

May 24, 2017

Ms. Joyce Munie, P.E.  
Manager, Permit Section  
Illinois Environmental Protection Agency  
Bureau of Land  
1021 North Grand Avenue East  
Springfield, Illinois 62794

**Submittal of Corrected Information  
Groundwater Monitoring Report – 4<sup>th</sup> Quarter 2013  
Roxana, Illinois  
1191150002 – Madison County  
Equilon Enterprises LLC d/b/a Shell Oil Products US  
Log No. B-43R**

Dear Ms. Munie:

On behalf of Shell Oil Products US (SOPUS), AECOM Technical Services, Inc. (AECOM) hereby submits the enclosed addendum to the above-referenced report (the Report).

AECOM collects a variety of samples for SOPUS as part of the work performed in connection with the above-referenced site including the samples referenced and utilized in the Report. AECOM contracts with independent laboratories to analyze the samples collected. As noted in SOPUS' initial disclosure letter and our subsequent communications, Accutest Laboratories (Accutest) issued revised laboratory analyses in response to an internal evaluation performed of its process. Please note, the majority of the corrected analyses were issued only to include a revised footnote and the numeric value of the analytical results reported remained unchanged. If any numeric values of analytical results presented in the Report were updated by Accutest, the updated results are presented as part of the information included in the Report addendum. Moreover, based upon our evaluation of the Report and the revised information received from Accutest, the conclusion(s) of the Report as originally issued are unaffected.

The information provided within and the format of this addendum is as discussed during our meeting with IEPA on March 23, 2017. This addendum includes the following information:

- IEPA LPC form
- Data Review Addendum Table (summarizing changed information)
- Revised analytical results table
- Revised laboratory reports (on CD)



If you have any questions during your review, please contact Kevin Dyer, SOPUS Senior Principal Program Manager, at [kevin.dyer@shell.com](mailto:kevin.dyer@shell.com) (618/288-7237), or Bob Billman at [bob.billman@aecom.com](mailto:bob.billman@aecom.com) (314/743-4108).

Sincerely,

AECOM, on behalf of Shell Oil Products US

A handwritten signature in blue ink that reads "Robert B. Billman".

Robert Billman, PG  
Senior Project Manager

A handwritten signature in blue ink that reads "Robert E. Mooshegian".

Robert E. Mooshegian, CHMM  
Senior Program Manager

Enclosures: 2 copies

cc: Kevin Dyer, SOPUS  
Eric Petersen, Phillips 66  
Shannon Haney, Greensfelder, Hemker & Gale P.C.  
Repositories – Village Hall, Roxana Public Library, website  
Project File



# Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

## RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

**Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.**

Facility Name: Equilon Enterprises LLC dba Shell Oil Products US

Facility Address: 900 South Central Ave., Roxana, IL 62048

Site ID #: 1191150002 Fed ID #: ILD 080 012 305

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

LPC-160 Forms

Groundwater

Leachate

Quarterly - Enter: 1, 2, 3, or 4

Quarterly - Enter: 1, 2, 3, or 4

Semi-Annual

Semi-Annual

Annual

Annual

Biennial

Biennial

Groundwater Data (without LPC-160 Forms)

Quarterly - Enter: 1, 2, 3, or 4  Annual  Semi-Annual  Biennial

Well Construction Information

Well Construction Forms, Boring Logs and/or Abandonment Forms

Well Survey Data (e.g., Stick-up Elevation Data)

Notice of Statistically Significant Evidence of Groundwater Contamination  
(35 Ill. Adm. Code 724.198)

Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater  
(35 Ill. Adm. Code 724.199(i))

Gas Monitoring Reports

Other (identify)

1Q13, 2Q13, 3Q13, and 4Q13 Groundwater Sampling Report Addenda - Addenda being issued due to revised laboratory reports.

Analytical Method	Sample ID	Lab Sample ID	Sample Date	Analyte	Original Result	Corrected Result	Laboratory Qualifier	Units	Final Footnote	AECOM Qualifier
SW846 8260B	P55-ROX-101013	MC25237-5	10/10/2013	Chloromethane	1.7	1.7	J	ug/l	Ana: Initial & Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased high.	J
SW846 8260C	P93D-ROX-101113	MC25284-1	10/11/2013	Chloroform	ND	ND		ug/l	Inj: Vinyl Chloride & Chloroform(CCC's) do not meet the reference method acceptance criteria in instrument QC and results may be biased low.	
SW846 8260C	P93D-ROX-101113	MC25284-1	10/11/2013	Vinyl chloride	ND	ND		ug/l	Inj: Vinyl Chloride & Chloroform(CCC's) do not meet the reference method acceptance criteria in instrument QC and results may be biased low.	
SW846 8260C	P93A-ROX-101113	MC25284-2	10/11/2013	Vinyl chloride	ND	ND		ug/l	Inj: Vinyl chloride(CCC's) do not meet the reference method acceptance criteria in instrument QC and results may be biased low.	
SW846 8260B	P114-ROX-101713	MC25412-1	10/17/2013	Bromoform	ND	ND		ug/l	Ana: Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	P66-ROX-110713	MC26110-1	11/07/2013	Acrolein	ND	ND		ug/l	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ

**LABORATORY QUALIFIERS:**

J = The analyte was detected below the reporting limit. Result is estimated.

ND = Not detected.

**AECOM QUALIFIERS:**

J = The result is estimated.

UJ = Estimated nondetect.















TABLE 3  
CUMULATIVE SUMMARY OF GROUNDWATER MONITORING WELL ANALYTICAL RESULTS AND EXCEEDANCES

Table with columns for Location, Sample ID, Sample Date, Screened Interval (ft btoc), Depth to Water (ft btoc), Product Thickness (ft), and VOCs (Acetone, Benzene, Butane, 2-Butanone, n-Butylbenzene, sec-Butylbenzene, tert-Butylbenzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Chloromethane, 4-Chlorotoluene, Cymene, trans-1,3-Dichloropropene, 1,4-Dioxane, Ethylbenzene, Ethyl methacrylate). It includes screening values and analytical results for various wells across locations P-93A, P-93B, P-93C, and P-93D.



































TABLE 3 CUMULATIVE SUMMARY OF GROUNDWATER MONITORING WELL ANALYTICAL RESULTS AND EXCEEDANCES

Table with columns for Location, Sample ID, Sample Date, Screened Interval, Depth to Water, Product Thickness, Screening Values, and Analytical Results for 20 SVOCs. Includes data for wells P-93A, P-93B, P-93C, and P-93D.











TABLE 3 CUMULATIVE SUMMARY OF GROUNDWATER MONITORING WELL ANALYTICAL RESULTS AND EXCEEDANCES

Table with columns: Location, Sample ID, Sample Date, Screened Interval, Depth to Water, Product Thickness, Screening Values (mg/L), and Analytical Results (mg/L) for various SVOCs. Includes data for MW-10, MW-11, MW-12, and MW-13.





TABLE 3  
CUMULATIVE SUMMARY OF GROUNDWATER MONITORING WELL ANALYTICAL RESULTS AND EXCEEDANCES

Table with columns for Location, Sample ID, Sample Date, Screened Interval, Depth to Water, Product Thickness, and various SVOCs (Di-n-butyl phthalate, Di-n-octyl phthalate, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Indene, Indeno(1,2,3-cd)pyrene, Isophereone, 1-Methylnaphthalene, 2-Methylnaphthalene, 2-Methylphenol, 3 & 4-Methylphenol, 3-Nitroaniline, Nitrobenzene, N-Nitrosodimethylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene). Rows are grouped by location (P-93A, P-93B, P-93C, P-93D) and include screening values and analytical results in mg/L.



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VERIFICATION, TESTING AND CERTIFICATION COMPANY.



*e-Hardcopy 2.0*  
*Automated Report*

### Technical Report for

### Shell Oil

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana,

SGS Accutest Job Number: MC25237

Sampling Date: 10/10/13

#### Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 107



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

H. (Brad) Madadian  
Lab Director

Client Service contact: Jeremy Vienneau 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) FL (E87579) NY (11791) NJ (MA926) PA (6801121) ND (R-188) CO (MA00136) MN (11546AA) NC (653) IL (002337) WI (399080220) DoD ELAP (L-A-B L2235)

This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest.  
Test results relate only to samples analyzed.



URS Corporation  
1001 Highlands Plaza Drive West Suite 300  
St. Louis, MO 63110  
ATTN: Elizabeth Kunkel

November 25, 2013

Accutest Job MC25237 (revision 1)

Ms. Kunkel,

The report of Accutest job number MC25237 has been revised due to GC/MS Volatile sample data requiring reprocessing, as well as reporting to the MDL. These changes have been incorporated into the revised report which is attached.

Sincerely,

A handwritten signature in black ink, appearing to read 'Matthew Morrell', with a horizontal line extending to the right.

Matthew Morrell  
Accutest Laboratories of New England, Inc.



ACCUTEST

November 2, 2016

AECOM  
1001 Highlands Plaza Drive West Suite 300  
St. Louis, MO 63110

RE: SGS Accutest Job # MC25237

Dear Elizabeth Kunkel

As you are aware, SGS Accutest Inc. - Marlborough has been conducting an extensive review of data associated with some historical Gas Chromatography-Mass Spectroscopy volatiles analyses. As a result of this review it was determined that some revisions of the original test report for this job were needed. These corrections have been incorporated into the revised report.

Please be assured that corrective actions have been put in place to address this matter and prevent a recurrence.

We apologize for any inconvenience that this issue may have caused. Please don't hesitate to contact us if we can be of further assistance.

Sincerely

**H. (Brad) Madadian**

Regional Laboratory Director  
SGS Accutest Inc. - Marlborough

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TESTING AND CERTIFICATION COMPANY. NN

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## Sample Summary

Shell Oil

Job No: MC25237  
URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
MC25237-1	10/10/13	09:35 LRBL	10/11/13	AQ	Ground Water	MW14-ROX-101013
MC25237-1D	10/10/13	09:35 LRBL	10/11/13	AQ	Water Dup/MSD	MW14-ROX-101013
MC25237-1S	10/10/13	09:35 LRBL	10/11/13	AQ	Water Matrix Spike	MW14-ROX-101013
MC25237-2	10/10/13	10:30 LRBL	10/11/13	AQ	Ground Water	P66-ROX-101013
MC25237-3	10/10/13	13:10 LRBL	10/11/13	AQ	Ground Water	P56-ROX-101013
MC25237-4	10/10/13	13:40 LRBL	10/11/13	AQ	Equipment Blank	P55-ROX-101013-EB
MC25237-5	10/10/13	14:55 LRBL	10/11/13	AQ	Ground Water	P55-ROX-101013
MC25237-6	10/10/13	16:20 LRBL	10/11/13	AQ	Ground Water	P59-ROX-101013
MC25237-7	10/10/13	00:00 LRBL	10/11/13	AQ	Trip Blank Water	TB-ROX-101013-HCL
MC25237-8	10/10/13	00:00 LRBL	10/11/13	AQ	Trip Blank Water	TB-ROX-101013-ST

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** She O

**Job No** MC25237

**Site:** URSMOSTL:Roxana 4Q 3 GW/ 2 562850 03004 900 South Centra **Report Date** /2/20 6 :36:24 A

6 Sample(s), 2 Trip Blank(s) were collected on 01/02/2013 and were received at SGS Accutest New England on 01/02/2013 properly preserved, at 23 Deg C and intact. These Samples received a job number of MC25237. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report. 2-Chlorohexane, Benzenethiol, D-benz(a,h)acridene, Indene, and Quinoline were searched in the library search and reported on if detections were found.

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

## Volatiles by GCMS By Method SW846 8260B

**Matrix:** AQ **Batch ID:** MSU759

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specification criteria.
- Sample(s) MC25237-MS, MC25237-MSD were used as the QC samples indicated.
- MC25237-MS/MSD Recovery(s) for 2-Chloroethyl vinyl ether, Styrene are outside control limits. Out of control limits due to possible matrix interference. Refer to Blank Spike.
- MC25237-5 for Chloromethane: In total & Continuing Calibration Verification category out of acceptance criteria. Sample result may be biased high.
- MC25237-2 for Acetone: Continuing Calibration Verification category out of acceptance criteria. Sample result may be biased high.
- All samples analyzed by method SW846 8260C.

**Matrix:** AQ **Batch ID:** MSU760

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specification criteria.
- All samples analyzed by method SW846 8260C.

## Extractables by GCMS By Method SW846 8270C

**Matrix:** AQ **Batch ID:** OP35286

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specification criteria.
- Sample(s) MC25237-MS, MC25237-MSD were used as the QC samples indicated.
- Blank Spike Recovery(s) for 4-Nitrophenol, Benzoic Acid are outside control limits.
- OP35286-BS for 2,4,6-Trinitrophenol: Out of control limits. Results confirmed by reanalysis.

## Extractables by GCMS By Method SW846 8270C BY SIM

**Matrix:** AQ **Batch ID:** OP35287

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) MC25237-MS, MC25237-MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.

## Volatiles by GC By Method SW846 8011

**Matrix:** AQ

**Batch ID:** OP35265

- All samples were extracted within the recommended method holding time
- All samples were analyzed within the recommended method holding time
- Sample(s) MC25237- MS, MC25237- MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification

SGS Accutest New England certifies that all analyses were performed within method specification. It is further recommended that this report be used in its entirety. The Laboratory Director for SGS Accutest New England or a signatory as verified by the signature on the cover page has authorized the release of this report (MC25237)

Wednesday, November 02, 2016

Page 2 of 2

# Summary of Hits

Job Number: MC25237  
 Account: Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
 Collected: 10/10/13



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
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**MC25237-1 MW14-ROX-101013**

sec-Butylbenzene	1.3 J	5.0	0.58	ug/l	SW846 8260B
tert-Butylbenzene	1.2 J	5.0	0.87	ug/l	SW846 8260B
Isopropylbenzene	1.1 J	5.0	0.64	ug/l	SW846 8260B
p-Isopropyltoluene	1.1 J	5.0	0.55	ug/l	SW846 8260B
1,2,4-Trimethylbenzene	0.88 J	5.0	0.47	ug/l	SW846 8260B
1,3,5-Trimethylbenzene	1.1 J	5.0	1.1	ug/l	SW846 8260B
Dibenzofuran	0.19 J	2.3	0.18	ug/l	SW846 8270C
Acenaphthene	0.65	0.11	0.078	ug/l	SW846 8270C BY SIM
Acenaphthylene	0.11	0.11	0.056	ug/l	SW846 8270C BY SIM
Fluorene	0.34	0.11	0.11	ug/l	SW846 8270C BY SIM
1-Methylnaphthalene	18.4	0.23	0.057	ug/l	SW846 8270C BY SIM

**MC25237-2 P66-ROX-101013**

Acetone <sup>a</sup>	9.5 J	10	2.8	ug/l	SW846 8260B
Benzene	64.6	0.50	0.45	ug/l	SW846 8260B
n-Butylbenzene	14.1	5.0	0.54	ug/l	SW846 8260B
sec-Butylbenzene	18.6	5.0	0.58	ug/l	SW846 8260B
tert-Butylbenzene	6.7	5.0	0.87	ug/l	SW846 8260B
Ethylbenzene	4.5	1.0	0.38	ug/l	SW846 8260B
Isopropylbenzene	151	5.0	0.64	ug/l	SW846 8260B
Methyl Tert Butyl Ether	85.0	1.0	0.43	ug/l	SW846 8260B
Naphthalene	10.4	5.0	0.79	ug/l	SW846 8260B
n-Propylbenzene	204	5.0	0.59	ug/l	SW846 8260B
Toluene	1.3	1.0	0.46	ug/l	SW846 8260B
o-Xylene	0.96 J	1.0	0.41	ug/l	SW846 8260B
Xylene (total)	0.96 J	1.0	0.41	ug/l	SW846 8260B
3&4-Methylphenol	3.4 J	11	2.3	ug/l	SW846 8270C
Dibenzofuran	1.6 J	2.2	0.18	ug/l	SW846 8270C
Acenaphthene	0.66	0.11	0.077	ug/l	SW846 8270C BY SIM
Acenaphthylene	0.20	0.11	0.056	ug/l	SW846 8270C BY SIM
Benzo(a)anthracene	0.028 J	0.056	0.022	ug/l	SW846 8270C BY SIM
Benzo(g,h,i)perylene	0.036 J	0.11	0.030	ug/l	SW846 8270C BY SIM
Fluoranthene	0.052 J	0.11	0.046	ug/l	SW846 8270C BY SIM
Fluorene	1.3	0.11	0.11	ug/l	SW846 8270C BY SIM
1-Methylnaphthalene	57.1	0.22	0.056	ug/l	SW846 8270C BY SIM
2-Methylnaphthalene	21.8	0.22	0.083	ug/l	SW846 8270C BY SIM
Phenanthrene	0.50	0.056	0.014	ug/l	SW846 8270C BY SIM
Pyrene	0.090 J	0.11	0.043	ug/l	SW846 8270C BY SIM

**MC25237-3 P56-ROX-101013**

Benzene	140	0.50	0.45	ug/l	SW846 8260B
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# Summary of Hits

Job Number: MC25237  
 Account: Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
 Collected: 10/10/13



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method	
		n-Butylbenzene	8.8	5.0	0.54	ug/l	SW846 8260B
		sec-Butylbenzene	5.0	5.0	0.58	ug/l	SW846 8260B
		tert-Butylbenzene	1.8 J	5.0	0.87	ug/l	SW846 8260B
		Chloroethane	3.8	2.0	0.84	ug/l	SW846 8260B
		trans-1,3-Dichloropropene	1.0	0.50	0.29	ug/l	SW846 8260B
		Ethylbenzene	1580	25	9.4	ug/l	SW846 8260B
		Isopropylbenzene	82.2	5.0	0.64	ug/l	SW846 8260B
		p-Isopropyltoluene	4.6 J	5.0	0.55	ug/l	SW846 8260B
		Methyl Tert Butyl Ether	0.58 J	1.0	0.43	ug/l	SW846 8260B
		Naphthalene	156	5.0	0.79	ug/l	SW846 8260B
		n-Propylbenzene	105	5.0	0.59	ug/l	SW846 8260B
		Toluene	157	1.0	0.46	ug/l	SW846 8260B
		1,2,4-Trimethylbenzene	330	5.0	0.47	ug/l	SW846 8260B
		1,3,5-Trimethylbenzene	71.4	5.0	1.1	ug/l	SW846 8260B
		m,p-Xylene	1700	25	18	ug/l	SW846 8260B
		o-Xylene	61.7	1.0	0.41	ug/l	SW846 8260B
		Xylene (total)	1760	25	10	ug/l	SW846 8260B
		2,4-Dimethylphenol	4.2 J	11	1.3	ug/l	SW846 8270C
		Dibenzofuran	0.59 J	2.2	0.17	ug/l	SW846 8270C
		Acenaphthene	0.60	0.11	0.076	ug/l	SW846 8270C BY SIM
		Acenaphthylene	0.092 J	0.11	0.054	ug/l	SW846 8270C BY SIM
		Anthracene	0.11	0.11	0.10	ug/l	SW846 8270C BY SIM
		Fluorene	0.44	0.11	0.11	ug/l	SW846 8270C BY SIM
		1-Methylnaphthalene	25.1	0.22	0.055	ug/l	SW846 8270C BY SIM
		2-Methylnaphthalene	30.0	0.22	0.082	ug/l	SW846 8270C BY SIM
		Phenanthrene	1.3	0.055	0.014	ug/l	SW846 8270C BY SIM

MC25237-4 P55-ROX-101013-EB

No hits reported in this sample.

MC25237-5 P55-ROX-101013

		Benzene	757	5.0	4.5	ug/l	SW846 8260B
		n-Butylbenzene	23.9	5.0	0.54	ug/l	SW846 8260B
		sec-Butylbenzene	14.7	5.0	0.58	ug/l	SW846 8260B
		tert-Butylbenzene	1.3 J	5.0	0.87	ug/l	SW846 8260B
		Chloroethane	5.0	2.0	0.84	ug/l	SW846 8260B
		Chloromethane <sup>b</sup>	1.7 J	2.0	1.4	ug/l	SW846 8260B
		Ethylbenzene	602	10	3.8	ug/l	SW846 8260B
		Isopropylbenzene	85.1	5.0	0.64	ug/l	SW846 8260B
		p-Isopropyltoluene	6.6	5.0	0.55	ug/l	SW846 8260B
		Methyl Tert Butyl Ether	1.0	1.0	0.43	ug/l	SW846 8260B
		Naphthalene	121	5.0	0.79	ug/l	SW846 8260B
		n-Propylbenzene	167	5.0	0.59	ug/l	SW846 8260B

# Summary of Hits

Job Number: MC25237  
 Account: Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
 Collected: 10/10/13



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method	
		Toluene	601	10	4.6	ug/l	SW846 8260B
		1,2,4-Trimethylbenzene	151	5.0	0.47	ug/l	SW846 8260B
		1,3,5-Trimethylbenzene	62.0	5.0	1.1	ug/l	SW846 8260B
		m,p-Xylene	739	1.0	0.70	ug/l	SW846 8260B
		o-Xylene	639	10	4.1	ug/l	SW846 8260B
		Xylene (total)	1380	10	4.1	ug/l	SW846 8260B
		2,4-Dimethylphenol	1.4 J	11	1.3	ug/l	SW846 8270C
		Phenol	2.0 J	5.5	0.56	ug/l	SW846 8270C
		Dibenzofuran	1.6 J	2.2	0.17	ug/l	SW846 8270C
		bis(2-Ethylhexyl)phthalate	0.60 J	2.2	0.54	ug/l	SW846 8270C
		Acenaphthene	0.71	0.11	0.076	ug/l	SW846 8270C BY SIM
		Acenaphthylene	0.19	0.11	0.054	ug/l	SW846 8270C BY SIM
		Fluorene	1.4	0.11	0.11	ug/l	SW846 8270C BY SIM
		1-Methylnaphthalene	27.9	0.22	0.055	ug/l	SW846 8270C BY SIM
		2-Methylnaphthalene	41.5	0.22	0.082	ug/l	SW846 8270C BY SIM
		Phenanthrene	1.7	0.055	0.014	ug/l	SW846 8270C BY SIM

**MC25237-6 P59-ROX-101013**

		Benzene	14700	50	45	ug/l	SW846 8260B
		n-Butylbenzene	22.4	5.0	0.54	ug/l	SW846 8260B
		tert-Butylbenzene	2.4 J	5.0	0.87	ug/l	SW846 8260B
		Chloroethane	3.4	2.0	0.84	ug/l	SW846 8260B
		Ethylbenzene	3190	100	38	ug/l	SW846 8260B
		Isopropylbenzene	86.0	5.0	0.64	ug/l	SW846 8260B
		p-Isopropyltoluene	5.1	5.0	0.55	ug/l	SW846 8260B
		Methyl Tert Butyl Ether	1.2	1.0	0.43	ug/l	SW846 8260B
		Naphthalene	285	5.0	0.79	ug/l	SW846 8260B
		n-Propylbenzene	176	5.0	0.59	ug/l	SW846 8260B
		Toluene	2890	100	46	ug/l	SW846 8260B
		1,2,4-Trimethylbenzene	1140	500	47	ug/l	SW846 8260B
		1,3,5-Trimethylbenzene	273	5.0	1.1	ug/l	SW846 8260B
		m,p-Xylene	7470	100	70	ug/l	SW846 8260B
		o-Xylene	1280	100	41	ug/l	SW846 8260B
		Xylene (total)	8750	100	41	ug/l	SW846 8260B
		2,4-Dimethylphenol	78.0	11	1.2	ug/l	SW846 8270C
		2-Methylphenol	201	54	7.0	ug/l	SW846 8270C
		3&4-Methylphenol	52.8	11	2.2	ug/l	SW846 8270C
		Phenol	52.4	5.4	0.56	ug/l	SW846 8270C
		Benzyl Alcohol	0.90 J	11	0.62	ug/l	SW846 8270C
		Di-n-octyl phthalate	0.91 J	5.4	0.47	ug/l	SW846 8270C
		bis(2-Ethylhexyl)phthalate	0.69 J	2.2	0.53	ug/l	SW846 8270C
		Acenaphthene	0.55	0.11	0.075	ug/l	SW846 8270C BY SIM
		Acenaphthylene	0.084 J	0.11	0.054	ug/l	SW846 8270C BY SIM
		Anthracene	0.21	0.11	0.10	ug/l	SW846 8270C BY SIM

## Summary of Hits

**Job Number:** MC25237  
**Account:** Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
**Collected:** 10/10/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
		0.068	0.054	0.021	ug/l	SW846 8270C BY SIM
		0.039 J	0.054	0.034	ug/l	SW846 8270C BY SIM
		0.088 J	0.11	0.026	ug/l	SW846 8270C BY SIM
		0.15	0.11	0.044	ug/l	SW846 8270C BY SIM
		0.70	0.11	0.11	ug/l	SW846 8270C BY SIM
		19.2	0.22	0.054	ug/l	SW846 8270C BY SIM
		30.5	0.22	0.081	ug/l	SW846 8270C BY SIM
		1.4	0.054	0.014	ug/l	SW846 8270C BY SIM
		0.28	0.11	0.042	ug/l	SW846 8270C BY SIM

MC25237-7 TB-ROX-101013-HCL

No hits reported in this sample.

MC25237-8 TB-ROX-101013-ST

No hits reported in this sample.

- (a) Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased high.
- (b) Initial & Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased high.

**Sample Results**

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**Report of Analysis**

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## Report of Analysis

Client Sample ID:	MW14-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-1	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U15302.D	1	10/22/13	GK	n/a	n/a	MSU759
Run #2							

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

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.8	ug/l	
107-02-8	Acrolein	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile	ND	5.0	3.5	ug/l	
71-43-2	Benzene	ND	0.50	0.45	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	1.3	5.0	0.58	ug/l	J
98-06-6	tert-Butylbenzene	1.2	5.0	0.87	ug/l	J
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	ND	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	

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:	MW14-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-1	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	1.1	5.0	0.64	ug/l	J
99-87-6	p-Isopropyltoluene	1.1	5.0	0.55	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	ND	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	0.88	5.0	0.47	ug/l	J
108-67-8	1,3,5-Trimethylbenzene	1.1	5.0	1.1	ug/l	J
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

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

<b>Client Sample ID:</b> MW14-ROX-101013		<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-1		<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	117%		70-130%
2037-26-5	Toluene-D8	107%		70-130%
460-00-4	4-Bromofluorobenzene	107%		70-130%

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

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

## Report of Analysis

<b>Client Sample ID:</b> MW14-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-1	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W14995.D	1	10/23/13	KR	10/16/13	OP35286	MSW676
Run #2							

Run #	Initial Volume	Final Volume
Run #1	880 ml	1.0 ml
Run #2		

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	11	1.4	ug/l	
95-57-8	2-Chlorophenol	ND	5.7	0.44	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	11	0.56	ug/l	
120-83-2	2,4-Dichlorophenol	ND	11	0.37	ug/l	
105-67-9	2,4-Dimethylphenol	ND	11	1.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	23	2.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	11	1.4	ug/l	
95-48-7	2-Methylphenol	ND	11	1.5	ug/l	
	3&4-Methylphenol	ND	11	2.3	ug/l	
88-75-5	2-Nitrophenol	ND	11	0.57	ug/l	
100-02-7	4-Nitrophenol	ND	23	0.66	ug/l	
87-86-5	Pentachlorophenol	ND	11	1.4	ug/l	
108-95-2	Phenol	ND	5.7	0.58	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	11	0.65	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	11	0.36	ug/l	
62-53-3	Aniline	ND	11	0.72	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.7	0.23	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.7	0.97	ug/l	
100-51-6	Benzyl Alcohol	ND	11	0.65	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.7	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	11	0.28	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.7	0.24	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.7	0.26	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.7	0.15	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.7	0.23	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.7	0.74	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	11	0.77	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	11	0.73	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.7	0.57	ug/l	
132-64-9	Dibenzofuran	0.19	2.3	0.18	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	5.7	0.44	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.7	0.49	ug/l	

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:	MW14-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-1	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.7	0.57	ug/l	
131-11-3	Dimethyl phthalate	ND	5.7	0.57	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.3	0.56	ug/l	
118-74-1	Hexachlorobenzene	ND	5.7	0.34	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.8	ug/l	
67-72-1	Hexachloroethane	ND	5.7	0.50	ug/l	
78-59-1	Isophorone	ND	5.7	0.23	ug/l	
88-74-4	2-Nitroaniline	ND	11	0.32	ug/l	
99-09-2	3-Nitroaniline	ND	11	0.57	ug/l	
100-01-6	4-Nitroaniline	ND	11	4.9	ug/l	
98-95-3	Nitrobenzene	ND	5.7	0.28	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.7	0.57	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.7	0.92	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.7	0.61	ug/l	
110-86-1	Pyridine	ND	11	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		15-110%
4165-62-2	Phenol-d5	27%		15-110%
118-79-6	2,4,6-Tribromophenol	83%		15-110%
4165-60-0	Nitrobenzene-d5	73%		30-130%
321-60-8	2-Fluorobiphenyl	78%		30-130%
1718-51-0	Terphenyl-d14	97%		30-130%

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

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

Page 1 of 1

<b>Client Sample ID:</b> MW14-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-1	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C BY SIM SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86481.D	1	10/17/13	KR	10/16/13	OP35287	MSI3218
Run #2							

Run #	Initial Volume	Final Volume
Run #1	880 ml	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.65	0.11	0.078	ug/l	
208-96-8	Acenaphthylene	0.11	0.11	0.056	ug/l	
120-12-7	Anthracene	ND	0.11	0.10	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.057	0.022	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.057	0.036	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.031	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.11	0.044	ug/l	
218-01-9	Chrysene	ND	0.11	0.027	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.11	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.11	0.046	ug/l	
86-73-7	Fluorene	0.34	0.11	0.11	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.11	0.035	ug/l	
90-12-0	1-Methylnaphthalene	18.4	0.23	0.057	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.23	0.084	ug/l	
85-01-8	Phenanthrene	ND	0.057	0.014	ug/l	
129-00-0	Pyrene	ND	0.11	0.044	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	81%		30-130%
321-60-8	2-Fluorobiphenyl	73%		30-130%
1718-51-0	Terphenyl-d14	92%		30-130%

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

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

## Report of Analysis

<b>Client Sample ID:</b> MW14-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-1	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8011 SW846 8011	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30978.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	34.9 ml	2.0 ml
Run #2		

### VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	69%		36-173%
460-00-4	Bromofluorobenzene (S)	66%		36-173%

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

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# Report of Analysis

<b>Client Sample ID:</b> P66-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-2	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U15312.D	1	10/22/13	GK	n/a	n/a	MSU759
Run #2							

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

### VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone <sup>a</sup>	9.5	10	2.8	ug/l	J
107-02-8	Acrolein	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile	ND	5.0	3.5	ug/l	
71-43-2	Benzene	64.6	0.50	0.45	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	14.1	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	18.6	5.0	0.58	ug/l	
98-06-6	tert-Butylbenzene	6.7	5.0	0.87	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	ND	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	

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

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## Report of Analysis

Client Sample ID:	P66-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-2	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	4.5	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	151	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	85.0	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	10.4	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	204	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	1.3	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	0.96	1.0	0.41	ug/l	J
1330-20-7	Xylene (total)	0.96	1.0	0.41	ug/l	J

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

<b>Client Sample ID:</b> P66-ROX-101013		<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-2		<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	117%		70-130%
2037-26-5	Toluene-D8	110%		70-130%
460-00-4	4-Bromofluorobenzene	103%		70-130%

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

(a) Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased high.

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

## Report of Analysis

<b>Client Sample ID:</b>	P66-ROX-101013	<b>Date Sampled:</b>	10/10/13
<b>Lab Sample ID:</b>	MC25237-2	<b>Date Received:</b>	10/11/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8270C SW846 3510C	<b>Project:</b> URMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W14996.D	1	10/23/13	KR	10/16/13	OP35286	MSW676
Run #2							

Run #	Initial Volume	Final Volume
Run #1	890 ml	1.0 ml
Run #2		

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	11	1.4	ug/l	
95-57-8	2-Chlorophenol	ND	5.6	0.43	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	11	0.55	ug/l	
120-83-2	2,4-Dichlorophenol	ND	11	0.37	ug/l	
105-67-9	2,4-Dimethylphenol	ND	11	1.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	22	2.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	11	1.3	ug/l	
95-48-7	2-Methylphenol	ND	11	1.4	ug/l	
	3&4-Methylphenol	3.4	11	2.3	ug/l	J
88-75-5	2-Nitrophenol	ND	11	0.56	ug/l	
100-02-7	4-Nitrophenol	ND	22	0.66	ug/l	
87-86-5	Pentachlorophenol	ND	11	1.4	ug/l	
108-95-2	Phenol	ND	5.6	0.58	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	11	0.64	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	11	0.36	ug/l	
62-53-3	Aniline	ND	11	0.72	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.6	0.23	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.6	0.96	ug/l	
100-51-6	Benzyl Alcohol	ND	11	0.65	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.6	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	11	0.28	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.6	0.24	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.6	0.26	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.6	0.15	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.6	0.22	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.6	0.73	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	11	0.76	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	11	0.72	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.6	0.56	ug/l	
132-64-9	Dibenzofuran	1.6	2.2	0.18	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	5.6	0.44	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.6	0.49	ug/l	

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:	P66-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-2	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C	Project: URMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.6	0.56	ug/l	
131-11-3	Dimethyl phthalate	ND	5.6	0.56	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	0.55	ug/l	
118-74-1	Hexachlorobenzene	ND	5.6	0.33	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.8	ug/l	
67-72-1	Hexachloroethane	ND	5.6	0.49	ug/l	
78-59-1	Isophorone	ND	5.6	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	11	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	11	0.56	ug/l	
100-01-6	4-Nitroaniline	ND	11	4.9	ug/l	
98-95-3	Nitrobenzene	ND	5.6	0.28	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.6	0.56	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.6	0.91	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.6	0.61	ug/l	
110-86-1	Pyridine	ND	11	0.58	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	48%		15-110%
4165-62-2	Phenol-d5	39%		15-110%
118-79-6	2,4,6-Tribromophenol	98%		15-110%
4165-60-0	Nitrobenzene-d5	76%		30-130%
321-60-8	2-Fluorobiphenyl	79%		30-130%
1718-51-0	Terphenyl-d14	97%		30-130%

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

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:	P66-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-2	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86509.D	1	10/18/13	WK	10/16/13	OP35287	MSI3219
Run #2							

Run #	Initial Volume	Final Volume
Run #1	890 ml	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.66	0.11	0.077	ug/l	
208-96-8	Acenaphthylene	0.20	0.11	0.056	ug/l	
120-12-7	Anthracene	ND	0.11	0.10	ug/l	
56-55-3	Benzo(a)anthracene	0.028	0.056	0.022	ug/l	J
50-32-8	Benzo(a)pyrene	ND	0.11	0.032	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.056	0.036	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.036	0.11	0.030	ug/l	J
207-08-9	Benzo(k)fluoranthene	ND	0.11	0.043	ug/l	
218-01-9	Chrysene	ND	0.11	0.027	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.11	0.036	ug/l	
206-44-0	Fluoranthene	0.052	0.11	0.046	ug/l	J
86-73-7	Fluorene	1.3	0.11	0.11	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.11	0.034	ug/l	
90-12-0	1-Methylnaphthalene	57.1	0.22	0.056	ug/l	
91-57-6	2-Methylnaphthalene	21.8	0.22	0.083	ug/l	
85-01-8	Phenanthrene	0.50	0.056	0.014	ug/l	
129-00-0	Pyrene	0.090	0.11	0.043	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	82%		30-130%
321-60-8	2-Fluorobiphenyl	76%		30-130%
1718-51-0	Terphenyl-d14	93%		30-130%

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

MDL = Method Detection Limit

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

## Report of Analysis

<b>Client Sample ID:</b> P66-ROX-101013 <b>Lab Sample ID:</b> MC25237-2 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8011 SW846 8011 <b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	<b>Date Sampled:</b> 10/10/13 <b>Date Received:</b> 10/11/13 <b>Percent Solids:</b> n/a
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	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30979.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	35.3 ml	2.0 ml
Run #2		

**VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	58%		36-173%
460-00-4	Bromofluorobenzene (S)	62%		36-173%

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

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## Report of Analysis

<b>Client Sample ID:</b> P56-ROX-101013		<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-3		<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	112%	115%	70-130%
2037-26-5	Toluene-D8	112%	110%	70-130%
460-00-4	4-Bromofluorobenzene	104%	105%	70-130%

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

(a) Result is from Run# 2

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



## Report of Analysis

<b>Client Sample ID:</b> P56-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-3	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

### ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.5	0.55	ug/l	
131-11-3	Dimethyl phthalate	ND	5.5	0.55	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	0.54	ug/l	
118-74-1	Hexachlorobenzene	ND	5.5	0.33	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.7	ug/l	
67-72-1	Hexachloroethane	ND	5.5	0.48	ug/l	
78-59-1	Isophorone	ND	5.5	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	11	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	11	0.55	ug/l	
100-01-6	4-Nitroaniline	ND	11	4.8	ug/l	
98-95-3	Nitrobenzene	ND	5.5	0.27	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.5	0.55	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.5	0.89	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.5	0.59	ug/l	
110-86-1	Pyridine	ND	11	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%		15-110%
4165-62-2	Phenol-d5	40%		15-110%
118-79-6	2,4,6-Tribromophenol	99%		15-110%
4165-60-0	Nitrobenzene-d5	74%		30-130%
321-60-8	2-Fluorobiphenyl	75%		30-130%
1718-51-0	Terphenyl-d14	97%		30-130%

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

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

<b>Client Sample ID:</b> P56-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-3	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C BY SIM SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86511.D	1	10/18/13	WK	10/16/13	OP35287	MSI3219
Run #2							

Run #	Initial Volume	Final Volume
Run #1	910 ml	1.0 ml
Run #2		

**BN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.60	0.11	0.076	ug/l	
208-96-8	Acenaphthylene	0.092	0.11	0.054	ug/l	J
120-12-7	Anthracene	0.11	0.11	0.10	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.055	0.021	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.032	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.055	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.030	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.11	0.042	ug/l	
218-01-9	Chrysene	ND	0.11	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.11	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.11	0.045	ug/l	
86-73-7	Fluorene	0.44	0.11	0.11	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.11	0.034	ug/l	
90-12-0	1-Methylnaphthalene	25.1	0.22	0.055	ug/l	
91-57-6	2-Methylnaphthalene	30.0	0.22	0.082	ug/l	
85-01-8	Phenanthrene	1.3	0.055	0.014	ug/l	
129-00-0	Pyrene	ND	0.11	0.042	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	81%		30-130%
321-60-8	2-Fluorobiphenyl	73%		30-130%
1718-51-0	Terphenyl-d14	92%		30-130%

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

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## Report of Analysis

<b>Client Sample ID:</b> P56-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-3	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8011 SW846 8011	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30980.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	36.0 ml	2.0 ml
Run #2		

**VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0053	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	113%		36-173%
460-00-4	Bromofluorobenzene (S)	79%		36-173%

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

4.3  
4





## Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013-EB		<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-4		<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Equipment Blank		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		70-130%
2037-26-5	Toluene-D8	110%		70-130%
460-00-4	4-Bromofluorobenzene	106%		70-130%

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

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



### Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013-EB	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-4	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Equipment Blank	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

**ABN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.4	0.54	ug/l	
131-11-3	Dimethyl phthalate	ND	5.4	0.54	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	0.53	ug/l	
118-74-1	Hexachlorobenzene	ND	5.4	0.32	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.7	ug/l	
67-72-1	Hexachloroethane	ND	5.4	0.48	ug/l	
78-59-1	Isophorone	ND	5.4	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	11	0.30	ug/l	
99-09-2	3-Nitroaniline	ND	11	0.54	ug/l	
100-01-6	4-Nitroaniline	ND	11	4.7	ug/l	
98-95-3	Nitrobenzene	ND	5.4	0.27	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.4	0.54	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.4	0.88	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.4	0.59	ug/l	
110-86-1	Pyridine	ND	11	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	43%		15-110%
4165-62-2	Phenol-d5	30%		15-110%
118-79-6	2,4,6-Tribromophenol	79%		15-110%
4165-60-0	Nitrobenzene-d5	68%		30-130%
321-60-8	2-Fluorobiphenyl	73%		30-130%
1718-51-0	Terphenyl-d14	102%		30-130%

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

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



### Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013-EB	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-4	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Equipment Blank	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C BY SIM SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86512.D	1	10/18/13	WK	10/16/13	OP35287	MSI3219
Run #2							

Run #	Initial Volume	Final Volume
Run #1	920 ml	1.0 ml
Run #2		

**BN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.11	0.075	ug/l	
208-96-8	Acenaphthylene	ND	0.11	0.054	ug/l	
120-12-7	Anthracene	ND	0.11	0.10	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.054	0.021	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.031	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.054	0.034	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.029	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.11	0.042	ug/l	
218-01-9	Chrysene	ND	0.11	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.11	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.11	0.044	ug/l	
86-73-7	Fluorene	ND	0.11	0.11	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.11	0.033	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.22	0.054	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.22	0.081	ug/l	
85-01-8	Phenanthrene	ND	0.054	0.014	ug/l	
129-00-0	Pyrene	ND	0.11	0.042	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	92%		30-130%

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

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

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## Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013-EB	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-4	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Equipment Blank	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8011 SW846 8011	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30981.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	36.8 ml	2.0 ml
Run #2		

### VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.014	0.0052	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.014	0.011	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	87%		36-173%		
460-00-4	Bromofluorobenzene (S)	69%		36-173%		

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

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## Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-5	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

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### VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%	114%	70-130%
2037-26-5	Toluene-D8	111%	109%	70-130%
460-00-4	4-Bromofluorobenzene	103%	106%	70-130%

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

- (a) Result is from Run# 2
- (b) Initial & Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased high.

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



## Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-5	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

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**ABN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.5	0.55	ug/l	
131-11-3	Dimethyl phthalate	ND	5.5	0.55	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	0.60	2.2	0.54	ug/l	J
118-74-1	Hexachlorobenzene	ND	5.5	0.33	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.7	ug/l	
67-72-1	Hexachloroethane	ND	5.5	0.48	ug/l	
78-59-1	Isophorone	ND	5.5	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	11	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	11	0.55	ug/l	
100-01-6	4-Nitroaniline	ND	11	4.8	ug/l	
98-95-3	Nitrobenzene	ND	5.5	0.27	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.5	0.55	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.5	0.89	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.5	0.59	ug/l	
110-86-1	Pyridine	ND	11	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	29%		15-110%
4165-62-2	Phenol-d5	19%		15-110%
118-79-6	2,4,6-Tribromophenol	67%		15-110%
4165-60-0	Nitrobenzene-d5	62%		30-130%
321-60-8	2-Fluorobiphenyl	72%		30-130%
1718-51-0	Terphenyl-d14	94%		30-130%

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

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

## Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-5	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C BY SIM SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86513.D	1	10/18/13	WK	10/16/13	OP35287	MSI3219
Run #2							

Run #	Initial Volume	Final Volume
Run #1	910 ml	1.0 ml
Run #2		

**BN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.71	0.11	0.076	ug/l	
208-96-8	Acenaphthylene	0.19	0.11	0.054	ug/l	
120-12-7	Anthracene	ND	0.11	0.10	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.055	0.021	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.032	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.055	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.030	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.11	0.042	ug/l	
218-01-9	Chrysene	ND	0.11	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.11	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.11	0.045	ug/l	
86-73-7	Fluorene	1.4	0.11	0.11	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.11	0.034	ug/l	
90-12-0	1-Methylnaphthalene	27.9	0.22	0.055	ug/l	
91-57-6	2-Methylnaphthalene	41.5	0.22	0.082	ug/l	
85-01-8	Phenanthrene	1.7	0.055	0.014	ug/l	
129-00-0	Pyrene	ND	0.11	0.042	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		30-130%
321-60-8	2-Fluorobiphenyl	70%		30-130%
1718-51-0	Terphenyl-d14	90%		30-130%

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

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## Report of Analysis

<b>Client Sample ID:</b> P55-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-5	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8011 SW846 8011	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30982.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	35.1 ml	2.0 ml
Run #2		

**VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	90%		36-173%
460-00-4	Bromofluorobenzene (S)	63%		36-173%

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

4.5  
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## Report of Analysis

<b>Client Sample ID:</b> P59-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-6	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U15315.D	1	10/22/13	GK	n/a	n/a	MSU759
Run #2	U15338.D	100	10/23/13	GK	n/a	n/a	MSU760

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

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.8	ug/l	
107-02-8	Acrolein	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile	ND	5.0	3.5	ug/l	
71-43-2	Benzene	14700 <sup>a</sup>	50	45	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	22.4	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.58	ug/l	
98-06-6	tert-Butylbenzene	2.4	5.0	0.87	ug/l	J
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	3.4	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	

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:	P59-ROX-101013	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-6	Date Received:	10/11/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	3190 <sup>a</sup>	100	38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	86.0	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	5.1	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	1.2	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	285	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	176	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	2890 <sup>a</sup>	100	46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	1140 <sup>a</sup>	500	47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	273	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	7470 <sup>a</sup>	100	70	ug/l	
95-47-6	o-Xylene	1280 <sup>a</sup>	100	41	ug/l	
1330-20-7	Xylene (total)	8750 <sup>a</sup>	100	41	ug/l	

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

<b>Client Sample ID:</b> P59-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-6	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%	111%	70-130%
2037-26-5	Toluene-D8	113%	110%	70-130%
460-00-4	4-Bromofluorobenzene	108%	105%	70-130%

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

(a) Result is from Run# 2

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

<b>Client Sample ID:</b> P59-ROX-101013	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-6	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.4	0.54	ug/l	
131-11-3	Dimethyl phthalate	ND	5.4	0.54	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	0.69	2.2	0.53	ug/l	J
118-74-1	Hexachlorobenzene	ND	5.4	0.32	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.7	ug/l	
67-72-1	Hexachloroethane	ND	5.4	0.48	ug/l	
78-59-1	Isophorone	ND	5.4	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	11	0.30	ug/l	
99-09-2	3-Nitroaniline	ND	11	0.54	ug/l	
100-01-6	4-Nitroaniline	ND	11	4.7	ug/l	
98-95-3	Nitrobenzene	ND	5.4	0.27	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.4	0.54	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.4	0.88	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.4	0.59	ug/l	
110-86-1	Pyridine	ND	11	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	30%	35%	15-110%
4165-62-2	Phenol-d5	31%	30%	15-110%
118-79-6	2,4,6-Tribromophenol	77%	90%	15-110%
4165-60-0	Nitrobenzene-d5	53%	48%	30-130%
321-60-8	2-Fluorobiphenyl	59%	67%	30-130%
1718-51-0	Terphenyl-d14	93%	79%	30-130%

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

(a) Result is from Run# 2

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: P59-ROX-101013		
Lab Sample ID: MC25237-6		Date Sampled: 10/10/13
Matrix: AQ - Ground Water		Date Received: 10/11/13
Method: SW846 8270C BY SIM SW846 3510C		Percent Solids: n/a
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86514.D	1	10/18/13	WK	10/16/13	OP35287	MSI3219
Run #2							

	Initial Volume	Final Volume
Run #1	920 ml	1.0 ml
Run #2		

**BN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.55	0.11	0.075	ug/l	
208-96-8	Acenaphthylene	0.084	0.11	0.054	ug/l	J
120-12-7	Anthracene	0.21	0.11	0.10	ug/l	
56-55-3	Benzo(a)anthracene	0.068	0.054	0.021	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.11	0.031	ug/l	
205-99-2	Benzo(b)fluoranthene	0.039	0.054	0.034	ug/l	J
191-24-2	Benzo(g,h,i)perylene	ND	0.11	0.029	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.11	0.042	ug/l	
218-01-9	Chrysene	0.088	0.11	0.026	ug/l	J
53-70-3	Dibenzo(a,h)anthracene	ND	0.11	0.035	ug/l	
206-44-0	Fluoranthene	0.15	0.11	0.044	ug/l	
86-73-7	Fluorene	0.70	0.11	0.11	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.11	0.033	ug/l	
90-12-0	1-Methylnaphthalene	19.2	0.22	0.054	ug/l	
91-57-6	2-Methylnaphthalene	30.5	0.22	0.081	ug/l	
85-01-8	Phenanthrene	1.4	0.054	0.014	ug/l	
129-00-0	Pyrene	0.28	0.11	0.042	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		30-130%
321-60-8	2-Fluorobiphenyl	59%		30-130%
1718-51-0	Terphenyl-d14	81%		30-130%

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

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## Report of Analysis

<b>Client Sample ID:</b>	P59-ROX-101013	<b>Date Sampled:</b>	10/10/13
<b>Lab Sample ID:</b>	MC25237-6	<b>Date Received:</b>	10/11/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8011 SW846 8011	<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30983.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

Run #	Initial Volume	Final Volume
Run #1	35.6 ml	2.0 ml
Run #2		

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0053	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	58%		36-173%		
460-00-4	Bromofluorobenzene (S)	47%		36-173%		

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

<b>Client Sample ID:</b> TB-ROX-101013-HCL	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-7	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Trip Blank Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U15296.D	1	10/22/13	GK	n/a	n/a	MSU759
Run #2							

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

**VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.8	ug/l	
107-02-8	Acrolein	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile	ND	5.0	3.5	ug/l	
71-43-2	Benzene	ND	0.50	0.45	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.58	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.87	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	ND	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	

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

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## Report of Analysis

Client Sample ID:	TB-ROX-101013-HCL	Date Sampled:	10/10/13
Lab Sample ID:	MC25237-7	Date Received:	10/11/13
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	ND	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

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

<b>Client Sample ID:</b> TB-ROX-101013-HCL	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-7	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Trip Blank Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
2037-26-5	Toluene-D8	109%		70-130%
460-00-4	4-Bromofluorobenzene	106%		70-130%

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

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

## Report of Analysis

<b>Client Sample ID:</b> TB-ROX-101013-ST	<b>Date Sampled:</b> 10/10/13
<b>Lab Sample ID:</b> MC25237-8	<b>Date Received:</b> 10/11/13
<b>Matrix:</b> AQ - Trip Blank Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8011 SW846 8011	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30984.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	35.1 ml	2.0 ml
Run #2		

**VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	84%		36-173%
460-00-4	Bromofluorobenzene (S)	74%		36-173%

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

4.8  
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## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

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



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** MC25237      **Client:** URS      **Immediate Client Services Action Required:** No  
**Date / Time Received:** 10/11/2013      **Delivery Method:** \_\_\_\_\_      **Client Service Action Required at Login:** No  
**Project:** 900 SOUTH CENTRAL      **No. Coolers:** 2      **Airbill #'s:** \_\_\_\_\_

**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: Infrared gun  
 3. Cooler media: Ice (bag)

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

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:    
 2. Container labeling complete:    
 3. Sample container label / COC agree:

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:    
 2. All containers accounted for:    
 3. Condition of sample: Intact

**Sample Integrity - Instructions**      Y or N      N/A  
 1. Analysis requested is clear:    
 2. Bottles received for unspecified tests:    
 3. Sufficient volume recvd for analysis:    
 4. Compositing instructions clear:     
 5. Filtering instructions clear:

Comments

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### Internal Sample Tracking Chronicle

Shell Oil

Job No: MC25237

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

5.2  
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Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC25237-1 Collected: 10-OCT-13 09:35 By: LRBL Received: 11-OCT-13 By: MW14-ROX-101013						
MC25237-1	SW846 8011	16-OCT-13 12:42	NK	15-OCT-13 PA		V8011SL
MC25237-1	SW846 8270C BY SIM	17-OCT-13 19:36	KR	16-OCT-13 SC		B8270SIMSL
MC25237-1	SW846 8260B	22-OCT-13 14:50	GK			V8260SL +
MC25237-1	SW846 8270C	23-OCT-13 10:17	KR	16-OCT-13 MR		AB8270SL +
MC25237-2 Collected: 10-OCT-13 10:30 By: LRBL Received: 11-OCT-13 By: P66-ROX-101013						
MC25237-2	SW846 8011	16-OCT-13 13:06	NK	15-OCT-13 PA		V8011SL
MC25237-2	SW846 8270C BY SIM	18-OCT-13 11:52	WK	16-OCT-13 SC		B8270SIMSL
MC25237-2	SW846 8260B	22-OCT-13 19:24	GK			V8260SL +
MC25237-2	SW846 8270C	23-OCT-13 10:45	KR	16-OCT-13 MR		AB8270SL +
MC25237-3 Collected: 10-OCT-13 13:10 By: LRBL Received: 11-OCT-13 By: P56-ROX-101013						
MC25237-3	SW846 8011	16-OCT-13 13:30	NK	15-OCT-13 PA		V8011SL
MC25237-3	SW846 8270C BY SIM	18-OCT-13 12:38	WK	16-OCT-13 SC		B8270SIMSL
MC25237-3	SW846 8260B	22-OCT-13 19:51	GK			V8260SL +
MC25237-3	SW846 8270C	23-OCT-13 11:14	KR	16-OCT-13 MR		AB8270SL +
MC25237-3	SW846 8260B	23-OCT-13 17:59	GK			V8260SL +
MC25237-4 Collected: 10-OCT-13 13:40 By: LRBL Received: 11-OCT-13 By: P55-ROX-101013-EB						
MC25237-4	SW846 8011	16-OCT-13 13:55	NK	15-OCT-13 PA		V8011SL
MC25237-4	SW846 8270C BY SIM	18-OCT-13 13:02	WK	16-OCT-13 SC		B8270SIMSL
MC25237-4	SW846 8260B	22-OCT-13 13:55	GK			V8260SL +
MC25237-4	SW846 8270C	23-OCT-13 12:40	KR	16-OCT-13 MR		AB8270SL +
MC25237-5 Collected: 10-OCT-13 14:55 By: LRBL Received: 11-OCT-13 By: P55-ROX-101013						
MC25237-5	SW846 8011	16-OCT-13 14:19	NK	15-OCT-13 PA		V8011SL
MC25237-5	SW846 8270C BY SIM	18-OCT-13 13:25	WK	16-OCT-13 SC		B8270SIMSL
MC25237-5	SW846 8260B	22-OCT-13 20:18	GK			V8260SL +
MC25237-5	SW846 8260B	23-OCT-13 17:32	GK			V8260SL +

### Internal Sample Tracking Chronicle

Shell Oil

Job No: MC25237

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

5.2  
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Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC25237-5	SW846 8270C	01-NOV-13 15:41	KR	16-OCT-13	MR	AB8270SL +
MC25237-6 Collected: 10-OCT-13 16:20 By: LRBL Received: 11-OCT-13 By: P59-ROX-101013						
MC25237-6	SW846 8011	16-OCT-13 14:43	NK	15-OCT-13	PA	V8011SL
MC25237-6	SW846 8270C BY SIM	18-OCT-13 13:49	WK	16-OCT-13	SC	B8270SIMSL
MC25237-6	SW846 8260B	22-OCT-13 20:45	GK			V8260SL +
MC25237-6	SW846 8270C	23-OCT-13 13:37	KR	16-OCT-13	MR	AB8270SL +
MC25237-6	SW846 8260B	23-OCT-13 18:27	GK			V8260SL +
MC25237-6	SW846 8270C	01-NOV-13 16:10	KR	16-OCT-13	MR	AB8270SL +
MC25237-7 Collected: 10-OCT-13 00:00 By: LRBL Received: 11-OCT-13 By: TB-ROX-101013-HCL						
MC25237-7	SW846 8260B	22-OCT-13 12:05	GK			V8260SL +
MC25237-8 Collected: 10-OCT-13 00:00 By: LRBL Received: 11-OCT-13 By: TB-ROX-101013-ST						
MC25237-8	SW846 8011	16-OCT-13 15:08	NK	15-OCT-13	PA	V8011SL

# SGS Accutest Internal Chain of Custody

**Job Number:** MC25237  
**Account:** SHELLWIC Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
**Received:** 10/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC25237-1.1	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-1.1	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.2	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-1.2	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.3	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-1.3	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.7	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-1.7	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-1.7	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.8	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-1.8	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-1.8	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.11	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-1.11	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-1.11	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.12	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-1.12	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-1.12	Scott Parsick		01/08/14 17:07	Disposed
MC25237-1.13	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-1.13	Michael Rolo		10/16/13 07:19	Depleted
MC25237-1.14	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-1.14	Michael Rolo		10/16/13 07:19	Depleted
MC25237-1.18	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-1.18	Michael Rolo		10/16/13 07:19	Depleted
MC25237-2.1	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-2.1	Scott Parsick		01/08/14 17:07	Disposed
MC25237-2.3	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-2.3	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-2.3	Scott Parsick		01/08/14 17:07	Disposed
MC25237-2.5	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-2.5	Michael Rolo		10/16/13 07:19	Depleted

5.3  
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# SGS Accutest Internal Chain of Custody

**Job Number:** MC25237  
**Account:** SHELLWIC Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
**Received:** 10/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC25237-3.1	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-3.1	Scott Parsick		01/08/14 17:07	Disposed
MC25237-3.3	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-3.3	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-3.3	Scott Parsick		01/08/14 17:07	Disposed
MC25237-3.4	VOC Ref #10	Gary Krasinski	10/23/13 11:47	Retrieve from Storage
MC25237-3.4	Gary Krasinski	VOC Ref #10	10/24/13 09:39	Return to Storage
MC25237-3.4	Scott Parsick		01/08/14 17:07	Disposed
MC25237-3.5	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-3.5	Michael Rolo		10/16/13 07:19	Depleted
MC25237-4.2	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-4.2	Scott Parsick		01/08/14 17:07	Disposed
MC25237-4.3	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-4.3	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-4.3	Scott Parsick		01/08/14 17:07	Disposed
MC25237-4.5	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-4.5	Michael Rolo		10/16/13 07:19	Depleted
MC25237-5.1	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-5.1	Scott Parsick		01/08/14 17:07	Disposed
MC25237-5.3	VOC Ref #10	Gary Krasinski	10/23/13 11:47	Retrieve from Storage
MC25237-5.3	Gary Krasinski	VOC Ref #10	10/24/13 09:39	Return to Storage
MC25237-5.3	Scott Parsick		01/08/14 17:07	Disposed
MC25237-5.4	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-5.4	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-5.4	Scott Parsick		01/08/14 17:07	Disposed
MC25237-5.6	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-5.6	Michael Rolo		10/16/13 07:19	Depleted
MC25237-6.1	Walk In Ref #22	Thomas Abruzzise	10/16/13 14:54	Retrieve from Storage
MC25237-6.1	Scott Parsick		01/08/14 17:07	Disposed
MC25237-6.3	VOC Ref #10	Gary Krasinski	10/23/13 11:47	Retrieve from Storage
MC25237-6.3	Gary Krasinski	VOC Ref #10	10/24/13 09:39	Return to Storage
MC25237-6.3	Scott Parsick		01/08/14 17:07	Disposed

# SGS Accutest Internal Chain of Custody

**Job Number:** MC25237  
**Account:** SHELLWIC Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
**Received:** 10/11/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC25237-6.4	VOC Ref #4	Gary Krasinski	10/22/13 11:35	Retrieve from Storage
MC25237-6.4	Gary Krasinski	VOC Ref #4	10/23/13 11:28	Return to Storage
MC25237-6.4	Scott Parsick		01/08/14 17:07	Disposed
MC25237-6.6	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-6.6	Michael Rolo		10/16/13 07:19	Depleted
MC25237-7.1	VOC Ref #4	Gary Krasinski	10/22/13 11:19	Retrieve from Storage
MC25237-7.1	Gary Krasinski	GCMSU	10/22/13 11:19	Load on Instrument
MC25237-7.1	GCMSU	Gary Krasinski	10/23/13 11:26	Unload from Instrument
MC25237-7.1	Gary Krasinski	VOC Ref #4	10/23/13 11:26	Return to Storage
MC25237-7.1	Scott Parsick		01/08/14 17:07	Disposed
MC25237-8.1	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25237-8.1	Michael Rolo		10/16/13 07:19	Depleted

5.3  
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**GC/MS Volatiles**

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**QC Data Summaries**

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU759-MB	U15294.D	1	10/22/13	GK	n/a	n/a	MSU759

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.8	ug/l	
107-02-8	Acrolein	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile	ND	5.0	3.5	ug/l	
71-43-2	Benzene	ND	0.50	0.45	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.58	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.87	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	ND	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	

# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU759-MB	U15294.D	1	10/22/13	GK	n/a	n/a	MSU759

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	ND	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

6.1.1  
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# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU759-MB	U15294.D	1	10/22/13	GK	n/a	n/a	MSU759

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

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	108%	70-130%
2037-26-5	Toluene-D8	109%	70-130%
460-00-4	4-Bromofluorobenzene	107%	70-130%

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

6.1.1  
6

# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU760-MB	U15323.D	1	10/23/13	GK	n/a	n/a	MSU760

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25237-3, MC25237-5, MC25237-6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.45	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	110% 70-130%
2037-26-5	Toluene-D8	109% 70-130%
460-00-4	4-Bromofluorobenzene	108% 70-130%

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

6.1.2  
6

# Blank Spike Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU759-BS	U15292.D	1	10/22/13	GK	n/a	n/a	MSU759

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	61.2	122	70-130
107-02-8	Acrolein	250	325	130	70-130
107-13-1	Acrylonitrile	50	54.0	108	70-130
71-43-2	Benzene	50	56.2	112	70-130
108-86-1	Bromobenzene	50	54.5	109	70-130
74-97-5	Bromochloromethane	50	57.0	114	70-130
75-27-4	Bromodichloromethane	50	54.8	110	70-130
75-25-2	Bromoform	50	51.3	103	70-130
74-83-9	Bromomethane	50	56.6	113	70-130
78-93-3	2-Butanone (MEK)	50	60.7	121	70-130
104-51-8	n-Butylbenzene	50	53.3	107	70-130
135-98-8	sec-Butylbenzene	50	53.5	107	70-130
98-06-6	tert-Butylbenzene	50	51.9	104	70-130
75-15-0	Carbon disulfide	50	57.0	114	70-130
56-23-5	Carbon tetrachloride	50	56.1	112	70-130
108-90-7	Chlorobenzene	50	52.1	104	70-130
75-00-3	Chloroethane	50	55.3	111	70-130
110-75-8	2-Chloroethyl vinyl ether	50	63.3	127	70-130
67-66-3	Chloroform	50	52.7	105	70-130
74-87-3	Chloromethane	50	63.0	126	70-130
95-49-8	o-Chlorotoluene	50	50.1	100	70-130
106-43-4	p-Chlorotoluene	50	50.9	102	70-130
124-48-1	Dibromochloromethane	50	52.1	104	70-130
95-50-1	1,2-Dichlorobenzene	50	51.0	102	70-130
541-73-1	1,3-Dichlorobenzene	50	52.5	105	70-130
106-46-7	1,4-Dichlorobenzene	50	53.9	108	70-130
75-71-8	Dichlorodifluoromethane	50	53.3	107	70-130
75-34-3	1,1-Dichloroethane	50	55.8	112	70-130
107-06-2	1,2-Dichloroethane	50	52.9	106	70-130
75-35-4	1,1-Dichloroethene	50	56.5	113	70-130
156-59-2	cis-1,2-Dichloroethene	50	54.0	108	70-130
156-60-5	trans-1,2-Dichloroethene	50	56.1	112	70-130
78-87-5	1,2-Dichloropropane	50	54.5	109	70-130
142-28-9	1,3-Dichloropropane	50	53.9	108	70-130
594-20-7	2,2-Dichloropropane	50	58.3	117	70-130
563-58-6	1,1-Dichloropropene	50	57.2	114	70-130

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU759-BS	U15292.D	1	10/22/13	GK	n/a	n/a	MSU759

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	49.0	98	70-130
10061-02-6	trans-1,3-Dichloropropene	50	52.8	106	70-130
123-91-1	1,4-Dioxane	250	268	107	70-130
97-63-2	Ethyl methacrylate	50	50.0	100	77-137
100-41-4	Ethylbenzene	50	52.7	105	70-130
87-68-3	Hexachlorobutadiene	50	51.2	102	70-130
591-78-6	2-Hexanone	50	53.2	106	70-130
98-82-8	Isopropylbenzene	50	53.7	107	70-130
99-87-6	p-Isopropyltoluene	50	55.2	110	70-130
1634-04-4	Methyl Tert Butyl Ether	50	51.9	104	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	50.1	100	70-130
74-95-3	Methylene bromide	50	55.6	111	70-130
75-09-2	Methylene chloride	50	54.0	108	70-130
91-20-3	Naphthalene	50	48.4	97	70-130
103-65-1	n-Propylbenzene	50	50.6	101	70-130
100-42-5	Styrene	50	54.2	108	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	55.9	112	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	51.2	102	70-130
127-18-4	Tetrachloroethene	50	53.5	107	70-130
108-88-3	Toluene	50	53.1	106	70-130
87-61-6	1,2,3-Trichlorobenzene	50	50.5	101	70-130
120-82-1	1,2,4-Trichlorobenzene	50	51.4	103	70-130
71-55-6	1,1,1-Trichloroethane	50	55.3	111	70-130
79-00-5	1,1,2-Trichloroethane	50	52.8	106	70-130
79-01-6	Trichloroethene	50	55.2	110	70-130
75-69-4	Trichlorofluoromethane	50	50.2	100	70-130
96-18-4	1,2,3-Trichloropropane	50	51.2	102	70-130
95-63-6	1,2,4-Trimethylbenzene	50	51.1	102	70-130
108-67-8	1,3,5-Trimethylbenzene	50	52.2	104	70-130
108-05-4	Vinyl Acetate	50	55.1	110	70-130
75-01-4	Vinyl chloride	50	46.1	92	70-130
	m,p-Xylene	100	103	103	70-130
95-47-6	o-Xylene	50	52.7	105	70-130
1330-20-7	Xylene (total)	150	156	104	70-130

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: MC25237  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU759-BS	U15292.D	1	10/22/13	GK	n/a	n/a	MSU759

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

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	110%	70-130%
2037-26-5	Toluene-D8	112%	70-130%
460-00-4	4-Bromofluorobenzene	105%	70-130%

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU760-BS	U15321.D	1	10/23/13	GK	n/a	n/a	MSU760

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25237-3, MC25237-5, MC25237-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	55.2	110	70-130
100-41-4	Ethylbenzene	50	51.9	104	70-130
108-88-3	Toluene	50	52.4	105	70-130
95-63-6	1,2,4-Trimethylbenzene	50	53.1	106	70-130
	m,p-Xylene	100	103	103	70-130
95-47-6	o-Xylene	50	51.8	104	70-130
1330-20-7	Xylene (total)	150	154	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	107%	70-130%
2037-26-5	Toluene-D8	111%	70-130%
460-00-4	4-Bromofluorobenzene	106%	70-130%

\* = Outside of Control Limits.





# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25237-1MS	U15303.D	1	10/22/13	GK	n/a	n/a	MSU759
MC25237-1MSD	U15304.D	1	10/22/13	GK	n/a	n/a	MSU759
MC25237-1	U15302.D	1	10/22/13	GK	n/a	n/a	MSU759

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

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6, MC25237-7

CAS No.	Surrogate Recoveries	MS	MSD	MC25237-1	Limits
1868-53-7	Dibromofluoromethane	114%	114%	117%	70-130%
2037-26-5	Toluene-D8	109%	108%	107%	70-130%
460-00-4	4-Bromofluorobenzene	105%	106%	107%	70-130%

(a) Outside control limits due to possible matrix interference. Refer to Blank Spike.

\* = Outside of Control Limits.

6.3.1  
6

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25237

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25339-2MS	U15332.D	5	10/23/13	GK	n/a	n/a	MSU760
MC25339-2MSD	U15333.D	5	10/23/13	GK	n/a	n/a	MSU760
MC25339-2	U15326.D	1	10/23/13	GK	n/a	n/a	MSU760

The QC reported here applies to the following samples:

Method: SW846 8260C

MC25237-3, MC25237-5, MC25237-6

CAS No.	Compound	MC25339-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	250	284	114	250	282	113	1	70-130/30
100-41-4	Ethylbenzene	ND	250	278	111	250	271	108	3	70-130/30
108-88-3	Toluene	ND	250	266	106	250	269	108	1	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	250	270	108	250	270	108	0	70-130/30
	m,p-Xylene	ND	500	532	106	500	522	104	2	70-130/30
95-47-6	o-Xylene	ND	250	274	110	250	268	107	2	70-130/30
1330-20-7	Xylene (total)	ND	750	805	107	750	790	105	2	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	MC25339-2	Limits
1868-53-7	Dibromofluoromethane	111%	110%	115%	70-130%
2037-26-5	Toluene-D8	109%	110%	105%	70-130%
460-00-4	4-Bromofluorobenzene	106%	108%	105%	70-130%

\* = Outside of Control Limits.





# Volatile Surrogate Recovery Summary

Job Number: MC25237

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8260B

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC25237-1	U15302.D	117	107	107
MC25237-2	U15312.D	117	110	103
MC25237-3	U15337.D	115	110	105
MC25237-3	U15313.D	112	112	104
MC25237-4	U15300.D	110	110	106
MC25237-5	U15336.D	114	109	106
MC25237-5	U15314.D	114	111	103
MC25237-6	U15338.D	111	110	105
MC25237-6	U15315.D	110	113	108
MC25237-7	U15296.D	107	109	106
MC25237-1MS	U15303.D	114	109	105
MC25237-1MSD	U15304.D	114	108	106
MC25339-2MS	U15332.D	111	109	106
MC25339-2MSD	U15333.D	110	110	108
MSU759-BS	U15292.D	110	112	105
MSU759-MB	U15294.D	108	109	107
MSU760-BS	U15321.D	107	111	106
MSU760-MB	U15323.D	110	109	108

**Surrogate Compounds**

**Recovery Limits**

S1 = Dibromofluoromethane	70-130%
S2 = Toluene-D8	70-130%
S3 = 4-Bromofluorobenzene	70-130%

6.5.1  
6

**GC/MS Semi-volatiles**

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**QC Data Summaries****7**

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35286-MB	W14991.D	1	10/23/13	KR	10/16/13	OP35286	MSW676

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

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	1.3	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.38	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	0.49	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	0.33	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	1.1	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	2.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	1.2	ug/l	
95-48-7	2-Methylphenol	ND	10	1.3	ug/l	
	3&4-Methylphenol	ND	10	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	10	0.50	ug/l	
100-02-7	4-Nitrophenol	ND	20	0.58	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.3	ug/l	
108-95-2	Phenol	ND	5.0	0.51	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	10	0.57	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	0.32	ug/l	
62-53-3	Aniline	ND	10	0.64	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.20	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	0.85	ug/l	
100-51-6	Benzyl Alcohol	ND	10	0.57	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.92	ug/l	
106-47-8	4-Chloroaniline	ND	10	0.25	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.21	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.23	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.13	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.20	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	0.65	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	0.68	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	0.64	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.50	ug/l	
132-64-9	Dibenzofuran	ND	2.0	0.16	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	0.39	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	0.43	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	0.50	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	0.50	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.49	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.30	ug/l	

7.1.1  
7

# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35286-MB	W14991.D	1	10/23/13	KR	10/16/13	OP35286	MSW676

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

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	10	2.5	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.44	ug/l	
78-59-1	Isophorone	ND	5.0	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	10	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	10	0.50	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.3	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.25	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	0.50	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	0.81	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.54	ug/l	
110-86-1	Pyridine	ND	10	0.52	ug/l	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	42%	15-110%
4165-62-2	Phenol-d5	30%	15-110%
118-79-6	2,4,6-Tribromophenol	94%	15-110%
4165-60-0	Nitrobenzene-d5	78%	30-130%
321-60-8	2-Fluorobiphenyl	82%	30-130%
1718-51-0	Terphenyl-d14	109%	30-130%

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

7.1.1  
7

# Method Blank Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35287-MB	I86476.D	1	10/17/13	KR	10/16/13	OP35287	MSI3218

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.069	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.092	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.020	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.029	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.032	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.027	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.024	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.032	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.041	ug/l	
86-73-7	Fluorene	ND	0.10	0.099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.031	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.20	0.050	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.20	0.074	ug/l	
85-01-8	Phenanthrene	ND	0.050	0.013	ug/l	
129-00-0	Pyrene	ND	0.10	0.038	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	85%	30-130%
321-60-8	2-Fluorobiphenyl	77%	30-130%
1718-51-0	Terphenyl-d14	101%	30-130%

7.1.2  
7

# Blank Spike Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35286-BS	W14992.D	1	10/23/13	KR	10/16/13	OP35286	MSW676

The QC reported here applies to the following samples:

Method: SW846 8270C

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	6.4	13* a	30-130
95-57-8	2-Chlorophenol	50	38.1	76	30-130
59-50-7	4-Chloro-3-methyl phenol	50	35.4	71	30-130
120-83-2	2,4-Dichlorophenol	50	43.4	87	30-130
105-67-9	2,4-Dimethylphenol	50	38.2	76	30-130
51-28-5	2,4-Dinitrophenol	50	40.4	81	30-130
534-52-1	4,6-Dinitro-o-cresol	50	49.5	99	30-130
95-48-7	2-Methylphenol	50	33.8	68	30-130
	3&4-Methylphenol	100	62.5	63	30-130
88-75-5	2-Nitrophenol	50	43.5	87	30-130
100-02-7	4-Nitrophenol	50	14.7	29* a	30-130
87-86-5	Pentachlorophenol	50	40.5	81	30-130
108-95-2	Phenol	50	18.0	36	30-130
95-95-4	2,4,5-Trichlorophenol	50	42.7	85	30-130
88-06-2	2,4,6-Trichlorophenol	50	44.5	89	30-130
62-53-3	Aniline	50	32.8	66	40-140
101-55-3	4-Bromophenyl phenyl ether	50	47.7	95	40-140
85-68-7	Butyl benzyl phthalate	50	44.5	89	40-140
100-51-6	Benzyl Alcohol	50	34.7	69	40-140
91-58-7	2-Chloronaphthalene	50	42.3	85	40-140
106-47-8	4-Chloroaniline	50	38.6	77	40-140
111-91-1	bis(2-Chloroethoxy)methane	50	46.4	93	40-140
111-44-4	bis(2-Chloroethyl)ether	50	39.9	80	40-140
108-60-1	bis(2-Chloroisopropyl)ether	50	41.5	83	40-140
7005-72-3	4-Chlorophenyl phenyl ether	50	40.4	81	40-140
122-66-7	1,2-Diphenylhydrazine	50	40.1	80	40-140
121-14-2	2,4-Dinitrotoluene	50	40.2	80	40-140
606-20-2	2,6-Dinitrotoluene	50	39.0	78	40-140
91-94-1	3,3'-Dichlorobenzidine	50	43.2	86	40-140
132-64-9	Dibenzofuran	50	38.4	77	40-140
84-74-2	Di-n-butyl phthalate	50	39.5	79	40-140
117-84-0	Di-n-octyl phthalate	50	50.5	101	40-140
84-66-2	Diethyl phthalate	50	37.8	76	40-140
131-11-3	Dimethyl phthalate	50	35.3	71	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	50	46.1	92	40-140
118-74-1	Hexachlorobenzene	50	45.3	91	40-140

\* = Outside of Control Limits.

7.2.1  
7

# Blank Spike Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35286-BS	W14992.D	1	10/23/13	KR	10/16/13	OP35286	MSW676

The QC reported here applies to the following samples:

Method: SW846 8270C

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	50	21.1	42	40-140
67-72-1	Hexachloroethane	50	28.8	58	40-140
78-59-1	Isophorone	50	38.2	76	40-140
88-74-4	2-Nitroaniline	50	42.6	85	40-140
99-09-2	3-Nitroaniline	50	37.8	76	40-140
100-01-6	4-Nitroaniline	50	34.9	70	40-140
98-95-3	Nitrobenzene	50	37.8	76	40-140
62-75-9	n-Nitrosodimethylamine	50	24.7	49	40-140
621-64-7	N-Nitroso-di-n-propylamine	50	39.7	79	40-140
86-30-6	N-Nitrosodiphenylamine	50	88.5	88	40-140
110-86-1	Pyridine	50	20.6	41	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	56%	15-110%
4165-62-2	Phenol-d5	37%	15-110%
118-79-6	2,4,6-Tribromophenol	113%* b	15-110%
4165-60-0	Nitrobenzene-d5	86%	30-130%
321-60-8	2-Fluorobiphenyl	89%	30-130%
1718-51-0	Terphenyl-d14	108%	30-130%

- (a) Outside control limits. Blank Spike meets program technical requirements.
- (b) Outside control limits. Results confirmed by reanalysis.

\* = Outside of Control Limits.

# Blank Spike/Blank Spike Duplicate Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35287-BS	I86477.D	1	10/17/13	KR	10/16/13	OP35287	MSI3218
OP35287-BSD	I86478.D	1	10/17/13	KR	10/16/13	OP35287	MSI3218

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	50	38.4	77	36.7	73	5	40-140/30
208-96-8	Acenaphthylene	50	31.8	64	30.0	60	6	40-140/30
120-12-7	Anthracene	50	39.7	79	38.0	76	4	40-140/30
56-55-3	Benzo(a)anthracene	50	42.9	86	43.5	87	1	40-140/30
50-32-8	Benzo(a)pyrene	50	42.9	86	42.5	85	1	40-140/30
205-99-2	Benzo(b)fluoranthene	50	44.1	88	41.7	83	6	40-140/30
191-24-2	Benzo(g,h,i)perylene	50	43.3	87	44.9	90	4	40-140/30
207-08-9	Benzo(k)fluoranthene	50	46.0	92	45.1	90	2	40-140/30
218-01-9	Chrysene	50	39.4	79	39.8	80	1	40-140/30
53-70-3	Dibenzo(a,h)anthracene	50	46.1	92	46.3	93	0	40-140/30
206-44-0	Fluoranthene	50	40.2	80	39.2	78	3	40-140/30
86-73-7	Fluorene	50	40.9	82	38.7	77	6	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	50	45.8	92	46.3	93	1	40-140/30
90-12-0	1-Methylnaphthalene	50	36.9	74	35.3	71	4	40-140/30
91-57-6	2-Methylnaphthalene	50	34.9	70	33.6	67	4	40-140/30
85-01-8	Phenanthrene	50	41.8	84	40.9	82	2	40-140/30
129-00-0	Pyrene	50	38.9	78	38.1	76	2	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	93%	89%	30-130%
321-60-8	2-Fluorobiphenyl	83%	78%	30-130%
1718-51-0	Terphenyl-d14	104%	98%	30-130%

\* = Outside of Control Limits.

7.3.1  
7



# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35286-MS	W14993.D	1	10/23/13	KR	10/16/13	OP35286	MSW676
OP35286-MSD	W14994.D	1	10/23/13	KR	10/16/13	OP35286	MSW676
MC25237-1	W14995.D	1	10/23/13	KR	10/16/13	OP35286	MSW676

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

MC25237-1, MC25237-2, MC25237-3, MC25237-4, MC25237-5, MC25237-6

7.4.1  
7

CAS No.	Compound	MC25237-1 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	55.6	23.7	43	54.3	25.1	46	6	40-140/20
67-72-1	Hexachloroethane	ND	55.6	30.3	55	54.3	32.0	59	5	40-140/20
78-59-1	Isophorone	ND	55.6	40.8	73	54.3	41.3	76	1	40-140/20
88-74-4	2-Nitroaniline	ND	55.6	47.0	85	54.3	47.1	87	0	40-140/20
99-09-2	3-Nitroaniline	ND	55.6	41.4	75	54.3	41.3	76	0	40-140/20
100-01-6	4-Nitroaniline	ND	55.6	37.5	68	54.3	36.9	68	2	40-140/20
98-95-3	Nitrobenzene	ND	55.6	40.7	73	54.3	42.3	78	4	40-140/20
62-75-9	n-Nitrosodimethylamine	ND	55.6	26.6	48	54.3	28.1	52	5	40-140/20
621-64-7	N-Nitroso-di-n-propylamine	ND	55.6	41.5	75	54.3	42.5	78	2	40-140/20
86-30-6	N-Nitrosodiphenylamine	ND	55.6	97.5	88	54.3	97.0	89	1	40-140/20
110-86-1	Pyridine	ND	55.6	22.2	40	54.3	22.7	42	2	40-140/20

CAS No.	Surrogate Recoveries	MS	MSD	MC25237-1	Limits
367-12-4	2-Fluorophenol	42%	44%	34%	15-110%
4165-62-2	Phenol-d5	33%	37%	27%	15-110%
118-79-6	2,4,6-Tribromophenol	91%	99%	83%	15-110%
4165-60-0	Nitrobenzene-d5	77%	83%	73%	30-130%
321-60-8	2-Fluorobiphenyl	81%	84%	78%	30-130%
1718-51-0	Terphenyl-d14	94%	99%	97%	30-130%

\* = Outside of Control Limits.





# Semivolatile Internal Standard Area Summary

Job Number: MC25237  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSI3218-CC3155	Injection Date:	10/17/13
Lab File ID:	I86475.D	Injection Time:	17:14
Instrument ID:	GCMSI	Method:	SW846 8270C BY SIM

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT

- (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.

7.5.1  
7

# Semivolatile Internal Standard Area Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSI3219-CC3155	Injection Date:	10/18/13
Lab File ID:	I86508.D	Injection Time:	10:06
Instrument ID:	GCMSI	Method:	SW846 8270C BY SIM

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	202310	4.08	588767	5.06	349415	6.51	596390	7.85	520494	10.64	858513	12.12
Upper Limit <sup>a</sup>	404620	4.58	1177534	5.56	698830	7.01	1192780	8.35	1040988	11.14	1717026	12.62
Lower Limit <sup>b</sup>	101155	3.58	294384	4.56	174708	6.01	298195	7.35	260247	10.14	429257	11.62

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MC25237-2	176879	4.08	503859	5.07	290337	6.51	501076	7.86	429812	10.64	721176	12.12
ZZZZZZ	183544	4.08	528380	5.06	318991	6.51	549049	7.85	499605	10.64	836682	12.12
MC25237-3	171033	4.08	496928	5.07	294747	6.51	513814	7.85	455039	10.64	775172	12.12
MC25237-4	174165	4.08	506828	5.07	300647	6.51	513668	7.85	453826	10.63	762557	12.12
MC25237-5	180219	4.08	522975	5.07	308689	6.51	528769	7.85	465421	10.64	779986	12.11
MC25237-6	175850	4.08	518612	5.07	298223	6.51	509753	7.85	441843	10.64	742046	12.12
ZZZZZZ	186854	4.08	542393	5.06	316729	6.51	538441	7.85	457622	10.64	747493	12.12
ZZZZZZ	181494	4.08	526330	5.06	312722	6.51	537556	7.85	476787	10.63	800140	12.11
ZZZZZZ	165688	4.08	481988	5.06	284178	6.51	480902	7.85	438460	10.63	735626	12.11
ZZZZZZ	169231	4.08	492374	5.07	294629	6.51	507170	7.85	462689	10.64	752343	12.12
ZZZZZZ	189532	4.08	547239	5.07	324365	6.51	556822	7.85	498665	10.64	796045	12.12

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12
- IS 6 = Perylene-d12

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

7.5.2  
7























# GC Surrogate Retention Time Summary

Job Number: MC25237  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	GBK1020-CC1020	Injection Date:	10/16/13
Lab File ID:	BK30975.D	Injection Time:	11:30
Instrument ID:	GCBK	Method:	SW846 8011

S1<sup>a</sup>   S1<sup>b</sup>  
 RT     RT

Check Std	4.05	5.05
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
ZZZZZZ	BK30976.D	10/16/13	11:54	4.05	5.05
ZZZZZZ	BK30977.D	10/16/13	12:18	4.05	5.05
MC25237-1	BK30978.D	10/16/13	12:42	4.05	5.05
MC25237-2	BK30979.D	10/16/13	13:06	4.05	5.06
MC25237-3	BK30980.D	10/16/13	13:30	4.05	5.06
MC25237-4	BK30981.D	10/16/13	13:55	4.05	5.06
MC25237-5	BK30982.D	10/16/13	14:19	4.05	5.05
MC25237-6	BK30983.D	10/16/13	14:43	4.05	5.06
MC25237-8	BK30984.D	10/16/13	15:08	4.05	5.06
ZZZZZZ	BK30985.D	10/16/13	15:32	4.05	5.06

**Surrogate  
 Compounds**

S1 = Bromofluorobenzene (S)

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

8.5.3  
**8**

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VERIFICATION, TESTING AND CERTIFICATION COMPANY.



*e-Hardcopy 2.0*  
*Automated Report*

### Technical Report for

### Shell Oil

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana,

SGS Accutest Job Number: MC25284

Sampling Date: 10/11/13

Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 85



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

H. (Brad) Madadian  
Lab Director

Client Service contact: Jeremy Vienneau 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) FL (E87579) NY (11791)  
NJ (MA926) PA (6801121) ND (R-188) CO (MA00136) MN (11546AA) NC (653) IL (002337) WI (399080220)  
DoD ELAP (L-A-B L2235)

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Test results relate only to samples analyzed.



ACCUTEST

November 04, 2016

AECOM  
1001 Highlands Plaza Drive West Suite 300  
St. Louis, MO 63110

RE: SGS Accutest Job # MC25284

Dear Elizabeth Kunkel

As you are aware, SGS Accutest Inc. - Marlborough has been conducting an extensive review of data associated with some historical Gas Chromatography-Mass Spectroscopy volatiles analyses. As a result of this review it was determined that some revisions of the original test report for this job were needed. These corrections have been incorporated into the revised report.

Please be assured that corrective actions have been put in place to address this matter and prevent a recurrence.

We apologize for any inconvenience that this issue may have caused. Please don't hesitate to contact us if we can be of further assistance.

Sincerely,

**H. (Brad) Madadian**

Regional Laboratory Director  
SGS Accutest Inc. - Marlborough

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TESTING AND CERTIFICATION COMPANY.

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## Sample Summary

Shell Oil

Job No: MC25284

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC25284-1	10/11/13	13:35 BL	10/14/13	AQ	Ground Water	P93D-ROX-101113
MC25284-2	10/11/13	16:45 BL	10/14/13	AQ	Ground Water	P93A-ROX-101113
MC25284-3	10/11/13	00:00 BL	10/14/13	AQ	Trip Blank Water	TB-ROX-101113-HCL
MC25284-4	10/11/13	00:00 BL	10/14/13	AQ	Trip Blank Water	TB-ROX-101113-ST

# SAMPLE DELIVERY GROUP CASE NARRATIVE



**Client:** She O

**Job No** MC25284

**Site:** URSMOSTL:Roxana 4Q 3 GW/ 2 562850 03004 900 South Centra

**Report Date** /4/20 6 9:50:36 AM

2 Sample(s), 2 Trip Blank(s) were collected on 01/14/2013 and were received at SGS Accutest New England on 01/14/2013 properly preserved, at Deg C and intact. These Samples received a job number of MC25284. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report. -Chlorohexane, Benzenethiol, Diethylbenzylamine, Indene, and Quinoline were searched in the library search and reported only if detections were found. Except as noted below, all method specified calibration and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

## Volatiles by GCMS By Method SW846 8260B

<b>Matrix:</b> AQ	<b>Batch ID:</b> MSN3052
-------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) MC25248- MS, MC25248- MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- Blank Spike Recovery(s) for Vinyl Acetate, Acetone, Vinyl Chloride are outside control limits. Associated samples may be biased low.
- MC25248- MS Recovery(s) for 2-Butanone (MEK), 2-Hexanone, Acetone, Chloroform, Dichlorofluoromethane, Ethylbenzene, Vinyl Acetate, Vinyl Chloride are outside control limits. Out of control limits due to possible matrix interference.
- MC25248- MSD Recovery(s) for 2-Butanone (MEK), 2-Hexanone, Acetone, Dichlorofluoromethane, Ethylbenzene, Vinyl Acetate, Vinyl Chloride are outside control limits. Out of control limits due to possible matrix interference.
- Acetone, Acroene, Acrylonitrile, 2-Butanone, Chloroform, Dichlorofluoromethane, 2,2-Dichloropropane, 4-Dioxane, 2-Hexanone, Methyl Tert Butyl Ether, 4-Methyl-2-pentanone, 1,2,2-Tetrachloroethane, Vinyl Acetate, Vinyl Chloride: Controlling Calibration outside of acceptance criteria. Result may be biased low.
- All samples analyzed by method SW846 8260C.
- MC25248- MS/MSD Recovery(s) for Benzene are outside control limits. Out of control limits due to high event sample relative to spike amount.

<b>Matrix:</b> AQ	<b>Batch ID:</b> MSN3053
-------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) MC25500- 8MS, MC25500- 8MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- All samples analyzed by method SW846 8260C.
- MSN3053-BS Recovery(s) for Dichlorofluoromethane, Ethylmethacrylate, Methyl Tert Butyl Ether, Vinyl Acetate, Vinyl Chloride are outside control limits.
- Matrix Spike Recovery(s) for 1,2,2-Tetrachloroethane, Acroene, Chloroform, Dichlorofluoromethane, Methyl Tert Butyl Ether, Vinyl Acetate, Vinyl Chloride are outside control limits. Out of control limits due to possible matrix interference.
- Matrix Spike Duplicate Recovery(s) for 1,2,2-Tetrachloroethane, Acroene, Dichlorofluoromethane, Vinyl Acetate, Vinyl Chloride are outside control limits. Out of control limits due to possible matrix interference.
- 4-Dioxane, Methyl Tert Butyl Ether, 1,2,2-Tetrachloroethane: Controlling Calibration outside of acceptance criteria. Result may be biased low.
- Controlling Calibration MSN3054-CC3048 utilized the same file as MSN3053-CC3048, file N8 789. Does

## Extractables by GCMS By Method SW846 8270C

**Matrix:** AQ

**Batch ID:** OP353

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- Sample(s) MC25 00-6MS, MC25 00-6MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification
- Blank Spike Recovery(s) for Benzoc Ac d, Hexachlorocyclopentadiene, Hexachloroethane, Pheno, Pyridine are outside control limits
- Matrix Spike Recovery(s) for Benzoc Ac d, Hexachlorocyclopentadiene, Pheno, Pyridine are outside control limits
- Matrix Spike Duplicate Recovery(s) for Hexachlorocyclopentadiene, Pyridine are outside control limits
- RPD(s) for MSD for Benzoc Ac d are outside control limits for sample OP353 -MSD
- MC25284- for 2-F uoropheno : Outside control limits due to possible matrix interference Confirmed by re-extract on/reanalysis
- MC25284- for Pheno -d5: Outside control limits due to possible matrix interference Confirmed by re-extract on/reanalysis

**Matrix:** AQ

**Batch ID:** OP35455

- The following samples were extracted outside of holding time for method SW846 8270C: MC25284-
- MC25284- : Confirmation run
- MC25284- for 2-F uoropheno : Outside control limits due to possible matrix interference Confirmed by re-extract on/reanalysis
- MC25284- for Pheno -d5: Outside control limits due to possible matrix interference Confirmed by re-extract on/reanalysis

## Extractables by GCMS By Method SW846 8270C BY SIM

**Matrix:** AQ

**Batch ID:** OP353 2

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- Sample(s) MC25 00-7MS, MC25 00-7MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification

## Volatiles by GC By Method SW846 8011

**Matrix:** AQ

**Batch ID:** OP35265

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- Sample(s) MC25237- MS, MC25237- MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification

SGS Accutest New England certifies that all analyses were performed with the method specification. It is further recommended that this report be used in its entirety. The Laboratory Director for SGS Accutest New England or assignee as verified by the signature on the cover page has authorized the release of this report (MC25284)

## Summary of Hits

Job Number: MC25284  
 Account: Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
 Collected: 10/11/13



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
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**MC25284-1 P93D-ROX-101113**

Benzene	1.4	0.50	0.45	ug/l	SW846 8260B
Methyl Tert Butyl Ether <sup>a</sup>	0.66 J	1.0	0.43	ug/l	SW846 8260B
Fluoranthene	0.087 J	0.10	0.041	ug/l	SW846 8270C BY SIM
Pyrene	0.084 J	0.10	0.038	ug/l	SW846 8270C BY SIM

**MC25284-2 P93A-ROX-101113**

Benzene	197000	1000	900	ug/l	SW846 8260B
Ethylbenzene	264	1.0	0.38	ug/l	SW846 8260B
Isopropylbenzene	14.2	5.0	0.64	ug/l	SW846 8260B
p-Isopropyltoluene	2.5 J	5.0	0.55	ug/l	SW846 8260B
Methyl Tert Butyl Ether <sup>a</sup>	3.4	1.0	0.43	ug/l	SW846 8260B
Naphthalene	62.1	5.0	0.79	ug/l	SW846 8260B
n-Propylbenzene	15.0	5.0	0.59	ug/l	SW846 8260B
Toluene	13.3	1.0	0.46	ug/l	SW846 8260B
1,2,4-Trimethylbenzene	146	5.0	0.47	ug/l	SW846 8260B
1,3,5-Trimethylbenzene	16.3	5.0	1.1	ug/l	SW846 8260B
m,p-Xylene	451	1.0	0.70	ug/l	SW846 8260B
o-Xylene	78.9	1.0	0.41	ug/l	SW846 8260B
Xylene (total)	530	1.0	0.41	ug/l	SW846 8260B
Phenol	83.7	5.0	0.51	ug/l	SW846 8270C
Acenaphthene	0.17	0.10	0.069	ug/l	SW846 8270C BY SIM
Fluorene	0.28	0.10	0.099	ug/l	SW846 8270C BY SIM
1-Methylnaphthalene	12.8	0.20	0.050	ug/l	SW846 8270C BY SIM
2-Methylnaphthalene	8.5	0.20	0.074	ug/l	SW846 8270C BY SIM
Phenanthrene	0.13	0.050	0.013	ug/l	SW846 8270C BY SIM

**MC25284-3 TB-ROX-101113-HCL**

No hits reported in this sample.

**MC25284-4 TB-ROX-101113-ST**

No hits reported in this sample.

(a) Continuing Calibration outside of acceptance criteria. Result may be biased low.

Sample Results

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Report of Analysis

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# Report of Analysis

Client Sample ID:	P93D-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-1	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N81796.D	1	10/25/13	JB	n/a	n/a	MSN3053
Run #2							

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

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.8	ug/l	
107-02-8	Acrolein	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile	ND	5.0	3.5	ug/l	
71-43-2	Benzene	1.4	0.50	0.45	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.58	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.87	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	ND	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	

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

4.1  
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## Report of Analysis

<b>Client Sample ID:</b> P93D-ROX-101113		<b>Date Sampled:</b> 10/11/13
<b>Lab Sample ID:</b> MC25284-1		<b>Date Received:</b> 10/14/13
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	81%		70-130%
2037-26-5	Toluene-D8	88%		70-130%
460-00-4	4-Bromofluorobenzene	101%		70-130%

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

(a) Continuing Calibration outside of acceptance criteria. Result may be biased low.

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

**Report of Analysis**

<b>Client Sample ID:</b> P93D-ROX-101113		<b>Date Sampled:</b> 10/11/13
<b>Lab Sample ID:</b> MC25284-1		<b>Date Received:</b> 10/14/13
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W14977.D	1	10/23/13	KR	10/17/13	OP35311	MSW675
Run #2 <sup>a</sup>	F70029.D	1	10/31/13	WK	10/28/13	OP35455	MSF3129

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

**ABN Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	1.3	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.38	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	0.49	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	0.33	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	1.1	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	2.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	1.2	ug/l	
95-48-7	2-Methylphenol	ND	10	1.3	ug/l	
	3&4-Methylphenol	ND	10	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	10	0.50	ug/l	
100-02-7	4-Nitrophenol	ND	20	0.58	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.3	ug/l	
108-95-2	Phenol	ND	5.0	0.51	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	10	0.57	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	0.32	ug/l	
62-53-3	Aniline	ND	10	0.64	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.20	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	0.85	ug/l	
100-51-6	Benzyl Alcohol	ND	10	0.57	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.92	ug/l	
106-47-8	4-Chloroaniline	ND	10	0.25	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.21	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.23	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.13	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.20	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	0.65	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	0.68	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	0.64	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.50	ug/l	
132-64-9	Dibenzofuran	ND	2.0	0.16	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	0.39	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	0.43	ug/l	

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:	P93D-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-1	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C	Project: URMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.0	0.50	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	0.50	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.49	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.30	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.5	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.44	ug/l	
78-59-1	Isophorone	ND	5.0	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	10	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	10	0.50	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.3	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.25	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	0.50	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	0.81	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.54	ug/l	
110-86-1	Pyridine	ND	10	0.52	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	8% <sup>b</sup>	11% <sup>b</sup>	15-110%
4165-62-2	Phenol-d5	7% <sup>b</sup>	9% <sup>b</sup>	15-110%
118-79-6	2,4,6-Tribromophenol	45%	44%	15-110%
4165-60-0	Nitrobenzene-d5	53%	65%	30-130%
321-60-8	2-Fluorobiphenyl	57%	60%	30-130%
1718-51-0	Terphenyl-d14	95%	78%	30-130%

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

(a) Confirmation run.

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

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

<b>Client Sample ID:</b> P93D-ROX-101113	<b>Date Sampled:</b> 10/11/13
<b>Lab Sample ID:</b> MC25284-1	<b>Date Received:</b> 10/14/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C BY SIM SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86531.D	1	10/21/13	WK	10/17/13	OP35312	MSI3220
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.069	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.092	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.020	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.029	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.032	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.027	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.024	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.032	ug/l	
206-44-0	Fluoranthene	0.087	0.10	0.041	ug/l	J
86-73-7	Fluorene	ND	0.10	0.099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.031	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.20	0.050	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.20	0.074	ug/l	
85-01-8	Phenanthrene	ND	0.050	0.013	ug/l	
129-00-0	Pyrene	0.084	0.10	0.038	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		30-130%
321-60-8	2-Fluorobiphenyl	54%		30-130%
1718-51-0	Terphenyl-d14	88%		30-130%

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

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

## Report of Analysis

<b>Client Sample ID:</b> P93D-ROX-101113	<b>Date Sampled:</b> 10/11/13
<b>Lab Sample ID:</b> MC25284-1	<b>Date Received:</b> 10/14/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8011 SW846 8011	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30985.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

	Initial Volume	Final Volume
Run #1	35.5 ml	2.0 ml
Run #2		

### VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0053	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	85%		36-173%
460-00-4	Bromofluorobenzene (S)	69%		36-173%

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

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## Report of Analysis

Client Sample ID:	P93A-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-2	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N81741.D	1	10/23/13	JB	n/a	n/a	MSN3052
Run #2	N81771.D	2000	10/24/13	JB	n/a	n/a	MSN3053

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

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone <sup>a</sup>	ND	10	2.8	ug/l	
107-02-8	Acrolein <sup>a</sup>	ND	25	6.3	ug/l	
107-13-1	Acrylonitrile <sup>a</sup>	ND	5.0	3.5	ug/l	
71-43-2	Benzene	197000 <sup>b</sup>	1000	900	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.44	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.64	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.33	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK) <sup>a</sup>	ND	5.0	1.6	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.54	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.58	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.87	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.59	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.62	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.48	ug/l	
75-00-3	Chloroethane	ND	2.0	0.84	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane <sup>a</sup>	ND	2.0	1.4	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.55	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.48	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.33	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.35	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.30	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.26	ug/l	
75-71-8	Dichlorodifluoromethane <sup>a</sup>	ND	2.0	1.2	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.37	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.35	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	P93A-ROX-101113	<b>Date Sampled:</b>	10/11/13
<b>Lab Sample ID:</b>	MC25284-2	<b>Date Received:</b>	10/14/13
<b>Matrix:</b>	AQ - Ground Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane <sup>a</sup>	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane <sup>a</sup>	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	264	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone <sup>a</sup>	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	14.2	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	2.5	5.0	0.55	ug/l	J
1634-04-4	Methyl Tert Butyl Ether <sup>a</sup>	3.4	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIB) <sup>a</sup>	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	62.1	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	15.0	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane <sup>a</sup>	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	13.3	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	146	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	16.3	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate <sup>a</sup>	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride <sup>a</sup>	ND	1.0	0.61	ug/l	
	m,p-Xylene	451	1.0	0.70	ug/l	
95-47-6	o-Xylene	78.9	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	530	1.0	0.41	ug/l	

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

Page 3 of 3

Client Sample ID:	P93A-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-2	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%	82%	70-130%
2037-26-5	Toluene-D8	77%	87%	70-130%
460-00-4	4-Bromofluorobenzene	91%	101%	70-130%

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

- (a) Continuing Calibration outside of acceptance criteria. Result may be biased low.  
 (b) Result is from Run# 2

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:	P93A-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-2	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C	Project: URMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W14978.D	1	10/23/13	KR	10/17/13	OP35311	MSW675
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	1.3	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.38	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	0.49	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	0.33	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	1.1	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	2.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	1.2	ug/l	
95-48-7	2-Methylphenol	ND	10	1.3	ug/l	
	3&4-Methylphenol	ND	10	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	10	0.50	ug/l	
100-02-7	4-Nitrophenol	ND	20	0.58	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.3	ug/l	
108-95-2	Phenol	83.7	5.0	0.51	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	10	0.57	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	0.32	ug/l	
62-53-3	Aniline	ND	10	0.64	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.20	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	0.85	ug/l	
100-51-6	Benzyl Alcohol	ND	10	0.57	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.92	ug/l	
106-47-8	4-Chloroaniline	ND	10	0.25	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.21	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.23	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.13	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.20	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	0.65	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	0.68	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	0.64	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.50	ug/l	
132-64-9	Dibenzofuran	ND	2.0	0.16	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	0.39	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	0.43	ug/l	

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:	P93A-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-2	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C	Project:	
Project:	URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

## ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.0	0.50	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	0.50	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.49	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.30	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.5	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.44	ug/l	
78-59-1	Isophorone	ND	5.0	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	10	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	10	0.50	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.3	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.25	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	0.50	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	0.81	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.54	ug/l	
110-86-1	Pyridine	ND	10	0.52	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		15-110%
4165-62-2	Phenol-d5	29%		15-110%
118-79-6	2,4,6-Tribromophenol	99%		15-110%
4165-60-0	Nitrobenzene-d5	64%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	97%		30-130%

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

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:	P93A-ROX-101113	Date Sampled:	10/11/13
Lab Sample ID:	MC25284-2	Date Received:	10/14/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C	Project:	URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I86532.D	1	10/21/13	WK	10/17/13	OP35312	MSI3220
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.17	0.10	0.069	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.092	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.020	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.029	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.032	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.027	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.024	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.032	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.041	ug/l	
86-73-7	Fluorene	0.28	0.10	0.099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.031	ug/l	
90-12-0	1-Methylnaphthalene	12.8	0.20	0.050	ug/l	
91-57-6	2-Methylnaphthalene	8.5	0.20	0.074	ug/l	
85-01-8	Phenanthrene	0.13	0.050	0.013	ug/l	
129-00-0	Pyrene	ND	0.10	0.038	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		30-130%
321-60-8	2-Fluorobiphenyl	65%		30-130%
1718-51-0	Terphenyl-d14	88%		30-130%

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

MDL = Method Detection Limit

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	P93A-ROX-101113		<b>Date Sampled:</b>	10/11/13
<b>Lab Sample ID:</b>	MC25284-2		<b>Date Received:</b>	10/14/13
<b>Matrix:</b>	AQ - Ground Water		<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8011 SW846 8011		<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30987.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

Run #	Initial Volume	Final Volume
Run #1	34.5 ml	2.0 ml
Run #2		

### VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0055	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.012	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	84%		36-173%		
460-00-4	Bromofluorobenzene (S)	78%		36-173%		

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





## Report of Analysis

<b>Client Sample ID:</b> TB-ROX-101113-HCL		<b>Date Sampled:</b> 10/11/13
<b>Lab Sample ID:</b> MC25284-3		<b>Date Received:</b> 10/14/13
<b>Matrix:</b> AQ - Trip Blank Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

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**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	82%		70-130%
2037-26-5	Toluene-D8	89%		70-130%
460-00-4	4-Bromofluorobenzene	100%		70-130%

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

(a) Continuing Calibration outside of acceptance criteria. Result may be biased low.

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

Report of Analysis

<b>Client Sample ID:</b>	TB-ROX-101113-ST	<b>Date Sampled:</b>	10/11/13
<b>Lab Sample ID:</b>	MC25284-4	<b>Date Received:</b>	10/14/13
<b>Matrix:</b>	AQ - Trip Blank Water	<b>Percent Solids:</b>	n/a
<b>Method:</b>	SW846 8011 SW846 8011	<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK30988.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
Run #2							

Run #	Initial Volume	Final Volume
Run #1	35.4 ml	2.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	95%		36-173%
460-00-4	Bromofluorobenzene (S)	78%		36-173%

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

4.4

Misc. Forms

Custody Documents and Other Forms

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Includes the following where applicable:

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



**Accutest Job Number:** MC25284      **Client:** URS      **Immediate Client Services Action Required:** No  
**Date / Time Received:** 10/14/2013      **Delivery Method:** \_\_\_\_\_      **Client Service Action Required at Login:** No  
**Project:** 900 SOUTH CENTRAL      **No. Coolers:** 1      **Airbill #'s:** \_\_\_\_\_

**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: Infrared gun  
 3. Cooler media: Ice (bag)

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

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:    
 2. Container labeling complete:    
 3. Sample container label / COC agree:

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:    
 2. All containers accounted for:    
 3. Condition of sample: Intact

**Sample Integrity - Instructions**      Y or N      N/A  
 1. Analysis requested is clear:    
 2. Bottles received for unspecified tests:    
 3. Sufficient volume recvd for analysis:    
 4. Compositing instructions clear:     
 5. Filtering instructions clear:

Comments

5.1  
5

### Internal Sample Tracking Chronicle

Shell Oil

Job No: MC25284

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

5.2  
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC25284-1 Collected: 11-OCT-13 13:35 By: BL Received: 14-OCT-13 By: P93D-ROX-101113						
MC25284-1	SW846 8011	16-OCT-13 15:32	NK	15-OCT-13 PA		V8011SL
MC25284-1	SW846 8270C BY SIM	21-OCT-13 11:15	WK	17-OCT-13 TA		B8270SIMSL
MC25284-1	SW846 8270C	23-OCT-13 01:20	KR	17-OCT-13 FC		AB8270SL +
MC25284-1	SW846 8260B	25-OCT-13 11:37	JB			V8260SL +
MC25284-1	SW846 8270C	31-OCT-13 18:11	WK	28-OCT-13 AJ		AB8270SL +
MC25284-2 Collected: 11-OCT-13 16:45 By: BL Received: 14-OCT-13 By: P93A-ROX-101113						
MC25284-2	SW846 8011	16-OCT-13 16:20	NK	15-OCT-13 PA		V8011SL
MC25284-2	SW846 8270C BY SIM	21-OCT-13 11:38	WK	17-OCT-13 TA		B8270SIMSL
MC25284-2	SW846 8270C	23-OCT-13 01:49	KR	17-OCT-13 FC		AB8270SL +
MC25284-2	SW846 8260B	23-OCT-13 16:55	JB			V8260SL +
MC25284-2	SW846 8260B	24-OCT-13 17:11	JB			V8260SL +
MC25284-3 Collected: 11-OCT-13 00:00 By: BL Received: 14-OCT-13 By: TB-ROX-101113-HCL						
MC25284-3	SW846 8260B	23-OCT-13 09:42	JB			V8260SL +
MC25284-4 Collected: 11-OCT-13 00:00 By: BL Received: 14-OCT-13 By: TB-ROX-101113-ST						
MC25284-4	SW846 8011	16-OCT-13 16:45	NK	15-OCT-13 PA		V8011SL



# SGS Accutest Internal Chain of Custody

**Job Number:** MC25284  
**Account:** SHELLWIC Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
**Received:** 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC25284-4.1	VOC Ref #4	Michael Rolo	10/15/13 07:17	Retrieve from Storage
MC25284-4.1	Michael Rolo		10/16/13 07:19	Depleted

5.3  
5

## GC/MS Volatiles

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## QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries





# Method Blank Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3052-MB	N81725.D	1	10/23/13	JB	n/a	n/a	MSN3052

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-2, MC25284-3

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	83%	70-130%
2037-26-5	Toluene-D8	88%	70-130%
460-00-4	4-Bromofluorobenzene	100%	70-130%

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

6.1.1  
6



# Method Blank Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3053-MB	N81762.D	1	10/24/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1, MC25284-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	ND	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

# Method Blank Summary

Job Number: MC25284  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3053-MB	N81762.D	1	10/24/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1, MC25284-2

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	80% 70-130%
2037-26-5	Toluene-D8	87% 70-130%
460-00-4	4-Bromofluorobenzene	99% 70-130%

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

6.1.2  
6



## Method Blank Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3053-MB1	N81793.D	1	10/25/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1, MC25284-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	ND	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

# Method Blank Summary

Job Number: MC25284  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3053-MB1	N81793.D	1	10/25/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1, MC25284-2

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	81%	70-130%
2037-26-5	Toluene-D8	87%	70-130%
460-00-4	4-Bromofluorobenzene	102%	70-130%

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



# Blank Spike Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3052-BS	N81723.D	1	10/23/13	JB	n/a	n/a	MSN3052

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-2, MC25284-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	42.8	86	70-130
10061-02-6	trans-1,3-Dichloropropene	50	44.5	89	70-130
123-91-1	1,4-Dioxane	250	226	90	70-130
97-63-2	Ethyl methacrylate	50	41.4	83	77-137
100-41-4	Ethylbenzene	50	45.5	91	70-130
87-68-3	Hexachlorobutadiene	50	48.9	98	70-130
591-78-6	2-Hexanone	50	39.2	78	70-130
98-82-8	Isopropylbenzene	50	45.3	91	70-130
99-87-6	p-Isopropyltoluene	50	47.1	94	70-130
1634-04-4	Methyl Tert Butyl Ether	50	38.4	77	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	38.9	78	70-130
74-95-3	Methylene bromide	50	42.9	86	70-130
75-09-2	Methylene chloride	50	42.2	84	70-130
91-20-3	Naphthalene	50	53.5	107	70-130
103-65-1	n-Propylbenzene	50	43.4	87	70-130
100-42-5	Styrene	50	47.3	95	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	46.4	93	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	39.8	80	70-130
127-18-4	Tetrachloroethene	50	44.8	90	70-130
108-88-3	Toluene	50	44.3	89	70-130
87-61-6	1,2,3-Trichlorobenzene	50	50.3	101	70-130
120-82-1	1,2,4-Trichlorobenzene	50	51.5	103	70-130
71-55-6	1,1,1-Trichloroethane	50	46.3	93	70-130
79-00-5	1,1,2-Trichloroethane	50	40.8	82	70-130
79-01-6	Trichloroethene	50	43.9	88	70-130
75-69-4	Trichlorofluoromethane	50	41.8	84	70-130
96-18-4	1,2,3-Trichloropropane	50	43.9	88	70-130
95-63-6	1,2,4-Trimethylbenzene	50	44.5	89	70-130
108-67-8	1,3,5-Trimethylbenzene	50	44.4	89	70-130
108-05-4	Vinyl Acetate	50	32.8	66* a	70-130
75-01-4	Vinyl chloride	50	34.7	69* a	70-130
	m,p-Xylene	100	87.6	88	70-130
95-47-6	o-Xylene	50	43.6	87	70-130
1330-20-7	Xylene (total)	150	131	87	70-130

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: MC25284  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3052-BS	N81723.D	1	10/23/13	JB	n/a	n/a	MSN3052

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-2, MC25284-3

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	81%	70-130%
2037-26-5	Toluene-D8	87%	70-130%
460-00-4	4-Bromofluorobenzene	89%	70-130%

(a) Outside control limits. Associated samples may be biased low.

\* = Outside of Control Limits.







# Blank Spike Summary

Job Number: MC25284  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3053-BS1	N81790.D	1	10/25/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	85%	70-130%
2037-26-5	Toluene-D8	87%	70-130%
460-00-4	4-Bromofluorobenzene	89%	70-130%

(a) Outside control limits. Blank Spike meets program technical requirements.

\* = Outside of Control Limits.





# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25248-1MS	N81742.D	20	10/23/13	JB	n/a	n/a	MSN3052
MC25248-1MSD	N81743.D	20	10/23/13	JB	n/a	n/a	MSN3052
MC25248-1	N81730.D	1	10/23/13	JB	n/a	n/a	MSN3052

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-2, MC25284-3

CAS No.	Surrogate Recoveries	MS	MSD	MC25248-1	Limits
1868-53-7	Dibromofluoromethane	79%	81%	83%	70-130%
2037-26-5	Toluene-D8	85%	85%	81%	70-130%
460-00-4	4-Bromofluorobenzene	90%	90%	91%	70-130%

- (a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (b) Outside control limits due to high level in sample relative to spike amount.

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25500-18MS	N81781.D	1	10/24/13	JB	n/a	n/a	MSN3053
MC25500-18MSD	N81782.D	1	10/24/13	JB	n/a	n/a	MSN3053
MC25500-18	N81774.D	1	10/24/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1, MC25284-2

CAS No.	Compound	MC25500-18 Spike		MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
		ug/l	Q ug/l							
67-64-1	Acetone	ND	50	45.4	91	50	46.8	94	3	70-130/30
107-02-8	Acrolein	ND	250	107	43* a	250	101	40* a	6	70-130/30
107-13-1	Acrylonitrile	ND	50	38.5	77	50	37.8	76	2	70-130/30
71-43-2	Benzene	2.2	50	40.5	77	50	41.9	79	3	70-130/30
108-86-1	Bromobenzene	ND	50	41.2	82	50	43.2	86	5	70-130/30
74-97-5	Bromochloromethane	ND	50	39.9	80	50	40.9	82	2	70-130/30
75-27-4	Bromodichloromethane	ND	50	40.1	80	50	41.3	83	3	70-130/30
75-25-2	Bromoform	ND	50	42.4	85	50	44.0	88	4	70-130/30
74-83-9	Bromomethane	ND	50	39.3	79	50	44.5	89	12	70-130/30
78-93-3	2-Butanone (MEK)	ND	50	40.5	81	50	40.3	81	0	70-130/30
104-51-8	n-Butylbenzene	ND	50	46.1	92	50	47.7	95	3	70-130/30
135-98-8	sec-Butylbenzene	ND	50	43.6	87	50	45.2	90	4	70-130/30
98-06-6	tert-Butylbenzene	ND	50	41.9	84	50	43.0	86	3	70-130/30
75-15-0	Carbon disulfide	ND	50	39.2	78	50	39.6	79	1	70-130/30
56-23-5	Carbon tetrachloride	ND	50	45.4	91	50	47.2	94	4	70-130/30
108-90-7	Chlorobenzene	ND	50	38.6	77	50	40.2	80	4	70-130/30
75-00-3	Chloroethane	ND	50	38.2	76	50	38.9	78	2	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	50	40.8	82	50	41.4	83	1	70-130/30
67-66-3	Chloroform	ND	50	37.7	75	50	38.0	76	1	70-130/30
74-87-3	Chloromethane	ND	50	34.3	69* a	50	36.4	73	6	70-130/30
95-49-8	o-Chlorotoluene	ND	50	40.4	81	50	42.3	85	5	70-130/30
106-43-4	p-Chlorotoluene	ND	50	42.2	84	50	44.0	88	4	70-130/30
124-48-1	Dibromochloromethane	ND	50	40.5	81	50	42.3	85	4	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	50	39.5	79	50	40.8	82	3	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	50	40.7	81	50	41.3	83	1	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	50	41.4	83	50	42.7	85	3	70-130/30
75-71-8	Dichlorodifluoromethane	ND	50	26.5	53* a	50	27.5	55* a	4	70-130/30
75-34-3	1,1-Dichloroethane	ND	50	38.8	78	50	39.9	80	3	70-130/30
107-06-2	1,2-Dichloroethane	ND	50	38.2	76	50	39.5	79	3	70-130/30
75-35-4	1,1-Dichloroethene	ND	50	39.7	79	50	40.3	81	1	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	50	37.8	76	50	38.4	77	2	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	50	39.1	78	50	38.9	78	1	70-130/30
78-87-5	1,2-Dichloropropane	ND	50	40.8	82	50	41.4	83	1	70-130/30
142-28-9	1,3-Dichloropropane	ND	50	40.5	81	50	42.5	85	5	70-130/30
594-20-7	2,2-Dichloropropane	ND	50	40.6	81	50	41.1	82	1	70-130/30
563-58-6	1,1-Dichloropropene	ND	50	43.3	87	50	44.1	88	2	70-130/30

\* = Outside of Control Limits.



# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25500-18MS	N81781.D	1	10/24/13	JB	n/a	n/a	MSN3053
MC25500-18MSD	N81782.D	1	10/24/13	JB	n/a	n/a	MSN3053
MC25500-18	N81774.D	1	10/24/13	JB	n/a	n/a	MSN3053

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25284-1, MC25284-2

CAS No.	Surrogate Recoveries	MS	MSD	MC25500-18	Limits
1868-53-7	Dibromofluoromethane	82%	80%	81%	70-130%
2037-26-5	Toluene-D8	90%	90%	88%	70-130%
460-00-4	4-Bromofluorobenzene	88%	89%	98%	70-130%

(a) Outside control limits due to possible matrix interference. Refer to Blank Spike.

\* = Outside of Control Limits.

# Volatile Internal Standard Area Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSN3052-CC3048	Injection Date:	10/23/13
Lab File ID:	N81723.D	Injection Time:	07:23
Instrument ID:	GCMSN	Method:	SW846 8260B

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	219883	9.21	311350	10.09	164224	13.34	143222	15.90	66700	6.77
Upper Limit <sup>a</sup>	439766	9.71	622700	10.59	328448	13.84	286444	16.40	133400	7.27
Lower Limit <sup>b</sup>	109942	8.71	155675	9.59	82112	12.84	71611	15.40	33350	6.27

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSN3052-BS	224360	9.21	318673	10.09	165605	13.34	143782	15.90	66700	6.77
MSN3052-MB	207933	9.21	297924	10.09	154684	13.35	111112	15.90	71271	6.78
ZZZZZZ	202676	9.22	288917	10.09	144602	13.34	107495	15.90	66049	6.78
ZZZZZZ	198509	9.22	281550	10.09	143646	13.34	104913	15.90	64436	6.78
MC25284-3	197877	9.22	283774	10.09	146113	13.34	106965	15.90	73574	6.78
ZZZZZZ	200517	9.22	284608	10.09	147305	13.34	109136	15.90	65174	6.78
MC25248-1	252219	9.21	421294	10.08	191080	13.34	172047	15.89	79387	6.78
ZZZZZZ	200800	9.21	284083	10.09	146225	13.34	108577	15.90	61614	6.77
ZZZZZZ	206553	9.21	315602	10.09	149616	13.34	111801	15.90	64933	6.78
ZZZZZZ	207722	9.21	341115	10.09	161879	13.34	130292	15.90	65683	6.78
ZZZZZZ	200704	9.21	308879	10.09	152167	13.34	110641	15.90	77874	6.78
ZZZZZZ	205624	9.21	319335	10.09	159364	13.34	123162	15.90	67667	6.78
ZZZZZZ	216061	9.22	419176	10.09	191686	13.34	139166	15.90	80679	6.77
MC25284-2	209277	9.22	496327	10.12	218693	13.34	189422	15.89	71903	6.78
MC25248-1MS	257136	9.21	379130	10.09	192708	13.34	160643	15.90	88051	6.77
MC25248-1MSD	237390	9.21	358541	10.09	177404	13.34	155907	15.89	76239	6.77

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

(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: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSN3053-CC3048	Injection Date:	10/24/13
Lab File ID:	N81760.D	Injection Time:	12:03
Instrument ID:	GCMSN	Method:	SW846 8260B

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	219911	9.21	316650	10.09	168382	13.34	149818	15.90	73281	6.77
Upper Limit <sup>a</sup>	439822	9.71	633300	10.59	336764	13.84	299636	16.40	146562	7.27
Lower Limit <sup>b</sup>	109956	8.71	158325	9.59	84191	12.84	74909	15.40	36641	6.27

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSN3053-BS	224255	9.21	322917	10.09	169117	13.34	150466	15.90	73281	6.77
MSN3053-MB	203486	9.22	285838	10.09	144603	13.34	106182	15.90	77988	6.78
ZZZZZZ	202420	9.21	292217	10.09	146972	13.35	108870	15.90	70087	6.78
ZZZZZZ	205757	9.22	288847	10.09	146232	13.34	105317	15.90	77629	6.78
ZZZZZZ	204609	9.22	291911	10.09	148445	13.34	107754	15.90	71994	6.78
ZZZZZZ	201399	9.21	287062	10.09	148712	13.34	105386	15.90	68592	6.78
ZZZZZZ	199268	9.21	288496	10.09	147557	13.34	106679	15.89	77749	6.78
ZZZZZZ	194018	9.21	287323	10.09	144726	13.34	100795	15.90	62781	6.77
MC25284-2	193525	9.21	283241	10.09	145164	13.34	103704	15.90	70142	6.78
MC25500-18	201535	9.21	286278	10.09	145837	13.34	109477	15.90	53570	6.78
ZZZZZZ	196648	9.21	277944	10.09	141725	13.34	104742	15.90	57140	6.78
ZZZZZZ	196231	9.21	277695	10.09	143476	13.34	107466	15.90	66314	6.78
ZZZZZZ	195400	9.21	279611	10.09	142195	13.34	105154	15.90	58787	6.78
ZZZZZZ	203506	9.21	293554	10.09	149528	13.34	118248	15.89	74738	6.78
ZZZZZZ	201145	9.21	284052	10.09	149009	13.34	116571	15.90	64039	6.77
ZZZZZZ	196541	9.22	280884	10.09	144848	13.34	110538	15.90	55683	6.77
MC25500-18MS	208250	9.21	301378	10.09	161038	13.34	142036	15.89	69149	6.77
MC25500-18MSD	217661	9.21	309287	10.09	162019	13.34	141061	15.89	65453	6.77

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

(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.

6.4.2  
6



# Volatile Surrogate Recovery Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8260B

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC25284-1	N81796.D	81	88	101
MC25284-2	N81771.D	82	87	101
MC25284-2	N81741.D	85	77	91
MC25284-3	N81728.D	82	89	100
MC25248-1MS	N81742.D	79	85	90
MC25248-1MSD	N81743.D	81	85	90
MC25500-18MS	N81781.D	82	90	88
MC25500-18MSD	N81782.D	80	90	89
MSN3052-BS	N81723.D	81	87	89
MSN3052-MB	N81725.D	83	88	100
MSN3053-BS	N81760.D	84	89	87
MSN3053-BS1	N81790.D	85	87	89
MSN3053-MB	N81762.D	80	87	99
MSN3053-MB1	N81793.D	81	87	102

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-130%
S2 = Toluene-D8	70-130%
S3 = 4-Bromofluorobenzene	70-130%

6.5.1

6

**GC/MS Semi-volatiles****QC Data Summaries****7**

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

# Method Blank Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35311-MB	W14922.D	1	10/21/13	KR	10/17/13	OP35311	MSW673

The QC reported here applies to the following samples:

Method: SW846 8270C

MC25284-1, MC25284-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	1.3	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.38	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	0.49	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	0.33	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	1.1	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	2.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	1.2	ug/l	
95-48-7	2-Methylphenol	ND	10	1.3	ug/l	
	3&4-Methylphenol	ND	10	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	10	0.50	ug/l	
100-02-7	4-Nitrophenol	ND	20	0.58	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.3	ug/l	
108-95-2	Phenol	ND	5.0	0.51	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	10	0.57	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	0.32	ug/l	
62-53-3	Aniline	ND	10	0.64	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.20	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	0.85	ug/l	
100-51-6	Benzyl Alcohol	ND	10	0.57	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.92	ug/l	
106-47-8	4-Chloroaniline	ND	10	0.25	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.21	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.23	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.13	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.20	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	0.65	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	0.68	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	0.64	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.50	ug/l	
132-64-9	Dibenzofuran	ND	2.0	0.16	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	0.39	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	0.43	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	0.50	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	0.50	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.49	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.30	ug/l	

7.1.1  
7

# Method Blank Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35311-MB	W14922.D	1	10/21/13	KR	10/17/13	OP35311	MSW673

The QC reported here applies to the following samples:

Method: SW846 8270C

MC25284-1, MC25284-2

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	10	2.5	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.44	ug/l	
78-59-1	Isophorone	ND	5.0	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	10	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	10	0.50	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.3	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.25	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	0.50	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	0.81	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.54	ug/l	
110-86-1	Pyridine	ND	10	0.52	ug/l	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	31%	15-110%
4165-62-2	Phenol-d5	22%	15-110%
118-79-6	2,4,6-Tribromophenol	68%	15-110%
4165-60-0	Nitrobenzene-d5	56%	30-130%
321-60-8	2-Fluorobiphenyl	53%	30-130%
1718-51-0	Terphenyl-d14	95%	30-130%

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

7.1.1  
7

# Method Blank Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35312-MB	I86526.D	1	10/21/13	WK	10/19/13	OP35312	MSI3220

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

MC25284-1, MC25284-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.069	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.092	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.020	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.029	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.032	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.027	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.024	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.032	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.041	ug/l	
86-73-7	Fluorene	ND	0.10	0.099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.031	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.20	0.050	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.20	0.074	ug/l	
85-01-8	Phenanthrene	ND	0.050	0.013	ug/l	
129-00-0	Pyrene	ND	0.10	0.038	ug/l	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	34%	15-110%
4165-62-2	Phenol-d5	23%	15-110%
118-79-6	2,4,6-Tribromophenol	65%	15-110%
4165-60-0	Nitrobenzene-d5	59%	30-130%
321-60-8	2-Fluorobiphenyl	51%	30-130%
1718-51-0	Terphenyl-d14	96%	30-130%

7.1.2  
7

# Blank Spike Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35311-BS	W14923.D	1	10/21/13	KR	10/17/13	OP35311	MSW673

The QC reported here applies to the following samples:

Method: SW846 8270C

MC25284-1, MC25284-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	6.6	13* a	30-130
95-57-8	2-Chlorophenol	50	29.3	59	30-130
59-50-7	4-Chloro-3-methyl phenol	50	34.6	69	30-130
120-83-2	2,4-Dichlorophenol	50	34.3	69	30-130
105-67-9	2,4-Dimethylphenol	50	33.5	67	30-130
51-28-5	2,4-Dinitrophenol	50	42.2	84	30-130
534-52-1	4,6-Dinitro-o-cresol	50	47.0	94	30-130
95-48-7	2-Methylphenol	50	26.3	53	30-130
	3&4-Methylphenol	100	51.6	52	30-130
88-75-5	2-Nitrophenol	50	32.4	65	30-130
100-02-7	4-Nitrophenol	50	17.9	36	30-130
87-86-5	Pentachlorophenol	50	39.4	79	30-130
108-95-2	Phenol	50	14.4	29* a	30-130
95-95-4	2,4,5-Trichlorophenol	50	38.4	77	30-130
88-06-2	2,4,6-Trichlorophenol	50	37.8	76	30-130
62-53-3	Aniline	50	23.8	48	40-140
101-55-3	4-Bromophenyl phenyl ether	50	39.3	79	40-140
85-68-7	Butyl benzyl phthalate	50	41.5	83	40-140
100-51-6	Benzyl Alcohol	50	26.9	54	40-140
91-58-7	2-Chloronaphthalene	50	34.0	68	40-140
106-47-8	4-Chloroaniline	50	30.3	61	40-140
111-91-1	bis(2-Chloroethoxy)methane	50	37.0	74	40-140
111-44-4	bis(2-Chloroethyl)ether	50	30.3	61	40-140
108-60-1	bis(2-Chloroisopropyl)ether	50	34.9	70	40-140
7005-72-3	4-Chlorophenyl phenyl ether	50	38.3	77	40-140
122-66-7	1,2-Diphenylhydrazine	50	34.2	68	40-140
121-14-2	2,4-Dinitrotoluene	50	42.5	85	40-140
606-20-2	2,6-Dinitrotoluene	50	38.3	77	40-140
91-94-1	3,3'-Dichlorobenzidine	50	41.4	83	40-140
132-64-9	Dibenzofuran	50	34.4	69	40-140
84-74-2	Di-n-butyl phthalate	50	40.0	80	40-140
117-84-0	Di-n-octyl phthalate	50	41.9	84	40-140
84-66-2	Diethyl phthalate	50	35.4	71	40-140
131-11-3	Dimethyl phthalate	50	22.3	45	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	50	44.3	89	40-140
118-74-1	Hexachlorobenzene	50	40.9	82	40-140

\* = Outside of Control Limits.

7.2.1  
7

# Blank Spike Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35311-BS	W14923.D	1	10/21/13	KR	10/17/13	OP35311	MSW673

The QC reported here applies to the following samples:

Method: SW846 8270C

MC25284-1, MC25284-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	50	17.5	35* a	40-140
67-72-1	Hexachloroethane	50	19.7	39* a	40-140
78-59-1	Isophorone	50	32.4	65	40-140
88-74-4	2-Nitroaniline	50	39.4	79	40-140
99-09-2	3-Nitroaniline	50	38.5	77	40-140
100-01-6	4-Nitroaniline	50	40.4	81	40-140
98-95-3	Nitrobenzene	50	31.3	63	40-140
62-75-9	n-Nitrosodimethylamine	50	21.3	43	40-140
621-64-7	N-Nitroso-di-n-propylamine	50	32.1	64	40-140
86-30-6	N-Nitrosodiphenylamine	100	80.9	81	40-140
110-86-1	Pyridine	50	16.8	34* a	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	41%	15-110%
4165-62-2	Phenol-d5	29%	15-110%
118-79-6	2,4,6-Tribromophenol	91%	15-110%
4165-60-0	Nitrobenzene-d5	67%	30-130%
321-60-8	2-Fluorobiphenyl	65%	30-130%
1718-51-0	Terphenyl-d14	88%	30-130%

(a) Outside control limits. Blank Spike meets program technical requirements.

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35312-BS	I86527.D	1	10/21/13	WK	10/19/13	OP35312	MSI3220

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

MC25284-1, MC25284-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
83-32-9	Acenaphthene	50	33.2	66	40-140
208-96-8	Acenaphthylene	50	27.2	54	40-140
120-12-7	Anthracene	50	37.6	75	40-140
56-55-3	Benzo(a)anthracene	50	42.7	85	40-140
50-32-8	Benzo(a)pyrene	50	41.4	83	40-140
205-99-2	Benzo(b)fluoranthene	50	43.7	87	40-140
191-24-2	Benzo(g,h,i)perylene	50	39.2	78	40-140
207-08-9	Benzo(k)fluoranthene	50	43.4	87	40-140
218-01-9	Chrysene	50	39.1	78	40-140
53-70-3	Dibenzo(a,h)anthracene	50	44.3	89	40-140
206-44-0	Fluoranthene	50	39.6	79	40-140
86-73-7	Fluorene	50	36.8	74	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	50	43.6	87	40-140
90-12-0	1-Methylnaphthalene	50	30.2	60	40-140
91-57-6	2-Methylnaphthalene	50	28.3	57	40-140
85-01-8	Phenanthrene	50	39.7	79	40-140
129-00-0	Pyrene	50	38.0	76	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	43%	15-110%
4165-62-2	Phenol-d5	29%	15-110%
118-79-6	2,4,6-Tribromophenol	99%	15-110%
4165-60-0	Nitrobenzene-d5	71%	30-130%
321-60-8	2-Fluorobiphenyl	65%	30-130%
1718-51-0	Terphenyl-d14	94%	30-130%

\* = Outside of Control Limits.



# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35311-MS	W14924.D	1	10/21/13	KR	10/17/13	OP35311	MSW673
OP35311-MSD	W14925.D	1	10/21/13	KR	10/17/13	OP35311	MSW673
MC25100-6	W14926.D	1	10/21/13	KR	10/17/13	OP35311	MSW673

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

MC25284-1, MC25284-2

7.3.1  
7

CAS No.	Compound	MC25100-6 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	50	17.9	36* a	50	17.4	35* a	3	40-140/20
67-72-1	Hexachloroethane	ND	50	21.2	42	50	21.3	43	0	40-140/20
78-59-1	Isophorone	ND	50	34.5	69	50	31.9	64	8	40-140/20
88-74-4	2-Nitroaniline	ND	50	44.1	88	50	38.8	78	13	40-140/20
99-09-2	3-Nitroaniline	ND	50	44.4	89	50	39.0	78	13	40-140/20
100-01-6	4-Nitroaniline	ND	50	43.4	87	50	38.7	77	11	40-140/20
98-95-3	Nitrobenzene	ND	50	31.7	63	50	30.1	60	5	40-140/20
62-75-9	n-Nitrosodimethylamine	ND	50	21.4	43	50	20.8	42	3	40-140/20
621-64-7	N-Nitroso-di-n-propylamine	ND	50	33.3	67	50	36.1	72	8	40-140/20
86-30-6	N-Nitrosodiphenylamine	ND	100	82.8	83	100	78.7	79	5	40-140/20
110-86-1	Pyridine	ND	50	17.6	35* a	50	15.2	30* a	15	40-140/20

CAS No.	Surrogate Recoveries	MS	MSD	MC25100-6	Limits
367-12-4	2-Fluorophenol	42%	43%	38%	15-110%
4165-62-2	Phenol-d5	28%	33%	25%	15-110%
118-79-6	2,4,6-Tribromophenol	90%	92%	65%	15-110%
4165-60-0	Nitrobenzene-d5	70%	64%	60%	30-130%
321-60-8	2-Fluorobiphenyl	59%	62%	56%	30-130%
1718-51-0	Terphenyl-d14	91%	87%	90%	30-130%

(a) Outside control limits. Blank Spike meets program technical requirements.

\* = Outside of Control Limits.





# Semivolatile Internal Standard Area Summary

Job Number: MC25284  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSF3129-CC3124	Injection Date:	10/31/13
Lab File ID:	F70007.D	Injection Time:	09:09
Instrument ID:	GCMSF	Method:	SW846 8270C

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT

(c) Confirmation run.

7.4.1

7



# Semivolatile Internal Standard Area Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSW673-CC672	Injection Date:	10/21/13
Lab File ID:	W14919.D	Injection Time:	17:53
Instrument ID:	GCMSW	Method:	SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	97606	4.91	363952	6.08	249283	7.74	501932	9.13	710528	12.66	733865	16.42
Upper Limit <sup>a</sup>	195212	5.41	727904	6.58	498566	8.24	1003864	9.63	1421056	13.16	1467730	16.92
Lower Limit <sup>b</sup>	48803	4.41	181976	5.58	124642	7.24	250966	8.63	355264	12.16	366933	15.92

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP35311-MB	159201	4.91	609285	6.08	384923	7.74	661596	9.13	862833	12.65	882106	16.41
OP35311-BS	132969	4.91	501257	6.08	349608	7.74	681753	9.13	963487	12.66	999567	16.42
OP35311-MS	126830	4.91	473918	6.08	363141	7.74	755396	9.13	1026211	12.66	1047542	16.42
OP35311-MSD	137616	4.91	602686	6.08	423009	7.74	800762	9.13	1143819	12.66	1195086	16.42
MC25100-6	116466	4.91	460598	6.08	299485	7.74	529339	9.13	784587	12.65	821860	16.41
ZZZZZZ	154333	4.91	566379	6.08	355408	7.74	627903	9.13	926425	12.65	923397	16.41

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12
- IS 6 = Perylene-d12

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

7.4.3  
7



# Semivolatile Surrogate Recovery Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8270C

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC25284-1	F70029.D	11* a	9* a	44	65	60	78
MC25284-1	W14977.D	8* a	7* a	45	53	57	95
MC25284-2	W14978.D	40	29	99	64	68	97
OP35311-BS	W14923.D	41	29	91	67	65	88
OP35311-MB	W14922.D	31	22	68	56	53	95
OP35311-MS	W14924.D	42	28	90	70	59	91
OP35311-MSD	W14925.D	43	33	92	64	62	87

**Surrogate Compounds**                      **Recovery Limits**

S1 = 2-Fluorophenol	15-110%
S2 = Phenol-d5	15-110%
S3 = 2,4,6-Tribromophenol	15-110%
S4 = Nitrobenzene-d5	30-130%
S5 = 2-Fluorobiphenyl	30-130%
S6 = Terphenyl-d14	30-130%

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

7.5.1  
7

# Semivolatile Surrogate Recovery Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8270C BY SIM

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC25284-1	I86531.D	59	54	88
MC25284-2	I86532.D	69	65	88
OP35312-BS	I86527.D	71	65	94
OP35312-MB	I86526.D	59	51	96
OP35312-MS	I86528.D	73	62	96
OP35312-MSD	I86529.D	69	62	93

Surrogate Compounds                      Recovery Limits

S1 = Nitrobenzene-d5                      30-130%  
 S2 = 2-Fluorobiphenyl                      30-130%  
 S3 = Terphenyl-d14                      30-130%

7.5.2  
7

## GC Volatiles

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## QC Data Summaries



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Includes the following where applicable:

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

# Method Blank Summary

Job Number: MC25284  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35265-MB	BK30963.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020

The QC reported here applies to the following samples:

Method: SW846 8011

MC25284-1, MC25284-2, MC25284-4

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	98%	36-173%
460-00-4	Bromofluorobenzene (S)	80%	36-173%

8.1.1  
8

# Blank Spike Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35265-BS	BK30965.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020

The QC reported here applies to the following samples:

Method: SW846 8011

MC25284-1, MC25284-2, MC25284-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.061	86	60-140
106-93-4	1,2-Dibromoethane	0.071	0.074	104	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	98%	36-173%
460-00-4	Bromofluorobenzene (S)	71%	36-173%

8.2.1  
8

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35265-MS	BK30966.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
OP35265-MSD	BK30967.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020
MC25237-1	BK30978.D	1	10/16/13	NK	10/15/13	OP35265	GBK1020

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

MC25284-1, MC25284-2, MC25284-4

CAS No.	Compound	MC25237-1 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0692	0.067	97	0.0706	0.062	88	8	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.0692	0.065	94	0.0706	0.070	99	7	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC25237-1	Limits
460-00-4	Bromofluorobenzene (S)	89%	78%	69%	36-173%
460-00-4	Bromofluorobenzene (S)	76%	69%	66%	36-173%

8.3.1  
8

\* = Outside of Control Limits.

# Volatile Surrogate Recovery Summary

Job Number: MC25284

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 <sup>a</sup>	S1 <sup>b</sup>
MC25284-1	BK30985.D	85	69
MC25284-2	BK30987.D	84	78
MC25284-4	BK30988.D	95	78
OP35265-BS	BK30965.D	98	71
OP35265-MB	BK30963.D	98	80
OP35265-MS	BK30966.D	89	76
OP35265-MSD	BK30967.D	78	69

**Surrogate Compounds**                      **Recovery Limits**

S1 = Bromofluorobenzene (S)                      36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

# GC Surrogate Retention Time Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	GBK1020-CC1020	Injection Date:	10/16/13
Lab File ID:	BK30953.D	Injection Time:	02:50
Instrument ID:	GCBK	Method:	SW846 8011

S1<sup>a</sup>    S1<sup>b</sup>  
 RT      RT

Check Std	4.04	5.05
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
ZZZZZZ	BK30954.D	10/16/13	03:14	4.04	5.05
ZZZZZZ	BK30955.D	10/16/13	03:39	4.04	5.05
ZZZZZZ	BK30956.D	10/16/13	04:03	4.04	5.05
ZZZZZZ	BK30957.D	10/16/13	04:28	4.04	5.05
ZZZZZZ	BK30958.D	10/16/13	04:52	4.04	5.05
ZZZZZZ	BK30959.D	10/16/13	05:16	4.04	5.05
ZZZZZZ	BK30960.D	10/16/13	05:41	4.04	5.05
ZZZZZZ	BK30961.D	10/16/13	06:04	4.04	5.05
ZZZZZZ	BK30962.D	10/16/13	06:27	4.04	5.05
OP35265-MB	BK30963.D	10/16/13	06:50	4.04	5.05

**Surrogate Compounds**

S1 = Bromofluorobenzene (S)

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

8.5.1  
8

# GC Surrogate Retention Time Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	GBK1020-CC1020	Injection Date:	10/16/13
Lab File ID:	BK30964.D	Injection Time:	07:13
Instrument ID:	GCBK	Method:	SW846 8011

S1<sup>a</sup>    S1<sup>b</sup>  
 RT      RT

Check Std	4.05	5.05
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
OP35265-BS	BK30965.D	10/16/13	07:36	4.05	5.05
OP35265-MS	BK30966.D	10/16/13	07:59	4.05	5.05
OP35265-MSD	BK30967.D	10/16/13	08:22	4.04	5.05
ZZZZZZ	BK30968.D	10/16/13	08:45	4.05	5.05
ZZZZZZ	BK30969.D	10/16/13	09:09	4.05	5.05
ZZZZZZ	BK30970.D	10/16/13	09:32	4.05	5.05
ZZZZZZ	BK30971.D	10/16/13	09:55	4.05	5.05
ZZZZZZ	BK30972.D	10/16/13	10:19	4.05	5.05
ZZZZZZ	BK30973.D	10/16/13	10:42	4.05	5.05
ZZZZZZ	BK30974.D	10/16/13	11:06	4.05	5.05

## Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.5.2  
8

# GC Surrogate Retention Time Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	GBK1020-CC1020	Injection Date:	10/16/13
Lab File ID:	BK30975.D	Injection Time:	11:30
Instrument ID:	GCBK	Method:	SW846 8011

S1<sup>a</sup>    S1<sup>b</sup>  
 RT     RT

Check Std	4.05	5.05
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
ZZZZZZ	BK30976.D	10/16/13	11:54	4.05	5.05
ZZZZZZ	BK30977.D	10/16/13	12:18	4.05	5.05
MC25237-1	BK30978.D	10/16/13	12:42	4.05	5.05
ZZZZZZ	BK30979.D	10/16/13	13:06	4.05	5.06
ZZZZZZ	BK30980.D	10/16/13	13:30	4.05	5.06
ZZZZZZ	BK30981.D	10/16/13	13:55	4.05	5.06
ZZZZZZ	BK30982.D	10/16/13	14:19	4.05	5.05
ZZZZZZ	BK30983.D	10/16/13	14:43	4.05	5.06
ZZZZZZ	BK30984.D	10/16/13	15:08	4.05	5.06
MC25284-1	BK30985.D	10/16/13	15:32	4.05	5.06

## Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.5.3  
8

# GC Surrogate Retention Time Summary

Job Number: MC25284  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	GBK1020-CC1020	Injection Date:	10/16/13
Lab File ID:	BK30986.D	Injection Time:	15:56
Instrument ID:	GCBK	Method:	SW846 8011

S1<sup>a</sup>    S1<sup>b</sup>  
 RT      RT

Check Std	4.05	5.06
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
MC25284-2	BK30987.D	10/16/13	16:20	4.05	5.06
MC25284-4	BK30988.D	10/16/13	16:45	4.05	5.06
GBK1020-ECC102BK30989.D	BK30989.D	10/16/13	17:09	4.05	5.06

## Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.5.4  
8

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VERIFICATION, TESTING AND CERTIFICATION COMPANY.



*e-Hardcopy 2.0*  
*Automated Report*

### Technical Report for

### Shell Oil

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana,

SGS Accutest Job Number: MC25412

Sampling Date: 10/17/13

### Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 142



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

H. (Brad) Madadian  
Lab Director

Client Service contact: Jeremy Vienneau 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) FL (E87579) NY (11791)  
NJ (MA926) PA (6801121) ND (R-188) CO (MA00136) MN (11546AA) NC (653) IL (002337) WI (399080220)  
DoD ELAP (L-A-B L2235)

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Test results relate only to samples analyzed.



ACCUTEST

November 2, 2016

AECOM  
1001 Highlands Plaza Drive West Suite 300  
St. Louis, MO 63110

RE: SGS Accutest Job # MC25412

Dear Elizabeth Kunkel

As you are aware, SGS Accutest Inc. - Marlborough has been conducting an extensive review of data associated with some historical Gas Chromatography-Mass Spectroscopy volatiles analyses. As a result of this review it was determined that some revisions of the original test report for this job were needed. These corrections have been incorporated into the revised report.

Please be assured that corrective actions have been put in place to address this matter and prevent a recurrence.

We apologize for any inconvenience that this issue may have caused. Please don't hesitate to contact us if we can be of further assistance.

Sincerely

**H. (Brad) Madadian**

Regional Laboratory Director  
SGS Accutest Inc. - Marlborough

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TESTING AND CERTIFICATION COMPANY. NN

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## Sample Summary

Shell Oil

Job No: MC25412

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC25412-1	10/17/13	15:15 LRCW	10/18/13	AQ	Ground Water	P114-ROX-101713
MC25412-2	10/17/13	00:00 LRCW	10/18/13	AQ	Trip Blank Water	TB-ROX-101713-HCL
MC25412-3	10/17/13	00:00 LRCW	10/18/13	AQ	Trip Blank Water	TB-ROX-101713-ST



### Extractables by GCMS By Method SW846 8270C

**Matrix:** AQ                                      **Batch ID:** OP35324

- All samples were extracted within the recommended method holding time
- All samples were analyzed within the recommended method holding time
- All method blanks for this batch meet method specification
- Sample(s) MC25 00- 3MS, MC25 00- 3MSD were used as the QC samples indicated

### Extractables by GCMS By Method SW846 8270C BY SIM

**Matrix:** AQ                                      **Batch ID:** OP35325

- All samples were extracted within the recommended method holding time
- All samples were analyzed within the recommended method holding time
- All method blanks for this batch meet method specification
- Sample(s) MC25 00- 4MS, MC25 00- 4MSD were used as the QC samples indicated

### Volatiles by GC By Method SW846 8011

**Matrix:** AQ                                      **Batch ID:** OP35363

- All samples were extracted within the recommended method holding time
- All samples were analyzed within the recommended method holding time
- Sample(s) MC25 00-22MS, MC25 00-22MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification

SGS Accutest New England certifies that all analyses were performed within method specification. It is further recommended that this report be used in its entirety. The Laboratory Director for SGS Accutest New England or assignee as verified by the signature on the cover page has authorized the release of this report (MC254 2)

## Summary of Hits

Job Number: MC25412  
Account: Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
Collected: 10/17/13



Lab Sample ID	Client Sample ID	Result/ Analyte	Qual	RL	MDL	Units	Method
MC25412-1	P114-ROX-101713						
		Acetone <sup>a</sup>	4.7 J	10	2.8	ug/l	SW846 8260B
		Benzene	0.74	0.50	0.45	ug/l	SW846 8260B
		Methyl Tert Butyl Ether	3.6	1.0	0.43	ug/l	SW846 8260B

MC25412-2 TB-ROX-101713-HCL

No hits reported in this sample.

MC25412-3 TB-ROX-101713-ST

No hits reported in this sample.

(a) Continuing Calibration outside of acceptance criteria. Sample result may be biased low.

**Sample Results**

---

**Report of Analysis**

---



## Report of Analysis

Client Sample ID:	P114-ROX-101713	Date Sampled:	10/17/13
Lab Sample ID:	MC25412-1	Date Received:	10/18/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.45	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.97	ug/l	
594-20-7	2,2-Dichloropropane <sup>a</sup>	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.63	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.22	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.29	ug/l	
123-91-1	1,4-Dioxane <sup>a</sup>	ND	25	16	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.81	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.3	ug/l	
591-78-6	2-Hexanone <sup>a</sup>	ND	5.0	2.3	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.64	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.55	ug/l	
1634-04-4	Methyl Tert Butyl Ether	3.6	1.0	0.43	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	1.3	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.43	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.41	ug/l	
91-20-3	Naphthalene	ND	5.0	0.79	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.59	ug/l	
100-42-5	Styrene	ND	5.0	0.49	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.46	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.42	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.61	ug/l	
108-88-3	Toluene	ND	1.0	0.46	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.76	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.45	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.94	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.49	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.45	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.61	ug/l	
96-18-4	1,2,3-Trichloropropane <sup>a</sup>	ND	5.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.47	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.1	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	1.3	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.61	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.41	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.41	ug/l	

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

<b>Client Sample ID:</b> P114-ROX-101713		<b>Date Sampled:</b> 10/17/13
<b>Lab Sample ID:</b> MC25412-1		<b>Date Received:</b> 10/18/13
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL		

4.1  
4

**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	93%		70-130%

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

- (a) Continuing Calibration outside of acceptance criteria. Sample result may be biased low.
- (b) Initial Calibration Verification outside of acceptance criteria. Sample result may be biased low.

---

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

## Report of Analysis

<b>Client Sample ID:</b> P114-ROX-101713	<b>Date Sampled:</b> 10/17/13
<b>Lab Sample ID:</b> MC25412-1	<b>Date Received:</b> 10/18/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270C SW846 3510C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X00337.D	1	10/24/13	KR	10/18/13	OP35324	MSX17
Run #2							

Run #	Initial Volume	Final Volume
Run #1	920 ml	1.0 ml
Run #2		

## ABN Special List

CAS No.	Compound	Result	RL	Units	Q
65-85-0	Benzoic Acid	ND	11	ug/l	
95-57-8	2-Chlorophenol	ND	5.4	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	11	ug/l	
120-83-2	2,4-Dichlorophenol	ND	11	ug/l	
105-67-9	2,4-Dimethylphenol	ND	11	ug/l	
51-28-5	2,4-Dinitrophenol	ND	22	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	11	ug/l	
95-48-7	2-Methylphenol	ND	11	ug/l	
	3&4-Methylphenol	ND	11	ug/l	
88-75-5	2-Nitrophenol	ND	11	ug/l	
100-02-7	4-Nitrophenol	ND	22	ug/l	
87-86-5	Pentachlorophenol	ND	11	ug/l	
108-95-2	Phenol	ND	5.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	11	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	11	ug/l	
62-53-3	Aniline	ND	11	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.4	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.4	ug/l	
100-51-6	Benzyl Alcohol	ND	11	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.4	ug/l	
106-47-8	4-Chloroaniline	ND	11	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.4	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.4	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.4	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.4	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.4	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	11	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	11	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.4	ug/l	
132-64-9	Dibenzofuran	ND	2.2	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.4	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.4	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound















**Misc. Forms**

5

**Custody Documents and Other Forms**

Includes the following where applicable:

- Chain of Custody
- REPROC Form: Reprocessed/Corrected Data
- Sample Tracking Chronicle
- Internal Chain of Custody



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** MC25412      **Client:** URS      **Immediate Client Services Action Required:** No  
**Date / Time Received:** 10/18/2013      **Delivery Method:** \_\_\_\_\_      **Client Service Action Required at Login:** No  
**Project:** 900 SOUTH CENTRAL      **No. Coolers:** 1      **Airbill #'s:** \_\_\_\_\_

**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: Infrared gun  
 3. Cooler media: Ice (bag)

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

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:    
 2. Container labeling complete:    
 3. Sample container label / COC agree:

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:    
 2. All containers accounted for:    
 3. Condition of sample: Intact

**Sample Integrity - Instructions**      Y or N      N/A  
 1. Analysis requested is clear:    
 2. Bottles received for unspecified tests:    
 3. Sufficient volume recvd for analysis:    
 4. Compositing instructions clear:     
 5. Filtering instructions clear:

Comments

# Initial Calibration Summary

Job Number: MC25412

Sample: MSV937-ICC937

Account: SHELLWIC Shell Oil

Lab FileID: V24530.D

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

## Response Factor Report MSV

Method : O:\msv\1\methods\v131025wx.m (RTE Integrator)  
Title : SW-846 Method 8260  
Last Update : Thu Oct 08 19:05:14 2015  
Response via : Initial Calibration

### Calibration Files

0.25=v24524.D	0.5 =v24525.D	1 =v24526.D	2 =v24527.d
5 =v24528.d	10 =v24529.d	50 =v24530.d	100 =v24531.d
200 =v24532.d	400 =v24533.d	=	=

### Compound

	0.25	0.5	1	2	5	10	50	100	200	400	Avg	%RSD
--	------	-----	---	---	---	----	----	-----	-----	-----	-----	------

1) I pentafluorobenzene	-----ISTD-----											
2) chloroethane	0.287	0.281	0.256	0.276	0.250	0.199	0.203	0.250	14.41			

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

v131025wx.m Thu Oct 08 19:10:27 2015

5.2  
5





# Continuing Calibration Summary

Job Number: MC25412      Sample: MSV946-CC937  
Account: SHELLWIC Shell Oil      Lab FileID: V24736.D  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

## Evaluate Continuing Calibration Report

Data File : O:\msv\1\datbackup\v131031\v24736.d      Vial: 1  
Acq On : 31 Oct 2013 7:01 am      Operator: amym  
Sample : cc937-50      Inst : MSV  
Misc : MS30365,MSV946,,,,5,1      Multiplr: 1.00  
MS Integration Params: RTEINT.P

Method : O:\msv\1\methods\v131025wx.m (RTE Integrator)  
Title : SW-846 Method 8260  
Last Update : Thu Oct 08 19:11:00 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.000      Min. Rel. Area : 50%      Max. R.T. Dev 0.50min  
Max. RRF Dev : 20%      Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)	R.T.
1 I pentafluorobenzene	1.000	1.000	0.0	117	0.00	6.55
2 p chloroethane	0.250	0.282	-12.8	120	0.00	2.14

(#) = Out of Range      SPCC's out = 0      CCC's out = 0  
v24530.d      v131025wx.m      Wed Nov 04 18:12:58 2015

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24524.d  
 Acq On : 25 Oct 2013 5:43 pm  
 Operator : amym  
 Sample : ic937-0.25  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 08 18:56:20 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:56:19 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.566	168	454526	50.00	ug/L	0.01

Target Compounds Qvalue

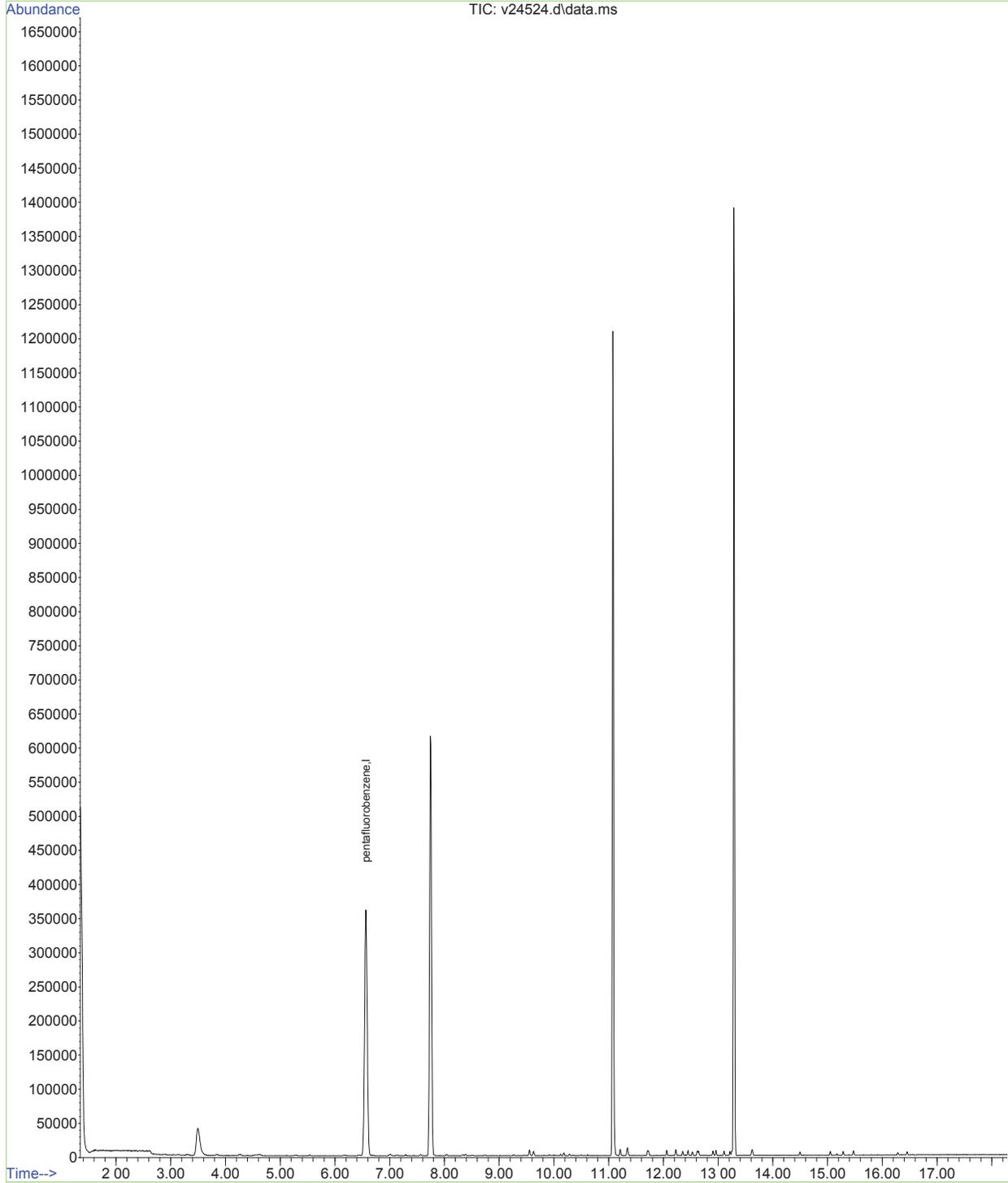
-----

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24524.d  
Acq On : 25 Oct 2013 5:43 pm  
Operator : amym  
Sample : ic937-0.25  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 08 18:56:20 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 18:56:19 2015  
Response via : Initial Calibration



Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24525.d  
 Acq On : 25 Oct 2013 6:10 pm  
 Operator : amym  
 Sample : ic937-0.5  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 08 18:56:39 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:56:19 2015  
 Response via : Initial Calibration

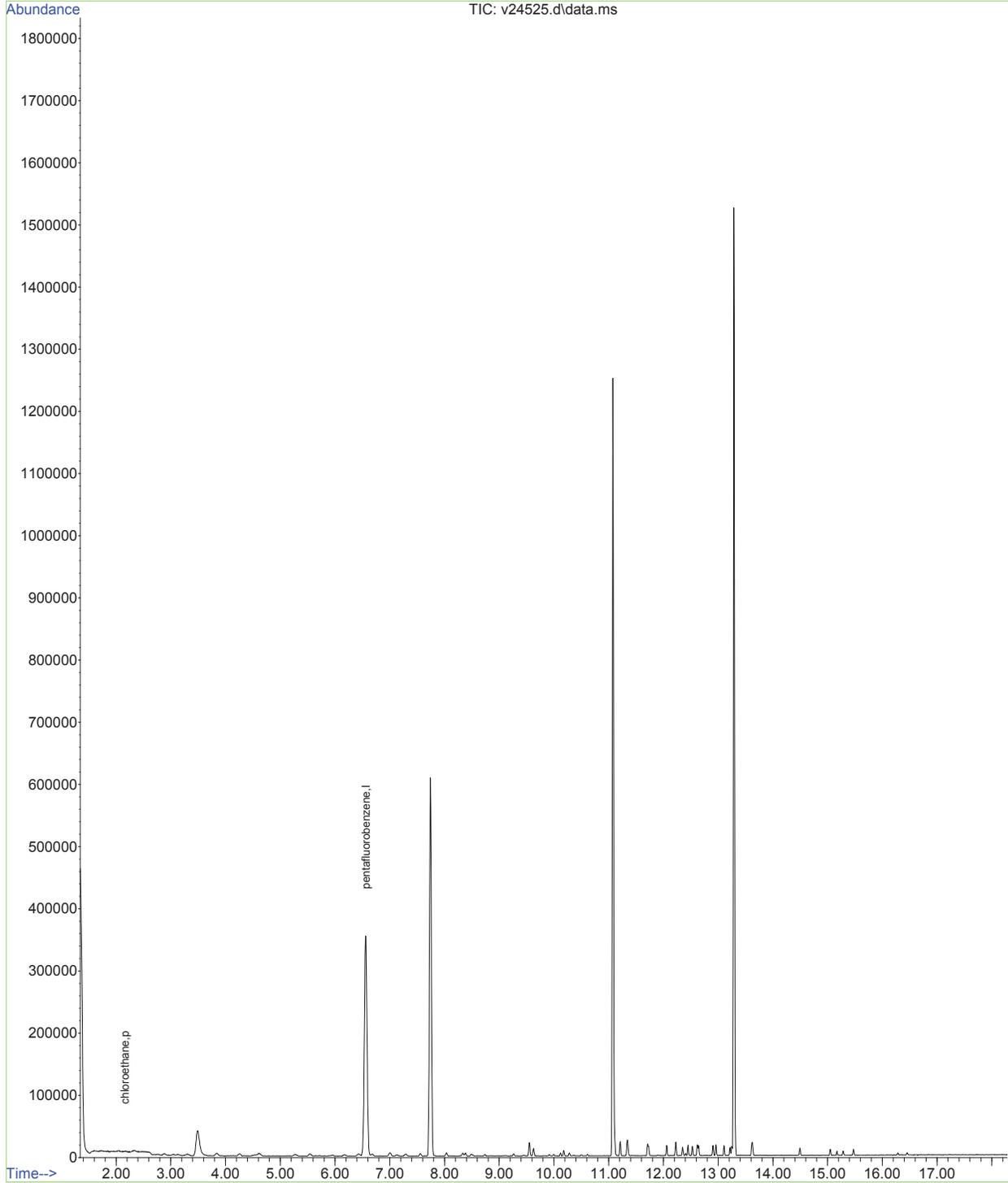
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.563	168	449884	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.157	64	2031	0.80	ug/L	Qvalue # 43
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24525.d  
Acq On : 25 Oct 2013 6:10 pm  
Operator : amym  
Sample : ic937-0.5  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 08 18:56:39 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 18:56:19 2015  
Response via : Initial Calibration



Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24526.d  
 Acq On : 25 Oct 2013 6:37 pm  
 Operator : amym  
 Sample : ic937-1  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 08 18:57:24 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:56:19 2015  
 Response via : Initial Calibration

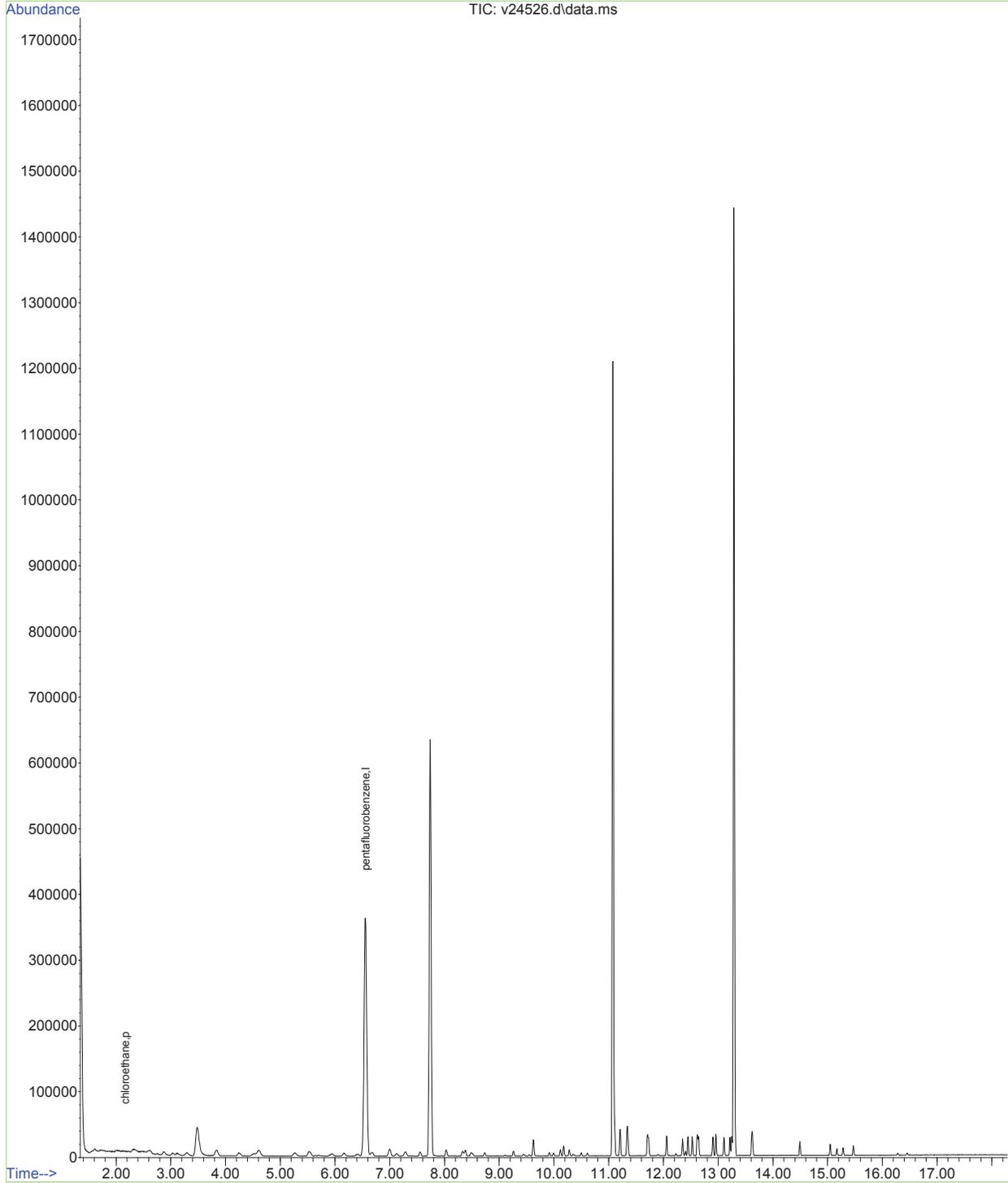
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.557	168	457173	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.168	64	5011	1.95	ug/L	Qvalue # 43
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24526.d  
Acq On : 25 Oct 2013 6:37 pm  
Operator : amym  
Sample : ic937-1  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 08 18:57:24 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 18:56:19 2015  
Response via : Initial Calibration



Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24527.d  
 Acq On : 25 Oct 2013 7:04 pm  
 Operator : amym  
 Sample : ic937-2  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 08 18:58:12 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:56:19 2015  
 Response via : Initial Calibration

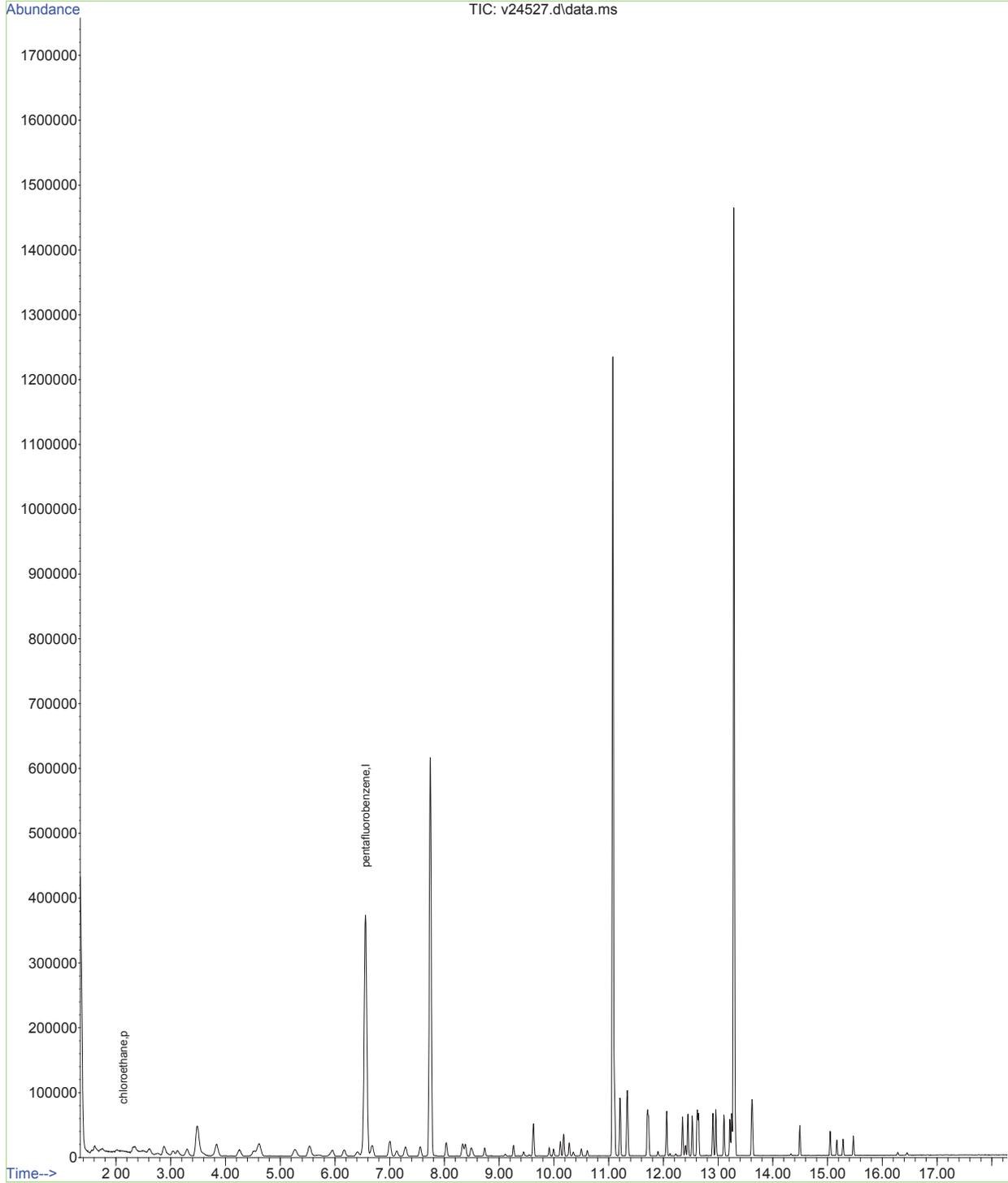
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.560	168	465848	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.132	64	5349m	2.04	ug/L	Qvalue
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24527.d  
Acq On : 25 Oct 2013 7:04 pm  
Operator : amym  
Sample : ic937-2  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 10 Sample Multiplier: 1

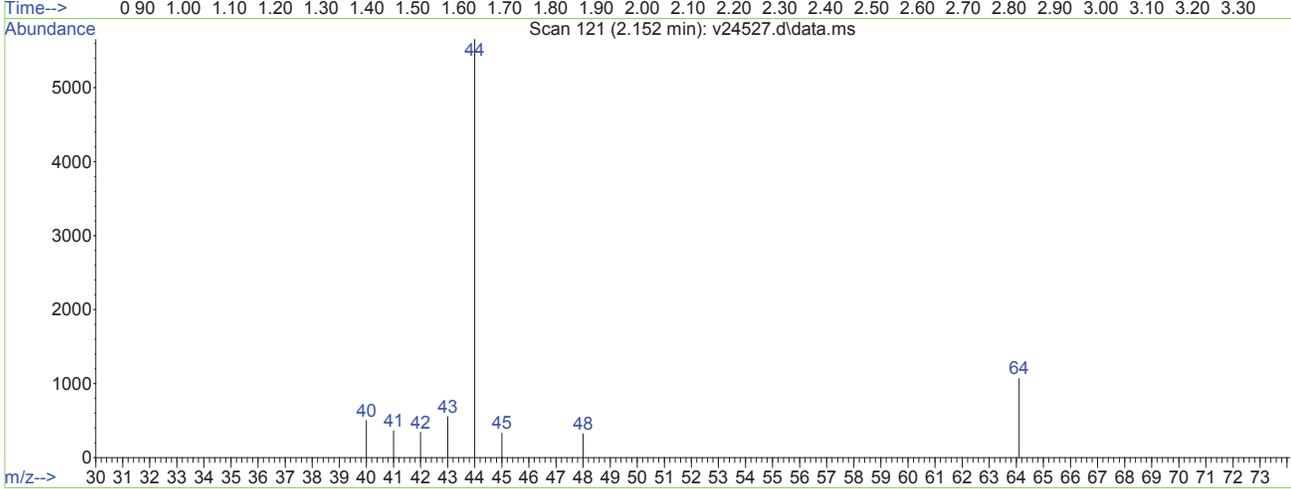
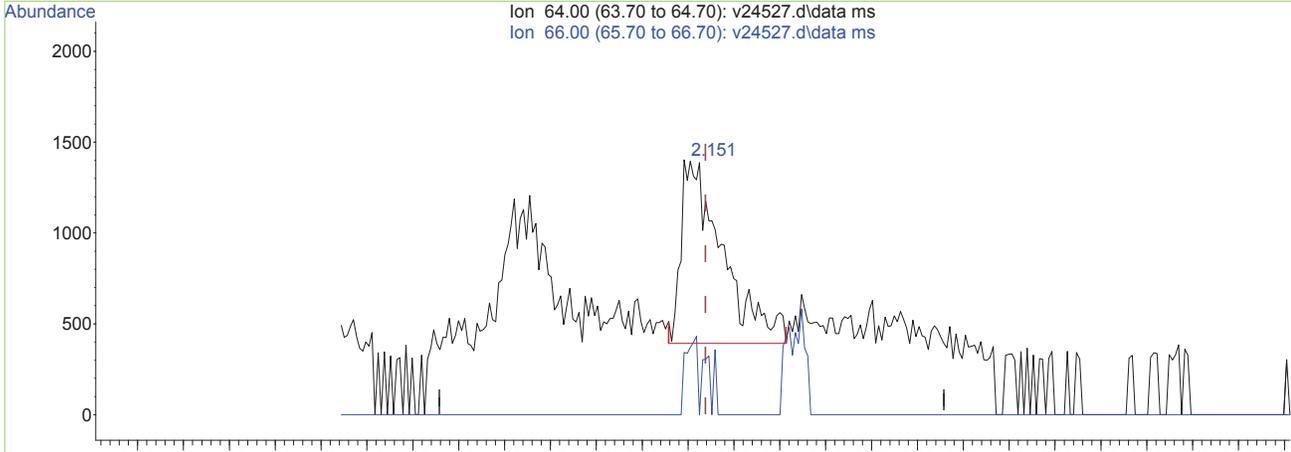
Quant Time: Oct 08 18:58:12 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 18:56:19 2015  
Response via : Initial Calibration



Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24527.d  
 Acq On : 25 Oct 2013 7:04 pm  
 Operator : amym  
 Sample : ic937-2  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 08 18:57:48 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:56:19 2015  
 Response via : Initial Calibration



TIC: v24527.d\data.ms

(2) chloroethane (p)

2.151min (+0.012) 2.40ug/L

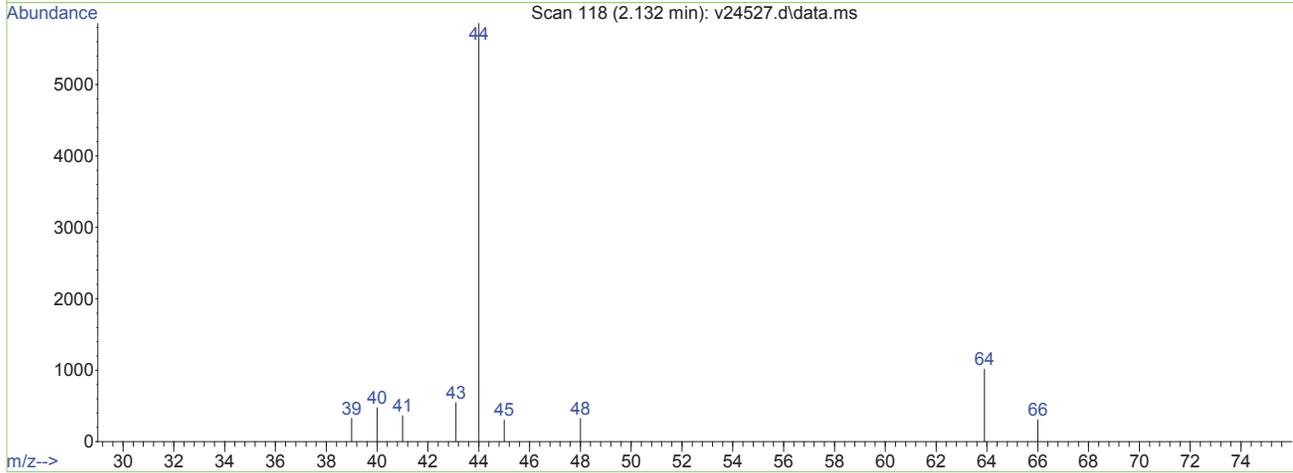
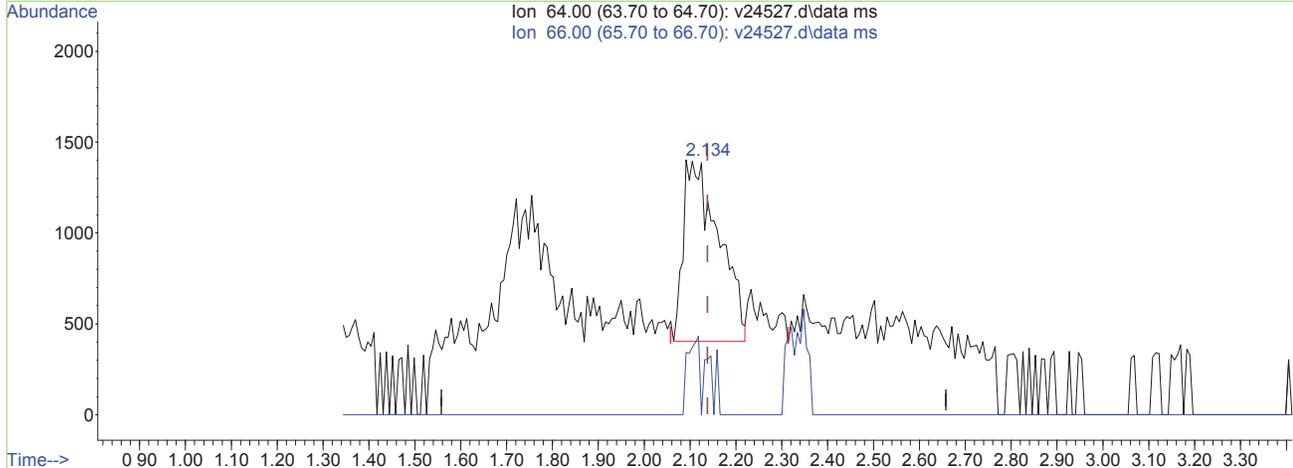
response 6300

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24527.d  
 Acq On : 25 Oct 2013 7:04 pm  
 Operator : amym  
 Sample : ic937-2  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 08 18:57:48 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:56:19 2015  
 Response via : Initial Calibration



TIC: v24527.d\data.ms

(2) chloroethane (p)

2.132min (-0.007) 2.04ug/L m

response 5349

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	29.78
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24528.d  
 Acq On : 25 Oct 2013 7:30 pm  
 Operator : amym  
 Sample : ic937-5  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 08 18:59:00 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:58:54 2015  
 Response via : Initial Calibration

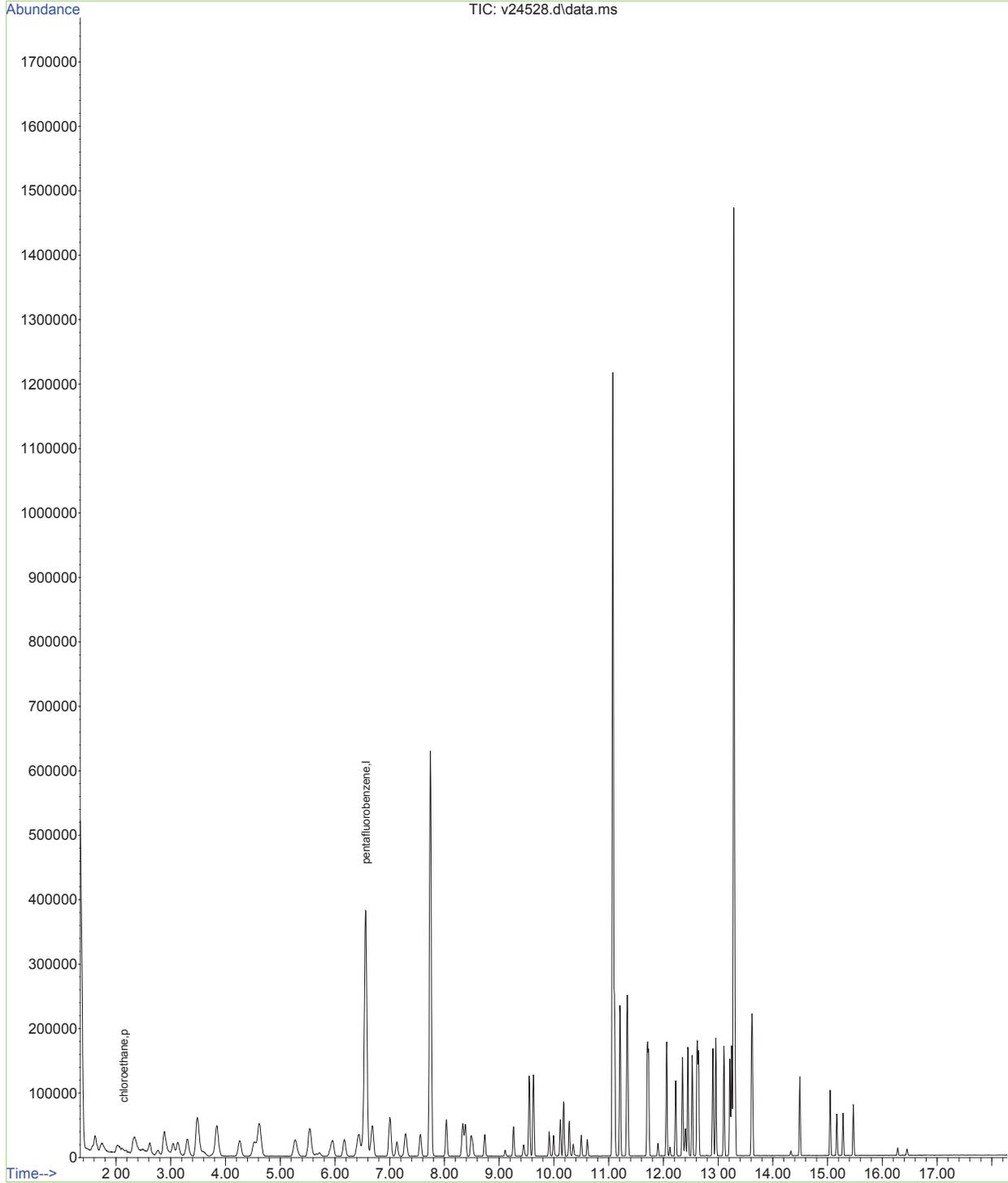
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.562	168	459429	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.139	64	12910m	4.94	ug/L	Qvalue
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24528.d  
Acq On : 25 Oct 2013 7:30 pm  
Operator : amym  
Sample : ic937-5  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 11 Sample Multiplier: 1

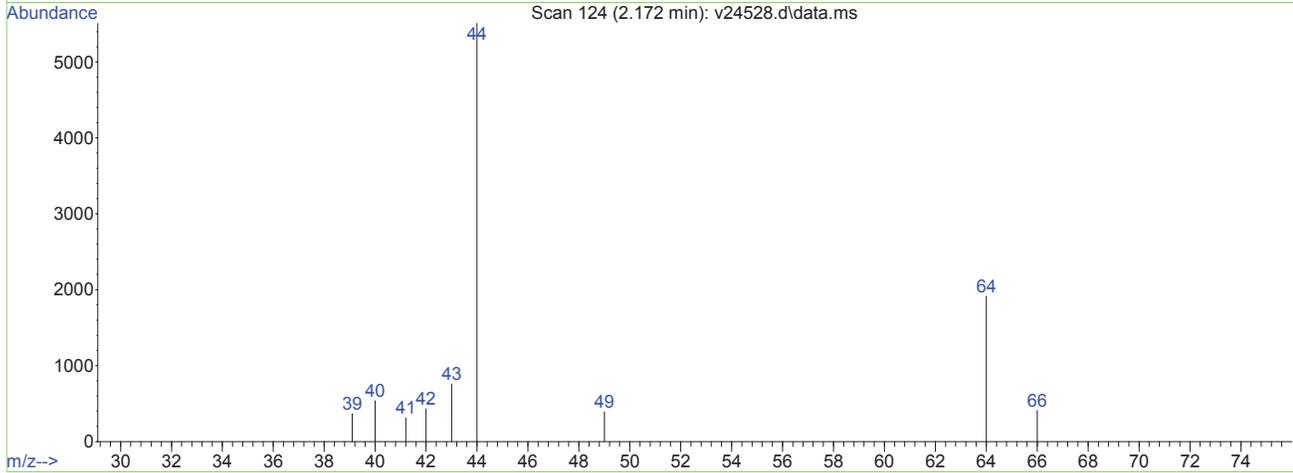
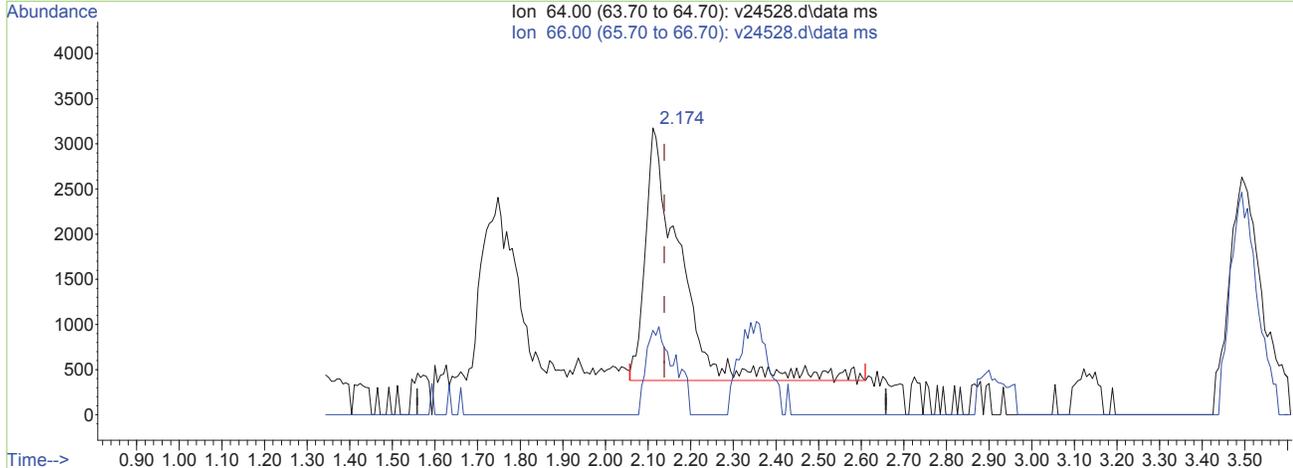
Quant Time: Oct 08 18:59:00 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 18:58:54 2015  
Response via : Initial Calibration



Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24528.d  
 Acq On : 25 Oct 2013 7:30 pm  
 Operator : amym  
 Sample : ic937-5  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 08 18:58:42 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:58:54 2015  
 Response via : Initial Calibration



TIC: v24528.d\data.ms

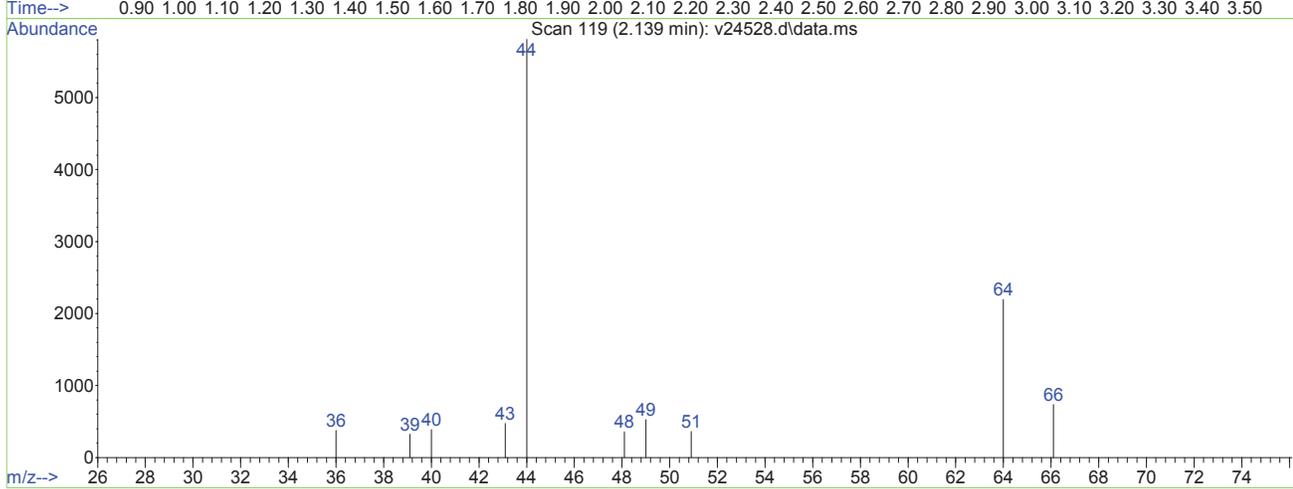
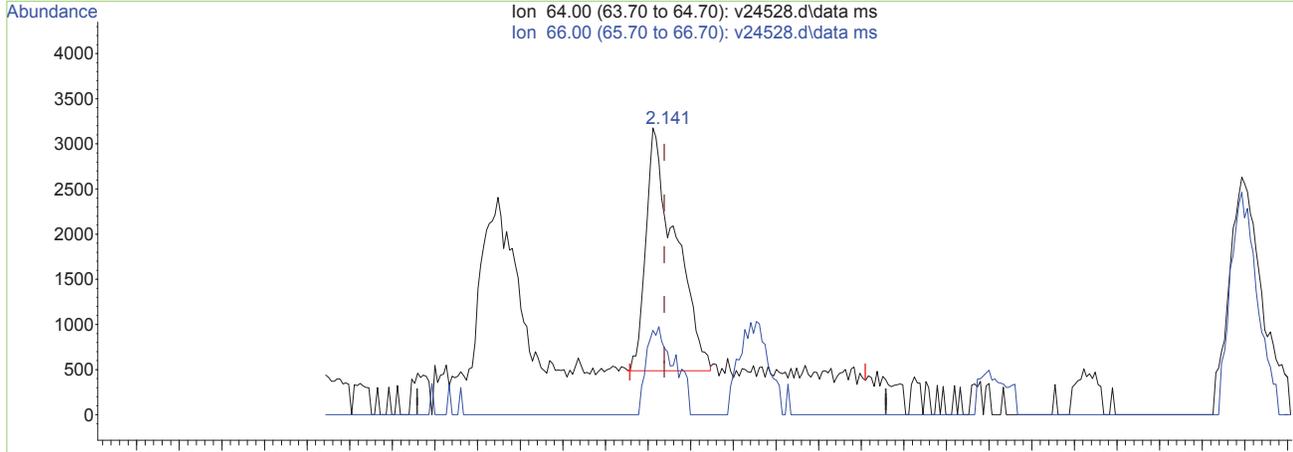
(2) chloroethane (p)  
 2.174min (+0.035) 6.15ug/L  
 response 16071

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	26.66
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24528.d  
 Acq On : 25 Oct 2013 7:30 pm  
 Operator : amym  
 Sample : ic937-5  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 08 18:58:42 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:58:54 2015  
 Response via : Initial Calibration



TIC: v24528.d\data.ms

(2) chloroethane (p)  
 2.139min (+0.000) 4.94ug/L m  
 response 12910

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	33.47
0.00	0.00	0.00
0.00	0.00	0.00

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24529.d  
 Acq On : 25 Oct 2013 7:56 pm  
 Operator : amym  
 Sample : ic937-10  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 08 19:00:11 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:59:38 2015  
 Response via : Initial Calibration

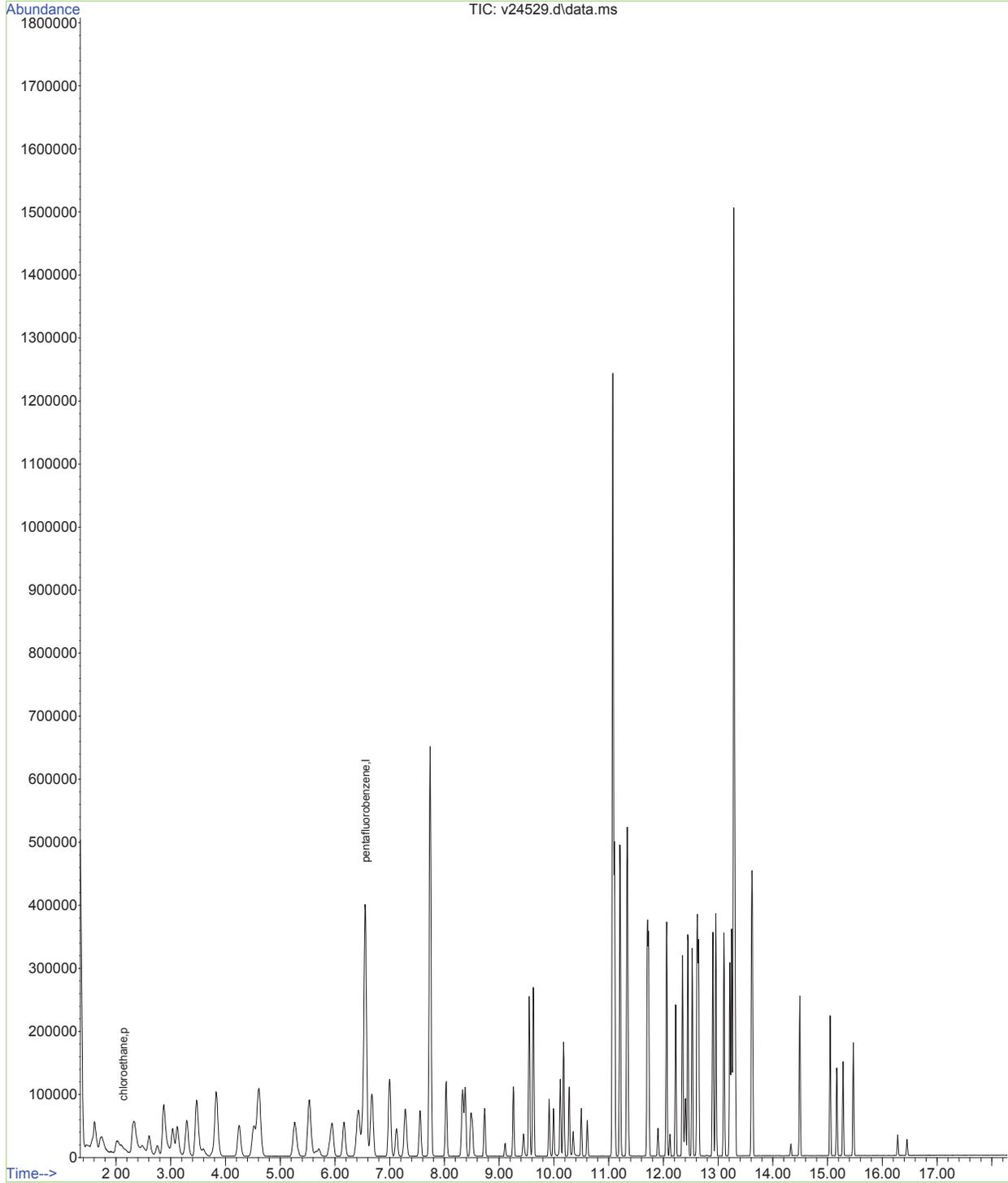
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.556	168	464372	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.132	64	23810m	9.05	ug/L	Qvalue
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24529.d  
Acq On : 25 Oct 2013 7:56 pm  
Operator : amym  
Sample : ic937-10  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 12 Sample Multiplier: 1

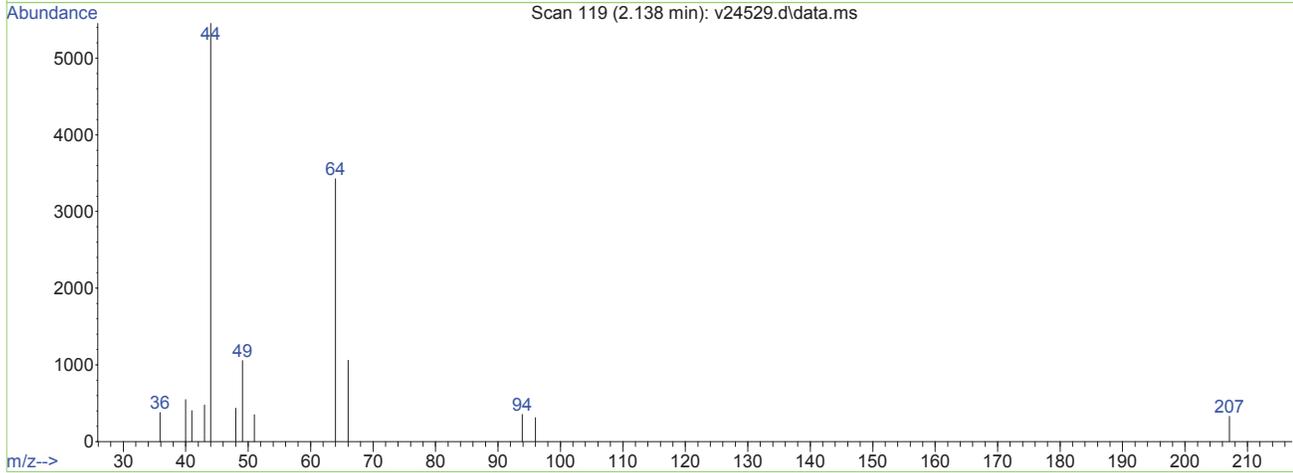
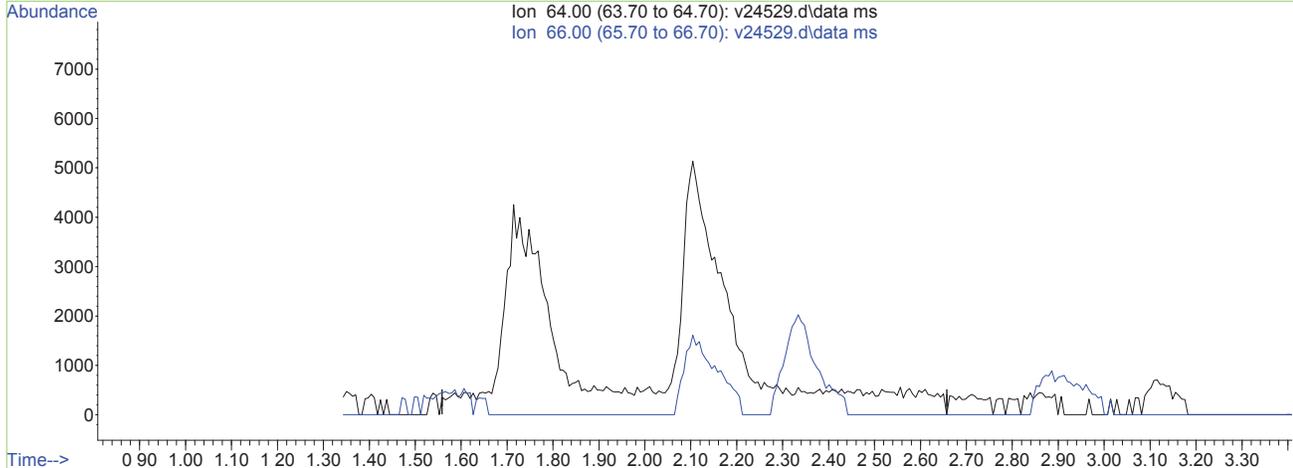
Quant Time: Oct 08 19:00:11 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 18:59:38 2015  
Response via : Initial Calibration



Quantitation Report (Qedit)

Data Path : O:\msv\1\databackup\v131025\  
 Data File : v24529.d  
 Acq On : 25 Oct 2013 7:56 pm  
 Operator : amym  
 Sample : ic937-10  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 08 18:59:30 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:59:38 2015  
 Response via : Initial Calibration



TIC: v24529.d\data.ms

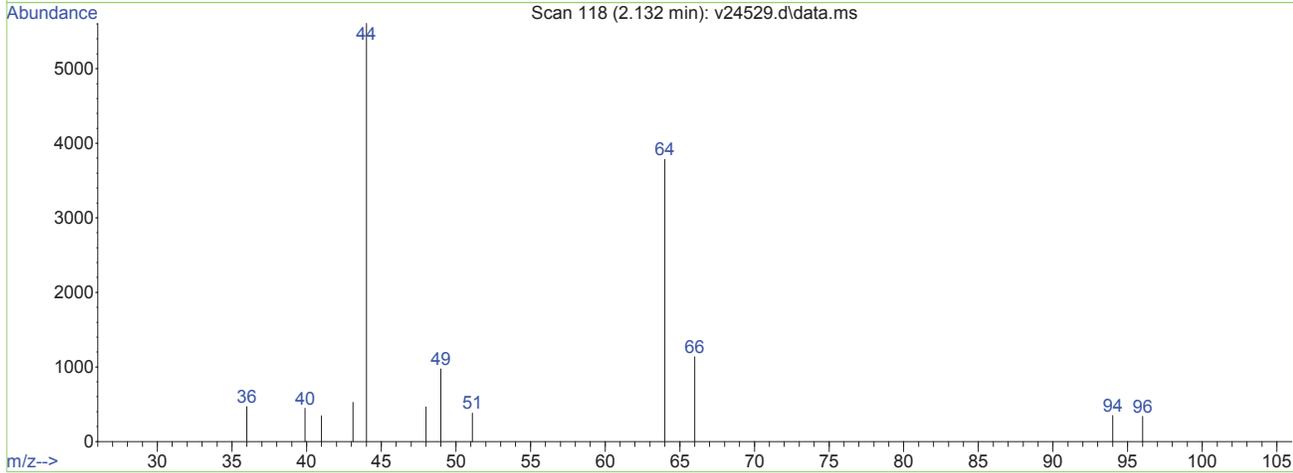
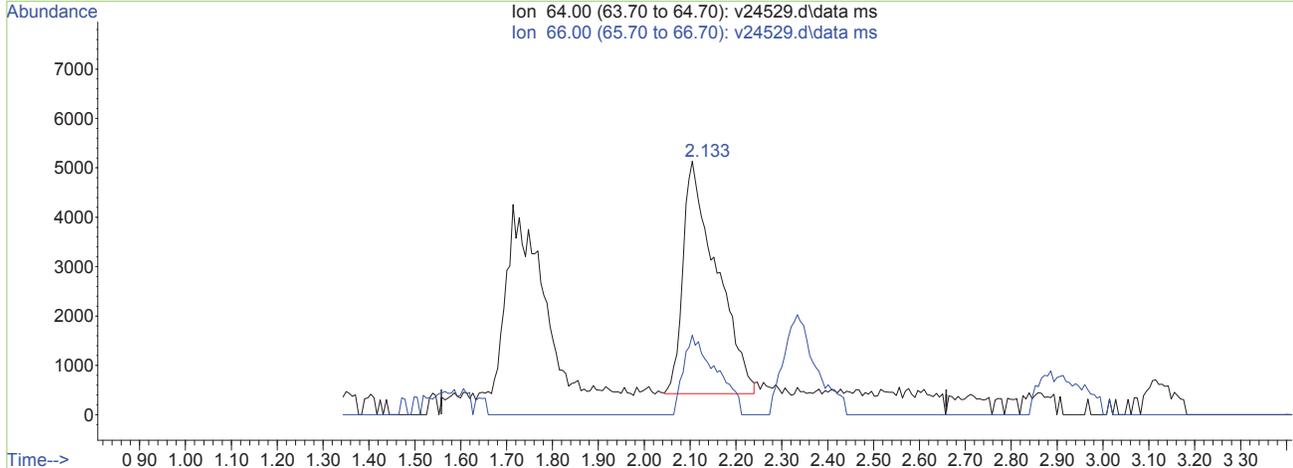
(2) chloroethane (p)  
 2.138min (-2.138) 0.00ug/L  
 response 0

Ion	Exp%	Act%
64.00	100	0.00
66.00	31.70	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24529.d  
 Acq On : 25 Oct 2013 7:56 pm  
 Operator : amym  
 Sample : ic937-10  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 08 18:59:30 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 18:59:38 2015  
 Response via : Initial Calibration



TIC: v24529.d\data.ms

(2) chloroethane (p)  
 2.132min (-0.007) 9.05ug/L m  
 response 23810

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	30.00
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24530.d  
 Acq On : 25 Oct 2013 8:23 pm  
 Operator : amym  
 Sample : icc937-50  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 08 19:01:00 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:00:51 2015  
 Response via : Initial Calibration

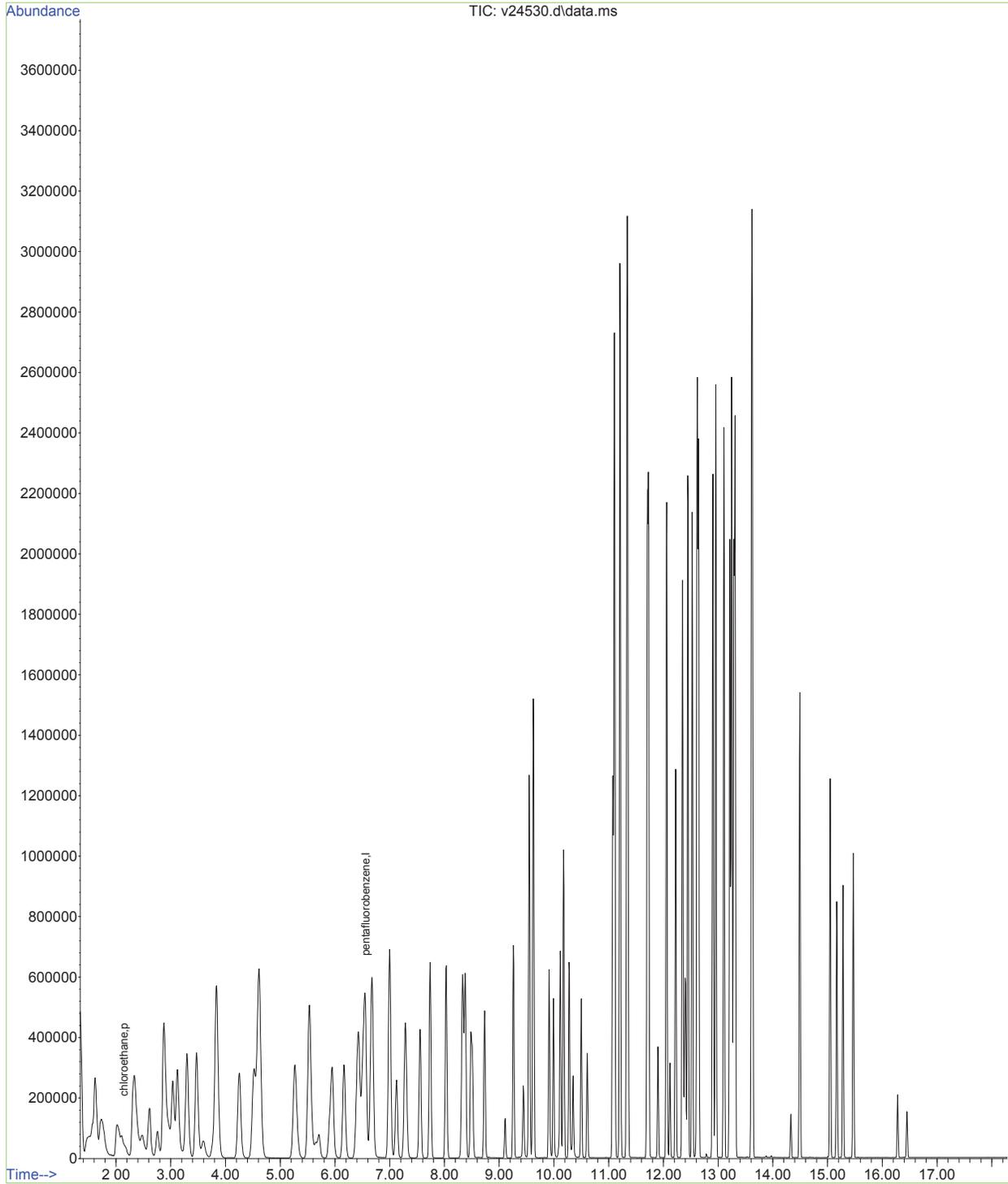
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.556	168	474885	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.138	64	130945m	49.86	ug/L	Qvalue
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24530.d  
Acq On : 25 Oct 2013 8:23 pm  
Operator : amym  
Sample : icc937-50  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 13 Sample Multiplier: 1

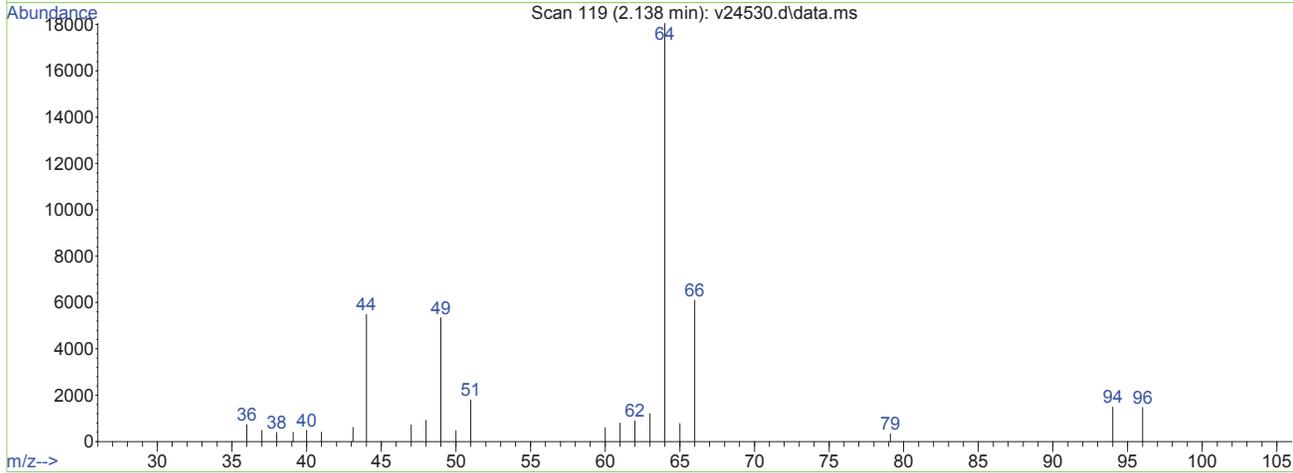
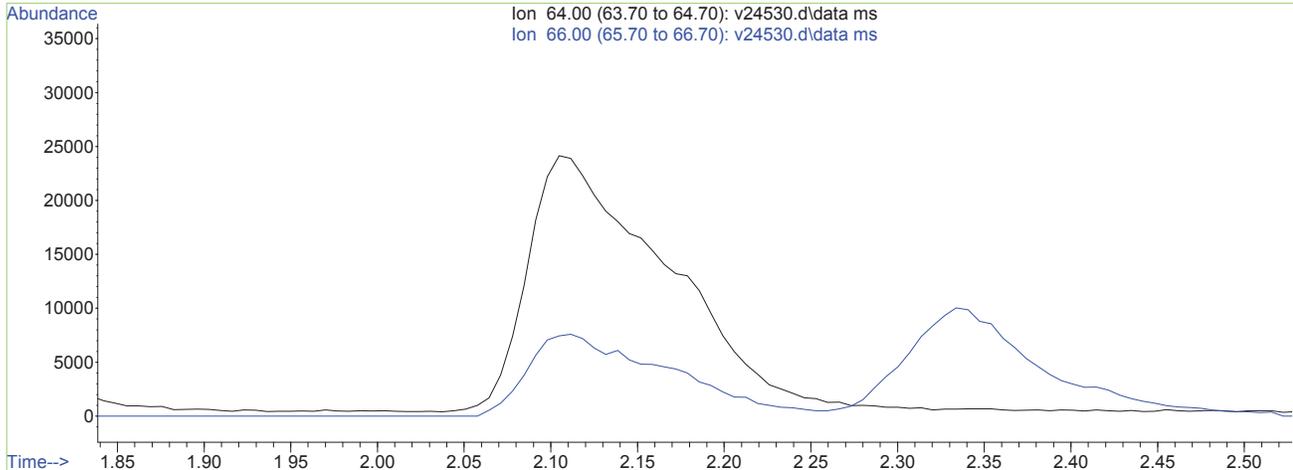
Quant Time: Oct 08 19:01:00 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:00:51 2015  
Response via : Initial Calibration



Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24530.d  
 Acq On : 25 Oct 2013 8:23 pm  
 Operator : amym  
 Sample : icc937-50  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 08 19:00:38 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:00:51 2015  
 Response via : Initial Calibration



TIC: v24530.d\data.ms

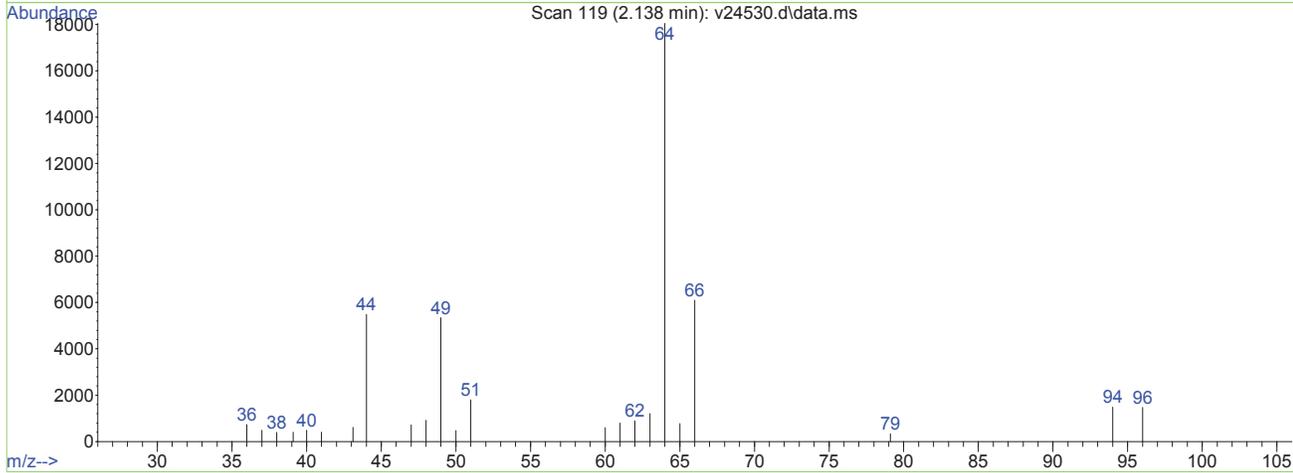
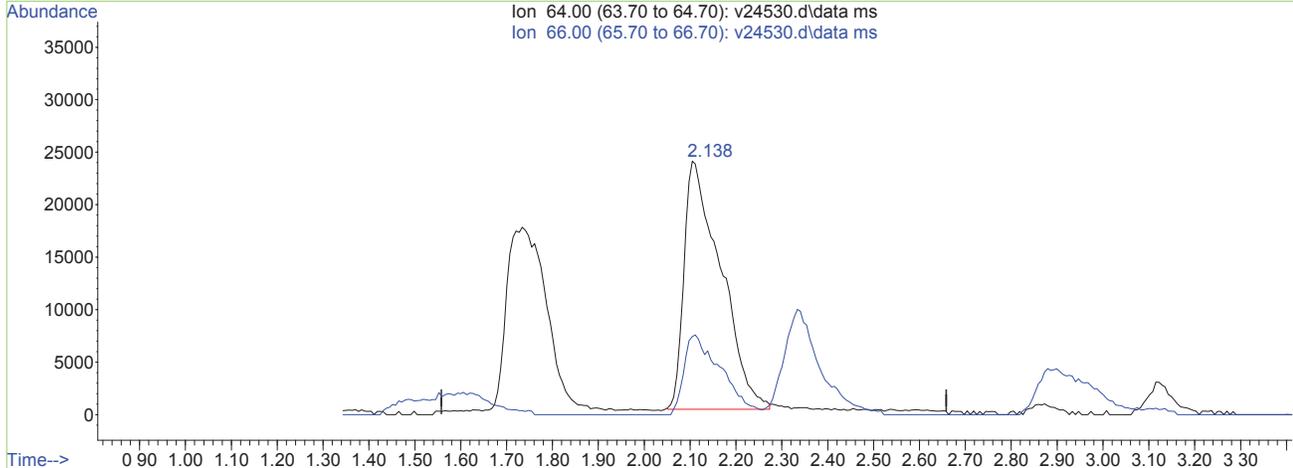
(2) chloroethane (p)  
 2.138min (-2.138) 0.00ug/L  
 response 0

Ion	Exp%	Act%
64.00	100	0.00
66.00	31.70	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24530.d  
 Acq On : 25 Oct 2013 8:23 pm  
 Operator : amym  
 Sample : icc937-50  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 08 19:00:38 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:00:51 2015  
 Response via : Initial Calibration



TIC: v24530.d\data.ms

(2) chloroethane (p)

2.138min (0.000) 49.86ug/L m

response 130945

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	33.77
0.00	0.00	0.00
0.00	0.00	0.00

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24531.d  
 Acq On : 25 Oct 2013 8:50 pm  
 Operator : amym  
 Sample : ic937-100  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 08 19:02:29 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:01:38 2015  
 Response via : Initial Calibration

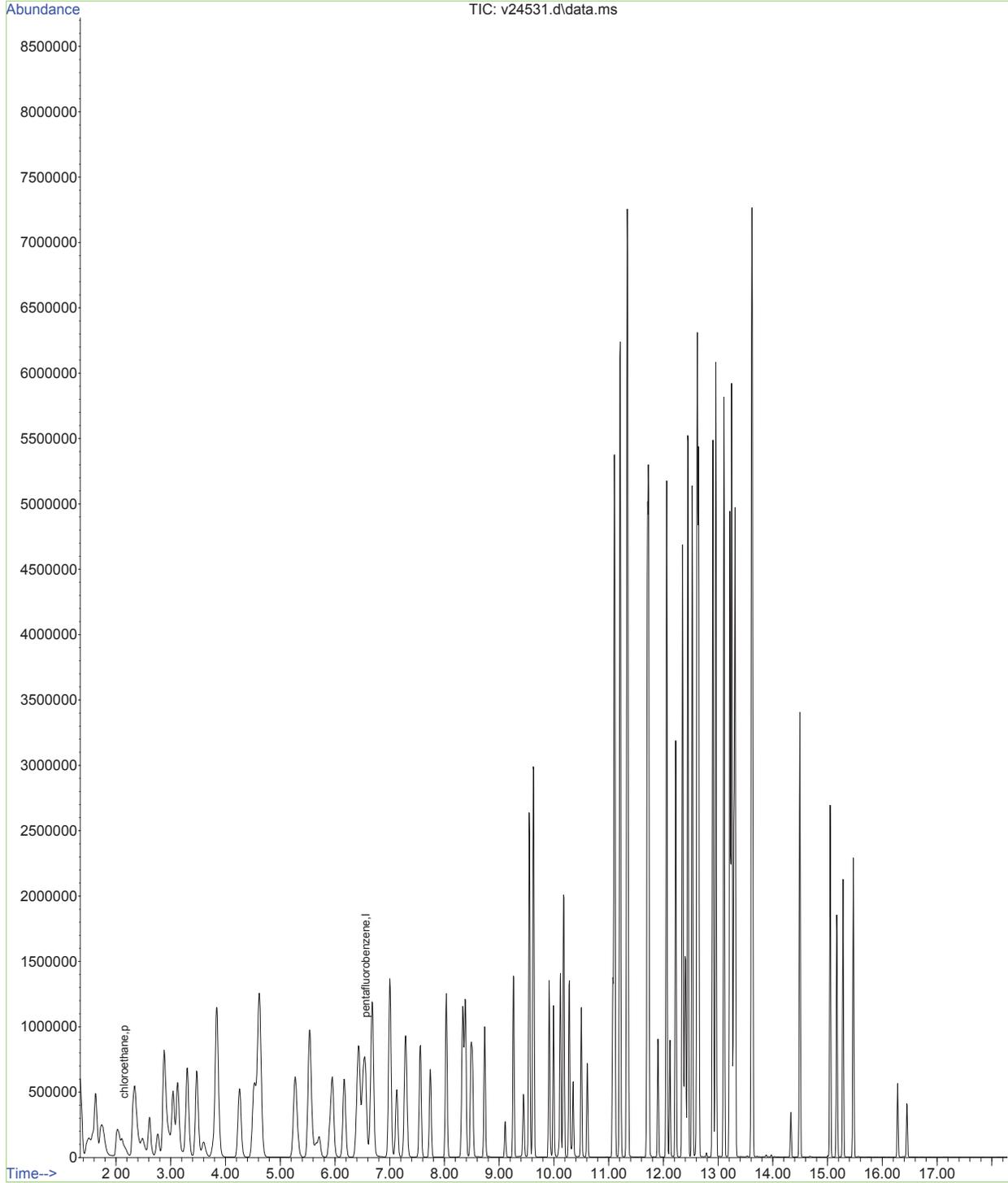
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.560	168	521831	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.145	64	261228m	91.00	ug/L	Qvalue
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24531.d  
Acq On : 25 Oct 2013 8:50 pm  
Operator : amym  
Sample : ic937-100  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 14 Sample Multiplier: 1

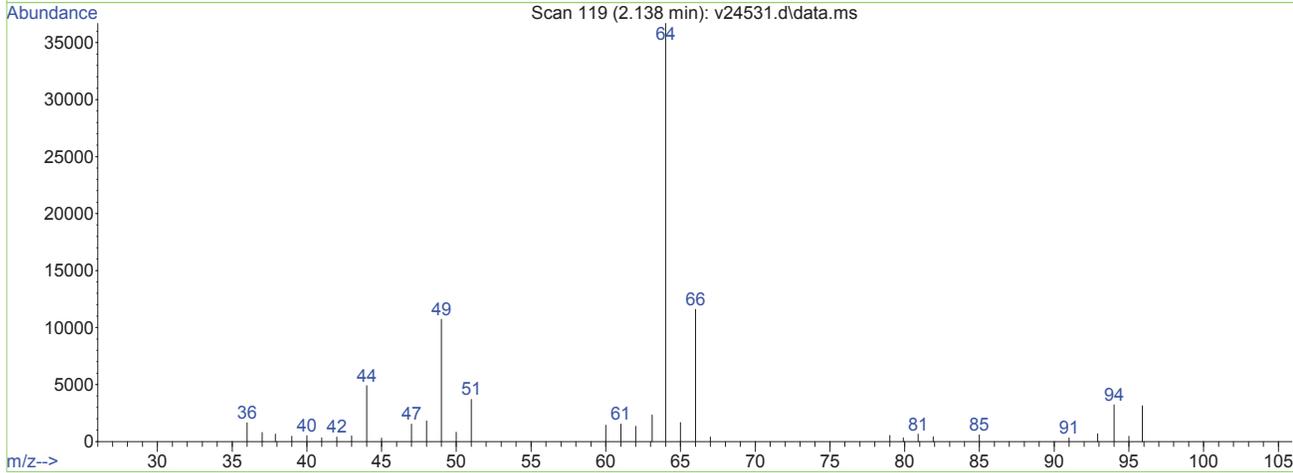
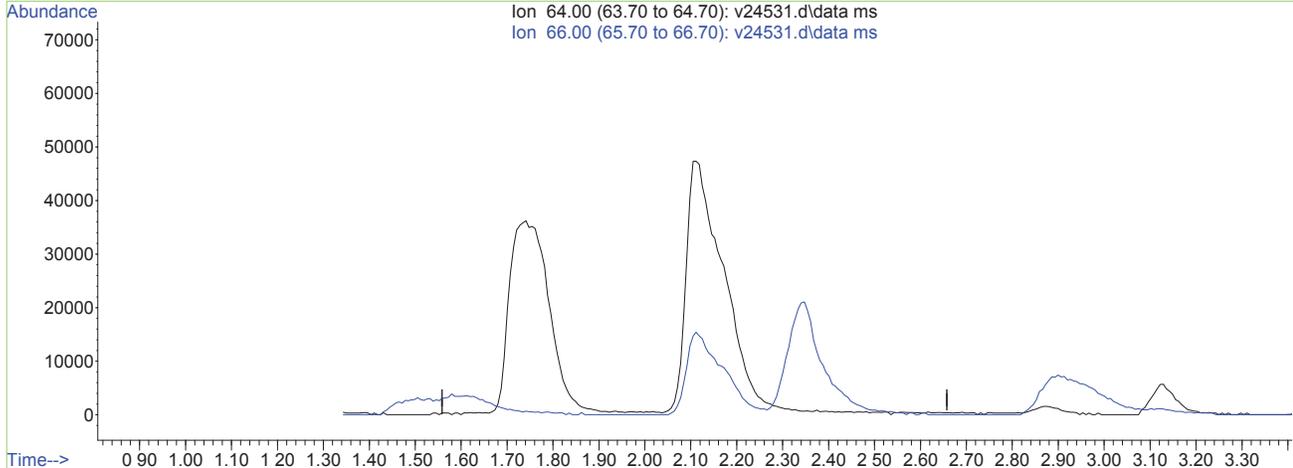
Quant Time: Oct 08 19:02:29 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:01:38 2015  
Response via : Initial Calibration



Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24531.d  
 Acq On : 25 Oct 2013 8:50 pm  
 Operator : amym  
 Sample : ic937-100  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 08 19:01:26 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:01:38 2015  
 Response via : Initial Calibration



TIC: v24531.d\data.ms

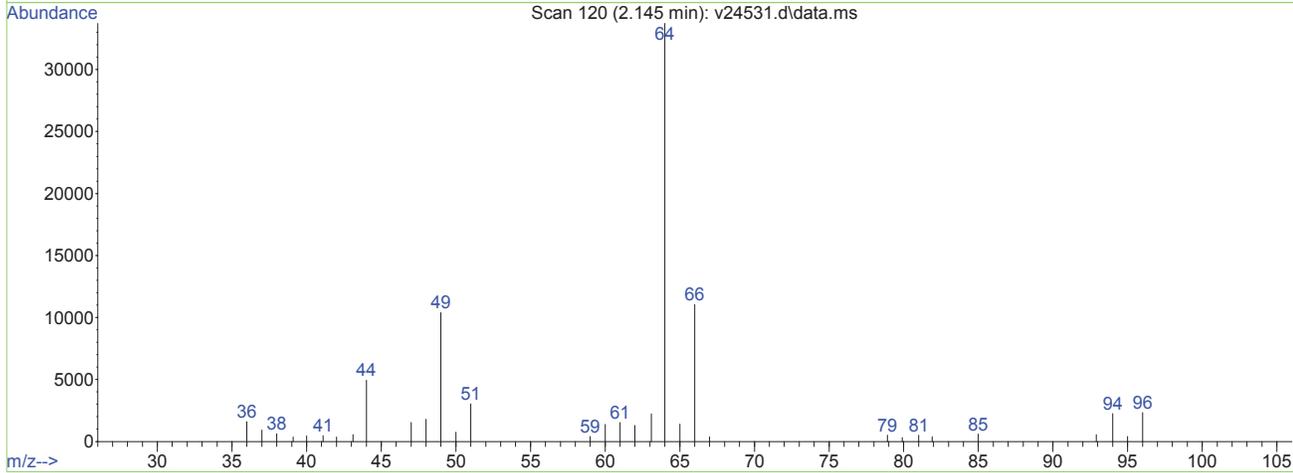
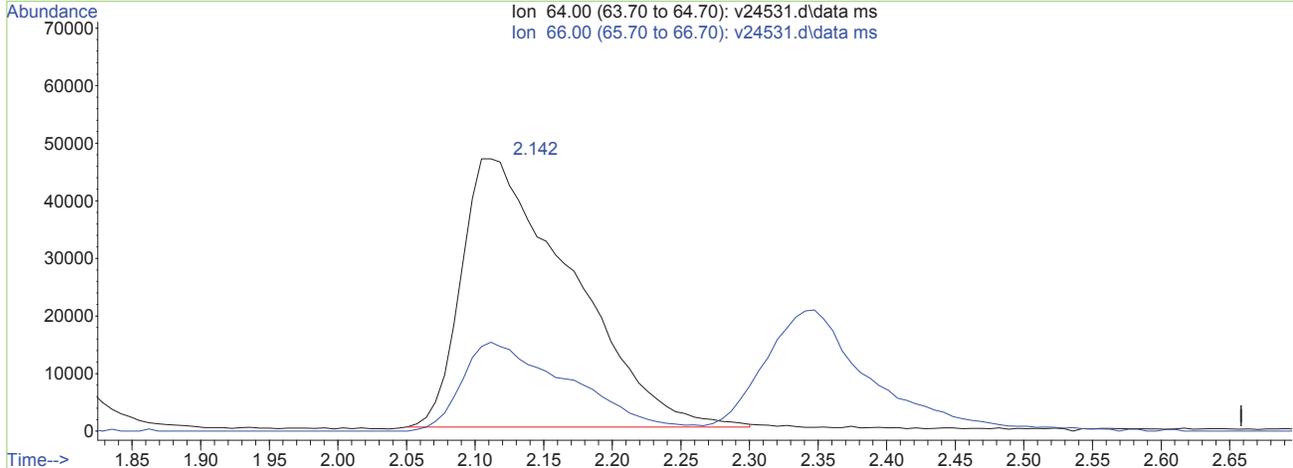
(2) chloroethane (p)  
 2.138min (-2.138) 0.00ug/L  
 response 0

Ion	Exp%	Act%
64.00	100	0.00
66.00	31.70	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24531.d  
 Acq On : 25 Oct 2013 8:50 pm  
 Operator : amym  
 Sample : ic937-100  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 08 19:01:26 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:01:38 2015  
 Response via : Initial Calibration



TIC: v24531.d\data.ms

(2) chloroethane (p)  
 2.145min (+0.007) 91.00ug/L m  
 response 261228

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	32.73
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24532.d  
 Acq On : 25 Oct 2013 9:16 pm  
 Operator : amym  
 Sample : ic937-200  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 08 19:03:45 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:03:07 2015  
 Response via : Initial Calibration

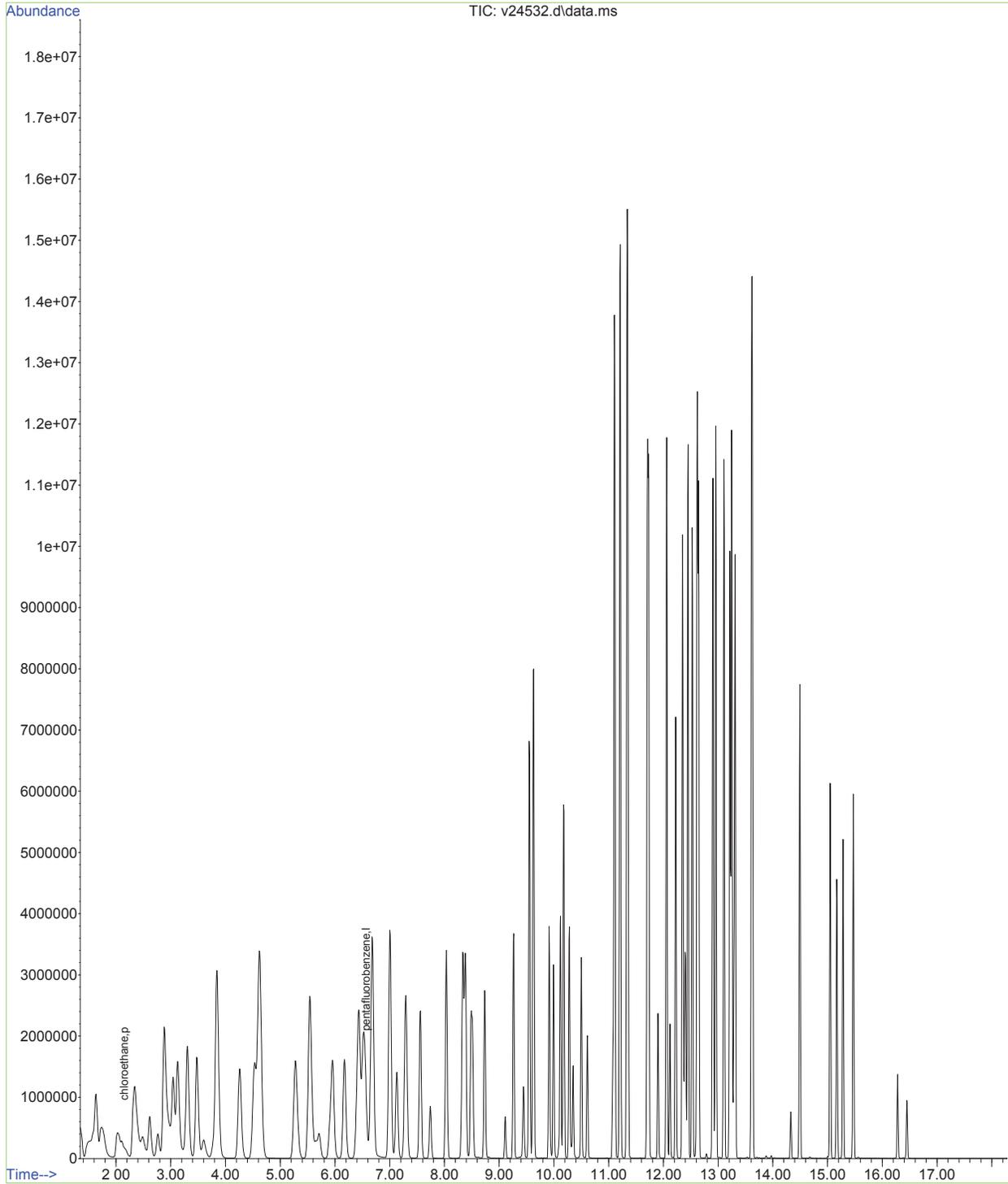
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.562	168	691537	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.145	64	550627m	147.40	ug/L	Qvalue
-----						

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

5.2  
5

Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24532.d  
Acq On : 25 Oct 2013 9:16 pm  
Operator : amym  
Sample : ic937-200  
Misc : MS30304,MSV937,,,,,5,1  
ALS Vial : 15 Sample Multiplier: 1

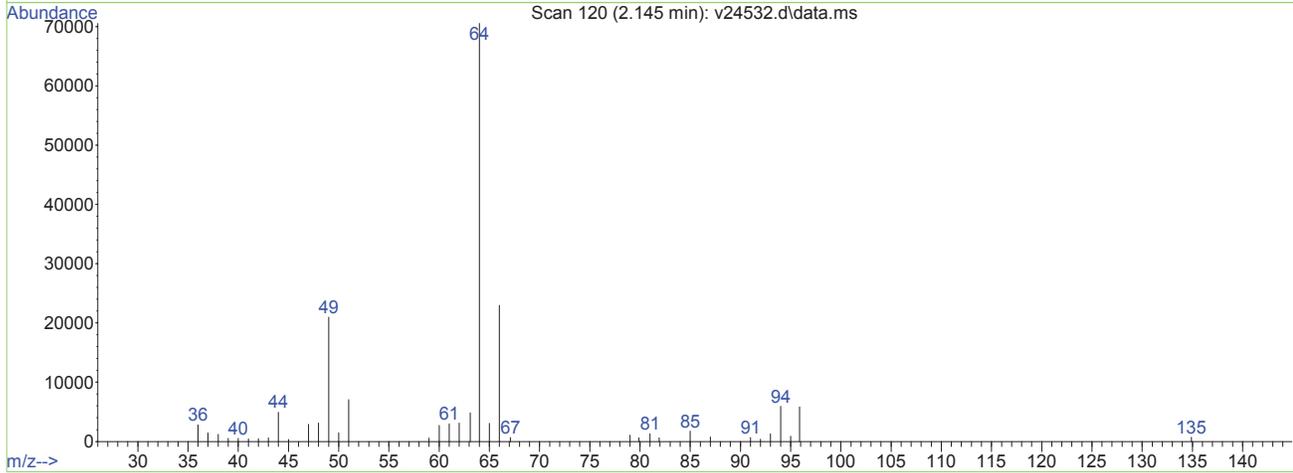
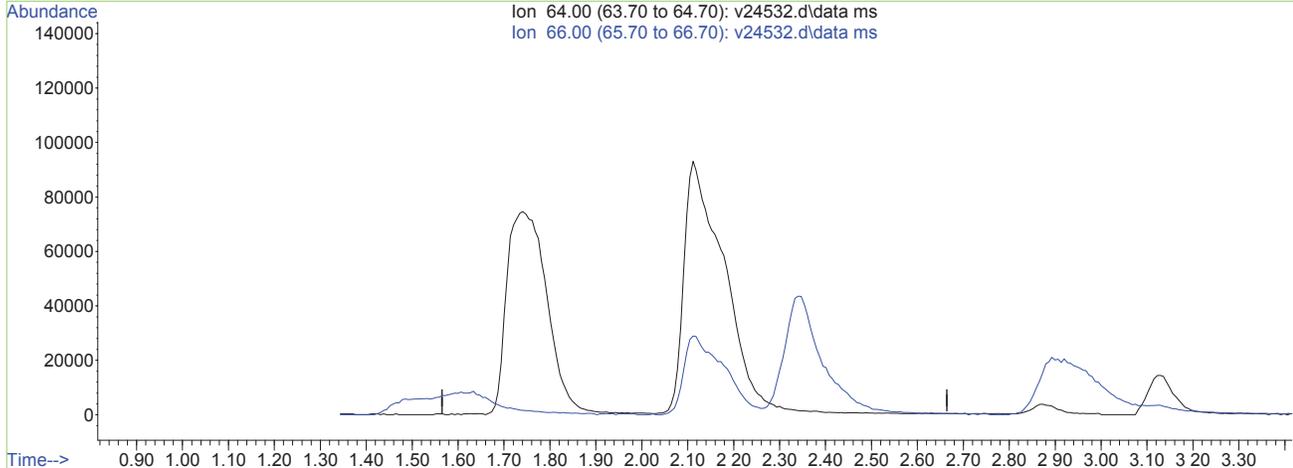
Quant Time: Oct 08 19:03:45 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:03:07 2015  
Response via : Initial Calibration



Quantitation Report (Qedit)

Data Path : O:\msv\1\databackup\v131025\  
 Data File : v24532.d  
 Acq On : 25 Oct 2013 9:16 pm  
 Operator : amym  
 Sample : ic937-200  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 08 19:02:58 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:03:07 2015  
 Response via : Initial Calibration



TIC: v24532.d\data.ms

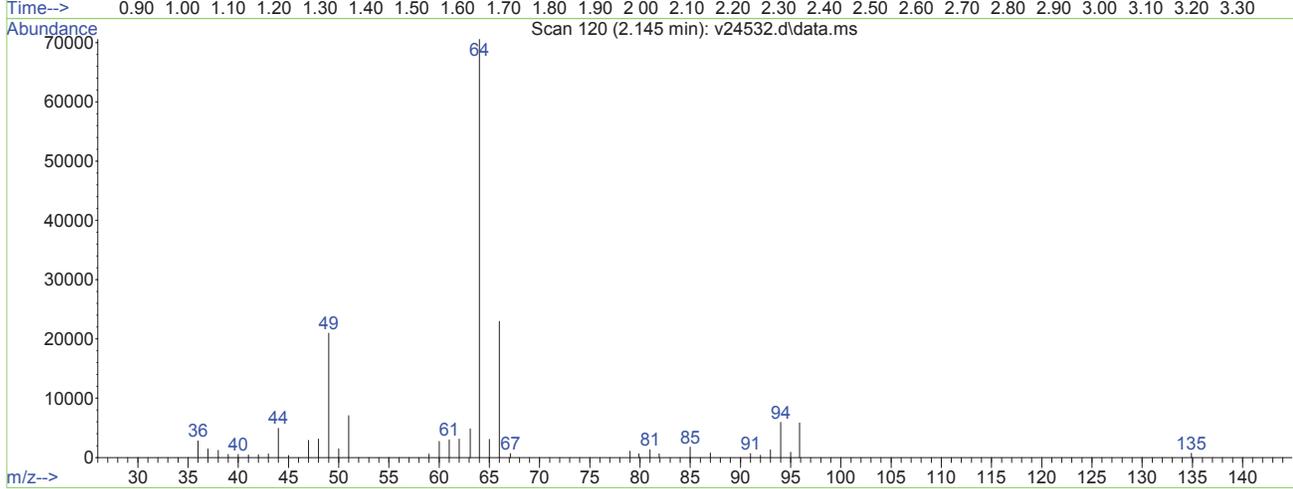
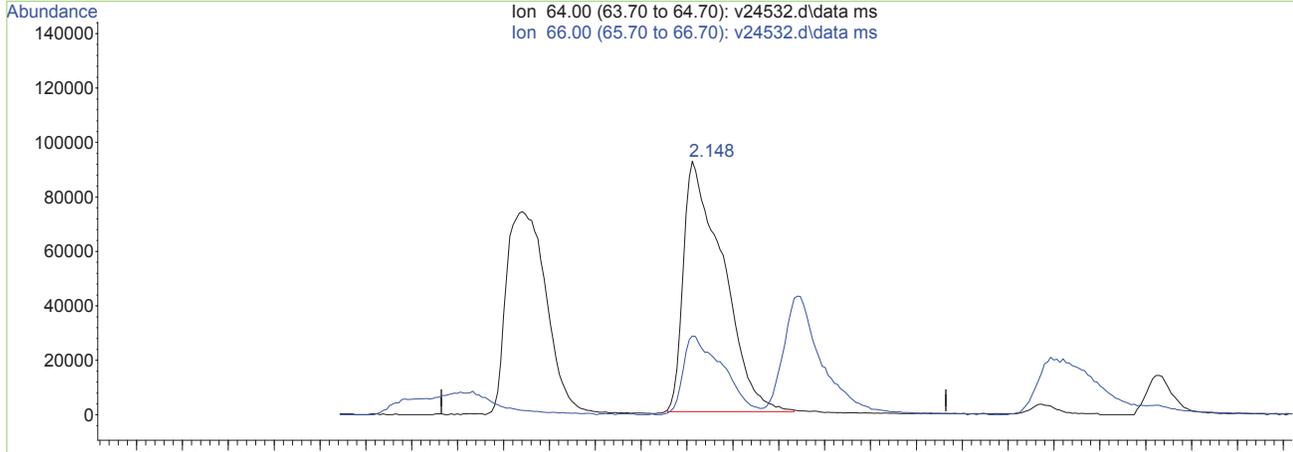
(2) chloroethane (p)  
 2.145min (-2.145) 0.00ug/L  
 response 0

Ion	Exp%	Act%
64.00	100	0.00
66.00	31.70	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24532.d  
 Acq On : 25 Oct 2013 9:16 pm  
 Operator : amym  
 Sample : ic937-200  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 08 19:02:58 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:03:07 2015  
 Response via : Initial Calibration



TIC: v24532.d\data.ms

(2) chloroethane (p)  
 2.145min (+0.000) 147.40ug/L m  
 response 550627

Ion	Exp%	Act%
64.00	100	100
66.00	31.70	32.54
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : O:\msv\1\datbackup\v131025\  
 Data File : v24533.d  
 Acq On : 25 Oct 2013 9:42 pm  
 Operator : amym  
 Sample : ic937-400  
 Misc : MS30304,MSV937,,,,,5,1  
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 08 19:04:35 2015  
 Quant Method : O:\msv\1\methods backup\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:04:25 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.563	168	695379	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.145	64	1131022m	314.90	ug/L	Qvalue
-----						

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

5.2  
5



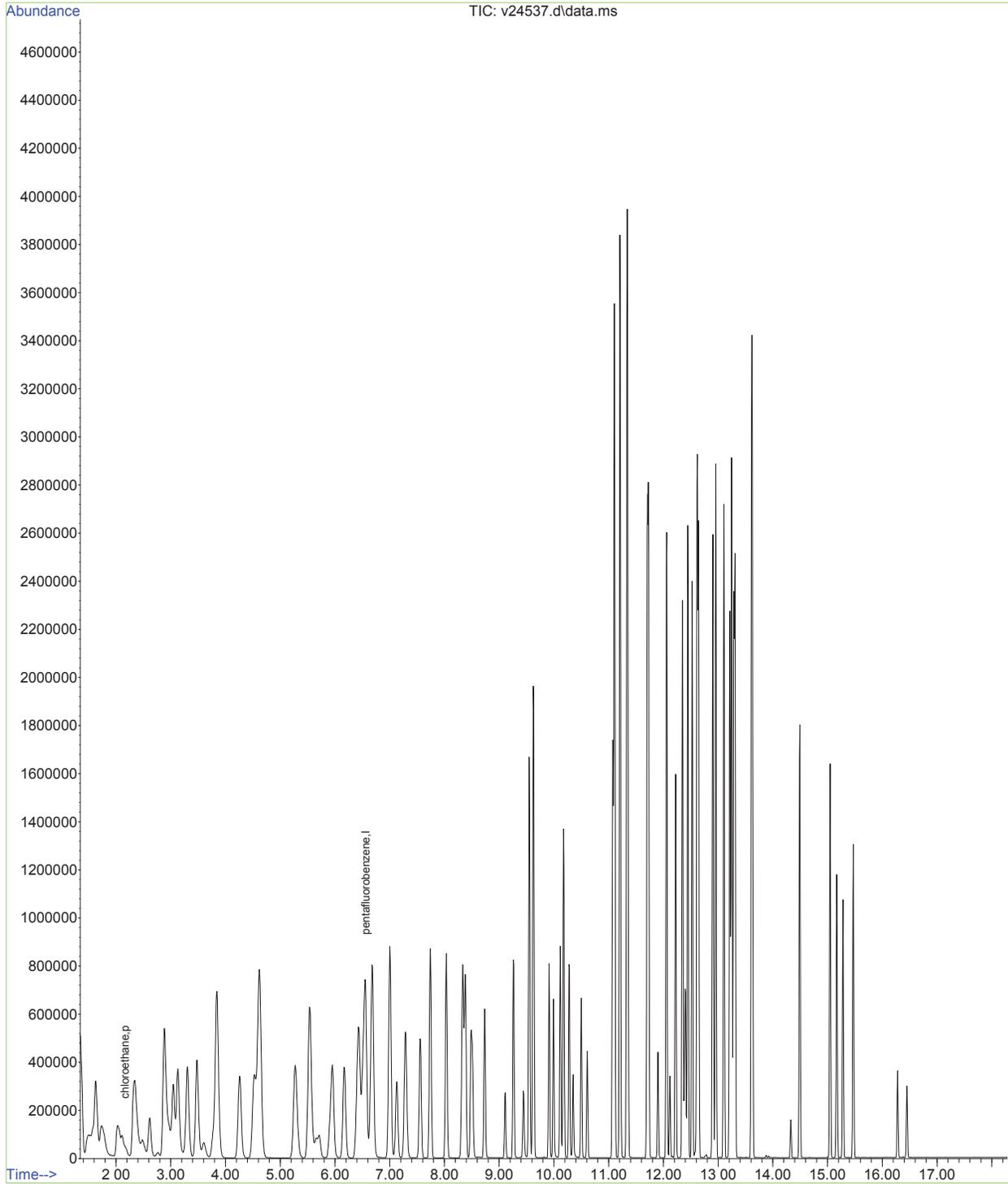






Data Path : O:\msv\1\datbackup\v131025\  
Data File : v24537.d  
Acq On : 25 Oct 2013 11:27 pm  
Operator : amym  
Sample : icv937-50  
Misc : MS30304,MSV937,,,,5,1  
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Oct 08 19:05:32 2015  
Quant Method : O:\msv\1\methods backup\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:05:14 2015  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
Data File : v24686.d  
Acq On : 30 Oct 2013 8:56 am  
Operator : amym  
Sample : cc937-50  
Misc : MS30351,MSV944,,,,,5,1  
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 04 17:55:37 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
-----							
Internal Standards							
1) pentafluorobenzene	6.547	168	563929	50.00	ug/L	-0.02	
-----							
Target Compounds							Qvalue
2) chloroethane	2.143	64	134212	47.52	ug/L		99
-----							

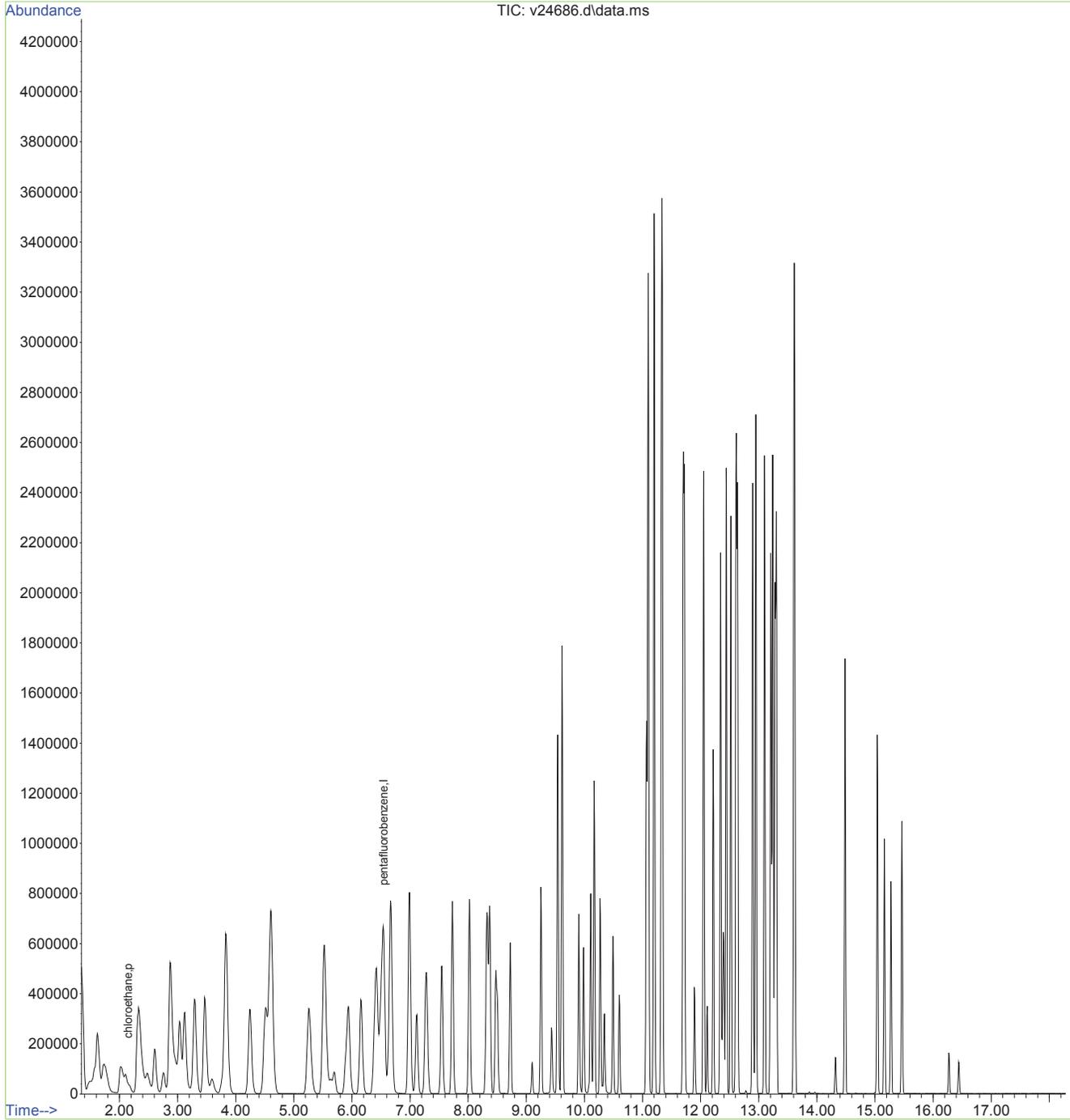
(#) = qualifier out of range (m) = manual integration (+) = signals summed

5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
Data File : v24686.d  
Acq On : 30 Oct 2013 8:56 am  
Operator : amym  
Sample : cc937-50  
Misc : MS30351,MSV944,,,,,5,1  
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 04 17:55:37 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
Data File : v24736.d  
Acq On : 31 Oct 2013 7:01 am  
Operator : amym  
Sample : cc937-50  
Misc : MS30365,MSV946,,,,,5,1  
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 04 18:11:28 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.554	168	557611	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.141	64	157186	56.29	ug/L	Qvalue 97
-----						

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

5.2  
5















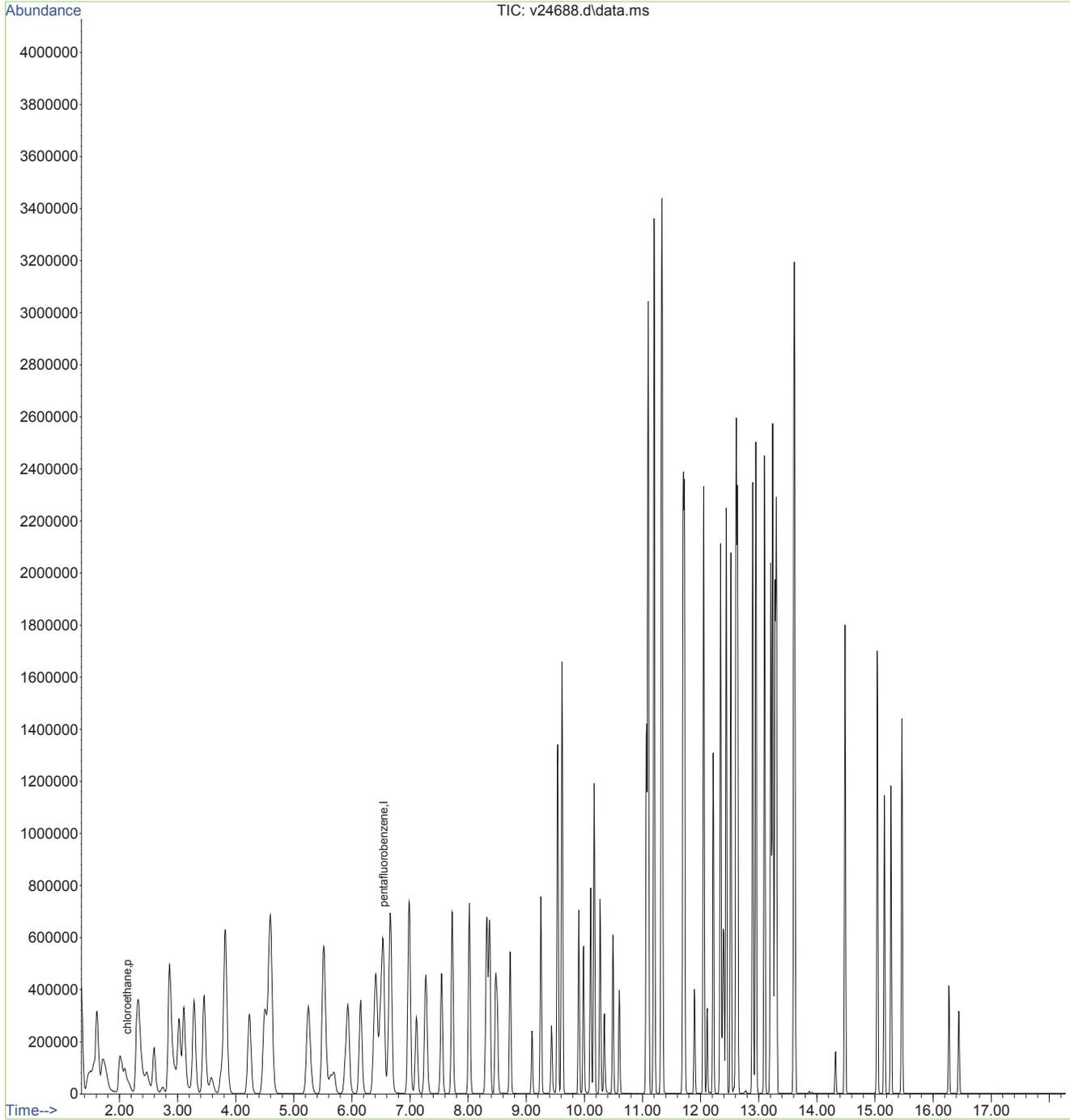




Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
Data File : v24688.d  
Acq On : 30 Oct 2013 9:50 am  
Operator : amym  
Sample : bsd  
Misc : MS30351,MSV944,,,,,5,1  
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 04 17:55:42 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration

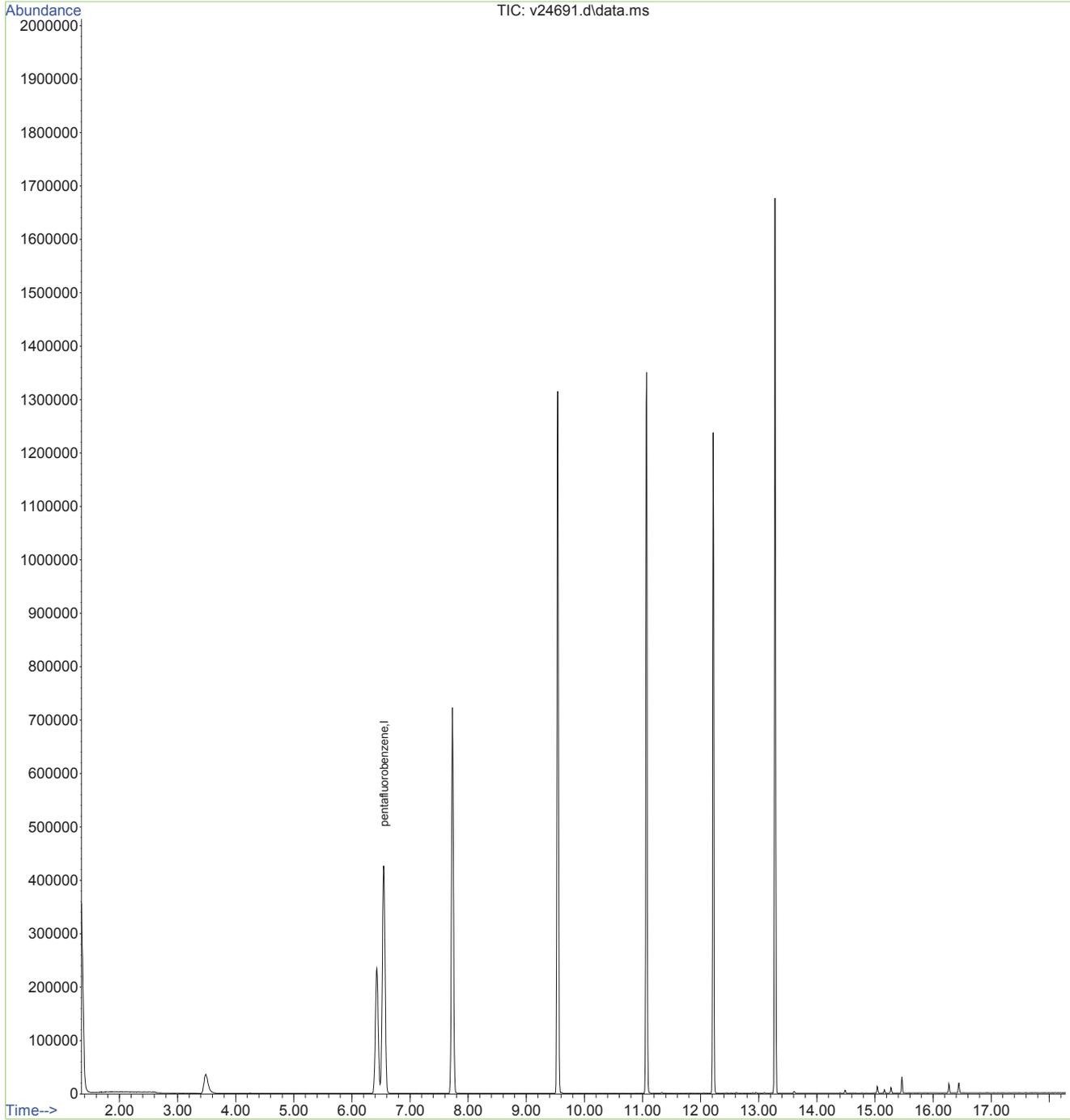




Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
Data File : v24691.d  
Acq On : 30 Oct 2013 11:09 am  
Operator : amym  
Sample : mb  
Misc : MS30357,MSV944,,,,,5,1  
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 04 17:55:44 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
 Data File : v24697.d  
 Acq On : 30 Oct 2013 1:50 pm  
 Operator : amym  
 Sample : mc25418-5ms  
 Misc : MS30357,MSV944,,,,,5,1  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 04 17:55:56 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

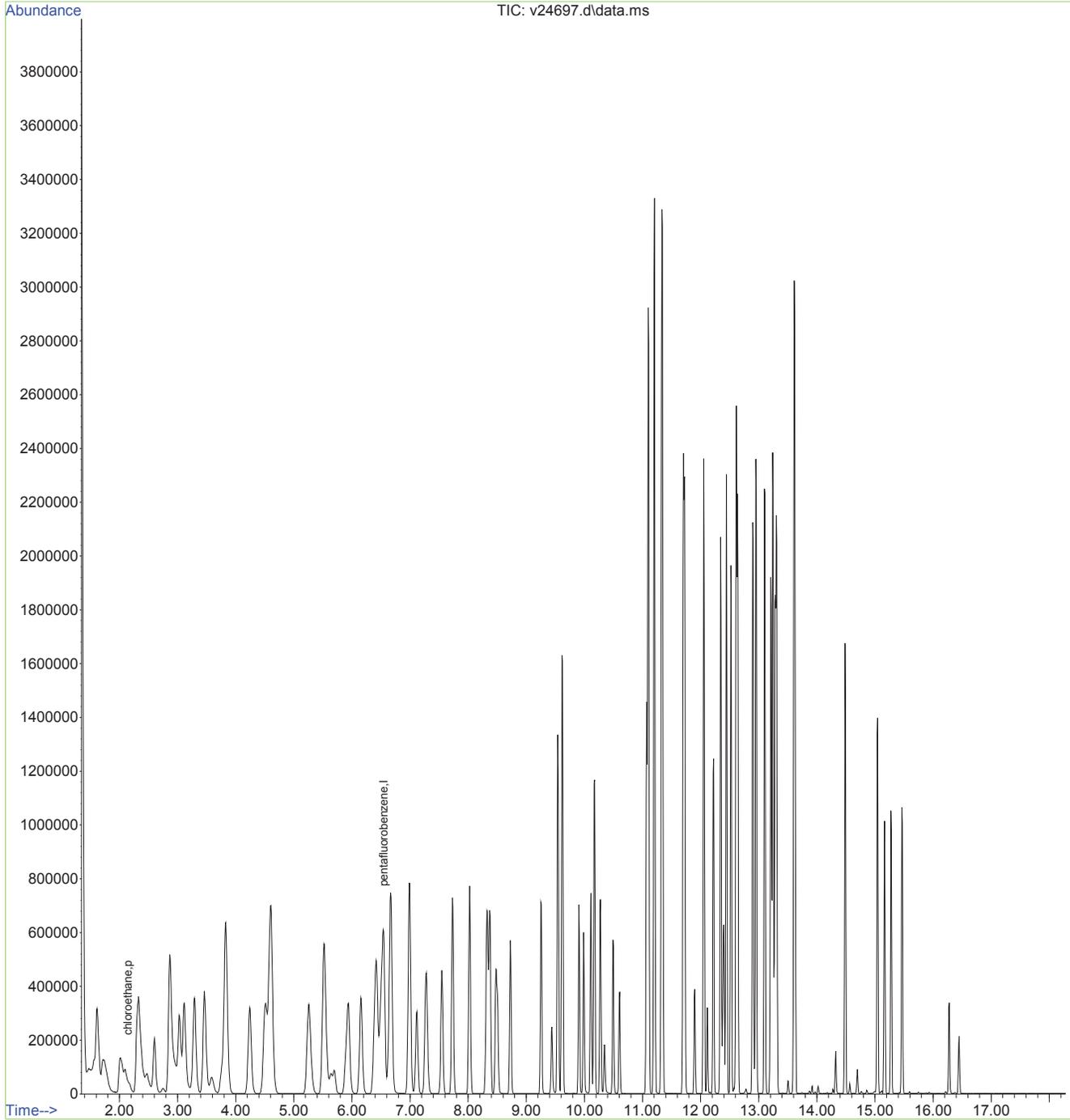
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.547	168	536321	50.00	ug/L	-0.02
Target Compounds						
2) chloroethane	2.137	64	159434	59.36	ug/L	Qvalue 99
-----						

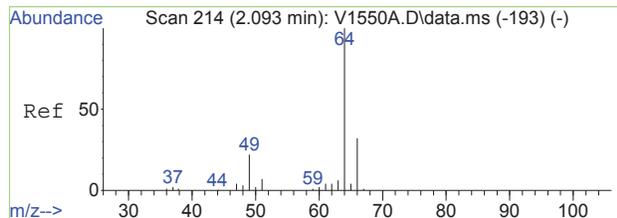
(#) = qualifier out of range (m) = manual integration (+) = signals summed

5.2  
5

Data Path : O:\msv\1\datbackup\v131030\  
Data File : v24697.d  
Acq On : 30 Oct 2013 1:50 pm  
Operator : amym  
Sample : mc25418-5ms  
Misc : MS30357,MSV944,,,,5,1  
ALS Vial : 13 Sample Multiplier: 1

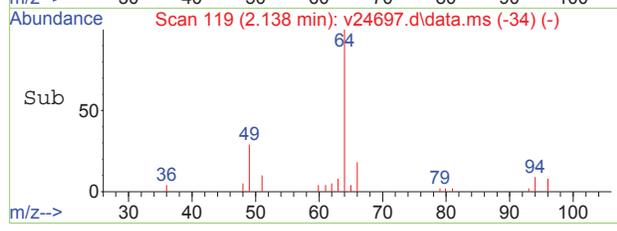
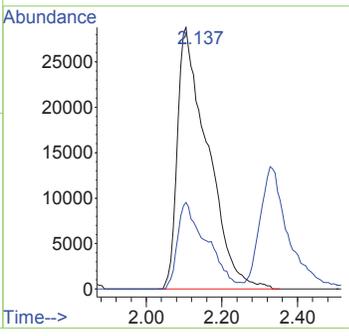
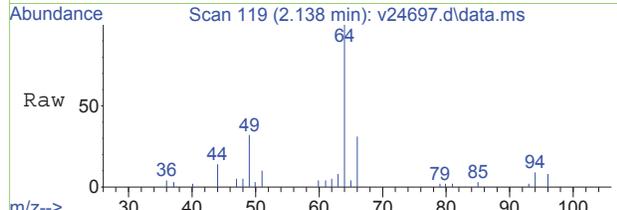
Quant Time: Nov 04 17:55:56 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration





#2  
 chloroethane  
 Concen: 59.36 ug/L  
 RT: 2.137 min Scan# 119  
 Delta R.T. -0.008 min  
 Lab File: v24697.d  
 Acq: 30 Oct 2013 1:50 pm

Tgt Ion	Ratio	Lower	Upper
64	100		
66	31.3	1.7	61.7



5.2  
**5**

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
 Data File : v24698.d  
 Acq On : 30 Oct 2013 2:16 pm  
 Operator : amym  
 Sample : mc25418-5msd  
 Misc : MS30357,MSV944,,,,,5,1  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 04 17:55:58 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.551	168	542897	50.00	ug/L	-0.01
Target Compounds						
2) chloroethane	2.146	64	160231	58.93	ug/L	Qvalue 100
-----						

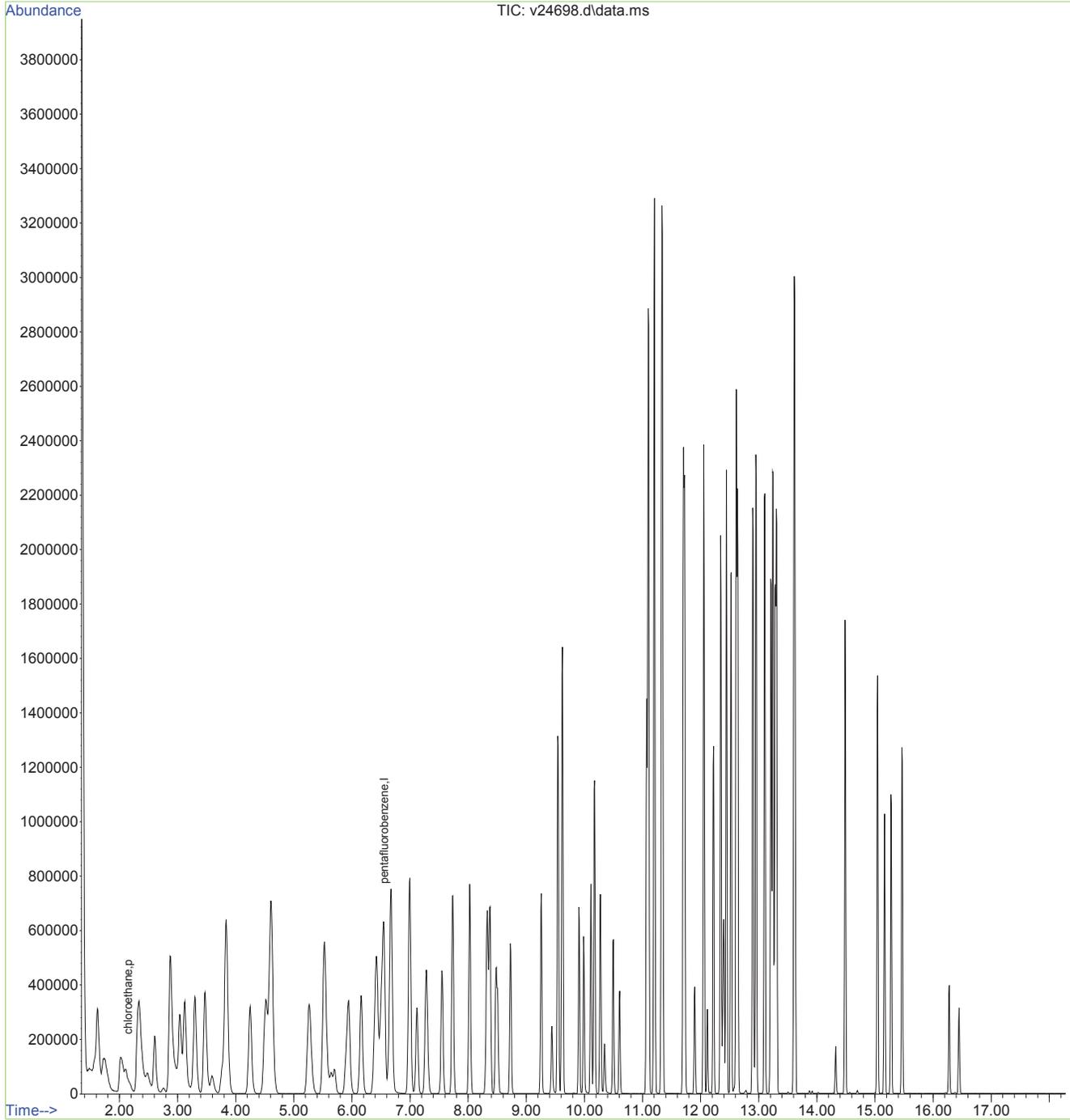
(#) = qualifier out of range (m) = manual integration (+) = signals summed

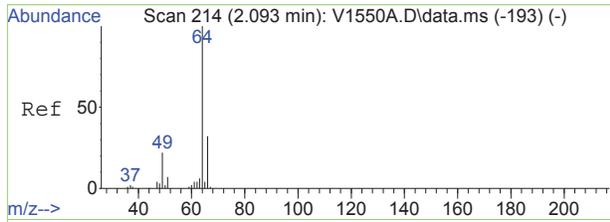
5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131030\  
Data File : v24698.d  
Acq On : 30 Oct 2013 2:16 pm  
Operator : amym  
Sample : mc25418-5msd  
Misc : MS30357,MSV944,,,,,5,1  
ALS Vial : 14 Sample Multiplier: 1

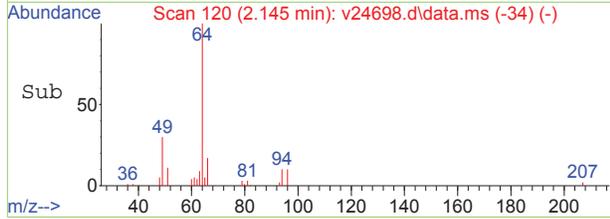
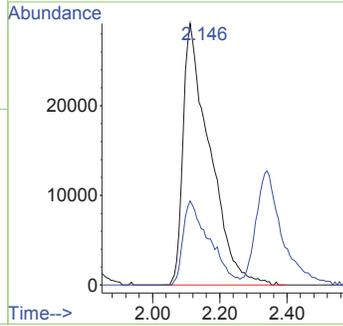
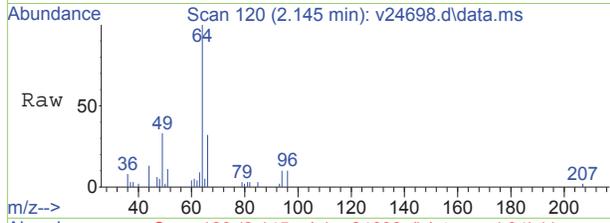
Quant Time: Nov 04 17:55:58 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration





#2  
 chloroethane  
 Concen: 58.93 ug/L  
 RT: 2.146 min Scan# 120  
 Delta R.T. 0.001 min  
 Lab File: v24698.d  
 Acq: 30 Oct 2013 2:16 pm

Tgt Ion	Resp	Lower	Upper
64	160231		
66	31.7	1.7	61.7



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
 Data File : v24737.d  
 Acq On : 31 Oct 2013 7:28 am  
 Operator : amym  
 Sample : bs  
 Misc : MS30365,MSV946,,,,,5,1  
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 04 18:11:30 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
-----							
Internal Standards							
1) pentafluorobenzene	6.552	168	553944	50.00	ug/L	-0.01	
Target Compounds							
2) chloroethane	2.142	64	176053	63.46	ug/L		Qvalue 100
-----							

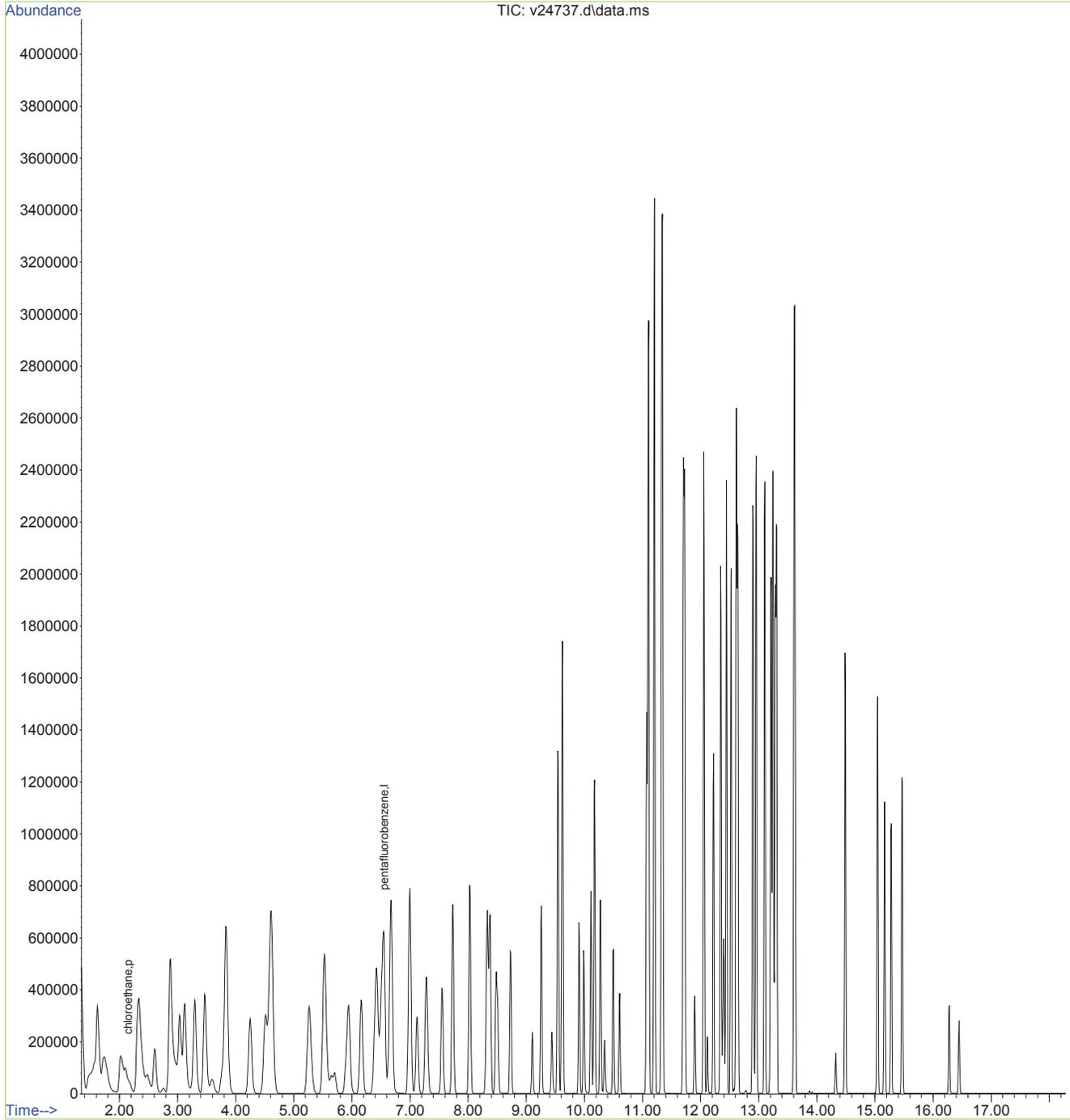
(#) = qualifier out of range (m) = manual integration (+) = signals summed

5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
Data File : v24737.d  
Acq On : 31 Oct 2013 7:28 am  
Operator : amym  
Sample : bs  
Misc : MS30365,MSV946,,,,5,1  
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 04 18:11:30 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
 Data File : v24738.d  
 Acq On : 31 Oct 2013 7:54 am  
 Operator : amym  
 Sample : bsd  
 Misc : MS30365,MSV946,,,,5,1  
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 04 18:11:32 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.551	168	557447	50.00	ug/L	-0.01
Target Compounds						
2) chloroethane	2.134	64	169865	60.85	ug/L	Qvalue 99
-----						

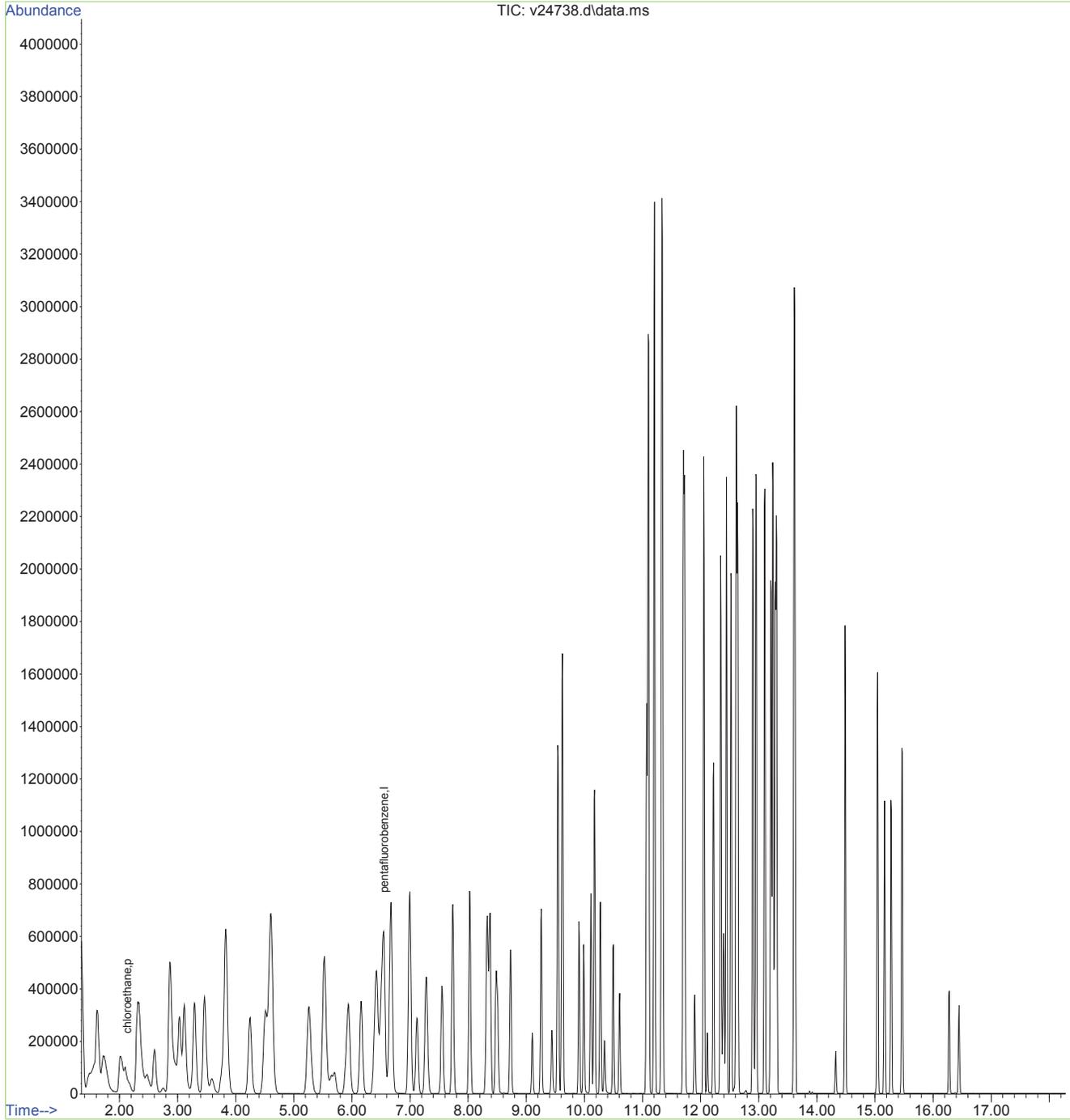
(#) = qualifier out of range (m) = manual integration (+) = signals summed

5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
Data File : v24738.d  
Acq On : 31 Oct 2013 7:54 am  
Operator : amym  
Sample : bsd  
Misc : MS30365,MSV946,,,,,5,1  
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 04 18:11:32 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
 Data File : v24741.d  
 Acq On : 31 Oct 2013 9:13 am  
 Operator : amym  
 Sample : mb  
 Misc : MS30357,MSV946,,,,5,1  
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 04 18:11:34 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.554	168	528105	50.00	ug/L	0.00

Target Compounds Qvalue  
 -----

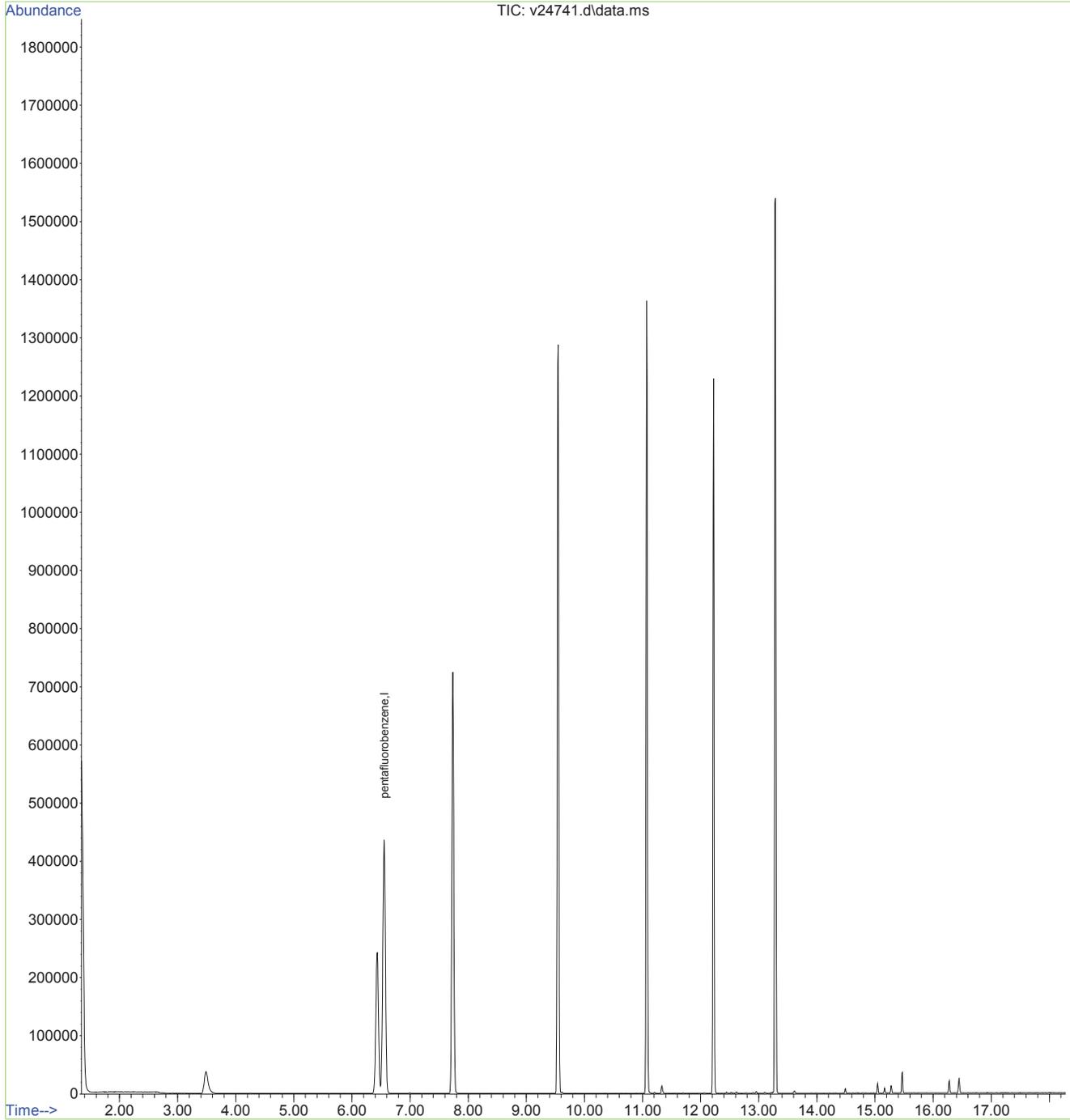
(#) = qualifier out of range (m) = manual integration (+) = signals summed

5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
Data File : v24741.d  
Acq On : 31 Oct 2013 9:13 am  
Operator : amym  
Sample : mb  
Misc : MS30357,MSV946,,,,,5,1  
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 04 18:11:34 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
 Data File : v24748.d  
 Acq On : 31 Oct 2013 12:20 pm  
 Operator : amym  
 Sample : mc25412-1ms  
 Misc : MS30357,MSV946,,,,,5,5  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 04 18:11:48 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.555	168	525442	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.141	64	166013	63.09	ug/L	Qvalue 97
-----						

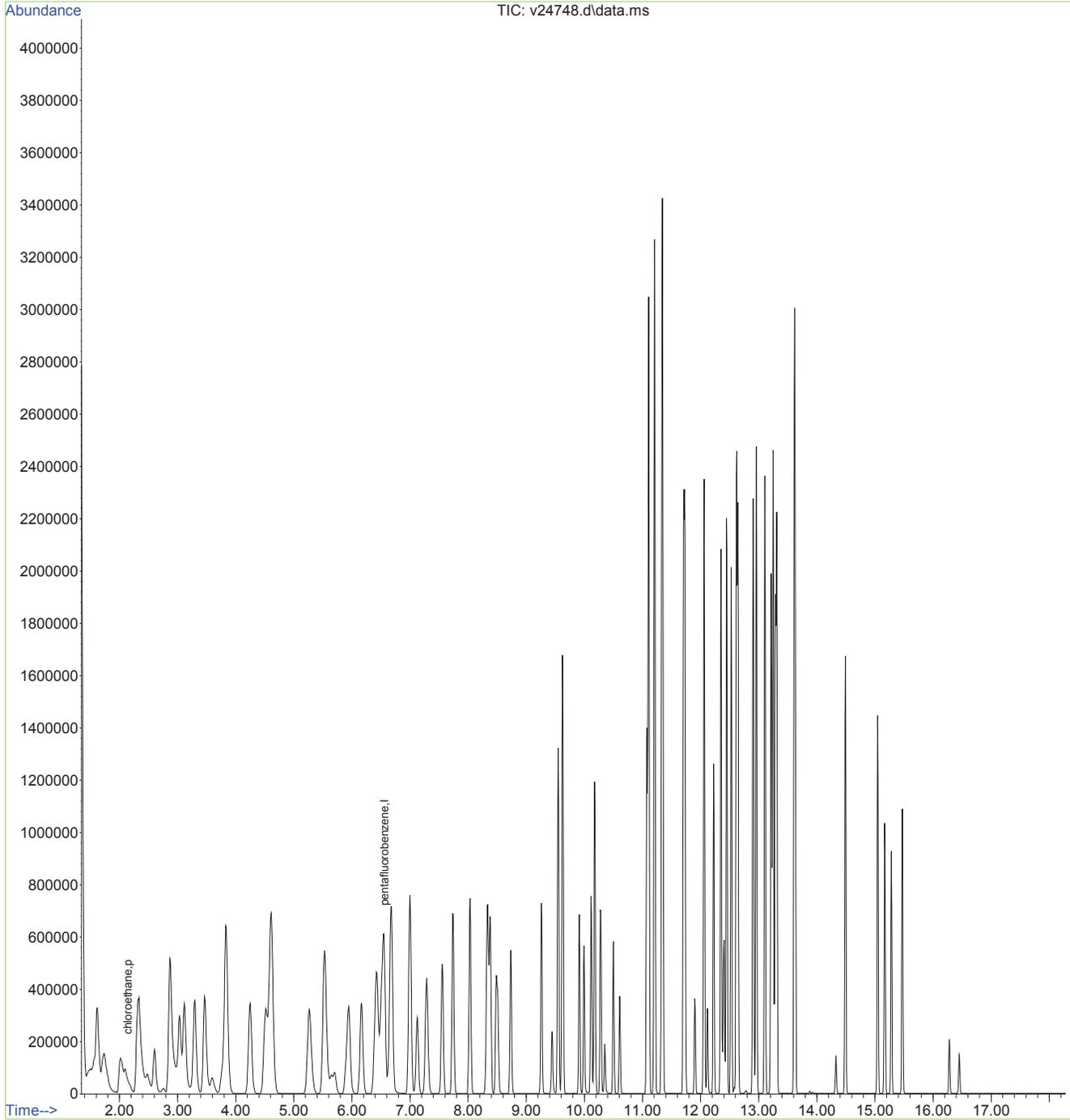
(#) = qualifier out of range (m) = manual integration (+) = signals summed

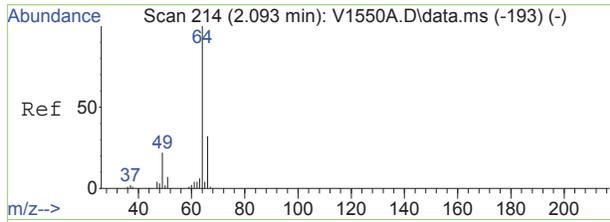
5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
Data File : v24748.d  
Acq On : 31 Oct 2013 12:20 pm  
Operator : amym  
Sample : mc25412-1ms  
Misc : MS30357,MSV946,,,,,5,5  
ALS Vial : 13 Sample Multiplier: 1

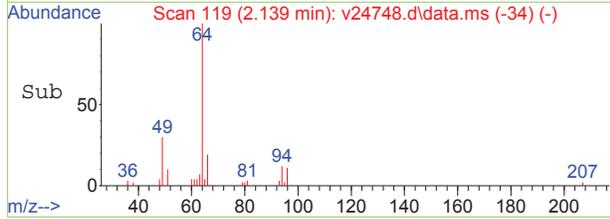
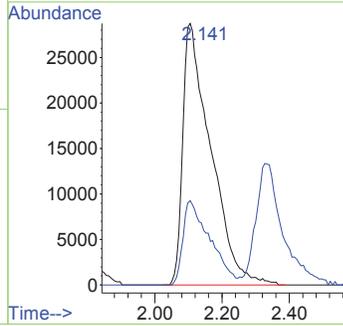
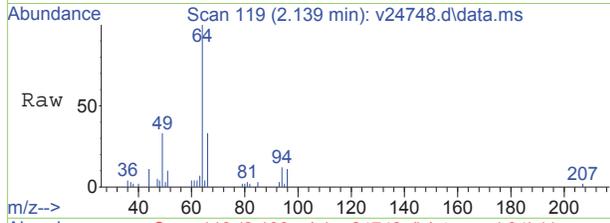
Quant Time: Nov 04 18:11:48 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration





#2  
 chloroethane  
 Concen: 63.09 ug/L  
 RT: 2.141 min Scan# 119  
 Delta R.T. -0.004 min  
 Lab File: v24748.d  
 Acq: 31 Oct 2013 12:20 pm

Tgt Ion	Resp	Lower	Upper
64	166013		
66	33.5	1.7	61.7



Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\databackup\v131031\  
 Data File : v24749.d  
 Acq On : 31 Oct 2013 12:47 pm  
 Operator : amym  
 Sample : mc25412-1msd  
 Misc : MS30357,MSV946,,,,,5,5  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 04 18:11:50 2015  
 Quant Method : O:\msv\1\methods\v131025wx.m  
 Quant Title : SW-846 Method 8260  
 QLast Update : Thu Oct 08 19:11:00 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----						
Internal Standards						
1) pentafluorobenzene	6.558	168	518640	50.00	ug/L	0.00
Target Compounds						
2) chloroethane	2.141	64	160335	61.73	ug/L	Qvalue 100
-----						

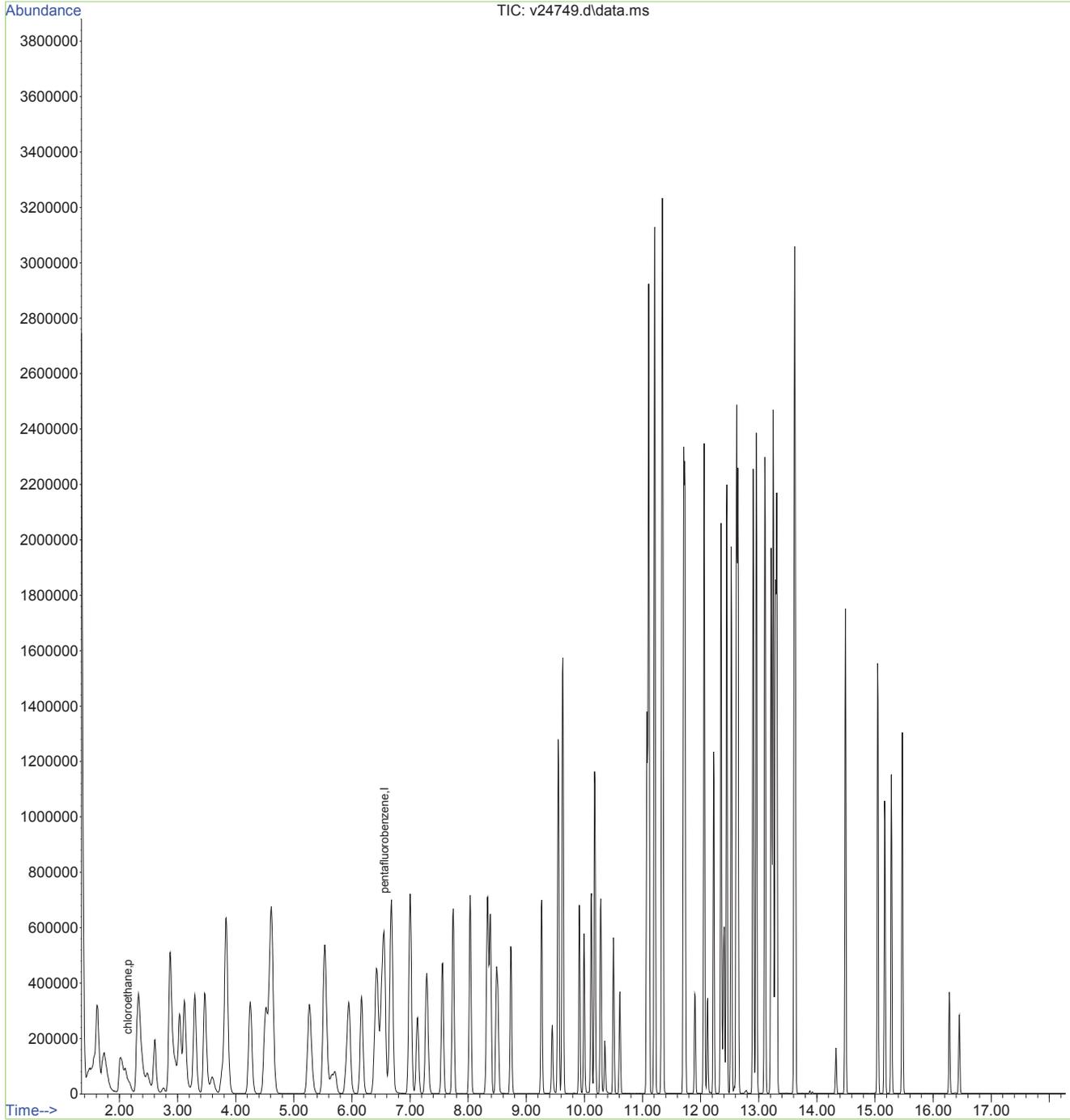
(#) = qualifier out of range (m) = manual integration (+) = signals summed

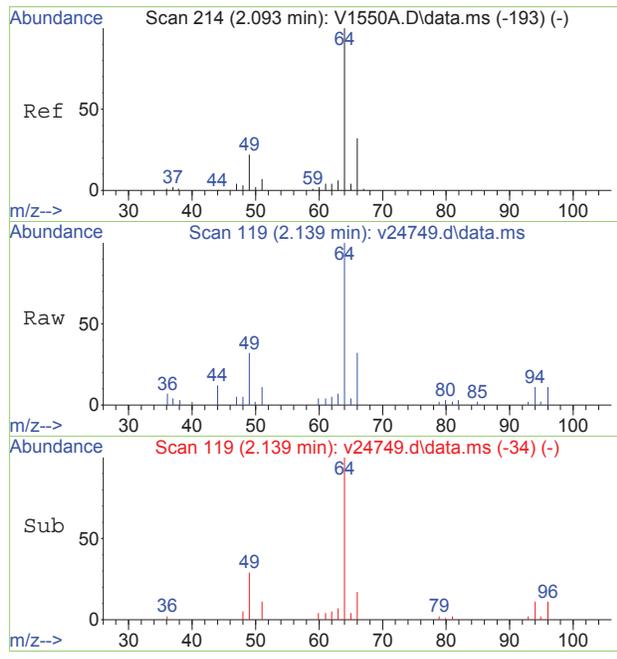
5.2  
5

Quantitation Report (QT Reviewed)

Data Path : O:\msv\1\datbackup\v131031\  
Data File : v24749.d  
Acq On : 31 Oct 2013 12:47 pm  
Operator : amym  
Sample : mc25412-1msd  
Misc : MS30357,MSV946,,,,,5,5  
ALS Vial : 14 Sample Multiplier: 1

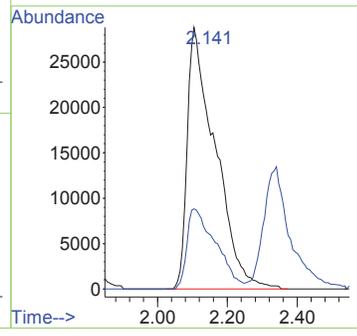
Quant Time: Nov 04 18:11:50 2015  
Quant Method : O:\msv\1\methods\v131025wx.m  
Quant Title : SW-846 Method 8260  
QLast Update : Thu Oct 08 19:11:00 2015  
Response via : Initial Calibration





#2  
 chloroethane  
 Concen: 61.73 ug/L  
 RT: 2.141 min Scan# 119  
 Delta R.T. -0.004 min  
 Lab File: v24749.d  
 Acq: 31 Oct 2013 12:47 pm

Tgt Ion	Resp	Lower	Upper
64	160335		
66	31.9	1.7	61.7



### Internal Sample Tracking Chronicle

Shell Oil

Job No: MC25412

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

5.3  
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC25412-1 Collected: 17-OCT-13 15:15 By: LRCW Received: 18-OCT-13 By: P114-ROX-101713						
MC25412-1	SW846 8011	22-OCT-13 22:51	CZ	22-OCT-13	MR	V8011SL
MC25412-1	SW846 8270C BY SIM	23-OCT-13 15:35	WK	18-OCT-13	PA	B8270SIMSL
MC25412-1	SW846 8270C	24-OCT-13 19:15	KR	18-OCT-13	PA	AB8270SL +
MC25412-1	SW846 8260B	31-OCT-13 09:40	AMY			V8260SL +
MC25412-2 Collected: 17-OCT-13 00:00 By: LRCW Received: 18-OCT-13 By: TB-ROX-101713-HCL						
MC25412-2	SW846 8260B	30-OCT-13 15:09	AMY			V8260SL +
MC25412-3 Collected: 17-OCT-13 00:00 By: LRCW Received: 18-OCT-13 By: TB-ROX-101713-ST						
MC25412-3	SW846 8011	22-OCT-13 23:20	CZ	22-OCT-13	MR	V8011SL



## GC/MS Volatiles

---

## QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries





# Method Blank Summary

Job Number: MC25412  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSV944-MB	V24691.D	1	10/30/13	AMY	n/a	n/a	MSV944

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25412-2

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	92% 70-130%
2037-26-5	Toluene-D8	95% 70-130%
460-00-4	4-Bromofluorobenzene	91% 70-130%

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

6.1.1  
6





# Method Blank Summary

Job Number: MC25412  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSV946-MB	V24741.D	1	10/31/13	AMY	n/a	n/a	MSV946

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25412-1

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	91% 70-130%
2037-26-5	Toluene-D8	95% 70-130%
460-00-4	4-Bromofluorobenzene	91% 70-130%

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











# Blank Spike/Blank Spike Duplicate Summary

Job Number: MC25412  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSV946-BS	V24737.D	1	10/31/13	AMY	n/a	n/a	MSV946
MSV946-BSD	V24738.D	1	10/31/13	AMY	n/a	n/a	MSV946

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25412-1

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	92%	92%	70-130%
2037-26-5	Toluene-D8	95%	95%	70-130%
460-00-4	4-Bromofluorobenzene	86%	86%	70-130%

- (a) Outside control limits. Blank Spike meets program technical requirements.
- (b) Outside control limits. Associated samples are non-detect for this compound.

\* = Outside of Control Limits.





# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25412  
 Account: SHELLWIC Shell Oil  
 Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25418-5MS	V24697.D	1	10/30/13	AMY	n/a	n/a	MSV944
MC25418-5MSD	V24698.D	1	10/30/13	AMY	n/a	n/a	MSV944
MC25418-5	V24694.D	1	10/30/13	AMY	n/a	n/a	MSV944

The QC reported here applies to the following samples:

Method: SW846 8260B

MC25412-2

CAS No.	Surrogate Recoveries	MS	MSD	MC25418-5	Limits
1868-53-7	Dibromofluoromethane	94%	93%	95%	70-130%
2037-26-5	Toluene-D8	95%	96%	95%	70-130%
460-00-4	4-Bromofluorobenzene	86%	86%	91%	70-130%

(a) Outside control limits due to possible matrix interference. Refer to Blank Spike.

\* = Outside of Control Limits.













**GC/MS Semi-volatiles**

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**QC Data Summaries****7**

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries





















# Semivolatile Internal Standard Area Summary

Job Number: MC25412  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSI3223-CC3155	Injection Date:	10/23/13
Lab File ID:	I86585.D	Injection Time:	10:17
Instrument ID:	GCMSI	Method:	SW846 8270C BY SIM

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT

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

7.4.1

7



# Semivolatile Internal Standard Area Summary

Job Number: MC25412  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	MSX17-CC16	Injection Date:	10/24/13
Lab File ID:	X00321.D	Injection Time:	13:28
Instrument ID:	GCMSX	Method:	SW846 8270C

Lab	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6				
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT

IS 4 = Phenanthrene-d10  
IS 5 = Chrysene-d12  
IS 6 = Perylene-d12

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

7.4.2  
7

# Semivolatile Surrogate Recovery Summary

Job Number: MC25412

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8270C

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC25412-1	X00337.D	41	31	92	72	69	94
OP35324-BS	X00323.D	53	36	92	87	82	103
OP35324-MB	X00322.D	43	30	70	76	69	93
OP35324-MS	X00324.D	52	35	89	87	79	102
OP35324-MSD	X00325.D	51	35	90	85	73	98

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	15-110%
S2 = Phenol-d5	15-110%
S3 = 2,4,6-Tribromophenol	15-110%
S4 = Nitrobenzene-d5	30-130%
S5 = 2-Fluorobiphenyl	30-130%
S6 = Terphenyl-d14	30-130%

7.5.1  
7

# Semivolatile Surrogate Recovery Summary

Job Number: MC25412

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8270C BY SIM

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC25412-1	I86598.D	75	72	101
OP35325-BS	I86587.D	93	82	105
OP35325-MB	I86586.D	80	71	95
OP35325-MS	I86588.D	90	79	106
OP35325-MSD	I86589.D	89	72	103

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	30-130%
S2 = 2-Fluorobiphenyl	30-130%
S3 = Terphenyl-d14	30-130%

7.5.2  
7

## 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

# Method Blank Summary

Job Number: MC25412  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35363-MB	BB51795.D	1	10/22/13	CZ	10/22/13	OP35363	GBB3050

The QC reported here applies to the following samples:

Method: SW846 8011

MC25412-1, MC25412-3

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	ug/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	85% 36-173%
460-00-4	Bromofluorobenzene (S)	91% 36-173%

8.1.1  
8

# Blank Spike Summary

Job Number: MC25412

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35363-BS	BB51796.D	1	10/22/13	CZ	10/22/13	OP35363	GBB3050

The QC reported here applies to the following samples:

Method: SW846 8011

MC25412-1, MC25412-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.070	99	60-140
106-93-4	1,2-Dibromoethane	0.071	0.074	104	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	85%	36-173%
460-00-4	Bromofluorobenzene (S)	86%	36-173%

8.2.1  
8

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC25412

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP35363-MS	BB51797.D	1	10/22/13	CZ	10/22/13	OP35363	GBB3050
OP35363-MSD	BB51798.D	1	10/22/13	CZ	10/22/13	OP35363	GBB3050
MC25100-22	BB51799.D	1	10/22/13	CZ	10/22/13	OP35363	GBB3050

The QC reported here applies to the following samples:

Method: SW846 8011

MC25412-1, MC25412-3

CAS No.	Compound	MC25100-22 Spike		MS	MS	Spike	MSD	MSD	RPD	Limits
		ug/l	Q ug/l	ug/l	%		ug/l	%		Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.071	0.064	90	0.071	0.072	101	12	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.068	96	0.071	0.081	114	17	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC25100-22 Limits	
460-00-4	Bromofluorobenzene (S)	79%	92%	89%	36-173%
460-00-4	Bromofluorobenzene (S)	78%	91%	85%	36-173%

8.3.1  
8

\* = Outside of Control Limits.



# Volatile Surrogate Recovery Summary

Job Number: MC25412

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 <sup>a</sup>	S1 <sup>b</sup>
MC25412-1	BB51810.D	56	76
MC25412-3	BB51811.D	85	82
OP35363-BS	BB51796.D	85	86
OP35363-MB	BB51795.D	85	91
OP35363-MS	BB51797.D	79	78
OP35363-MSD	BB51798.D	92	91

Surrogate Compounds                      Recovery Limits

S1 = Bromofluorobenzene (S)                      36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

# GC Surrogate Retention Time Summary

**Job Number:** MC25412  
**Account:** SHELLWIC Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

<b>Check Std:</b> GBB3050-ICC3050	<b>Injection Date:</b> 10/22/13
<b>Lab File ID:</b> BB51790.D	<b>Injection Time:</b> 13:17
<b>Instrument ID:</b> GCBB	<b>Method:</b> SW846 8011

S1 <sup>a</sup>   S1 <sup>b</sup>  
RT     RT

Check Std	5.95	4.87
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
ZZZZZZ	BB51793A.D	10/22/13	14:43	5.97	4.87
OP35363-MB	BB51795.D	10/22/13	15:39	5.97	4.87
OP35363-BS	BB51796.D	10/22/13	16:08	5.96	4.87
OP35363-MS	BB51797.D	10/22/13	16:36	5.96	4.87
OP35363-MSD	BB51798.D	10/22/13	17:05	5.94	4.87
MC25100-22	BB51799.D	10/22/13	17:34	5.93	4.87
ZZZZZZ	BB51800.D	10/22/13	18:03	5.93	4.87
ZZZZZZ	BB51801.D	10/22/13	18:33	5.93	4.87
ZZZZZZ	BB51802.D	10/22/13	19:02	5.94	4.87
ZZZZZZ	BB51803.D	10/22/13	19:31	5.93	4.87
ZZZZZZ	BB51804.D	10/22/13	19:59	5.94	4.87

### Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

# GC Surrogate Retention Time Summary

Job Number: MC25412  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Check Std:	GBB3050-CC3050	Injection Date:	10/22/13
Lab File ID:	BB51805.D	Injection Time:	20:28
Instrument ID:	GCBB	Method:	SW846 8011

S1 <sup>a</sup> S1 <sup>b</sup>  
RT RT

Check Std	5.94	4.87
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
ZZZZZZ	BB51806.D	10/22/13	20:56	5.94	4.87
ZZZZZZ	BB51807.D	10/22/13	21:25	5.94	4.87
ZZZZZZ	BB51808.D	10/22/13	21:53	5.94	4.87
ZZZZZZ	BB51809.D	10/22/13	22:22	5.94	4.87
MC25412-1	BB51810.D	10/22/13	22:51	5.94	4.87
MC25412-3	BB51811.D	10/22/13	23:20	5.94	4.87
ZZZZZZ	BB51812.D	10/22/13	23:50	5.94	4.87
GBB3050-ECC3050	BB51813.D	10/23/13	00:19	5.94	4.87

### Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.5.2  
8

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VERIFICATION, TESTING AND CERTIFICATION COMPANY.



*e-Hardcopy 2.0  
Automated Report*

### Technical Report for

#### Shell Oil

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, VA

SGS Accutest Job Number: MC26110

Sampling Date: 11/07/13

Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 39



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

H. (Brad) Madadian  
Lab Director

Client Service contact: Jeremy Vienneau 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) FL (E87579) NY (11791)  
NJ (MA926) PA (6801121) ND (R-188) CO (MA00136) MN (11546AA) NC (653) IL (002337) WI (399080220)  
DoD ELAP (L-A-B L2235)

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Test results relate only to samples analyzed.



ACCUTEST

November 2, 2016

AECOM  
1001 Highlands Plaza Drive West Suite 300  
St. Louis, MO 63110

RE: SGS Accutest Job # MC26110

Dear Elizabeth Kunkel

As you are aware, SGS Accutest Inc. - Marlborough has been conducting an extensive review of data associated with some historical Gas Chromatography-Mass Spectroscopy volatiles analyses. As a result of this review it was determined that some revisions of the original test report for this job were needed. These corrections have been incorporated into the revised report.

Please be assured that corrective actions have been put in place to address this matter and prevent a recurrence.

We apologize for any inconvenience that this issue may have caused. Please don't hesitate to contact us if we can be of further assistance.

Sincerely

**H. (Brad) Madadian**

Regional Laboratory Director  
SGS Accutest Inc. - Marlborough

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TESTING AND CERTIFICATION COMPANY. NN

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## Sample Summary

Shell Oil

Job No: MC26110

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC26110-1	11/07/13	15:35 DCBS	11/08/13	AQ	Ground Water	P66-ROX-110713
MC26110-2	11/07/13	00:00 DCBS	11/08/13	AQ	Trip Blank Water	TB-ROX-110713-HCL
MC26110-3	11/07/13	00:00 DCBS	11/08/13	AQ	Trip Blank Water	TB-ROX-110713-ST

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** She O

**Job No** MC26 0

**Site:** URSMOSTL:Roxana 4Q 3 GW/ 2 562850 03004 900 South Centra

**Report Date** /2/20 6 :30:02 PM

Sample(s), 2 Trip Blank(s) were collected on /07/20 3 and were received at SGS Accutest New England on /08/20 3 properly preserved, at 0 3 Deg C and intact. These Samples received a job number of MC26 0. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report. 2-Chloroethane, Benzenethiol, Dibenz(a,h)acridene, Indene, and Quinoline were searched in the library search and reported on if detections were found. Except as noted below, all method specified calibration and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260C

<b>Matrix:</b> AQ	<b>Batch ID:</b> MSN3074
-------------------	--------------------------

- All samples were analyzed within the recommended method holding time
- All method blanks for this batch meet method specification criteria
- Sample(s) MC2584 - MS, MC2584 - MSD were used as the QC samples indicated
- Blank Spike Recovery(s) for 2-Chloroethyl vinyl ether are outside control limits
- Matrix Spike Recovery(s) for 2-Butanone (MEK), 2-Chloroethyl vinyl ether, 2-Hexanone, Acetone are outside control limits. Outs de control limits due to possible matrix interference
- Matrix Spike Duplicate Recovery(s) for 2-Butanone (MEK), 2-Chloroethyl vinyl ether, Acetone are outside control limits. Outs de control limits due to possible matrix interference
- Acronyms: Continuing Calibration Verification category of acceptance criteria. Sample results may be biased.

### Volatiles by GC By Method SW846 8011

<b>Matrix:</b> AQ	<b>Batch ID:</b> OP35660
-------------------	--------------------------

- All samples were extracted within the recommended method holding time
- All samples were analyzed within the recommended method holding time
- All method blanks for this batch meet method specification criteria
- Sample(s) MC25769- 0MS, MC25769- 0MSD were used as the QC samples indicated

SGS Accutest New England certifies that all analyses were performed within method specification. It is further recommended that this report be used in its entirety. The Laboratory Director for SGS Accutest New England or assignee as verified by the signature on the cover page has authorized the release of this report (MC26 0).

## Summary of Hits

Job Number: MC26110  
Account: Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
Collected: 11/07/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC26110-1	P66-ROX-110713					
Benzene		30.0	0.50	0.45	ug/l	SW846 8260C
n-Butylbenzene		8.8	5.0	0.54	ug/l	SW846 8260C
sec-Butylbenzene		10.2	5.0	0.58	ug/l	SW846 8260C
tert-Butylbenzene		7.1	5.0	0.87	ug/l	SW846 8260C
Chlorobenzene		0.70 J	1.0	0.48	ug/l	SW846 8260C
Ethylbenzene		1.6	1.0	0.38	ug/l	SW846 8260C
Isopropylbenzene		95.8	5.0	0.64	ug/l	SW846 8260C
Methyl Tert Butyl Ether		52.8	1.0	0.43	ug/l	SW846 8260C
Naphthalene		5.7	5.0	0.79	ug/l	SW846 8260C
n-Propylbenzene		65.8	5.0	0.59	ug/l	SW846 8260C
Toluene		0.86 J	1.0	0.46	ug/l	SW846 8260C
1,1,2-Trichloroethane		1.5	1.0	0.49	ug/l	SW846 8260C
o-Xylene		0.57 J	1.0	0.41	ug/l	SW846 8260C
Xylene (total)		0.57 J	1.0	0.41	ug/l	SW846 8260C

MC26110-2 TB-ROX-110713-HCL

No hits reported in this sample.

MC26110-3 TB-ROX-110713-ST

No hits reported in this sample.

**Sample Results**

---

**Report of Analysis**

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## Report of Analysis

<b>Client Sample ID:</b> P66-ROX-110713	<b>Date Sampled:</b> 11/07/13
<b>Lab Sample ID:</b> MC26110-1	<b>Date Received:</b> 11/08/13
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260C	
<b>Project:</b> URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

4.1  
4

**VOA Special List**

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	82%		70-130%
2037-26-5	Toluene-D8	91%		70-130%
460-00-4	4-Bromofluorobenzene	91%		70-130%

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

(a) Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.

---

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









### Report of Analysis

Client Sample ID:	TB-ROX-110713-ST	Date Sampled:	11/07/13
Lab Sample ID:	MC26110-3	Date Received:	11/08/13
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8011 SW846 8011	Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB52381.D	1	11/12/13	CZ	11/09/13	OP35660	GBB3070
Run #2							

Run #	Initial Volume	Final Volume
Run #1	35.0 ml	2.0 ml
Run #2		

**VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0054	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.011	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	113%		36-173%
460-00-4	Bromofluorobenzene (S)	106%		36-173%

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

4.3  
4

**Misc. Forms****5****Custody Documents and Other Forms**

---

Includes the following where applicable:

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





### Internal Sample Tracking Chronicle

Shell Oil

URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Job No: MC26110

5.2  
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC26110-1 Collected: 07-NOV-13 15:35 By: DCBS Received: 08-NOV-13 By: P66-ROX-110713						
MC26110-1	SW846 8011	12-NOV-13 14:11	CZ	09-NOV-13 MT		V8011SL
MC26110-1	SW846 8260C	13-NOV-13 16:04	JB			V8260SL+
MC26110-2 Collected: 07-NOV-13 00:00 By: DCBS Received: 08-NOV-13 By: TB-ROX-110713-HCL						
MC26110-2	SW846 8260C	13-NOV-13 13:45	JB			V8260SL+
MC26110-3 Collected: 07-NOV-13 00:00 By: DCBS Received: 08-NOV-13 By: TB-ROX-110713-ST						
MC26110-3	SW846 8011	12-NOV-13 14:39	CZ	09-NOV-13 MT		V8011SL

# SGS Accutest Internal Chain of Custody

**Job Number:** MC26110  
**Account:** SHELLWIC Shell Oil  
**Project:** URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL  
**Received:** 11/08/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC26110-1.3	VOC Ref #2	Jaclyn Bergeron	11/13/13 11:54	Retrieve from Storage
MC26110-1.3	Jaclyn Bergeron	GCMSN	11/13/13 11:54	Load on Instrument
MC26110-1.3	GCMSN	Jaclyn Bergeron	11/14/13 07:56	Unload from Instrument
MC26110-1.3	Jaclyn Bergeron	VOC Ref #2	11/14/13 07:56	Return to Storage
MC26110-1.3	Scott Parsick		01/08/14 17:07	Disposed
MC26110-1.4	VOC Ref #1	Michael Rolo	11/09/13 07:12	Retrieve from Storage
MC26110-1.4	Michael Rolo		11/11/13 07:09	Depleted
MC26110-2.1	VOC Ref #2	Jaclyn Bergeron	11/13/13 11:54	Retrieve from Storage
MC26110-2.1	Jaclyn Bergeron	GCMSN	11/13/13 11:54	Load on Instrument
MC26110-2.1	GCMSN	Jaclyn Bergeron	11/14/13 07:56	Unload from Instrument
MC26110-2.1	Jaclyn Bergeron	VOC Ref #2	11/14/13 07:56	Return to Storage
MC26110-2.1	Scott Parsick		01/08/14 17:07	Disposed
MC26110-3.2	VOC Ref #1	Michael Rolo	11/09/13 07:12	Retrieve from Storage
MC26110-3.2	Michael Rolo		11/11/13 07:09	Depleted

5.3

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**GC/MS Volatiles**

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**QC Data Summaries**

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries





# Method Blank Summary

Job Number: MC26110

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3074-MB	N82326.D	1	11/13/13	JB	n/a	n/a	MSN3074

The QC reported here applies to the following samples:

Method: SW846 8260C

MC26110-1, MC26110-2

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	81%	70-130%
2037-26-5	Toluene-D8	87%	70-130%
460-00-4	4-Bromofluorobenzene	106%	70-130%

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





## Blank Spike Summary

Job Number: MC26110

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3074-BS	N82324.D	1	11/13/13	JB	n/a	n/a	MSN3074

The QC reported here applies to the following samples:

Method: SW846 8260C

MC26110-1, MC26110-2

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	85%	70-130%
2037-26-5	Toluene-D8	88%	70-130%
460-00-4	4-Bromofluorobenzene	92%	70-130%

(a) Outside control limits. Blank Spike meets program technical requirements.

\* = Outside of Control Limits.





# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC26110  
Account: SHELLWIC Shell Oil  
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC25841-1MS	N82347.D	1	11/13/13	JB	n/a	n/a	MSN3074
MC25841-1MSD	N82348.D	1	11/13/13	JB	n/a	n/a	MSN3074
MC25841-1	N82335.D	1	11/13/13	JB	n/a	n/a	MSN3074

The QC reported here applies to the following samples:

Method: SW846 8260C

MC26110-1, MC26110-2

CAS No.	Surrogate Recoveries	MS	MSD	MC25841-1	Limits
1868-53-7	Dibromofluoromethane	81%	83%	82%	70-130%
2037-26-5	Toluene-D8	88%	87%	84%	70-130%
460-00-4	4-Bromofluorobenzene	89%	91%	101%	70-130%

(a) Outside control limits due to possible matrix interference. Refer to Blank Spike.

\* = Outside of Control Limits.

Volatile Internal Standard Area Summary

Job Number: MC26110
Account: SHELLWIC Shell Oil
Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Table with 4 columns: Check Std, Lab File ID, Instrument ID, Injection Date, Injection Time, Method. Values include MSN3074-CC3048, N82324.D, GCMSN, 11/13/13, 11:25, SW846 8260C.

Summary table with 12 columns: IS 1 AREA, RT, IS 2 AREA, RT, IS 3 AREA, RT, IS 4 AREA, RT, IS 5 AREA, RT. Includes rows for Check Std, Upper Limit, and Lower Limit.

Main data table with 12 columns: Lab Sample ID, IS 1 AREA, RT, IS 2 AREA, RT, IS 3 AREA, RT, IS 4 AREA, RT, IS 5 AREA, RT. Lists various samples like MSN3074-B, MC26110-2, etc.

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

(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.

6.4.1
6

# Volatile Surrogate Recovery Summary

Job Number: MC26110

Account: SHELLWIC Shell Oil

Project: URSMOSTL:Roxana 4Q13 GW/ 21562850.03004 900 South Central Avenue, Roxana, IL

Method: SW846 8260C

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC26110-1	N82334.D	82	91	91
MC26110-2	N82329.D	83	88	105
MC25841-1MS	N82347.D	81	88	89
MC25841-1MSD	N82348.D	83	87	91
MSN3074-BS	N82324.D	85	88	92
MSN3074-MB	N82326.D	81	87	106

**Surrogate Compounds**                      **Recovery Limits**

S1 = Dibromofluoromethane	70-130%
S2 = Toluene-D8	70-130%
S3 = 4-Bromofluorobenzene	70-130%

6.5.1

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## GC Volatiles

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## QC Data Summaries

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Includes the following where applicable:

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











