.021 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:228 Resp: 1155040

Ion	Ratio	Lower	Upper
228	100		
229	22.7	0.0	49.3
226	27.5	0.0	55.8

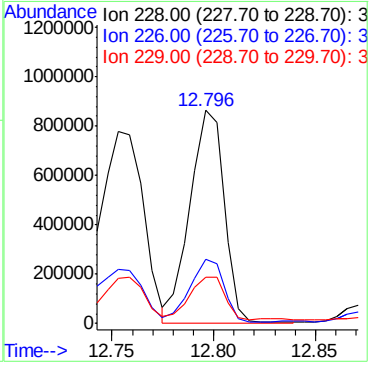


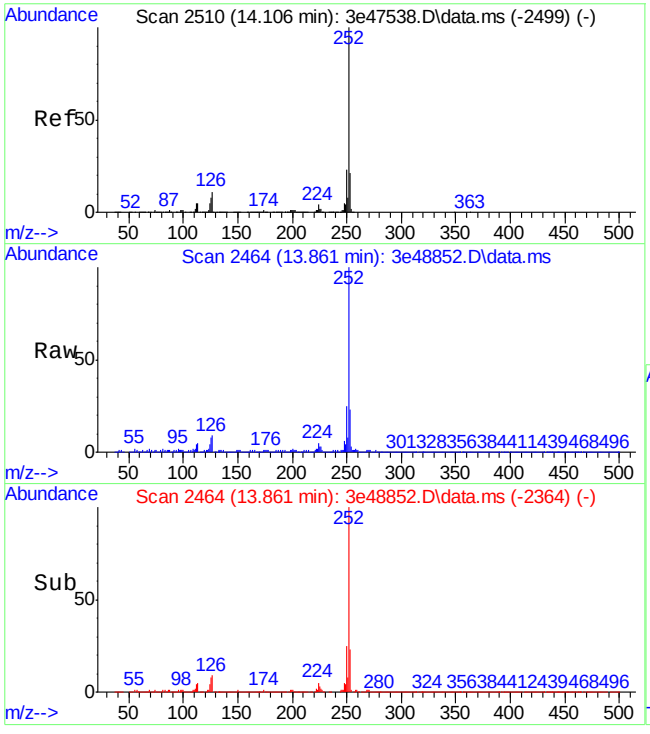


#90
Chrysene
Concen: 83.67 ppb
RT: 12.796 min Scan# 2265
Delta R.T. 0.021 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:228 Resp: 1007411

Ion	Ratio	Lower	Upper
228	100		
226	29.3	0.6	60.6
229	20.2	0.0	50.3

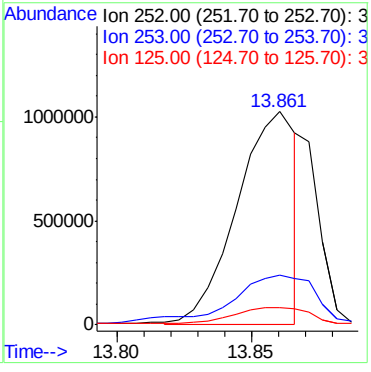


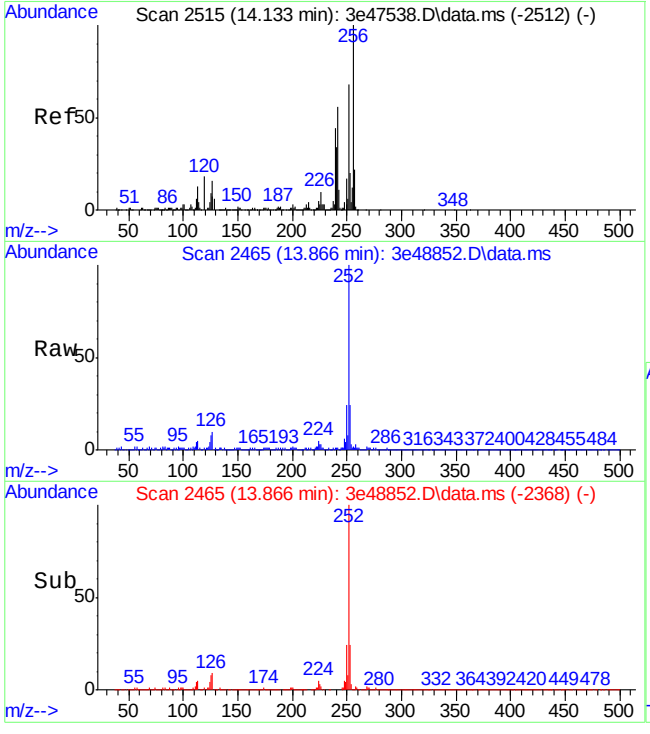


#94
Benzo[b]fluoranthene
Concen: 106.65 ppb m
RT: 13.861 min Scan# 2464
Delta R.T. 0.038 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:252 Resp: 1567298

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	51.0
125	8.3	0.0	38.1

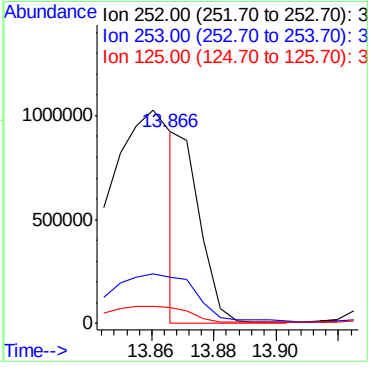


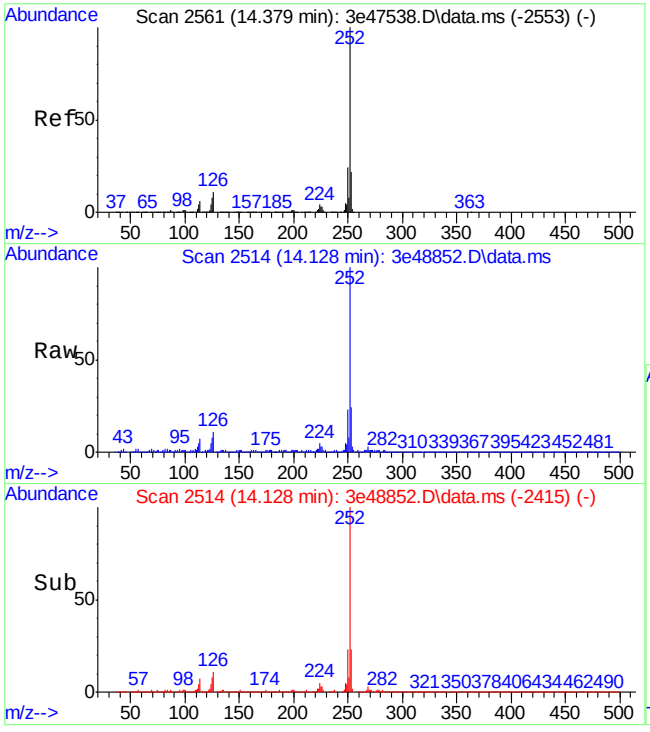


#95
Benzo[k]fluoranthene
Concen: 33.48 ppb m
RT: 13.866 min Scan# 2465
Delta R.T. 0.021 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:252 Resp: 445304

Ion	Ratio	Lower	Upper
252	100		
253	23.9	0.0	56.2
125	8.4	0.0	41.2

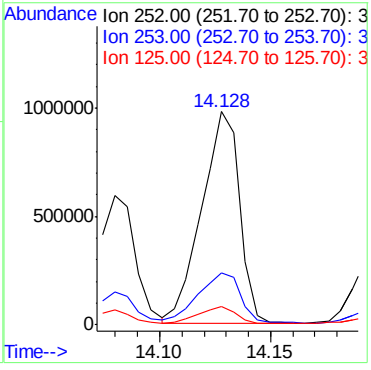


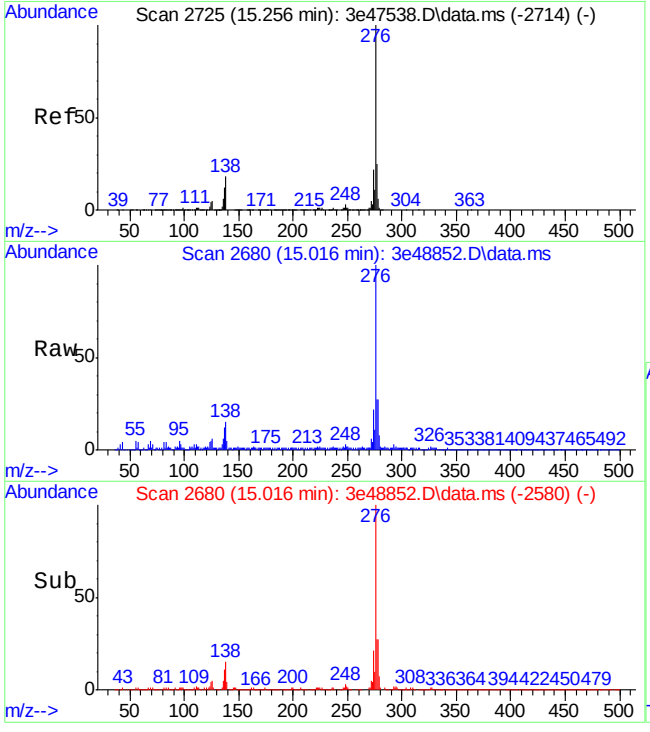


#96
Benzo[a]pyrene
Concen: 89.45 ppb
RT: 14.128 min Scan# 2514
Delta R.T. 0.032 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:252 Resp: 1171116

Ion	Ratio	Lower	Upper
252	100		
253	23.3	0.0	52.0
125	7.9	0.0	38.1

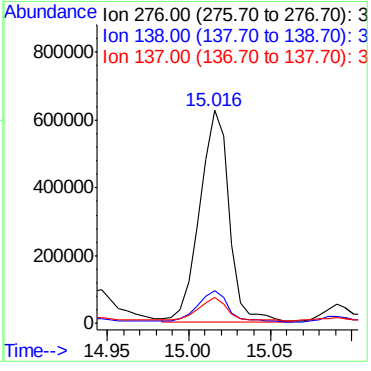


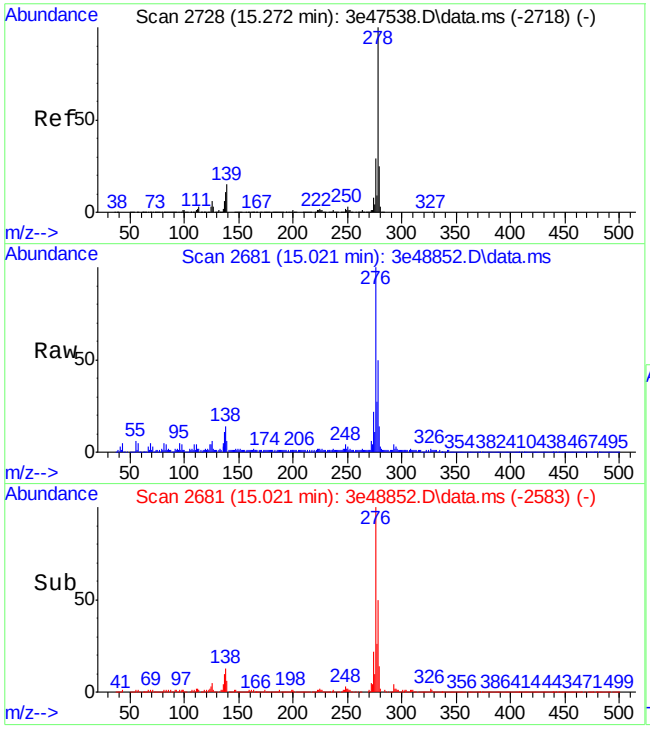


#97
Indeno[1,2,3-cd]pyrene
Concen: 52.03 ppb
RT: 15.016 min Scan# 2680
Delta R.T. 0.037 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:276 Resp: 788190

Ion	Ratio	Lower	Upper
276	100		
138	14.7	0.0	47.7
137	10.9	0.0	42.0

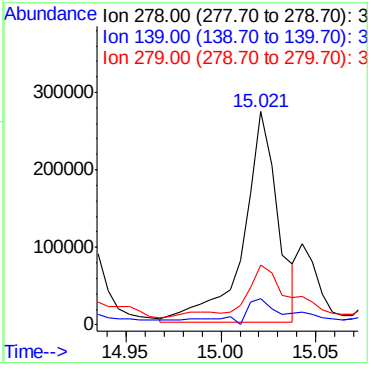


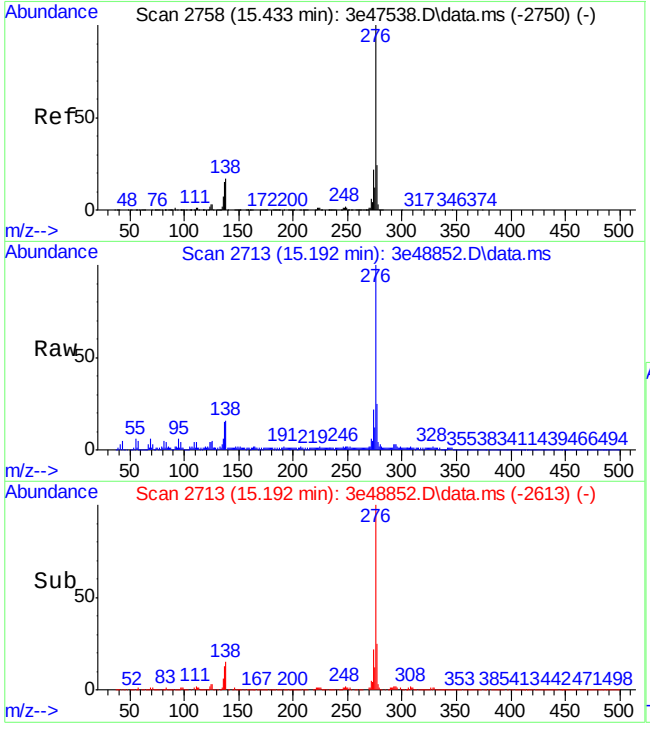


#99
Dibenz[a,h]anthracene
Concen: 26.46 ppb m
RT: 15.021 min Scan# 2681
Delta R.T. 0.027 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:278 Resp: 339142

Ion	Ratio	Lower	Upper
278	100		
139	12.5	0.0	44.8
279	28.3	0.0	54.9

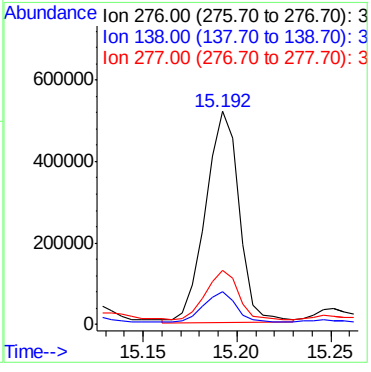




#101
Benzo[g,h,i]perylene
Concen: 51.73 ppb
RT: 15.192 min Scan# 2713
Delta R.T. 0.038 min
Lab File: 3e48852.D
Acq: 26 Mar 2013 7:35 pm

Tgt Ion:276 Resp: 645830

Ion	Ratio	Lower	Upper
276	100		
138	14.7	0.0	47.2
277	23.3	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2112\
Data File : 3e48867.D
Acq On : 27 Mar 2013 1:12 pm
Operator : olgaa
Sample : jb31121-6
Misc : op64464,e3e2112,32.1,,,1,2
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 27 15:07:23 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.591	152	93924	40.00	ppb	-0.03
24) Naphthalene-d8	4.147	136	419249	40.00	ppb	-0.03
47) Acenaphthene-d10	6.731	164	240220	40.00	ppb	-0.03
69) Phenanthrene-d10	8.967	188	438347	40.00	ppb	-0.03
83) Chrysene-d12	12.732	240	454479	40.00	ppb	-0.02
92) Perylene-d12	14.133	264	490544	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.591	152	93924	40.00	ppb	-0.03
104) Acenaphthene-d10a	6.731	164	240220	40.00	ppb	-0.03
106) Phenanthrene-d10a	8.967	188	438347	40.00	ppb	-0.03
108) Chrysene-d12a	12.732	240	454479	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.591	112	29388	9.24	ppb	0.00
Spiked Amount 50.000			Recovery	=	18.48%	
8) Phenol-d5	2.414	99	37963	9.51	ppb	0.01
Spiked Amount 50.000			Recovery	=	19.02%	
25) Nitrobenzene-d5	3.297	82	37891	9.94	ppb	0.00
Spiked Amount 50.000			Recovery	=	19.88%	
51) 2-Fluorobiphenyl	5.806	172	88490	11.35	ppb	-0.03
Spiked Amount 50.000			Recovery	=	22.70%	
73) 2,4,6-Tribromophenol	7.998	330	18635	14.67	ppb	-0.02
Spiked Amount 50.000			Recovery	=	29.34%	
85) Terphenyl-d14	11.529	244	134004	13.47	ppb	-0.02
Spiked Amount 50.000			Recovery	=	26.94%	
Target Compounds						Qvalue
38) Naphthalene	4.180	128	72139	6.20	ppb	99
56) Acenaphthylene	6.496	152	124951	10.93	ppb	98
59) Acenaphthene	6.779	153	23982	3.30	ppb	94
66) Fluorene	7.565	166	30920	3.81	ppb	95
77) Phenanthrene	8.999	178	188222	14.70	ppb	99
78) Anthracene	9.074	178	111914	8.82	ppb	99
81) Fluoranthene	10.849	202	796635	59.46	ppb	97
84) Pyrene	11.160	202	708937	49.13	ppb	99
88) Benzo[a]anthracene	12.716	228	572131	42.56	ppb	94
90) Chrysene	12.759	228	489323	40.27	ppb	99
94) Benzo[b]fluoranthene	13.812	252	641817m	40.06	ppb	
95) Benzo[k]fluoranthene	13.823	252	403775m	27.84	ppb	
96) Benzo[a]pyrene	14.085	252	615431	43.12	ppb	99
97) Indeno[1,2,3-cd]pyrene	14.973	276	389811	23.60	ppb	92
99) Dibenz[a,h]anthracene	14.978	278	151970m	10.87	ppb	
101) Benzo[g,h,i]perylene	15.144	276	312811	22.98	ppb	96

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

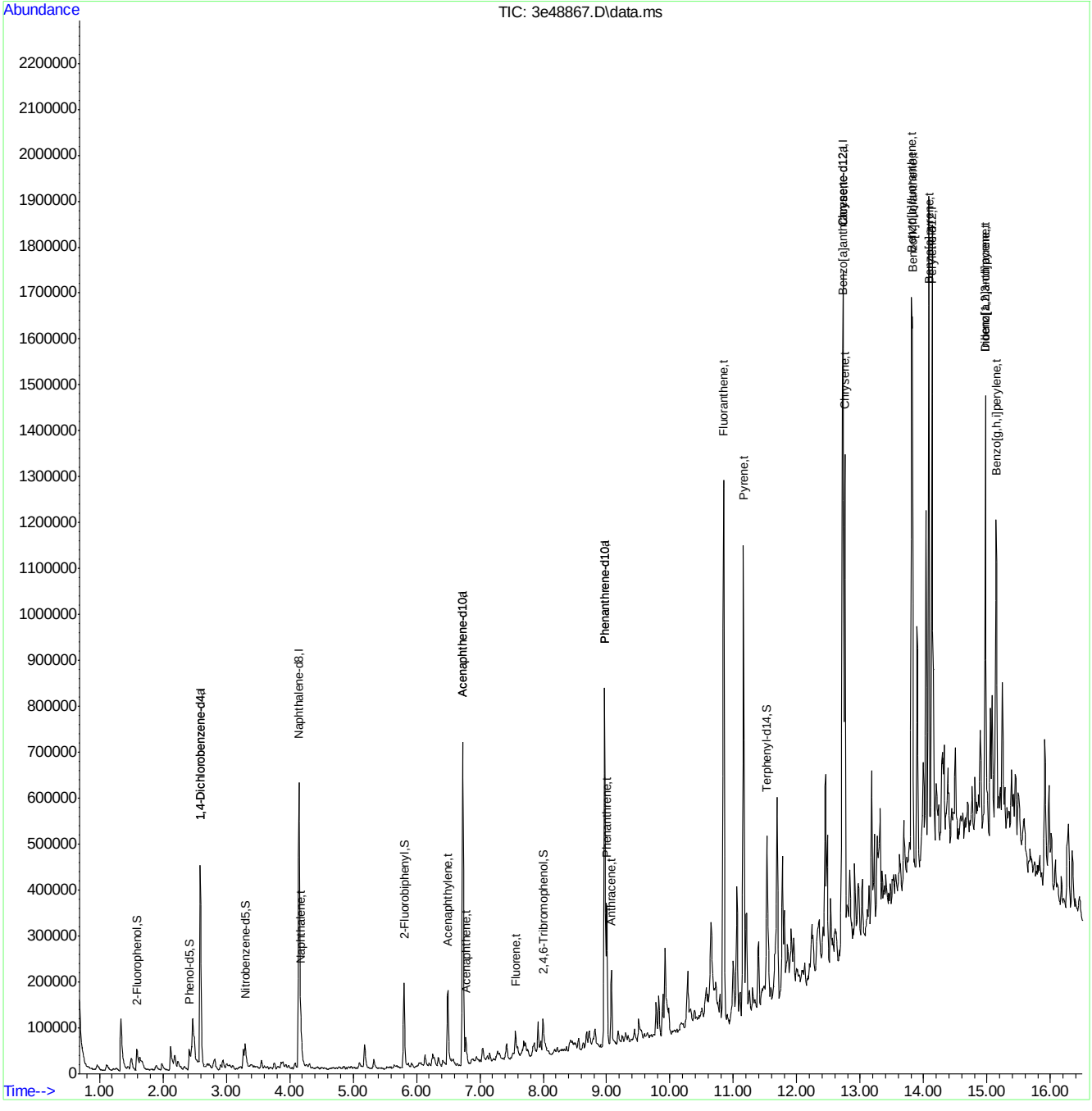
9.1.9

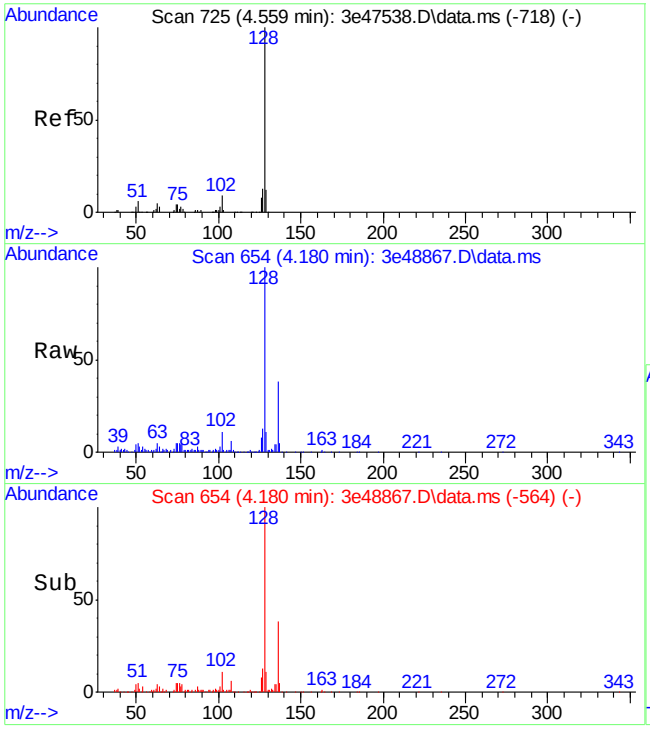
6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2112\
Data File : 3e48867.D
Acq On : 27 Mar 2013 1:12 pm
Operator : olgaa
Sample : jb31121-6
Misc : op64464,e3e2112,32.1,,,1,2
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 27 15:07:23 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

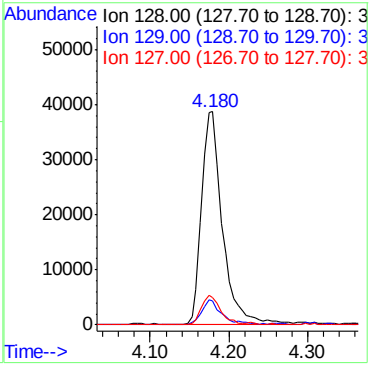


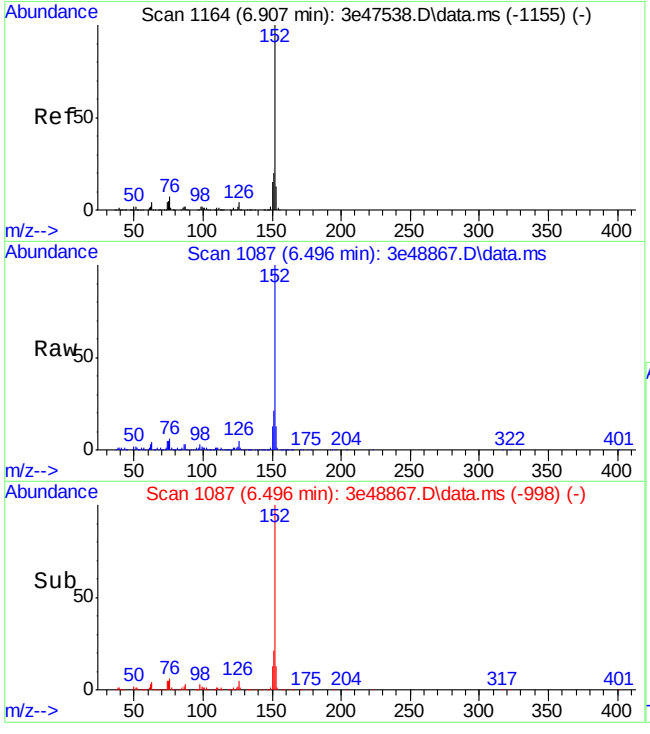


#38
Naphthalene
Concen: 6.20 ppb
RT: 4.180 min Scan# 654
Delta R.T. -0.021 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:128 Resp: 72139

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	41.7
127	12.7	0.0	42.7

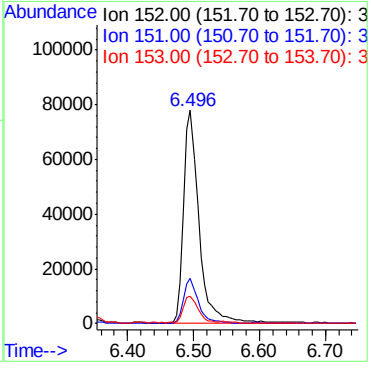


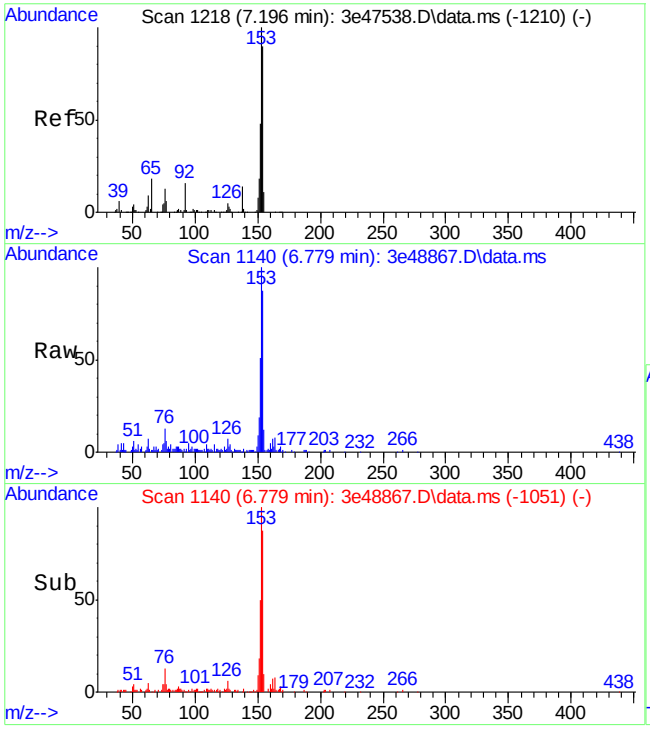


#56
Acenaphthylene
Concen: 10.93 ppb
RT: 6.496 min Scan# 1087
Delta R.T. -0.027 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:152 Resp: 124951

Ion	Ratio	Lower	Upper
152	100		
151	20.9	0.0	49.9
153	12.6	0.0	43.2

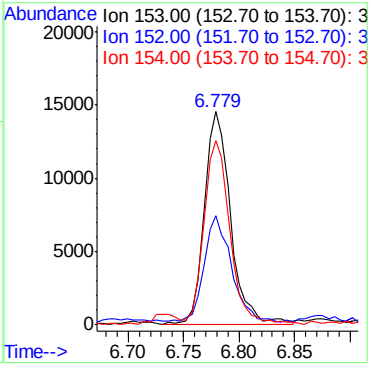


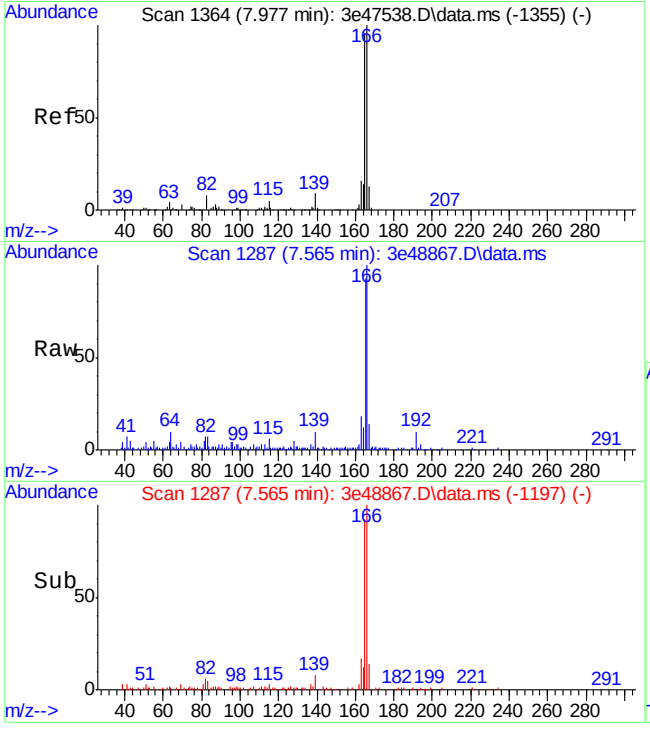


#59
Acenaphthene
Concen: 3.30 ppb
RT: 6.779 min Scan# 1140
Delta R.T. -0.027 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:153 Resp: 23982

Ion	Ratio	Lower	Upper
153	100		
152	50.5	17.8	77.8
154	84.2	60.3	120.3

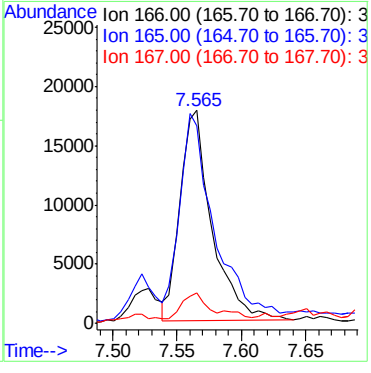


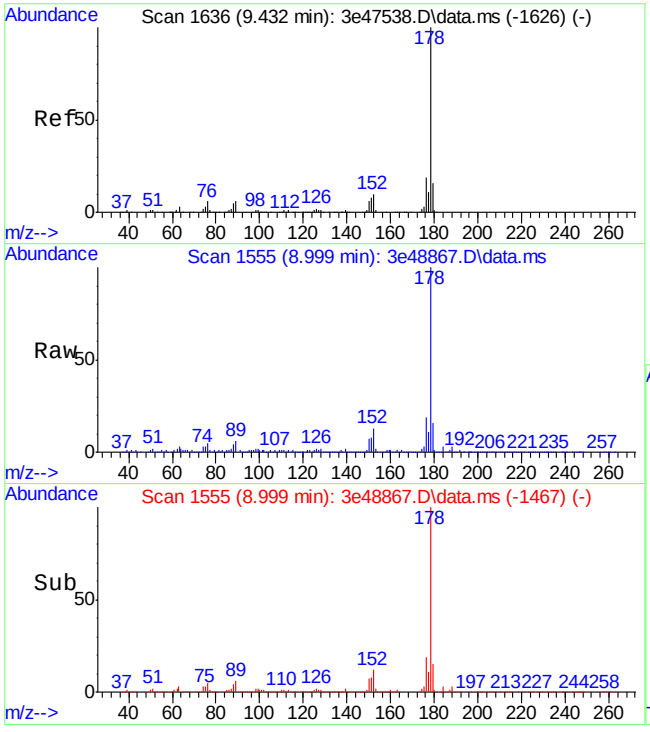


#66
Fluorene
Concen: 3.81 ppb
RT: 7.565 min Scan# 1287
Delta R.T. -0.021 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:166 Resp: 30920

Ion	Ratio	Lower	Upper
166	100		
165	90.3	65.7	125.7
167	11.5	0.0	43.4

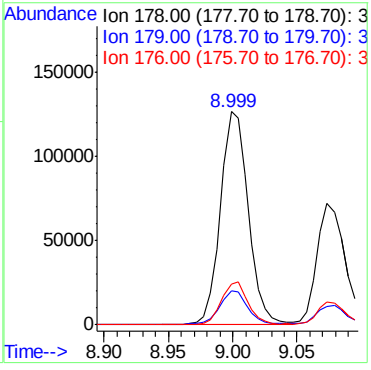


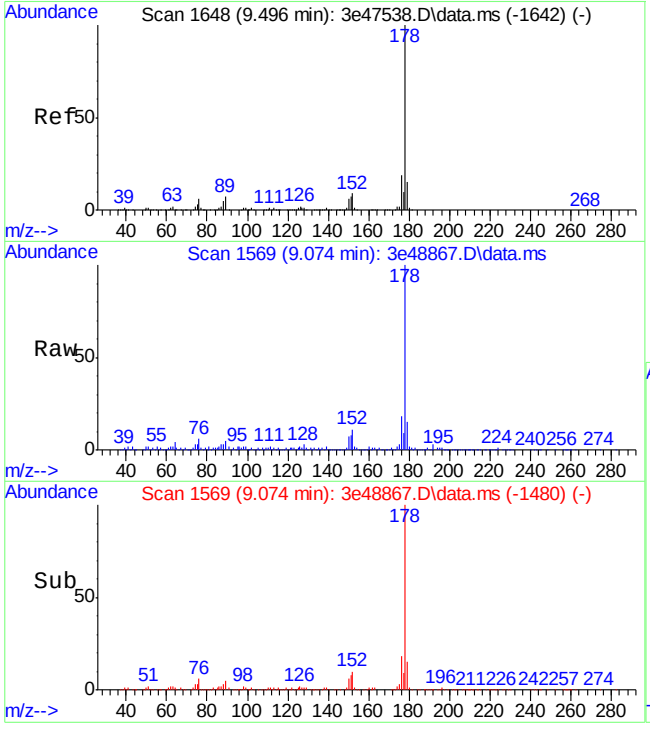


#77
Phenanthrene
Concen: 14.70 ppb
RT: 8.999 min Scan# 1555
Delta R.T. -0.032 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:178 Resp: 188222

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.7
176	19.1	0.0	49.5

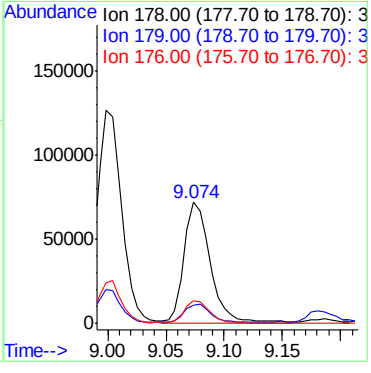


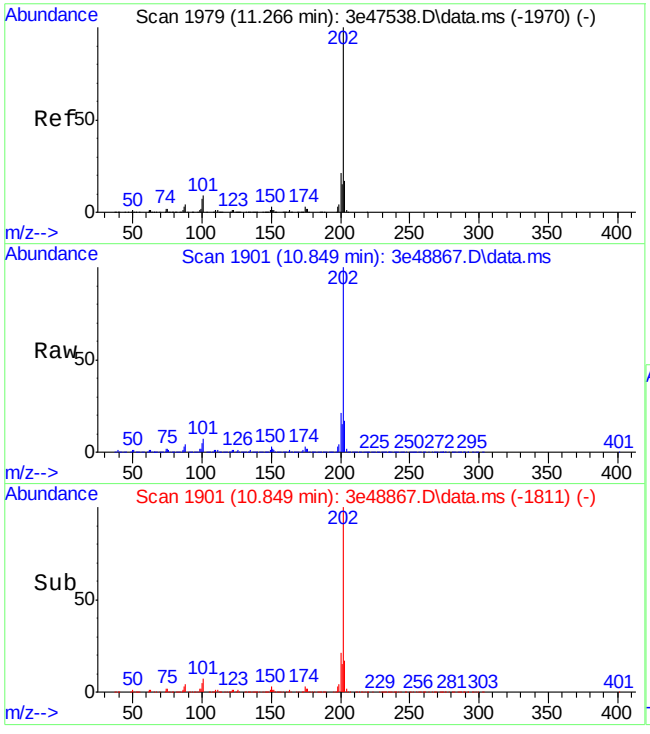


#78
Anthracene
Concen: 8.82 ppb
RT: 9.074 min Scan# 1569
Delta R.T. -0.027 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:178 Resp: 111914

Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	45.1
176	18.3	0.0	48.6

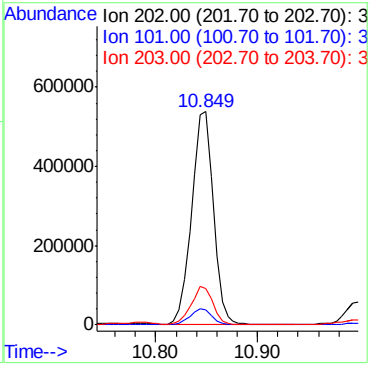


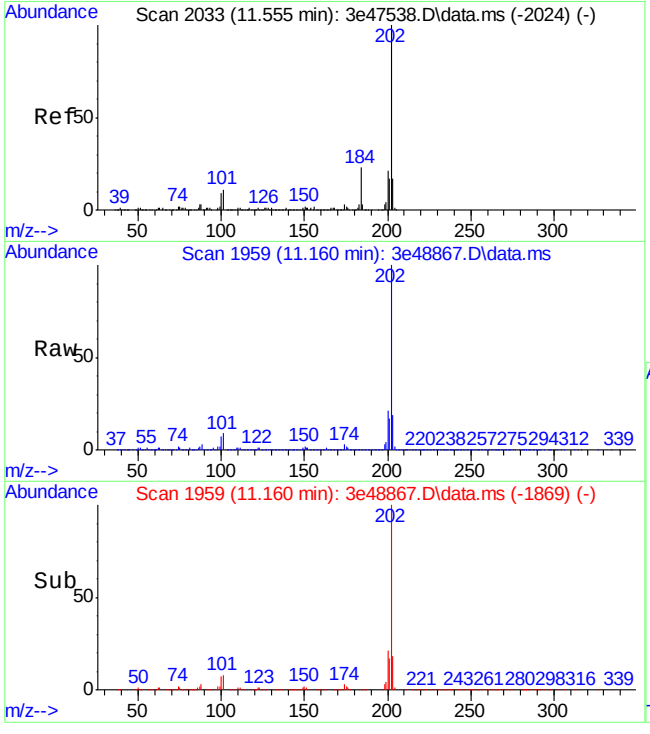


#81
Fluoranthene
Concen: 59.46 ppb
RT: 10.849 min Scan# 1901
Delta R.T. -0.021 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:202 Resp: 796635

Ion	Ratio	Lower	Upper
202	100		
101	6.8	0.0	39.1
203	17.0	0.0	47.3

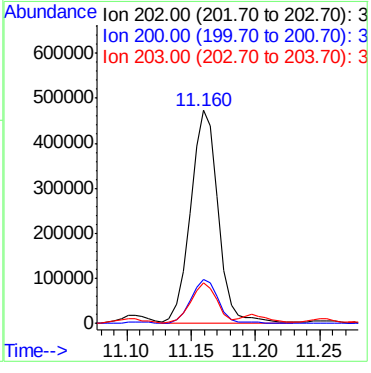


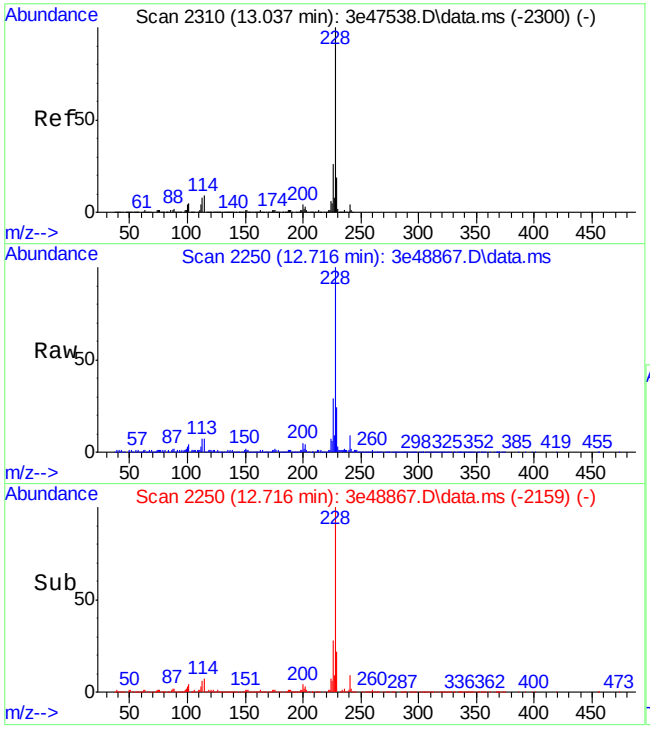


#84
Pyrene
Concen: 49.13 ppb
RT: 11.160 min Scan# 1959
Delta R.T. -0.021 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:202 Resp: 708937

Ion	Ratio	Lower	Upper
202	100		
200	20.6	0.0	50.6
203	18.4	0.0	47.2

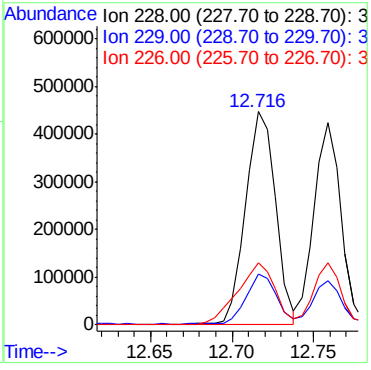


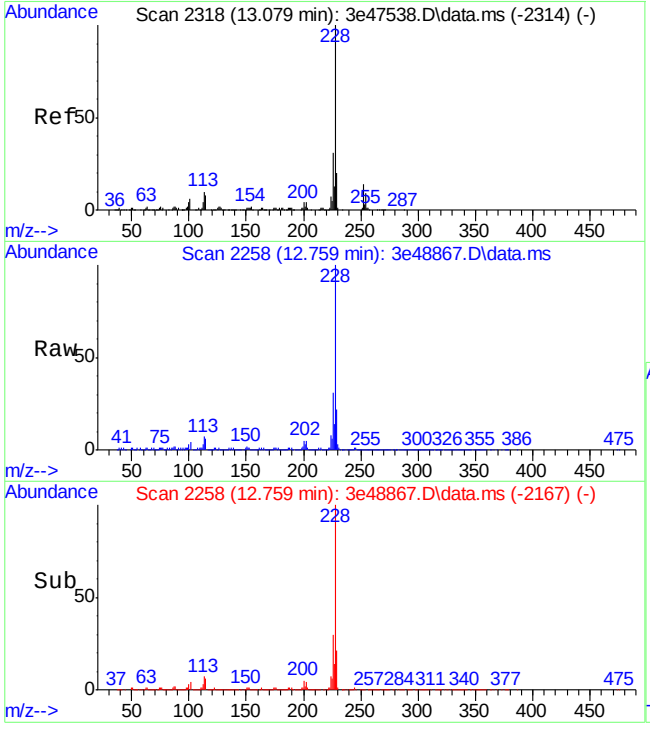


#88
Benzo[a]anthracene
Concen: 42.56 ppb
RT: 12.716 min Scan# 2250
Delta R.T. -0.016 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:228 Resp: 572131

Ion	Ratio	Lower	Upper
228	100		
229	22.6	0.0	49.3
226	28.6	0.0	55.8

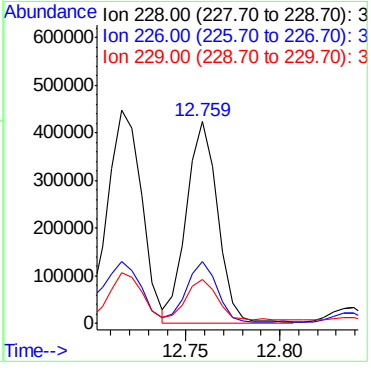




#90
Chrysene
Concen: 40.27 ppb
RT: 12.759 min Scan# 2258
Delta R.T. -0.016 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

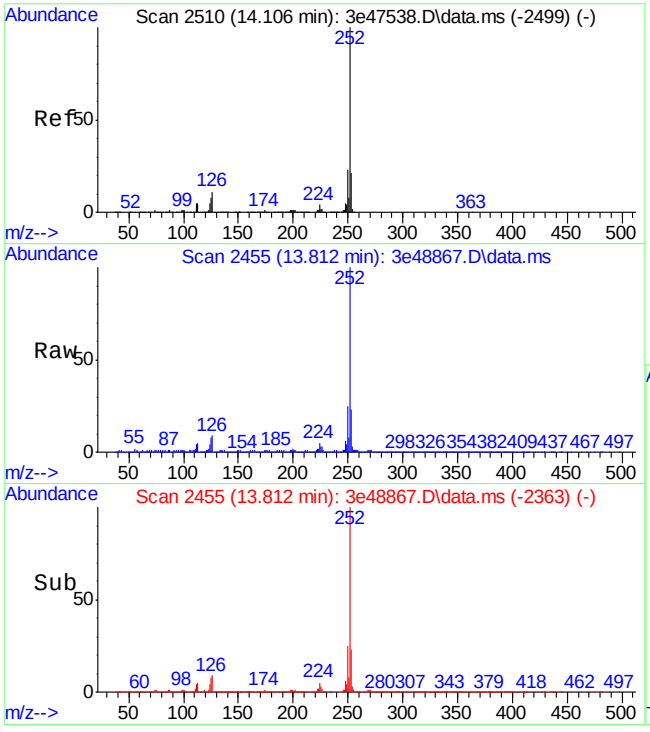
Tgt Ion:228 Resp: 489323

Ion	Ratio	Lower	Upper
228	100		
226	29.9	0.6	60.6
229	19.8	0.0	50.3



9.1.9

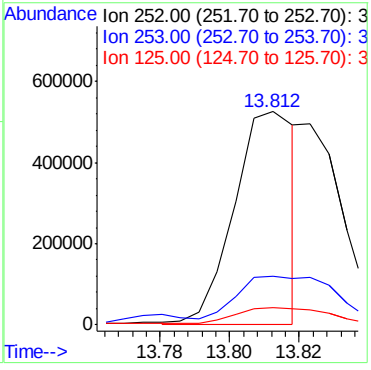
9

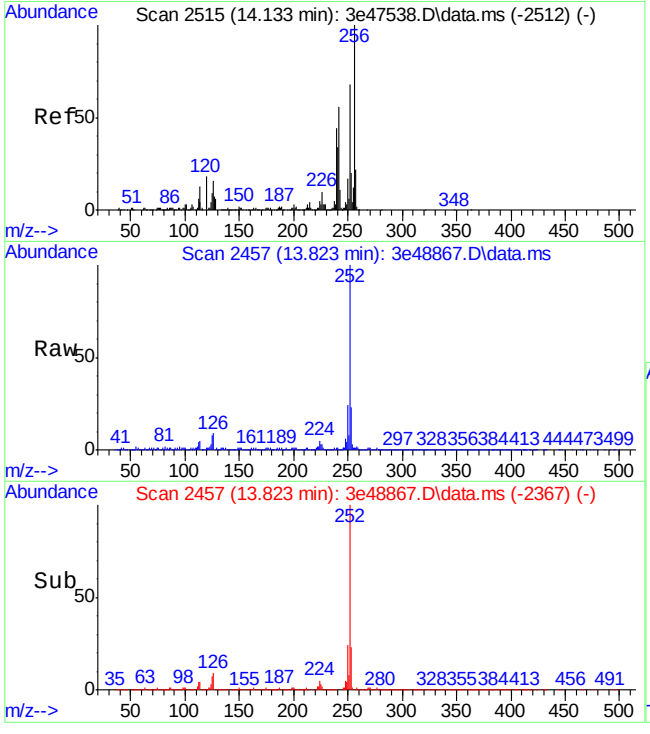


#94
Benzo[b]fluoranthene
Concen: 40.06 ppb m
RT: 13.812 min Scan# 2455
Delta R.T. -0.011 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:252 Resp: 641817

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	51.0
125	8.0	0.0	38.1

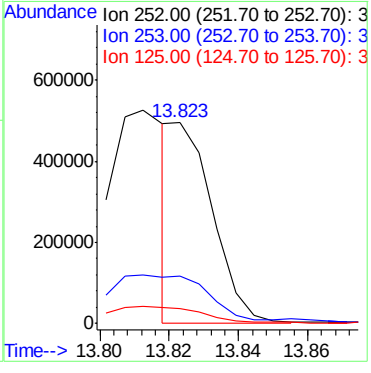




#95
Benzo[k]fluoranthene
Concen: 27.84 ppb m
RT: 13.823 min Scan# 2457
Delta R.T. -0.021 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

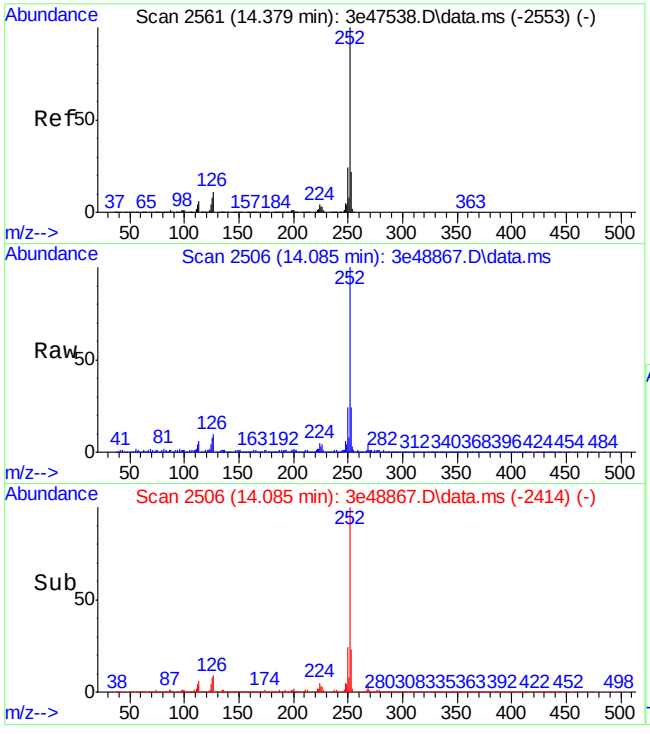
Tgt Ion:252 Resp: 403775

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	56.2
125	7.6	0.0	41.2



9.1.9

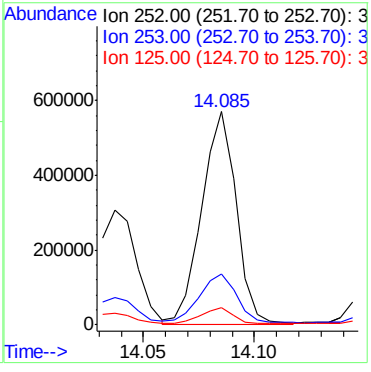
9

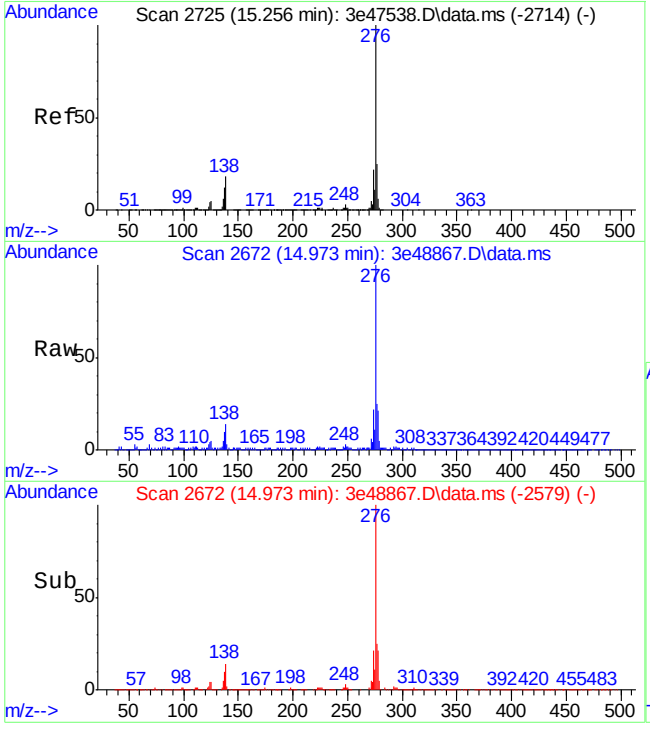


#96
Benzo[a]pyrene
Concen: 43.12 ppb
RT: 14.085 min Scan# 2506
Delta R.T. -0.011 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:252 Resp: 615431

Ion	Ratio	Lower	Upper
252	100		
253	22.8	0.0	52.0
125	7.7	0.0	38.1

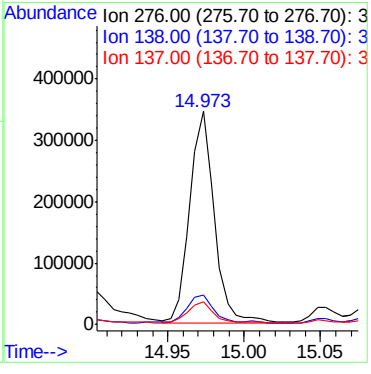


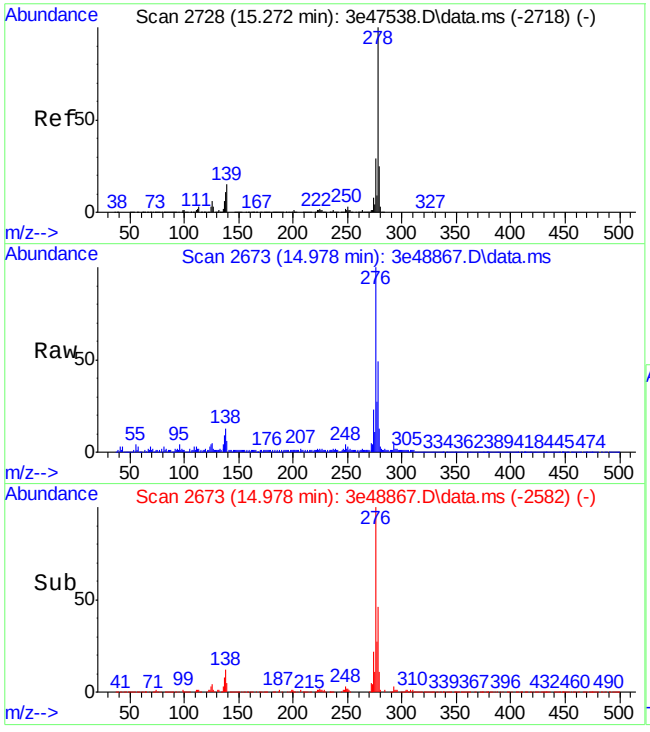


#97
Indeno[1,2,3-cd]pyrene
Concen: 23.60 ppb
RT: 14.973 min Scan# 2672
Delta R.T. -0.005 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:276 Resp: 389811

Ion	Ratio	Lower	Upper
276	100		
138	13.3	0.0	47.7
137	9.7	0.0	42.0

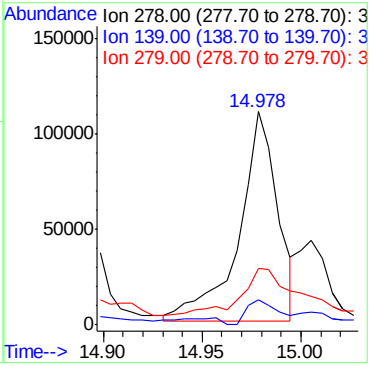


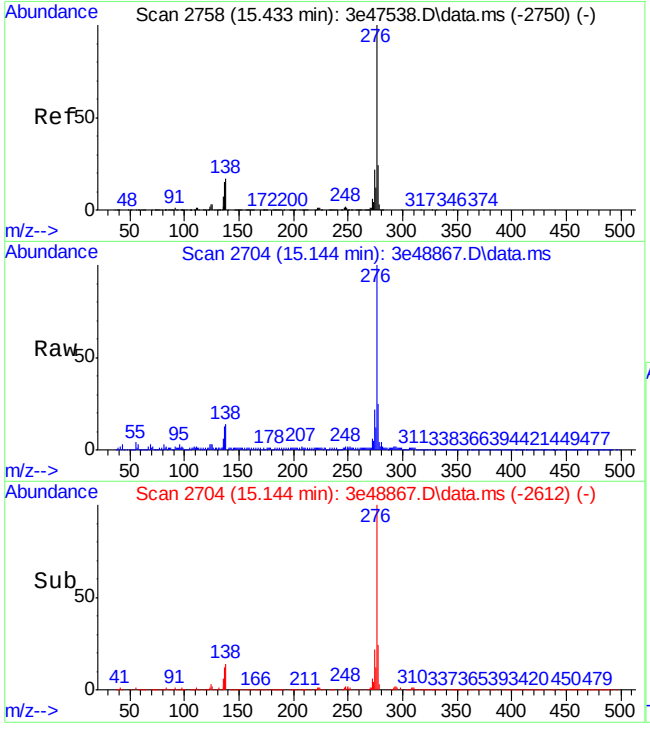


#99
Dibenz[a,h]anthracene
Concen: 10.87 ppb m
RT: 14.978 min Scan# 2673
Delta R.T. -0.016 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:278 Resp: 151970

Ion	Ratio	Lower	Upper
278	100		
139	11.7	0.0	44.8
279	26.4	0.0	54.9

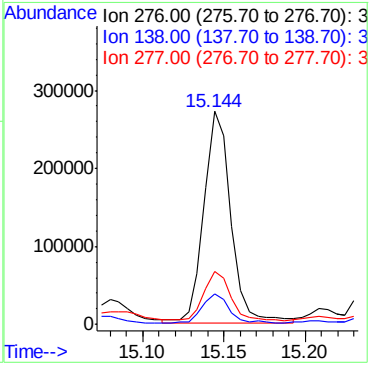




#101
Benzo[g,h,i]perylene
Concen: 22.98 ppb
RT: 15.144 min Scan# 2704
Delta R.T. -0.011 min
Lab File: 3e48867.D
Acq: 27 Mar 2013 1:12 pm

Tgt Ion:276 Resp: 312811

Ion	Ratio	Lower	Upper
276	100		
138	13.7	0.0	47.2
277	23.0	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48853.D
Acq On : 26 Mar 2013 7:58 pm
Operator : olgaa
Sample : jb31121-7
Misc : op64464,e3e2111,35.2
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 27 14:24:16 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.612	152	106906	40.00	ppb	0.00
24) Naphthalene-d8	4.174	136	422247	40.00	ppb	0.00
47) Acenaphthene-d10	6.763	164	256855	40.00	ppb	0.00
69) Phenanthrene-d10	9.004	188	460888	40.00	ppb	0.01
83) Chrysene-d12	12.769	240	533211	40.00	ppb	0.02
92) Perylene-d12	14.181	264	533335	40.00	ppb	0.04
102) 1,4-Dichlorobenzene-d4a	2.612	152	106906	40.00	ppb	0.00
104) Acenaphthene-d10a	6.763	164	256855	40.00	ppb	0.00
106) Phenanthrene-d10a	9.004	188	460888	40.00	ppb	0.01
108) Chrysene-d12a	12.769	240	533211	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.601	112	54461	15.05	ppb	0.02
Spiked Amount 50.000			Recovery = 30.10%			
8) Phenol-d5	2.430	99	69897	15.38	ppb	0.03
Spiked Amount 50.000			Recovery = 30.76%			
25) Nitrobenzene-d5	3.308	82	63510	16.54	ppb	0.00
Spiked Amount 50.000			Recovery = 33.08%			
51) 2-Fluorobiphenyl	5.827	172	158648	19.03	ppb	0.00
Spiked Amount 50.000			Recovery = 38.06%			
73) 2,4,6-Tribromophenol	8.025	330	30734	23.01	ppb	0.01
Spiked Amount 50.000			Recovery = 46.02%			
85) Terphenyl-d14	11.566	244	227635	19.51	ppb	0.02
Spiked Amount 50.000			Recovery = 39.02%			

Target Compounds						Qvalue
38) Naphthalene	4.201	128	22495	1.92	ppb	97
56) Acenaphthylene	6.522	152	25916m	2.12	ppb	
59) Acenaphthene	6.811	153	7217	0.93	ppb	94
66) Fluorene	7.592	166	7214m	0.83	ppb	
77) Phenanthrene	9.036	178	143265	10.64	ppb	98
78) Anthracene	9.106	178	49575	3.71	ppb	98
81) Fluoranthene	10.887	202	237588	16.87	ppb	97
84) Pyrene	11.202	202	243788	14.40	ppb	98
88) Benzo[a]anthracene	12.753	228	163376	10.36	ppb	91
90) Chrysene	12.796	228	184789	12.96	ppb	99
94) Benzo[b]fluoranthene	13.850	252	219713m	12.61	ppb	
95) Benzo[k]fluoranthene	13.860	252	107837m	6.84	ppb	
96) Benzo[a]pyrene	14.128	252	160987	10.37	ppb	99
97) Indeno[1,2,3-cd]pyrene	15.021	276	129899	7.23	ppb	93
99) Dibenz[a,h]anthracene	15.032	278	48433m	3.19	ppb	
101) Benzo[g,h,i]perylene	15.203	276	129205	8.73	ppb	94

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

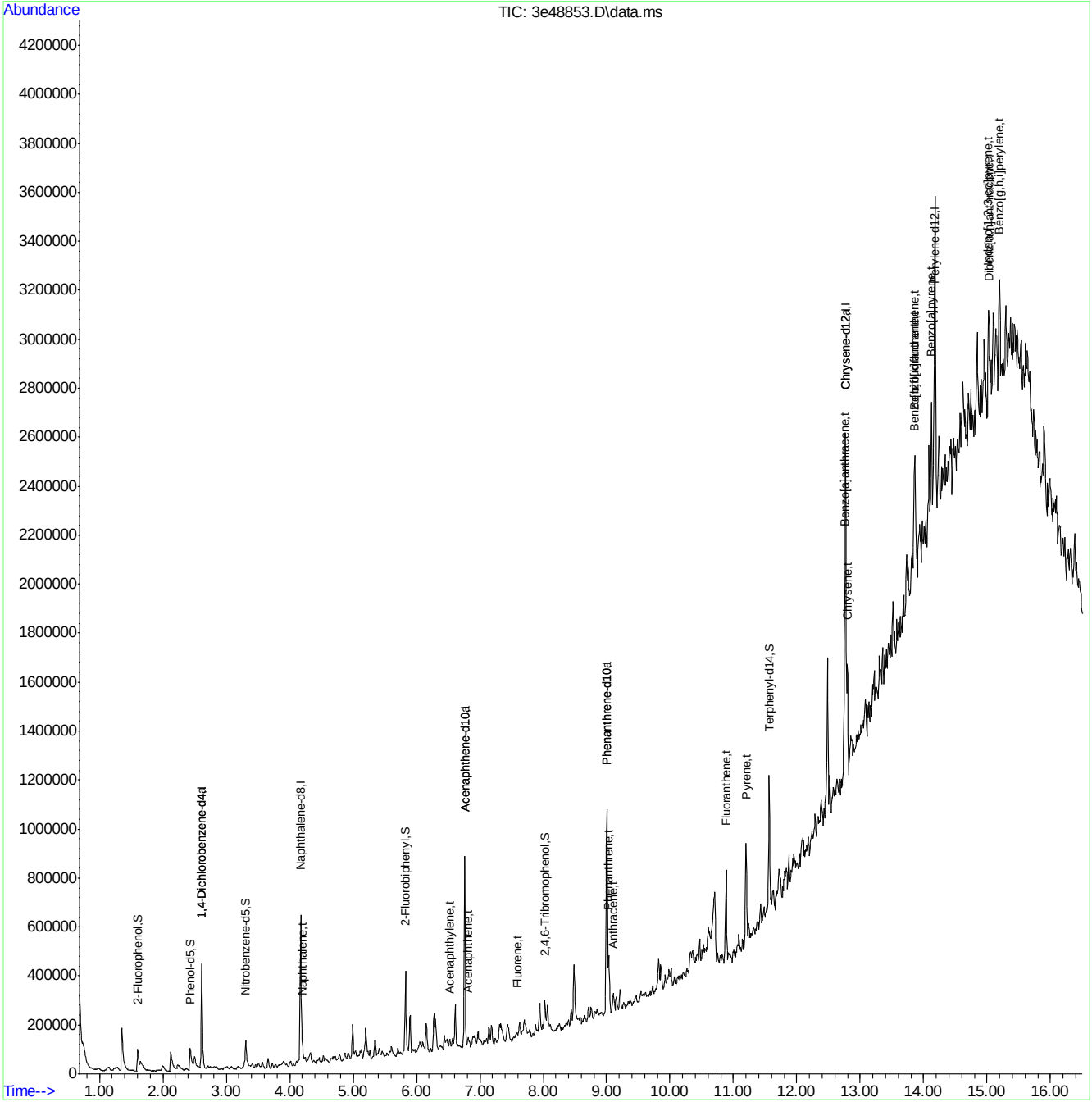
9.1.10

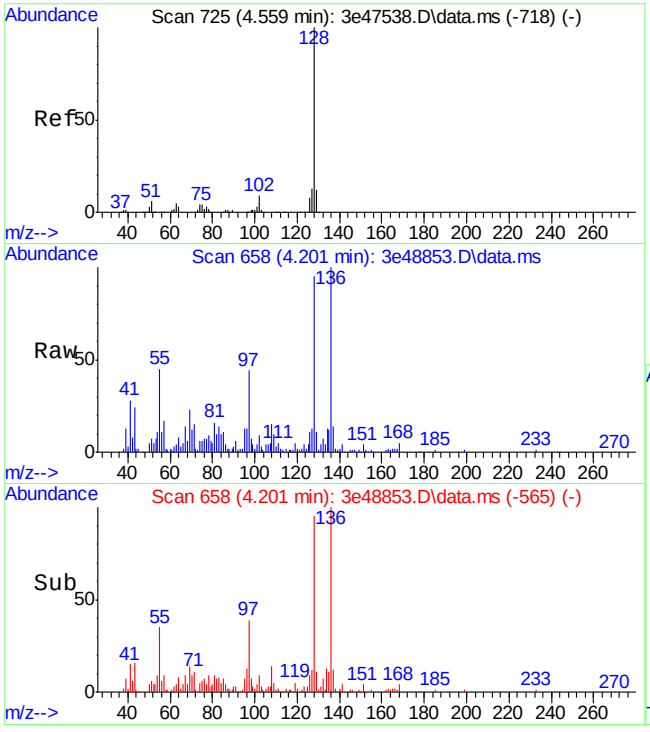
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48853.D
Acq On : 26 Mar 2013 7:58 pm
Operator : olgaa
Sample : jb31121-7
Misc : op64464,e3e2111,35.2
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 27 14:24:16 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

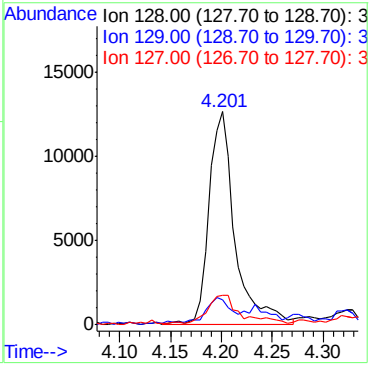


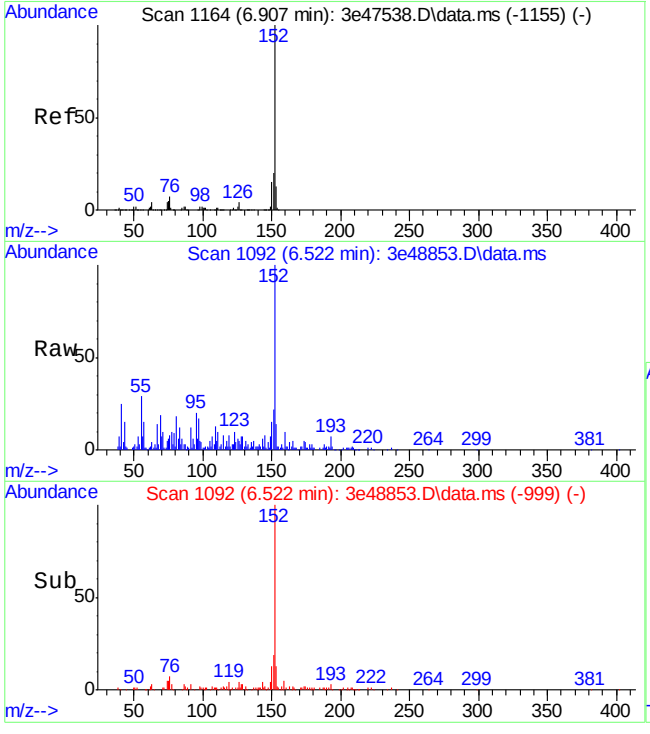


#38
Naphthalene
Concen: 1.92 ppb
RT: 4.201 min Scan# 658
Delta R.T. 0.000 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:128 Resp: 22495

Ion	Ratio	Lower	Upper
128	100		
129	9.2	0.0	41.7
127	12.9	0.0	42.7

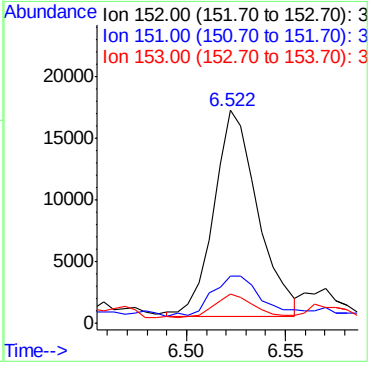


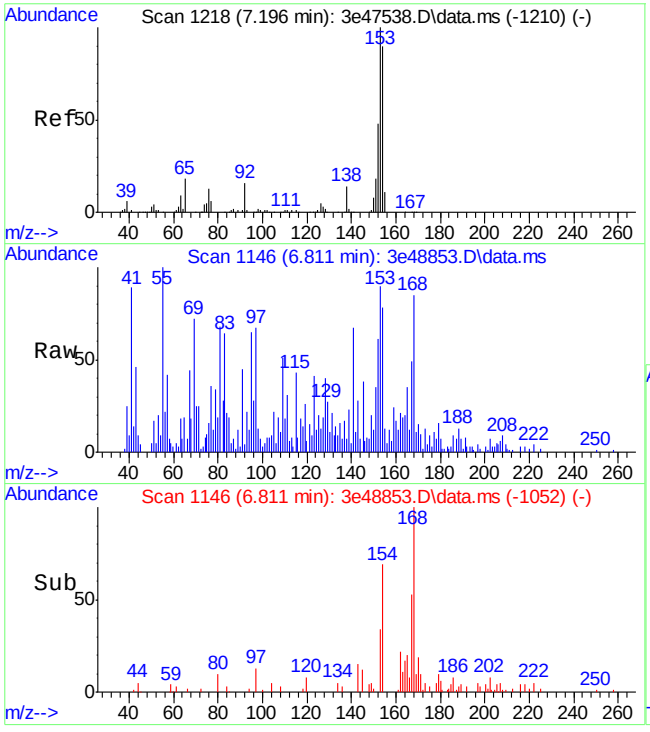


#56
Acenaphthylene
Concen: 2.12 ppb m
RT: 6.522 min Scan# 1092
Delta R.T. 0.000 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:152 Resp: 25916

Ion	Ratio	Lower	Upper
152	100		
151	22.2	0.0	49.9
153	13.7	0.0	43.2

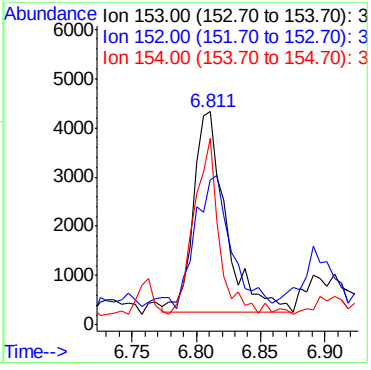


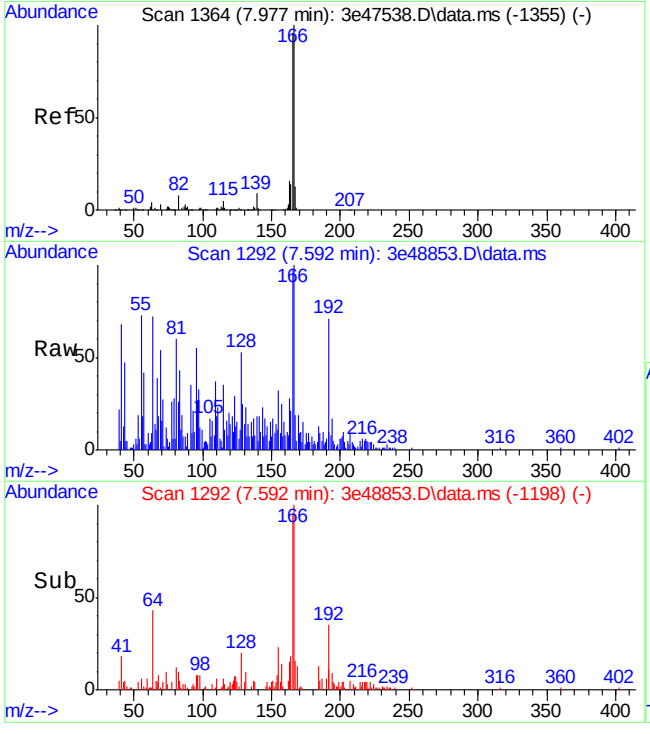


#59
Acenaphthene
Concen: 0.93 ppb
RT: 6.811 min Scan# 1146
Delta R.T. 0.005 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:153 Resp: 7217

Ion	Ratio	Lower	Upper
153	100		
152	57.3	17.8	77.8
154	88.1	60.3	120.3

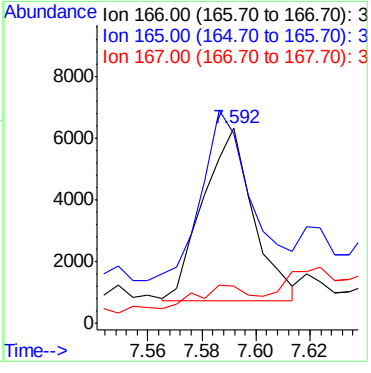




#66
Fluorene
Concen: 0.83 ppb m
RT: 7.592 min Scan# 1292
Delta R.T. 0.005 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:166 Resp: 7214

Ion	Ratio	Lower	Upper
166	100		
165	97.4	65.7	125.7
167	19.3	0.0	43.4



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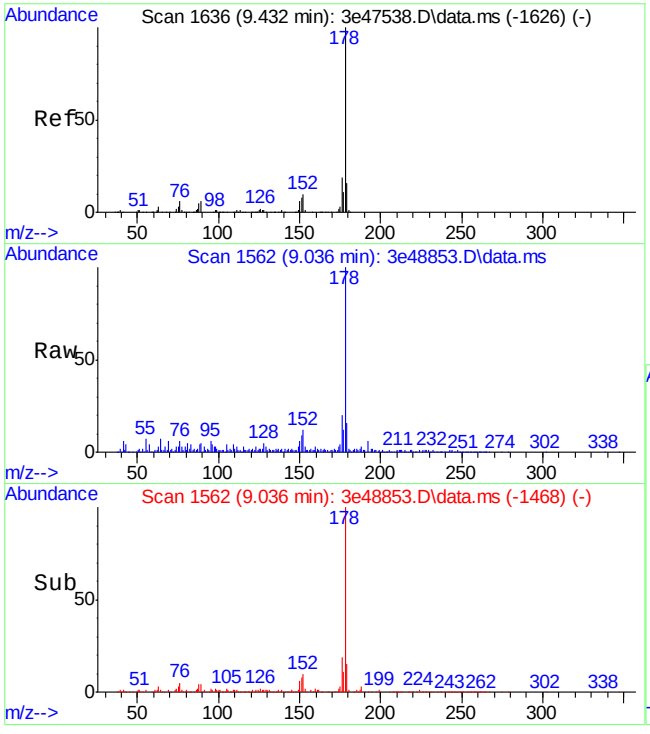
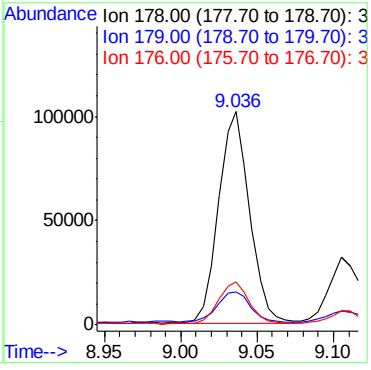
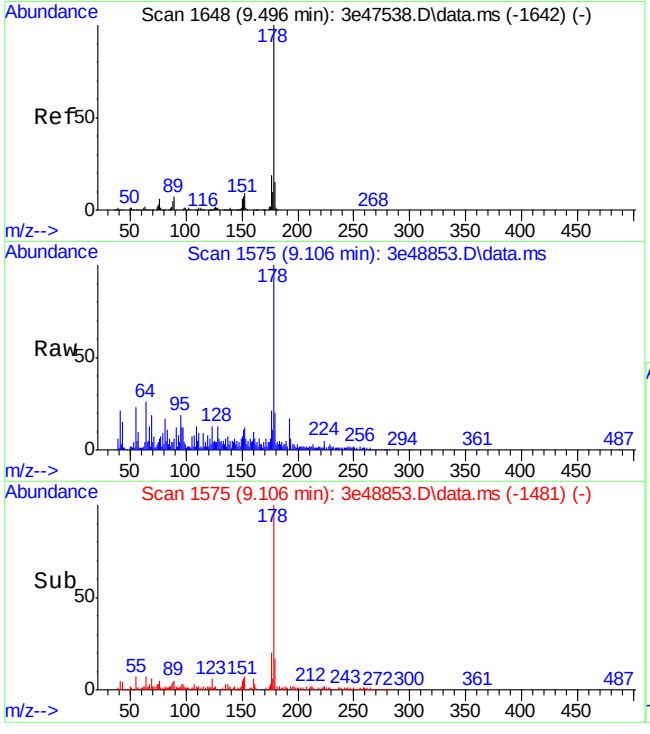


#77
Phenanthrene
Concen: 10.64 ppb
RT: 9.036 min Scan# 1562
Delta R.T. 0.005 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:178 Resp: 143265

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	45.7
176	19.5	0.0	45.5

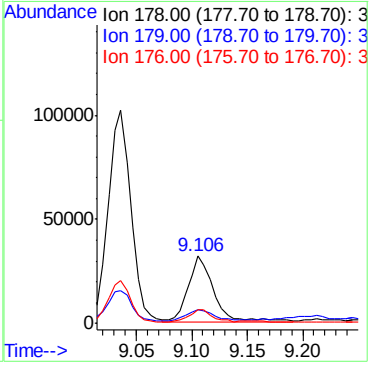


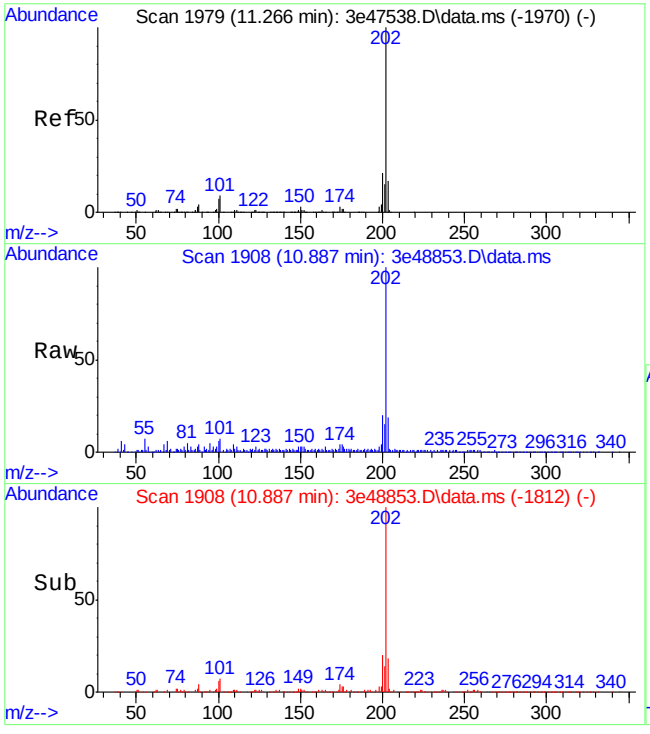


#78
Anthracene
Concen: 3.71 ppb
RT: 9.106 min Scan# 1575
Delta R.T. 0.005 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:178 Resp: 49575

Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	45.1
176	19.2	0.0	48.6

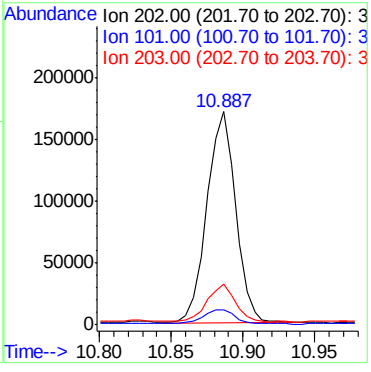


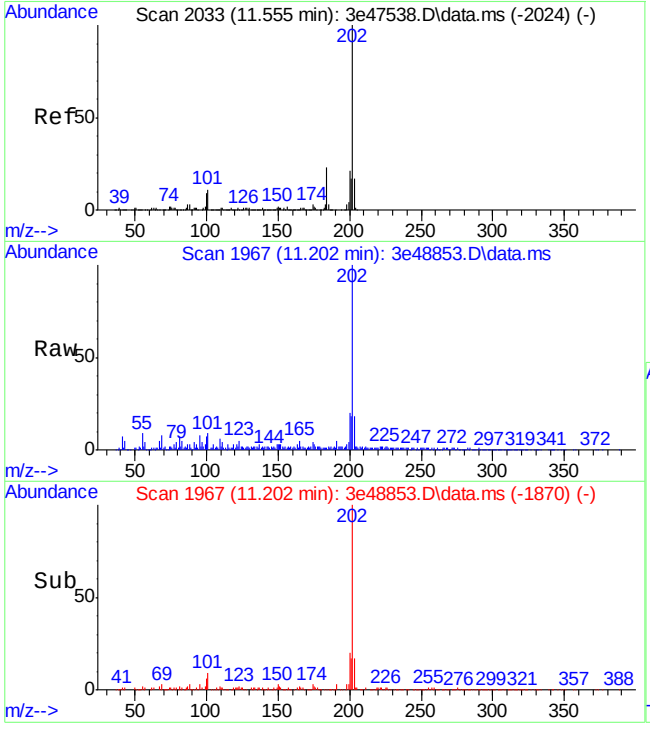


#81
Fluoranthene
Concen: 16.87 ppb
RT: 10.887 min Scan# 1908
Delta R.T. 0.016 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:202 Resp: 237588

Ion	Ratio	Lower	Upper
202	100		
101	6.7	0.0	39.1
203	17.9	0.0	47.3

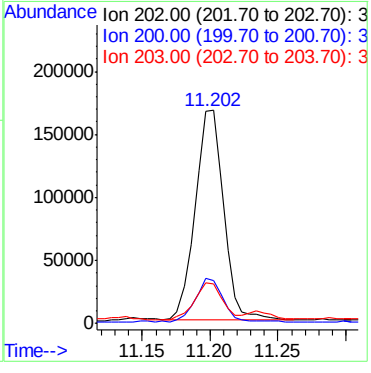


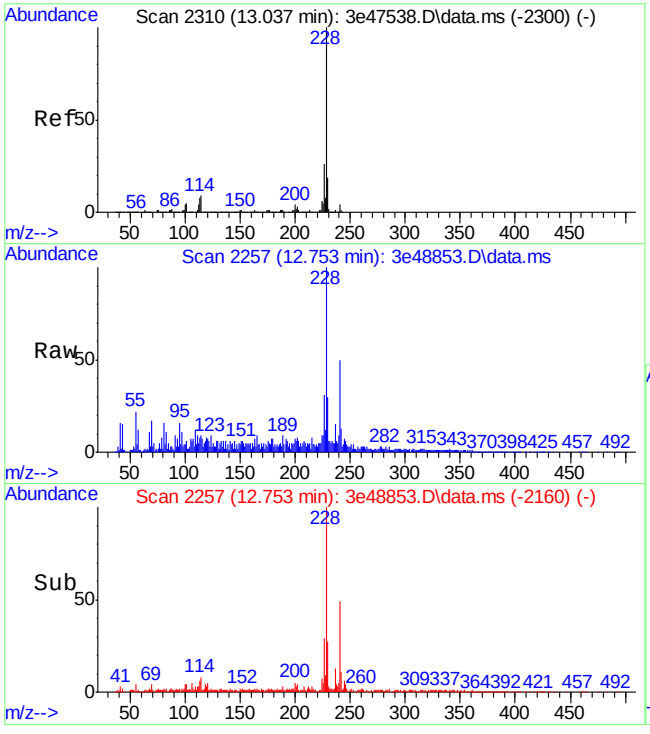


#84
Pyrene
Concen: 14.40 ppb
RT: 11.202 min Scan# 1967
Delta R.T. 0.021 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:202 Resp: 243788

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	50.6
203	16.6	0.0	47.2

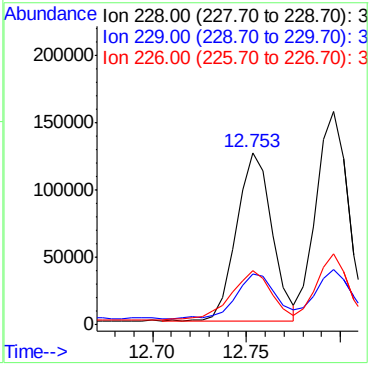


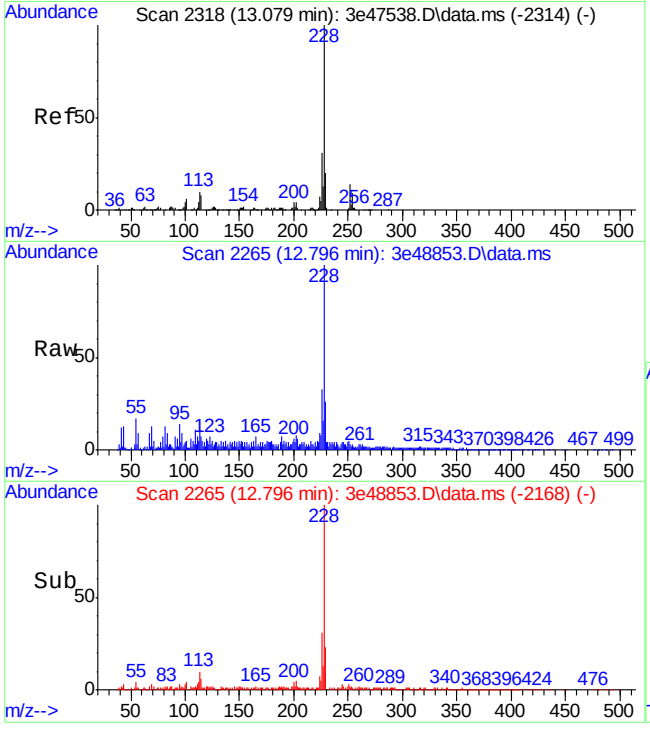


#88
Benzo[a]anthracene
Concen: 10.36 ppb
RT: 12.753 min Scan# 2257
Delta R.T. 0.021 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:228 Resp: 163376

Ion	Ratio	Lower	Upper
228	100		
229	25.1	0.0	49.3
226	28.8	0.0	55.8

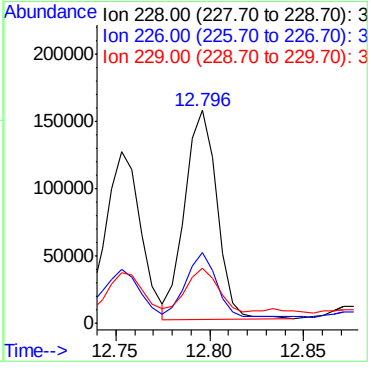


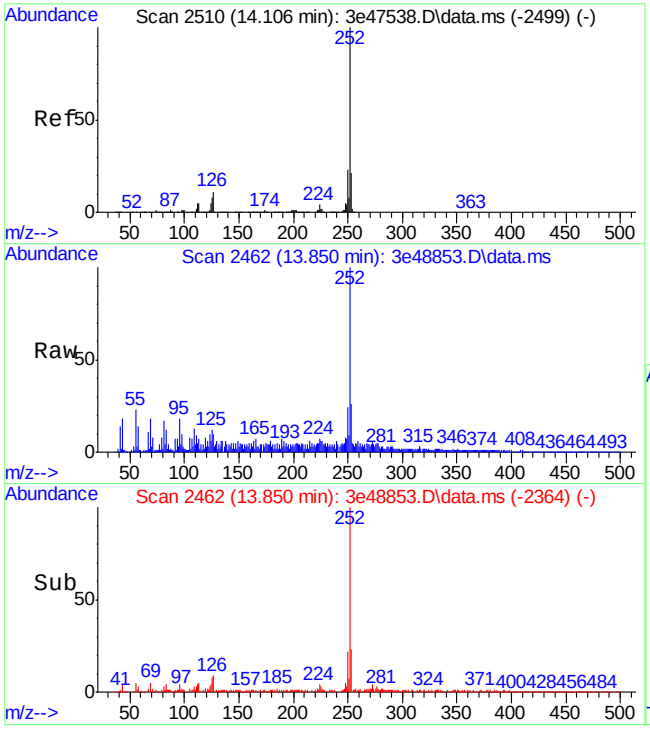


#90
Chrysene
Concen: 12.96 ppb
RT: 12.796 min Scan# 2265
Delta R.T. 0.021 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:228 Resp: 184789

Ion	Ratio	Lower	Upper
228	100		
226	30.8	0.6	60.6
229	20.9	0.0	50.3

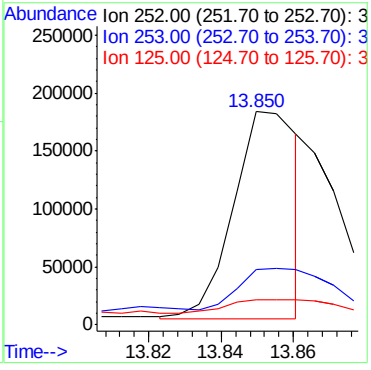


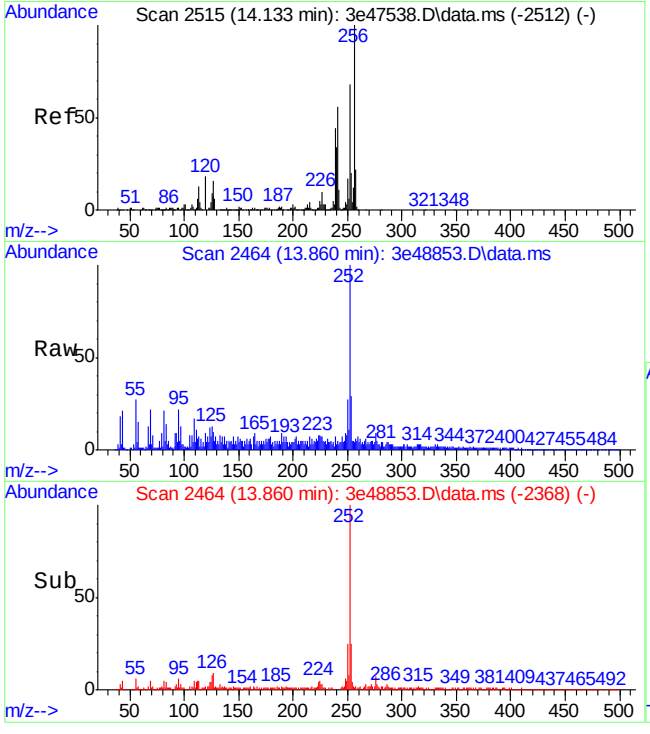


#94
Benzo[b]fluoranthene
Concen: 12.61 ppb m
RT: 13.850 min Scan# 2462
Delta R.T. 0.027 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:252 Resp: 219713

Ion	Ratio	Lower	Upper
252	100		
253	26.1	0.0	51.0
125	11.9	0.0	38.1

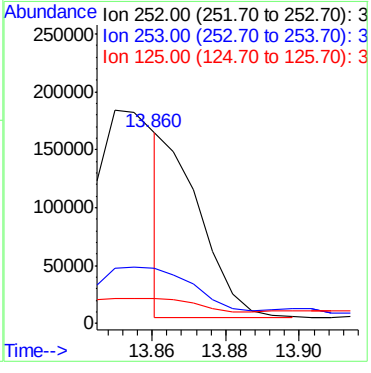




#95
Benzo[k]fluoranthene
Concen: 6.84 ppb m
RT: 13.860 min Scan# 2464
Delta R.T. 0.016 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:252 Resp: 107837

Ion	Ratio	Lower	Upper
252	100		
253	28.7	0.0	56.2
125	13.1	0.0	41.2



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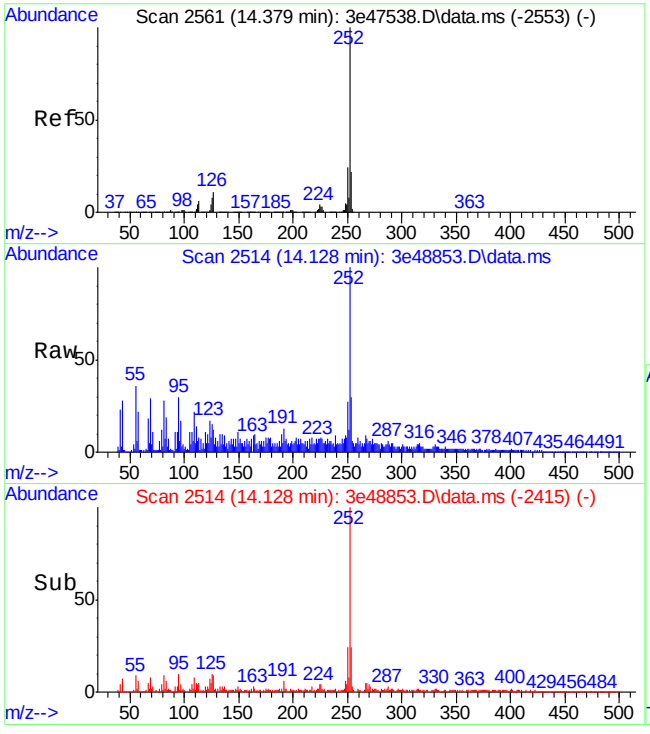
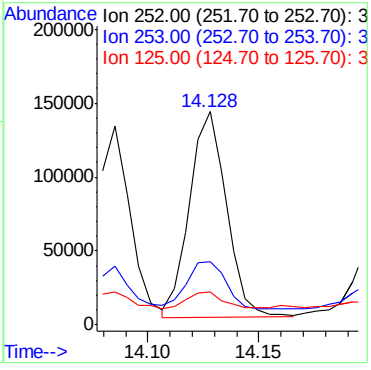
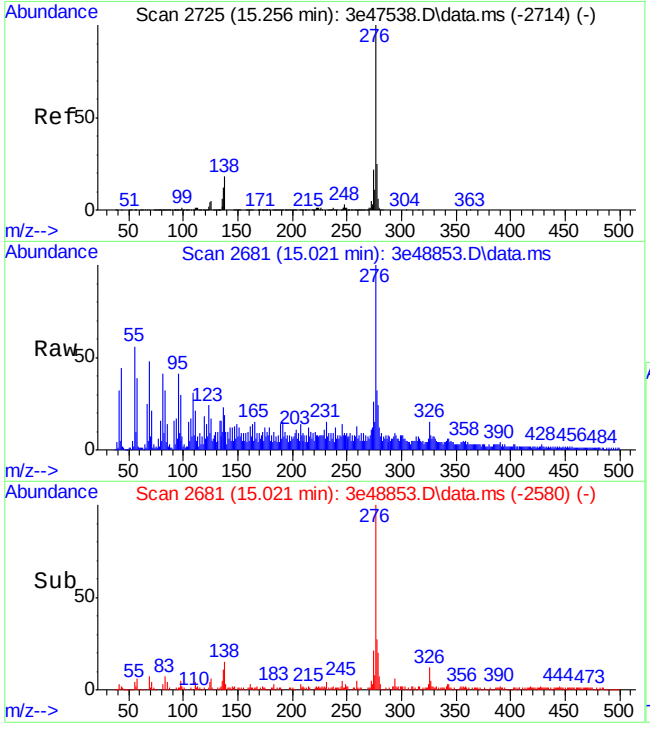


#96
Benzo[a]pyrene
Concen: 10.37 ppb
RT: 14.128 min Scan# 2514
Delta R.T. 0.032 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:252 Resp: 160987

Ion	Ratio	Lower	Upper
252	100		
253	22.6	0.0	52.0
125	7.9	0.0	38.1

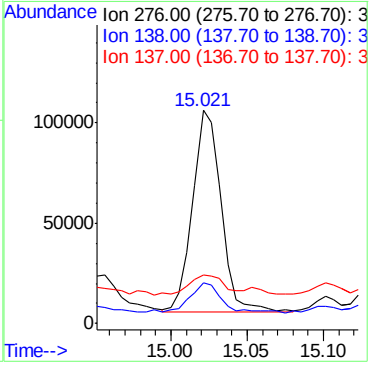


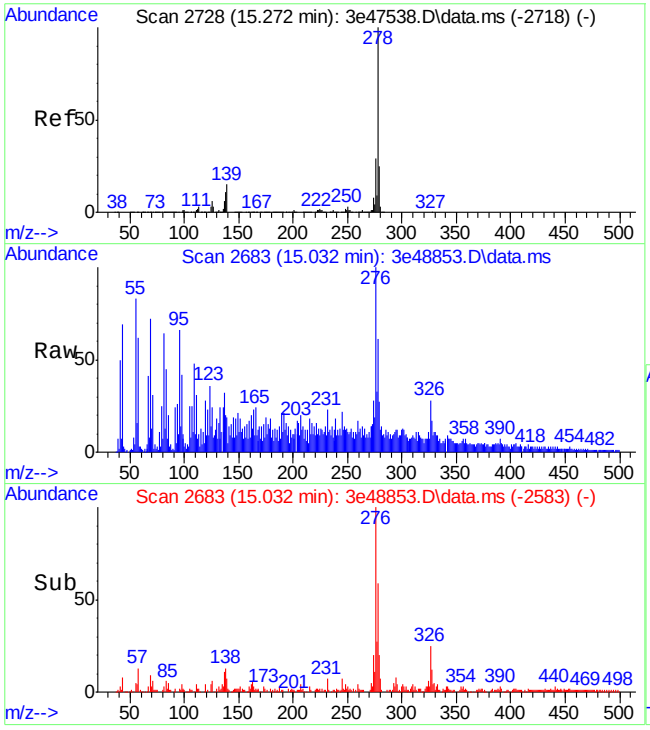


#97
Indeno[1,2,3-cd]pyrene
Concen: 7.23 ppb
RT: 15.021 min Scan# 2681
Delta R.T. 0.043 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:276 Resp: 129899

Ion	Ratio	Lower	Upper
276	100		
138	14.2	0.0	47.7
137	9.4	0.0	42.0

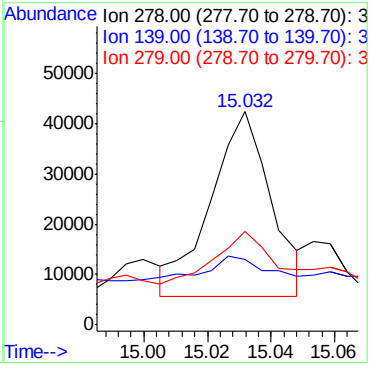


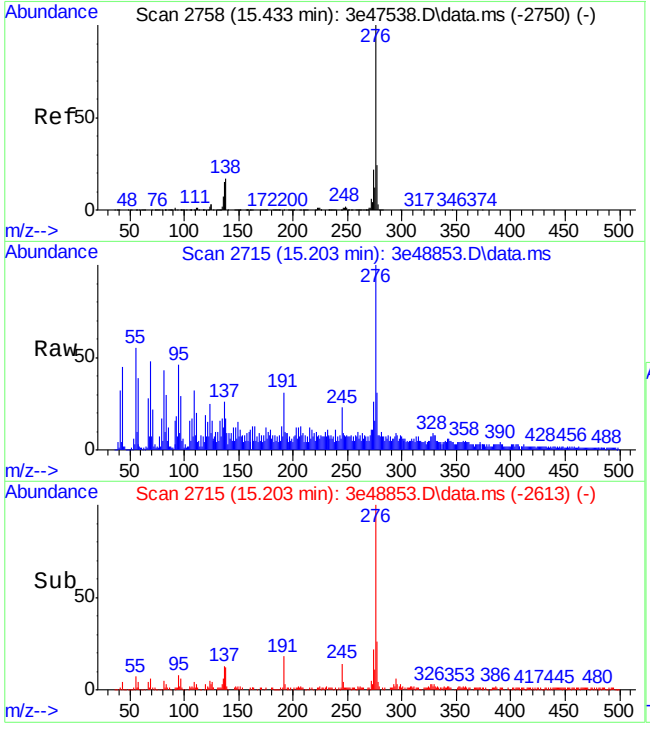


#99
Dibenz[a,h]anthracene
Concen: 3.19 ppb m
RT: 15.032 min Scan# 2683
Delta R.T. 0.037 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:278 Resp: 48433

Ion	Ratio	Lower	Upper
278	100		
139	30.5	0.0	44.8
279	43.9	0.0	54.9

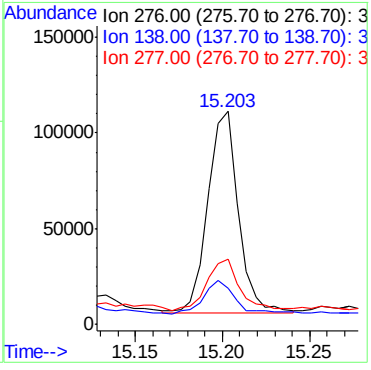




#101
Benzo[g,h,i]perylene
Concen: 8.73 ppb
RT: 15.203 min Scan# 2715
Delta R.T. 0.048 min
Lab File: 3e48853.D
Acq: 26 Mar 2013 7:58 pm

Tgt Ion:276 Resp: 129205

Ion	Ratio	Lower	Upper
276	100		
138	11.9	0.0	47.2
277	24.8	0.0	53.7



9.1.10

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48854.D
Acq On : 26 Mar 2013 8:21 pm
Operator : olgaa
Sample : jb31121-8
Misc : op64464,e3e2111,32.2
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 27 14:49:53 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.612	152	136631	40.00 ppb	0.00
24) Naphthalene-d8	4.174	136	539452	40.00 ppb	0.00
47) Acenaphthene-d10	6.763	164	335578	40.00 ppb	0.00
69) Phenanthrene-d10	9.009	188	614458	40.00 ppb	0.02
83) Chrysene-d12	12.769	240	634079	40.00 ppb	0.02
92) Perylene-d12	14.171	264	631008	40.00 ppb	0.03
102) 1,4-Dichlorobenzene-d4a	2.612	152	136631	40.00 ppb	0.00
104) Acenaphthene-d10a	6.763	164	335578	40.00 ppb	0.00
106) Phenanthrene-d10a	9.009	188	614458	40.00 ppb	0.02
108) Chrysene-d12a	12.769	240	634079	40.00 ppb	0.02

System Monitoring Compounds					
5) 2-Fluorophenol	1.601	112	59873	12.94 ppb	0.02
Spiked Amount 50.000			Recovery	= 25.88%	
8) Phenol-d5	2.430	99	81942	14.11 ppb	0.03
Spiked Amount 50.000			Recovery	= 28.22%	
25) Nitrobenzene-d5	3.308	82	64947	13.24 ppb	0.00
Spiked Amount 50.000			Recovery	= 26.48%	
51) 2-Fluorobiphenyl	5.827	172	180101	16.54 ppb	0.00
Spiked Amount 50.000			Recovery	= 33.08%	
73) 2,4,6-Tribromophenol	8.025	330	58625	32.92 ppb	0.01
Spiked Amount 50.000			Recovery	= 65.84%	
85) Terphenyl-d14	11.566	244	408684	29.45 ppb	0.02
Spiked Amount 50.000			Recovery	= 58.90%	

Target Compounds					Qvalue
38) Naphthalene	4.201	128	19742	1.32 ppb	96
56) Acenaphthylene	6.528	152	24185	1.51 ppb	97
59) Acenaphthene	6.816	153	4091	0.40 ppb #	47
77) Phenanthrene	9.036	178	147484	8.22 ppb	99
78) Anthracene	9.111	178	43058	2.42 ppb	98
81) Fluoranthene	10.892	202	178283	9.49 ppb	97
84) Pyrene	11.202	202	155527	7.72 ppb	99
88) Benzo[a]anthracene	12.753	228	92822	4.95 ppb	93
90) Chrysene	12.791	228	135404	7.99 ppb	95
94) Benzo[b]fluoranthene	13.844	252	137087m	6.65 ppb	
95) Benzo[k]fluoranthene	13.850	252	57204m	3.07 ppb	
96) Benzo[a]pyrene	14.117	252	80961	4.41 ppb	97
97) Indeno[1,2,3-cd]pyrene	15.005	276	70941	3.34 ppb	91
99) Dibenz[a,h]anthracene	15.016	278	27174m	1.51 ppb	
101) Benzo[g,h,i]perylene	15.182	276	70513	4.03 ppb	97

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

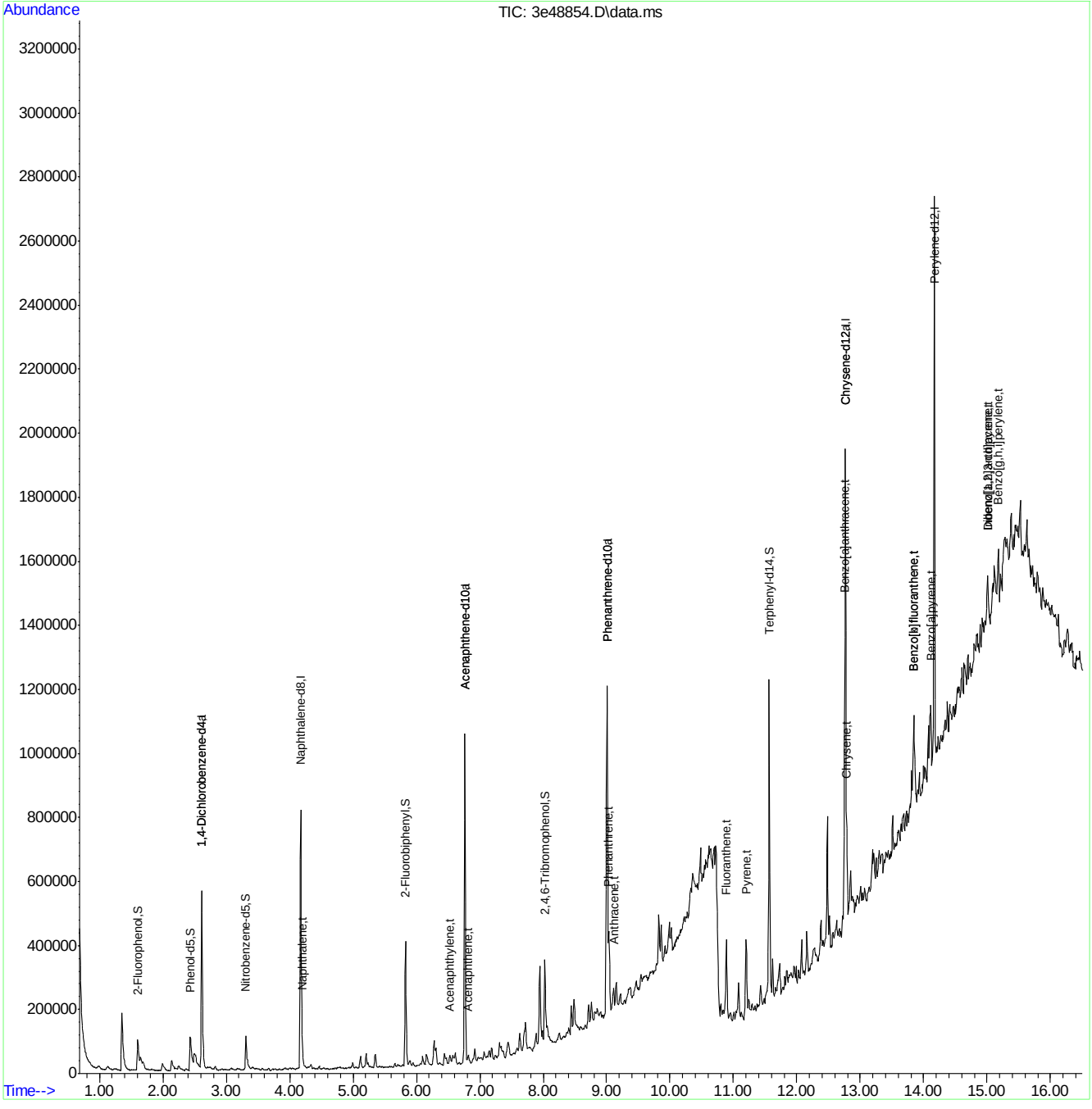
9.1.11

9

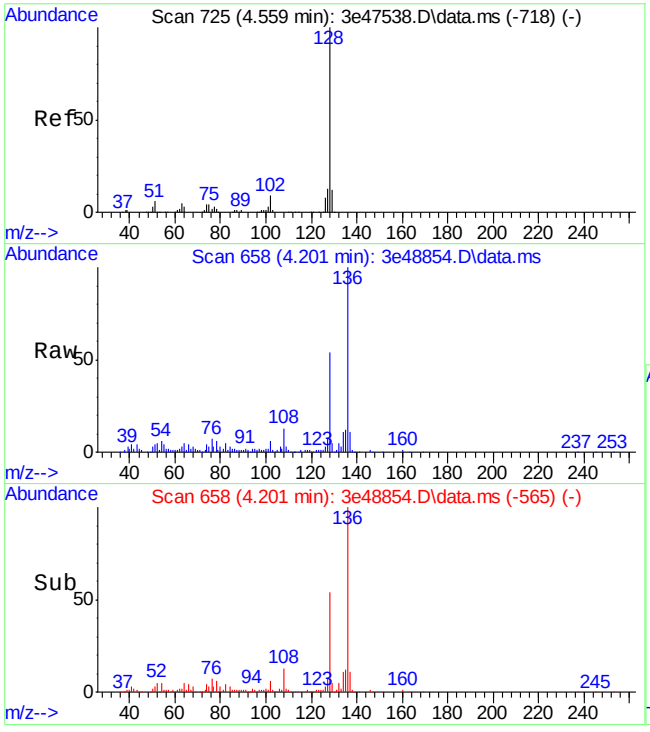
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48854.D
Acq On : 26 Mar 2013 8:21 pm
Operator : olgaa
Sample : jb31121-8
Misc : op64464,e3e2111,32.2
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 27 14:49:53 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



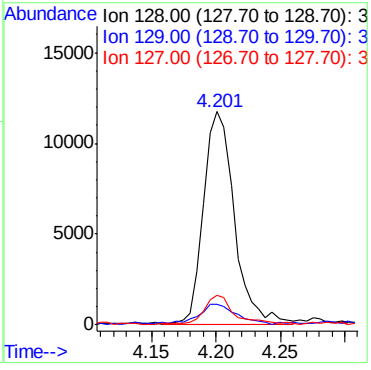
M3E2061.M Wed Mar 27 14:50:00 2013 MS3E Page: 2

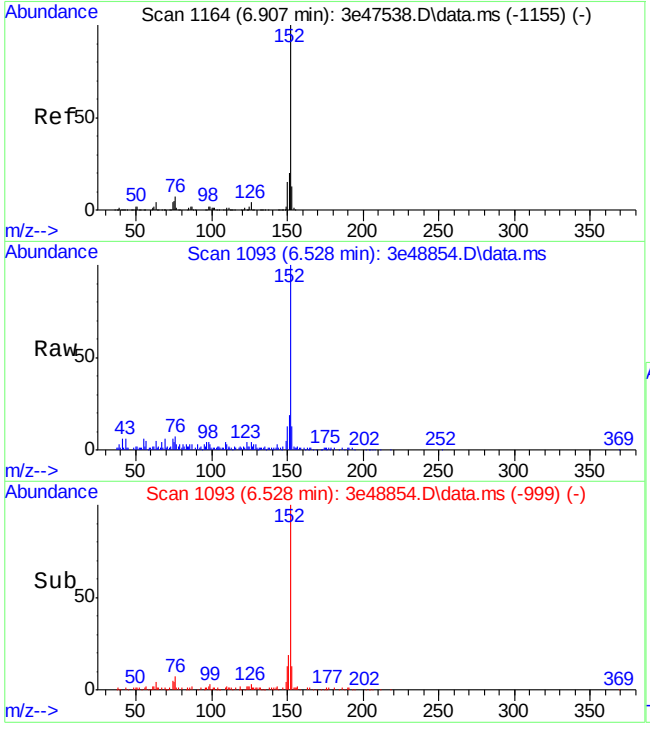


#38
Naphthalene
Concen: 1.32 ppb
RT: 4.201 min Scan# 658
Delta R.T. 0.000 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:128 Resp: 19742

Ion	Ratio	Lower	Upper
128	100		
129	8.4	0.0	41.7
127	12.9	0.0	42.7

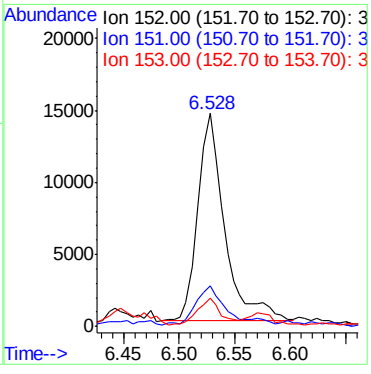


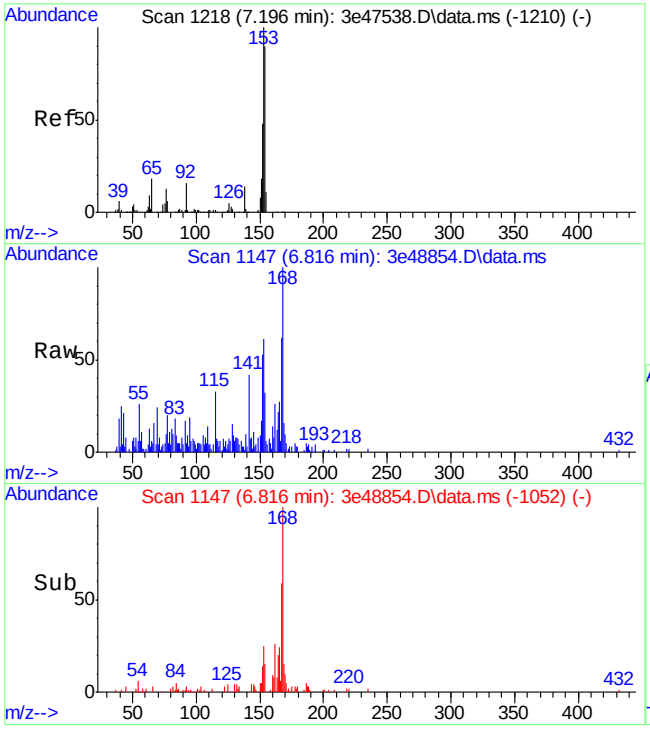


#56
Acenaphthylene
Concen: 1.51 ppb
RT: 6.528 min Scan# 1093
Delta R.T. 0.005 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:152 Resp: 24185

Ion	Ratio	Lower	Upper
152	100		
151	18.7	0.0	49.9
153	11.9	0.0	43.2

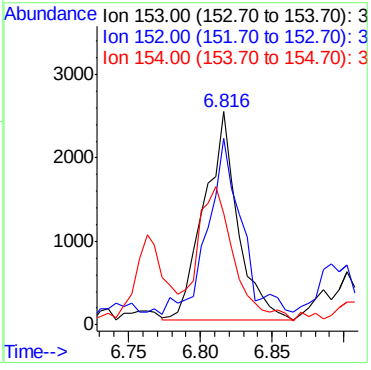


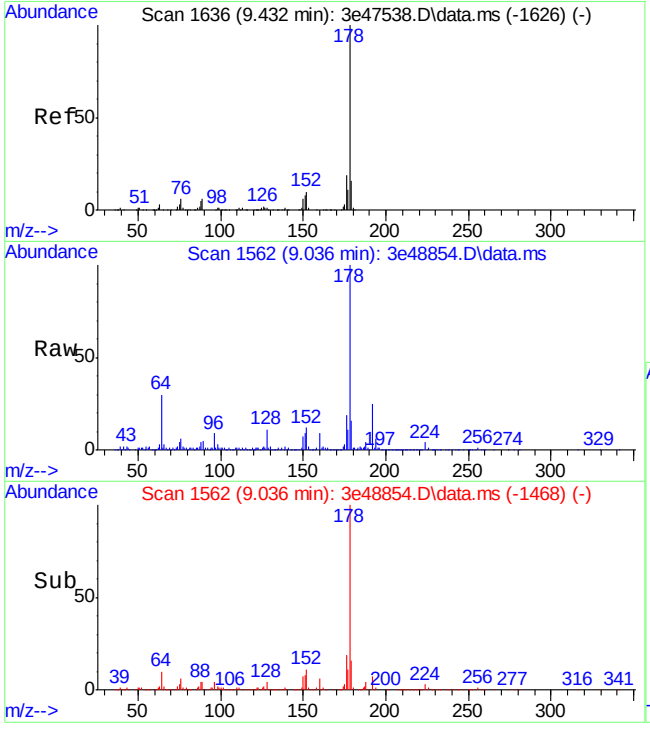


#59
Acenaphthene
Concen: 0.40 ppb
RT: 6.816 min Scan# 1147
Delta R.T. 0.011 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:153 Resp: 4091

Ion	Ratio	Lower	Upper
153	100		
152	84.4	17.8	77.8#
154	41.6	60.3	120.3#

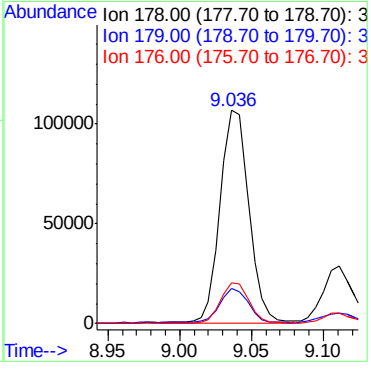


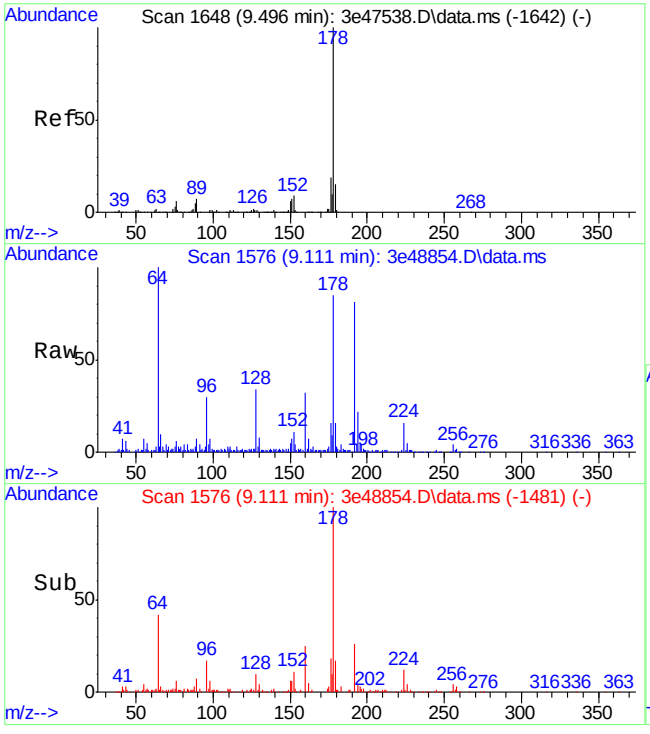


#77
Phenanthrene
Concen: 8.22 ppb
RT: 9.036 min Scan# 1562
Delta R.T. 0.005 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:178 Resp: 147484

Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	45.7
176	18.8	0.0	49.5

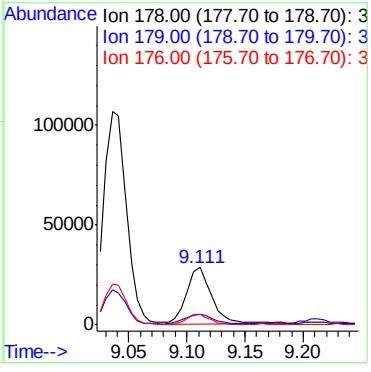


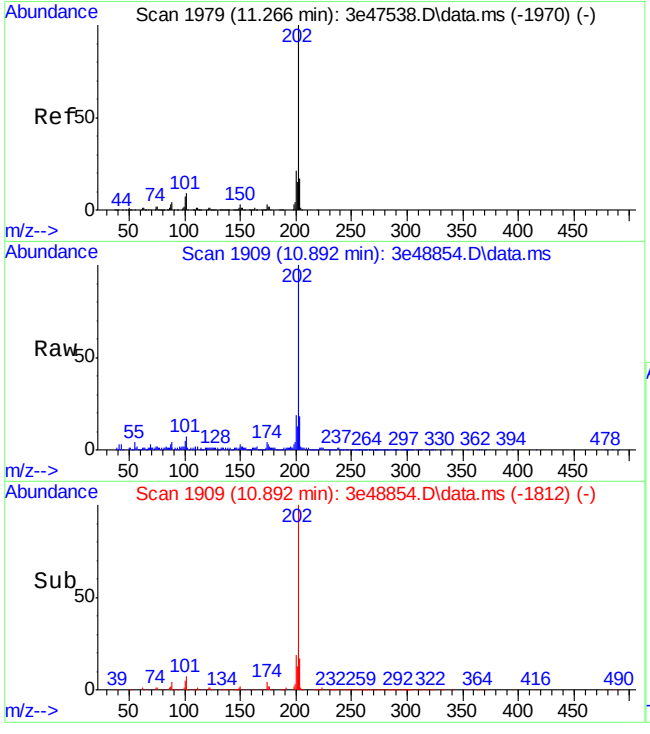


#78
Anthracene
Concen: 2.42 ppb
RT: 9.111 min Scan# 1576
Delta R.T. 0.011 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:178 Resp: 43058

Ion	Ratio	Lower	Upper
178	100		
179	16.8	0.0	45.1
176	18.4	0.0	48.6

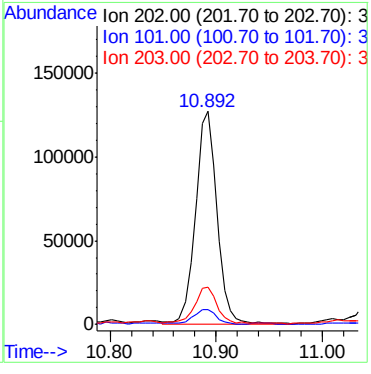


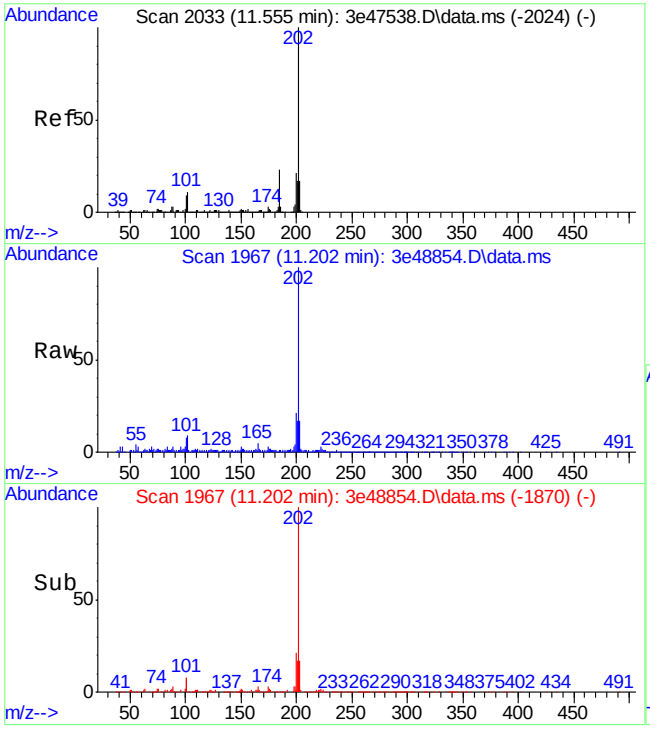


#81
Fluoranthene
Concen: 9.49 ppb
RT: 10.892 min Scan# 1909
Delta R.T. 0.021 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:202 Resp: 178283

Ion	Ratio	Lower	Upper
202	100		
101	6.8	0.0	39.1
203	17.0	0.0	47.3

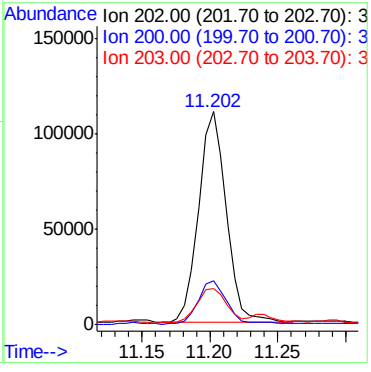


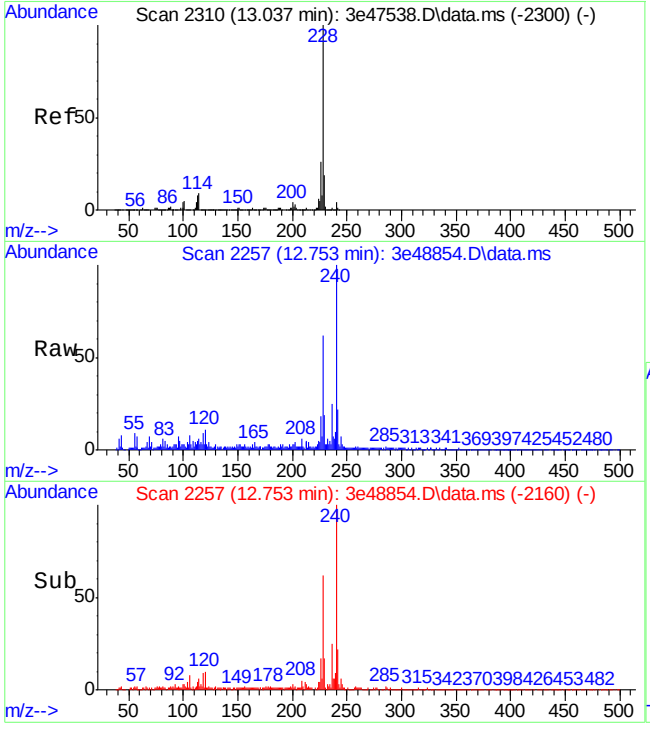


#84
Pyrene
Concen: 7.72 ppb
RT: 11.202 min Scan# 1967
Delta R.T. 0.021 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:202 Resp: 155527

Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.0	50.6
203	16.1	0.0	47.2

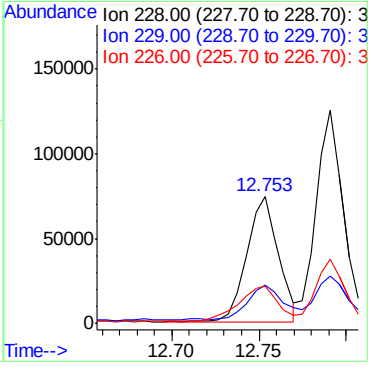


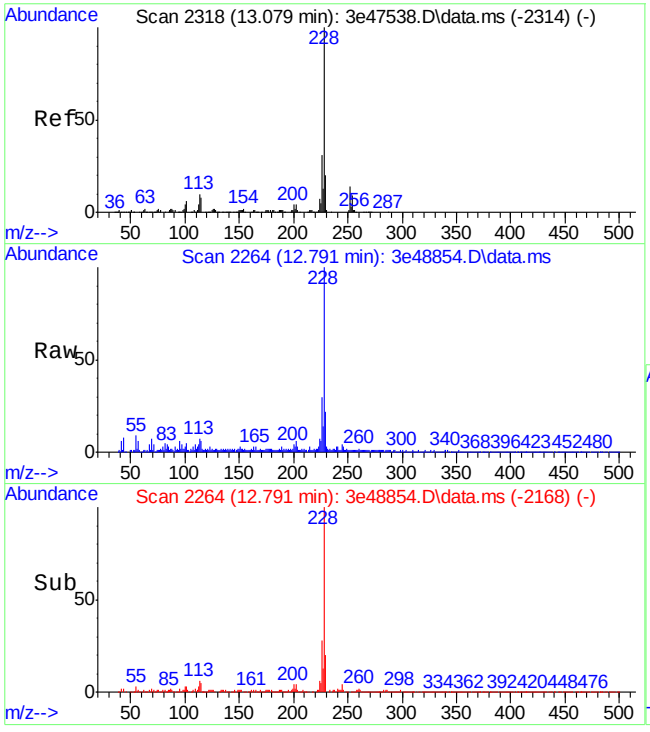


#88
Benzo[a]anthracene
Concen: 4.95 ppb
RT: 12.753 min Scan# 2257
Delta R.T. 0.021 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:228 Resp: 92822

Ion	Ratio	Lower	Upper
228	100		
229	24.5	0.0	49.3
226	27.6	0.0	55.8

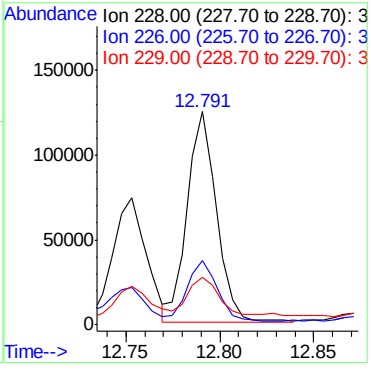


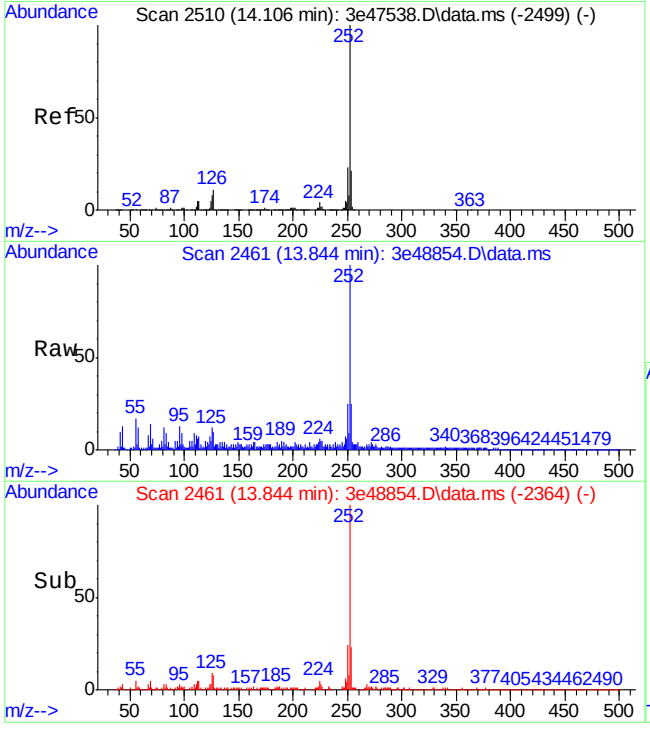


#90
Chrysene
Concen: 7.99 ppb
RT: 12.791 min Scan# 2264
Delta R.T. 0.016 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:228 Resp: 135404

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.6	60.6
229	17.4	0.0	50.3

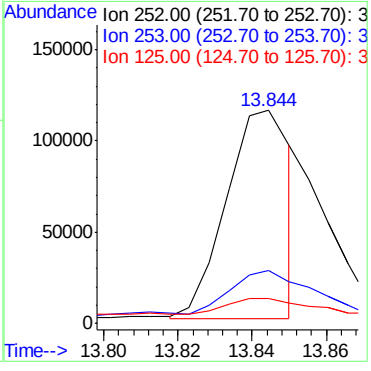


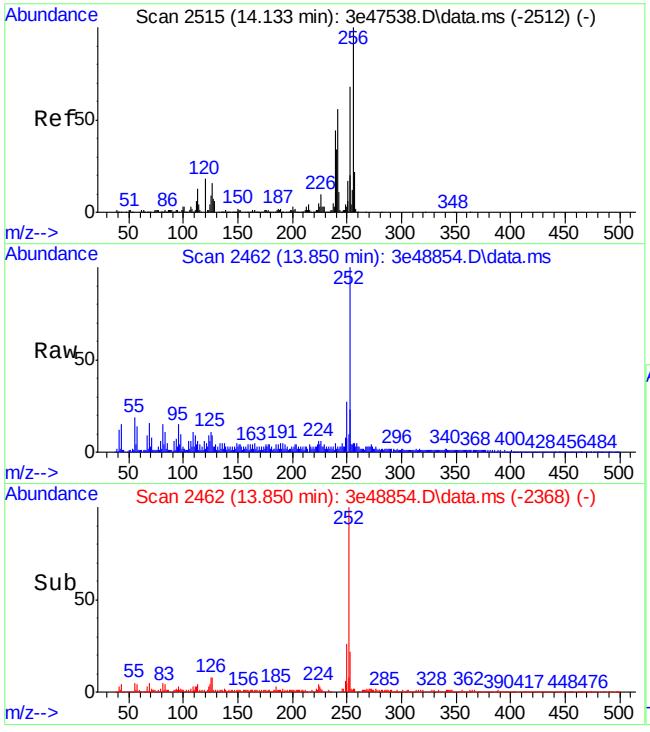


#94
Benzo[b]fluoranthene
Concen: 6.65 ppb m
RT: 13.844 min Scan# 2461
Delta R.T. 0.021 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:252 Resp: 137087

Ion	Ratio	Lower	Upper
252	100		
253	24.7	0.0	51.0
125	11.7	0.0	38.1

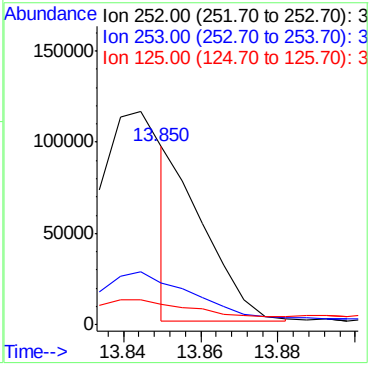


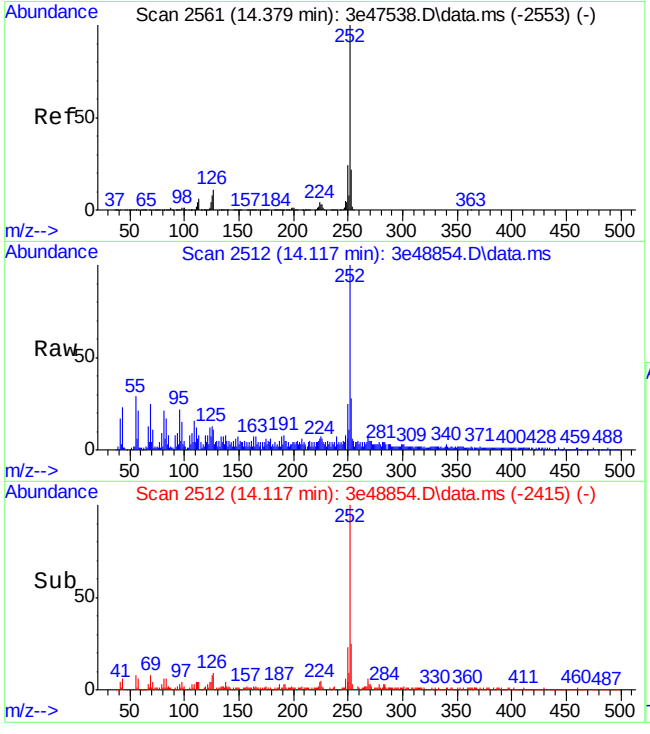


#95
Benzo[k]fluoranthene
Concen: 3.07 ppb m
RT: 13.850 min Scan# 2462
Delta R.T. 0.005 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:252 Resp: 57204

Ion	Ratio	Lower	Upper
252	100		
253	23.4	0.0	56.2
125	11.3	0.0	41.2

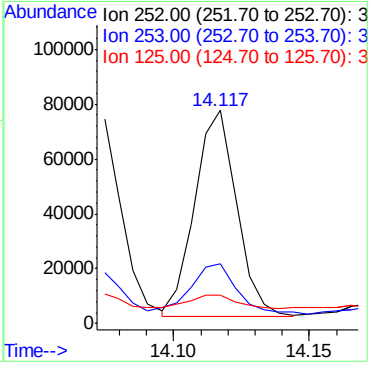


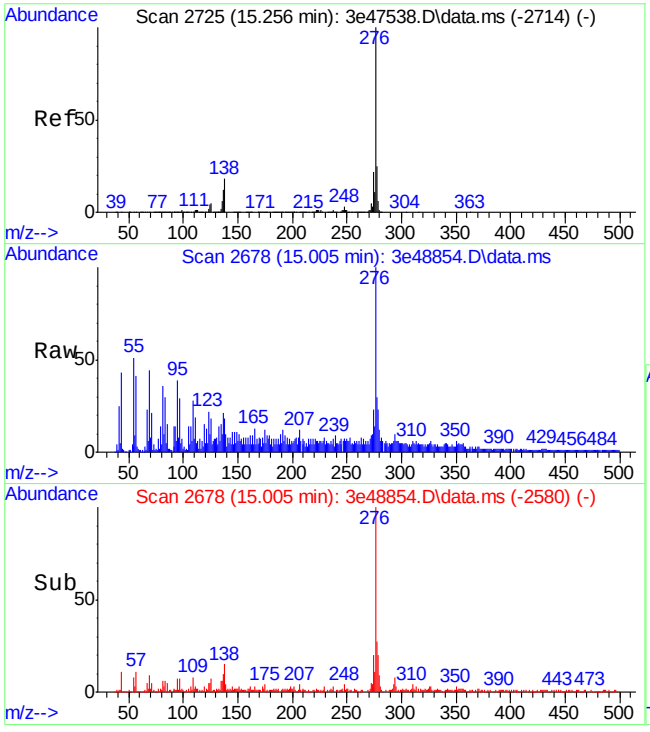


#96
Benzo[a]pyrene
Concen: 4.41 ppb
RT: 14.117 min Scan# 2512
Delta R.T. 0.021 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:252 Resp: 80961

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	52.0
125	6.0	0.0	38.1

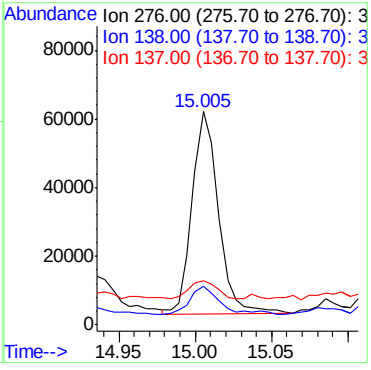


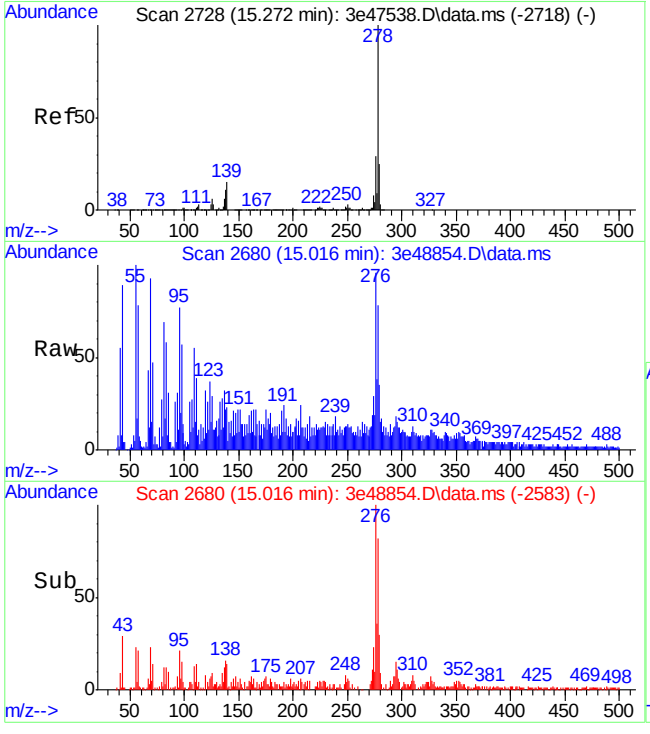


#97
Indeno[1,2,3-cd]pyrene
Concen: 3.34 ppb
RT: 15.005 min Scan# 2678
Delta R.T. 0.027 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:276 Resp: 70941

Ion	Ratio	Lower	Upper
276	100		
138	13.9	0.0	47.7
137	7.9	0.0	42.0

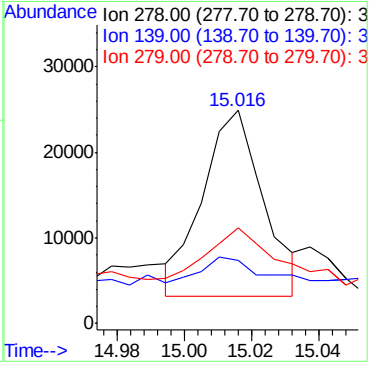


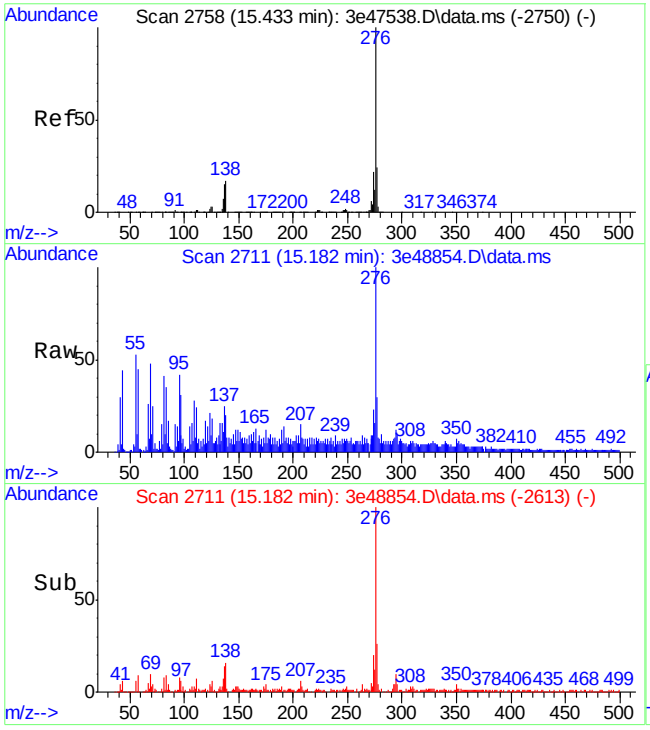


#99
Dibenz[a,h]anthracene
Concen: 1.51 ppb m
RT: 15.016 min Scan# 2680
Delta R.T. 0.021 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:278 Resp: 27174

Ion	Ratio	Lower	Upper
278	100		
139	29.5	0.0	44.8
279	44.9	0.0	54.9

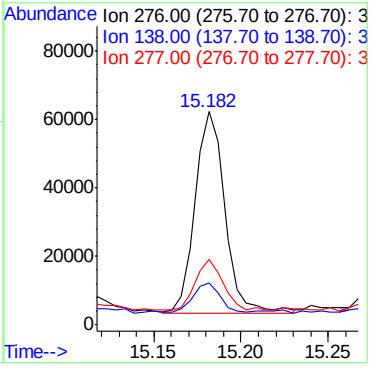




#101
Benzo[g,h,i]perylene
Concen: 4.03 ppb
RT: 15.182 min Scan# 2711
Delta R.T. 0.027 min
Lab File: 3e48854.D
Acq: 26 Mar 2013 8:21 pm

Tgt Ion:276 Resp: 70513

Ion	Ratio	Lower	Upper
276	100		
138	15.3	0.0	47.2
277	24.8	0.0	53.7



9.1.11

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48848.D
Acq On : 26 Mar 2013 6:02 pm
Operator : olgaa
Sample : jb31121-9
Misc : op64464,e3e2111,35.4
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 27 14:14:09 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	106628	40.00	ppb	-0.01
24) Naphthalene-d8	4.164	136	444527	40.00	ppb	-0.01
47) Acenaphthene-d10	6.752	164	273165	40.00	ppb	-0.01
69) Phenanthrene-d10	8.988	188	473568	40.00	ppb	0.00
83) Chrysene-d12	12.748	240	467297	40.00	ppb	0.00
92) Perylene-d12	14.144	264	458545	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	106628	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.752	164	273165	40.00	ppb	-0.01
106) Phenanthrene-d10a	8.988	188	473568	40.00	ppb	0.00
108) Chrysene-d12a	12.748	240	467297	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	1.596	112	49556	13.73	ppb	0.01
Spiked Amount 50.000			Recovery = 27.46%			
8) Phenol-d5	2.425	99	62799	13.86	ppb	0.02
Spiked Amount 50.000			Recovery = 27.72%			
25) Nitrobenzene-d5	3.308	82	64952	16.07	ppb	0.00
Spiked Amount 50.000			Recovery = 32.14%			
51) 2-Fluorobiphenyl	5.822	172	159169	17.95	ppb	-0.01
Spiked Amount 50.000			Recovery = 35.90%			
73) 2,4,6-Tribromophenol	8.015	330	57031	41.56	ppb	0.00
Spiked Amount 50.000			Recovery = 83.12%			
85) Terphenyl-d14	11.550	244	434762	42.52	ppb	0.00
Spiked Amount 50.000			Recovery = 85.04%			

Target Compounds						Qvalue
59) Acenaphthene	6.800	153	6880	0.83	ppb	88
66) Fluorene	7.587	166	12486	1.35	ppb	92
77) Phenanthrene	9.020	178	164179	11.87	ppb	98
78) Anthracene	9.095	178	47832	3.49	ppb	99
81) Fluoranthene	10.865	202	271232	18.74	ppb	97
84) Pyrene	11.176	202	215897	14.55	ppb	98
88) Benzo[a]anthracene	12.732	228	108460	7.85	ppb	91
90) Chrysene	12.769	228	95454	7.64	ppb	99
94) Benzo[b]fluoranthene	13.823	252	131927m	8.81	ppb	
95) Benzo[k]fluoranthene	13.834	252	48668m	3.59	ppb	
96) Benzo[a]pyrene	14.096	252	101769	7.63	ppb	99
97) Indeno[1,2,3-cd]pyrene	14.989	276	78840	5.11	ppb	86
99) Dibenz[a,h]anthracene	14.994	278	25794m	1.97	ppb	
101) Benzo[g,h,i]perylene	15.160	276	71239	5.60	ppb	93

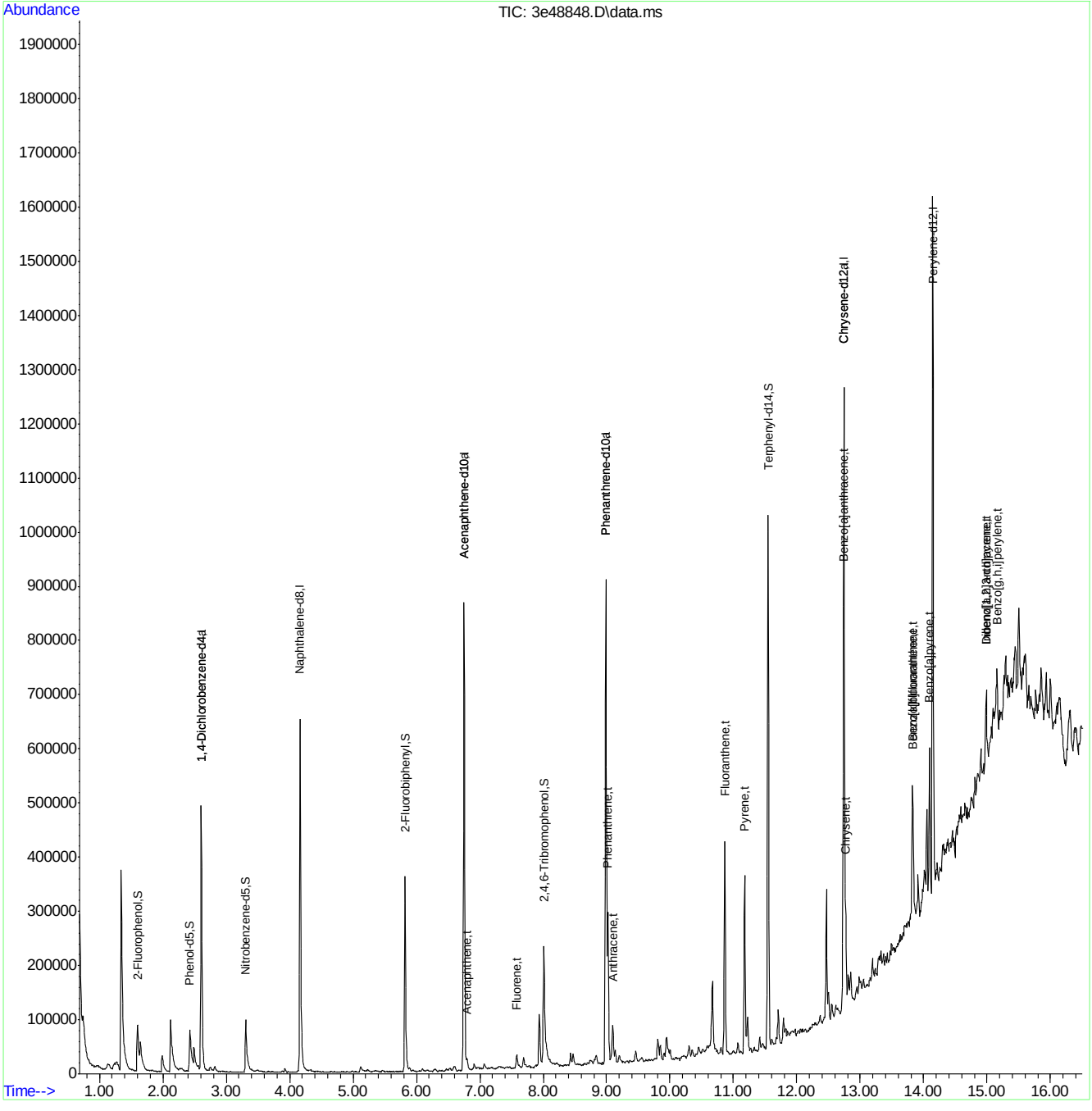
(#) = qualifier out of range (m) = manual integration (+) = signals summed

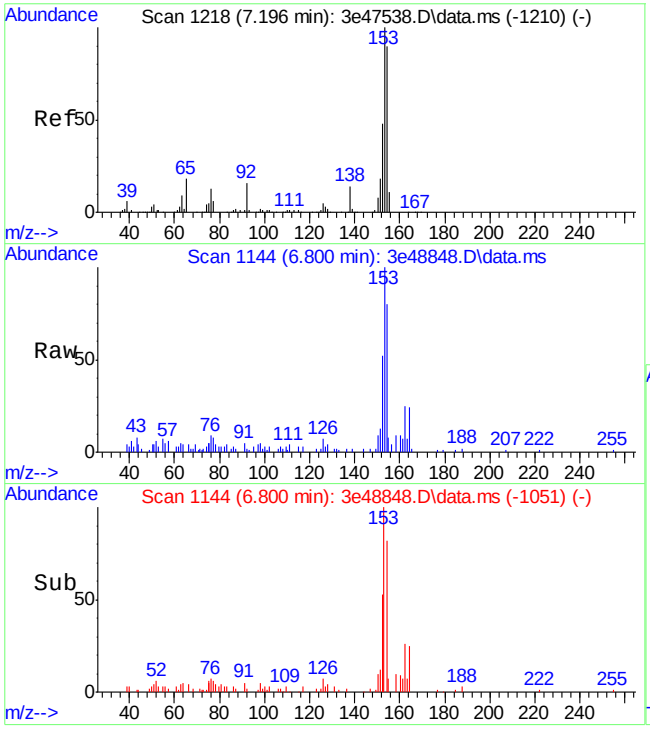
9.1.12
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48848.D
Acq On : 26 Mar 2013 6:02 pm
Operator : olgaa
Sample : jb31121-9
Misc : op64464,e3e2111,35.4
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 27 14:14:09 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

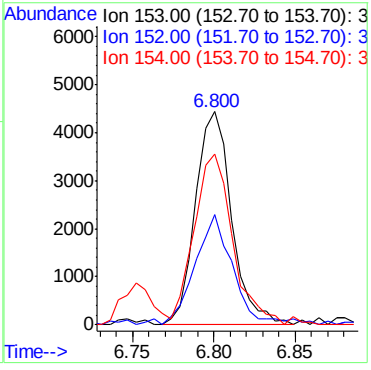


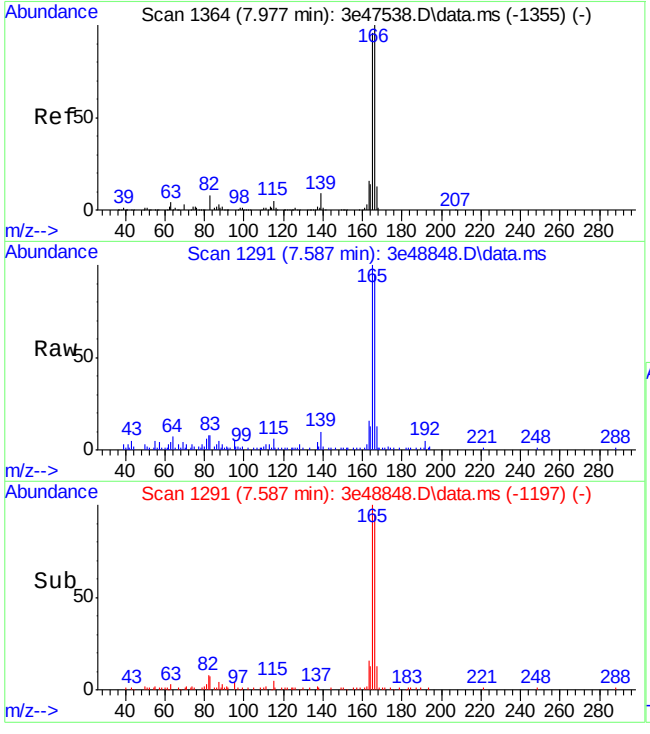


#59
Acenaphthene
Concen: 0.83 ppb
RT: 6.800 min Scan# 1144
Delta R.T. -0.005 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:153 Resp: 6880

Ion	Ratio	Lower	Upper
153	100		
152	50.4	17.8	77.8
154	75.3	60.3	120.3

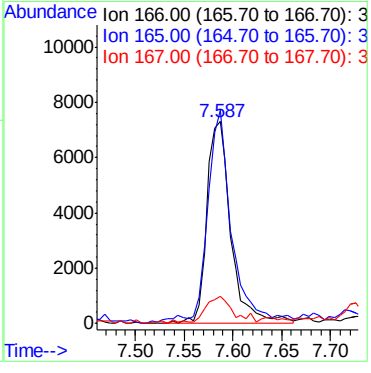




#66
Fluorene
Concen: 1.35 ppb
RT: 7.587 min Scan# 1291
Delta R.T. 0.000 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:166 Resp: 12486

Ion	Ratio	Lower	Upper
166	100		
165	104.3	65.7	125.7
167	11.9	0.0	43.4



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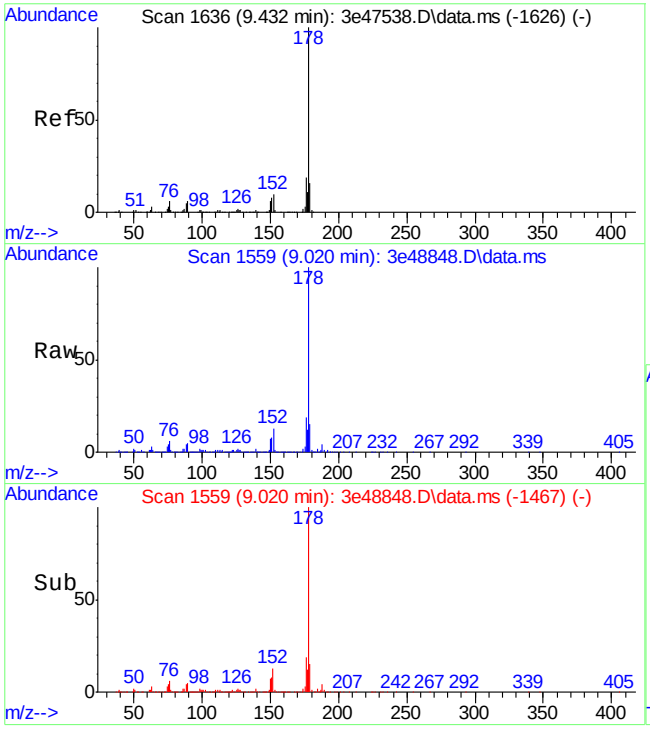
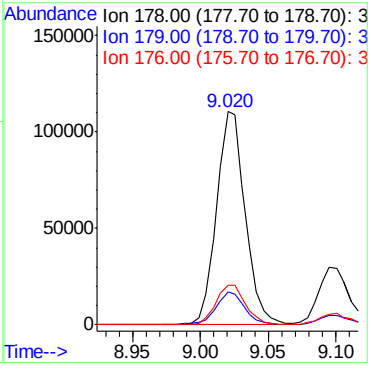
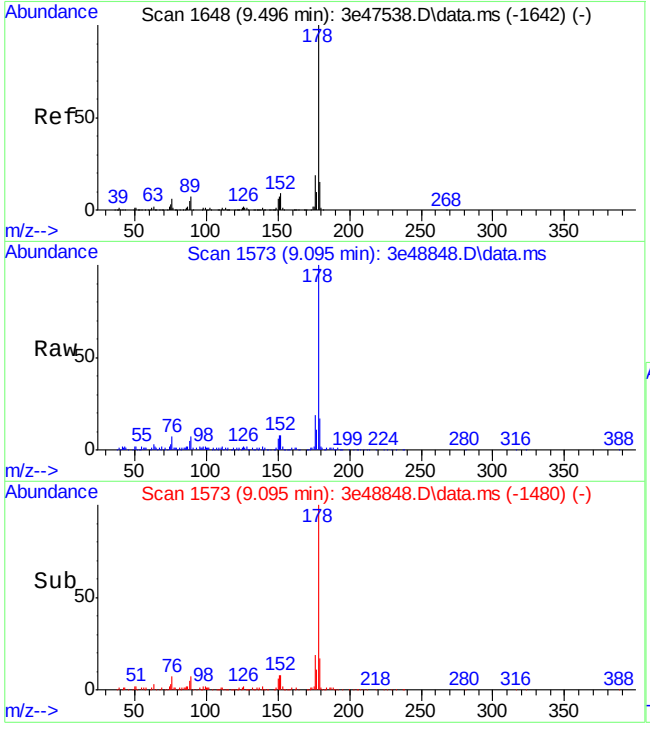


#77
Phenanthrene
Concen: 11.87 ppb
RT: 9.020 min Scan# 1559
Delta R.T. -0.011 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:178 Resp: 164179

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.7
176	18.6	0.0	49.5

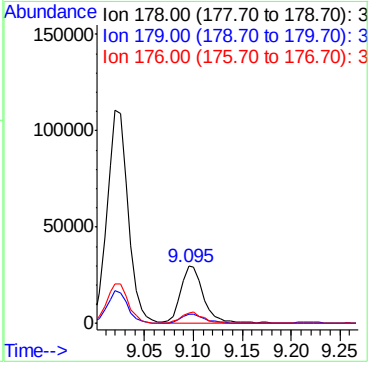


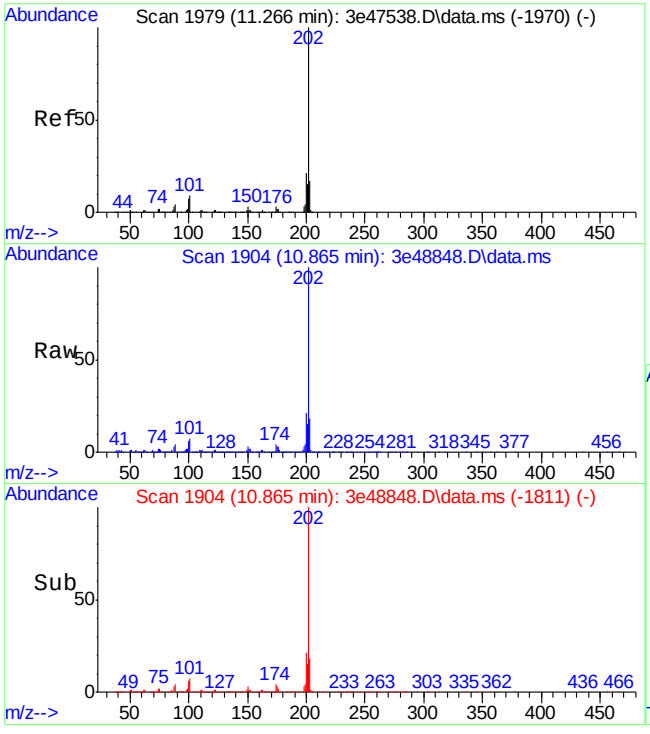


#78
Anthracene
Concen: 3.49 ppb
RT: 9.095 min Scan# 1573
Delta R.T. -0.005 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:178 Resp: 47832

Ion	Ratio	Lower	Upper
178	100		
179	16.3	0.0	45.1
176	18.4	0.0	48.6

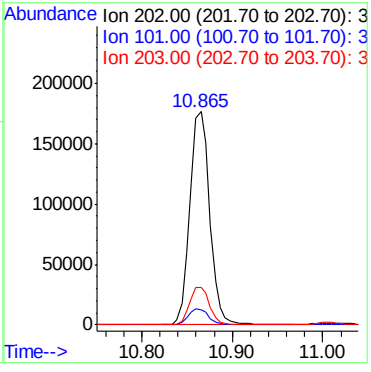


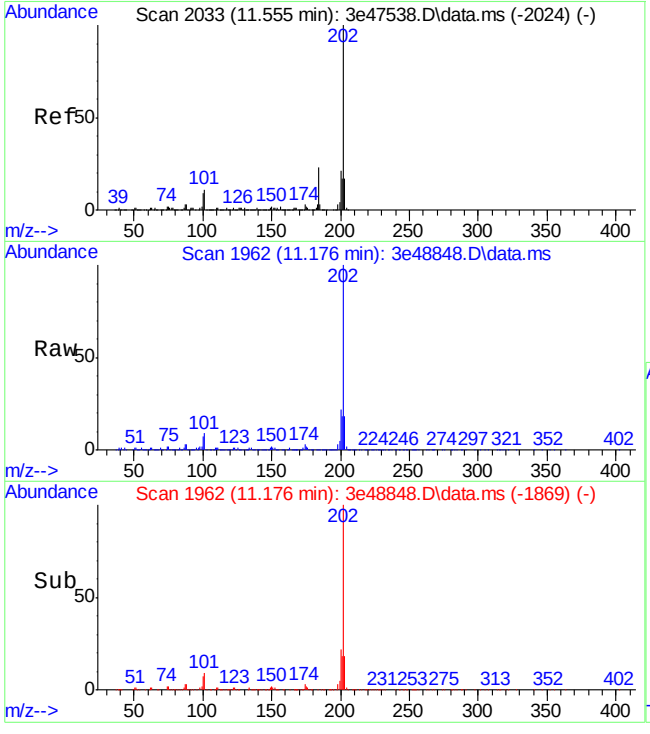


#81
Fluoranthene
Concen: 18.74 ppb
RT: 10.865 min Scan# 1904
Delta R.T. -0.005 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:202 Resp: 271232

Ion	Ratio	Lower	Upper
202	100		
101	6.8	0.0	39.1
203	17.5	0.0	47.3

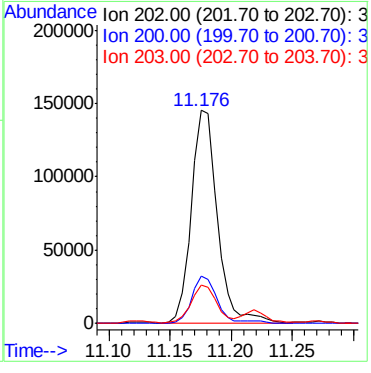


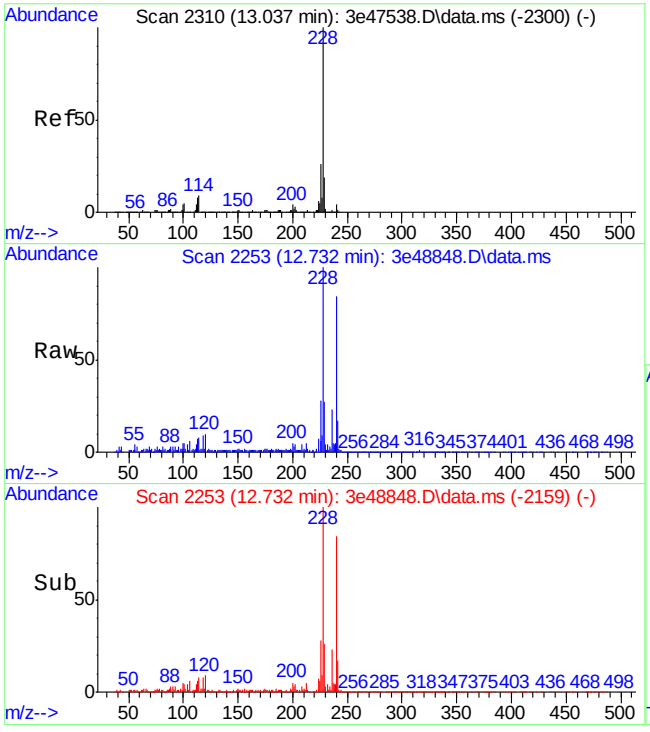


#84
Pyrene
Concen: 14.55 ppb
RT: 11.176 min Scan# 1962
Delta R.T. -0.005 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:202 Resp: 215897

Ion	Ratio	Lower	Upper
202	100		
200	22.0	0.0	50.6
203	17.7	0.0	47.2

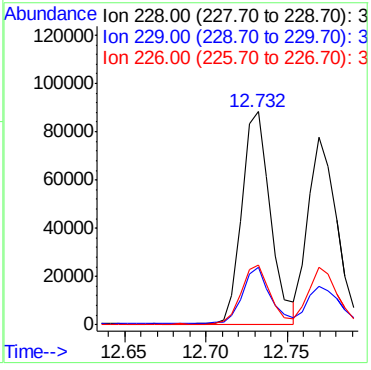


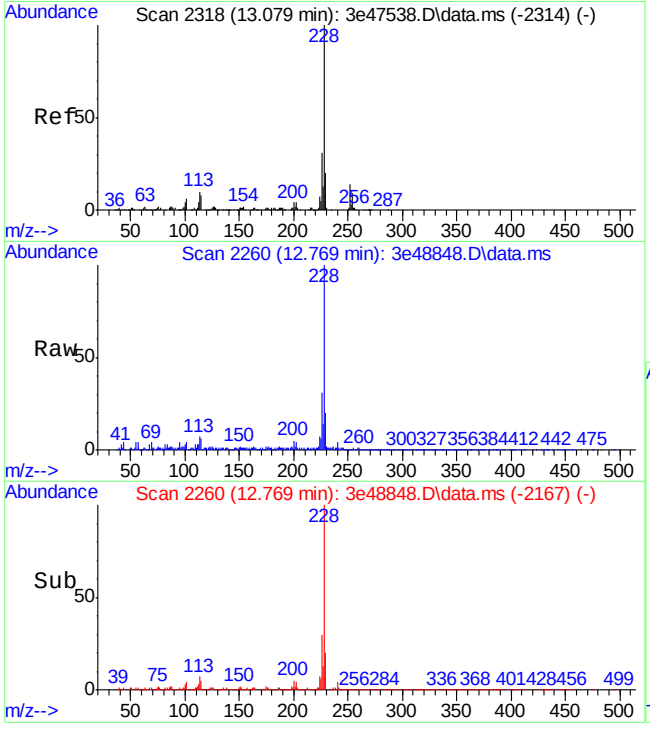


#88
Benzo[a]anthracene
Concen: 7.85 ppb
RT: 12.732 min Scan# 2253
Delta R.T. 0.000 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:228 Resp: 108460

Ion	Ratio	Lower	Upper
228	100		
229	26.2	0.0	49.3
226	28.2	0.0	55.8

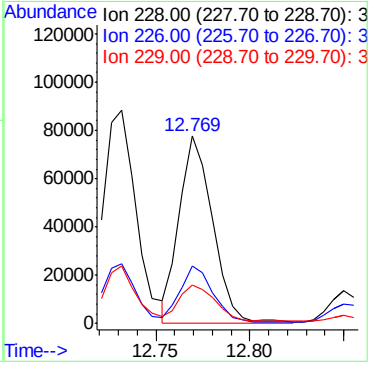




#90
Chrysene
Concen: 7.64 ppb
RT: 12.769 min Scan# 2260
Delta R.T. -0.005 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:228 Resp: 95454

Ion	Ratio	Lower	Upper
228	100		
226	30.6	0.6	60.6
229	19.0	0.0	50.3



9.1.12

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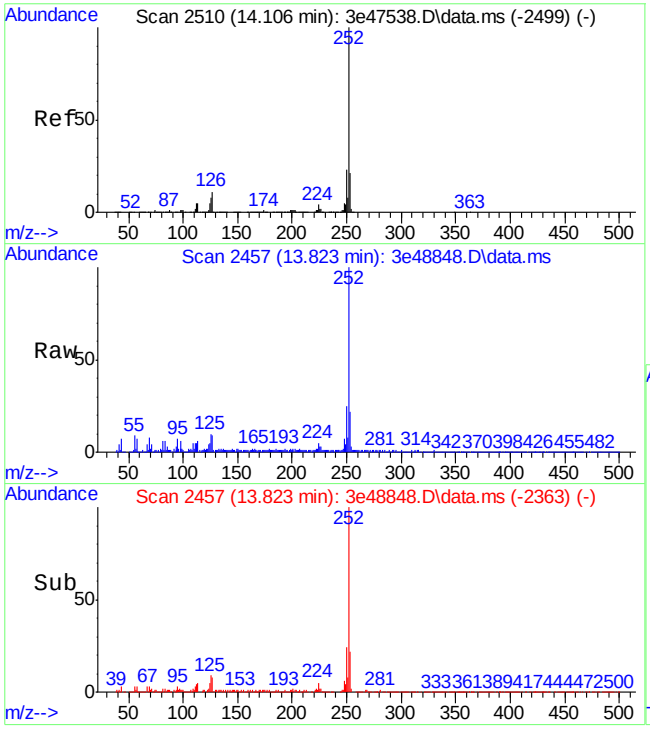
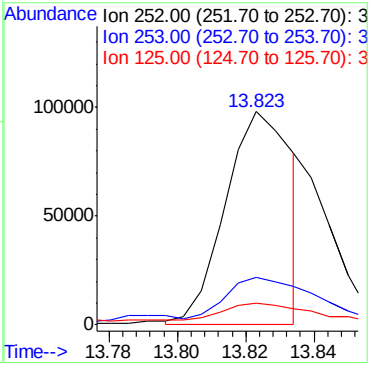
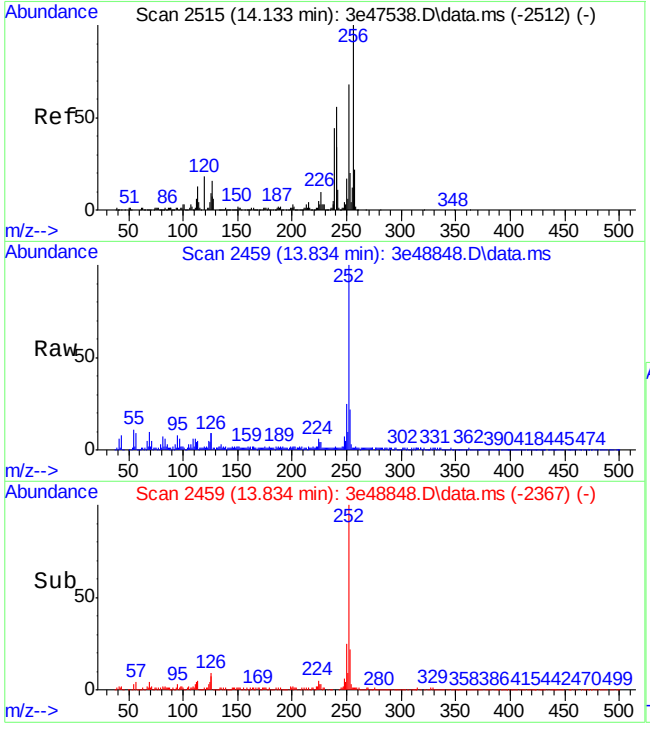


#94
Benzo[b]fluoranthene
Concen: 8.81 ppb m
RT: 13.823 min Scan# 2457
Delta R.T. 0.000 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:252 Resp: 131927

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	51.0
125	10.3	0.0	38.1

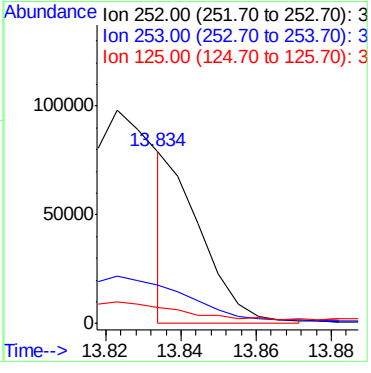




#95
Benzo[k]fluoranthene
Concen: 3.59 ppb m
RT: 13.834 min Scan# 2459
Delta R.T. -0.011 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:252 Resp: 48668

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	56.2
125	9.3	0.0	41.2



9.1.12
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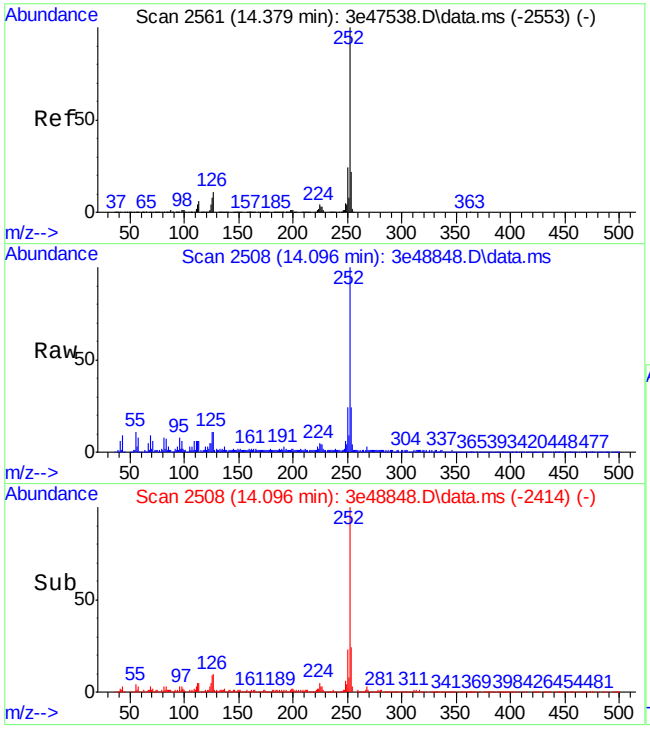
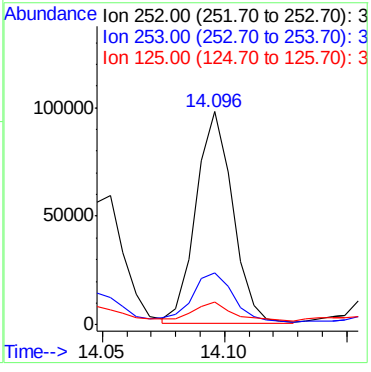
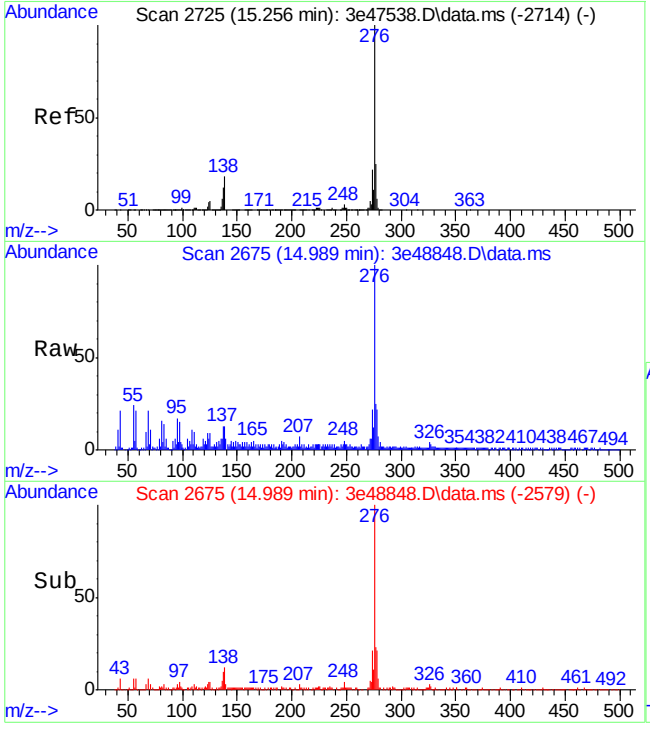


#96
Benzo[a]pyrene
Concen: 7.63 ppb
RT: 14.096 min Scan# 2508
Delta R.T. 0.000 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:252 Resp: 101769

Ion	Ratio	Lower	Upper
252	100		
253	22.2	0.0	52.0
125	8.6	0.0	38.1

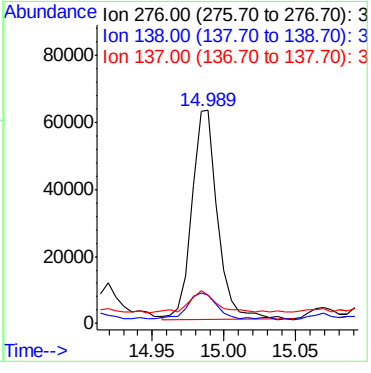


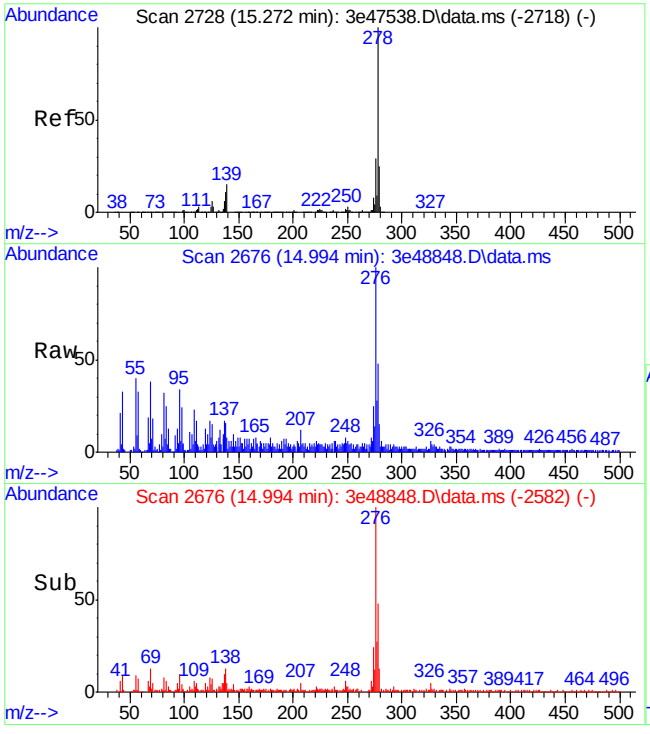


#97
Indeno[1,2,3-cd]pyrene
Concen: 5.11 ppb
RT: 14.989 min Scan# 2675
Delta R.T. 0.011 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:276 Resp: 78840

Ion	Ratio	Lower	Upper
276	100		
138	11.1	0.0	47.7
137	7.5	0.0	42.0

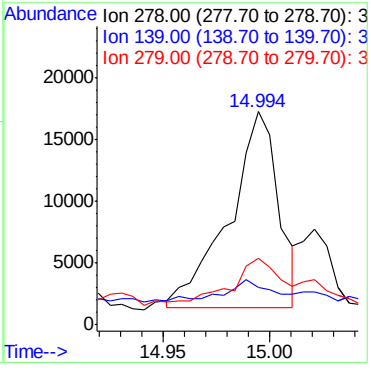


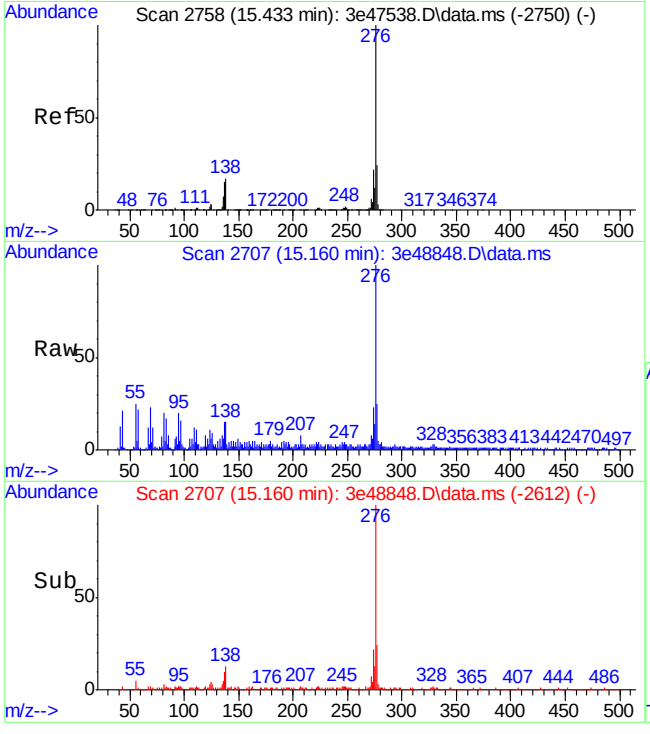


#99
Dibenz[a,h]anthracene
Concen: 1.97 ppb m
RT: 14.994 min Scan# 2676
Delta R.T. 0.000 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:278 Resp: 25794

Ion	Ratio	Lower	Upper
278	100		
139	17.3	0.0	44.8
279	31.3	0.0	54.9

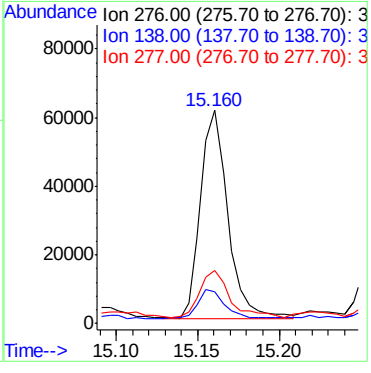




#101
Benzo[g,h,i]perylene
Concen: 5.60 ppb
RT: 15.160 min Scan# 2707
Delta R.T. 0.005 min
Lab File: 3e48848.D
Acq: 26 Mar 2013 6:02 pm

Tgt Ion:276 Resp: 71239

Ion	Ratio	Lower	Upper
276	100		
138	12.6	0.0	47.2
277	21.7	0.0	53.7



9.1.12

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 11:43

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48836.D
Acq On : 26 Mar 2013 12:36 pm
Operator : olgaa
Sample : jb31121-10
Misc : op64464,e3e2111,33.5
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 26 15:16:52 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	103270	40.00	ppb	-0.01
24) Naphthalene-d8	4.163	136	440507	40.00	ppb	-0.01
47) Acenaphthene-d10	6.747	164	258506	40.00	ppb	-0.02
69) Phenanthrene-d10	8.982	188	489400	40.00	ppb	-0.01
83) Chrysene-d12	12.737	240	496881	40.00	ppb	-0.01
92) Perylene-d12	14.133	264	462190	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	103270	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.747	164	258506	40.00	ppb	-0.02
106) Phenanthrene-d10a	8.982	188	489400	40.00	ppb	-0.01
108) Chrysene-d12a	12.737	240	496881	40.00	ppb	-0.01
System Monitoring Compounds						
5) 2-Fluorophenol	1.607	112	37551	10.74	ppb	0.02
Spiked Amount 50.000			Recovery	=	21.48%	
8) Phenol-d5	2.441	99	46538	10.60	ppb	0.04
Spiked Amount 50.000			Recovery	=	21.20%	
25) Nitrobenzene-d5	3.313	82	56514	14.11	ppb	0.01
Spiked Amount 50.000			Recovery	=	28.22%	
51) 2-Fluorobiphenyl	5.821	172	127151	15.15	ppb	-0.01
Spiked Amount 50.000			Recovery	=	30.30%	
73) 2,4,6-Tribromophenol	8.020	330	28914	20.39	ppb	0.00
Spiked Amount 50.000			Recovery	=	40.78%	
85) Terphenyl-d14	11.539	244	254408	23.40	ppb	-0.01
Spiked Amount 50.000			Recovery	=	46.80%	
Target Compounds						Qvalue
59) Acenaphthene	6.795	153	6724	0.86	ppb	84
66) Fluorene	7.592	166	6343	0.73	ppb	95
77) Phenanthrene	9.020	178	99171	6.94	ppb	98
78) Anthracene	9.105	178	23587	1.66	ppb	98
81) Fluoranthene	10.865	202	88747	5.93	ppb	97
84) Pyrene	11.175	202	83971	5.32	ppb	99
88) Benzo[a]anthracene	12.721	228	38216	2.60	ppb	93
90) Chrysene	12.769	228	35170	2.65	ppb	97
94) Benzo[b]fluoranthene	13.823	252	44750m	2.96	ppb	
95) Benzo[k]fluoranthene	13.839	252	12389m	0.91	ppb	
96) Benzo[a]pyrene	14.090	252	29263	2.18	ppb	99
97) Indeno[1,2,3-cd]pyrene	14.989	276	21058	1.35	ppb	91
99) Dibenz[a,h]anthracene	15.000	278	7827m	0.59	ppb	
101) Benzo[g,h,i]perylene	15.165	276	17751	1.38	ppb	91

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

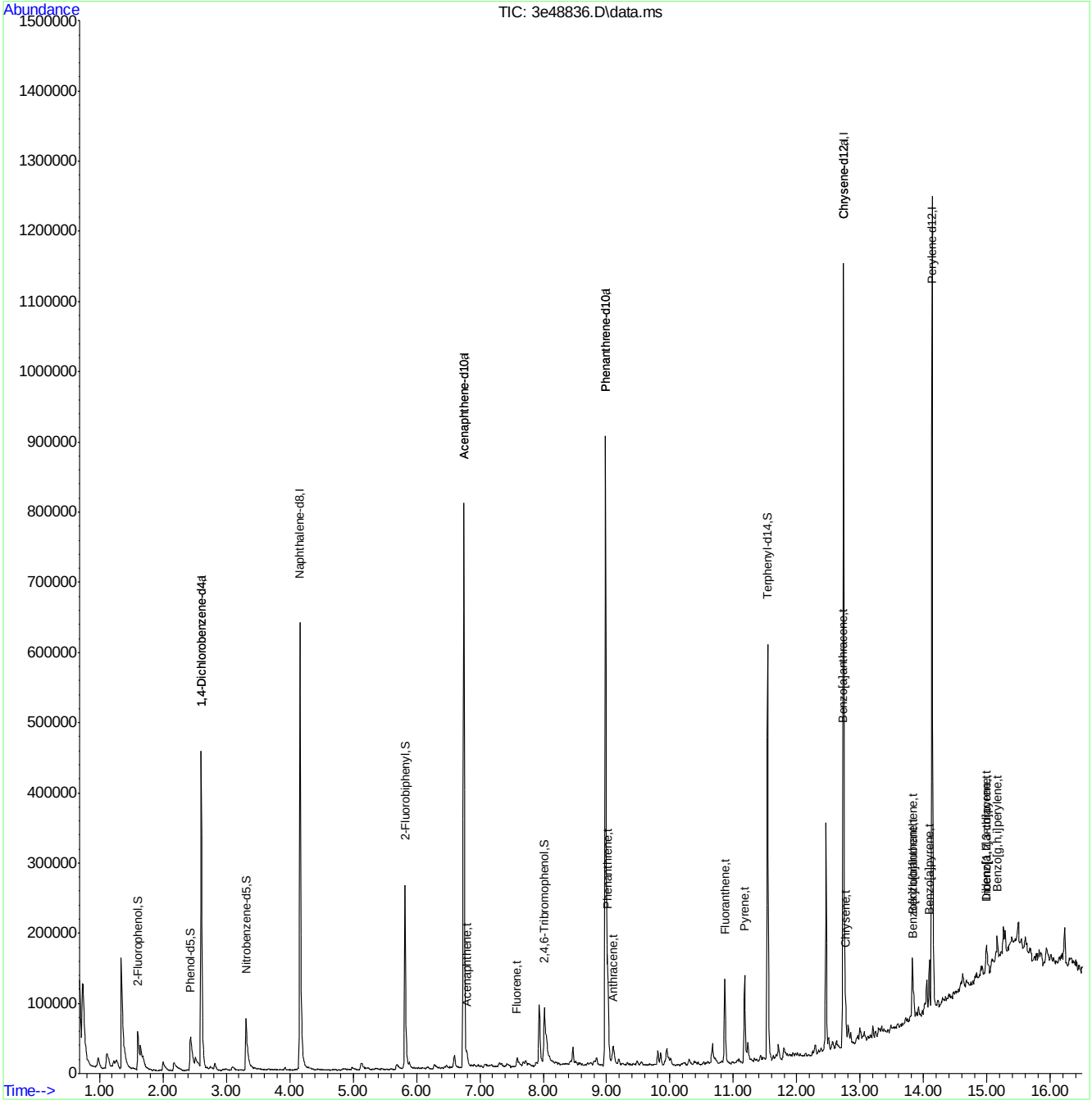
9.1.13

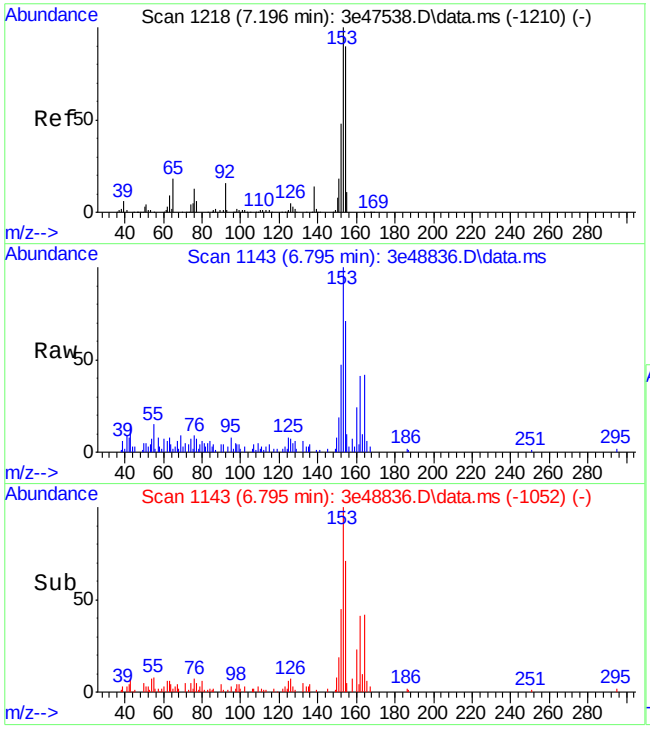
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48836.D
Acq On : 26 Mar 2013 12:36 pm
Operator : olgaa
Sample : jb31121-10
Misc : op64464,e3e2111,33.5
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 26 15:16:52 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

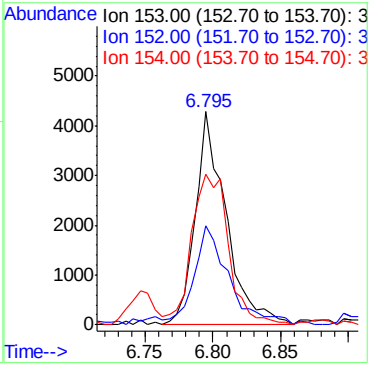


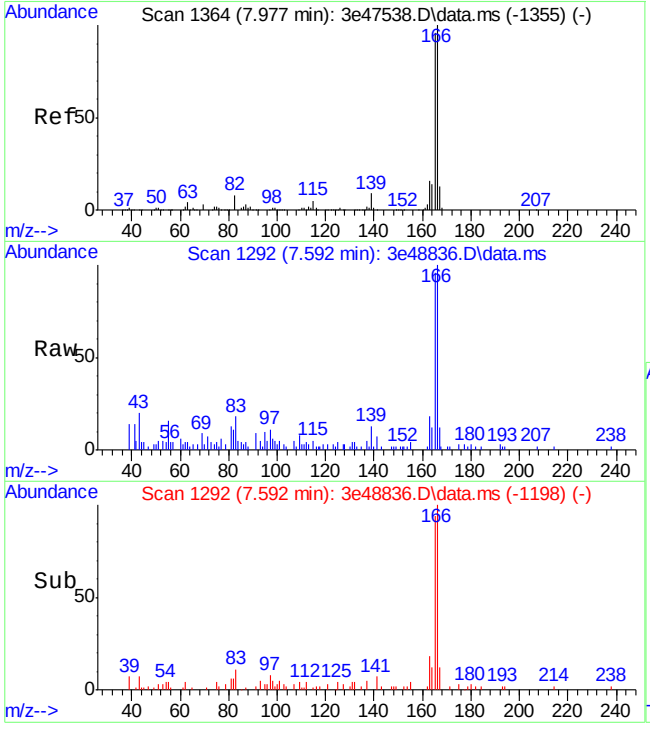


#59
Acenaphthene
Concen: 0.86 ppb
RT: 6.795 min Scan# 1143
Delta R.T. -0.011 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:153 Resp: 6724

Ion	Ratio	Lower	Upper
153	100		
152	45.5	17.8	77.8
154	68.8	60.3	120.3

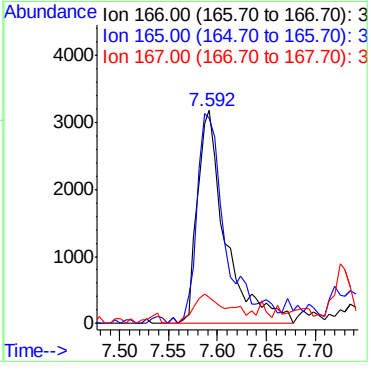


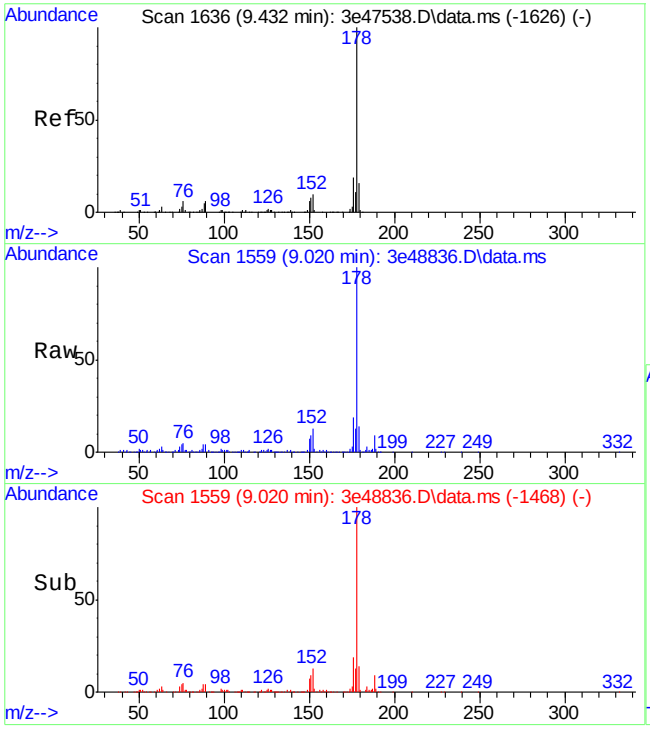


#66
Fluorene
Concen: 0.73 ppb
RT: 7.592 min Scan# 1292
Delta R.T. 0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:166 Resp: 6343

Ion	Ratio	Lower	Upper
166	100		
165	91.9	65.7	125.7
167	9.4	0.0	43.4

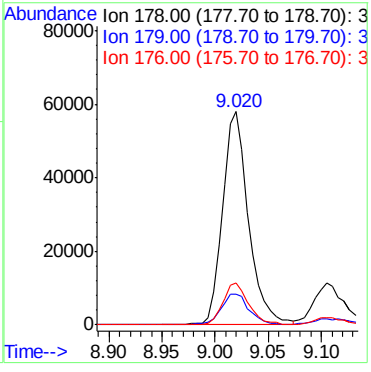


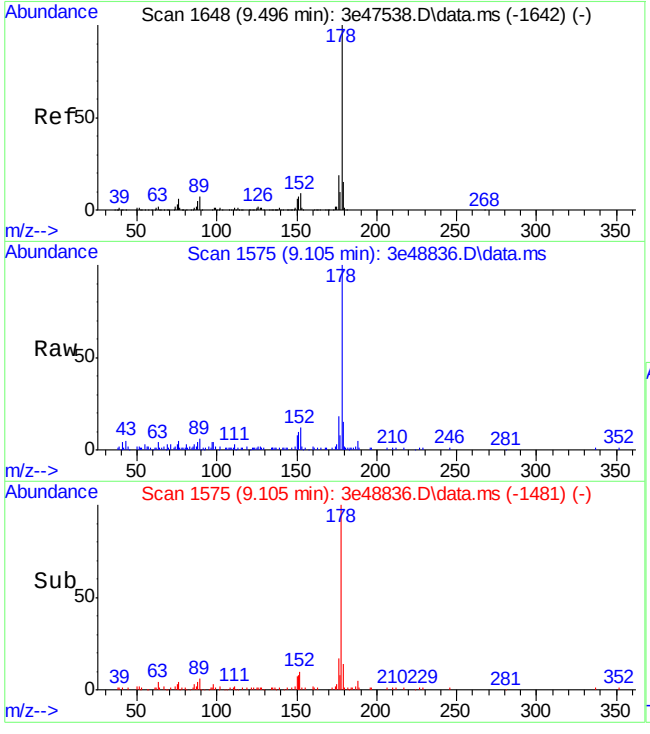


#77
Phenanthrene
Concen: 6.94 ppb
RT: 9.020 min Scan# 1559
Delta R.T. -0.011 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:178 Resp: 99171

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	45.7
176	19.4	0.0	49.5

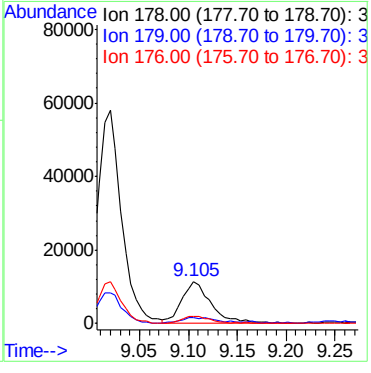


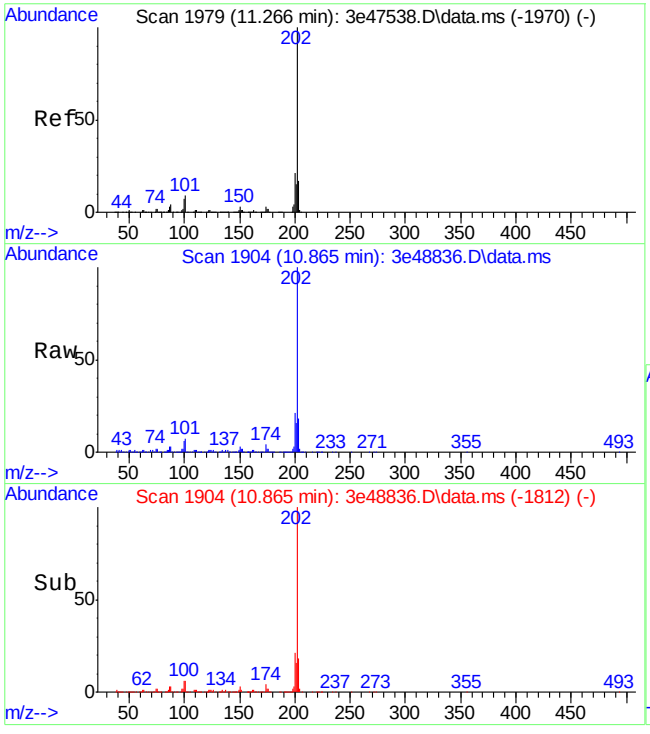


#78
Anthracene
Concen: 1.66 ppb
RT: 9.105 min Scan# 1575
Delta R.T. 0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:178 Resp: 23587

Ion	Ratio	Lower	Upper
178	100		
179	13.8	0.0	45.1
176	18.2	0.0	48.6

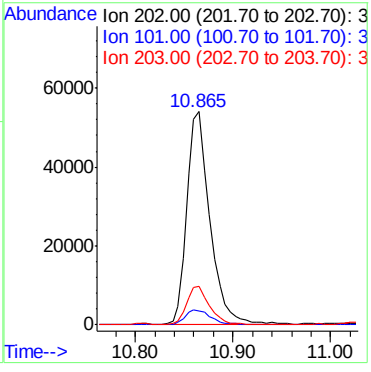


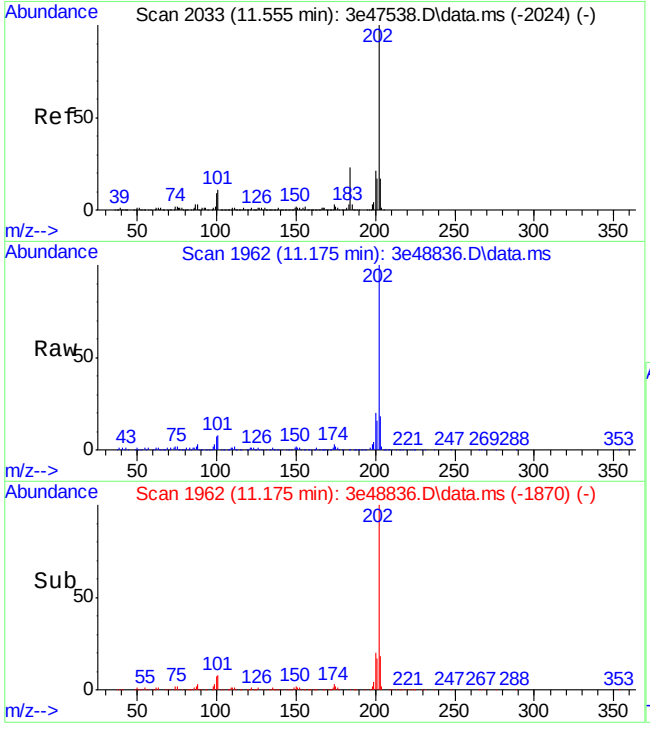


#81
Fluoranthene
Concen: 5.93 ppb
RT: 10.865 min Scan# 1904
Delta R.T. -0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:202 Resp: 88747

Ion	Ratio	Lower	Upper
202	100		
101	6.5	0.0	39.1
203	18.0	0.0	47.3

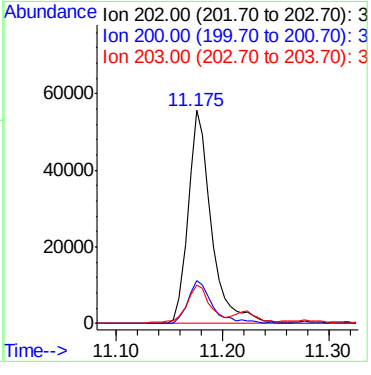




#84
Pyrene
Concen: 5.32 ppb
RT: 11.175 min Scan# 1962
Delta R.T. -0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:202 Resp: 83971

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.6
203	16.9	0.0	47.2



9.1.13

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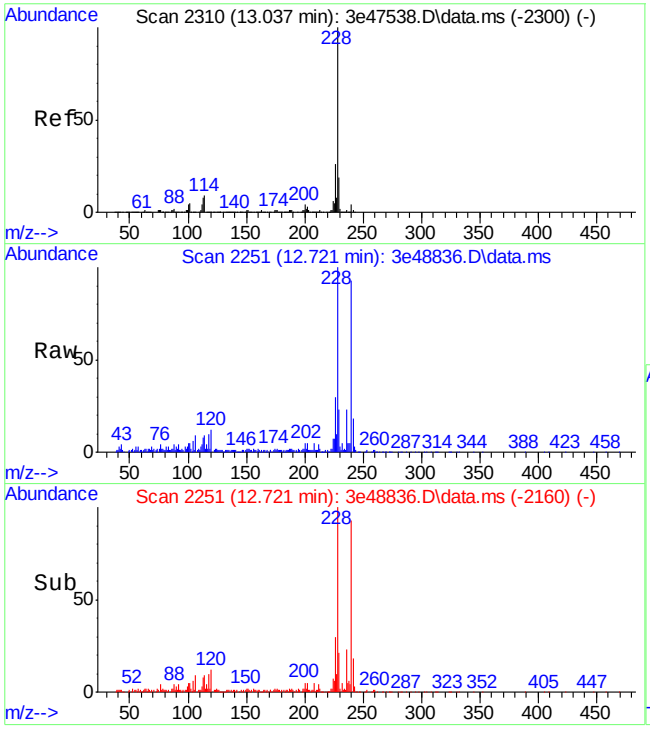
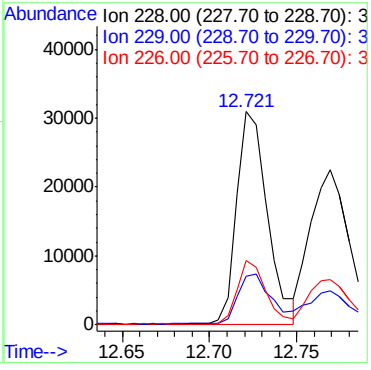
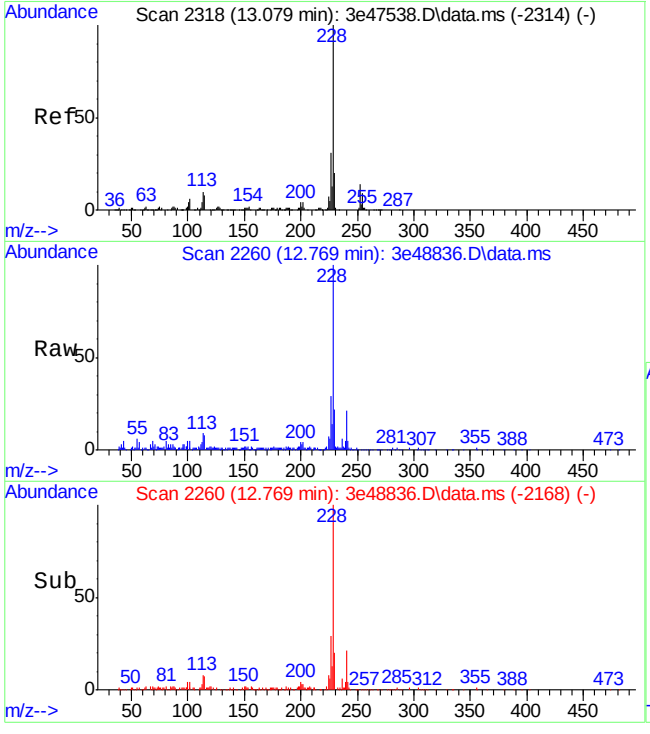


#88
Benzo[a]anthracene
Concen: 2.60 ppb
RT: 12.721 min Scan# 2251
Delta R.T. -0.011 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:228 Resp: 38216

Ion	Ratio	Lower	Upper
228	100		
229	20.8	0.0	49.3
226	30.6	0.0	55.8

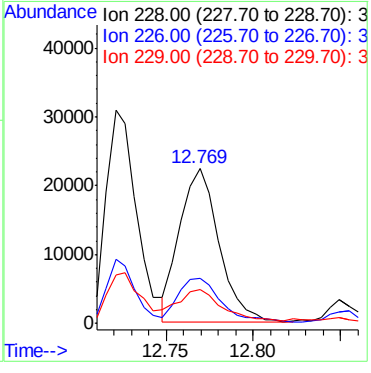


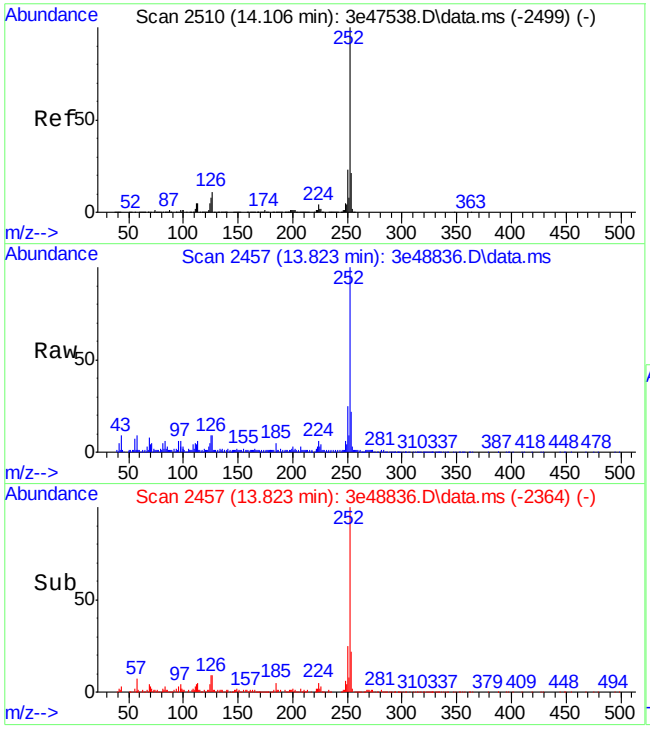


#90
Chrysene
Concen: 2.65 ppb
RT: 12.769 min Scan# 2260
Delta R.T. -0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:228 Resp: 35170

Ion	Ratio	Lower	Upper
228	100		
226	29.7	0.6	60.6
229	17.6	0.0	50.3

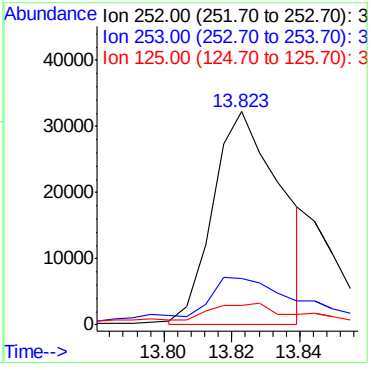


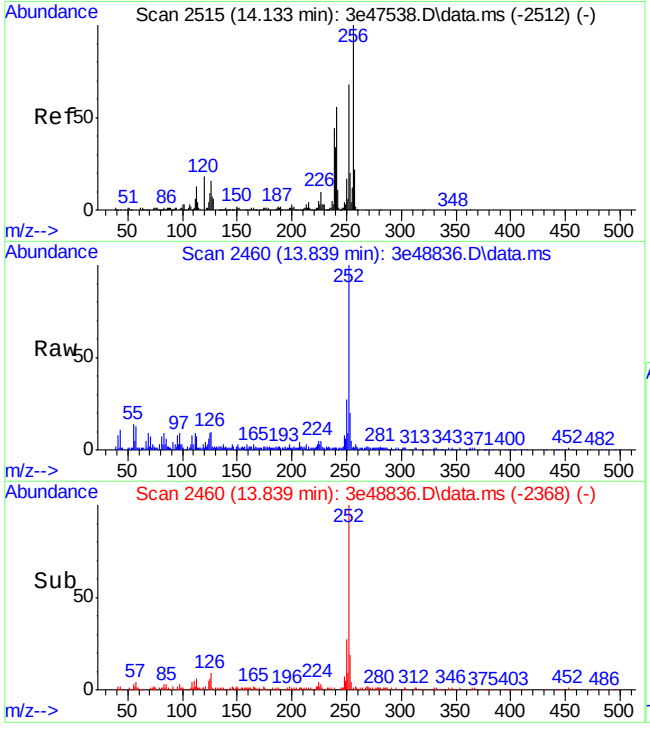


#94
Benzo[b]fluoranthene
Concen: 2.96 ppb m
RT: 13.823 min Scan# 2457
Delta R.T. -0.000 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:252 Resp: 44750

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	51.0
125	9.0	0.0	38.1

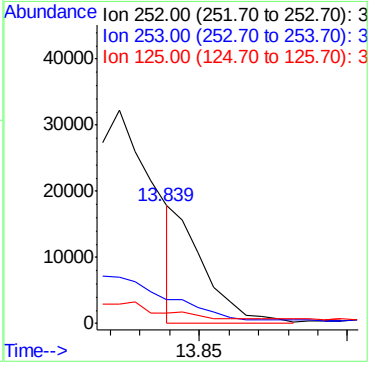




#95
Benzo[k]fluoranthene
Concen: 0.91 ppb m
RT: 13.839 min Scan# 2460
Delta R.T. -0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

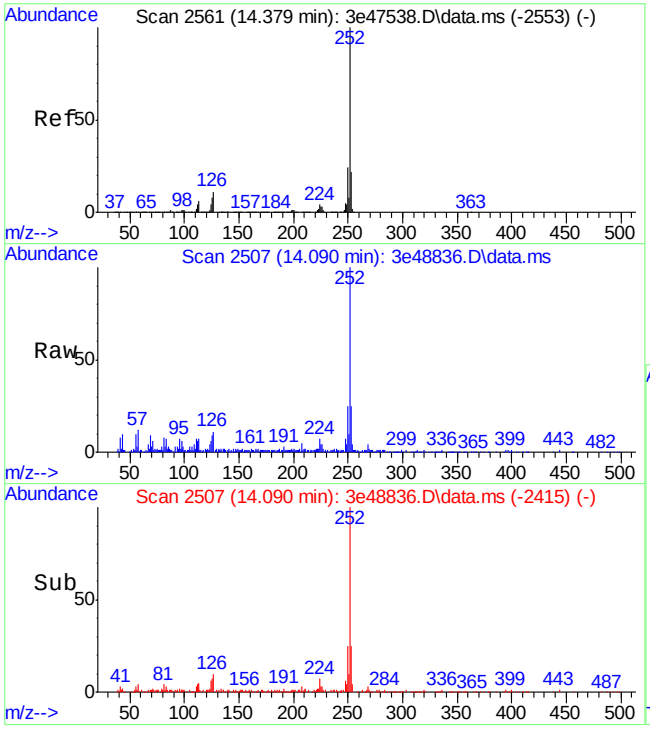
Tgt Ion:252 Resp: 12389

Ion	Ratio	Lower	Upper
252	100		
253	20.3	0.0	56.2
125	9.4	0.0	41.2



9.1.13

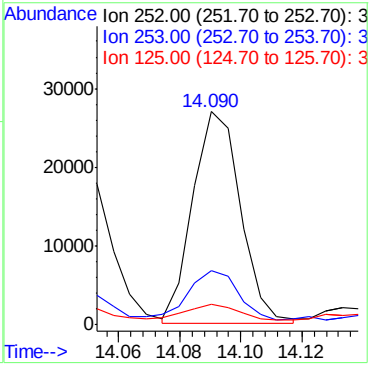
9

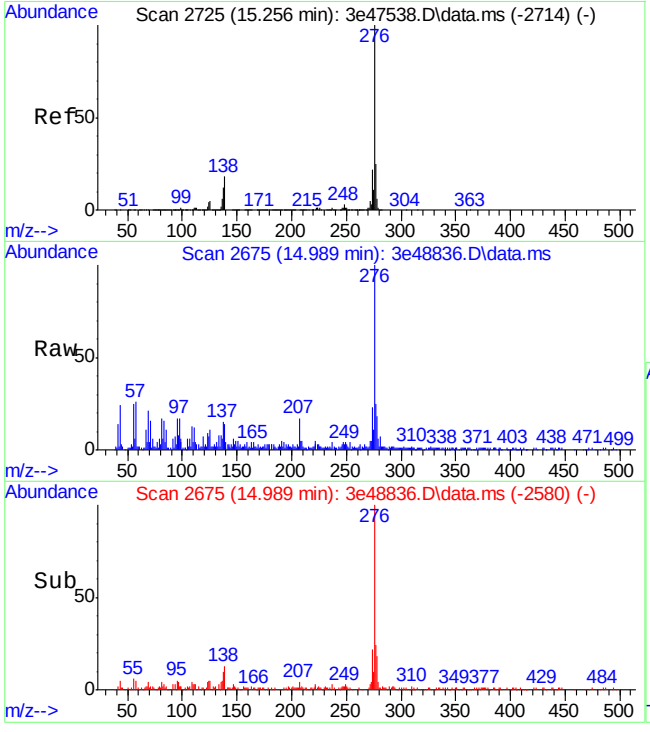


#96
Benzo[a]pyrene
Concen: 2.18 ppb
RT: 14.090 min Scan# 2507
Delta R.T. -0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:252 Resp: 29263

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	52.0
125	6.8	0.0	38.1

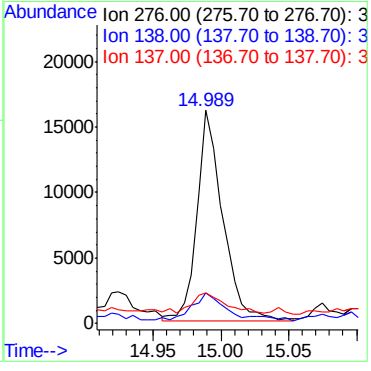


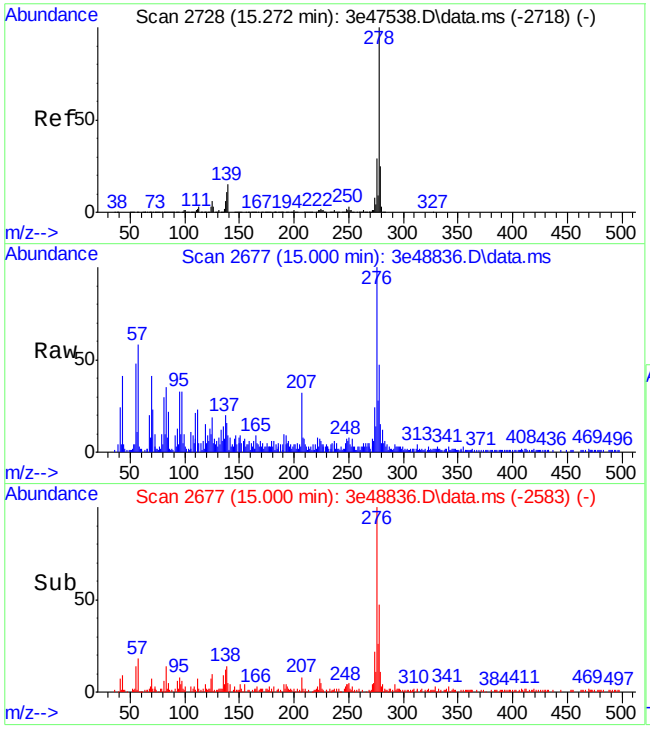


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.35 ppb
RT: 14.989 min Scan# 2675
Delta R.T. 0.011 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:276 Resp: 21058

Ion	Ratio	Lower	Upper
276	100		
138	12.5	0.0	47.7
137	9.8	0.0	42.0

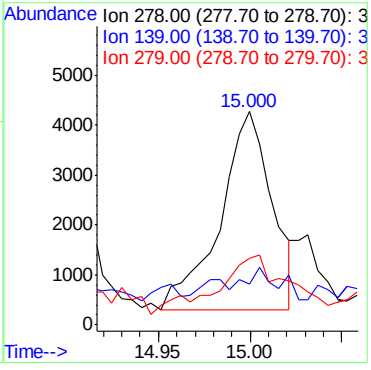


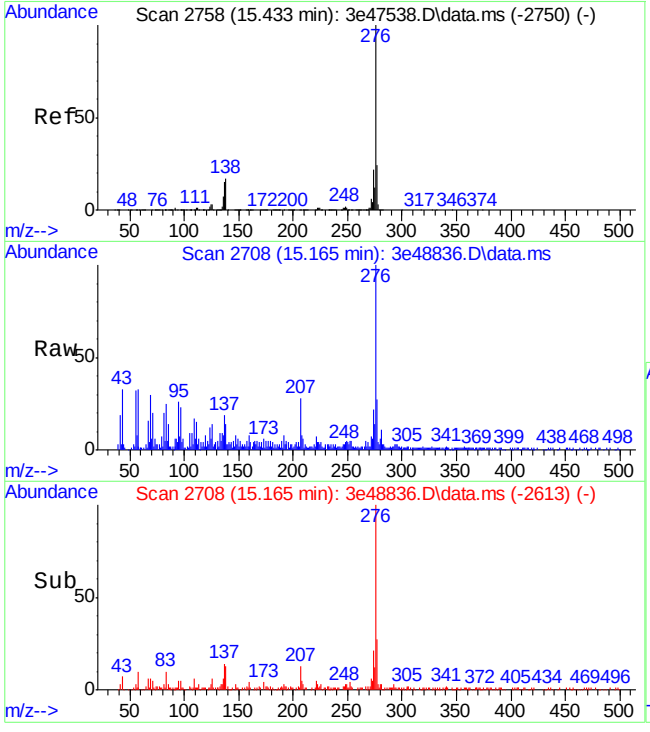


#99
Dibenz[a,h]anthracene
Concen: 0.59 ppb m
RT: 15.000 min Scan# 2677
Delta R.T. 0.005 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:278 Resp: 7827

Ion	Ratio	Lower	Upper
278	100		
139	19.3	0.0	44.8
279	31.0	0.0	54.9

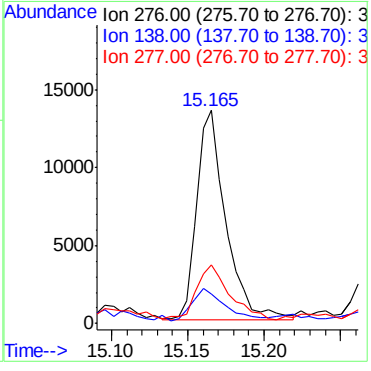




#101
Benzo[g,h,i]perylene
Concen: 1.38 ppb
RT: 15.165 min Scan# 2708
Delta R.T. 0.011 min
Lab File: 3e48836.D
Acq: 26 Mar 2013 12:36 pm

Tgt Ion:276 Resp: 17751

Ion	Ratio	Lower	Upper
276	100		
138	10.2	0.0	47.2
277	25.7	0.0	53.7



9.1.13

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48837.D
Acq On : 26 Mar 2013 1:00 pm
Operator : olgaa
Sample : jb31121-11
Misc : op64464,e3e2111,36.4
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 26 15:17:29 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	92473	40.00 ppb	-0.01
24) Naphthalene-d8	4.163	136	359444	40.00 ppb	-0.01
47) Acenaphthene-d10	6.747	164	226879	40.00 ppb	-0.02
69) Phenanthrene-d10	8.983	188	427563	40.00 ppb	-0.01
83) Chrysene-d12	12.737	240	469463	40.00 ppb	-0.01
92) Perylene-d12	14.133	264	391646	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	92473	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.747	164	226879	40.00 ppb	-0.02
106) Phenanthrene-d10a	8.983	188	427563	40.00 ppb	-0.01
108) Chrysene-d12a	12.737	240	469463	40.00 ppb	-0.01

System Monitoring Compounds					
5) 2-Fluorophenol	1.596	112	60190	19.23 ppb	0.01
Spiked Amount 50.000			Recovery	= 38.46%	
8) Phenol-d5	2.425	99	74172	18.87 ppb	0.02
Spiked Amount 50.000			Recovery	= 37.74%	
25) Nitrobenzene-d5	3.302	82	75448	23.08 ppb	0.00
Spiked Amount 50.000			Recovery	= 46.16%	
51) 2-Fluorobiphenyl	5.816	172	158813	21.57 ppb	-0.02
Spiked Amount 50.000			Recovery	= 43.14%	
73) 2,4,6-Tribromophenol	8.015	330	29159	23.53 ppb	0.00
Spiked Amount 50.000			Recovery	= 47.06%	
85) Terphenyl-d14	11.539	244	259401	25.25 ppb	-0.01
Spiked Amount 50.000			Recovery	= 50.50%	

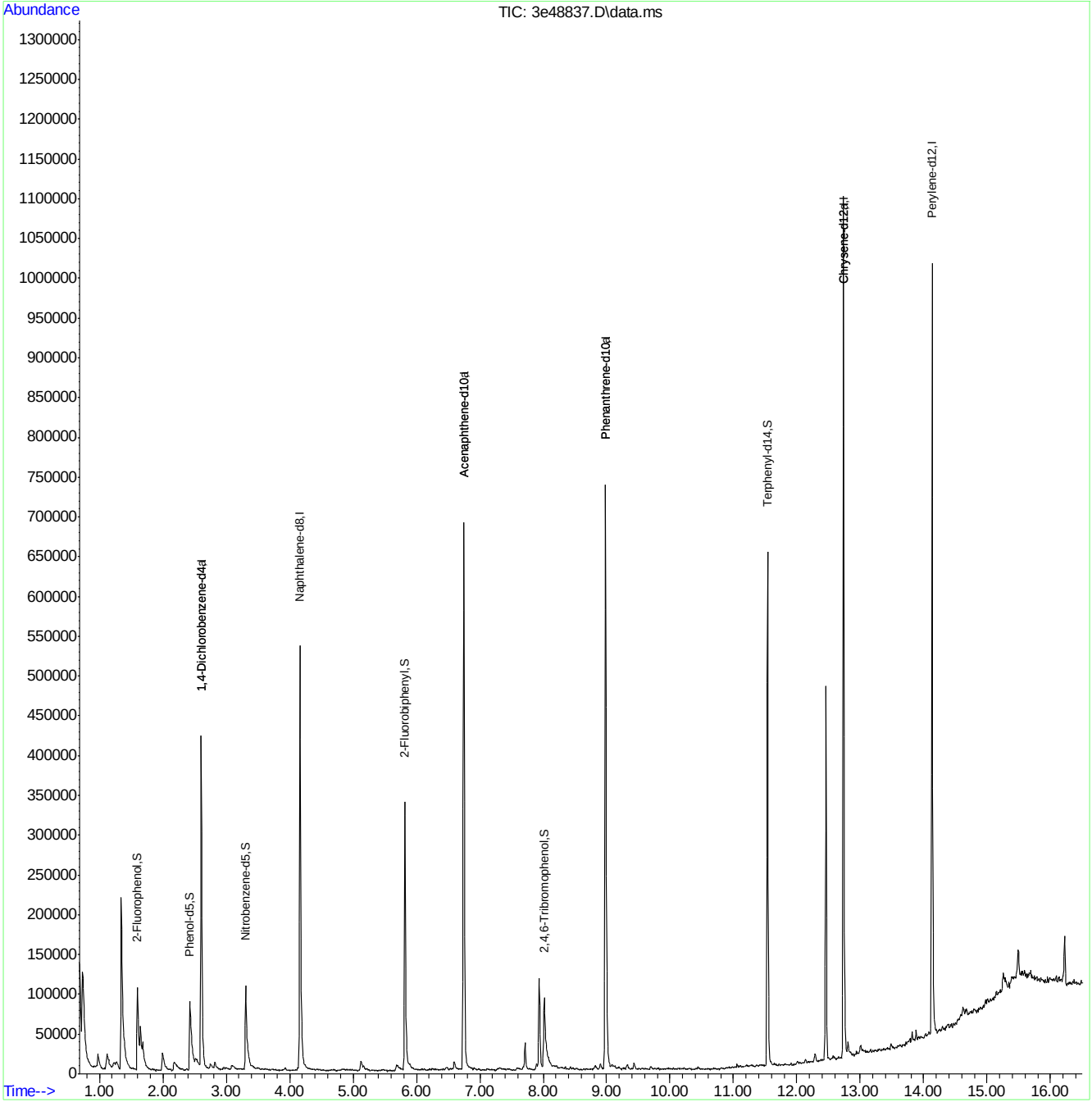
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48837.D
Acq On : 26 Mar 2013 1:00 pm
Operator : olgaa
Sample : jb31121-11
Misc : op64464,e3e2111,36.4
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 26 15:17:29 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48838.D
Acq On : 26 Mar 2013 1:23 pm
Operator : olgaa
Sample : jb31121-12
Misc : op64464,e3e2111,35.0
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 26 15:18:15 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	99602	40.00 ppb	-0.01
24) Naphthalene-d8	4.163	136	386573	40.00 ppb	-0.01
47) Acenaphthene-d10	6.747	164	244055	40.00 ppb	-0.02
69) Phenanthrene-d10	8.982	188	456261	40.00 ppb	-0.01
83) Chrysene-d12	12.737	240	468445	40.00 ppb	-0.01
92) Perylene-d12	14.133	264	425938	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	99602	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.747	164	244055	40.00 ppb	-0.02
106) Phenanthrene-d10a	8.982	188	456261	40.00 ppb	-0.01
108) Chrysene-d12a	12.737	240	468445	40.00 ppb	-0.01

System Monitoring Compounds					
5) 2-Fluorophenol	1.601	112	50328	14.93 ppb	0.02
Spiked Amount 50.000			Recovery = 29.86%		
8) Phenol-d5	2.425	99	61018	14.41 ppb	0.02
Spiked Amount 50.000			Recovery = 28.82%		
25) Nitrobenzene-d5	3.308	82	58668	16.69 ppb	0.00
Spiked Amount 50.000			Recovery = 33.38%		
51) 2-Fluorobiphenyl	5.816	172	137153	17.31 ppb	-0.02
Spiked Amount 50.000			Recovery = 34.62%		
73) 2,4,6-Tribromophenol	8.014	330	33369	25.24 ppb	0.00
Spiked Amount 50.000			Recovery = 50.48%		
85) Terphenyl-d14	11.539	244	261657	25.53 ppb	-0.01
Spiked Amount 50.000			Recovery = 51.06%		

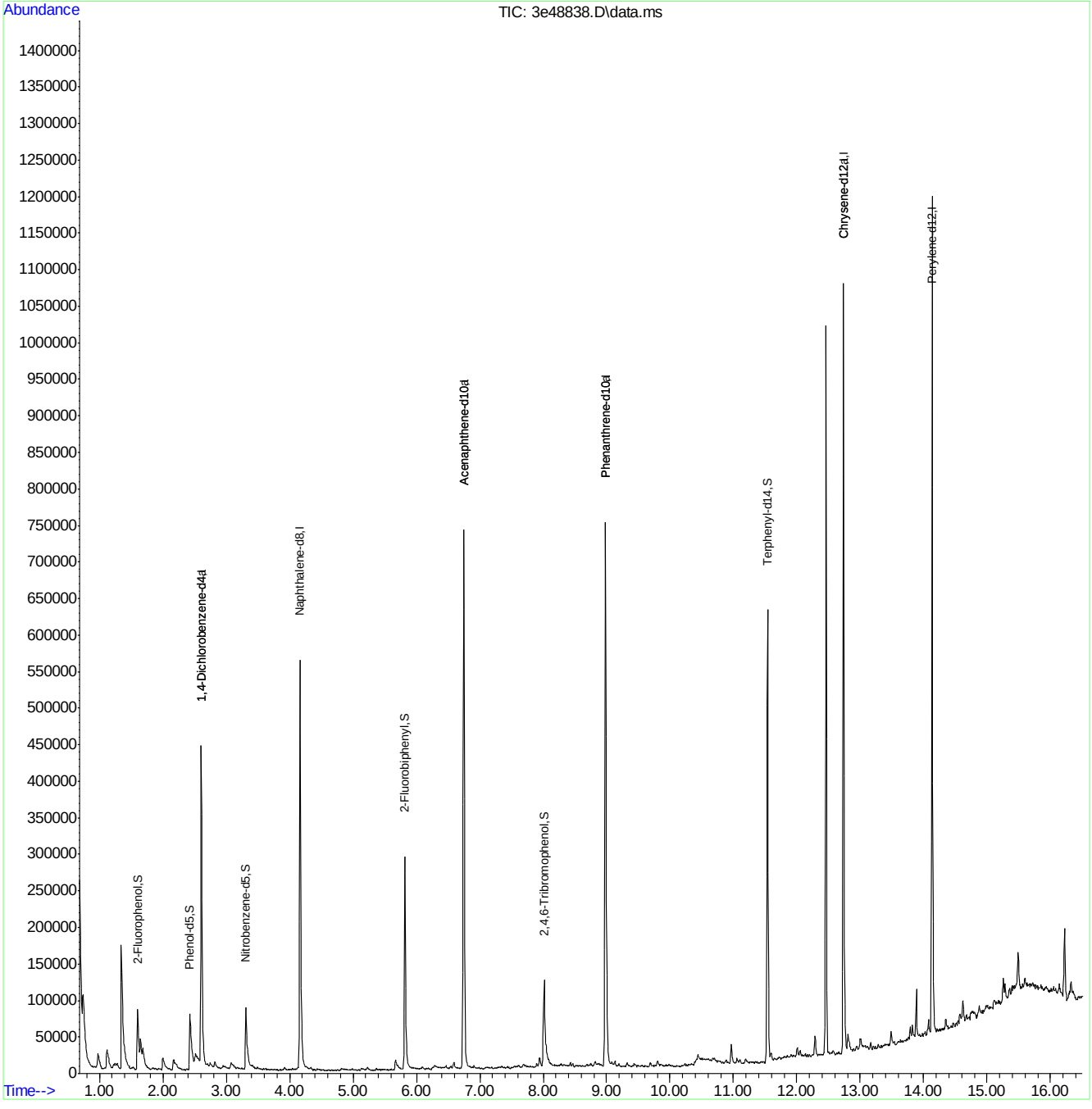
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48838.D
Acq On : 26 Mar 2013 1:23 pm
Operator : olgaa
Sample : jb31121-12
Misc : op64464,e3e2111,35.0
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 26 15:18:15 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48839.D
Acq On : 26 Mar 2013 1:47 pm
Operator : olgaa
Sample : jb31121-13
Misc : op64464,e3e2111,34.5
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 26 15:18:48 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	104840	40.00 ppb	-0.01
24) Naphthalene-d8	4.163	136	412910	40.00 ppb	-0.01
47) Acenaphthene-d10	6.747	164	256089	40.00 ppb	-0.02
69) Phenanthrene-d10	8.982	188	478897	40.00 ppb	-0.01
83) Chrysene-d12	12.737	240	510285	40.00 ppb	-0.01
92) Perylene-d12	14.133	264	445609	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	104840	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.747	164	256089	40.00 ppb	-0.02
106) Phenanthrene-d10a	8.982	188	478897	40.00 ppb	-0.01
108) Chrysene-d12a	12.737	240	510285	40.00 ppb	-0.01

System Monitoring Compounds					
5) 2-Fluorophenol	1.596	112	73409	20.68 ppb	0.01
Spiked Amount 50.000			Recovery = 41.36%		
8) Phenol-d5	2.420	99	91666	20.57 ppb	0.02
Spiked Amount 50.000			Recovery = 41.14%		
25) Nitrobenzene-d5	3.302	82	83473	22.23 ppb	0.00
Spiked Amount 50.000			Recovery = 44.46%		
51) 2-Fluorobiphenyl	5.821	172	179581	21.61 ppb	-0.01
Spiked Amount 50.000			Recovery = 43.22%		
73) 2,4,6-Tribromophenol	8.009	330	41189	29.68 ppb	0.00
Spiked Amount 50.000			Recovery = 59.36%		
85) Terphenyl-d14	11.539	244	326549	29.24 ppb	-0.01
Spiked Amount 50.000			Recovery = 58.48%		

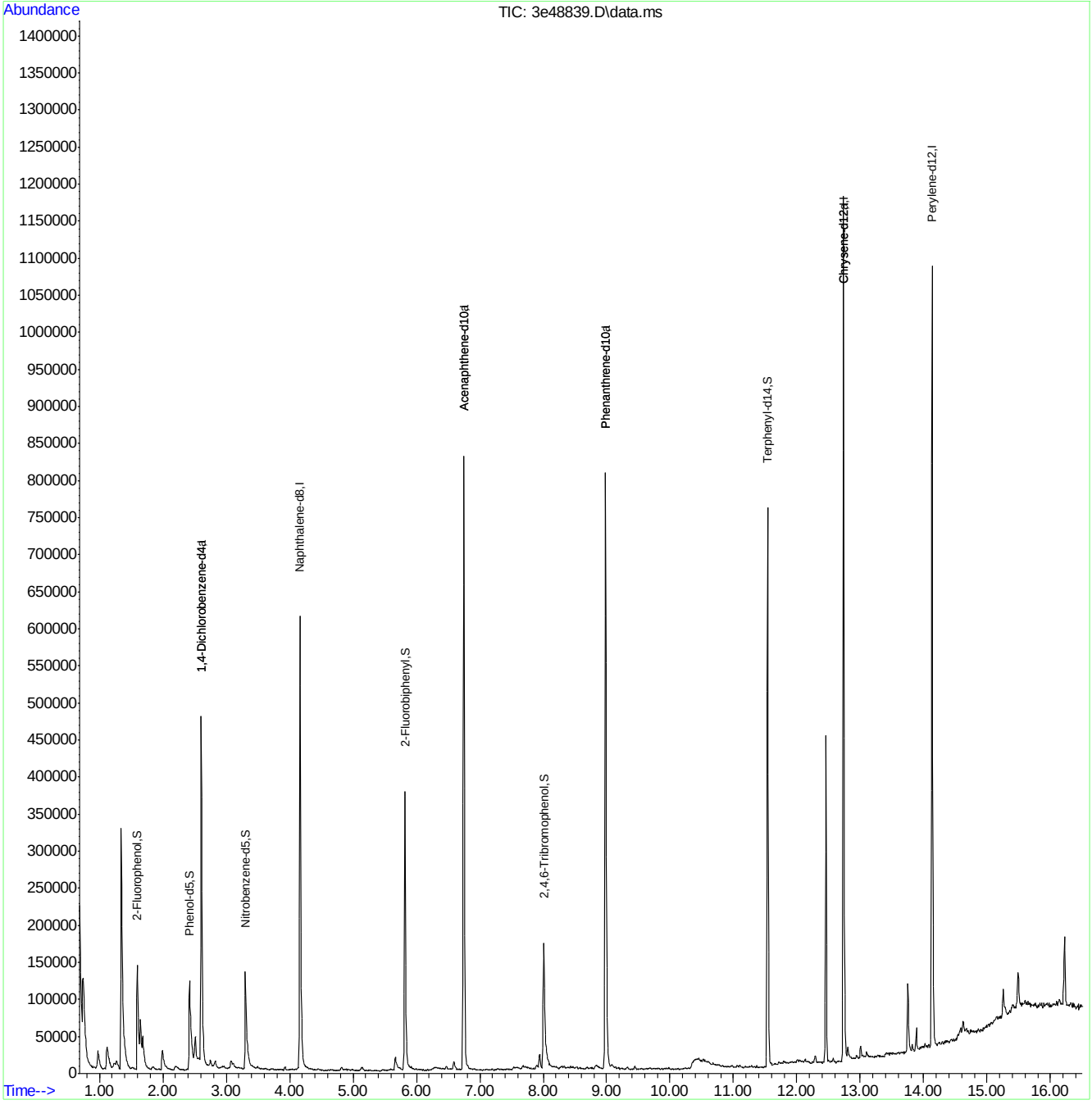
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48839.D
Acq On : 26 Mar 2013 1:47 pm
Operator : olgaa
Sample : jb31121-13
Misc : op64464,e3e2111,34.5
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 26 15:18:48 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48840.D
Acq On : 26 Mar 2013 2:56 pm
Operator : olgaa
Sample : jb31121-14
Misc : op64464,e3e2111,35.2
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 26 15:19:30 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	92288	40.00	ppb	-0.01
24) Naphthalene-d8	4.163	136	372256	40.00	ppb	-0.01
47) Acenaphthene-d10	6.752	164	227579	40.00	ppb	-0.01
69) Phenanthrene-d10	8.988	188	417730	40.00	ppb	0.00
83) Chrysene-d12	12.742	240	466683	40.00	ppb	0.00
92) Perylene-d12	14.133	264	417565	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	92288	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.752	164	227579	40.00	ppb	-0.01
106) Phenanthrene-d10a	8.988	188	417730	40.00	ppb	0.00
108) Chrysene-d12a	12.742	240	466683	40.00	ppb	0.00

System Monitoring Compounds						
5) 2-Fluorophenol	1.623	112	20418	6.54	ppb	0.04
Spiked Amount 50.000			Recovery	=	13.08%	
8) Phenol-d5	2.468	99	19436	4.96	ppb	0.06
Spiked Amount 50.000			Recovery	=	9.92%	
25) Nitrobenzene-d5	3.323	82	35468	10.48	ppb	0.02
Spiked Amount 50.000			Recovery	=	20.96%	
51) 2-Fluorobiphenyl	5.821	172	78995	10.69	ppb	-0.01
Spiked Amount 50.000			Recovery	=	21.38%	
73) 2,4,6-Tribromophenol	8.052	330	5439	4.49	ppb	0.04
Spiked Amount 50.000			Recovery	=	8.98%	
85) Terphenyl-d14	11.544	244	116997	11.46	ppb	0.00
Spiked Amount 50.000			Recovery	=	22.92%	

Target Compounds	Qvalue

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

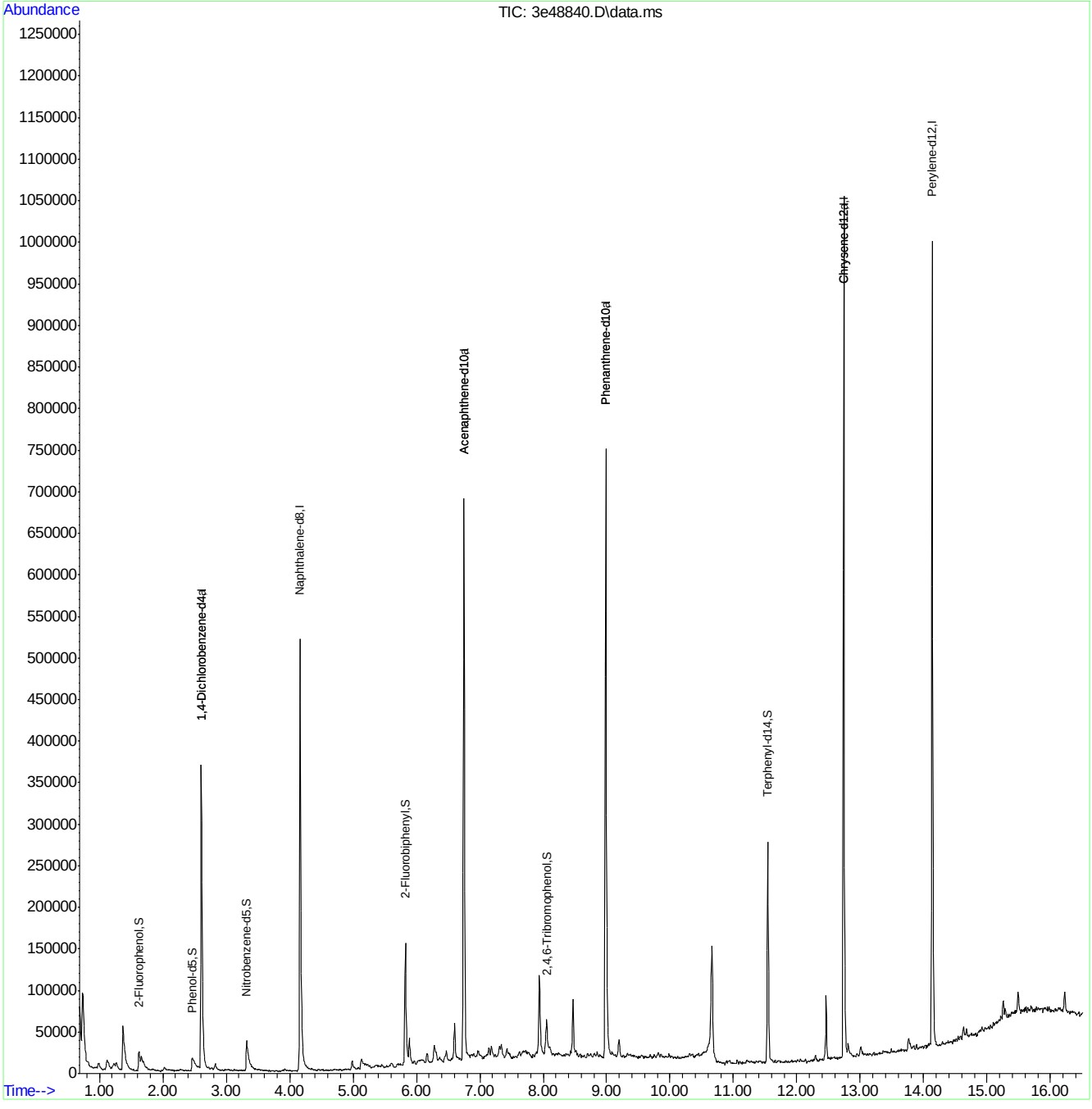
9.1.17

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48840.D
Acq On : 26 Mar 2013 2:56 pm
Operator : olgaa
Sample : jb31121-14
Misc : op64464,e3e2111,35.2
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 26 15:19:30 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\EM3758\M92677.D Vial: 5
Acq On : 4 Apr 2013 11:13 am Operator: olgaa
Sample : jb31121-14cfs Inst : MSM
Misc : op64736,em3758,35.3 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 4 11:30 2013 Quant Results File: MM3735.RES

Quant Method : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Thu Apr 04 11:29:02 2013
Response via : Initial Calibration
DataAcq Meth : MM3735

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	5.17	152	152965	40.00	ppb	0.00
24) Naphthalene-d8	6.43	136	567259	40.00	ppb	0.00
47) Acenaphthene-d10	8.97	164	377756	40.00	ppb	-0.01
69) Phenanthrene-d10	11.65	188	590867	40.00	ppb	0.00
83) Chrysene-d12	16.89	240	571991	40.00	ppb	-0.02
92) Perylene-d12	19.56	264	456259	40.00	ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	5.17	152	152965	40.00	ppb	0.00
104) Acenaphthene-d10a	8.97	164	377756	40.00	ppb	-0.01
106) Phenanthrene-d10a	11.65	188	590867	40.00	ppb	0.00
108) Chrysene-d12a	16.89	240	571991	40.00	ppb	-0.02

System Monitoring Compounds						
5) 2-Fluorophenol	4.23	112	74599	13.14	ppb	0.00
Spiked Amount 50.000			Recovery = 26.28%			
8) Phenol-d5	4.92	99	122813	16.94	ppb	0.00
Spiked Amount 50.000			Recovery = 33.88%			
25) Nitrobenzene-d5	5.70	82	65055	11.62	ppb	0.00
Spiked Amount 50.000			Recovery = 23.24%			
51) 2-Fluorobiphenyl	7.88	172	110722	9.64	ppb	-0.01
Spiked Amount 50.000			Recovery = 19.28%			
73) 2,4,6-Tribromophenol	10.40	330	26301	21.10	ppb	0.00
Spiked Amount 50.000			Recovery = 42.20%			
86) Terphenyl-d14	14.84	244	314707	23.82	ppb	-0.01
Spiked Amount 50.000			Recovery = 47.64%			

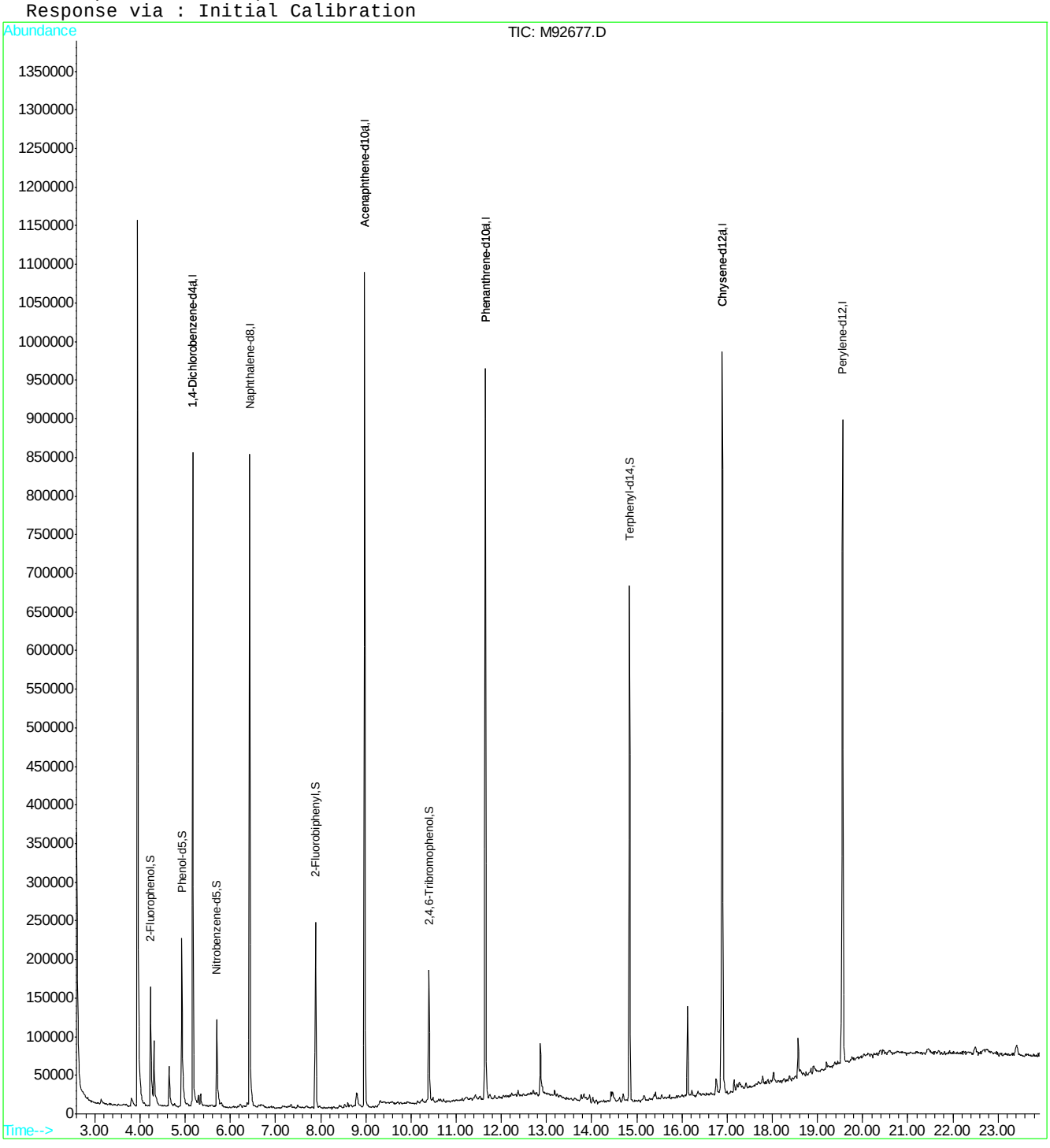
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\EM3758\M92677.D Vial: 5
Acq On : 4 Apr 2013 11:13 am Operator: olgaa
Sample : jb31121-14cfs Inst : MSM
Misc : op64736,em3758,35.3 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Apr 4 11:30 2013 Quant Results File: MM3735.RES

Method : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Thu Apr 04 11:29:02 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48841.D
Acq On : 26 Mar 2013 3:20 pm
Operator : olgaa
Sample : jb31121-15
Misc : op64464,e3e2111,35.0
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 26 17:05:12 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	96614	40.00 ppb	-0.01
24) Naphthalene-d8	4.163	136	392425	40.00 ppb	-0.01
47) Acenaphthene-d10	6.747	164	239487	40.00 ppb	-0.02
69) Phenanthrene-d10	8.988	188	455549	40.00 ppb	0.00
83) Chrysene-d12	12.743	240	460161	40.00 ppb	0.00
92) Perylene-d12	14.133	264	428438	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	96614	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.747	164	239487	40.00 ppb	-0.02
106) Phenanthrene-d10a	8.988	188	455549	40.00 ppb	0.00
108) Chrysene-d12a	12.743	240	460161	40.00 ppb	0.00

System Monitoring Compounds					
5) 2-Fluorophenol	1.601	112	34673	10.60 ppb	0.02
Spiked Amount 50.000			Recovery = 21.20%		
8) Phenol-d5	2.430	99	44215	10.77 ppb	0.03
Spiked Amount 50.000			Recovery = 21.54%		
25) Nitrobenzene-d5	3.318	82	38776	10.87 ppb	0.02
Spiked Amount 50.000			Recovery = 21.74%		
51) 2-Fluorobiphenyl	5.821	172	79183	10.19 ppb	-0.01
Spiked Amount 50.000			Recovery = 20.38%		
73) 2,4,6-Tribromophenol	8.020	330	25922	19.64 ppb	0.00
Spiked Amount 50.000			Recovery = 39.28%		
85) Terphenyl-d14	11.544	244	272024	27.02 ppb	0.00
Spiked Amount 50.000			Recovery = 54.04%		

Target Compounds	Qvalue

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

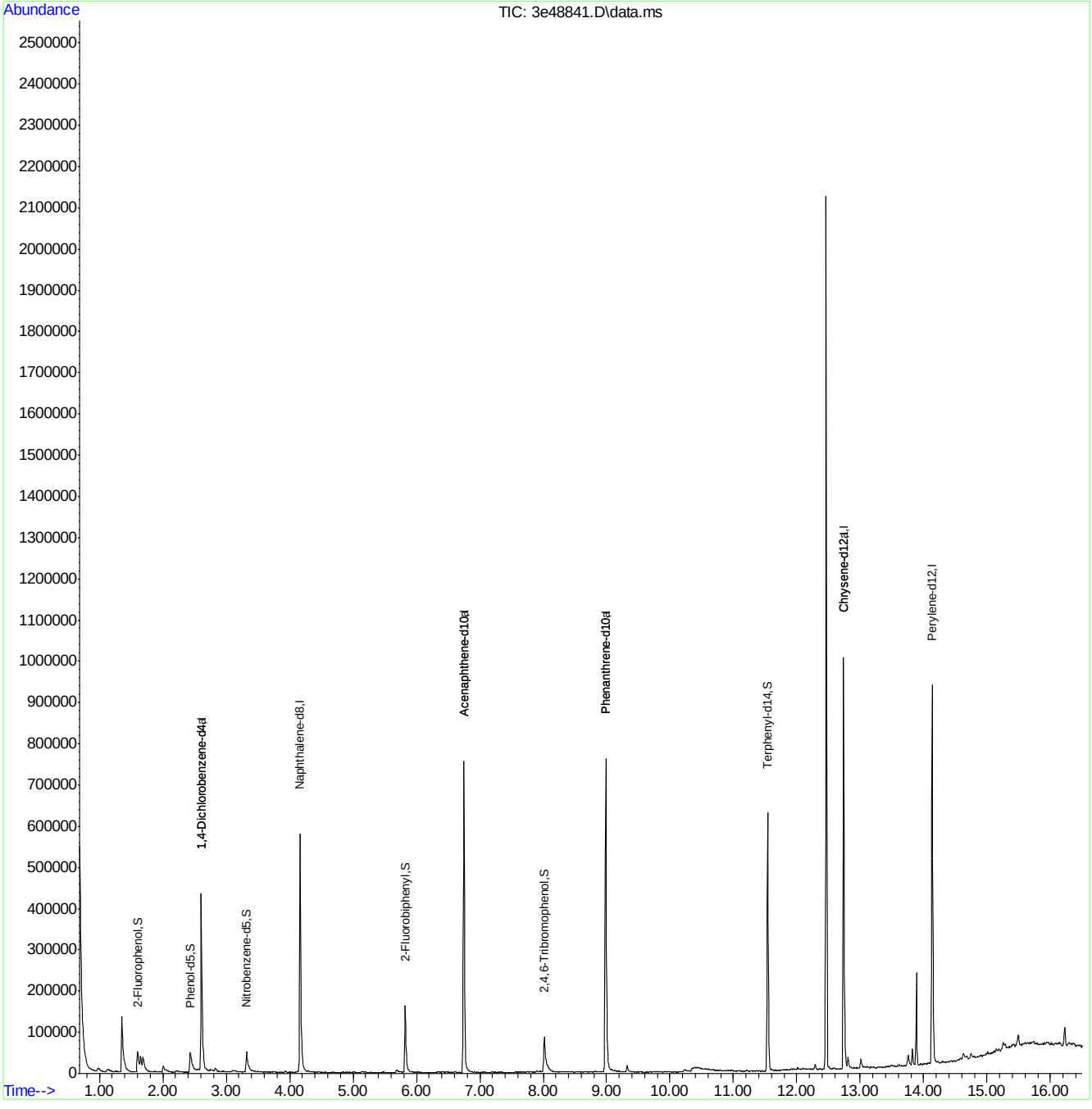
9.1.19

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48841.D
Acq On : 26 Mar 2013 3:20 pm
Operator : olgaa
Sample : jb31121-15
Misc : op64464,e3e2111,35.0
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 26 17:05:12 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E2M2175\
Data File : 2m51089.D
Acq On : 28 Mar 2013 8:47 pm
Operator : olgaa
Sample : jb31121-15
Misc : op64768,e2m2175,31.9
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Mar 29 15:09:40 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2M2147.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Tue Mar 26 16:13:56 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.728	152	216511	40.00	ppb	-0.03
24) Naphthalene-d8	4.311	136	881783	40.00	ppb	-0.04
47) Acenaphthene-d10	6.911	164	498477	40.00	ppb	-0.05
69) Phenanthrene-d10	9.152	188	786599	40.00	ppb	-0.04
83) Chrysene-d12	12.875	240	721082	40.00	ppb	-0.03
92) Perylene-d12	14.260	264	649462	40.00	ppb	-0.02
102) 1,4-Dichlorobenzene-d4a	2.728	152	216511	40.00	ppb	-0.03
104) Acenaphthene-d10a	6.911	164	498477	40.00	ppb	-0.05
106) Chrysene-d12a	12.875	240	721082	40.00	ppb	-0.03
108) Phenanthrene-d10a	9.152	188	786599	40.00	ppb	-0.04

System Monitoring Compounds						
5) 2-Fluorophenol	1.675	112	207133	27.02	ppb	-0.02
Spiked Amount 50.000			Recovery = 54.04%			
8) Phenol-d5	2.520	99	268124	27.65	ppb	-0.02
Spiked Amount 50.000			Recovery = 55.30%			
25) Nitrobenzene-d5	3.418	82	232976	28.58	ppb	-0.04
Spiked Amount 50.000			Recovery = 57.16%			
51) 2-Fluorobiphenyl	5.975	172	445257	27.53	ppb	-0.04
Spiked Amount 50.000			Recovery = 55.06%			
73) 2,4,6-Tribromophenol	8.162	330	81530	49.98	ppb	-0.05
Spiked Amount 50.000			Recovery = 99.96%			
85) Terphenyl-d14	11.703	244	800173	51.73	ppb	-0.03
Spiked Amount 50.000			Recovery = 103.46%			

Target Compounds Qvalue

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

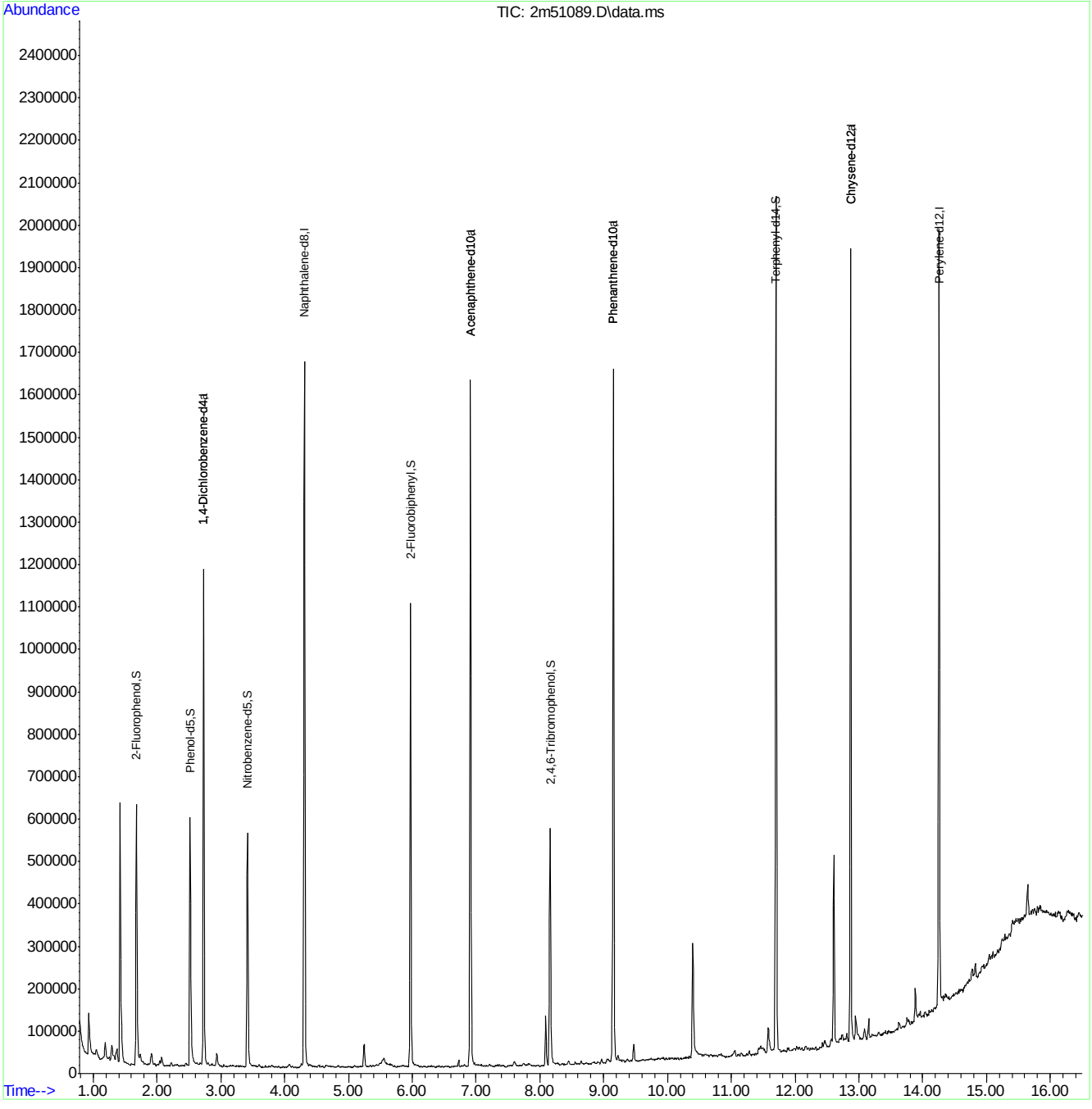
9.1.20

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E2M2175\
Data File : 2m51089.D
Acq On : 28 Mar 2013 8:47 pm
Operator : olgaa
Sample : jb31121-15
Misc : op64768,e2m2175,31.9
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Mar 29 15:09:40 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2M2147.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Tue Mar 26 16:13:56 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48842.D
Acq On : 26 Mar 2013 3:43 pm
Operator : olgaa
Sample : jb31121-16
Misc : op64464,e3e2111,35.5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 26 17:05:55 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	118327	40.00	ppb	-0.01
24) Naphthalene-d8	4.163	136	491938	40.00	ppb	-0.01
47) Acenaphthene-d10	6.747	164	297589	40.00	ppb	-0.02
69) Phenanthrene-d10	8.988	188	532084	40.00	ppb	0.00
83) Chrysene-d12	12.737	240	574531	40.00	ppb	-0.01
92) Perylene-d12	14.139	264	540153	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	118327	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.747	164	297589	40.00	ppb	-0.02
106) Phenanthrene-d10a	8.988	188	532084	40.00	ppb	0.00
108) Chrysene-d12a	12.737	240	574531	40.00	ppb	-0.01

System Monitoring Compounds						
5) 2-Fluorophenol	1.596	112	60328	15.06	ppb	0.01
Spiked Amount 50.000			Recovery = 30.12%			
8) Phenol-d5	2.420	99	72427	14.40	ppb	0.02
Spiked Amount 50.000			Recovery = 28.80%			
25) Nitrobenzene-d5	3.308	82	65057	14.54	ppb	0.00
Spiked Amount 50.000			Recovery = 29.08%			
51) 2-Fluorobiphenyl	5.821	172	131419	13.61	ppb	-0.01
Spiked Amount 50.000			Recovery = 27.22%			
73) 2,4,6-Tribromophenol	8.014	330	29054	18.84	ppb	0.00
Spiked Amount 50.000			Recovery = 37.68%			
85) Terphenyl-d14	11.539	244	244591	19.46	ppb	-0.01
Spiked Amount 50.000			Recovery = 38.92%			

Target Compounds Qvalue

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

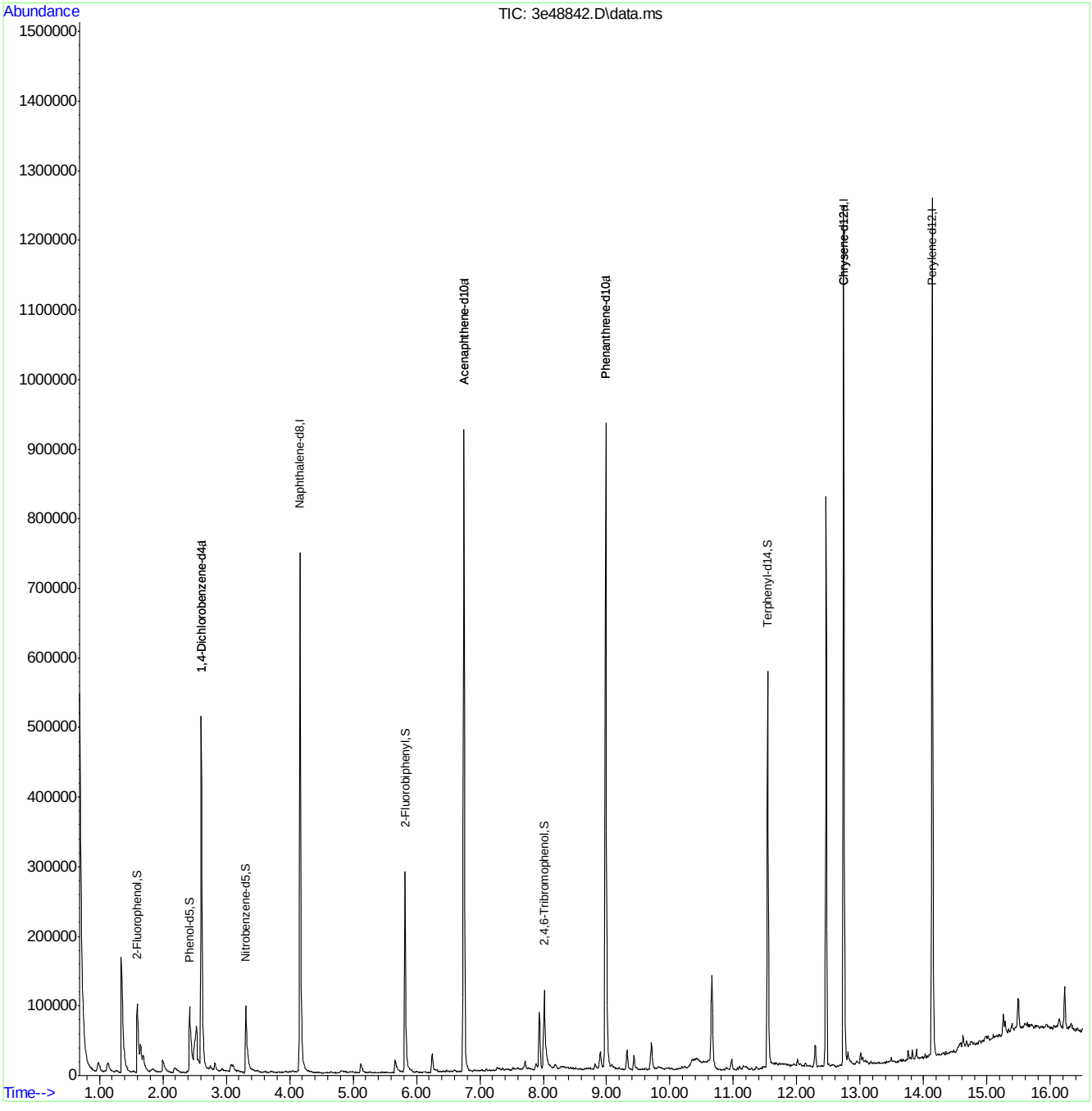
9.1.21

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48842.D
Acq On : 26 Mar 2013 3:43 pm
Operator : olgaa
Sample : jb31121-16
Misc : op64464,e3e2111,35.5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 26 17:05:55 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



M3E2061.M Tue Mar 26 17:06:04 2013 MS3E

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E2M2176\
Data File : 2m51100.D
Acq On : 29 Mar 2013 1:28 pm
Operator : olgaa
Sample : jb31121-16
Misc : op64768,e2m2176,30.6
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 15:22:52 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2M2147.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Fri Mar 29 15:14:49 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.702	152	221065	40.00 ppb	0.00
24) Naphthalene-d8	4.279	136	928047	40.00 ppb	0.00
47) Acenaphthene-d10	6.879	164	530065	40.00 ppb	0.00
69) Phenanthrene-d10	9.115	188	850049	40.00 ppb	0.00
83) Chrysene-d12	12.843	240	801323	40.00 ppb	0.00
92) Perylene-d12	14.228	264	686035	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.702	152	221065	40.00 ppb	0.00
104) Acenaphthene-d10a	6.879	164	530065	40.00 ppb	0.00
106) Chrysene-d12a	12.843	240	801323	40.00 ppb	0.00
108) Phenanthrene-d10a	9.115	188	850049	40.00 ppb	0.00

System Monitoring Compounds					
5) 2-Fluorophenol	1.648	112	237840	30.38 ppb	0.00
Spiked Amount 50.000			Recovery = 60.76%		
8) Phenol-d5	2.482	99	315378	31.85 ppb	0.00
Spiked Amount 50.000			Recovery = 63.70%		
25) Nitrobenzene-d5	3.386	82	281477	32.81 ppb	0.00
Spiked Amount 50.000			Recovery = 65.62%		
51) 2-Fluorobiphenyl	5.943	172	493426	28.69 ppb	0.00
Spiked Amount 50.000			Recovery = 57.38%		
73) 2,4,6-Tribromophenol	8.125	330	86905	49.30 ppb	0.00
Spiked Amount 50.000			Recovery = 98.60%		
85) Terphenyl-d14	11.666	244	776915	45.20 ppb	0.00
Spiked Amount 50.000			Recovery = 90.40%		

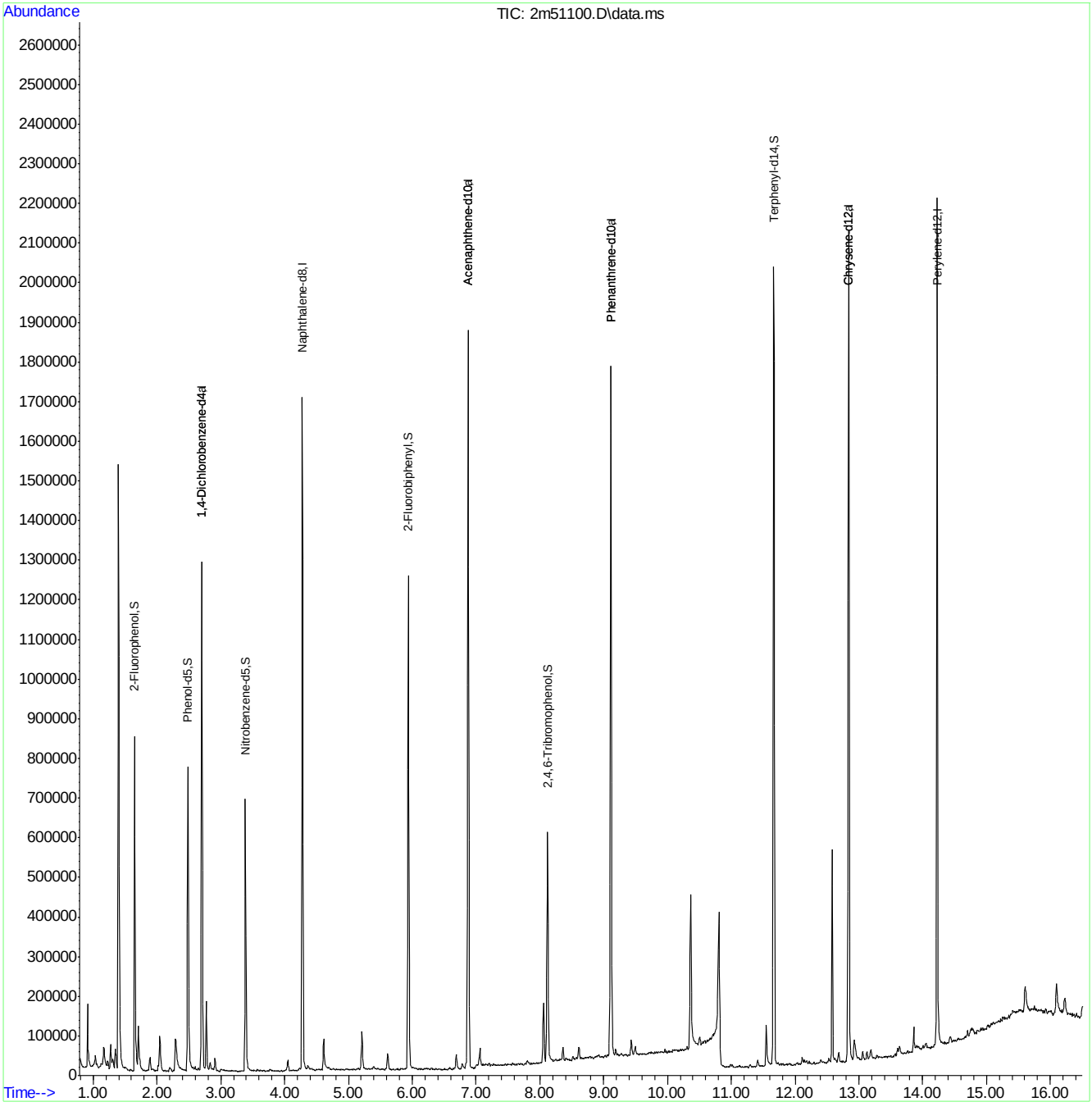
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E2M2176\
Data File : 2m51100.D
Acq On : 29 Mar 2013 1:28 pm
Operator : olgaa
Sample : jb31121-16
Misc : op64768,e2m2176,30.6
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 29 15:22:52 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2M2147.M
Quant Title : Semi Volatile GC/MS, ZB-5 15mx .25mmx .25um
QLast Update : Fri Mar 29 15:14:49 2013
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48855.D
Acq On : 26 Mar 2013 8:45 pm
Operator : olgaa
Sample : jb31121-17
Misc : op64464,e3e2111,35.0
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 27 14:51:20 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.612	152	131983	40.00	ppb	0.00
24) Naphthalene-d8	4.174	136	535333	40.00	ppb	0.00
47) Acenaphthene-d10	6.763	164	331918	40.00	ppb	0.00
69) Phenanthrene-d10	9.009	188	573640	40.00	ppb	0.02
83) Chrysene-d12	12.769	240	670672	40.00	ppb	0.02
92) Perylene-d12	14.171	264	649418	40.00	ppb	0.03
102) 1,4-Dichlorobenzene-d4a	2.612	152	131983	40.00	ppb	0.00
104) Acenaphthene-d10a	6.763	164	331918	40.00	ppb	0.00
106) Phenanthrene-d10a	9.009	188	573640	40.00	ppb	0.02
108) Chrysene-d12a	12.769	240	670672	40.00	ppb	0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.601	112	81898	18.33	ppb	0.02
Spiked Amount 50.000			Recovery	=	36.66%	
8) Phenol-d5	2.430	99	105974	18.89	ppb	0.03
Spiked Amount 50.000			Recovery	=	37.78%	
25) Nitrobenzene-d5	3.302	82	92262	18.95	ppb	0.00
Spiked Amount 50.000			Recovery	=	37.90%	
51) 2-Fluorobiphenyl	5.827	172	258174	23.96	ppb	0.00
Spiked Amount 50.000			Recovery	=	47.92%	
73) 2,4,6-Tribromophenol	8.030	330	58842	35.40	ppb	0.02
Spiked Amount 50.000			Recovery	=	70.80%	
85) Terphenyl-d14	11.566	244	458430	31.24	ppb	0.02
Spiked Amount 50.000			Recovery	=	62.48%	
Target Compounds						Qvalue
38) Naphthalene	4.201	128	11082	0.75	ppb	95
56) Acenaphthylene	6.527	152	28010	1.77	ppb	98
59) Acenaphthene	6.811	153	6091	0.61	ppb	96
66) Fluorene	7.592	166	7177	0.64	ppb	97
77) Phenanthrene	9.036	178	96512	5.76	ppb	96
78) Anthracene	9.111	178	40582	2.44	ppb	98
81) Fluoranthene	10.887	202	183450	10.46	ppb	98
84) Pyrene	11.202	202	169217	7.95	ppb	99
88) Benzo[a]anthracene	12.753	228	119009	6.00	ppb	98
90) Chrysene	12.791	228	116421	6.49	ppb	99
94) Benzo[b]fluoranthene	13.844	252	174064m	8.21	ppb	
95) Benzo[k]fluoranthene	13.855	252	66814m	3.48	ppb	
96) Benzo[a]pyrene	14.117	252	120967	6.40	ppb	94
97) Indeno[1,2,3-cd]pyrene	15.010	276	111022	5.08	ppb	90
99) Dibenz[a,h]anthracene	15.016	278	34707m	1.88	ppb	
101) Benzo[g,h,i]perylene	15.182	276	103739	5.76	ppb	93

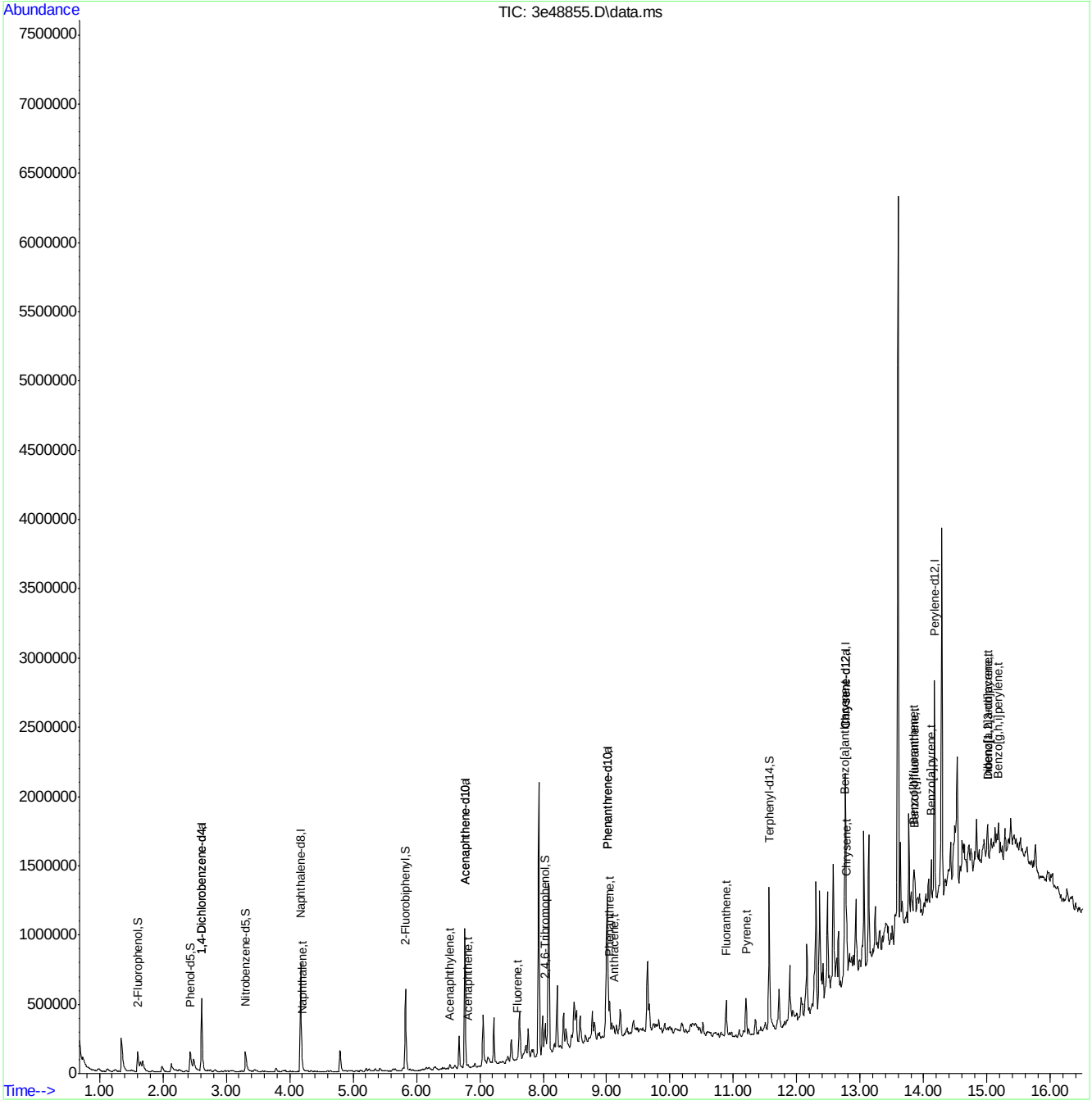
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.23
9

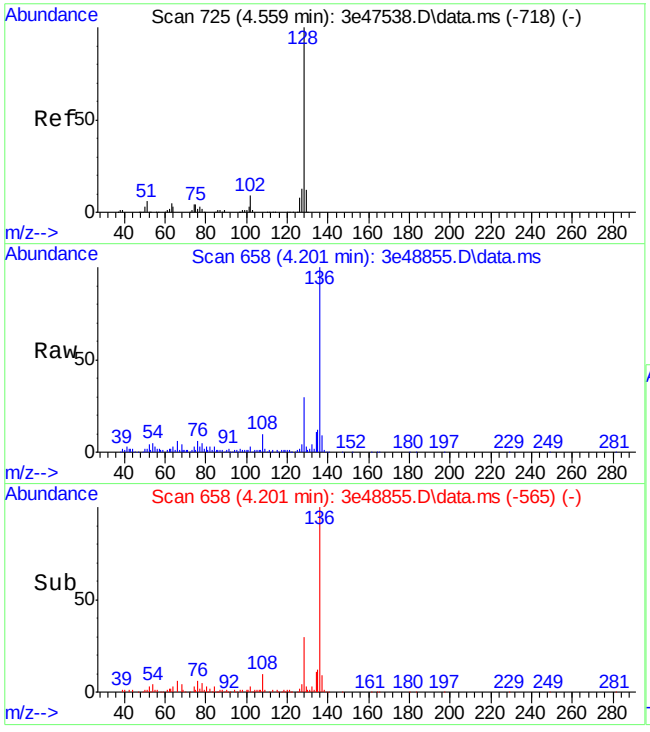
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48855.D
Acq On : 26 Mar 2013 8:45 pm
Operator : olgaa
Sample : jb31121-17
Misc : op64464,e3e2111,35.0
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 27 14:51:20 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



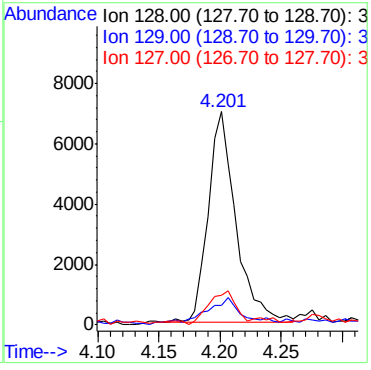
M3E2061.M Wed Mar 27 14:51:28 2013 MS3E

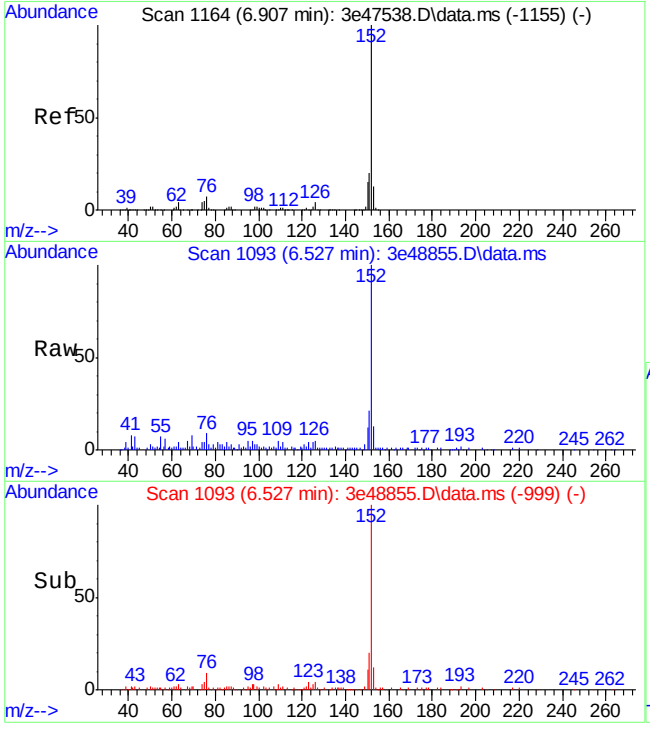


#38
Naphthalene
Concen: 0.75 ppb
RT: 4.201 min Scan# 658
Delta R.T. -0.000 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:128 Resp: 11082

Ion	Ratio	Lower	Upper
128	100		
129	7.9	0.0	41.7
127	12.4	0.0	42.7

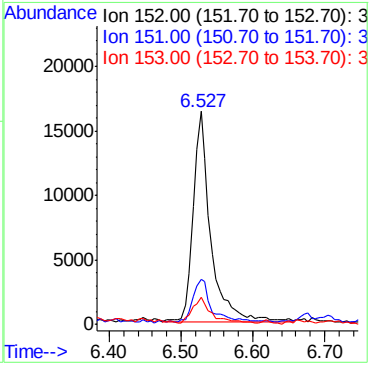


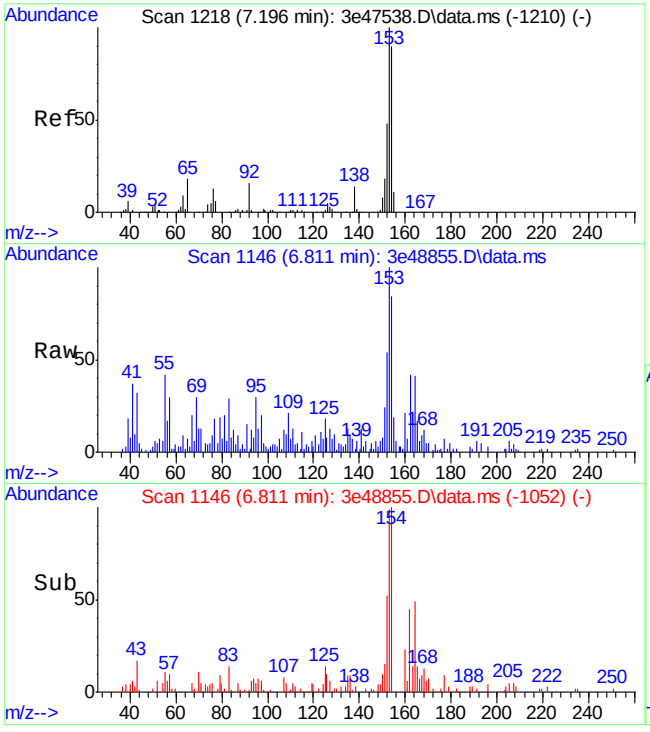


#56
Acenaphthylene
Concen: 1.77 ppb
RT: 6.527 min Scan# 1093
Delta R.T. 0.005 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:152 Resp: 28010

Ion	Ratio	Lower	Upper
152	100		
151	19.7	0.0	49.9
153	11.7	0.0	43.2

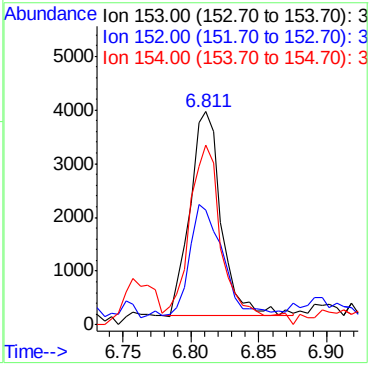


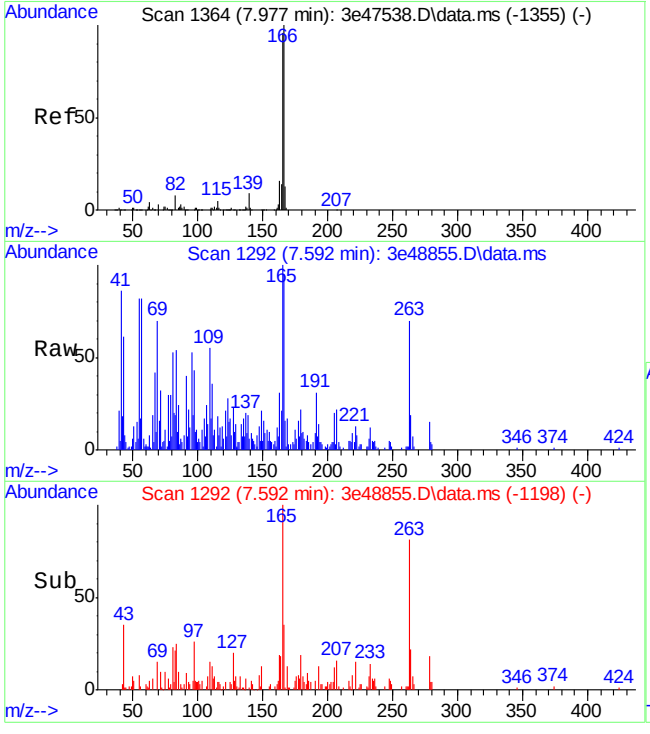


#59
Acenaphthene
Concen: 0.61 ppb
RT: 6.811 min Scan# 1146
Delta R.T. 0.005 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:153 Resp: 6091

Ion	Ratio	Lower	Upper
153	100		
152	49.2	17.8	77.8
154	85.4	60.3	120.3

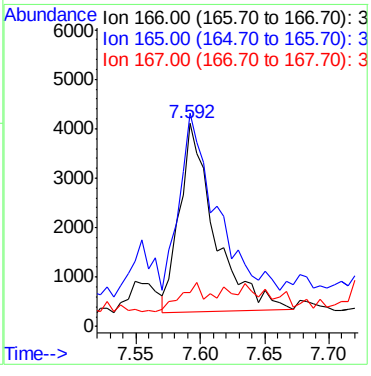




#66
Fluorene
Concen: 0.64 ppb
RT: 7.592 min Scan# 1292
Delta R.T. 0.005 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:166 Resp: 7177

Ion	Ratio	Lower	Upper
166	100		
165	97.3	65.7	125.7
167	8.8	0.0	43.4



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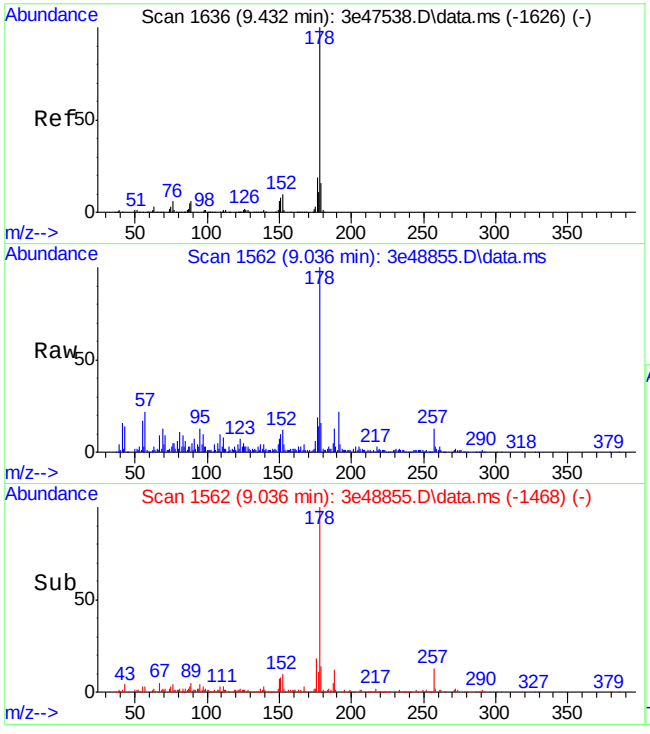
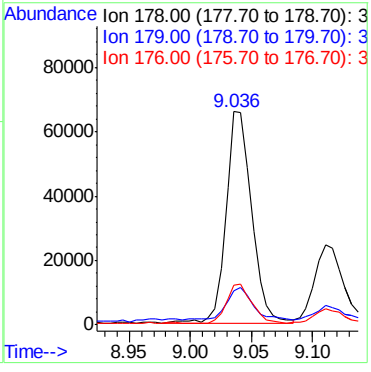
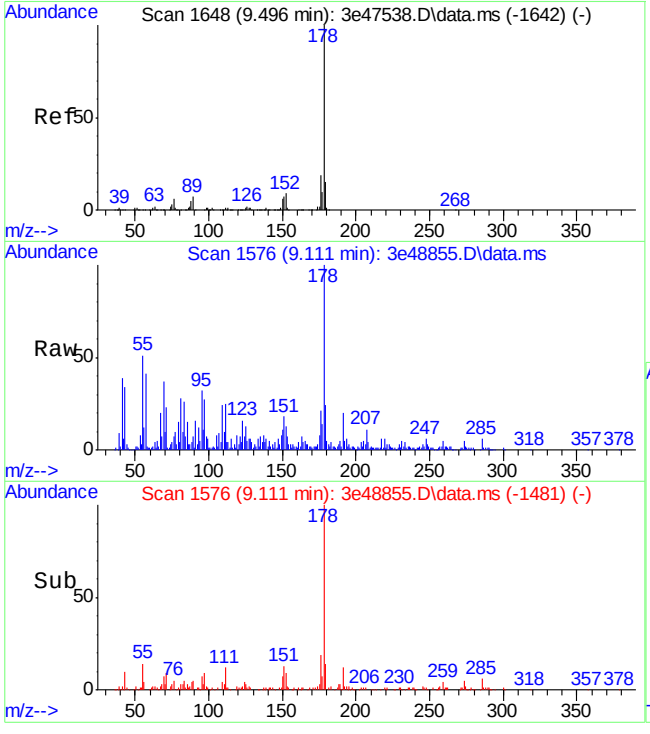


#77
Phenanthrene
Concen: 5.76 ppb
RT: 9.036 min Scan# 1562
Delta R.T. 0.005 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:178 Resp: 96512

Ion	Ratio	Lower	Upper
178	100		
179	13.8	0.0	45.7
176	18.1	0.0	49.5

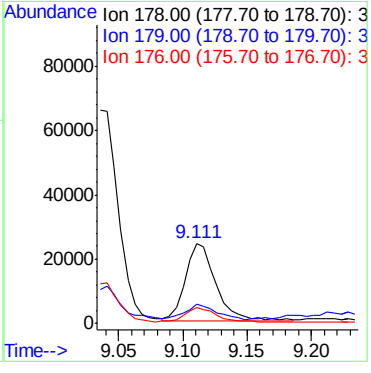


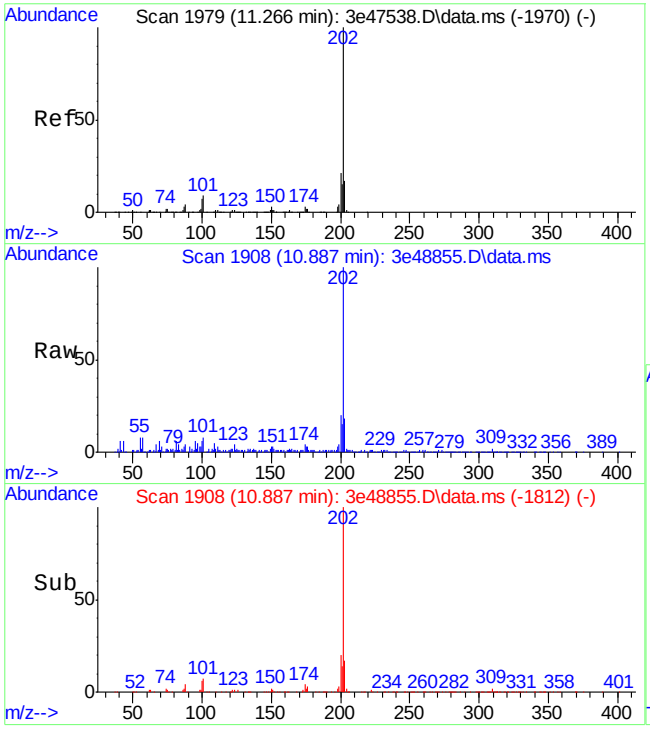


#78
Anthracene
Concen: 2.44 ppb
RT: 9.111 min Scan# 1576
Delta R.T. 0.011 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:178 Resp: 40582

Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	45.1
176	18.7	0.0	48.6

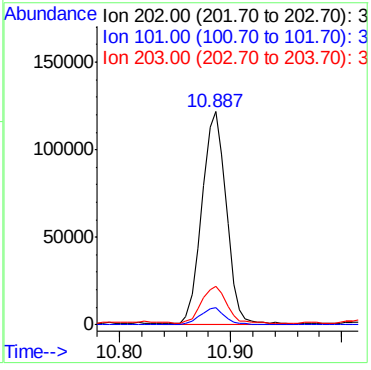


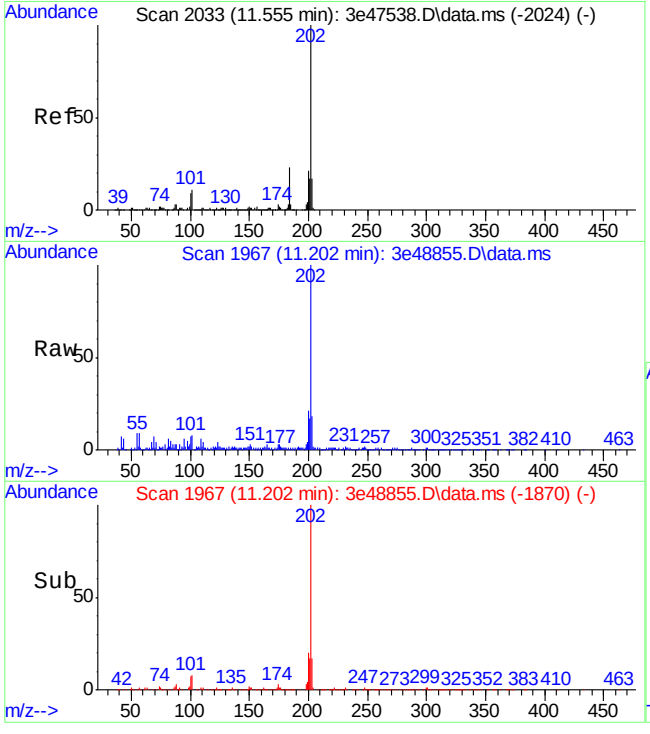


#81
Fluoranthene
Concen: 10.46 ppb
RT: 10.887 min Scan# 1908
Delta R.T. 0.016 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:202 Resp: 183450

Ion	Ratio	Lower	Upper
202	100		
101	7.6	0.0	39.1
203	16.9	0.0	47.3

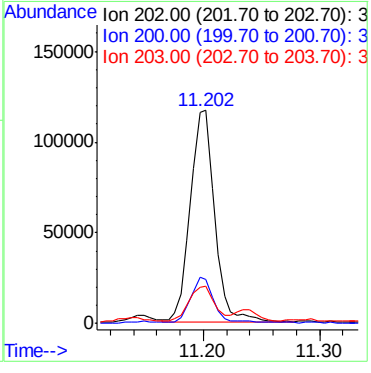




#84
Pyrene
Concen: 7.95 ppb
RT: 11.202 min Scan# 1967
Delta R.T. 0.021 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:202 Resp: 169217

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.6
203	16.5	0.0	47.2



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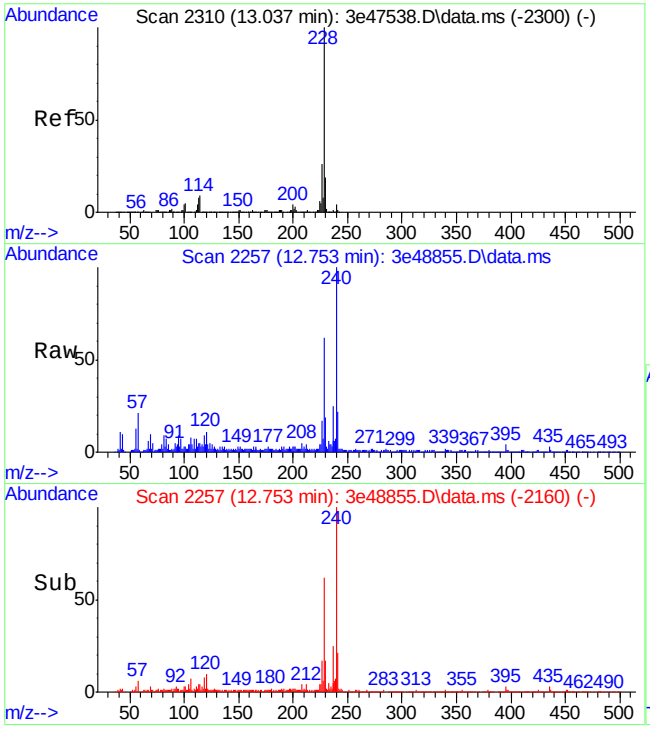
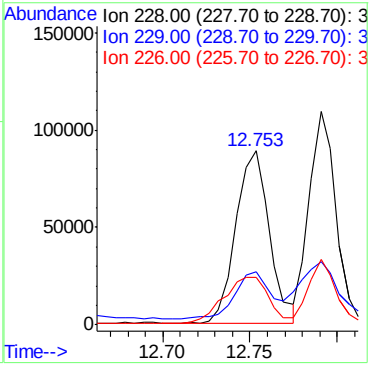
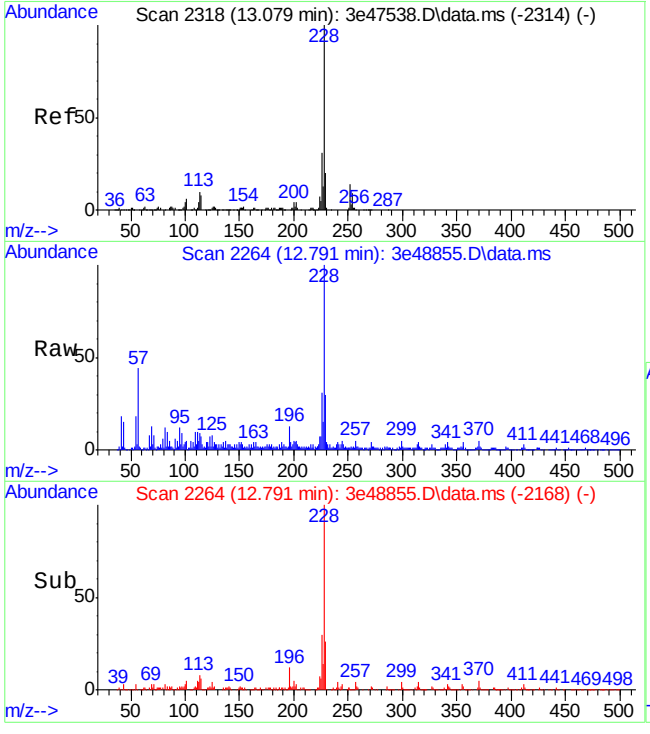


#88
Benzo[a]anthracene
Concen: 6.00 ppb
RT: 12.753 min Scan# 2257
Delta R.T. 0.021 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:228 Resp: 119009

Ion	Ratio	Lower	Upper
228	100		
229	20.5	0.0	49.3
226	26.5	0.0	55.8

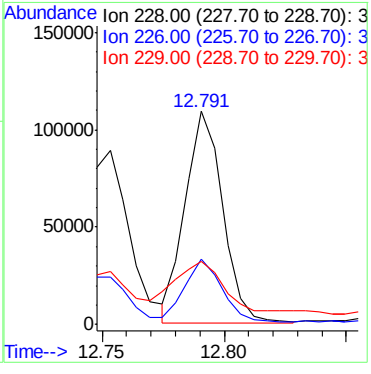




#90
Chrysene
Concen: 6.49 ppb
RT: 12.791 min Scan# 2264
Delta R.T. 0.016 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

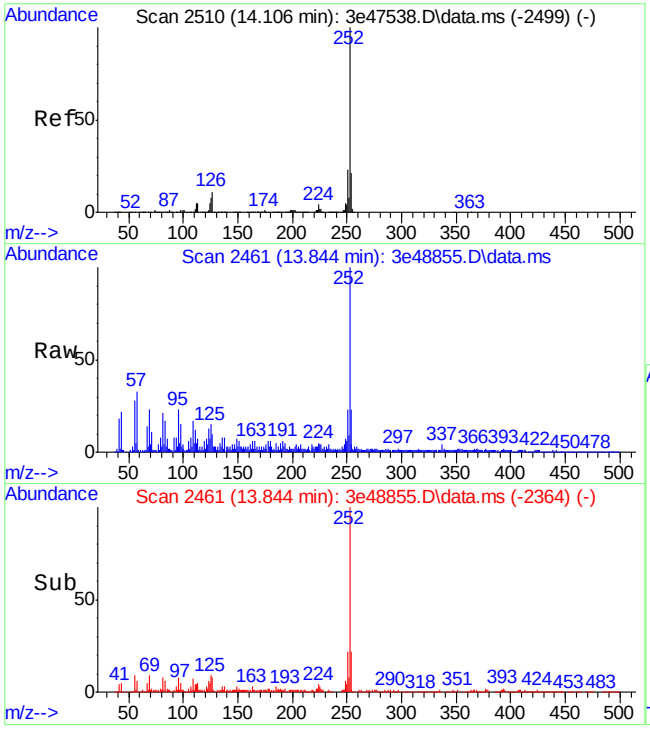
Tgt Ion:228 Resp: 116421

Ion	Ratio	Lower	Upper
228	100		
226	29.7	0.6	60.6
229	20.0	0.0	50.3



9.1.23

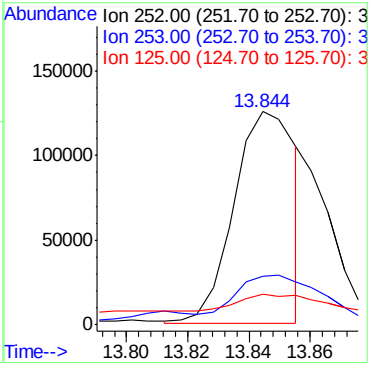
9

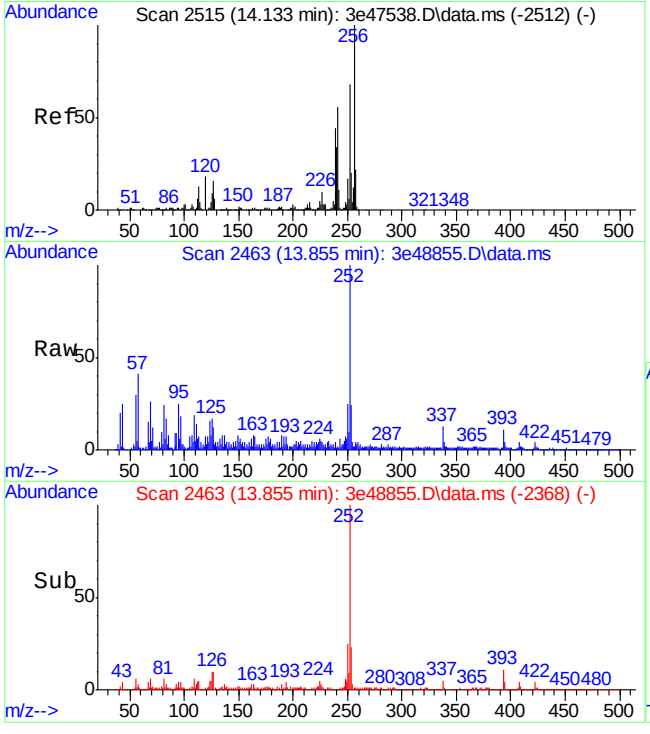


#94
Benzo[b]fluoranthene
Concen: 8.21 ppb m
RT: 13.844 min Scan# 2461
Delta R.T. 0.021 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:252 Resp: 174064

Ion	Ratio	Lower	Upper
252	100		
253	22.8	0.0	51.0
125	14.5	0.0	38.1

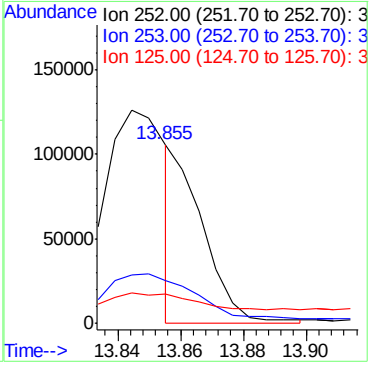




#95
Benzo[k]fluoranthene
Concen: 3.48 ppb m
RT: 13.855 min Scan# 2463
Delta R.T. 0.011 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:252 Resp: 66814

Ion	Ratio	Lower	Upper
252	100		
253	24.0	0.0	56.2
125	16.7	0.0	41.2



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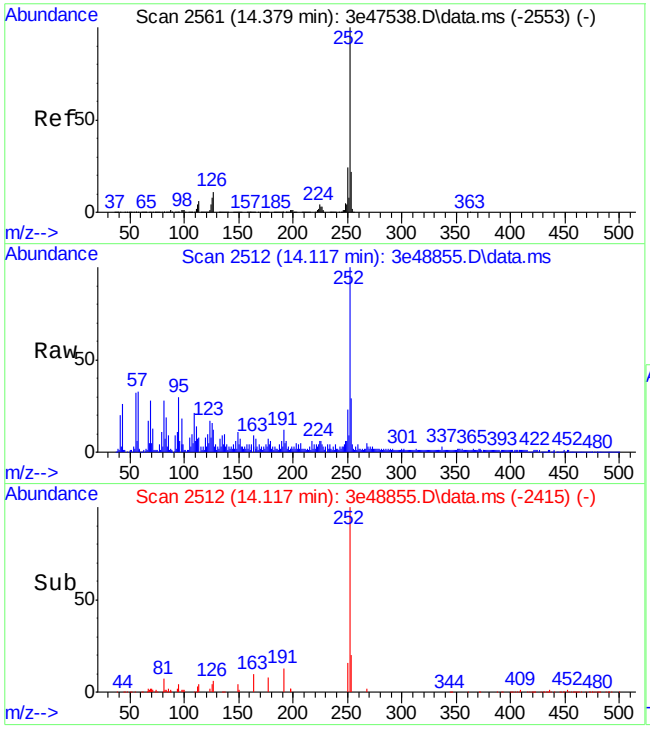
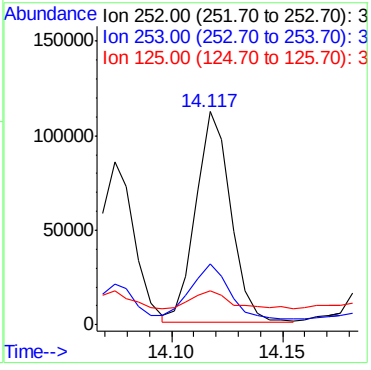
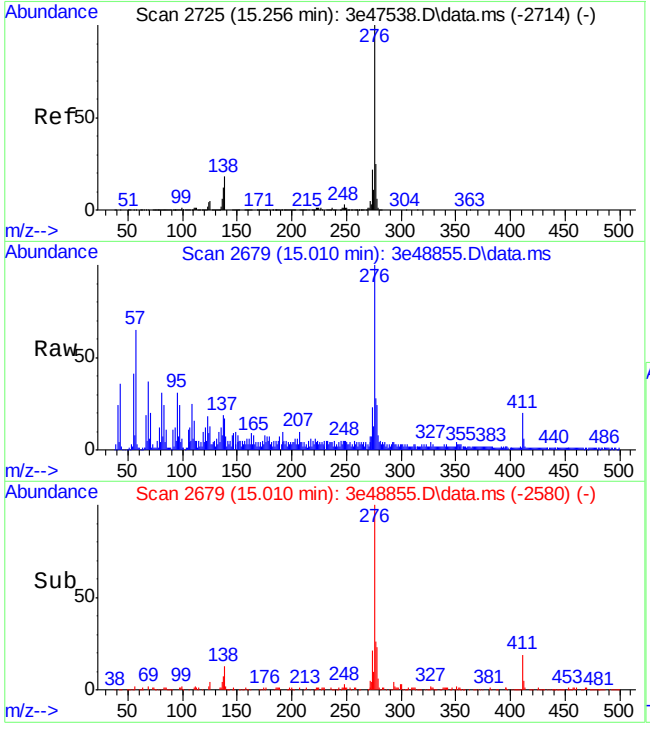


#96
Benzo[a]pyrene
Concen: 6.40 ppb
RT: 14.117 min Scan# 2512
Delta R.T. 0.021 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:252 Resp: 120967

Ion	Ratio	Lower	Upper
252	100		
253	25.6	0.0	52.0
125	8.5	0.0	38.1

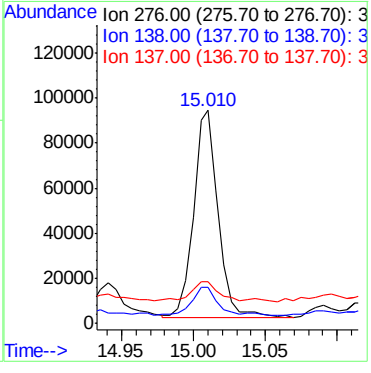


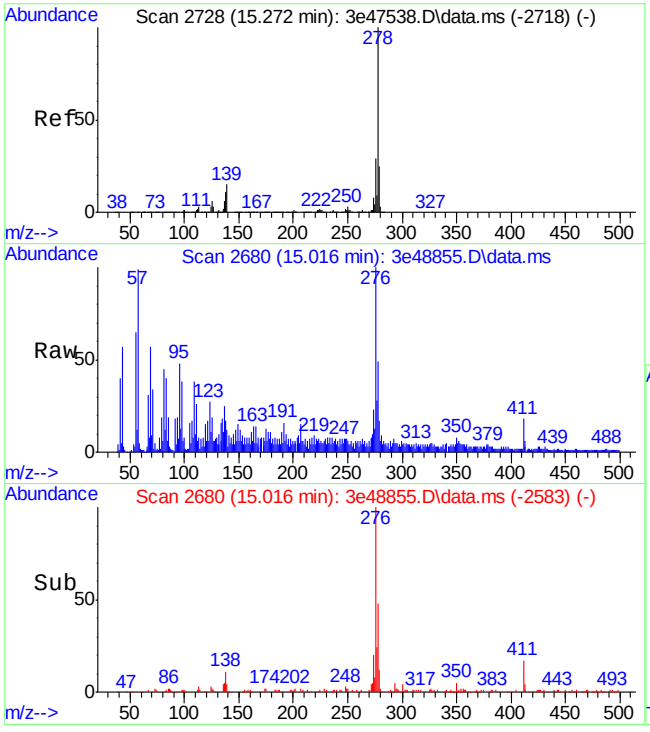


#97
Indeno[1,2,3-cd]pyrene
Concen: 5.08 ppb
RT: 15.010 min Scan# 2679
Delta R.T. 0.032 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:276 Resp: 111022

Ion	Ratio	Lower	Upper
276	100		
138	12.8	0.0	47.7
137	8.7	0.0	42.0

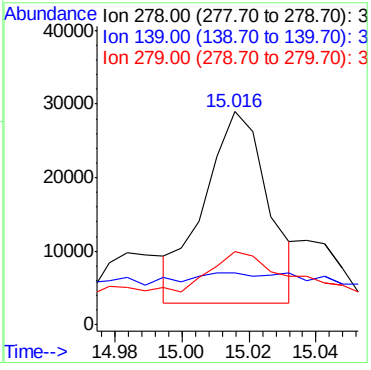


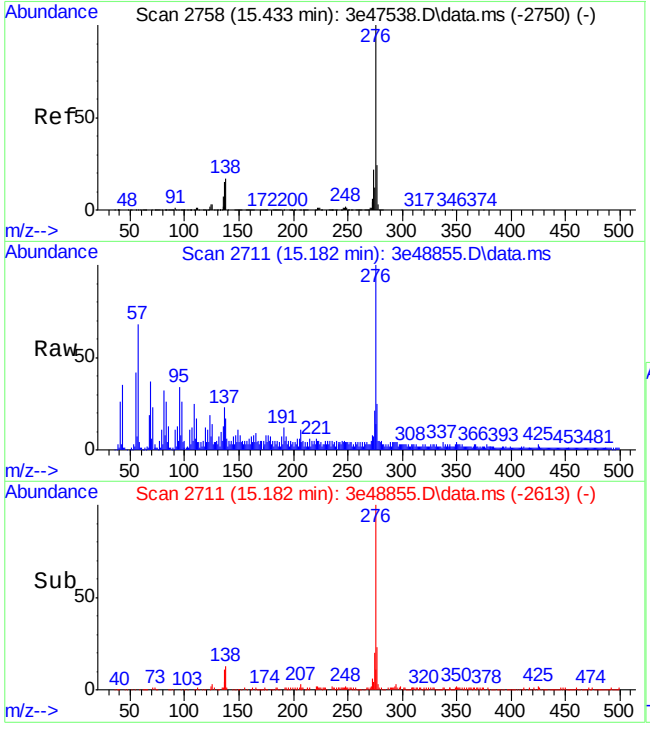


#99
Dibenz[a,h]anthracene
Concen: 1.88 ppb m
RT: 15.016 min Scan# 2680
Delta R.T. 0.021 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:278 Resp: 34707

Ion	Ratio	Lower	Upper
278	100		
139	24.3	0.0	44.8
279	34.2	0.0	54.9

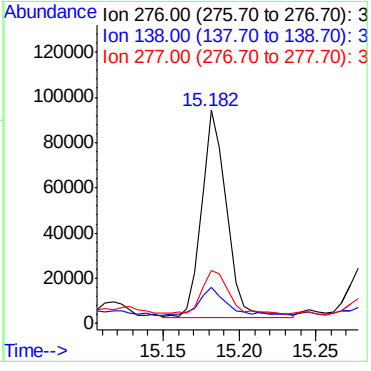




#101
Benzo[g,h,i]perylene
Concen: 5.76 ppb
RT: 15.182 min Scan# 2711
Delta R.T. 0.027 min
Lab File: 3e48855.D
Acq: 26 Mar 2013 8:45 pm

Tgt Ion:276 Resp: 103739

Ion	Ratio	Lower	Upper
276	100		
138	13.4	0.0	47.2
277	20.7	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 16:10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48856.D
Acq On : 26 Mar 2013 9:08 pm
Operator : olgaa
Sample : jb31121-18
Misc : op64464,e3e2111,34.8
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 27 14:53:05 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.612	152	103648	40.00	ppb	0.00
24) Naphthalene-d8	4.174	136	421944	40.00	ppb	0.00
47) Acenaphthene-d10	6.763	164	256067	40.00	ppb	0.00
69) Phenanthrene-d10	9.009	188	458712	40.00	ppb	0.02
83) Chrysene-d12	12.769	240	517181	40.00	ppb	0.02
92) Perylene-d12	14.176	264	526164	40.00	ppb	0.04
102) 1,4-Dichlorobenzene-d4a	2.612	152	103648	40.00	ppb	0.00
104) Acenaphthene-d10a	6.763	164	256067	40.00	ppb	0.00
106) Phenanthrene-d10a	9.009	188	458712	40.00	ppb	0.02
108) Chrysene-d12a	12.769	240	517181	40.00	ppb	0.02

System Monitoring Compounds						
5) 2-Fluorophenol	1.607	112	48034	13.69	ppb	0.02
Spiked Amount 50.000			Recovery = 27.38%			
8) Phenol-d5	2.436	99	58841	13.36	ppb	0.03
Spiked Amount 50.000			Recovery = 26.72%			
25) Nitrobenzene-d5	3.308	82	57194	14.91	ppb	0.00
Spiked Amount 50.000			Recovery = 29.82%			
51) 2-Fluorobiphenyl	5.827	172	144322	17.36	ppb	0.00
Spiked Amount 50.000			Recovery = 34.72%			
73) 2,4,6-Tribromophenol	8.030	330	23959	18.02	ppb	0.02
Spiked Amount 50.000			Recovery = 36.04%			
85) Terphenyl-d14	11.566	244	194833	17.22	ppb	0.02
Spiked Amount 50.000			Recovery = 34.44%			

Target Compounds							Qvalue
38) Naphthalene	4.201	128	49061	4.19	ppb		97
56) Acenaphthylene	6.522	152	5334	0.44	ppb		95
59) Acenaphthene	6.816	153	9448	1.22	ppb	#	9
66) Fluorene	7.592	166	5940	0.69	ppb		89
77) Phenanthrene	9.036	178	58715	4.38	ppb		99
78) Anthracene	9.111	178	12648	0.95	ppb		93
81) Fluoranthene	10.881	202	32522	2.32	ppb		93
84) Pyrene	11.197	202	36992	2.25	ppb		96
88) Benzo[a]anthracene	12.753	228	52634	3.44	ppb		99
90) Chrysene	12.791	228	71840	5.20	ppb		98
94) Benzo[b]fluoranthene	13.844	252	80374m	4.68	ppb		
95) Benzo[k]fluoranthene	13.860	252	18502m	1.19	ppb		
96) Benzo[a]pyrene	14.122	252	78195	5.11	ppb		99
97) Indeno[1,2,3-cd]pyrene	15.021	276	87705	4.95	ppb		98
99) Dibenz[a,h]anthracene	15.026	278	68074m	4.54	ppb		
101) Benzo[g,h,i]perylene	15.198	276	149541	10.24	ppb		96

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

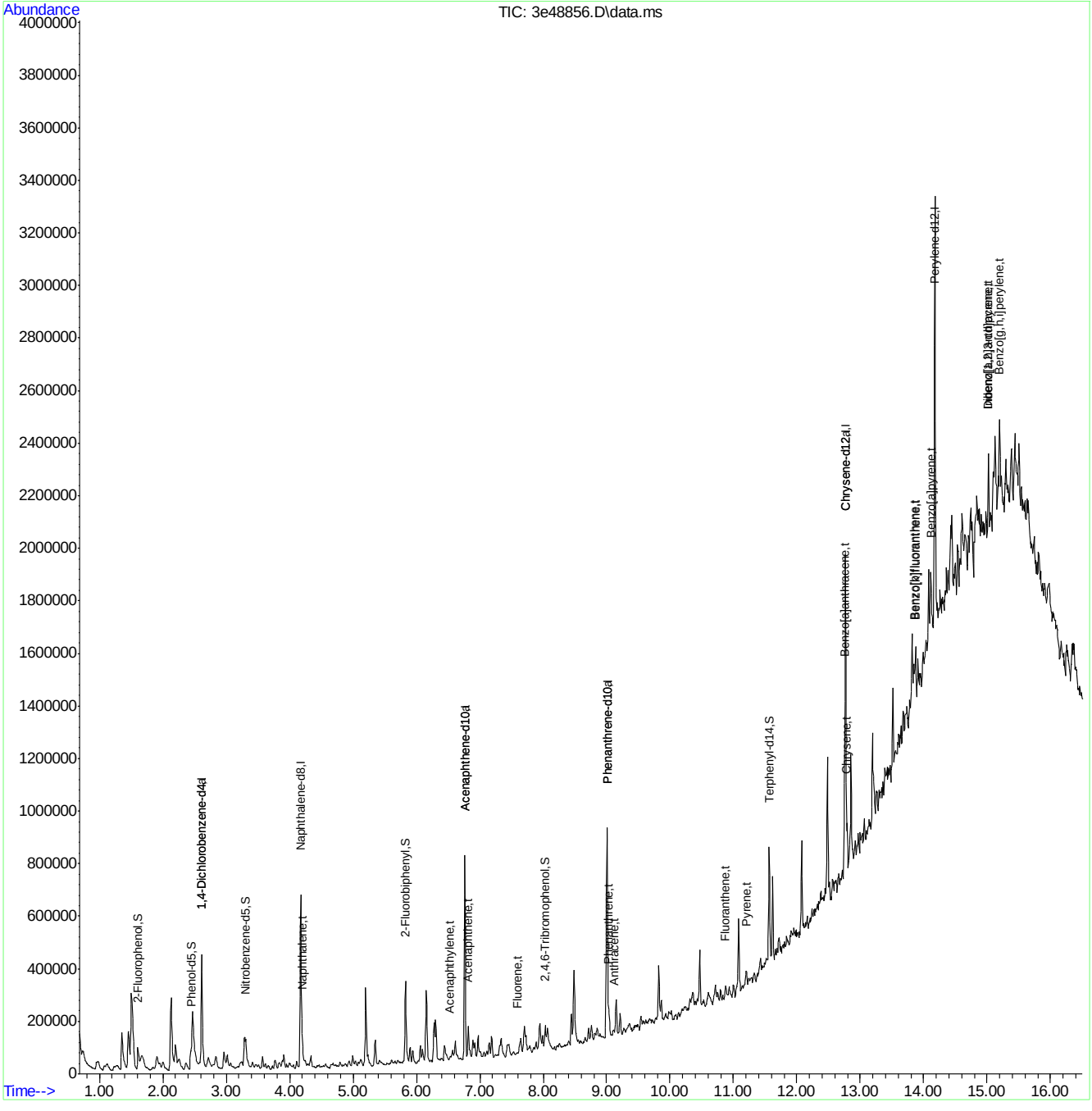
9.1.24

9

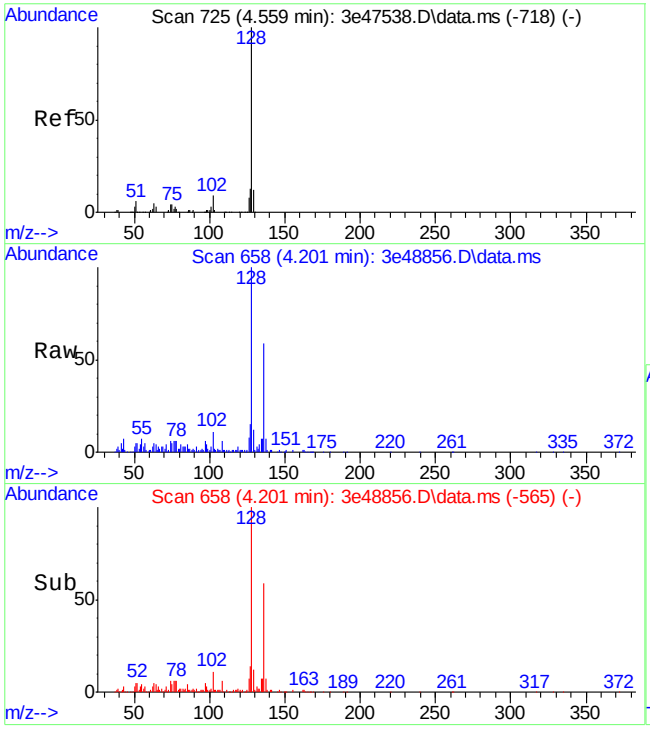
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48856.D
Acq On : 26 Mar 2013 9:08 pm
Operator : olgaa
Sample : jb31121-18
Misc : op64464,e3e2111,34.8
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 27 14:53:05 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



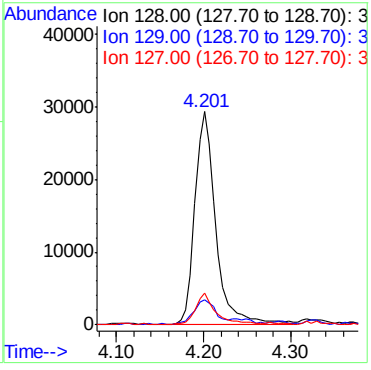
M3E2061.M Wed Mar 27 14:53:13 2013 MS3E

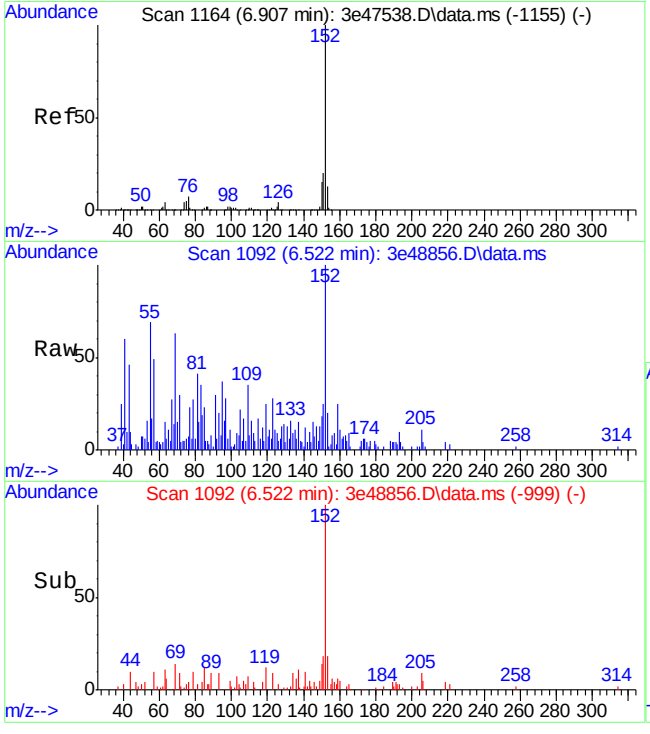


#38
Naphthalene
Concen: 4.19 ppb
RT: 4.201 min Scan# 658
Delta R.T. -0.000 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:128 Resp: 49061

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	41.7
127	14.5	0.0	42.7

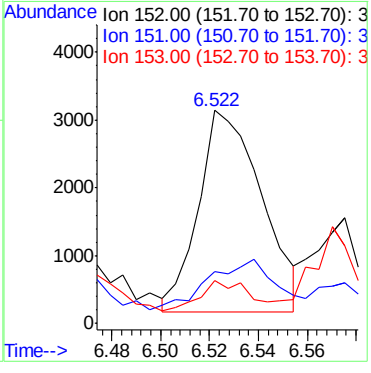


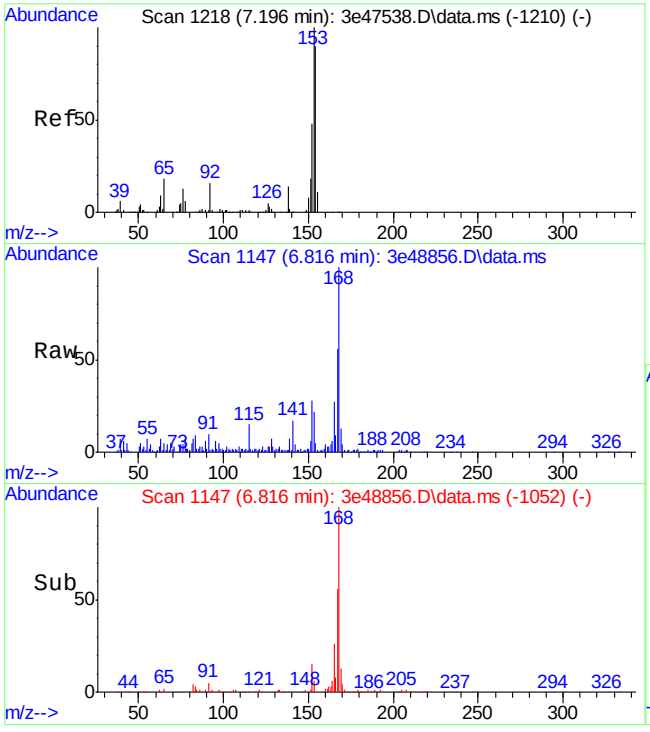


#56
Acenaphthylene
Concen: 0.44 ppb
RT: 6.522 min Scan# 1092
Delta R.T. -0.000 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:152 Resp: 5334

Ion	Ratio	Lower	Upper
152	100		
151	16.8	0.0	49.9
153	14.1	0.0	43.2

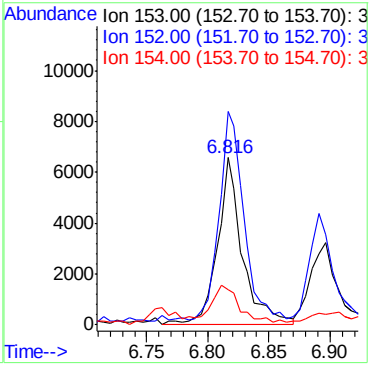


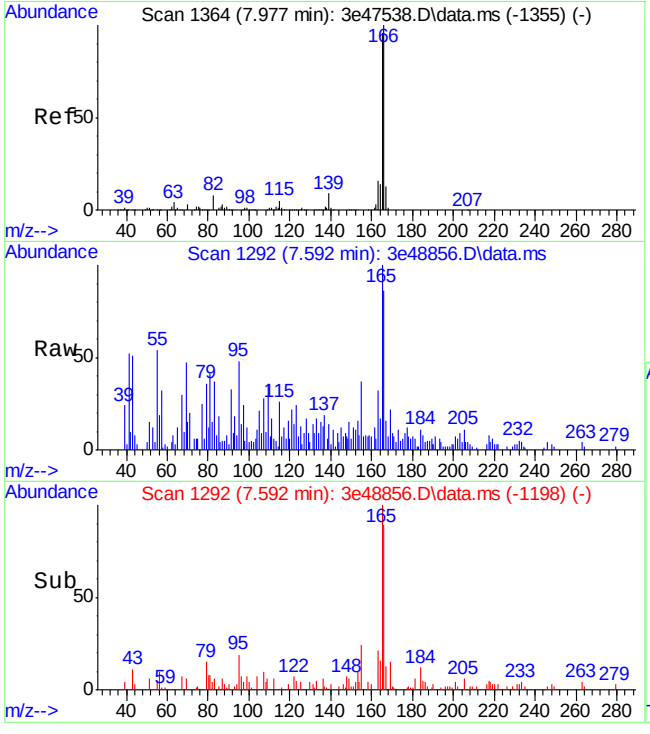


#59
Acenaphthene
Concen: 1.22 ppb
RT: 6.816 min Scan# 1147
Delta R.T. 0.011 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:153 Resp: 9448

Ion	Ratio	Lower	Upper
153	100		
152	124.4	17.8	77.8#
154	15.3	60.3	120.3#

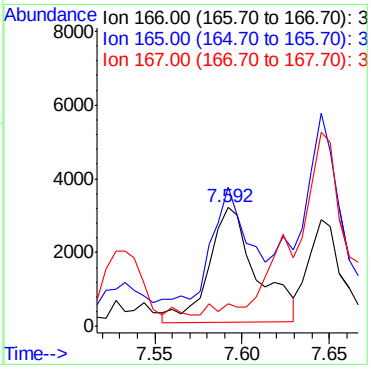


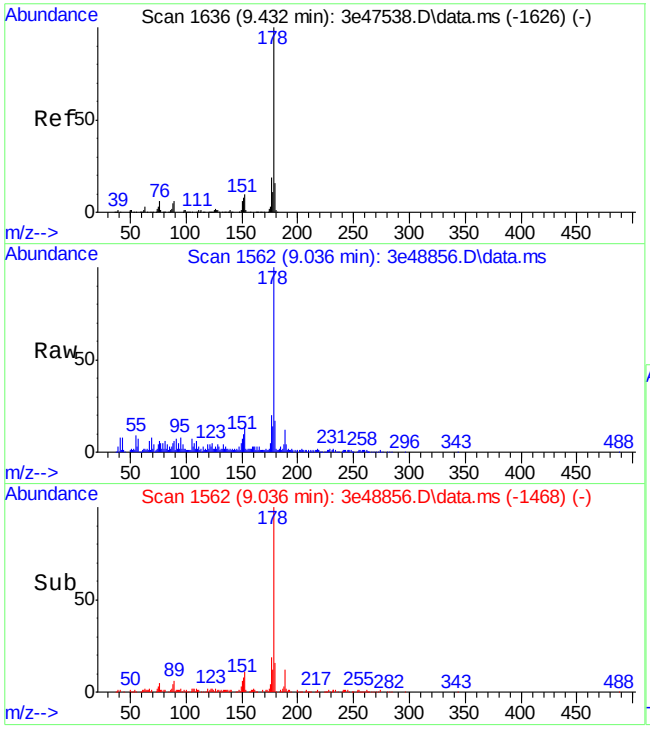


#66
Fluorene
Concen: 0.69 ppb
RT: 7.592 min Scan# 1292
Delta R.T. 0.005 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:166 Resp: 5940

Ion	Ratio	Lower	Upper
166	100		
165	88.0	65.7	125.7
167	0.0	0.0	43.4

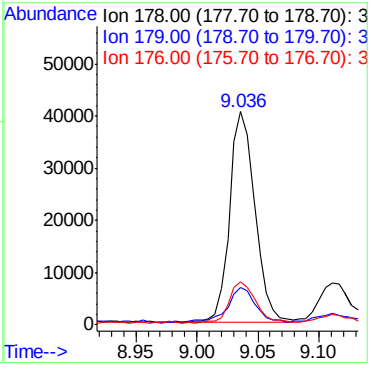


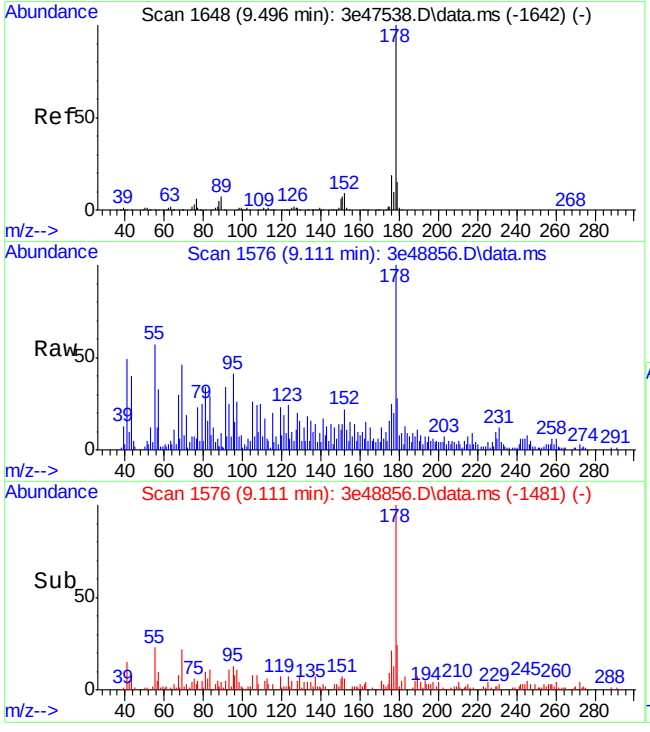


#77
Phenanthrene
Concen: 4.38 ppb
RT: 9.036 min Scan# 1562
Delta R.T. 0.005 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:178 Resp: 58715

Ion	Ratio	Lower	Upper
178	100		
179	16.2	0.0	45.7
176	19.2	0.0	49.5

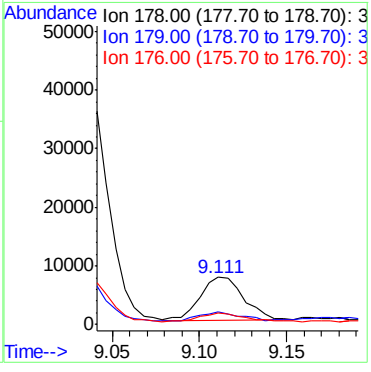




#78
Anthracene
Concen: 0.95 ppb
RT: 9.111 min Scan# 1576
Delta R.T. 0.011 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

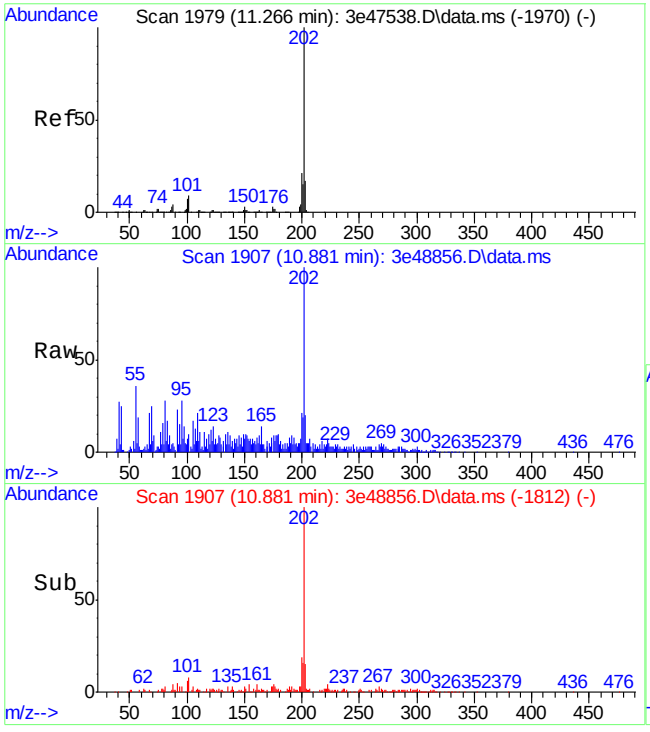
Tgt Ion:178 Resp: 12648

Ion	Ratio	Lower	Upper
178	100		
179	20.3	0.0	45.1
176	19.5	0.0	48.6



9.1.24

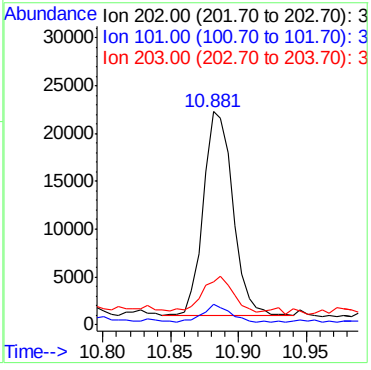
9

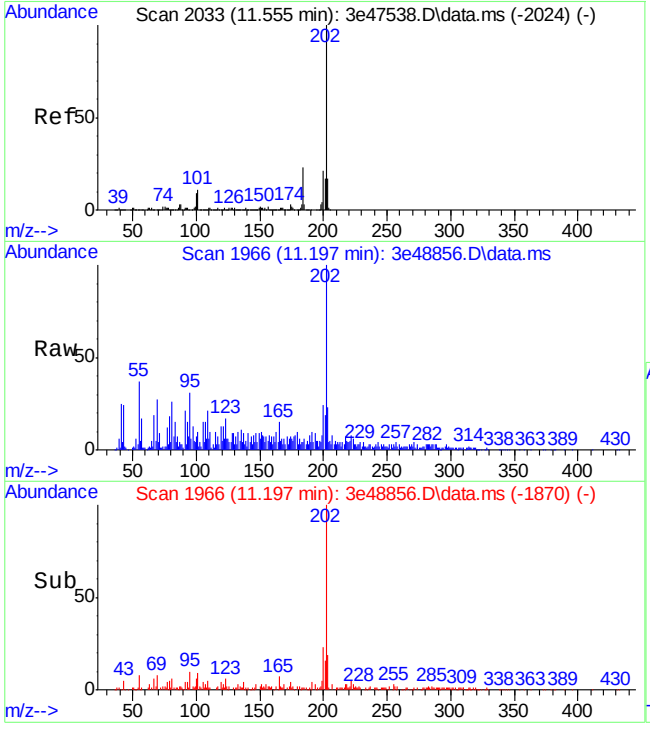


#81
Fluoranthene
Concen: 2.32 ppb
RT: 10.881 min Scan# 1907
Delta R.T. 0.011 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:202 Resp: 32522

Ion	Ratio	Lower	Upper
202	100		
101	8.4	0.0	39.1
203	13.2	0.0	47.3

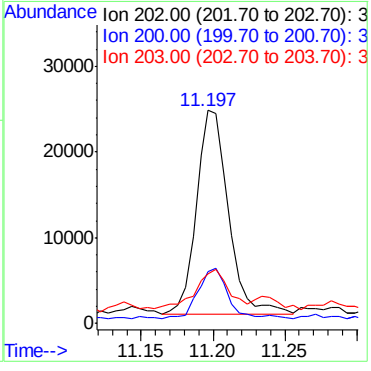




#84
Pyrene
Concen: 2.25 ppb
RT: 11.197 min Scan# 1966
Delta R.T. 0.016 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

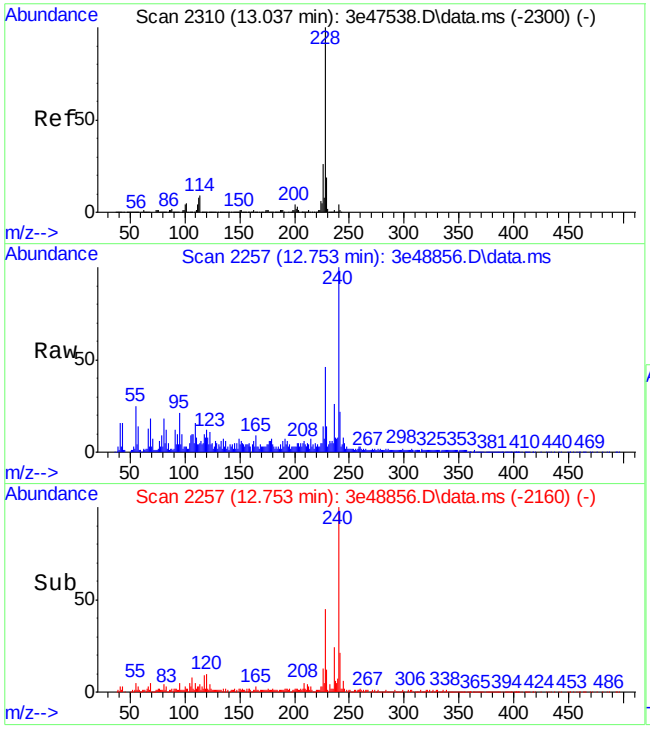
Tgt Ion:202 Resp: 36992

Ion	Ratio	Lower	Upper
202	100		
200	22.8	0.0	50.6
203	15.8	0.0	47.2



9.1.24

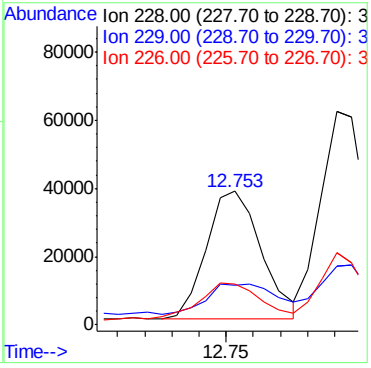
9

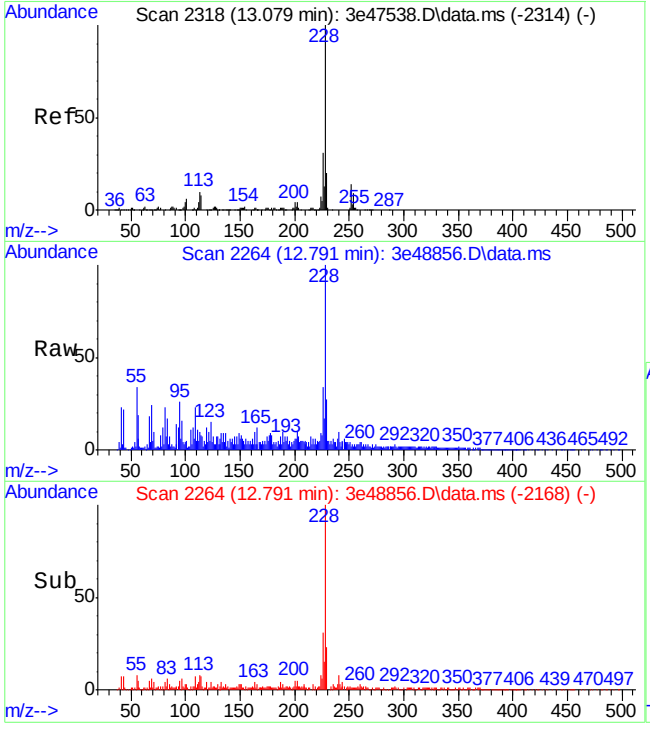


#88
Benzo[a]anthracene
Concen: 3.44 ppb
RT: 12.753 min Scan# 2257
Delta R.T. 0.021 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:228 Resp: 52634

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	49.3
226	26.1	0.0	55.8

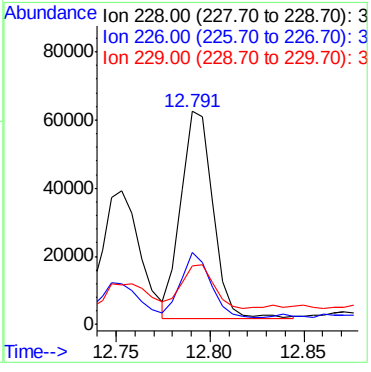


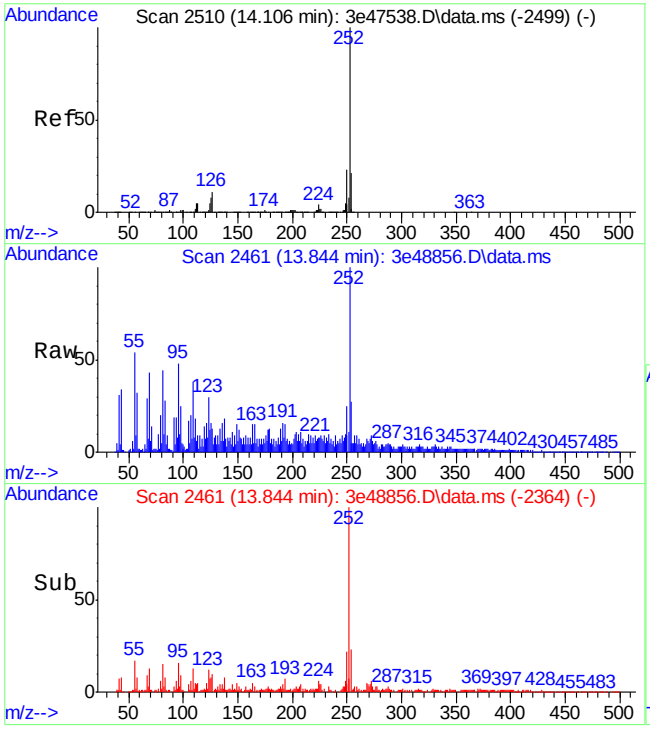


#90
Chrysene
Concen: 5.20 ppb
RT: 12.791 min Scan# 2264
Delta R.T. 0.016 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:228 Resp: 71840

Ion	Ratio	Lower	Upper
228	100		
226	31.3	0.6	60.6
229	19.1	0.0	50.3

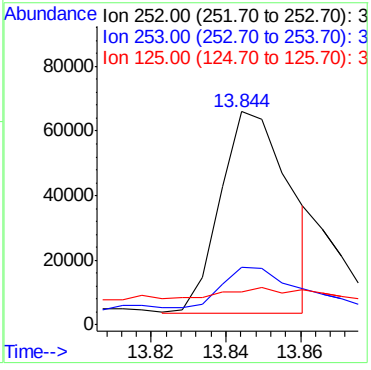


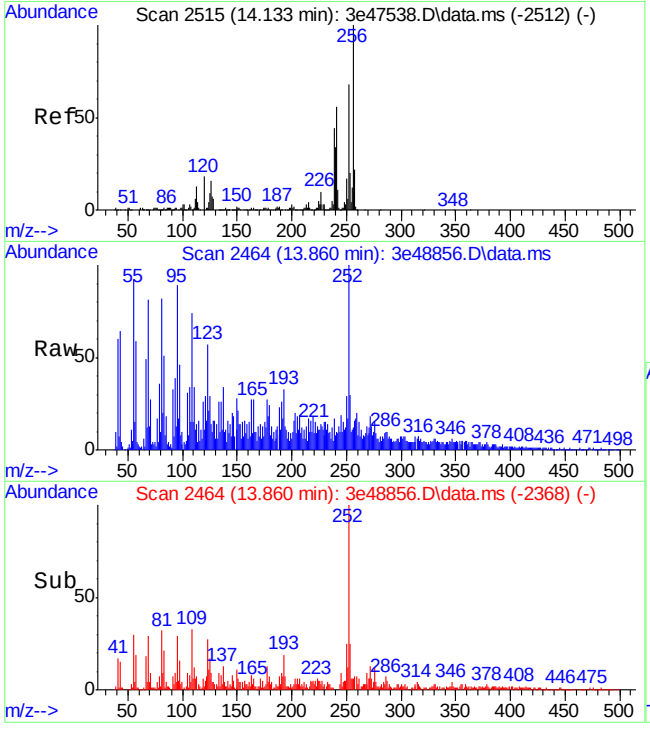


#94
Benzo[b]fluoranthene
Concen: 4.68 ppb m
RT: 13.844 min Scan# 2461
Delta R.T. 0.021 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:252 Resp: 80374

Ion	Ratio	Lower	Upper
252	100		
253	27.2	0.0	51.0
125	15.5	0.0	38.1

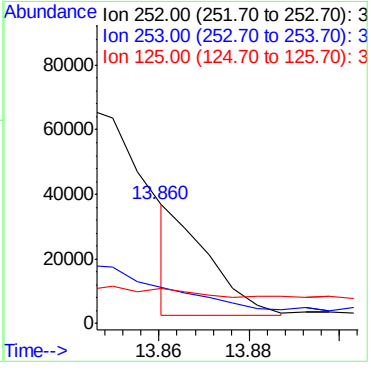




#95
Benzo[k]fluoranthene
Concen: 1.19 ppb m
RT: 13.860 min Scan# 2464
Delta R.T. 0.016 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

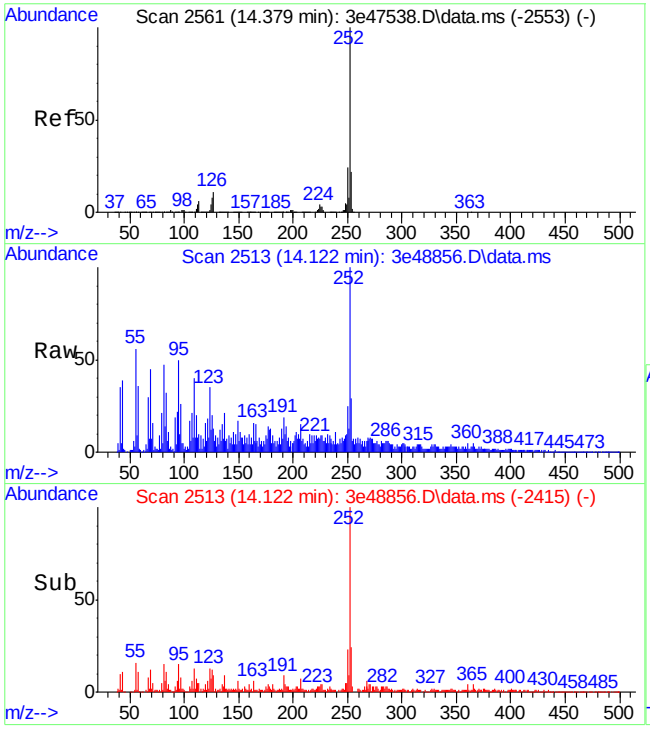
Tgt Ion:252 Resp: 18502

Ion	Ratio	Lower	Upper
252	100		
253	30.5	0.0	56.2
125	29.2	0.0	41.2



9.1.24

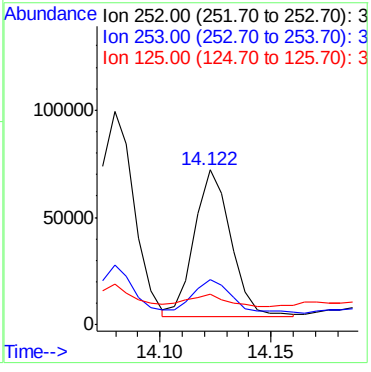
9

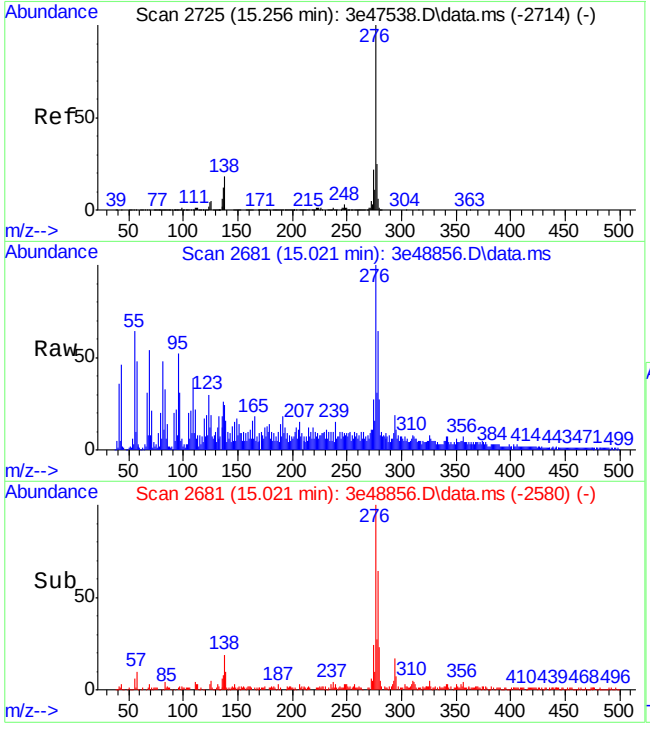


#96
Benzo[a]pyrene
Concen: 5.11 ppb
RT: 14.122 min Scan# 2513
Delta R.T. 0.027 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:252 Resp: 78195

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	52.0
125	7.3	0.0	38.1

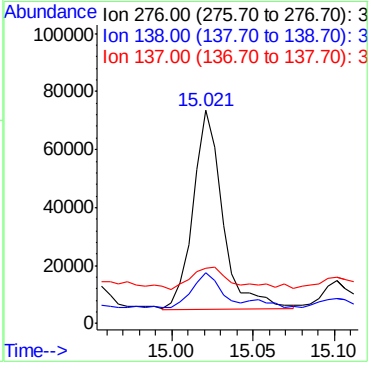


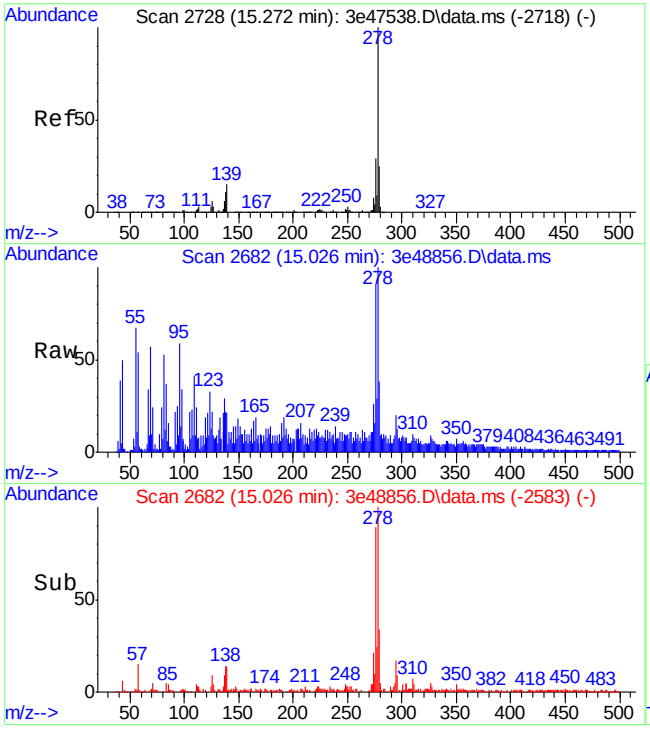


#97
Indeno[1,2,3-cd]pyrene
Concen: 4.95 ppb
RT: 15.021 min Scan# 2681
Delta R.T. 0.043 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:276 Resp: 87705

Ion	Ratio	Lower	Upper
276	100		
138	17.7	0.0	47.7
137	10.1	0.0	42.0

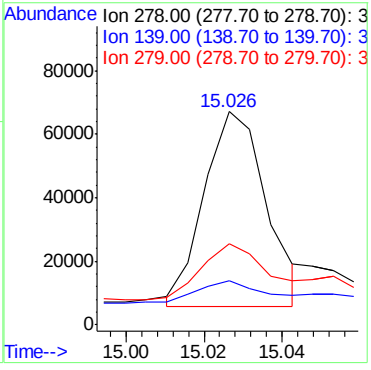


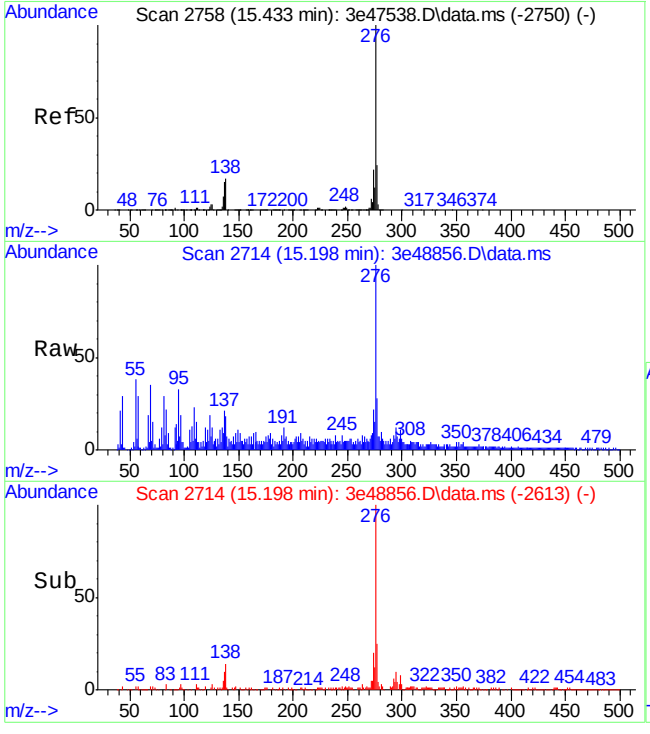


#99
Dibenz[a,h]anthracene
Concen: 4.54 ppb m
RT: 15.026 min Scan# 2682
Delta R.T. 0.032 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:278 Resp: 68074

Ion	Ratio	Lower	Upper
278	100		
139	20.8	0.0	44.8
279	38.3	0.0	54.9

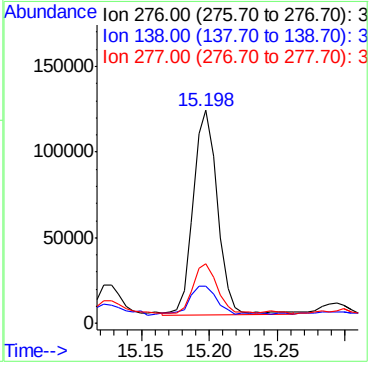




#101
Benzo[g,h,i]perylene
Concen: 10.24 ppb
RT: 15.198 min Scan# 2714
Delta R.T. 0.043 min
Lab File: 3e48856.D
Acq: 26 Mar 2013 9:08 pm

Tgt Ion:276 Resp: 149541

Ion	Ratio	Lower	Upper
276	100		
138	13.6	0.0	47.2
277	24.4	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 11:43

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48843.D
Acq On : 26 Mar 2013 4:06 pm
Operator : olgaa
Sample : jb31121-19
Misc : op64464,e3e2111,36.0
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 26 17:06:56 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	105671	40.00 ppb	-0.01
24) Naphthalene-d8	4.163	136	419576	40.00 ppb	-0.01
47) Acenaphthene-d10	6.747	164	260662	40.00 ppb	-0.02
69) Phenanthrene-d10	8.988	188	466234	40.00 ppb	0.00
83) Chrysene-d12	12.742	240	489644	40.00 ppb	0.00
92) Perylene-d12	14.133	264	464735	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	105671	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.747	164	260662	40.00 ppb	-0.02
106) Phenanthrene-d10a	8.988	188	466234	40.00 ppb	0.00
108) Chrysene-d12a	12.742	240	489644	40.00 ppb	0.00

System Monitoring Compounds					
5) 2-Fluorophenol	1.596	112	54341	15.19 ppb	0.01
Spiked Amount 50.000			Recovery	= 30.38%	
8) Phenol-d5	2.425	99	70144	15.62 ppb	0.02
Spiked Amount 50.000			Recovery	= 31.24%	
25) Nitrobenzene-d5	3.307	82	70844	18.57 ppb	0.00
Spiked Amount 50.000			Recovery	= 37.14%	
51) 2-Fluorobiphenyl	5.821	172	166632	19.70 ppb	-0.01
Spiked Amount 50.000			Recovery	= 39.40%	
73) 2,4,6-Tribromophenol	8.009	330	40427	29.92 ppb	0.00
Spiked Amount 50.000			Recovery	= 59.84%	
85) Terphenyl-d14	11.539	244	349406	32.61 ppb	-0.01
Spiked Amount 50.000			Recovery	= 65.22%	

Target Compounds					Qvalue
77) Phenanthrene	9.025	178	5615	0.41 ppb	94
81) Fluoranthene	10.876	202	20357	1.43 ppb	98
84) Pyrene	11.191	202	16924	1.09 ppb	96
88) Benzo[a]anthracene	12.726	228	7522	0.52 ppb	81
90) Chrysene	12.775	228	12996	0.99 ppb	95
94) Benzo[b]fluoranthene	13.828	252	16021m	1.06 ppb	
95) Benzo[k]fluoranthene	13.839	252	8365m	0.61 ppb	
96) Benzo[a]pyrene	14.096	252	10271	0.76 ppb	94
97) Indeno[1,2,3-cd]pyrene	14.994	276	9588	0.61 ppb	90
101) Benzo[g,h,i]perylene	15.171	276	9315m	0.72 ppb	

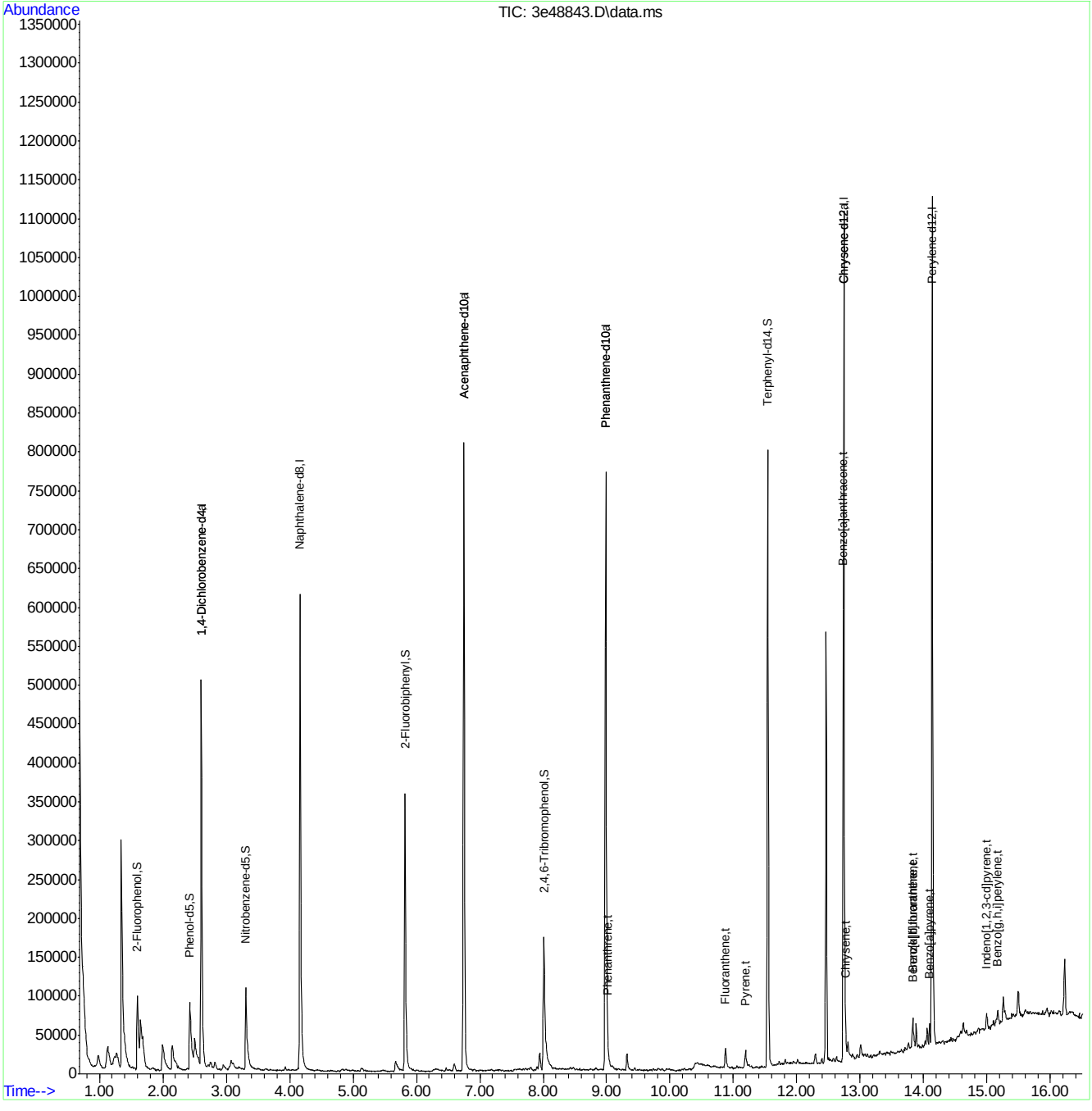
(#) = qualifier out of range (m) = manual integration (+) = signals summed

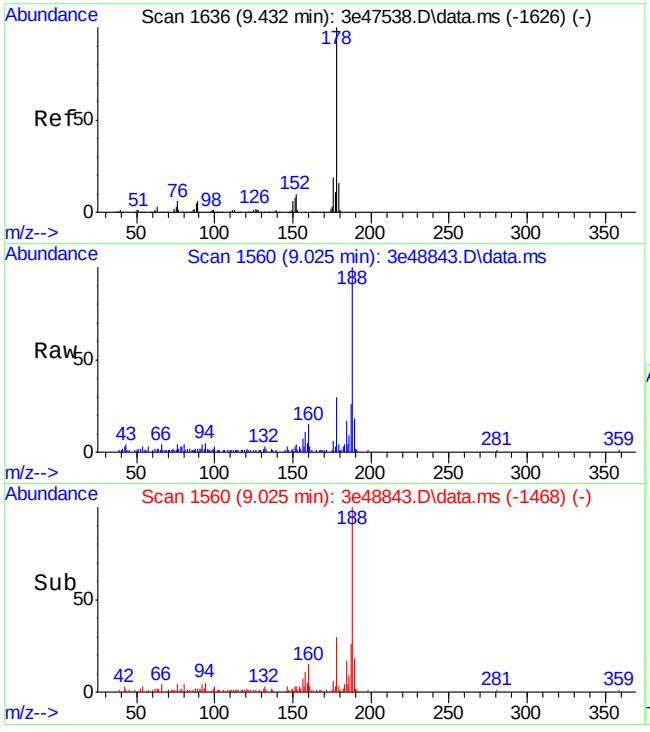
9.1.25
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48843.D
Acq On : 26 Mar 2013 4:06 pm
Operator : olgaa
Sample : jb31121-19
Misc : op64464,e3e2111,36.0
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 26 17:06:56 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

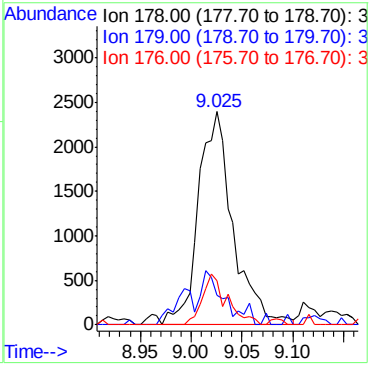


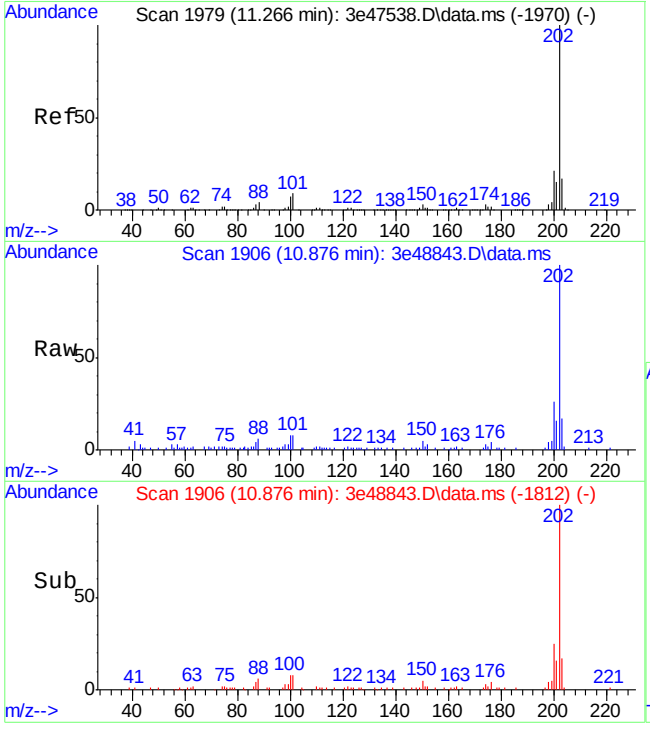


#77
Phenanthrene
Concen: 0.41 ppb
RT: 9.025 min Scan# 1560
Delta R.T. -0.005 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:178 Resp: 5615

Ion	Ratio	Lower	Upper
178	100		
179	11.6	0.0	45.7
176	20.9	0.0	49.5

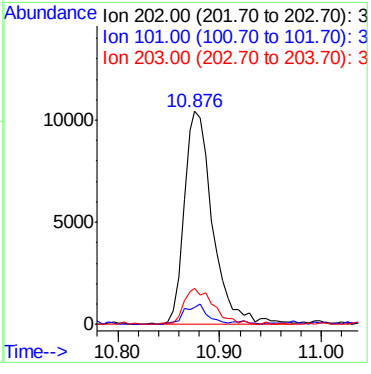


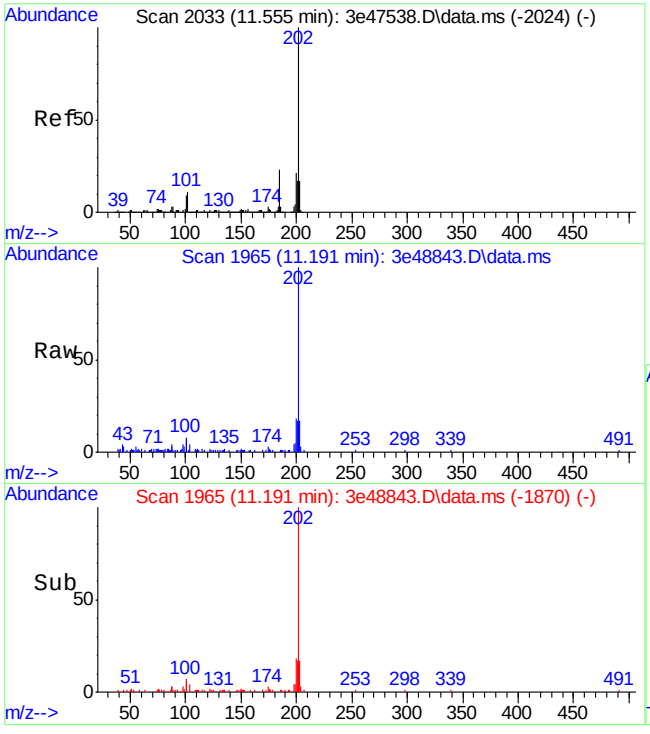


#81
Fluoranthene
Concen: 1.43 ppb
RT: 10.876 min Scan# 1906
Delta R.T. 0.005 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:202 Resp: 20357

Ion	Ratio	Lower	Upper
202	100		
101	7.4	0.0	39.1
203	17.0	0.0	47.3

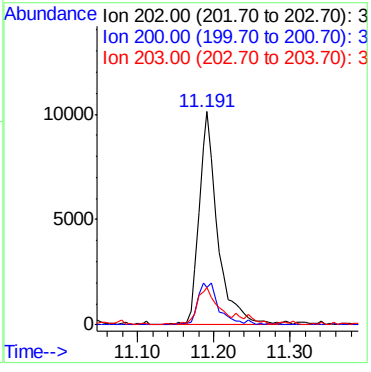


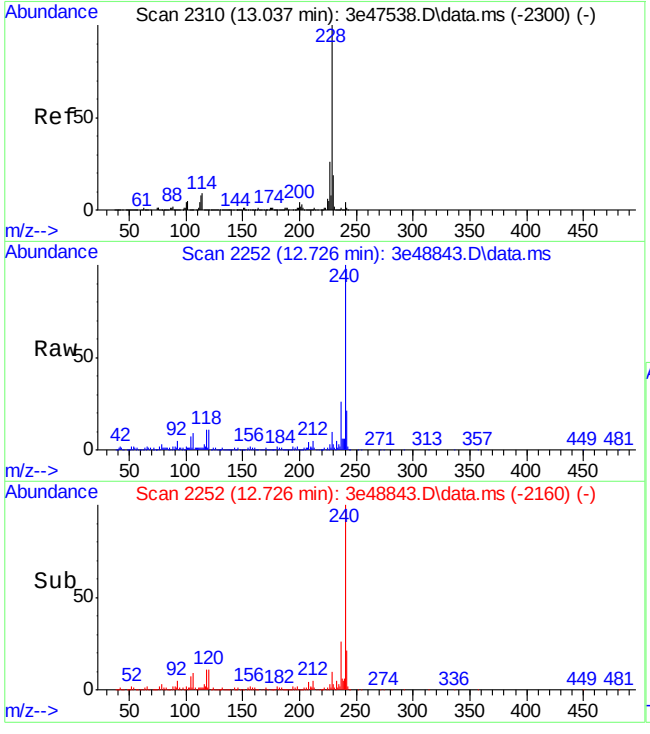


#84
Pyrene
Concen: 1.09 ppb
RT: 11.191 min Scan# 1965
Delta R.T. 0.011 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:202 Resp: 16924

Ion	Ratio	Lower	Upper
202	100		
200	17.7	0.0	50.6
203	16.5	0.0	47.2

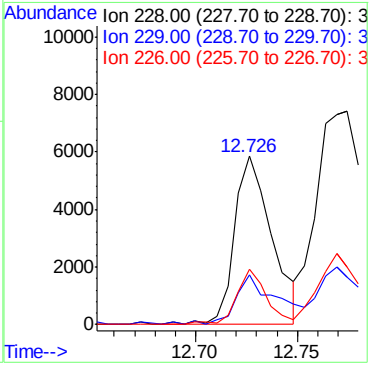




#88
Benzo[a]anthracene
Concen: 0.52 ppb
RT: 12.726 min Scan# 2252
Delta R.T. -0.005 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

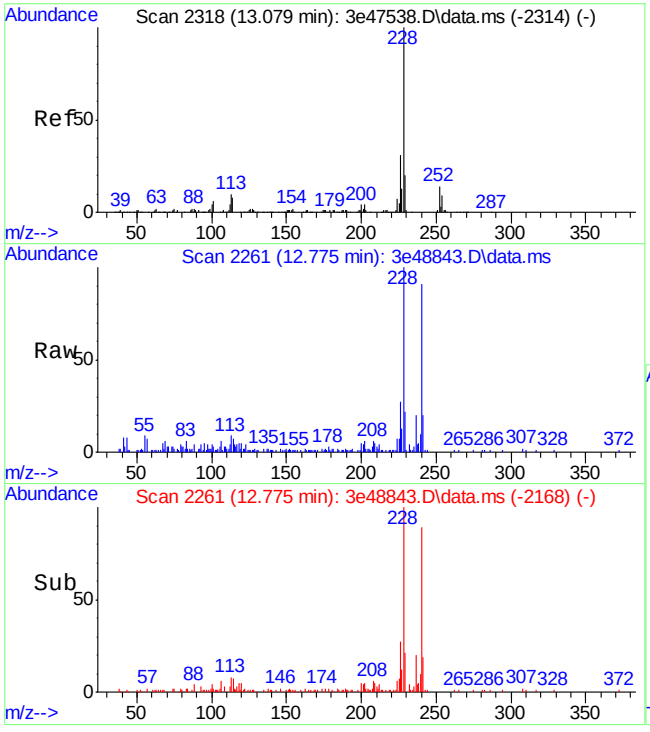
Tgt Ion:228 Resp: 7522

Ion	Ratio	Lower	Upper
228	100		
229	27.0	0.0	49.3
226	36.1	0.0	55.8



9.1.25

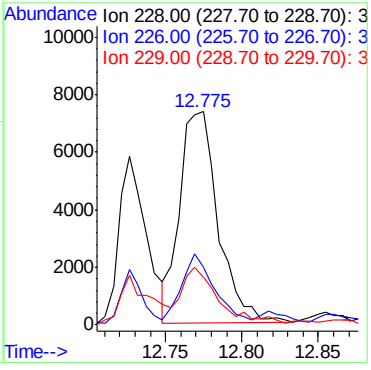
9

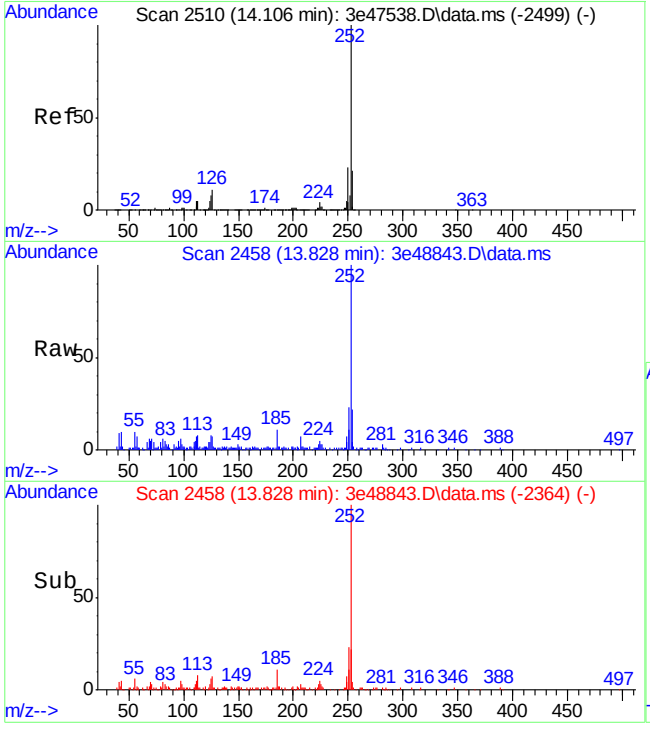


#90
Chrysene
Concen: 0.99 ppb
RT: 12.775 min Scan# 2261
Delta R.T. -0.000 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:228 Resp: 12996

Ion	Ratio	Lower	Upper
228	100		
226	27.0	0.6	60.6
229	18.6	0.0	50.3

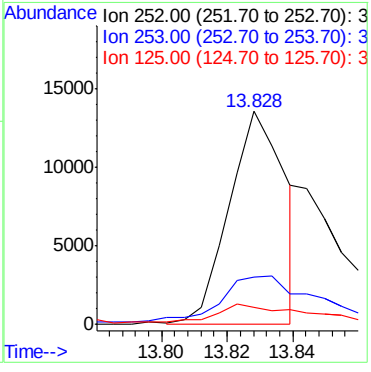


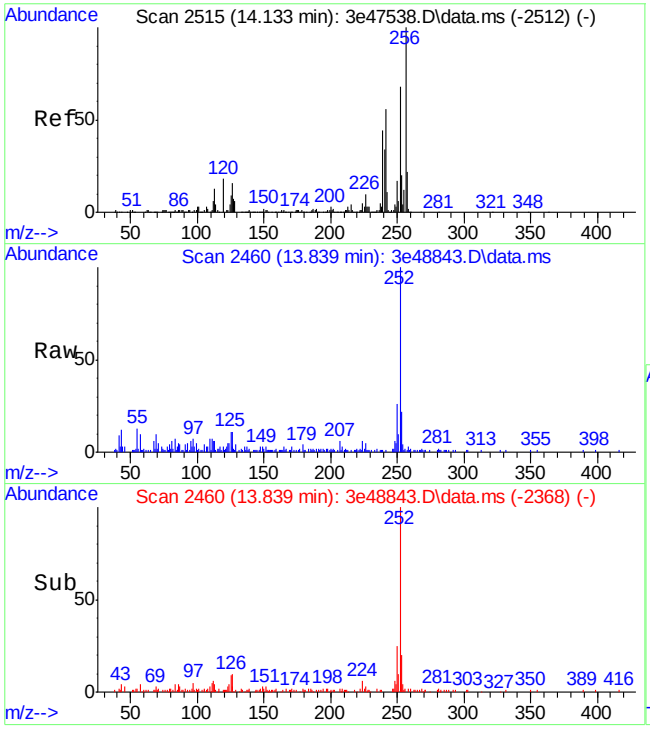


#94
Benzo[b]fluoranthene
Concen: 1.06 ppb m
RT: 13.828 min Scan# 2458
Delta R.T. 0.005 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:252 Resp: 16021

Ion	Ratio	Lower	Upper
252	100		
253	22.2	0.0	51.0
125	7.9	0.0	38.1

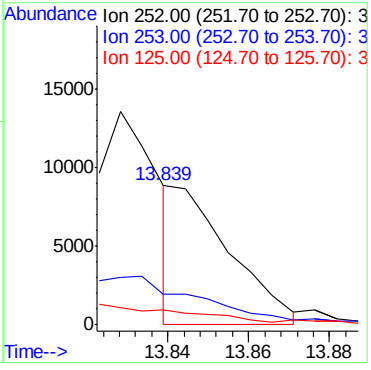


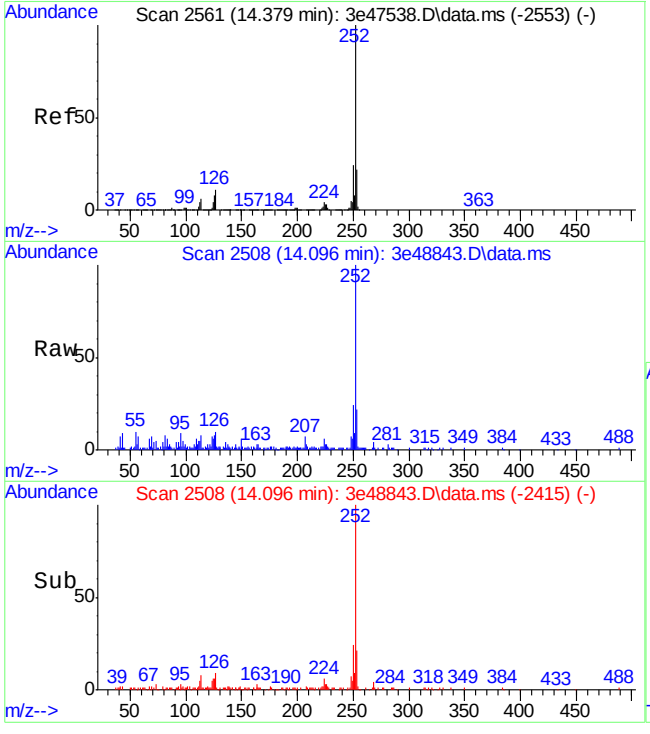


#95
Benzo[k]fluoranthene
Concen: 0.61 ppb m
RT: 13.839 min Scan# 2460
Delta R.T. -0.005 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:252 Resp: 8365

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	56.2
125	11.0	0.0	41.2

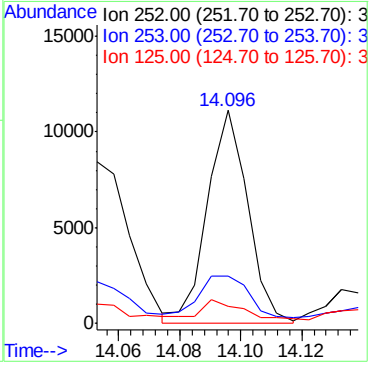




#96
Benzo[a]pyrene
Concen: 0.76 ppb
RT: 14.096 min Scan# 2508
Delta R.T. -0.000 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

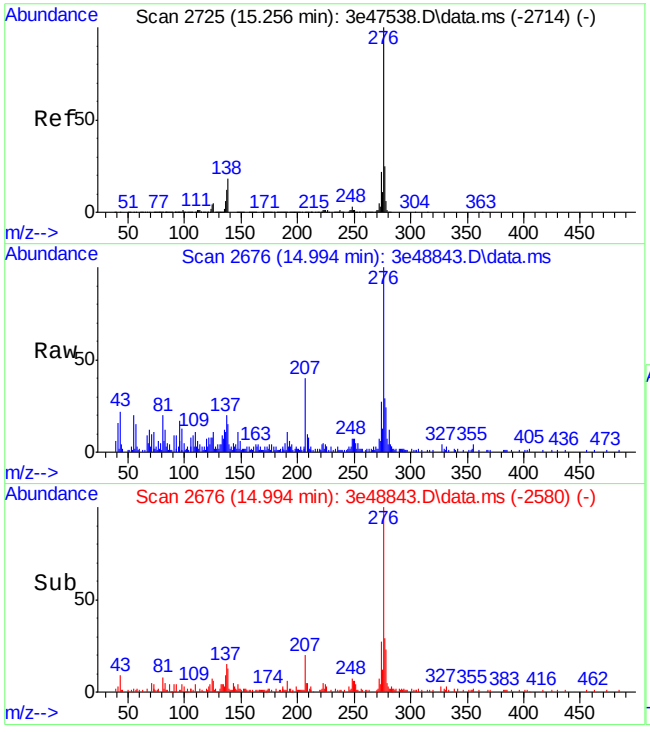
Tgt Ion:252 Resp: 10271

Ion	Ratio	Lower	Upper
252	100		
253	19.1	0.0	52.0
125	5.7	0.0	38.1



9.1.25

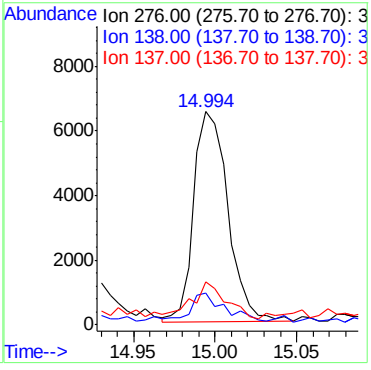
9

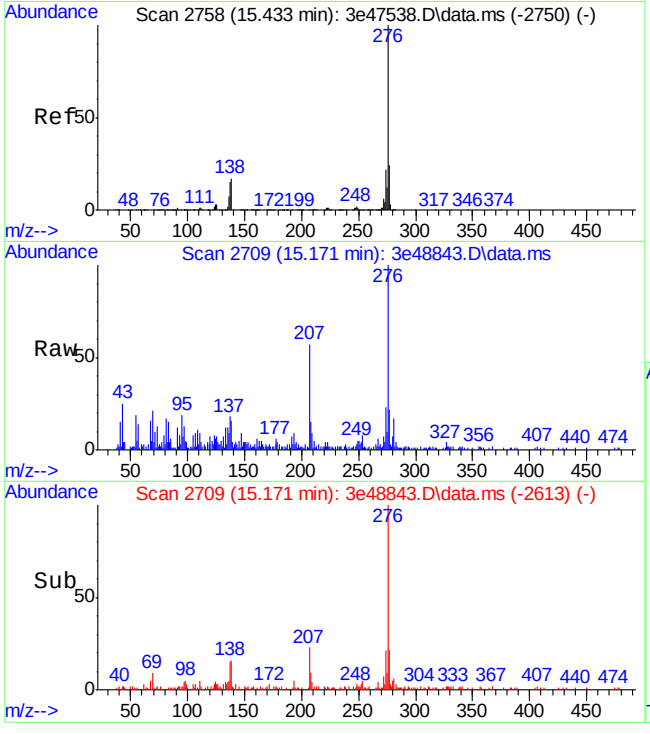


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.61 ppb
RT: 14.994 min Scan# 2676
Delta R.T. 0.016 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:276 Resp: 9588

Ion	Ratio	Lower	Upper
276	100		
138	12.7	0.0	47.7
137	15.2	0.0	42.0

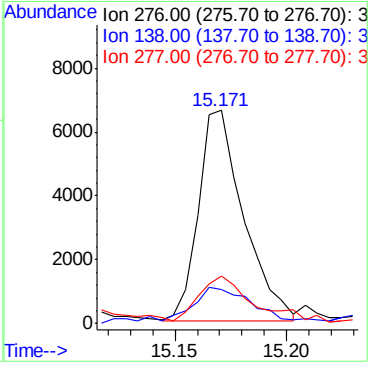




#101
Benzo[g,h,i]perylene
Concen: 0.72 ppb m
RT: 15.171 min Scan# 2709
Delta R.T. 0.016 min
Lab File: 3e48843.D
Acq: 26 Mar 2013 4:06 pm

Tgt Ion:276 Resp: 9315

Ion	Ratio	Lower	Upper
276	100		
138	15.7	0.0	47.2
277	22.3	0.0	53.7



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/27/13 11:43

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48844.D
Acq On : 26 Mar 2013 4:29 pm
Operator : olgaa
Sample : jb31121-20
Misc : op64464,e3e2111,32.7
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 26 17:08:18 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	99386	40.00	ppb	-0.01
24) Naphthalene-d8	4.169	136	429605	40.00	ppb	0.00
47) Acenaphthene-d10	6.768	164	279837	40.00	ppb	0.00
69) Phenanthrene-d10	9.009	188	485303	40.00	ppb	0.02
83) Chrysene-d12	12.743	240	499736	40.00	ppb	0.00
92) Perylene-d12	14.139	264	482926	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	99386	40.00	ppb	-0.01
104) Acenaphthene-d10a	6.768	164	279837	40.00	ppb	0.00
106) Phenanthrene-d10a	9.009	188	485303	40.00	ppb	0.02
108) Chrysene-d12a	12.743	240	499736	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	1.601	112	57308	17.03	ppb	0.02
Spiked Amount 50.000			Recovery	=	34.06%	
8) Phenol-d5	2.425	99	69843	16.54	ppb	0.02
Spiked Amount 50.000			Recovery	=	33.08%	
25) Nitrobenzene-d5	3.302	82	99557	25.48	ppb	0.00
Spiked Amount 50.000			Recovery	=	50.96%	
51) 2-Fluorobiphenyl	5.832	172	200504	22.08	ppb	0.00
Spiked Amount 50.000			Recovery	=	44.16%	
73) 2,4,6-Tribromophenol	8.030	330	36103	25.67	ppb	0.02
Spiked Amount 50.000			Recovery	=	51.34%	
85) Terphenyl-d14	11.550	244	268315	24.54	ppb	0.00
Spiked Amount 50.000			Recovery	=	49.08%	
Target Compounds						Qvalue
59) Acenaphthene	6.811	153	41178	4.86	ppb	94
66) Fluorene	7.597	166	83253	8.81	ppb	94
77) Phenanthrene	9.041	178	155811	10.99	ppb	98
78) Anthracene	9.111	178	23392	1.66	ppb	76
84) Pyrene	11.192	202	11003m	0.69	ppb	

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

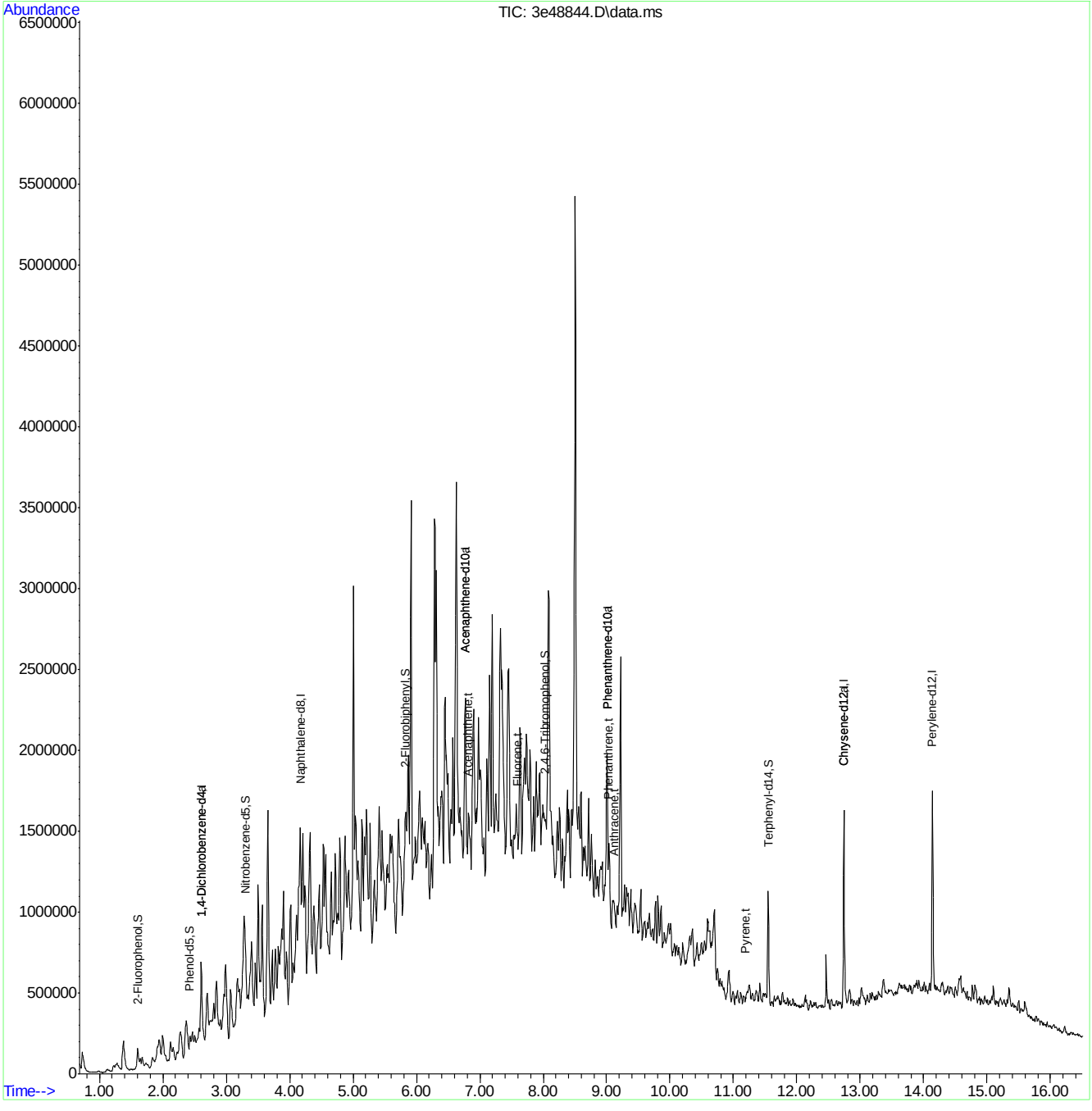
9.1.26

9

Quantitation Report (QT Reviewed)

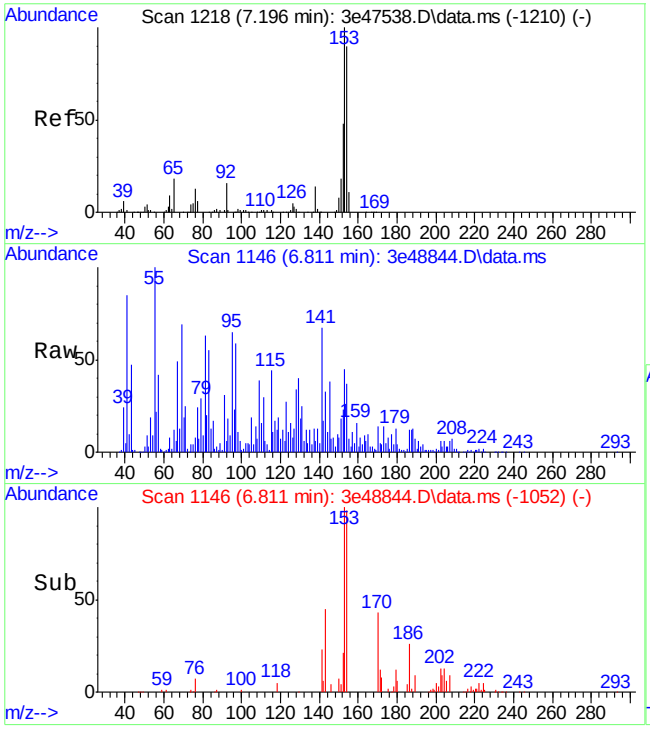
Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48844.D
Acq On : 26 Mar 2013 4:29 pm
Operator : olgaa
Sample : jb31121-20
Misc : op64464,e3e2111,32.7
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 26 17:08:18 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



M3E2061.M Tue Mar 26 17:08:24 2013 MS3E

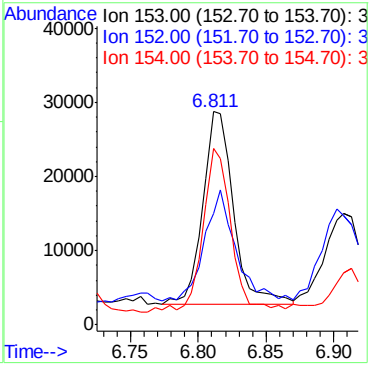
Page: 2

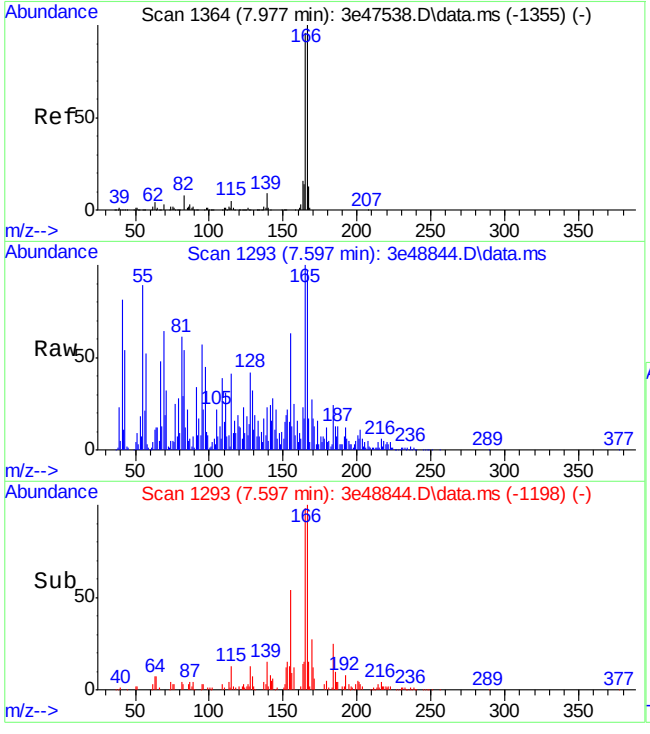


#59
Acenaphthene
Concen: 4.86 ppb
RT: 6.811 min Scan# 1146
Delta R.T. 0.005 min
Lab File: 3e48844.D
Acq: 26 Mar 2013 4:29 pm

Tgt Ion:153 Resp: 41178

Ion	Ratio	Lower	Upper
153	100		
152	45.2	17.8	77.8
154	83.4	60.3	120.3

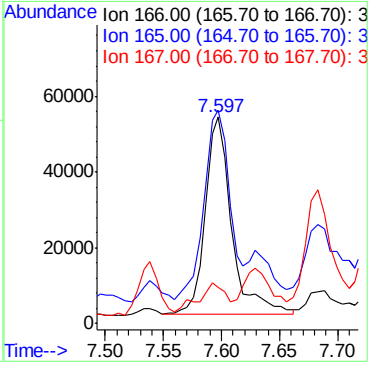




#66
Fluorene
Concen: 8.81 ppb
RT: 7.597 min Scan# 1293
Delta R.T. 0.011 min
Lab File: 3e48844.D
Acq: 26 Mar 2013 4:29 pm

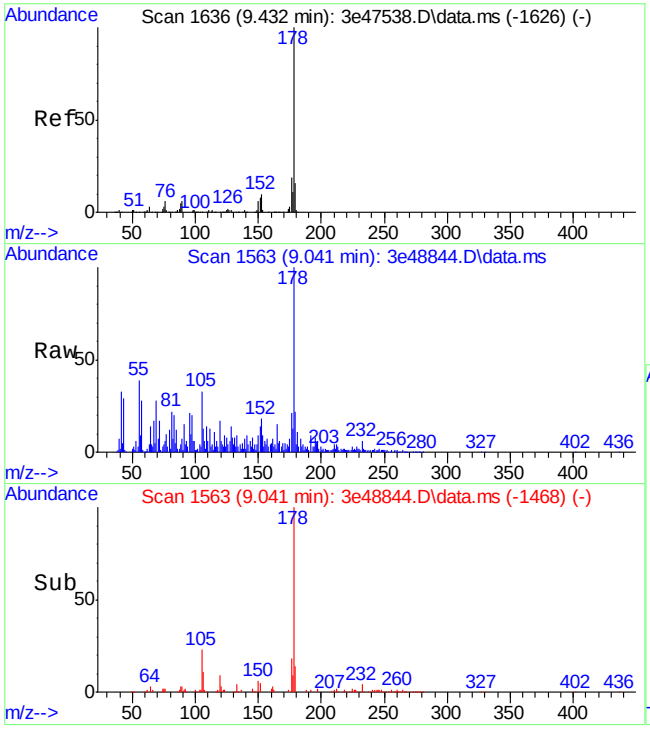
Tgt Ion:166 Resp: 83253

Ion	Ratio	Lower	Upper
166	100		
165	92.1	65.7	125.7
167	4.9	0.0	43.4



9.1.26

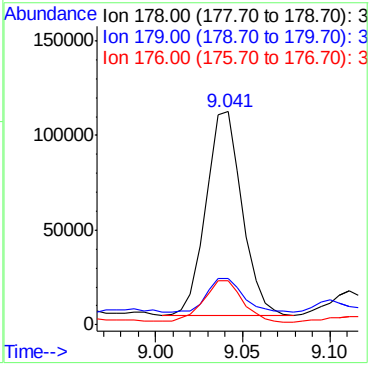
9

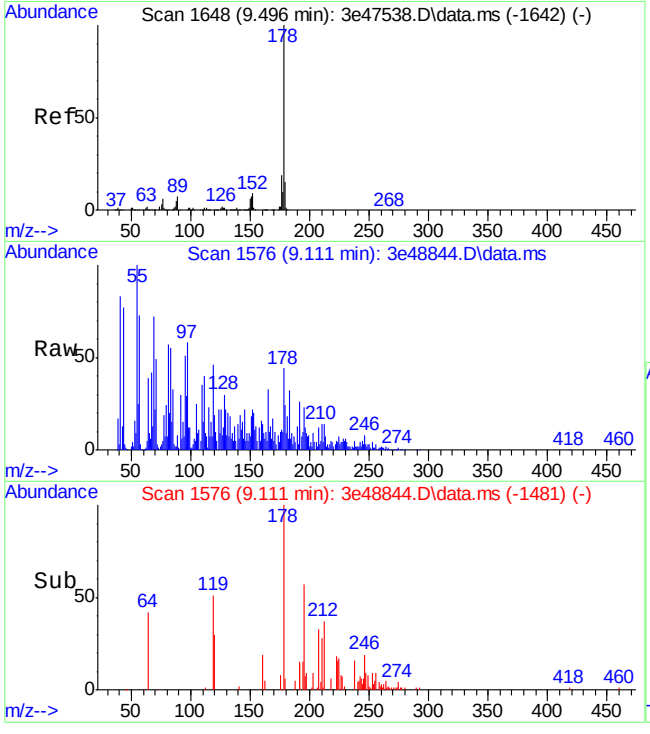


#77
Phenanthrene
Concen: 10.99 ppb
RT: 9.041 min Scan# 1563
Delta R.T. 0.011 min
Lab File: 3e48844.D
Acq: 26 Mar 2013 4:29 pm

Tgt Ion:178 Resp: 155811

Ion	Ratio	Lower	Upper
178	100		
179	16.7	0.0	45.7
176	20.1	0.0	49.5

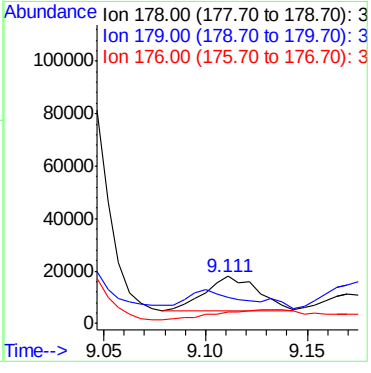




#78
Anthracene
Concen: 1.66 ppb
RT: 9.111 min Scan# 1576
Delta R.T. 0.011 min
Lab File: 3e48844.D
Acq: 26 Mar 2013 4:29 pm

Tgt Ion:178 Resp: 23392

Ion	Ratio	Lower	Upper
178	100		
179	28.0	0.0	45.1
176	10.4	0.0	48.6



9.1.26

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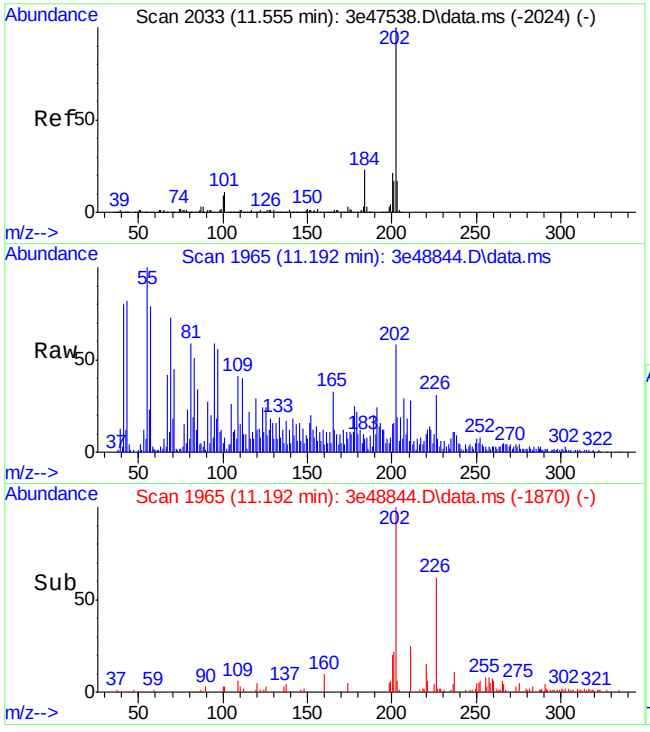
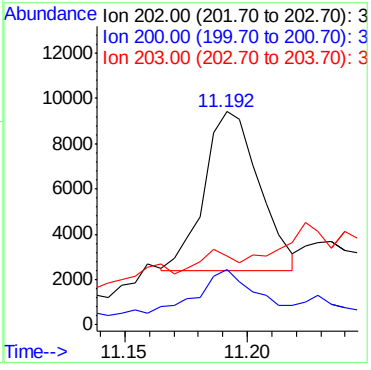


#84
Pyrene
Concen: 0.69 ppb m
RT: 11.192 min Scan# 1965
Delta R.T. 0.011 min
Lab File: 3e48844.D
Acq: 26 Mar 2013 4:29 pm

Tgt Ion:202 Resp: 11003

Ion	Ratio	Lower	Upper
202	100		
200	25.9	0.0	50.6
203	32.3	0.0	47.2



9.1.26

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 04/05/13 10:17

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21552.D
Acq On : 26 Mar 2013 11:38 pm
Operator : ashleyd
Sample : jb31121-21
Misc : op64463,e2p947,35.5
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 28 15:51:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

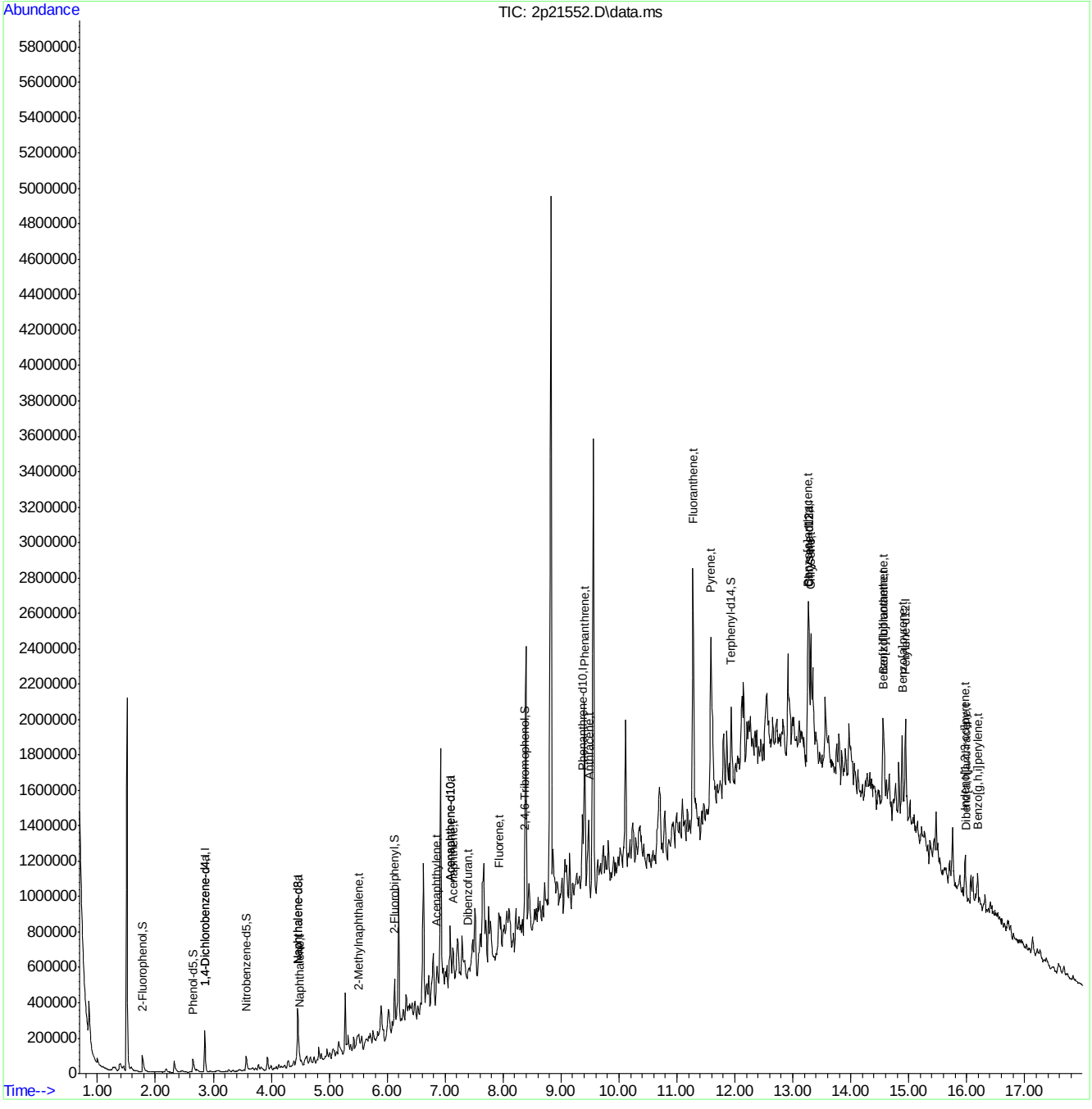
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	2.853	152	50245	40.00	ppb	0.04
24) Naphthalene-d8	4.458	136	195145	40.00	ppb	0.08
47) Acenaphthene-d10	7.089	164	112974	40.00	ppb	0.00
69) Phenanthrene-d10	9.368	188	187735	40.00	ppb	0.03
83) Chrysene-d12	13.283	240	206899	40.00	ppb	0.08
92) Perylene-d12	14.946	264	189677	40.00	ppb	0.10
102) 1,4-Dichlorobenzene-d4a	2.853	152	50245	40.00	ppb	0.04
104) Acenaphthene-d10a	7.089	164	112974	40.00	ppb	0.00
107) Chrysene-d12a	13.283	240	206899	40.00	ppb	0.08
109) Naphthalene-d8a	4.458	136	195145	40.00	ppb	# 0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.778	112	47451	26.38	ppb	0.09
Spiked Amount 50.000	Range 11 - 58		Recovery = 52.76%			
8) Phenol-d5	2.650	99	62179	27.87	ppb	0.08
Spiked Amount 50.000	Range 10 - 59		Recovery = 55.74%			
25) Nitrobenzene-d5	3.570	82	49328	27.48	ppb	0.04
Spiked Amount 50.000	Range 19 - 61		Recovery = 54.96%			
51) 2-Fluorobiphenyl	6.132	172	118145	32.70	ppb	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 65.40%#			
73) 2,4,6-Tribromophenol	8.373	330	16063	38.28	ppb	0.04
Spiked Amount 50.000	Range 12 - 68		Recovery = 76.56%#			
85) Terphenyl-d14	11.935	244	153504	35.22	ppb	0.05
Spiked Amount 50.000	Range 16 - 65		Recovery = 70.44%#			
Target Compounds						Qvalue
38) Naphthalene	4.484	128	12423	2.38	ppb	98
44) 2-Methylnaphthalene	5.506	141	7397m	2.48	ppb	
56) Acenaphthylene	6.854	152	15668	3.00	ppb	85
59) Acenaphthene	7.137	153	45271	14.10	ppb	99
62) Dibenzofuran	7.399	168	39806	8.69	ppb	92
66) Fluorene	7.929	166	89058	24.00	ppb	99
77) Phenanthrene	9.411	178	604641	106.91	ppb	98
78) Anthracene	9.480	178	222116	39.70	ppb	93
81) Fluoranthene	11.277	202	622802	107.29	ppb	93
84) Pyrene	11.587	202	492731	69.89	ppb	99
88) Benzo[a]anthracene	13.262	228	308856	50.08	ppb	95
90) Chrysene	13.310	228	296921	50.56	ppb	99
94) Benzo[b]fluoranthene	14.556	252	240680m	37.21	ppb	
95) Benzo[k]fluoranthene	14.567	252	112689m	19.94	ppb	
96) Benzo[a]pyrene	14.888	252	191848	34.15	ppb	92
97) Indeno[1,2,3-cd]pyrene	15.973	276	98765	15.16	ppb	82
99) Dibenz[a,h]anthracene	15.984	278	51918	9.56	ppb	92
101) Benzo[g,h,i]perylene	16.187	276	79922	14.44	ppb	88

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

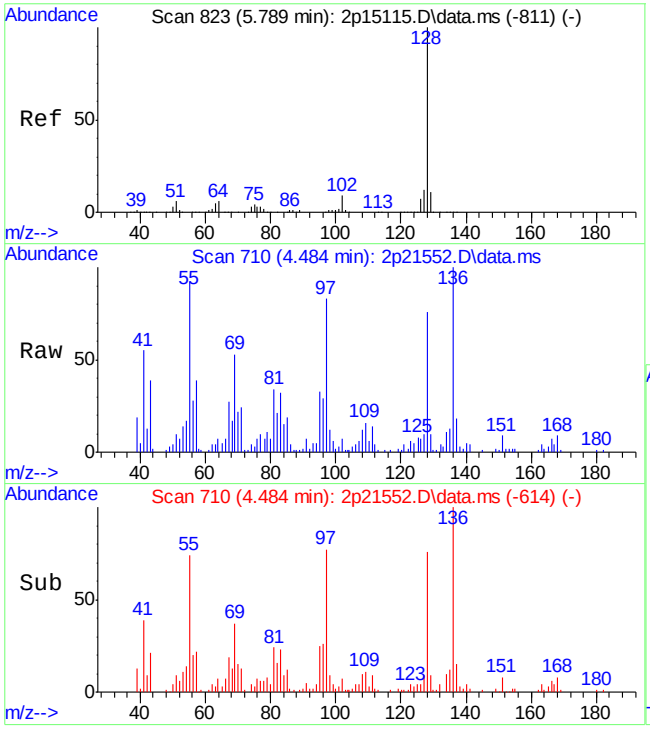
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21552.D
Acq On : 26 Mar 2013 11:38 pm
Operator : ashleyd
Sample : jb31121-21
Misc : op64463,e2p947,35.5
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 28 15:51:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration



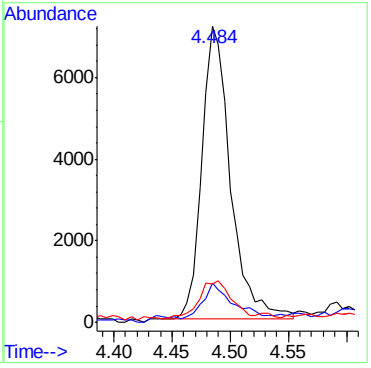
M2P896.M Thu Mar 28 15:51:49 2013 RPT1 Page: 2

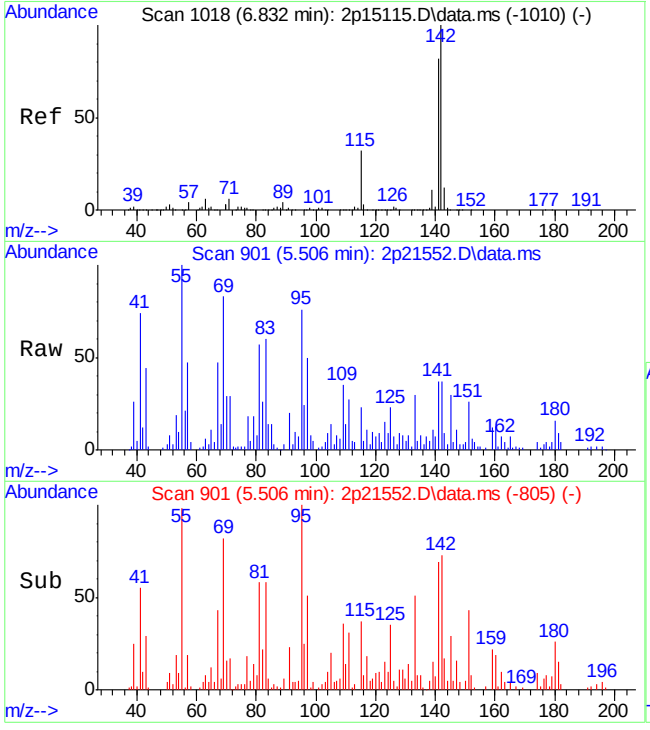


#38
Naphthalene
Concen: 2.38 ppb
RT: 4.484 min Scan# 710
Delta R.T. 0.015 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:128 Resp: 12423

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	41.0
127	11.6	0.0	43.0

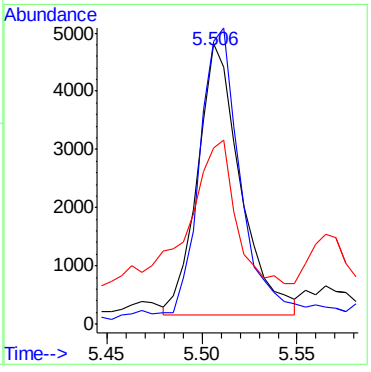


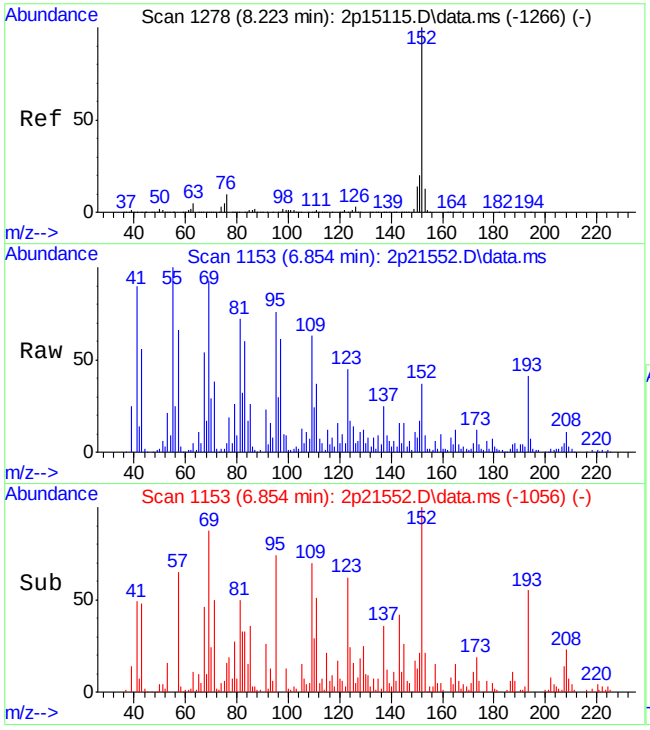


#44
2-Methylnaphthalene
Concen: 2.48 ppb m
RT: 5.506 min Scan# 901
Delta R.T. 0.015 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:141 Resp: 7397

Ion	Ratio	Lower	Upper
141	100		
142	100.9	88.4	148.4
115	63.0	14.8	74.8

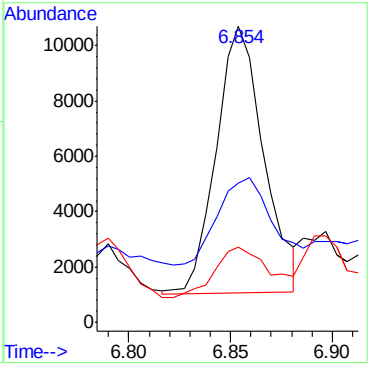


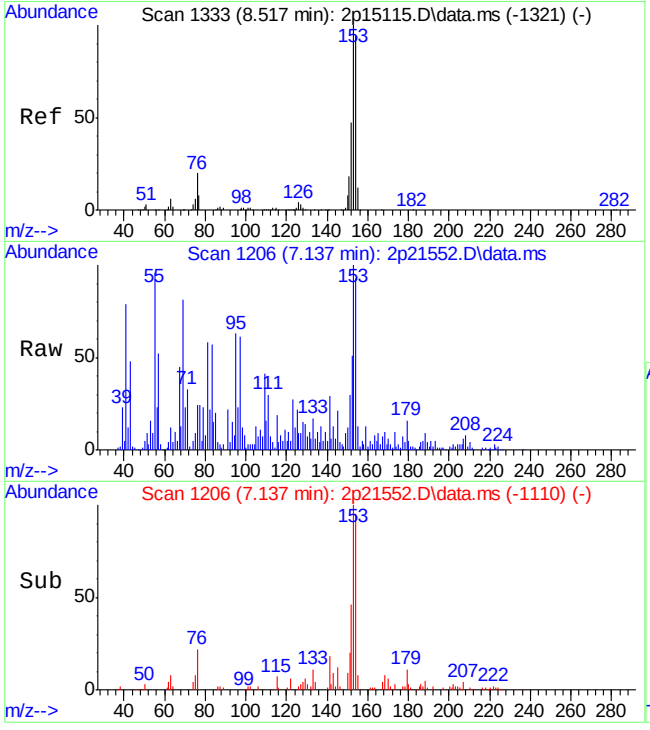


#56
Acenaphthylene
Concen: 3.00 ppb
RT: 6.854 min Scan# 1153
Delta R.T. 0.021 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:152 Resp: 15668

Ion	Ratio	Lower	Upper
152	100		
151	28.6	0.0	49.9
153	16.4	0.0	43.1

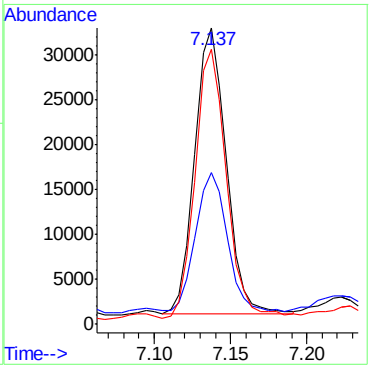




#59
Acenaphthene
Concen: 14.10 ppb
RT: 7.137 min Scan# 1206
Delta R.T. 0.015 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:153 Resp: 45271

Ion	Ratio	Lower	Upper
153	100		
152	48.2	17.8	77.8
154	93.7	65.2	125.2



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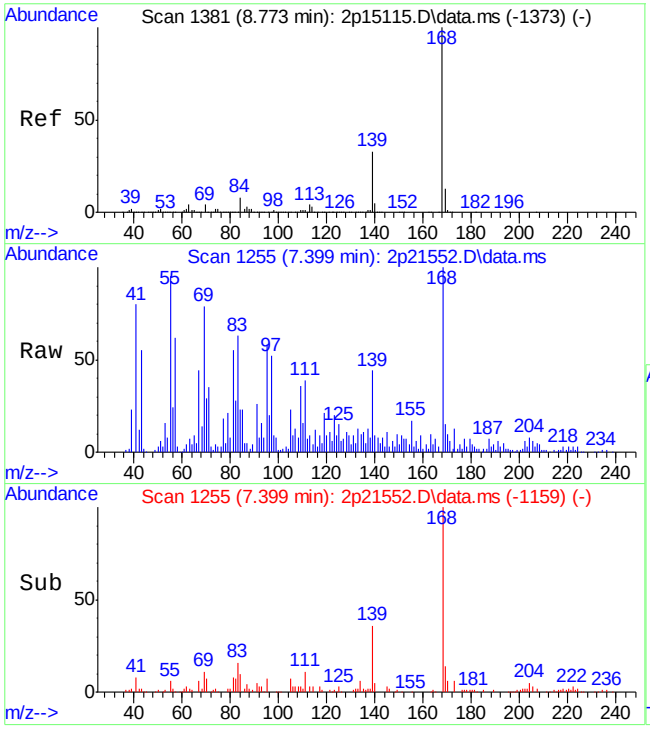
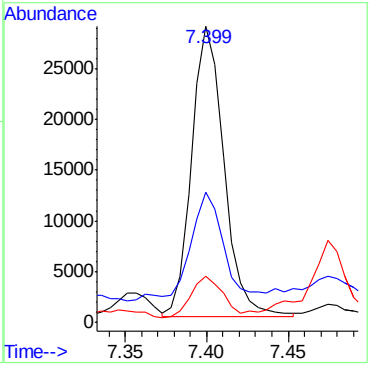
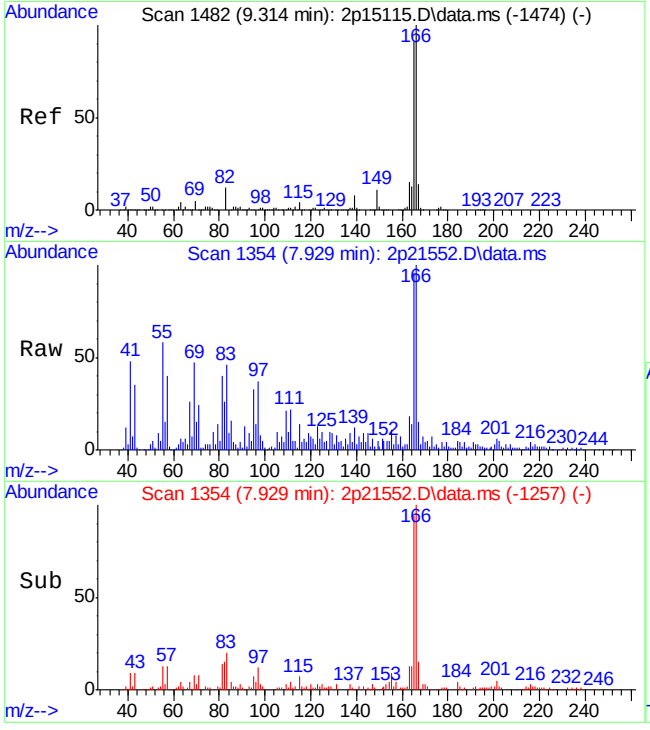


#62
Dibenzofuran
Concen: 8.69 ppb
RT: 7.399 min Scan# 1255
Delta R.T. 0.015 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:168 Resp: 39806

Ion	Ratio	Lower	Upper
168	100		
139	34.7	10.3	70.3
169	11.6	0.0	43.7

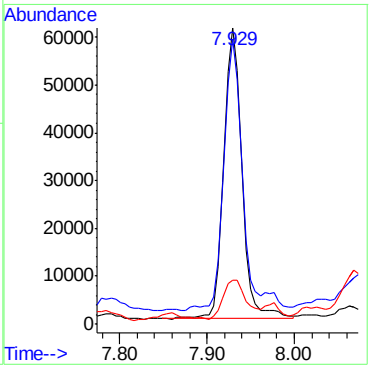




#66
Fluorene
Concen: 24.00 ppb
RT: 7.929 min Scan# 1354
Delta R.T. 0.021 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:166 Resp: 89058

Ion	Ratio	Lower	Upper
166	100		
165	93.0	62.5	122.5
167	11.9	0.0	42.9



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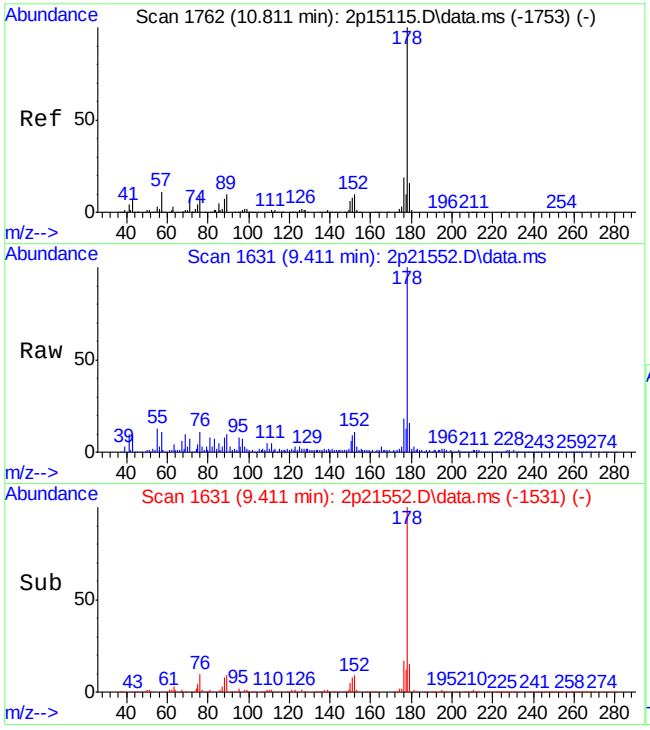
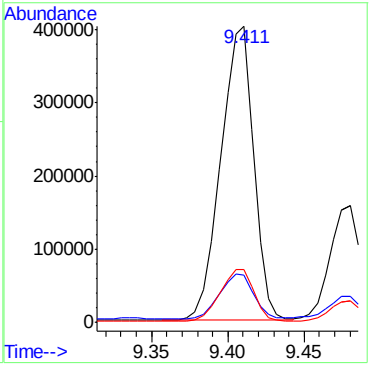
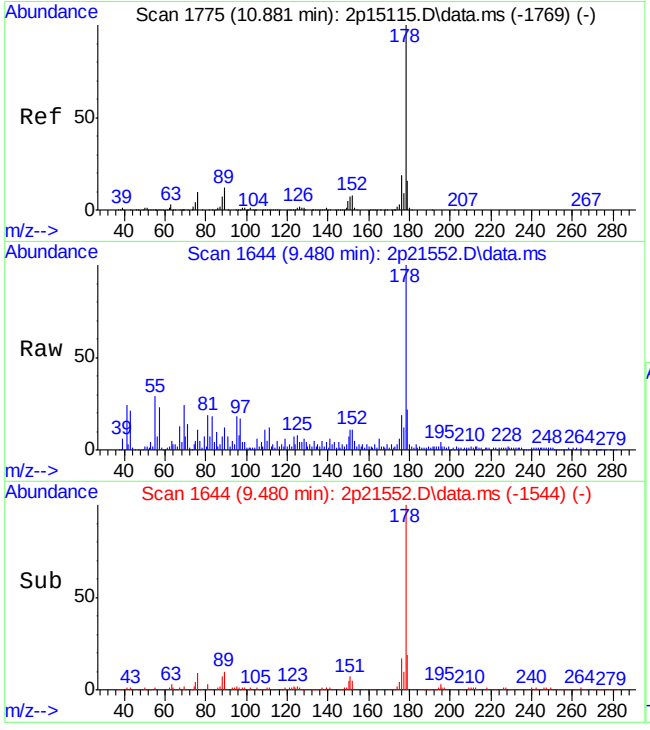


#77
Phenanthrene
Concen: 106.91 ppb
RT: 9.411 min Scan# 1631
Delta R.T. 0.037 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:178 Resp: 604641

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	44.4
176	17.6	0.0	48.6

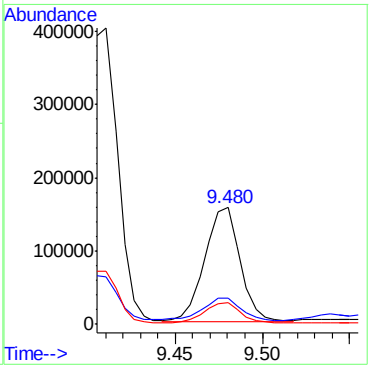




#78
Anthracene
Concen: 39.70 ppb
RT: 9.480 min Scan# 1644
Delta R.T. 0.037 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:178 Resp: 222116

Ion	Ratio	Lower	Upper
178	100		
179	19.0	0.0	44.5
176	18.0	0.0	46.5



9.1.27

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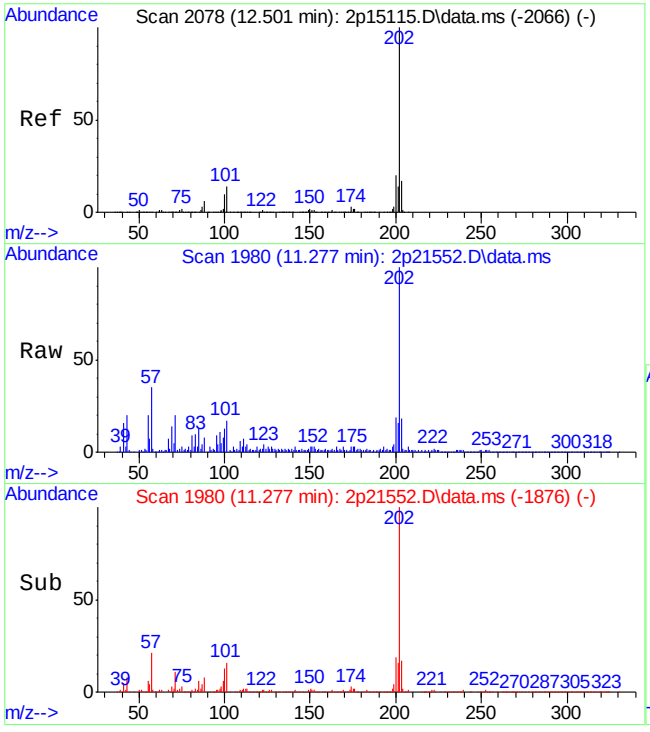
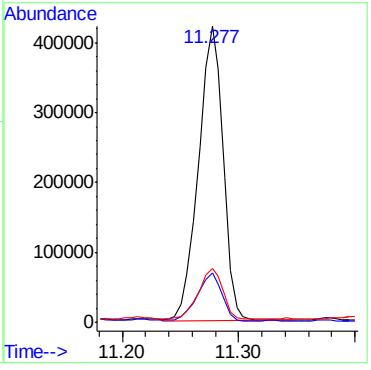
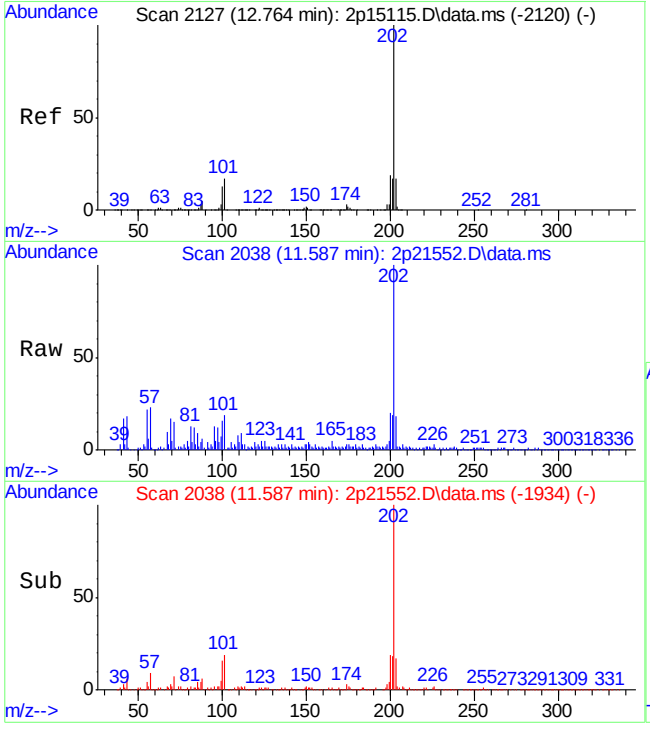


#81
Fluoranthene
Concen: 107.29 ppb
RT: 11.277 min Scan# 1980
Delta R.T. 0.058 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:202 Resp: 622802

Ion	Ratio	Lower	Upper
202	100		
101	16.7	0.0	41.3
203	18.0	0.0	49.1

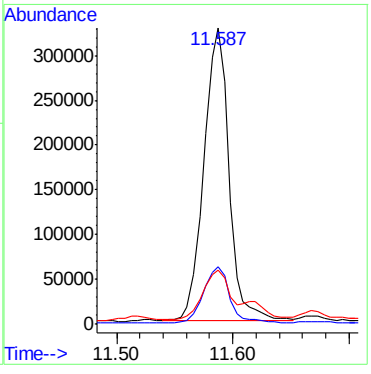




#84
Pyrene
Concen: 69.89 ppb
RT: 11.587 min Scan# 2038
Delta R.T. 0.058 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:202 Resp: 492731

Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	49.6
203	16.5	0.0	46.9



9.1.27

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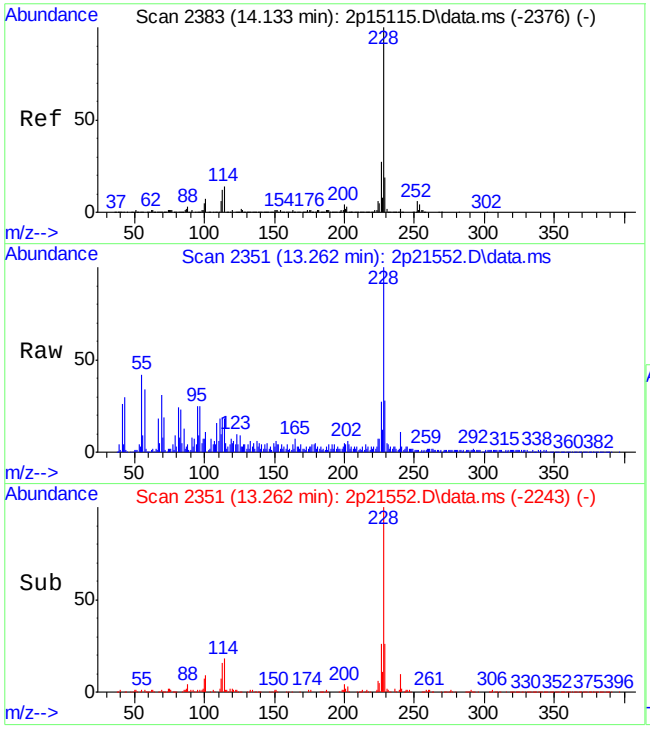
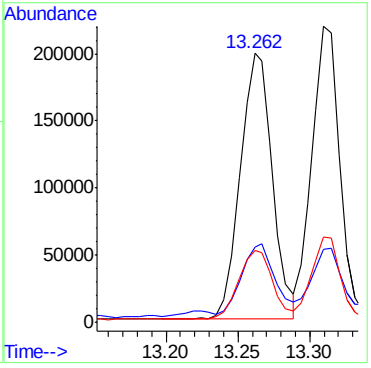
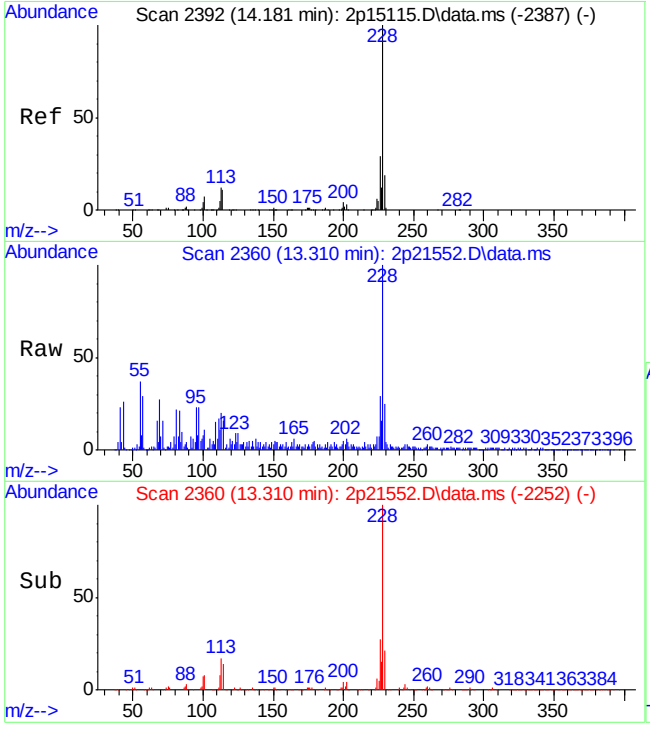


#88
Benzo[a]anthracene
Concen: 50.08 ppb
RT: 13.262 min Scan# 2351
Delta R.T. 0.079 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:228 Resp: 308856

Ion	Ratio	Lower	Upper
228	100		
229	24.6	0.0	50.7
226	25.6	0.0	56.7

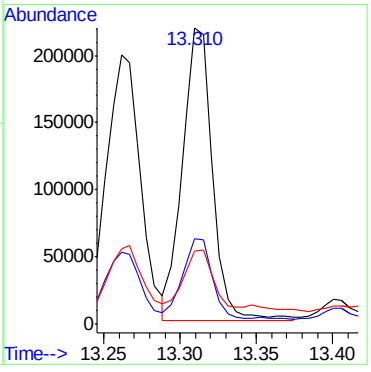




#90
Chrysene
Concen: 50.56 ppb
RT: 13.310 min Scan# 2360
Delta R.T. 0.079 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:228 Resp: 296921

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	58.4
229	19.9	0.0	50.1



9.1.27

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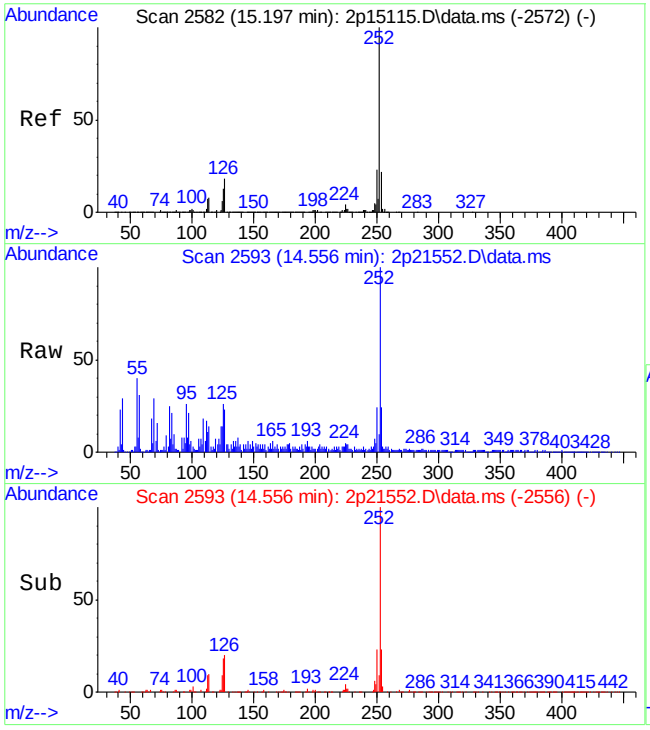
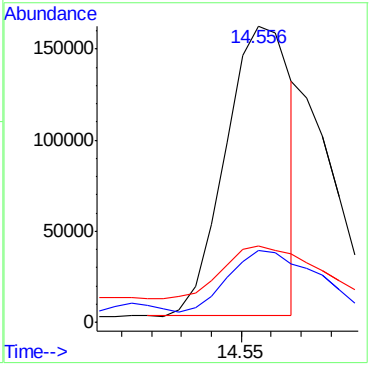
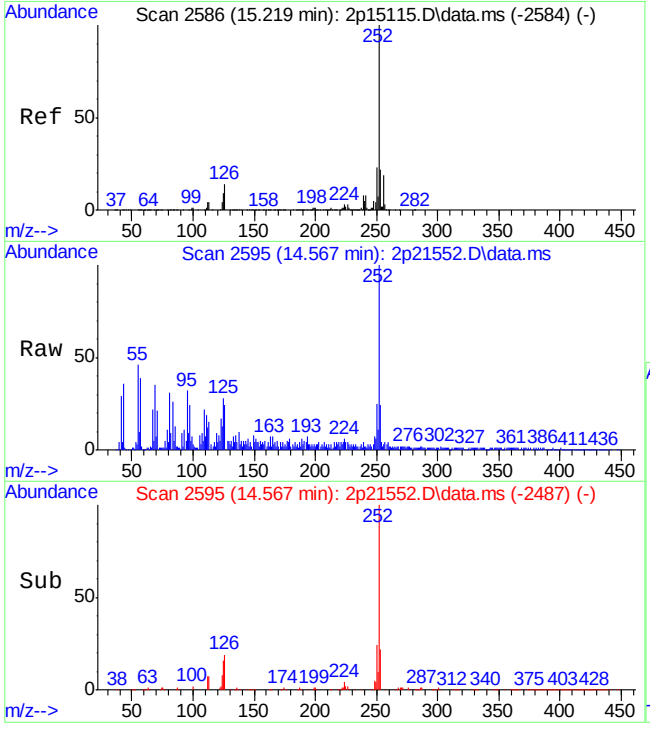


#94
Benzo[b]fluoranthene
Concen: 37.21 ppb m
RT: 14.556 min Scan# 2593
Delta R.T. 0.095 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:252 Resp: 240680

Ion	Ratio	Lower	Upper
252	100		
253	24.3	0.0	51.1
125	25.9	0.0	40.8

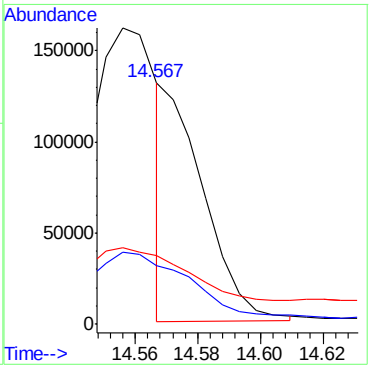




#95
Benzo[k]fluoranthene
Concen: 19.94 ppb m
RT: 14.567 min Scan# 2595
Delta R.T. 0.079 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:252 Resp: 112689

Ion	Ratio	Lower	Upper
252	100		
253	24.4	0.0	56.1
125	28.3	0.0	45.7



9.1.27

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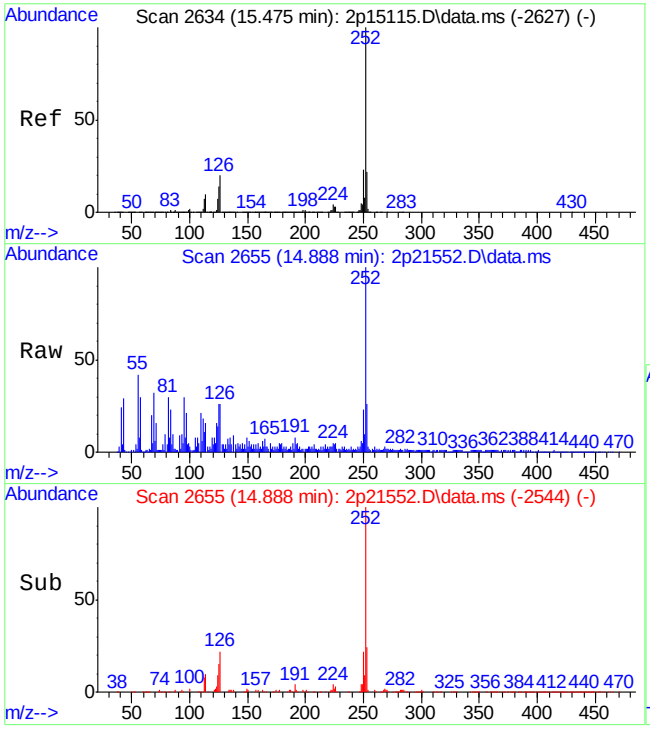
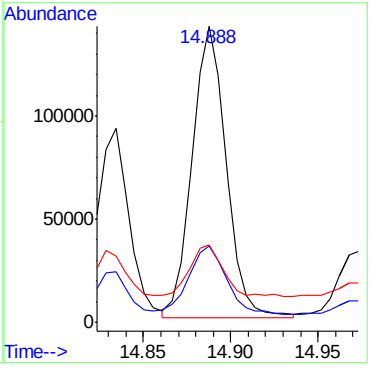
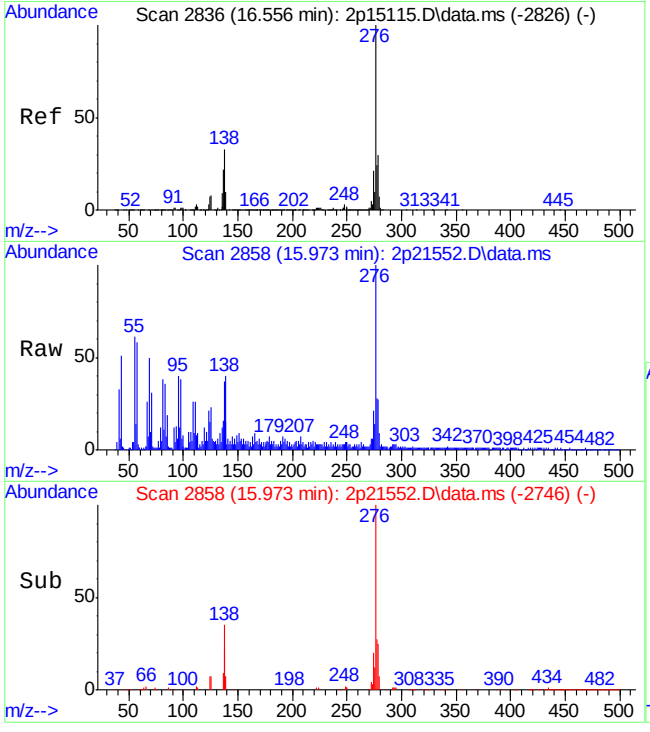


#96
Benzo[a]pyrene
Concen: 34.15 ppb
RT: 14.888 min Scan# 2655
Delta R.T. 0.096 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:252 Resp: 191848

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	51.5
125	17.8	0.0	41.1

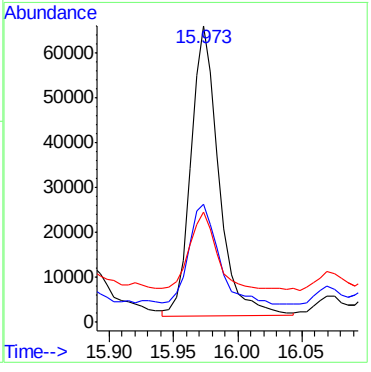




#97
Indeno[1,2,3-cd]pyrene
Concen: 15.16 ppb
RT: 15.973 min Scan# 2858
Delta R.T. 0.101 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:276 Resp: 98765

Ion	Ratio	Lower	Upper
276	100		
138	34.5	0.0	54.7
137	26.5	0.0	49.5



9.1.27

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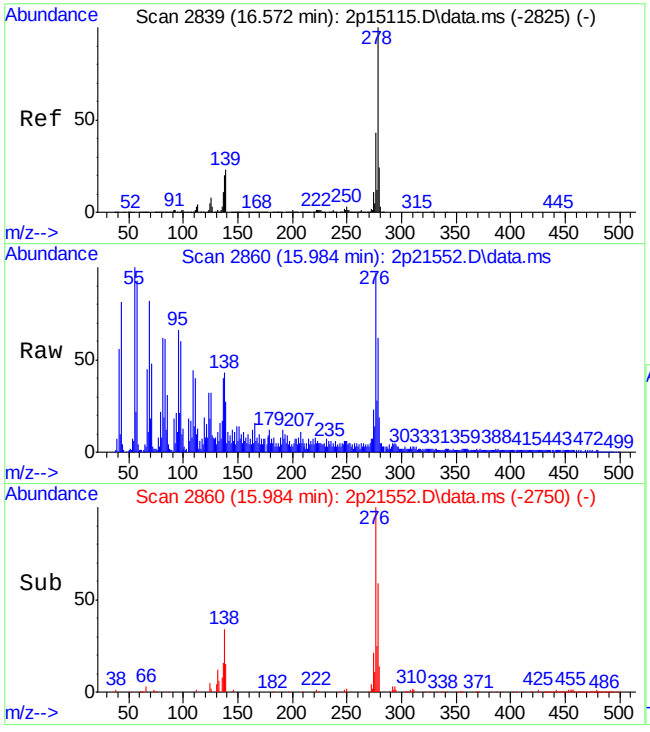
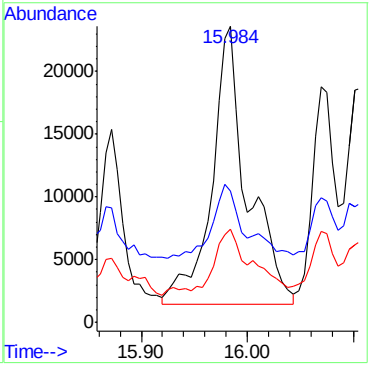
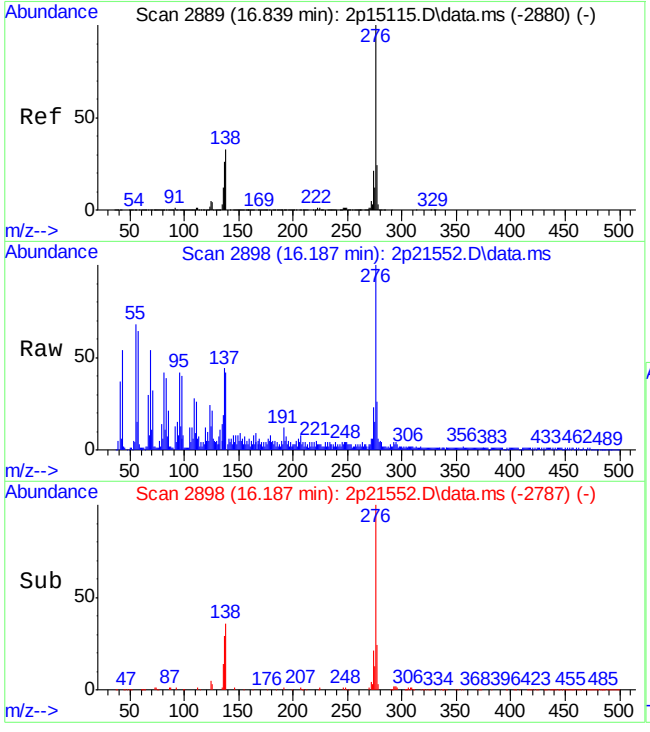


#99
Dibenz[a,h]anthracene
Concen: 9.56 ppb
RT: 15.984 min Scan# 2860
Delta R.T. 0.090 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:278 Resp: 51918

Ion	Ratio	Lower	Upper
278	100		
139	24.0	0.0	49.9
279	22.8	0.0	56.4

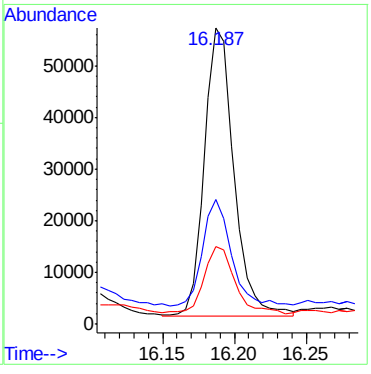




#101
Benzo[g,h,i]perylene
Concen: 14.44 ppb
RT: 16.187 min Scan# 2898
Delta R.T. 0.096 min
Lab File: 2p21552.D
Acq: 26 Mar 2013 11:38 pm

Tgt Ion:276 Resp: 79922

Ion	Ratio	Lower	Upper
276	100		
138	36.7	0.0	55.6
277	23.2	0.0	53.3



9.1.27

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 04/05/13 10:17

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p963\
Data File : 2p21883.D
Acq On : 4 Apr 2013 5:17 pm
Operator : andrews1
Sample : jb31121-21
Misc : op64463,e2p963,35.5,,,1,2
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Apr 05 08:15:52 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P954.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Apr 01 12:00:01 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.927	152	66829	40.00	ppb	-0.03
24) Naphthalene-d8	6.821	136	259781	40.00	ppb	-0.03
47) Acenaphthene-d10	9.559	164	139989	40.00	ppb	-0.03
69) Phenanthrene-d10	11.843	188	226236	40.00	ppb	-0.02
83) Chrysene-d12	16.475	240	229729	40.00	ppb	0.00
92) Perylene-d12	19.310	264	211939	40.00	ppb	0.00
102) 1,4-Dichlorobenzene-d4a	4.927	152	66829	40.00	ppb	-0.03
104) Acenaphthene-d10a	9.559	164	139989	40.00	ppb	-0.03
107) Chrysene-d12a	16.475	240	229729	40.00	ppb	0.00
109) Naphthalene-d8a	6.821	136	259781	40.00	ppb	#-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	3.285	112	31433	14.94	ppb	0.01
Spiked Amount 50.000	Range 11 - 58		Recovery = 29.88%			
8) Phenol-d5	4.649	99	41359	15.91	ppb	0.00
Spiked Amount 50.000	Range 10 - 59		Recovery = 31.82%			
25) Nitrobenzene-d5	5.799	82	33340	15.85	ppb	-0.03
Spiked Amount 50.000	Range 19 - 61		Recovery = 31.70%			
51) 2-Fluorobiphenyl	8.586	172	76861	17.15	ppb	-0.03
Spiked Amount 50.000	Range 21 - 58		Recovery = 34.30%			
73) 2,4,6-Tribromophenol	10.816	330	10392	19.99	ppb	-0.03
Spiked Amount 50.000	Range 12 - 68		Recovery = 39.98%			
85) Terphenyl-d14	14.571	244	94249	20.19	ppb	-0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 40.38%			
Target Compounds						Qvalue
38) Naphthalene	6.847	128	9021	1.33	ppb	99
44) 2-Methylnaphthalene	7.928	141	4985	1.26	ppb	93
56) Acenaphthylene	9.313	152	8618	1.34	ppb	93
59) Acenaphthene	9.607	153	30931	7.56	ppb	96
66) Fluorene	10.399	166	55720	12.62	ppb	98
77) Phenanthrene	11.875	178	369527	56.27	ppb	98
78) Anthracene	11.945	178	136685	21.47	ppb	92
81) Fluoranthene	13.769	202	373117	58.23	ppb	96
84) Pyrene	14.122	202	292432	40.73	ppb	98
88) Benzo[a]anthracene	16.448	228	178714	29.04	ppb	98
90) Chrysene	16.523	228	169353	27.83	ppb	98
94) Benzo[b]fluoranthene	18.609	252	128184	21.06	ppb	96
95) Benzo[k]fluoranthene	18.641	252	89576	13.67	ppb	92
96) Benzo[a]pyrene	19.181	252	115499	20.78	ppb	96
97) Indeno[1,2,3-cd]pyrene	21.166	276	57370	11.75	ppb	91
99) Dibenz[a,h]anthracene	21.241	278	19198m	3.75	ppb	
101) Benzo[g,h,i]perylene	21.562	276	50386	8.97	ppb	93

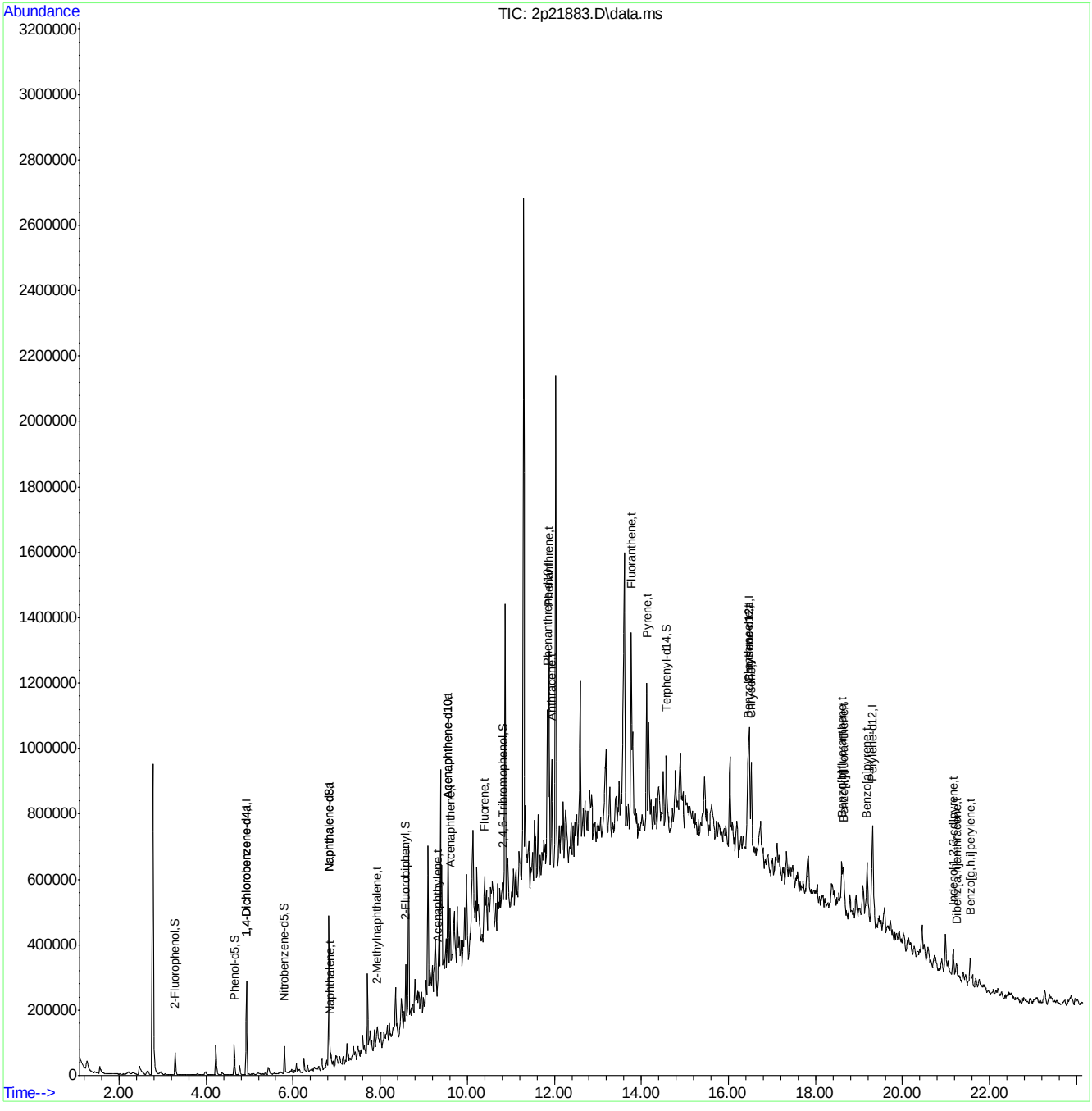
(#) = qualifier out of range (m) = manual integration (+) = signals summed

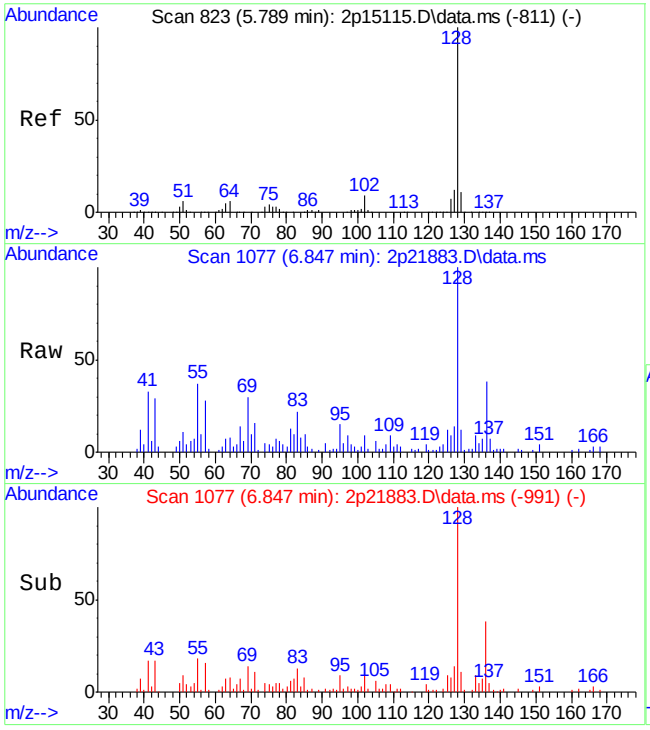
9.1.28
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p963\
Data File : 2p21883.D
Acq On : 4 Apr 2013 5:17 pm
Operator : andrews1
Sample : jb31121-21
Misc : op64463,e2p963,35.5,,,1,2
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Apr 05 08:15:52 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P954.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Apr 01 12:00:01 2013
Response via : Initial Calibration

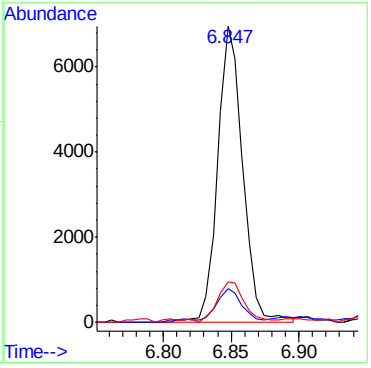


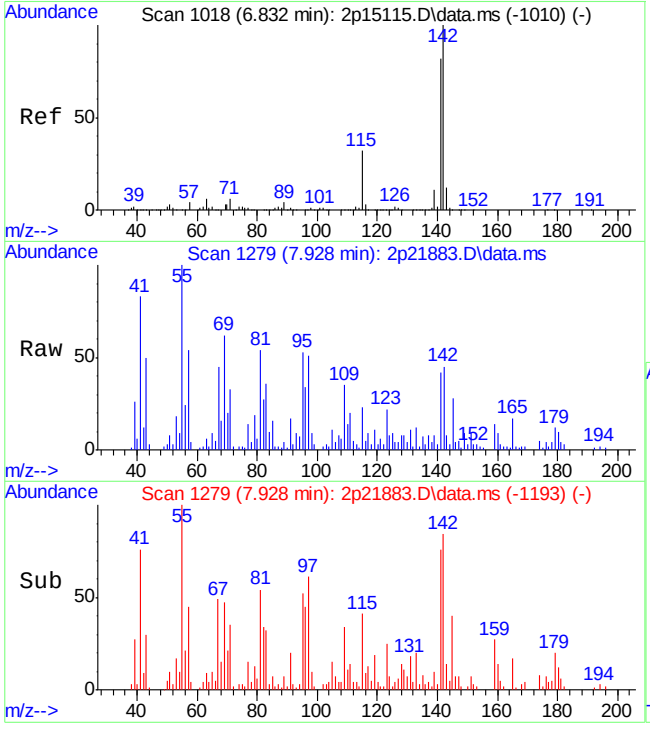


#38
Naphthalene
Concen: 1.33 ppb
RT: 6.847 min Scan# 1077
Delta R.T. -0.037 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:128 Resp: 9021

Ion	Ratio	Lower	Upper
128	100		
129	10.8	0.0	41.0
127	12.7	0.0	43.0

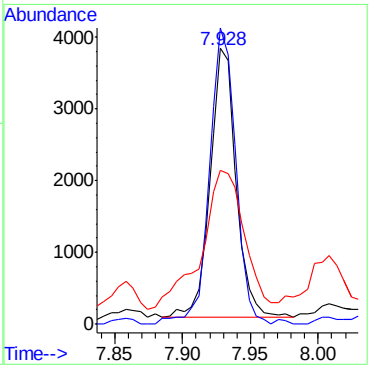


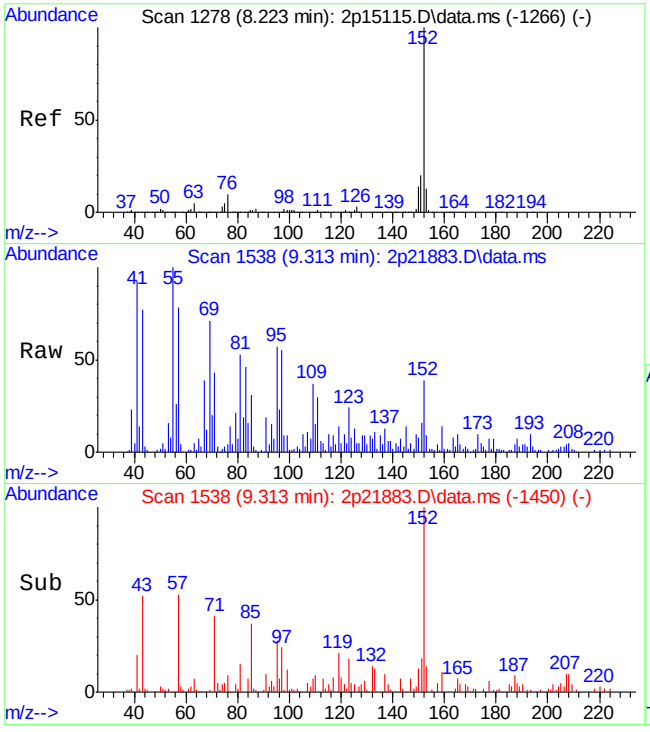


#44
2-Methylnaphthalene
Concen: 1.26 ppb
RT: 7.928 min Scan# 1279
Delta R.T. -0.037 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:141 Resp: 4985

Ion	Ratio	Lower	Upper
141	100		
142	108.9	88.4	148.4
115	47.3	14.8	74.8

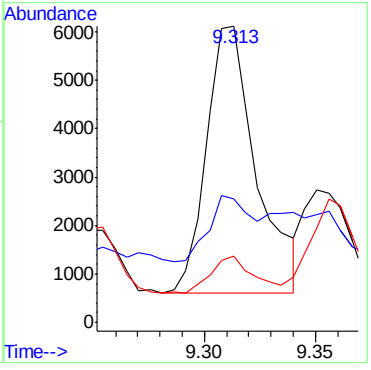


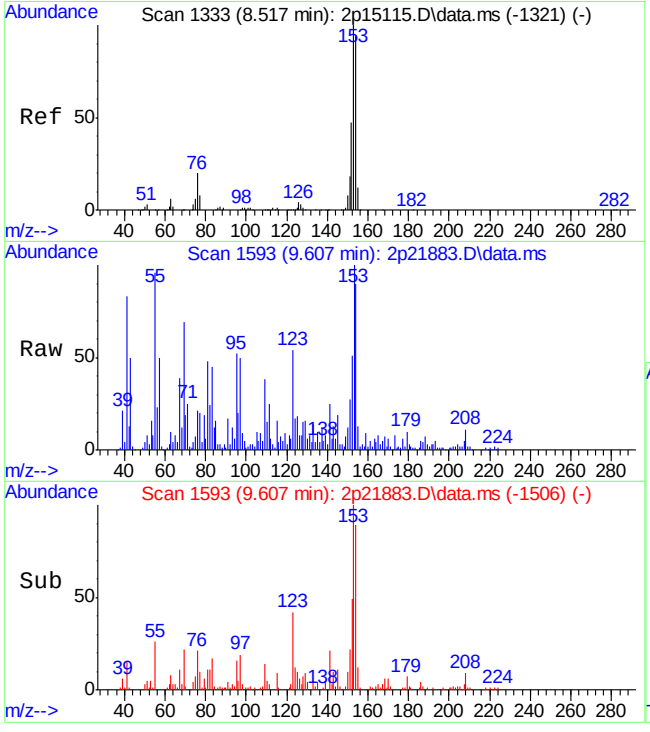


#56
Acenaphthylene
Concen: 1.34 ppb
RT: 9.313 min Scan# 1538
Delta R.T. -0.027 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:152 Resp: 8618

Ion	Ratio	Lower	Upper
152	100		
151	15.5	0.0	49.9
153	11.9	0.0	43.1

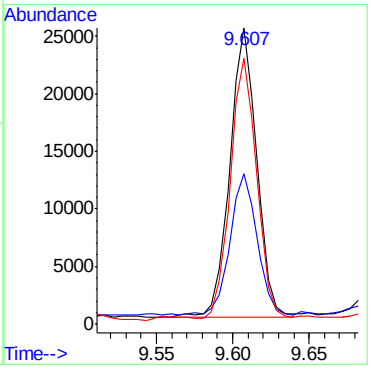




#59
Acenaphthene
Concen: 7.56 ppb
RT: 9.607 min Scan# 1593
Delta R.T. -0.032 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:153 Resp: 30931

Ion	Ratio	Lower	Upper
153	100		
152	49.0	17.8	77.8
154	90.0	65.2	125.2



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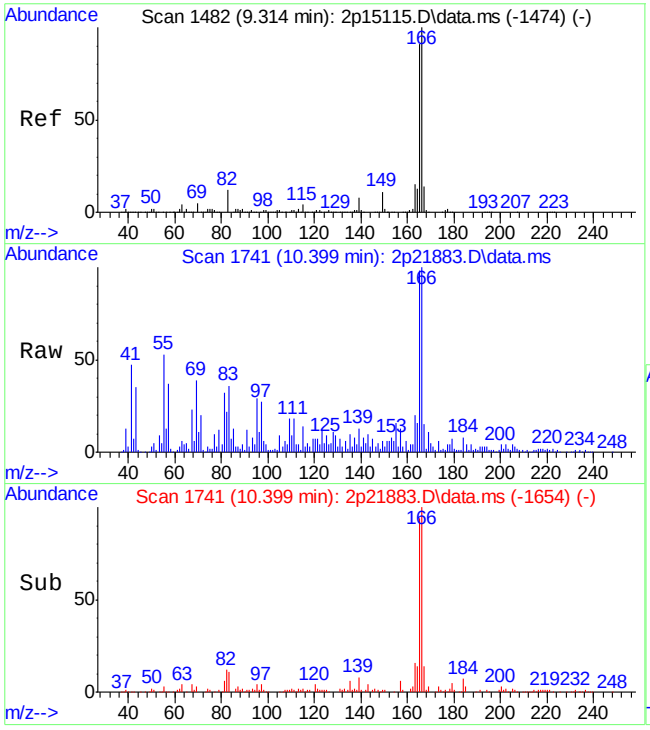
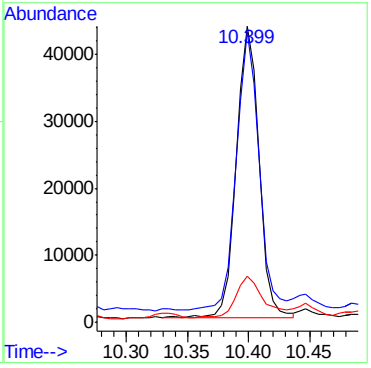
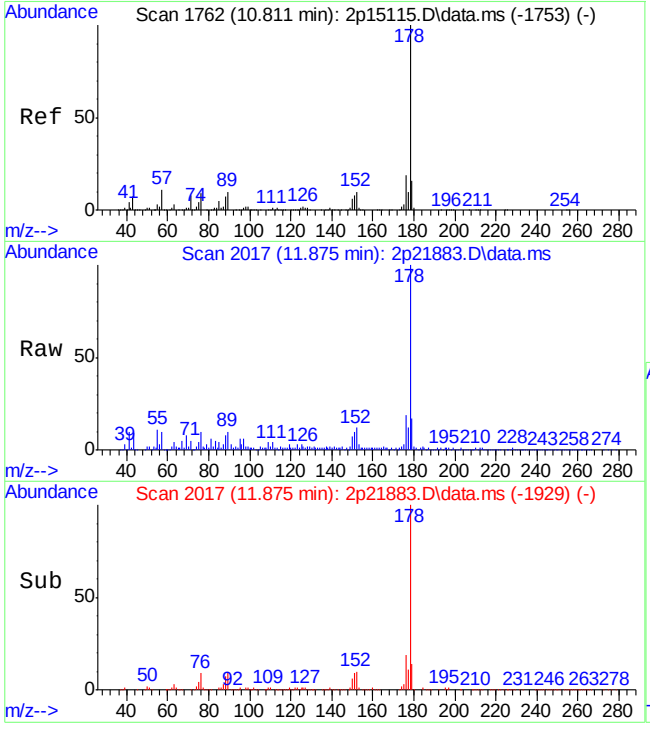


#66
Fluorene
Concen: 12.62 ppb
RT: 10.399 min Scan# 1741
Delta R.T. -0.032 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:166 Resp: 55720

Ion	Ratio	Lower	Upper
166	100		
165	94.1	62.5	122.5
167	12.0	0.0	42.9

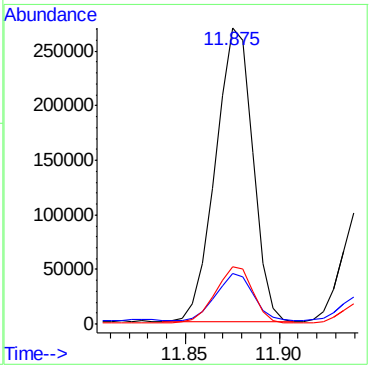




#77
Phenanthrene
Concen: 56.27 ppb
RT: 11.875 min Scan# 2017
Delta R.T. -0.027 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:178 Resp: 369527

Ion	Ratio	Lower	Upper
178	100		
179	15.9	0.0	44.4
176	19.2	0.0	48.6



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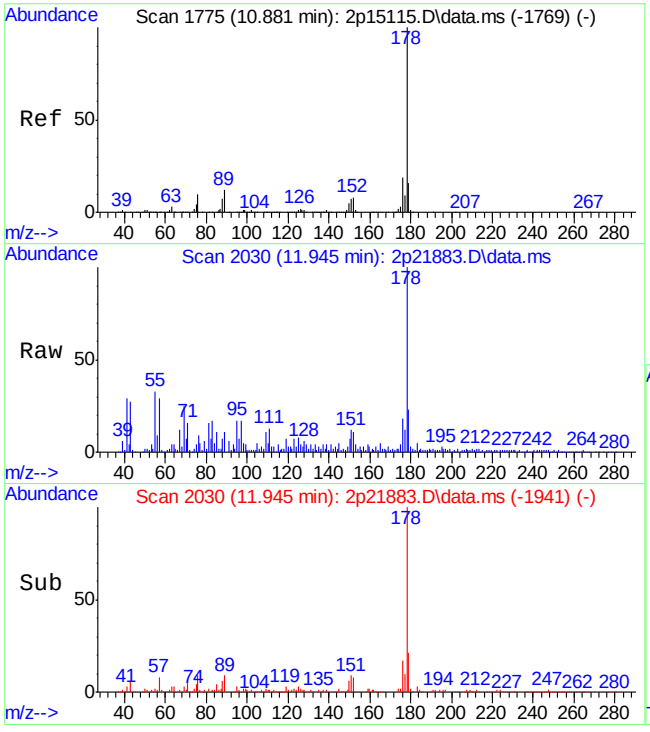
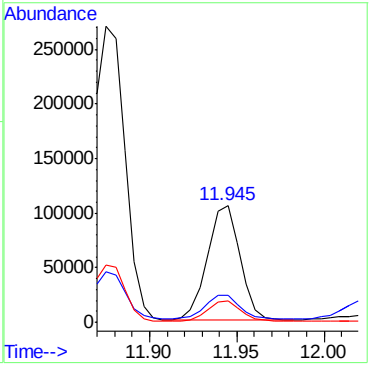
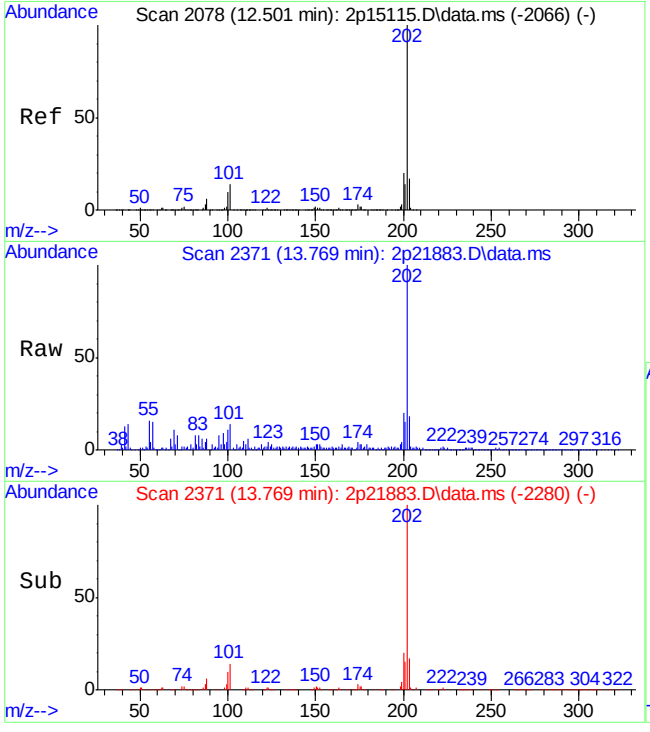


#78
Anthracene
Concen: 21.47 ppb
RT: 11.945 min Scan# 2030
Delta R.T. -0.021 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:178 Resp: 136685

Ion	Ratio	Lower	Upper
178	100		
179	20.7	0.0	44.5
176	17.5	0.0	46.5

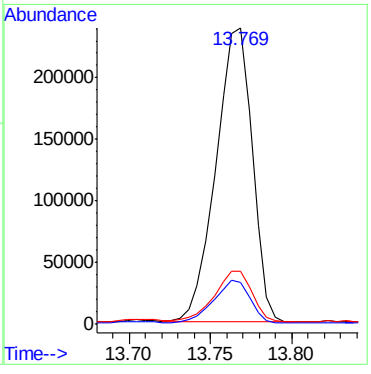




#81
Fluoranthene
Concen: 58.23 ppb
RT: 13.769 min Scan# 2371
Delta R.T. -0.011 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:202 Resp: 373117

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	41.3
203	17.8	0.0	49.1



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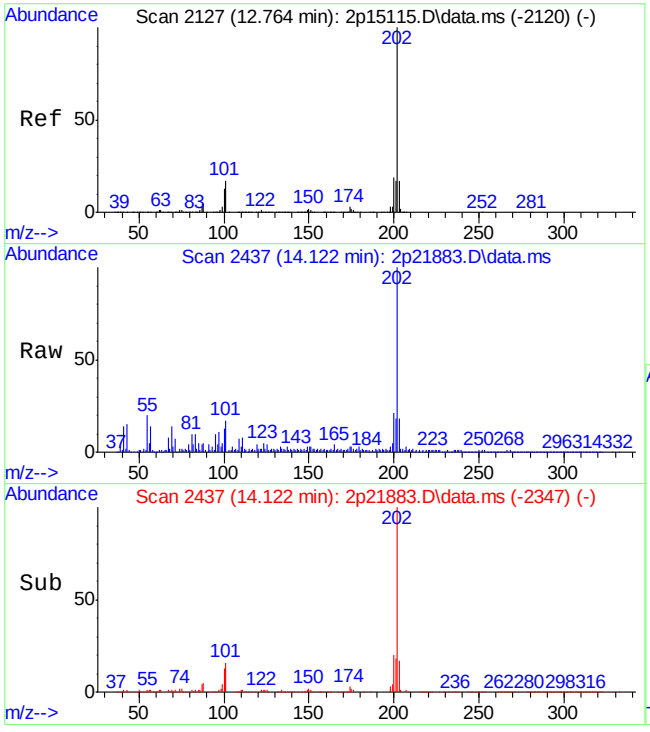
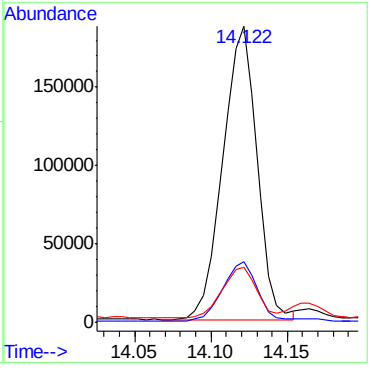
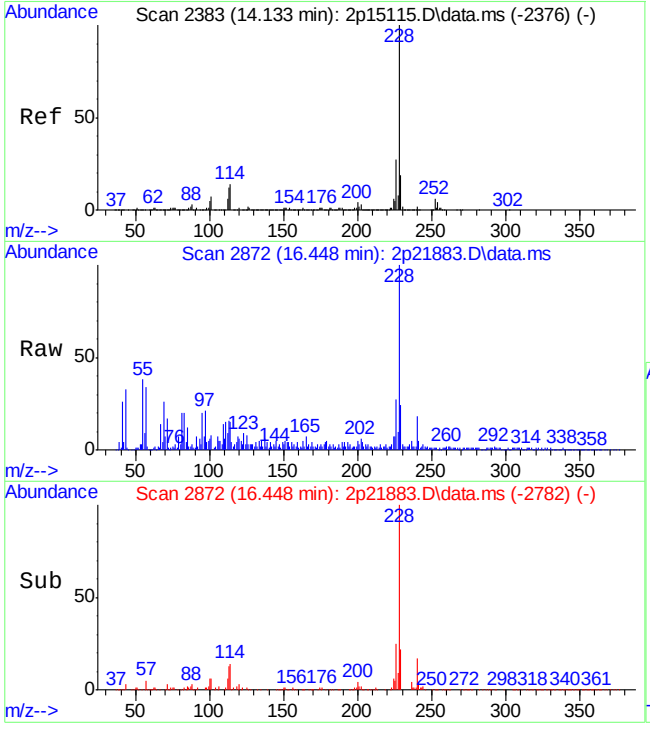


#84
Pyrene
Concen: 40.73 ppb
RT: 14.122 min Scan# 2437
Delta R.T. -0.016 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:202 Resp: 292432

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	49.6
203	15.4	0.0	46.9

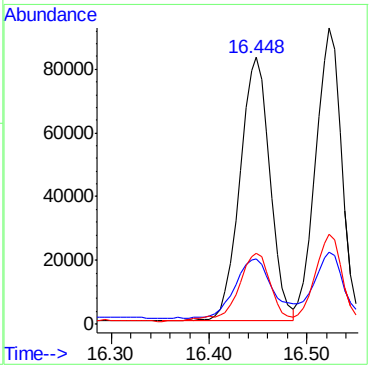




#88
Benzo[a]anthracene
Concen: 29.04 ppb
RT: 16.448 min Scan# 2872
Delta R.T. -0.016 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:228 Resp: 178714

Ion	Ratio	Lower	Upper
228	100		
229	20.3	0.0	50.7
226	25.5	0.0	56.7



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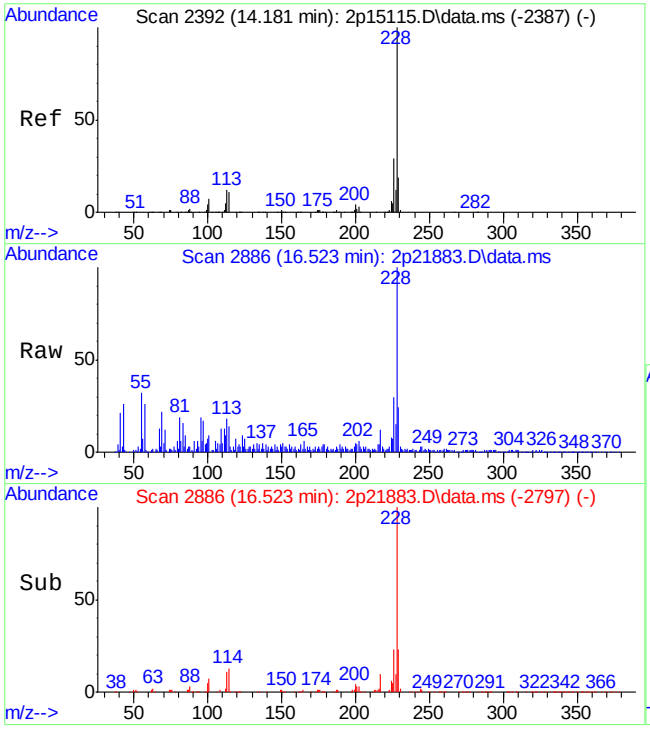
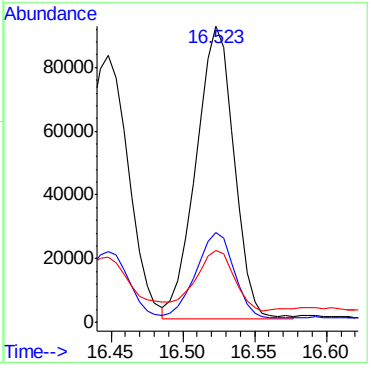
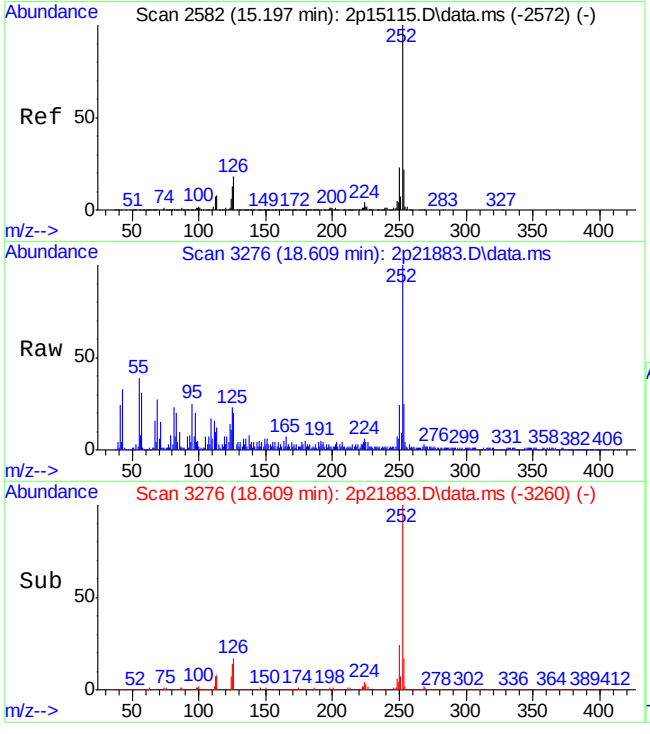


#90
Chrysene
Concen: 27.83 ppb
RT: 16.523 min Scan# 2886
Delta R.T. -0.021 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:228 Resp: 169353

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.4
229	19.2	0.0	50.1

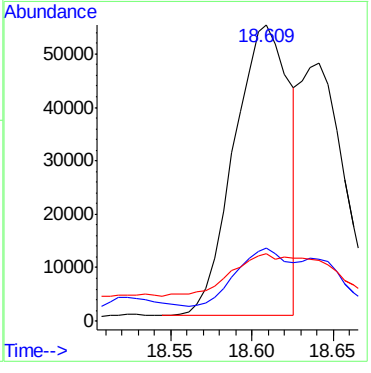




#94
Benzo[b]fluoranthene
Concen: 21.06 ppb
RT: 18.609 min Scan# 3276
Delta R.T. -0.016 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

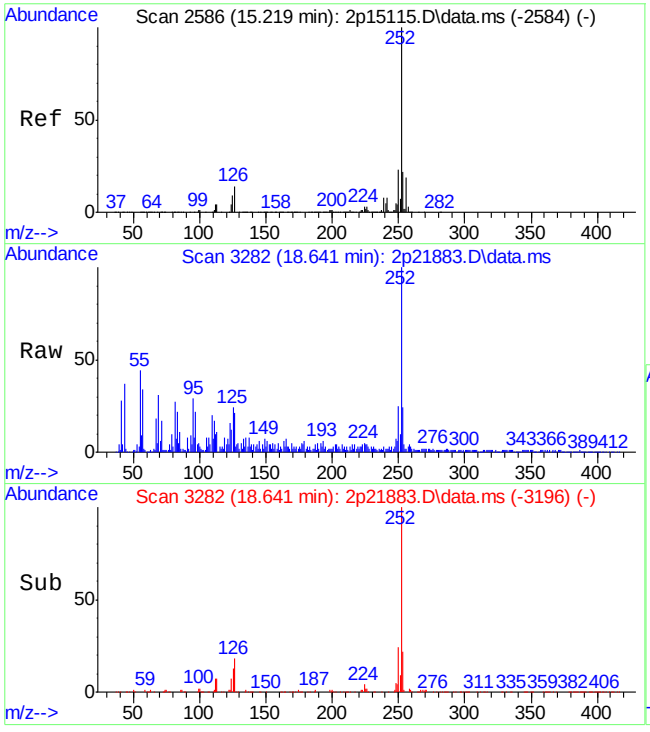
Tgt Ion:252 Resp: 128184

Ion	Ratio	Lower	Upper
252	100		
253	19.9	0.0	51.1
125	13.1	0.0	40.8



9.1.28

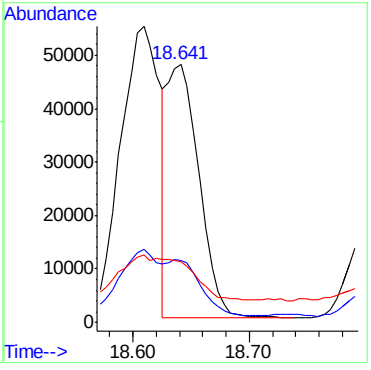
9

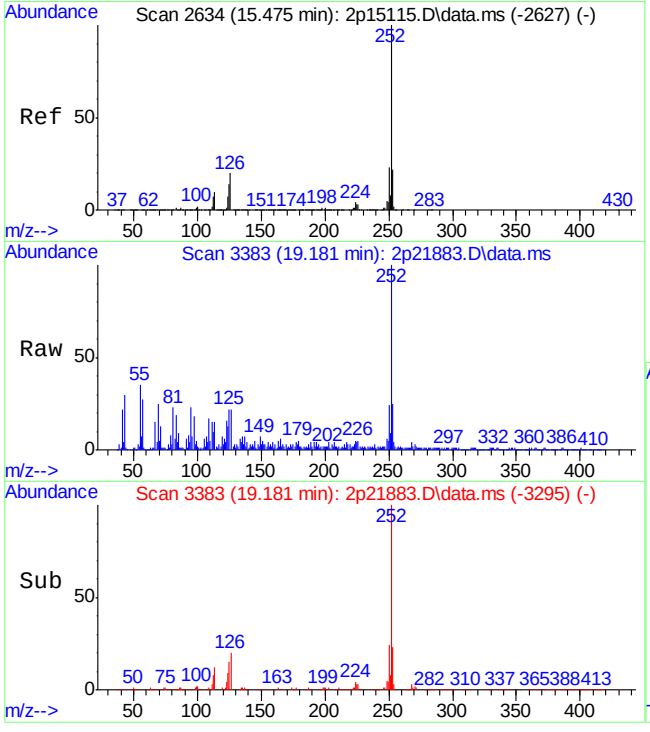


#95
Benzo[k]fluoranthene
Concen: 13.67 ppb
RT: 18.641 min Scan# 3282
Delta R.T. -0.037 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:252 Resp: 89576

Ion	Ratio	Lower	Upper
252	100		
253	20.9	0.0	56.1
125	13.5	0.0	45.7

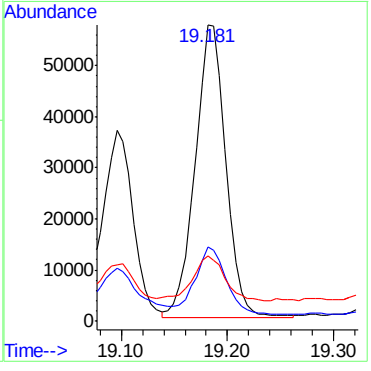




#96
Benzo[a]pyrene
Concen: 20.78 ppb
RT: 19.181 min Scan# 3383
Delta R.T. -0.027 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

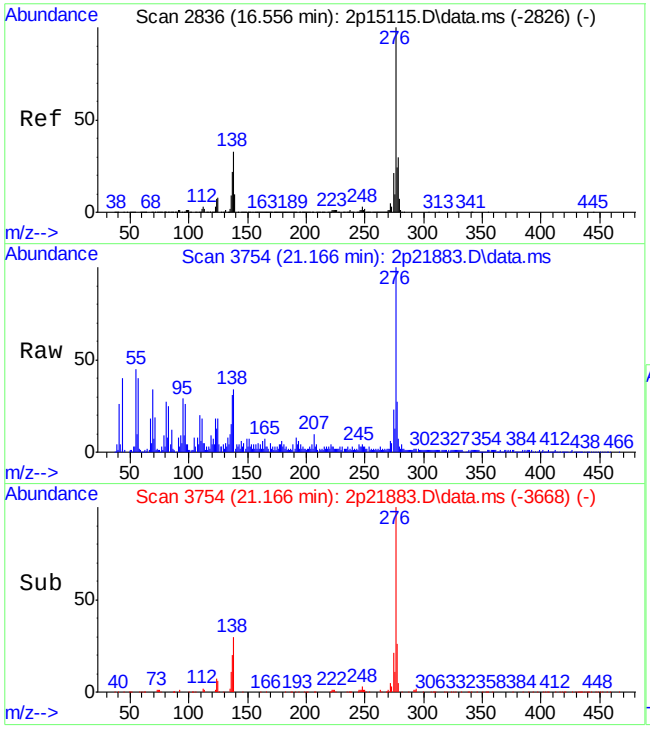
Tgt Ion:252 Resp: 115499

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	51.5
125	14.9	0.0	41.1



9.1.28

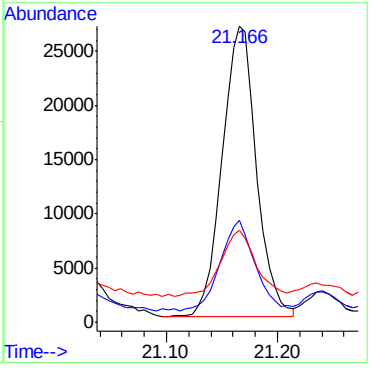
9

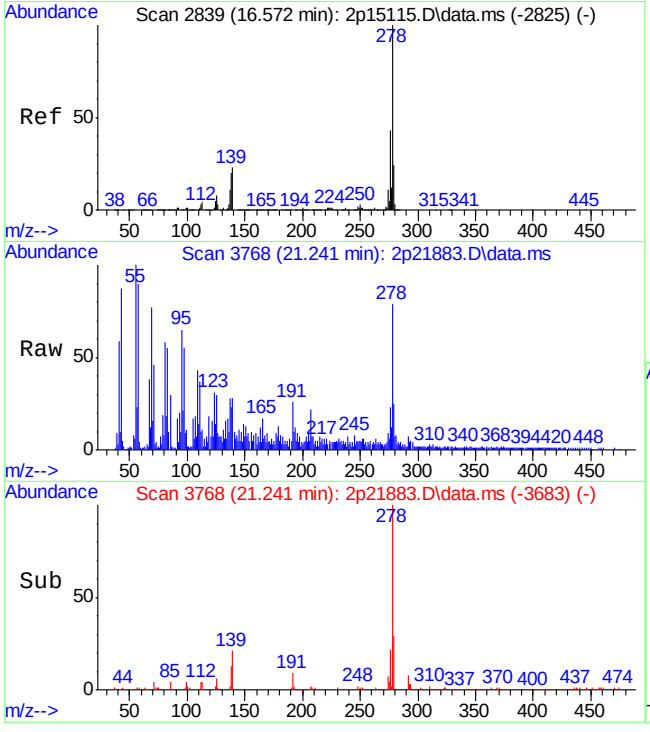


#97
Indeno[1,2,3-cd]pyrene
Concen: 11.75 ppb
RT: 21.166 min Scan# 3754
Delta R.T. -0.037 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:276 Resp: 57370

Ion	Ratio	Lower	Upper
276	100		
138	30.6	0.0	54.7
137	22.2	0.0	49.5

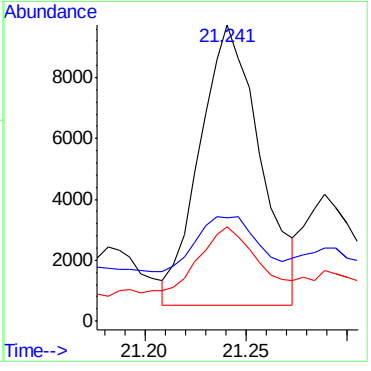




#99
Dibenz[a,h]anthracene
Concen: 3.75 ppb m
RT: 21.241 min Scan# 3768
Delta R.T. -0.043 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:278 Resp: 19198

Ion	Ratio	Lower	Upper
278	100		
139	34.9	0.0	49.9
279	32.0	0.0	56.4



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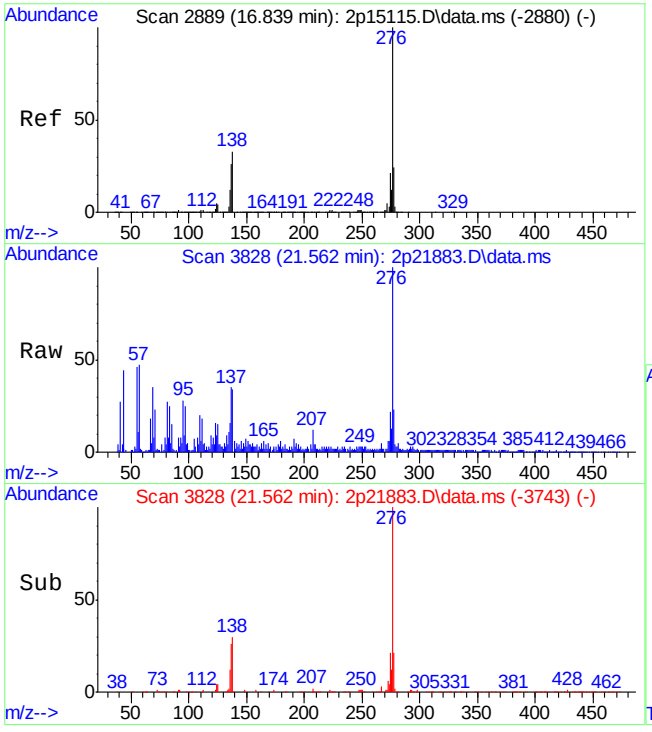
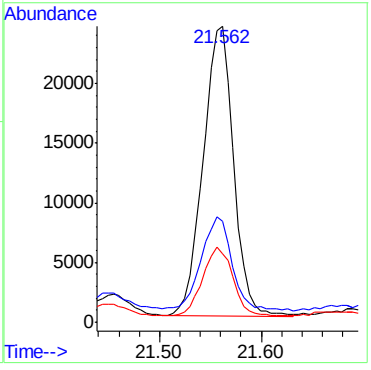


#101
Benzo[g,h,i]perylene
Concen: 8.97 ppb
RT: 21.562 min Scan# 3828
Delta R.T. -0.043 min
Lab File: 2p21883.D
Acq: 4 Apr 2013 5:17 pm

Tgt Ion:276 Resp: 50386

Ion	Ratio	Lower	Upper
276	100		
138	30.4	0.0	55.6
277	21.4	0.0	53.3



9.1.28

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21553.D
Acq On : 27 Mar 2013 12:01 am
Operator : ashleyd
Sample : jb31121-22
Misc : op64463,e2p947,35.2
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 28 15:49:08 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	2.858	152	42836	40.00	ppb	0.04
24) Naphthalene-d8	4.458	136	166977	40.00	ppb	0.08
47) Acenaphthene-d10	7.078	164	92970	40.00	ppb	0.00
69) Phenanthrene-d10	9.346	188	152721	40.00	ppb	0.00
83) Chrysene-d12	13.245	240	149184	40.00	ppb	0.04
92) Perylene-d12	14.914	264	130023	40.00	ppb	0.06
102) 1,4-Dichlorobenzene-d4a	2.858	152	42836	40.00	ppb	0.04
104) Acenaphthene-d10a	7.078	164	92970	40.00	ppb	0.00
107) Chrysene-d12a	13.245	240	149184	40.00	ppb	0.04
109) Naphthalene-d8a	4.458	136	166977	40.00	ppb	# 0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.789	112	28496	18.58	ppb	0.10
Spiked Amount 50.000	Range 11 - 58		Recovery = 37.16%			
8) Phenol-d5	2.660	99	37952	19.95	ppb	0.10
Spiked Amount 50.000	Range 10 - 59		Recovery = 39.90%			
25) Nitrobenzene-d5	3.575	82	25084	16.33	ppb	0.05
Spiked Amount 50.000	Range 19 - 61		Recovery = 32.66%			
51) 2-Fluorobiphenyl	6.126	172	67113	22.57	ppb	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 45.14%			
73) 2,4,6-Tribromophenol	8.362	330	11776	34.50	ppb	0.03
Spiked Amount 50.000	Range 12 - 68		Recovery = 69.00%#			
85) Terphenyl-d14	11.908	244	128486	40.88	ppb	0.03
Spiked Amount 50.000	Range 16 - 65		Recovery = 81.76%#			
Target Compounds						Qvalue
55) Dimethylphthalate	6.886	163	6247	2.06	ppb	94

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

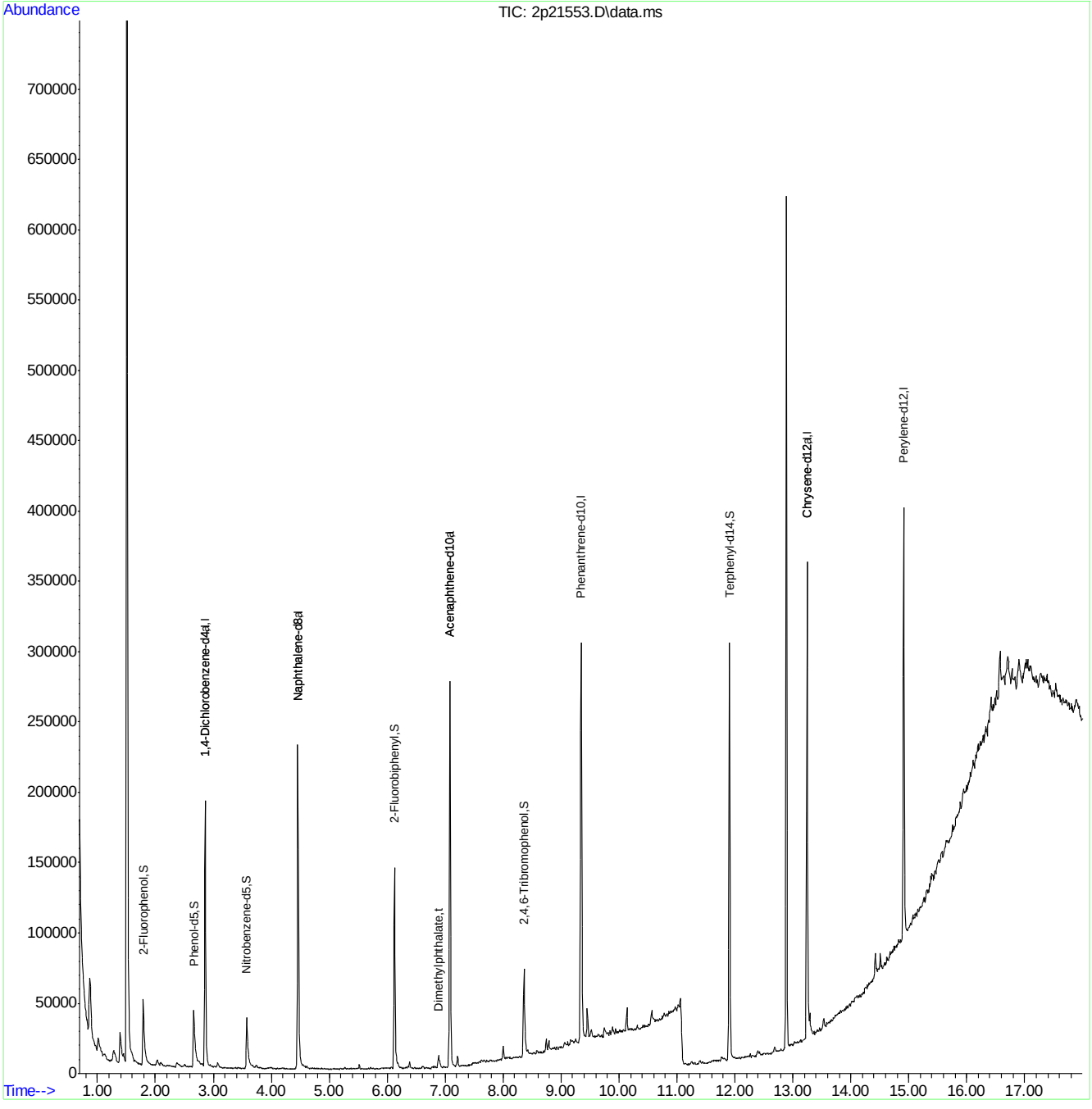
9.1.29

9

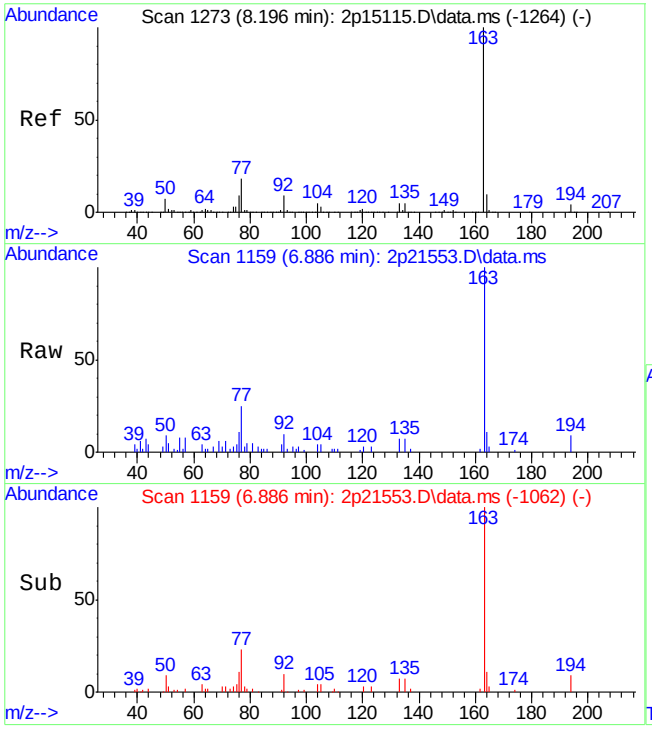
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21553.D
Acq On : 27 Mar 2013 12:01 am
Operator : ashleyd
Sample : jb31121-22
Misc : op64463,e2p947,35.2
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 28 15:49:08 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration



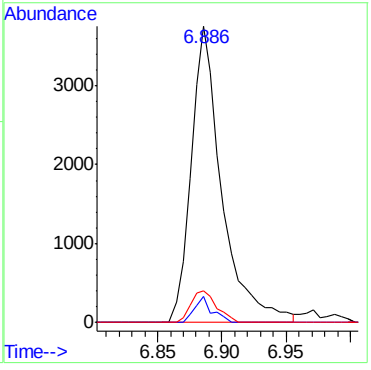
M2P896.M Thu Mar 28 15:49:12 2013 RPT1 Page: 2



#55
Dimethylphthalate
Concen: 2.06 ppb
RT: 6.886 min Scan# 1159
Delta R.T. 0.020 min
Lab File: 2p21553.D
Acq: 27 Mar 2013 12:01 am

Tgt Ion:163 Resp: 6247

Ion	Ratio	Lower	Upper
163	100		
194	8.8	0.0	35.2
164	10.7	0.0	39.5



9.1.29

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/28/13 14:40

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21554.D
Acq On : 27 Mar 2013 12:24 am
Operator : ashleyd
Sample : jb31121-23
Misc : op64463,e2p947,35.5
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 28 15:49:26 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	2.853	152	47476	40.00	ppb	0.04
24) Naphthalene-d8	4.458	136	185822	40.00	ppb	0.08
47) Acenaphthene-d10	7.089	164	104143	40.00	ppb	0.00
69) Phenanthrene-d10	9.357	188	169454	40.00	ppb	0.02
83) Chrysene-d12	13.246	240	167568	40.00	ppb	0.04
92) Perylene-d12	14.914	264	148804	40.00	ppb	0.06
102) 1,4-Dichlorobenzene-d4a	2.853	152	47476	40.00	ppb	0.04
104) Acenaphthene-d10a	7.089	164	104143	40.00	ppb	0.00
107) Chrysene-d12a	13.246	240	167568	40.00	ppb	0.04
109) Naphthalene-d8a	4.458	136	185822	40.00	ppb	# 0.02
System Monitoring Compounds						
5) 2-Fluorophenol	1.778	112	50633	29.79	ppb	0.09
Spiked Amount 50.000	Range 11 - 58		Recovery = 59.58%#			
8) Phenol-d5	2.650	99	64496	30.59	ppb	0.08
Spiked Amount 50.000	Range 10 - 59		Recovery = 61.18%#			
25) Nitrobenzene-d5	3.564	82	48055	28.11	ppb	0.04
Spiked Amount 50.000	Range 19 - 61		Recovery = 56.22%			
51) 2-Fluorobiphenyl	6.132	172	110576	33.20	ppb	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 66.40%#			
73) 2,4,6-Tribromophenol	8.368	330	13823	36.50	ppb	0.03
Spiked Amount 50.000	Range 12 - 68		Recovery = 73.00%#			
85) Terphenyl-d14	11.908	244	134003	37.96	ppb	0.03
Spiked Amount 50.000	Range 16 - 65		Recovery = 75.92%#			
Target Compounds						Qvalue
59) Acenaphthene	7.132	153	6422m	2.17	ppb	
66) Fluorene	7.929	166	22975	6.72	ppb	92
77) Phenanthrene	9.395	178	93789	18.37	ppb	98
81) Fluoranthene	11.250	202	22959	4.38	ppb	90
84) Pyrene	11.561	202	22956	4.02	ppb	99
88) Benzo[a]anthracene	13.229	228	8149	1.63	ppb	94
90) Chrysene	13.278	228	6862	1.44	ppb	93
91) bis(2-Ethylhexyl)phtha...	13.534	149	12847	3.26	ppb	96
94) Benzo[b]fluoranthene	14.535	252	5092m	1.00	ppb	
95) Benzo[k]fluoranthene	14.540	252	2863m	0.65	ppb	
96) Benzo[a]pyrene	14.861	252	4000	0.91	ppb	92
97) Indeno[1,2,3-cd]pyrene	15.963	276	2234	0.44	ppb	84
101) Benzo[g,h,i]perylene	16.182	276	2198	0.51	ppb	86

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

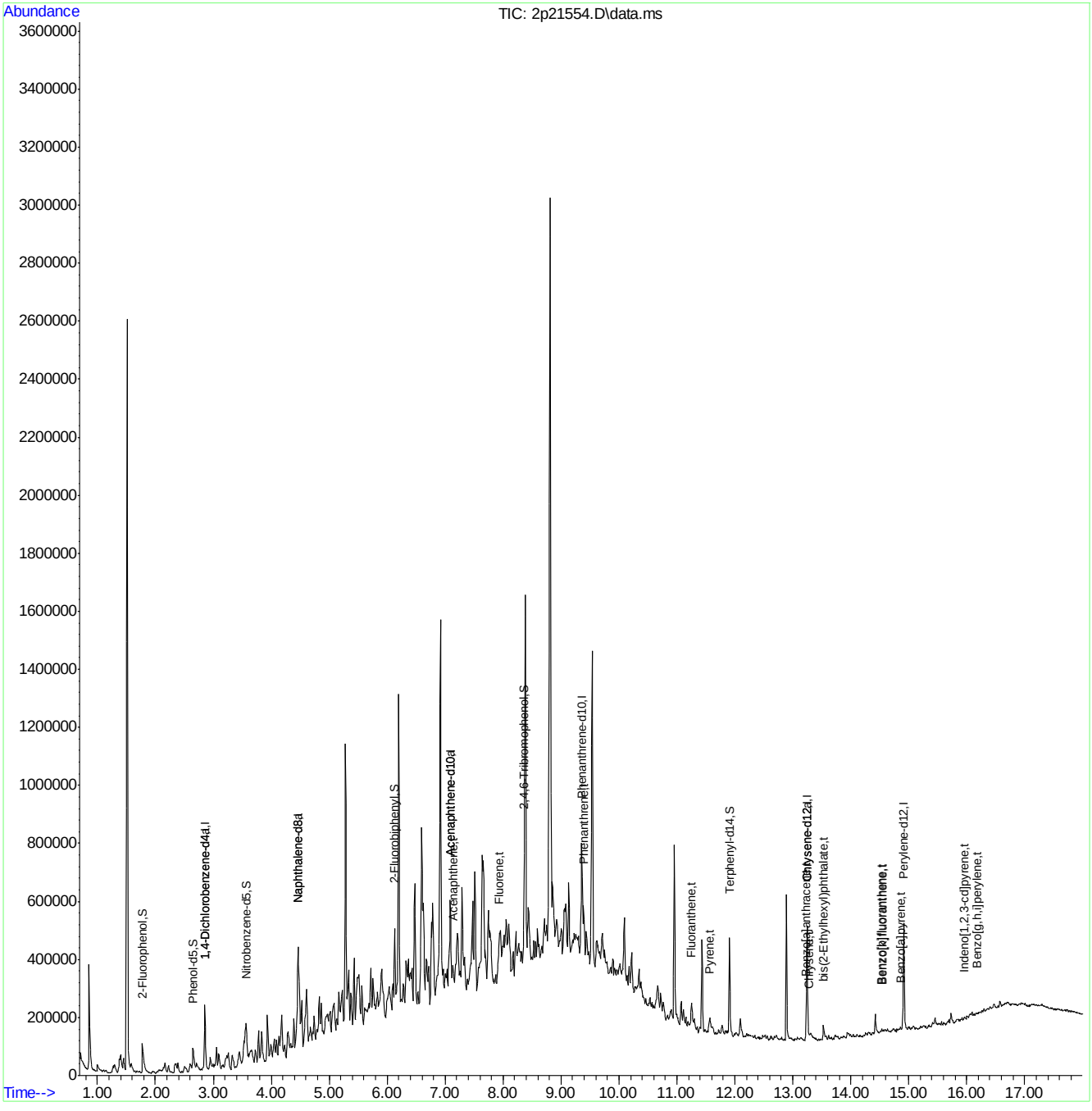
9.1.30

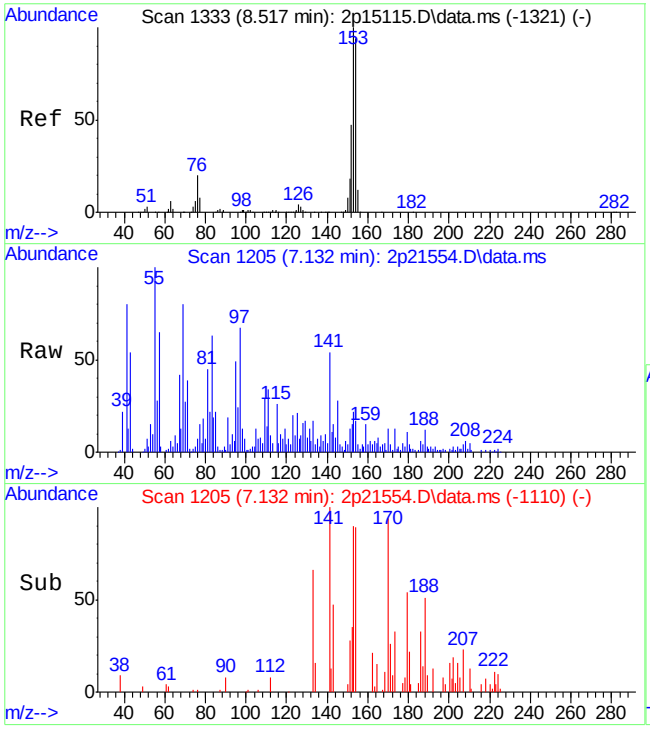
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21554.D
Acq On : 27 Mar 2013 12:24 am
Operator : ashleyd
Sample : jb31121-23
Misc : op64463,e2p947,35.5
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 28 15:49:26 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

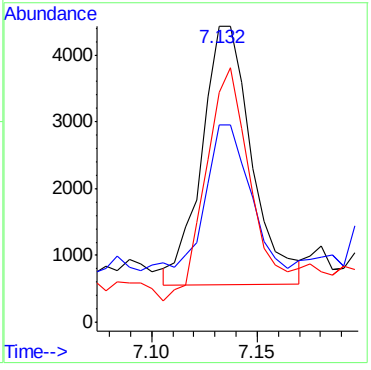


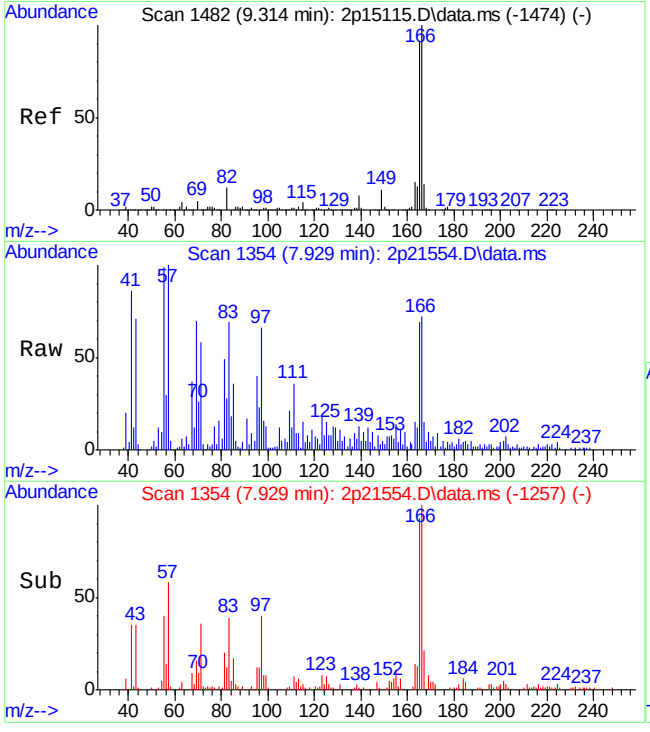


#59
Acenaphthene
Concen: 2.17 ppb m
RT: 7.132 min Scan# 1205
Delta R.T. 0.010 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:153 Resp: 6422

Ion	Ratio	Lower	Upper
153	100		
152	66.8	17.8	77.8
154	77.5	65.2	125.2

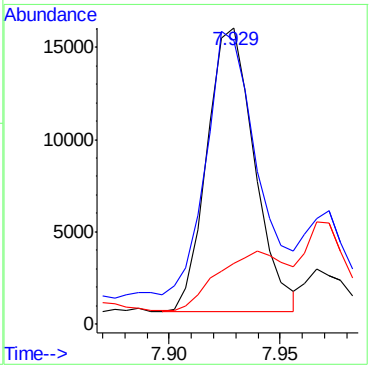


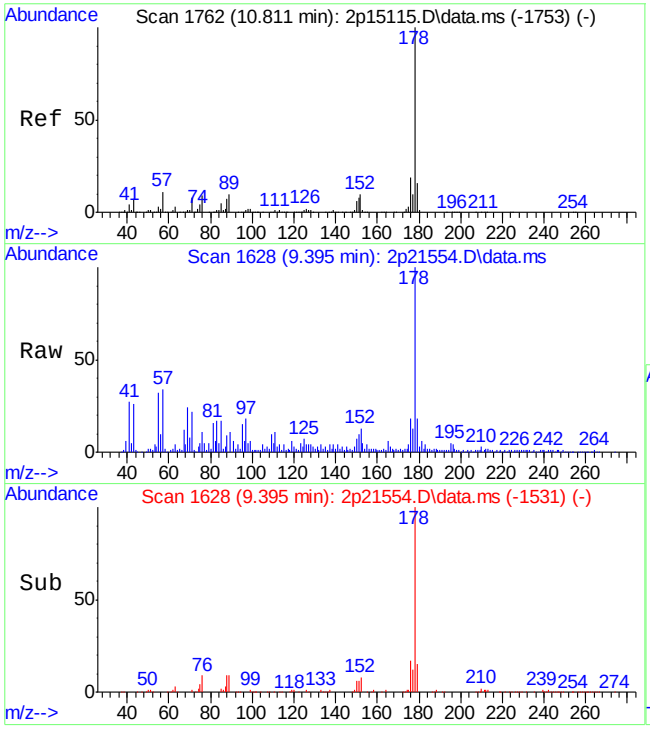


#66
Fluorene
Concen: 6.72 ppb
RT: 7.929 min Scan# 1354
Delta R.T. 0.021 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:166 Resp: 22975

Ion	Ratio	Lower	Upper
166	100		
165	85.1	62.5	122.5
167	9.2	0.0	42.9

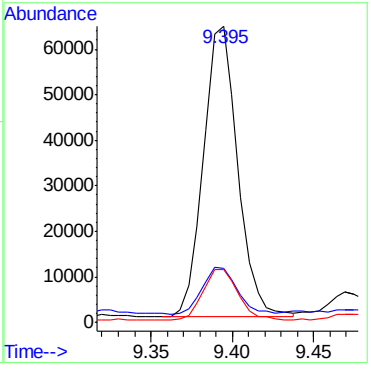


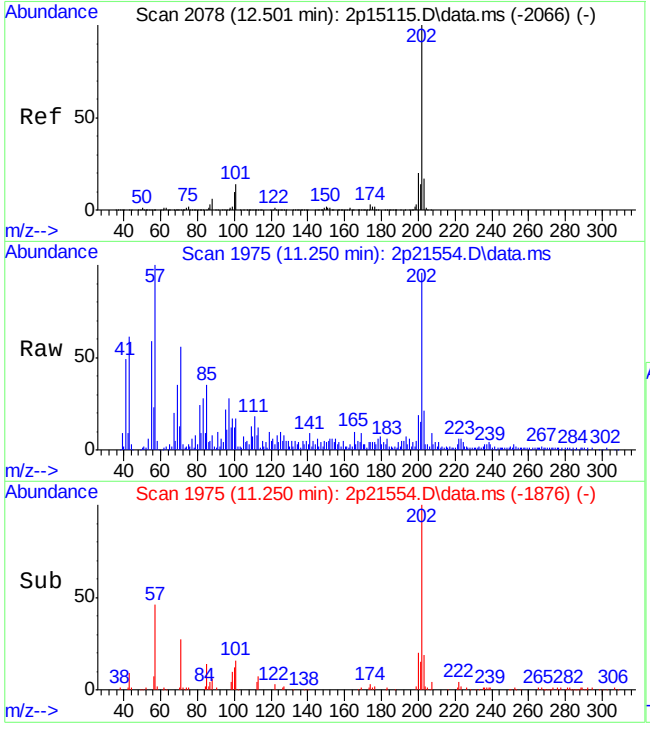


#77
Phenanthrene
Concen: 18.37 ppb
RT: 9.395 min Scan# 1628
Delta R.T. 0.021 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:178 Resp: 93789

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	44.4
176	17.6	0.0	48.6

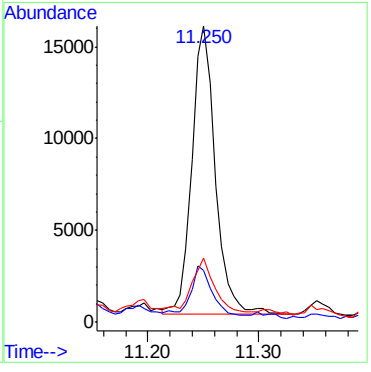




#81
Fluoranthene
Concen: 4.38 ppb
RT: 11.250 min Scan# 1975
Delta R.T. 0.031 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

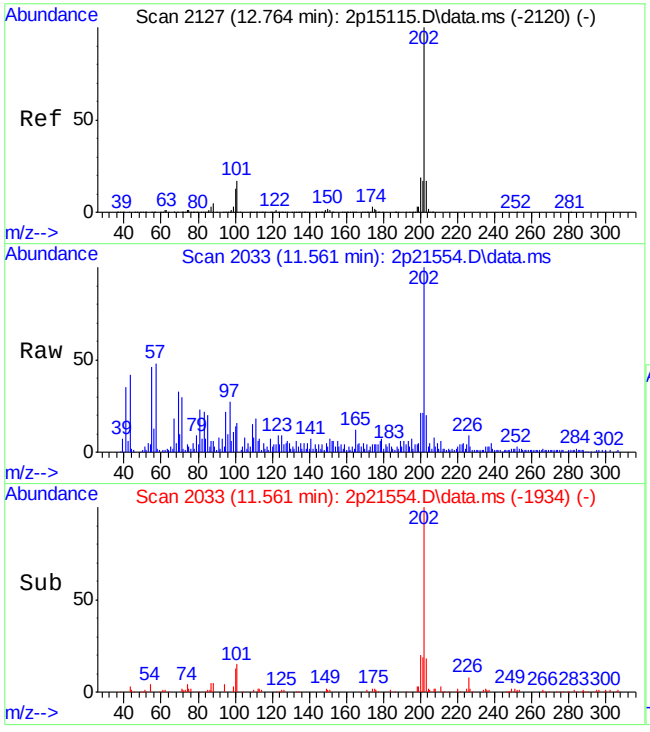
Tgt Ion:202 Resp: 22959

Ion	Ratio	Lower	Upper
202	100		
101	17.6	0.0	41.3
203	21.6	0.0	49.1



9.1.30

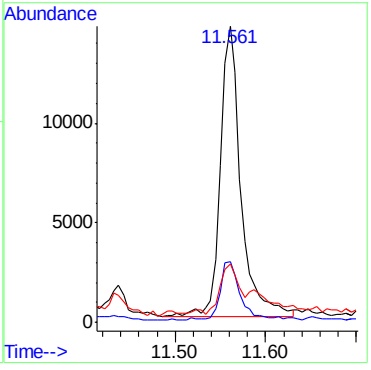
9

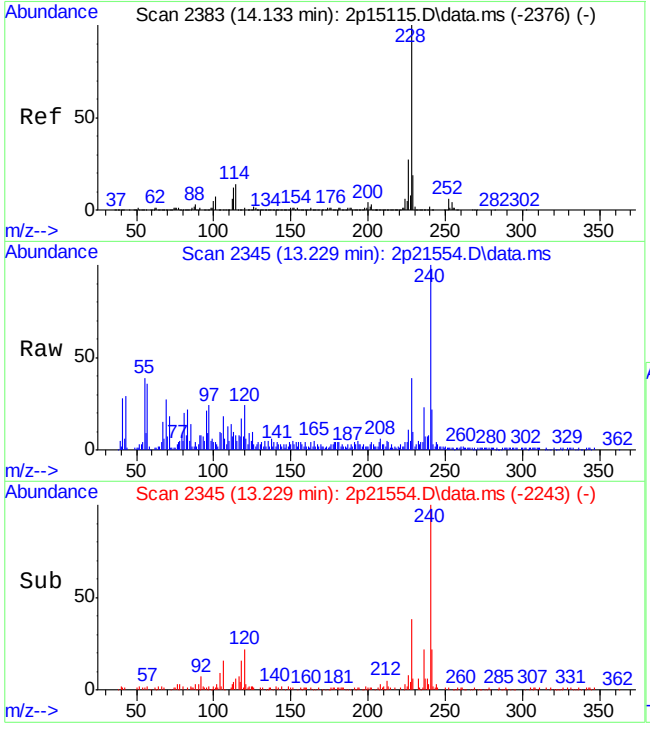


#84
Pyrene
Concen: 4.02 ppb
RT: 11.561 min Scan# 2033
Delta R.T. 0.031 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:202 Resp: 22956

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.6
203	16.2	0.0	46.9

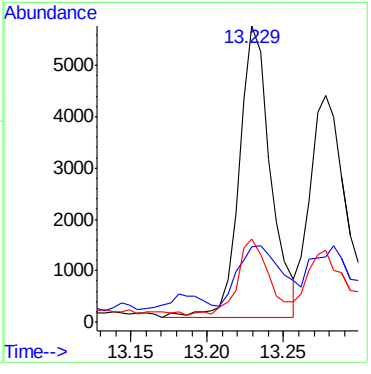




#88
Benzo[a]anthracene
Concen: 1.63 ppb
RT: 13.229 min Scan# 2345
Delta R.T. 0.047 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

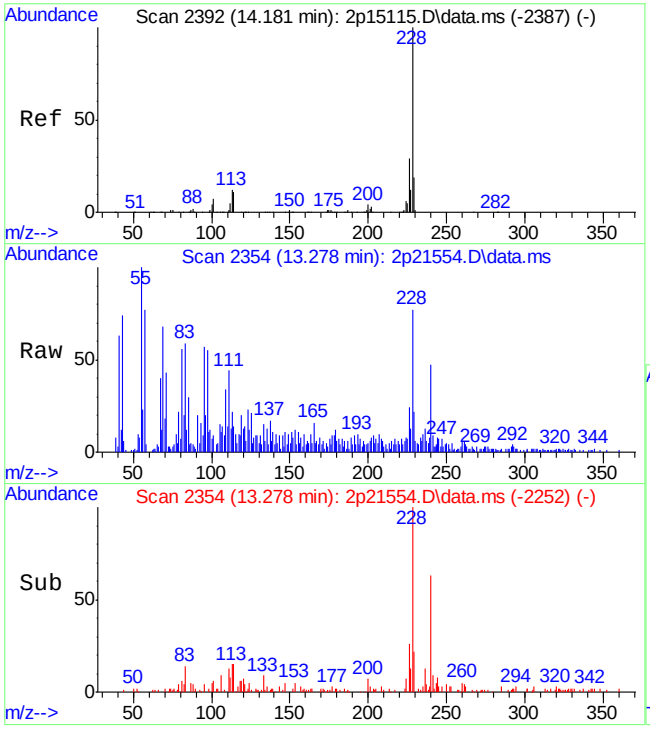
Tgt Ion:228 Resp: 8149

Ion	Ratio	Lower	Upper
228	100		
229	16.9	0.0	50.7
226	24.9	0.0	56.7



9.1.30

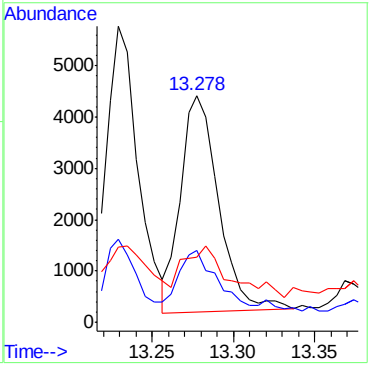
9

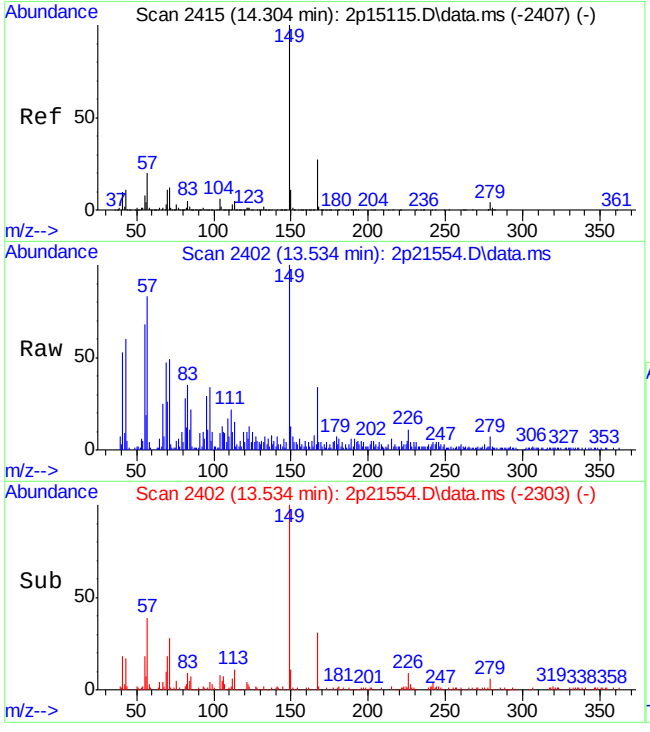


#90
Chrysene
Concen: 1.44 ppb
RT: 13.278 min Scan# 2354
Delta R.T. 0.047 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:228 Resp: 6862

Ion	Ratio	Lower	Upper
228	100		
226	27.3	0.0	58.4
229	13.2	0.0	50.1

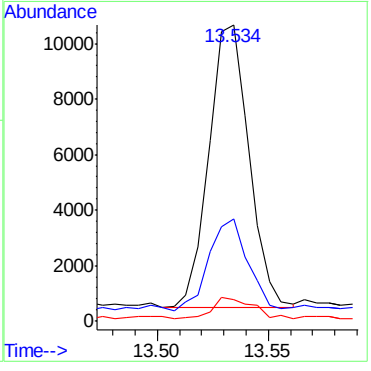


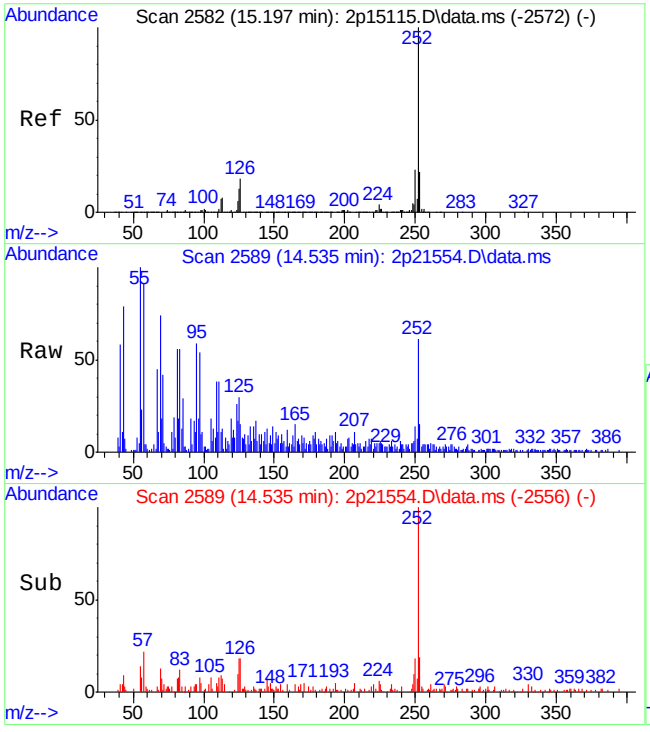


#91
bis(2-Ethylhexyl)phthalate
Concen: 3.26 ppb
RT: 13.534 min Scan# 2402
Delta R.T. 0.031 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:149 Resp: 12847

Ion	Ratio	Lower	Upper
149	100		
167	31.4	0.0	59.5
279	6.5	0.0	34.8

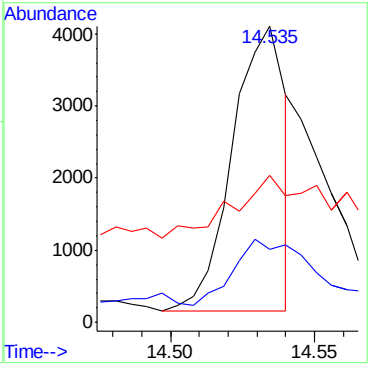


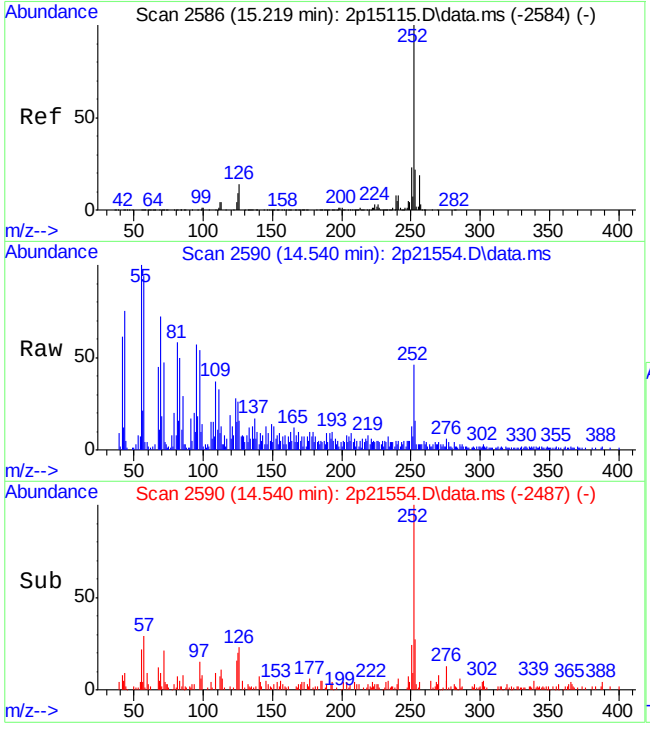


#94
Benzo[b]fluoranthene
Concen: 1.00 ppb m
RT: 14.535 min Scan# 2589
Delta R.T. 0.074 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:252 Resp: 5092

Ion	Ratio	Lower	Upper
252	100		
253	24.8	0.0	51.1
125	49.6	0.0	40.8#

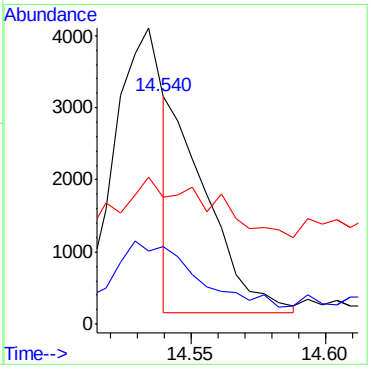


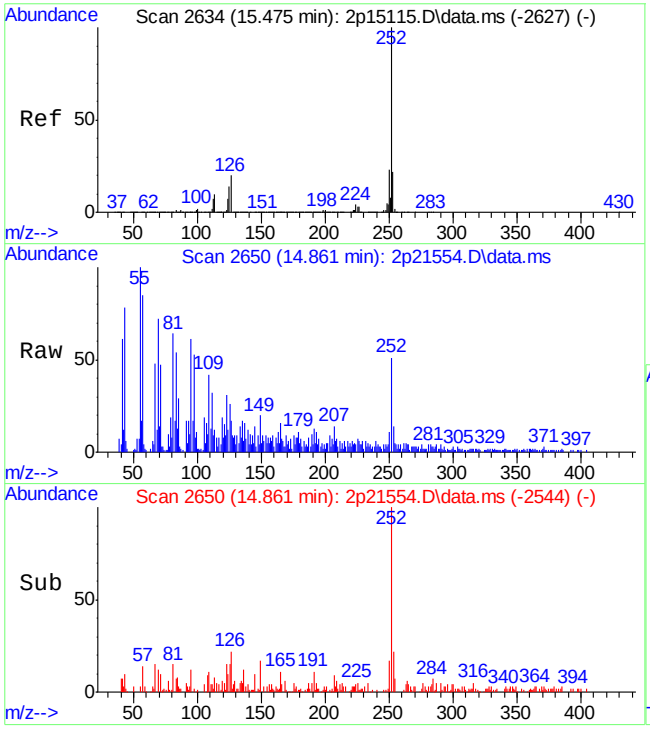


#95
Benzo[k]fluoranthene
Concen: 0.65 ppb m
RT: 14.540 min Scan# 2590
Delta R.T. 0.053 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:252 Resp: 2863

Ion	Ratio	Lower	Upper
252	100		
253	34.0	0.0	56.1
125	55.6	0.0	45.7#

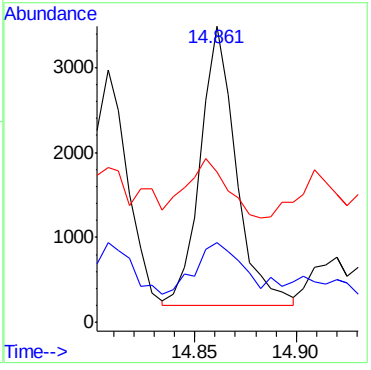


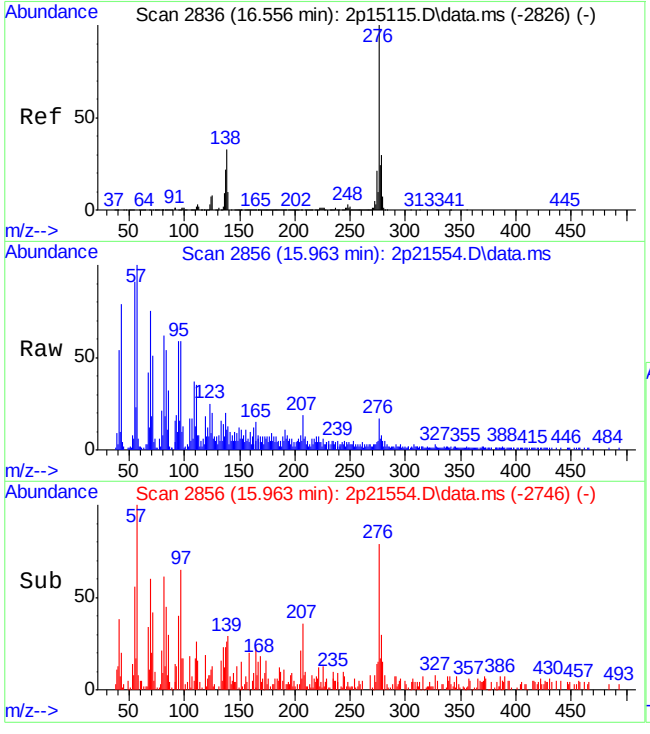


#96
Benzo[a]pyrene
Concen: 0.91 ppb
RT: 14.861 min Scan# 2650
Delta R.T. 0.069 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:252 Resp: 4000

Ion	Ratio	Lower	Upper
252	100		
253	16.9	0.0	51.5
125	12.6	0.0	41.1

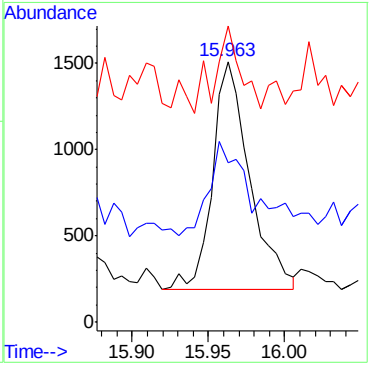


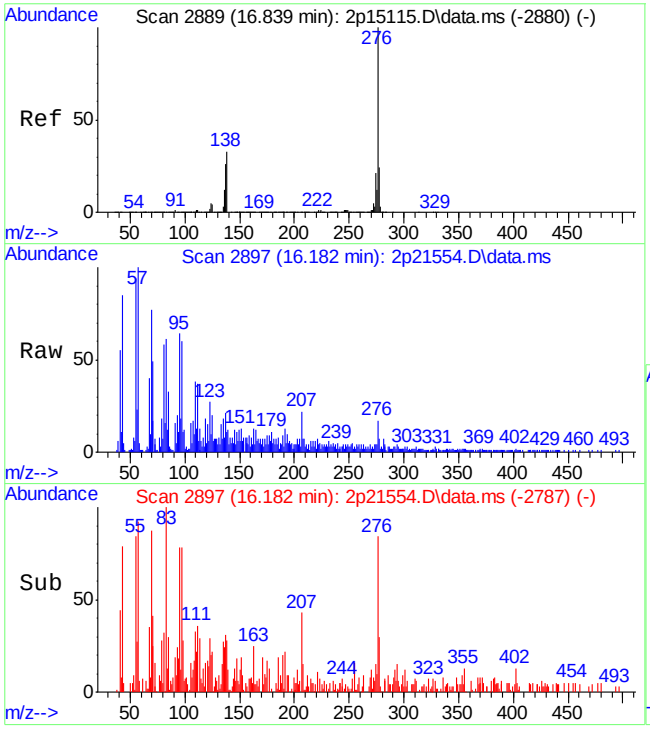


#97
Indeno[1,2,3-cd]pyrene
Concen: 0.44 ppb
RT: 15.963 min Scan# 2856
Delta R.T. 0.090 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:276 Resp: 2234

Ion	Ratio	Lower	Upper
276	100		
138	27.6	0.0	54.7
137	32.3	0.0	49.5

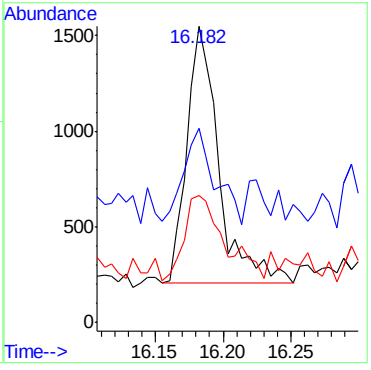




#101
Benzo[g,h,i]perylene
Concen: 0.51 ppb
RT: 16.182 min Scan# 2897
Delta R.T. 0.090 min
Lab File: 2p21554.D
Acq: 27 Mar 2013 12:24 am

Tgt Ion:276 Resp: 2198

Ion	Ratio	Lower	Upper
276	100		
138	32.9	0.0	55.6
277	29.7	0.0	53.3



9.1.30

9

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 03/28/13 14:40

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21555.D
Acq On : 27 Mar 2013 12:47 am
Operator : ashleyd
Sample : jb31121-24
Misc : op64463,e2p947,35.4
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 28 15:49:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	2.858	152	49806	40.00	ppb	0.04
24) Naphthalene-d8	4.474	136	200673	40.00	ppb	0.10
47) Acenaphthene-d10	7.105	164	110681	40.00	ppb	0.03
69) Phenanthrene-d10	9.368	188	183598	40.00	ppb	0.03
83) Chrysene-d12	13.251	240	181975	40.00	ppb	0.05
92) Perylene-d12	14.920	264	167455	40.00	ppb	0.07
102) 1,4-Dichlorobenzene-d4a	2.858	152	49806	40.00	ppb	0.04
104) Acenaphthene-d10a	7.105	164	110681	40.00	ppb	0.03
107) Chrysene-d12a	13.251	240	181975	40.00	ppb	0.05
109) Naphthalene-d8a	4.474	136	200673	40.00	ppb	# 0.03
System Monitoring Compounds						
5) 2-Fluorophenol	1.778	112	49343	27.68	ppb	0.09
Spiked Amount 50.000	Range 11 - 58		Recovery = 55.36%			
8) Phenol-d5	2.580	99	14614	6.61	ppb	0.02
Spiked Amount 50.000	Range 10 - 59		Recovery = 13.22%			
25) Nitrobenzene-d5	3.570	82	65118	35.28	ppb	0.04
Spiked Amount 50.000	Range 19 - 61		Recovery = 70.56%#			
51) 2-Fluorobiphenyl	6.148	172	117617	33.23	ppb	0.03
Spiked Amount 50.000	Range 21 - 58		Recovery = 66.46%#			
73) 2,4,6-Tribromophenol	8.378	330	14371	35.02	ppb	0.04
Spiked Amount 50.000	Range 12 - 68		Recovery = 70.04%#			
85) Terphenyl-d14	11.914	244	125732	32.80	ppb	0.03
Spiked Amount 50.000	Range 16 - 65		Recovery = 65.60%#			
Target Compounds						Qvalue
59) Acenaphthene	7.153	153	11622	3.70	ppb	96
77) Phenanthrene	9.405	178	25367	4.59	ppb	92
81) Fluoranthene	11.256	202	28761	5.07	ppb	87
84) Pyrene	11.566	202	40283	6.50	ppb	99
88) Benzo[a]anthracene	13.235	228	13233	2.44	ppb	96
90) Chrysene	13.283	228	14440	2.80	ppb	96
91) bis(2-Ethylhexyl)phtha...	13.534	149	17667	4.12	ppb	97
94) Benzo[b]fluoranthene	14.529	252	12453m	2.18	ppb	
95) Benzo[k]fluoranthene	14.545	252	5537m	1.11	ppb	
96) Benzo[a]pyrene	14.866	252	9098	1.83	ppb	97
97) Indeno[1,2,3-cd]pyrene	15.968	276	6539	1.14	ppb	96
101) Benzo[g,h,i]perylene	16.187	276	6387	1.31	ppb	93

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

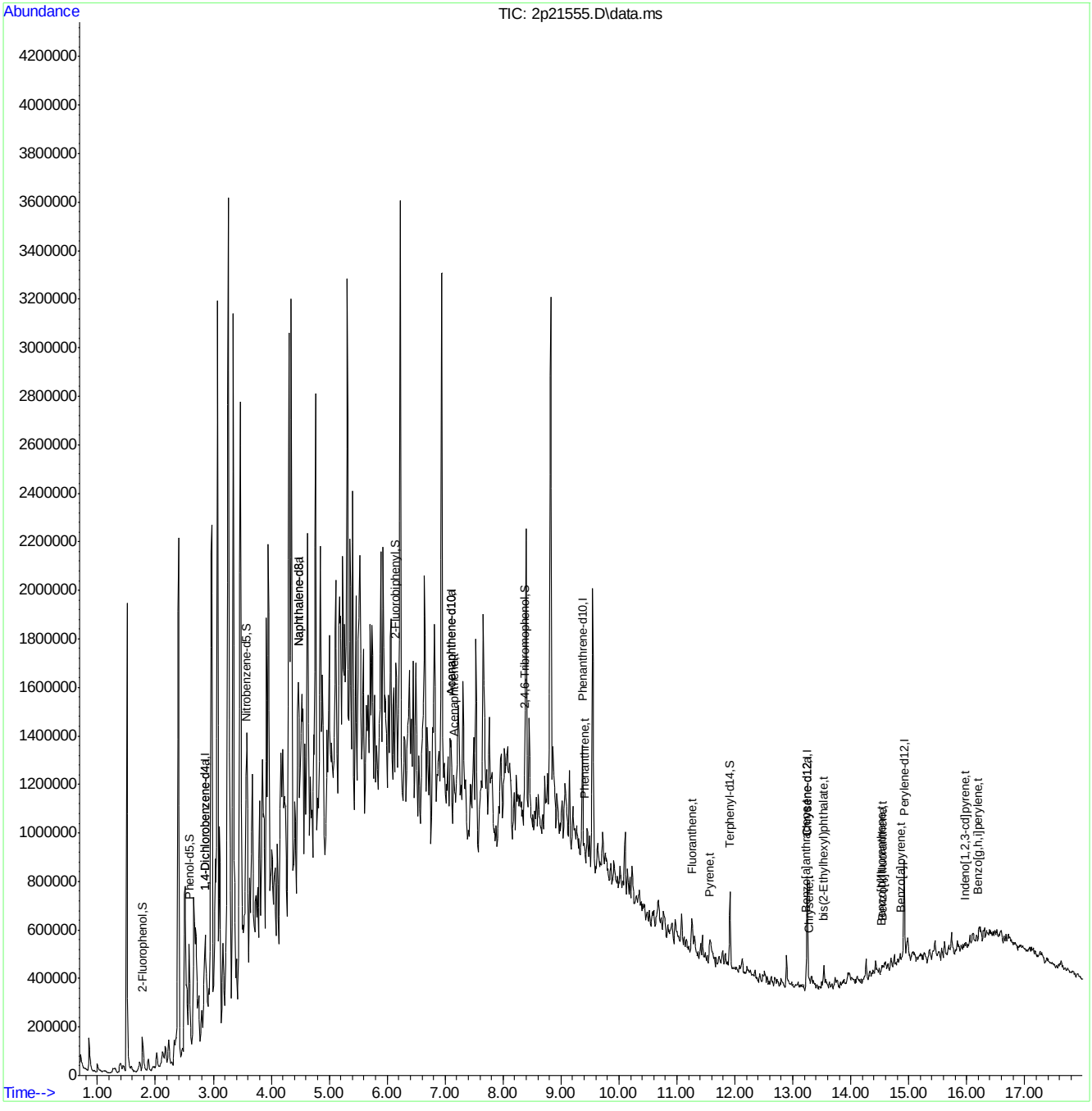
9.1.31

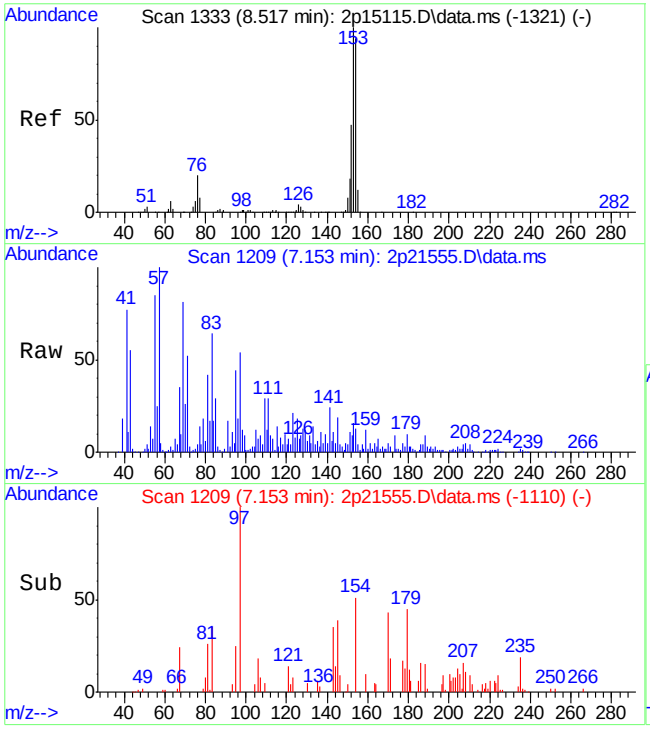
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21555.D
Acq On : 27 Mar 2013 12:47 am
Operator : ashleyd
Sample : jb31121-24
Misc : op64463,e2p947,35.4
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 28 15:49:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

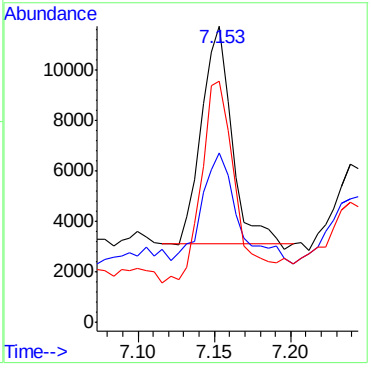


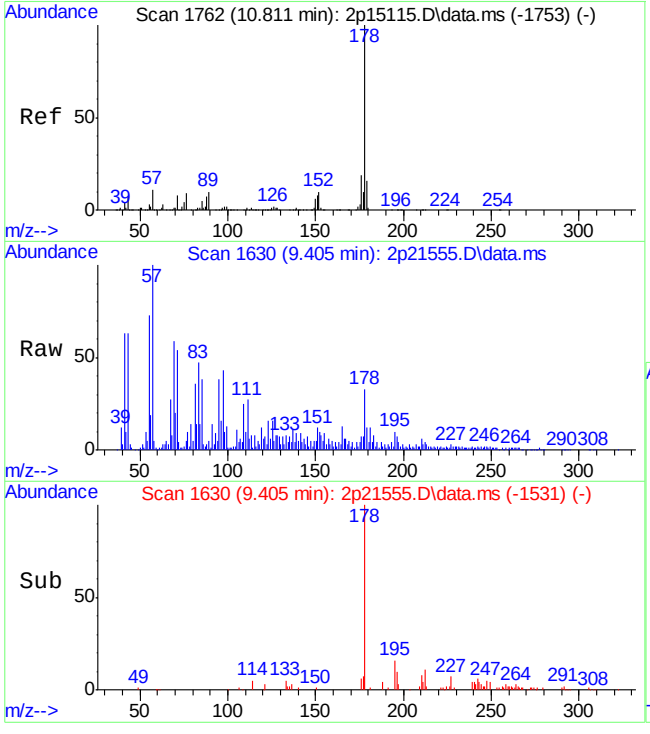


#59
Acenaphthene
Concen: 3.70 ppb
RT: 7.153 min Scan# 1209
Delta R.T. 0.031 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:153 Resp: 11622

Ion	Ratio	Lower	Upper
153	100		
152	48.0	17.8	77.8
154	88.7	65.2	125.2

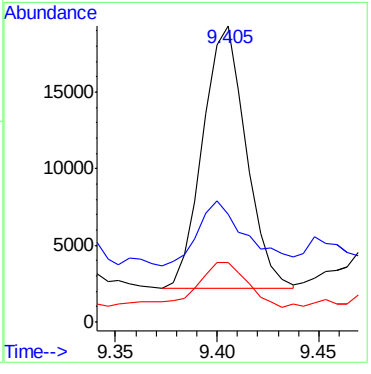




#77
Phenanthrene
Concen: 4.59 ppb
RT: 9.405 min Scan# 1630
Delta R.T. 0.031 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:178 Resp: 25367

Ion	Ratio	Lower	Upper
178	100		
179	18.0	0.0	44.4
176	15.4	0.0	48.6



9.1.31

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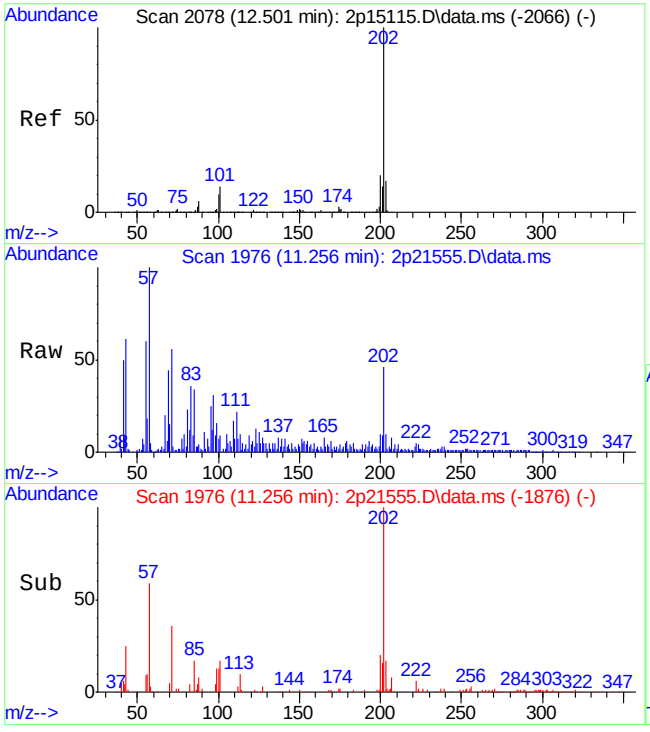
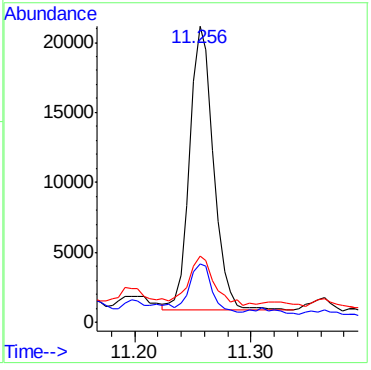
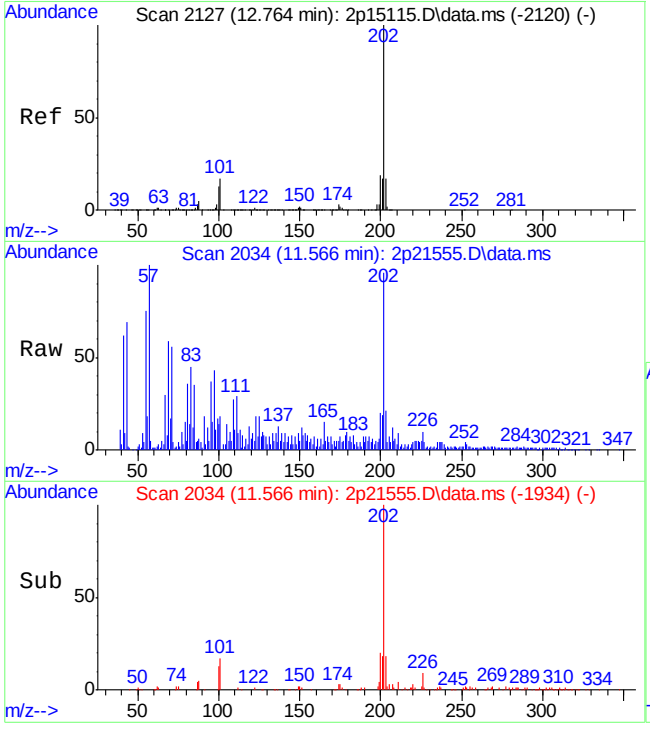


#81
Fluoranthene
Concen: 5.07 ppb
RT: 11.256 min Scan# 1976
Delta R.T. 0.037 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:202 Resp: 28761

Ion	Ratio	Lower	Upper
202	100		
101	19.6	0.0	41.3
203	22.4	0.0	49.1

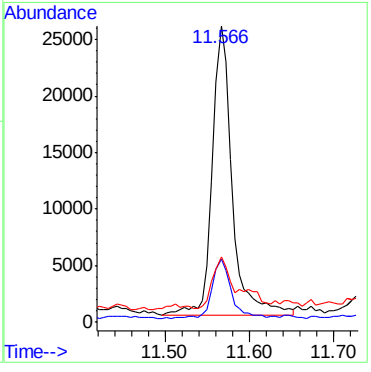




#84
Pyrene
Concen: 6.50 ppb
RT: 11.566 min Scan# 2034
Delta R.T. 0.037 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:202 Resp: 40283

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	49.6
203	17.1	0.0	46.9



9.1.31

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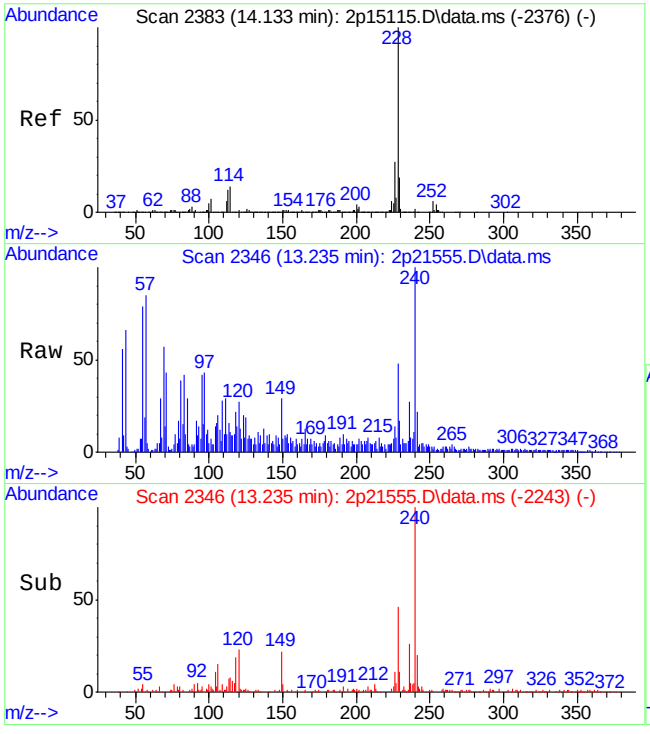
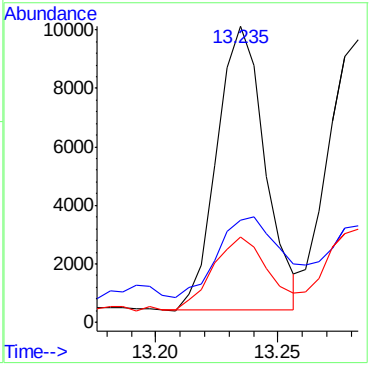
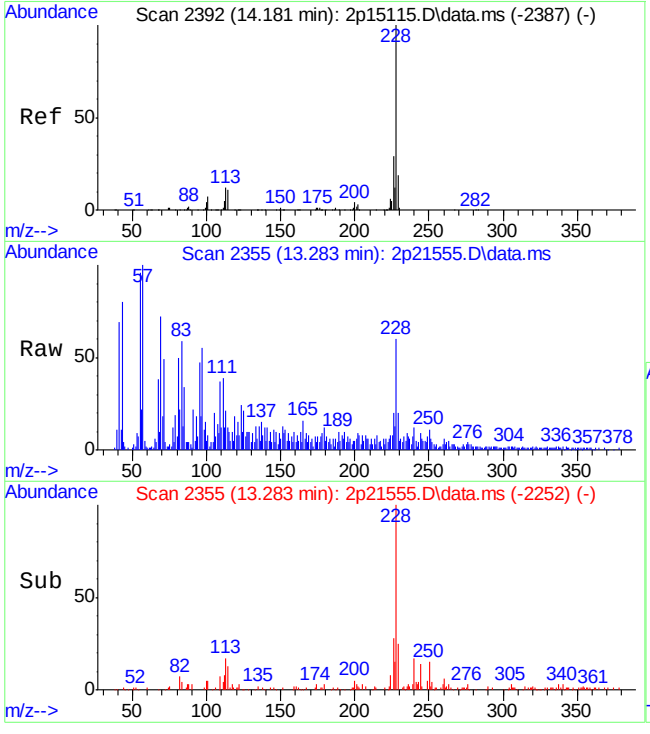


#88
Benzo[a]anthracene
Concen: 2.44 ppb
RT: 13.235 min Scan# 2346
Delta R.T. 0.053 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:228 Resp: 13233

Ion	Ratio	Lower	Upper
228	100		
229	22.3	0.0	50.7
226	24.1	0.0	56.7

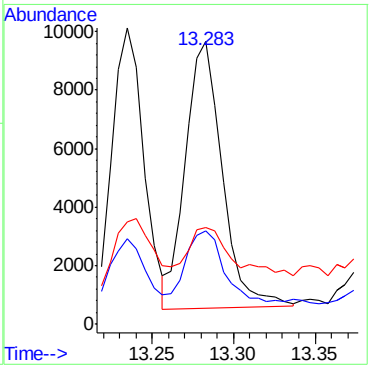




#90
Chrysene
Concen: 2.80 ppb
RT: 13.283 min Scan# 2355
Delta R.T. 0.053 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

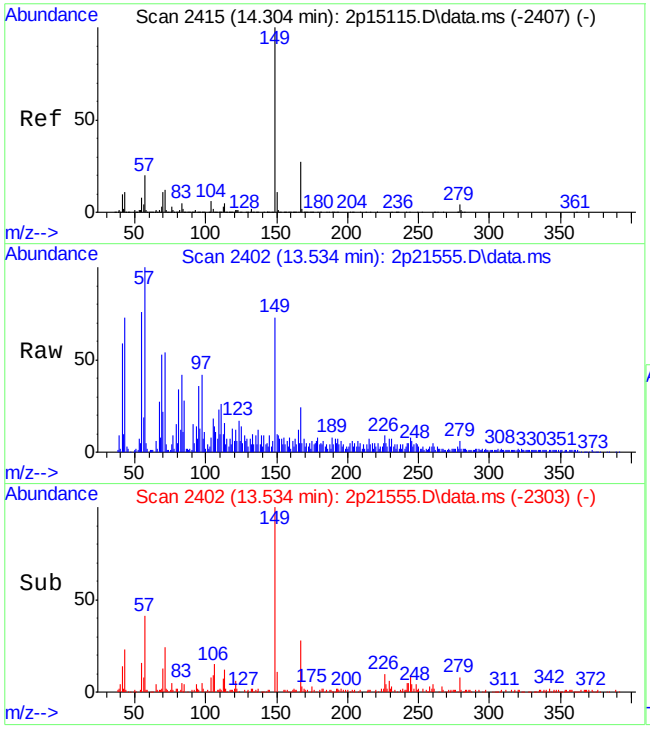
Tgt Ion:228 Resp: 14440

Ion	Ratio	Lower	Upper
228	100		
226	26.6	0.0	58.4
229	17.4	0.0	50.1



9.1.31

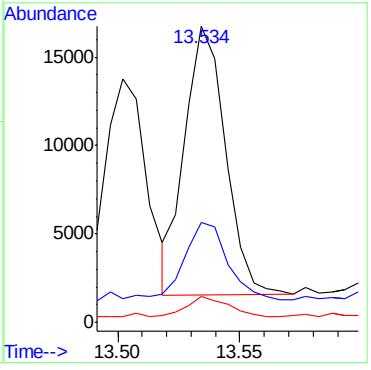
9

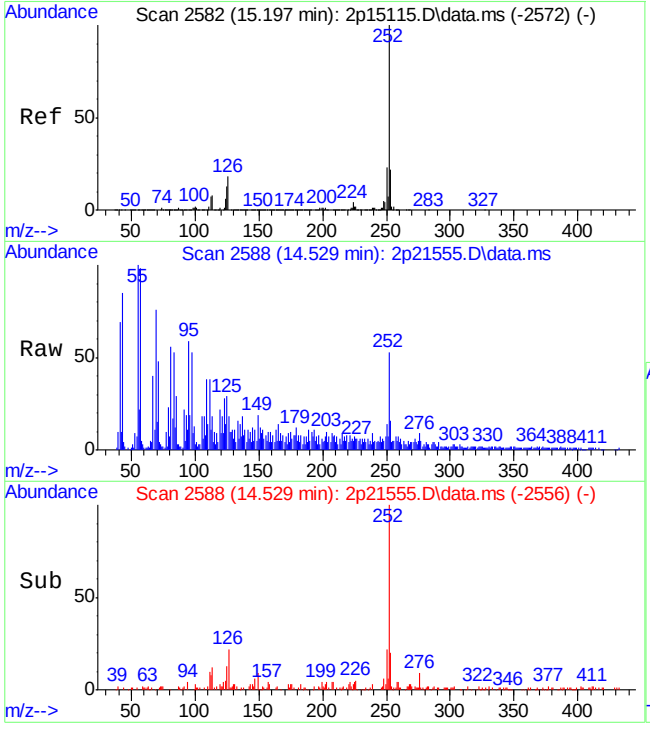


#91
bis(2-Ethylhexyl)phthalate
Concen: 4.12 ppb
RT: 13.534 min Scan# 2402
Delta R.T. 0.031 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:149 Resp: 17667

Ion	Ratio	Lower	Upper
149	100		
167	30.6	0.0	59.5
279	7.9	0.0	34.8

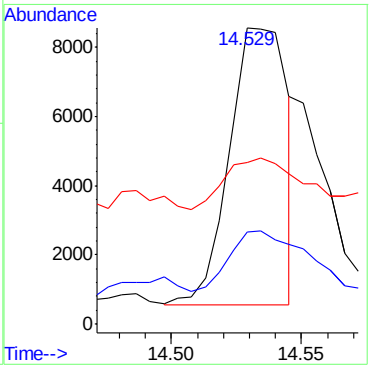




#94
Benzo[b]fluoranthene
Concen: 2.18 ppb m
RT: 14.529 min Scan# 2588
Delta R.T. 0.069 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

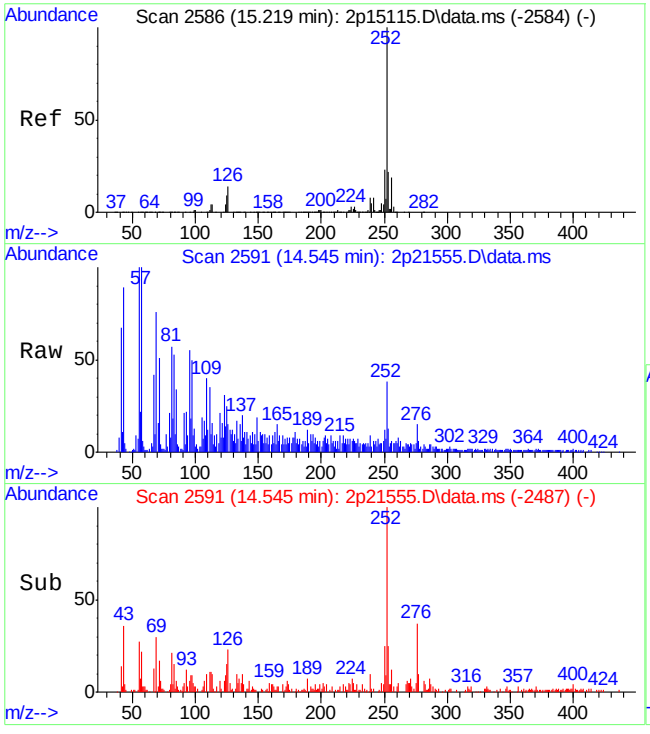
Tgt Ion:252 Resp: 12453

Ion	Ratio	Lower	Upper
252	100		
253	30.9	0.0	51.1
125	54.5	0.0	40.8#



9.1.31

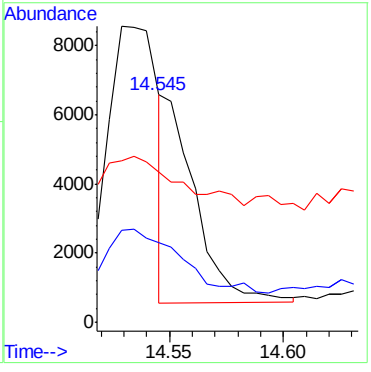
9

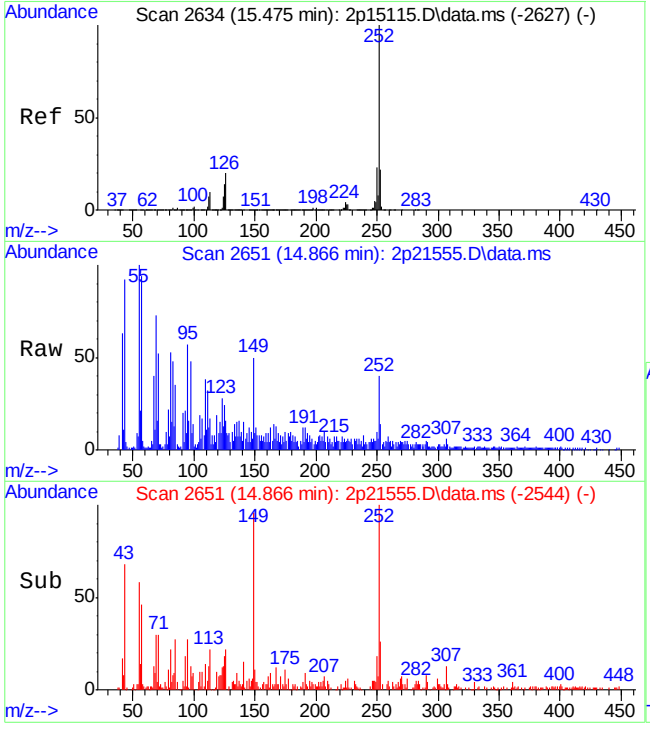


#95
Benzo[k]fluoranthene
Concen: 1.11 ppb m
RT: 14.545 min Scan# 2591
Delta R.T. 0.058 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:252 Resp: 5537

Ion	Ratio	Lower	Upper
252	100		
253	35.2	0.0	56.1
125	66.2	0.0	45.7#

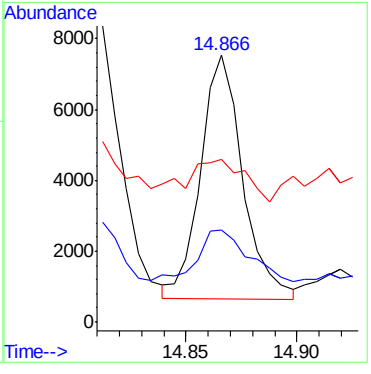




#96
Benzo[a]pyrene
Concen: 1.83 ppb
RT: 14.866 min Scan# 2651
Delta R.T. 0.074 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

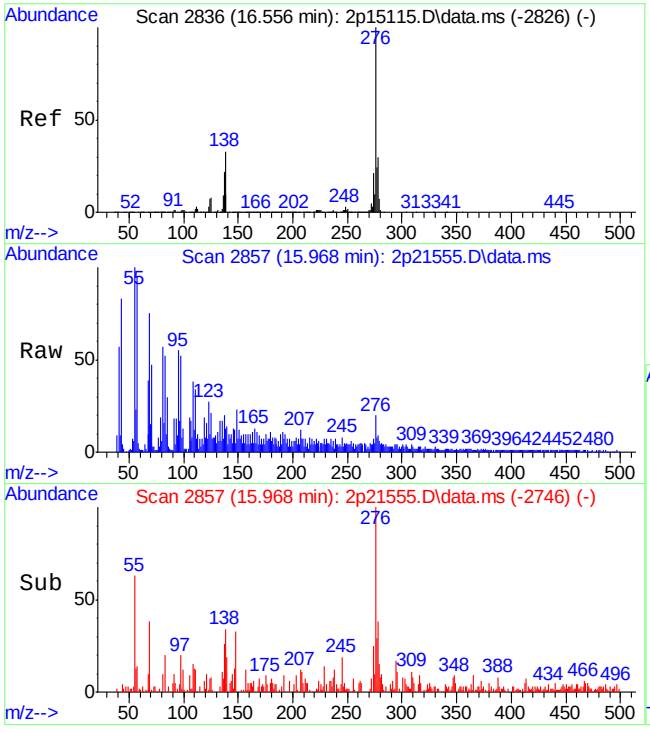
Tgt Ion:252 Resp: 9098

Ion	Ratio	Lower	Upper
252	100		
253	20.6	0.0	51.5
125	9.1	0.0	41.1



9.1.31

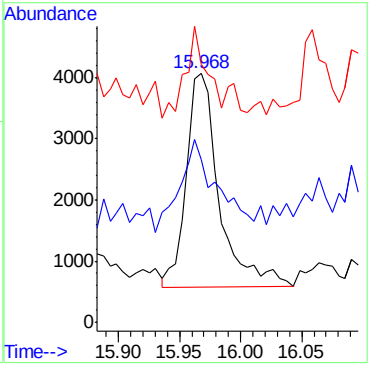
9

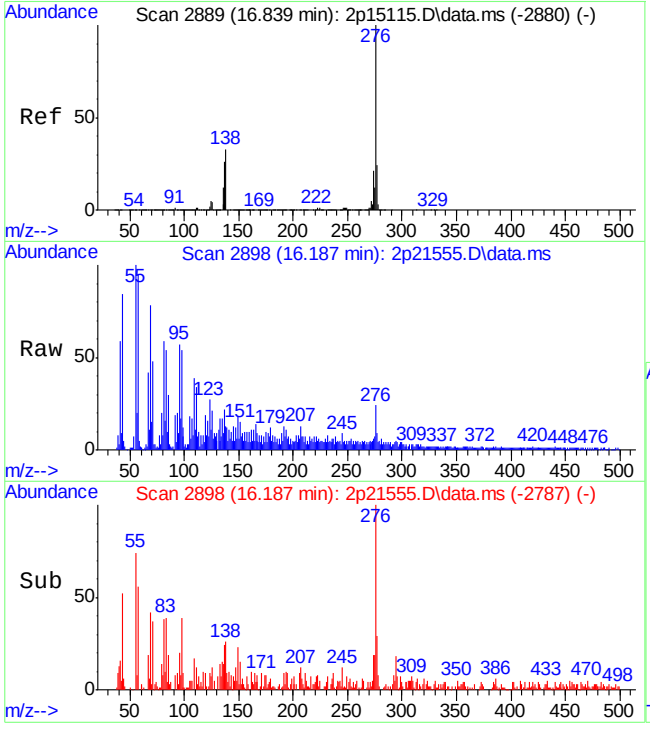


#97
Indeno[1,2,3-cd]pyrene
Concen: 1.14 ppb
RT: 15.968 min Scan# 2857
Delta R.T. 0.095 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:276 Resp: 6539

Ion	Ratio	Lower	Upper
276	100		
138	26.4	0.0	54.7
137	22.1	0.0	49.5

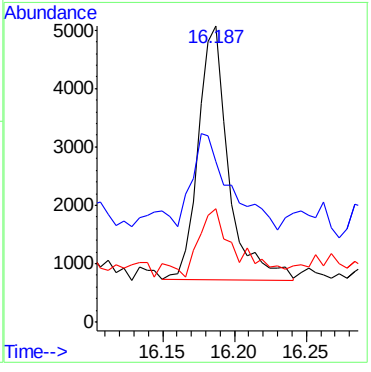




#101
Benzo[g,h,i]perylene
Concen: 1.31 ppb
RT: 16.187 min Scan# 2898
Delta R.T. 0.095 min
Lab File: 2p21555.D
Acq: 27 Mar 2013 12:47 am

Tgt Ion:276 Resp: 6387

Ion	Ratio	Lower	Upper
276	100		
138	20.0	0.0	55.6
277	22.3	0.0	53.3



9.1.31

9

Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21541.D
Acq On : 26 Mar 2013 7:28 pm
Operator : ashleyd
Sample : op64463-mb1
Misc : op64463,e2p947,35.0
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 28 15:48:38 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	2.853	152	50499	40.00	ppb	0.04
24) Naphthalene-d8	4.452	136	192767	40.00	ppb	0.08
47) Acenaphthene-d10	7.073	164	103563	40.00	ppb	0.00
69) Phenanthrene-d10	9.341	188	166766	40.00	ppb	0.00
83) Chrysene-d12	13.235	240	165244	40.00	ppb	0.03
92) Perylene-d12	14.898	264	145547	40.00	ppb	0.05
102) 1,4-Dichlorobenzene-d4a	2.853	152	50499	40.00	ppb	0.04
104) Acenaphthene-d10a	7.073	164	103563	40.00	ppb	0.00
107) Chrysene-d12a	13.235	240	165244	40.00	ppb	0.03
109) Naphthalene-d8a	4.452	136	192767	40.00	ppb	# 0.00
System Monitoring Compounds						
5) 2-Fluorophenol	1.783	112	45952	25.42	ppb	0.10
Spiked Amount 50.000	Range 11 - 58		Recovery = 50.84%			
8) Phenol-d5	2.650	99	67834	30.25	ppb	0.08
Spiked Amount 50.000	Range 10 - 59		Recovery = 60.50%#			
25) Nitrobenzene-d5	3.575	82	40468	22.82	ppb	0.05
Spiked Amount 50.000	Range 19 - 61		Recovery = 45.64%			
51) 2-Fluorobiphenyl	6.126	172	118138	35.67	ppb	0.00
Spiked Amount 50.000	Range 21 - 58		Recovery = 71.34%#			
73) 2,4,6-Tribromophenol	8.362	330	13713	36.79	ppb	0.03
Spiked Amount 50.000	Range 12 - 68		Recovery = 73.58%#			
85) Terphenyl-d14	11.897	244	148193	42.57	ppb	0.02
Spiked Amount 50.000	Range 16 - 65		Recovery = 85.14%#			

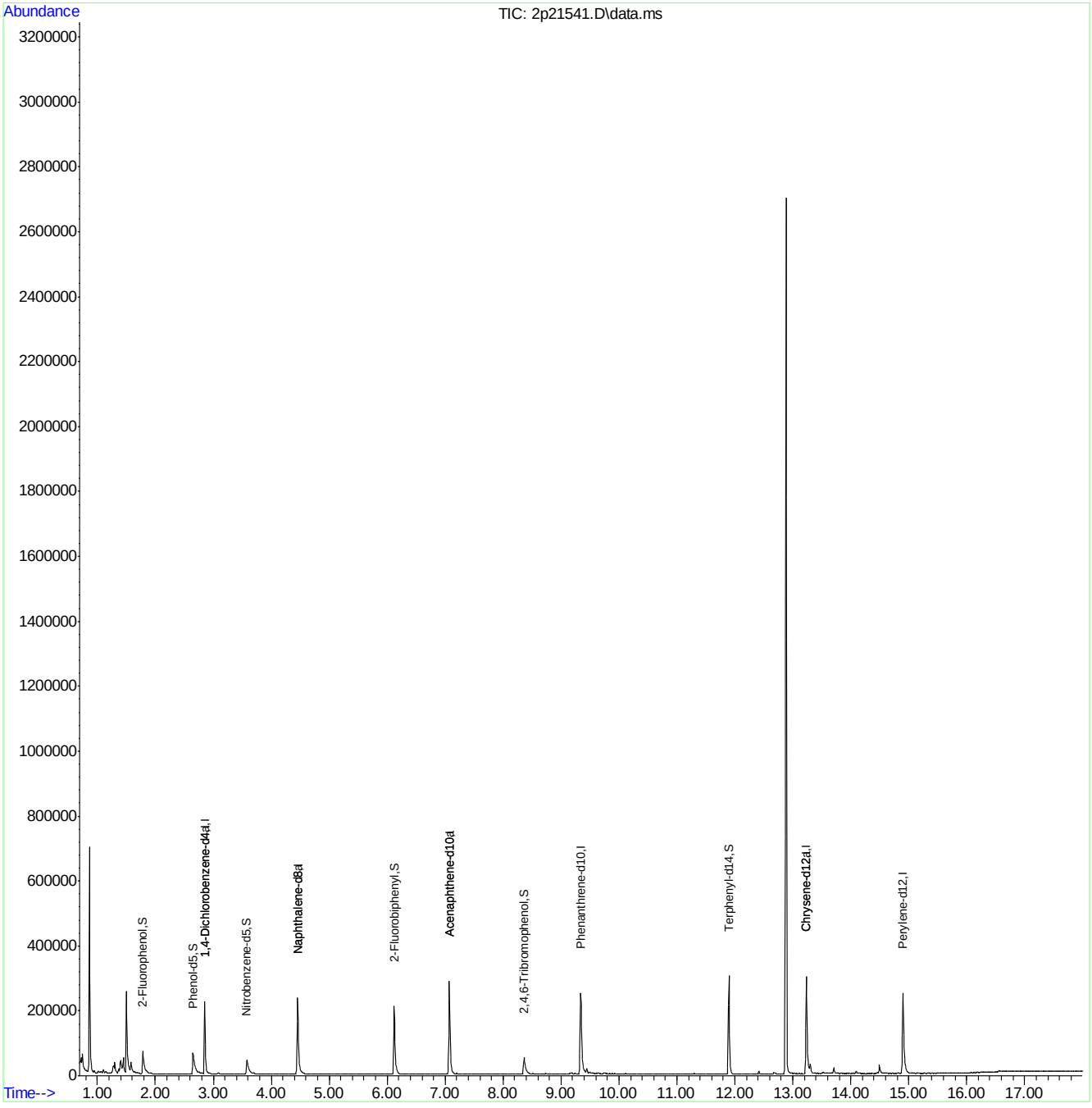
Target Compounds Qvalue

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

Quantitation Report (QT/LSC Reviewed)

Data Path : C:\msdchem\1\DATA\2p947\
Data File : 2p21541.D
Acq On : 26 Mar 2013 7:28 pm
Operator : ashleyd
Sample : op64463-mb1
Misc : op64463,e2p947,35.0
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 28 15:48:38 2013
Quant Method : C:\MSDCHEM\1\METHODS\M2P896.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Mar 22 18:09:19 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48833.D
Acq On : 26 Mar 2013 11:26 am
Operator : olgaa
Sample : op64464-mb1
Misc : op64464,e3e2111,35.0
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 26 15:13:21 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	2.607	152	103109	40.00 ppb	-0.01
24) Naphthalene-d8	4.163	136	424828	40.00 ppb	-0.01
47) Acenaphthene-d10	6.747	164	251231	40.00 ppb	-0.02
69) Phenanthrene-d10	8.982	188	488932	40.00 ppb	-0.01
83) Chrysene-d12	12.737	240	529131	40.00 ppb	-0.01
92) Perylene-d12	14.133	264	505373	40.00 ppb	0.00
102) 1,4-Dichlorobenzene-d4a	2.607	152	103109	40.00 ppb	-0.01
104) Acenaphthene-d10a	6.747	164	251231	40.00 ppb	-0.02
106) Phenanthrene-d10a	8.982	188	488932	40.00 ppb	-0.01
108) Chrysene-d12a	12.737	240	529131	40.00 ppb	-0.01

System Monitoring Compounds					
5) 2-Fluorophenol	1.596	112	86613	24.81 ppb	0.01
Spiked Amount 50.000			Recovery	= 49.62%	
8) Phenol-d5	2.420	99	103995	23.73 ppb	0.02
Spiked Amount 50.000			Recovery	= 47.46%	
25) Nitrobenzene-d5	3.302	82	113850	29.47 ppb	0.00
Spiked Amount 50.000			Recovery	= 58.94%	
51) 2-Fluorobiphenyl	5.821	172	237553	29.13 ppb	-0.01
Spiked Amount 50.000			Recovery	= 58.26%	
73) 2,4,6-Tribromophenol	8.030	330	32238	22.75 ppb	0.02
Spiked Amount 50.000			Recovery	= 45.50%	
85) Terphenyl-d14	11.544	244	397235	34.31 ppb	0.00
Spiked Amount 50.000			Recovery	= 68.62%	

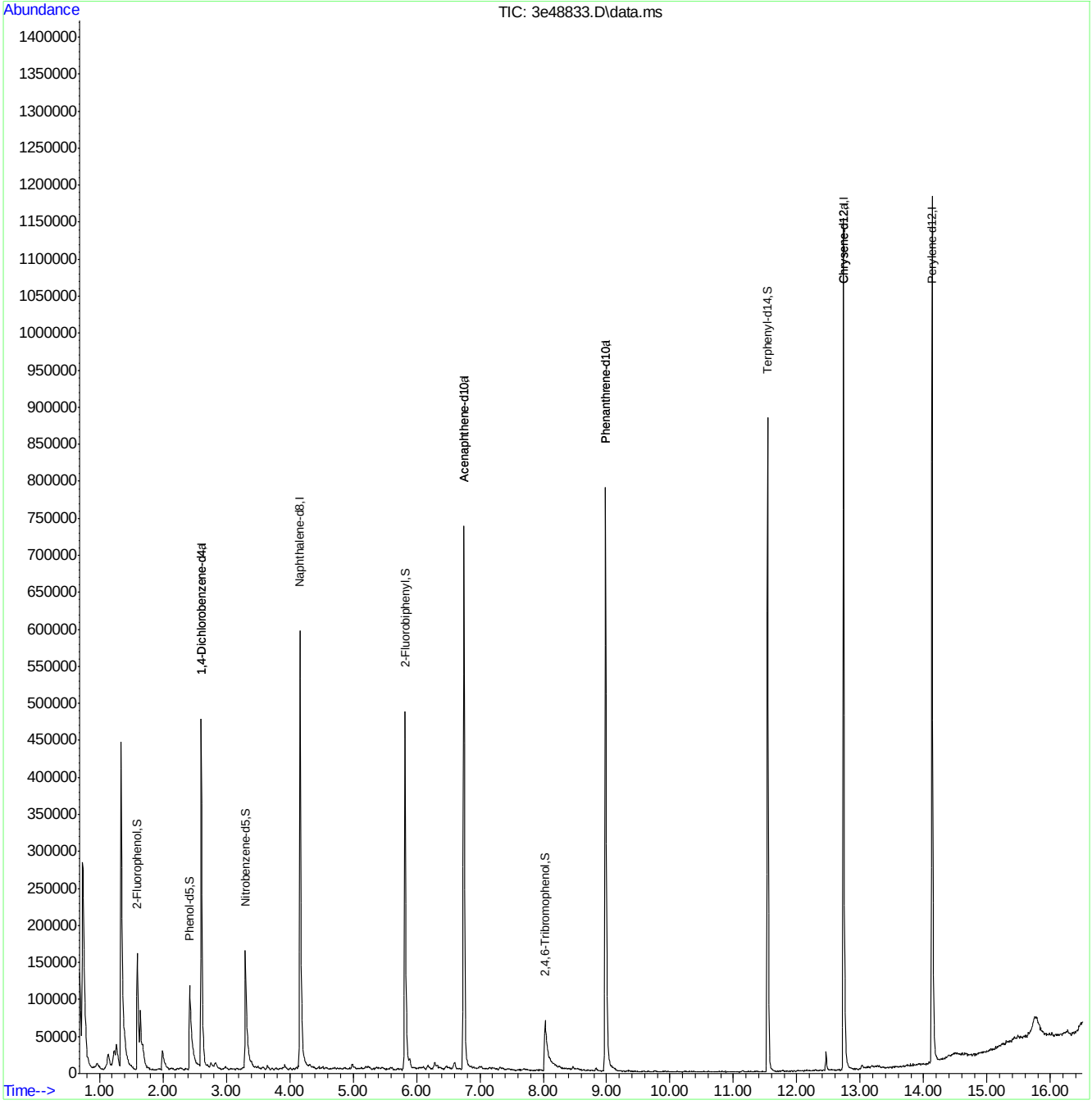
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3e2111\
Data File : 3e48833.D
Acq On : 26 Mar 2013 11:26 am
Operator : olgaa
Sample : op64464-mb1
Misc : op64464,e3e2111,35.0
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 26 15:13:21 2013
Quant Method : C:\msdchem\1\METHODS\M3E2061.M
Quant Title : Semi Volatile GC/MS, ZB-5MS 15m x .25mm x .25um
QLast Update : Thu Mar 21 13:58:55 2013
Response via : Initial Calibration



M3E2061.M Tue Mar 26 15:13:34 2013 MS3E

Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\822\
Data File : 3p18178.D
Acq On : 28 Mar 2013 11:27 am
Operator : katelynh
Sample : op64463-mb1
Misc : op64463,e3p822,35.0
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 28 13:03:03 2013
Quant Method : C:\msdchem\1\METHODS\M3P782.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Mar 20 09:29:45 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.810	152	125169	40.00	ppb	-0.06
24) Naphthalene-d8	5.516	136	447260	40.00	ppb	-0.07
47) Acenaphthene-d10	8.212	164	238971	40.00	ppb	-0.07
69) Phenanthrene-d10	10.570	188	388056	40.00	ppb	-0.07
83) Chrysene-d12	14.347	240	391571	40.00	ppb	-0.05
91) Perylene-d12	16.015	264	397788	40.00	ppb	-0.05
101) 1,4-Dichlorobenzene-d4a	3.810	152	124976	40.00	ppb	-0.05
103) Acenaphthene-d10a	8.212	164	238971	40.00	ppb	-0.06
106) Chrysene-d12a	14.347	240	391571	40.00	ppb	-0.04
108) Naphthalene-d8a	5.516	136	447260	40.00	ppb	-0.05
System Monitoring Compounds						
5) 2-Fluorophenol	2.521	112	100711	23.98	ppb	-0.04
Spiked Amount 50.000			Recovery = 47.96%			
8) Phenol-d5	3.451	99	135189	26.93	ppb	-0.07
Spiked Amount 50.000			Recovery = 53.86%			
25) Nitrobenzene-d5	4.537	82	106478	27.91	ppb	-0.05
Spiked Amount 50.000			Recovery = 55.82%			
51) 2-Fluorobiphenyl	7.201	172	272997	36.07	ppb	-0.07
Spiked Amount 50.000			Recovery = 72.14%			
73) 2,4,6-Tribromophenol	9.501	330	55563	42.35	ppb	-0.07
Spiked Amount 50.000			Recovery = 84.70%			
85) Terphenyl-d14	12.993	244	377126	46.15	ppb	-0.06
Spiked Amount 50.000			Recovery = 92.30%			

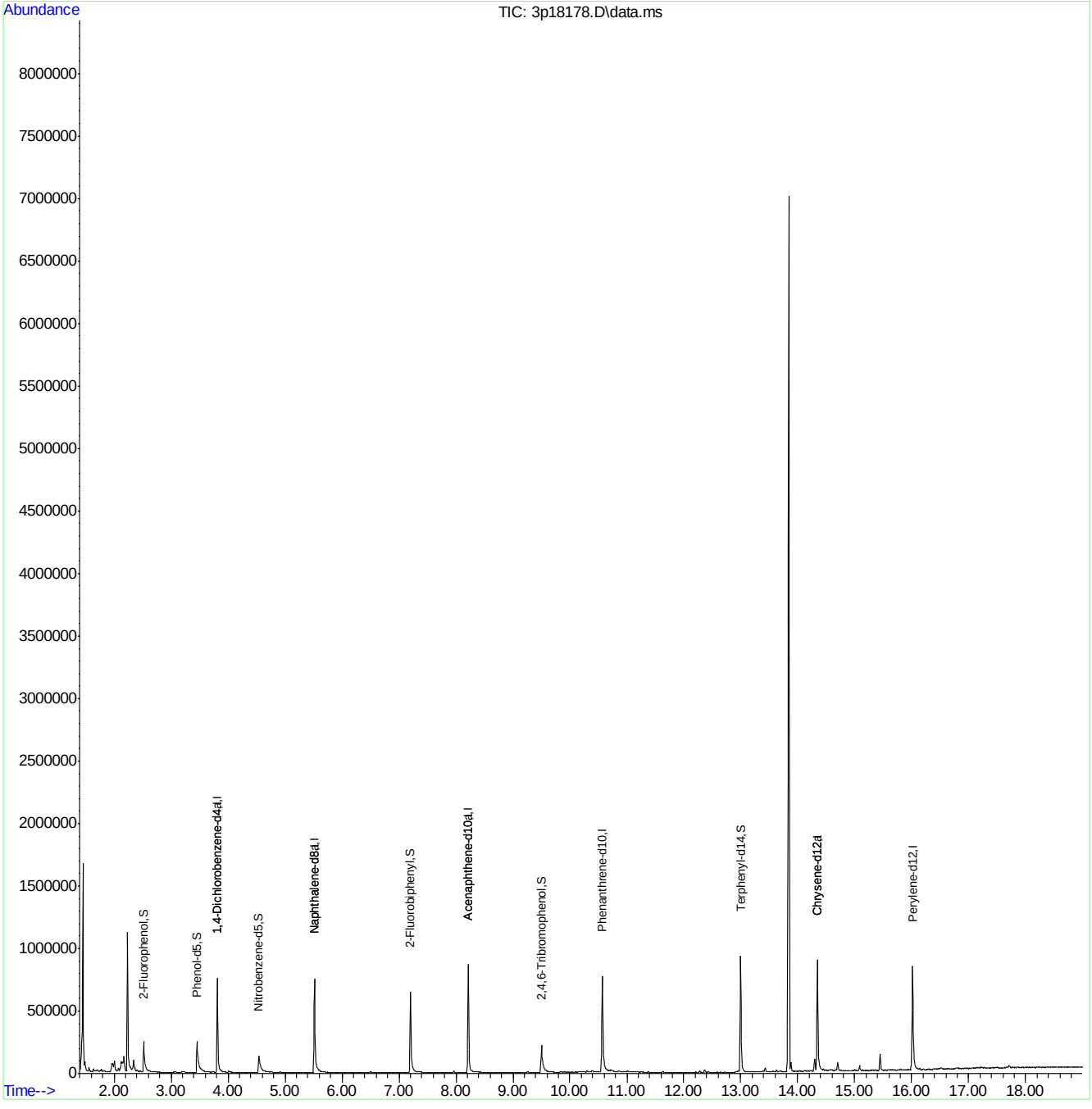
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\822\
Data File : 3p18178.D
Acq On : 28 Mar 2013 11:27 am
Operator : katelynh
Sample : op64463-mb1
Misc : op64463,e3p822,35.0
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 28 13:03:03 2013
Quant Method : C:\msdchem\1\METHODS\M3P782.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Mar 20 09:29:45 2013
Response via : Initial Calibration



M3P782.M Thu Mar 28 13:03:06 2013 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\EM3746\M92408.D Vial: 12
Acq On : 26 Mar 2013 1:44 pm Operator: olgaa
Sample : op64463-mb1 Inst : MSM
Misc : op64463,em3746,35.0 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 26 14:23 2013 Quant Results File: MM3735.RES

Quant Method : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Wed Mar 20 12:28:08 2013
Response via : Initial Calibration
DataAcq Meth : MM3735

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	5.30	152	111033	40.00 ppb	-0.06
24) Naphthalene-d8	6.59	136	394841	40.00 ppb	-0.07
47) Acenaphthene-d10	9.17	164	247235	40.00 ppb	-0.08
69) Phenanthrene-d10	11.85	188	385416	40.00 ppb	-0.08
83) Chrysene-d12	17.10	240	282949	40.00 ppb	-0.07
92) Perylene-d12	19.77	264	210864	40.00 ppb	-0.06
102) 1,4-Dichlorobenzene-d4a	5.30	152	111033	40.00 ppb	-0.06
104) Acenaphthene-d10a	9.17	164	247235	40.00 ppb	-0.08
106) Phenanthrene-d10a	11.85	188	385416	40.00 ppb	-0.08
108) Chrysene-d12a	17.10	240	282949	40.00 ppb	-0.06

System Monitoring Compounds					
5) 2-Fluorophenol	4.32	112	93746	22.74 ppb	-0.04
Spiked Amount 50.000			Recovery = 45.48%		
8) Phenol-d5	5.02	99	147587	28.05 ppb	-0.05
Spiked Amount 50.000			Recovery = 56.10%		
25) Nitrobenzene-d5	5.83	82	92878	23.84 ppb	-0.06
Spiked Amount 50.000			Recovery = 47.68%		
51) 2-Fluorobiphenyl	8.06	172	272536	36.25 ppb	-0.08
Spiked Amount 50.000			Recovery = 72.50%		
73) 2,4,6-Tribromophenol	10.58	330	35275	43.39 ppb	-0.08
Spiked Amount 50.000			Recovery = 86.78%		
86) Terphenyl-d14	15.06	244	316005	48.34 ppb	-0.07
Spiked Amount 50.000			Recovery = 96.68%		

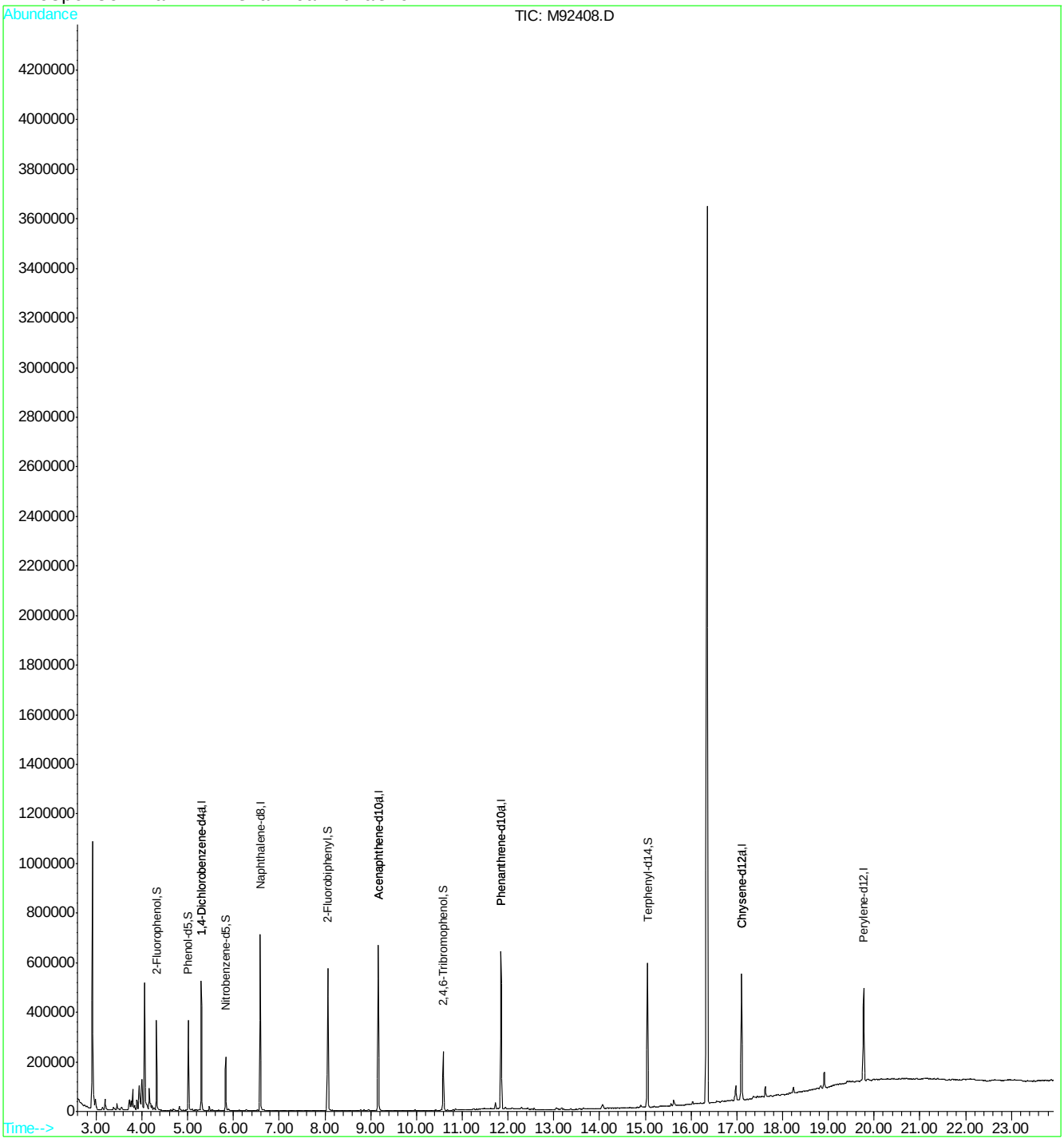
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\EM3746\M92408.D Vial: 12
Acq On : 26 Mar 2013 1:44 pm Operator: olgaa
Sample : op64463-mb1 Inst : MSM
Misc : op64463,em3746,35.0 Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Mar 26 14:23 2013 Quant Results File: MM3735.RES

Method : C:\HPCHEM\1\METHODS\MM3735.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSI 30m x .25mm x .25um
Last Update : Wed Mar 20 12:28:08 2013
Response via : Initial Calibration



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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:48	MA30761-STD1	1		STDA
08:54	MA30761-STD2	1		STDB
08:59	MA30761-STD3	1		STDC
09:05	MA30761-STD4	1		STDD
09:11	MA30761-CCV1	1		
09:16	MA30761-CCB1	1		
09:22	MA30761-CRI1	1		
09:28	MA30761-CRID1	1		
09:34	MA30761-CRIA1	1		
09:42	MA30761-ICV1	1		
09:54	MA30761-ICB1	1		
10:08	MA30761-ICCV1	1		
10:19	MA30761-CCB2	1		
10:26	MA30761-CRID2	1		
10:31	MA30761-ICSA1	1		
10:37	MA30761-ICSAB1	1		
10:43	ZZZZZZ	1		
10:49	ZZZZZZ	1		
10:55	ZZZZZZ	1		
11:01	ZZZZZZ	1		
11:07	MA30761-CCV2	1		
11:13	MA30761-CCB3	1		
11:19	MP70583-MB1	1		Exceeds 10 samples between CCV-s
11:24	MP70583-B1	1		Exceeds 10 samples between CCV-s
11:30	MP70583-S1	1		Exceeds 10 samples between CCV-s
11:36	MP70583-S2	1		Exceeds 10 samples between CCV-s
11:42	JB30942-2	1		(sample used for QC only; not part of login JB31121)
11:48	MP70583-SD1	5		Exceeds 10 samples between CCV-s
11:54	MP70583-PS1	1		Exceeds 10 samples between CCV-s
12:00	ZZZZZZ	1		
12:05	ZZZZZZ	1		
12:11	MA30761-CRI2	1		Exceeds 10 samples between CCV-s
12:17	MA30761-CRID3	1		Exceeds 10 samples between CCV-s

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:23	ZZZZZZ	1		
12:29	ZZZZZZ	1		
12:35	ZZZZZZ	1		
12:41	MA30761-CCV3	1		
12:46	MA30761-CCB4	1		
12:52	MP70583-MB1	1		
12:58	MP70583-B1	1		
13:04	MP70583-S1	1		
13:10	MP70583-S2	1		
13:16	JB30942-2	1		(sample used for QC only; not part of login JB31121)
13:21	MP70583-SD1	5		
13:27	ZZZZZZ	1		
13:33	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:45	MA30761-CCV4	1		
13:51	MA30761-CCB5	1		
13:56	ZZZZZZ	1		
14:02	ZZZZZZ	1		
14:08	ZZZZZZ	1		
14:14	MP70583-S1	2		
14:20	MP70583-S2	2		
14:26	JB30942-2	2		(sample used for QC only; not part of login JB31121)
14:31	MP70583-SD1	10		
14:37	ZZZZZZ	2		
14:43	ZZZZZZ	2		
14:49	MA30761-CCV5	1		
14:55	MA30761-CCB6	1		
15:01	ZZZZZZ	5		
15:07	ZZZZZZ	2		
15:12	ZZZZZZ	5		
15:18	MP70583-PS1	1		
15:24	ZZZZZZ	1		
15:30	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:36	MP70583-PS1	2		
15:41	ZZZZZZ	1		
15:47	ZZZZZZ	1		
15:53	MA30761-CCV6	1		
16:01	MA30761-CCB7	1		
16:07	ZZZZZZ	1		
16:13	ZZZZZZ	1		
16:19	ZZZZZZ	1		
16:25	ZZZZZZ	1		
16:31	ZZZZZZ	5		
16:36	ZZZZZZ	5		
16:42	ZZZZZZ	5		
16:48	ZZZZZZ	5		
16:54	ZZZZZZ	2		
17:00	ZZZZZZ	2		
17:05	MA30761-CCV7	1		
17:11	MA30761-CCB8	1		
17:17	MA30761-CRID4	1		
17:23	MA30761-CRI3	1		
17:29	ZZZZZZ	3		
17:35	MA30761-CRIA2	1		
17:41	MA30761-ICSA2	1		
17:47	MA30761-ICSAB2	1		
17:53	MA30761-CCV8	1		
17:58	MA30761-CCB9	1		
18:04	MP70600-MB1	1		
18:10	MP70600-B1	1		
18:16	MP70600-LC1	1		
18:22	MP70600-S1	1		
18:27	MP70600-S2	1		
18:33	JB31846-42	1		(sample used for QC only; not part of login JB31121)
18:39	MP70600-SD1	5		
18:45	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	18:51	ZZZZZZ	1		
	18:56	MA30761-CCV9	1		
	19:02	MA30761-CCB10	1		
	19:08	ZZZZZZ	1		
	19:14	ZZZZZZ	1		
	19:20	JB31121-21	1		
	19:25	JB31121-22	1		
	19:31	JB31121-23	1		
	19:37	JB31121-24	1		
---------->	Last reportable sample/prep for job JB31121				
	19:43	ZZZZZZ	1		
	19:49	ZZZZZZ	1		
	19:54	ZZZZZZ	1		
	20:00	ZZZZZZ	1		
	20:06	MA30761-CCV10	1		
	20:12	MA30761-CCB11	1		
	20:18	ZZZZZZ	1		
	20:23	ZZZZZZ	1		
	20:29	ZZZZZZ	1		
	20:35	ZZZZZZ	1		
	20:41	ZZZZZZ	1		
	20:47	ZZZZZZ	1		
	20:52	ZZZZZZ	1		
	20:58	ZZZZZZ	1		
	21:04	ZZZZZZ	1		
	21:10	ZZZZZZ	1		
	21:15	MA30761-CCV11	1		
	21:21	MA30761-CCB12	1		
	21:27	ZZZZZZ	1		
	21:33	ZZZZZZ	1		
	21:38	ZZZZZZ	1		
	21:44	MP70584-B1	1		
	21:50	MP70584-MB1	1		
	21:56	MP70584-S1	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:02	MP70584-S2	1		
22:07	JB31608-9	1		(sample used for QC only; not part of login JB31121)
22:13	MP70584-SD1	5		
22:19	ZZZZZZ	1		
22:25	MA30761-CCV12	1		
22:30	MA30761-CCB13	1		
22:36	ZZZZZZ	1		
22:42	ZZZZZZ	1		
22:48	ZZZZZZ	1		
22:54	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:05	ZZZZZZ	1		
23:11	ZZZZZZ	1		
23:17	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:34	MA30761-CCV13	1		
23:40	MA30761-CCB14	1		
23:46	ZZZZZZ	1		
23:52	ZZZZZZ	1		
23:58	ZZZZZZ	1		
00:03	ZZZZZZ	1		
00:09	ZZZZZZ	1		
00:15	ZZZZZZ	1		
00:21	ZZZZZZ	1		
00:27	ZZZZZZ	1		
00:32	MP70602-LC1	1		Batch to reanalyze for Fe, high MB
00:38	MP70602-MB1	1		
00:44	MA30761-CCV14	1		
00:50	MA30761-CCB15	1		
00:56	ZZZZZZ	1		
01:02	MA30761-CRI4	1		
01:07	MA30761-CRID5	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	01:13	MA30761-CRIA3	1		
	01:19	MA30761-ICSA3	1		
	01:25	MA30761-ICSAB3	1		
	01:31	MA30761-CCV15	1		
	01:37	MA30761-CCB16	1		
---------->	Last reportable CCB for job JB31121				
	01:43	MP70602-S1	1		
	01:48	MP70602-S2	1		
	01:54	JB31886-2	1		(sample used for QC only; not part of login JB31121)
	02:00	MP70602-SD1	5		
	02:06	ZZZZZZ	1		
	02:12	ZZZZZZ	1		
	02:18	ZZZZZZ	1		
	02:24	ZZZZZZ	1		
	02:29	MA30761-CCV16	1		
	02:35	MA30761-CCB17	1		
	02:41	MP70581-MB1	1		rerun for several elements
	02:47	MP70581-LC1	1		
	02:53	MP70581-S1	1		AS, Na and S high
	02:58	MP70581-S2	1		AS, Na and S high
	03:04	JB31096-1	1		(sample used for QC only; not part of login JB31121)
	03:10	MP70581-SD1	5		AS, Na and S high
	03:16	MP70581-S3	1		AS, Na and S high
	03:22	MP70581-S4	1		AS, Na and S high
	03:28	JB31096-1F	1		(sample used for QC only; not part of login JB31121)
	03:34	MP70581-SD2	5		AS, Na and S high
	03:40	MA30761-CCV17	1		
	03:45	MA30761-CCB18	1		
	03:51	ZZZZZZ	1		
	03:57	ZZZZZZ	1		
	04:03	ZZZZZZ	1		
	04:09	ZZZZZZ	1		
	04:15	ZZZZZZ	1		
	04:21	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
04:27	ZZZZZZ	1		
04:33	ZZZZZZ	1		
04:39	ZZZZZZ	1		
04:45	ZZZZZZ	1		
04:51	MA30761-CCV18	1		
04:56	MA30761-CCB19	1		
05:02	ZZZZZZ	1		
05:08	ZZZZZZ	1		
05:14	ZZZZZZ	1		
05:20	ZZZZZZ	1		
05:26	ZZZZZZ	1		
05:32	ZZZZZZ	1		
05:38	ZZZZZZ	1		
05:44	MA30761-CCV19	1		
05:49	MA30761-CCB20	1		
05:55	MA30761-CRID6	1		
06:01	MA30761-CRI5	1		
06:07	MA30761-CRID7	1		
06:13	MA30761-CRIA4	1		
06:19	MA30761-ICSA4	1		
06:25	MA30761-ICSAB4	1		
06:31	MA30761-CCV20	1		
06:36	MA30761-CCB21	1		
07:46	MP70581-MB1	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
08:48	MA30761-STD1	1925 R	90028 R	23575 R	3212 R
08:54	MA30761-STD2	1877	87342	22833	2973
08:59	MA30761-STD3	1830	85254	23132	2868
09:05	MA30761-STD4	1779	82956	22835	2759
09:11	MA30761-CCV1	No results reported for the elements associated with this internal standard.			
09:16	MA30761-CCB1	No results reported for the elements associated with this internal standard.			
09:22	MA30761-CRI1	1902	89560	23668	3132
09:28	MA30761-CRID1	No results reported for the elements associated with this internal standard.			
09:34	MA30761-CRIA1	1933	90701	23665	3222
09:42	MA30761-ICV1	1841	86213	23283	2882
09:54	MA30761-ICB1	1940	90955	23387	3232
10:08	MA30761-ICCV1	1845	86007	23410	2886
10:19	MA30761-CCB2	1945	91445	23857	3245
10:26	MA30761-CRID2	1939	90917	23587	3221
10:31	MA30761-ICSA1	1655	77076	22033	2501
10:37	MA30761-ICSAB1	1663	77140	22048	2519
10:43	ZZZZZZ	1861	88748	23493	3140
10:49	ZZZZZZ	1970	87125	24603	2867
10:55	ZZZZZZ	1937	91706	23721	3227
11:01	ZZZZZZ	1930	91162	23801	3217
11:07	MA30761-CCV2	1821	85044	23076	2853
11:13	MA30761-CCB3	1950	92276	24096	3262
11:19	MP70583-MB1	No results reported for the elements associated with this internal standard.			
11:24	MP70583-B1	No results reported for the elements associated with this internal standard.			
11:30	MP70583-S1	No results reported for the elements associated with this internal standard.			
11:36	MP70583-S2	No results reported for the elements associated with this internal standard.			
11:42	JB30942-2	No results reported for the elements associated with this internal standard.			
11:48	MP70583-SD1	No results reported for the elements associated with this internal standard.			
11:54	MP70583-PS1	No results reported for the elements associated with this internal standard.			
12:00	ZZZZZZ	No results reported for the elements associated with this internal standard.			
12:05	ZZZZZZ	No results reported for the elements associated with this internal standard.			
12:11	MA30761-CRI2	No results reported for the elements associated with this internal standard.			
12:17	MA30761-CRID3	No results reported for the elements associated with this internal standard.			

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:23	ZZZZZZ	No results reported for the elements associated with this internal standard.			
12:29	ZZZZZZ	No results reported for the elements associated with this internal standard.			
12:35	ZZZZZZ	No results reported for the elements associated with this internal standard.			
12:41	MA30761-CCV3	1835	86729	23609	2879
12:46	MA30761-CCB4	1928	91739	23570	3230
12:52	MP70583-MB1	1926	92408	24454	3254
12:58	MP70583-B1	1826	86404	22954	2932
13:04	MP70583-S1	1692	81101	23363	2490
13:10	MP70583-S2	1722	81752	23117	2536
13:16	JB30942-2	1702	82010	23359	2498
13:21	MP70583-SD1	1845	87632	23556	2885
13:27	ZZZZZZ	1655	80114	22941	2403
13:33	ZZZZZZ	1729	82537	23216	2538
13:39	ZZZZZZ	1713	82912	23584	2536
13:45	MA30761-CCV4	1827	87505	23527	2874
13:51	MA30761-CCB5	1926	92313	23940	3235
13:56	ZZZZZZ	1663	80327	23522	2398
14:02	ZZZZZZ	1760	85364	23982	2597
14:08	ZZZZZZ	1667	80521	23644	2390
14:14	MP70583-S1	1748	83830	23220	2644
14:20	MP70583-S2	1755	84722	23597	2669
14:26	JB30942-2	1754	84959	23605	2658
14:31	MP70583-SD1	1834	88922	23610	2954
14:37	ZZZZZZ	1767	84894	23321	2683
14:43	ZZZZZZ	1749	85125	23683	2671
14:49	MA30761-CCV5	1815	86615	23420	2858
14:55	MA30761-CCB6	1919	92655	23830	3225
15:01	ZZZZZZ	1776	86181	23730	2750
15:07	ZZZZZZ	1815	87371	23352	2767
15:12	ZZZZZZ	1770	85835	23678	2749
15:18	MP70583-PS1	1655	80028	22820	2422
15:24	ZZZZZZ	1865	90041	24495	3012
15:30	ZZZZZZ	1823	88994	24469	3017

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:36	MP70583-PS1	1710	82884	23029	2580
15:41	ZZZZZZ	1681	82223	23852	2943
15:47	ZZZZZZ	1709	83043	23956	2927
15:53	MA30761-CCV6	1804	86410	23519	2848
16:01	MA30761-CCB7	1918	92203	23628	3226
16:07	ZZZZZZ	1711	84403	24665	2930
16:13	ZZZZZZ	1750	84731	24005	2972
16:19	ZZZZZZ	1789	85041	23628	2893
16:25	ZZZZZZ	1749	84036	23317	2721
16:31	ZZZZZZ	1830	89316	23945	2999
16:36	ZZZZZZ	1838	87254	23857	2993
16:42	ZZZZZZ	1855	88647	23809	3026
16:48	ZZZZZZ	1848	88877	23999	3017
16:54	ZZZZZZ	1868	88520	23647	3013
17:00	ZZZZZZ	1792	85961	23651	2841
17:05	MA30761-CCV7	1830	86920	23413	2882
17:11	MA30761-CCB8	1908	92529	23697	3217
17:17	MA30761-CRID4	1908	91746	23578	3201
17:23	MA30761-CRI3	1874	91682	23538	3110
17:29	ZZZZZZ	1885	91113	23471	3170
17:35	MA30761-CRIA2	1914	92519	23519	3217
17:41	MA30761-ICSA2	1613	77370	22335	2460
17:47	MA30761-ICSAB2	1639	78611	21933	2493
17:53	MA30761-CCV8	1812	86608	23300	2853
17:58	MA30761-CCB9	1917	92507	23644	3232
18:04	MP70600-MB1	1915	93096	24055	3238
18:10	MP70600-B1	1823	86934	23274	2939
18:16	MP70600-LC1	1868	90108	23830	2927
18:22	MP70600-S1	1831	87224	23603	2872
18:27	MP70600-S2	1850	87848	23392	2902
18:33	JB31846-42	1927	92402	24488	3083
18:39	MP70600-SD1	1943	92529	23767	3197
18:45	ZZZZZZ	1966	93517	25073	2976

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:51	ZZZZZZ	1885	89667	24047	2923
18:56	MA30761-CCV9	1816	86309	23088	2855
19:02	MA30761-CCB10	1926	92524	23665	3240
19:08	ZZZZZZ	2007	94353	25105	3004
19:14	ZZZZZZ	1829	88179	23918	3030
19:20	JB31121-21	1945	92381	24119	3039
19:25	JB31121-22	1932	91400	24635	2977
19:31	JB31121-23	1968	93129	24492	3020
19:37	JB31121-24	1617	79633	22861	2364
19:43	ZZZZZZ	1906	90725	24225	2955
19:49	ZZZZZZ	1907	91103	24689	2932
19:54	ZZZZZZ	1928	91885	24289	3017
20:00	ZZZZZZ	1921	91541	24202	3034
20:06	MA30761-CCV10	1833	86625	23412	2880
20:12	MA30761-CCB11	1932	92681	23431	3246
20:18	ZZZZZZ	1951	92944	24774	3057
20:23	ZZZZZZ	1936	92407	24131	3073
20:29	ZZZZZZ	1933	91931	24332	3041
20:35	ZZZZZZ	1931	92245	24215	3069
20:41	ZZZZZZ	1915	91671	24396	3045
20:47	ZZZZZZ	1935	91673	23962	3073
20:52	ZZZZZZ	1941	92647	24484	3069
20:58	ZZZZZZ	1943	91928	24267	2991
21:04	ZZZZZZ	1929	91864	24507	2986
21:10	ZZZZZZ	1948	91797	24764	2935
21:15	MA30761-CCV11	1832	86778	23075	2878
21:21	MA30761-CCB12	1950	92770	23295	3272
21:27	ZZZZZZ	1919	90608	24442	2933
21:33	ZZZZZZ	1929	90971	24084	2964
21:38	ZZZZZZ	1832	85752	23327	2747
21:44	MP70584-B1	1852	87130	22578	2972
21:50	MP70584-MB1	1954	93309	23697	3298
21:56	MP70584-S1	1880	86238	23073	2921

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
22:02	MP70584-S2	1858	86618	23241	2879
22:07	JB31608-9	1934	90102	23620	3031
22:13	MP70584-SD1	1955	92287	23635	3189
22:19	ZZZZZZ	1997	93633	25422	2856
22:25	MA30761-CCV12	1860	87252	22835	2914
22:30	MA30761-CCB13	1964	92995	23606	3296
22:36	ZZZZZZ	2637 !	121920 !	33273 !	2919
22:42	ZZZZZZ	1829	86147	23381	2776
22:48	ZZZZZZ	1914	89323	23765	2981
22:54	ZZZZZZ	1918	89325	23715	2935
23:00	ZZZZZZ	1924	89466	23502	2995
23:05	ZZZZZZ	1986	92488	24655	2953
23:11	ZZZZZZ	2082	97767	26313	2868
23:17	ZZZZZZ	1906	88565	23594	3027
23:23	ZZZZZZ	1981	92403	24205	3019
23:28	ZZZZZZ	1954	91381	24249	2992
23:34	MA30761-CCV13	1860	87236	23036	2911
23:40	MA30761-CCB14	1964	92690	23223	3291
23:46	ZZZZZZ	1820	86023	23631	2938
23:52	ZZZZZZ	1822	86448	23454	2953
23:58	ZZZZZZ	1800	85417	23284	2819
00:03	ZZZZZZ	2015	95418	26168	2622
00:09	ZZZZZZ	1861	87018	23347	2934
00:15	ZZZZZZ	1931	91228	23600	3030
00:21	ZZZZZZ	1930	91207	23681	3030
00:27	ZZZZZZ	1900	89631	23839	2933
00:32	MP70602-LC1	1881	88814	22618	3070
00:38	MP70602-MB1	1925	92139	23141	3242
00:44	MA30761-CCV14	1870	87251	22613	2923
00:50	MA30761-CCB15	1959	92916	23178	3285
00:56	ZZZZZZ	1950	91874	22879	3253
01:02	MA30761-CRI4	1939	91954	22950	3198
01:07	MA30761-CRID5	1951	92532	23217	3256

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
01:13	MA30761-CRIA3	1970	93340	23078	3296
01:19	MA30761-ICSA3	1664	77922	21526	2518
01:25	MA30761-ICSAB3	1685	78989	21870	2546
01:31	MA30761-CCV15	1858	87187	22614	2912
01:37	MA30761-CCB16	1972	93795	23384	3311
01:43	MP70602-S1	1763	83671	22158	2783
01:48	MP70602-S2	1772	83473	22185	2798
01:54	JB31886-2	1796	85066	22379	2861
02:00	MP70602-SD1	1921	90410	23105	3148
02:06	ZZZZZZ	1457	67907	20404	2163 !
02:12	ZZZZZZ	1945	92620	23070	3268
02:18	ZZZZZZ	1930	92561	23089	3247
02:24	ZZZZZZ	1858	88390	22476	3035
02:29	MA30761-CCV16	1853	86813	22448	2903
02:35	MA30761-CCB17	1974	93715	23343	3308
02:41	MP70581-MB1	1910	91761	23090	3197
02:47	MP70581-LC1	1879	86727	22402	3069
02:53	MP70581-S1	1638	77765	21787	2551
02:58	MP70581-S2	1653	78009	21779	2572
03:04	JB31096-1	1658	77898	21789	2590
03:10	MP70581-SD1	1841	86912	22606	2937
03:16	MP70581-S3	1634	77336	21567	2549
03:22	MP70581-S4	1625	77261	21366	2535
03:28	JB31096-1F	1662	78542	21698	2598
03:34	MP70581-SD2	1841	86863	22626	2939
03:40	MA30761-CCV17	1852	86594	22301	2894
03:45	MA30761-CCB18	1956	92886	22818	3285
03:51	ZZZZZZ	1637	78119	21430	2570
03:57	ZZZZZZ	1788	84423	21521	2801
04:03	ZZZZZZ	1625	78325	21547	2559
04:09	ZZZZZZ	1806	84607	22276	2830
04:15	ZZZZZZ	1848	87924	22365	2991
04:21	ZZZZZZ	1845	87710	22507	3003

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30761
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
04:27	ZZZZZZ	1861	88521	22517	3008
04:33	ZZZZZZ	1832	87508	22630	2939
04:39	ZZZZZZ	1831	86944	22381	2934
04:45	ZZZZZZ	1839	89180	22676	2976
04:51	MA30761-CCV18	1847	86823	22304	2891
04:56	MA30761-CCB19	1949	92653	22763	3278
05:02	ZZZZZZ	1905	89983	23232	3035
05:08	ZZZZZZ	1380	64763	20113	2064 !
05:14	ZZZZZZ	1475	69328	20879	2216 !
05:20	ZZZZZZ	1196 !	56737 !	19219	1773 !
05:26	ZZZZZZ	1178 !	55993 !	18879	1745 !
05:32	ZZZZZZ	1659	77161	21640	2523
05:38	ZZZZZZ	1952	93785	23012	3283
05:44	MA30761-CCV19	1858	87078	22188	2905
05:49	MA30761-CCB20	1972	93512	22733	3312
05:55	MA30761-CRID6	1958	93083	22857	3277
06:01	MA30761-CRI5	1947	92310	22695	3223
06:07	MA30761-CRID7	1956	92565	22808	3273
06:13	MA30761-CRIA4	1979	93843	22824	3324
06:19	MA30761-ICSA4	1670	78155	21165	2526
06:25	MA30761-ICSAB4	1684	78160	21654	2545
06:31	MA30761-CCV20	1864	87459	22328	2923
06:36	MA30761-CCB21	1985	93754	22812	3334
07:46	MP70581-MB1	No results reported for the elements associated with this internal standard.			

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:			09:54		10:19		11:13		12:46	
Sample ID:			ICB1		CCB2		CCB3		CCB4	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.4	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.4								
Boron	100	.9								
Cadmium	3.0	.1	anr							
Calcium	5000	7.6	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	.6	anr							
Iron	100	5.2	anr							
Lead	3.0	1.5	1.1	<3.0	-0.40	<3.0	0.10	<3.0	0.30	<3.0
Lithium	20	1.5								
Magnesium	5000	22	anr							
Manganese	15	.1	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	1.5								
Potassium	10000	29	anr							
Selenium	10	1.9	anr							
Silicon	200	4.4								
Silver	10	.5	anr							
Sodium	10000	25	anr							
Sulfur	50	3								
Strontium	10	.1								
Thallium	2.0	1.3	anr							
Tin	10	.5								
Titanium	10	.5								
Tungsten	50	6.8								
Vanadium	50	.6	anr							
Zinc	20	.3	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:			13:51		14:55		16:01		17:11	
Sample ID:			CCB5		CCB6		CCB7		CCB8	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.4	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.4								
Boron	100	.9								
Cadmium	3.0	.1	anr							
Calcium	5000	7.6	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	.6	anr							
Iron	100	5.2	anr							
Lead	3.0	1.5	-0.90	<3.0	0.50	<3.0	0.20	<3.0	-0.30	<3.0
Lithium	20	1.5								
Magnesium	5000	22	anr							
Manganese	15	.1	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	1.5								
Potassium	10000	29	anr							
Selenium	10	1.9	anr							
Silicon	200	4.4								
Silver	10	.5	anr							
Sodium	10000	25	anr							
Sulfur	50	3								
Strontium	10	.1								
Thallium	2.0	1.3	anr							
Tin	10	.5								
Titanium	10	.5								
Tungsten	50	6.8								
Vanadium	50	.6	anr							
Zinc	20	.3	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:			17:58		19:02		20:12		21:21	
Sample ID:			CCB9		CCB10		CCB11		CCB12	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.4	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.4								
Boron	100	.9								
Cadmium	3.0	.1	anr							
Calcium	5000	7.6	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	.6	anr							
Iron	100	5.2	anr							
Lead	3.0	1.5	0.40	<3.0	-0.40	<3.0	0.50	<3.0	-0.40	<3.0
Lithium	20	1.5								
Magnesium	5000	22	anr							
Manganese	15	.1	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	1.5								
Potassium	10000	29	anr							
Selenium	10	1.9	anr							
Silicon	200	4.4								
Silver	10	.5	anr							
Sodium	10000	25	anr							
Sulfur	50	3								
Strontium	10	.1								
Thallium	2.0	1.3	anr							
Tin	10	.5								
Titanium	10	.5								
Tungsten	50	6.8								
Vanadium	50	.6	anr							
Zinc	20	.3	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:
Sample ID:

Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:			22:30		23:40		00:50		01:37	
Sample ID:			CCB13		CCB14		CCB15		CCB16	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.4	anr							
Antimony	6.0	1.2	anr							
Arsenic	3.0	1	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.4								
Boron	100	.9								
Cadmium	3.0	.1	anr							
Calcium	5000	7.6	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	.6	anr							
Iron	100	5.2	anr							
Lead	3.0	1.5	-0.70	<3.0	0.50	<3.0	0.80	<3.0	-1.0	<3.0
Lithium	20	1.5								
Magnesium	5000	22	anr							
Manganese	15	.1	anr							
Molybdenum	20	.3								
Nickel	10	.4	anr							
Palladium	50	1.5								
Potassium	10000	29	anr							
Selenium	10	1.9	anr							
Silicon	200	4.4								
Silver	10	.5	anr							
Sodium	10000	25	anr							
Sulfur	50	3								
Strontium	10	.1								
Thallium	2.0	1.3	anr							
Tin	10	.5								
Titanium	10	.5								
Tungsten	50	6.8								
Vanadium	50	.6	anr							
Zinc	20	.3	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30761 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.3

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:		10:08	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	1990	99.5
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	anr		
Zinc	anr		

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:		09:42			11:07			12:41	
Sample ID:	ICV	ICV1		CCV	CCV2		CCV	CCV3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2000	100.0	2000	2020	101.0	2000	1980	99.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:		13:45			14:49			15:53	
Sample ID:	CCV	CCV4		CCV	CCV5		CCV	CCV6	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	1980	99.0	2000	1980	99.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.4
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:		17:05			17:53			18:56	
Sample ID:	CCV	CCV7		CCV	CCV8		CCV	CCV9	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1990	99.5	2000	2020	101.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:		20:06			21:15			22:25	
Sample ID:	CCV	CCV10		CCV	CCV11		CCV	CCV12	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2020	101.0	2000	2020	101.0	2000	2010	100.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:		23:34			00:44			01:31	
Sample ID:	CCV	CCV13		CCV	CCV14		CCV	CCV15	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2020	101.0	2000	2020	101.0	2000	2000	100.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30761 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.1.4
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30761 Units: ug/l

Time:				09:22		09:34		10:26	
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		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.4	113.3	20.8	104.0		
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
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	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30761 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

10.1.5
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30761 Units: ug/l

Time:				17:17		17:23		17:35	
Sample ID:	CRI	CRIA	CRID	CRID4		CRI3		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0						
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		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500							
Lead	3.0	20	2.5			3.6	120.0	19.5	97.5
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0	anr					
Sodium	5000		1000						
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30761 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30761 Units: ug/l

Time:				01:02		01:07		01:13	
Sample ID:	CRI	CRIA	CRID	CRI4		CRID5		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		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.5	116.7			20.5	102.5
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
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	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30761 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) 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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30761 Units: ug/l

Time:			10:31		10:37		17:41		17:47	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1		ICSA2		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	515000	103.0	515000	103.0	498000	99.6	503000	100.6
Antimony		1000	-2.6		1000	100.0	-3.5		1000	100.0
Arsenic		1000	4.3		1030	103.0	2.8		1040	104.0
Barium		500	-1.0		512	102.4	-0.80		510	102.0
Beryllium		500	0.60		465	93.0	0.60		451	90.2
Bismuth		500	-19		469	93.8	-17		483	96.6
Boron			-0.50		9.6		-0.50		9.2	
Cadmium		1000	1.2		991	99.1	0.20		981	98.1
Calcium	400000	400000	349000	87.3	370000	92.5	384000	96.0	366000	91.5
Chromium		500	0.40		460	92.0	0.70		455	91.0
Cobalt		500	0.60		465	93.0	1.2		472	94.4
Copper		500	-0.40		502	100.4	-0.80		502	100.4
Iron	200000	200000	180000	90.0	192000	96.0	186000	93.0	182000	91.0
Lead		1000	-1.6		909	90.9	0.20		901	90.1
Lithium		500	10.0		546	109.2	6.7		547	109.4
Magnesium	500000	500000	515000	103.0	503000	100.6	477000	95.4	478000	95.6
Manganese		500	2.0		466	93.2	0.50		455	91.0
Molybdenum		500	-0.80		479	95.8	-0.90		485	97.0
Nickel		1000	-0.90		911	91.1	-0.60		900	90.0
Palladium		500	-7.8		534	106.8	-1.5		500	100.0
Potassium			254		224		393		316	
Selenium		1000	4.4		973	97.3	5.0		974	97.4
Silicon			1.8		6.0		0.10		6.2	
Silver		1000	6.4		1030	103.0	-1.2		1020	102.0
Sodium			19.8		15.3		2.3		3.8	
Sulfur		500	-11		468	93.6	-2.2		482	96.4
Strontium			1.7		1.9		2.2		1.8	
Thallium		1000	-1.6		965	96.5	-1.3		905	90.5
Tin			-3.9		-3.3		-2.6		-3.9	
Titanium			2.2		2.6		1.9		2.3	
Tungsten		500	32.2		530	106.0	15.3		524	104.8
Vanadium		500	1.2		479	95.8	1.6		470	94.0
Zinc		1000	-2.1		933	93.3	-2.2		936	93.6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30761 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-0.50	472	94.4	-1.4	454	90.8

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30761 Units: ug/l

Time:			01:19		01:25	
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	507000	101.4	507000	101.4
Antimony		1000	-0.40		995	99.5
Arsenic		1000	2.3		1020	102.0
Barium		500	-0.80		520	104.0
Beryllium		500	0.60		446	89.2
Bismuth		500	-15		472	94.4
Boron			-0.90		8.7	
Cadmium		1000	1.0		983	98.3
Calcium	400000	400000	388000	97.0	356000	89.0
Chromium		500	0.20		452	90.4
Cobalt		500	0.90		461	92.2
Copper		500	-2.6		493	98.6
Iron	200000	200000	182000	91.0	174000	87.0
Lead		1000	-1.6		904	90.4
Lithium		500	5.1		550	110.0
Magnesium	500000	500000	477000	95.4	465000	93.0
Manganese		500	1.0		458	91.6
Molybdenum		500	-1.4		475	95.0
Nickel		1000	-0.10		901	90.1
Palladium		500	-6.6		525	105.0
Potassium			366		302	
Selenium		1000	2.5		963	96.3
Silicon			2.2		8.3	
Silver		1000	1.8		1010	101.0
Sodium			-3.4		-7.0	
Sulfur		500	-9.2		468	93.6
Strontium			2.8		2.6	
Thallium		1000	0.10		940	94.0
Tin			-3.7		-2.6	
Titanium			2.5		2.7	
Tungsten		500	6.9		480	96.0
Vanadium		500	1.2		470	94.0
Zinc		1000	-1.7		914	91.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SD032113M1.ICP Date Analyzed: 03/21/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30761 Units: ug/l

Time:				
Sample ID:				
Metal				
Zirconium	500	-2.1	456	91.2

(*) Outside of QC limits
(anr) Analyte not requested

10.1.6
10

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:59	MA30773-STD1	1		STDA
09:05	MA30773-STD2	1		STDB
09:11	MA30773-STD3	1		STDC
09:17	MA30773-STD4	1		STDD
09:24	MA30773-CCV1	1		
09:30	MA30773-CCB1	1		
09:37	MA30773-CRI1	1		
09:43	MA30773-CRID1	1		
09:49	MA30773-CRIA1	1		
09:56	MA30773-ICSA1	1		
10:03	MA30773-ICV1	1		
10:23	MA30773-ICB1	1		
10:29	MA30773-ICCV1	1		
10:44	MA30773-CCB2	1		
10:49	MA30773-CRI2	1		
10:56	MA30773-CRID2	1		
11:02	MA30773-ICSA2	1		
11:09	MA30773-ICSAB1	1		
11:15	MA30773-CCV2	1		
11:21	MA30773-CCB3	1		
11:28	ZZZZZZ	1		
11:34	ZZZZZZ	1		
11:41	ZZZZZZ	1		
11:47	ZZZZZZ	1		
11:54	ZZZZZZ	1		
12:00	MP70585-MB1	1		
12:07	MP70585-MB2	1		
12:13	MP70585-LC1	1		
12:19	MP70585-LC2	1		
12:25	MA30773-CCV3	1		
12:32	MA30773-CCB4	1		
12:38	MP70585-S1	1		
12:44	MP70585-S2	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:51	JB31107-20	1		(sample used for QC only; not part of login JB31121)
12:57	MP70585-SD1	5		
13:03	ZZZZZZ	1		
13:10	ZZZZZZ	1		
13:16	ZZZZZZ	1		
13:23	ZZZZZZ	1		
13:29	ZZZZZZ	1		
13:36	MA30773-CCV4	1		
13:42	MA30773-CCB5	1		
13:48	ZZZZZZ	1		
13:55	ZZZZZZ	1		
14:01	ZZZZZZ	1		
14:08	ZZZZZZ	1		
14:14	ZZZZZZ	1		
14:20	ZZZZZZ	1		
14:27	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:40	ZZZZZZ	1		
14:46	MA30773-CCV5	1		
14:52	MA30773-CCB6	1		
14:59	ZZZZZZ	1		
15:05	ZZZZZZ	1		
15:12	ZZZZZZ	1		
15:18	ZZZZZZ	1		
15:25	ZZZZZZ	1		
15:31	MP70611-MB1	1		
15:38	MP70611-LC1	1		
15:44	ZZZZZZ	1		
15:50	MP70610-MB1	1		
15:57	MA30773-CCV6	1		
16:03	MA30773-CCB7	1		
16:10	MP70610-MB2	1		
16:16	MP70610-MB3	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:22	MP70610-LC1	1		
16:29	MP70610-LC2	1		
16:35	MP70610-LC3	1		
16:41	ZZZZZZ	1		
16:47	MP70557-S1	1		
16:54	MP70557-S2	1		
17:00	MA30773-CCV7	1		
17:06	MA30773-CCB8	1		
17:13	MA30773-CRI3	1		
17:19	MA30773-CRID3	1		
17:25	MA30773-CRIA2	1		
17:32	MA30773-ICSA3	1		
17:38	MA30773-ICSAB2	1		
17:45	ZZZZZZ	1		
17:51	ZZZZZZ	1		
17:58	ZZZZZZ	1		
18:04	ZZZZZZ	1		
18:11	MA30773-CCV8	1		
18:17	MA30773-CCB9	1		
18:23	MP70611-S1	1		CCV empty
18:30	MP70611-S2	1		CCV empty
18:36	JB31192-2	1		(sample used for QC only; not part of login JB31121)
18:43	MP70611-SD1	5		CCV empty
18:49	MP70611-S3	1		CCV empty
18:55	MP70611-S4	1		CCV empty
19:02	JB31192-2F	1		(sample used for QC only; not part of login JB31121)
19:08	MP70611-SD2	5		CCV empty
19:14	MP70610-S1	1		CCV empty
19:21	MP70610-S2	1		CCV empty
19:27	MA30773-CCV9	1		CCV empty
19:34	MA30773-CCB10	1		CCV empty
19:40	MA30773-CCV10	1		
19:46	MA30773-CCB11	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:53	JB31107-34	1		(sample used for QC only; not part of login JB31121)
19:59	MP70610-SD1	5		
20:06	MP70586-MB1	1		
20:12	MP70586-MB2	1		
20:19	MP70586-MB3	1		
20:25	MP70586-MB4	1		
20:31	MP70586-LC1	1		
20:38	MP70586-LC2	1		
20:44	MP70586-LC3	1		
20:50	MP70586-LC4	1		
20:56	MA30773-CCV11	1		
21:03	MA30773-CCB12	1		
21:09	MP70586-S1	1		Bad reading for Y 2243 and in on CCB
21:15	MP70586-S2	1		Bad reading for Y 2243 and in on CCB
21:22	JB31133-1	1		(sample used for QC only; not part of login JB31121)
21:28	MP70586-SD1	5		Bad reading for Y 2243 and in on CCB
21:35	ZZZZZZ	1		
21:41	ZZZZZZ	1		
21:47	ZZZZZZ	1		
21:54	ZZZZZZ	1		
22:00	ZZZZZZ	1		
22:07	ZZZZZZ	1		
22:13	MA30773-CCV12	1		
22:19	MA30773-CCB13	1		
22:26	ZZZZZZ	1		
22:32	ZZZZZZ	1		
22:39	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:51	ZZZZZZ	1		
22:58	ZZZZZZ	1		
23:04	ZZZZZZ	1		
23:11	ZZZZZZ	1		
23:17	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:24	ZZZZZZ	1		
23:30	MA30773-CCV13	1		CCV empty
23:37	MA30773-CCB14	1		CCV empty
23:43	ZZZZZZ	1		
23:50	ZZZZZZ	1		
23:56	ZZZZZZ	1		
00:03	ZZZZZZ	1		
00:09	ZZZZZZ	1		
00:15	ZZZZZZ	1		
00:22	ZZZZZZ	1		
00:28	ZZZZZZ	1		
00:35	ZZZZZZ	1		
00:41	ZZZZZZ	1		
00:48	MA30773-CCV14	1		CCV empty
00:54	MA30773-CCB15	1		CCV empty
01:01	ZZZZZZ	1		
01:07	ZZZZZZ	1		
01:14	ZZZZZZ	1		
01:20	ZZZZZZ	1		
01:27	ZZZZZZ	1		
01:33	ZZZZZZ	1		
01:39	ZZZZZZ	1		
01:46	ZZZZZZ	1		
01:52	ZZZZZZ	1		
01:59	ZZZZZZ	1		
02:05	MA30773-CCV15	1		
02:12	MA30773-CCB16	1		
02:18	MA30773-CRI4	1		
02:25	MA30773-CRID4	1		
02:31	MA30773-CRIA3	1		
02:38	MA30773-ICSA4	1		
02:44	MA30773-ICSAB3	1		
02:51	MA30773-CCV16	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:57	MA30773-CCB17	1		
03:03	ZZZZZZ	1		
03:10	ZZZZZZ	1		
03:16	ZZZZZZ	1		
03:23	ZZZZZZ	1		
03:29	ZZZZZZ	1		
03:36	ZZZZZZ	1		
03:42	ZZZZZZ	1		
03:48	ZZZZZZ	1		
03:55	MA30773-CCV17	1		
04:01	MA30773-CCB18	1		
04:08	ZZZZZZ	1		
04:14	ZZZZZZ	1		
04:21	ZZZZZZ	1		
04:27	ZZZZZZ	1		
04:33	ZZZZZZ	1		
04:40	ZZZZZZ	1		
04:46	ZZZZZZ	1		
04:53	ZZZZZZ	1		
04:59	ZZZZZZ	1		
05:06	MP70607-MB1	1		
05:12	MA30773-CCV18	1		
05:18	MA30773-CCB19	1		
05:25	MP70607-B1	1		
05:31	MP70607-S1	1		
05:38	MP70607-S2	1		
05:44	JB31121-9	1		
05:51	MP70607-SD1	5		
05:57	JB31121-1	1		
06:03	JB31121-2	1		
06:10	JB31121-3	1		
06:17	JB31121-4	1		
06:23	JB31121-5	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
06:29	MA30773-CCV19	1		
06:36	MA30773-CCB20	1		
06:42	JB31121-6	1		
06:49	JB31121-7	1		
06:55	JB31121-8	1		
07:01	JB31121-10	1		
07:08	JB31121-11	1		
07:15	JB31121-12	1		
07:21	JB31121-13	1		
07:27	JB31121-14	1		
07:34	JB31121-15	1		
07:40	JB31121-16	1		
07:47	MA30773-CCV20	1		
07:53	MA30773-CCB21	1		
07:59	JB31121-17	1		
08:06	JB31121-18	1		
08:12	JB31121-19	1		
08:19	JB31121-20	1		
08:25	MA30773-CCV21	1		
08:32	MA30773-CCB22	1		
08:38	MA30773-CRI5	1		
08:45	MA30773-CRID5	1		
08:51	MA30773-CRIA4	1		
08:57	MA30773-ICSA5	1		
09:04	MA30773-ICSAB4	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
08:59	MA30773-STD1	1981 R	112260 R	33566 R	6150 R
09:05	MA30773-STD2	1963	112010	33081	5947
09:11	MA30773-STD3	1919	110850	33420	5813
09:17	MA30773-STD4	1884	109170	32762	5670
09:24	MA30773-CCV1	No results reported for the elements associated with this internal standard.			
09:30	MA30773-CCB1	No results reported for the elements associated with this internal standard.			
09:37	MA30773-CRI1	No results reported for the elements associated with this internal standard.			
09:43	MA30773-CRID1	No results reported for the elements associated with this internal standard.			
09:49	MA30773-CRIA1	1969	113150	33744	6116
09:56	MA30773-ICSA1	No results reported for the elements associated with this internal standard.			
10:03	MA30773-ICV1	1915	111470	33508	5804
10:23	MA30773-ICB1	1955	112050	33395	6077
10:29	MA30773-ICCV1	1913	111560	33653	5796
10:44	MA30773-CCB2	1983	112620	33873	6129
10:49	MA30773-CRI2	1957	112980	33558	6076
10:56	MA30773-CRID2	1966	113260	34080	6111
11:02	MA30773-ICSA2	1765	104820	32077	5289
11:09	MA30773-ICSAB1	1759	104850	32395	5284
11:15	MA30773-CCV2	1904	111450	33356	5783
11:21	MA30773-CCB3	1961	113290	34063	6099
11:28	ZZZZZZ	1919	112290	33907	5987
11:34	ZZZZZZ	1899	111390	33598	5842
11:41	ZZZZZZ	1880	111320	33123	5807
11:47	ZZZZZZ	1897	110840	33621	5866
11:54	ZZZZZZ	1939	112250	33691	6058
12:00	MP70585-MB1	1972	113300	34298	6131
12:07	MP70585-MB2	1950	113020	34049	6099
12:13	MP70585-LC1	1927	111700	33665	5972
12:19	MP70585-LC2	1930	112540	33639	6012
12:25	MA30773-CCV3	1908	110620	33180	5773
12:32	MA30773-CCB4	1963	112900	33636	6110
12:38	MP70585-S1	1866	110960	33739	5694
12:44	MP70585-S2	1863	110970	33357	5696

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:51	JB31107-20	1895	112070	34048	5870
12:57	MP70585-SD1	1953	113320	33666	6085
13:03	ZZZZZZ	1902	112280	34169	5902
13:10	ZZZZZZ	1898	111900	33564	5891
13:16	ZZZZZZ	1829	110250	33726	5603
13:23	ZZZZZZ	1892	111390	33344	5822
13:29	ZZZZZZ	1895	112980	34466	5916
13:36	MA30773-CCV4	1887	109010	33129	5738
13:42	MA30773-CCB5	1958	112390	33870	6095
13:48	ZZZZZZ	1902	110600	33022	5849
13:55	ZZZZZZ	1927	112350	34006	6012
14:01	ZZZZZZ	1893	110380	32715	5826
14:08	ZZZZZZ	1852	110880	33547	5683
14:14	ZZZZZZ	1881	109720	32587	5731
14:20	ZZZZZZ	1878	111430	33687	5796
14:27	ZZZZZZ	1884	110850	33371	5737
14:33	ZZZZZZ	1885	110720	33232	5840
14:40	ZZZZZZ	1872	110730	33498	5733
14:46	MA30773-CCV5	1888	110430	32785	5745
14:52	MA30773-CCB6	1943	111180	33361	6046
14:59	ZZZZZZ	1834	109480	32647	5627
15:05	ZZZZZZ	1827	109590	33192	5563
15:12	ZZZZZZ	1808	108280	32284	5471
15:18	ZZZZZZ	1829	108400	33098	5567
15:25	ZZZZZZ	1895	110910	32895	5876
15:31	MP70611-MB1	1931	111130	34031	6027
15:38	MP70611-LC1	1926	110370	33430	5944
15:44	ZZZZZZ	1617	101980	31716	4718
15:50	MP70610-MB1	1949	111990	33720	6052
15:57	MA30773-CCV6	1895	111450	33432	5762
16:03	MA30773-CCB7	1972	112160	33443	6114
16:10	MP70610-MB2	1943	112320	34016	6067
16:16	MP70610-MB3	1970	112740	33661	6107

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:22	MP70610-LC1	1910	111780	33656	5946
16:29	MP70610-LC2	1953	112340	33284	6035
16:35	MP70610-LC3	1933	112090	33681	6005
16:41	ZZZZZZ	1951	111860	33557	6039
16:47	MP70557-S1	1873	111920	33786	5745
16:54	MP70557-S2	1874	110620	33204	5720
17:00	MA30773-CCV7	1898	110520	33050	5760
17:06	MA30773-CCB8	1985	112240	33677	6152
17:13	MA30773-CRI3	1944	112730	33230	6033
17:19	MA30773-CRID3	1962	112300	33812	6087
17:25	MA30773-CRIA2	1963	111850	33369	6090
17:32	MA30773-ICSA3	1756	104970	32416	5266
17:38	MA30773-ICSAB2	1759	104210	31622	5280
17:45	ZZZZZZ	2001	111510	34125	5758
17:51	ZZZZZZ	1947	112180	33215	6269
17:58	ZZZZZZ	1816	109400	32360	5522
18:04	ZZZZZZ	1829	109180	32208	5529
18:11	MA30773-CCV8	1908	111750	33664	5796
18:17	MA30773-CCB9	1976	111550	33551	6140
18:23	MP70611-S1	No results reported for the elements associated with this internal standard.			
18:30	MP70611-S2	No results reported for the elements associated with this internal standard.			
18:36	JB31192-2	No results reported for the elements associated with this internal standard.			
18:43	MP70611-SD1	No results reported for the elements associated with this internal standard.			
18:49	MP70611-S3	No results reported for the elements associated with this internal standard.			
18:55	MP70611-S4	No results reported for the elements associated with this internal standard.			
19:02	JB31192-2F	No results reported for the elements associated with this internal standard.			
19:08	MP70611-SD2	No results reported for the elements associated with this internal standard.			
19:14	MP70610-S1	No results reported for the elements associated with this internal standard.			
19:21	MP70610-S2	No results reported for the elements associated with this internal standard.			
19:27	MA30773-CCV9	No results reported for the elements associated with this internal standard.			
19:34	MA30773-CCB10	No results reported for the elements associated with this internal standard.			
19:40	MA30773-CCV10	1894	111260	33191	5750
19:46	MA30773-CCB11	1987	112940	33196	6142

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
19:53	JB31107-34	1897	111680	33350	5829
19:59	MP70610-SD1	1973	113030	33467	6104
20:06	MP70586-MB1	1950	112620	33868	6082
20:12	MP70586-MB2	1964	112470	33659	6101
20:19	MP70586-MB3	1966	112980	34032	6123
20:25	MP70586-MB4	1979	112480	33369	6132
20:31	MP70586-LC1	1933	112310	33981	6001
20:38	MP70586-LC2	1948	111340	32879	6020
20:44	MP70586-LC3	1925	112080	33797	5992
20:50	MP70586-LC4	1968	112740	33237	6085
20:56	MA30773-CCV11	1924	112340	33685	5836
21:03	MA30773-CCB12	1990	113530	33602	6164
21:09	MP70586-S1	1834	110640	33241	5572
21:15	MP70586-S2	1849	110050	32446	5584
21:22	JB31133-1	1856	110290	33249	5672
21:28	MP70586-SD1	1958	113420	33284	6044
21:35	ZZZZZZ	1857	111370	33432	5677
21:41	ZZZZZZ	1903	111850	32927	5815
21:47	ZZZZZZ	1869	111390	33426	5708
21:54	ZZZZZZ	1876	110800	32543	5706
22:00	ZZZZZZ	1883	111990	33246	5701
22:07	ZZZZZZ	1913	112920	33285	5807
22:13	MA30773-CCV12	1921	111530	33332	5824
22:19	MA30773-CCB13	999999 !a	114110	33853	999999 !a
22:26	ZZZZZZ	No results reported for the elements associated with this internal standard.			
22:32	ZZZZZZ	No results reported for the elements associated with this internal standard.			
22:39	ZZZZZZ	No results reported for the elements associated with this internal standard.			
22:45	ZZZZZZ	No results reported for the elements associated with this internal standard.			
22:51	ZZZZZZ	No results reported for the elements associated with this internal standard.			
22:58	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:04	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:11	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:17	ZZZZZZ	No results reported for the elements associated with this internal standard.			

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:24	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:30	MA30773-CCV13	No results reported for the elements associated with this internal standard.			
23:37	MA30773-CCB14	No results reported for the elements associated with this internal standard.			
23:43	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:50	ZZZZZZ	No results reported for the elements associated with this internal standard.			
23:56	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:03	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:09	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:15	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:22	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:28	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:35	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:41	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:48	MA30773-CCV14	No results reported for the elements associated with this internal standard.			
00:54	MA30773-CCB15	No results reported for the elements associated with this internal standard.			
01:01	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:07	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:14	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:20	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:27	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:33	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:39	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:46	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:52	ZZZZZZ	No results reported for the elements associated with this internal standard.			
01:59	ZZZZZZ	No results reported for the elements associated with this internal standard.			
02:05	MA30773-CCV15	No results reported for the elements associated with this internal standard.			
02:12	MA30773-CCB16	No results reported for the elements associated with this internal standard.			
02:18	MA30773-CRI4	1966	113260	33473	6092
02:25	MA30773-CRID4	1970	113330	34010	6128
02:31	MA30773-CRIA3	1975	112840	32612	6136
02:38	MA30773-ICSA4	1776	105960	32374	5328
02:44	MA30773-ICSAB3	1785	105970	32061	5350
02:51	MA30773-CCV16	1909	111480	33244	5785

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:57	MA30773-CCB17	1983	113200	33407	6162
03:03	ZZZZZZ	1983	113500	33756	6145
03:10	ZZZZZZ	1986	113840	33573	6157
03:16	ZZZZZZ	1975	113670	33444	6168
03:23	ZZZZZZ	1989	114480	33671	6156
03:29	ZZZZZZ	1996	114770	33920	6200
03:36	ZZZZZZ	1996	113810	33369	6187
03:42	ZZZZZZ	999999 !	113280	33599	999999 !
03:48	ZZZZZZ	1916	113690	33611	6150
03:55	MA30773-CCV17	1929	112310	33265	5841
04:01	MA30773-CCB18	1969	113520	33878	6122
04:08	ZZZZZZ	1902	111520	33108	5776
04:14	ZZZZZZ	1891	111790	33229	5765
04:21	ZZZZZZ	1974	113700	34024	6147
04:27	ZZZZZZ	1874	111370	32593	5630
04:33	ZZZZZZ	1880	112200	33471	5655
04:40	ZZZZZZ	1957	113140	34000	5940
04:46	ZZZZZZ	1762	106980	32101	5106
04:53	ZZZZZZ	1873	112050	33450	5646
04:59	ZZZZZZ	1936	113830	33604	5972
05:06	MP70607-MB1	2000	114650	34430	6215
05:12	MA30773-CCV18	1908	110980	33109	5794
05:18	MA30773-CCB19	2003	114590	34019	6205
05:25	MP70607-B1	1951	113040	33721	6018
05:31	MP70607-S1	1993	116740	35035	5971
05:38	MP70607-S2	2020	117130	35220	6043
05:44	JB31121-9	2002	116750	34766	6008
05:51	MP70607-SD1	2008	115350	34342	6137
05:57	JB31121-1	2048	117420	35003	6158
06:03	JB31121-2	2558	147180 !	44517 !	6052
06:10	JB31121-3	1972	115880	35251	5955
06:17	JB31121-4	2053	119240	35469	6123
06:23	JB31121-5	2045	119240	35347	6083

INTERNAL STANDARD SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
Analyst: ND Run ID: MA30773
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
06:29	MA30773-CCV19	1955	113100	33627	5905
06:36	MA30773-CCB20	2008	114530	33678	6224
06:42	JB31121-6	2052	118880	36128	6096
06:49	JB31121-7	1957	115090	34139	6053
06:55	JB31121-8	2018	119520	35634	6299
07:01	JB31121-10	2154	121490	36682	5898
07:08	JB31121-11	2049	119530	35795	6109
07:15	JB31121-12	2102	120880	36212	6069
07:21	JB31121-13	2061	118780	35412	6107
07:27	JB31121-14	2017	116180	34831	6206
07:34	JB31121-15	2033	117120	34789	6142
07:40	JB31121-16	2034	116860	35280	6007
07:47	MA30773-CCV20	1932	112040	33150	5841
07:53	MA30773-CCB21	1990	114180	33848	6184
07:59	JB31121-17	1984	116450	34539	6003
08:06	JB31121-18	1845	111390	33338	5507
08:12	JB31121-19	1628	102060	30736	4787
08:19	JB31121-20	2028	117620	35332	6139
08:25	MA30773-CCV21	1945	112370	32760	5864
08:32	MA30773-CCB22	1987	114290	33750	6182
08:38	MA30773-CRI5	1989	114080	33179	6144
08:45	MA30773-CRID5	1982	114010	33788	6162
08:51	MA30773-CRIA4	2008	113720	33342	6198
08:57	MA30773-ICSA5	1788	106350	32395	5346
09:04	MA30773-ICSAB4	1798	105890	31659	5362

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:			10:23		10:44		11:21		12:32	
Sample ID:			ICB1		CCB2		CCB3		CCB4	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12	anr							
Antimony	6.0	.9	anr							
Arsenic	3.0	.8	anr							
Barium	200	.5	anr							
Beryllium	1.0	.3	anr							
Bismuth	20	1.1								
Boron	100	2.6								
Cadmium	3.0	.2	anr							
Calcium	5000	26	anr							
Chromium	10	.6	anr							
Cobalt	50	.4	anr							
Copper	10	.5	anr							
Iron	100	8.3	anr							
Lead	3.0	1	0.60	<3.0	0.20	<3.0	-1.1	<3.0	-0.70	<3.0
Lithium	20	1.4								
Magnesium	5000	22	anr							
Manganese	15	.3	anr							
Molybdenum	20	.5								
Nickel	10	.4	anr							
Palladium	50	1.6								
Potassium	10000	42	anr							
Selenium	10	1.2	anr							
Silicon	200	11								
Silver	10	.3	anr							
Sodium	10000	11	anr							
Sulfur	50	2.5								
Strontium	10	.3								
Thallium	2.0	1.5	anr							
Tin	10	.8								
Titanium	10	.5								
Tungsten	50	10								
Vanadium	50	.4	anr							
Zinc	20	1.5	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.5

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:			13:42		14:52		16:03		17:06	
Sample ID:			CCB5		CCB6		CCB7		CCB8	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12	anr							
Antimony	6.0	.9	anr							
Arsenic	3.0	.8	anr							
Barium	200	.5	anr							
Beryllium	1.0	.3	anr							
Bismuth	20	1.1								
Boron	100	2.6								
Cadmium	3.0	.2	anr							
Calcium	5000	26	anr							
Chromium	10	.6	anr							
Cobalt	50	.4	anr							
Copper	10	.5	anr							
Iron	100	8.3	anr							
Lead	3.0	1	-0.60	<3.0	-0.10	<3.0	-0.40	<3.0	0.0	<3.0
Lithium	20	1.4								
Magnesium	5000	22	anr							
Manganese	15	.3	anr							
Molybdenum	20	.5								
Nickel	10	.4	anr							
Palladium	50	1.6								
Potassium	10000	42	anr							
Selenium	10	1.2	anr							
Silicon	200	11								
Silver	10	.3	anr							
Sodium	10000	11	anr							
Sulfur	50	2.5								
Strontium	10	.3								
Thallium	2.0	1.5	anr							
Tin	10	.8								
Titanium	10	.5								
Tungsten	50	10								
Vanadium	50	.4	anr							
Zinc	20	1.5	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.5

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:			18:17		19:46		21:03		22:19	
Sample ID:			CCB9		CCB11		CCB12		CCB13	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12	anr							
Antimony	6.0	.9	anr							
Arsenic	3.0	.8	anr							
Barium	200	.5	anr							
Beryllium	1.0	.3	anr							
Bismuth	20	1.1								
Boron	100	2.6								
Cadmium	3.0	.2	anr							
Calcium	5000	26	anr							
Chromium	10	.6	anr							
Cobalt	50	.4	anr							
Copper	10	.5	anr							
Iron	100	8.3	anr							
Lead	3.0	1	-0.10	<3.0	0.20	<3.0	0.0	<3.0	-0.10	<3.0
Lithium	20	1.4								
Magnesium	5000	22	anr							
Manganese	15	.3	anr							
Molybdenum	20	.5								
Nickel	10	.4	anr							
Palladium	50	1.6								
Potassium	10000	42	anr							
Selenium	10	1.2	anr							
Silicon	200	11								
Silver	10	.3	anr							
Sodium	10000	11	anr							
Sulfur	50	2.5								
Strontium	10	.3								
Thallium	2.0	1.5	anr							
Tin	10	.8								
Titanium	10	.5								
Tungsten	50	10								
Vanadium	50	.4	anr							
Zinc	20	1.5	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.5

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:			02:57		04:01		05:18		06:36	
Sample ID:			CCB17		CCB18		CCB19		CCB20	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	12	anr							
Antimony	6.0	.9	anr							
Arsenic	3.0	.8	anr							
Barium	200	.5	anr							
Beryllium	1.0	.3	anr							
Bismuth	20	1.1								
Boron	100	2.6								
Cadmium	3.0	.2	anr							
Calcium	5000	26	anr							
Chromium	10	.6	anr							
Cobalt	50	.4	anr							
Copper	10	.5	anr							
Iron	100	8.3	anr							
Lead	3.0	1	-0.70	<3.0	0.0	<3.0	-0.20	<3.0	-0.20	<3.0
Lithium	20	1.4								
Magnesium	5000	22	anr							
Manganese	15	.3	anr							
Molybdenum	20	.5								
Nickel	10	.4	anr							
Palladium	50	1.6								
Potassium	10000	42	anr							
Selenium	10	1.2	anr							
Silicon	200	11								
Silver	10	.3	anr							
Sodium	10000	11	anr							
Sulfur	50	2.5								
Strontium	10	.3								
Thallium	2.0	1.5	anr							
Tin	10	.8								
Titanium	10	.5								
Tungsten	50	10								
Vanadium	50	.4	anr							
Zinc	20	1.5	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.5

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:			07:53		08:32	
Sample ID:			CCB21		CCB22	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	12	anr			
Antimony	6.0	.9	anr			
Arsenic	3.0	.8	anr			
Barium	200	.5	anr			
Beryllium	1.0	.3	anr			
Bismuth	20	1.1				
Boron	100	2.6				
Cadmium	3.0	.2	anr			
Calcium	5000	26	anr			
Chromium	10	.6	anr			
Cobalt	50	.4	anr			
Copper	10	.5	anr			
Iron	100	8.3	anr			
Lead	3.0	1	-0.20	<3.0	0.70	<3.0
Lithium	20	1.4				
Magnesium	5000	22	anr			
Manganese	15	.3	anr			
Molybdenum	20	.5				
Nickel	10	.4	anr			
Palladium	50	1.6				
Potassium	10000	42	anr			
Selenium	10	1.2	anr			
Silicon	200	11				
Silver	10	.3	anr			
Sodium	10000	11	anr			
Sulfur	50	2.5				
Strontium	10	.3				
Thallium	2.0	1.5	anr			
Tin	10	.8				
Titanium	10	.5				
Tungsten	50	10				
Vanadium	50	.4	anr			
Zinc	20	1.5	anr			

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.5

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		10:29	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	2040	102.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Palladium			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Sulfur			
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	anr		
Zinc	anr		

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		10:03			11:15			12:25	
Sample ID:	ICV	ICV1		CCV	CCV2		CCV	CCV3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2040	102.0	2000	2040	102.0	2000	2060	103.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

10.2.4
10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		13:36			14:46			15:57	
Sample ID:	CCV	CCV4		CCV	CCV5		CCV	CCV6	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2050	102.5	2000	2080	104.0	2000	2060	103.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		17:00			18:11			19:40	
Sample ID:	CCV	CCV7		CCV	CCV8		CCV	CCV10	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2070	103.5	2000	2050	102.5	2000	2070	103.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		20:56			22:13			02:51	
Sample ID:	CCV	CCV11		CCV	CCV12		CCV	CCV16	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2040	102.0	2000	2050	102.5	2000	2080	104.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	
Zirconium	

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		03:55			05:12			06:29	
Sample ID:	CCV	CCV17		CCV	CCV18		CCV	CCV19	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2060	103.0	2000	2070	103.5	2000	2040	102.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:		07:47			08:25	
Sample ID:	CCV	CCV20		CCV	CCV21	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	2000	2070	103.5	2000	2080	104.0
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Palladium						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Sulfur						
Strontium						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	anr					
Zinc	anr					

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA30773 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:				09:49		10:49		10:56	
Sample ID:	CRI	CRIA	CRID	CRIA1		CRI2		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						
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0						
Calcium	5000		1000						
Chromium	10		2.0						
Cobalt	50		3.0						
Copper	10		2.0						
Iron	100	500		anr					
Lead	3.0	20	2.5	19.7	98.5	2.3	76.7		
Lithium	20								
Magnesium	5000		100						
Manganese	15		3.0						
Molybdenum	20		4.0						
Nickel	10		4.0						
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		1.0						
Sodium	5000		1000						
Sulfur	50	50	50						
Strontium	10								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0						
Zinc	20		10						

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:				17:13		17:19		17:25	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID3		CRIA2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.7	90.0			19.4	97.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
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	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:				02:18		02:25		02:31	
Sample ID:	CRI	CRIA	CRID	CRI4		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		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.6	86.7			19.2	96.0
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
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	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:				08:38		08:45		08:51	
Sample ID:	CRI	CRIA	CRID	CRI5		CRID5		CRIA4	
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		1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.3	110.0			19.3	96.5
Lithium	20								
Magnesium	5000		100	anr					
Manganese	15		3.0	anr					
Molybdenum	20		4.0						
Nickel	10		4.0	anr					
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	50	50						
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA30773 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	5.0

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30773 Units: ug/l

Time:			11:02		11:09		17:32		17:38	
Sample ID:	ICSA	ICSAB	ICSA2		ICSAB1		ICSA3		ICSAB2	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	506000	101.2	510000	102.0	508000	101.6	527000	105.4
Antimony		1000	3.0		1040	104.0	3.6		1040	104.0
Arsenic		1000	0.10		1050	105.0	-1.7		1060	106.0
Barium		500	-0.40		508	101.6	-0.40		514	102.8
Beryllium		500	0.0		467	93.4	0.0		484	96.8
Bismuth		500	3.5		513	102.6	3.2		514	102.8
Boron			-13		-7.8		-14		-11	
Cadmium		1000	0.40		1010	101.0	0.20		1020	102.0
Calcium	400000	400000	393000	98.3	360000	90.0	388000	97.0	375000	93.8
Chromium		500	-0.70		458	91.6	-0.50		468	93.6
Cobalt		500	0.70		479	95.8	0.70		481	96.2
Copper		500	3.5		523	104.6	3.7		533	106.6
Iron	200000	200000	194000	97.0	188000	94.0	195000	97.5	192000	96.0
Lead		1000	-0.40		916	91.6	-4.1		923	92.3
Lithium		500	5.2		524	104.8	5.1		529	105.8
Magnesium	500000	500000	528000	105.6	518000	103.6	529000	105.8	527000	105.4
Manganese		500	-4.3		478	95.6	-4.5		487	97.4
Molybdenum		500	7.6		500	100.0	7.3		503	100.6
Nickel		1000	1.0		909	90.9	1.2		914	91.4
Palladium		500	24.9		568	113.6	25.2		571	114.2
Potassium			38.3		61.3		2.0		13.5	
Selenium		1000	-4.4		983	98.3	-4.6		989	98.9
Silicon			-8.8		-5.8		-7.7		-6.2	
Silver		1000	4.1		1010	101.0	4.4		1020	102.0
Sodium			2.3		15.1		-0.90		4.2	
Sulfur		500	3.0		493	98.6	1.9		496	99.2
Strontium			-4.9		-4.4		-4.6		-5.0	
Thallium		1000	0.40		983	98.3	-1.3		992	99.2
Tin			-4.2		-4.6		-4.7		-3.6	
Titanium			3.9		6.5		3.6		6.9	
Tungsten		500	14.3		495	99.0	10.7		491	98.2
Vanadium		500	0.20		491	98.2	0.40		492	98.4
Zinc		1000	0.30		942	94.2	0.0		948	94.8

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30773 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-7.6	454	90.8	-7.6	464	92.8

(*) Outside of QC limits
(anr) Analyte not requested

10.2.6
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30773 Units: ug/l

Time:			02:38		02:44		08:57		09:04	
Sample ID:	ICSA	ICSAB	ICSA4		ICSAB3		ICSA5		ICSAB4	
Metal	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	518000	103.6	520000	104.0	513000	102.6	528000	105.6
Antimony		1000	1.8		1040	104.0	1.3		1050	105.0
Arsenic		1000	-2.9		1050	105.0	-1.9		1050	105.0
Barium		500	-0.60		514	102.8	-0.60		519	103.8
Beryllium		500	0.0		475	95.0	0.0		480	96.0
Bismuth		500	5.1		512	102.4	4.7		513	102.6
Boron			-15		-12		-14		-11	
Cadmium		1000	0.30		1020	102.0	0.30		1030	103.0
Calcium	400000	400000	389000	97.3	369000	92.3	389000	97.3	374000	93.5
Chromium		500	-0.50		466	93.2	-0.70		473	94.6
Cobalt		500	0.70		485	97.0	0.80		488	97.6
Copper		500	4.2		528	105.6	3.8		535	107.0
Iron	200000	200000	195000	97.5	192000	96.0	195000	97.5	193000	96.5
Lead		1000	-2.3		914	91.4	-2.8		922	92.2
Lithium		500	3.3		529	105.8	3.6		534	106.8
Magnesium	500000	500000	531000	106.2	524000	104.8	530000	106.0	527000	105.4
Manganese		500	-3.8		490	98.0	-3.8		493	98.6
Molybdenum		500	7.6		503	100.6	7.7		506	101.2
Nickel		1000	1.1		916	91.6	0.80		924	92.4
Palladium		500	20.9		574	114.8	23.1		579	115.8
Potassium			-51		-16		-39		-2.2	
Selenium		1000	0.60		989	98.9	-2.2		994	99.4
Silicon			-6.6		-4.8		-8.6		-6.1	
Silver		1000	6.1		1010	101.0	5.9		1020	102.0
Sodium			5.2		11.9		-15		-4.2	
Sulfur		500	1.8		501	100.2	3.5		504	100.8
Strontium			-4.9		-4.8		-4.7		-4.9	
Thallium		1000	-2.3		997	99.7	-3.4		1010	101.0
Tin			-3.2		-3.8		-4.2		-3.8	
Titanium			3.9		6.4		4.0		6.7	
Tungsten		500	7.1		473	94.6	10.4		485	97.0
Vanadium		500	0.30		496	99.2	0.10		497	99.4
Zinc		1000	0.70		943	94.3	0.30		950	95.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

File ID: SB032213M1.ICP Date Analyzed: 03/22/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA30773 Units: ug/l

Time:							
Sample ID:							
Metal							
Zirconium	500	-7.6	457	91.4	-7.6	465	93.0

(*) Outside of QC limits
(anr) Analyte not requested

10.2.6
10

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.94	.74		
Antimony	2.0	.12	.15		
Arsenic	2.0	.1	.13		
Barium	20	.02	.054		
Beryllium	0.20	.01	.02		
Bismuth	2.0	.14	.14		
Boron	10	.09	.14		
Cadmium	0.50	.01	.025		
Calcium	500	.76	2.3		
Chromium	1.0	.05	.11		
Cobalt	5.0	.03	.031		
Copper	2.5	.06	.13		
Iron	50	.52	.79		
Lead	2.0	.15	.11	0.0	<2.0
Lithium	2.0	.15	.25		
Magnesium	500	2.2	3.1		
Manganese	1.5	.01	.048		
Molybdenum	2.0	.03	.074		
Nickel	4.0	.04	.11		
Palladium	5.0	.15	.17		
Potassium	1000	2.9	14		
Selenium	2.0	.19	.24		
Silicon	20	.44	1.9		
Silver	0.50	.05	.063		
Sodium	1000	2.5	13		
Strontium	1.0	.01	.17		
Sulfur	5.0	.3	.65		
Thallium	1.0	.13	.22		
Tin	5.0	.05	1.5		
Titanium	1.0	.05	.62		
Tungsten	5.0	.68	1.1		
Vanadium	5.0	.06	.1		
Zinc	2.0	.03	.19		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal			
Zirconium	2.0	.03	.1

Associated samples MP70600: JB31121-21, JB31121-22, JB31121-23, JB31121-24

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	JB31846-42 Original	MS	Spikelot MPIRS1	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Bismuth					
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	4.0	108	113	91.8	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Palladium					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium	anr				
Tin					
Titanium					
Tungsten					
Vanadium	anr				
Zinc	anr				

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP70600: JB31121-21, JB31121-22, JB31121-23, JB31121-24

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	JB31846-42 Original	MSD	Spikelot MPIRS1	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	4.0	109	116	90.9	0.9	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Palladium						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium	anr					
Tin						
Titanium						
Tungsten						
Vanadium	anr					
Zinc	anr					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP70600: JB31121-21, JB31121-22, JB31121-23, JB31121-24

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:		03/21/13					03/21/13	
Metal	BSP Result	Spikelot MPIRS1	% Rec	QC Limits	LCS Result	Spikelot MPLC74540	% Rec	QC Limits
Aluminum	anr							
Antimony	anr							
Arsenic	anr							
Barium	anr							
Beryllium	anr							
Bismuth								
Boron								
Cadmium	anr							
Calcium	anr							
Chromium	anr							
Cobalt	anr							
Copper	anr							
Iron	anr							
Lead	94.3	100	94.3	80-120	106	103	102.9	82-117
Lithium								
Magnesium	anr							
Manganese	anr							
Molybdenum								
Nickel	anr							
Palladium								
Potassium	anr							
Selenium	anr							
Silicon								
Silver	anr							
Sodium	anr							
Strontium								
Sulfur								
Thallium	anr							
Tin								
Titanium								
Tungsten								
Vanadium	anr							
Zinc	anr							

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date:

Metal
Zirconium

Associated samples MP70600: JB31121-21, JB31121-22, JB31121-23, JB31121-24

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/21/13

Metal	JB31846-42 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	36.2	38.9	7.5	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70600 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date:

Metal

Zirconium

Associated samples MP70600: JB31121-21, JB31121-22, JB31121-23, JB31121-24

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.2	.74		
Antimony	2.0	.09	.15		
Arsenic	2.0	.08	.13		
Barium	20	.05	.054		
Beryllium	0.20	.03	.02		
Bismuth	2.0	.11	.14		
Boron	10	.26	.14		
Cadmium	0.50	.02	.025		
Calcium	500	2.6	2.3		
Chromium	1.0	.06	.11		
Cobalt	5.0	.04	.031		
Copper	2.5	.05	.13		
Iron	50	.83	.79		
Lead	2.0	.1	.11	0.010	<2.0
Lithium	2.0	.14	.25		
Magnesium	500	2.2	3.1		
Manganese	1.5	.03	.048		
Molybdenum	2.0	.05	.074		
Nickel	4.0	.04	.11		
Palladium	5.0	.16	.17		
Potassium	1000	4.2	14		
Selenium	2.0	.12	.24		
Silicon	20	1.1	1.9		
Silver	0.50	.03	.063		
Sodium	1000	1.1	13		
Strontium	1.0	.03	.17		
Sulfur	5.0	.25	.65		
Thallium	1.0	.15	.22		
Tin	5.0	.08	1.5		
Titanium	1.0	.05	.62		
Tungsten	5.0	1	1.1		
Vanadium	5.0	.04	.1		
Zinc	2.0	.15	.19		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal			
Zirconium	2.0	.05	.1

Associated samples MP70607: JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	JB31121-9 Original	MS	Spikelot MPIRS1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	28.6	126	106	91.7	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Palladium					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP70607: JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	JB31121-9 Original	MSD	Spikelot MPIRS1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	28.6	118	105	85.0	6.6	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Palladium						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP70607: JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

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: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 03/21/13

Metal	BSP Result	Spikelot MPIRS1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	95.6	100	95.6	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607 | Methods: SW846 6010C
Matrix Type: SOLID | Units: mg/kg

Prep Date:

Metal

Zirconium

Associated samples MP70607: JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/21/13

Metal	JB31121-9 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	251	255	1.7	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB31121
Account: AQTPAW - Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

QC Batch ID: MP70607
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal
Zirconium

Associated samples MP70607: JB31121-1, JB31121-2, JB31121-3, JB31121-4, JB31121-5, JB31121-6, JB31121-7, JB31121-8, JB31121-9, JB31121-10, JB31121-11, JB31121-12, JB31121-13, JB31121-14, JB31121-15, JB31121-16, JB31121-17, JB31121-18, JB31121-19, JB31121-20

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: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31121-1 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-74_2-3_31113

Wet Weight (Total)	34.72	g
Tare Weight	26.11	g
Dry Weight (Total)	33.47	g
Solids, Percent	85.5	%

Sample: JB31121-2 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-70_7-8_31113

Wet Weight (Total)	27.01	g
Tare Weight	18.52	g
Dry Weight (Total)	25.11	g
Solids, Percent	77.6	%

Sample: JB31121-3 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-80_0-1_31113

Wet Weight (Total)	34.05	g
Tare Weight	27.3	g
Dry Weight (Total)	33.07	g
Solids, Percent	85.5	%

Sample: JB31121-4 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-80_2-3_31113

Wet Weight (Total)	29.43	g
Tare Weight	22.66	g
Dry Weight (Total)	27.83	g
Solids, Percent	76.4	%

Sample: JB31121-5 **Analyzed:** 20-MAR-13 by AR **Method:** ASTM 4643-00
ClientID: AOI5_BH-13-16_1.5-2_031113

Wet Weight (Total)	31.68	g
Tare Weight	25.99	g
Dry Weight (Total)	30.49	g
Solids, Percent	79.1	%

Sample: JB31121-6 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-16_3.5-4_031113

Wet Weight (Total)	33.49	g
Tare Weight	25.6	g
Dry Weight (Total)	31.77	g
Solids, Percent	78.2	%

Percent Solids Raw Data Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31121-7 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-17_1.5-2_031113

Wet Weight (Total)	30.05	g
Tare Weight	24.59	g
Dry Weight (Total)	29.13	g
Solids, Percent	83.2	%

Sample: JB31121-8 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-17_5-5.5_031113

Wet Weight (Total)	31.69	g
Tare Weight	24.54	g
Dry Weight (Total)	30.31	g
Solids, Percent	80.7	%

Sample: JB31121-9 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-15_1.5-2_031113

Wet Weight (Total)	26.65	g
Tare Weight	20.13	g
Dry Weight (Total)	26.09	g
Solids, Percent	91.4	%

Sample: JB31121-10 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-15_4.5-5_031113

Wet Weight (Total)	38.02	g
Tare Weight	29.21	g
Dry Weight (Total)	36.15	g
Solids, Percent	78.8	%

Sample: JB31121-11 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-08_1.5-2_031113

Wet Weight (Total)	32.55	g
Tare Weight	26.56	g
Dry Weight (Total)	31.67	g
Solids, Percent	85.3	%

Sample: JB31121-12 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-08_3.5-4_031113

Wet Weight (Total)	32.95	g
Tare Weight	27.7	g
Dry Weight (Total)	31.89	g
Solids, Percent	79.8	%

Percent Solids Raw Data Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31121-13 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: BH-13-75_4-6'

Wet Weight (Total)	33.01	g
Tare Weight	24.13	g
Dry Weight (Total)	31.22	g
Solids, Percent	79.8	%

Sample: JB31121-14 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: BH-13-72_2-4'

Wet Weight (Total)	30.69	g
Tare Weight	21.99	g
Dry Weight (Total)	29.4	g
Solids, Percent	85.2	%

Sample: JB31121-15 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: BH-13-72_8-10'

Wet Weight (Total)	32.15	g
Tare Weight	22.91	g
Dry Weight (Total)	30.9	g
Solids, Percent	86.5	%

Sample: JB31121-16 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: BH-13-73_8-10'

Wet Weight (Total)	36.22	g
Tare Weight	26.8	g
Dry Weight (Total)	34.24	g
Solids, Percent	79	%

Sample: JB31121-17 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI5_BH-13-01_1.5-2_031213

Wet Weight (Total)	32.33	g
Tare Weight	23.74	g
Dry Weight (Total)	31.12	g
Solids, Percent	85.9	%

Sample: JB31121-18 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-69_0-1_31213

Wet Weight (Total)	26.84	g
Tare Weight	21.08	g
Dry Weight (Total)	26.19	g
Solids, Percent	88.7	%

Percent Solids Raw Data Summary

Job Number: JB31121
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Philadelphia Refinery, 3144 Passyunk Avenue, Philadelphia, PA

Sample: JB31121-19 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-68_1-1.5_31213

Wet Weight (Total)	35.31	g
Tare Weight	25.92	g
Dry Weight (Total)	34.78	g
Solids, Percent	94.4	%

Sample: JB31121-20 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-68_8-9_31213

Wet Weight (Total)	34.33	g
Tare Weight	24.76	g
Dry Weight (Total)	32.53	g
Solids, Percent	81.2	%

Sample: JB31121-21 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-63_4-5_31213

Wet Weight (Total)	30.19	g
Tare Weight	21.18	g
Dry Weight (Total)	29.02	g
Solids, Percent	87	%

Sample: JB31121-22 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: AOI2_BH-13-61_8.5-9_31213

Wet Weight (Total)	27.22	g
Tare Weight	19.03	g
Dry Weight (Total)	26	g
Solids, Percent	85.1	%

Sample: JB31121-23 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: BH-13-53_8-10'

Wet Weight (Total)	29.34	g
Tare Weight	20.12	g
Dry Weight (Total)	28.04	g
Solids, Percent	85.9	%

Sample: JB31121-24 **Analyzed:** 20-MAR-13 by PD **Method:** SM2540 G-97
ClientID: BH-13-79_4-6'

Wet Weight (Total)	29.74	g
Tare Weight	22.64	g
Dry Weight (Total)	28.85	g
Solids, Percent	87.5	%