October 23, 2013
File # 7362

KEATING
ENVIRONMENTAL
MANAGEMENT, INC.

835 Springdale Drive
Suite 200
Exton, PA 19341

610.594.2600 P
610.594.6100 F

keatingenvironmental.com

Ms. Patricia J. Dixon, VP
Environmental & Flood Risk Manager
Fulton Financial Corporation
160 East King Street
Lancaster, PA 17602

Re: BP Service Station (former Amoco)
3608 West Chester Pike
Newtown Square, PA
PADEP Facility ID# 23-09154

KEM

KEATING
ENVIRONMENTAL
MANAGEMENT

Environmental, Energy & Sustainability Solutions

Dear Pat,
Keating Environmental Management Inc. (KEM) is pleased to provide you with the results of the groundwater evaluation conducted at the BP service station located at 3608 West Chester Pike, Newtown Square, Pennsylvania (Site).

Background

In November 2007, KEM completed a Phase I Environmental Site Assessment (Phase I ESA) of the property that identified the presence of four monitoring wells. In the Phase I ESA, we stated that groundwater samples had been obtained from the wells (by others) and results showed that MTBE was present at concentrations close to exceeding the applicable residential Statewide Health Standards. Since the property maybe subject to foreclosure, Fulton Financial Corporation retained KEM to evaluate groundwater quality at the Site, as groundwater quality would provide a good indication that an undocumented release has occurred at the facility which could result in a costly cleanup.

Groundwater Evaluation

On September 24, 2013, KEM was onsite to obtain samples from the four groundwater monitoring wells. KEM accessed the wells and determined that they were 4 inches in diameter, approximately 30 feet deep and the depth to water ranged from 18 to 20 feet below the top of the well casing.

The top of casing elevation for each well was surveyed by KEM to an arbitrary benchmark. Using the casing elevation and the depth to water measurement obtained from each well during the groundwater sampling, KEM calculated the groundwater elevation at each location to determine the

groundwater flow direction. The groundwater elevation data is presented in Table 1. By analysis of the groundwater elevation at each well, KEM has determined that groundwater flows to the southeast under an average hydraulic gradient of 0.003 ft/ft. The groundwater flow direction is depicted on Figure 1.

Each well was purged of three volumes of water to facilitate the collection of a representative sample. A submersible pump with dedicated tubing was used to purge each well. Purged water from the wells was discharged to two 55-gallon drums that are staged on the Site for future disposal. All groundwater samples were analyzed for the current Pennsylvania Department of Environmental Protection (PADEP) unleaded gasoline, leaded gasoline, and diesel fuel parameters.

KEM

Laboratory analytical results indicate detectable concentrations of benzene, MTBE, cumene and lead in the groundwater sample obtained from MW-1. Estimated concentrations of ethylbenzene, total xylenes, and naphthalene were also detected in the groundwater sample collected from monitoring well MW-1. Benzene was detected at 70.8 microgram per liter (µg/L) and MTBE was detected at 15,000 µg/L, which is above their respective residential Statewide Health Standards of 5 µg/L and 20 µg/L. The remaining compounds detected in the sample collected from MW-1 were below their respective Statewide Health Standards. Benzene was the only compound detected in the sample collected from MW-3, at a concentration of 3.0 µg/L which is below the residential Statewide Health Standard of 5 µg/L. In the sample collected from MW-4, MTBE was the only compound detected, at a concentration of 8.6 µg/L, which is below the residential Statewide Health Standard of 20 µg/L. No detectable compounds were found in the sample collected from MW-2. The groundwater quality data is summarized in the enclosed Table 2, and also enclosed is the laboratory data report.

Since benzene and MTBE were detected above the residential Statewide Health Standards, the two 55-gallon drums containing purge water from the well sampling will require off-site disposal.

Conclusions

Based on the analytical results, it appears that an on-site petroleum release has impacted groundwater at the Site, as benzene and MTBE were detected above the residential Statewide Health Standards in the groundwater sampled collected from monitoring well MW-1 which is located immediately down gradient of the tank fields and pump islands. Due to the proximity of monitoring well MW-1 to the downgradient property boundary, it is likely that contaminated groundwater is migrating off-site. Property use downgradient of the Site consists of retail, commercial and light industrial uses.

KEM recommends that data groundwater data be provided to the property owner, as they are obligated to notify the PADEP in accordance with Administration of the Storage Tank and Spill Prevention Program. In addition, the owner should notify the Underground Storage Tank Indemnification Fund (USTIF) that there is a potential claim. The failure to notify the USTIF would likely result in the claim being denied with no coverage to fund the investigation and/or remediation activities required by the PADEP.

We are pleased to have this opportunity to assist you with this matter. Please do not hesitate to contact me if there are any questions.

Very truly yours,
KEATING ENVIRONMENTAL MANAGEMENT, INC.

KEM

Christopher Orzechowski, P.G.
Project Director

Enclosures: Figure 1 Monitoring Well Location Map
Table 1 Groundwater Elevation Data
Table 2 Groundwater Quality Data
Laboratory data report

Table 1
Groundwater Elevation Data
Former Amoco
3608 West Chester Pike
Newtown Square, PA

Monitoring Well Designation	Date	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)
MW-1	9/25/2013	98.11	20.49	77.62
MW-2	9/25/2013	97.68	19.84	77.84
MW-3	9/25/2013	97.02	19.20	77.82
MW-4	9/25/2013	95.99	18.27	77.72

KEM

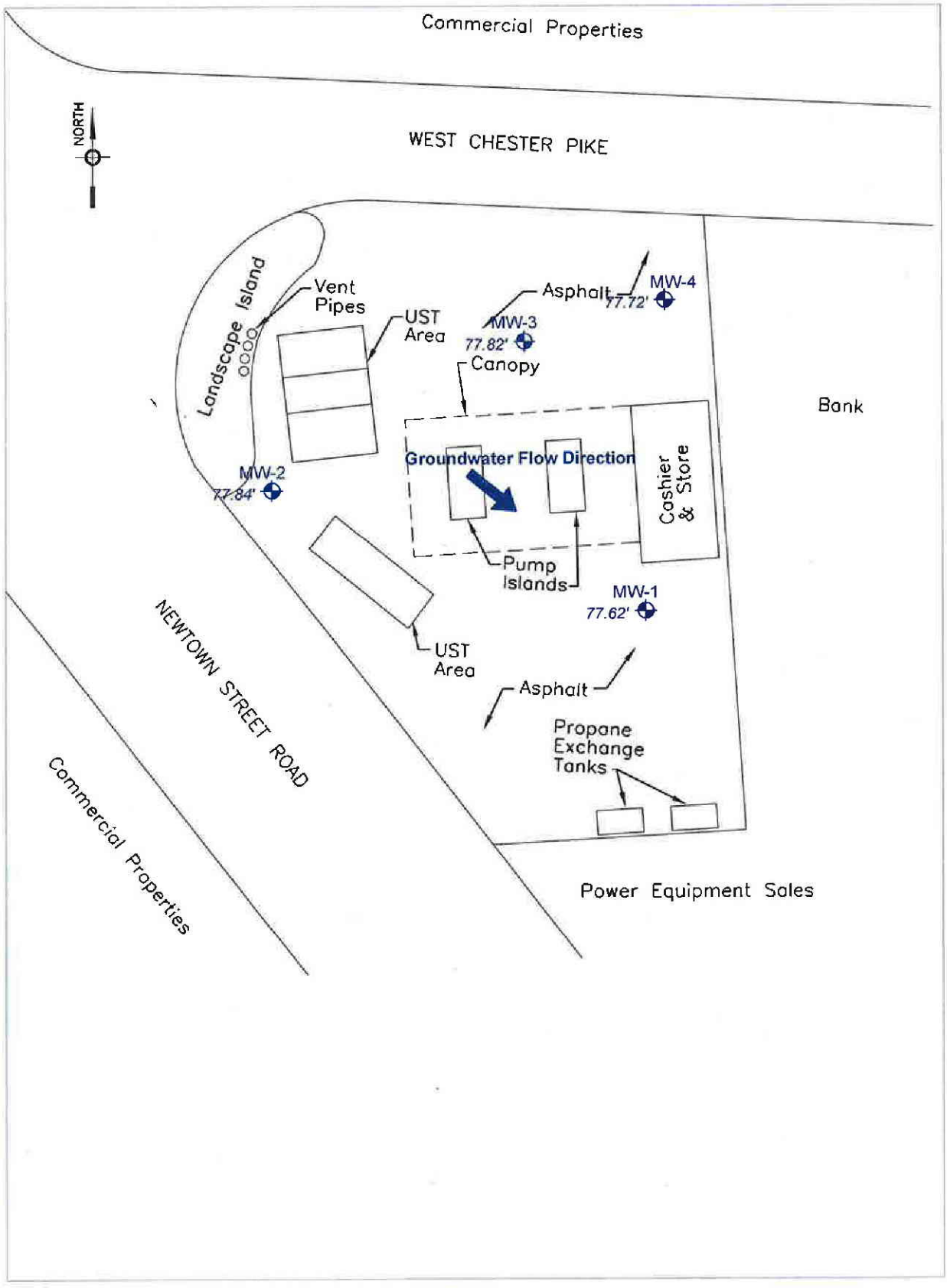

Figure No.	1
File No.	7356
Scale:	1"= 30'
Date:	10-25-2013
Prepared By:	CO
Checked By:	KC

MONITORING WELL LOCATION MAP

Former Amoco
3608 West Chester Pike
Newtown Square, PA

KEM
Keating Environmental Management, Inc.
835 Springdale Drive - Suite 200
Exton, PA 19341
610.594.2600 P - 610.594.6100 F

Table 2
Groundwater Quality Data
Former Amoco
3608 West Chester Pike
Newtown Square, PA

Monitoring Well Designation	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**Residential Statewide**
Sampling Date	9/25/2013	9/25/2013	9/25/2013	9/25/2013	**Health Standard**
			all concentrations in µg/L		
Benzene	**70.8**	<0.28	3	<0.28	**5**
Toluene	<11	<0.44	<0.44	<0.44	**1,000**
Ethylbenzene	*18.7j*	<0.21	<0.21	<0.21	**700**
Total Xylene	*6.4j*	<0.19	<0.19	<0.19	**10,000**
Naphthalene	*71.4j*	<0.25	<0.25	<0.25	**100**
Cumene	*13.8*	<0.22	<0.22	<0.22	**840**
MTBE	**15,000**	<0.29	<0.29	8.6	**20**
Lead	*3.1*	<3.0	<3.0	<3.0	**5**

Bold and shaded indicates that concentration exceeds the Residential Statewide Health Standards

Italized indicates that compound was detected but below the Residential Statewide Health Standards

< - compound not detected above the method detection limit

j - is an estimated concentration

KEM

New Jersey ACCUTEST LABORATORIES

Reissue #1
10/16/13

Technical Report for

KEM Partners, Inc.

Newtown Square Amoco, Newton Square, PA

7362

Accutest Job Number: JB48380

Sampling Date: 09/25/13

Report to:

KEM Partners, Inc.
835 Springdale Drive Suite 200
Exton, PA 19341
COrzechowski@KemPartners.com

ATTN: Chris Orzechowski

Total number of pages in report: **168**

ACCREDITED IN ACCORDANCE WITH nelac

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

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

ACCUTEST LABORATORIES

October 15, 2013

Mr. Chris Orzechowski
KEM Partners, Inc.
835 Springdale Drive Suite 200
Exton, PA 19341

RE: Accutest job JB48380 Reissue

Dear Mr. Orzechowski,

The final report for Accutest job number JB48830 has been edited to reflect corrections to the final results. These edits have been incorporated into the revised report which is attached.

The MDL of 1,2-Dichloroethane has been lowered in order to meet PADEP Criteria. The attached revised report incorporates this revision.

Please contact me at 732-355-4559 if I can be of further assistance in this matter, or if you have any further questions regarding this data report.

Sincerely,

Kristin M Beebe

Kristin M. Beebe
Project Manager
Accutest Laboratories

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Sample Summary

KEM Partners, Inc.

Job No: JB48380

Newtown Square Amoco, Newton Square, PA
Project No: 7362

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB48380-1	09/25/13	12:35	PD	09/25/13	AQ	Ground Water	MW-1
JB48380-1F	09/25/13	12:35	PD	09/25/13	AQ	Groundwater Filtered	MW-1
JB48380-2	09/25/13	12:50	PD	09/25/13	AQ	Ground Water	MW-4
JB48380-2F	09/25/13	12:50	PD	09/25/13	AQ	Groundwater Filtered	MW-4
JB48380-3	09/25/13	13:05	PD	09/25/13	AQ	Ground Water	MW-2
JB48380-3F	09/25/13	13:05	PD	09/25/13	AQ	Groundwater Filtered	MW-2
JB48380-4	09/25/13	13:15	PD	09/25/13	AQ	Ground Water	MW-3
JB48380-4F	09/25/13	13:15	PD	09/25/13	AQ	Groundwater Filtered	MW-3

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KEM Partners, Inc. **Job No** JB48380

Site: Newtown Square Amoco, Newton Square, PA **Report Date** 10/15/2013 9:52:31 A

On 09/25/2013, 4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3.8 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB48380 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: AQ **Batch ID:** VU8158

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB49081-3MS, JB49081-3MSD were used as the QC samples indicated.

Matrix: AQ **Batch ID:** VU8162

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB48435-3MS, JB48435-3MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846-8011

Matrix: AQ **Batch ID:** OP69436

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB48407-1MS, JB48407-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix: AQ **Batch ID:** MP75055

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB48429-5MS, JB48429-5MSD, JB48429-5SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Lead are outside control limits. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

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: JB48380
Account: KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA
Collected: 09/25/13

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Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB48380-1	**MW-1**					
Benzene		70.8	25	7.0	ug/l	SW846 8260B
Ethylbenzene		18.7 J	25	5.2	ug/l	SW846 8260B
Xylene (total)		6.4 J	25	4.8	ug/l	SW846 8260B
Naphthalene		71.4 J	130	6.3	ug/l	SW846 8260B
Isopropylbenzene		13.8 J	50	5.6	ug/l	SW846 8260B
Methyl Tert Butyl Ether		15000	250	71	ug/l	SW846 8260B
JB48380-1F	**MW-1**					
Lead		3.1	3.0		ug/l	SW846 6010C
JB48380-2	**MW-4**					
No hits reported in this sample.						
JB48380-2F	**MW-4**					
No hits reported in this sample.						
JB48380-3	**MW-2**					
Benzene		3.0	1.0	0.28	ug/l	SW846 8260B
Methyl Tert Butyl Ether		3.0	1.0	0.29	ug/l	SW846 8260B
JB48380-3F	**MW-2**					
No hits reported in this sample.						
JB48380-4	**MW-3**					
Methyl Tert Butyl Ether		8.6	1.0	0.29	ug/l	SW846 8260B
JB48380-4F	**MW-3**					
No hits reported in this sample.						

New Jersey ACCUTEST LABORATORIES

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB48380-1	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U176560.D	2.5	10/04/13	NT	n/a	n/a	VU8158
Run #2	U176645.D	25	10/07/13	NT	n/a	n/a	VU8162
Run #3	U176646.D	250	10/07/13	NT	n/a	n/a	VU8162

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml
Run #3	5.0 ml

PA Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	70.8 [a]	25	7.0	ug/l	
108-88-3	Toluene	ND [a]	25	11	ug/l	
100-41-4	Ethylbenzene	18.7 [a]	25	5.2	ug/l	J
1330-20-7	Xylene (total)	6.4 [a]	25	4.8	ug/l	J
91-20-3	Naphthalene	71.4 [a]	130	6.3	ug/l	J
107-06-2	1,2-Dichloroethane	ND	2.5	0.55	ug/l	
98-82-8	Isopropylbenzene	13.8 [a]	50	5.6	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	15000 [b]	250	71	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND [a]	50	5.7	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND [a]	50	11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	93%	98%	99%	79-117%
17060-07-0	1,2-Dichloroethane-D4	103%	104%	103%	72-123%
2037-26-5	Toluene-D8	97%	98%	97%	82-118%
460-00-4	4-Bromofluorobenzene	97%	96%	95%	75-118%

(a) Result is from Run# 2
(b) Result is from Run# 3

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB48380-1	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846-8011 SW846 8011	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW120680.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	95%		38-167%
3017-95-6	2-Bromo-1-chloropropane	145%		38-167%

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

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB48380-1F	**Date Sampled:**	09/25/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/25/13
		Percent Solids:	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	3.1	3.0	ug/l	1	10/05/13	10/14/13	JY	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA32391
(2) Prep QC Batch: MP75055

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-4		
Lab Sample ID:	JB48380-2	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U176557.D	1	10/04/13	NT	n/a	n/a	VU8158
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

PA Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	
91-20-3	Naphthalene	ND	5.0	0.25	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.22	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.29	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.23	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.43	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		79-117%
17060-07-0	1,2-Dichloroethane-D4	100%		72-123%
2037-26-5	Toluene-D8	98%		82-118%
460-00-4	4-Bromofluorobenzene	94%		75-118%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-4		
Lab Sample ID:	JB48380-2	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846-8011 SW846 8011	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW120681.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	94%		38-167%
3017-95-6	2-Bromo-1-chloropropane	95%		38-167%

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

Report of Analysis

Client Sample ID:	MW-4		
Lab Sample ID:	JB48380-2F	**Date Sampled:**	09/25/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/25/13
		Percent Solids:	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	10/05/13	10/14/13	JY	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA32391
(2) Prep QC Batch: MP75055

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB48380-3	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U176558.D	1	10/04/13	NT	n/a	n/a	VU8158
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

PA Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3.0	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	
91-20-3	Naphthalene	ND	5.0	0.25	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.22	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
1634-04-4	Methyl Tert Butyl Ether	3.0	1.0	0.29	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.23	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.43	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		79-117%
17060-07-0	1,2-Dichloroethane-D4	103%		72-123%
2037-26-5	Toluene-D8	100%		82-118%
460-00-4	4-Bromofluorobenzene	98%		75-118%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB48380-3	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846-8011 SW846 8011	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW120682.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	88%		38-167%
3017-95-6	2-Bromo-1-chloropropane	140%		38-167%

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

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB48380-3F	**Date Sampled:**	09/25/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/25/13
		Percent Solids:	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	10/05/13	10/14/13	JY	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA32391
(2) Prep QC Batch: MP75055

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB48380-4	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U176559.D	1	10/04/13	NT	n/a	n/a	VU8158
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

PA Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	
91-20-3	Naphthalene	ND	5.0	0.25	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.22	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
1634-04-4	Methyl Tert Butyl Ether	8.6	1.0	0.29	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.23	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.43	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		79-117%
17060-07-0	1,2-Dichloroethane-D4	101%		72-123%
2037-26-5	Toluene-D8	97%		82-118%
460-00-4	4-Bromofluorobenzene	94%		75-118%

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB48380-4	**Date Sampled:**	09/25/13
Matrix:	AQ - Ground Water	**Date Received:**	09/25/13
Method:	SW846-8011 SW846 8011	**Percent Solids:**	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WW120683.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	92%		38-167%
3017-95-6	2-Bromo-1-chloropropane	130%		38-167%

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

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB48380-4F	**Date Sampled:**	09/25/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/25/13
		Percent Solids:	n/a
Project:	Newtown Square Amoco, Newton Square, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	10/05/13	10/14/13	JY	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA32391
(2) Prep QC Batch: MP75055

RL = Reporting Limit

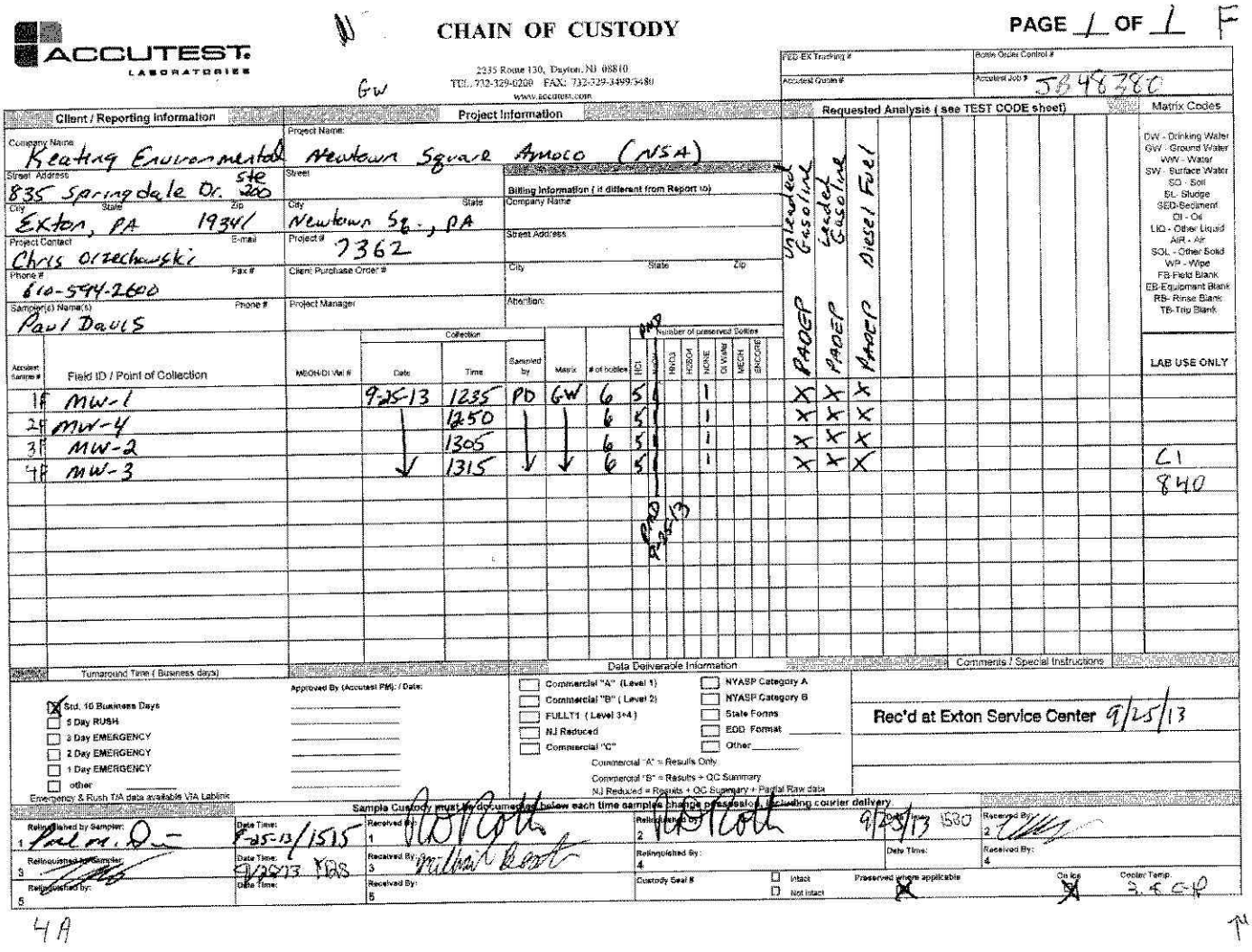
New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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



ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE 1 OF 1

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

GW

FED-EX Tracking #

Bottle Order Control #

Accutest Quote #

Accutest Job # 58 48 380

Client / Reporting Information

Company Name: Keating Environmental
Street Address: 835 Springdale Dr. Ste 200
City: Exton State: PA Zip: 19341
Project Contact: Chris Orzechowski E-mail:
Phone #: 610-594-2600 Fax #:
Sampler(s) Name(s): Paul Davis Phone #:

Project Information

Project Name: Newtown Square Amoco (NSA)
Street:
City: Newtown Sq. State: PA
Project #: 7362
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

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

Requested Analysis (see TEST CODE sheet)

Unleaded Gasoline | Graded Gasoline | Diesel Fuel

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	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	Gl Wide	MEOH	ENCORE	PADEP	PADEP	PADEP	LAB USE ONLY
1	MW-1		9-25-13	1235	PD	GW	6	5				1				X	X	X	
2	MW-4			1250			6	5				1				X	X	X	
3	MW-2			1305			6	5				1				X	X	X	C1
4	MW-3			1315			6	5				1				X	X	X	840

Pres Checked 9-25-13

Turnaround Time (Business days)

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

Emergency & Rush T/A data available VIA Labline

Approved By (Accutest PM) / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULL T1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

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

Comments / Special Instructions

Rec'd at Exton Service Center 9/25/13

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	Paul Davis	9-25-13/1515	1	2	9/25/13 1530	2
3		9/25/13 1605	3	4		4
5			5	Custody Seal #	Intact / Not Intact	Preserved where applicable: X	On Ice: X	Cooler Temp: 3.5 C-P

4A

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB48380 **Client:** _____ **Project:** _____

Date / Time Received: 9/25/2013 **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Initial/Adjusted): #1: (3.8/3.8); 0

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

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

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

Comments

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:	☐		☐	☑

5.1
5

Internal Sample Tracking Chronicle

KEM Partners, Inc.

Job No: JB48380

Newtown Square Amoco, Newton Square, PA
Project No: 7362

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB48380-1 MW-1	Collected: 25-SEP-13 12:35 By: PD		Received: 25-SEP-13 By: MB			
JB48380-1	SW846-8011	03-OCT-13 17:47	VDT	01-OCT-13	DS	V8011EDB
JB48380-1	SW846 8260B	04-OCT-13 20:32	NT			V8260PALGTMB
JB48380-1	SW846 8260B	07-OCT-13 13:52	NT			V8260PALGTMB
JB48380-1	SW846 8260B	07-OCT-13 14:22	NT			V8260PALGTMB
JB48380-2 MW-4	Collected: 25-SEP-13 12:50 By: PD		Received: 25-SEP-13 By: MB			
JB48380-2	SW846-8011	03-OCT-13 18:05	VDT	01-OCT-13	DS	V8011EDB
JB48380-2	SW846 8260B	04-OCT-13 19:04	NT			V8260PALGTMB
JB48380-3 MW-2	Collected: 25-SEP-13 13:05 By: PD		Received: 25-SEP-13 By: MB			
JB48380-3	SW846-8011	03-OCT-13 18:23	VDT	01-OCT-13	DS	V8011EDB
JB48380-3	SW846 8260B	04-OCT-13 19:33	NT			V8260PALGTMB
JB48380-4 MW-3	Collected: 25-SEP-13 13:15 By: PD		Received: 25-SEP-13 By: MB			
JB48380-4	SW846-8011	03-OCT-13 18:41	VDT	01-OCT-13	DS	V8011EDB
JB48380-4	SW846 8260B	04-OCT-13 20:02	NT			V8260PALGTMB
JB48380-1F MW-1	Collected: 25-SEP-13 12:35 By: PD		Received: 25-SEP-13 By: MB			
JB48380-1F	SW846 6010C	14-OCT-13 21:55	JY	05-OCT-13	AH	PB
JB48380-2F MW-4	Collected: 25-SEP-13 12:50 By: PD		Received: 25-SEP-13 By: MB			
JB48380-2F	SW846 6010C	14-OCT-13 22:01	JY	05-OCT-13	AH	PB
JB48380-3F MW-2	Collected: 25-SEP-13 13:05 By: PD		Received: 25-SEP-13 By: MB			
JB48380-3F	SW846 6010C	14-OCT-13 22:20	JY	05-OCT-13	AH	PB

Internal Sample Tracking Chronicle

KEM Partners, Inc.

Job No: JB48380

Newtown Square Amoco, Newton Square, PA
Project No: 7362

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB48380-4F	Collected: 25-SEP-13 13:15 By: PD			Received: 25-SEP-13 By: MB		
MW-3						
JB48380-4F	SW846 6010C	14-OCT-13 22:26	JY	05-OCT-13	AH	PB

Accutest Internal Chain of Custody

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA
Received: 09/25/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB48380-1.2	Secured Storage	Richa Patel	10/01/13 08:49	Retrieve from Storage
JB48380-1.2	Richa Patel	Secured Storage	10/01/13 11:51	Return to Storage
JB48380-1.2.1	Richa Patel	Organics Prep	10/01/13 08:49	Extract from JB48380-1.2
JB48380-1.2.1	Organics Prep	Khusbu Shah	10/01/13 15:06	Extract from JB48380-1.2
JB48380-1.2.1	Khusbu Shah	Extract Storage	10/01/13 15:06	Return to Storage
JB48380-1.2.1	Extract Storage	Vincent Drago	10/03/13 10:58	Retrieve from Storage
JB48380-1.2.1	Vincent Drago	GCWW	10/03/13 10:58	Load on Instrument
JB48380-1.2.1	GCWW	Vincent Drago	10/07/13 10:34	Unload from Instrument
JB48380-1.2.1	Vincent Drago	Extract Freezer	10/07/13 10:34	Return to Storage
JB48380-1.4	Secured Storage	Nathaniel Tuvera	10/04/13 16:58	Retrieve from Storage
JB48380-1.4	Nathaniel Tuvera	Secured Storage	10/04/13 16:58	Return to Storage
JB48380-1.5	Secured Storage	Nathaniel Tuvera	10/03/13 16:38	Retrieve from Storage
JB48380-1.5	Nathaniel Tuvera	GCMSU	10/03/13 16:38	Load on Instrument
JB48380-1.5	GCMSU	Nathaniel Tuvera	10/04/13 10:23	Unload from Instrument
JB48380-1.5	Nathaniel Tuvera	Secured Storage	10/04/13 10:23	Return to Storage
JB48380-1.5	Secured Storage	Nathaniel Tuvera	10/07/13 17:04	Retrieve from Storage
JB48380-1.5	Nathaniel Tuvera	Secured Storage	10/07/13 17:04	Return to Storage
JB48380-1F.1	Secured Storage	Rinku Patel	09/26/13 11:23	Retrieve from Storage
JB48380-1F.1	Rinku Patel	Secured Storage	09/26/13 15:19	Return to Storage
JB48380-1F.1	Secured Storage	Bernadette Vassilatos	10/04/13 07:13	Retrieve from Storage
JB48380-1F.1	Bernadette Vassilatos	Secured Staging Area	10/04/13 07:14	Return to Storage
JB48380-1F.1	Secured Staging Area	Amirah Hillman	10/04/13 08:56	Retrieve from Storage
JB48380-1F.1	Amirah Hillman	Secured Storage	10/04/13 12:34	Return to Storage
JB48380-1F.1.1	Amirah Hillman	Metals Digestion	10/04/13 12:03	Digestate from JB48380-1F.1
JB48380-1F.1.1	Metals Digestion	Amirah Hillman	10/04/13 12:05	Digestate from JB48380-1F.1
JB48380-1F.1.1	Amirah Hillman	Metals Digestate Storage	10/04/13 12:05	Return to Storage
JB48380-2.2	Secured Storage	Richa Patel	10/01/13 08:49	Retrieve from Storage
JB48380-2.2	Richa Patel	Secured Storage	10/01/13 11:51	Return to Storage
JB48380-2.2.1	Richa Patel	Organics Prep	10/01/13 08:49	Extract from JB48380-2.2
JB48380-2.2.1	Organics Prep	Khusbu Shah	10/01/13 15:06	Extract from JB48380-2.2
JB48380-2.2.1	Khusbu Shah	Extract Storage	10/01/13 15:06	Return to Storage
JB48380-2.2.1	Extract Storage	Vincent Drago	10/03/13 10:58	Retrieve from Storage
JB48380-2.2.1	Vincent Drago	GCWW	10/03/13 10:58	Load on Instrument
JB48380-2.2.1	GCWW	Vincent Drago	10/07/13 10:34	Unload from Instrument
JB48380-2.2.1	Vincent Drago	Extract Freezer	10/07/13 10:34	Return to Storage
JB48380-2.4	Secured Storage	Nathaniel Tuvera	10/04/13 16:59	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA
Received: 09/25/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB48380-2.4	Nathaniel Tuvera	GCMSU	10/04/13 16:59	Load on Instrument
JB48380-2.4	GCMSU	Nathaniel Tuvera	10/07/13 10:56	Unload from Instrument
JB48380-2.4	Nathaniel Tuvera	Secured Storage	10/07/13 10:56	Return to Storage
JB48380-2.5	Secured Storage	Nathaniel Tuvera	10/03/13 16:38	Retrieve from Storage
JB48380-2.5	Nathaniel Tuvera	GCMSU	10/03/13 16:38	Load on Instrument
JB48380-2.5	GCMSU	Nathaniel Tuvera	10/04/13 10:23	Unload from Instrument
JB48380-2.5	Nathaniel Tuvera	Secured Storage	10/04/13 10:23	Return to Storage
JB48380-2F.1	Secured Storage	Rinku Patel	09/26/13 11:23	Retrieve from Storage
JB48380-2F.1	Rinku Patel	Secured Storage	09/26/13 15:19	Return to Storage
JB48380-2F.1	Secured Storage	Bernadette Vassilatos	10/04/13 07:13	Retrieve from Storage
JB48380-2F.1	Bernadette Vassilatos	Secured Staging Area	10/04/13 07:14	Return to Storage
JB48380-2F.1	Secured Staging Area	Amirah Hillman	10/04/13 08:56	Retrieve from Storage
JB48380-2F.1	Amirah Hillman	Secured Storage	10/04/13 12:34	Return to Storage
JB48380-2F.1.1	Amirah Hillman	Metals Digestion	10/04/13 12:03	Digestate from JB48380-2F.1
JB48380-2F.1.1	Metals Digestion	Amirah Hillman	10/04/13 12:05	Digestate from JB48380-2F.1
JB48380-2F.1.1	Amirah Hillman	Metals Digestate Storage	10/04/13 12:05	Return to Storage
JB48380-3.2	Secured Storage	Richa Patel	10/01/13 08:49	Retrieve from Storage
JB48380-3.2	Richa Patel	Secured Storage	10/01/13 11:51	Return to Storage
JB48380-3.2.1	Richa Patel	Organics Prep	10/01/13 08:49	Extract from JB48380-3.2
JB48380-3.2.1	Organics Prep	Khusbu Shah	10/01/13 15:06	Extract from JB48380-3.2
JB48380-3.2.1	Khusbu Shah	Extract Storage	10/01/13 15:06	Return to Storage
JB48380-3.2.1	Extract Storage	Vincent Drago	10/03/13 10:58	Retrieve from Storage
JB48380-3.2.1	Vincent Drago	GCWW	10/03/13 10:58	Load on Instrument
JB48380-3.2.1	GCWW	Vincent Drago	10/07/13 10:34	Unload from Instrument
JB48380-3.2.1	Vincent Drago	Extract Freezer	10/07/13 10:34	Return to Storage
JB48380-3.4	Secured Storage	Nathaniel Tuvera	10/04/13 16:59	Retrieve from Storage
JB48380-3.4	Nathaniel Tuvera	GCMSU	10/04/13 16:59	Load on Instrument
JB48380-3.4	GCMSU	Nathaniel Tuvera	10/07/13 10:56	Unload from Instrument
JB48380-3.4	Nathaniel Tuvera	Secured Storage	10/07/13 10:56	Return to Storage
JB48380-3.5	Secured Storage	Nathaniel Tuvera	10/03/13 16:38	Retrieve from Storage
JB48380-3.5	Nathaniel Tuvera	GCMSU	10/03/13 16:38	Load on Instrument
JB48380-3.5	GCMSU	Nathaniel Tuvera	10/04/13 10:23	Unload from Instrument
JB48380-3.5	Nathaniel Tuvera	Secured Storage	10/04/13 10:23	Return to Storage
JB48380-3F.1	Secured Storage	Rinku Patel	09/26/13 11:23	Retrieve from Storage
JB48380-3F.1	Rinku Patel	Secured Storage	09/26/13 15:19	Return to Storage
JB48380-3F.1	Secured Storage	Bernadette Vassilatos	10/04/13 07:13	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA
Received: 09/25/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB48380-3F.1	Bernadette Vassilatos	Secured Staging Area	10/04/13 07:14	Return to Storage
JB48380-3F.1	Secured Staging Area	Amirah Hillman	10/04/13 08:56	Retrieve from Storage
JB48380-3F.1	Amirah Hillman	Secured Storage	10/04/13 12:34	Return to Storage
JB48380-3F.1.1	Amirah Hillman	Metals Digestion	10/04/13 12:03	Digestate from JB48380-3F.1
JB48380-3F.1.1	Metals Digestion	Amirah Hillman	10/04/13 12:05	Digestate from JB48380-3F.1
JB48380-3F.1.1	Amirah Hillman	Metals Digestate Storage	10/04/13 12:05	Return to Storage
JB48380-4.2	Secured Storage	Nathaniel Tuvera	10/03/13 16:38	Retrieve from Storage
JB48380-4.2	Nathaniel Tuvera	GCMSU	10/03/13 16:38	Load on Instrument
JB48380-4.2	GCMSU	Nathaniel Tuvera	10/04/13 10:23	Unload from Instrument
JB48380-4.2	Nathaniel Tuvera	Secured Storage	10/04/13 10:23	Return to Storage
JB48380-4.4	Secured Storage	Nathaniel Tuvera	10/04/13 16:59	Retrieve from Storage
JB48380-4.4	Nathaniel Tuvera	GCMSU	10/04/13 16:59	Load on Instrument
JB48380-4.4	GCMSU	Nathaniel Tuvera	10/07/13 10:56	Unload from Instrument
JB48380-4.4	Nathaniel Tuvera	Secured Storage	10/07/13 10:56	Return to Storage
JB48380-4.5	Secured Storage	Richa Patel	10/01/13 08:49	Retrieve from Storage
JB48380-4.5	Richa Patel	Secured Storage	10/01/13 11:51	Return to Storage
JB48380-4.5.1	Richa Patel	Organics Prep	10/01/13 08:49	Extract from JB48380-4.5
JB48380-4.5.1	Organics Prep	Khusbu Shah	10/01/13 15:06	Extract from JB48380-4.5
JB48380-4.5.1	Khusbu Shah	Extract Storage	10/01/13 15:06	Return to Storage
JB48380-4.5.1	Extract Storage	Vincent Drago	10/03/13 10:58	Retrieve from Storage
JB48380-4.5.1	Vincent Drago	GCWW	10/03/13 10:58	Load on Instrument
JB48380-4.5.1	GCWW	Vincent Drago	10/07/13 10:34	Unload from Instrument
JB48380-4.5.1	Vincent Drago	Extract Freezer	10/07/13 10:34	Return to Storage
JB48380-4F.1	Secured Storage	Rinku Patel	09/26/13 11:23	Retrieve from Storage
JB48380-4F.1	Rinku Patel	Secured Storage	09/26/13 15:19	Return to Storage
JB48380-4F.1	Secured Storage	Bernadette Vassilatos	10/04/13 07:13	Retrieve from Storage
JB48380-4F.1	Bernadette Vassilatos	Secured Staging Area	10/04/13 07:14	Return to Storage
JB48380-4F.1	Secured Staging Area	Amirah Hillman	10/04/13 08:56	Retrieve from Storage
JB48380-4F.1	Amirah Hillman	Secured Storage	10/04/13 12:34	Return to Storage
JB48380-4F.1.1	Amirah Hillman	Metals Digestion	10/04/13 12:03	Digestate from JB48380-4F.1
JB48380-4F.1.1	Metals Digestion	Amirah Hillman	10/04/13 12:05	Digestate from JB48380-4F.1
JB48380-4F.1.1	Amirah Hillman	Metals Digestate Storage	10/04/13 12:05	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: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU8158-MB1	U176540.D	1	10/04/13	NT	n/a	n/a	VU8158

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

JB48380-1, JB48380-2, JB48380-3, JB48380-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.28	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.29	ug/l	
91-20-3	Naphthalene	ND	5.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.23	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	79-117%
17060-07-0	1,2-Dichloroethane-D4	99%	72-123%
2037-26-5	Toluene-D8	99%	82-118%
460-00-4	4-Bromofluorobenzene	96%	75-118%

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

Method Blank Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU8162-MB1	U176640.D	1	10/07/13	NT	n/a	n/a	VU8162

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

JB48380-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.28	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.29	ug/l	
91-20-3	Naphthalene	ND	5.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.23	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	97%	79-117%
17060-07-0	1,2-Dichloroethane-D4	98%	72-123%
2037-26-5	Toluene-D8	99%	82-118%
460-00-4	4-Bromofluorobenzene	94%	75-118%

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

Blank Spike Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU8158-BS	U176541.D	1	10/04/13	NT	n/a	n/a	VU8158

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

JB48380-1, JB48380-2, JB48380-3, JB48380-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	46.4	93	80-119
107-06-2	1,2-Dichloroethane	50	52.6	105	75-133
100-41-4	Ethylbenzene	50	47.2	94	82-119
98-82-8	Isopropylbenzene	50	47.2	94	77-127
1634-04-4	Methyl Tert Butyl Ether	100	87.2	87	75-122
91-20-3	Naphthalene	50	45.1	90	62-133
108-88-3	Toluene	50	46.1	92	82-120
95-63-6	1,2,4-Trimethylbenzene	50	48.1	96	81-123
108-67-8	1,3,5-Trimethylbenzene	50	47.7	95	79-124
1330-20-7	Xylene (total)	150	144	96	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	79-117%
17060-07-0	1,2-Dichloroethane-D4	101%	72-123%
2037-26-5	Toluene-D8	98%	82-118%
460-00-4	4-Bromofluorobenzene	92%	75-118%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU8162-BS	U176641.D	1	10/07/13	NT	n/a	n/a	VU8162

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

JB48380-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	47.0	94	80-119
100-41-4	Ethylbenzene	50	48.3	97	82-119
98-82-8	Isopropylbenzene	50	47.3	95	77-127
1634-04-4	Methyl Tert Butyl Ether	100	96.7	97	75-122
91-20-3	Naphthalene	50	48.2	96	62-133
108-88-3	Toluene	50	45.7	91	82-120
95-63-6	1,2,4-Trimethylbenzene	50	47.2	94	81-123
108-67-8	1,3,5-Trimethylbenzene	50	47.3	95	79-124
1330-20-7	Xylene (total)	150	144	96	82-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	79-117%
17060-07-0	1,2-Dichloroethane-D4	105%	72-123%
2037-26-5	Toluene-D8	98%	82-118%
460-00-4	4-Bromofluorobenzene	91%	75-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB49081-3MS	U176554.D	1	10/04/13	NT	n/a	n/a	VU8158
JB49081-3MSD	U176555.D	1	10/04/13	NT	n/a	n/a	VU8158
JB49081-3	U176549.D	1	10/04/13	NT	n/a	n/a	VU8158

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

JB48380-1, JB48380-2, JB48380-3, JB48380-4

CAS No.	Compound	JB49081-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	49.7	99	49.0	98	1	49-138/12
107-06-2	1,2-Dichloroethane	ND		50	59.5	119	58.7	117	1	69-138/12
100-41-4	Ethylbenzene	ND		50	51.8	104	50.0	100	4	48-139/13
98-82-8	Isopropylbenzene	ND		50	49.9	100	48.6	97	3	61-138/14
1634-04-4	Methyl Tert Butyl Ether	ND		50	50.6	101	53.1	106	5	63-134/12
91-20-3	Naphthalene	ND		50	49.9	100	51.0	102	2	50-149/15
108-88-3	Toluene	ND		50	50.4	101	48.3	97	4	54-138/13
95-63-6	1,2,4-Trimethylbenzene	ND		50	50.1	100	49.1	98	2	51-140/13
108-67-8	1,3,5-Trimethylbenzene	ND		50	49.8	100	49.0	98	2	58-138/14
1330-20-7	Xylene (total)	ND		150	157	105	153	102	3	53-136/12

CAS No.	Surrogate Recoveries	MS	MSD	JB49081-3	Limits
1868-53-7	Dibromofluoromethane	95%	97%	94%	79-117%
17060-07-0	1,2-Dichloroethane-D4	102%	102%	102%	72-123%
2037-26-5	Toluene-D8	98%	98%	96%	82-118%
460-00-4	4-Bromofluorobenzene	90%	90%	97%	75-118%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB48435-3MS	U176653.D	1	10/07/13	NT	n/a	n/a	VU8162
JB48435-3MSD	U176654.D	1	10/07/13	NT	n/a	n/a	VU8162
JB48435-3	U176648.D	1	10/07/13	NT	n/a	n/a	VU8162

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

JB48380-1

CAS No.	Compound	JB48435-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	43.7	87	44.4	89	2	49-138/12
100-41-4	Ethylbenzene	ND		50	45.4	91	44.6	89	2	48-139/13
98-82-8	Isopropylbenzene	ND		50	44.0	88	44.0	88	0	61-138/14
1634-04-4	Methyl Tert Butyl Ether	ND		50	46.2	92	47.6	95	3	63-134/12
91-20-3	Naphthalene	ND		50	44.6	89	45.4	91	2	50-149/15
108-88-3	Toluene	ND		50	43.6	87	44.9	90	3	54-138/13
95-63-6	1,2,4-Trimethylbenzene	ND		50	44.1	88	43.9	88	0	51-140/13
108-67-8	1,3,5-Trimethylbenzene	ND		50	44.4	89	44.1	88	1	58-138/14
1330-20-7	Xylene (total)	ND		150	136	91	136	91	0	53-136/12

CAS No.	Surrogate Recoveries	MS	MSD	JB48435-3	Limits
1868-53-7	Dibromofluoromethane	98%	99%	94%	79-117%
17060-07-0	1,2-Dichloroethane-D4	105%	110%	102%	72-123%
2037-26-5	Toluene-D8	97%	100%	98%	82-118%
460-00-4	4-Bromofluorobenzene	93%	93%	94%	75-118%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample:	VU8071-BFB	**Injection Date:**	08/07/13
Lab File ID:	U174548.D	**Injection Time:**	14:39
Instrument ID:	GCMSU		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	6594	19.7		Pass
75	30.0 - 60.0% of mass 95	16664	49.7		Pass
95	Base peak, 100% relative abundance	33539	100.0		Pass
96	5.0 - 9.0% of mass 95	2259	6.74		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 150.0% of mass 95	34624	103.2		Pass
175	5.0 - 9.0% of mass 174	2963	8.83	(8.56) [a]	Pass
176	95.0 - 101.0% of mass 174	33755	100.6	(97.5) [a]	Pass
177	5.0 - 9.0% of mass 176	2242	6.68	(6.64) [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
VU8071-IC8071	U174549.D	08/07/13	15:15	00:36	Initial cal 1
VU8071-IC8071	U174550.D	08/07/13	15:45	01:06	Initial cal 2
VU8071-IC8071	U174551.D	08/07/13	16:14	01:35	Initial cal 0.5
VU8071-IC8071	U174552.D	08/07/13	16:43	02:04	Initial cal 5
VU8071-IC8071	U174553.D	08/07/13	17:12	02:33	Initial cal 10
VU8071-IC8071	U174554.D	08/07/13	17:41	03:02	Initial cal 20
VU8071-ICC8071	U174555.D	08/07/13	18:11	03:32	Initial cal 50
VU8071-IC8071	U174556.D	08/07/13	18:40	04:01	Initial cal 75
VU8071-IC8071	U174557.D	08/07/13	19:09	04:30	Initial cal 100
VU8071-IC8071	U174558.D	08/07/13	19:38	04:59	Initial cal 200
VU8071-ICV8071	U174560.D	08/07/13	20:37	05:58	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample:	VU8158-BFB	**Injection Date:**	10/04/13
Lab File ID:	U176537.D	**Injection Time:**	08:55
Instrument ID:	GCMSU		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	6717	21.7		Pass
75	30.0 - 60.0% of mass 95	16294	52.7		Pass
95	Base peak, 100% relative abundance	30925	100.0		Pass
96	5.0 - 9.0% of mass 95	2136	6.91		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	32948	106.5		Pass
175	5.0 - 9.0% of mass 174	2800	9.05	(8.50) [a]	Pass
176	95.0 - 101.0% of mass 174	33096	107.0	(100.4) [a]	Pass
177	5.0 - 9.0% of mass 176	2243	7.25	(6.78) [b]	Pass

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VU8158-CC8071	U176538.D	10/04/13	09:26	00:31	Continuing cal 20
VU8158-MB1	U176540.D	10/04/13	10:44	01:49	Method Blank
VU8158-BS	U176541.D	10/04/13	11:13	02:18	Blank Spike
ZZZZZZ	U176543.D	10/04/13	12:12	03:17	(unrelated sample)
ZZZZZZ	U176544.D	10/04/13	12:41	03:46	(unrelated sample)
ZZZZZZ	U176545.D	10/04/13	13:11	04:16	(unrelated sample)
ZZZZZZ	U176546.D	10/04/13	13:40	04:45	(unrelated sample)
ZZZZZZ	U176547.D	10/04/13	14:09	05:14	(unrelated sample)
ZZZZZZ	U176548.D	10/04/13	14:39	05:44	(unrelated sample)
JB49081-3	U176549.D	10/04/13	15:08	06:13	(used for QC only; not part of job JB48380)
ZZZZZZ	U176550.D	10/04/13	15:38	06:43	(unrelated sample)
ZZZZZZ	U176551.D	10/04/13	16:07	07:12	(unrelated sample)
ZZZZZZ	U176552.D	10/04/13	16:37	07:42	(unrelated sample)
ZZZZZZ	U176553.D	10/04/13	17:06	08:11	(unrelated sample)
JB49081-3MS	U176554.D	10/04/13	17:35	08:40	Matrix Spike
JB49081-3MSD	U176555.D	10/04/13	18:05	09:10	Matrix Spike Duplicate
JB48380-2	U176557.D	10/04/13	19:04	10:09	MW-4
JB48380-3	U176558.D	10/04/13	19:33	10:38	MW-2
JB48380-4	U176559.D	10/04/13	20:02	11:07	MW-3
JB48380-1	U176560.D	10/04/13	20:32	11:37	MW-1

Instrument Performance Check (BFB)

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample:	VU8162-BFB	**Injection Date:**	10/07/13
Lab File ID:	U176638.D	**Injection Time:**	10:01
Instrument ID:	GCMSU		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	6819	22.6		Pass
75	30.0 - 80.0% of mass 95	15542	51.4		Pass
95	Base peak, 100% relative abundance	30235	100.0		Pass
96	5.0 - 9.0% of mass 95	2064	6.83		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	31746	105.0		Pass
175	5.0 - 9.0% of mass 174	2827	9.35	(8.91) [a]	Pass
176	95.0 - 101.0% of mass 174	30694	101.5	(96.7) [a]	Pass
177	5.0 - 9.0% of mass 176	2154	7.12	(7.02) [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
VU8162-CC8071	U176639.D	10/07/13	10:36	00:35	Continuing cal 20
VU8162-MB1	U176640.D	10/07/13	11:15	01:14	Method Blank
VU8162-BS	U176641.D	10/07/13	11:52	01:51	Blank Spike
ZZZZZZ	U176643.D	10/07/13	12:52	02:51	(unrelated sample)
ZZZZZZ	U176644.D	10/07/13	13:22	03:21	(unrelated sample)
JB48380-1	U176645.D	10/07/13	13:52	03:51	MW-1
JB48380-1	U176646.D	10/07/13	14:22	04:21	MW-1
ZZZZZZ	U176647.D	10/07/13	14:51	04:50	(unrelated sample)
JB48435-3	U176648.D	10/07/13	15:21	05:20	(used for QC only; not part of job JB48380)
ZZZZZZ	U176649.D	10/07/13	15:50	05:49	(unrelated sample)
ZZZZZZ	U176650.D	10/07/13	16:19	06:18	(unrelated sample)
ZZZZZZ	U176651.D	10/07/13	16:49	06:48	(unrelated sample)
ZZZZZZ	U176652.D	10/07/13	17:19	07:18	(unrelated sample)
JB48435-3MS	U176653.D	10/07/13	17:49	07:48	Matrix Spike
JB48435-3MSD	U176654.D	10/07/13	18:18	08:17	Matrix Spike Duplicate
ZZZZZZ	U176656.D	10/07/13	19:17	09:16	(unrelated sample)
ZZZZZZ	U176657.D	10/07/13	19:46	09:45	(unrelated sample)
ZZZZZZ	U176658.D	10/07/13	20:15	10:14	(unrelated sample)
ZZZZZZ	U176659.D	10/07/13	20:44	10:43	(unrelated sample)
ZZZZZZ	U176660.D	10/07/13	21:14	11:13	(unrelated sample)
ZZZZZZ	U176661.D	10/07/13	21:43	11:42	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Check Std:	VU8158-CC8071	**Injection Date:**	10/04/13
Lab File ID:	U176538.D	**Injection Time:**	09:26
Instrument ID:	GCMSU	**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	79106	7.85	116736	10.06	150782	10.98	140121	14.32	97669	16.89
Upper Limit [a]	158212	8.35	233472	10.56	301564	11.48	280242	14.82	195338	17.39
Lower Limit [b]	39553	7.35	58368	9.56	75391	10.48	70061	13.82	48835	16.39

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VU8158-MB1	82438	7.84	117127	10.06	148908	10.98	143921	14.31	95515	16.89
VU8158-BS	82000	7.84	122806	10.06	158548	10.98	149696	14.32	104049	16.89
ZZZZZZ	82304	7.85	118844	10.06	151540	10.98	143315	14.32	97697	16.89
ZZZZZZ	82056	7.85	114905	10.06	146465	10.98	142029	14.32	96979	16.89
ZZZZZZ	80670	7.85	117129	10.06	152612	10.98	146403	14.32	97101	16.89
ZZZZZZ	79731	7.85	115660	10.06	149017	10.98	145555	14.32	98678	16.89
ZZZZZZ	83930	7.85	117457	10.06	152967	10.98	148130	14.32	96219	16.89
ZZZZZZ	80118	7.85	112656	10.06	146634	10.98	138847	14.32	94261	16.89
JB49081-3	81763	7.85	117586	10.06	151347	10.98	142394	14.32	93334	16.89
ZZZZZZ	78248	7.84	113697	10.06	148220	10.98	142107	14.32	96198	16.89
ZZZZZZ	80313	7.85	115022	10.06	149535	10.98	142850	14.32	96139	16.89
ZZZZZZ	79276	7.85	116364	10.06	151511	10.98	144397	14.32	95663	16.89
ZZZZZZ	79534	7.85	113317	10.06	146549	10.99	146776	14.32	93979	16.89
JB49081-3MS	82860	7.85	118635	10.06	152479	10.99	144447	14.31	103648	16.89
JB49081-3MSD	84041	7.84	120701	10.05	156969	10.98	148643	14.32	105566	16.89
JB48380-2	77600	7.84	120383	10.06	154747	10.98	147243	14.32	99229	16.88
JB48380-3	76040	7.85	118901	10.06	153461	10.98	145620	14.32	95909	16.89
JB48380-4	74015	7.85	121219	10.06	154735	10.98	146974	14.32	98552	16.89
JB48380-1	73522	7.84	124359	10.06	157367	10.99	147292	14.32	95427	16.89

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: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Check Std:	VU8162-CC8071	**Injection Date:**	10/07/13
Lab File ID:	U176639.D	**Injection Time:**	10:36
Instrument ID:	GCMSU	**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	88744	7.84	114726	10.06	147356	10.98	140295	14.32	95038	16.89
Upper Limit [a]	177488	8.34	229452	10.56	294712	11.48	280590	14.82	190076	17.39
Lower Limit [b]	44372	7.34	57363	9.56	73678	10.48	70148	13.82	47519	16.39
Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
VU8162-MB1	86419	7.85	112382	10.05	143581	10.98	137809	14.32	94108	16.89
VU8162-BS	82125	7.84	115404	10.06	148248	10.98	140455	14.31	97798	16.89
ZZZZZZ	76935	7.86	109018	10.06	140275	10.98	133231	14.32	89795	16.89
ZZZZZZ	79341	7.85	111026	10.06	143604	10.99	137432	14.32	92682	16.89
JB48380-1	78783	7.85	109867	10.06	144053	10.99	137314	14.32	91913	16.89
JB48380-1	81258	7.85	109392	10.06	141861	10.98	136454	14.32	89062	16.89
ZZZZZZ	76443	7.85	108128	10.06	141465	10.98	135940	14.32	90689	16.89
JB48435-3	73612	7.86	106138	10.06	136962	10.98	130906	14.32	88252	16.89
ZZZZZZ	73751	7.86	104946	10.06	138946	10.98	132773	14.32	88926	16.89
ZZZZZZ	82321	7.85	106223	10.06	134717	10.98	133095	14.32	88881	16.89
ZZZZZZ	77676	7.84	105716	10.06	135090	10.98	129669	14.32	92204	16.89
ZZZZZZ	80257	7.85	107842	10.06	139816	10.98	134978	14.32	95082	16.89
JB48435-3MS	79664	7.85	113924	10.06	148583	10.98	139484	14.31	98066	16.89
JB48435-3MSD	81727	7.85	112729	10.06	145246	10.98	142226	14.32	99941	16.89
ZZZZZZ	85589	7.85	110007	10.06	138098	10.98	135446	14.31	90057	16.89
ZZZZZZ	74657	7.85	105327	10.05	134830	10.98	133228	14.31	91445	16.89
ZZZZZZ	77137	7.84	108586	10.06	142596	10.98	137529	14.32	92748	16.89
ZZZZZZ	75992	7.84	109163	10.06	143018	10.98	134893	14.32	93113	16.89
ZZZZZZ	78597	7.85	107288	10.06	137647	10.98	137096	14.31	91684	16.89
ZZZZZZ	89418	7.84	113570	10.06	147080	10.98	143739	14.32	111715	16.89

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: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Method: SW846 8260B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB48380-1	U176560.D	93.0	103.0	97.0	97.0
JB48380-1	U176645.D	98.0	104.0	98.0	96.0
JB48380-1	U176646.D	99.0	103.0	97.0	95.0
JB48380-2	U176557.D	96.0	100.0	98.0	94.0
JB48380-3	U176558.D	97.0	103.0	100.0	98.0
JB48380-4	U176559.D	93.0	101.0	97.0	94.0
JB48435-3MS	U176653.D	98.0	105.0	97.0	93.0
JB48435-3MSD	U176654.D	99.0	110.0	100.0	93.0
JB49081-3MS	U176554.D	95.0	102.0	98.0	90.0
JB49081-3MSD	U176555.D	97.0	102.0	98.0	90.0
VU8158-BS	U176541.D	94.0	101.0	98.0	92.0
VU8158-MB1	U176540.D	93.0	99.0	99.0	96.0
VU8162-BS	U176641.D	99.0	105.0	98.0	91.0
VU8162-MB1	U176640.D	97.0	98.0	99.0	94.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	79-117%
S2 = 1,2-Dichloroethane-D4	72-123%
S3 = Toluene-D8	82-118%
S4 = 4-Bromofluorobenzene	75-118%

Initial Calibration Summary

Job Number: JB48380 **Sample:** VU8071-ICC8071
Account: KEMPAE KEM Partners, Inc. **Lab FileID:** U174555.D
Project: Newtown Square Amoco, Newton Square, PA

Response Factor Report MSU

Method : C:\MSDCHEM\1\METHODS\MU8071.M (RTE Integrator)
Title : SW-846 8260B, DB624 60m x 250um x 1.40um
Last Update : Thu Aug 08 11:23:10 2013
Response via : Initial Calibration

Calibration Files
5 =U174552.D 2 =U174550.D 20 =U174554.D 50 =U174555.D
100 =U174557.D 1 =U174549.D 200 =U174558.D 10 =U174553.D
0.5 =U174551.D 75 =U174556.D = =

Compound	5	2	20	50	100	1	200	10	0.5	75	Avg	%RSD
1) I Tert Butyl Alcohol-d9	----------ISTD----------											
2) tertiary butyl alcohol	1.065	1.075	1.140	1.071	1.047		1.127	1.063		1.080	1.083	3.00
3) Ethanol	0.042	0.045	0.057	0.044	0.050	0.083	0.050	0.052		0.046	0.052	23.75
	----- Linear regression ----- Coefficient = 0.9981											
	Response Ratio = -0.00711 + 0.04970 *A											
4) 1,4-dioxane	0.078		0.094	0.076	0.095		0.099	0.094		0.084	0.089	10.49
5) I pentafluorobenzene	----------ISTD----------											
6) freon 115											0.000	-1.00
7) freon 23											0.000	-1.00
8) freon 143A											0.000	-1.00
9) freon 152A											0.000	-1.00
10) chlorotrifluoroethene											0.000	-1.00
11) chlorodifluoromethane	0.415	0.381	0.411	0.429	0.399	0.399	0.453	0.367	0.427	0.414	0.410	6.00
12) dichlorodifluoromethane	0.644	0.560	0.611	0.611	0.555		0.633	0.523		0.625	0.595	7.32
13) freon 142B											0.000	-1.00
14) freon 114											0.000	-1.00
15) chloromethane	0.670	0.685	0.672	0.669	0.652	0.801	0.725	0.647	0.761	0.683	0.696	7.21
16) vinyl chloride	0.640	0.591	0.646	0.647	0.637	0.654	0.707	0.595	0.551	0.676	0.635	7.08
17) acetaldehyde											0.000	-1.00
18) bromomethane	0.426	0.456	0.411	0.396	0.419	0.515	0.493	0.418		0.428	0.440	9.09
19) chloroethane	0.339	0.294	0.301	0.304	0.303	0.340	0.342	0.303		0.305	0.315	6.27
20) trichlorofluoromethane	0.719	0.606	0.696	0.667	0.648		0.734	0.613		0.692	0.672	6.99
21) pentane											0.000	-1.00

Initial Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICC8071
Lab FileID: U174555.D

22) freon 123A
0.000 -1.00

23) ethyl ether
0.264 0.279 0.243 0.243 0.237 0.282 0.261 0.243 0.241 0.255 6.70

24) 2-CHLOROPROPANE
0.874 0.776 0.768 0.773 0.868 0.702 0.790 0.793 7.61

25) freon 141B
0.000 -1.00

26) freon 123
0.000 -1.00

27) acrolein
0.127 0.137 0.125 0.124 0.141 0.127 0.126 0.130 5.03

28) 1,1-dichloroethene
0.362 0.403 0.358 0.343 0.342 0.318 0.387 0.308 0.352 0.352 8.56

29) acetone
0.060 0.061 0.058 0.063 0.059 0.061 0.060 2.83

30) allyl chloride
0.081 0.075 0.071 0.073 0.080 0.063 0.072 0.074 8.32

31) acetonitrile
0.059 0.053 0.059 0.059 0.057 0.063 0.062 0.060 0.059 0.059 4.57

32) iodomethane
0.668 0.705 0.690 0.686 0.690 0.654 0.763 0.626 0.697 0.705 0.688 5.24

33) carbon disulfide
1.288 1.292 1.301 1.262 1.273 1.147 1.441 1.131 1.444 1.316 1.289 7.93

34) 1-CHLOROPROPANE
0.056 0.038 0.035 0.035 0.040 0.033 0.038 0.039 19.19
----- Linear regression ----- Coefficient = 0.9952
Response Ratio = -0.00219 + 0.03979 *A

35) methylene chloride
0.449 0.458 0.425 0.420 0.416 0.466 0.465 0.400 0.427 0.436 5.42

36) methyl acetate
0.527 0.562 0.563 0.543 0.598 0.558 0.560 0.559 3.90

37) methyl tert butyl ether
1.416 1.385 1.379 1.381 1.364 1.388 1.523 1.331 1.720 1.392 1.428 8.00

38) trans-1,2-dichloroethene
0.402 0.479 0.391 0.374 0.391 0.425 0.440 0.342 0.505 0.393 0.414 11.88

39) di-isopropyl ether
1.488 1.505 1.547 1.553 1.514 1.487 1.709 1.444 1.864 1.557 1.567 8.05

40) ethyl tert-butyl ether
1.419 1.386 1.475 1.486 1.456 1.460 1.627 1.380 1.605 1.492 1.479 5.57

41) 2-butanone
0.076 0.075 0.073 0.072 0.077 0.071 0.073 0.074 3.04

42) 1,1-dichloroethane
0.746 0.770 0.757 0.744 0.769 0.701 0.864 0.681 0.861 0.769 0.766 7.68

43) chloroprene
0.558 0.546 0.593 0.604 0.604 0.611 0.692 0.531 0.644 0.616 0.600 7.91

44) acrylonitrile
0.243 0.226 0.239 0.245 0.241 0.223 0.267 0.238 0.274 0.243 0.244 6.48

45) vinyl acetate
0.060 0.071 0.077 0.074 0.085 0.071 0.075 0.073 10.11

46) ethyl acetate
0.106 0.075 0.094 0.089 0.086 0.096 0.101 0.089 0.092 10.19

47) 2,2-dichloropropane
0.554 0.613 0.568 0.519 0.517 0.596 0.580 0.470 0.535 0.550 8.13

48) cis-1,2-dichloroethene
0.449 0.428 0.435 0.426 0.430 0.391 0.477 0.391 0.437 0.429 6.21

49) methyl acrylate
0.724 0.660 0.693 0.696 0.689 0.767 0.661 0.700 0.699 4.95

50) propionitrile

Initial Calibration Summary

Job Number: JB48380 **Sample:** VU8071-ICC8071
Account: KEMPAE KEM Partners, Inc. **Lab FileID:** U174555.D
Project: Newtown Square Amoco, Newton Square, PA

	0.110	0.095	0.102	0.103	0.103	0.094	0.113	0.101	0.129	0.104	0.105	9.46
51)	bromochloromethane											
	0.222	0.212	0.228	0.224	0.224	0.207	0.249	0.206		0.225	0.222	5.89
52)	tetrahydrofuran											
	0.289	0.302	0.249	0.249	0.246		0.267	0.255		0.249	0.263	8.09
53)	chloroform											
	0.730	0.726	0.706	0.697	0.707	0.710	0.786	0.645		0.713	0.713	5.15
54)	tert-butyl Formate											
	0.471	0.497	0.507	0.519	0.506	0.474	0.558	0.481		0.514	0.503	5.34
55)	iso-butyl alcohol											
											0.000	-1.00
56)	dibromofluoromethane (s)											
	0.371	0.386	0.361	0.371	0.365	0.399	0.405	0.349	0.461	0.370	0.384	8.34
57)	1,2-dichloroethane-d4 (s)											
	0.480	0.488	0.459	0.482	0.467	0.562	0.524	0.460		0.484	0.489	6.82
58)	freon 113											
	0.244	0.233	0.265	0.277	0.260		0.301	0.221		0.277	0.260	10.14
59)	methacrylonitrile											
	0.427	0.454	0.395	0.392	0.388	0.507	0.434	0.376		0.400	0.419	9.86
60)	1,1,1-trichloroethane											
	0.600	0.621	0.601	0.597	0.603	0.528	0.685	0.522	0.406	0.617	0.578	13.16
61)	tert amyl alcohol											
											0.000	-1.00
62)	tert-amyl methyl ether											
	0.309	0.295	0.336	0.333	0.336	0.317	0.380	0.310		0.341	0.329	7.59
63)	iso-octane											
	1.492	1.483	1.634	1.751	1.597	1.435	1.974	1.331	1.602	1.737	1.604	11.53
64)	I 1,4-difluorobenzene	----------ISTD----------										
65)	Di-isobutylene											
											0.000	-1.00
66)	epichlorohydrin											
	0.054	0.052	0.053	0.053	0.051	0.067	0.057	0.054		0.053	0.055	9.03
67)	n-butyl alcohol											
	0.018	0.015	0.017	0.017	0.017	0.017	0.018	0.017		0.017	0.017	5.53
68)	Cyclohexane											
	0.426	0.462	0.459	0.467	0.464		0.546	0.387		0.488	0.462	9.88
69)	carbon tetrachloride											
	0.392	0.375	0.396	0.398	0.406	0.367	0.466	0.337	0.425	0.417	0.398	8.81
70)	1,1-dichloropropene											
	0.388	0.414	0.398	0.402	0.404	0.326	0.466	0.338	0.450	0.415	0.400	10.79
71)	hexane											
	0.040		0.045	0.047	0.043		0.051	0.038		0.047	0.045	10.75
72)	benzene											
	1.228	1.215	1.175	1.203	1.227	1.013	1.413	1.068	1.421	1.236	1.220	10.46
73)	heptane											
	0.196	0.184	0.202	0.209	0.189	0.172	0.231	0.164		0.206	0.195	10.56
74)	isopropyl acetate											
	0.831	0.827	0.828	0.837	0.811	0.932	0.919	0.802		0.833	0.847	5.45
75)	1,2-dichloroethane											
	0.447	0.440	0.450	0.455	0.458	0.387	0.520	0.428	0.540	0.463	0.459	9.48
76)	ethyl acrylate											
											0.000	-1.00
77)	tert amyl ethyl ether											
											0.000	-1.00
78)	trichloroethene											
	0.280	0.273	0.285	0.283	0.283	0.236	0.321	0.241		0.287	0.277	9.18
79)	methylcyclohexane											
	0.450	0.423	0.473	0.508	0.477	0.417	0.570	0.415	0.476	0.513	0.472	10.45
80)	2-nitropropane											

Initial Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICC8071
Lab FileID: U174555.D

			0.010	0.011	0.010		0.011	0.012		0.010	0.011	5.65
81)	2-chloroethyl vinyl ether											
	0.256	0.240	0.273	0.276	0.270	0.244	0.309	0.255	0.293	0.277	0.269	8.02
82)	methyl methacrylate											
	0.103	0.105	0.106	0.112	0.109		0.123	0.109		0.113	0.110	5.74
83)	1,2-dichloropropane											
	0.334	0.315	0.329	0.327	0.331	0.293	0.379	0.298	0.322	0.337	0.327	7.23
84)	propyl acetate											
	0.103		0.086	0.084	0.081		0.092	0.097		0.086	0.090	8.95
85)	dibromomethane											
	0.208	0.214	0.201	0.207	0.200	0.157	0.225	0.195	0.219	0.205	0.203	9.08
86)	bromodichloromethane											
	0.413	0.415	0.408	0.416	0.413	0.403	0.464	0.385		0.422	0.416	5.05
87)	cis-1,3-dichloropropene											
	0.513	0.494	0.531	0.535	0.533	0.448	0.601	0.483	0.598	0.549	0.529	9.05
88)	toluene-d8 (s)											
	1.057	1.013	1.050	1.106	1.064	1.152	1.212	0.985		1.101	1.082	6.46
89)	4-methyl-2-pentanone											
	0.183	0.162	0.185	0.187	0.182	0.201	0.198	0.178		0.186	0.185	6.03
90)	toluene											
	0.732	0.764	0.751	0.750	0.766	0.672	0.864	0.669	0.926	0.766	0.766	10.21
91)	3-methyl-1-butanol											
	0.026	0.025	0.026	0.026	0.025		0.027	0.026		0.026	0.026	2.17
92)	trans-1,3-dichloropropene											
	0.522	0.510	0.528	0.530	0.523	0.488	0.592	0.495	0.635	0.531	0.535	8.40
93)	ethyl methacrylate											
	0.481	0.459	0.505	0.515	0.503	0.423	0.564	0.480	0.626	0.515	0.507	11.02
94)	1,1,2-trichloroethane											
	0.266	0.245	0.255	0.254	0.254	0.259	0.281	0.246	0.263	0.259	0.258	4.01
95)	2-hexanone											
	0.192	0.170	0.182	0.184	0.179	0.154	0.201	0.176		0.184	0.180	7.51
96)	I chlorobenzene-d5	----------ISTD----------										
97)	cyclohexanone											
	0.025	0.026	0.029	0.022	0.024		0.024	0.026		0.022	0.025	9.13
98)	tetrachloroethene											
	0.305	0.281	0.297	0.293	0.302	0.242	0.343	0.249	0.328	0.301	0.294	10.64
99)	1,3-dichloropropane											
	0.547	0.512	0.548	0.556	0.564	0.451	0.636	0.511		0.560	0.543	9.20
100)	butyl acetate											
	0.311	0.299	0.315	0.314	0.309	0.345	0.346	0.295		0.308	0.316	5.70
101)	dibromochloromethane											
	0.365	0.377	0.380	0.387	0.393	0.342	0.439	0.350	0.408	0.388	0.383	7.30
102)	1,2-dibromoethane											
	0.352	0.323	0.352	0.349	0.353	0.304	0.392	0.327		0.352	0.345	7.17
103)	3,3-dimethyl-1-Butanol											
	0.063	0.061	0.063	0.062	0.062		0.064	0.060		0.063	0.062	2.12
104)	n-butyl ether											
											0.000	-1.00
105)	chlorobenzene											
	0.935	0.888	0.940	0.936	0.954	0.862	1.067	0.827	1.106	0.947	0.946	8.99
106)	1,1,1,2-tetrachloroethane											
	0.356	0.345	0.358	0.363	0.371	0.297	0.421	0.311	0.360	0.370	0.355	9.50
107)	ethylbenzene											
	1.545	1.510	1.567	1.564	1.619	1.372	1.859	1.346	1.805	1.604	1.579	10.24
108)	m,p-xylene											
	0.579	0.589	0.609	0.617	0.646	0.536	0.744	0.513	0.712	0.636	0.618	11.57
109)	o-xylene											
	0.607	0.569	0.606	0.616	0.638	0.571	0.723	0.528	0.647	0.626	0.613	8.63
110)	styrene											

Initial Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICC8071
Lab FileID: U174555.D

```
      1.002 0.998 1.073 1.090 1.134 0.866 1.322 0.915 1.063 1.118  1.058   11.96
111)  bromoform
      0.339 0.320 0.351 0.356 0.354 0.340 0.400 0.327 0.406 0.353  0.355    7.93

112) I   1,4-dichlorobenzene-d ----------------ISTD--------------------
113)  isopropylbenzene
      2.505 2.414 2.366 2.402 2.422 2.329 2.726 2.150 2.783 2.445  2.454    7.52
114)  4-bromofluorobenzene (s)
      0.717 0.757 0.675 0.697 0.665       0.757 0.668       0.694  0.704    5.25
115)  bromobenzene
      0.734 0.705 0.713 0.725 0.721 0.711 0.828 0.648       0.728  0.724    6.41
116)  1,1,2,2-tetrachloroethane
      0.862 0.822 0.823 0.821 0.802 0.821 0.876 0.801       0.815  0.827    3.09
117)  trans-1,4-dichloro-2-butene
      0.269 0.274 0.270 0.264 0.260       0.291 0.281       0.268  0.272    3.56
118)  1,2,3-trichloropropane
      0.231 0.266 0.229 0.231 0.225       0.251 0.228       0.226  0.236    6.23
119)  n-propylbenzene
      2.880 2.949 2.852 2.849 2.920 2.703 3.387 2.535       2.968  2.894    7.93
120)  2-chlorotoluene
      0.638 0.639 0.617 0.626 0.625 0.600 0.723 0.552       0.640  0.629    7.12
121)  4-chlorotoluene
      1.850 1.830 1.808 1.812 1.821 1.661 2.067 1.630       1.854  1.815    6.88
122)  p-Ethyltoluene
                                                            0.000  -1.00
123)  1,3,5-trimethylbenzene
      2.127 2.080 2.076 2.095 2.136 1.953 2.470 1.893 2.442 2.163  2.144    8.61
124)  tert-butylbenzene
      1.932 1.866 1.834 1.809 1.852 1.719 2.095 1.637       1.873  1.846    6.95
125)  pentachloroethane
      0.482 0.499 0.479 0.476 0.494 0.509 0.544 0.455       0.493  0.492    5.08
126)  1,2,4-trimethylbenzene
      2.220 2.097 2.178 2.171 2.239 2.125 2.516 1.978 2.419 2.252  2.220    6.97
127)  1,2,3-trimethylbenzene
      2.456 2.407 2.505 2.456 2.458 2.735 2.702 2.347 2.701 2.461  2.523    5.45
128)  sec-butylbenzene
      2.826 2.759 2.757 2.782 2.836 2.616 3.221 2.472 3.075 2.883  2.823    7.48
129)  1,3-dichlorobenzene
      1.370 1.326 1.385 1.377 1.397 1.299 1.556 1.238 1.604 1.398  1.395    7.90
130)  p-isopropyltoluene
      2.402 2.573 2.362 2.391 2.448 2.166 2.731 2.143 2.879 2.477  2.457    9.27
131)  1,4-dichlorobenzene
      1.475 1.457 1.455 1.467 1.508 1.480 1.681 1.349 1.835 1.503  1.521    9.03
132)  benzyl chloride
      2.317 2.431 2.301 2.291 2.326 2.294 2.583 2.067       2.361  2.330    5.84
133)  1,2-dichlorobenzene
      1.463 1.462 1.417 1.390 1.401 1.323 1.498 1.326       1.404  1.409    4.23
134)  p-Diethylbenzene
                                                            0.000  -1.00
135)  n-butylbenzene
      1.224 1.287 1.231 1.248 1.264 1.116 1.404 1.110 1.368 1.270  1.252    7.45
136)  1,2,4,5-Tetramethylbenzene
                                                            0.000  -1.00
137)  1,2-dibromo-3-chloropropane
      0.246       0.198 0.190 0.177             0.213       0.187  0.202   12.27
138)  1,3,5-trichlorobenzene
      1.312 1.298 1.219 1.210 1.173 1.215 1.116 1.140 1.420 1.216  1.232    7.29
139)  1,2,4-trichlorobenzene
      1.124 1.133 1.077 1.091 1.049 1.048 0.899 1.023 1.305 1.088  1.084    9.39
140)  hexachlorobutadiene
```

Initial Calibration Summary

Job Number: JB48380 **Sample:** VU8071-ICC8071
Account: KEMPAE KEM Partners, Inc. **Lab FileID:** U174555.D
Project: Newtown Square Amoco, Newton Square, PA

	0.668	0.672	0.637	0.620	0.594		0.560	0.570	0.626	0.618	6.70
141)	naphthalene										
	2.738	2.789	2.683	2.726	2.532	2.728	2.075	2.656	2.690	2.624	8.31
142)	INDANE										
										0.000	-1.00
143)	1,2,3-trichlorobenzene										
	1.069	1.089	1.021	1.043	0.942	1.093		0.975	1.021	1.032	5.20
144)	hexachloroethane										
	0.524	0.516	0.500	0.496	0.508	0.422	0.550	0.442	0.516	0.497	8.10
145)	MMT										
										0.000	-1.00
146)	Bis(chloromethyl)ether										
										0.000	-1.00
147)	Ethylenimine										
										0.000	-1.00

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

MU8071.M Thu Aug 08 11:26:59 2013 RPT1

6.7.1

6

Initial Calibration Verification

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICV8071
Lab FileID: U174560.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\U174560.D Vial: 13
Acq On : 7 Aug 2013 8:37 pm Operator: natet
Sample : icv8071-50 Inst : MSU
Misc : ms50953,vu8071,5.0,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MU8071.M (RTE Integrator)
Title : SW-846 8260B, DB624 60m x 250um x 1.40um
Last Update : Thu Aug 08 11:23:10 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	103	0.00	7.85
2	M	tertiary butyl alcohol	1.083	1.138	-5.1	110	0.00	7.97
			True	Calc.	% Drift			
3		Ethanol	5000.000	5172.756	-3.5	119	0.00	6.64
			AvgRF	CCRF	% Dev			
4	m	1,4-dioxane	0.089	0.104	-16.9	141	0.00	11.72
5	I	pentafluorobenzene	1.000	1.000	0.0	107	0.00	10.06
6	M	freon 115		----------NA----------				
7	M	freon 23		----------NA----------				
8	M	freon 143A		----------NA----------				
9	M	freon 152A		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.410	0.339	17.3	85	0.00	4.38
12	M	dichlorodifluoromethane	0.595	0.563	5.4	99	0.00	4.35
13	M	freon 142B		----------NA----------				
14	M	freon 114		----------NA----------				
15	M	chloromethane	0.696	0.628	9.8	101	0.00	4.72
16	M	vinyl chloride	0.635	0.627	1.3	104	0.00	5.00
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.440	0.394	10.5	107	0.00	5.67
19	M	chloroethane	0.315	0.296	6.0	104	0.00	5.84
20	M	trichlorofluoromethane	0.672	0.647	3.7	104	0.00	6.34
21	M	pentane		----------NA----------				
22	M	freon 123A		----------NA----------				
23	M	ethyl ether	0.255	0.258	-1.2	114	0.00	6.73
24		2-CHLOROPROPANE	0.793	0.803	-1.3	112	0.00	6.95
25	M	freon 141B		----------NA----------				
26	M	freon 123		----------NA----------				
27	M	acrolein	0.130	0.122	6.2	105	0.00	7.02
28	M	1,1-dichloroethene	0.352	0.360	-2.3	112	0.00	7.18
29	M	acetone	0.060	0.063	-5.0	111	0.00	7.24
30	M	allyl chloride	0.074	0.077	-4.1	116	0.00	7.71
31	M	acetonitrile	0.059	0.062	-5.1	112	0.00	7.71
32	M	iodomethane	0.688	0.705	-2.5	110	0.00	7.48
33	M	carbon disulfide	1.289	1.301	-0.9	110	0.00	7.60
			True	Calc.	% Drift			
34		1-CHLOROPROPANE	50.000	47.091	5.8	109	0.00	7.94

Initial Calibration Verification

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICV8071
Lab FileID: U174560.D

			AvgRF	CCRF	% Dev			
35	M	methylene chloride	0.436	0.425	2.5	108	0.00	7.90
36	M	methyl acetate	0.559	0.476	14.8	90	0.00	7.68
37	M	methyl tert butyl ether	1.428	1.368	4.2	106	0.00	8.21
38	M	trans-1,2-dichloroethene	0.414	0.390	5.8	112	0.00	8.27
39	M	di-isopropyl ether	1.567	1.526	2.6	105	0.00	8.79
40	M	ethyl tert-butyl ether	1.479	1.405	5.0	101	0.00	9.25
41	M	2-butanone	0.074	0.076	-2.7	112	0.00	9.53
42	M	1,1-dichloroethane	0.766	0.792	-3.4	114	0.00	8.84
43	M	chloroprene	0.600	0.561	6.5	99	0.00	8.94
44	M	acrylonitrile	0.244	0.250	-2.5	110	0.00	8.23
45	M	vinyl acetate	0.073	0.098	-34.2#	136	0.00	8.80
46	M	ethyl acetate	0.092	0.092	0.0	110	0.00	9.53
47	M	2,2-dichloropropane	0.550	0.545	0.9	112	0.00	9.57
48	M	cis-1,2-dichloroethene	0.429	0.438	-2.1	110	0.00	9.57
49	M	methyl acrylate	0.699	0.729	-4.3	112	0.00	9.62
50	M	propionitrile	0.105	0.109	-3.8	113	0.00	9.65
51	M	bromochloromethane	0.222	0.229	-3.2	110	0.00	9.89
52	M	tetrahydrofuran	0.263	0.258	1.9	111	0.00	9.91
53	M	chloroform	0.713	0.708	0.7	109	0.00	9.93
54		tert-butyl Formate	0.503	0.531	-5.6	110	0.00	9.96
55	M	iso-butyl alcohol		----------NA----------				
56	S	dibromofluoromethane (s)	0.384	0.343	10.7	99	0.00	10.13
57	S	1,2-dichloroethane-d4 (s)	0.489	0.452	7.6	101	0.00	10.56
58	M	freon 113	0.260	0.250	3.8	96	0.00	7.13
59	M	methacrylonitrile	0.419	0.408	2.6	111	0.00	9.82
60	M	1,1,1-trichloroethane	0.578	0.616	-6.6	110	0.00	10.18
61	M	tert amyl alcohol		----------NA----------				
62	M	tert-amyl methyl ether	0.329	0.333	-1.2	107	0.00	10.63
63		iso-octane	1.604	1.331	17.0	81	0.00	10.60
64	I	1,4-difluorobenzene	1.000	1.000	0.0	109	0.00	10.98
65	M	Di-isobutylene		----------NA----------				
66	M	epichlorohydrin	0.055	0.059	-7.3	120	0.00	12.28
67	M	n-butyl alcohol	0.017	0.018	-5.9	112	0.00	11.11
68	M	Cyclohexane	0.462	0.476	-3.0	111	0.00	10.25
69	M	carbon tetrachloride	0.398	0.408	-2.5	112	0.00	10.39
70	M	1,1-dichloropropene	0.400	0.391	2.3	106	0.00	10.36
71	M	hexane	0.045	0.036	20.0#	83	0.00	8.54
72	M	benzene	1.220	1.224	-0.3	111	0.00	10.63
73	M	heptane		----------NA----------				
74	M	isopropyl acetate	0.847	0.949	-12.0	124	0.00	10.52
75	M	1,2-dichloroethane	0.459	0.454	1.1	109	0.00	10.65
76	M	ethyl acrylate		----------NA----------				
77		tert amyl ethyl ether		----------NA----------				
78	M	trichloroethene	0.277	0.293	-5.8	113	0.00	11.34
79	M	methylcyclohexane	0.472	0.447	5.3	96	0.00	11.55
80	M	2-nitropropane	0.011	0.011	0.0	106	0.00	12.15
81	M	2-chloroethyl vinyl ether	0.269	0.295	-9.7	117	0.00	12.14
82	M	methyl methacrylate	0.110	0.114	-3.6	112	0.00	11.59
83	M	1,2-dichloropropane	0.327	0.348	-6.4	116	0.00	11.61
84	M	propyl acetate	0.090	0.090	0.0	116	0.00	11.63
85	M	dibromomethane	0.203	0.214	-5.4	113	0.00	11.79
86	M	bromodichloromethane	0.416	0.425	-2.2	112	0.00	11.91
87	M	cis-1,3-dichloropropene	0.529	0.507	4.2	104	0.00	12.38
88	S	toluene-d8 (s)	1.082	1.012	6.5	100	0.00	12.68
89	M	4-methyl-2-pentanone	0.185	0.190	-2.7	111	0.00	12.47
90	M	toluene	0.766	0.765	0.1	111	0.00	12.76
91	M	3-methyl-1-butanol	0.026	0.027	-3.8	114	0.00	12.48
92	M	trans-1,3-dichloropropene	0.535	0.539	-0.7	111	0.00	12.97

Initial Calibration Verification

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICV8071
Lab FileID: U174560.D

93	M	ethyl methacrylate	0.507	0.508	-0.2	108	0.00	12.94
94	M	1,1,2-trichloroethane	0.258	0.264	-2.3	113	0.00	13.21
95	M	2-hexanone	0.180	0.187	-3.9	111	0.00	13.38
96	I	chlorobenzene-d5	1.000	1.000	0.0	108	0.00	14.32
97	M	cyclohexanone	0.025	0.024	4.0	116	0.00	15.57
98	M	tetrachloroethene	0.294	0.296	-0.7	109	0.00	13.38
99	M	1,3-dichloropropane	0.543	0.569	-4.8	110	0.00	13.41
100	M	butyl acetate	0.316	0.327	-3.5	112	0.00	13.44
101	M	dibromochloromethane	0.383	0.396	-3.4	110	0.00	13.69
102	M	1,2-dibromoethane	0.345	0.361	-4.6	112	0.00	13.86
103		3,3-dimethyl-1-Butanol	0.062	0.064	-3.2	111	0.00	13.56
104		n-butyl ether		----------NA----------				
105	M	chlorobenzene	0.946	0.951	-0.5	110	0.00	14.36
106	M	1,1,1,2-tetrachloroethane	0.355	0.357	-0.6	106	0.00	14.42
107	M	ethylbenzene	1.579	1.586	-0.4	109	0.00	14.41
108	M	m,p-xylene	0.618	0.630	-1.9	110	0.00	14.52
109	M	o-xylene	0.613	0.619	-1.0	108	0.00	14.99
110	M	styrene	1.058	1.125	-6.3	111	0.00	15.00
111	M	bromoform	0.355	0.359	-1.1	109	0.00	15.32
112	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	104	0.00	16.89
113	M	isopropylbenzene	2.454	2.510	-2.3	109	0.00	15.36
114	S	4-bromofluorobenzene (s)	0.704	0.663	5.8	99	0.00	15.60
115	M	bromobenzene	0.724	0.750	-3.6	108	0.00	15.82
116	M	1,1,2,2-tetrachloroethane	0.827	0.847	-2.4	107	0.00	15.72
117	M	trans-1,4-dichloro-2-bute	0.272	0.282	-3.7	111	0.00	15.75
118	M	1,2,3-trichloropropane	0.236	0.236	0.0	107	0.00	15.80
119	M	n-propylbenzene	2.894	3.067	-6.0	112	0.00	15.81
120	M	2-chlorotoluene	0.629	0.649	-3.2	108	0.00	15.99
121	M	4-chlorotoluene	1.815	1.849	-1.9	106	0.00	16.10
122		p-Ethyltoluene		----------NA----------				
123	M	1,3,5-trimethylbenzene	2.144	2.186	-2.0	109	0.00	15.97
124	M	tert-butylbenzene	1.846	1.928	-4.4	111	0.00	16.37
125	M	pentachloroethane	0.492	0.504	-2.4	110	0.00	16.48
126	M	1,2,4-trimethylbenzene	2.220	2.300	-3.6	110	0.00	16.42
127		1,2,3-trimethylbenzene	2.523	2.386	5.4	101	0.00	16.92
128	M	sec-butylbenzene	2.823	2.894	-2.5	108	0.00	16.61
129	M	1,3-dichlorobenzene	1.395	1.438	-3.1	109	0.00	16.83
130	M	p-isopropyltoluene	2.457	2.582	-5.1	113	0.00	16.73
131	M	1,4-dichlorobenzene	1.521	1.499	1.4	106	0.00	16.92
132	M	benzyl chloride	2.330	2.390	-2.6	109	0.00	17.19
133	M	1,2-dichlorobenzene	1.409	1.442	-2.3	108	0.00	17.36
134		p-Diethylbenzene		----------NA----------				
135	M	n-butylbenzene	1.252	1.307	-4.4	109	0.00	17.19
136		1,2,4,5-Tetramethylbenzen		----------NA----------				
137	M	1,2-dibromo-3-chloropropa	0.202	0.199	1.5	110	0.00	18.21
138		1,3,5-trichlorobenzene	1.232	1.246	-1.1	107	0.00	18.41
139	M	1,2,4-trichlorobenzene	1.084	1.128	-4.1	108	0.00	19.14
140	M	hexachlorobutadiene	0.618	0.639	-3.4	107	0.00	19.25
141	M	naphthalene	2.624	2.829	-7.8	108	0.00	19.47
142		INDANE		----------NA----------				
143	M	1,2,3-trichlorobenzene	1.032	1.068	-3.5	107	0.00	19.74
144	M	hexachloroethane	0.497	0.525	-5.6	110	0.00	17.64
145	M	MMT		----------NA----------				
146	M	Bis(chloromethyl)ether		----------NA----------				
147	M	Ethylenimine		----------NA----------				

6.7.2

6

Initial Calibration Verification

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8071-ICV8071
Lab FileID: U174560.D

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 U174555.D  MU8071.M         Thu Aug 08 11:26:42 2013    RPT1
```

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8158-CC8071
Lab FileID: U176538.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\U176538.D Vial: 2
Acq On : 4 Oct 2013 9:26 am Operator: natet
Sample : cc8071-20 Inst : MSU
Misc : ms55650,vu8158,5.0,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MU8071.M (RTE Integrator)
Title : SW-846 8260B, DB624 60m x 250um x 1.40um
Last Update : Wed Sep 25 09:57:09 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	80	0.00	7.85
2	M	tertiary butyl alcohol	1.083	1.149	-6.1	81	-0.01	7.96
			True	Calc.	% Drift			
3		Ethanol	2000.000	1997.018	0.1	68	-0.04	6.61
			AvgRF	CCRF	% Dev			
4	m	1,4-dioxane	0.089	0.080	10.1	68	-0.02	11.71
5	I	pentafluorobenzene	1.000	1.000	0.0	90	0.00	10.06
6	M	freon 115		NA				
7	M	freon 23		NA				
8	M	freon 143A		NA				
9	M	freon 152A		NA				
10	M	chlorotrifluoroethene		NA				
11	M	chlorodifluoromethane	0.410	0.506	-23.4#	111	0.02	4.40
12	M	dichlorodifluoromethane	0.595	0.519	12.8	76	0.02	4.38
13	M	freon 142B		NA				
14	M	freon 114		NA				
15	M	chloromethane	0.696	0.572	17.8	77	0.02	4.74
16	M	vinyl chloride	0.635	0.541	14.8	75	0.00	5.01
17	M	acetaldehyde		NA				
18	M	bromomethane	0.440	0.360	18.2	79	0.02	5.69
19	M	chloroethane	0.315	0.247	21.6#	74	0.02	5.87
20	M	trichlorofluoromethane	0.672	0.753	-12.1	97	0.01	6.36
21	M	pentane		NA				
22	M	freon 123A		NA				
23	M	ethyl ether	0.255	0.236	7.5	87	0.00	6.74
24		2-CHLOROPROPANE	0.793	0.804	-1.4	93	0.00	6.95
25	M	freon 141B		NA				
26	M	freon 123		NA				
27	M	acrolein	0.130	0.100	23.1#	72	0.00	7.02
28	M	1,1-dichloroethene	0.352	0.343	2.6	86	0.01	7.19
29	M	acetone	0.060	0.050	16.7	75	0.01	7.25
30	M	allyl chloride	0.074	0.077	-4.1	93	0.00	7.71
31	M	acetonitrile	0.059	0.055	6.8	84	0.00	7.71
32	M	iodomethane	0.688	0.730	-6.1	95	0.01	7.49
33	M	carbon disulfide	1.289	1.257	2.5	87	0.01	7.61
			True	Calc.	% Drift			
34		1-CHLOROPROPANE	20.000	21.247	-6.2	88	0.00	7.94

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8158-CC8071
Lab FileID: U176538.D

			AvgRF	CCRF	% Dev			
35	M	methylene chloride	0.436	0.404	7.3	86	0.00	7.91
36	M	methyl acetate	0.559	0.455	18.6	73	0.00	7.68
37	M	methyl tert butyl ether	1.428	1.420	0.6	93	0.00	8.21
38	M	trans-1,2-dichloroethene	0.414	0.370	10.6	85	0.00	8.27
39	M	di-isopropyl ether	1.567	1.444	7.8	84	0.00	8.79
40	M	ethyl tert-butyl ether	1.479	1.424	3.7	87	0.00	9.25
41	M	2-butanone	0.074	0.070	5.4	84	0.00	9.53
42	M	1,1-dichloroethane	0.766	0.742	3.1	88	0.00	8.84
43	M	chloroprene	0.600	0.604	-0.7	92	0.00	8.94
44	M	acrylonitrile	0.244	0.206	15.6	78	0.00	8.23
45	M	vinyl acetate	0.073	0.084	-15.1	106	0.00	8.81
46	M	ethyl acetate	0.092	0.075	18.5	72	0.00	9.53
47	M	2,2-dichloropropane	0.550	0.678	-23.3#	107	0.00	9.57
48	M	cis-1,2-dichloroethene	0.429	0.425	0.9	88	0.00	9.57
49	M	methyl acrylate	0.699	0.573	18.0	74	0.00	9.62
50	M	propionitrile	0.105	0.087	17.1	77	0.00	9.64
51	M	bromochloromethane	0.222	0.224	-0.9	89	0.00	9.88
52	M	tetrahydrofuran	0.263	0.209	20.5#	76	0.00	9.91
53	M	chloroform	0.713	0.732	-2.7	93	0.00	9.94
54		tert-butyl Formate	0.503	0.495	1.6	88	0.00	9.95
55	M	iso-butyl alcohol		----------NA----------				
56	S	dibromofluoromethane (s)	0.384	0.366	4.7	91	0.00	10.13
57	S	1,2-dichloroethane-d4 (s)	0.489	0.498	-1.8	98	0.00	10.55
58	M	freon 113	0.260	0.308	-18.5	105	0.02	7.15
59	M	methacrylonitrile	0.419	0.356	15.0	81	0.00	9.82
60	M	1,1,1-trichloroethane	0.578	0.662	-14.5	99	0.00	10.19
61	M	tert amyl alcohol		----------NA----------				
62	M	tert-amyl methyl ether	0.329	0.325	1.2	87	0.00	10.63
63		iso-octane	1.604	1.375	14.3	76	0.00	10.59
64	I	1,4-difluorobenzene	1.000	1.000	0.0	85	0.00	10.98
65	M	Di-isobutylene		----------NA----------				
66	M	epichlorohydrin	0.055	0.045	18.2	72	0.00	12.28
67	M	n-butyl alcohol	0.017	0.014	17.6	69	0.00	11.10
68	M	Cyclohexane	0.462	0.458	0.9	85	0.00	10.25
69	M	carbon tetrachloride	0.398	0.468	-17.6	101	0.00	10.38
70	M	1,1-dichloropropene	0.400	0.402	-0.5	86	0.00	10.36
71	M	hexane	0.045	0.052	-15.6	97	0.00	8.54
72	M	benzene	1.220	1.161	4.8	84	0.00	10.62
73	M	heptane	0.195	0.229	-17.4	97	0.00	10.76
74	M	isopropyl acetate	0.847	0.806	4.8	83	0.00	10.52
75	M	1,2-dichloroethane	0.459	0.516	-12.4	98	0.00	10.64
76	M	ethyl acrylate		----------NA----------				
77		tert amyl ethyl ether		----------NA----------				
78	M	trichloroethene	0.277	0.294	-6.1	88	0.00	11.33
79	M	methylcyclohexane	0.472	0.474	-0.4	85	0.00	11.55
80	M	2-nitropropane	0.011	0.011	0.0	94	0.00	12.13
81	M	2-chloroethyl vinyl ether	0.269	0.217	19.3	68	0.00	12.13
82	M	methyl methacrylate	0.110	0.102	7.3	83	0.00	11.58
83	M	1,2-dichloropropane	0.327	0.310	5.2	80	0.00	11.61
84	M	propyl acetate	0.090	0.086	4.4	85	0.00	11.62
85	M	dibromomethane	0.203	0.220	-8.4	94	-0.01	11.77
86	M	bromodichloromethane	0.416	0.445	-7.0	93	0.00	11.90
87	M	cis-1,3-dichloropropene	0.529	0.528	0.2	85	0.00	12.37
88	S	toluene-d8 (s)	1.082	1.060	2.0	86	0.00	12.67
89	M	4-methyl-2-pentanone	0.185	0.168	9.2	77	0.00	12.46
90	M	toluene	0.766	0.717	6.4	81	0.00	12.75
91	M	3-methyl-1-butanol	0.026	0.022	15.4	73	0.00	12.47
92	M	trans-1,3-dichloropropene	0.535	0.533	0.4	86	0.00	12.96

Continuing Calibration Summary

Job Number: JB48380 **Sample:** VU8158-CC8071
Account: KEMPAE KEM Partners, Inc. **Lab FileID:** U176538.D
Project: Newtown Square Amoco, Newton Square, PA

93	M	ethyl methacrylate	0.507	0.473	6.7	80	0.00	12.93
94	M	1,1,2-trichloroethane	0.258	0.251	2.7	84	0.00	13.20
95	M	2-hexanone	0.180	0.169	6.1	79	0.00	13.37
96	I	chlorobenzene-d5	1.000	1.000	0.0	84	0.00	14.32
97	M	cyclohexanone	0.025	0.030	-20.0	87	-0.01	15.56
98	M	tetrachloroethene	0.294	0.316	-7.5	89	0.00	13.38
99	M	1,3-dichloropropane	0.543	0.543	0.0	83	-0.01	13.39
100	M	butyl acetate	0.316	0.295	6.6	78	0.00	13.43
101	M	dibromochloromethane	0.383	0.401	-4.7	88	0.00	13.69
102	M	1,2-dibromoethane	0.345	0.346	-0.3	82	0.00	13.86
103		3,3-dimethyl-1-Butanol	0.062	0.053	14.5	70	0.00	13.55
104		n-butyl ether		----------NA----------				
105	M	chlorobenzene	0.946	0.950	-0.4	84	0.00	14.35
106	M	1,1,1,2-tetrachloroethane	0.355	0.369	-3.9	86	0.00	14.42
107	M	ethylbenzene	1.579	1.559	1.3	83	0.00	14.40
108	M	m,p-xylene	0.618	0.628	-1.6	86	0.00	14.51
109	M	o-xylene	0.613	0.607	1.0	84	0.00	14.98
110	M	styrene	1.058	1.080	-2.1	84	0.00	14.99
111	M	bromoform	0.355	0.360	-1.4	86	0.00	15.31
112	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	87	0.00	16.89
113	M	isopropylbenzene	2.454	2.390	2.6	88	0.00	15.35
114	S	4-bromofluorobenzene (s)	0.704	0.648	8.0	83	-0.01	15.59
115	M	bromobenzene	0.724	0.712	1.7	87	0.00	15.81
116	M	1,1,2,2-tetrachloroethane	0.827	0.788	4.7	83	0.00	15.71
117	M	trans-1,4-dichloro-2-bute	0.272	0.222	18.4	71	-0.01	15.75
118	M	1,2,3-trichloropropane	0.236	0.238	-0.8	90	-0.01	15.79
119	M	n-propylbenzene	2.894	2.801	3.2	85	0.00	15.81
120	M	2-chlorotoluene	0.629	0.625	0.6	88	0.00	15.98
121	M	4-chlorotoluene	1.815	1.780	1.9	85	0.00	16.09
122		p-Ethyltoluene		----------NA----------				
123	M	1,3,5-trimethylbenzene	2.144	2.079	3.0	87	0.00	15.97
124	M	tert-butylbenzene	1.846	1.821	1.4	86	0.00	16.36
125	M	pentachloroethane	0.492	0.494	-0.4	89	0.00	16.47
126	M	1,2,4-trimethylbenzene	2.220	2.136	3.8	85	0.00	16.42
127		1,2,3-trimethylbenzene		----------NA----------				
128	M	sec-butylbenzene	2.823	2.699	4.4	85	0.00	16.60
129	M	1,3-dichlorobenzene	1.395	1.427	-2.3	89	0.00	16.83
130	M	p-isopropyltoluene	2.457	2.363	3.8	87	0.00	16.73
131	M	1,4-dichlorobenzene	1.521	1.478	2.8	88	0.00	16.92
132	M	benzyl chloride	2.330	2.264	2.8	85	0.00	17.18
133	M	1,2-dichlorobenzene	1.409	1.436	-1.9	88	0.00	17.36
134		p-Diethylbenzene		----------NA----------				
135	M	n-butylbenzene	1.252	1.245	0.6	88	0.00	17.18
136		1,2,4,5-Tetramethylbenzen		----------NA----------				
137	M	1,2-dibromo-3-chloropropa	0.202	0.199	1.5	87	0.00	18.21
138		1,3,5-trichlorobenzene	1.232	1.313	-6.6	93	0.00	18.40
139	M	1,2,4-trichlorobenzene	1.084	1.173	-8.2	94	0.00	19.13
140	M	hexachlorobutadiene	0.618	0.660	-6.8	90	-0.01	19.24
141	M	naphthalene	2.624	2.611	0.5	84	0.00	19.46
142		INDANE		----------NA----------				
143	M	1,2,3-trichlorobenzene	1.032	1.080	-4.7	92	0.00	19.73
144	M	hexachloroethane	0.497	0.482	3.0	84	0.00	17.63
145	M	MMT		----------NA----------				
146	M	Bis(chloromethyl)ether		----------NA----------				
147	M	Ethylenimine		----------NA----------				

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8158-CC8071
Lab FileID: U176538.D

(#) = Out of Range SPCC's out = 0 CCC's out = 0
U174554.D MU8071.M Fri Oct 04 14:03:05 2013 RPT1

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8162-CC8071
Lab FileID: U176639.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\U176639.D Vial: 2
Acq On : 7 Oct 2013 10:36 am Operator: natet
Sample : cc8071-20 Inst : MSU
Misc : ms55937,vu8162,5.0,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MU8071.M (RTE Integrator)
Title : SW-846 8260B, DB624 60m x 250um x 1.40um
Last Update : Wed Sep 25 09:57:09 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	90	0.00	7.84
2	M	tertiary butyl alcohol	1.083	1.085	-0.2	86	-0.01	7.96
			True	Calc.	% Drift			
3		Ethanol	2000.000	1861.821	6.9	71	-0.03	6.62
			AvgRF	CCRF	% Dev			
4	m	1,4-dioxane	0.089	0.075	15.7	72	-0.02	11.72
5	I	pentafluorobenzene	1.000	1.000	0.0	88	0.00	10.06
6	M	freon 115		----------NA----------				
7	M	freon 23		----------NA----------				
8	M	freon 143A		----------NA----------				
9	M	freon 152A		----------NA----------				
10	M	chlorotrifluoroethene		----------NA----------				
11	M	chlorodifluoromethane	0.410	0.487	-18.8	105	0.02	4.40
12	M	dichlorodifluoromethane	0.595	0.537	9.7	78	0.02	4.37
13	M	freon 142B		----------NA----------				
14	M	freon 114		----------NA----------				
15	M	chloromethane	0.696	0.662	4.9	87	0.03	4.75
16	M	vinyl chloride	0.635	0.617	2.8	84	0.02	5.02
17	M	acetaldehyde		----------NA----------				
18	M	bromomethane	0.440	0.392	10.9	84	0.02	5.70
19	M	chloroethane	0.315	0.289	8.3	85	0.02	5.87
20	M	trichlorofluoromethane	0.672	0.812	-20.8#	103	0.02	6.36
21	M	pentane		----------NA----------				
22	M	freon 123A		----------NA----------				
23	M	ethyl ether	0.255	0.233	8.6	85	0.00	6.74
24		2-CHLOROPROPANE	0.793	0.815	-2.8	93	0.02	6.97
25	M	freon 141B		----------NA----------				
26	M	freon 123		----------NA----------				
27	M	acrolein	0.130	0.123	5.4	87	0.00	7.03
28	M	1,1-dichloroethene	0.352	0.370	-5.1	91	0.02	7.20
29	M	acetone	0.060	0.065	-8.3	96	-0.02	7.22
30	M	allyl chloride	0.074	0.069	6.8	82	0.00	7.72
31	M	acetonitrile	0.059	0.058	1.7	86	0.00	7.71
32	M	iodomethane	0.688	0.736	-7.0	94	0.02	7.49
33	M	carbon disulfide	1.289	1.256	2.6	85	0.02	7.62
			True	Calc.	% Drift			
34		1-CHLOROPROPANE	20.000	23.729	-18.6	98	0.00	7.94

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8162-CC8071
Lab FileID: U176639.D

			AvgRF	CCRF	% Dev			
35	M	methylene chloride	0.436	0.429	1.6	89	0.00	7.91
36	M	methyl acetate	0.559	0.474	15.2	75	0.00	7.69
37	M	methyl tert butyl ether	1.428	1.418	0.7	91	0.00	8.21
38	M	trans-1,2-dichloroethene	0.414	0.385	7.0	87	0.00	8.28
39	M	di-isopropyl ether	1.567	1.502	4.1	86	0.00	8.79
40	M	ethyl tert-butyl ether	1.479	1.423	3.8	85	0.00	9.25
41	M	2-butanone	0.074	0.063	14.9	75	0.00	9.53
42	M	1,1-dichloroethane	0.766	0.774	-1.0	90	0.00	8.84
43	M	chloroprene	0.600	0.623	-3.8	93	0.00	8.94
44	M	acrylonitrile	0.244	0.225	7.8	83	0.00	8.23
45	M	vinyl acetate	0.073	0.077	-5.5	96	0.00	8.80
46	M	ethyl acetate	0.092	0.081	12.0	77	0.00	9.53
47	M	2,2-dichloropropane	0.550	0.658	-19.6	102	0.00	9.57
48	M	cis-1,2-dichloroethene	0.429	0.437	-1.9	89	0.00	9.58
49	M	methyl acrylate	0.699	0.578	17.3	74	-0.01	9.61
50	M	propionitrile	0.105	0.092	12.4	80	-0.01	9.64
51	M	bromochloromethane	0.222	0.232	-4.5	90	0.00	9.88
52	M	tetrahydrofuran	0.263	0.223	15.2	79	-0.01	9.91
53	M	chloroform	0.713	0.738	-3.5	92	0.00	9.93
54		tert-butyl Formate	0.503	0.484	3.8	84	0.00	9.96
55	M	iso-butyl alcohol		----------NA----------				
56	S	dibromofluoromethane (s)	0.384	0.378	1.6	93	0.00	10.13
57	S	1,2-dichloroethane-d4 (s)	0.489	0.491	-0.4	95	0.00	10.56
58	M	freon 113	0.260	0.311	-19.6	104	0.02	7.15
59	M	methacrylonitrile	0.419	0.343	18.1	77	-0.01	9.81
60	M	1,1,1-trichloroethane	0.578	0.668	-15.6	98	0.00	10.18
61	M	tert amyl alcohol		----------NA----------				
62	M	tert-amyl methyl ether	0.329	0.312	5.2	82	0.00	10.63
63		iso-octane	1.604	1.366	14.8	74	0.00	10.60
64	I	1,4-difluorobenzene	1.000	1.000	0.0	83	-0.01	10.98
65	M	Di-isobutylene		----------NA----------				
66	M	epichlorohydrin	0.055	0.046	16.4	74	-0.01	12.28
67	M	n-butyl alcohol	0.017	0.015	11.8	76	0.00	11.10
68	M	Cyclohexane	0.462	0.472	-2.2	86	0.00	10.25
69	M	carbon tetrachloride	0.398	0.446	-12.1	94	0.00	10.39
70	M	1,1-dichloropropene	0.400	0.402	-0.5	84	0.00	10.36
71	M	hexane	0.045	0.053	-17.8	99	0.01	8.55
72	M	benzene	1.220	1.131	7.3	80	0.00	10.62
73	M	heptane	0.195	0.207	-6.2	86	0.00	10.75
74	M	isopropyl acetate	0.847	1.428	-68.6#	144	0.00	10.51
75	M	1,2-dichloroethane	0.459	0.488	-6.3	90	0.00	10.64
76	M	ethyl acrylate		----------NA----------				
77		tert amyl ethyl ether		----------NA----------				
78	M	trichloroethene	0.277	0.279	-0.7	81	-0.01	11.33
79	M	methylcyclohexane	0.472	0.475	-0.6	84	0.00	11.55
80	M	2-nitropropane	0.011	0.011	0.0	90	-0.02	12.12
81	M	2-chloroethyl vinyl ether	0.269	0.221	17.8	67	-0.01	12.13
82	M	methyl methacrylate	0.110	0.099	10.0	78	-0.01	11.58
83	M	1,2-dichloropropane	0.327	0.306	6.4	77	-0.01	11.61
84	M	propyl acetate	0.090	0.076	15.6	74	0.00	11.62
85	M	dibromomethane	0.203	0.207	-2.0	86	-0.01	11.77
86	M	bromodichloromethane	0.416	0.433	-4.1	88	0.00	11.91
87	M	cis-1,3-dichloropropene	0.529	0.509	3.8	80	-0.01	12.37
88	S	toluene-d8 (s)	1.082	1.071	1.0	85	0.00	12.67
89	M	4-methyl-2-pentanone	0.185	0.179	3.2	81	0.00	12.46
90	M	toluene	0.766	0.716	6.5	79	0.00	12.75
91	M	3-methyl-1-butanol	0.026	0.025	3.8	80	0.00	12.48
92	M	trans-1,3-dichloropropene	0.535	0.507	5.2	80	0.00	12.97

Continuing Calibration Summary

Job Number: JB48380 **Sample:** VU8162-CC8071
Account: KEMPAE KEM Partners, Inc. **Lab FileID:** U176639.D
Project: Newtown Square Amoco, Newton Square, PA

93	M	ethyl methacrylate	0.507	0.455	10.3	75	0.00	12.94
94	M	1,1,2-trichloroethane	0.258	0.242	6.2	79	0.00	13.20
95	M	2-hexanone	0.180	0.195	-8.3	89	0.00	13.37
96	I	chlorobenzene-d5	1.000	1.000	0.0	84	0.00	14.32
97	M	cyclohexanone	0.025	0.084	-236.0#	242#	-0.01	15.57
98	M	tetrachloroethene	0.294	0.294	0.0	83	0.00	13.38
99	M	1,3-dichloropropane	0.543	0.513	5.5	78	-0.01	13.40
100	M	butyl acetate	0.316	0.291	7.9	77	0.00	13.43
101	M	dibromochloromethane	0.383	0.379	1.0	83	0.00	13.69
102	M	1,2-dibromoethane	0.345	0.325	5.8	77	-0.01	13.86
103		3,3-dimethyl-1-Butanol	0.062	0.058	6.5	78	0.00	13.56
104		n-butyl ether		----------NA----------				
105	M	chlorobenzene	0.946	0.892	5.7	79	0.00	14.35
106	M	1,1,1,2-tetrachloroethane	0.355	0.373	-5.1	87	0.00	14.42
107	M	ethylbenzene	1.579	1.483	6.1	79	0.00	14.40
108	M	m,p-xylene	0.618	0.574	7.1	79	0.00	14.52
109	M	o-xylene	0.613	0.589	3.9	81	0.00	14.98
110	M	styrene	1.058	1.012	4.3	79	0.00	15.00
111	M	bromoform	0.355	0.358	-0.8	85	0.00	15.31
112	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	84	0.00	16.89
113	M	isopropylbenzene	2.454	2.334	4.9	83	-0.01	15.35
114	S	4-bromofluorobenzene (s)	0.704	0.669	5.0	83	0.00	15.59
115	M	bromobenzene	0.724	0.731	-1.0	87	0.00	15.82
116	M	1,1,2,2-tetrachloroethane	0.827	0.778	5.9	80	0.00	15.71
117	M	trans-1,4-dichloro-2-bute	0.272	0.248	8.8	77	0.00	15.75
118	M	1,2,3-trichloropropane	0.236	0.232	1.7	85	-0.01	15.80
119	M	n-propylbenzene	2.894	2.733	5.6	81	-0.01	15.81
120	M	2-chlorotoluene	0.629	0.606	3.7	83	-0.01	15.98
121	M	4-chlorotoluene	1.815	1.734	4.5	81	-0.01	16.09
122		p-Ethyltoluene		----------NA----------				
123	M	1,3,5-trimethylbenzene	2.144	2.049	4.4	83	-0.01	15.97
124	M	tert-butylbenzene	1.846	2.055	-11.3	94	-0.01	16.36
125	M	pentachloroethane	0.492	0.470	4.5	83	0.00	16.47
126	M	1,2,4-trimethylbenzene	2.220	2.132	4.0	83	0.00	16.41
127		1,2,3-trimethylbenzene		----------NA----------				
128	M	sec-butylbenzene	2.823	2.654	6.0	81	-0.01	16.60
129	M	1,3-dichlorobenzene	1.395	1.372	1.6	84	0.00	16.83
130	M	p-isopropyltoluene	2.457	2.343	4.6	84	0.00	16.73
131	M	1,4-dichlorobenzene	1.521	1.457	4.2	84	-0.01	16.92
132	M	benzyl chloride	2.330	2.201	5.5	81	0.00	17.19
133	M	1,2-dichlorobenzene	1.409	1.395	1.0	83	-0.01	17.35
134		p-Diethylbenzene		----------NA----------				
135	M	n-butylbenzene	1.252	1.183	5.5	81	0.00	17.19
136		1,2,4,5-Tetramethylbenzen		----------NA----------				
137	M	1,2-dibromo-3-chloropropa	0.202	0.194	4.0	83	0.00	18.21
138		1,3,5-trichlorobenzene	1.232	1.242	-0.8	86	-0.01	18.40
139	M	1,2,4-trichlorobenzene	1.084	1.163	-7.3	91	0.00	19.14
140	M	hexachlorobutadiene	0.618	0.615	0.5	81	-0.01	19.25
141	M	naphthalene	2.624	2.597	1.0	82	-0.01	19.46
142		INDANE		----------NA----------				
143	M	1,2,3-trichlorobenzene	1.032	1.049	-1.6	87	-0.01	19.73
144	M	hexachloroethane	0.497	0.476	4.2	80	0.00	17.64
145	M	MMT		----------NA----------				
146	M	Bis(chloromethyl)ether		----------NA----------				
147	M	Ethylenimine		----------NA----------				

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: VU8162-CC8071
Lab FileID: U176639.D

(#) = Out of Range SPCC's out = 0 CCC's out = 0
U174554.D MU8071.M Tue Oct 08 12:03:47 2013 RPT1

New Jersey ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176560.D
Acq On : 4 Oct 2013 8:32 pm
Operator : natet
Sample : jb48380-1
Misc : ms55650,vu8158,5.0,,,,2.5
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Oct 07 16:03:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

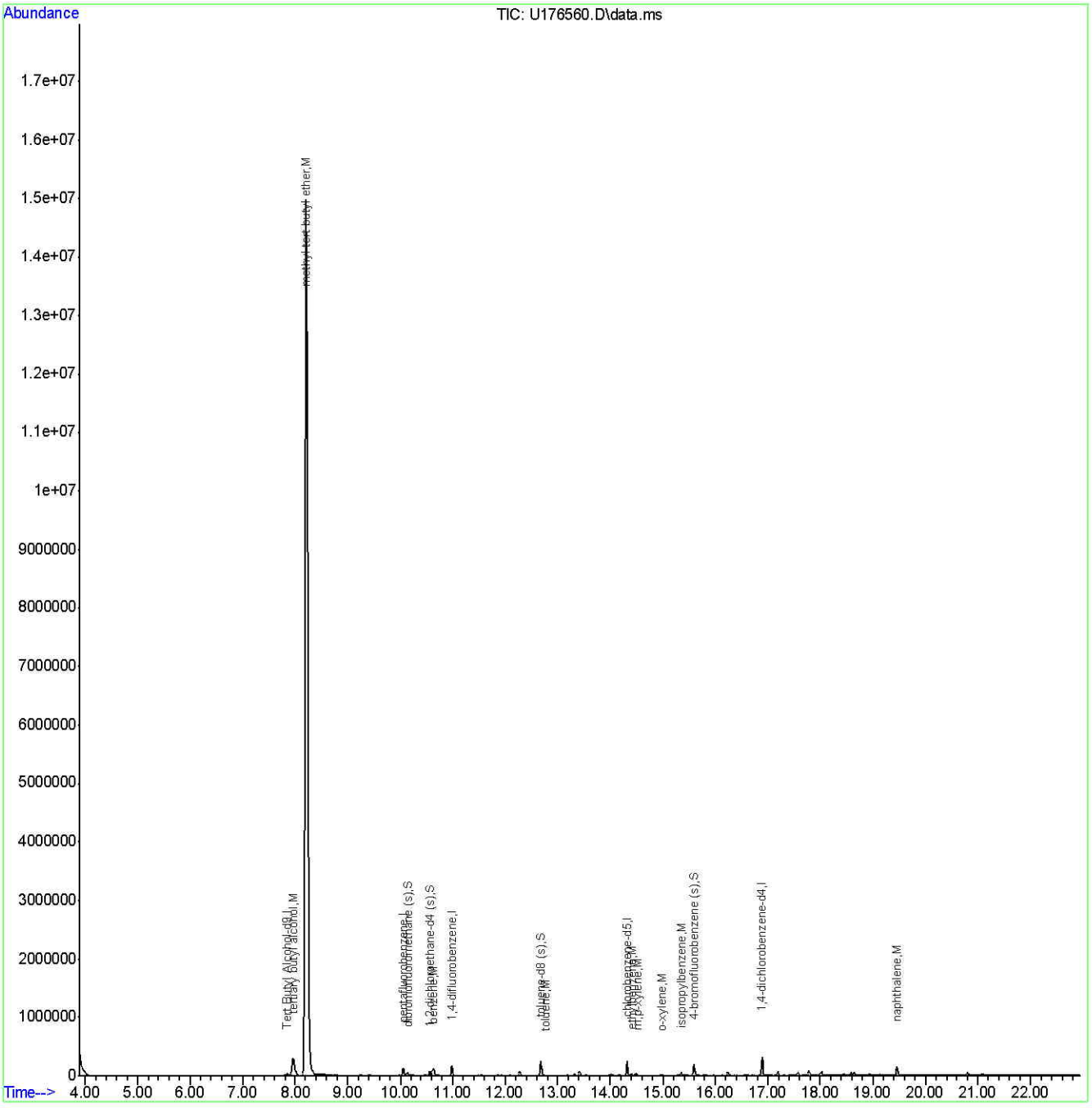
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.837	65	73522	500.00	ug/L	0.00
5) pentafluorobenzene	10.060	168	124359	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.985	114	157367	50.00	ug/L	0.00
96) chlorobenzene-d5	14.317	117	147292	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.890	152	95427	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.133	113	44193	46.29	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 92.58%			
57) 1,2-dichloroethane-d4 (s)	10.551	65	62550	51.39	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 102.78%			
88) toluene-d8 (s)	12.675	98	165527	48.60	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 97.20%			
114) 4-bromofluorobenzene (s)	15.593	95	64876	48.30	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 96.60%			
Target Compounds						Qvalue
2) tertiary butyl alcohol	7.962	59	682170	4281.96	ug/L	75
37) methyl tert butyl ether	8.208	73	22860373	6436.90	ug/L	96
72) benzene	10.624	78	99936	26.03	ug/L	97
90) toluene	12.753	92	3104	1.29	ug/L	99
107) ethylbenzene	14.401	91	33713	7.25	ug/L	99
108) m,p-xylene	14.516	106	2780	1.53	ug/L #	78
109) o-xylene	14.986	106	1205	0.67	ug/L #	46
113) isopropylbenzene	15.352	105	27083	5.78	ug/L	96
141) naphthalene	19.458	128	135661	27.09	ug/L	97

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

Quantitation Report (QT Reviewed)

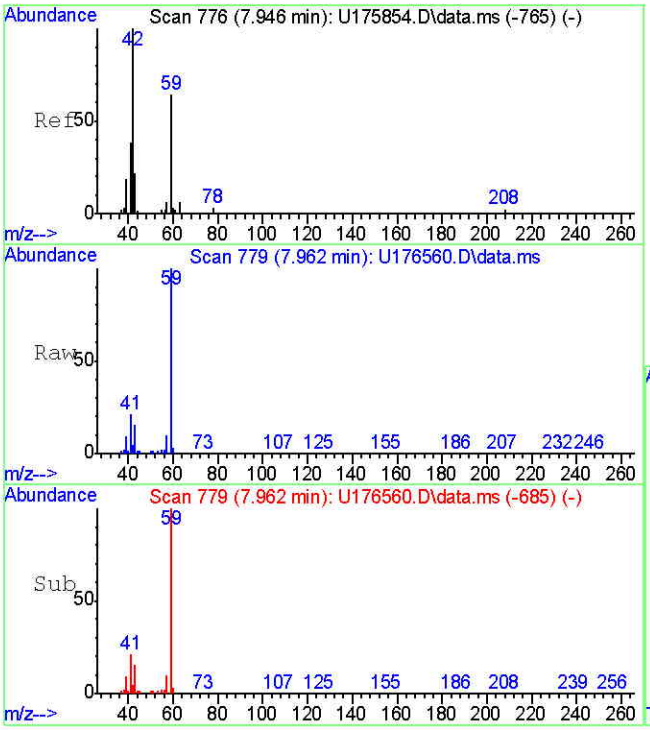
Data Path : C:\msdchem\1\DATA\
Data File : U176560.D
Acq On : 4 Oct 2013 8:32 pm
Operator : natet
Sample : jb48380-1
Misc : ms55650,vu8158,5.0,,,,2.5
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Oct 07 16:03:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration



7.1.1

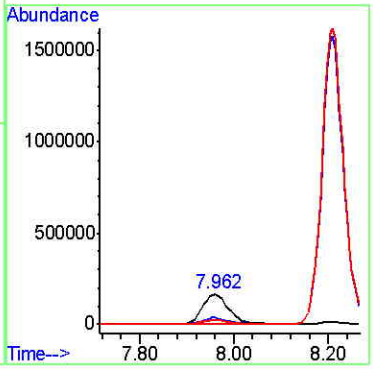
7

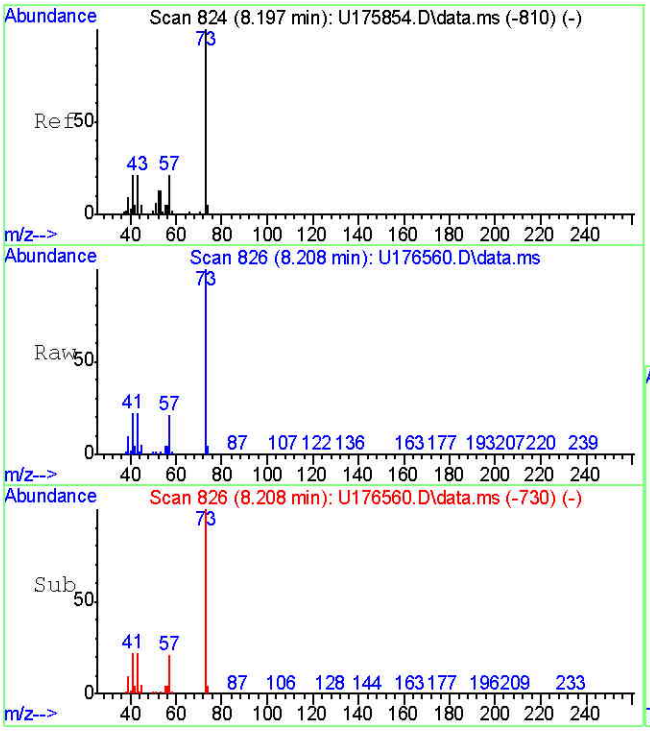


#2
tertiary butyl alcohol
Concen: 4281.96 ug/L
RT: 7.962 min Scan# 779
Delta R.T. -0.009 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion: 59 Resp: 682170

Ion	Ratio	Lower	Upper
59	100		
41	20.4	8.9	68.9
43	13.2	0.0	50.3

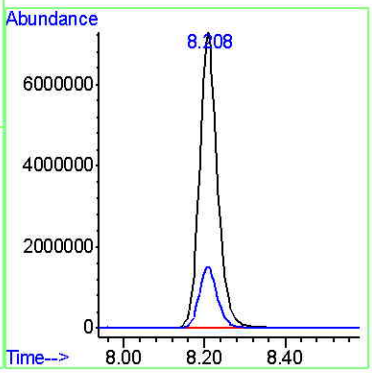


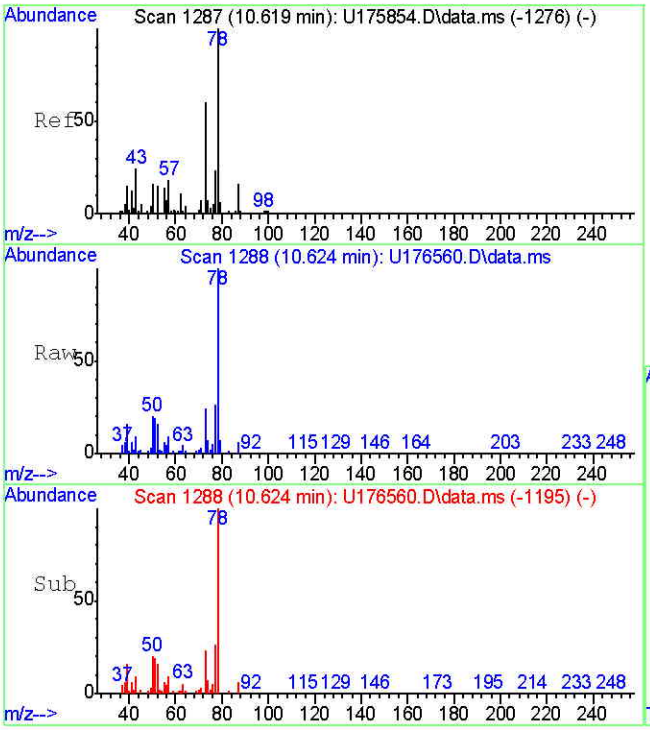


#37
methyl tert butyl ether
Concen: 6436.90 ug/L
RT: 8.208 min Scan# 826
Delta R.T. 0.001 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion: 73 Resp:22860373

Ion	Ratio	Lower	Upper
73	100		
57	21.5	0.0	53.5

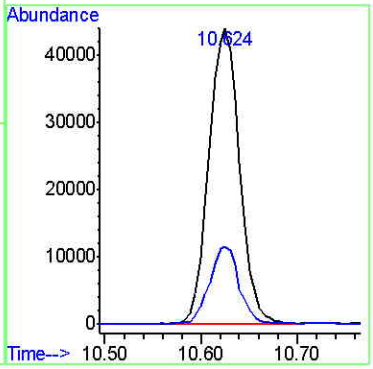


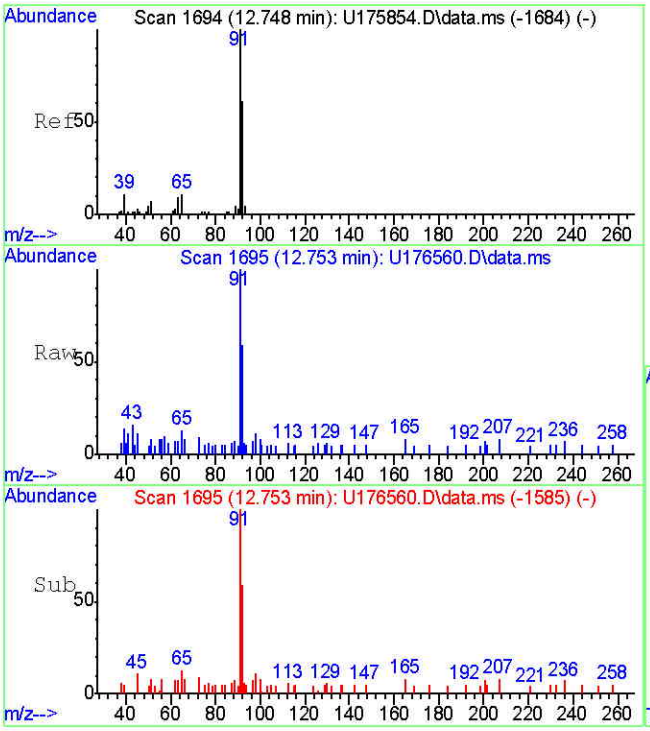


#72
benzene
Concen: 26.03 ug/L
RT: 10.624 min Scan# 1288
Delta R.T. -0.004 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion: 78 Resp: 99936

Ion	Ratio	Lower	Upper
78	100		
77	26.1	0.0	54.6

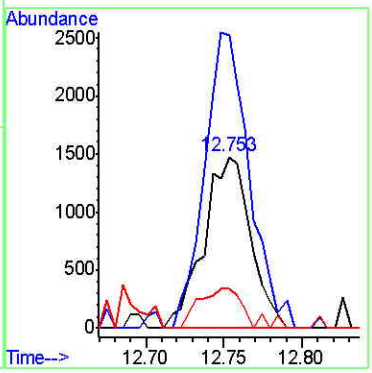


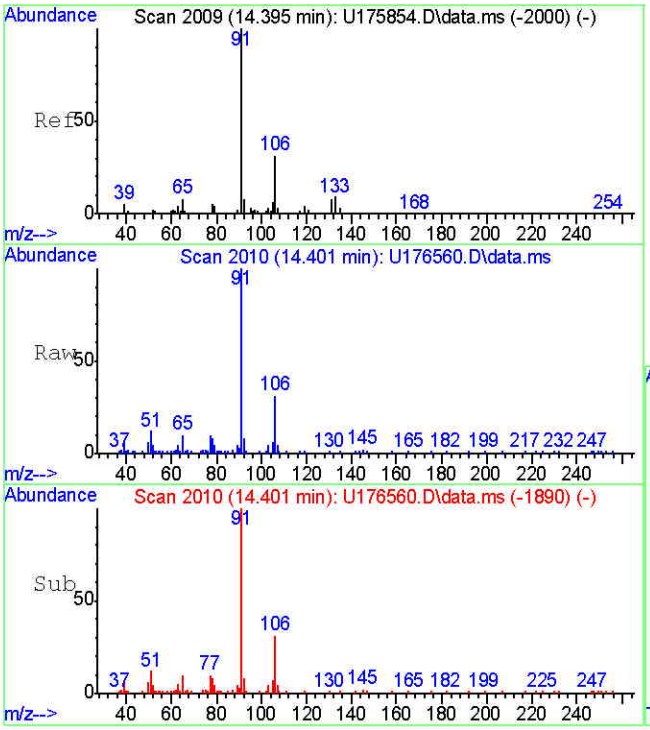


#90
toluene
Concen: 1.29 ug/L
RT: 12.753 min Scan# 1695
Delta R.T. -0.004 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion: 92 Resp: 3104

Ion	Ratio	Lower	Upper
92	100		
91	170.2	140.6	200.6
65	22.7	0.0	49.4

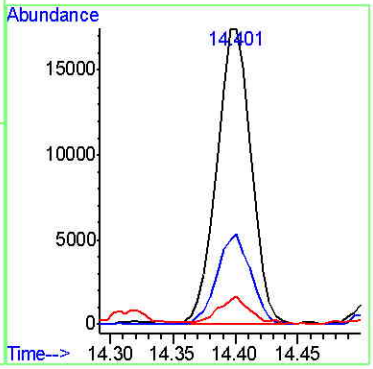


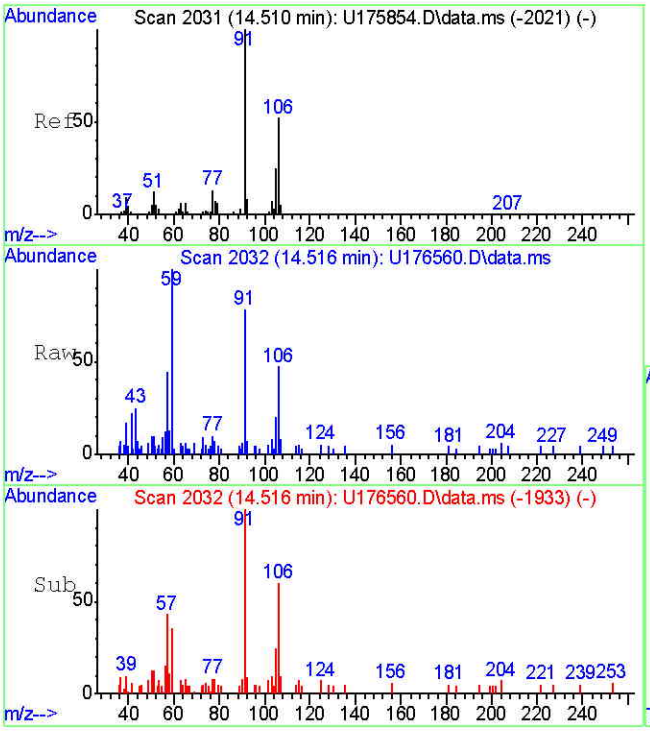


#107
ethylbenzene
Concen: 7.25 ug/L
RT: 14.401 min Scan# 2010
Delta R.T. -0.004 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion: 91 Resp: 33713

Ion	Ratio	Lower	Upper
91	100		
106	30.8	0.7	60.7
77	9.7	0.0	38.6

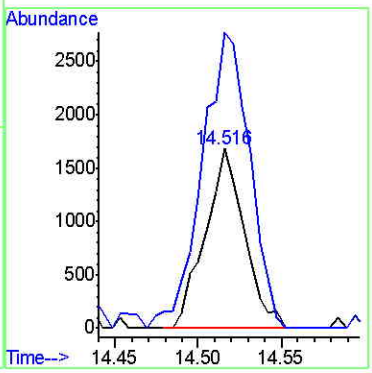


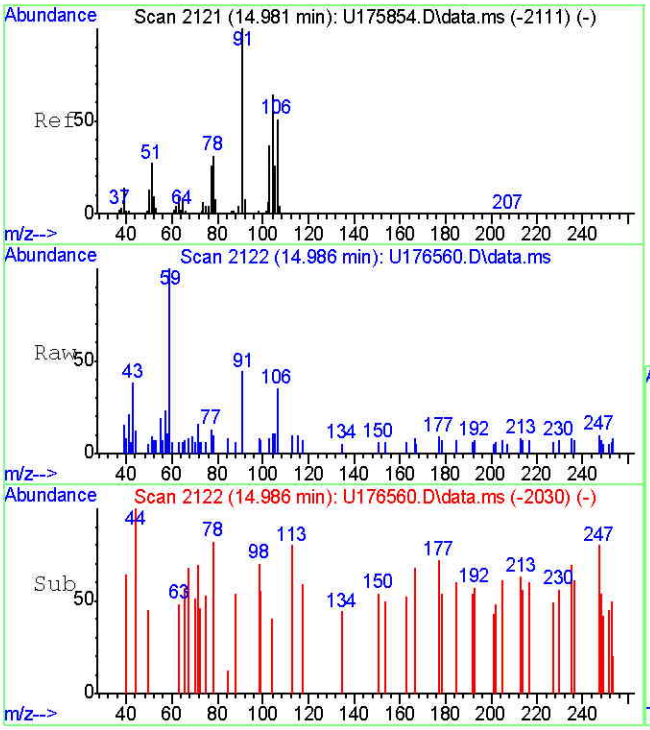


#108
m,p-xylene
Concen: 1.53 ug/L
RT: 14.516 min Scan# 2032
Delta R.T. -0.004 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion:106 Resp: 2780

Ion	Ratio	Lower	Upper
106	100		
91	165.4	167.7	227.7#

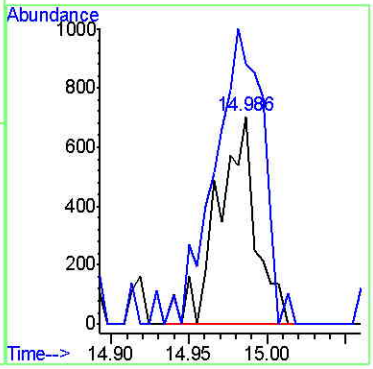


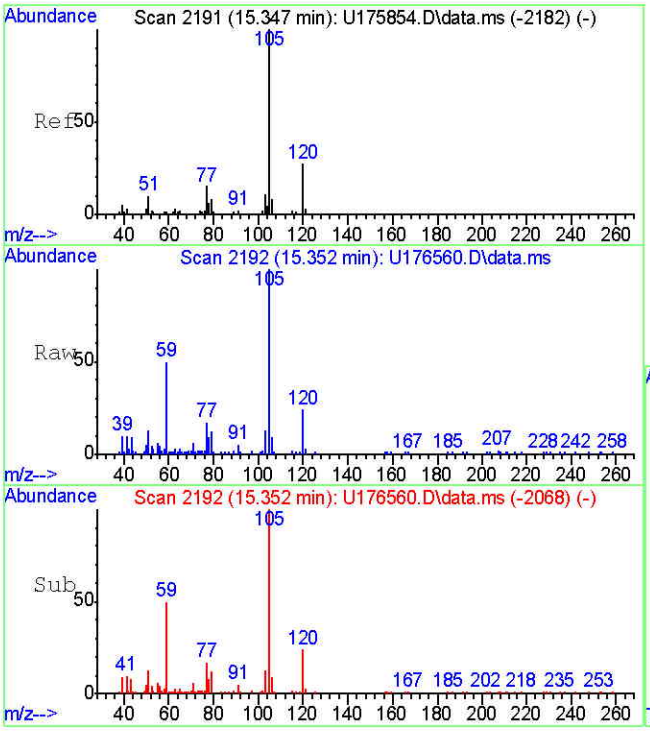


#109
o-xylene
Concen: 0.67 ug/L
RT: 14.986 min Scan# 2122
Delta R.T. 0.001 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion:106 Resp: 1205

Ion	Ratio	Lower	Upper
106	100		
91	125.3	179.9	239.9#

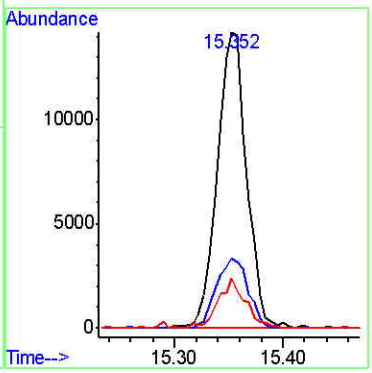


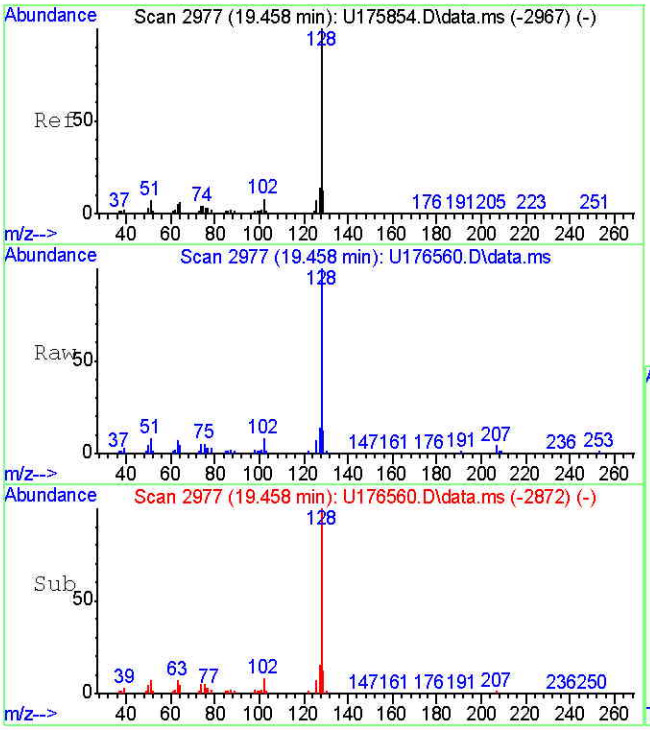


#113
isopropylbenzene
Concen: 5.78 ug/L
RT: 15.352 min Scan# 2192
Delta R.T. -0.009 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion:105 Resp: 27083

Ion	Ratio	Lower	Upper
105	100		
120	24.0	0.0	56.1
77	17.0	0.0	45.4

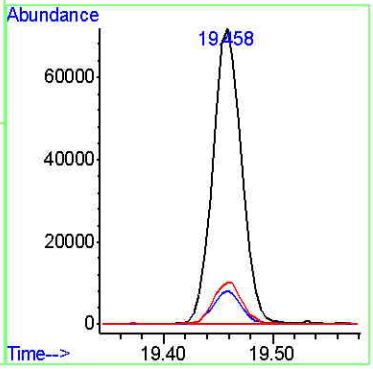




#141
naphthalene
Concen: 27.09 ug/L
RT: 19.458 min Scan# 2977
Delta R.T. -0.009 min
Lab File: U176560.D
Acq: 4 Oct 2013 8:32 pm

Tgt Ion:128 Resp: 135661

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	40.5
127	14.5	0.0	43.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176645.D
Acq On : 7 Oct 2013 1:52 pm
Operator : natet
Sample : jb48380-1
Misc : ms55650,vu8162,5.0,,,,25
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 08 12:08:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

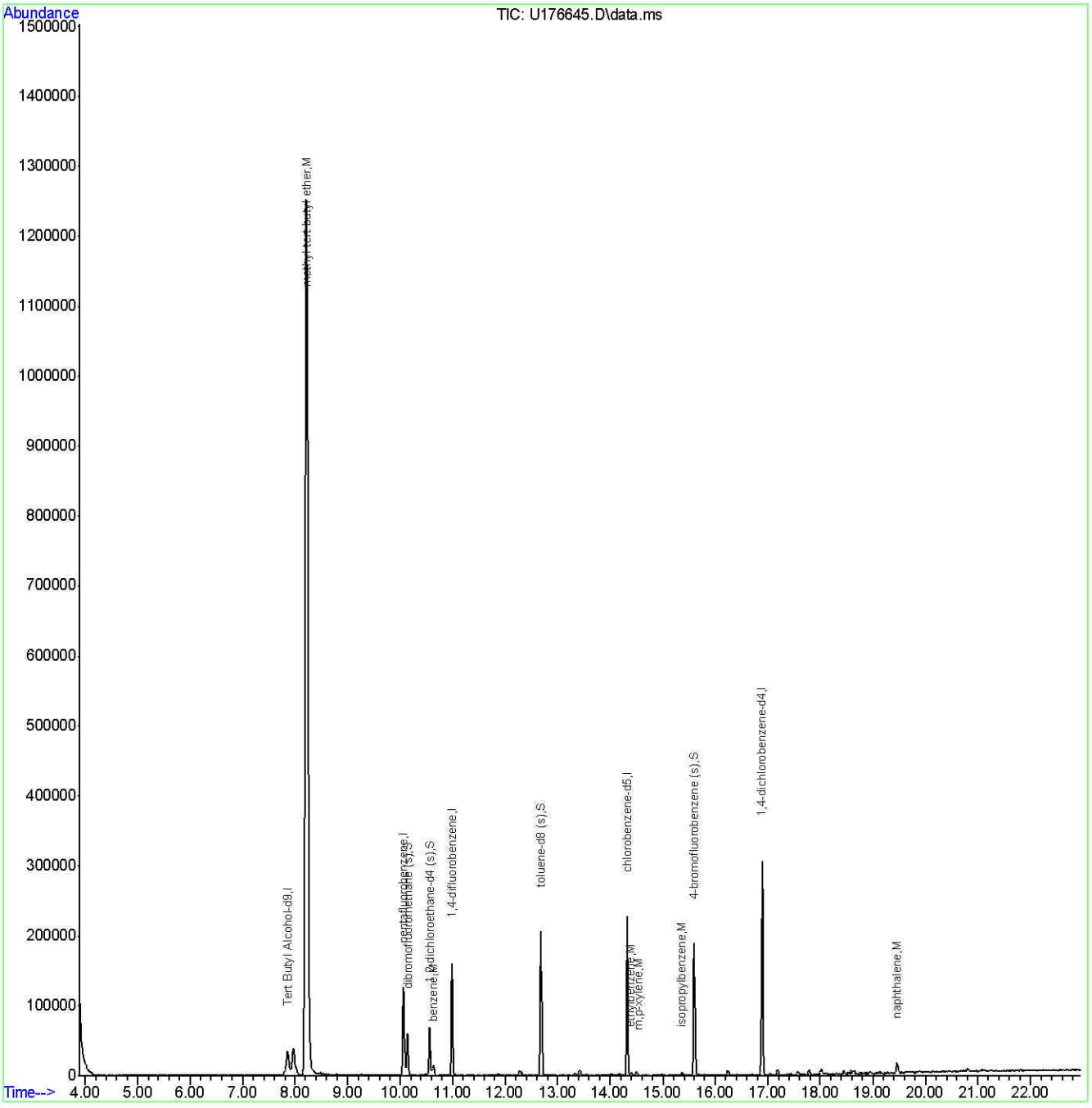
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.847	65	78783	500.00	ug/L	0.00
5) pentafluorobenzene	10.060	168	109867	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.986	114	144053	50.00	ug/L	0.00
96) chlorobenzene-d5	14.317	117	137314	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.890	152	91913	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.133	113	41434	49.13	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 98.26%			
57) 1,2-dichloroethane-d4 (s)	10.557	65	55767	51.86	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 103.72%			
88) toluene-d8 (s)	12.675	98	152604	48.94	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 97.88%			
114) 4-bromofluorobenzene (s)	15.593	95	61903	47.84	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 95.68%			
Target Compounds						Qvalue
37) methyl tert butyl ether	8.214	73	2007485	639.82	ug/L	97
72) benzene	10.630	78	9957	2.83	ug/L	88
107) ethylbenzene	14.396	91	3248	0.75	ug/L	91
108) m,p-xylene	14.526	106	438	0.26	ug/L #	9
113) isopropylbenzene	15.353	105	2498	0.55	ug/L	96
141) naphthalene	19.458	128	13780	2.86	ug/L	96

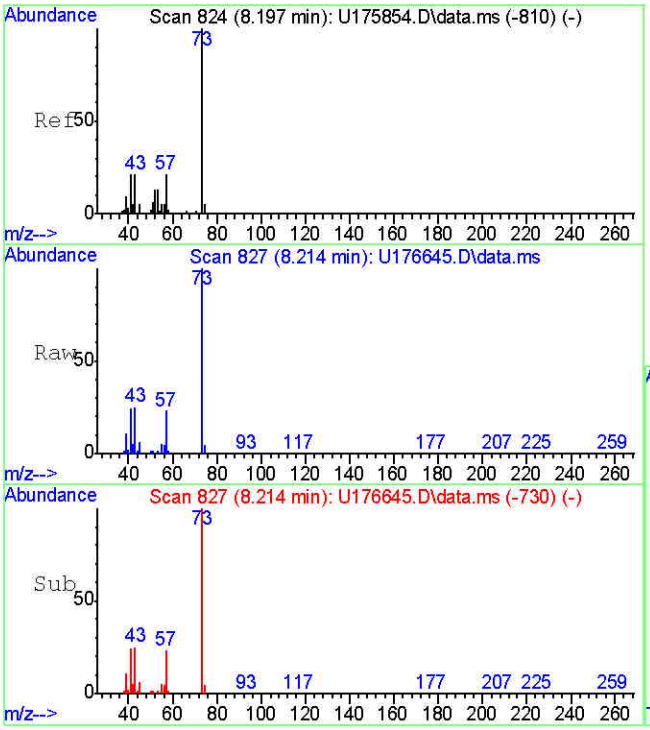
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176645.D
Acq On : 7 Oct 2013 1:52 pm
Operator : natet
Sample : jb48380-1
Misc : ms55650,vu8162,5.0,,,,25
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 08 12:08:59 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

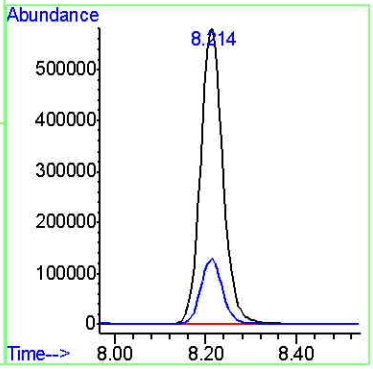


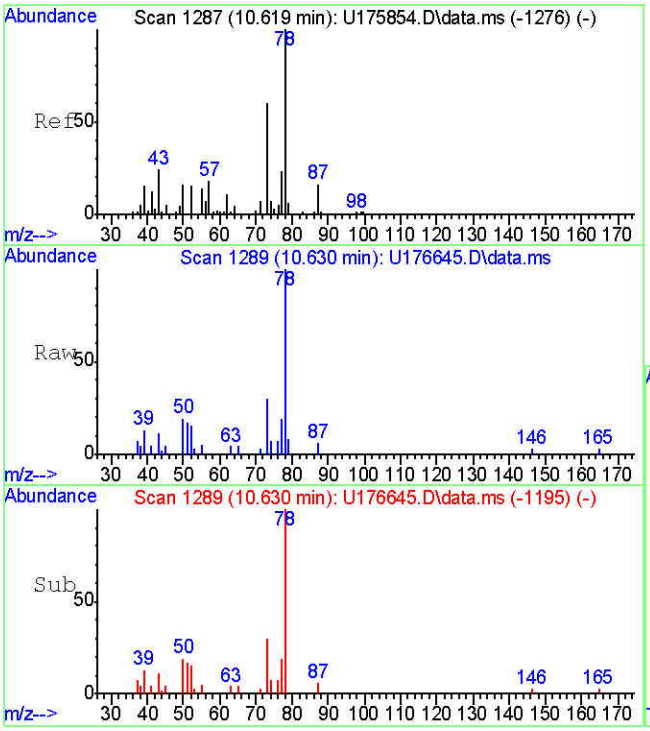


#37
methyl tert butyl ether
Concen: 639.82 ug/L
RT: 8.214 min Scan# 827
Delta R.T. 0.006 min
Lab File: U176645.D
Acq: 7 Oct 2013 1:52 pm

Tgt Ion: 73 Resp: 2007485

Ion	Ratio	Lower	Upper
73	100		
57	22.1	0.0	53.5

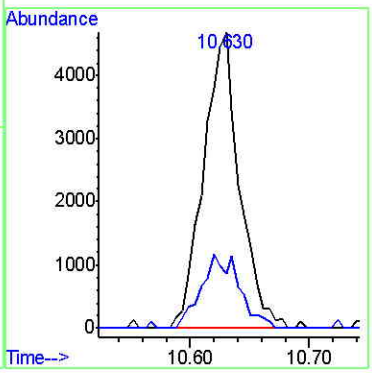


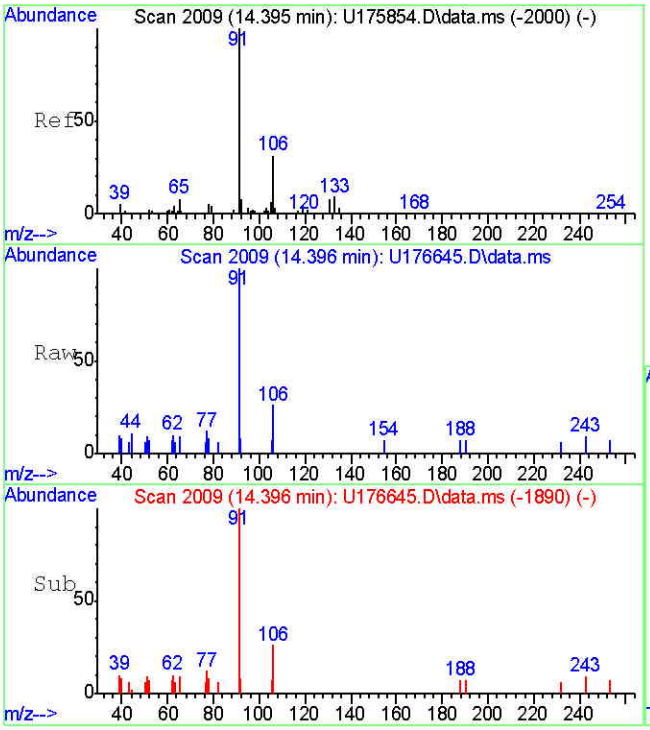


#72
benzene
Concen: 2.83 ug/L
RT: 10.630 min Scan# 1289
Delta R.T. 0.001 min
Lab File: U176645.D
Acq: 7 Oct 2013 1:52 pm

Tgt Ion: 78 Resp: 9957

Ion	Ratio	Lower	Upper
78	100		
77	18.5	0.0	54.6

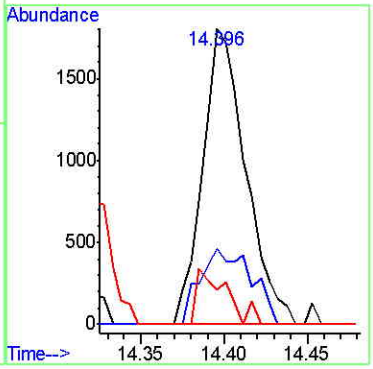


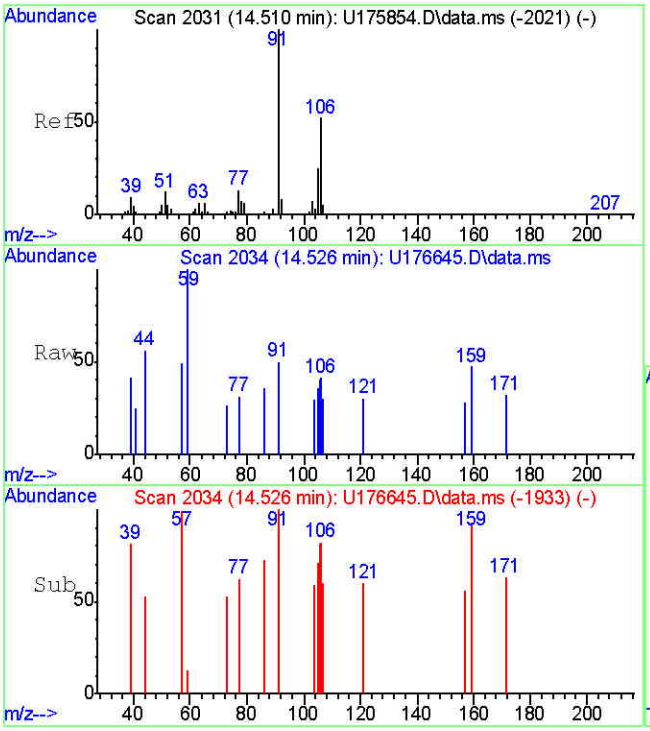


#107
ethylbenzene
Concen: 0.75 ug/L
RT: 14.396 min Scan# 2009
Delta R.T. -0.009 min
Lab File: U176645.D
Acq: 7 Oct 2013 1:52 pm

Tgt Ion: 91 Resp: 3248

Ion	Ratio	Lower	Upper
91	100		
106	25.9	0.7	60.7
77	11.7	0.0	38.6

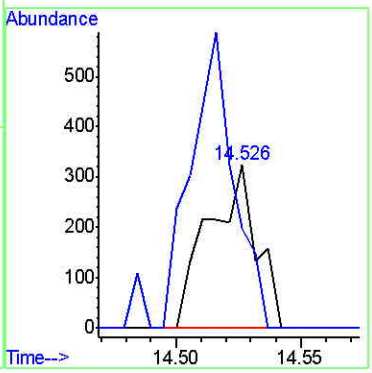


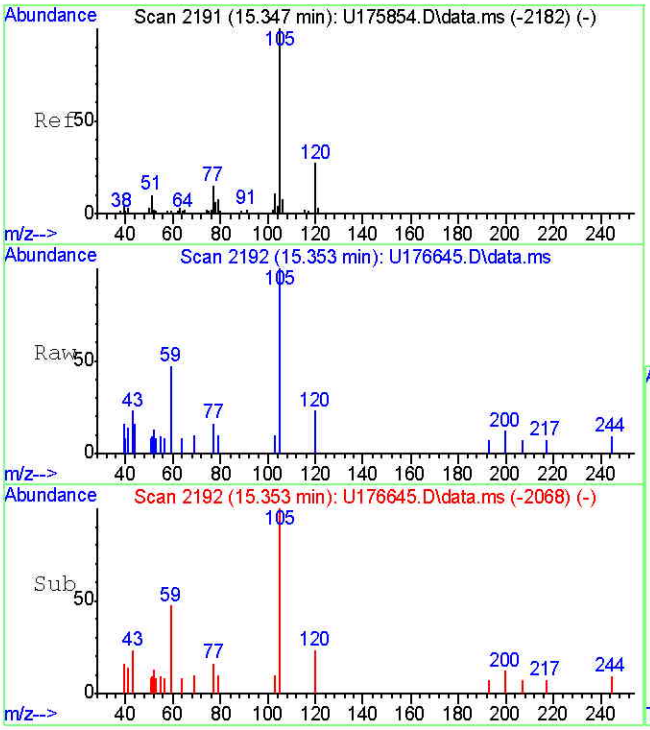


#108
m,p-xylene
Concen: 0.26 ug/L
RT: 14.526 min Scan# 2034
Delta R.T. 0.006 min
Lab File: U176645.D
Acq: 7 Oct 2013 1:52 pm

Tgt Ion:106 Resp: 438

Ion	Ratio	Lower	Upper
106	100		
91	61.2	167.7	227.7#

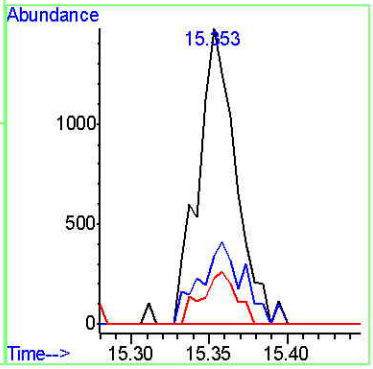


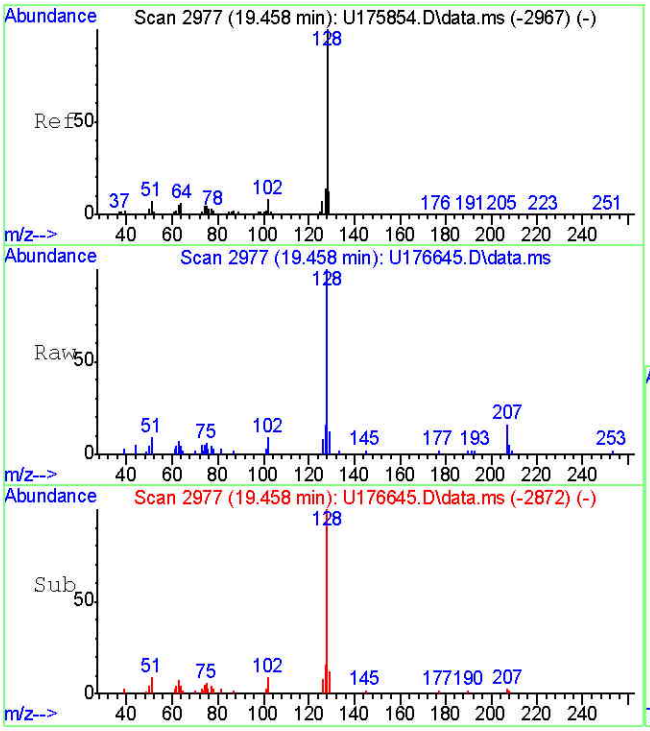


#113
isopropylbenzene
Concen: 0.55 ug/L
RT: 15.353 min Scan# 2192
Delta R.T. -0.009 min
Lab File: U176645.D
Acq: 7 Oct 2013 1:52 pm

Tgt Ion:105 Resp: 2498

Ion	Ratio	Lower	Upper
105	100		
120	23.0	0.0	56.1
77	15.7	0.0	45.4

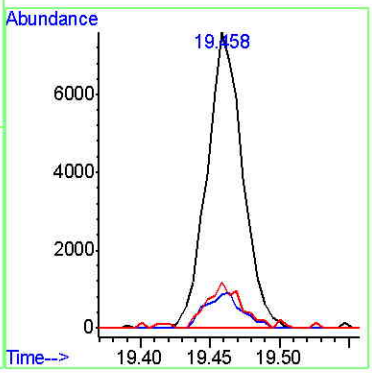




#141
naphthalene
Concen: 2.86 ug/L
RT: 19.458 min Scan# 2977
Delta R.T. -0.009 min
Lab File: U176645.D
Acq: 7 Oct 2013 1:52 pm

Tgt Ion:128 Resp: 13780

Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	40.5
127	15.6	0.0	43.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176646.D
Acq On : 7 Oct 2013 2:22 pm
Operator : natet
Sample : jb48380-1
Misc : ms55650,vu8162,5.0,,,,250
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 08 12:48:56 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.853	65	81258	500.00	ug/L	0.00
5) pentafluorobenzene	10.060	168	109392	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.981	114	141861	50.00	ug/L	0.00
96) chlorobenzene-d5	14.318	117	136454	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.891	152	89062	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.139	113	41428	49.33	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 98.66%			
57) 1,2-dichloroethane-d4 (s)	10.557	65	54990	51.36	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 102.72%			
88) toluene-d8 (s)	12.675	98	149411	48.66	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 97.32%			
114) 4-bromofluorobenzene (s)	15.594	95	59666	47.59	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 95.18%			
Target Compounds						Qvalue
37) methyl tert butyl ether	8.214	73	187220	59.93	ug/L	97
72) benzene	10.615	78	941	0.27	ug/L	47

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

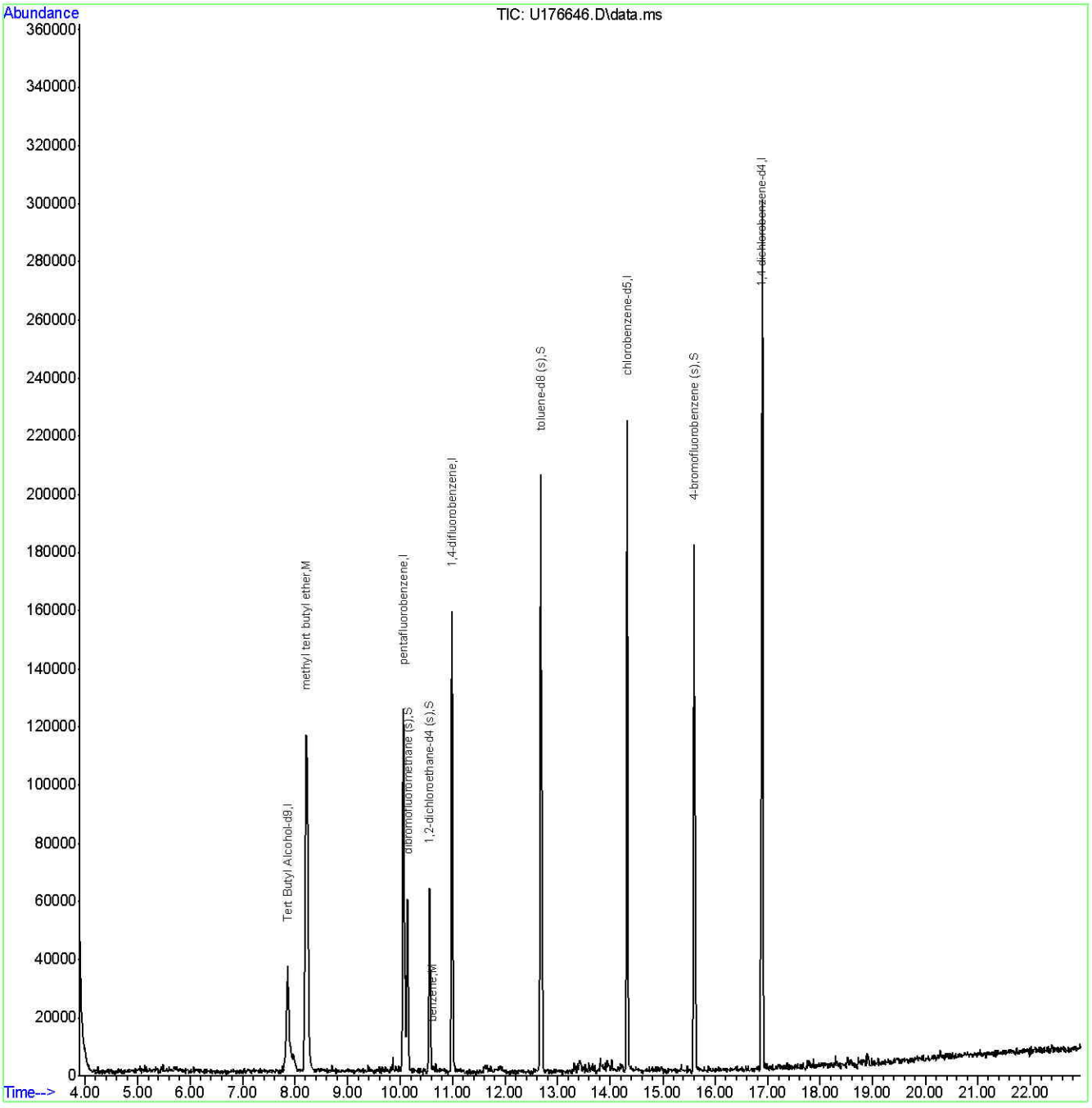
7.1.3

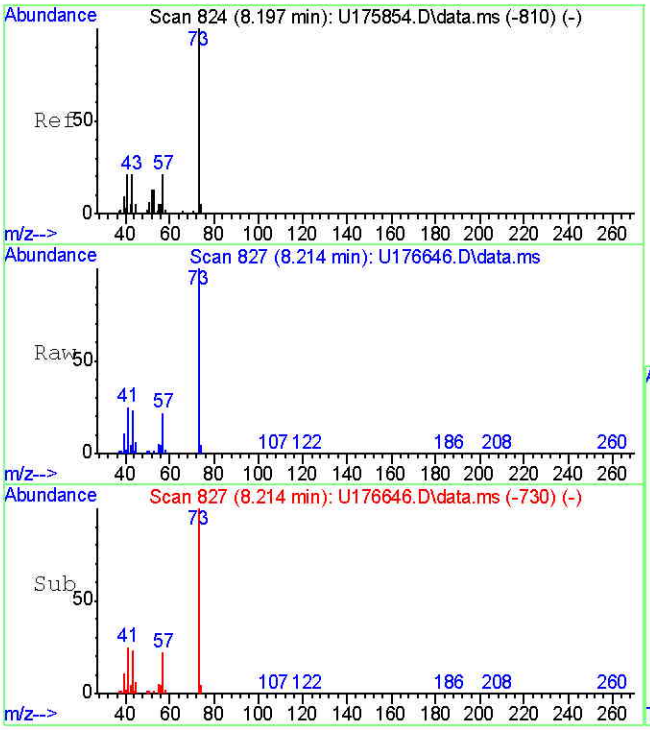
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176646.D
Acq On : 7 Oct 2013 2:22 pm
Operator : natet
Sample : jb48380-1
Misc : ms55650,vu8162,5.0,,,,250
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 08 12:48:56 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

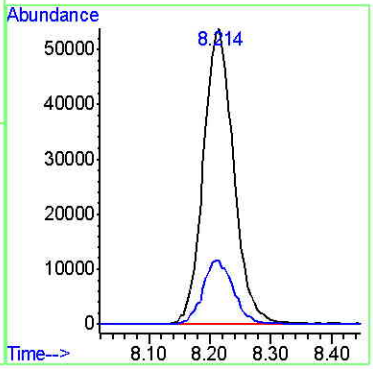


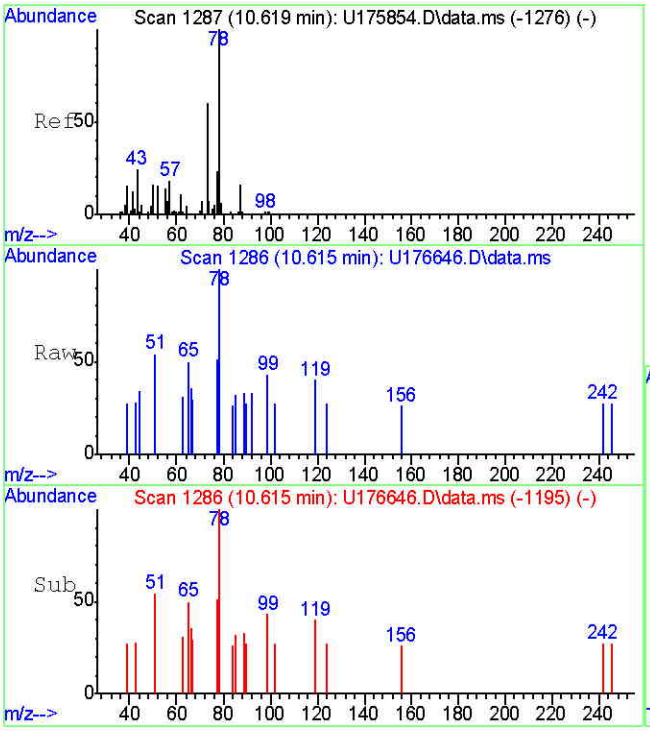


#37
methyl tert butyl ether
Concen: 59.93 ug/L
RT: 8.214 min Scan# 827
Delta R.T. 0.007 min
Lab File: U176646.D
Acq: 7 Oct 2013 2:22 pm

Tgt Ion: 73 Resp: 187220

Ion	Ratio	Lower	Upper
73	100		
57	22.3	0.0	53.5

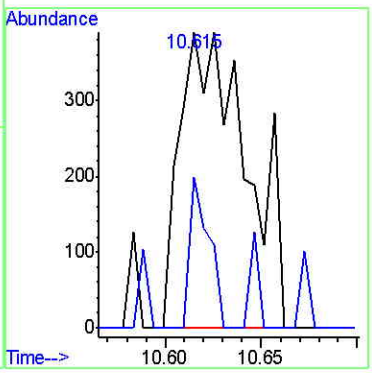




#72
benzene
Concen: 0.27 ug/L
RT: 10.615 min Scan# 1286
Delta R.T. -0.014 min
Lab File: U176646.D
Acq: 7 Oct 2013 2:22 pm

Tgt Ion: 78 Resp: 941

Ion	Ratio	Lower	Upper
78	100		
77	51.2	0.0	54.6



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176557.D
Acq On : 4 Oct 2013 7:04 pm
Operator : natet
Sample : jb48380-2
Misc : ms55650,vu8158,5.0,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 07 16:01:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.842	65	77600	500.00	ug/L	0.00
5) pentafluorobenzene	10.060	168	120383	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.980	114	154747	50.00	ug/L	0.00
96) chlorobenzene-d5	14.317	117	147243	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.885	152	99229	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.133	113	44527	48.18	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 96.36%			
57) 1,2-dichloroethane-d4 (s)	10.551	65	58882	49.97	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 99.94%			
88) toluene-d8 (s)	12.675	98	164488	49.11	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 98.22%			
114) 4-bromofluorobenzene (s)	15.593	95	65366	46.80	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 93.60%			

Target Compounds	Qvalue

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

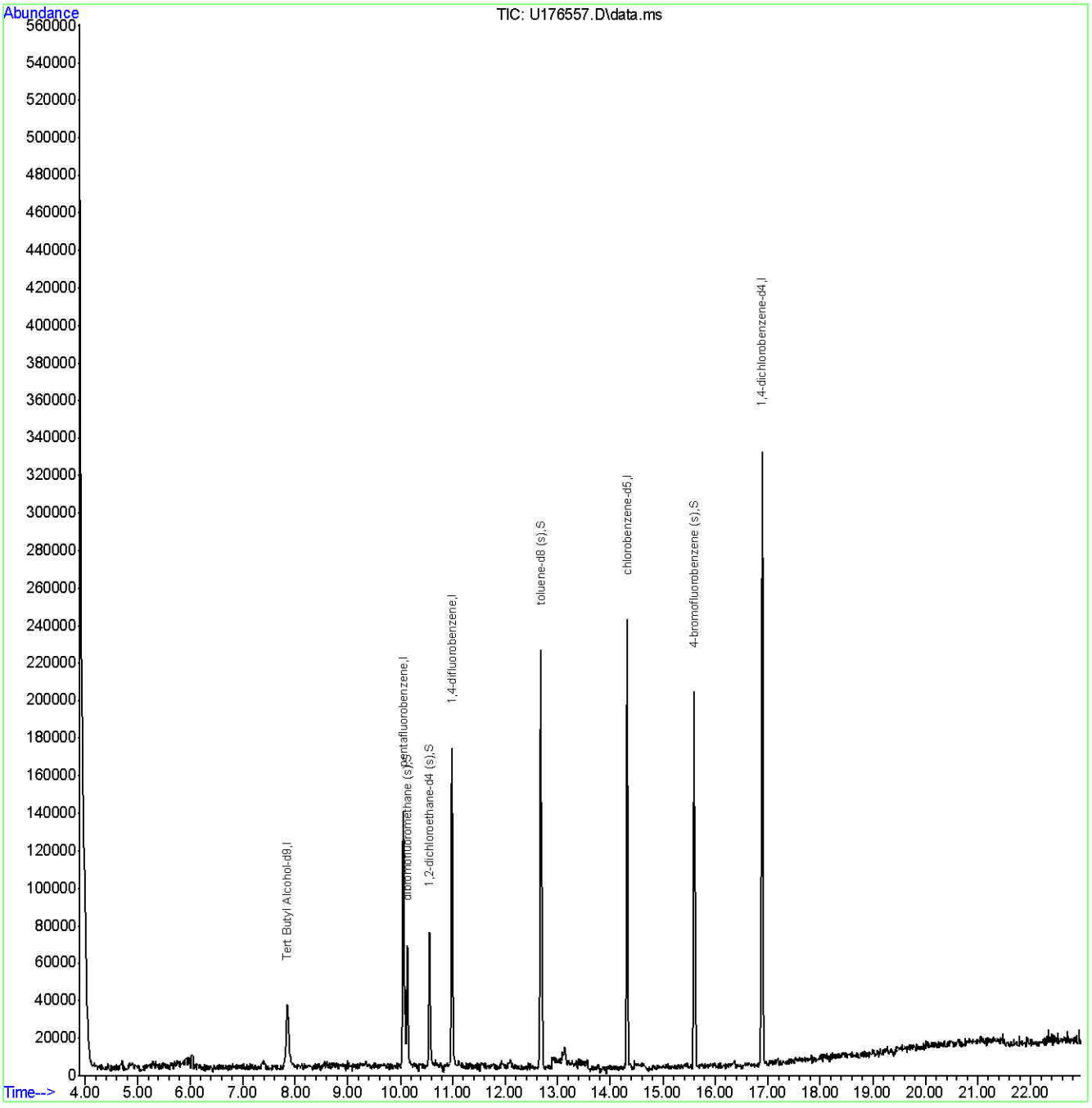
7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176557.D
Acq On : 4 Oct 2013 7:04 pm
Operator : natet
Sample : jb48380-2
Misc : ms55650,vu8158,5.0,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 07 16:01:02 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176558.D
Acq On : 4 Oct 2013 7:33 pm
Operator : natet
Sample : jb48380-3
Misc : ms55650,vu8158,5.0,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 07 16:01:52 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.852	65	76040	500.00	ug/L	0.00
5) pentafluorobenzene	10.059	168	118901	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.985	114	153461	50.00	ug/L	0.00
96) chlorobenzene-d5	14.316	117	145620	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.889	152	95909	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.132	113	44324	48.56	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 97.12%			
57) 1,2-dichloroethane-d4 (s)	10.556	65	59734	51.33	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 102.66%			
88) toluene-d8 (s)	12.674	98	165746	49.90	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 99.80%			
114) 4-bromofluorobenzene (s)	15.592	95	65823	48.75	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 97.50%			
Target Compounds						Qvalue
37) methyl tert butyl ether	8.207	73	10059	2.96	ug/L	# 1
72) benzene	10.624	78	11064	2.95	ug/L	99

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

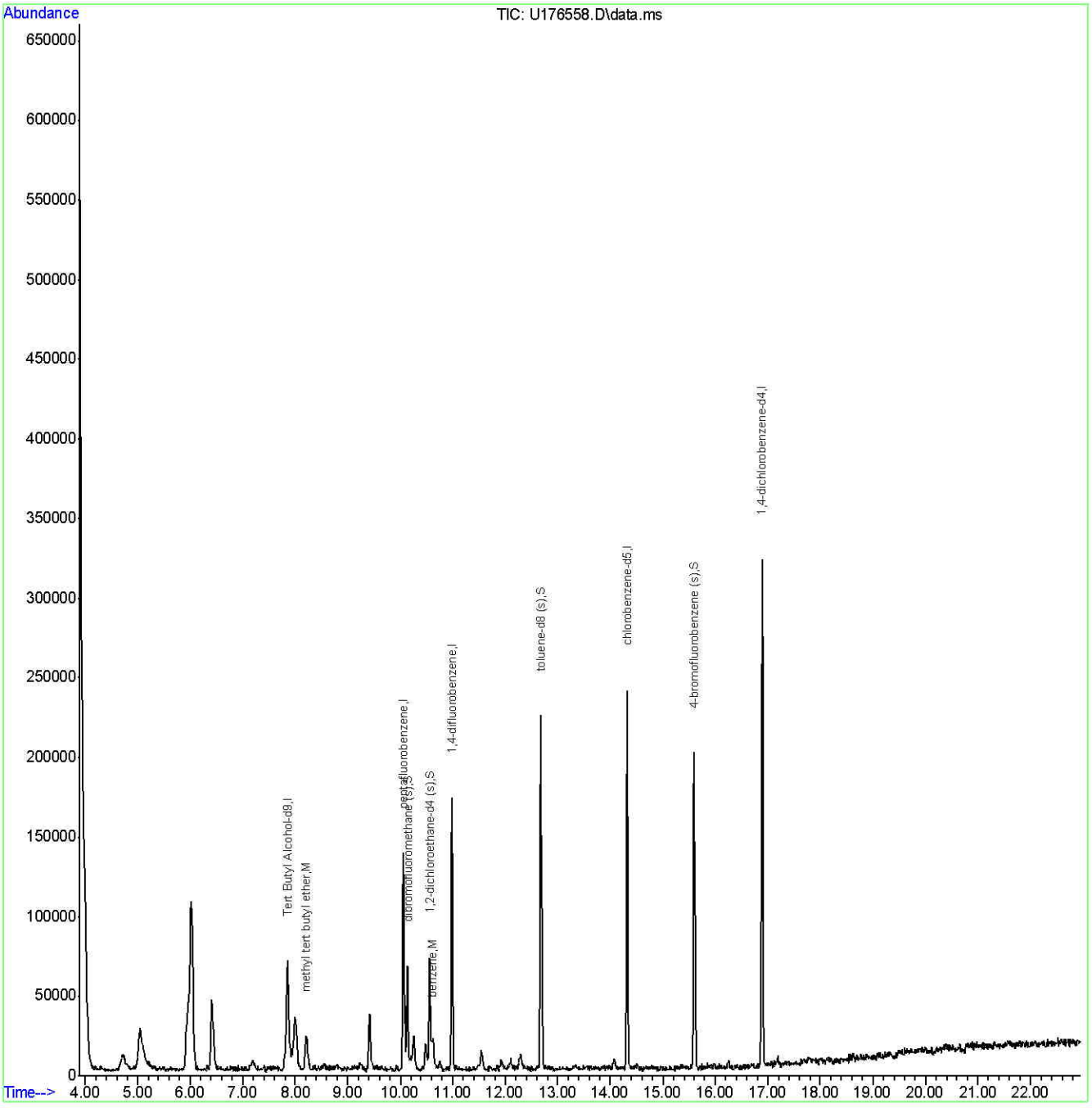
7.1.5

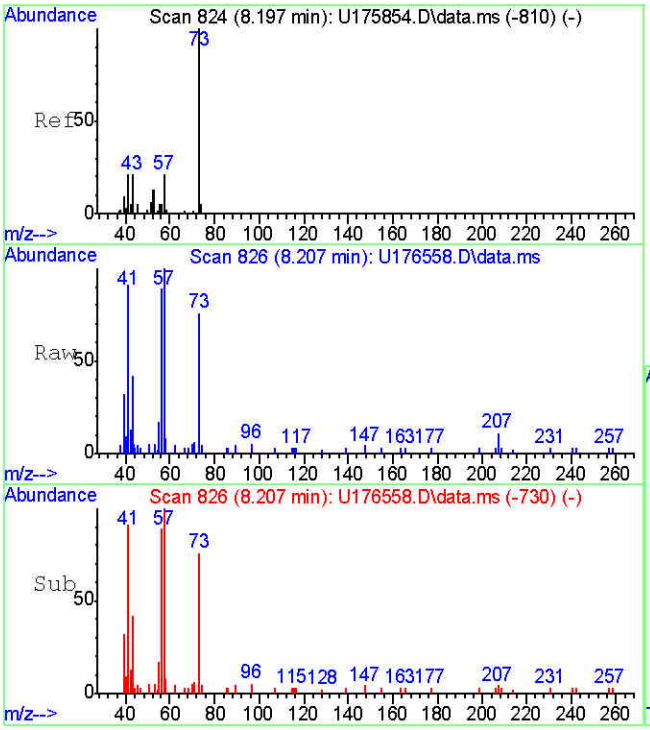
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176558.D
Acq On : 4 Oct 2013 7:33 pm
Operator : natet
Sample : jb48380-3
Misc : ms55650,vu8158,5.0,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 07 16:01:52 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

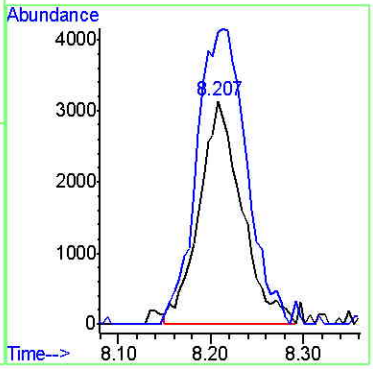


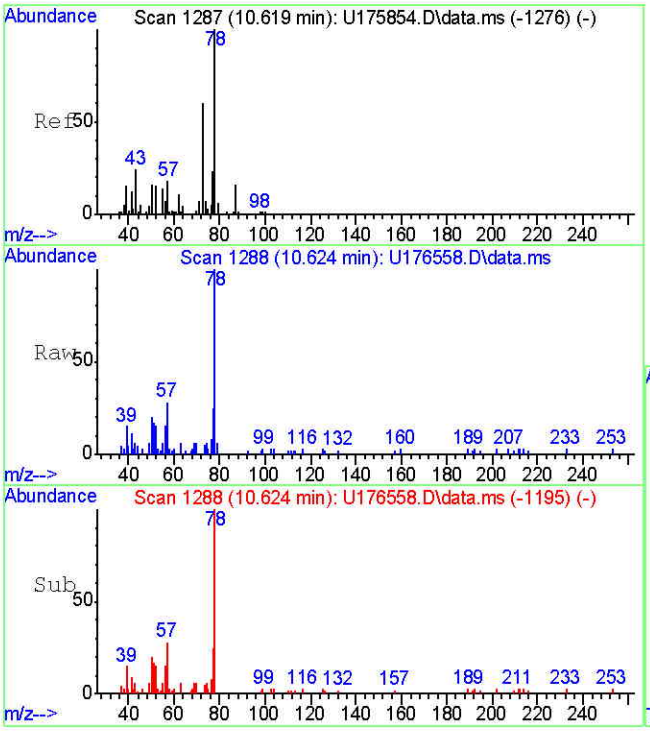


#37
methyl tert butyl ether
Concen: 2.96 ug/L
RT: 8.207 min Scan# 826
Delta R.T. 0.000 min
Lab File: U176558.D
Acq: 4 Oct 2013 7:33 pm

Tgt Ion: 73 Resp: 10059

Ion	Ratio	Lower	Upper
73	100		
57	154.5	0.0	53.5#

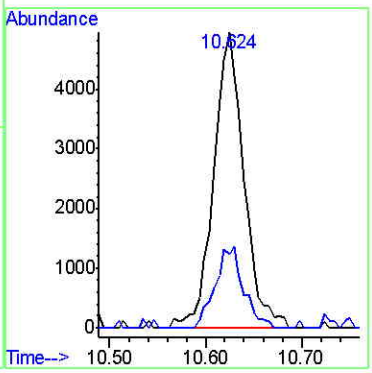




#72
benzene
Concen: 2.95 ug/L
RT: 10.624 min Scan# 1288
Delta R.T. -0.005 min
Lab File: U176558.D
Acq: 4 Oct 2013 7:33 pm

Tgt Ion: 78 Resp: 11064

Ion	Ratio	Lower	Upper
78	100		
77	25.1	0.0	54.6



7.1.5

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176559.D
Acq On : 4 Oct 2013 8:02 pm
Operator : natet
Sample : jb48380-4
Misc : ms55650,vu8158,5.0,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Oct 07 16:02:30 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.847	65	74015	500.00	ug/L	0.00
5) pentafluorobenzene	10.059	168	121219	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.985	114	154735	50.00	ug/L	0.00
96) chlorobenzene-d5	14.316	117	146974	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.889	152	98552	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.132	113	43067	46.28	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 92.56%			
57) 1,2-dichloroethane-d4 (s)	10.556	65	59630	50.26	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 100.52%			
88) toluene-d8 (s)	12.674	98	163174	48.72	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 97.44%			
114) 4-bromofluorobenzene (s)	15.592	95	65446	47.17	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 94.34%			
Target Compounds						Qvalue
37) methyl tert butyl ether	8.207	73	29707	8.58	ug/L	98

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

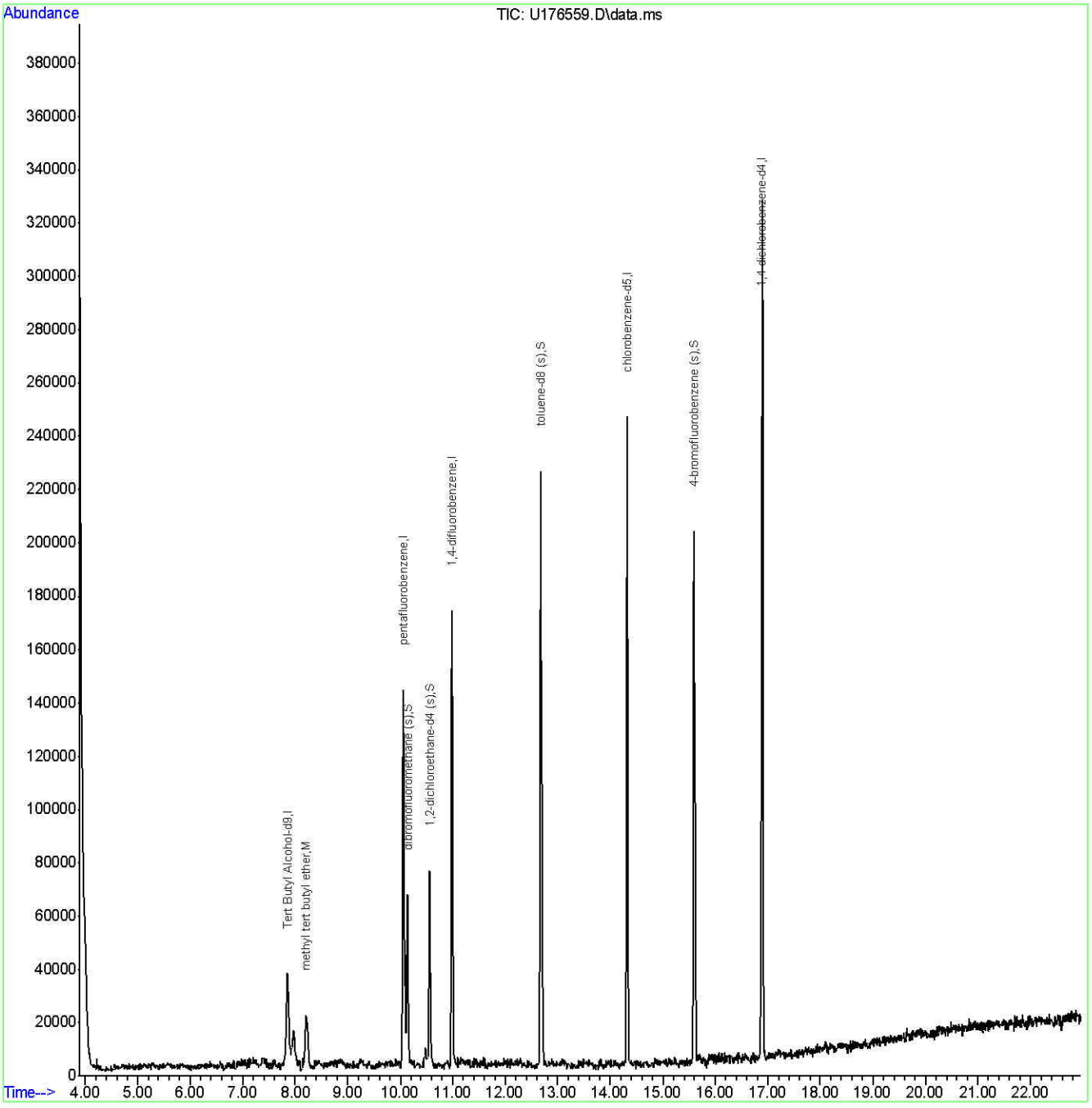
7.1.6

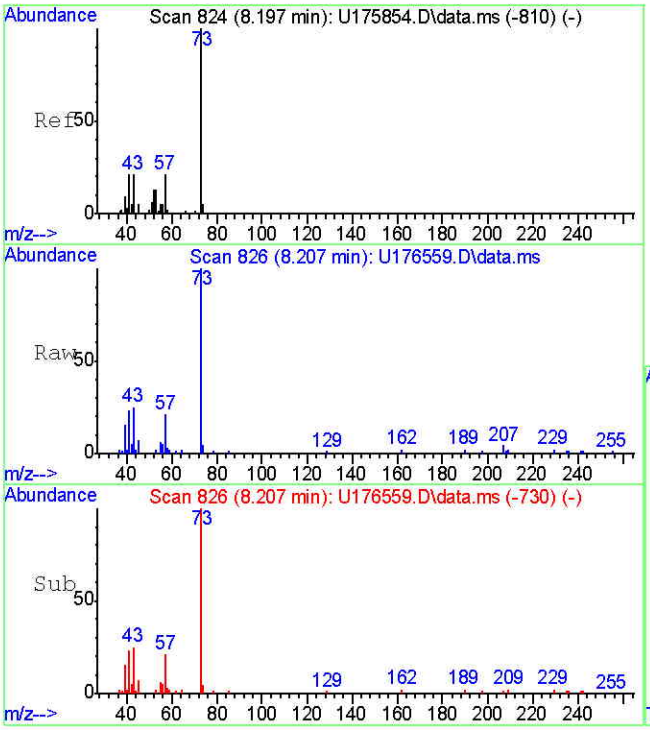
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176559.D
Acq On : 4 Oct 2013 8:02 pm
Operator : natet
Sample : jb48380-4
Misc : ms55650,vu8158,5.0,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Oct 07 16:02:30 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

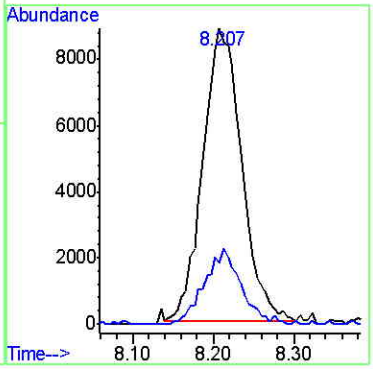




#37
methyl tert butyl ether
Concen: 8.58 ug/L
RT: 8.207 min Scan# 826
Delta R.T. 0.000 min
Lab File: U176559.D
Acq: 4 Oct 2013 8:02 pm

Tgt Ion: 73 Resp: 29707

Ion	Ratio	Lower	Upper
73	100		
57	24.7	0.0	53.5



Quantitation Report (LSC Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176540.D
Acq On : 4 Oct 2013 10:44 am
Operator : natet
Sample : mb1
Misc : ms55721,vu8158,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 04 14:23:00 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.843	65	82438	500.00	ug/L	0.00
5) pentafluorobenzene	10.055	168	117127	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.981	114	148908	50.00	ug/L	0.00
96) chlorobenzene-d5	14.312	117	143921	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.886	152	95515	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.134	113	41616	46.29	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 92.58%			
57) 1,2-dichloroethane-d4 (s)	10.552	65	56878	49.61	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 99.22%			
88) toluene-d8 (s)	12.670	98	159434	49.47	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 98.94%			
114) 4-bromofluorobenzene (s)	15.594	95	64317	47.83	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 95.66%			

Target Compounds	Qvalue

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

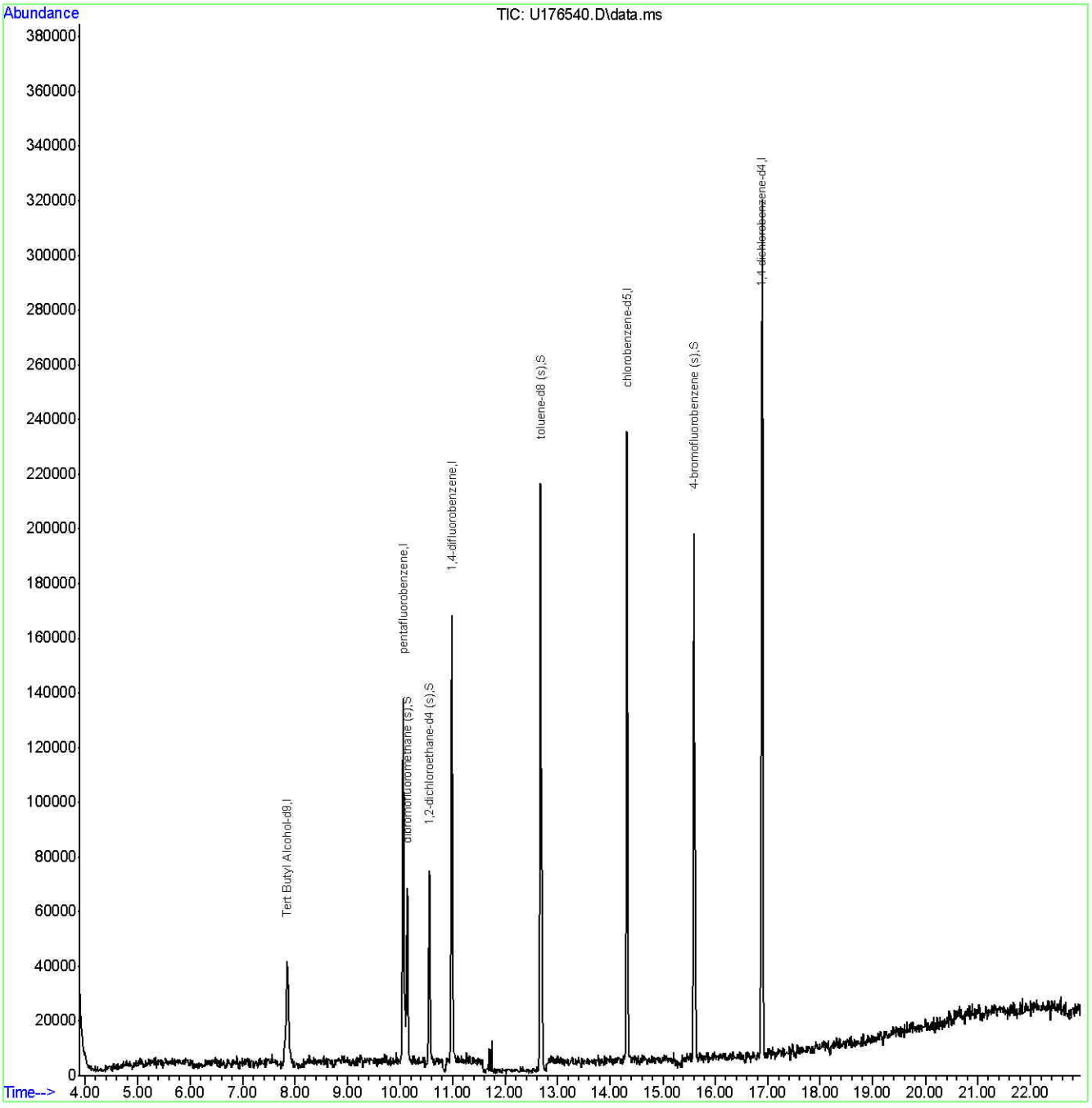
7.2.1

7

Quantitation Report (LSC Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176540.D
Acq On : 4 Oct 2013 10:44 am
Operator : natet
Sample : mb1
Misc : ms55721,vu8158,5.0,,,,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 04 14:23:00 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176640.D
Acq On : 7 Oct 2013 11:15 am
Operator : natet
Sample : mb1
Misc : ms55705,vu8162,5.0,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 08 12:04:43 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.853	65	86419	500.00	ug/L	0.00
5) pentafluorobenzene	10.055	168	112382	50.00	ug/L	0.00
64) 1,4-difluorobenzene	10.980	114	143581	50.00	ug/L	0.00
96) chlorobenzene-d5	14.317	117	137809	50.00	ug/L	0.00
112) 1,4-dichlorobenzene-d4	16.885	152	94108	50.00	ug/L	0.00
System Monitoring Compounds						
56) dibromofluoromethane (s)	10.133	113	41670	48.30	ug/L	0.00
Spiked Amount 50.000	Range 79 - 117		Recovery = 96.60%			
57) 1,2-dichloroethane-d4 (s)	10.552	65	54150	49.23	ug/L	0.00
Spiked Amount 50.000	Range 72 - 123		Recovery = 98.46%			
88) toluene-d8 (s)	12.675	98	153790	49.49	ug/L	0.00
Spiked Amount 50.000	Range 82 - 118		Recovery = 98.98%			
114) 4-bromofluorobenzene (s)	15.593	95	62192	46.95	ug/L	0.00
Spiked Amount 50.000	Range 75 - 118		Recovery = 93.90%			

Target Compounds	Qvalue

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

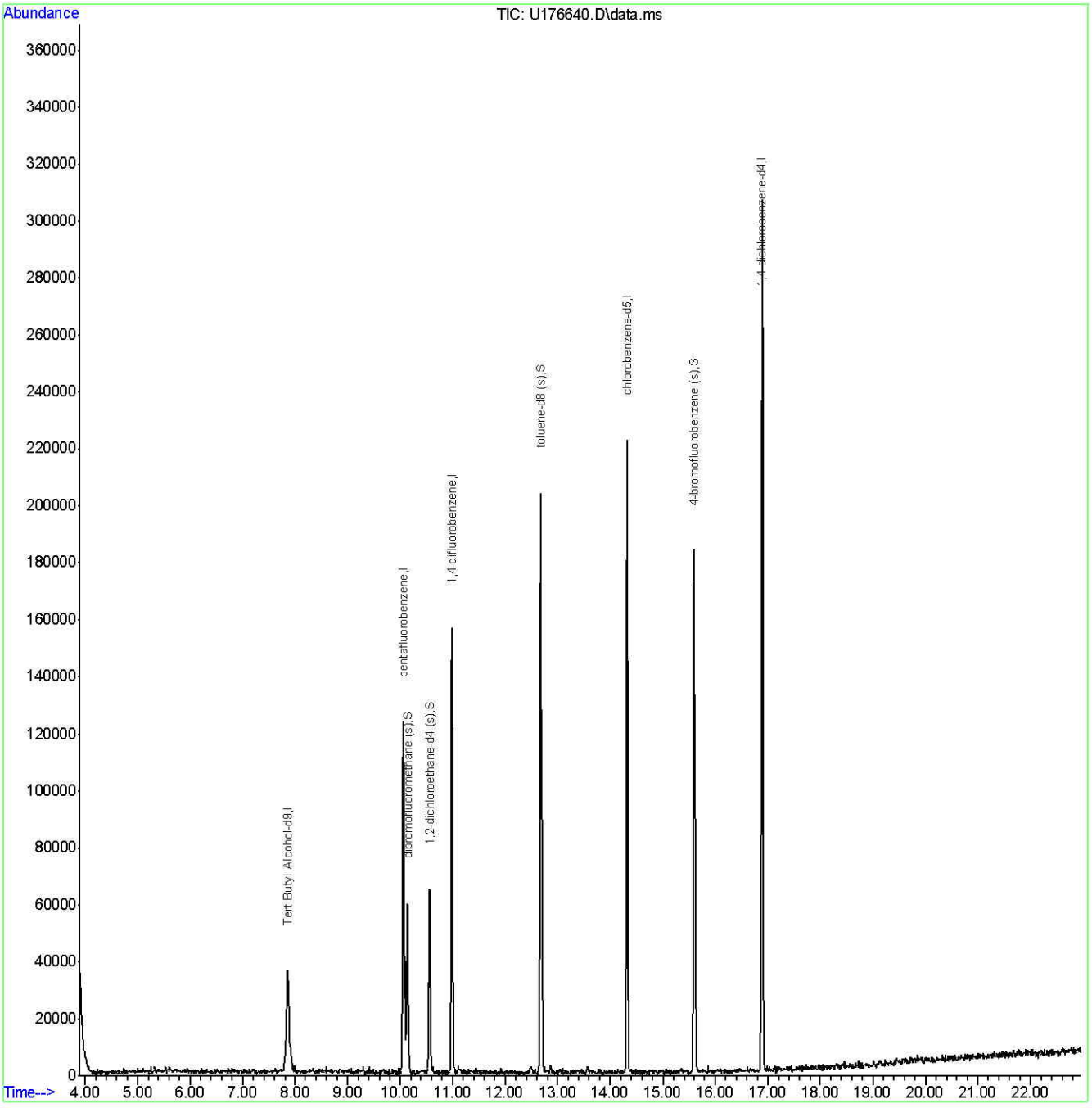
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : U176640.D
Acq On : 7 Oct 2013 11:15 am
Operator : natet
Sample : mb1
Misc : ms55705,vu8162,5.0,,,,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 08 12:04:43 2013
Quant Method : C:\MSDCHEM\1\METHODS\MU8071.M
Quant Title : SW-846 8260B, DB624 60m x 250um x 1.40um
QLast Update : Wed Sep 25 09:57:09 2013
Response via : Initial Calibration



New Jersey ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP69436-MB1	WW120656.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293

The QC reported here applies to the following samples: **Method:** SW846-8011

JB48380-1, JB48380-2, JB48380-3, JB48380-4

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries		Limits
3017-95-6	2-Bromo-1-chloropropane	91%	38-167%
3017-95-6	2-Bromo-1-chloropropane	94%	38-167%

Blank Spike Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP69436-BS1	WW120657.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293

The QC reported here applies to the following samples: **Method:** SW846-8011

JB48380-1, JB48380-2, JB48380-3, JB48380-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.5	0.57	114	54-162

CAS No.	Surrogate Recoveries	BSP	Limits
3017-95-6	2-Bromo-1-chloropropane	66%	38-167%
3017-95-6	2-Bromo-1-chloropropane	67%	38-167%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP69436-MS	WW120658.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293
OP69436-MSD	WW120659.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293
JB48407-1	WW120660.D	1	10/03/13	VDT	10/01/13	OP69436	GWW4293

The QC reported here applies to the following samples: **Method:** SW846-8011

JB48380-1, JB48380-2, JB48380-3, JB48380-4

CAS No.	Compound	JB48407-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		0.875	1.1	126	1.1	126	0	55-163/29

CAS No.	Surrogate Recoveries	MS	MSD	JB48407-1	Limits
3017-95-6	2-Bromo-1-chloropropane	72%	68%	91%	38-167%
3017-95-6	2-Bromo-1-chloropropane	79%	75%	96%	38-167%

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Method: SW846-8011 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JB48380-1	WW120680.D	95.0	145.0
JB48380-2	WW120681.D	94.0	95.0
JB48380-3	WW120682.D	88.0	140.0
JB48380-4	WW120683.D	92.0	130.0
OP69436-BS1	WW120657.D	66.0	67.0
OP69436-MB1	WW120656.D	91.0	94.0
OP69436-MS	WW120658.D	72.0	79.0
OP69436-MSD	WW120659.D	68.0	75.0

Surrogate Compounds	Recovery Limits
S1 = 2-Bromo-1-chloropropane	38-167%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Check Std:	GWW4293-CC4292	**Injection Date:**	10/03/13
Lab File ID:	WW120654.D	**Injection Time:**	09:51
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	2.75	3.05

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP69436-MB1	WW120656.D	10/03/13	10:30	2.76	3.05
OP69436-BS1	WW120657.D	10/03/13	10:48	2.76	3.05
OP69436-MS	WW120658.D	10/03/13	11:07	2.76	3.05
OP69436-MSD	WW120659.D	10/03/13	11:25	2.76	3.05
JB48407-1	WW120660.D	10/03/13	11:43	2.76	3.05
ZZZZZZ	WW120661.D	10/03/13	12:01	2.76	3.05
ZZZZZZ	WW120662.D	10/03/13	12:19	2.76	3.05
ZZZZZZ	WW120663.D	10/03/13	12:37	2.76	3.05

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Check Std:	GWW4293-CC4292	**Injection Date:**	10/03/13
Lab File ID:	WW120674.D	**Injection Time:**	15:57
Instrument ID:	GCWW	**Method:**	SW846-8011

	S1 [a] RT	S1 [b] RT
Check Std	2.76	3.04

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
ZZZZZZ	WW120676.D	10/03/13	16:34	2.76	3.04
ZZZZZZ	WW120677.D	10/03/13	16:52	2.76	3.04
ZZZZZZ	WW120678.D	10/03/13	17:10	2.75	3.04
ZZZZZZ	WW120679.D	10/03/13	17:28	2.75	3.04
JB48380-1	WW120680.D	10/03/13	17:47	2.75	3.04
JB48380-2	WW120681.D	10/03/13	18:05	2.75	3.04
JB48380-3	WW120682.D	10/03/13	18:23	2.75	3.04
JB48380-4	WW120683.D	10/03/13	18:41	2.75	3.04

Surrogate Compounds

S1 = 2-Bromo-1-chloropropane

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: GWW4292-ICC4292
Lab FileID: WW120648.D

Response Factor Report HP G1530A

Method : C:\MSDCHEM\1\METHODS\504M4292.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration

Calibration Files
2 =WW120647.D 1 =WW120648.D 0.5 =WW120649.D 0.2 =WW120650.D
0.1 =WW120651.D 0.02 =WW120652.D

	Compound	2	1	0.5	0.2	0.1	0.02	Avg		%RSD
1) S	2-Bromo-1-Chloropro	8.542	8.399	9.060	9.093	8.761		8.771	E5	3.50
2)	1,2-Dibromoethane	6.323	6.221	6.303	6.525	6.270	7.071	6.452	E6	4.97
3)	1,2,3-Trichloroprop	6.443	6.641	7.652	5.425	6.360		6.504	E5	12.22
4)	1,2-Dibromo-3-Chlor	1.238	1.187	1.184	1.090	1.175	1.143	1.169	E7	4.23

Signal #2

1) S	2-Bromo-1-Chloropro	2.190	2.271	2.449	2.474	2.267		2.330	E5	5.33
2)	1,2-Dibromoethane	1.693	1.679	1.768	1.722	1.672	1.445	1.663	E6	6.77
3)	1,2,3-Trichloroprop	1.911	2.068	2.440	2.479	3.180		2.416	E5	20.33
4)	1,2-Dibromo-3-Chlor	3.124	2.988	2.975	2.883	3.114	2.958	3.007	E6	3.13

(#) = Out of Range

504M4292.M Thu Oct 03 11:39:21 2013

8.6.1

8

Initial Calibration Verification

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: GWW4292-ICV4292
Lab FileID: WW120653.D

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\WW4292\WW120653.D\ECD1A.CH Vial: 8
Signal #2 : C:\msdchem\1\DATA\WW4292\WW120653.D\ECD2B.CH
Acq On : 02 Oct 2013 7:28 pm Operator: vinced
Sample : icv4292-1.0 Inst : HP G1530A
Misc : OP69419,Gww4292,35,,,2,1 Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e

Method : C:\MSDCHEM\1\METHODS\504M4292.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Thu Oct 03 09:09:42 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	877.102	908.479	E3	-3.6	108	0.00	3.02- 3.08
2	1,2-Dibromoethane	6.452	5.544	E6	14.1	89	0.00	3.23- 3.29
3	1,2,3-Trichloropropane	650.414	497.254	E3	23.5#	75	0.00	4.86- 4.92
4	1,2-Dibromo-3-Chloropr	11.694	11.019	E6	5.8	93	0.00	6.46- 6.52

***** Signal #2 *****

1 S	2-Bromo-1-Chloropropan	233.044	244.627	E3	-5.0	108	0.00	2.73- 2.79
2	1,2-Dibromoethane	1.663	1.514	E6	9.0	90	0.00	3.16- 3.22
3	1,2,3-Trichloropropane	241.551	171.236	E3	29.1#	83	0.00	4.71- 4.77
4	1,2-Dibromo-3-Chloropr	3.007	2.770	E6	7.9	93	0.00	6.51- 6.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
WW120648.D 504M4292.M Thu Oct 03 11:39:03 2013

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: GWW4293-CC4292
Lab FileID: WW120654.D

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\WW4293\WW120654.D\ECD1A.CH Vial: 3
Signal #2 : C:\msdchem\1\DATA\WW4293\WW120654.D\ECD2B.CH
Acq On : 03 Oct 2013 9:51 am Operator: vinced
Sample : cc4292-1.0 Inst : HP G1530A
Misc : OP69419,Gww4293,35,,,2,1 Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e

Method : C:\MSDCHEM\1\METHODS\504M4292.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Thu Oct 03 09:09:42 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	877.102	922.571	E3	-5.2	110	0.00	3.02- 3.08
2	1,2-Dibromoethane	6.452	6.559	E6	-1.7	105	0.00	3.24- 3.30
3	1,2,3-Trichloropropane	650.414	573.230	E3	11.9	86	0.00	4.87- 4.93
4	1,2-Dibromo-3-Chloropr	11.694	12.259	E6	-4.8	103	0.00	6.46- 6.52

***** Signal #2 *****

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	233.044	230.538	E3	1.1	101	0.00	2.72- 2.78
2	1,2-Dibromoethane	1.663	1.722	E6	-3.5	103	0.00	3.16- 3.22
3	1,2,3-Trichloropropane	241.551	218.850	E3	9.4	106	0.00	4.71- 4.77
4	1,2-Dibromo-3-Chloropr	3.007	2.872	E6	4.5	96	0.00	6.51- 6.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
WW120648.D 504M4292.M Mon Oct 07 13:02:22 2013

8.6.3

8

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: GWW4293-CC4292
Lab FileID: WW120664.D

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\WW4293\WW120664.D\ECD1A.CH Vial: 2
Signal #2 : C:\msdchem\1\DATA\WW4293\WW120664.D\ECD2B.CH
Acq On : 03 Oct 2013 12:55 pm Operator: vinced
Sample : cc4292-0.5 Inst : HP G1530A
Misc : OP69436,Gww4293,35,,,2,1 Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e

Method : C:\MSDCHEM\1\METHODS\504M4292.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Thu Oct 03 09:09:42 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	877.102	945.387	E3	-7.8	104	0.00	3.01- 3.07
2	1,2-Dibromoethane	6.452	6.546	E6	-1.5	104	0.00	3.23- 3.29
3	1,2,3-Trichloropropane	650.414	759.989	E3	-16.8#	99	0.00	4.86- 4.92
4	1,2-Dibromo-3-Chloropr	11.694	11.723	E6	-0.2	99	0.00	6.46- 6.52
*****	Signal #2 *****							
1 S	2-Bromo-1-Chloropropan	233.044	245.413	E3	-5.3	100	0.00	2.73- 2.79
2	1,2-Dibromoethane	1.663	1.804	E6	-8.5	102	0.00	3.16- 3.22
3	1,2,3-Trichloropropane	241.551	224.474	E3	7.1	92	0.00	4.71- 4.77
4	1,2-Dibromo-3-Chloropr	3.007	2.921	E6	2.9	98	0.00	6.51- 6.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
WW120649.D 504M4292.M Mon Oct 07 13:02:42 2013

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: GWW4293-CC4292
Lab FileID: WW120674.D

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\WW4293\WW120674.D\ECD1A.CH Vial: 3
Signal #2 : C:\msdchem\1\DATA\WW4293\WW120674.D\ECD2B.CH
Acq On : 03 Oct 2013 3:57 pm Operator: vinced
Sample : cc4292-1.0 Inst : HP G1530A
Misc : OP69436,Gww4293,35,,,2,1 Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e

Method : C:\MSDCHEM\1\METHODS\504M4292.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Thu Oct 03 09:09:42 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	877.102	881.980	E3	-0.6	105	0.00	3.01- 3.07
2	1,2-Dibromoethane	6.452	6.385	E6	1.0	103	0.00	3.23- 3.29
3	1,2,3-Trichloropropane	650.414	577.749	E3	11.2	87	0.00	4.86- 4.92
4	1,2-Dibromo-3-Chloropr	11.694	11.923	E6	-2.0	100	0.00	6.46- 6.52

***** Signal #2 *****

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	233.044	226.650	E3	2.7	100	0.00	2.73- 2.79
2	1,2-Dibromoethane	1.663	1.702	E6	-2.3	101	0.00	3.16- 3.22
3	1,2,3-Trichloropropane	241.551	188.706	E3	21.9#	91	0.00	4.71- 4.77
4	1,2-Dibromo-3-Chloropr	3.007	2.936	E6	2.4	98	0.00	6.51- 6.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
WW120648.D 504M4292.M Mon Oct 07 13:02:24 2013

8.6.5

8

Continuing Calibration Summary

Job Number: JB48380
Account: KEMPAE KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

Sample: GWW4293-CC4292
Lab FileID: WW120684.D

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\WW4293\WW120684.D\ECD1A.CH Vial: 2
Signal #2 : C:\msdchem\1\DATA\WW4293\WW120684.D\ECD2B.CH
Acq On : 03 Oct 2013 7:00 pm Operator: vinced
Sample : cc4292-0.5 Inst : HP G1530A
Misc : OP69436,Gww4293,35,,,2,1 Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e

Method : C:\MSDCHEM\1\METHODS\504M4292.M (Chemstation Integrator)
Title : GC/ECD- EDB
Last Update : Thu Oct 03 09:09:42 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	877.102	904.837	E3	-3.2	100	-0.01	3.00- 3.06
2	1,2-Dibromoethane	6.452	6.428	E6	0.4	102	0.00	3.22- 3.28
3	1,2,3-Trichloropropane	650.414	601.961	E3	7.4	79	0.00	4.86- 4.92
4	1,2-Dibromo-3-Chloropr	11.694	11.181	E6	4.4	94	0.00	6.45- 6.51

***** Signal #2 *****

	Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)	RT Window
1 S	2-Bromo-1-Chloropropan	233.044	244.345	E3	-4.8	100	-0.01	2.72- 2.78
2	1,2-Dibromoethane	1.663	1.672	E6	-0.5	95	0.00	3.15- 3.21
3	1,2,3-Trichloropropane	241.551	210.871	E3	12.7	86	0.00	4.71- 4.77
4	1,2-Dibromo-3-Chloropr	3.007	2.913	E6	3.1	98	0.00	6.51- 6.57

(#) = Out of Range SPCC's out = 0 CCC's out = 0
WW120649.D 504M4292.M Mon Oct 07 13:02:45 2013

8.6.6

8

New Jersey ACCUTEST LABORATORIES

GC Volatiles

Raw Data

Manual Integrations APPROVED
(compounds with "m" flag)
Wen Wen Chi
10/07/13 21:34

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120680.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 5:47 pm
Operator : vinced
Sample : jb48380-1
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:56:35 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	3.042	2.752	12755457	2207699	14.543m	9.473m#
Spiked Amount 10.000			Recovery	=	145.43%	94.73%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

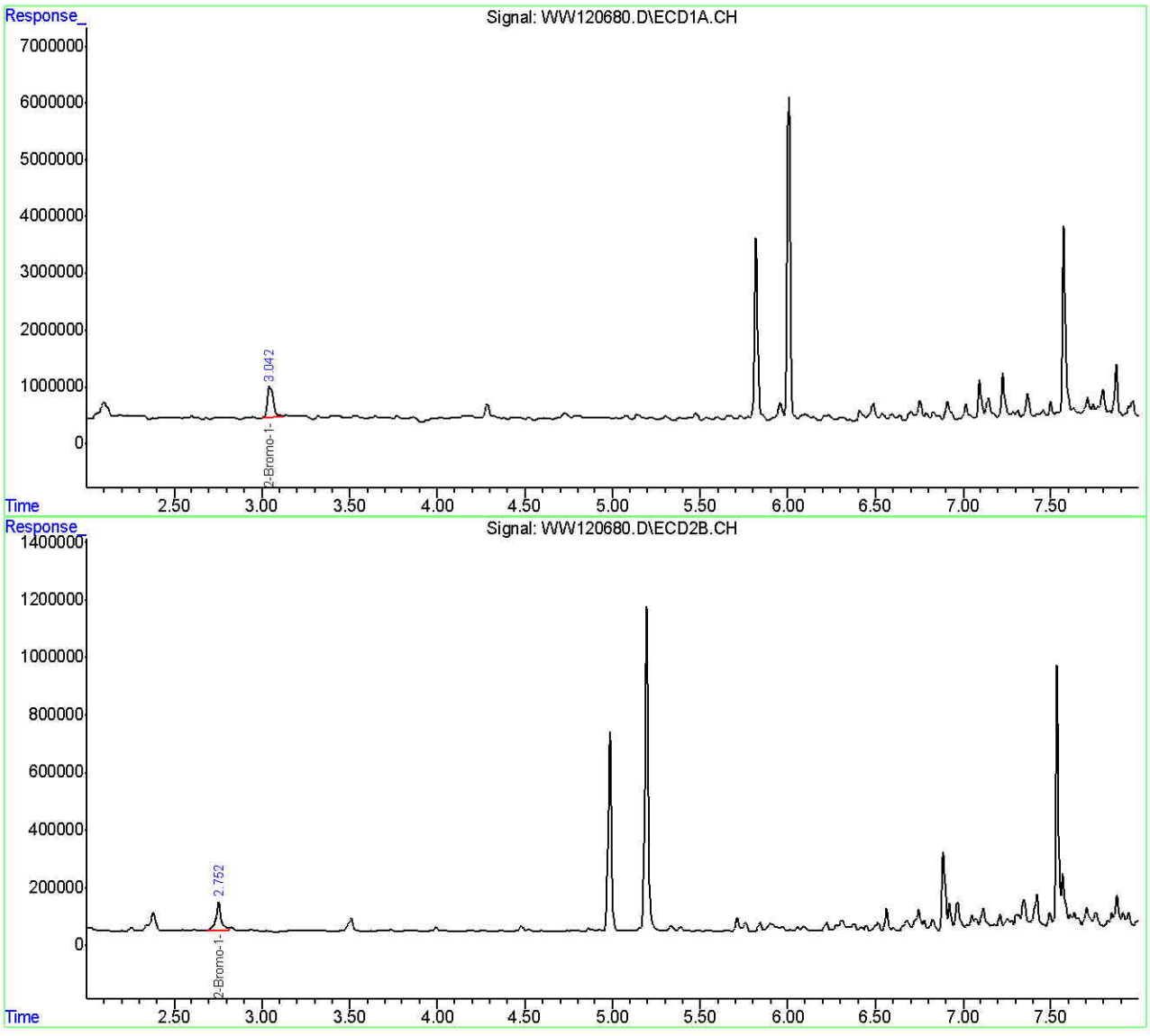
9.1.1
6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120680.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 5:47 pm
Operator : vinced
Sample : jb48380-1
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:56:35 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED
(compounds with "m" flag)
Wen Wen Chi
10/07/13 21:34

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120681.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 6:05 pm
Operator : vinced
Sample : jb48380-2
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 25 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:57:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	3.038	2.752	8323889	2198285	9.490m	9.433m
Spiked Amount 10.000			Recovery	=	94.90%	94.33%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

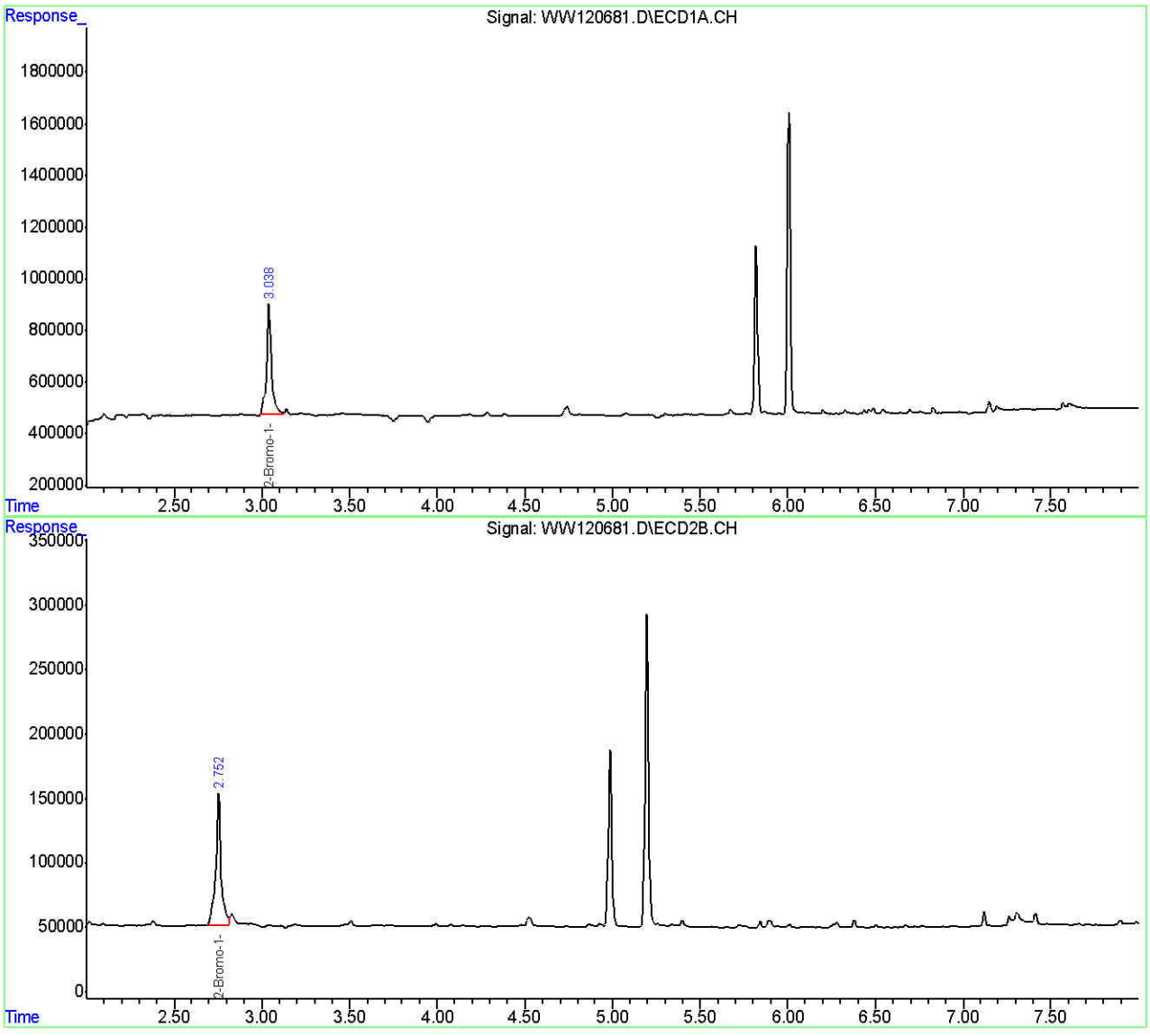
9.1.2
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120681.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 6:05 pm
Operator : vinced
Sample : jb48380-2
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 25 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:57:12 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED
(compounds with "m" flag)
Wen Wen Chi
10/07/13 21:34

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120682.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 6:23 pm
Operator : vinced
Sample : jb48380-3
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 26 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:57:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	3.039	2.751	12301264	2046197	14.025m	8.780m#
Spiked Amount 10.000			Recovery	=	140.25%	87.80%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

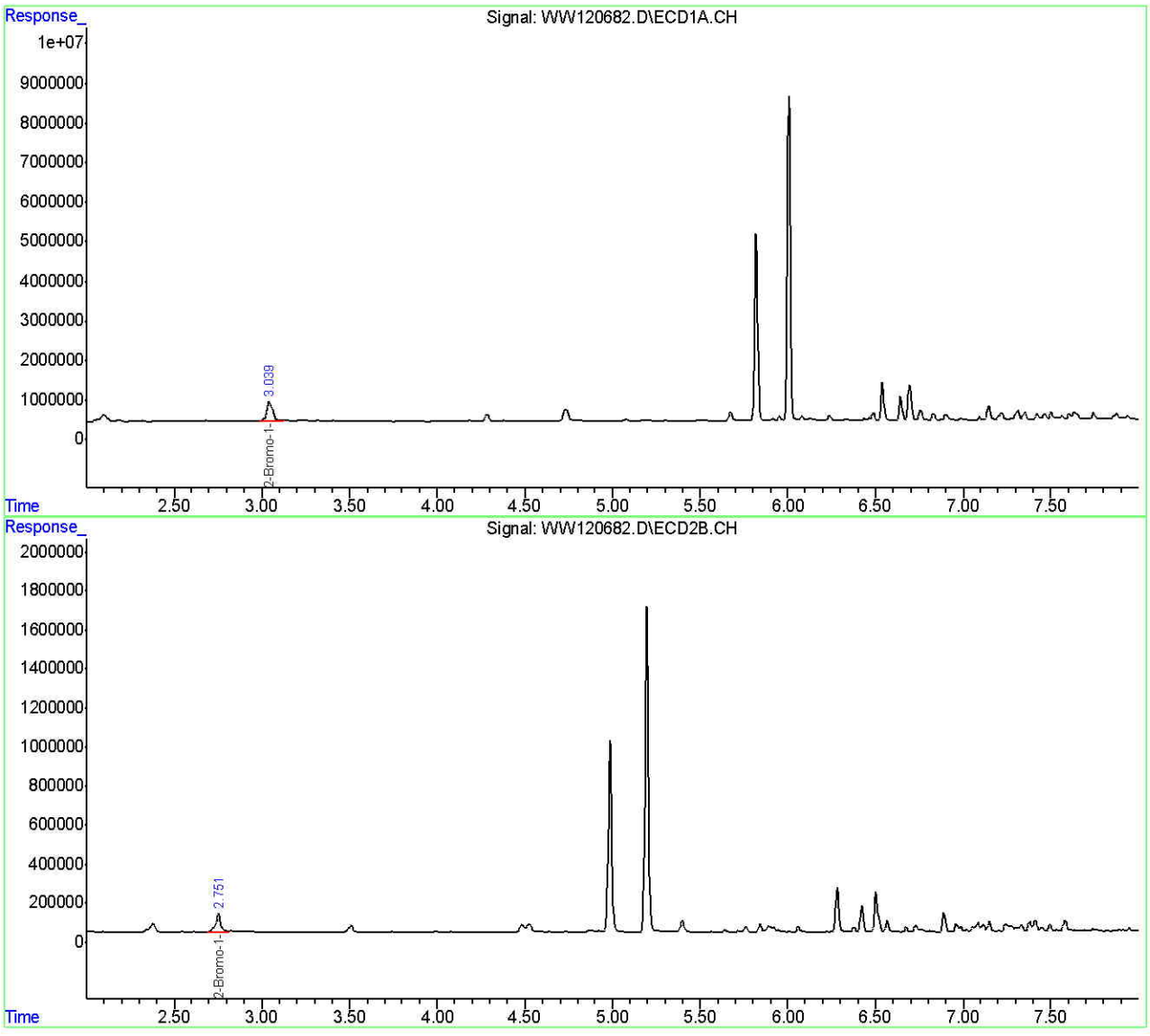
9.1.3
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120682.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 6:23 pm
Operator : vinced
Sample : jb48380-3
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 26 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:57:49 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED
(compounds with "m" flag)
Wen Wen Chi
10/07/13 21:34

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120683.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 6:41 pm
Operator : vinced
Sample : jb48380-4
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:58:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	3.036	2.749	11422139	2138523	13.023m	9.176m#
Spiked Amount 10.000			Recovery	=	130.23%	91.76%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

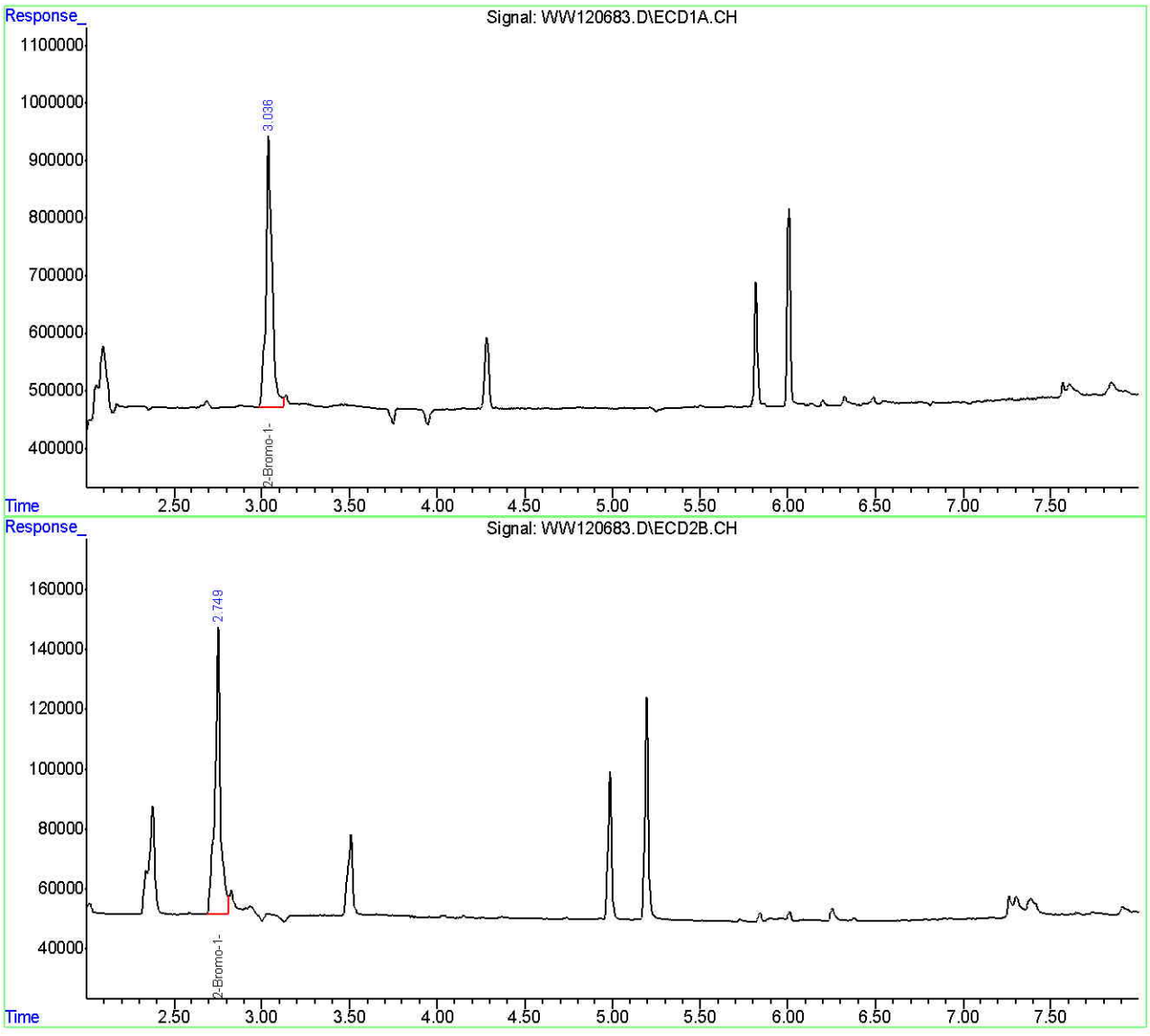
9.1.4
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120683.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 6:41 pm
Operator : vinced
Sample : jb48380-4
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:58:41 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED
(compounds with "m" flag)
Cheng-Hwan Ao
10/08/13 16:58

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120656.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 10:30 am
Operator : vinced
Sample : op69436-mb1
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:34:10 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) S 2-Bromo-1...	3.047	2.759	8239597	2124007	9.394m	9.114m
Spiked Amount 10.000			Recovery	=	93.94%	91.14%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

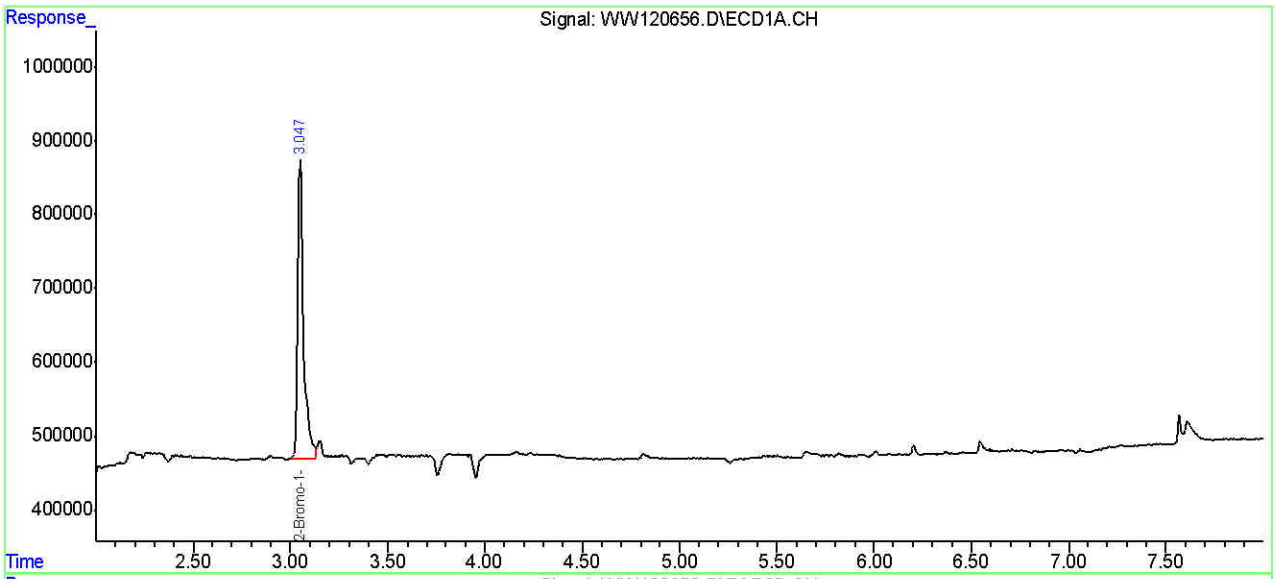
9.2.1
6

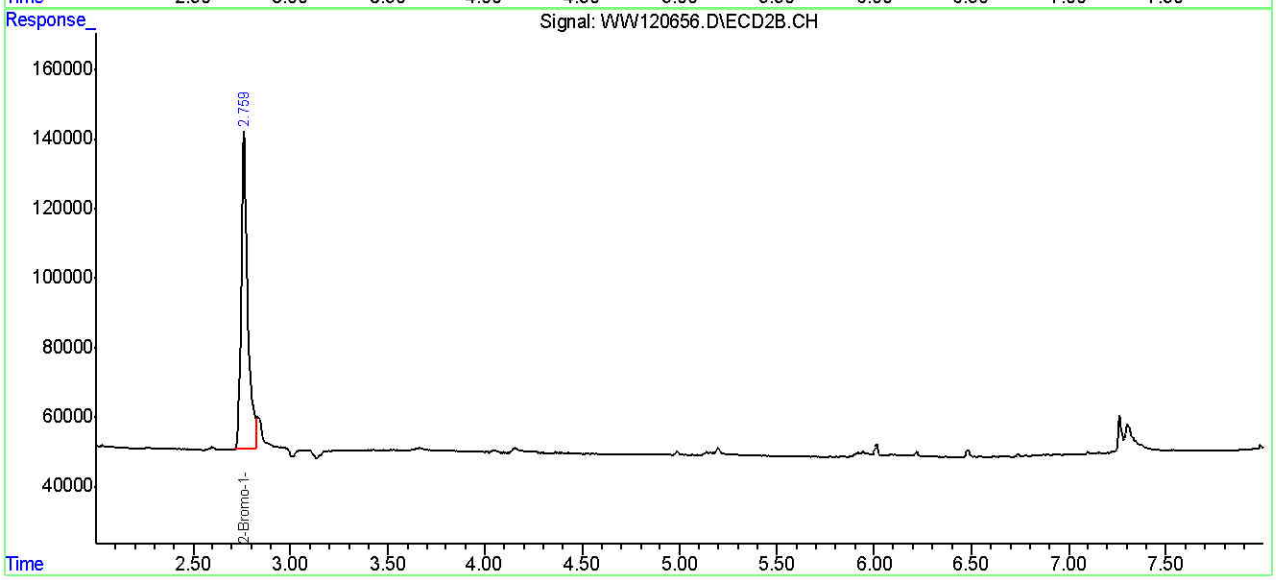
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\WW4293\
Data File : WW120656.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 03 Oct 2013 10:30 am
Operator : vinced
Sample : op69436-mb1
Misc : OP69436,Gww4293,35,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Oct 07 12:34:10 2013
Quant Method : C:\MSDCHEM\1\METHODS\504M4292.M
Quant Title : GC/ECD- EDB
QLast Update : Thu Oct 03 09:09:42 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um





New Jersey ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:36	MA32391-STD1	1		STDA
10:43	MA32391-STD2	1		STDB
10:49	ZZZZZZ	1		
10:55	ZZZZZZ	1		
11:04	MA32391-ICV1	1		
11:14	MA32391-ICB1	1		
11:20	MA32391-ICCV1	1		
11:34	MA32391-CCB1	1		
11:40	MA32391-CRID1	1		
11:46	MA32391-CRI1	1		
11:53	ZZZZZZ	5		
11:59	MA32391-CRIA1	1		
12:05	MA32391-ICSA1	1		
12:12	MA32391-ICSAB1	1		
12:22	MA32391-ICSA2	1		
12:29	MA32391-ICSAB2	1		
12:35	ZZZZZZ	1		
12:41	ZZZZZZ	1		
12:48	MA32391-CCV1	1		
12:54	MA32391-CCB2	1		
13:00	ZZZZZZ	1		
13:07	ZZZZZZ	1		
13:13	ZZZZZZ	1		
13:19	ZZZZZZ	2		
13:26	ZZZZZZ	1		
13:32	ZZZZZZ	1		
13:38	ZZZZZZ	2		
13:45	ZZZZZZ	1		
13:51	ZZZZZZ	1		
13:57	MA32391-CCV2	1		
14:03	MA32391-CCB3	1		
14:10	MP75022-S1	1		
14:16	MP75022-S1	10		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:22	MP75022-S2	1		
14:28	MP75022-S2	10		Rerun for Zn
14:35	JB48180-6	1		(sample used for QC only; not part of login JB48380)
14:41	MP75022-SD1	5		
14:47	JB48180-6	10		(sample used for QC only; not part of login JB48380)
14:54	MP75022-SD1	50		
15:00	ZZZZZZ	10		
15:07	MA32391-CCV3	1		
15:13	MA32391-CCV4	1		
15:19	MA32391-CCB4	1		
15:25	ZZZZZZ	10		
15:32	ZZZZZZ	1		
15:38	ZZZZZZ	10		
15:44	ZZZZZZ	1		
15:51	ZZZZZZ	10		
15:57	ZZZZZZ	1		
16:03	ZZZZZZ	10		
16:10	ZZZZZZ	1		
16:16	ZZZZZZ	10		
16:22	MA32391-CCV5	1		
16:28	MA32391-CCB5	1		
16:35	ZZZZZZ	1		
16:41	ZZZZZZ	10		
16:47	ZZZZZZ	10		
16:54	ZZZZZZ	10		
17:00	ZZZZZZ	1		
17:06	ZZZZZZ	10		
17:13	ZZZZZZ	1		
17:19	ZZZZZZ	10		
17:25	ZZZZZZ	1		
17:32	MA32391-CCV6	1		
17:38	MA32391-CCB6	1		
17:44	ZZZZZZ	10		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:51	ZZZZZZ	1		
17:57	ZZZZZZ	10		
18:03	ZZZZZZ	2		
18:10	ZZZZZZ	10		
18:16	ZZZZZZ	1		
18:22	ZZZZZZ	10		
18:29	MP75055-MB1	1		
18:35	MP75055-MB2	1		
18:41	MA32391-CCV7	1		
18:47	MA32391-CCB7	1		
18:54	MP75055-LC1	1		
19:00	MP75055-LC2	1		
19:06	MP75055-S1	1		
19:12	MP75055-S2	1		
19:18	JB48429-5	1		(sample used for QC only; not part of login JB48380)
19:24	MP75055-SD1	5		
19:30	ZZZZZZ	1		
19:37	ZZZZZZ	1		
19:43	ZZZZZZ	1		
19:49	MA32391-CCV8	1		
19:55	MA32391-CCB8	1		
20:02	ZZZZZZ	1		
20:08	MA32391-CRI2	1		
20:14	MA32391-CRID2	1		
20:21	MA32391-CRIA2	1		
20:27	MA32391-ICSA3	1		
20:33	MA32391-ICSAB3	1		
20:40	ZZZZZZ	1		
20:46	ZZZZZZ	1		
20:52	ZZZZZZ	1		
20:59	MA32391-CCV9	1		
21:05	MA32391-CCB9	1		
21:11	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:17	ZZZZZZ	1		
21:23	ZZZZZZ	1		
21:30	ZZZZZZ	1		
21:36	ZZZZZZ	1		
21:42	ZZZZZZ	1		
21:49	ZZZZZZ	1		
21:55	JB48380-1F	1		
22:01	JB48380-2F	1		
22:08	MA32391-CCV10	1		
22:14	MA32391-CCB10	1		
22:20	JB48380-3F	1		
22:26	JB48380-4F	1		
---------->	Last reportable sample/prep for job JB48380			
22:33	ZZZZZZ	1		
22:39	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:51	ZZZZZZ	1		
22:58	ZZZZZZ	1		
23:04	MP75251-MB1	1		
23:10	MP75251-LC1	1		
23:16	MA32391-CCV11	1		
23:23	MA32391-CCB11	1		
23:29	ZZZZZZ	1		
23:35	ZZZZZZ	1		
23:41	ZZZZZZ	1		
23:48	ZZZZZZ	1		
23:54	ZZZZZZ	1		
00:00	ZZZZZZ	1		
00:07	ZZZZZZ	1		
00:13	MP75144-MB1	1		
00:19	MP75144-B1	1		
00:25	MA32391-CCV12	1		
00:31	MA32391-CCB12	1		
00:38	MP75144-S1	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:44	MP75144-S2	1		
00:51	JB48486-1	1		(sample used for QC only; not part of login JB48380)
00:57	MP75144-SD1	5		
01:03	ZZZZZZ	1		
01:09	ZZZZZZ	1		
01:16	ZZZZZZ	1		
01:22	ZZZZZZ	1		
01:28	ZZZZZZ	1		
01:34	MA32391-CCV13	1		
01:40	MA32391-CCB13	1		
01:47	ZZZZZZ	1		
01:53	ZZZZZZ	1		
01:59	ZZZZZZ	1		
02:05	ZZZZZZ	1		
02:12	ZZZZZZ	1		
02:18	ZZZZZZ	1		
02:24	ZZZZZZ	1		
02:30	ZZZZZZ	1		
02:36	ZZZZZZ	1		
02:43	MA32391-CCV14	1		
02:49	MA32391-CCB14	1		
02:55	ZZZZZZ	1		
03:01	ZZZZZZ	1		
03:07	ZZZZZZ	1		
03:13	ZZZZZZ	1		
03:20	MP75145-MB1	1		
03:26	MP75145-MB2	1		Bad rep
03:32	MP75145-LC1	1		
03:38	MP75145-LC2	1		
03:44	MP75145-S1	1		
03:51	MA32391-CCV15	1		
03:57	MA32391-CCB15	1		
04:03	ZZZZZZ	5		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
04:10	MA32391-CRI3	1		
04:16	MA32391-CRID3	1		
04:22	MA32391-CRIA3	1		
04:28	MA32391-ICSA4	1		
04:35	MA32391-ICSAB4	1		
04:41	ZZZZZZ	1		
04:48	ZZZZZZ	1		
04:54	MA32391-CCV16	1		
05:00	MA32391-CCB16	1		
---------->	Last reportable CCB for job JB48380			
05:06	MP75145-S2	1		
05:13	JB48499-6	1		(sample used for QC only; not part of login JB48380)
05:19	MP75145-SD1	5		
05:25	ZZZZZZ	1		
05:31	ZZZZZZ	1		
05:38	ZZZZZZ	1		
05:44	ZZZZZZ	1		
05:50	ZZZZZZ	1		
05:56	ZZZZZZ	1		
06:02	MA32391-CCV17	1		
06:09	MA32391-CCB17	1		
06:15	MA32391-CRID4	1		
06:21	MA32391-CRI4	1		
06:27	ZZZZZZ	1		
06:34	MA32391-CRIA4	1		
06:40	MA32391-ICSA5	1		
06:47	MA32391-ICSAB5	1		
06:53	MA32391-CCV18	1		
06:59	MA32391-CCB18	1		
07:05	MA32391-CRID5	1		
07:12	MA32391-CCV19	1		
07:18	MA32391-CCB19	1		

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:36	MA32391-STD1	1382 R	100130 R	26949 R	4554 R
10:43	MA32391-STD2	1269	90646	25735	4077
10:49	ZZZZZZ	1307	94250	26006	4183
10:55	ZZZZZZ	1364	99620	26536	4519
11:04	MA32391-ICV1	1299	92870	25904	4165
11:14	MA32391-ICB1	1367	98361	26240	4517
11:20	MA32391-ICCV1	1302	92082	25837	4174
11:34	MA32391-CCB1	1360	97675	26298	4502
11:40	MA32391-CRID1	1368	99229	26099	4528
11:46	MA32391-CRI1	1347	95823	26120	4420
11:53	ZZZZZZ	1354	95747	26397	4480
11:59	MA32391-CRIA1	1348	97845	25715	4471
12:05	MA32391-ICSA1	No results reported for the elements associated with this internal standard.			
12:12	MA32391-ICSAB1	No results reported for the elements associated with this internal standard.			
12:22	MA32391-ICSA2	1183	82721	25152	3778
12:29	MA32391-ICSAB2	1177	85382	25243	3808
12:35	ZZZZZZ	1315	94386	26019	4542
12:41	ZZZZZZ	1329	90201	27118	4097
12:48	MA32391-CCV1	1283	93617	25841	4161
12:54	MA32391-CCB2	1344	95423	26359	4455
13:00	ZZZZZZ	1323	98325	26585	4455
13:07	ZZZZZZ	1254	91213	25734	4116
13:13	ZZZZZZ	1323	94624	26410	4410
13:19	ZZZZZZ	1111	80030	24239	3463
13:26	ZZZZZZ	1228	89012	25434	3972
13:32	ZZZZZZ	1212	86130	25585	3795
13:38	ZZZZZZ	1096	77718	23888	3424
13:45	ZZZZZZ	1238	87693	25570	3922
13:51	ZZZZZZ	1306	96530	26346	4390
13:57	MA32391-CCV2	1261	92723	25201	4114
14:03	MA32391-CCB3	1307	94512	25953	4379
14:10	MP75022-S1	816 !	60750 !	20788	2453 !
14:16	MP75022-S1	1150	81858	24479	3586

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:22	MP75022-S2	816 !	60849 !	20743	2451 !
14:28	MP75022-S2	1154	82049	24585	3575
14:35	JB48180-6	814 !	60483 !	20591	2456 !
14:41	MP75022-SD1	1077	76217	23682	3297
14:47	JB48180-6	1156	82432	24347	3589
14:54	MP75022-SD1	1249	90317	24967	4042
15:00	ZZZZZZ	1193	83441	25064	3769
15:07	MA32391-CCV3	1259	92039	24816	4103
15:13	MA32391-CCV4	1249	91199	25021	4065
15:19	MA32391-CCB4	1304	96525	25898	4354
15:25	ZZZZZZ	1178	84551	24636	3718
15:32	ZZZZZZ	832 !	60971 !	20810	2522 !
15:38	ZZZZZZ	1165	83563	24267	3647
15:44	ZZZZZZ	841 !	60512 !	20588	2529 !
15:51	ZZZZZZ	1160	80981	23988	3595
15:57	ZZZZZZ	1145	82398	24059	3654
16:03	ZZZZZZ	1250	91174	25608	4150
16:10	ZZZZZZ	1071	77455	23276	3364
16:16	ZZZZZZ	1225	88902	25023	4009
16:22	MA32391-CCV5	1255	90278	25196	4083
16:28	MA32391-CCB5	1302	91959	25694	4348
16:35	ZZZZZZ	1119	80989	23272	3528
16:41	ZZZZZZ	1262	89168	25276	4142
16:47	ZZZZZZ	1182	88038	24343	3749
16:54	ZZZZZZ	1172	84187	24816	3693
17:00	ZZZZZZ	827 !	60009 !	20469	2469 !
17:06	ZZZZZZ	1150	81643	24324	3581
17:13	ZZZZZZ	852 !	60928 !	20636	2564 !
17:19	ZZZZZZ	1160	82552	24059	3613
17:25	ZZZZZZ	835 !	62447 !	20464	2509 !
17:32	MA32391-CCV6	1259	90931	24919	4099
17:38	MA32391-CCB6	1299	95629	25114	4353
17:44	ZZZZZZ	1153	81570	24290	3591

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:51	ZZZZZZ	1154	83186	23984	3667
17:57	ZZZZZZ	1279	90036	25582	4214
18:03	ZZZZZZ	1122	82902	24067	3563
18:10	ZZZZZZ	1242	89348	25062	4050
18:16	ZZZZZZ	1149	83790	24089	3627
18:22	ZZZZZZ	1279	91137	25249	4169
18:29	MP75055-MB1	1304	95390	25928	4378
18:35	MP75055-MB2	1307	97803	26055	4424
18:41	MA32391-CCV7	1276	91855	25106	4131
18:47	MA32391-CCB7	1316	95396	25862	4389
18:54	MP75055-LC1	1301	94552	25924	4310
19:00	MP75055-LC2	1289	92988	25855	4305
19:06	MP75055-S1	1252	93245	25831	4099
19:12	MP75055-S2	1249	90336	25658	4060
19:18	JB48429-5	1263	92498	25235	4200
19:24	MP75055-SD1	1315	95629	26069	4368
19:30	ZZZZZZ	1247	90520	24798	4024
19:37	ZZZZZZ	1237	89052	25623	4029
19:43	ZZZZZZ	1132	81961	24424	3487
19:49	MA32391-CCV8	1276	90666	25581	4125
19:55	MA32391-CCB8	1322	92960	25623	4375
20:02	ZZZZZZ	1311	93849	25775	4350
20:08	MA32391-CRI2	1295	92775	24830	4294
20:14	MA32391-CRID2	1315	91349	25808	4353
20:21	MA32391-CRIA2	1304	95266	25687	4375
20:27	MA32391-ICSA3	1153	82222	24780	3725
20:33	MA32391-ICSAB3	1148	82303	25031	3767
20:40	ZZZZZZ	1219	88828	24984	3969
20:46	ZZZZZZ	1209	87429	24761	3894
20:52	ZZZZZZ	1324	95998	25688	4443
20:59	MA32391-CCV9	1269	90480	25517	4113
21:05	MA32391-CCB9	1318	97173	25822	4409
21:11	ZZZZZZ	1254	89207	25392	4072

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:17	ZZZZZZ	1245	90764	25417	4062
21:23	ZZZZZZ	1289	93563	25813	4278
21:30	ZZZZZZ	1259	89763	25486	4069
21:36	ZZZZZZ	1285	92724	25825	4254
21:42	ZZZZZZ	1288	93090	25707	4269
21:49	ZZZZZZ	1321	95964	25981	4407
21:55	JB48380-1F	1206	86665	25157	3867
22:01	JB48380-2F	1223	88581	25137	3952
22:08	MA32391-CCV10	1275	91257	25482	4122
22:14	MA32391-CCB10	1332	95445	25734	4417
22:20	JB48380-3F	1249	90343	25360	4027
22:26	JB48380-4F	1290	95248	25915	4315
22:33	ZZZZZZ	1228	89658	25384	3953
22:39	ZZZZZZ	1233	89450	25331	3959
22:45	ZZZZZZ	1255	90665	25504	4072
22:51	ZZZZZZ	1324	96586	26062	4423
22:58	ZZZZZZ	1333	95523	25975	4432
23:04	MP75251-MB1	1323	95358	25995	4405
23:10	MP75251-LC1	1305	94647	25974	4328
23:16	MA32391-CCV11	1282	90965	26143	4138
23:23	MA32391-CCB11	1333	96450	25834	4428
23:29	ZZZZZZ	1316	93445	26214	4398
23:35	ZZZZZZ	1317	96044	26163	4402
23:41	ZZZZZZ	1329	95826	26083	4408
23:48	ZZZZZZ	1324	95447	25964	4395
23:54	ZZZZZZ	1311	96763	26066	4395
00:00	ZZZZZZ	1324	97530	26193	4418
00:07	ZZZZZZ	1318	97095	26061	4408
00:13	MP75144-MB1	1313	96298	26062	4398
00:19	MP75144-B1	1290	93707	26102	4268
00:25	MA32391-CCV12	1272	90446	25510	4114
00:31	MA32391-CCB12	1313	96692	25776	4384
00:38	MP75144-S1	1299	94874	27186	4208

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
00:44	MP75144-S2	1307	95029	27147	4246
00:51	JB48486-1	1293	96748	26940	4226
00:57	MP75144-SD1	1315	95669	26128	4322
01:03	ZZZZZZ	1332	96771	27017	4303
01:09	ZZZZZZ	1330	97318	27116	4276
01:16	ZZZZZZ	1307	95993	27112	4218
01:22	ZZZZZZ	1326	95683	27059	4250
01:28	ZZZZZZ	1324	96387	26974	4249
01:34	MA32391-CCV13	1263	90952	25563	4118
01:40	MA32391-CCB13	1315	96701	25687	4406
01:47	ZZZZZZ	1330	97146	27231	4258
01:53	ZZZZZZ	1309	95925	27061	4263
01:59	ZZZZZZ	1361	99629	28224	4203
02:05	ZZZZZZ	1380	100780	28744	4148
02:12	ZZZZZZ	1202	88535	25456	3873
02:18	ZZZZZZ	1298	94578	26349	4317
02:24	ZZZZZZ	1297	93966	26156	4322
02:30	ZZZZZZ	1294	94556	26197	4315
02:36	ZZZZZZ	1319	95643	26600	4329
02:43	MA32391-CCV14	1258	91544	25413	4121
02:49	MA32391-CCB14	1318	96188	25919	4418
02:55	ZZZZZZ	1313	95766	25848	4385
03:01	ZZZZZZ	1310	95696	26564	4293
03:07	ZZZZZZ	1304	95106	26229	4320
03:13	ZZZZZZ	1295	94584	26004	4335
03:20	MP75145-MB1	1301	96279	26037	4386
03:26	MP75145-MB2	1305	96068	26027	4405
03:32	MP75145-LC1	1297	95011	25812	4325
03:38	MP75145-LC2	1287	94910	25848	4327
03:44	MP75145-S1	1211	89035	25034	3932
03:51	MA32391-CCV15	1268	91446	25333	4140
03:57	MA32391-CCB15	1314	96432	25883	4398
04:03	ZZZZZZ	1312	96749	25804	4398

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
04:10	MA32391-CRI3	1304	95353	25607	4353
04:16	MA32391-CRID3	1309	96168	25697	4392
04:22	MA32391-CRIA3	1313	96669	25743	4384
04:28	MA32391-ICSA4	1161	84220	24736	3782
04:35	MA32391-ICSAB4	1152	83709	24695	3788
04:41	ZZZZZZ	1316	96036	25724	4409
04:48	ZZZZZZ	1316	96262	25882	4422
04:54	MA32391-CCV16	1261	90694	25409	4121
05:00	MA32391-CCB16	1310	95667	25547	4381
05:06	MP75145-S2	1208	88567	25039	3928
05:13	JB48499-6	1230	89630	25204	4018
05:19	MP75145-SD1	1286	93931	25692	4280
05:25	ZZZZZZ	1239	91413	25442	4071
05:31	ZZZZZZ	1308	96032	25917	4372
05:38	ZZZZZZ	1280	92963	25855	4222
05:44	ZZZZZZ	1225	90309	25161	4004
05:50	ZZZZZZ	1241	91121	25452	4075
05:56	ZZZZZZ	1235	89978	25298	4023
06:02	MA32391-CCV17	1257	91566	25331	4120
06:09	MA32391-CCB17	1314	96249	25624	4400
06:15	MA32391-CRID4	1312	95741	25506	4388
06:21	MA32391-CRI4	1300	95035	25467	4344
06:27	ZZZZZZ	999999 !	999999 !	25765	999999 !
06:34	MA32391-CRIA4	1313	96134	25735	4402
06:40	MA32391-ICSA5	1153	83779	24703	3772
06:47	MA32391-ICSAB5	1155	83537	24678	3786
06:53	MA32391-CCV18	1254	90971	25304	4097
06:59	MA32391-CCB18	1314	96505	25721	4396
07:05	MA32391-CRID5	1313	96070	25727	4394
07:12	MA32391-CCV19	1265	91542	25259	4130
07:18	MA32391-CCB19	1315	96356	25571	4405

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %

INTERNAL STANDARD SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
Analyst: JY Run ID: MA32391
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4

Istd#4	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

10.1.1
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:			11:14		11:34		12:54		14:03	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	46	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.2								
Boron	100	.8								
Cadmium	3.0	.2	anr							
Calcium	5000	57	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	1	anr							
Iron	100	8.3	anr							
Lead	3.0	1.5	-0.30	<3.0	0.40	<3.0	1.1	<3.0	1.1	<3.0
Lithium	20	1.3								
Magnesium	5000	34	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.4	anr							
Palladium	50	1.1								
Potassium	10000	32	anr							
Selenium	10	2.3	anr							
Silicon	200	4								
Silver	10	.4	anr							
Sodium	10000	19	anr							
Sulfur	50	2.8								
Strontium	10	.2								
Thallium	2.0	1.6	anr							
Tin	10	1								
Titanium	10	.3								
Tungsten	50	1.3								
Vanadium	50	.4	anr							
Zinc	20	4.2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.2

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time: / Sample ID:			15:19 CCB4		16:28 CCB5		17:38 CCB6		18:47 CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	46	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.2								
Boron	100	.8								
Cadmium	3.0	.2	anr							
Calcium	5000	57	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	1	anr							
Iron	100	8.3	anr							
Lead	3.0	1.5	0.10	<3.0	-0.30	<3.0	1.0	<3.0	0.50	<3.0
Lithium	20	1.3								
Magnesium	5000	34	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.4	anr							
Palladium	50	1.1								
Potassium	10000	32	anr							
Selenium	10	2.3	anr							
Silicon	200	4								
Silver	10	.4	anr							
Sodium	10000	19	anr							
Sulfur	50	2.8								
Strontium	10	.2								
Thallium	2.0	1.6	anr							
Tin	10	1								
Titanium	10	.3								
Tungsten	50	1.3								
Vanadium	50	.4	anr							
Zinc	20	4.2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.2

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time: / Sample ID:			19:55 CCB8		21:05 CCB9		22:14 CCB10		23:23 CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	46	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.2								
Boron	100	.8								
Cadmium	3.0	.2	anr							
Calcium	5000	57	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	1	anr							
Iron	100	8.3	anr							
Lead	3.0	1.5	0.90	<3.0	0.40	<3.0	-0.40	<3.0	0.80	<3.0
Lithium	20	1.3								
Magnesium	5000	34	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.4	anr							
Palladium	50	1.1								
Potassium	10000	32	anr							
Selenium	10	2.3	anr							
Silicon	200	4								
Silver	10	.4	anr							
Sodium	10000	19	anr							
Sulfur	50	2.8								
Strontium	10	.2								
Thallium	2.0	1.6	anr							
Tin	10	1								
Titanium	10	.3								
Tungsten	50	1.3								
Vanadium	50	.4	anr							
Zinc	20	4.2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.2

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time: / Sample ID:			00:31 CCB12		01:40 CCB13		02:49 CCB14		03:57 CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	46	anr							
Antimony	6.0	1.1	anr							
Arsenic	3.0	.9	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	1.2								
Boron	100	.8								
Cadmium	3.0	.2	anr							
Calcium	5000	57	anr							
Chromium	10	.5	anr							
Cobalt	50	.3	anr							
Copper	10	1	anr							
Iron	100	8.3	anr							
Lead	3.0	1.5	0.60	<3.0	0.70	<3.0	0.10	<3.0	0.70	<3.0
Lithium	20	1.3								
Magnesium	5000	34	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.4	anr							
Palladium	50	1.1								
Potassium	10000	32	anr							
Selenium	10	2.3	anr							
Silicon	200	4								
Silver	10	.4	anr							
Sodium	10000	19	anr							
Sulfur	50	2.8								
Strontium	10	.2								
Thallium	2.0	1.6	anr							
Tin	10	1								
Titanium	10	.3								
Tungsten	50	1.3								
Vanadium	50	.4	anr							
Zinc	20	4.2	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.2

(*) Outside of QC limits
(anr) Analyte not requested

10.1.2
10

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:			05:00	
Sample ID:			CCB16	
Metal	RL	IDL	raw	final
Aluminum	200	46	anr	
Antimony	6.0	1.1	anr	
Arsenic	3.0	.9	anr	
Barium	200	.4	anr	
Beryllium	1.0	.1	anr	
Bismuth	20	1.2		
Boron	100	.8		
Cadmium	3.0	.2	anr	
Calcium	5000	57	anr	
Chromium	10	.5	anr	
Cobalt	50	.3	anr	
Copper	10	1	anr	
Iron	100	8.3	anr	
Lead	3.0	1.5	0.80	<3.0
Lithium	20	1.3		
Magnesium	5000	34	anr	
Manganese	15	.2	anr	
Molybdenum	20	.4		
Nickel	10	.4	anr	
Palladium	50	1.1		
Potassium	10000	32	anr	
Selenium	10	2.3	anr	
Silicon	200	4		
Silver	10	.4	anr	
Sodium	10000	19	anr	
Sulfur	50	2.8		
Strontium	10	.2		
Thallium	2.0	1.6	anr	
Tin	10	1		
Titanium	10	.3		
Tungsten	50	1.3		
Vanadium	50	.4	anr	
Zinc	20	4.2	anr	

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL Run ID: MA32391 Units: ug/l

Time:		
Sample ID:		
Metal		
Zirconium	10	.2

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		11:20	
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	2110	105.5*(a
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		

10.1.3 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:	
Sample ID:	
Metal	

Zirconium

(*) Outside of QC limits
(anr) Analyte not requested
(a) Within 90 to 110 percent limits required for SW846 6010. No EPA 200.7 samples reported for this element in the area bracketed by this QC.

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		11:04			12:48			13:57	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2100	105.0	2000	2120	106.0	2000	2140	107.0
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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		15:07			15:13			16:22	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2140	107.0	2000	2160	108.0	2000	2170	108.5
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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		17:32			18:41			19:49	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2170	108.5	2000	2140	107.0	2000	2140	107.0
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								

10.1.4 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		20:59			22:08			23:16	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2160	108.0	2000	2170	108.5	2000	2180	109.0
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								

10.1.4 10

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		00:25			01:34			02:43	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2170	108.5	2000	2190	109.5	2000	2200	110.0
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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 Units: ug/l

Time:		03:51			04:54	
Sample ID:	CCV	CCV15		CCV	CCV16	
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	2190	109.5	2000	2200	110.0
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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA32391 Units: ug/l

Time:				11:40		11:46		11:59	
Sample ID:	CRI	CRIA	CRID	CRID1		CRI1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		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			3.7	123.3	21.1	105.5
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						
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						
Zinc	20		10	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA32391 Units: ug/l

Time: / Sample ID: / Metal	CRI True	CRIA True	CRID True	20:08 CRI2 Results	% Rec	20:14 CRID2 Results	% Rec	20:21 CRIA2 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	3.6	120.0			21.8	109.0
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					

10.1.5 10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA32391 Units: ug/l

Time:				04:10		04:16		04:22	
Sample ID:	CRI	CRIA	CRID	CRI3		CRID3		CRIA3	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000		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	3.6	120.0			22.5	112.5
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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA32391 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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA32391 Units: ug/l

Time: / Sample ID: / Metal	ICSA True	ICSAB True	12:22 ICSA2 Results	% Rec	12:29 ICSAB2 Results	% Rec	20:27 ICSA3 Results	% Rec	20:33 ICSAB3 Results	% Rec
Aluminum	500000	500000	495000	99.0	502000	100.4	511000	102.2	496000	99.2
Antimony		1000	-0.30		1040	104.0	0.40		1050	105.0
Arsenic		1000	3.8		1040	104.0	3.2		1060	106.0
Barium		500	-0.60		514	102.8	-0.60		518	103.6
Beryllium		500	0.0		490	98.0	0.0		487	97.4
Bismuth		500	-4.4		514	102.8	-3.7		516	103.2
Boron			-15		-8.0		-16		-8.3	
Cadmium		1000	2.1		1050	105.0	2.1		1040	104.0
Calcium	400000	400000	365000	91.3	365000	91.3	372000	93.0	354000	88.5
Chromium		500	0.60		486	97.2	0.60		500	100.0
Cobalt		500	2.2		483	96.6	2.4		490	98.0
Copper		500	3.4		533	106.6	2.0		550	110.0
Iron	200000	200000	187000	93.5	191000	95.5	180000	90.0	193000	96.5
Lead		1000	-1.9		947	94.7	-2.4		974	97.4
Lithium		500	4.1		514	102.8	3.9		518	103.6
Magnesium	500000	500000	508000	101.6	527000	105.4	519000	103.8	509000	101.8
Manganese		500	1.7		497	99.4	-0.60		511	102.2
Molybdenum		500	-0.30		500	100.0	0.10		514	102.8
Nickel		1000	4.9		931	93.1	5.5		931	93.1
Palladium		500	9.5		574	114.8	20.6		589	117.8
Potassium			67.9		48.1		83.3		88.0	
Selenium		1000	3.8		1000	100.0	-1.5		1010	101.0
Silicon			-8.1		-0.30		-9.0		-2.6	
Silver		1000	4.5		1060	106.0	-0.40		1100	110.0
Sodium			11.8		13.3		66.2		57.9	
Sulfur		500	-3.0		485	97.0	1.6		505	101.0
Strontium			-1.2		-1.1		-0.90		-0.90	
Thallium		1000	-1.2		965	96.5	-3.1		967	96.7
Tin			5.2		6.7		4.9		6.9	
Titanium			2.2		6.4		2.4		6.8	
Tungsten		500	23.6		566	113.2	14.6		575	115.0
Vanadium		500	-0.20		486	97.2	6.3		490	98.0
Zinc		1000	-2.7		974	97.4	-3.5		998	99.8

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA32391 Units: ug/l

Time: / Sample ID: / Metal								
Zirconium	500	1.0	494	98.8	0.70	502	100.4	

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA32391 Units: ug/l

Time:			04:28		04:35	
Sample ID:	ICSA	ICSAB	ICSA4		ICSAB4	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	511000	102.2	509000	101.8
Antimony		1000	0.70		1050	105.0
Arsenic		1000	-0.50		1060	106.0
Barium		500	-0.50		521	104.2
Beryllium		500	0.0		489	97.8
Bismuth		500	-4.4		512	102.4
Boron			-16		-10	
Cadmium		1000	2.5		1040	104.0
Calcium	400000	400000	378000	94.5	365000	91.3
Chromium		500	0.50		503	100.6
Cobalt		500	2.5		492	98.4
Copper		500	0.30		543	108.6
Iron	200000	200000	172000	86.0	186000	93.0
Lead		1000	-0.50		983	98.3
Lithium		500	3.8		511	102.2
Magnesium	500000	500000	530000	106.0	527000	105.4
Manganese		500	-2.2		504	100.8
Molybdenum		500	0.60		516	103.2
Nickel		1000	6.0		937	93.7
Palladium		500	27.5		572	114.4
Potassium			89.4		93.1	
Selenium		1000	2.7		1010	101.0
Silicon			-8.5		-1.5	
Silver		1000	-3.4		1070	107.0
Sodium			12.4		15.5	
Sulfur		500	-5.1		497	99.4
Strontium			-0.90		-0.90	
Thallium		1000	2.6		968	96.8
Tin			6.9		5.6	
Titanium			2.0		6.9	
Tungsten		500	15.4		578	115.6
Vanadium		500	10.6		485	97.0
Zinc		1000	-3.3		1010	101.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

File ID: SB101413M1.ICP Date Analyzed: 10/14/13 Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA32391 Units: ug/l

Time: / Sample ID: / Metal				
Zirconium	500	0.90	502	100.4

(*) Outside of QC limits
(anr) Analyte not requested

10.1.6 10

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:				10/05/13		10/05/13	
Metal	RL	IDL	MDL	MB raw	final	MB raw	final
Aluminum	200	46	11				
Antimony	6.0	1.1	1.8				
Arsenic	3.0	.9	1.5				
Barium	200	.4	.36				
Beryllium	1.0	.1	.17				
Bismuth	20	1.2	.98				
Boron	100	.8	2				
Cadmium	3.0	.2	.24				
Calcium	5000	57	55				
Chromium	10	.5	.92				
Cobalt	50	.3	.48				
Copper	10	1	1				
Iron	100	8.3	13				
Lead	3.0	1.5	2.4	-0.30	<3.0	0.30	<3.0
Lithium	20	1.3	2.4				
Magnesium	5000	34	23				
Manganese	15	.2	.18				
Molybdenum	20	.4	2				
Nickel	10	.4	1.6				
Palladium	50	1.1	1.5				
Potassium	10000	32	41				
Selenium	10	2.3	2.4				
Silicon	200	4	29				
Silver	10	.4	1.5				
Sodium	10000	19	58				
Sulfur	50	2.8	5.9				
Strontium	10	.2	.59				
Thallium	10	1.6	1.3				
Tin	10	1	3.7				
Titanium	10	.3	1.2				
Tungsten	50	1.3	6.5				
Vanadium	50	.4	.72				
Zinc	20	4.2	4.4				

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date:

Metal			
Zirconium	10	.2	1.2

Associated samples MP75055: JB48380-1F, JB48380-2F, JB48380-3F, JB48380-4F

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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 10/05/13

Metal	JB48429-5 Original	MS	Spikelot MPIRW1	% 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	2.2	485	500	96.6	75-125
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				

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Zirconium

Associated samples MP75055: JB48380-1F, JB48380-2F, JB48380-3F, JB48380-4F

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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 10/05/13

Metal	JB48429-5 Original	MSD	Spikelot MPIRW1	% 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	2.2	476	500	94.8	1.9	20
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					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Zirconium

Associated samples MP75055: JB48380-1F, JB48380-2F, JB48380-3F, JB48380-4F

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: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 10/05/13 10/05/13

Metal	LCS Result	Spikelot MPLCW3	% Rec	QC Limits	LCS Result	Spikelot MPLCW3	% 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	532	500	106.4	80-120	507	500	101.4	80-120
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							

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Zirconium

Associated samples MP75055: JB48380-1F, JB48380-2F, JB48380-3F, JB48380-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 10/05/13

Metal	JB48429-5 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	2.20	0.00	100.0(a)	0-10
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			

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB48380
Account: KEMPAE - KEM Partners, Inc.
Project: Newtown Square Amoco, Newton Square, PA

QC Batch ID: MP75055
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal
Zirconium

Associated samples MP75055: JB48380-1F, JB48380-2F, JB48380-3F, JB48380-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

10.2.4 10

Log Note Details

Pennsylvania Underground Storage Tank Indemnification Fund

Claim Number:	2013-0161(I) - Newtown Square Amoco
Log Note Date:	11/3/2014 8:07:42 AM
Category:	Email from Consultant
Description:	KEM, Revised Phase II ESA

Comments: