

May 23, 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
SVE System Construction Completion Report Addendum No. 3
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 (618/288-7237), or Bob Billman at 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
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

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: WRB Refining LP Wood River Refinery County: Madison
 Street Address: 900 South Central Ave. Site No. (IEPA): 1191150002
 City: Roxana Site No. (USEPA): ILD 080 012 305

2.0 OWNER INFORMATION

Name: Not Applicable
 Mailing Address: _____

3.0 OPERATOR INFORMATION

Equilon Enterprises LLC dba Shell Oil Products US (SOPUS)
 17 Junction Drive, PMB #399
 Glen Carbon, IL 62034

Contact Name: Kevin Dyer
 Contact Title: Senior Principal Program Manager
 Phone No.: 618-288-7237

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

- RFI Phase I Workplan/Report
- RFI Phase II Workplan/Report
- CMP Report; Phase _____
- Other (describe):

Multiple Document Addenda (see attached report list)
 Date of Submittal May 2017

IEPA Permit Log No. B-43R
 Date of Last IEPA Letter
 on Project January 18, 2017
 Log No. of Last IEPA
 Letter on Project B-43R-CA-59, -60, -69
 Does this submittal include groundwater information: Yes No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

Addenda to multiple documents. List of documents is provided on the Attachment 1. Addenda being issued due to revised laboratory reports.

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

Cover letter, RCRA Corrective Action Certification. Addenda to multiple documents identified on the attached list.

7.0 CERTIFICATION STATEMENT - (This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below). The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

IEPA RCRA Corrective Action Certification

For: Multiple document addenda (see attached)

Date of Submission: May 2017

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7.1 OWNER/OPERATOR CERTIFICATION (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice-president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____

(Date)

Title: _____

Operator Signature: Kevin Edger

5/17/18
(Date)

Title: Senior Principal Program Manager

7.2 PROFESSIONAL CERTIFICATION (if necessary) - Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Professional's Signature: St P

5/17/2017
Date:

Professional's Name: Steven P. Tierney

Professional's Seal:

Professional's Address: AECOM Technical Services, Inc.

345 East Ash Avenue

Decatur, MO 62704

Professional's Phone No.: 217-875-4800



7.3 LABORATORY CERTIFICATION (if necessary) - The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory: See Attachment 2

Signature of Laboratory
Responsible Officer

Date

Mailing Address of Laboratory:

Name and Title of Laboratory Responsible Officer

**Attachment 1
List of Documents**

Submittal	Date of Submittal
Roxana 3Q12 Groundwater Monitoring Report	10/15/2012
Roxana 4Q12 Groundwater Monitoring Report	1/15/2013
Roxana 4Q13 Soil Vapor Report	1/31/2014
Roxana 1Q14 Soil Vapor Report	4/30/2014
Roxana 2Q14 Soil Vapor Report	7/30/2014
Roxana 3Q14 Soil Vapor Report	10/30/2014
Roxana 2Q15 Soil Vapor Report	7/29/2015
GWP-28 Installation Plan	11/27/2012
Public Work Yard Soil Sampling Report	3/13/2013
GW Monitoring Well and Vapor Monitoring Point Installation Report	4/3/2013
April 30, 2013-Groundwater Profile Delineation Report	4/30/2013
Addendum to Monitoring Well & Vapor Monitoring Point Installation Report - Supplemental Investigation Activities	5/22/2013
SVE Expansion-Construction Completion Rpt Addendum 2	1/9/2014
SVE System Construction Completion Rpt Addendum 3	3/4/2015

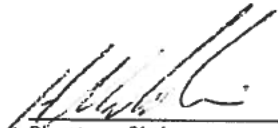
Note: Highlighted row represents subject Addendum

ATTACHMENT 2

LABORATORY CERTIFICATION

Revisions to previously reported laboratory data were required following a laboratory quality review. These revisions were performed in accordance with industry standards for testing laboratories accredited by the National Environmental Laboratory Accreditation Conference (NELAC). I certify the information contained in the revised and reissued laboratory reports are, to the best of my knowledge and belief, true, accurate and complete.

Name of Laboratory: SGS Accutest


 Signature of Laboratory Responsible Officer Date 5.17.17

Mailing Address of Laboratory:

Hossain (Babu) Madadian
 Name and Title of Laboratory Responsible Officer
LAB Director

50 D'Angelo Drive

495 Technology Center West, Building 1

Marlboro, MA 01752

LEGAL REVIEWED
 BY: MP
 DATE: 5.17.17

Laboratory Report (Sample Delivery Group[SDG])			
mc12669	mc23880	mc17144	mc18856
mc12784	mc26889	mc17324	mc18890
mc12833	mc27073	mc17401	mc18895
mc12905	mc23933	mc16336	mc18752
mc12941	mc32497	mc16445	mc24546
mc12942	mc32521	mc16475	mc32549
mc13051	mc38153	mc16587	mc32591
mc15232	mc38192	mc16644	mc32628
mc15892	mc14777	mc16798	mc32660
mc16960	mc14814	mc16889	mc32763
mc23682	mc16999	mc17501	mc33045

May 16, 2017

Analytical Method	Sample ID	Lab Sample ID	Sample Date	Analyte	Original Result	Corrected Result	Laboratory Qualifier	Units	Laboratory Footnote	AECOM Qualifier
SW846 8260C	SVE47-080114 (22-24')	MC32549-1	08/01/2014	1,4-Dioxane	ND	ND		mg/kg	Ana: Initial calibration verification and Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE47-080114 (22-24')	MC32549-1	08/01/2014	Vinyl Acetate	ND	ND		mg/kg	Ana: Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE46-080414(18-22')	MC32591-1	08/04/2014	Acrolein	ND	ND		mg/kg	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE46-080414(18-22')DUP	MC32591-2	08/04/2014	Acrolein	ND	ND		mg/kg	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE42-080514(32-34')	MC32628-2	08/05/2014	1,4-Dioxane	ND	ND		mg/kg	Ana: Initial calibration verification and Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE42-080514(32-34')	MC32628-2	08/05/2014	Vinyl Acetate	ND	ND		mg/kg	Ana: Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE45-080614 (40-42')	MC32660-1	08/06/2014	Acetone	ND	ND		mg/kg	Ana: Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE45-080614 (40-42')	MC32660-1	08/06/2014	1,4-Dioxane	ND	ND		mg/kg	Ana: Initial Calibration Verification outside acceptance criteria. Result may be biased low.	UJ
SW846 8260C	SVE43-080814 (30-32')	MC32763-1	08/08/2014	Dichlorodifluoromethane	ND	ND		mg/kg	Ana: Initial Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ

Analytical Method	Sample ID	Lab Sample ID	Sample Date	Analyte	Original Result	Corrected Result	Laboratory Qualifier	Units	Laboratory Footnote	AECOM Qualifier
SW846 8260C	SVE43-080814 (30-32')	MC32763-1	08/08/2014	1,4-Dioxane	ND	ND		mg/kg	Ana: Initial calibration verification and Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE43-080814 (30-32')	MC32763-1	08/08/2014	Vinyl Acetate	ND	ND		mg/kg	Ana: Continuing Calibration outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE44- 082014(30-36')	MC33045-1	08/20/2014	Dichlorodifluoromethane	ND	ND		mg/kg	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	SVE44- 082014(30-36')	MC33045-1	08/20/2014	Vinyl Acetate	ND	ND		mg/kg	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ

LABORATORY QUALIFIERS:

ND = Not detected.

AECOM QUALIFIERS:

UJ = Estimated nondetect.

TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED

Location	Sample ID	Depth	Sample Date	VOCs														
				Benzene			n-Butylbenzene			sec-Butylbenzene			Cymene (p-Isopropyltoluene)			Ethylbenzene		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	< 0.087	U		1.46			< 0.87	U		< 0.87	U		1.38		
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	< 0.071	U		0.648	J		0.573	J		0.162	J		< 0.28	U	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014	0.00085			< 0.0061	U		< 0.0061	U		< 0.0061	U		0.0016	J	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	< 0.064	U		3.66			0.605	J		0.344	J		21.4		
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014	0.001			< 0.0059	U	UJ	< 0.0059	U	UJ	< 0.0059	U	UJ	0.002	J	
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014	0.00083			< 0.0059	U		< 0.0059	U		< 0.0059	U		0.0016	J	
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	< 1.3	U		19.1			< 13	U		< 13	U		155		

TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED

Location	Sample ID	Depth	Sample Date	VOCs														
				Isopropylbenzene (Cumene)			Naphthalene			n-Propylbenzene			Toluene			1,2,4-Trimethylbenzene		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	0.455	J		2.26			1.22			< 0.87	U		7.03		
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	0.307	J		< 0.71	U		0.569	J		< 0.71	U		< 0.71	U	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014	< 0.0061	U		< 0.0061	U		< 0.0061	U		0.0022	J	J	< 0.0061	U	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	2.08			3.79			6.58			7.76			33.7		
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014	< 0.0059	U	UJ	< 0.0059	U	UJ	< 0.0059	U	UJ	0.0025	J		< 0.0059	U	UJ
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014	< 0.0059	U		< 0.0059	U		< 0.0059	U		0.0022	J		< 0.0059	U	
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	13.6			26.3			40.5			320			179		

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOCs												VOC TICs		
				1,3,5-Trimethylbenzene			m,p-Xylenes			o-Xylenes			Xylenes (total)			1H-Indene, 2,3-dihydro-1,1,3-trimethyl-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	1.89			3.41			1.83			5.24					
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	< 0.71	U		< 0.28	U		< 0.28	U		< 0.28	U		1.6	JN	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014	< 0.0061	U		0.00077	J		< 0.0024	U		0.0011	J				
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	9.38			49.2			18.6			67.8					
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014	< 0.0059	U	UJ	0.00094	J		0.00043	J		0.0014	J				
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014	< 0.0059	U		0.00081	J		< 0.0024	U		0.0011	J				
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	46.1			355			154			509					

TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED

Location	Sample ID	Depth	Sample Date	VOC TICs														
				1H-Indene, 2,3-dihydro-1,6-dimethyl-			1H-Indene, 2,3-dihydro-4,7-dimethyl-			2-Indanol			3-Phenylbut-1-ene			Benzene, (1-methyl-1-propenyl)-, (Z)-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014				5	JN										
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	6.3	JN		1.9	JN								1.7	JN	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014															
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014							10	JN							
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014										56	JN				

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Benzene, 1,2,3,5-tetramethyl-			1,2,3-Trimethylbenzene			Benzene, 1,2,4,5-tetramethyl-			Benzene, 1-butenyl-, (E)-			Benzene, 1-ethyl-2-methyl-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	1.6	JN		2.5	JN					2.4	JN		3.8	JN	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014															
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014															
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014				9.8	JN		7.3	JN					9.3	JN	
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014				60	JN								54	JN	

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Benzene, 1-ethyl-3,5-dimethyl-			Benzene, 1-ethyl-3-methyl-			Benzene, 1-ethyl-4-methyl-			Benzene, 1-methyl-2-(1-methylethyl)-			Benzene, 1-methyl-3-(1-methylethyl)-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	2.9	JN						2.3	JN				1.8	JN	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014										2.2	JN				
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014															
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014				19	JN		8.7	JN							
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014				130	JN										

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Benzene, 2-ethyl-1,4-dimethyl-			Benzene, 4-ethyl-1,2-dimethyl-			Butane			Butane, 2,2,3,3-tetramethyl-			Cyclohexane, 1-ethyl-4-methyl-, trans-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014				2.9	JN										
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014				2.3	JN								2.5	JN	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014							0.027	JN							
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014				7.3	JN					32	JN				
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	38	JN													

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Cyclopentane, methyl-			Decane, 4-methyl-			Dodecane			Heptane			Heptane, 4-methyl-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014							4.5	JN							
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014				2.1	JN								2.2	JN	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014															
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014															
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	61	JN								49	JN				

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Hexane			Hexane, 2,2,5,5-tetramethyl-			Hexane, 2,2,5-trimethyl-			Hexane, 2,4-dimethyl-			Hexane, 2,5-dimethyl-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014															
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014				1.6	JN										
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014															
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014							6.2	JN		7.8	JN		11	JN	
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	54	JN													

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Hexane, 2-methyl-			Hexane, 3-methyl-			Isobutane			Isopentane			Naphthalene, decahydro-		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014															
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014														4.3	JN
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014							0.012	JN		0.013	JN				
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014															
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	49	JN		48	JN										

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Nonane			9-Octadecenamide, (Z)-			Octane, 2,6-dimethyl-			Octane, 4-methyl-			Pentane		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	1.8	JN													
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014							3.4	JN							
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014				0.56	JN								0.007	JN	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014										42	JN				
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	34	JN													

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs														
				Pentane, 2,3,4-trimethyl-			Pentane, 2,3-dimethyl-			Pentane, 2-methyl-			Pentane, 3-ethyl-2-methyl-			Tridecane		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014													2	JN	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014															
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014															
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	28	JN		15	JN		2.5	JN							
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014															
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014															
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	60	JN								110	JN				

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	VOC TICs									SVOCs						
				Undecane			Unknown			Unknown Benzene			Acenaphthene			Acenaphthylene			
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	4.3	JN						4	JN		< 0.0059	U		< 0.0059	U	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014											0.238			0.0517		
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014											< 0.005	U		< 0.005	U	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014											0.0103			0.0035	J	
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014											< 0.005	U		< 0.005	U	
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014											< 0.005	U		< 0.005	U	
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014				64	JN			58	JN		0.0739			0.0345		

TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED

Location	Sample ID	Depth	Sample Date	SVOCs														
				Anthracene			Benzo(a)anthracene			Benzo(a)pyrene			Benzo(b)fluoranthene			Benzo(g,h,i)perylene		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	< 0.0059	U		< 0.0059	U		< 0.0059	U		< 0.0059	U		< 0.0059	U	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	0.189			0.023			0.0036	J		0.0046	J		< 0.0058	U	
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014	< 0.005	U		< 0.005	U		< 0.005	U		< 0.005	U		< 0.005	U	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	0.0056	J		< 0.0058	U		< 0.0058	U		< 0.0058	U		< 0.0058	U	
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014	< 0.005	U		< 0.005	U		< 0.005	U		< 0.005	U		0.0031	J	
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014	< 0.005	U		< 0.005	U		< 0.005	U		< 0.005	U		< 0.005	U	
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	0.024	J		< 0.031	U		< 0.031	U		< 0.031	U		< 0.031	U	

TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED

Location	Sample ID	Depth	Sample Date	SVOCs														
				Chrysene (1,2-Benzphenanthracene)			Dimethyl phthalate			Fluoranthene			Fluorene			1-Methylnaphthalene		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	< 0.0059	U		< 0.29	U		< 0.0059	U		< 0.0059	U		< 0.012	U	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	0.0446			< 0.29	U		0.0589			0.373			2.82		
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014	< 0.005	U		< 0.25	U		< 0.005	U		< 0.005	U		< 0.01	U	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	< 0.0058	U		< 0.29	U		0.004	J		0.0149			0.747		
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014	< 0.005	U		< 0.25	U		< 0.005	U		< 0.005	U		< 0.01	U	
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014	< 0.005	U		< 0.25	U		< 0.005	U		< 0.005	U		< 0.0099	U	
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	< 0.031	U		0.0431	J		0.0237	J		0.0947			6.65		

**TABLE 2
4TH STREET SVE EXTENSION:
SUMMARY OF ANALYTES DETECTED**

Location	Sample ID	Depth	Sample Date	SVOCs									Hydrocarbons		
				2-Methylnaphthalene			Phenanthrene			Pyrene			TPH GRO (C6-C10)		
				Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals	Result	Lab Quals	AECOM Quals
SVE-42	SVE42-080514(32-34')	32 - 34 ft	8/5/2014	0.0013	J		< 0.0059	U		< 0.0059	U		12.2	J	
SVE-43	SVE43-080814 (30-32')	30 - 32 ft	8/8/2014	< 0.012	U		1.56			0.144			156		
SVE-44	SVE44-082014(30-36')	30 - 36 ft	8/20/2014	0.0012	J		< 0.005	U		< 0.005	U		2.55	J	
SVE-45	SVE45-080614 (40-42')	40 - 42 ft	8/6/2014	1.63			0.0242			0.0067			249		
SVE-46	SVE46-080414(18-22')	18 - 22 ft	8/4/2014	< 0.01	U		< 0.0016	JB	U	< 0.005	U		< 13	U	
	SVE46-080414(18-22')-DUP	18 - 22 ft	8/4/2014	< 0.0099	U		< 0.005	U		< 0.005	U		< 13	U	
SVE-47	SVE47-080114 (22-24')	22 - 24 ft	8/1/2014	12.1			0.112			0.0319			276		

Laboratory Qualifiers

< "U" = Not detected at the reporting limit.

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

JN = Estimated value for tentatively identified compound (TICs). (library search)

B = Analyte is detected in the method blank.

Note: Library searches for TICs are used to look for the presence of non-target analytes.

TICs reported are those present at levels above ten percent of associated internal standard responses.

URS Qualifiers

J = The result is estimated.

UJ = The result is estimated non-detect.

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e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
21562973.19000

SGS Accutest Job Number: MC32549

Sampling Date: 08/01/14

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. Madadian
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

October 27, 2016

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

RE: SGS Accutest Job # MC32549

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: MC32549

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19000

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC32549-1	08/01/14	15:30	08/02/14	SO	Soil	SVE47-080114 (22-24')
MC32549-2	08/01/14	00:00	08/02/14	AQ	Trip Blank Water	TB-080114 HCL
MC32549-3	08/01/14	00:00	08/02/14	AQ	Trip Blank Water	TB-080114 ST

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: She O

Job No MC32549

Site: URSMOSTL: Roxana 4th St Extens on We Insta , 900 South Cent **Report Date** 0/27/20 6 :45:3 A

Sample(s), 2 Trip Blank(s) were collected on 08/0 /20 4 and were received at SGS Accutest New England on 08/02/20 4 properly preserved, at 6 Deg C and intact. These Samples received a job number of MC32549. Assignment of the Laboratory Sample ID, Content Sample ID and dates of collection are presented in the Results Summary Section of this report. 2-Chloroethane, Benzene, n-Propylbenzene, 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

Matrix: AQ

Batch ID: MSU965

- All samples were analyzed within the recommended method holding time.
- Sample(s) MC32529-9MS, MC32529-9MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- MCU965-BS/BSO for 1,4-Dioxane (BS only), Chloroethane are out of control limits.
- Matrix Spike Recovery(s) for 2-Chloroethyl vinyl ether, 2-Hexanone, Acetone, Chloroethane are out of control limits. Out of control limits due to possible matrix interference.
- Matrix Spike Duplicate Recovery(s) for 2-Chloroethyl vinyl ether, 2-Hexanone, Acetone, Chloroethane, Chloromethane, Vinyl chloride, 1,4-Dioxane are out of control limits. Out of control limits due to possible matrix interference.
- RPD(s) for MSD for 1,4-Dioxane are out of control limits for sample MC32529-9MSD. High RPD due to possible matrix interference and/or sample non-homogeneity.
- MC32549-2 for 1,4-Dioxane: Controlling Calibration Verification out of acceptance criteria. Sample result may be biased.

Matrix: SO

Batch ID: MSK2566

- All samples were analyzed within the recommended method holding time.
- Sample(s) MC32860-8MS, MC32860-8MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- Matrix Spike Recovery(s) for 1,4-Dioxane, Vinyl Acetate are out of control limits. Out of control limits due to possible matrix interference.
- Matrix Spike Duplicate Recovery(s) for 1,4-Dioxane, Vinyl Acetate, Acetone are out of control limits. Out of control limits due to possible matrix interference.
- RPD(s) for MSD for Acetone are out of control limits for sample MC32860-8MSD. High RPD due to possible matrix interference and/or sample non-homogeneity.
- MC32549- for 1,4-Dioxane, Dichlorodifluoromethane: In-tube Calibration Verification out of acceptance criteria. Sample result may be biased.
- MC32549- for 1,4-Dioxane, Vinyl Acetate: Controlling Calibration out of acceptance criteria. Sample result may be biased.

Extractables by GCMS By Method SW846 8270D

Matrix: SO

Batch ID: OP39254

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) MC32549- MS, MC32549- MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- OP39254-MS/MSD Recovery(s) for 2,4-Dinitrophenol, Benzoic acid, Hexachloroethane are out of control limits. Out of control limits due to possible matrix interference. Refer to Blank Spike.

Thursday, October 27, 2016

Page 1 of 2

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: SO **Batch ID:** OP39255

- All samples were extracted within the recommended method holding time
- All samples were analyzed within the recommended method holding time
- Sample(s) MC32549- MS, MC32549- MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification criteria
- OP39255-MS/MSD Recovery(s) for 1-Methy naphtha ene, 2-Methy naphtha ene are outside control limits. Outside control limits due to high even in sample relative to spike amount

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP39247

- 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) MC32300- 9MS, MC32300- 9MSD were used as the QC samples indicated

Matrix: SO **Batch ID:** OP39257

- 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) MC3252 - MS, MC3252 - MSD were used as the QC samples indicated
- Continuing calibration check standard GBK 299-CC 299, signal # 1, file BK3997, BK39982 for 1,2-D bromo-3-chloropropane exceed 5% Dev. 1,2-D bromo-3-chloropropane was reported from signal #2 in associated samples
- MC32549- for Bromofluorobenzene (S): Outside control limits due to possible matrix interference

Volatiles by GC By Method SW846 8015

Matrix: SO **Batch ID:** GAB4535

- All samples were analyzed within the recommended method holding time
- Sample(s) MC3252 - MS, MC3252 - MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification criteria
- Calibration check standard GAB4536-CC4488 not associated with this job

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN47895

- Sample(s) MC32549- DUP were used as the QC samples for Solids, Percent

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 and/or assignee as verified by the signature on the cover page has authorized the release of this report (MC32549)

Summary of Hits

Job Number: MC32549
Account: Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Collected: 08/01/14



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
---------------	------------------	--------------------	----	-----	-------	--------

MC32549-1 SVE47-080114 (22-24')

n-Butylbenzene	19.1	13	0.65	mg/kg	SW846 8260C
Ethylbenzene	155	5.3	1.8	mg/kg	SW846 8260C
Isopropylbenzene	13.6	13	0.45	mg/kg	SW846 8260C
Naphthalene	26.3	13	1.1	mg/kg	SW846 8260C
n-Propylbenzene	40.5	13	0.41	mg/kg	SW846 8260C
Toluene	320	13	0.55	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene	179	13	3.8	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene	46.1	13	4.1	mg/kg	SW846 8260C
m,p-Xylene	355	5.3	1.2	mg/kg	SW846 8260C
o-Xylene	154	5.3	0.76	mg/kg	SW846 8260C
Xylene (total)	509	5.3	0.59	mg/kg	SW846 8260C
Total TIC, Volatile	925 J			mg/kg	
Dimethyl phthalate	0.0431 J	0.31	0.018	mg/kg	SW846 8270D
Acenaphthene	0.0739	0.031	0.0053	mg/kg	SW846 8270D BY SIM
Acenaphthylene	0.0345	0.031	0.0047	mg/kg	SW846 8270D BY SIM
Anthracene	0.0240 J	0.031	0.0068	mg/kg	SW846 8270D BY SIM
Fluoranthene	0.0237 J	0.031	0.0091	mg/kg	SW846 8270D BY SIM
Fluorene	0.0947	0.031	0.0061	mg/kg	SW846 8270D BY SIM
1-Methylnaphthalene	6.65	0.061	0.0067	mg/kg	SW846 8270D BY SIM
2-Methylnaphthalene	12.1	0.061	0.0057	mg/kg	SW846 8270D BY SIM
Phenanthrene	0.112	0.031	0.0064	mg/kg	SW846 8270D BY SIM
Pyrene	0.0319	0.031	0.0095	mg/kg	SW846 8270D BY SIM
TPH-GRO (VOA)	276	19	2.8	mg/kg	SW846 8015

MC32549-2 TB-080114 HCL

No hits reported in this sample.

MC32549-3 TB-080114 ST

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: SVE47-080114 (22-24')	Date Sampled: 08/01/14
Lab Sample ID: MC32549-1	Date Received: 08/02/14
Matrix: SO - Soil	Percent Solids: 79.4
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K81135.D	1	08/15/14	JM	n/a	n/a	MSK2566
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.22 g	10.0 ml	5.0 ul
Run #2			

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	27	7.5	mg/kg	
107-02-8	Acrolein	ND	67	23	mg/kg	
107-13-1	Acrylonitrile	ND	67	7.3	mg/kg	
71-43-2	Benzene	ND	1.3	0.90	mg/kg	
108-86-1	Bromobenzene	ND	13	0.67	mg/kg	
74-97-5	Bromochloromethane	ND	13	0.92	mg/kg	
75-27-4	Bromodichloromethane	ND	5.3	0.56	mg/kg	
75-25-2	Bromoform	ND	5.3	0.95	mg/kg	
74-83-9	Bromomethane	ND	5.3	1.6	mg/kg	
78-93-3	2-Butanone (MEK)	ND	27	8.2	mg/kg	
104-51-8	n-Butylbenzene	19.1	13	0.65	mg/kg	
135-98-8	sec-Butylbenzene	ND	13	2.0	mg/kg	
98-06-6	tert-Butylbenzene	ND	13	0.56	mg/kg	
75-15-0	Carbon disulfide	ND	13	0.35	mg/kg	
56-23-5	Carbon tetrachloride	ND	5.3	0.59	mg/kg	
108-90-7	Chlorobenzene	ND	5.3	0.42	mg/kg	
75-00-3	Chloroethane	ND	13	2.0	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	13	3.3	mg/kg	
67-66-3	Chloroform	ND	5.3	0.45	mg/kg	
74-87-3	Chloromethane	ND	13	1.5	mg/kg	
95-49-8	o-Chlorotoluene	ND	13	0.51	mg/kg	
106-43-4	p-Chlorotoluene	ND	13	0.71	mg/kg	
124-48-1	Dibromochloromethane	ND	5.3	0.86	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.3	0.57	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.3	0.81	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.3	0.92	mg/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.3	2.2	mg/kg	
75-34-3	1,1-Dichloroethane	ND	5.3	0.71	mg/kg	
107-06-2	1,2-Dichloroethane	ND	5.3	0.86	mg/kg	
75-35-4	1,1-Dichloroethene	ND	5.3	1.1	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	5.3	1.2	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	5.3	1.1	mg/kg	

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:	SVE47-080114 (22-24')	Date Sampled:	08/01/14
Lab Sample ID:	MC32549-1	Date Received:	08/02/14
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	5.3	1.1	mg/kg	
142-28-9	1,3-Dichloropropane	ND	13	0.87	mg/kg	
594-20-7	2,2-Dichloropropane	ND	13	1.5	mg/kg	
563-58-6	1,1-Dichloropropene	ND	13	0.71	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.3	0.61	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.3	0.70	mg/kg	
123-91-1	1,4-Dioxane ^b	ND	67	54	mg/kg	
97-63-2	Ethyl methacrylate	ND	13	0.95	mg/kg	
100-41-4	Ethylbenzene	155	5.3	1.8	mg/kg	
87-68-3	Hexachlorobutadiene	ND	13	1.5	mg/kg	
591-78-6	2-Hexanone	ND	27	2.0	mg/kg	
98-82-8	Isopropylbenzene	13.6	13	0.45	mg/kg	
99-87-6	p-Isopropyltoluene	ND	13	0.47	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.3	0.49	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	13	1.4	mg/kg	
74-95-3	Methylene bromide	ND	13	1.2	mg/kg	
75-09-2	Methylene chloride	ND	5.3	1.4	mg/kg	
91-20-3	Naphthalene	26.3	13	1.1	mg/kg	
103-65-1	n-Propylbenzene	40.5	13	0.41	mg/kg	
100-42-5	Styrene	ND	13	0.46	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	13	1.1	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.3	1.1	mg/kg	
127-18-4	Tetrachloroethene	ND	5.3	0.84	mg/kg	
108-88-3	Toluene	320	13	0.55	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	13	1.1	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	13	1.4	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.3	0.58	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.3	1.5	mg/kg	
79-01-6	Trichloroethene	ND	5.3	0.65	mg/kg	
75-69-4	Trichlorofluoromethane	ND	5.3	1.1	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	13	0.77	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	179	13	3.8	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	46.1	13	4.1	mg/kg	
108-05-4	Vinyl Acetate ^c	ND	13	4.1	mg/kg	
75-01-4	Vinyl chloride	ND	5.3	2.4	mg/kg	
	m,p-Xylene	355	5.3	1.2	mg/kg	
95-47-6	o-Xylene	154	5.3	0.76	mg/kg	
1330-20-7	Xylene (total)	509	5.3	0.59	mg/kg	

ND = Not detected MDL = Method Detection Limit

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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:	SVE47-080114 (22-24')	Date Sampled:	08/01/14
Lab Sample ID:	MC32549-1	Date Received:	08/02/14
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-130%
2037-26-5	Toluene-D8	105%		70-130%
460-00-4	4-Bromofluorobenzene	114%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
110-54-3	Hexane	7.94	54	mg/kg	JN
96-37-7	Cyclopentane, methyl-	8.63	61	mg/kg	JN
591-76-4	Hexane, 2-methyl-	9.32	49	mg/kg	JN
589-34-4	Hexane, 3-methyl-	9.51	48	mg/kg	JN
142-82-5	Heptane	9.95	49	mg/kg	JN
565-75-3	Pentane, 2,3,4-trimethyl-	11.06	60	mg/kg	JN
609-26-7	Pentane, 3-ethyl-2-methyl-	11.20	110	mg/kg	JN
111-84-2	Nonane	13.39	34	mg/kg	JN
620-14-4	Benzene, 1-ethyl-3-methyl-	14.60	130	mg/kg	JN
611-14-3	Benzene, 1-ethyl-2-methyl-	14.65	54	mg/kg	JN
	Unknown Benzene	14.93	58	mg/kg	JN
526-73-8	Benzene, 1,2,3-trimethyl-	15.63	60	mg/kg	JN
	Unknown	15.81	64	mg/kg	JN
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	16.31	38	mg/kg	JN
934-10-1	3-Phenylbut-1-ene	17.29	56	mg/kg	JN
	Total TIC, Volatile		925	mg/kg	J

- (a) Initial Calibration Confirmation outside of acceptance criteria. Result biased low.
 (b) Initial calibration verification and Continuing Calibration outside of acceptance criteria. Sample result may be biased low.
 (c) Continuing Calibration outside of acceptance criteria. Sample result may be biased low.

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:	SVE47-080114 (22-24')	Date Sampled:	08/01/14
Lab Sample ID:	MC32549-1	Date Received:	08/02/14
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X04240.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.61	0.077	mg/kg	
95-57-8	2-Chlorophenol	ND	0.31	0.014	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.61	0.016	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.61	0.018	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.61	0.10	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.2	0.15	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.61	0.077	mg/kg	
95-48-7	2-Methylphenol	ND	0.61	0.024	mg/kg	
	3&4-Methylphenol	ND	0.61	0.030	mg/kg	
88-75-5	2-Nitrophenol	ND	0.61	0.016	mg/kg	
100-02-7	4-Nitrophenol	ND	1.2	0.12	mg/kg	
87-86-5	Pentachlorophenol	ND	0.61	0.043	mg/kg	
108-95-2	Phenol	ND	0.31	0.017	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.61	0.015	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.61	0.015	mg/kg	
62-53-3	Aniline	ND	0.61	0.031	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.31	0.016	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.31	0.013	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.61	0.031	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.31	0.017	mg/kg	
106-47-8	4-Chloroaniline	ND	0.61	0.015	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.31	0.014	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.31	0.019	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.31	0.022	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.31	0.019	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.31	0.014	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.61	0.041	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.61	0.015	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.31	0.031	mg/kg	
132-64-9	Dibenzofuran	ND	0.12	0.017	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.31	0.033	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.31	0.0096	mg/kg	

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:	SVE47-080114 (22-24')	Date Sampled:	08/01/14
Lab Sample ID:	MC32549-1	Date Received:	08/02/14
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8270D SW846 3546		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.31	0.015	mg/kg	
131-11-3	Dimethyl phthalate	0.0431	0.31	0.018	mg/kg	J
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.31	0.011	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.31	0.019	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.61	0.15	mg/kg	
67-72-1	Hexachloroethane	ND	0.31	0.015	mg/kg	
78-59-1	Isophorone	ND	0.31	0.014	mg/kg	
88-74-4	2-Nitroaniline	ND	0.61	0.015	mg/kg	
99-09-2	3-Nitroaniline	ND	0.61	0.034	mg/kg	
100-01-6	4-Nitroaniline	ND	0.61	0.015	mg/kg	
98-95-3	Nitrobenzene	ND	0.31	0.017	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.31	0.015	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.31	0.018	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.31	0.019	mg/kg	
110-86-1	Pyridine	ND	0.61	0.031	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		30-130%
4165-62-2	Phenol-d5	72%		30-130%
118-79-6	2,4,6-Tribromophenol	100%		30-130%
4165-60-0	Nitrobenzene-d5	73%		30-130%
321-60-8	2-Fluorobiphenyl	82%		30-130%
1718-51-0	Terphenyl-d14	100%		30-130%

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

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: SVE47-080114 (22-24')	Date Sampled: 08/01/14
Lab Sample ID: MC32549-1	Date Received: 08/02/14
Matrix: SO - Soil	Percent Solids: 79.4
Method: SW846 8270D BY SIM SW846 3546	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91103.D	5	08/08/14	MR	08/04/14	OP39255	MSI3392
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.0739	0.031	0.0053	mg/kg	
208-96-8	Acenaphthylene	0.0345	0.031	0.0047	mg/kg	
120-12-7	Anthracene	0.0240	0.031	0.0068	mg/kg	J
56-55-3	Benzo(a)anthracene	ND	0.031	0.014	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.031	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.031	0.014	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.031	0.0083	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.031	0.0095	mg/kg	
218-01-9	Chrysene	ND	0.031	0.0083	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.031	0.0089	mg/kg	
206-44-0	Fluoranthene	0.0237	0.031	0.0091	mg/kg	J
86-73-7	Fluorene	0.0947	0.031	0.0061	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.031	0.0076	mg/kg	
90-12-0	1-Methylnaphthalene	6.65	0.061	0.0067	mg/kg	
91-57-6	2-Methylnaphthalene	12.1	0.061	0.0057	mg/kg	
85-01-8	Phenanthrene	0.112	0.031	0.0064	mg/kg	
129-00-0	Pyrene	0.0319	0.031	0.0095	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	80%		30-130%
321-60-8	2-Fluorobiphenyl	86%		30-130%
1718-51-0	Terphenyl-d14	101%		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

4.1
4

Report of Analysis

Client Sample ID: SVE47-080114 (22-24')	Date Sampled: 08/01/14
Lab Sample ID: MC32549-1	Date Received: 08/02/14
Matrix: SO - Soil	Percent Solids: 79.4
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39973.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
Run #2							

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

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0031	0.00091	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0031	0.00076	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	92%		61-167%
460-00-4	Bromofluorobenzene (S)	1120% ^a		61-167%

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

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

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

4.1
4

Report of Analysis

Client Sample ID: SVE47-080114 (22-24')	Date Sampled: 08/01/14
Lab Sample ID: MC32549-1	Date Received: 08/02/14
Matrix: SO - Soil	Percent Solids: 79.4
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85249.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.55 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	276	19	2.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	96%		61-116%		

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

4.1
4

Report of Analysis

Client Sample ID: TB-080114 HCL	Date Sampled: 08/01/14
Lab Sample ID: MC32549-2	Date Received: 08/02/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U21778.D	1	08/13/14	GK	n/a	n/a	MSU965
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	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	TB-080114 HCL	Date Sampled:	08/01/14
Lab Sample ID:	MC32549-2	Date Received:	08/02/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	0.70	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane ^a	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: TB-080114 HCL		Date Sampled: 08/01/14
Lab Sample ID: MC32549-2		Date Received: 08/02/14
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

4.2
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	123%		70-130%
2037-26-5	Toluene-D8	108%		70-130%
460-00-4	4-Bromofluorobenzene	113%		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-080114 ST	Date Sampled: 08/01/14
Lab Sample ID: MC32549-3	Date Received: 08/02/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39946.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
Run #2							

Run #	Initial Volume	Final Volume
Run #1	36.5 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	0.014	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.014	0.0058	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	94%		36-173%
460-00-4	Bromofluorobenzene (S)	111%		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

4.3
4

Misc. Forms**Custody Documents and Other Forms**

Includes the following where applicable:

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



Shell Oil Products Chain Of Custody Record

URS

LAB (LOCATION)
 DEXCO
 CALSCIENCE
 OTHER (Accubest Labs 405 Technology Ct W
 Marlborough, MA 01752 (508-481-6200)
 SPL
 Lab Vendor #

Please Check Appropriate Box:

<input checked="" type="checkbox"/> ENV. SERVICES	<input type="checkbox"/> MOTIVA RETAIL	<input type="checkbox"/> SHELL RETAIL
<input type="checkbox"/> MOTIVA S&CM	<input type="checkbox"/> CONSULTANT	<input type="checkbox"/> LUBES
<input type="checkbox"/> SHELL PIPELINE	<input type="checkbox"/> OTHER	

Print Bill To Contact Name: Bob Billman
 INCIDENT # (ENV SERVICES): 9 7 2 1 6 6 4 0
 DATE: 8/1/2014
 PO # SAP #
 3 4 0 0 6 1
 CHECK IF NO INCIDENT # APPLIES
 PAGE: 1 of 1

LABORING COMPANY: URS CORPORATION
 ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300, ST. LOUIS, MO 63110
 PROJECT CONTACT (Person or PO): Elizabeth Kunkel, Bob Billman
 TELEPHONE: 314-429-0100
 FAX: 314-429-0452
 E-MAIL: bob.billman@urs.com, elizabeth.kunkel@urs.com

SITE ADDRESS: Street and City: 900 South Central Ave, ROXANA
 STATE: IL GLOBAL ID NO.:
 DELIVERABLE TO (Name, Company, Office Location):
 PHONE NO.:
 E-MAIL:
 CONSULTANT PROJECT NO.: 21662973.19000
 SAMPLER NAME(S) (Print E-MAIL):
 LAB USE ONLY: MC32549

TURNAROUND TIME (TAT) (FARAR DAYS):
 STANDARD (10 DAY) 3 DAYS 3 DAYS 2 DAYS 24 HOURS RESULTS NEEDED ON WEEKEND
 LA - RWQB REPORT FORMAT LIST AGENCY:
 DELIVERABLES: LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4 OTHER (SPECIFY) EDD
 TEMPERATURE ON RECEIPT C°: Cooler #1: Cooler #2: Cooler #3:
 SPECIAL INSTRUCTIONS OR NOTES:
 * Please Include "J" values on Reports.
 * Please provide sample receipt upon login.
 SHELL CONTRACT RATE APPLIES
 STATE REIMBURSEMENT RATE APPLIES
 EDD NOT NEEDED
 RECEIPT VERIFICATION REQUESTED
 PROVIDE LEAD DISK

REQUESTED ANALYSIS

VOC 8260B SL+TICS	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO
X	X	X	X	X	X

FIELD NOTES:
 TEMPERATURE ON RECEIPT C°:
 Contalor PID Readings or Laboratory Notes

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE					NO. OF CONT.	REQUESTED ANALYSIS						PID (ppm)
		DATE	TIME		HCL	HNO3	H2SO4	NONE	OTHER		VOC 8260B SL+TICS	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO	
	SVE47-080114 (22-24)	8/1/2014	1530	S				2	5	7	X	X	X	X	X	X	394
	TB-090114 HCL			W	2						X						
	TB-080114 ST			W				2	2		X						
																	1,62

Relinquished by (Signature): <i>[Signature]</i>	Received by (Signature):	Date: 8/1/14	Time: 1900
Relinquished by (Signature): <i>[Signature]</i>	Received by (Signature): <i>[Signature]</i>	Date: 8/2/14	Time: 10:00
Relinquished by (Signature):	Received by (Signature):	Date:	Time:

FED EX

05/2008 Revision

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5MC32549: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32549 **Client:** URS **Immediate Client Services Action Required:** No
Date / Time Received: 8/2/2014 **Delivery Method:** _____ **Client Service Action Required at Login:** No
Project: 900 SOUTH CENTRAL AVE **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: MC32549

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19000

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
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MC32549-1 Collected: 01-AUG-14 15:30 By: SVE47-080114 (22-24')
 Received: 02-AUG-14 By:

MC32549-1 SM21 2540 B MOD.	07-AUG-14	HS				%SOL
MC32549-1 SW846 8011	07-AUG-14 12:59	NK	05-AUG-14	NE		V8011SL
MC32549-1 SW846 8270D	07-AUG-14 15:49	WK	04-AUG-14	NE		AB8270SL +
MC32549-1 SW846 8015	07-AUG-14 21:32	AF				V8015GRO
MC32549-1 SW846 8270D BY SIM	08-AUG-14 12:23	MR	04-AUG-14	NE		B8270SIMSL
MC32549-1 SW846 8260C	15-AUG-14 20:31	JM				V8260SL +

MC32549-2 Collected: 01-AUG-14 00:00 By: TB-080114 HCL
 Received: 02-AUG-14 By:

MC32549-2 SW846 8260C	13-AUG-14 17:05	GK				V8260SL +
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MC32549-3 Collected: 01-AUG-14 00:00 By: TB-080114 ST
 Received: 02-AUG-14 By:

MC32549-3 SW846 8011	05-AUG-14 13:09	NK	04-AUG-14	MT		V8011SL
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SGS Accutest Internal Chain of Custody

Job Number: MC32549
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Received: 08/02/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32549-1.1	Walk In Ref #5	Aysia Wood	08/04/14 15:49	Retrieve from Storage
MC32549-1.1	Aysia Wood	Walk In Ref #5	08/04/14 20:23	Return to Storage
MC32549-1.1	Walk In Ref #5	Alireza Zeighami	08/05/14 07:52	Retrieve from Storage
MC32549-1.1	Alireza Zeighami	Walk In Ref #5	08/05/14 12:08	Return to Storage
MC32549-1.1	Walk In Ref #5	Hamid Siamak	08/07/14 11:27	Retrieve from Storage
MC32549-1.1	Hamid Siamak	Walk In Ref #5	08/07/14 14:06	Return to Storage
MC32549-1.1	Scott Parsick		09/25/14 16:09	Disposed
MC32549-1.6	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32549-1.6	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32549-1.6	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32549-1.6	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32549-1.6	Scott Parsick		09/25/14 16:09	Disposed
MC32549-1.7	VOC Ref #10	Krysten Dufort	08/04/14 16:31	Retrieve from Storage
MC32549-1.7	Krysten Dufort	VOC Ref #10	08/11/14 10:30	Return to Storage
MC32549-1.7	VOC Ref #10	Jaime Maslowski	08/15/14 09:35	Retrieve from Storage
MC32549-1.7	Jaime Maslowski	VOC Ref #10	08/18/14 09:53	Return to Storage
MC32549-1.7	Scott Parsick		09/25/14 16:09	Disposed
MC32549-2.2	VOC Ref #1	Gary Krasinski	08/13/14 10:24	Retrieve from Storage
MC32549-2.2	Gary Krasinski	GCMSU	08/13/14 10:24	Load on Instrument
MC32549-2.2	GCMSU	Gary Krasinski	08/14/14 08:36	Unload from Instrument
MC32549-2.2	Gary Krasinski	VOC Ref #1	08/14/14 08:36	Return to Storage
MC32549-2.2	Scott Parsick		09/25/14 16:09	Disposed
MC32549-3.1	VOC Ref #1	Marc Tahtamoni	08/04/14 14:37	Retrieve from Storage
MC32549-3.1	Marc Tahtamoni		08/06/14 14:22	Depleted

5.3
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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: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU965-MB	U21764.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	0.70	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	

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Method Blank Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU965-MB	U21764.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	ug/l	

Method Blank Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU965-MB	U21764.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	121% 70-130%
2037-26-5	Toluene-D8	106% 70-130%
460-00-4	4-Bromofluorobenzene	111% 70-130%

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

Method Blank Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-MB	K81113.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	500	140	ug/kg	
107-02-8	Acrolein	ND	1300	440	ug/kg	
107-13-1	Acrylonitrile	ND	1300	140	ug/kg	
71-43-2	Benzene	ND	25	17	ug/kg	
108-86-1	Bromobenzene	ND	250	13	ug/kg	
74-97-5	Bromochloromethane	ND	250	17	ug/kg	
75-27-4	Bromodichloromethane	ND	100	10	ug/kg	
75-25-2	Bromoform	ND	100	18	ug/kg	
74-83-9	Bromomethane	ND	100	30	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	150	ug/kg	
104-51-8	n-Butylbenzene	ND	250	12	ug/kg	
135-98-8	sec-Butylbenzene	ND	250	37	ug/kg	
98-06-6	tert-Butylbenzene	ND	250	11	ug/kg	
75-15-0	Carbon disulfide	ND	250	6.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	11	ug/kg	
108-90-7	Chlorobenzene	ND	100	7.9	ug/kg	
75-00-3	Chloroethane	ND	250	38	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	250	63	ug/kg	
67-66-3	Chloroform	ND	100	8.5	ug/kg	
74-87-3	Chloromethane	ND	250	28	ug/kg	
95-49-8	o-Chlorotoluene	ND	250	9.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	250	13	ug/kg	
124-48-1	Dibromochloromethane	ND	100	16	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	100	11	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	100	15	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	100	17	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	100	40	ug/kg	
75-34-3	1,1-Dichloroethane	ND	100	13	ug/kg	
107-06-2	1,2-Dichloroethane	ND	100	16	ug/kg	
75-35-4	1,1-Dichloroethene	ND	100	21	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	100	23	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	100	21	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	21	ug/kg	
142-28-9	1,3-Dichloropropane	ND	250	16	ug/kg	
594-20-7	2,2-Dichloropropane	ND	250	28	ug/kg	
563-58-6	1,1-Dichloropropene	ND	250	13	ug/kg	

Method Blank Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-MB	K81113.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	11	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	13	ug/kg	
123-91-1	1,4-Dioxane	ND	1300	1000	ug/kg	
97-63-2	Ethyl methacrylate	ND	250	18	ug/kg	
100-41-4	Ethylbenzene	ND	100	34	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	29	ug/kg	
591-78-6	2-Hexanone	ND	500	38	ug/kg	
98-82-8	Isopropylbenzene	ND	250	8.4	ug/kg	
99-87-6	p-Isopropyltoluene	ND	250	8.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	100	9.1	ug/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	27	ug/kg	
74-95-3	Methylene bromide	ND	250	23	ug/kg	
75-09-2	Methylene chloride	ND	100	27	ug/kg	
91-20-3	Naphthalene	ND	250	20	ug/kg	
103-65-1	n-Propylbenzene	ND	250	7.6	ug/kg	
100-42-5	Styrene	ND	250	8.5	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	20	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	20	ug/kg	
127-18-4	Tetrachloroethene	ND	100	16	ug/kg	
108-88-3	Toluene	ND	250	10	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	21	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	26	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	11	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	29	ug/kg	
79-01-6	Trichloroethene	ND	100	12	ug/kg	
75-69-4	Trichlorofluoromethane	ND	100	20	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	14	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	72	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	76	ug/kg	
108-05-4	Vinyl Acetate	ND	250	77	ug/kg	
75-01-4	Vinyl chloride	ND	100	45	ug/kg	
	m,p-Xylene	ND	100	22	ug/kg	
95-47-6	o-Xylene	ND	100	14	ug/kg	
1330-20-7	Xylene (total)	ND	100	11	ug/kg	

Method Blank Summary

Job Number: MC32549
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-MB	K81113.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	107%	70-130%
2037-26-5	Toluene-D8	105%	70-130%
460-00-4	4-Bromofluorobenzene	105%	70-130%

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

Blank Spike Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-BS	K81111.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	2500	2960	118	70-130
107-02-8	Acrolein	12500	12700	102	70-130
107-13-1	Acrylonitrile	2500	2390	96	70-130
71-43-2	Benzene	2500	2450	98	70-130
108-86-1	Bromobenzene	2500	2630	105	70-130
74-97-5	Bromochloromethane	2500	2430	97	70-130
75-27-4	Bromodichloromethane	2500	2640	106	70-130
75-25-2	Bromoform	2500	2410	96	70-130
74-83-9	Bromomethane	2500	2470	99	70-130
78-93-3	2-Butanone (MEK)	2500	2660	106	70-130
104-51-8	n-Butylbenzene	2500	2840	114	70-130
135-98-8	sec-Butylbenzene	2500	2890	116	70-130
98-06-6	tert-Butylbenzene	2500	2900	116	70-130
75-15-0	Carbon disulfide	2500	2770	111	70-130
56-23-5	Carbon tetrachloride	2500	2770	111	70-130
108-90-7	Chlorobenzene	2500	2530	101	70-130
75-00-3	Chloroethane	2500	2950	118	70-130
110-75-8	2-Chloroethyl vinyl ether	2500	2510	100	10-160
67-66-3	Chloroform	2500	2380	95	70-130
74-87-3	Chloromethane	2500	2550	102	70-130
95-49-8	o-Chlorotoluene	2500	2580	103	70-130
106-43-4	p-Chlorotoluene	2500	2580	103	70-130
124-48-1	Dibromochloromethane	2500	2480	99	70-130
95-50-1	1,2-Dichlorobenzene	2500	2610	104	70-130
541-73-1	1,3-Dichlorobenzene	2500	2520	101	70-130
106-46-7	1,4-Dichlorobenzene	2500	2580	103	70-130
75-71-8	Dichlorodifluoromethane	2500	2940	118	70-130
75-34-3	1,1-Dichloroethane	2500	2640	106	70-130
107-06-2	1,2-Dichloroethane	2500	2410	96	70-130
75-35-4	1,1-Dichloroethene	2500	2920	117	70-130
156-59-2	cis-1,2-Dichloroethene	2500	2420	97	70-130
156-60-5	trans-1,2-Dichloroethene	2500	2580	103	70-130
78-87-5	1,2-Dichloropropane	2500	2650	106	70-130
142-28-9	1,3-Dichloropropane	2500	2490	100	70-130
594-20-7	2,2-Dichloropropane	2500	2580	103	70-130
563-58-6	1,1-Dichloropropene	2500	2710	108	70-130

* = Outside of Control Limits.

6.2.1

6

Blank Spike Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-BS	K81111.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	2500	2570	103	70-130
10061-02-6	trans-1,3-Dichloropropene	2500	2700	108	70-130
123-91-1	1,4-Dioxane	6250	5270	84	70-130
97-63-2	Ethyl methacrylate	2500	2530	101	76-141
100-41-4	Ethylbenzene	2500	2560	102	70-130
87-68-3	Hexachlorobutadiene	2500	2730	109	70-130
591-78-6	2-Hexanone	2500	2410	96	70-130
98-82-8	Isopropylbenzene	2500	2920	117	70-130
99-87-6	p-Isopropyltoluene	2500	2770	111	70-130
1634-04-4	Methyl Tert Butyl Ether	2500	2430	97	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	2500	2300	92	70-130
74-95-3	Methylene bromide	2500	2480	99	70-130
75-09-2	Methylene chloride	2500	2630	105	70-130
91-20-3	Naphthalene	2500	2510	100	70-130
103-65-1	n-Propylbenzene	2500	2810	112	70-130
100-42-5	Styrene	2500	2510	100	70-130
630-20-6	1,1,1,2-Tetrachloroethane	2500	2520	101	70-130
79-34-5	1,1,2,2-Tetrachloroethane	2500	2540	102	70-130
127-18-4	Tetrachloroethene	2500	2620	105	70-130
108-88-3	Toluene	2500	2550	102	70-130
87-61-6	1,2,3-Trichlorobenzene	2500	2510	100	70-130
120-82-1	1,2,4-Trichlorobenzene	2500	2610	104	70-130
71-55-6	1,1,1-Trichloroethane	2500	2530	101	70-130
79-00-5	1,1,2-Trichloroethane	2500	2470	99	70-130
79-01-6	Trichloroethene	2500	2470	99	70-130
75-69-4	Trichlorofluoromethane	2500	2790	112	70-130
96-18-4	1,2,3-Trichloropropane	2500	2460	98	70-130
95-63-6	1,2,4-Trimethylbenzene	2500	2690	108	70-130
108-67-8	1,3,5-Trimethylbenzene	2500	2670	107	70-130
108-05-4	Vinyl Acetate	2500	1750	70	70-130
75-01-4	Vinyl chloride	2500	2600	104	70-130
	m,p-Xylene	5000	4980	100	70-130
95-47-6	o-Xylene	2500	2410	96	70-130
1330-20-7	Xylene (total)	7500	7390	99	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-BS	K81111.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	70-130%
2037-26-5	Toluene-D8	109%	70-130%
460-00-4	4-Bromofluorobenzene	104%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU965-BS	U21761.D	1	08/13/14	GK	n/a	n/a	MSU965
MSU965-BSD	U21762.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	42.5	85	43.2	86	2	70-130/25
107-02-8	Acrolein	250	247	99	247	99	0	70-130/25
107-13-1	Acrylonitrile	50	52.0	104	51.0	102	2	70-130/25
71-43-2	Benzene	50	52.7	105	52.0	104	1	70-130/25
108-86-1	Bromobenzene	50	53.4	107	53.5	107	0	70-130/25
74-97-5	Bromochloromethane	50	50.7	101	51.1	102	1	70-130/25
75-27-4	Bromodichloromethane	50	52.2	104	52.0	104	0	70-130/25
75-25-2	Bromoform	50	46.3	93	46.3	93	0	70-130/25
74-83-9	Bromomethane	50	55.3	111	53.5	107	3	70-130/25
78-93-3	2-Butanone (MEK)	50	48.5	97	47.2	94	3	70-130/25
104-51-8	n-Butylbenzene	50	59.1	118	58.8	118	1	70-130/25
135-98-8	sec-Butylbenzene	50	59.1	118	59.9	120	1	70-130/25
98-06-6	tert-Butylbenzene	50	50.0	100	50.3	101	1	70-130/25
75-15-0	Carbon disulfide	50	56.4	113	55.2	110	2	70-130/25
56-23-5	Carbon tetrachloride	50	46.5	93	46.2	92	1	70-130/25
108-90-7	Chlorobenzene	50	50.0	100	50.6	101	1	70-130/25
75-00-3	Chloroethane	50	67.8	136* a	67.6	135* a	0	70-130/25
110-75-8	2-Chloroethyl vinyl ether	50	59.4	119	59.2	118	0	70-130/25
67-66-3	Chloroform	50	52.9	106	51.4	103	3	70-130/25
74-87-3	Chloromethane	50	57.2	114	57.0	114	0	70-130/25
95-49-8	o-Chlorotoluene	50	54.8	110	55.5	111	1	70-130/25
106-43-4	p-Chlorotoluene	50	54.3	109	54.0	108	1	70-130/25
124-48-1	Dibromochloromethane	50	48.4	97	48.2	96	0	70-130/25
95-50-1	1,2-Dichlorobenzene	50	54.6	109	55.2	110	1	70-130/25
541-73-1	1,3-Dichlorobenzene	50	54.3	109	53.8	108	1	70-130/25
106-46-7	1,4-Dichlorobenzene	50	54.3	109	54.6	109	1	70-130/25
75-71-8	Dichlorodifluoromethane	50	53.4	107	52.4	105	2	70-130/25
75-34-3	1,1-Dichloroethane	50	55.5	111	54.9	110	1	70-130/25
107-06-2	1,2-Dichloroethane	50	46.0	92	45.9	92	0	70-130/25
75-35-4	1,1-Dichloroethene	50	54.1	108	52.2	104	4	70-130/25
156-59-2	cis-1,2-Dichloroethene	50	52.3	105	51.3	103	2	70-130/25
156-60-5	trans-1,2-Dichloroethene	50	52.3	105	50.9	102	3	70-130/25
78-87-5	1,2-Dichloropropane	50	54.4	109	54.2	108	0	70-130/25
142-28-9	1,3-Dichloropropane	50	53.3	107	53.7	107	1	70-130/25
594-20-7	2,2-Dichloropropane	50	57.3	115	53.9	108	6	70-130/25
563-58-6	1,1-Dichloropropene	50	49.7	99	48.8	98	2	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU965-BS	U21761.D	1	08/13/14	GK	n/a	n/a	MSU965
MSU965-BSD	U21762.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	54.9	110	57.2	114	4	70-130/25
10061-02-6	trans-1,3-Dichloropropene	50	59.1	118	60.7	121	3	70-130/25
123-91-1	1,4-Dioxane	125	168	134* a	157	126	7	70-130/25
97-63-2	Ethyl methacrylate	50	54.0	108	56.2	112	4	77-137/25
100-41-4	Ethylbenzene	50	50.8	102	50.9	102	0	70-130/25
87-68-3	Hexachlorobutadiene	50	51.2	102	51.6	103	1	70-130/25
591-78-6	2-Hexanone	50	47.2	94	47.2	94	0	70-130/25
98-82-8	Isopropylbenzene	50	59.1	118	59.7	119	1	70-130/25
99-87-6	p-Isopropyltoluene	50	56.4	113	56.2	112	0	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	51.3	103	51.1	102	0	70-130/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	55.4	111	54.0	108	3	70-130/25
74-95-3	Methylene bromide	50	48.7	97	48.8	98	0	70-130/25
75-09-2	Methylene chloride	50	53.3	107	53.4	107	0	70-130/25
91-20-3	Naphthalene	50	57.3	115	57.9	116	1	70-130/25
103-65-1	n-Propylbenzene	50	59.6	119	59.7	119	0	70-130/25
100-42-5	Styrene	50	50.0	100	50.0	100	0	70-130/25
630-20-6	1,1,1,2-Tetrachloroethane	50	45.3	91	45.6	91	1	70-130/25
79-34-5	1,1,2,2-Tetrachloroethane	50	60.8	122	60.8	122	0	70-130/25
127-18-4	Tetrachloroethene	50	48.3	97	48.3	97	0	70-130/25
108-88-3	Toluene	50	54.8	110	54.9	110	0	70-130/25
87-61-6	1,2,3-Trichlorobenzene	50	54.5	109	54.6	109	0	70-130/25
120-82-1	1,2,4-Trichlorobenzene	50	53.5	107	54.8	110	2	70-130/25
71-55-6	1,1,1-Trichloroethane	50	50.5	101	49.6	99	2	70-130/25
79-00-5	1,1,2-Trichloroethane	50	56.8	114	56.7	113	0	70-130/25
79-01-6	Trichloroethene	50	49.6	99	49.4	99	0	70-130/25
75-69-4	Trichlorofluoromethane	50	47.4	95	46.0	92	3	70-130/25
96-18-4	1,2,3-Trichloropropane	50	56.9	114	57.5	115	1	70-130/25
95-63-6	1,2,4-Trimethylbenzene	50	57.3	115	57.4	115	0	70-130/25
108-67-8	1,3,5-Trimethylbenzene	50	54.7	109	55.8	112	2	70-130/25
108-05-4	Vinyl Acetate	50	47.7	95	46.6	93	2	70-130/25
75-01-4	Vinyl chloride	50	55.2	110	54.2	108	2	70-130/25
	m,p-Xylene	100	98.9	99	99.0	99	0	70-130/25
95-47-6	o-Xylene	50	48.5	97	48.8	98	1	70-130/25
1330-20-7	Xylene (total)	150	147	98	148	99	1	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU965-BS	U21761.D	1	08/13/14	GK	n/a	n/a	MSU965
MSU965-BSD	U21762.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	116%	115%	70-130%
2037-26-5	Toluene-D8	117%	118%	70-130%
460-00-4	4-Bromofluorobenzene	115%	118%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32529-9MS	U21773.D	5	08/13/14	GK	n/a	n/a	MSU965
MC32529-9MSD	U21774.D	5	08/13/14	GK	n/a	n/a	MSU965
MC32529-9	U21767.D	1	08/13/14	GK	n/a	n/a	MSU965

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

MC32549-2

CAS No.	Compound	MC32529-9 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	250	124	50* a	250	139	56* a	11	70-130/30
107-02-8	Acrolein	ND	1250	913	73	1250	1070	86	16	70-130/30
107-13-1	Acrylonitrile	ND	250	247	99	250	284	114	14	70-130/30
71-43-2	Benzene	ND	250	265	106	250	283	113	7	70-130/30
108-86-1	Bromobenzene	ND	250	246	98	250	257	103	4	70-130/30
74-97-5	Bromochloromethane	ND	250	259	104	250	278	111	7	70-130/30
75-27-4	Bromodichloromethane	ND	250	258	103	250	270	108	5	70-130/30
75-25-2	Bromoform	ND	250	199	80	250	218	87	9	70-130/30
74-83-9	Bromomethane	ND	250	270	108	250	312	125	14	70-130/30
78-93-3	2-Butanone (MEK)	ND	250	178	71	250	192	77	8	70-130/30
104-51-8	n-Butylbenzene	ND	250	275	110	250	306	122	11	70-130/30
135-98-8	sec-Butylbenzene	ND	250	284	114	250	307	123	8	70-130/30
98-06-6	tert-Butylbenzene	ND	250	244	98	250	259	104	6	70-130/30
75-15-0	Carbon disulfide	ND	250	259	104	250	292	117	12	70-130/30
56-23-5	Carbon tetrachloride	ND	250	224	90	250	251	100	11	70-130/30
108-90-7	Chlorobenzene	ND	250	244	98	250	255	102	4	70-130/30
75-00-3	Chloroethane	ND	250	343	137* a	250	376	150* a	9	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	250	24.3	10* a	250	25.3	10* a	4	70-130/30
67-66-3	Chloroform	ND	250	270	108	250	290	116	7	70-130/30
74-87-3	Chloromethane	ND	250	292	117	250	336	134* a	14	70-130/30
95-49-8	o-Chlorotoluene	ND	250	267	107	250	283	113	6	70-130/30
106-43-4	p-Chlorotoluene	ND	250	252	101	250	265	106	5	70-130/30
124-48-1	Dibromochloromethane	ND	250	221	88	250	226	90	2	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	250	260	104	250	284	114	9	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	250	254	102	250	271	108	6	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	250	258	103	250	276	110	7	70-130/30
75-71-8	Dichlorodifluoromethane	ND	250	260	104	250	304	122	16	70-130/30
75-34-3	1,1-Dichloroethane	17.2	250	296	112	250	322	122	8	70-130/30
107-06-2	1,2-Dichloroethane	ND	250	232	93	250	242	97	4	70-130/30
75-35-4	1,1-Dichloroethene	1.5	250	275	109	250	304	121	10	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	250	265	106	250	288	115	8	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	250	262	105	250	293	117	11	70-130/30
78-87-5	1,2-Dichloropropane	ND	250	270	108	250	278	111	3	70-130/30
142-28-9	1,3-Dichloropropane	ND	250	249	100	250	246	98	1	70-130/30
594-20-7	2,2-Dichloropropane	ND	250	282	113	250	304	122	8	70-130/30
563-58-6	1,1-Dichloropropene	ND	250	250	100	250	272	109	8	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32529-9MS	U21773.D	5	08/13/14	GK	n/a	n/a	MSU965
MC32529-9MSD	U21774.D	5	08/13/14	GK	n/a	n/a	MSU965
MC32529-9	U21767.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Compound	MC32529-9 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	250	253	101	250	244	98	4	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	250	252	101	250	239	96	5	70-130/30
123-91-1	1,4-Dioxane	ND	625	565	90	625	826	132* a	38* b	70-130/30
97-63-2	Ethyl methacrylate	ND	250	231	92	250	244	98	5	72-139/30
100-41-4	Ethylbenzene	ND	250	251	100	250	268	107	7	70-130/30
87-68-3	Hexachlorobutadiene	ND	250	230	92	250	268	107	15	70-130/30
591-78-6	2-Hexanone	ND	250	157	63* a	250	169	68* a	7	70-130/30
98-82-8	Isopropylbenzene	ND	250	290	116	250	309	124	6	70-130/30
99-87-6	p-Isopropyltoluene	ND	250	264	106	250	288	115	9	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	250	255	102	250	275	110	8	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	243	97	250	266	106	9	70-130/30
74-95-3	Methylene bromide	ND	250	248	99	250	253	101	2	70-130/30
75-09-2	Methylene chloride	ND	250	273	109	250	300	120	9	70-130/30
91-20-3	Naphthalene	ND	250	260	104	250	303	121	15	70-130/30
103-65-1	n-Propylbenzene	ND	250	285	114	250	304	122	6	70-130/30
100-42-5	Styrene	ND	250	234	94	250	250	100	7	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	233	93	250	256	102	9	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	250	284	114	250	304	122	7	70-130/30
127-18-4	Tetrachloroethene	ND	250	239	96	250	251	100	5	70-130/30
108-88-3	Toluene	ND	250	256	102	250	268	107	5	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	250	240	96	250	291	116	19	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	250	246	98	250	287	115	15	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	250	253	101	250	275	110	8	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	250	255	102	250	249	100	2	70-130/30
79-01-6	Trichloroethene	ND	250	251	100	250	265	106	5	70-130/30
75-69-4	Trichlorofluoromethane	ND	250	236	94	250	261	104	10	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	250	264	106	250	277	111	5	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	250	277	111	250	298	119	7	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	250	266	106	250	288	115	8	70-130/30
108-05-4	Vinyl Acetate	ND	250	246	98	250	239	96	3	70-130/30
75-01-4	Vinyl chloride	ND	250	284	114	250	327	131* a	14	70-130/30
	m,p-Xylene	ND	500	494	99	500	526	105	6	70-130/30
95-47-6	o-Xylene	ND	250	247	99	250	271	108	9	70-130/30
1330-20-7	Xylene (total)	ND	750	742	99	750	797	106	7	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32529-9MS	U21773.D	5	08/13/14	GK	n/a	n/a	MSU965
MC32529-9MSD	U21774.D	5	08/13/14	GK	n/a	n/a	MSU965
MC32529-9	U21767.D	1	08/13/14	GK	n/a	n/a	MSU965

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32529-9	Limits
1868-53-7	Dibromofluoromethane	121%	125%	128%	70-130%
2037-26-5	Toluene-D8	113%	113%	111%	70-130%
460-00-4	4-Bromofluorobenzene	112%	110%	113%	70-130%

- (a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (b) High RPD due to possible matrix interference and/or sample non-homogeneity.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32860-8MS	K81118.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8MSD	K81119.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8	K81115.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Compound	MC32860-8 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	3570	3720	104	3570	5160	144* a	32* b	70-130/30
107-02-8	Acrolein	ND	17900	18000	101	17900	17500	98	3	70-130/30
107-13-1	Acrylonitrile	ND	3570	3210	90	3570	3190	89	1	70-130/30
71-43-2	Benzene	ND	3570	3270	92	3570	3100	87	5	70-130/30
108-86-1	Bromobenzene	ND	3570	3640	102	3570	3490	98	4	70-130/30
74-97-5	Bromochloromethane	ND	3570	3290	92	3570	3230	90	2	70-130/30
75-27-4	Bromodichloromethane	ND	3570	3570	100	3570	3380	95	5	70-130/30
75-25-2	Bromoform	ND	3570	3250	91	3570	3150	88	3	70-130/30
74-83-9	Bromomethane	ND	3570	3520	98	3570	3360	94	5	70-130/30
78-93-3	2-Butanone (MEK)	ND	3570	3310	93	3570	3890	109	16	70-130/30
104-51-8	n-Butylbenzene	ND	3570	4060	114	3570	3880	109	5	70-130/30
135-98-8	sec-Butylbenzene	ND	3570	4190	117	3570	3910	109	7	70-130/30
98-06-6	tert-Butylbenzene	ND	3570	4090	114	3570	3910	109	5	70-130/30
75-15-0	Carbon disulfide	ND	3570	3680	103	3570	3490	98	5	70-130/30
56-23-5	Carbon tetrachloride	ND	3570	3850	108	3570	3560	100	8	70-130/30
108-90-7	Chlorobenzene	ND	3570	3430	96	3570	3270	92	5	70-130/30
75-00-3	Chloroethane	ND	3570	4150	116	3570	3920	110	6	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	3570	3580	100	3570	3360	94	6	10-160/30
67-66-3	Chloroform	ND	3570	3180	89	3570	3090	86	3	70-130/30
74-87-3	Chloromethane	ND	3570	3620	101	3570	3350	94	8	70-130/30
95-49-8	o-Chlorotoluene	ND	3570	3730	104	3570	3490	98	7	70-130/30
106-43-4	p-Chlorotoluene	ND	3570	3560	100	3570	3370	94	5	70-130/30
124-48-1	Dibromochloromethane	ND	3570	3310	93	3570	3220	90	3	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	3570	3570	100	3570	3380	95	5	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	3570	3580	100	3570	3370	94	6	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	3570	3560	100	3570	3450	97	3	70-130/30
75-71-8	Dichlorodifluoromethane	ND	3570	4120	115	3570	3920	110	5	70-130/30
75-34-3	1,1-Dichloroethane	ND	3570	3410	95	3570	3370	94	1	70-130/30
107-06-2	1,2-Dichloroethane	ND	3570	3270	92	3570	3110	87	5	70-130/30
75-35-4	1,1-Dichloroethene	ND	3570	3780	106	3570	3820	107	1	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	3570	3290	92	3570	3110	87	6	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	3570	3400	95	3570	3280	92	4	70-130/30
78-87-5	1,2-Dichloropropane	ND	3570	3570	100	3570	3290	92	8	70-130/30
142-28-9	1,3-Dichloropropane	ND	3570	3420	96	3570	3350	94	2	70-130/30
594-20-7	2,2-Dichloropropane	ND	3570	3500	98	3570	3350	94	4	70-130/30
563-58-6	1,1-Dichloropropene	ND	3570	3660	102	3570	3480	97	5	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32860-8MS	K81118.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8MSD	K81119.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8	K81115.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Compound	MC32860-8 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	3570	3490	98	3570	3290	92	6	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	3570	3730	104	3570	3340	93	11	70-130/30
123-91-1	1,4-Dioxane	ND	8930	24800	278* a	8930	24000	269* a	3	70-130/30
97-63-2	Ethyl methacrylate	ND	3570	3620	101	3570	3320	93	9	41-160/30
100-41-4	Ethylbenzene	ND	3570	3500	98	3570	3270	92	7	70-130/30
87-68-3	Hexachlorobutadiene	ND	3570	4420	124	3570	4330	121	2	70-130/30
591-78-6	2-Hexanone	ND	3570	3510	98	3570	3490	98	1	70-130/30
98-82-8	Isopropylbenzene	ND	3570	4130	116	3570	3920	110	5	70-130/30
99-87-6	p-Isopropyltoluene	ND	3570	3990	112	3570	3790	106	5	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	3570	3280	92	3570	3240	91	1	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	3570	3350	94	3570	3130	88	7	70-130/30
74-95-3	Methylene bromide	ND	3570	3510	98	3570	3220	90	9	70-130/30
75-09-2	Methylene chloride	ND	3570	3450	97	3570	3440	96	0	70-130/30
91-20-3	Naphthalene	ND	3570	3550	99	3570	3300	92	7	70-130/30
103-65-1	n-Propylbenzene	ND	3570	3960	111	3570	3790	106	4	70-130/30
100-42-5	Styrene	ND	3570	3360	94	3570	3200	90	5	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	3570	3300	92	3570	3210	90	3	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	3570	3670	103	3570	3560	100	3	70-130/30
127-18-4	Tetrachloroethene	ND	3570	3450	97	3570	3360	94	3	70-130/30
108-88-3	Toluene	ND	3570	3480	97	3570	3190	89	9	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	3570	3450	97	3570	3290	92	5	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	3570	3620	101	3570	3440	96	5	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	3570	3460	97	3570	3330	93	4	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	3570	3480	97	3570	3150	88	10	70-130/30
79-01-6	Trichloroethene	ND	3570	3380	95	3570	3270	92	3	70-130/30
75-69-4	Trichlorofluoromethane	ND	3570	3880	109	3570	3740	105	4	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	3570	3570	100	3570	3320	93	7	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	3570	3910	109	3570	3740	105	4	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	3570	3750	105	3570	3570	100	5	70-130/30
108-05-4	Vinyl Acetate	ND	3570	2340	65* a	3570	2410	67* a	3	70-130/30
75-01-4	Vinyl chloride	ND	3570	3550	99	3570	3360	94	5	70-130/30
	m,p-Xylene	ND	7150	6850	96	7150	6590	92	4	70-130/30
95-47-6	o-Xylene	ND	3570	3320	93	3570	3230	90	3	70-130/30
1330-20-7	Xylene (total)	ND	10700	10200	95	10700	9820	92	4	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32860-8MS	K81118.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8MSD	K81119.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8	K81115.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32549-1

CAS No.	Surrogate Recoveries	MS	MSD	MC32860-8	Limits
1868-53-7	Dibromofluoromethane	105%	105%	105%	70-130%
2037-26-5	Toluene-D8	111%	105%	99%	70-130%
460-00-4	4-Bromofluorobenzene	111%	107%	104%	70-130%

- (a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (b) High RPD due to possible matrix interference and/or sample non-homogeneity.

* = Outside of Control Limits.

Volatile Internal Standard Area Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSK2566-CC2552	Injection Date:	08/15/14
Lab File ID:	K81110.D	Injection Time:	08:58
Instrument ID:	GCMSK	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	109976	8.78	143475	9.63	60320	12.89	79859	15.45	55188	6.42
Upper Limit ^a	219952	9.28	286950	10.13	120640	13.39	159718	15.95	110376	6.92
Lower Limit ^b	54988	8.28	71738	9.13	30160	12.39	39930	14.95	27594	5.92

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSK2566-BS	116909	8.78	148139	9.63	62180	12.89	84173	15.45	59660	6.42
MSK2566-MB	117081	8.78	153707	9.63	60071	12.89	91314	15.44	58770	6.43
ZZZZZZ	122256	8.78	151864	9.63	60366	12.89	88722	15.44	62841	6.43
MC32860-8	117065	8.78	148476	9.63	55784	12.89	83641	15.44	62164	6.42
ZZZZZZ	127258	8.78	163273	9.63	61930	12.89	91732	15.45	63931	6.43
ZZZZZZ	129569	8.79	165315	9.63	64395	12.89	94278	15.44	64494	6.42
MC32860-8MS	114017	8.78	145006	9.63	61896	12.89	79719	15.44	61045	6.42
MC32860-8MSD	118581	8.78	154847	9.63	63874	12.89	83498	15.45	61067	6.42
ZZZZZZ	117972	8.78	151316	9.63	56746	12.89	82278	15.44	62529	6.42
ZZZZZZ	115298	8.78	146423	9.63	54299	12.89	80763	15.44	61953	6.42
ZZZZZZ	116803	8.78	152723	9.63	59212	12.89	88307	15.44	65592	6.42
ZZZZZZ	123945	8.78	155163	9.63	58224	12.89	85749	15.44	64583	6.42
ZZZZZZ	118291	8.78	152693	9.63	61610	12.89	90955	15.44	59169	6.43
ZZZZZZ	120826	8.78	154744	9.63	58412	12.89	86284	15.44	66506	6.42
ZZZZZZ	120931	8.78	153691	9.63	61264	12.89	88003	15.44	66712	6.43
ZZZZZZ	120854	8.78	158272	9.63	59198	12.89	87540	15.44	63681	6.43
ZZZZZZ	122036	8.79	156355	9.63	61100	12.89	90748	15.44	64577	6.43
ZZZZZZ	123738	8.78	156796	9.63	60730	12.89	85557	15.44	64429	6.42
ZZZZZZ	124676	8.78	158360	9.63	62088	12.89	89001	15.44	60641	6.42
ZZZZZZ	118085	8.78	154869	9.63	61908	12.89	93264	15.44	62220	6.43
ZZZZZZ	114378	8.78	147237	9.63	55743	12.89	82812	15.44	61820	6.42
ZZZZZZ	110625	8.78	141381	9.63	55917	12.89	77681	15.44	60438	6.41
ZZZZZZ	111704	8.78	146447	9.63	54505	12.89	78046	15.44	62807	6.42
MC32549-1	123763	8.79	156916	9.63	62412	12.89	84570	15.44	63243	6.40

- 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.

6.5.1
6

Volatile Internal Standard Area Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSU965-CC957	Injection Date:	08/13/14
Lab File ID:	U21761.D	Injection Time:	09:21
Instrument ID:	GCMSU	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	798697	8.97	1363396	9.84	535249	13.10	732506	15.66	299947	6.60
Upper Limit ^a	1597394	9.47	2726792	10.34	1070498	13.60	1465012	16.16	599894	7.10
Lower Limit ^b	399349	8.47	681698	9.34	267625	12.60	366253	15.16	149974	6.10

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSU965-BSD	805555	8.97	1360567	9.84	534254	13.10	721544	15.66	315124	6.62
MSU965-MB	776238	8.98	1248136	9.85	415530	13.10	680429	15.67	285649	6.63
ZZZZZZ	715072	8.98	1144819	9.85	393638	13.10	666052	15.67	293181	6.61
ZZZZZZ	709260	8.98	1122200	9.85	383899	13.10	652225	15.67	273663	6.62
MC32529-9	662847	8.98	1031449	9.85	375260	13.10	641830	15.67	306522	6.62
ZZZZZZ	706830	8.98	1164779	9.85	432978	13.10	636081	15.67	287566	6.60
ZZZZZZ	708998	8.98	1150026	9.85	417037	13.10	630377	15.67	293045	6.62
ZZZZZZ	674562	8.98	1048536	9.85	368178	13.10	627865	15.67	300855	6.62
ZZZZZZ	733980	8.98	1177125	9.85	396098	13.10	635462	15.67	262116	6.63
ZZZZZZ	721240	8.98	1156007	9.85	391668	13.10	643202	15.67	292238	6.63
MC32529-9MS	728675	8.97	1276268	9.84	469206	13.10	661901	15.66	290936	6.61
MC32529-9MSD	678695	8.97	1158199	9.84	426196	13.10	627395	15.66	308254	6.60
ZZZZZZ	692633	8.98	1132770	9.85	421829	13.10	671755	15.67	314407	6.61
ZZZZZZ	724350	8.98	1162020	9.85	407033	13.10	648686	15.67	305452	6.61
ZZZZZZ	735346	8.98	1194220	9.85	421416	13.10	638432	15.67	298064	6.61
MC32549-2	709140	8.98	1140269	9.85	387931	13.10	624690	15.67	307171	6.61
ZZZZZZ	677596	8.98	1131566	9.85	417519	13.10	613477	15.67	303922	6.62
ZZZZZZ	653116	8.98	1075225	9.85	367860	13.10	620041	15.67	287776	6.59
ZZZZZZ	675605	8.98	1075780	9.85	373632	13.10	615023	15.67	277097	6.61
ZZZZZZ	687631	8.98	1111572	9.85	376837	13.10	628748	15.66	286893	6.61
ZZZZZZ	725783	8.98	1186949	9.84	397294	13.10	651881	15.66	295033	6.62
ZZZZZZ	732304	8.98	1208421	9.85	445603	13.10	636190	15.67	282660	6.60
ZZZZZZ	701219	8.98	1175381	9.85	410918	13.10	640367	15.66	355966	6.62

- 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.

6.5.2
6

Volatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, 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
MC32549-2	U21778.D	123	108	113
MC32529-9MS	U21773.D	121	113	112
MC32529-9MSD	U21774.D	125	113	110
MSU965-BS	U21761.D	116	117	115
MSU965-BSD	U21762.D	115	118	118
MSU965-MB	U21764.D	121	106	111

Surrogate Compounds **Recovery Limits**

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

Volatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8260C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32549-1	K81135.D	106	105	114
MC32860-8MS	K81118.D	105	111	111
MC32860-8MSD	K81119.D	105	105	107
MSK2566-BS	K81111.D	103	109	104
MSK2566-MB	K81113.D	107	105	105

Surrogate Compounds Recovery Limits

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

6.6.2
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: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39254-MB	X04235.D	1	08/07/14	WK	08/04/14	OP39254	MSX139

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	490	61	ug/kg	
95-57-8	2-Chlorophenol	ND	240	11	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	490	12	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	490	14	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	490	80	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	980	120	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	490	61	ug/kg	
95-48-7	2-Methylphenol	ND	490	19	ug/kg	
	3&4-Methylphenol	ND	490	24	ug/kg	
88-75-5	2-Nitrophenol	ND	490	13	ug/kg	
100-02-7	4-Nitrophenol	ND	980	92	ug/kg	
87-86-5	Pentachlorophenol	ND	490	34	ug/kg	
108-95-2	Phenol	ND	240	14	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	490	12	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	490	12	ug/kg	
62-53-3	Aniline	ND	490	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	240	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	240	10	ug/kg	
100-51-6	Benzyl Alcohol	ND	490	25	ug/kg	
91-58-7	2-Chloronaphthalene	ND	240	13	ug/kg	
106-47-8	4-Chloroaniline	ND	490	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	240	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	240	15	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	240	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	240	15	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	240	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	490	33	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	490	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	240	24	ug/kg	
132-64-9	Dibenzofuran	ND	98	14	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	240	26	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	240	7.6	ug/kg	
84-66-2	Diethyl phthalate	ND	240	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	240	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	240	9.0	ug/kg	
118-74-1	Hexachlorobenzene	ND	240	15	ug/kg	

7.1.1
7

Method Blank Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39254-MB	X04235.D	1	08/07/14	WK	08/04/14	OP39254	MSX139

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	490	120	ug/kg	
67-72-1	Hexachloroethane	ND	240	12	ug/kg	
78-59-1	Isophorone	ND	240	11	ug/kg	
88-74-4	2-Nitroaniline	ND	490	12	ug/kg	
99-09-2	3-Nitroaniline	ND	490	27	ug/kg	
100-01-6	4-Nitroaniline	ND	490	12	ug/kg	
98-95-3	Nitrobenzene	ND	240	13	ug/kg	
62-75-9	n-Nitrosodimethylamine	ND	240	12	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	240	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	15	ug/kg	
110-86-1	Pyridine	ND	490	24	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	68% 30-130%
4165-62-2	Phenol-d5	72% 30-130%
118-79-6	2,4,6-Tribromophenol	89% 30-130%
4165-60-0	Nitrobenzene-d5	73% 30-130%
321-60-8	2-Fluorobiphenyl	74% 30-130%
1718-51-0	Terphenyl-d14	93% 30-130%

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

7.1.1
7

Method Blank Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39255-MB	I91093.D	1	08/08/14	MR	08/04/14	OP39255	MSI3392

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.9	0.85	ug/kg	
208-96-8	Acenaphthylene	ND	4.9	0.74	ug/kg	
120-12-7	Anthracene	ND	4.9	1.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.9	2.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.9	1.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.9	2.2	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	4.9	1.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.9	1.5	ug/kg	
218-01-9	Chrysene	ND	4.9	1.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.9	1.4	ug/kg	
206-44-0	Fluoranthene	ND	4.9	1.4	ug/kg	
86-73-7	Fluorene	ND	4.9	0.96	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.9	1.2	ug/kg	
90-12-0	1-Methylnaphthalene	ND	9.8	1.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	9.8	0.91	ug/kg	
85-01-8	Phenanthrene	ND	4.9	1.0	ug/kg	
129-00-0	Pyrene	ND	4.9	1.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	37%	15-110%
4165-62-2	Phenol-d5	36%	15-110%
118-79-6	2,4,6-Tribromophenol	34%	15-110%
4165-60-0	Nitrobenzene-d5	75%	30-130%
321-60-8	2-Fluorobiphenyl	70%	30-130%
1718-51-0	Terphenyl-d14	96%	30-130%

7.1.2
7

Blank Spike Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39255-BS	I91094.D	1	08/08/14	MR	08/04/14	OP39255	MSI3392

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32549-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2490	2040	82	40-140
208-96-8	Acenaphthylene	2490	1850	74	40-140
120-12-7	Anthracene	2490	2160	87	40-140
56-55-3	Benzo(a)anthracene	2490	2750	111	40-140
50-32-8	Benzo(a)pyrene	2490	2370	95	40-140
205-99-2	Benzo(b)fluoranthene	2490	2980	120	40-140
191-24-2	Benzo(g,h,i)perylene	2490	2480	100	40-140
207-08-9	Benzo(k)fluoranthene	2490	2270	91	40-140
218-01-9	Chrysene	2490	2290	92	40-140
53-70-3	Dibenzo(a,h)anthracene	2490	2650	107	40-140
206-44-0	Fluoranthene	2490	2510	101	40-140
86-73-7	Fluorene	2490	2050	82	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2490	2580	104	40-140
90-12-0	1-Methylnaphthalene	2490	1960	79	40-140
91-57-6	2-Methylnaphthalene	2490	2000	80	40-140
85-01-8	Phenanthrene	2490	2150	86	40-140
129-00-0	Pyrene	2490	2490	100	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	37%	15-110%
4165-62-2	Phenol-d5	36%	15-110%
118-79-6	2,4,6-Tribromophenol	42%	15-110%
4165-60-0	Nitrobenzene-d5	76%	30-130%
321-60-8	2-Fluorobiphenyl	73%	30-130%
1718-51-0	Terphenyl-d14	93%	30-130%

* = Outside of Control Limits.

7.2.1
7

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39254-BS	X04236.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
OP39254-BSD	X04237.D	1	08/07/14	WK	08/04/14	OP39254	MSX139

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32549-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	2490	1090	44	1140	46	4	30-130/30
95-57-8	2-Chlorophenol	2490	1880	76	2020	82	7	30-130/30
59-50-7	4-Chloro-3-methyl phenol	2490	2240	90	2230	90	0	30-130/30
120-83-2	2,4-Dichlorophenol	2490	1980	80	2080	84	5	30-130/30
105-67-9	2,4-Dimethylphenol	2490	2040	82	2090	85	2	30-130/30
51-28-5	2,4-Dinitrophenol	2490	1070	43	1110	45	4	30-130/30
534-52-1	4,6-Dinitro-o-cresol	2490	1900	76	1920	78	1	30-130/30
95-48-7	2-Methylphenol	2490	1770	71	1920	78	8	30-130/30
	3&4-Methylphenol	4980	3750	75	3910	79	4	30-130/30
88-75-5	2-Nitrophenol	2490	1950	78	2080	84	6	30-130/30
100-02-7	4-Nitrophenol	2490	1670	67	1820	74	9	30-130/30
87-86-5	Pentachlorophenol	2490	1820	73	1900	77	4	30-130/30
108-95-2	Phenol	2490	1970	79	2050	83	4	30-130/30
95-95-4	2,4,5-Trichlorophenol	2490	2040	82	2150	87	5	30-130/30
88-06-2	2,4,6-Trichlorophenol	2490	2030	82	2190	89	8	30-130/30
62-53-3	Aniline	2490	1340	54	1380	56	3	40-140/30
101-55-3	4-Bromophenyl phenyl ether	2490	2630	106	2780	113	6	40-140/30
85-68-7	Butyl benzyl phthalate	2490	2380	96	2500	101	5	40-140/30
100-51-6	Benzyl Alcohol	2490	1590	64	1810	73	13	40-140/30
91-58-7	2-Chloronaphthalene	2490	2200	88	2360	96	7	40-140/30
106-47-8	4-Chloroaniline	2490	1810	73	1900	77	5	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	2490	2090	84	2170	88	4	40-140/30
111-44-4	bis(2-Chloroethyl)ether	2490	1940	78	2060	83	6	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	2490	1820	73	1920	78	5	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	2490	2330	94	2490	101	7	40-140/30
122-66-7	1,2-Diphenylhydrazine	2490	2390	96	2520	102	5	40-140/30
121-14-2	2,4-Dinitrotoluene	2490	2440	98	2550	103	4	40-140/30
606-20-2	2,6-Dinitrotoluene	2490	2450	98	2600	105	6	40-140/30
91-94-1	3,3'-Dichlorobenzidine	2490	2400	96	2480	100	3	40-140/30
132-64-9	Dibenzofuran	2490	2000	80	2130	86	6	40-140/30
84-74-2	Di-n-butyl phthalate	2490	2260	91	2370	96	5	40-140/30
117-84-0	Di-n-octyl phthalate	2490	2460	99	2540	103	3	40-140/30
84-66-2	Diethyl phthalate	2490	2310	93	2440	99	5	40-140/30
131-11-3	Dimethyl phthalate	2490	2330	94	2500	101	7	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	2490	2600	105	2760	112	6	40-140/30
118-74-1	Hexachlorobenzene	2490	2780	112	2920	118	5	40-140/30

* = Outside of Control Limits.

7.3.1
 7

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39254-BS	X04236.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
OP39254-BSD	X04237.D	1	08/07/14	WK	08/04/14	OP39254	MSX139

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32549-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	2490	1500	60	1620	66	8	40-140/30
67-72-1	Hexachloroethane	2490	1930	78	2030	82	5	40-140/30
78-59-1	Isophorone	2490	1980	80	2050	83	3	40-140/30
88-74-4	2-Nitroaniline	2490	2320	93	2480	100	7	40-140/30
99-09-2	3-Nitroaniline	2490	2140	86	2270	92	6	40-140/30
100-01-6	4-Nitroaniline	2490	2040	82	2040	83	0	40-140/30
98-95-3	Nitrobenzene	2490	2110	85	2200	89	4	40-140/30
62-75-9	n-Nitrosodimethylamine	2490	1800	72	1920	78	6	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	2490	2120	85	2190	89	3	40-140/30
86-30-6	N-Nitrosodiphenylamine	2490	2170	87	2260	91	4	40-140/30
110-86-1	Pyridine	2490	1450	58	1510	61	4	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	67%	69%	30-130%
4165-62-2	Phenol-d5	72%	76%	30-130%
118-79-6	2,4,6-Tribromophenol	97%	101%	30-130%
4165-60-0	Nitrobenzene-d5	76%	80%	30-130%
321-60-8	2-Fluorobiphenyl	77%	83%	30-130%
1718-51-0	Terphenyl-d14	89%	94%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39254-MS	X04238.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
OP39254-MSD	X04239.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
MC32549-1	X04240.D	1	08/07/14	WK	08/04/14	OP39254	MSX139

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32549-1

CAS No.	Compound	MC32549-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
65-85-0	Benzoic acid	ND		3050	5240	172* a	3060	5720	187* a	9	30-130/30
95-57-8	2-Chlorophenol	ND		3050	2120	70	3060	2240	73	6	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND		3050	2500	82	3060	2610	85	4	30-130/30
120-83-2	2,4-Dichlorophenol	ND		3050	2510	82	3060	2700	88	7	30-130/30
105-67-9	2,4-Dimethylphenol	ND		3050	2280	75	3060	2630	86	14	30-130/30
51-28-5	2,4-Dinitrophenol	ND		3050	ND	0* a	3060	ND	0* a	nc	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND		3050	989	32	3060	1230	40	22	30-130/30
95-48-7	2-Methylphenol	ND		3050	2150	71	3060	2400	79	11	30-130/30
	3&4-Methylphenol	ND		6090	4660	76	6110	5060	83	8	30-130/30
88-75-5	2-Nitrophenol	ND		3050	2250	74	3060	2570	84	13	30-130/30
100-02-7	4-Nitrophenol	ND		3050	2140	70	3060	2200	72	3	30-130/30
87-86-5	Pentachlorophenol	ND		3050	1990	65	3060	2150	70	8	30-130/30
108-95-2	Phenol	ND		3050	2270	75	3060	2350	77	3	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND		3050	2460	81	3060	2630	86	7	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND		3050	2460	81	3060	2580	84	5	30-130/30
62-53-3	Aniline	ND		3050	1600	53	3060	1660	54	4	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND		3050	3030	99	3060	3390	111	11	40-140/30
85-68-7	Butyl benzyl phthalate	ND		3050	2760	91	3060	3070	100	11	40-140/30
100-51-6	Benzyl Alcohol	ND		3050	1950	64	3060	2140	70	9	40-140/30
91-58-7	2-Chloronaphthalene	ND		3050	2620	86	3060	2790	91	6	40-140/30
106-47-8	4-Chloroaniline	ND		3050	2220	73	3060	2430	80	9	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND		3050	2350	77	3060	2930	96	22	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND		3050	2410	79	3060	2870	94	17	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND		3050	1790	59	3060	1950	64	9	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND		3050	2810	92	3060	3010	99	7	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND		3050	2700	89	3060	3030	99	12	40-140/30
121-14-2	2,4-Dinitrotoluene	ND		3050	2960	97	3060	3080	101	4	40-140/30
606-20-2	2,6-Dinitrotoluene	ND		3050	2910	96	3060	3110	102	7	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND		3050	2740	90	3060	2990	98	9	40-140/30
132-64-9	Dibenzofuran	ND		3050	2420	79	3060	2580	84	6	40-140/30
84-74-2	Di-n-butyl phthalate	ND		3050	2700	89	3060	2850	93	5	40-140/30
117-84-0	Di-n-octyl phthalate	ND		3050	2990	98	3060	3190	104	6	40-140/30
84-66-2	Diethyl phthalate	ND		3050	2720	89	3060	2890	95	6	40-140/30
131-11-3	Dimethyl phthalate	43.1	J	3050	2830	91	3060	3000	97	6	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND		3050	3090	101	3060	3320	109	7	40-140/30
118-74-1	Hexachlorobenzene	ND		3050	3230	106	3060	3530	116	9	40-140/30

* = Outside of Control Limits.

7.4.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39254-MS	X04238.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
OP39254-MSD	X04239.D	1	08/07/14	WK	08/04/14	OP39254	MSX139
MC32549-1	X04240.D	1	08/07/14	WK	08/04/14	OP39254	MSX139

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32549-1

CAS No.	Compound	MC32549-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	3050	1600	53	3060	1790	59	11	40-140/30
67-72-1	Hexachloroethane	ND	3050	5590	183* a	3060	5670	186* a	1	40-140/30
78-59-1	Isophorone	ND	3050	2310	76	3060	2560	84	10	40-140/30
88-74-4	2-Nitroaniline	ND	3050	2760	91	3060	2990	98	8	40-140/30
99-09-2	3-Nitroaniline	ND	3050	2560	84	3060	2620	86	2	40-140/30
100-01-6	4-Nitroaniline	ND	3050	2350	77	3060	2410	79	3	40-140/30
98-95-3	Nitrobenzene	ND	3050	2360	77	3060	3150	103	29	40-140/30
62-75-9	n-Nitrosodimethylamine	ND	3050	1880	62	3060	2000	65	6	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND	3050	2610	86	3060	2870	94	9	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND	3050	2670	88	3060	2840	93	6	40-140/30
110-86-1	Pyridine	ND	3050	1750	57	3060	1890	62	8	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32549-1	Limits
367-12-4	2-Fluorophenol	72%	77%	67%	30-130%
4165-62-2	Phenol-d5	61%	67%	72%	30-130%
118-79-6	2,4,6-Tribromophenol	94%	101%	100%	30-130%
4165-60-0	Nitrobenzene-d5	67%	75%	73%	30-130%
321-60-8	2-Fluorobiphenyl	74%	79%	82%	30-130%
1718-51-0	Terphenyl-d14	85%	91%	100%	30-130%

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

* = Outside of Control Limits.

7.4.1
 7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39255-MS	I91101.D	5	08/08/14	MR	08/04/14	OP39255	MSI3392
OP39255-MSD	I91102.D	5	08/08/14	MR	08/04/14	OP39255	MSI3392
MC32549-1	I91103.D	5	08/08/14	MR	08/04/14	OP39255	MSI3392

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32549-1

CAS No.	Compound	MC32549-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
83-32-9	Acenaphthene	73.9		3050	2920	93	3060	3040	97	4	40-140/30
208-96-8	Acenaphthylene	34.5		3050	2640	86	3060	2770	90	5	40-140/30
120-12-7	Anthracene	24.0	J	3050	2990	97	3060	3160	103	6	40-140/30
56-55-3	Benzo(a)anthracene	ND		3050	3440	113	3060	3640	119	6	40-140/30
50-32-8	Benzo(a)pyrene	ND		3050	2990	98	3060	3140	103	5	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		3050	3830	126	3060	4000	131	4	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		3050	3200	105	3060	3340	109	4	40-140/30
207-08-9	Benzo(k)fluoranthene	ND		3050	3020	99	3060	3190	104	5	40-140/30
218-01-9	Chrysene	ND		3050	2940	97	3060	3150	103	7	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND		3050	3400	112	3060	3560	117	5	40-140/30
206-44-0	Fluoranthene	23.7	J	3050	3490	114	3060	3690	120	6	40-140/30
86-73-7	Fluorene	94.7		3050	2970	94	3060	3100	98	4	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		3050	3320	109	3060	3490	114	5	40-140/30
90-12-0	1-Methylnaphthalene	6650		3050	6800	5* a	3060	7340	23* a	8	40-140/30
91-57-6	2-Methylnaphthalene	12100		3050	10300	-59* a	3060	11200	-29* a	8	40-140/30
85-01-8	Phenanthrene	112		3050	3150	100	3060	3300	104	5	40-140/30
129-00-0	Pyrene	31.9		3050	3400	111	3060	3620	117	6	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32549-1	Limits
367-12-4	2-Fluorophenol	31%	32%		15-110%
4165-62-2	Phenol-d5	37%	38%		15-110%
118-79-6	2,4,6-Tribromophenol	41%	43%		15-110%
4165-60-0	Nitrobenzene-d5	71%	80%	80%	30-130%
321-60-8	2-Fluorobiphenyl	81%	85%	86%	30-130%
1718-51-0	Terphenyl-d14	95%	101%	101%	30-130%

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

* = Outside of Control Limits.

7.4.2
 7

Semivolatile Internal Standard Area Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3392-CC3386	Injection Date:	08/08/14
Lab File ID:	I91092.D	Injection Time:	08:08
Instrument ID:	GCMSI	Method:	SW846 8270D 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	511280	4.17	1099682	5.23	564987	6.76	944981	8.16	621193	10.93	1588995	12.43
Upper Limit ^a	1022560	4.67	2199364	5.73	1129974	7.26	1889962	8.66	1242386	11.43	3177990	12.93
Lower Limit ^b	255640	3.67	549841	4.73	282494	6.26	472491	7.66	310597	10.43	794498	11.93

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
OP39255-MB	642747	4.17	1409110	5.22	712875	6.76	1152340	8.16	726483	10.93	1838594	12.43
OP39255-BS	640486	4.17	1382468	5.23	690720	6.76	1110255	8.16	713723	10.93	1743358	12.43
ZZZZZZ	637271	4.17	1407726	5.22	712496	6.76	1131219	8.16	689913	10.93	1726250	12.43
ZZZZZZ	553045	4.17	1213971	5.22	610689	6.76	974670	8.16	590785	10.93	1474503	12.42
ZZZZZZ	608545	4.17	1326787	5.23	671521	6.76	1081142	8.16	696628	10.93	1783504	12.43
OP39255-MS	508820	4.18	1098216	5.23	556813	6.76	901496	8.16	579829	10.93	1459164	12.43
OP39255-MSD	505056	4.18	1086017	5.23	555177	6.76	892975	8.16	572096	10.93	1457065	12.43
MC32549-1	506820	4.18	1089212	5.23	565469	6.76	901944	8.16	571243	10.93	1460953	12.42
OP39280-MB	597422	4.17	1300626	5.22	648785	6.76	1026827	8.16	672554	10.93	1704803	12.43
OP39280-BS	593393	4.17	1272944	5.23	621749	6.76	989964	8.16	654811	10.93	1655784	12.43
OP39280-MS	537251	4.17	1161892	5.23	570701	6.76	908648	8.16	587658	10.93	1504148	12.43
OP39280-MSD	603048	4.17	1307056	5.23	639628	6.76	1027093	8.16	662804	10.93	1687516	12.43
MC32300-23	581325	4.17	1265301	5.23	637052	6.76	1017012	8.16	648564	10.93	1678393	12.43
ZZZZZZ	605624	4.17	1319849	5.22	659451	6.76	1046431	8.16	661496	10.93	1715659	12.43
ZZZZZZ	561533	4.17	1207991	5.22	602540	6.76	968663	8.16	610833	10.93	1582934	12.42

- 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.

7.5.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSX139-CC106	Injection Date:	08/07/14
Lab File ID:	X04218.D	Injection Time:	08:18
Instrument ID:	GCMSX	Method:	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	343389	3.30	1275761	4.34	691210	5.84	1051262	7.11	851782	9.48	683586	11.01
Upper Limit ^a	686778	3.80	2551522	4.84	1382420	6.34	2102524	7.61	1703564	9.98	1367172	11.51
Lower Limit ^b	171695	2.80	637881	3.84	345605	5.34	525631	6.61	425891	8.98	341793	10.51

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
OP39265-MB	325141	3.30	1175361	4.33	641120	5.84	954239	7.11	711790	9.48	531707	11.01
OP39265-BS	314518	3.30	1144561	4.34	612476	5.84	936109	7.11	745252	9.48	627265	11.00
OP39265-MS	302478	3.30	1113255	4.33	597035	5.84	904639	7.11	716253	9.48	596684	11.00
OP39265-MSD	286827	3.30	1060872	4.33	581082	5.84	889017	7.11	712748	9.48	597668	11.00
MC32562-1	277321	3.30	1026802	4.33	568195	5.84	863007	7.10	666564	9.47	509644	10.99
ZZZZZZ	314818	3.30	1135749	4.33	610287	5.84	896090	7.10	673308	9.47	539165	11.00
ZZZZZZ	299200	3.30	1071285	4.33	586363	5.84	871353	7.10	664696	9.47	552864	10.99
ZZZZZZ	313365	3.30	1106344	4.33	607279	5.84	899669	7.10	708723	9.47	581603	11.00
ZZZZZZ	314585	3.30	1140855	4.33	633492	5.84	954275	7.10	738698	9.47	581512	11.00
ZZZZZZ	290446	3.30	1056629	4.33	588481	5.84	899137	7.10	699351	9.47	565645	11.00
ZZZZZZ	321015	3.30	1183351	4.33	662385	5.84	973033	7.10	732872	9.47	534968	11.00
ZZZZZZ	296214	3.30	1096684	4.33	600726	5.84	937039	7.10	706151	9.47	576630	11.00
ZZZZZZ	282295	3.30	1046407	4.33	577694	5.84	884778	7.10	693910	9.48	568562	11.00
ZZZZZZ	282194	3.30	1030268	4.33	567284	5.84	892747	7.10	714533	9.48	597884	11.00
ZZZZZZ	265274	3.30	980967	4.33	534190	5.84	844432	7.10	690657	9.47	558944	11.00
OP39254-MB	321059	3.30	1164688	4.33	618180	5.84	886022	7.10	631983	9.47	488253	11.00
OP39254-BS	309272	3.30	1116421	4.33	597378	5.84	896786	7.11	681554	9.48	608467	11.00
OP39254-BSD	306306	3.30	1109186	4.33	573392	5.84	857403	7.11	658395	9.48	602971	11.00
OP39254-MS	272365	3.31	978346	4.34	547044	5.84	825786	7.11	643991	9.48	567948	11.00
OP39254-MSD	305325	3.31	1078018	4.34	602970	5.84	878652	7.11	657914	9.48	575692	11.00
MC32549-1	296743	3.32	1070384	4.35	600860	5.84	860158	7.10	585113	9.47	456758	11.00
ZZZZZZ	301982	3.30	1073848	4.33	560018	5.84	820195	7.10	599533	9.47	506253	10.99
ZZZZZZ	288741	3.30	1006666	4.33	538320	5.84	779884	7.10	585104	9.47	497669	10.99
ZZZZZZ	331473	3.30	1173816	4.33	615862	5.84	877892	7.10	670293	9.48	599424	11.00
ZZZZZZ	273228	3.30	956464	4.33	506180	5.84	739470	7.10	555555	9.47	500076	10.99
ZZZZZZ	282700	3.30	1004261	4.33	534064	5.84	778503	7.10	575343	9.47	479481	10.99
ZZZZZZ	317679	3.30	1134765	4.33	580973	5.84	837514	7.10	605320	9.47	475339	10.99
ZZZZZZ	279875	3.30	999429	4.33	530975	5.84	770163	7.10	577009	9.47	500486	10.99
ZZZZZZ	273010	3.30	964240	4.33	516312	5.84	741302	7.10	551090	9.47	457987	10.99
ZZZZZZ	234893	3.30	847418	4.33	461610	5.84	689999	7.10	583463	9.47	510914	10.99
ZZZZZZ	230281	3.30	841769	4.33	463048	5.84	729368	7.10	601544	9.47	487443	11.00
ZZZZZZ	240862	3.30	864265	4.33	470045	5.84	720155	7.10	589626	9.47	527637	11.00
ZZZZZZ	279621	3.30	986502	4.33	530651	5.84	769075	7.10	603192	9.47	524193	10.99

IS 1 = 1,4-Dichlorobenzene-d4

7.5.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSX139-CC106	Injection Date:	08/07/14
Lab File ID:	X04218.D	Injection Time:	08:18
Instrument ID:	GCMSX	Method:	SW846 8270D

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

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

Semivolatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC32549-1	X04240.D	67	72	100	73	82	100
OP39254-BS	X04236.D	67	72	97	76	77	89
OP39254-BSD	X04237.D	69	76	101	80	83	94
OP39254-MB	X04235.D	68	72	89	73	74	93
OP39254-MS	X04238.D	72	61	94	67	74	85
OP39254-MSD	X04239.D	77	67	101	75	79	91

Surrogate Compounds **Recovery Limits**

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

7.6.1
7

Semivolatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32549-1	I91103.D	80	86	101
OP39255-BS	I91094.D	76	73	93
OP39255-MB	I91093.D	75	70	96
OP39255-MS	I91101.D	71	81	95
OP39255-MSD	I91102.D	80	85	101

Surrogate Compounds **Recovery Limits**

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

7.6.2
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: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39247-MB	BK39938.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298

The QC reported here applies to the following samples:

Method: SW846 8011

MC32549-3

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	115%	36-173%
460-00-4	Bromofluorobenzene (S)	107%	36-173%

8.1.1

8

Method Blank Summary

Job Number: MC32549
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39257-MB	BK39961.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299

The QC reported here applies to the following samples:

Method: SW846 8011

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.72	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	158% 61-167%
460-00-4	Bromofluorobenzene (S)	163% 61-167%

8.1.2

8

Method Blank Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4535-MB	AB85228.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples:

Method: SW846 8015

MC32549-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	0.74	mg/kg	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	95% 61-116%

8.1.3
8

Blank Spike Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39247-BS	BK39939.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298

The QC reported here applies to the following samples:

Method: SW846 8011

MC32549-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.085	120	60-140
106-93-4	1,2-Dibromoethane	0.071	0.083	117	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	110%	36-173%
460-00-4	Bromofluorobenzene (S)	118%	36-173%

8.2.1

8

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39257-BS	BK39962.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299

The QC reported here applies to the following samples:

Method: SW846 8011

MC32549-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	33.1	37.1	112	59-142
106-93-4	1,2-Dibromoethane	33.1	28.4	86	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	135%	61-167%
460-00-4	Bromofluorobenzene (S)	123%	61-167%

8.2.2

8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4535-BSP	AB85229.D	1	08/07/14	AF	n/a	n/a	GAB4535
GAB4535-BSD	AB85230.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples:

Method: SW846 8015

MC32549-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	32.5	32.0	98	31.9	98	0	66-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	98%	97%	61-116%

8.3.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39247-MS	BK39940.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
OP39247-MSD	BK39941.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
MC32300-19	BK39942.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298

The QC reported here applies to the following samples:

Method: SW846 8011

MC32549-3

CAS No.	Compound	MC32300-19 Spike		MS	MS	Spike	MSD	MSD	RPD	Limits
		ug/l	Q ug/l	ug/l	%	ug/l	ug/l	%		Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.071	0.087	123	0.071	0.084	118	4	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.082	115	0.071	0.078	110	5	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32300-19 Limits	
460-00-4	Bromofluorobenzene (S)	89%	88%	92%	36-173%
460-00-4	Bromofluorobenzene (S)	100%	104%	106%	36-173%

8.4.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39257-MS	BK39963.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
OP39257-MSD	BK39964.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
MC32521-1	BK39965.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299

The QC reported here applies to the following samples:

Method: SW846 8011

MC32549-1

CAS No.	Compound	MC32521-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	37.4	58.5	156	37.7	57.7	153	1	40-156/27
106-93-4	1,2-Dibromoethane	ND	37.4	46.9	125	37.7	48.5	129	3	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
460-00-4	Bromofluorobenzene (S)	159%	162%	155%	61-167%
460-00-4	Bromofluorobenzene (S)	152%	158%	155%	61-167%

8.4.2
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	AB85233.D	1	08/07/14	AF	n/a	n/a	GAB4535
MC32521-1MSD	AB85234.D	1	08/07/14	AF	n/a	n/a	GAB4535
MC32521-1	AB85232.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples: Method: SW846 8015

MC32549-1

CAS No.	Compound	MC32521-1 mg/kg	Spike Q	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND	94.1	94.9	101	94.1	95.1	101	0	41-150/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
	2,3,4-Trifluorotoluene	101%	100%	98%	61-116%

8.4.3
8

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32549-3	BK39946.D	94	111
OP39247-BS	BK39939.D	110	118
OP39247-MB	BK39938.D	115	107
OP39247-MS	BK39940.D	89	100
OP39247-MSD	BK39941.D	88	104

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32549-1	BK39973.D	92	1120* ^c
OP39257-BS	BK39962.D	135	123
OP39257-MB	BK39961.D	158	163
OP39257-MS	BK39963.D	159	152
OP39257-MSD	BK39964.D	162	158

Surrogate Compounds	Recovery Limits
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S1 = Bromofluorobenzene (S)	61-167%
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- (a) Recovery from GC signal #2
- (b) Recovery from GC signal #1
- (c) Outside control limits due to possible matrix interference.

Volatile Surrogate Recovery Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC32549-1	AB85249.D	96
GAB4535-BSD	AB85230.D	97
GAB4535-BSP	AB85229.D	98
GAB4535-MB	AB85228.D	95
MC32521-1MS	AB85233.D	101
MC32521-1MSD	AB85234.D	100

Surrogate Compounds	Recovery Limits
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S1 = 2,3,4-Trifluorotoluene	61-116%
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(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1298-ICC1298	Injection Date:	08/05/14
Lab File ID:	BK39934.D	Injection Time:	09:17
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.36	4.38
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39247-MB	BK39938.D	08/05/14	10:34	4.36	4.38
OP39247-BS	BK39939.D	08/05/14	10:54	4.36	4.38
OP39247-MS	BK39940.D	08/05/14	11:13	4.36	4.38
OP39247-MSD	BK39941.D	08/05/14	11:32	4.36	4.38
MC32300-19	BK39942.D	08/05/14	11:52	4.36	4.38
ZZZZZZ	BK39943.D	08/05/14	12:11	4.36	4.37
ZZZZZZ	BK39944.D	08/05/14	12:30	4.36	4.38
ZZZZZZ	BK39945.D	08/05/14	12:49	4.36	4.38
MC32549-3	BK39946.D	08/05/14	13:09	4.36	4.38
ZZZZZZ	BK39947.D	08/05/14	13:28	4.36	4.38

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.1
8

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1299-CC1299	Injection Date:	08/07/14
Lab File ID:	BK39960.D	Injection Time:	08:31
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.27	4.29
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39257-MB	BK39961.D	08/07/14	09:07	4.27	4.28
OP39257-BS	BK39962.D	08/07/14	09:26	4.27	4.28
OP39257-MS	BK39963.D	08/07/14	09:46	4.27	4.28
OP39257-MSD	BK39964.D	08/07/14	10:05	4.27	4.28
MC32521-1	BK39965.D	08/07/14	10:24	4.27	4.28
ZZZZZZ	BK39966.D	08/07/14	10:44	4.27	4.28
ZZZZZZ	BK39967.D	08/07/14	11:03	4.26	4.28
ZZZZZZ	BK39968.D	08/07/14	11:22	4.27	4.28
ZZZZZZ	BK39969.D	08/07/14	11:42	4.27	4.28
ZZZZZZ	BK39970.D	08/07/14	12:01	4.27	4.28

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.2
8

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1299-CC1299	Injection Date:	08/07/14
Lab File ID:	BK39971.D	Injection Time:	12:21
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.27	4.28
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
ZZZZZZ	BK39972.D	08/07/14	12:40	4.27	4.28
MC32549-1	BK39973.D	08/07/14	12:59	4.27	4.30
ZZZZZZ	BK39974.D	08/07/14	13:19	4.27	4.28
ZZZZZZ	BK39975.D	08/07/14	13:38	4.27	4.28
ZZZZZZ	BK39976.D	08/07/14	13:58	4.27	4.28
ZZZZZZ	BK39977.D	08/07/14	14:17	4.27	4.28
ZZZZZZ	BK39978.D	08/07/14	14:36	4.27	4.28
ZZZZZZ	BK39979.D	08/07/14	14:56	4.27	4.28
ZZZZZZ	BK39980.D	08/07/14	15:15	4.27	4.28
ZZZZZZ	BK39981.D	08/07/14	15:34	4.27	4.28

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.3
8

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4535-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85227.D	Injection Time:	07:43
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.33
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
GAB4535-MB	AB85228.D	08/07/14	08:21	20.33
GAB4536-MB	AB85228A.D	08/07/14	08:21	20.33
GAB4536-BSP	AB85229A.D	08/07/14	08:59	20.32
GAB4535-BSP	AB85229.D	08/07/14	08:59	20.32
GAB4535-BSD	AB85230.D	08/07/14	09:37	20.32
GAB4536-BSD	AB85230A.D	08/07/14	09:37	20.32
MC32468-3	AB85231.D	08/07/14	10:15	20.33
MC32521-1	AB85232.D	08/07/14	10:53	20.33
MC32521-1MS	AB85233.D	08/07/14	11:30	20.32
MC32521-1MSD	AB85234.D	08/07/14	12:08	20.32
MC32468-3MS	AB85235.D	08/07/14	12:45	20.32
MC32468-3MSD	AB85236.D	08/07/14	13:23	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.4
8

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4536-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85227A.D	Injection Time:	07:43
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.33
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
GAB4535-MB	AB85228.D	08/07/14	08:21	20.33
GAB4536-MB	AB85228A.D	08/07/14	08:21	20.33
GAB4536-BSP	AB85229A.D	08/07/14	08:59	20.32
GAB4535-BSP	AB85229.D	08/07/14	08:59	20.32
GAB4535-BSD	AB85230.D	08/07/14	09:37	20.32
GAB4536-BSD	AB85230A.D	08/07/14	09:37	20.32
MC32468-3	AB85231.D	08/07/14	10:15	20.33
MC32521-1	AB85232.D	08/07/14	10:53	20.33
MC32521-1MS	AB85233.D	08/07/14	11:30	20.32
MC32521-1MSD	AB85234.D	08/07/14	12:08	20.32
MC32468-3MS	AB85235.D	08/07/14	12:45	20.32
MC32468-3MSD	AB85236.D	08/07/14	13:23	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.5
8

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4536-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85248A.D	Injection Time:	20:54
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.32
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
MC32549-1	AB85249.D	08/07/14	21:32	20.32
ZZZZZZ	AB85250.D	08/07/14	22:09	20.32
ZZZZZZ	AB85251.D	08/07/14	22:46	20.32
ZZZZZZ	AB85252.D	08/07/14	23:23	20.32
ZZZZZZ	AB85253.D	08/08/14	00:00	20.32
ZZZZZZ	AB85254.D	08/08/14	00:37	20.32
ZZZZZZ	AB85255.D	08/08/14	01:14	20.32
ZZZZZZ	AB85256.D	08/08/14	01:51	20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.6

GC Surrogate Retention Time Summary

Job Number: MC32549
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4535-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85248.D	Injection Time:	20:54
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
MC32549-1	AB85249.D	08/07/14	21:32	20.32
ZZZZZZ	AB85250.D	08/07/14	22:09	20.32
ZZZZZZ	AB85251.D	08/07/14	22:46	20.32
ZZZZZZ	AB85252.D	08/07/14	23:23	20.32
ZZZZZZ	AB85253.D	08/08/14	00:00	20.32
ZZZZZZ	AB85254.D	08/08/14	00:37	20.32
ZZZZZZ	AB85255.D	08/08/14	01:14	20.32
ZZZZZZ	AB85256.D	08/08/14	01:51	20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.7
8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32549

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample: MC32549-1 Analyzed: 07-AUG-14 by HS

Method: SM21 2540 B MOD.

ClientID: SVE47-080114 (22-24')

Wet Weight (Total)	39.646	g
Tare Weight	23.896	g
Dry Weight (Total)	36.398	g
Solids, Percent	79.4	%

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION,
VERIFICATION, TESTING AND CERTIFICATION COMPANY.



e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
21562973.19200

SGS Accutest Job Number: MC32591

Sampling Date: 08/04/14

Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 98



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.



ACCUTEST

October 27, 2016

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

RE: SGS Accutest Job # MC32591

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

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION,
TESTING AND CERTIFICATION COMPANY.

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Sample Summary

Shell Oil

Job No: MC32591

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Project No: 21562973.19200

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC32591-1	08/04/14	13:30	08/05/14	SO	Soil	SVE46-080414(18-22')
MC32591-2	08/04/14	13:30	08/05/14	SO	Soil	SVE46-080414(18-22')DUP
MC32591-3	08/04/14	00:00	08/05/14	AQ	Trip Blank Water	TB-080414-HCL
MC32591-4	08/04/14	00:00	08/05/14	AQ	Trip Blank Water	TB-080414-ST

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: She O

Job No MC3259

Site: URSMOSTL: Roxana 4th St Extens on We Insta , 900 South Cent **Report Date** 0/27/20 6 2: 9:46 P

2 Samp e(s), 2 Tr p B ank(s) were co ected on 08/04/20 4 and were rece ved at SGS Accutest New Eng and on 08/05/20 4 properly preserved, at 0 9 Deg C and intact These Samp es rece ved a job number of MC3259 A st ng of the Laboratory Sample ID, C ent Samp e ID and dates of co ect on are presented n the Resu ts Summary Sect on of th s report -Ch orohexane, Benzeneth o , D benz(a,h)acr d ne, Indene, and Quo ne were searched n the brary search and repo ted on y f detect ons were found Except as noted be ow, a method spec f ed ca brat ons and qua ty contro performance cr ter a were met for th s job For more nformat on, p ease refer to QC summary pages

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ

Batch ID: MSU964

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC32593-2AMS, MC32593-2AMSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- B ank Sp ke Recovery(s) for Acro e n are outs de contro m ts
- Matr x Sp ke Recovery(s) for 2-Ch oroethy v ny ether, 2-Hexanone, Acetone, Acro e n, Ch oroethane are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- Matr x Sp ke Dup cate Recove y(s) for 2-Ch oroethy v ny ether, 2-Hexanone, Acetone, Acro e n are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- MSU964-BS for Ch oroethane: Outs de contro m ts Assoc ated samp es are non-detect for th s compound
- MSU964-BS for ,4-D oxane: Outs de contro m ts Assoc ated samp es are non-detect for th s compound

Matrix: SO

Batch ID: MSM2392

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC32787- MS, MC32787- MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- B ank Sp ke Recovery(s) for ,4-D oxane are outs de contro m ts
- Matr x Sp ke Recovery(s) for 2-Ch oroethy v ny ether, 4-Methy -2-pentanone (MIBK), Acetone, Acro e n, V ny Acetate are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- Matr x Sp ke Dup cate Recove y(s) for 2-Ch oroethy v ny ether, Acetone, Acro e n, , -D ch oropropene, ,2,4-Tr ch orobenzene, Hexach orobutad ene, Styrene, Tetrach oroethene, V ny Acetate are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- RPD(s) for MSD for , , ,2-Tetrach oroethane, , , -Tr ch oroethane, , ,2-Tr ch oroethane, , -D ch oroethane, , -D ch oroethene, , -D ch oropropene, ,2,3-Tr ch orobenzene, ,2,4-Tr ch orobenzene, ,2,4-Tr methy benzene, ,2-D ch orobenzene, ,2-D ch oroethane, ,2-D ch oropropane, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,3-D ch oropropane, ,4-D ch orobenzene, 2,2-D ch oropropane, Acry on tr e, Benzene, Bromobenzene, Bromoch oromethane, Bromod ch oromethane, Carbon d su f de, Carbon tetrach or de, Ch orobenzene, Ch oroform, c s- ,2-D ch oroethene, c s- ,3-D ch oropropene, D bromoch oromethane, Ethy methacry ate, Ethy benzene, Hexach orobutad ene, Isopropy benzene, m,p-Xy ene, Methy Tert Buty Ether, Methy ene brom de, Methy ene ch or de, n-Buty benzene, n-Propy benzene, Naphtha ene, o-Ch oroto uene, o-Xy ene, p-Ch oroto uene, p-Isopropy to uene, sec-Buty benzene, Styrene, tert-Buty benzene, Tetrach oroethene, To uene, trans- ,2-D ch oroethene, trans- ,3-D ch oropropene, Tr ch oroethene, V ny Acetate, Xy ene (tota) are outs de contro m ts for samp e MC32787- MSD H gh RPD due to poss b e matr x nterference and/or samp e non-homogene ty
- Cont nu ng Ca brat on Ver f cat on for Acro e n outs de of acceptance cr ter a Samp e resu t may be b ased ow

Thursday, October 27, 2016

Page 1 of 3

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP39278

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- Sample(s) MC3259 - MS, MC3259 - MSD were used as the QC samples indicated
- A method blanks for this batch meet method specifications
- OP39278-BS/MS/MSD Recovery(s) for Hexachlorocyclopentadiene are out of control limits
- Matrix Spike Recovery(s) for 2,4-Dinitrophenol are out of control limits. Out of control limits due to possible matrix interference. Refer to Blank Spike
- RPD(s) for MSD for 2,4-Dinitrophenol, Benzoic acid are out of control limits for sample OP39278-MSD. High RPD due to possible matrix interference and/or sample heterogeneity
- MC3259 - : Confirmation run for surrogate recoveries
- MC3259 - for N-trobenzene-d5: Out of control limits due to possible matrix interference. Confirmed by reanalysis
- OP39278-MS for Hexachlorocyclopentadiene: Out of control limits. Blank Spike meets program technical requirements

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: SO **Batch ID:** OP39279

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- Sample(s) MC3259 - MS, MC3259 - MSD were used as the QC samples indicated
- Sample(s) MC3259 - have compound(s) reported with a "B" qualifier, indicating analytes found in the associated method blank

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP39247

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- Sample(s) MC32300-9MS, MC32300-9MSD were used as the QC samples indicated
- A method blanks for this batch meet method specifications

Matrix: SO **Batch ID:** OP39257

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- Sample(s) MC3252 - MS, MC3252 - MSD were used as the QC samples indicated
- A method blanks for this batch meet method specifications
- Continuing calibration check standard GBK 299-CC 299, signal # , file BK3997 , BK39982, BK39986 for 2-D-bromo-3-chloropropane exceed 5% Dev. 2-D-bromo-3-chloropropane was reported from signal #2 in associated samples

Volatiles by GC By Method SW846 8015

Matrix: SO **Batch ID:** GAB4535

- A samples were analyzed within the recommended method holding time
- Sample(s) MC3252 - MS, MC3252 - MSD were used as the QC samples indicated
- A method blanks for this batch meet method specifications
- Calibration check standard GAB4536-CC4488 not associated with this job

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO

Batch ID: GN47895

- Sample(s) MC32549- DUP were used as the QC samples for Sols, Percent

SGS Accutest New Eng 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 Eng and or ass gnee as ver f ed by the s gnature on the cover page has authorized the release of this report (MC3259)

Thursday, October 27, 2016

Page 3 of 3

Summary of Hits

Job Number: MC32591
Account: Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Collected: 08/04/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

MC32591-1 SVE46-080414(18-22')

Benzene		0.0010	0.00059	0.00040	mg/kg	SW846 8260C
Ethylbenzene		0.0020 J	0.0024	0.00082	mg/kg	SW846 8260C
Toluene		0.0025 J	0.0059	0.00024	mg/kg	SW846 8260C
m,p-Xylene		0.00094 J	0.0024	0.00052	mg/kg	SW846 8260C
o-Xylene		0.00043 J	0.0024	0.00034	mg/kg	SW846 8260C
Xylene (total)		0.0014 J	0.0024	0.00026	mg/kg	SW846 8260C
Benzo(g,h,i)perylene		0.0031 J	0.0050	0.0014	mg/kg	SW846 8270D BY SIM
Phenanthrene		0.0016 JB	0.0050	0.0010	mg/kg	SW846 8270D BY SIM

MC32591-2 SVE46-080414(18-22')DUP

Benzene		0.00083	0.00059	0.00040	mg/kg	SW846 8260C
Ethylbenzene		0.0016 J	0.0024	0.00081	mg/kg	SW846 8260C
Toluene		0.0022 J	0.0059	0.00024	mg/kg	SW846 8260C
m,p-Xylene		0.00081 J	0.0024	0.00052	mg/kg	SW846 8260C
Xylene (total)		0.0011 J	0.0024	0.00026	mg/kg	SW846 8260C

MC32591-3 TB-080414-HCL

No hits reported in this sample.

MC32591-4 TB-080414-ST

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SVE46-080414(18-22')	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-1	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	95.7
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M67622.D	1	08/14/14	KD	n/a	n/a	MSM2392
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.40 g	5.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.012	0.0033	mg/kg	
107-02-8	Acrolein ^a	ND	0.030	0.010	mg/kg	
107-13-1	Acrylonitrile	ND	0.030	0.0033	mg/kg	
71-43-2	Benzene	0.0010	0.00059	0.00040	mg/kg	
108-86-1	Bromobenzene	ND	0.0059	0.00030	mg/kg	
74-97-5	Bromochloromethane	ND	0.0059	0.00041	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0024	0.00025	mg/kg	
75-25-2	Bromoform	ND	0.0024	0.00042	mg/kg	
74-83-9	Bromomethane	ND	0.0024	0.00071	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.012	0.0036	mg/kg	
104-51-8	n-Butylbenzene	ND	0.0059	0.00029	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0059	0.00089	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0059	0.00025	mg/kg	
75-15-0	Carbon disulfide	ND	0.0059	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0024	0.00026	mg/kg	
108-90-7	Chlorobenzene	ND	0.0024	0.00019	mg/kg	
75-00-3	Chloroethane	ND	0.0059	0.00090	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.0059	0.0015	mg/kg	
67-66-3	Chloroform	ND	0.0024	0.00020	mg/kg	
74-87-3	Chloromethane	ND	0.0059	0.00067	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.0059	0.00023	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.0059	0.00032	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0024	0.00038	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0024	0.00025	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0024	0.00036	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0024	0.00041	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0024	0.00096	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0024	0.00032	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0024	0.00038	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0024	0.00049	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0024	0.00054	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0024	0.00050	mg/kg	

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:	SVE46-080414(18-22')	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-1	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	95.7
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.0024	0.00050	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.0059	0.00039	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.0059	0.00067	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.0059	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0024	0.00027	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0024	0.00031	mg/kg	
123-91-1	1,4-Dioxane	ND	0.030	0.024	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.0059	0.00042	mg/kg	
100-41-4	Ethylbenzene	0.0020	0.0024	0.00082	mg/kg	J
87-68-3	Hexachlorobutadiene	ND	0.0059	0.00068	mg/kg	
591-78-6	2-Hexanone	ND	0.012	0.00090	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0059	0.00020	mg/kg	
99-87-6	p-Isopropyltoluene	ND	0.0059	0.00021	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0024	0.00022	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.0059	0.00064	mg/kg	
74-95-3	Methylene bromide	ND	0.0059	0.00054	mg/kg	
75-09-2	Methylene chloride	ND	0.0024	0.00063	mg/kg	
91-20-3	Naphthalene	ND	0.0059	0.00047	mg/kg	
103-65-1	n-Propylbenzene	ND	0.0059	0.00018	mg/kg	
100-42-5	Styrene	ND	0.0059	0.00020	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.0059	0.00048	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0024	0.00047	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0024	0.00037	mg/kg	
108-88-3	Toluene	0.0025	0.0059	0.00024	mg/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	0.0059	0.00051	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0059	0.00061	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0024	0.00026	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0024	0.00068	mg/kg	
79-01-6	Trichloroethene	ND	0.0024	0.00029	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0024	0.00047	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.0059	0.00034	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0059	0.0017	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0059	0.0018	mg/kg	
108-05-4	Vinyl Acetate	ND	0.0059	0.0018	mg/kg	
75-01-4	Vinyl chloride	ND	0.0024	0.0011	mg/kg	
	m,p-Xylene	0.00094	0.0024	0.00052	mg/kg	J
95-47-6	o-Xylene	0.00043	0.0024	0.00034	mg/kg	J
1330-20-7	Xylene (total)	0.0014	0.0024	0.00026	mg/kg	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

Client Sample ID: SVE46-080414(18-22')	Date Sampled: 08/04/14
Lab Sample ID: MC32591-1	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 95.7
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

4.1
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
2037-26-5	Toluene-D8	90%		70-130%
460-00-4	4-Bromofluorobenzene	85%		70-130%

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

(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:	SVE46-080414(18-22')	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-1	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	95.7
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75252.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
Run #2 ^a	F75277.D	1	08/12/14	WK	08/06/14	OP39278	MSF3312

Run #	Initial Weight	Final Volume
Run #1	20.8 g	1.0 ml
Run #2	20.8 g	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.50	0.063	mg/kg	
95-57-8	2-Chlorophenol	ND	0.25	0.011	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.50	0.013	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.50	0.014	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.50	0.082	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.0	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.50	0.063	mg/kg	
95-48-7	2-Methylphenol	ND	0.50	0.020	mg/kg	
	3&4-Methylphenol	ND	0.50	0.024	mg/kg	
88-75-5	2-Nitrophenol	ND	0.50	0.013	mg/kg	
100-02-7	4-Nitrophenol	ND	1.0	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.50	0.035	mg/kg	
108-95-2	Phenol	ND	0.25	0.014	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.50	0.013	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.50	0.012	mg/kg	
62-53-3	Aniline	ND	0.50	0.025	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.25	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.25	0.010	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.50	0.025	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.25	0.014	mg/kg	
106-47-8	4-Chloroaniline	ND	0.50	0.013	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.25	0.012	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.25	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.25	0.018	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.25	0.015	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.25	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.50	0.033	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.50	0.013	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.25	0.025	mg/kg	
132-64-9	Dibenzofuran	ND	0.10	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.25	0.027	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.25	0.0078	mg/kg	

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:	SVE46-080414(18-22')	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-1	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	95.7
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.25	0.013	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.25	0.014	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.25	0.0093	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.25	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.50	0.13	mg/kg	
67-72-1	Hexachloroethane	ND	0.25	0.012	mg/kg	
78-59-1	Isophorone	ND	0.25	0.012	mg/kg	
88-74-4	2-Nitroaniline	ND	0.50	0.013	mg/kg	
99-09-2	3-Nitroaniline	ND	0.50	0.027	mg/kg	
100-01-6	4-Nitroaniline	ND	0.50	0.013	mg/kg	
98-95-3	Nitrobenzene	ND	0.25	0.014	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.25	0.012	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.25	0.014	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.25	0.015	mg/kg	
110-86-1	Pyridine	ND	0.50	0.025	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	32%	32%	30-130%
4165-62-2	Phenol-d5	33%	32%	30-130%
118-79-6	2,4,6-Tribromophenol	62%	60%	30-130%
4165-60-0	Nitrobenzene-d5	25% ^b	25% ^b	30-130%
321-60-8	2-Fluorobiphenyl	34%	31%	30-130%
1718-51-0	Terphenyl-d14	70%	68%	30-130%

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

(a) Confirmation run for surrogate recoveries.

(b) Outside control limits due to possible matrix interference. Confirmed by 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

Client Sample ID:	SVE46-080414(18-22')	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-1	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	95.7
Method:	SW846 8270D BY SIM SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91144.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.8 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0050	0.00087	mg/kg	
208-96-8	Acenaphthylene	ND	0.0050	0.00076	mg/kg	
120-12-7	Anthracene	ND	0.0050	0.0011	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0050	0.0023	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0050	0.0020	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0050	0.0022	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0031	0.0050	0.0014	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.0050	0.0015	mg/kg	
218-01-9	Chrysene	ND	0.0050	0.0014	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0050	0.0014	mg/kg	
206-44-0	Fluoranthene	ND	0.0050	0.0015	mg/kg	
86-73-7	Fluorene	ND	0.0050	0.00099	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0050	0.0012	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.010	0.0011	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.010	0.00093	mg/kg	
85-01-8	Phenanthrene	0.0016	0.0050	0.0010	mg/kg	JB
129-00-0	Pyrene	ND	0.0050	0.0016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	32%		30-130%
321-60-8	2-Fluorobiphenyl	35%		30-130%
1718-51-0	Terphenyl-d14	82%		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

Client Sample ID: SVE46-080414(18-22')	Date Sampled: 08/04/14
Lab Sample ID: MC32591-1	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 95.7
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39984.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
Run #2							

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

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0026	0.00076	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0026	0.00063	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	105%		61-167%
460-00-4	Bromofluorobenzene (S)	141%		61-167%

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
4

Report of Analysis

Client Sample ID: SVE46-080414(18-22')	Date Sampled: 08/04/14
Lab Sample ID: MC32591-1	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 95.7
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85246.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.16 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	13	1.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	94%		61-116%		

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
4

Report of Analysis

Client Sample ID:	SVE46-080414(18-22')DUP	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-2	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	96.0
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M67623.D	1	08/14/14	KD	n/a	n/a	MSM2392
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.41 g	5.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.012	0.0033	mg/kg	
107-02-8	Acrolein ^a	ND	0.030	0.010	mg/kg	
107-13-1	Acrylonitrile	ND	0.030	0.0032	mg/kg	
71-43-2	Benzene	0.00083	0.00059	0.00040	mg/kg	
108-86-1	Bromobenzene	ND	0.0059	0.00030	mg/kg	
74-97-5	Bromochloromethane	ND	0.0059	0.00041	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0024	0.00025	mg/kg	
75-25-2	Bromoform	ND	0.0024	0.00042	mg/kg	
74-83-9	Bromomethane	ND	0.0024	0.00071	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.012	0.0036	mg/kg	
104-51-8	n-Butylbenzene	ND	0.0059	0.00029	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0059	0.00088	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0059	0.00025	mg/kg	
75-15-0	Carbon disulfide	ND	0.0059	0.00015	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0024	0.00026	mg/kg	
108-90-7	Chlorobenzene	ND	0.0024	0.00019	mg/kg	
75-00-3	Chloroethane	ND	0.0059	0.00089	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.0059	0.0015	mg/kg	
67-66-3	Chloroform	ND	0.0024	0.00020	mg/kg	
74-87-3	Chloromethane	ND	0.0059	0.00067	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.0059	0.00023	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.0059	0.00031	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0024	0.00038	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0024	0.00025	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0024	0.00036	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0024	0.00041	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0024	0.00096	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0024	0.00032	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0024	0.00038	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0024	0.00049	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0024	0.00053	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0024	0.00049	mg/kg	

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:	SVE46-080414(18-22')DUP	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-2	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	96.0
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.0024	0.00050	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.0059	0.00039	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.0059	0.00067	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.0059	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0024	0.00027	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0024	0.00031	mg/kg	
123-91-1	1,4-Dioxane	ND	0.030	0.024	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.0059	0.00042	mg/kg	
100-41-4	Ethylbenzene	0.0016	0.0024	0.00081	mg/kg	J
87-68-3	Hexachlorobutadiene	ND	0.0059	0.00068	mg/kg	
591-78-6	2-Hexanone	ND	0.012	0.00089	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0059	0.00020	mg/kg	
99-87-6	p-Isopropyltoluene	ND	0.0059	0.00021	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0024	0.00022	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.0059	0.00064	mg/kg	
74-95-3	Methylene bromide	ND	0.0059	0.00054	mg/kg	
75-09-2	Methylene chloride	ND	0.0024	0.00063	mg/kg	
91-20-3	Naphthalene	ND	0.0059	0.00047	mg/kg	
103-65-1	n-Propylbenzene	ND	0.0059	0.00018	mg/kg	
100-42-5	Styrene	ND	0.0059	0.00020	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.0059	0.00047	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0024	0.00046	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0024	0.00037	mg/kg	
108-88-3	Toluene	0.0022	0.0059	0.00024	mg/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	0.0059	0.00050	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0059	0.00060	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0024	0.00026	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0024	0.00068	mg/kg	
79-01-6	Trichloroethene	ND	0.0024	0.00029	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0024	0.00047	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.0059	0.00034	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0059	0.0017	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0059	0.0018	mg/kg	
108-05-4	Vinyl Acetate	ND	0.0059	0.0018	mg/kg	
75-01-4	Vinyl chloride	ND	0.0024	0.0011	mg/kg	
	m,p-Xylene	0.00081	0.0024	0.00052	mg/kg	J
95-47-6	o-Xylene	ND	0.0024	0.00033	mg/kg	
1330-20-7	Xylene (total)	0.0011	0.0024	0.00026	mg/kg	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

Client Sample ID: SVE46-080414(18-22')DUP	Date Sampled: 08/04/14
Lab Sample ID: MC32591-2	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 96.0
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

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VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	85%		70-130%

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

(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:	SVE46-080414(18-22')DUP	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-2	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	96.0
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75253.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
Run #2							

Run #	Initial Weight	Final Volume
Run #1	21.0 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.50	0.062	mg/kg	
95-57-8	2-Chlorophenol	ND	0.25	0.011	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.50	0.013	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.50	0.014	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.50	0.081	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.99	0.12	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.50	0.062	mg/kg	
95-48-7	2-Methylphenol	ND	0.50	0.020	mg/kg	
	3&4-Methylphenol	ND	0.50	0.024	mg/kg	
88-75-5	2-Nitrophenol	ND	0.50	0.013	mg/kg	
100-02-7	4-Nitrophenol	ND	0.99	0.093	mg/kg	
87-86-5	Pentachlorophenol	ND	0.50	0.035	mg/kg	
108-95-2	Phenol	ND	0.25	0.014	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.50	0.012	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.50	0.012	mg/kg	
62-53-3	Aniline	ND	0.50	0.025	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.25	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.25	0.010	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.50	0.025	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.25	0.013	mg/kg	
106-47-8	4-Chloroaniline	ND	0.50	0.012	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.25	0.012	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.25	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.25	0.018	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.25	0.015	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.25	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.50	0.033	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.50	0.012	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.25	0.025	mg/kg	
132-64-9	Dibenzofuran	ND	0.099	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.25	0.026	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.25	0.0078	mg/kg	

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:	SVE46-080414(18-22')DUP	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-2	Date Received:	08/05/14
Matrix:	SO - Soil	Percent Solids:	96.0
Method:	SW846 8270D SW846 3546		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.25	0.012	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.25	0.014	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.25	0.0092	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.25	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.50	0.12	mg/kg	
67-72-1	Hexachloroethane	ND	0.25	0.012	mg/kg	
78-59-1	Isophorone	ND	0.25	0.011	mg/kg	
88-74-4	2-Nitroaniline	ND	0.50	0.012	mg/kg	
99-09-2	3-Nitroaniline	ND	0.50	0.027	mg/kg	
100-01-6	4-Nitroaniline	ND	0.50	0.012	mg/kg	
98-95-3	Nitrobenzene	ND	0.25	0.013	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.25	0.012	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.25	0.014	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.25	0.015	mg/kg	
110-86-1	Pyridine	ND	0.50	0.025	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		30-130%
4165-62-2	Phenol-d5	67%		30-130%
118-79-6	2,4,6-Tribromophenol	78%		30-130%
4165-60-0	Nitrobenzene-d5	53%		30-130%
321-60-8	2-Fluorobiphenyl	70%		30-130%
1718-51-0	Terphenyl-d14	83%		30-130%

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

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: SVE46-080414(18-22')DUP	Date Sampled: 08/04/14
Lab Sample ID: MC32591-2	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 96.0
Method: SW846 8270D BY SIM SW846 3546	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91145.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393
Run #2							

Run #	Initial Weight	Final Volume
Run #1	21.0 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0050	0.00086	mg/kg	
208-96-8	Acenaphthylene	ND	0.0050	0.00076	mg/kg	
120-12-7	Anthracene	ND	0.0050	0.0011	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0050	0.0023	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0050	0.0020	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0050	0.0022	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.0050	0.0013	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0050	0.0015	mg/kg	
218-01-9	Chrysene	ND	0.0050	0.0013	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0050	0.0014	mg/kg	
206-44-0	Fluoranthene	ND	0.0050	0.0015	mg/kg	
86-73-7	Fluorene	ND	0.0050	0.00098	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0050	0.0012	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.0099	0.0011	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.0099	0.00092	mg/kg	
85-01-8	Phenanthrene	ND	0.0050	0.0010	mg/kg	
129-00-0	Pyrene	ND	0.0050	0.0015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		30-130%
321-60-8	2-Fluorobiphenyl	70%		30-130%
1718-51-0	Terphenyl-d14	96%		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

Client Sample ID: SVE46-080414(18-22')DUP	Date Sampled: 08/04/14
Lab Sample ID: MC32591-2	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 96.0
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39985.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
Run #2							

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

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0026	0.00075	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0026	0.00063	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	104%		61-167%
460-00-4	Bromofluorobenzene (S)	138%		61-167%

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

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

4.2
4

Report of Analysis

Client Sample ID: SVE46-080414(18-22')DUP	Date Sampled: 08/04/14
Lab Sample ID: MC32591-2	Date Received: 08/05/14
Matrix: SO - Soil	Percent Solids: 96.0
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85247.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.18 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	13	1.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	94%		61-116%		

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

4.2
4

Report of Analysis

Client Sample ID: TB-080414-HCL	Date Sampled: 08/04/14
Lab Sample ID: MC32591-3	Date Received: 08/05/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U21740.D	1	08/12/14	GK	n/a	n/a	MSU964
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	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	TB-080414-HCL	Date Sampled:	08/04/14
Lab Sample ID:	MC32591-3	Date Received:	08/05/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	0.70	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: TB-080414-HCL		Date Sampled: 08/04/14
Lab Sample ID: MC32591-3		Date Received: 08/05/14
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

4.3
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	115%		70-130%
2037-26-5	Toluene-D8	113%		70-130%
460-00-4	4-Bromofluorobenzene	113%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, 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

Client Sample ID: TB-080414-ST	Date Sampled: 08/04/14
Lab Sample ID: MC32591-4	Date Received: 08/05/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39951.D	1	08/05/14	NK	08/05/14	OP39247	GBK1298
Run #2							

Run #	Initial Volume	Final Volume
Run #1	36.5 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	0.014	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.014	0.0058	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	90%		36-173%
460-00-4	Bromofluorobenzene (S)	104%		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

4.4
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

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



Shell Oil Products Chain Of Custody Record

URS

LAB (LOCATION) XENCO CALSCEGIE OTHER SPL

Acadest Labs - 485 Technology Cir. W. Marlborough, MA 01752 (508-481-8200)

Lab Vendor # _____

Please Check Appropriate Box:

ENV. SERVICES MOTIVA RETAIL SHELL RETAIL MOTIVA SDBCM CONSULTANT LUBES SHELL PIPELINE OTHER _____

Print Bill To Contact Name: Bob Billman

INCIDENT # (ENV SERVICES): 9 7 2 1 6 6 4 0

DATE: 8/4/2014

PO # _____ SAP # _____

3 4 0 0 6 1

DATE: 8/4/2014

PAGE: 1 of 1

UNPLUGGED CONTAINER: URS CORPORATION

ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300, ST. LOUIS, MO 63110

PROJECT CONTRACT (Makeup or PDF Report): Elizabeth Kunkel, Bob Billman

TELEPHONE: 314-429-0100 FAX: 314-429-0462

Bill To Contact EMAIL: bob.billman@urs.com; elizabeth.kunkel@urs.com

SHIPMENT ADDRESS: Street and City: 900 South Central Ave; ROXANA, IL

ZIP: 60077

CONSULTANT PROJECT NO.: 4th St. Extension Well Install / 21562873.19200

TEMPERATURE ON RECEIPT °C: Cooler #1 _____ Cooler #2 _____ Cooler #3 _____

TERMINAL AROUND TIME (CALENDAR DAYS): STANDARD (10 DAY) 3 DAYS 5 DAYS 7 DAYS 24 HOURS RESULTS NEEDED ON WEEKEND

LAB USE ONLY: mc 32591

REQUESTED ANALYSIS

FIELD NOTES:

TEMPERATURE ON RECEIPT °C

Container PID Readings or Laboratory Notes

SPECIAL INSTRUCTIONS OR NOTES:

* Please include "J" values on Reports.

* Please provide sample receipt upon login.

SHELL CONTRACT RATE APPLIES STATE REIMBURSEMENT RATE APPLIES EDD NOT NEEDED RECEIPT VERIFICATION REQUESTED PROVIDE LEAD DISK

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE					NO. OF CONT.	ANALYSIS						PID (ppm)	FIELD NOTES
		DATE	TIME		HCL	HNO3	H2SO4	NONE	OTHER		VOC 8260B SL+TICS	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO		
1	SVE46-080414 (18-22)	8/4/2014	1330	S				2	5	7	X	X	X	X	X	X	5.4	
2	SVE46-080414 (18-22) Dup	8/4/2014	1330	S				2	5	7	X	X	X	X	X	X	5.4	
3	TB-080414 HCL			W	2						X							
4	TB-080414 ST			W				2			X							
																		IE, 1052, 1H2.

Requisitioned by (Signature): *[Signature]* Received by (Signature): *[Signature]* Date: 8/4/14 Time: 1700

Requisitioned by (Signature): *FSDK* Received by (Signature): *[Signature]* Date: 8-5-14 Time: 930

Requisitioned by (Signature): _____ Received by (Signature): _____ Date: _____ Time: _____

05/2006 Revision

0.9%

5.1
5

MC32591: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32591 **Client:** URS **Immediate Client Services Action Required:** No
Date / Time Received: 8/5/2014 **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: MC32591

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
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MC32591-1 Collected: 04-AUG-14 13:30 By: SVE46-080414(18-22')
 Received: 05-AUG-14 By:

MC32591-1	SM21 2540 B MOD.	07-AUG-14	HS			%SOL
MC32591-1	SW846 8011	07-AUG-14 16:33	NK	05-AUG-14	NE	V8011SL
MC32591-1	SW846 8015	07-AUG-14 19:38	AF			V8015GRO
MC32591-1	SW846 8270D	11-AUG-14 16:25	WK	06-AUG-14	PA	AB8270SL +
MC32591-1	SW846 8270D BY SIM	11-AUG-14 17:05	MR	06-AUG-14	PA	B8270SIMSL
MC32591-1	SW846 8270D	12-AUG-14 10:20	WK	06-AUG-14	PA	AB8270SL +
MC32591-1	SW846 8260C	14-AUG-14 17:45	KD			V8260SL +

MC32591-2 Collected: 04-AUG-14 13:30 By: SVE46-080414(18-22')DUP
 Received: 05-AUG-14 By:

MC32591-2	SM21 2540 B MOD.	07-AUG-14	HS			%SOL
MC32591-2	SW846 8011	07-AUG-14 16:52	NK	05-AUG-14	NE	V8011SL
MC32591-2	SW846 8015	07-AUG-14 20:16	AF			V8015GRO
MC32591-2	SW846 8270D	11-AUG-14 16:49	WK	06-AUG-14	PA	AB8270SL +
MC32591-2	SW846 8270D BY SIM	11-AUG-14 17:27	MR	06-AUG-14	PA	B8270SIMSL
MC32591-2	SW846 8260C	14-AUG-14 18:14	KD			V8260SL +

MC32591-3 Collected: 04-AUG-14 00:00 By: TB-080414-HCL
 Received: 05-AUG-14 By:

MC32591-3	SW846 8260C	12-AUG-14 13:47	GK			V8260SL +
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MC32591-4 Collected: 04-AUG-14 00:00 By: TB-080414-ST
 Received: 05-AUG-14 By:

MC32591-4	SW846 8011	05-AUG-14 14:45	NK	05-AUG-14	FC	V8011SL
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SGS Accutest Internal Chain of Custody

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Received: 08/05/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32591-1.1	Walk In Ref #5	Nicole Estey	08/05/14 14:22	Retrieve from Storage
MC32591-1.1	Nicole Estey	Walk In Ref #5	08/05/14 22:06	Return to Storage
MC32591-1.1	Walk In Ref #5	Alireza Zeighami	08/06/14 07:34	Retrieve from Storage
MC32591-1.1	Alireza Zeighami	Walk In Ref #5	08/06/14 08:33	Return to Storage
MC32591-1.1	Walk In Ref #5	Hamid Siamak	08/07/14 11:27	Retrieve from Storage
MC32591-1.1	Hamid Siamak	Walk In Ref #5	08/07/14 14:06	Return to Storage
MC32591-1.1	Scott Parsick		09/25/14 16:09	Disposed
MC32591-1.4	VOC Ref #10	Krysten Dufort	08/14/14 12:31	Retrieve from Storage
MC32591-1.4	Krysten Dufort	GCMSM	08/14/14 12:31	Load on Instrument
MC32591-1.4	GCMSM	Krysten Dufort	08/15/14 09:26	Unload from Instrument
MC32591-1.4	Krysten Dufort	VOC Ref #10	08/15/14 09:26	Return to Storage
MC32591-1.4	Scott Parsick		09/25/14 16:09	Disposed
MC32591-1.5	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32591-1.5	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32591-1.5	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32591-1.5	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32591-1.5	Scott Parsick		09/25/14 16:09	Disposed
MC32591-1.6	VOC Ref #10	Krysten Dufort	08/06/14 15:32	Retrieve from Storage
MC32591-1.6	Krysten Dufort	VOC Ref #10	08/07/14 11:12	Return to Storage
MC32591-1.6	Scott Parsick		09/25/14 16:09	Disposed
MC32591-2.1	Walk In Ref #5	Nicole Estey	08/05/14 14:22	Retrieve from Storage
MC32591-2.1	Nicole Estey	Walk In Ref #5	08/05/14 22:06	Return to Storage
MC32591-2.1	Walk In Ref #5	Alireza Zeighami	08/06/14 07:34	Retrieve from Storage
MC32591-2.1	Alireza Zeighami	Walk In Ref #5	08/06/14 08:33	Return to Storage
MC32591-2.1	Walk In Ref #5	Hamid Siamak	08/07/14 11:27	Retrieve from Storage
MC32591-2.1	Hamid Siamak	Walk In Ref #5	08/07/14 14:06	Return to Storage
MC32591-2.1	Scott Parsick		09/25/14 16:09	Disposed
MC32591-2.4	VOC Ref #10	Krysten Dufort	08/14/14 12:31	Retrieve from Storage
MC32591-2.4	Krysten Dufort	GCMSM	08/14/14 12:31	Load on Instrument
MC32591-2.4	GCMSM	Krysten Dufort	08/15/14 09:26	Unload from Instrument
MC32591-2.4	Krysten Dufort	VOC Ref #10	08/15/14 09:26	Return to Storage
MC32591-2.4	Scott Parsick		09/25/14 16:09	Disposed
MC32591-2.5	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32591-2.5	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32591-2.5	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32591-2.5	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32591-2.5	Scott Parsick		09/25/14 16:09	Disposed

5.3
5

SGS Accutest Internal Chain of Custody

Job Number: MC32591
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Received: 08/05/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32591-2.6	VOC Ref #10	Krysten Dufort	08/06/14 15:32	Retrieve from Storage
MC32591-2.6	Krysten Dufort	VOC Ref #10	08/07/14 11:12	Return to Storage
MC32591-2.6	Scott Parsick		09/25/14 16:09	Disposed
MC32591-3.1	VOC Ref #1	Gary Krasinski	08/12/14 11:36	Retrieve from Storage
MC32591-3.1	Gary Krasinski	GCMSU	08/12/14 11:36	Load on Instrument
MC32591-3.1	GCMSU	Gary Krasinski	08/13/14 08:47	Unload from Instrument
MC32591-3.1	Gary Krasinski	VOC Ref #1	08/13/14 08:47	Return to Storage
MC32591-3.1	Scott Parsick		09/25/14 16:09	Disposed
MC32591-4.2	VOC Ref #1	Marc Tahtamoni	08/05/14 14:07	Retrieve from Storage
MC32591-4.2	Marc Tahtamoni		08/06/14 14:22	Depleted

5.3
5

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: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU964-MB	U21735.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	0.70	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU964-MB	U21735.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	ug/l	

6.1.1
6

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU964-MB	U21735.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	113%	70-130%
2037-26-5	Toluene-D8	113%	70-130%
460-00-4	4-Bromofluorobenzene	113%	70-130%

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

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2392-MB	M67619.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	10.9	10	2.8	ug/kg	
107-02-8	Acrolein	ND	25	8.8	ug/kg	
107-13-1	Acrylonitrile	ND	25	2.7	ug/kg	
71-43-2	Benzene	ND	0.50	0.34	ug/kg	
108-86-1	Bromobenzene	ND	5.0	0.25	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	0.35	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.21	ug/kg	
75-25-2	Bromoform	ND	2.0	0.35	ug/kg	
74-83-9	Bromomethane	ND	2.0	0.60	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.1	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	0.24	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	0.75	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	0.21	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	0.13	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.22	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.16	ug/kg	
75-00-3	Chloroethane	ND	5.0	0.76	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/kg	
67-66-3	Chloroform	ND	2.0	0.17	ug/kg	
74-87-3	Chloromethane	ND	5.0	0.56	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	0.19	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	0.27	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.32	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.0	0.21	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.30	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.35	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.0	0.27	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.0	0.32	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.0	0.41	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.0	0.45	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.0	0.42	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.42	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	0.33	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	0.56	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	0.26	ug/kg	

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2392-MB	M67619.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.23	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.26	ug/kg	
123-91-1	1,4-Dioxane	ND	25	20	ug/kg	
97-63-2	Ethyl methacrylate	ND	5.0	0.36	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.69	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	0.57	ug/kg	
591-78-6	2-Hexanone	ND	10	0.76	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.17	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	0.17	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.54	ug/kg	
74-95-3	Methylene bromide	ND	5.0	0.46	ug/kg	
75-09-2	Methylene chloride	ND	2.0	0.53	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.40	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	0.15	ug/kg	
100-42-5	Styrene	ND	5.0	0.17	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	0.40	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.39	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.31	ug/kg	
108-88-3	Toluene	ND	5.0	0.21	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.43	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.51	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.22	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.57	ug/kg	
79-01-6	Trichloroethene	ND	2.0	0.24	ug/kg	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.29	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	1.4	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.5	ug/kg	
108-05-4	Vinyl Acetate	ND	5.0	1.5	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	0.91	ug/kg	
	m,p-Xylene	ND	2.0	0.44	ug/kg	
95-47-6	o-Xylene	ND	2.0	0.28	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	0.22	ug/kg	

6.1.2
6

Method Blank Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2392-MB	M67619.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	92% 70-130%
2037-26-5	Toluene-D8	92% 70-130%
460-00-4	4-Bromofluorobenzene	87% 70-130%

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

6.1.2
6

Blank Spike Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU964-BS	U21732.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	45.1	90	70-130
107-02-8	Acrolein	250	167	67* a	70-130
107-13-1	Acrylonitrile	50	50.3	101	70-130
71-43-2	Benzene	50	51.7	103	70-130
108-86-1	Bromobenzene	50	55.7	111	70-130
74-97-5	Bromochloromethane	50	50.4	101	70-130
75-27-4	Bromodichloromethane	50	53.1	106	70-130
75-25-2	Bromoform	50	46.7	93	70-130
74-83-9	Bromomethane	50	53.8	108	70-130
78-93-3	2-Butanone (MEK)	50	44.6	89	70-130
104-51-8	n-Butylbenzene	50	58.2	116	70-130
135-98-8	sec-Butylbenzene	50	61.1	122	70-130
98-06-6	tert-Butylbenzene	50	51.0	102	70-130
75-15-0	Carbon disulfide	50	54.3	109	70-130
56-23-5	Carbon tetrachloride	50	47.8	96	70-130
108-90-7	Chlorobenzene	50	52.3	105	70-130
75-00-3	Chloroethane	50	65.5	131* b	70-130
110-75-8	2-Chloroethyl vinyl ether	50	61.4	123	70-130
67-66-3	Chloroform	50	50.0	100	70-130
74-87-3	Chloromethane	50	51.4	103	70-130
95-49-8	o-Chlorotoluene	50	56.8	114	70-130
106-43-4	p-Chlorotoluene	50	55.3	111	70-130
124-48-1	Dibromochloromethane	50	50.8	102	70-130
95-50-1	1,2-Dichlorobenzene	50	55.2	110	70-130
541-73-1	1,3-Dichlorobenzene	50	55.4	111	70-130
106-46-7	1,4-Dichlorobenzene	50	54.4	109	70-130
75-71-8	Dichlorodifluoromethane	50	53.4	107	70-130
75-34-3	1,1-Dichloroethane	50	52.8	106	70-130
107-06-2	1,2-Dichloroethane	50	45.9	92	70-130
75-35-4	1,1-Dichloroethene	50	51.9	104	70-130
156-59-2	cis-1,2-Dichloroethene	50	49.7	99	70-130
156-60-5	trans-1,2-Dichloroethene	50	50.8	102	70-130
78-87-5	1,2-Dichloropropane	50	54.7	109	70-130
142-28-9	1,3-Dichloropropane	50	55.0	110	70-130
594-20-7	2,2-Dichloropropane	50	54.5	109	70-130
563-58-6	1,1-Dichloropropene	50	49.4	99	70-130

* = Outside of Control Limits.

6.2.1
6

Blank Spike Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU964-BS	U21732.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	58.2	116	70-130
10061-02-6	trans-1,3-Dichloropropene	50	63.8	128	70-130
123-91-1	1,4-Dioxane	125	186	149* b	70-130
97-63-2	Ethyl methacrylate	50	56.6	113	77-137
100-41-4	Ethylbenzene	50	51.8	104	70-130
87-68-3	Hexachlorobutadiene	50	55.1	110	70-130
591-78-6	2-Hexanone	50	43.6	87	70-130
98-82-8	Isopropylbenzene	50	61.4	123	70-130
99-87-6	p-Isopropyltoluene	50	58.5	117	70-130
1634-04-4	Methyl Tert Butyl Ether	50	49.9	100	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	49.7	99	70-130
74-95-3	Methylene bromide	50	49.3	99	70-130
75-09-2	Methylene chloride	50	51.8	104	70-130
91-20-3	Naphthalene	50	57.9	116	70-130
103-65-1	n-Propylbenzene	50	60.0	120	70-130
100-42-5	Styrene	50	51.3	103	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	46.9	94	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	58.2	116	70-130
127-18-4	Tetrachloroethene	50	51.7	103	70-130
108-88-3	Toluene	50	56.4	113	70-130
87-61-6	1,2,3-Trichlorobenzene	50	56.1	112	70-130
120-82-1	1,2,4-Trichlorobenzene	50	55.8	112	70-130
71-55-6	1,1,1-Trichloroethane	50	49.9	100	70-130
79-00-5	1,1,2-Trichloroethane	50	58.0	116	70-130
79-01-6	Trichloroethene	50	49.2	98	70-130
75-69-4	Trichlorofluoromethane	50	45.8	92	70-130
96-18-4	1,2,3-Trichloropropane	50	53.4	107	70-130
95-63-6	1,2,4-Trimethylbenzene	50	59.1	118	70-130
108-67-8	1,3,5-Trimethylbenzene	50	57.9	116	70-130
108-05-4	Vinyl Acetate	50	41.7	83	70-130
75-01-4	Vinyl chloride	50	53.2	106	70-130
	m,p-Xylene	100	103	103	70-130
95-47-6	o-Xylene	50	49.5	99	70-130
1330-20-7	Xylene (total)	150	152	101	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU964-BS	U21732.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	111%	70-130%
2037-26-5	Toluene-D8	120%	70-130%
460-00-4	4-Bromofluorobenzene	117%	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.

Blank Spike Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2392-BS	M67617.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	50	58.3	117	70-130
107-02-8	Acrolein	250	198	79	70-130
107-13-1	Acrylonitrile	50	61.9	124	70-130
71-43-2	Benzene	50	51.5	103	70-130
108-86-1	Bromobenzene	50	52.8	106	70-130
74-97-5	Bromochloromethane	50	54.9	110	70-130
75-27-4	Bromodichloromethane	50	57.0	114	70-130
75-25-2	Bromoform	50	53.2	106	70-130
74-83-9	Bromomethane	50	45.7	91	70-130
78-93-3	2-Butanone (MEK)	50	57.6	115	70-130
104-51-8	n-Butylbenzene	50	50.3	101	70-130
135-98-8	sec-Butylbenzene	50	49.7	99	70-130
98-06-6	tert-Butylbenzene	50	50.3	101	70-130
75-15-0	Carbon disulfide	50	55.1	110	70-130
56-23-5	Carbon tetrachloride	50	49.0	98	70-130
108-90-7	Chlorobenzene	50	49.8	100	70-130
75-00-3	Chloroethane	50	54.2	108	70-130
110-75-8	2-Chloroethyl vinyl ether	50	47.3	95	10-160
67-66-3	Chloroform	50	52.5	105	70-130
74-87-3	Chloromethane	50	46.3	93	70-130
95-49-8	o-Chlorotoluene	50	51.4	103	70-130
106-43-4	p-Chlorotoluene	50	51.2	102	70-130
124-48-1	Dibromochloromethane	50	52.7	105	70-130
95-50-1	1,2-Dichlorobenzene	50	53.5	107	70-130
541-73-1	1,3-Dichlorobenzene	50	51.5	103	70-130
106-46-7	1,4-Dichlorobenzene	50	51.9	104	70-130
75-71-8	Dichlorodifluoromethane	50	46.8	94	70-130
75-34-3	1,1-Dichloroethane	50	54.5	109	70-130
107-06-2	1,2-Dichloroethane	50	54.8	110	70-130
75-35-4	1,1-Dichloroethene	50	51.3	103	70-130
156-59-2	cis-1,2-Dichloroethene	50	52.5	105	70-130
156-60-5	trans-1,2-Dichloroethene	50	50.7	101	70-130
78-87-5	1,2-Dichloropropane	50	53.2	106	70-130
142-28-9	1,3-Dichloropropane	50	52.7	105	70-130
594-20-7	2,2-Dichloropropane	50	51.5	103	70-130
563-58-6	1,1-Dichloropropene	50	47.5	95	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2392-BS	M67617.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	53.3	107	70-130
10061-02-6	trans-1,3-Dichloropropene	50	58.6	117	70-130
123-91-1	1,4-Dioxane	125	176	141* a	70-130
97-63-2	Ethyl methacrylate	50	57.3	115	76-141
100-41-4	Ethylbenzene	50	49.0	98	70-130
87-68-3	Hexachlorobutadiene	50	45.7	91	70-130
591-78-6	2-Hexanone	50	49.7	99	70-130
98-82-8	Isopropylbenzene	50	52.4	105	70-130
99-87-6	p-Isopropyltoluene	50	49.7	99	70-130
1634-04-4	Methyl Tert Butyl Ether	50	55.9	112	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	56.1	112	70-130
74-95-3	Methylene bromide	50	55.9	112	70-130
75-09-2	Methylene chloride	50	53.6	107	70-130
91-20-3	Naphthalene	50	57.3	115	70-130
103-65-1	n-Propylbenzene	50	51.3	103	70-130
100-42-5	Styrene	50	52.5	105	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	49.4	99	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	55.7	111	70-130
127-18-4	Tetrachloroethene	50	45.5	91	70-130
108-88-3	Toluene	50	51.2	102	70-130
87-61-6	1,2,3-Trichlorobenzene	50	53.9	108	70-130
120-82-1	1,2,4-Trichlorobenzene	50	52.9	106	70-130
71-55-6	1,1,1-Trichloroethane	50	50.1	100	70-130
79-00-5	1,1,2-Trichloroethane	50	54.9	110	70-130
79-01-6	Trichloroethene	50	49.2	98	70-130
75-69-4	Trichlorofluoromethane	50	43.9	88	70-130
96-18-4	1,2,3-Trichloropropane	50	56.7	113	70-130
95-63-6	1,2,4-Trimethylbenzene	50	52.7	105	70-130
108-67-8	1,3,5-Trimethylbenzene	50	49.1	98	70-130
108-05-4	Vinyl Acetate	50	47.3	95	70-130
75-01-4	Vinyl chloride	50	46.4	93	70-130
	m,p-Xylene	100	98.4	98	70-130
95-47-6	o-Xylene	50	50.7	101	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2392-BS	M67617.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	90%	70-130%
2037-26-5	Toluene-D8	89%	70-130%
460-00-4	4-Bromofluorobenzene	88%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32593-2AMS	U21746.D	1	08/12/14	GK	n/a	n/a	MSU964
MC32593-2AMSD	U21747.D	1	08/12/14	GK	n/a	n/a	MSU964
MC32593-2A	U21742.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Compound	MC32593-2ASpike		MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
		ug/l	Q							
67-64-1	Acetone	10 U	50	23.9	48* a	50	26.5	53* a	10	70-130/30
107-02-8	Acrolein	50 U	250	147	59* a	250	144	58* a	2	70-130/30
107-13-1	Acrylonitrile	10 U	50	52.9	106	50	53.5	107	1	70-130/30
71-43-2	Benzene	1.0 U	50	53.6	107	50	50.9	102	5	70-130/30
108-86-1	Bromobenzene	5.0 U	50	50.7	101	50	52.2	104	3	70-130/30
74-97-5	Bromochloromethane	5.0 U	50	51.7	103	50	49.3	99	5	70-130/30
75-27-4	Bromodichloromethane	2.0 U	50	52.3	105	50	51.5	103	2	70-130/30
75-25-2	Bromoform	2.0 U	50	43.3	87	50	42.3	85	2	70-130/30
74-83-9	Bromomethane	5.0 U	50	51.6	103	50	52.6	105	2	70-130/30
78-93-3	2-Butanone (MEK)	10 U	50	35.9	72	50	36.3	73	1	70-130/30
104-51-8	n-Butylbenzene	5.0 U	50	51.7	103	50	51.1	102	1	70-130/30
135-98-8	sec-Butylbenzene	5.0 U	50	52.8	106	50	52.9	106	0	70-130/30
98-06-6	tert-Butylbenzene	5.0 U	50	46.2	92	50	46.2	92	0	70-130/30
75-15-0	Carbon disulfide	5.0 U	50	43.6	87	50	42.1	84	4	70-130/30
56-23-5	Carbon tetrachloride	2.0 U	50	44.2	88	50	43.5	87	2	70-130/30
108-90-7	Chlorobenzene	2.0 U	50	49.9	100	50	49.6	99	1	70-130/30
75-00-3	Chloroethane	5.0 U	50	66.3	133* a	50	65.2	130	2	70-130/30
110-75-8	2-Chloroethyl vinyl ether	10 U	50	4.4	9* a	50	4.5	9* a	2	70-130/30
67-66-3	Chloroform	2.0 U	50	52.9	106	50	49.9	100	6	70-130/30
74-87-3	Chloromethane	5.0 U	50	54.1	108	50	54.3	109	0	70-130/30
95-49-8	o-Chlorotoluene	5.0 U	50	52.9	106	50	53.4	107	1	70-130/30
106-43-4	p-Chlorotoluene	5.0 U	50	50.8	102	50	52.0	104	2	70-130/30
124-48-1	Dibromochloromethane	2.0 U	50	46.1	92	50	45.5	91	1	70-130/30
95-50-1	1,2-Dichlorobenzene	2.0 U	50	53.1	106	50	53.0	106	0	70-130/30
541-73-1	1,3-Dichlorobenzene	2.0 U	50	52.0	104	50	51.9	104	0	70-130/30
106-46-7	1,4-Dichlorobenzene	2.0 U	50	52.2	104	50	51.3	103	2	70-130/30
75-71-8	Dichlorodifluoromethane	5.0 U	50	50.4	101	50	48.9	98	3	70-130/30
75-34-3	1,1-Dichloroethane	3.9	50	59.1	110	50	56.0	104	5	70-130/30
107-06-2	1,2-Dichloroethane	2.0 U	50	47.6	95	50	44.9	90	6	70-130/30
75-35-4	1,1-Dichloroethene	2.0 U	50	51.7	103	50	50.0	100	3	70-130/30
156-59-2	cis-1,2-Dichloroethene	2.0 U	50	51.7	103	50	49.8	100	4	70-130/30
156-60-5	trans-1,2-Dichloroethene	2.0 U	50	51.1	102	50	49.7	99	3	70-130/30
78-87-5	1,2-Dichloropropane	2.0 U	50	54.0	108	50	53.9	108	0	70-130/30
142-28-9	1,3-Dichloropropane	5.0 U	50	51.7	103	50	53.3	107	3	70-130/30
594-20-7	2,2-Dichloropropane	5.0 U	50	52.5	105	50	51.0	102	3	70-130/30
563-58-6	1,1-Dichloropropene	5.0 U	50	49.1	98	50	45.7	91	7	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32593-2AMS	U21746.D	1	08/12/14	GK	n/a	n/a	MSU964
MC32593-2AMSD	U21747.D	1	08/12/14	GK	n/a	n/a	MSU964
MC32593-2A	U21742.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Compound	MC32593-2ASpike		MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
		ug/l	Q							
10061-01-5	cis-1,3-Dichloropropene	1.0 U	50	51.1	102	50	55.4	111	8	70-130/30
10061-02-6	trans-1,3-Dichloropropene	1.0 U	50	50.6	101	50	60.1	120	17	70-130/30
123-91-1	1,4-Dioxane	50 U	125	111	89	125	135	108	20	70-130/30
97-63-2	Ethyl methacrylate	5.0 U	50	47.4	95	50	54.6	109	14	72-139/30
100-41-4	Ethylbenzene	2.0 U	50	49.7	99	50	48.7	97	2	70-130/30
87-68-3	Hexachlorobutadiene	10 U	50	43.6	87	50	43.2	86	1	70-130/30
591-78-6	2-Hexanone	10 U	50	32.2	64* a	50	34.6	69* a	7	70-130/30
98-82-8	Isopropylbenzene	5.0 U	50	55.8	112	50	55.6	111	0	70-130/30
99-87-6	p-Isopropyltoluene	5.0 U	50	49.5	99	50	49.8	100	1	70-130/30
1634-04-4	Methyl Tert Butyl Ether	2.0 U	50	51.3	103	50	51.5	103	0	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	10 U	50	50.7	101	50	53.7	107	6	70-130/30
74-95-3	Methylene bromide	5.0 U	50	50.6	101	50	48.3	97	5	70-130/30
75-09-2	Methylene chloride	2.0 U	50	53.7	107	50	52.2	104	3	70-130/30
91-20-3	Naphthalene	5.0 U	50	52.7	105	50	53.6	107	2	70-130/30
103-65-1	n-Propylbenzene	5.0 U	50	54.9	110	50	55.7	111	1	70-130/30
100-42-5	Styrene	5.0 U	50	43.1	86	50	43.1	86	0	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	5.0 U	50	48.0	96	50	43.9	88	9	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	50	59.3	119	50	59.7	119	1	70-130/30
127-18-4	Tetrachloroethene	2.0 U	50	47.9	96	50	45.7	91	5	70-130/30
108-88-3	Toluene	2.0 U	50	51.3	103	50	54.0	108	5	70-130/30
87-61-6	1,2,3-Trichlorobenzene	5.0 U	50	48.4	97	50	49.2	98	2	70-130/30
120-82-1	1,2,4-Trichlorobenzene	5.0 U	50	48.4	97	50	49.4	99	2	70-130/30
71-55-6	1,1,1-Trichloroethane	4.8	50	52.2	95	50	51.2	93	2	70-130/30
79-00-5	1,1,2-Trichloroethane	2.0 U	50	51.5	103	50	58.1	116	12	70-130/30
79-01-6	Trichloroethene	2.0 U	50	50.6	101	50	46.6	93	8	70-130/30
75-69-4	Trichlorofluoromethane	2.0 U	50	44.2	88	50	43.6	87	1	70-130/30
96-18-4	1,2,3-Trichloropropane	5.0 U	50	54.3	109	50	55.5	111	2	70-130/30
95-63-6	1,2,4-Trimethylbenzene	5.0 U	50	51.0	102	50	51.2	102	0	70-130/30
108-67-8	1,3,5-Trimethylbenzene	5.0 U	50	48.1	96	50	48.4	97	1	70-130/30
108-05-4	Vinyl Acetate	5.0 U	50	45.2	90	50	41.9	84	8	70-130/30
75-01-4	Vinyl chloride	2.0 U	50	52.9	106	50	51.8	104	2	70-130/30
	m,p-Xylene	2.0 U	100	96.8	97	100	94.3	94	3	70-130/30
95-47-6	o-Xylene	2.0 U	50	48.8	98	50	45.8	92	6	70-130/30
1330-20-7	Xylene (total)	2.0 U	150	146	97	150	140	93	4	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32593-2AMS	U21746.D	1	08/12/14	GK	n/a	n/a	MSU964
MC32593-2AMSD	U21747.D	1	08/12/14	GK	n/a	n/a	MSU964
MC32593-2A	U21742.D	1	08/12/14	GK	n/a	n/a	MSU964

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-3

CAS No.	Surrogate Recoveries	MS	MSD	MC32593-2ALimits
1868-53-7	Dibromofluoromethane	119%	112%	126% 70-130%
2037-26-5	Toluene-D8	112%	120%	107% 70-130%
460-00-4	4-Bromofluorobenzene	114%	120%	110% 70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32787-1MS	M67630.D	1	08/14/14	KD	n/a	n/a	MSM2392
MC32787-1MSD	M67631.D	1	08/14/14	KD	n/a	n/a	MSM2392
MC32787-1	M67621.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Compound	MC32787-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		59.6	38.0	64* a	53.4	32.3	16	70-130/30
107-02-8	Acrolein	ND		298	104	35* a	267	116	11	70-130/30
107-13-1	Acrylonitrile	ND		59.6	72.4	122	53.4	52.0	97	70-130/30
71-43-2	Benzene	ND		59.6	60.3	101	53.4	40.4	76	70-130/30
108-86-1	Bromobenzene	ND		59.6	62.0	104	53.4	43.0	80	70-130/30
74-97-5	Bromochloromethane	ND		59.6	68.2	114	53.4	45.7	86	70-130/30
75-27-4	Bromodichloromethane	ND		59.6	70.7	119	53.4	48.2	90	70-130/30
75-25-2	Bromoform	ND		59.6	69.9	117	53.4	51.6	97	70-130/30
74-83-9	Bromomethane	ND		59.6	52.4	88	53.4	50.7	95	70-130/30
78-93-3	2-Butanone (MEK)	ND		59.6	52.8	89	53.4	39.9	75	70-130/30
104-51-8	n-Butylbenzene	ND		59.6	55.1	92	53.4	38.2	71	70-130/30
135-98-8	sec-Butylbenzene	ND		59.6	57.5	97	53.4	39.5	74	70-130/30
98-06-6	tert-Butylbenzene	ND		59.6	59.5	100	53.4	40.2	75	70-130/30
75-15-0	Carbon disulfide	ND		59.6	65.2	109	53.4	42.8	80	70-130/30
56-23-5	Carbon tetrachloride	ND		59.6	59.7	100	53.4	39.1	73	70-130/30
108-90-7	Chlorobenzene	ND		59.6	58.6	98	53.4	40.5	76	70-130/30
75-00-3	Chloroethane	ND		59.6	61.6	103	53.4	59.8	112	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		59.6	ND	0* a	53.4	ND	0* a	nc
67-66-3	Chloroform	ND		59.6	65.0	109	53.4	42.8	80	70-130/30
74-87-3	Chloromethane	ND		59.6	53.2	89	53.4	50.2	94	70-130/30
95-49-8	o-Chlorotoluene	ND		59.6	58.8	99	53.4	40.7	76	70-130/30
106-43-4	p-Chlorotoluene	ND		59.6	57.9	97	53.4	39.9	75	70-130/30
124-48-1	Dibromochloromethane	ND		59.6	65.7	110	53.4	47.5	89	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		59.6	63.0	106	53.4	43.6	82	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		59.6	58.7	99	53.4	40.7	76	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		59.6	58.5	98	53.4	40.3	75	70-130/30
75-71-8	Dichlorodifluoromethane	ND		59.6	53.6	90	53.4	51.7	97	70-130/30
75-34-3	1,1-Dichloroethane	ND		59.6	66.4	111	53.4	43.6	82	70-130/30
107-06-2	1,2-Dichloroethane	ND		59.6	67.7	114	53.4	45.9	86	70-130/30
75-35-4	1,1-Dichloroethene	ND		59.6	63.0	106	53.4	40.9	77	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		59.6	63.6	107	53.4	42.0	79	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		59.6	60.9	102	53.4	40.5	76	70-130/30
78-87-5	1,2-Dichloropropane	ND		59.6	64.7	109	53.4	43.3	81	70-130/30
142-28-9	1,3-Dichloropropane	ND		59.6	63.8	107	53.4	45.6	85	70-130/30
594-20-7	2,2-Dichloropropane	ND		59.6	63.2	106	53.4	41.4	77	70-130/30
563-58-6	1,1-Dichloropropene	ND		59.6	56.3	94	53.4	37.0	69* a	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32787-1MS	M67630.D	1	08/14/14	KD	n/a	n/a	MSM2392
MC32787-1MSD	M67631.D	1	08/14/14	KD	n/a	n/a	MSM2392
MC32787-1	M67621.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Compound	MC32787-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND		59.6	64.6	108	53.4	44.5	83	37* b 70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		59.6	73.2	123	53.4	51.5	96	35* b 70-130/30
123-91-1	1,4-Dioxane	ND		149	192	129	134	157	118	20 70-130/30
97-63-2	Ethyl methacrylate	ND		59.6	80.3	135	53.4	58.2	109	32* b 41-160/30
100-41-4	Ethylbenzene	ND		59.6	56.3	94	53.4	37.9	71	39* b 70-130/30
87-68-3	Hexachlorobutadiene	ND		59.6	48.6	82	53.4	33.4	62* a	37* b 70-130/30
591-78-6	2-Hexanone	ND		59.6	54.1	91	53.4	43.8	82	21 70-130/30
98-82-8	Isopropylbenzene	ND		59.6	60.4	101	53.4	40.6	76	39* b 70-130/30
99-87-6	p-Isopropyltoluene	ND		59.6	56.5	95	53.4	39.1	73	36* b 70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		59.6	74.3	125	53.4	50.7	95	38* b 70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		59.6	80.6	135* a	53.4	63.7	119	23 70-130/30
74-95-3	Methylene bromide	ND		59.6	66.3	111	53.4	47.5	89	33* b 70-130/30
75-09-2	Methylene chloride	ND		59.6	65.3	110	53.4	42.8	80	42* b 70-130/30
91-20-3	Naphthalene	ND		59.6	68.5	115	53.4	49.1	92	33* b 70-130/30
103-65-1	n-Propylbenzene	ND		59.6	57.8	97	53.4	39.5	74	38* b 70-130/30
100-42-5	Styrene	ND		59.6	54.4	91	53.4	34.4	64* a	45* b 70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		59.6	61.8	104	53.4	43.7	82	34* b 70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		59.6	74.9	126	53.4	55.2	103	30 70-130/30
127-18-4	Tetrachloroethene	ND		59.6	51.4	86	53.4	34.1	64* a	40* b 70-130/30
108-88-3	Toluene	0.56		59.6	60.4	100	53.4	41.1	76	38* b 70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		59.6	54.5	91	53.4	38.5	72	34* b 70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		59.6	50.9	85	53.4	34.7	65* a	38* b 70-130/30
71-55-6	1,1,1-Trichloroethane	ND		59.6	63.4	106	53.4	41.2	77	42* b 70-130/30
79-00-5	1,1,2-Trichloroethane	ND		59.6	73.5	123	53.4	52.7	99	33* b 70-130/30
79-01-6	Trichloroethene	ND		59.6	58.0	97	53.4	38.6	72	40* b 70-130/30
75-69-4	Trichlorofluoromethane	ND		59.6	50.8	85	53.4	49.1	92	3 70-130/30
96-18-4	1,2,3-Trichloropropane	ND		59.6	74.4	125	53.4	56.1	105	28 70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		59.6	59.9	101	53.4	40.9	77	38* b 70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		59.6	56.3	94	53.4	38.2	71	38* b 70-130/30
108-05-4	Vinyl Acetate	ND		59.6	23.7	40* a	53.4	15.2	28* a	44* b 70-130/30
75-01-4	Vinyl chloride	ND		59.6	53.4	90	53.4	51.2	96	4 70-130/30
	m,p-Xylene	ND		119	112	94	107	76.0	71	38* b 70-130/30
95-47-6	o-Xylene	0.50		59.6	58.9	98	53.4	40.2	74	38* b 70-130/30
1330-20-7	Xylene (total)	1.1		179	171	95	160	116	72	38* b 70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32787-1MS	M67630.D	1	08/14/14	KD	n/a	n/a	MSM2392
MC32787-1MSD	M67631.D	1	08/14/14	KD	n/a	n/a	MSM2392
MC32787-1	M67621.D	1	08/14/14	KD	n/a	n/a	MSM2392

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32591-1, MC32591-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32787-1	Limits
1868-53-7	Dibromofluoromethane	99%	99%	98%	70-130%
2037-26-5	Toluene-D8	89%	90%	91%	70-130%
460-00-4	4-Bromofluorobenzene	86%	87%	87%	70-130%

- (a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (b) High RPD due to possible matrix interference and/or sample non-homogeneity.

* = Outside of Control Limits.

Volatile Internal Standard Area Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSM2392-CC2378	Injection Date:	08/14/14
Lab File ID:	M67617.D	Injection Time:	15:19
Instrument ID:	GCMSM	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	267397	9.35	433603	10.23	184188	13.50	232245	16.07	91879	6.85
Upper Limit ^a	534794	9.85	867206	10.73	368376	14.00	464490	16.57	183758	7.35
Lower Limit ^b	133699	8.85	216802	9.73	92094	13.00	116123	15.57	45940	6.35

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSM2392-BS	267397	9.35	433603	10.23	184188	13.50	232245	16.07	91879	6.85
MSM2392-MB	263662	9.35	417189	10.23	176313	13.50	232190	16.07	89648	6.86
ZZZZZZ	139794	9.35	241713	10.23	73415 ^c	13.51	50493 ^c	16.07	136767	6.84
MC32787-1	276469	9.35	447075	10.23	201127	13.50	265683	16.07	155307	6.85
MC32591-1	264237	9.35	430418	10.23	188395	13.50	261165	16.07	152963	6.85
MC32591-2	251786	9.35	408223	10.22	180198	13.51	250530	16.07	153511	6.84
ZZZZZZ	234844	9.34	386074	10.22	149439	13.50	161274	16.07	130434	6.84
ZZZZZZ	272742	9.35	446483	10.23	197037	13.50	269985	16.07	164978	6.86
ZZZZZZ	265452	9.35	433275	10.23	189836	13.51	261180	16.07	145348	6.84
ZZZZZZ	256954	9.34	423231	10.22	184773	13.51	248138	16.07	146718	6.84
ZZZZZZ	264432	9.35	440668	10.22	188673	13.50	259371	16.07	151440	6.84
ZZZZZZ	266733	9.35	433404	10.23	192003	13.50	257670	16.07	156009	6.84
MC32787-1MS	278199	9.35	470182	10.23	215960	13.51	279319	16.07	148542	6.86
MC32787-1MSD	288866	9.35	481435	10.23	219893	13.51	285120	16.07	158707	6.84
ZZZZZZ	272752	9.35	434817	10.23	191636	13.50	255135	16.07	86591	6.85
ZZZZZZ	271114	9.35	438284	10.23	192380	13.51	250819	16.07	89046	6.84
ZZZZZZ	276221	9.35	442476	10.23	194884	13.51	250655	16.07	87564	6.86
ZZZZZZ	242790	9.34	389471	10.23	171121	13.50	224019	16.07	86792	6.85
ZZZZZZ	252011	9.35	400701	10.23	180859	13.50	231081	16.07	85063	6.85
ZZZZZZ	251653	9.35	400664	10.22	174354	13.50	232696	16.07	90787	6.86
ZZZZZZ	243822	9.35	391827	10.23	168014	13.51	228097	16.07	84291	6.84

- 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.
- (c) Outside control limits due to possible matrix interference. Confirmed by reanalysis.

6.4.1
6

Volatile Internal Standard Area Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSU964-CC957	Injection Date:	08/12/14
Lab File ID:	U21732.D	Injection Time:	10:09
Instrument ID:	GCMSU	Method:	SW846 8260C

	IS 1	RT	IS 2	RT	IS 3	RT	IS 4	RT	IS 5	RT
	AREA		AREA		AREA		AREA		AREA	
Check Std	971696	8.97	1580255	9.84	626725	13.10	844070	15.66	372781	6.60
Upper Limit ^a	1943392	9.47	3160510	10.34	1253450	13.60	1688140	16.16	745562	7.10
Lower Limit ^b	485848	8.47	790128	9.34	313363	12.60	422035	15.16	186391	6.10

Lab	IS 1	RT	IS 2	RT	IS 3	RT	IS 4	RT	IS 5	RT
Sample ID	AREA		AREA		AREA		AREA		AREA	
MSU964-BS	971696	8.97	1580255	9.84	626725	13.10	844070	15.66	372781	6.60
MSU964-MB	880148	8.98	1373168	9.84	498721	13.10	793141	15.67	368133	6.61
ZZZZZ	891179	8.98	1406478	9.85	477609	13.10	785838	15.67	326751	6.63
ZZZZZ	856398	8.98	1357622	9.85	477254	13.10	737578	15.67	315519	6.61
ZZZZZ	818836	8.98	1267918	9.85	423888	13.10	762580	15.67	339815	6.62
ZZZZZ	818252	8.98	1275326	9.85	442772	13.10	762825	15.67	329437	6.61
MC32591-3	814558	8.98	1295143	9.85	456710	13.10	717939	15.67	295241	6.61
ZZZZZ	789786	8.98	1276626	9.84	459564	13.10	707125	15.67	331160	6.61
MC32593-2A	732946	8.98	1146239	9.85	398880	13.10	706740	15.67	320556	6.61
MC32593-3A	790096	8.98	1264228	9.84	464847	13.10	696659	15.67	317363	6.61
ZZZZZ	781023	8.98	1256863	9.85	419984	13.10	699690	15.67	304734	6.62
ZZZZZ	762242	8.98	1215349	9.85	428364	13.10	684986	15.67	338274	6.63
MC32593-2AMS	796149	8.97	1340705	9.84	488934	13.10	700302	15.66	328936	6.62
MC32593-2AMSD807172	8.97	1344800	9.84	541224	13.10	728118	15.66	348109	6.63	
MC32593-3AMS	802949	8.97	1356387	9.84	489797	13.10	710808	15.66	346186	6.62
MC32593-3AMSD821327	8.97	1385754	9.84	510132	13.09	725910	15.66	338164	6.62	
ZZZZZ	767882	8.98	1235142	9.84	425478	13.10	709044	15.66	347369	6.63
ZZZZZ	786314	8.98	1249693	9.84	422130	13.10	711293	15.67	339285	6.62
ZZZZZ	721001	8.98	1157270	9.85	403758	13.10	682954	15.67	345611	6.63
ZZZZZ	770447	8.98	1276432	9.84	423141	13.10	681996	15.67	293157	6.62
ZZZZZ	752004	8.98	1219553	9.85	412350	13.10	690110	15.67	338502	6.62
ZZZZZ	777148	8.97	1299958	9.84	467791	13.10	663033	15.67	331601	6.61
ZZZZZ	688142	8.98	1077805	9.85	370409	13.10	635136	15.67	326090	6.62
MSU964-ECC957	696632	8.97	1187257	9.84	445683	13.10	667704	15.66	311175	6.64

- 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: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, 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
MC32591-3	U21740.D	115	113	113
MC32593-2AMS	U21746.D	119	112	114
MC32593-2AMSDU	U21747.D	112	120	120
MSU964-BS	U21732.D	111	120	117
MSU964-MB	U21735.D	113	113	113

Surrogate Compounds **Recovery Limits**

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

6.5.1
6

Volatile Surrogate Recovery Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8260C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32591-1	M67622.D	98	90	85
MC32591-2	M67623.D	100	92	85
MC32787-1MS	M67630.D	99	89	86
MC32787-1MSD	M67631.D	99	90	87
MSM2392-BS	M67617.D	90	89	88
MSM2392-MB	M67619.D	92	92	87

Surrogate Compounds Recovery Limits

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

6.5.2
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: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39278-MB	F75240.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	490	61	ug/kg	
95-57-8	2-Chlorophenol	ND	250	11	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	490	12	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	490	14	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	490	80	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	980	120	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	490	61	ug/kg	
95-48-7	2-Methylphenol	ND	490	19	ug/kg	
	3&4-Methylphenol	ND	490	24	ug/kg	
88-75-5	2-Nitrophenol	ND	490	13	ug/kg	
100-02-7	4-Nitrophenol	ND	980	92	ug/kg	
87-86-5	Pentachlorophenol	ND	490	35	ug/kg	
108-95-2	Phenol	ND	250	14	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	490	12	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	490	12	ug/kg	
62-53-3	Aniline	ND	490	25	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	250	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	250	10	ug/kg	
100-51-6	Benzyl Alcohol	ND	490	25	ug/kg	
91-58-7	2-Chloronaphthalene	ND	250	13	ug/kg	
106-47-8	4-Chloroaniline	ND	490	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	250	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	250	15	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	250	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	250	15	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	250	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	490	33	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	490	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	250	25	ug/kg	
132-64-9	Dibenzofuran	ND	98	14	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	250	26	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	250	7.7	ug/kg	
84-66-2	Diethyl phthalate	ND	250	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	250	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	250	9.1	ug/kg	
118-74-1	Hexachlorobenzene	ND	250	15	ug/kg	

7.1.1
7

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39278-MB	F75240.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	490	120	ug/kg	
67-72-1	Hexachloroethane	ND	250	12	ug/kg	
78-59-1	Isophorone	ND	250	11	ug/kg	
88-74-4	2-Nitroaniline	ND	490	12	ug/kg	
99-09-2	3-Nitroaniline	ND	490	27	ug/kg	
100-01-6	4-Nitroaniline	ND	490	12	ug/kg	
98-95-3	Nitrobenzene	ND	250	13	ug/kg	
62-75-9	n-Nitrosodimethylamine	ND	250	12	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	250	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	250	15	ug/kg	
110-86-1	Pyridine	ND	490	25	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	81%	30-130%
4165-62-2	Phenol-d5	76%	30-130%
118-79-6	2,4,6-Tribromophenol	76%	30-130%
4165-60-0	Nitrobenzene-d5	64%	30-130%
321-60-8	2-Fluorobiphenyl	76%	30-130%
1718-51-0	Terphenyl-d14	84%	30-130%

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

7.1.1
7

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39279-MB	I91140.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.9	0.85	ug/kg	
208-96-8	Acenaphthylene	ND	4.9	0.75	ug/kg	
120-12-7	Anthracene	ND	4.9	1.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.9	2.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.9	2.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.9	2.2	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	4.9	1.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.9	1.5	ug/kg	
218-01-9	Chrysene	ND	4.9	1.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.9	1.4	ug/kg	
206-44-0	Fluoranthene	2.5	4.9	1.4	ug/kg	J
86-73-7	Fluorene	ND	4.9	0.97	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.9	1.2	ug/kg	
90-12-0	1-Methylnaphthalene	ND	9.8	1.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	9.8	0.91	ug/kg	
85-01-8	Phenanthrene	1.8	4.9	1.0	ug/kg	J
129-00-0	Pyrene	2.3	4.9	1.5	ug/kg	J

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	81%	30-130%
321-60-8	2-Fluorobiphenyl	76%	30-130%
1718-51-0	Terphenyl-d14	95%	30-130%

7.1.2
7

Blank Spike Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39278-BS	F75241.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32591-1, MC32591-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic acid	2390	1940	81	30-130
95-57-8	2-Chlorophenol	2390	1990	83	30-130
59-50-7	4-Chloro-3-methyl phenol	2390	1710	71	30-130
120-83-2	2,4-Dichlorophenol	2390	1770	74	30-130
105-67-9	2,4-Dimethylphenol	2390	1650	69	30-130
51-28-5	2,4-Dinitrophenol	2390	1600	67	30-130
534-52-1	4,6-Dinitro-o-cresol	2390	1980	83	30-130
95-48-7	2-Methylphenol	2390	1920	80	30-130
	3&4-Methylphenol	4790	3780	79	30-130
88-75-5	2-Nitrophenol	2390	1910	80	30-130
100-02-7	4-Nitrophenol	2390	1450	61	30-130
87-86-5	Pentachlorophenol	2390	2140	89	30-130
108-95-2	Phenol	2390	1770	74	30-130
95-95-4	2,4,5-Trichlorophenol	2390	2020	84	30-130
88-06-2	2,4,6-Trichlorophenol	2390	1950	81	30-130
62-53-3	Aniline	2390	1600	67	40-140
101-55-3	4-Bromophenyl phenyl ether	2390	1880	79	40-140
85-68-7	Butyl benzyl phthalate	2390	2390	100	40-140
100-51-6	Benzyl Alcohol	2390	1910	80	40-140
91-58-7	2-Chloronaphthalene	2390	2040	85	40-140
106-47-8	4-Chloroaniline	2390	1620	68	40-140
111-91-1	bis(2-Chloroethoxy)methane	2390	1580	66	40-140
111-44-4	bis(2-Chloroethyl)ether	2390	2050	86	40-140
108-60-1	bis(2-Chloroisopropyl)ether	2390	2810	117	40-140
7005-72-3	4-Chlorophenyl phenyl ether	2390	1660	69	40-140
122-66-7	1,2-Diphenylhydrazine	2390	1870	78	40-140
121-14-2	2,4-Dinitrotoluene	2390	1910	80	40-140
606-20-2	2,6-Dinitrotoluene	2390	1770	74	40-140
91-94-1	3,3'-Dichlorobenzidine	2390	1700	71	40-140
132-64-9	Dibenzofuran	2390	1820	76	40-140
84-74-2	Di-n-butyl phthalate	2390	2030	85	40-140
117-84-0	Di-n-octyl phthalate	2390	2510	105	40-140
84-66-2	Diethyl phthalate	2390	1920	80	40-140
131-11-3	Dimethyl phthalate	2390	1950	81	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	2390	2390	100	40-140
118-74-1	Hexachlorobenzene	2390	1850	77	40-140

* = Outside of Control Limits.

7.2.1
7

Blank Spike Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39278-BS	F75241.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32591-1, MC32591-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	2390	917	38* a	40-140
67-72-1	Hexachloroethane	2390	1770	74	40-140
78-59-1	Isophorone	2390	1510	63	40-140
88-74-4	2-Nitroaniline	2390	2120	89	40-140
99-09-2	3-Nitroaniline	2390	1790	75	40-140
100-01-6	4-Nitroaniline	2390	1900	79	40-140
98-95-3	Nitrobenzene	2390	1440	60	40-140
62-75-9	n-Nitrosodimethylamine	2390	1730	72	40-140
621-64-7	N-Nitroso-di-n-propylamine	2390	1740	73	40-140
86-30-6	N-Nitrosodiphenylamine	2390	1820	76	40-140
110-86-1	Pyridine	2390	1510	63	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	80%	30-130%
4165-62-2	Phenol-d5	78%	30-130%
118-79-6	2,4,6-Tribromophenol	79%	30-130%
4165-60-0	Nitrobenzene-d5	63%	30-130%
321-60-8	2-Fluorobiphenyl	77%	30-130%
1718-51-0	Terphenyl-d14	82%	30-130%

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39279-BS	I91141.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32591-1, MC32591-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2390	1850	77	40-140
208-96-8	Acenaphthylene	2390	1630	68	40-140
120-12-7	Anthracene	2390	1900	79	40-140
56-55-3	Benzo(a)anthracene	2390	2370	99	40-140
50-32-8	Benzo(a)pyrene	2390	2080	87	40-140
205-99-2	Benzo(b)fluoranthene	2390	2590	108	40-140
191-24-2	Benzo(g,h,i)perylene	2390	2150	90	40-140
207-08-9	Benzo(k)fluoranthene	2390	1960	82	40-140
218-01-9	Chrysene	2390	1970	82	40-140
53-70-3	Dibenzo(a,h)anthracene	2390	2310	97	40-140
206-44-0	Fluoranthene	2390	2080	87	40-140
86-73-7	Fluorene	2390	1860	78	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2390	2260	94	40-140
90-12-0	1-Methylnaphthalene	2390	1860	78	40-140
91-57-6	2-Methylnaphthalene	2390	1910	80	40-140
85-01-8	Phenanthrene	2390	1880	79	40-140
129-00-0	Pyrene	2390	2070	86	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	40%	15-110%
4165-62-2	Phenol-d5	40%	15-110%
118-79-6	2,4,6-Tribromophenol	43%	15-110%
4165-60-0	Nitrobenzene-d5	83%	30-130%
321-60-8	2-Fluorobiphenyl	77%	30-130%
1718-51-0	Terphenyl-d14	93%	30-130%

* = Outside of Control Limits.

7.2.2
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39278-MS	F75248.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
OP39278-MSD	F75251.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
MC32591-1	F75252.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
MC32591-1 ^a	F75277.D	1	08/12/14	WK	08/06/14	OP39278	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32591-1, MC32591-2

CAS No.	Compound	MC32591-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND	2570	1150	45	2580	1860	72	47* ^b	30-130/30
95-57-8	2-Chlorophenol	ND	2570	1750	68	2580	2210	86	23	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND	2570	1580	62	2580	1950	76	21	30-130/30
120-83-2	2,4-Dichlorophenol	ND	2570	1660	65	2580	2010	78	19	30-130/30
105-67-9	2,4-Dimethylphenol	ND	2570	1580	62	2580	1950	76	21	30-130/30
51-28-5	2,4-Dinitrophenol	ND	2570	543	21* ^c	2580	789	31	37* ^b	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND	2570	874	34	2580	1100	43	23	30-130/30
95-48-7	2-Methylphenol	ND	2570	1730	67	2580	2090	81	19	30-130/30
	3&4-Methylphenol	ND	5130	3470	68	5160	4190	81	19	30-130/30
88-75-5	2-Nitrophenol	ND	2570	1640	64	2580	2040	79	22	30-130/30
100-02-7	4-Nitrophenol	ND	2570	1330	52	2580	1610	62	19	30-130/30
87-86-5	Pentachlorophenol	ND	2570	2090	81	2580	2550	99	20	30-130/30
108-95-2	Phenol	ND	2570	1600	62	2580	2150	83	29	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND	2570	1850	72	2580	2360	92	24	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND	2570	1750	68	2580	2220	86	24	30-130/30
62-53-3	Aniline	ND	2570	1380	54	2580	1810	70	27	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND	2570	1720	67	2580	2200	85	24	40-140/30
85-68-7	Butyl benzyl phthalate	ND	2570	2290	89	2580	2760	107	19	40-140/30
100-51-6	Benzyl Alcohol	ND	2570	1520	59	2580	2030	79	29	40-140/30
91-58-7	2-Chloronaphthalene	ND	2570	1810	70	2580	2290	89	23	40-140/30
106-47-8	4-Chloroaniline	ND	2570	1520	59	2580	1960	76	25	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND	2570	1370	53	2580	1770	69	25	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND	2570	1730	67	2580	2230	86	25	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND	2570	2370	92	2580	3040	118	25	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND	2570	1630	63	2580	1950	76	18	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND	2570	1730	67	2580	2180	85	23	40-140/30
121-14-2	2,4-Dinitrotoluene	ND	2570	1670	65	2580	2100	81	23	40-140/30
606-20-2	2,6-Dinitrotoluene	ND	2570	1550	60	2580	1960	76	23	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND	2570	1870	73	2580	2280	88	20	40-140/30
132-64-9	Dibenzofuran	ND	2570	1640	64	2580	2040	79	22	40-140/30
84-74-2	Di-n-butyl phthalate	ND	2570	1880	73	2580	2380	92	23	40-140/30
117-84-0	Di-n-octyl phthalate	ND	2570	2180	85	2580	2650	103	19	40-140/30
84-66-2	Diethyl phthalate	ND	2570	1830	71	2580	2210	86	19	40-140/30
131-11-3	Dimethyl phthalate	ND	2570	1770	69	2580	2190	85	21	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2570	2270	88	2580	2780	108	20	40-140/30
118-74-1	Hexachlorobenzene	ND	2570	1690	66	2580	2150	83	24	40-140/30

* = Outside of Control Limits.

7.3.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39278-MS	F75248.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
OP39278-MSD	F75251.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
MC32591-1	F75252.D	1	08/11/14	WK	08/06/14	OP39278	MSF3311
MC32591-1 ^a	F75277.D	1	08/12/14	WK	08/06/14	OP39278	MSF3312

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

MC32591-1, MC32591-2

CAS No.	Compound	MC32591-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	2570	612	24* ^d	2580	763	30* ^d	22	40-140/30
67-72-1	Hexachloroethane	ND	2570	1510	59	2580	1920	74	24	40-140/30
78-59-1	Isophorone	ND	2570	1360	53	2580	1710	66	23	40-140/30
88-74-4	2-Nitroaniline	ND	2570	1870	73	2580	2430	94	26	40-140/30
99-09-2	3-Nitroaniline	ND	2570	1720	67	2580	2150	83	22	40-140/30
100-01-6	4-Nitroaniline	ND	2570	1710	67	2580	2190	85	25	40-140/30
98-95-3	Nitrobenzene	ND	2570	1290	50	2580	1620	63	23	40-140/30
62-75-9	n-Nitrosodimethylamine	ND	2570	1480	58	2580	1910	74	25	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND	2570	1540	60	2580	1980	77	25	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND	2570	1690	66	2580	2150	83	24	40-140/30
110-86-1	Pyridine	ND	2570	1280	50	2580	1660	64	26	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32591-1	MC32591-1	Limits
367-12-4	2-Fluorophenol	65%	82%	32%	32%	30-130%
4165-62-2	Phenol-d5	61%	77%	33%	32%	30-130%
118-79-6	2,4,6-Tribromophenol	68%	84%	62%	60%	30-130%
4165-60-0	Nitrobenzene-d5	52%	63%	25%* ^e	25%* ^e	30-130%
321-60-8	2-Fluorobiphenyl	64%	78%	34%	31%	30-130%
1718-51-0	Terphenyl-d14	72%	84%	70%	68%	30-130%

- (a) Confirmation run for surrogate recoveries.
- (b) High RPD due to possible matrix interference and/or sample heterogeneity.
- (c) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (d) Outside control limits. Blank Spike meets program technical requirements.
- (e) Outside control limits due to possible matrix interference. Confirmed by reanalysis.

* = Outside of Control Limits.

7.3.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39279-MS	I91142.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393
OP39279-MSD	I91143.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393
MC32591-1	I91144.D	1	08/11/14	MR	08/06/14	OP39279	MSI3393

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32591-1, MC32591-2

CAS No.	Compound	MC32591-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
83-32-9	Acenaphthene	ND		2570	1670	65	2580	2110	82	23	40-140/30
208-96-8	Acenaphthylene	ND		2570	1480	58	2580	1840	71	22	40-140/30
120-12-7	Anthracene	ND		2570	1740	68	2580	2180	85	22	40-140/30
56-55-3	Benzo(a)anthracene	ND		2570	2150	84	2580	2730	106	24	40-140/30
50-32-8	Benzo(a)pyrene	ND		2570	1890	74	2580	2380	92	23	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		2570	2250	88	2580	2770	107	21	40-140/30
191-24-2	Benzo(g,h,i)perylene	3.1	J	2570	1980	77	2580	2480	96	22	40-140/30
207-08-9	Benzo(k)fluoranthene	ND		2570	1860	72	2580	2340	91	23	40-140/30
218-01-9	Chrysene	ND		2570	1790	70	2580	2270	88	24	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND		2570	2110	82	2580	2660	103	23	40-140/30
206-44-0	Fluoranthene	ND		2570	1900	74	2580	2360	92	22	40-140/30
86-73-7	Fluorene	ND		2570	1680	65	2580	2120	82	23	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2570	2060	80	2580	2590	100	23	40-140/30
90-12-0	1-Methylnaphthalene	ND		2570	1680	65	2580	2100	81	22	40-140/30
91-57-6	2-Methylnaphthalene	ND		2570	1730	67	2580	2150	83	22	40-140/30
85-01-8	Phenanthrene	1.6	JB	2570	1710	67	2580	2150	83	23	40-140/30
129-00-0	Pyrene	ND		2570	1890	74	2580	2360	92	22	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32591-1	Limits
4165-60-0	Nitrobenzene-d5	68%	82%	32%	30-130%
321-60-8	2-Fluorobiphenyl	64%	78%	35%	30-130%
1718-51-0	Terphenyl-d14	77%	95%	82%	30-130%

* = Outside of Control Limits.

7.3.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3311-CC3270	Injection Date:	08/11/14
Lab File ID:	F75239.D	Injection Time:	10:00
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	154060	2.89	555619	3.91	343042	5.38	582020	6.62	637721	8.88	614006	10.23
Upper Limit ^a	308120	3.39	1111238	4.41	686084	5.88	1164040	7.12	1275442	9.38	1228012	10.73
Lower Limit ^b	77030	2.39	277810	3.41	171521	4.88	291010	6.12	318861	8.38	307003	9.73

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
OP39278-MB	212626	2.88	756684	3.91	456547	5.38	750650	6.61	783503	8.87	721996	10.23
OP39278-BS	209713	2.88	755773	3.91	446693	5.38	752496	6.62	772075	8.87	708071	10.23
ZZZZZZ	158140	2.88	575302	3.90	356057	5.38	613659	6.61	668253	8.87	674909	10.23
ZZZZZZ	154045	2.88	568936	3.90	349295	5.38	605694	6.61	658231	8.87	667129	10.23
ZZZZZZ	154155	2.88	580174	3.90	355614	5.38	621128	6.61	677700	8.87	655056	10.23
ZZZZZZ	155391	2.88	580207	3.91	351716	5.39	605209	6.62	666575	8.87	679647	10.23
ZZZZZZ	156791	2.88	557078	3.91	340722	5.39	579244	6.62	634164	8.87	660311	10.23
OP39278-MS	198551	2.89	695238	3.91	408339	5.38	676085	6.62	668777	8.87	684879	10.23
OP39278-MSD	195312	2.88	686010	3.91	401254	5.38	665423	6.62	681302	8.88	716894	10.23
MC32591-1	155344	2.88	569042	3.90	349017	5.38	592479	6.61	662420	8.87	708209	10.23
MC32591-2	199558	2.88	705977	3.90	415337	5.38	682725	6.61	722752	8.87	764266	10.23
OP39320-MB	192248	2.88	671058	3.90	393479	5.38	660888	6.61	696067	8.87	721666	10.23
OP39320-BS	196260	2.89	688069	3.91	400475	5.38	676931	6.62	711581	8.88	753419	10.23
OP39320-BSD	187654	2.89	666594	3.91	388221	5.38	647388	6.62	682922	8.87	736021	10.23
OP39320-MS	201647	2.89	707853	3.91	412939	5.38	695324	6.62	731114	8.87	872717	10.23
OP39320-MSD	182861	2.89	642013	3.91	381491	5.38	641818	6.61	685894	8.87	747056	10.23
MC32537-28	163093	2.88	644515	3.90	347396	5.38	591921	6.61	662923	8.87	790092	10.23
ZZZZZZ	150557	2.88	557252	3.90	345110	5.38	608378	6.62	690896	8.89	758940	10.26
ZZZZZZ	163598	2.88	586927	3.91	351776	5.38	585527	6.61	653203	8.87	717214	10.23
ZZZZZZ	206709	2.88	651097	3.91	388158	5.38	651040	6.61	721103	8.87	775337	10.23
ZZZZZZ	171768	2.88	616455	3.91	413790	5.38	646132	6.61	748680	8.87	798543	10.23
ZZZZZZ	211132	2.89	746422	3.91	437625	5.39	727884	6.61	746834	8.87	905804	10.23

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

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

7.4.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3312-CC3270	Injection Date:	08/12/14
Lab File ID:	F75272.D	Injection Time:	08:24
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
	AREA	RT	AREA	RT	AREA	RT
Check Std	158860	2.86	561602	3.88	326601	5.36
Upper Limit ^a	317720	3.36	1123204	4.38	653202	5.86
Lower Limit ^b	79430	2.36	280801	3.38	163301	4.86

Lab Sample ID	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
	AREA	RT	AREA	RT	AREA	RT
ZZZZZZ	211132	2.86	861751	3.88	493229	5.35
ZZZZZZ	191298	2.85	688330	3.88	360511	5.35
ZZZZZZ	197299	2.86	678737	3.88	426037	5.35
ZZZZZZ	264373	2.86	885193	3.88	489024	5.35
MC32591-1 ^c	204048	2.86	687938	3.88	442302	5.35
OP39310-MB	247549	2.86	840763	3.87	519662	5.35
OP39310-BS	245515	2.86	835713	3.88	461982	5.36
OP39310-MS	246109	2.86	936785	3.88	511970	5.35
OP39310-MSD	286079	2.85	889060	3.88	434959	5.35
MC32660-1	282921	2.86	964722	3.88	475758	5.35
ZZZZZZ	291714	2.86	868398	3.88	483130	5.35
ZZZZZZ	306752	2.86	954239	3.88	470412	5.36
ZZZZZZ	290375	2.85	875967	3.87	484991	5.35
ZZZZZZ	281827	2.85	971926	3.87	528494	5.35
ZZZZZZ	254569	2.86	858188	3.88	469325	5.35
ZZZZZZ	233358	2.85	809979	3.87	455758	5.35
ZZZZZZ	260435	2.86	878169	3.87	449477	5.35
ZZZZZZ	264005	2.86	912551	3.88	463816	5.35
OP39207-MB	195577	2.86	652877	3.87	440515	5.35
OP39207-BS	220946	2.86	680389	3.88	380392	5.35
OP39207-MS	219822	2.86	743401	3.88	408268	5.35
OP39207-MSD	235956	2.86	792294	3.88	397925	5.35
MC32300-11	192039	2.85	761944	3.87	395519	5.35
ZZZZZZ	177577	2.86	765305	3.87	476864	5.35
ZZZZZZ	241084	2.86	843681	3.88	497521	5.35
ZZZZZZ	197296	2.86	709227	3.87	404804	5.35
ZZZZZZ	228036	2.86	784337	3.87	454727	5.35
ZZZZZZ	239661	2.86	818211	3.88	472242	5.35

- 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

7.4.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32591
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3312-CC3270	Injection Date:	08/12/14
Lab File ID:	F75272.D	Injection Time:	08:24
Instrument ID:	GCMSF	Method:	SW846 8270D

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

- (a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
- (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
- (c) Confirmation run for surrogate recoveries.

7.4.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3393-CC3386	Injection Date:	08/11/14
Lab File ID:	I91121.D	Injection Time:	08:08
Instrument ID:	GCMSI	Method:	SW846 8270D 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	426092	4.15	926295	5.20	490431	6.74	842432	8.13	597472	10.91	1583703	12.40
Upper Limit ^a	852184	4.65	1852590	5.70	980862	7.24	1684864	8.63	1194944	11.41	3167406	12.90
Lower Limit ^b	213046	3.65	463148	4.70	245216	6.24	421216	7.63	298736	10.41	791852	11.90

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
OP39297-MB	503416	4.15	1103967	5.20	584900	6.74	991638	8.13	707438	10.90	1898363	12.40
OP39297-BS	506767	4.15	1109980	5.20	585362	6.74	998433	8.13	708850	10.91	1836273	12.41
OP39297-MS	485450	4.15	1077797	5.20	572438	6.74	990069	8.13	720752	10.91	1872921	12.41
OP39297-MSD	526073	4.15	1169183	5.20	619370	6.74	1055033	8.13	756467	10.91	1949509	12.41
MC32616-11	502555	4.15	1114394	5.20	589785	6.74	1009416	8.13	726450	10.90	1939968	12.40
ZZZZZZ	532918	4.16	1155619	5.21	610678	6.74	1037348	8.13	719325	10.91	1873854	12.40
ZZZZZZ	516346	4.15	1136457	5.20	608334	6.74	1033657	8.13	757920	10.91	2014652	12.41
ZZZZZZ	522495	4.15	1144091	5.20	610365	6.74	1032010	8.13	738991	10.91	1947328	12.41
ZZZZZZ	539567	4.15	1179244	5.20	628617	6.74	1064327	8.13	761607	10.91	2029213	12.41
ZZZZZZ	509269	4.15	1116122	5.20	587326	6.74	1004700	8.13	724216	10.91	1878710	12.41
ZZZZZZ	505331	4.15	1107368	5.20	587081	6.74	1001111	8.13	714289	10.91	1884704	12.41
ZZZZZZ	506250	4.15	1113037	5.20	583729	6.74	995061	8.13	704588	10.91	1839609	12.41
ZZZZZZ	490018	4.15	1078498	5.20	578536	6.74	988537	8.13	717860	10.91	1900620	12.41
ZZZZZZ	508742	4.15	1110243	5.20	589755	6.74	1002005	8.13	713185	10.91	1888477	12.41
ZZZZZZ	511522	4.15	1130525	5.20	597325	6.74	1024807	8.13	740981	10.91	1956925	12.41
ZZZZZZ	500741	4.15	1100569	5.20	582769	6.74	995007	8.13	717629	10.91	1902230	12.41
ZZZZZZ	499323	4.15	1099995	5.20	577430	6.74	993366	8.13	720448	10.91	1889963	12.41
OP39279-MB	459079	4.15	1015058	5.20	533797	6.74	917328	8.13	642171	10.91	1666860	12.41
OP39279-BS	493935	4.15	1088984	5.20	577431	6.74	994159	8.13	699861	10.91	1766508	12.41
OP39279-MS	456172	4.15	1013102	5.20	542186	6.74	934316	8.13	650221	10.91	1688964	12.41
OP39279-MSD	454590	4.15	1003820	5.20	530364	6.74	906567	8.13	633822	10.91	1652719	12.41
MC32591-1	400320	4.15	882407	5.20	463437	6.74	788328	8.13	545603	10.90	1497300	12.40
MC32591-2	503818	4.15	1108949	5.20	584025	6.74	988409	8.13	667898	10.91	1722920	12.40
ZZZZZZ	464731	4.15	1015369	5.20	531140	6.74	895096	8.13	638162	10.91	1655266	12.41
ZZZZZZ	426242	4.15	936531	5.20	487870	6.74	820753	8.13	570084	10.90	1524209	12.40
ZZZZZZ	417043	4.15	922206	5.20	477322	6.74	801194	8.13	531323	10.90	1403896	12.40
ZZZZZZ	546342	4.15	1199859	5.20	616932	6.74	1007793	8.13	605347	10.91	1502297	12.41
ZZZZZZ	493265	4.15	1088844	5.20	568782	6.74	942209	8.13	614282	10.91	1547989	12.41
ZZZZZZ	513192	4.15	1140217	5.20	599417	6.74	998291	8.13	641161	10.91	1573706	12.41
ZZZZZZ	517225	4.15	1159015	5.20	612525	6.74	1036786	8.13	692984	10.91	1726897	12.41
ZZZZZZ	499996	4.15	1108110	5.20	576790	6.74	959460	8.13	609125	10.91	1526124	12.41
ZZZZZZ	489094	4.15	1057702	5.20	566487	6.74	922139	8.13	635726	10.91	1591917	12.41

IS 1 = 1,4-Dichlorobenzene-d4
 IS 2 = Naphthalene-d8

7.4.3
7

Semivolatile Internal Standard Area Summary

Job Number: MC32591
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std: MSI3393-CC3386	Injection Date: 08/11/14
Lab File ID: I91121.D	Injection Time: 08:08
Instrument ID: GCMSI	Method: SW846 8270D 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

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: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC32591-1	F75277.D	32	32	60	25* a	31	68
MC32591-1	F75252.D	32	33	62	25* a	34	70
MC32591-2	F75253.D	69	67	78	53	70	83
OP39278-BS	F75241.D	80	78	79	63	77	82
OP39278-MB	F75240.D	81	76	76	64	76	84
OP39278-MS	F75248.D	65	61	68	52	64	72
OP39278-MSD	F75251.D	82	77	84	63	78	84

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	30-130%
S2 = Phenol-d5	30-130%
S3 = 2,4,6-Tribromophenol	30-130%
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 reanalysis.

Semivolatile Surrogate Recovery Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32591-1	I91144.D	32	35	82
MC32591-2	I91145.D	71	70	96
OP39279-BS	I91141.D	83	77	93
OP39279-MB	I91140.D	81	76	95
OP39279-MS	I91142.D	68	64	77
OP39279-MSD	I91143.D	82	78	95

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: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39247-MB	BK39938.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298

The QC reported here applies to the following samples:

Method: SW846 8011

MC32591-4

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	115%	36-173%
460-00-4	Bromofluorobenzene (S)	107%	36-173%

8.1.1

8

Method Blank Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39257-MB	BK39961.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299

The QC reported here applies to the following samples:

Method: SW846 8011

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.72	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	158% 61-167%
460-00-4	Bromofluorobenzene (S)	163% 61-167%

8.1.2
8

Method Blank Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4535-MB	AB85228.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples:

Method: SW846 8015

MC32591-1, MC32591-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	0.74	mg/kg	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	95% 61-116%

8.1.3

8

Blank Spike Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39247-BS	BK39939.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298

The QC reported here applies to the following samples:

Method: SW846 8011

MC32591-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.085	120	60-140
106-93-4	1,2-Dibromoethane	0.071	0.083	117	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	110%	36-173%
460-00-4	Bromofluorobenzene (S)	118%	36-173%

8.2.1
8

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39257-BS	BK39962.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299

The QC reported here applies to the following samples:

Method: SW846 8011

MC32591-1, MC32591-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	33.1	37.1	112	59-142
106-93-4	1,2-Dibromoethane	33.1	28.4	86	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	135%	61-167%
460-00-4	Bromofluorobenzene (S)	123%	61-167%

8.2.2
8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4535-BSP	AB85229.D	1	08/07/14	AF	n/a	n/a	GAB4535
GAB4535-BSD	AB85230.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples:

Method: SW846 8015

MC32591-1, MC32591-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	32.5	32.0	98	31.9	98	0	66-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	98%	97%	61-116%

8.3.1

8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39247-MS	BK39940.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
OP39247-MSD	BK39941.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
MC32300-19	BK39942.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298

The QC reported here applies to the following samples:

Method: SW846 8011

MC32591-4

CAS No.	Compound	MC32300-19 Spike		MS	MS	Spike	MSD	MSD	RPD	Limits
		ug/l	Q ug/l	ug/l	%	ug/l	ug/l	%		Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.071	0.087	123	0.071	0.084	118	4	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.082	115	0.071	0.078	110	5	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32300-19 Limits	
460-00-4	Bromofluorobenzene (S)	89%	88%	92%	36-173%
460-00-4	Bromofluorobenzene (S)	100%	104%	106%	36-173%

8.4.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39257-MS	BK39963.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
OP39257-MSD	BK39964.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
MC32521-1	BK39965.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299

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

MC32591-1, MC32591-2

CAS No.	Compound	MC32521-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	37.4	58.5	156	37.7	57.7	153	1	40-156/27
106-93-4	1,2-Dibromoethane	ND	37.4	46.9	125	37.7	48.5	129	3	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
460-00-4	Bromofluorobenzene (S)	159%	162%	155%	61-167%
460-00-4	Bromofluorobenzene (S)	152%	158%	155%	61-167%

8.4.2
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	AB85233.D	1	08/07/14	AF	n/a	n/a	GAB4535
MC32521-1MSD	AB85234.D	1	08/07/14	AF	n/a	n/a	GAB4535
MC32521-1	AB85232.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples:

Method: SW846 8015

MC32591-1, MC32591-2

CAS No.	Compound	MC32521-1 mg/kg	Spike Q	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND	94.1	94.9	101	94.1	95.1	101	0	41-150/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
	2,3,4-Trifluorotoluene	101%	100%	98%	61-116%

8.4.3
8

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32591-4	BK39951.D	90	104
OP39247-BS	BK39939.D	110	118
OP39247-MB	BK39938.D	115	107
OP39247-MS	BK39940.D	89	100
OP39247-MSD	BK39941.D	88	104

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32591-1	BK39984.D	105	141
MC32591-2	BK39985.D	104	138
OP39257-BS	BK39962.D	135	123
OP39257-MB	BK39961.D	158	163
OP39257-MS	BK39963.D	159	152
OP39257-MSD	BK39964.D	162	158

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 61-167%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32591

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC32591-1	AB85246.D	94
MC32591-2	AB85247.D	94
GAB4535-BSD	AB85230.D	97
GAB4535-BSP	AB85229.D	98
GAB4535-MB	AB85228.D	95
MC32521-1MS	AB85233.D	101
MC32521-1MSD	AB85234.D	100

Surrogate Compounds	Recovery Limits
---------------------	-----------------

S1 = 2,3,4-Trifluorotoluene	61-116%
-----------------------------	---------

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1298-ICC1298	Injection Date:	08/05/14
Lab File ID:	BK39934.D	Injection Time:	09:17
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.36	4.38
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39247-MB	BK39938.D	08/05/14	10:34	4.36	4.38
OP39247-BS	BK39939.D	08/05/14	10:54	4.36	4.38
OP39247-MS	BK39940.D	08/05/14	11:13	4.36	4.38
OP39247-MSD	BK39941.D	08/05/14	11:32	4.36	4.38
MC32300-19	BK39942.D	08/05/14	11:52	4.36	4.38
ZZZZZZ	BK39943.D	08/05/14	12:11	4.36	4.37
ZZZZZZ	BK39944.D	08/05/14	12:30	4.36	4.38
ZZZZZZ	BK39945.D	08/05/14	12:49	4.36	4.38
ZZZZZZ	BK39946.D	08/05/14	13:09	4.36	4.38
ZZZZZZ	BK39947.D	08/05/14	13:28	4.36	4.38

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.1
8

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1298-CC1298	Injection Date:	08/05/14
Lab File ID:	BK39948.D	Injection Time:	13:47
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.36	4.37
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
ZZZZZZ	BK39949.D	08/05/14	14:07	0.00	0.00
MC32591-4	BK39951.D	08/05/14	14:45	4.36	4.37
GBK1298-ECC1298	BK39952.D	08/05/14	15:05	4.36	4.37

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.2
8

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1299-CC1299	Injection Date:	08/07/14
Lab File ID:	BK39960.D	Injection Time:	08:31
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.27	4.29
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39257-MB	BK39961.D	08/07/14	09:07	4.27	4.28
OP39257-BS	BK39962.D	08/07/14	09:26	4.27	4.28
OP39257-MS	BK39963.D	08/07/14	09:46	4.27	4.28
OP39257-MSD	BK39964.D	08/07/14	10:05	4.27	4.28
MC32521-1	BK39965.D	08/07/14	10:24	4.27	4.28
ZZZZZZ	BK39966.D	08/07/14	10:44	4.27	4.28
ZZZZZZ	BK39967.D	08/07/14	11:03	4.26	4.28
ZZZZZZ	BK39968.D	08/07/14	11:22	4.27	4.28
ZZZZZZ	BK39969.D	08/07/14	11:42	4.27	4.28
ZZZZZZ	BK39970.D	08/07/14	12:01	4.27	4.28

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.3
8

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1299-CC1299	Injection Date:	08/07/14
Lab File ID:	BK39982.D	Injection Time:	15:54
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.27	4.28
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
ZZZZZZ	BK39983.D	08/07/14	16:13	4.27	4.28
MC32591-1	BK39984.D	08/07/14	16:33	4.27	4.28
MC32591-2	BK39985.D	08/07/14	16:52	4.27	4.28
GBK1299-ECC1299	BK39986.D	08/07/14	17:12	4.27	4.28

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.4
8

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4536-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85227A.D	Injection Time:	07:43
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.33
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
GAB4535-MB	AB85228.D	08/07/14	08:21	20.33
GAB4536-MB	AB85228A.D	08/07/14	08:21	20.33
GAB4536-BSP	AB85229A.D	08/07/14	08:59	20.32
GAB4535-BSP	AB85229.D	08/07/14	08:59	20.32
GAB4535-BSD	AB85230.D	08/07/14	09:37	20.32
GAB4536-BSD	AB85230A.D	08/07/14	09:37	20.32
MC32468-3	AB85231.D	08/07/14	10:15	20.33
MC32521-1	AB85232.D	08/07/14	10:53	20.33
MC32521-1MS	AB85233.D	08/07/14	11:30	20.32
MC32521-1MSD	AB85234.D	08/07/14	12:08	20.32
MC32468-3MS	AB85235.D	08/07/14	12:45	20.32
MC32468-3MSD	AB85236.D	08/07/14	13:23	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.5
8

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4535-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85227.D	Injection Time:	07:43
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.33
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
GAB4535-MB	AB85228.D	08/07/14	08:21	20.33
GAB4536-MB	AB85228A.D	08/07/14	08:21	20.33
GAB4536-BSP	AB85229A.D	08/07/14	08:59	20.32
GAB4535-BSP	AB85229.D	08/07/14	08:59	20.32
GAB4535-BSD	AB85230.D	08/07/14	09:37	20.32
GAB4536-BSD	AB85230A.D	08/07/14	09:37	20.32
MC32468-3	AB85231.D	08/07/14	10:15	20.33
MC32521-1	AB85232.D	08/07/14	10:53	20.33
MC32521-1MS	AB85233.D	08/07/14	11:30	20.32
MC32521-1MSD	AB85234.D	08/07/14	12:08	20.32
MC32468-3MS	AB85235.D	08/07/14	12:45	20.32
MC32468-3MSD	AB85236.D	08/07/14	13:23	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.6
8

GC Surrogate Retention Time Summary

Job Number: MC32591
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4535-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85237.D	Injection Time:	14:01
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
ZZZZZZ	AB85238.D	08/07/14	14:38	20.33
ZZZZZZ	AB85239.D	08/07/14	15:16	20.33
ZZZZZZ	AB85240.D	08/07/14	15:54	20.33
ZZZZZZ	AB85241.D	08/07/14	16:31	20.32
ZZZZZZ	AB85242.D	08/07/14	17:08	20.33
ZZZZZZ	AB85243.D	08/07/14	17:45	20.33
ZZZZZZ	AB85244.D	08/07/14	18:22	20.33
ZZZZZZ	AB85245.D	08/07/14	19:00	20.32
MC32591-1	AB85246.D	08/07/14	19:38	20.33
MC32591-2	AB85247.D	08/07/14	20:16	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.7
8

GC Surrogate Retention Time Summary

Job Number: MC32591
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4536-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85237A.D	Injection Time:	14:01
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
ZZZZZZ	AB85238.D	08/07/14	14:38	20.33
ZZZZZZ	AB85239.D	08/07/14	15:16	20.33
ZZZZZZ	AB85240.D	08/07/14	15:54	20.33
ZZZZZZ	AB85241.D	08/07/14	16:31	20.32
ZZZZZZ	AB85242.D	08/07/14	17:08	20.33
ZZZZZZ	AB85243.D	08/07/14	17:45	20.33
ZZZZZZ	AB85244.D	08/07/14	18:22	20.33
ZZZZZZ	AB85245.D	08/07/14	19:00	20.32
MC32591-1	AB85246.D	08/07/14	19:38	20.33
MC32591-2	AB85247.D	08/07/14	20:16	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.8
8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32591
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample: MC32591-1 Analyzed: 07-AUG-14 by HS Method: SM21 2540 B MOD.
ClientID: SVE46-080414(18-22')

Wet Weight (Total)	24.788	g
Tare Weight	16.952	g
Dry Weight (Total)	24.453	g
Solids, Percent	95.7	%

Sample: MC32591-2 Analyzed: 07-AUG-14 by HS Method: SM21 2540 B MOD.
ClientID: SVE46-080414(18-22')DUP

Wet Weight (Total)	28.235	g
Tare Weight	18.48	g
Dry Weight (Total)	27.847	g
Solids, Percent	96	%

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.



e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
21562973.19200

SGS Accutest Job Number: MC32628

Sampling Date: 08/05/14

Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 87



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
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

October 27, 2016

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

RE: SGS Accutest Job # MC32628

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: MC32628

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC32628-2	08/05/14	16:45 EA	08/06/14	SO	Soil	SVE42-080514(32-34')
MC32628-3	08/05/14	00:00 EA	08/06/14	AQ	Trip Blank Water	TB-080514-HCL
MC32628-4	08/05/14	00:00 EA	08/06/14	AQ	Trip Blank Water	TB-080514-ST

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

SAMPLE DELIVERY GROUP CASE NARRATIVE



Client: She O

Job No MC32628

Site: URSMOSTL: Roxana 4th St Extens on We Insta , 900 South Cent **Report Date** 0/27/20 6 2:43:03 P

Sample(s), 2 Trip Blank(s) were collected on 08/05/2014 and were received at SGS Accutest New England on 08/06/2014 properly preserved, at 08 Deg C and intact. These Samples received a job number of MC32628. Assignment of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report. 2-Chloroethane, Benzene, n-Propylbenzene, 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 8260C

Matrix: AQ

Batch ID: MSU968

- All samples were analyzed within the recommended method holding time
- Sample(s) MC33042-MS, MC33042-MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification criteria
- Blank Spike Recovery(s) for Dichlorodifluoromethane, Trichlorofluoromethane are out of control limits
- Matrix Spike Recovery(s) for 2-Chloroethyl vinyl ether, 2-Hexanone, Acetone, Bromomethane, Chloroethane, Vinyl chloride are out of control limits. Out of control limits due to possible matrix interference
- Matrix Spike Duplicate Recovery(s) for 2-Chloroethyl vinyl ether, 2-Hexanone, Acetone, Chloroethane, Vinyl chloride are out of control limits. Out of control limits due to possible matrix interference
- Matrix Spike has internal standard out of control limits. Out of control limits due to possible matrix interference. Confirmed by MS/MSD

Matrix: SO

Batch ID: MSK2566

- All samples were analyzed within the recommended method holding time
- Sample(s) MC32860-8MS, MC32860-8MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification criteria
- Matrix Spike Recovery(s) for 1,4-Dioxane, Vinyl Acetate are out of control limits. Out of control limits due to possible matrix interference
- Matrix Spike Duplicate Recovery(s) for 1,4-Dioxane, Vinyl Acetate, Acetone are out of control limits. Out of control limits due to possible matrix interference
- RPD(s) for MSD for Acetone are out of control limits for sample MC32860-8MSD. High RPD due to possible matrix interference and/or sample non-homogeneity
- MC32628-2 for 1,4-Dioxane, Dichlorodifluoromethane: In this Calibration Confirmation out of acceptance criteria. Result based on
- MC32628-2 for Vinyl Acetate, 1,4-Dioxane: Continuing Calibration out of acceptance criteria. Sample result may be based on

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP39292

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- A method blanks for this batch meet method specification
- Sample(s) MC32628-2MS, MC32628-2MSD were used as the QC samples indicated
- Blank Spike Recovery(s) for Hexachlorocyclopentadiene are out of control limits
- Matrix Spike Recovery(s) for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol are out of control limits. Out of control limits due to possible matrix interference
- Matrix Spike Duplicate Recovery(s) for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol, Pyridine are out of control limits. Out of control limits due to possible matrix interference
- RPD(s) for MSD for Hexachloroethane are out of control limits for sample OP39292-MSD. High RPD due to possible matrix interference and/or sample heterogeneity
- RPD of OP39292-BSD for Benzocad, Hexachlorocyclopentadiene: Out of control limits
- RPD OP39292-BSD for bis(2-Chloropropyl) ether: Analyte recovery satisfactory
- OP39292-MS/MSD for Benzocad, Hexachlorocyclopentadiene: Out of control limits

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: SO **Batch ID:** OP39293

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- Sample(s) MC32628-2MS, MC32628-2MSD 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:** OP3948

- A samples were analyzed within the recommended method holding time
- A method blanks for this batch meet method specification
- Sample(s) MC32700-7MS, MC32700-7MSD were used as the QC samples indicated
- Continuing calibration check standard GBK 303-ECC 303 for 1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane exceed 5% Dev (response bias high). Associated samples are non-detect for these analytes

Matrix: SO **Batch ID:** OP39346

- A samples were extracted within the recommended method holding time
- A samples were analyzed within the recommended method holding time
- A method blanks for this batch meet method specification
- Sample(s) MC32707-2MS, MC32707-2MSD were used as the QC samples indicated

Volatiles by GC By Method SW846 8015

Matrix: SO **Batch ID:** GAB4535

- A samples were analyzed within the recommended method holding time
- Sample(s) MC3252 - MS, MC3252 - MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification
- Calibration check standard GAB4536-CC4488 not associated with this job

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO

Batch ID: GN47895

- Sample(s) MC32549- DUP were used as the QC samples for Solids, Percent

SGS Accutest New England certifies that all analyses were performed within method specifications. 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 (MC32628).

Thursday, October 27, 2016

Page 3 of 3

Summary of Hits

Job Number: MC32628
Account: Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Collected: 08/05/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC32628-2	SVE42-080514(32-34')					
n-Butylbenzene		1.46	0.87	0.042	mg/kg	SW846 8260C
Ethylbenzene		1.38	0.35	0.12	mg/kg	SW846 8260C
Isopropylbenzene		0.455 J	0.87	0.029	mg/kg	SW846 8260C
Naphthalene		2.26	0.87	0.069	mg/kg	SW846 8260C
n-Propylbenzene		1.22	0.87	0.026	mg/kg	SW846 8260C
1,2,4-Trimethylbenzene		7.03	0.87	0.25	mg/kg	SW846 8260C
1,3,5-Trimethylbenzene		1.89	0.87	0.26	mg/kg	SW846 8260C
m,p-Xylene		3.41	0.35	0.076	mg/kg	SW846 8260C
o-Xylene		1.83	0.35	0.049	mg/kg	SW846 8260C
Xylene (total)		5.24	0.35	0.038	mg/kg	SW846 8260C
Total TIC, Volatile		45.5 J			mg/kg	
2-Methylnaphthalene		0.0013 J	0.012	0.0011	mg/kg	SW846 8270D BY SIM
TPH-GRO (VOA)		12.2 J	15	2.2	mg/kg	SW846 8015

MC32628-3 TB-080514-HCL

No hits reported in this sample.

MC32628-4 TB-080514-ST

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SVE42-080514(32-34')	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-2	Date Received:	08/06/14
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K81134.D	1	08/15/14	JM	n/a	n/a	MSK2566
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.68 g	10.0 ml	100 ul
Run #2			

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1.7	0.49	mg/kg	
107-02-8	Acrolein	ND	4.3	1.5	mg/kg	
107-13-1	Acrylonitrile	ND	4.3	0.48	mg/kg	
71-43-2	Benzene	ND	0.087	0.059	mg/kg	
108-86-1	Bromobenzene	ND	0.87	0.044	mg/kg	
74-97-5	Bromochloromethane	ND	0.87	0.060	mg/kg	
75-27-4	Bromodichloromethane	ND	0.35	0.036	mg/kg	
75-25-2	Bromoform	ND	0.35	0.062	mg/kg	
74-83-9	Bromomethane	ND	0.35	0.10	mg/kg	
78-93-3	2-Butanone (MEK)	ND	1.7	0.53	mg/kg	
104-51-8	n-Butylbenzene	1.46	0.87	0.042	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.87	0.13	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.87	0.037	mg/kg	
75-15-0	Carbon disulfide	ND	0.87	0.023	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.35	0.038	mg/kg	
108-90-7	Chlorobenzene	ND	0.35	0.027	mg/kg	
75-00-3	Chloroethane	ND	0.87	0.13	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.87	0.22	mg/kg	
67-66-3	Chloroform	ND	0.35	0.029	mg/kg	
74-87-3	Chloromethane	ND	0.87	0.098	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.87	0.033	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.87	0.046	mg/kg	
124-48-1	Dibromochloromethane	ND	0.35	0.056	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.35	0.037	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.35	0.053	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.35	0.060	mg/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	0.35	0.14	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.35	0.046	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.35	0.056	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.35	0.072	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.35	0.079	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.35	0.073	mg/kg	

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:	SVE42-080514(32-34')	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-2	Date Received:	08/06/14
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.35	0.073	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.87	0.057	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.87	0.098	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.87	0.046	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.35	0.039	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.35	0.046	mg/kg	
123-91-1	1,4-Dioxane ^b	ND	4.3	3.5	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.87	0.062	mg/kg	
100-41-4	Ethylbenzene	1.38	0.35	0.12	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.87	0.10	mg/kg	
591-78-6	2-Hexanone	ND	1.7	0.13	mg/kg	
98-82-8	Isopropylbenzene	0.455	0.87	0.029	mg/kg	J
99-87-6	p-Isopropyltoluene	ND	0.87	0.030	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.35	0.032	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.87	0.094	mg/kg	
74-95-3	Methylene bromide	ND	0.87	0.080	mg/kg	
75-09-2	Methylene chloride	ND	0.35	0.092	mg/kg	
91-20-3	Naphthalene	2.26	0.87	0.069	mg/kg	
103-65-1	n-Propylbenzene	1.22	0.87	0.026	mg/kg	
100-42-5	Styrene	ND	0.87	0.030	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.87	0.070	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.35	0.068	mg/kg	
127-18-4	Tetrachloroethene	ND	0.35	0.054	mg/kg	
108-88-3	Toluene	ND	0.87	0.036	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.87	0.074	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.87	0.089	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.35	0.038	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.35	0.10	mg/kg	
79-01-6	Trichloroethene	ND	0.35	0.043	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.35	0.069	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.87	0.050	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	7.03	0.87	0.25	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	1.89	0.87	0.26	mg/kg	
108-05-4	Vinyl Acetate ^c	ND	0.87	0.27	mg/kg	
75-01-4	Vinyl chloride	ND	0.35	0.16	mg/kg	
	m,p-Xylene	3.41	0.35	0.076	mg/kg	
95-47-6	o-Xylene	1.83	0.35	0.049	mg/kg	
1330-20-7	Xylene (total)	5.24	0.35	0.038	mg/kg	

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: SVE42-080514(32-34')	Date Sampled: 08/05/14
Lab Sample ID: MC32628-2	Date Received: 08/06/14
Matrix: SO - Soil	Percent Solids: 83.0
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

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VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	102%		70-130%
460-00-4	4-Bromofluorobenzene	115%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
111-84-2	Nonane	13.39	1.8	mg/kg	JN
611-14-3	Benzene, 1-ethyl-2-methyl-	14.61	3.8	mg/kg	JN
622-96-8	Benzene, 1-ethyl-4-methyl-	14.93	2.3	mg/kg	JN
526-73-8	Benzene, 1,2,3-trimethyl-	15.63	2.5	mg/kg	JN
1120-21-4	Undecane	16.10	4.3	mg/kg	JN
527-53-7	Benzene, 1,2,3,5-tetramethyl-	16.25	1.6	mg/kg	JN
934-74-7	Benzene, 1-ethyl-3,5-dimethyl-	16.32	2.9	mg/kg	JN
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	16.64	1.8	mg/kg	JN
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	16.82	2.9	mg/kg	JN
	Unknown Benzene	16.87	4	mg/kg	JN
1005-64-7	Benzene, 1-butenyl-, (E)-	17.12	2.4	mg/kg	JN
112-40-3	Dodecane	17.26	4.5	mg/kg	JN
6682-71-9	1H-Indene, 2,3-dihydro-4,7-dimethyl-	17.78	5	mg/kg	JN
629-50-5	Tridecane	18.34	2	mg/kg	JN
91-57-6	Naphthalene, 2-methyl-	19.25	3.7	mg/kg	JN
	Total TIC, Volatile		45.5	mg/kg	J

- (a) Initial Calibration Confirmation outside of acceptance criteria. Result biased low.
- (b) Initial calibration verification and Continuing Calibration outside of acceptance criteria. Sample result may be biased low.
- (c) Continuing Calibration 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:	SVE42-080514(32-34')	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-2	Date Received:	08/06/14
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75205.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.59	0.073	mg/kg	
95-57-8	2-Chlorophenol	ND	0.29	0.013	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.59	0.015	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.59	0.017	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.59	0.096	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.2	0.15	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.59	0.073	mg/kg	
95-48-7	2-Methylphenol	ND	0.59	0.023	mg/kg	
	3&4-Methylphenol	ND	0.59	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.59	0.016	mg/kg	
100-02-7	4-Nitrophenol	ND	1.2	0.11	mg/kg	
87-86-5	Pentachlorophenol	ND	0.59	0.041	mg/kg	
108-95-2	Phenol	ND	0.29	0.017	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.59	0.015	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.59	0.014	mg/kg	
62-53-3	Aniline	ND	0.59	0.029	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.29	0.015	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.29	0.012	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.59	0.030	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.29	0.016	mg/kg	
106-47-8	4-Chloroaniline	ND	0.59	0.015	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.29	0.014	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.29	0.018	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.29	0.021	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.29	0.018	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.29	0.013	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.59	0.039	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.59	0.015	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.29	0.029	mg/kg	
132-64-9	Dibenzofuran	ND	0.12	0.016	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.29	0.031	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.29	0.0092	mg/kg	

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:	SVE42-080514(32-34')	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-2	Date Received:	08/06/14
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D SW846 3546		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.29	0.015	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.29	0.017	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.29	0.011	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.29	0.018	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.59	0.15	mg/kg	
67-72-1	Hexachloroethane	ND	0.29	0.014	mg/kg	
78-59-1	Isophorone	ND	0.29	0.014	mg/kg	
88-74-4	2-Nitroaniline	ND	0.59	0.015	mg/kg	
99-09-2	3-Nitroaniline	ND	0.59	0.032	mg/kg	
100-01-6	4-Nitroaniline	ND	0.59	0.015	mg/kg	
98-95-3	Nitrobenzene	ND	0.29	0.016	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.29	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.29	0.017	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.29	0.018	mg/kg	
110-86-1	Pyridine	ND	0.59	0.029	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		30-130%
4165-62-2	Phenol-d5	52%		30-130%
118-79-6	2,4,6-Tribromophenol	58%		30-130%
4165-60-0	Nitrobenzene-d5	52%		30-130%
321-60-8	2-Fluorobiphenyl	57%		30-130%
1718-51-0	Terphenyl-d14	70%		30-130%

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

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:	SVE42-080514(32-34')	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-2	Date Received:	08/06/14
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D BY SIM SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91197.D	1	08/13/14	MR	08/06/14	OP39293	MSI3395
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0059	0.0010	mg/kg	
208-96-8	Acenaphthylene	ND	0.0059	0.00089	mg/kg	
120-12-7	Anthracene	ND	0.0059	0.0013	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0059	0.0027	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0059	0.0023	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0059	0.0026	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.0059	0.0016	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0059	0.0018	mg/kg	
218-01-9	Chrysene	ND	0.0059	0.0016	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0059	0.0017	mg/kg	
206-44-0	Fluoranthene	ND	0.0059	0.0017	mg/kg	
86-73-7	Fluorene	ND	0.0059	0.0012	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0059	0.0015	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.012	0.0013	mg/kg	
91-57-6	2-Methylnaphthalene	0.0013	0.012	0.0011	mg/kg	J
85-01-8	Phenanthrene	ND	0.0059	0.0012	mg/kg	
129-00-0	Pyrene	ND	0.0059	0.0018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		30-130%
321-60-8	2-Fluorobiphenyl	57%		30-130%
1718-51-0	Terphenyl-d14	80%		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

Client Sample ID: SVE42-080514(32-34')	Date Sampled: 08/05/14
Lab Sample ID: MC32628-2	Date Received: 08/06/14
Matrix: SO - Soil	Percent Solids: 83.0
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ91290.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
Run #2							

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

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0030	0.00088	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0030	0.00073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	112%		61-167%
460-00-4	Bromofluorobenzene (S)	111%		61-167%

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
4

Report of Analysis

Client Sample ID: SVE42-080514(32-34')	Date Sampled: 08/05/14
Lab Sample ID: MC32628-2	Date Received: 08/06/14
Matrix: SO - Soil	Percent Solids: 83.0
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85245.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.33 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	12.2	15	2.2	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	98%		61-116%		

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
4

Report of Analysis

Client Sample ID:	TB-080514-HCL	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-3	Date Received:	08/06/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U21855.D	1	08/18/14	GK	n/a	n/a	MSU968
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	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	TB-080514-HCL	Date Sampled:	08/05/14
Lab Sample ID:	MC32628-3	Date Received:	08/06/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: TB-080514-HCL		Date Sampled: 08/05/14
Lab Sample ID: MC32628-3		Date Received: 08/06/14
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

4.2
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		70-130%
2037-26-5	Toluene-D8	101%		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	

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-080514-ST	Date Sampled: 08/05/14
Lab Sample ID: MC32628-4	Date Received: 08/06/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK40154.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
Run #2							

Run #	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	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0059	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	82%		36-173%
460-00-4	Bromofluorobenzene (S)	84%		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

4.3
4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

MC32628

URS

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
 WENCO
 CALSCEM
 OTHER
 SPL

Accrest Labs: 498 Technology Ctr W
 Marlborough, MA 01752 (508-461-6300)
 Lab Vendor #

Please Check Appropriate Box:

ENV. SERVICES
 MOTIVA SOGCH
 SHELL PIPELINE

MOTIVA RETAIL
 CONSULTANT
 OTHER

SHELL RETAIL
 LUBES

Print Bill To Contact Name: Bob Billman
 INCIDENT # (ENV SERVICES): 9 7 2 1 8 8 4 0
 CHECK IF NO INCIDENT # APPLIES
 DATE: 8/5/2014
 PAGE: 1 of 1

SAMPLING COMPANY: URS CORPORATION
 ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300; ST. LOUIS, MO 63110
 PROJECT CONTRACT # (Industry or PDP Report #):
 Elizabeth Kunkel, Bob Billman
 TEL: 314-429-0100 FAX: 314-429-0462
 E-MAIL: bob.billman@urs.com, elizabeth.kunkel@urs.com

SITE ADDRESS: Street and City: 900 South Central Ave; ROXANA
 STATE: IL
 CONSULTANT PROJECT NO: 4th St. Extension Well Install / 21562973.19200
 LAB USE ONLY: MC32628

TURNAROUND TIME (CALENDAR DAYS):
 STANDARD (10 DAY) 3 DAYS 3 DAYS 7 DAYS 24 HOURS RESULTS NEEDED ON WEEKEND

LA - RWQCB REPORT FORMAT UST AGENCY:

DELIVERABLES: LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4 OTHER (SPECIFY) EDD

TEMPERATURE ON RECEIPT C° Cooler #1 Cooler #2 Cooler #3

SPECIAL INSTRUCTIONS OR NOTES:
 * Please include "J" values on Reports.
 * Please provide sample receipt upon login.

SHELL CONTRACT RATE APPLIES
 STATE REIMBURSEMENT RATE APPLIES
 EDD NOT NEEDED
 RECEIPT VERIFICATION REQUESTED
 PROVIDE LEDD DISK

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE					NO. OF CONT.	REQUESTED ANALYSIS										PID (ppm)	FIELD NOTES: TEMPERATURE ON RECEIPT C° Container PID Readings or Laboratory Notes			
		DATE	TIME		HCL	H2O2	H2SO4	NONE	OTHER		VOC 8260B SL+TICS "Top 16"	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO									
1	SVE45-080514 (26-30)	8/5/2014	1130	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X	X	12.7	
15	SVE45-080514 (26-30)	8/5/2014	1130	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X	X	12.7	
17	SVE45-080514 (26-30)	8/5/2014	1130	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X	X	12.7	
2	SVE42-080514 (32-34)	8/5/2014	1645	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X	X	750	
3	TB-080514 HCL			W			2				X														
4	TB-080514 ST			W			2				X														

Requested by (Signature): <i>[Signature]</i>	Received by (Signature):	Date: 8/5/14	Time: 1830
Requested by (Signature): FEDX	Received by (Signature): <i>[Signature]</i>	Date: 8-6-14	Time: 930
Requested by (Signature):	Received by (Signature):	Date:	Time:

08°C

5.1
5

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32628 **Client:** URS **Immediate Client Services Action Required:** No
Date / Time Received: 8/6/2014 **Delivery Method:** _____ **Client Service Action Required at Login:** No
Project: ROXANA **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. SmpI 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

Internal Sample Tracking Chronicle

Shell Oil

Job No: MC32628

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC32628-2 Collected: 05-AUG-14 16:45 By: EA Received: 06-AUG-14 By: SAP SVE42-080514(32-34')						
MC32628-2	SM21 2540 B MOD.	07-AUG-14	HS			%SOL
MC32628-2	SW846 8270D	07-AUG-14 16:09	WK	06-AUG-14	MT	AB8270SL +
MC32628-2	SW846 8015	07-AUG-14 19:00	AF			V8015GRO
MC32628-2	SW846 8011	11-AUG-14 23:15	SZ	11-AUG-14	AZ	V8011SL
MC32628-2	SW846 8270D BY SIM	13-AUG-14 10:24	MR	06-AUG-14	MT	B8270SIMSL
MC32628-2	SW846 8260C	15-AUG-14 20:04	JM			V8260SL +
MC32628-3 Collected: 05-AUG-14 00:00 By: EA Received: 06-AUG-14 By: SAP TB-080514-HCL						
MC32628-3	SW846 8260C	18-AUG-14 11:16	GK			V8260SL +
MC32628-4 Collected: 05-AUG-14 00:00 By: EA Received: 06-AUG-14 By: SAP TB-080514-ST						
MC32628-4	SW846 8011	19-AUG-14 18:13	AP	14-AUG-14	MT	V8011SL

SGS Accutest Internal Chain of Custody

Job Number: MC32628
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Received: 08/06/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32628-1.5	Walk In Ref #5	Aysia Wood	08/06/14 17:54	Retrieve from Storage
MC32628-1.5	Aysia Wood	Walk In Ref #5	08/06/14 22:24	Return to Storage
MC32628-1.5	Scott Parsick		09/25/14 16:09	Disposed
MC32628-2.1	Walk In Ref #5	Hamid Siamak	08/07/14 11:27	Retrieve from Storage
MC32628-2.1	Hamid Siamak	Walk In Ref #5	08/07/14 14:06	Return to Storage
MC32628-2.1	Walk In Ref #5	Alireza Zeighami	08/11/14 07:36	Retrieve from Storage
MC32628-2.1	Alireza Zeighami	Walk In Ref #5	08/11/14 08:12	Return to Storage
MC32628-2.1	Scott Parsick		09/25/14 16:09	Disposed
MC32628-2.4	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32628-2.4	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32628-2.4	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32628-2.4	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32628-2.4	Scott Parsick		09/25/14 16:09	Disposed
MC32628-2.5	VOC Ref #10	Krysten Dufort	08/08/14 16:22	Retrieve from Storage
MC32628-2.5	Krysten Dufort	VOC Ref #10	08/11/14 10:30	Return to Storage
MC32628-2.5	VOC Ref #10	Jaime Maslowski	08/15/14 09:35	Retrieve from Storage
MC32628-2.5	Jaime Maslowski	VOC Ref #10	08/18/14 09:53	Return to Storage
MC32628-2.5	Scott Parsick		09/25/14 16:09	Disposed
MC32628-3.2	VOC Ref #2	Gary Krasinski	08/18/14 10:41	Retrieve from Storage
MC32628-3.2	Gary Krasinski	GCMSU	08/18/14 10:41	Load on Instrument
MC32628-3.2	GCMSU	Gary Krasinski	08/19/14 08:49	Unload from Instrument
MC32628-3.2	Gary Krasinski	VOC Ref #2	08/19/14 08:49	Return to Storage
MC32628-3.2	Scott Parsick		09/25/14 16:09	Disposed
MC32628-4.1	VOC Ref #1	Marc Tahtamoni	08/14/14 20:19	Retrieve from Storage
MC32628-4.1	Scott Parsick		09/25/14 16:09	Disposed

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: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-MB	K81113.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	500	140	ug/kg	
107-02-8	Acrolein	ND	1300	440	ug/kg	
107-13-1	Acrylonitrile	ND	1300	140	ug/kg	
71-43-2	Benzene	ND	25	17	ug/kg	
108-86-1	Bromobenzene	ND	250	13	ug/kg	
74-97-5	Bromochloromethane	ND	250	17	ug/kg	
75-27-4	Bromodichloromethane	ND	100	10	ug/kg	
75-25-2	Bromoform	ND	100	18	ug/kg	
74-83-9	Bromomethane	ND	100	30	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	150	ug/kg	
104-51-8	n-Butylbenzene	ND	250	12	ug/kg	
135-98-8	sec-Butylbenzene	ND	250	37	ug/kg	
98-06-6	tert-Butylbenzene	ND	250	11	ug/kg	
75-15-0	Carbon disulfide	ND	250	6.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	11	ug/kg	
108-90-7	Chlorobenzene	ND	100	7.9	ug/kg	
75-00-3	Chloroethane	ND	250	38	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	250	63	ug/kg	
67-66-3	Chloroform	ND	100	8.5	ug/kg	
74-87-3	Chloromethane	ND	250	28	ug/kg	
95-49-8	o-Chlorotoluene	ND	250	9.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	250	13	ug/kg	
124-48-1	Dibromochloromethane	ND	100	16	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	100	11	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	100	15	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	100	17	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	100	40	ug/kg	
75-34-3	1,1-Dichloroethane	ND	100	13	ug/kg	
107-06-2	1,2-Dichloroethane	ND	100	16	ug/kg	
75-35-4	1,1-Dichloroethene	ND	100	21	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	100	23	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	100	21	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	21	ug/kg	
142-28-9	1,3-Dichloropropane	ND	250	16	ug/kg	
594-20-7	2,2-Dichloropropane	ND	250	28	ug/kg	
563-58-6	1,1-Dichloropropene	ND	250	13	ug/kg	

Method Blank Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-MB	K81113.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	11	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	13	ug/kg	
123-91-1	1,4-Dioxane	ND	1300	1000	ug/kg	
97-63-2	Ethyl methacrylate	ND	250	18	ug/kg	
100-41-4	Ethylbenzene	ND	100	34	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	29	ug/kg	
591-78-6	2-Hexanone	ND	500	38	ug/kg	
98-82-8	Isopropylbenzene	ND	250	8.4	ug/kg	
99-87-6	p-Isopropyltoluene	ND	250	8.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	100	9.1	ug/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	27	ug/kg	
74-95-3	Methylene bromide	ND	250	23	ug/kg	
75-09-2	Methylene chloride	ND	100	27	ug/kg	
91-20-3	Naphthalene	ND	250	20	ug/kg	
103-65-1	n-Propylbenzene	ND	250	7.6	ug/kg	
100-42-5	Styrene	ND	250	8.5	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	20	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	20	ug/kg	
127-18-4	Tetrachloroethene	ND	100	16	ug/kg	
108-88-3	Toluene	ND	250	10	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	21	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	26	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	11	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	29	ug/kg	
79-01-6	Trichloroethene	ND	100	12	ug/kg	
75-69-4	Trichlorofluoromethane	ND	100	20	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	14	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	72	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	76	ug/kg	
108-05-4	Vinyl Acetate	ND	250	77	ug/kg	
75-01-4	Vinyl chloride	ND	100	45	ug/kg	
	m,p-Xylene	ND	100	22	ug/kg	
95-47-6	o-Xylene	ND	100	14	ug/kg	
1330-20-7	Xylene (total)	ND	100	11	ug/kg	

6.1.1
6

Method Blank Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-MB	K81113.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	107%	70-130%
2037-26-5	Toluene-D8	105%	70-130%
460-00-4	4-Bromofluorobenzene	105%	70-130%

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

6.1.1
6

Method Blank Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU968-MB	U21854.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	

Method Blank Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU968-MB	U21854.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	ug/l	

Method Blank Summary

Job Number: MC32628
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU968-MB	U21854.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	109%	70-130%
2037-26-5	Toluene-D8	111%	70-130%
460-00-4	4-Bromofluorobenzene	116%	70-130%

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

Blank Spike Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-BS	K81111.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	2500	2960	118	70-130
107-02-8	Acrolein	12500	12700	102	70-130
107-13-1	Acrylonitrile	2500	2390	96	70-130
71-43-2	Benzene	2500	2450	98	70-130
108-86-1	Bromobenzene	2500	2630	105	70-130
74-97-5	Bromochloromethane	2500	2430	97	70-130
75-27-4	Bromodichloromethane	2500	2640	106	70-130
75-25-2	Bromoform	2500	2410	96	70-130
74-83-9	Bromomethane	2500	2470	99	70-130
78-93-3	2-Butanone (MEK)	2500	2660	106	70-130
104-51-8	n-Butylbenzene	2500	2840	114	70-130
135-98-8	sec-Butylbenzene	2500	2890	116	70-130
98-06-6	tert-Butylbenzene	2500	2900	116	70-130
75-15-0	Carbon disulfide	2500	2770	111	70-130
56-23-5	Carbon tetrachloride	2500	2770	111	70-130
108-90-7	Chlorobenzene	2500	2530	101	70-130
75-00-3	Chloroethane	2500	2950	118	70-130
110-75-8	2-Chloroethyl vinyl ether	2500	2510	100	10-160
67-66-3	Chloroform	2500	2380	95	70-130
74-87-3	Chloromethane	2500	2550	102	70-130
95-49-8	o-Chlorotoluene	2500	2580	103	70-130
106-43-4	p-Chlorotoluene	2500	2580	103	70-130
124-48-1	Dibromochloromethane	2500	2480	99	70-130
95-50-1	1,2-Dichlorobenzene	2500	2610	104	70-130
541-73-1	1,3-Dichlorobenzene	2500	2520	101	70-130
106-46-7	1,4-Dichlorobenzene	2500	2580	103	70-130
75-71-8	Dichlorodifluoromethane	2500	2940	118	70-130
75-34-3	1,1-Dichloroethane	2500	2640	106	70-130
107-06-2	1,2-Dichloroethane	2500	2410	96	70-130
75-35-4	1,1-Dichloroethene	2500	2920	117	70-130
156-59-2	cis-1,2-Dichloroethene	2500	2420	97	70-130
156-60-5	trans-1,2-Dichloroethene	2500	2580	103	70-130
78-87-5	1,2-Dichloropropane	2500	2650	106	70-130
142-28-9	1,3-Dichloropropane	2500	2490	100	70-130
594-20-7	2,2-Dichloropropane	2500	2580	103	70-130
563-58-6	1,1-Dichloropropene	2500	2710	108	70-130

* = Outside of Control Limits.

6.2.1
6

Blank Spike Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-BS	K81111.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	2500	2570	103	70-130
10061-02-6	trans-1,3-Dichloropropene	2500	2700	108	70-130
123-91-1	1,4-Dioxane	6250	5270	84	70-130
97-63-2	Ethyl methacrylate	2500	2530	101	76-141
100-41-4	Ethylbenzene	2500	2560	102	70-130
87-68-3	Hexachlorobutadiene	2500	2730	109	70-130
591-78-6	2-Hexanone	2500	2410	96	70-130
98-82-8	Isopropylbenzene	2500	2920	117	70-130
99-87-6	p-Isopropyltoluene	2500	2770	111	70-130
1634-04-4	Methyl Tert Butyl Ether	2500	2430	97	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	2500	2300	92	70-130
74-95-3	Methylene bromide	2500	2480	99	70-130
75-09-2	Methylene chloride	2500	2630	105	70-130
91-20-3	Naphthalene	2500	2510	100	70-130
103-65-1	n-Propylbenzene	2500	2810	112	70-130
100-42-5	Styrene	2500	2510	100	70-130
630-20-6	1,1,1,2-Tetrachloroethane	2500	2520	101	70-130
79-34-5	1,1,2,2-Tetrachloroethane	2500	2540	102	70-130
127-18-4	Tetrachloroethene	2500	2620	105	70-130
108-88-3	Toluene	2500	2550	102	70-130
87-61-6	1,2,3-Trichlorobenzene	2500	2510	100	70-130
120-82-1	1,2,4-Trichlorobenzene	2500	2610	104	70-130
71-55-6	1,1,1-Trichloroethane	2500	2530	101	70-130
79-00-5	1,1,2-Trichloroethane	2500	2470	99	70-130
79-01-6	Trichloroethene	2500	2470	99	70-130
75-69-4	Trichlorofluoromethane	2500	2790	112	70-130
96-18-4	1,2,3-Trichloropropane	2500	2460	98	70-130
95-63-6	1,2,4-Trimethylbenzene	2500	2690	108	70-130
108-67-8	1,3,5-Trimethylbenzene	2500	2670	107	70-130
108-05-4	Vinyl Acetate	2500	1750	70	70-130
75-01-4	Vinyl chloride	2500	2600	104	70-130
	m,p-Xylene	5000	4980	100	70-130
95-47-6	o-Xylene	2500	2410	96	70-130
1330-20-7	Xylene (total)	7500	7390	99	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2566-BS	K81111.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	70-130%
2037-26-5	Toluene-D8	109%	70-130%
460-00-4	4-Bromofluorobenzene	104%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU968-BS	U21851.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	41.0	82	70-130
107-02-8	Acrolein	250	183	73	70-130
107-13-1	Acrylonitrile	50	42.8	86	70-130
71-43-2	Benzene	50	47.1	94	70-130
108-86-1	Bromobenzene	50	46.5	93	70-130
74-97-5	Bromochloromethane	50	45.8	92	70-130
75-27-4	Bromodichloromethane	50	46.1	92	70-130
75-25-2	Bromoform	50	42.4	85	70-130
74-83-9	Bromomethane	50	42.6	85	70-130
78-93-3	2-Butanone (MEK)	50	44.4	89	70-130
104-51-8	n-Butylbenzene	50	52.5	105	70-130
135-98-8	sec-Butylbenzene	50	53.7	107	70-130
98-06-6	tert-Butylbenzene	50	44.5	89	70-130
75-15-0	Carbon disulfide	50	48.7	97	70-130
56-23-5	Carbon tetrachloride	50	36.8	74	70-130
108-90-7	Chlorobenzene	50	46.2	92	70-130
75-00-3	Chloroethane	50	51.0	102	70-130
110-75-8	2-Chloroethyl vinyl ether	50	41.5	83	70-130
67-66-3	Chloroform	50	46.0	92	70-130
74-87-3	Chloromethane	50	40.1	80	70-130
95-49-8	o-Chlorotoluene	50	49.8	100	70-130
106-43-4	p-Chlorotoluene	50	47.0	94	70-130
124-48-1	Dibromochloromethane	50	44.1	88	70-130
95-50-1	1,2-Dichlorobenzene	50	49.7	99	70-130
541-73-1	1,3-Dichlorobenzene	50	48.9	98	70-130
106-46-7	1,4-Dichlorobenzene	50	50.9	102	70-130
75-71-8	Dichlorodifluoromethane	50	32.8	66* a	70-130
75-34-3	1,1-Dichloroethane	50	46.8	94	70-130
107-06-2	1,2-Dichloroethane	50	40.3	81	70-130
75-35-4	1,1-Dichloroethene	50	45.0	90	70-130
156-59-2	cis-1,2-Dichloroethene	50	45.4	91	70-130
156-60-5	trans-1,2-Dichloroethene	50	43.8	88	70-130
78-87-5	1,2-Dichloropropane	50	46.5	93	70-130
142-28-9	1,3-Dichloropropane	50	49.2	98	70-130
594-20-7	2,2-Dichloropropane	50	46.9	94	70-130
563-58-6	1,1-Dichloropropene	50	42.5	85	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU968-BS	U21851.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	46.9	94	70-130
10061-02-6	trans-1,3-Dichloropropene	50	46.5	93	70-130
123-91-1	1,4-Dioxane	125	125	100	70-130
97-63-2	Ethyl methacrylate	50	44.2	88	77-137
100-41-4	Ethylbenzene	50	46.7	93	70-130
87-68-3	Hexachlorobutadiene	50	44.9	90	70-130
591-78-6	2-Hexanone	50	39.4	79	70-130
98-82-8	Isopropylbenzene	50	53.9	108	70-130
99-87-6	p-Isopropyltoluene	50	51.9	104	70-130
1634-04-4	Methyl Tert Butyl Ether	50	45.3	91	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	41.8	84	70-130
74-95-3	Methylene bromide	50	44.0	88	70-130
75-09-2	Methylene chloride	50	46.8	94	70-130
91-20-3	Naphthalene	50	49.1	98	70-130
103-65-1	n-Propylbenzene	50	53.1	106	70-130
100-42-5	Styrene	50	45.6	91	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	42.8	86	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	54.3	109	70-130
127-18-4	Tetrachloroethene	50	45.6	91	70-130
108-88-3	Toluene	50	45.8	92	70-130
87-61-6	1,2,3-Trichlorobenzene	50	45.9	92	70-130
120-82-1	1,2,4-Trichlorobenzene	50	46.2	92	70-130
71-55-6	1,1,1-Trichloroethane	50	40.7	81	70-130
79-00-5	1,1,2-Trichloroethane	50	44.6	89	70-130
79-01-6	Trichloroethene	50	43.0	86	70-130
75-69-4	Trichlorofluoromethane	50	31.3	63* a	70-130
96-18-4	1,2,3-Trichloropropane	50	50.5	101	70-130
95-63-6	1,2,4-Trimethylbenzene	50	52.0	104	70-130
108-67-8	1,3,5-Trimethylbenzene	50	50.4	101	70-130
108-05-4	Vinyl Acetate	50	39.0	78	70-130
75-01-4	Vinyl chloride	50	40.9	82	70-130
	m,p-Xylene	100	93.6	94	70-130
95-47-6	o-Xylene	50	46.6	93	70-130
1330-20-7	Xylene (total)	150	140	93	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU968-BS	U21851.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	111%	70-130%
2037-26-5	Toluene-D8	109%	70-130%
460-00-4	4-Bromofluorobenzene	110%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32860-8MS	K81118.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8MSD	K81119.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8	K81115.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Compound	MC32860-8 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	3570	3720	104	3570	5160	144* a	32* b	70-130/30
107-02-8	Acrolein	ND	17900	18000	101	17900	17500	98	3	70-130/30
107-13-1	Acrylonitrile	ND	3570	3210	90	3570	3190	89	1	70-130/30
71-43-2	Benzene	ND	3570	3270	92	3570	3100	87	5	70-130/30
108-86-1	Bromobenzene	ND	3570	3640	102	3570	3490	98	4	70-130/30
74-97-5	Bromochloromethane	ND	3570	3290	92	3570	3230	90	2	70-130/30
75-27-4	Bromodichloromethane	ND	3570	3570	100	3570	3380	95	5	70-130/30
75-25-2	Bromoform	ND	3570	3250	91	3570	3150	88	3	70-130/30
74-83-9	Bromomethane	ND	3570	3520	98	3570	3360	94	5	70-130/30
78-93-3	2-Butanone (MEK)	ND	3570	3310	93	3570	3890	109	16	70-130/30
104-51-8	n-Butylbenzene	ND	3570	4060	114	3570	3880	109	5	70-130/30
135-98-8	sec-Butylbenzene	ND	3570	4190	117	3570	3910	109	7	70-130/30
98-06-6	tert-Butylbenzene	ND	3570	4090	114	3570	3910	109	5	70-130/30
75-15-0	Carbon disulfide	ND	3570	3680	103	3570	3490	98	5	70-130/30
56-23-5	Carbon tetrachloride	ND	3570	3850	108	3570	3560	100	8	70-130/30
108-90-7	Chlorobenzene	ND	3570	3430	96	3570	3270	92	5	70-130/30
75-00-3	Chloroethane	ND	3570	4150	116	3570	3920	110	6	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	3570	3580	100	3570	3360	94	6	10-160/30
67-66-3	Chloroform	ND	3570	3180	89	3570	3090	86	3	70-130/30
74-87-3	Chloromethane	ND	3570	3620	101	3570	3350	94	8	70-130/30
95-49-8	o-Chlorotoluene	ND	3570	3730	104	3570	3490	98	7	70-130/30
106-43-4	p-Chlorotoluene	ND	3570	3560	100	3570	3370	94	5	70-130/30
124-48-1	Dibromochloromethane	ND	3570	3310	93	3570	3220	90	3	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	3570	3570	100	3570	3380	95	5	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	3570	3580	100	3570	3370	94	6	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	3570	3560	100	3570	3450	97	3	70-130/30
75-71-8	Dichlorodifluoromethane	ND	3570	4120	115	3570	3920	110	5	70-130/30
75-34-3	1,1-Dichloroethane	ND	3570	3410	95	3570	3370	94	1	70-130/30
107-06-2	1,2-Dichloroethane	ND	3570	3270	92	3570	3110	87	5	70-130/30
75-35-4	1,1-Dichloroethene	ND	3570	3780	106	3570	3820	107	1	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	3570	3290	92	3570	3110	87	6	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	3570	3400	95	3570	3280	92	4	70-130/30
78-87-5	1,2-Dichloropropane	ND	3570	3570	100	3570	3290	92	8	70-130/30
142-28-9	1,3-Dichloropropane	ND	3570	3420	96	3570	3350	94	2	70-130/30
594-20-7	2,2-Dichloropropane	ND	3570	3500	98	3570	3350	94	4	70-130/30
563-58-6	1,1-Dichloropropene	ND	3570	3660	102	3570	3480	97	5	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32860-8MS	K81118.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8MSD	K81119.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8	K81115.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Compound	MC32860-8 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	3570	3490	98	3570	3290	92	6	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	3570	3730	104	3570	3340	93	11	70-130/30
123-91-1	1,4-Dioxane	ND	8930	24800	278* a	8930	24000	269* a	3	70-130/30
97-63-2	Ethyl methacrylate	ND	3570	3620	101	3570	3320	93	9	41-160/30
100-41-4	Ethylbenzene	ND	3570	3500	98	3570	3270	92	7	70-130/30
87-68-3	Hexachlorobutadiene	ND	3570	4420	124	3570	4330	121	2	70-130/30
591-78-6	2-Hexanone	ND	3570	3510	98	3570	3490	98	1	70-130/30
98-82-8	Isopropylbenzene	ND	3570	4130	116	3570	3920	110	5	70-130/30
99-87-6	p-Isopropyltoluene	ND	3570	3990	112	3570	3790	106	5	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	3570	3280	92	3570	3240	91	1	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	3570	3350	94	3570	3130	88	7	70-130/30
74-95-3	Methylene bromide	ND	3570	3510	98	3570	3220	90	9	70-130/30
75-09-2	Methylene chloride	ND	3570	3450	97	3570	3440	96	0	70-130/30
91-20-3	Naphthalene	ND	3570	3550	99	3570	3300	92	7	70-130/30
103-65-1	n-Propylbenzene	ND	3570	3960	111	3570	3790	106	4	70-130/30
100-42-5	Styrene	ND	3570	3360	94	3570	3200	90	5	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	3570	3300	92	3570	3210	90	3	70-130/30
79-34-5	1,1,1,2-Tetrachloroethane	ND	3570	3670	103	3570	3560	100	3	70-130/30
127-18-4	Tetrachloroethene	ND	3570	3450	97	3570	3360	94	3	70-130/30
108-88-3	Toluene	ND	3570	3480	97	3570	3190	89	9	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	3570	3450	97	3570	3290	92	5	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	3570	3620	101	3570	3440	96	5	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	3570	3460	97	3570	3330	93	4	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	3570	3480	97	3570	3150	88	10	70-130/30
79-01-6	Trichloroethene	ND	3570	3380	95	3570	3270	92	3	70-130/30
75-69-4	Trichlorofluoromethane	ND	3570	3880	109	3570	3740	105	4	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	3570	3570	100	3570	3320	93	7	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	3570	3910	109	3570	3740	105	4	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	3570	3750	105	3570	3570	100	5	70-130/30
108-05-4	Vinyl Acetate	ND	3570	2340	65* a	3570	2410	67* a	3	70-130/30
75-01-4	Vinyl chloride	ND	3570	3550	99	3570	3360	94	5	70-130/30
	m,p-Xylene	ND	7150	6850	96	7150	6590	92	4	70-130/30
95-47-6	o-Xylene	ND	3570	3320	93	3570	3230	90	3	70-130/30
1330-20-7	Xylene (total)	ND	10700	10200	95	10700	9820	92	4	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32860-8MS	K81118.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8MSD	K81119.D	1	08/15/14	JM	n/a	n/a	MSK2566
MC32860-8	K81115.D	1	08/15/14	JM	n/a	n/a	MSK2566

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32860-8	Limits
1868-53-7	Dibromofluoromethane	105%	105%	105%	70-130%
2037-26-5	Toluene-D8	111%	105%	99%	70-130%
460-00-4	4-Bromofluorobenzene	111%	107%	104%	70-130%

- (a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (b) High RPD due to possible matrix interference and/or sample non-homogeneity.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33042-1MS	U21865.D	5	08/18/14	GK	n/a	n/a	MSU968
MC33042-1MSD	U21866.D	5	08/18/14	GK	n/a	n/a	MSU968
MC33042-1	U21860.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Compound	MC33042-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	250	104	42* a	250	126	50* a	19	70-130/30
107-02-8	Acrolein	ND	1250	1200	96	1250	1120	90	7	70-130/30
107-13-1	Acrylonitrile	ND	250	277	111	250	270	108	3	70-130/30
71-43-2	Benzene	ND	250	285	114	250	275	110	4	70-130/30
108-86-1	Bromobenzene	ND	250	249	100	250	248	99	0	70-130/30
74-97-5	Bromochloromethane	ND	250	274	110	250	261	104	5	70-130/30
75-27-4	Bromodichloromethane	ND	250	265	106	250	259	104	2	70-130/30
75-25-2	Bromoform	ND	250	217	87	250	228	91	5	70-130/30
74-83-9	Bromomethane	ND	250	335	134* a	250	306	122	9	70-130/30
78-93-3	2-Butanone (MEK)	ND	250	206	82	250	215	86	4	70-130/30
104-51-8	n-Butylbenzene	ND	250	280	112	250	284	114	1	70-130/30
135-98-8	sec-Butylbenzene	ND	250	292	117	250	296	118	1	70-130/30
98-06-6	tert-Butylbenzene	ND	250	235	94	250	243	97	3	70-130/30
75-15-0	Carbon disulfide	ND	250	292	117	250	271	108	7	70-130/30
56-23-5	Carbon tetrachloride	ND	250	235	94	250	222	89	6	70-130/30
108-90-7	Chlorobenzene	ND	250	261	104	250	270	108	3	70-130/30
75-00-3	Chloroethane	ND	250	371	148* a	250	335	134* a	10	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	250	25.8	10* a	250	24.9	10* a	4	70-130/30
67-66-3	Chloroform	ND	250	292	117	250	273	109	7	70-130/30
74-87-3	Chloromethane	ND	250	322	129	250	301	120	7	70-130/30
95-49-8	o-Chlorotoluene	ND	250	261	104	250	262	105	0	70-130/30
106-43-4	p-Chlorotoluene	ND	250	252	101	250	249	100	1	70-130/30
124-48-1	Dibromochloromethane	ND	250	229	92	250	247	99	8	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	250	257	103	250	260	104	1	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	250	262	105	250	259	104	1	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	250	281	112	250	282	113	0	70-130/30
75-71-8	Dichlorodifluoromethane	ND	250	280	112	250	260	104	7	70-130/30
75-34-3	1,1-Dichloroethane	ND	250	305	122	250	281	112	8	70-130/30
107-06-2	1,2-Dichloroethane	ND	250	239	96	250	233	93	3	70-130/30
75-35-4	1,1-Dichloroethene	ND	250	309	124	250	281	112	9	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	250	287	115	250	263	105	9	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	250	285	114	250	263	105	8	70-130/30
78-87-5	1,2-Dichloropropane	ND	250	278	111	250	269	108	3	70-130/30
142-28-9	1,3-Dichloropropane	ND	250	279	112	250	288	115	3	70-130/30
594-20-7	2,2-Dichloropropane	ND	250	302	121	250	278	111	8	70-130/30
563-58-6	1,1-Dichloropropene	ND	250	263	105	250	253	101	4	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33042-1MS	U21865.D	5	08/18/14	GK	n/a	n/a	MSU968
MC33042-1MSD	U21866.D	5	08/18/14	GK	n/a	n/a	MSU968
MC33042-1	U21860.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Compound	MC33042-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	250	278	111	250	262	105	6	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	250	292	117	250	250	100	15	70-130/30
123-91-1	1,4-Dioxane	ND	625	529	85	625	536	86	1	70-130/30
97-63-2	Ethyl methacrylate	ND	250	285	114	250	246	98	15	72-139/30
100-41-4	Ethylbenzene	ND	250	266	106	250	281	112	5	70-130/30
87-68-3	Hexachlorobutadiene	ND	250	209	84	250	215	86	3	70-130/30
591-78-6	2-Hexanone	ND	250	161	64* a	250	157	63* a	3	70-130/30
98-82-8	Isopropylbenzene	ND	250	288	115	250	293	117	2	70-130/30
99-87-6	p-Isopropyltoluene	ND	250	285	114	250	288	115	1	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	250	269	108	250	261	104	3	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	248	99	250	223	89	11	70-130/30
74-95-3	Methylene bromide	ND	250	264	106	250	252	101	5	70-130/30
75-09-2	Methylene chloride	ND	250	302	121	250	274	110	10	70-130/30
91-20-3	Naphthalene	ND	250	224	90	250	246	98	9	70-130/30
103-65-1	n-Propylbenzene	ND	250	288	115	250	287	115	0	70-130/30
100-42-5	Styrene	ND	250	256	102	250	263	105	3	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	222	89	250	245	98	10	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	250	296	118	250	300	120	1	70-130/30
127-18-4	Tetrachloroethene	ND	250	249	100	250	270	108	8	70-130/30
108-88-3	Toluene	ND	250	292	117	250	270	108	8	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	250	187	75	250	222	89	17	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	250	193	77	250	221	88	14	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	250	271	108	250	251	100	8	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	250	286	114	250	255	102	11	70-130/30
79-01-6	Trichloroethene	ND	250	252	101	250	247	99	2	70-130/30
75-69-4	Trichlorofluoromethane	ND	250	234	94	250	218	87	7	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	250	253	101	250	257	103	2	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	250	278	111	250	283	113	2	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	250	270	108	250	275	110	2	70-130/30
108-05-4	Vinyl Acetate	ND	250	231	92	250	225	90	3	70-130/30
75-01-4	Vinyl chloride	ND	250	349	140* a	250	332	133* a	5	70-130/30
	m,p-Xylene	ND	500	538	108	500	563	113	5	70-130/30
95-47-6	o-Xylene	ND	250	263	105	250	280	112	6	70-130/30
1330-20-7	Xylene (total)	ND	750	801	107	750	843	112	5	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33042-1MS	U21865.D	5	08/18/14	GK	n/a	n/a	MSU968
MC33042-1MSD	U21866.D	5	08/18/14	GK	n/a	n/a	MSU968
MC33042-1	U21860.D	1	08/18/14	GK	n/a	n/a	MSU968

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32628-3

CAS No.	Surrogate Recoveries	MS	MSD	MC33042-1	Limits
1868-53-7	Dibromofluoromethane	123%	118%	120%	70-130%
2037-26-5	Toluene-D8	118%	111%	106%	70-130%
460-00-4	4-Bromofluorobenzene	104%	102%	107%	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: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSK2566-CC2552	Injection Date:	08/15/14
Lab File ID:	K81110.D	Injection Time:	08:58
Instrument ID:	GCMSK	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	109976	8.78	143475	9.63	60320	12.89	79859	15.45	55188	6.42
Upper Limit ^a	219952	9.28	286950	10.13	120640	13.39	159718	15.95	110376	6.92
Lower Limit ^b	54988	8.28	71738	9.13	30160	12.39	39930	14.95	27594	5.92

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSK2566-BS	116909	8.78	148139	9.63	62180	12.89	84173	15.45	59660	6.42
MSK2566-MB	117081	8.78	153707	9.63	60071	12.89	91314	15.44	58770	6.43
ZZZZZZ	122256	8.78	151864	9.63	60366	12.89	88722	15.44	62841	6.43
MC32860-8	117065	8.78	148476	9.63	55784	12.89	83641	15.44	62164	6.42
ZZZZZZ	127258	8.78	163273	9.63	61930	12.89	91732	15.45	63931	6.43
ZZZZZZ	129569	8.79	165315	9.63	64395	12.89	94278	15.44	64494	6.42
MC32860-8MS	114017	8.78	145006	9.63	61896	12.89	79719	15.44	61045	6.42
MC32860-8MSD	118581	8.78	154847	9.63	63874	12.89	83498	15.45	61067	6.42
ZZZZZZ	117972	8.78	151316	9.63	56746	12.89	82278	15.44	62529	6.42
ZZZZZZ	115298	8.78	146423	9.63	54299	12.89	80763	15.44	61953	6.42
ZZZZZZ	116803	8.78	152723	9.63	59212	12.89	88307	15.44	65592	6.42
ZZZZZZ	123945	8.78	155163	9.63	58224	12.89	85749	15.44	64583	6.42
ZZZZZZ	118291	8.78	152693	9.63	61610	12.89	90955	15.44	59169	6.43
ZZZZZZ	120826	8.78	154744	9.63	58412	12.89	86284	15.44	66506	6.42
ZZZZZZ	120931	8.78	153691	9.63	61264	12.89	88003	15.44	66712	6.43
ZZZZZZ	120854	8.78	158272	9.63	59198	12.89	87540	15.44	63681	6.43
ZZZZZZ	122036	8.79	156355	9.63	61100	12.89	90748	15.44	64577	6.43
ZZZZZZ	123738	8.78	156796	9.63	60730	12.89	85557	15.44	64429	6.42
ZZZZZZ	124676	8.78	158360	9.63	62088	12.89	89001	15.44	60641	6.42
ZZZZZZ	118085	8.78	154869	9.63	61908	12.89	93264	15.44	62220	6.43
ZZZZZZ	114378	8.78	147237	9.63	55743	12.89	82812	15.44	61820	6.42
ZZZZZZ	110625	8.78	141381	9.63	55917	12.89	77681	15.44	60438	6.41
MC32628-2	111704	8.78	146447	9.63	54505	12.89	78046	15.44	62807	6.42
ZZZZZZ	123763	8.79	156916	9.63	62412	12.89	84570	15.44	63243	6.40

- 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 Internal Standard Area Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSU968-CC957	Injection Date:	08/18/14
Lab File ID:	U21850.D	Injection Time:	09:00
Instrument ID:	GCMSU	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	942852	8.97	1584049	9.84	553412	13.10	821086	15.66	359008	6.60
Upper Limit ^a	1885704	9.47	3168098	10.34	1106824	13.60	1642172	16.16	718016	7.10
Lower Limit ^b	471426	8.47	792025	9.34	276706	12.60	410543	15.16	179504	6.10

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSU968-BS	920375	8.97	1555595	9.84	533210	13.10	755727	15.66	363309	6.63
MSU968-MB	824652	8.98	1309215	9.85	444058	13.10	617048	15.67	337586	6.63
MC32628-3	724136	8.98	1144845	9.84	339045	13.10	535557	15.67	249502	6.62
ZZZZZZ	586856	8.98	916523	9.85	288945	13.10	463779	15.67	219193	6.61
ZZZZZZ	539182	8.98	882914	9.84	310632	13.10	435500	15.67	219847	6.61
MC33042-1	478022	8.98	771288 ^c	9.84	249652 ^c	13.10	396070 ^c	15.67	202442	6.63
MC33042-1MS	427757 ^c	8.97	759465 ^c	9.84	296404	13.09	441980	15.66	185220	6.60
MC33042-1MSD	477893	8.97	840792	9.84	279732	13.10	434098	15.66	191152	6.60
MSU968-ECC957	311473 ^d	8.97	576271 ^e	9.84	193940 ^d	13.10	337824 ^d	15.66	155473 ^d	6.61

- 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.
- (c) Outside control limits due to possible matrix interference. Confirmed by MS/MSD.
- (d) Outside control limits. Target analytes not associated with this internal standard.
- (e) Outside control limits. Individual spike recoveries within acceptance limits.

6.4.2
6

Volatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, 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
MC32628-3	U21855.D	111	101	108
MC33042-1MS	U21865.D	123	118	104
MC33042-1MSD	U21866.D	118	111	102
MSU968-BS	U21851.D	111	109	110
MSU968-MB	U21854.D	109	111	116

Surrogate Compounds **Recovery Limits**

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

6.5.1
6

Volatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8260C	Matrix: SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32628-2	K81134.D	104	102	115
MC32860-8MS	K81118.D	105	111	111
MC32860-8MSD	K81119.D	105	105	107
MSK2566-BS	K81111.D	103	109	104
MSK2566-MB	K81113.D	107	105	105

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

6.5.2
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: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39292-MB	F75200.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	480	60	ug/kg	
95-57-8	2-Chlorophenol	ND	240	11	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	480	12	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	480	14	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	480	78	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	960	120	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	480	60	ug/kg	
95-48-7	2-Methylphenol	ND	480	19	ug/kg	
	3&4-Methylphenol	ND	480	23	ug/kg	
88-75-5	2-Nitrophenol	ND	480	13	ug/kg	
100-02-7	4-Nitrophenol	ND	960	90	ug/kg	
87-86-5	Pentachlorophenol	ND	480	34	ug/kg	
108-95-2	Phenol	ND	240	14	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	480	12	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	480	12	ug/kg	
62-53-3	Aniline	ND	480	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	240	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	240	9.8	ug/kg	
100-51-6	Benzyl Alcohol	ND	480	24	ug/kg	
91-58-7	2-Chloronaphthalene	ND	240	13	ug/kg	
106-47-8	4-Chloroaniline	ND	480	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	240	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	240	15	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	240	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	240	15	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	240	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	480	32	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	480	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	240	24	ug/kg	
132-64-9	Dibenzofuran	ND	96	13	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	240	25	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	240	7.5	ug/kg	
84-66-2	Diethyl phthalate	ND	240	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	240	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	240	8.9	ug/kg	
118-74-1	Hexachlorobenzene	ND	240	15	ug/kg	

7.1.1
7

Method Blank Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39292-MB	F75200.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	480	120	ug/kg	
67-72-1	Hexachloroethane	ND	240	12	ug/kg	
78-59-1	Isophorone	ND	240	11	ug/kg	
88-74-4	2-Nitroaniline	ND	480	12	ug/kg	
99-09-2	3-Nitroaniline	ND	480	26	ug/kg	
100-01-6	4-Nitroaniline	ND	480	12	ug/kg	
98-95-3	Nitrobenzene	ND	240	13	ug/kg	
62-75-9	n-Nitrosodimethylamine	ND	240	11	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	240	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	15	ug/kg	
110-86-1	Pyridine	ND	480	24	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	70%	30-130%
4165-62-2	Phenol-d5	64%	30-130%
118-79-6	2,4,6-Tribromophenol	74%	30-130%
4165-60-0	Nitrobenzene-d5	64%	30-130%
321-60-8	2-Fluorobiphenyl	76%	30-130%
1718-51-0	Terphenyl-d14	82%	30-130%

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

7.1.1
7

Method Blank Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39293-MB	I91193.D	1	08/13/14	MR	08/06/14	OP39293	MSI3395

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.8	0.83	ug/kg	
208-96-8	Acenaphthylene	ND	4.8	0.73	ug/kg	
120-12-7	Anthracene	ND	4.8	1.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.8	2.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.8	1.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.8	2.1	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	4.8	1.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.8	1.5	ug/kg	
218-01-9	Chrysene	ND	4.8	1.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.8	1.4	ug/kg	
206-44-0	Fluoranthene	ND	4.8	1.4	ug/kg	
86-73-7	Fluorene	ND	4.8	0.95	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.8	1.2	ug/kg	
90-12-0	1-Methylnaphthalene	ND	9.6	1.0	ug/kg	
91-57-6	2-Methylnaphthalene	ND	9.6	0.89	ug/kg	
85-01-8	Phenanthrene	ND	4.8	1.0	ug/kg	
129-00-0	Pyrene	ND	4.8	1.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	77%	30-130%
321-60-8	2-Fluorobiphenyl	74%	30-130%
1718-51-0	Terphenyl-d14	94%	30-130%

7.1.2
7

Blank Spike Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39293-BS	I91194.D	1	08/13/14	MR	08/06/14	OP39293	MSI3395

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32628-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2380	1810	76	40-140
208-96-8	Acenaphthylene	2380	1560	65	40-140
120-12-7	Anthracene	2380	1930	81	40-140
56-55-3	Benzo(a)anthracene	2380	2420	102	40-140
50-32-8	Benzo(a)pyrene	2380	2160	91	40-140
205-99-2	Benzo(b)fluoranthene	2380	2540	107	40-140
191-24-2	Benzo(g,h,i)perylene	2380	2270	95	40-140
207-08-9	Benzo(k)fluoranthene	2380	2170	91	40-140
218-01-9	Chrysene	2380	2000	84	40-140
53-70-3	Dibenzo(a,h)anthracene	2380	2440	102	40-140
206-44-0	Fluoranthene	2380	2190	92	40-140
86-73-7	Fluorene	2380	1860	78	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2380	2360	99	40-140
90-12-0	1-Methylnaphthalene	2380	1760	74	40-140
91-57-6	2-Methylnaphthalene	2380	1800	76	40-140
85-01-8	Phenanthrene	2380	1950	82	40-140
129-00-0	Pyrene	2380	2170	91	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	78%	30-130%
321-60-8	2-Fluorobiphenyl	75%	30-130%
1718-51-0	Terphenyl-d14	98%	30-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39292-BS	F75201.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
OP39292-BSD	X04257.D	1	08/08/14	WK	08/06/14	OP39292	MSX140

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32628-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	2380	2490	104	900	36	94* a	30-130/30
95-57-8	2-Chlorophenol	2380	1870	78	1790	72	4	30-130/30
59-50-7	4-Chloro-3-methyl phenol	2380	1690	71	1760	71	4	30-130/30
120-83-2	2,4-Dichlorophenol	2380	1710	72	1850	74	8	30-130/30
105-67-9	2,4-Dimethylphenol	2380	1730	73	1800	72	4	30-130/30
51-28-5	2,4-Dinitrophenol	2380	1100	46	936	38	16	30-130/30
534-52-1	4,6-Dinitro-o-cresol	2380	1500	63	1780	72	17	30-130/30
95-48-7	2-Methylphenol	2380	1870	78	1660	67	12	30-130/30
	3&4-Methylphenol	4770	3620	76	3480	70	4	30-130/30
88-75-5	2-Nitrophenol	2380	1810	76	1800	72	1	30-130/30
100-02-7	4-Nitrophenol	2380	1280	54	1460	59	13	30-130/30
87-86-5	Pentachlorophenol	2380	2050	86	1560	63	27	30-130/30
108-95-2	Phenol	2380	1810	76	1810	73	0	30-130/30
95-95-4	2,4,5-Trichlorophenol	2380	1870	78	1970	79	5	30-130/30
88-06-2	2,4,6-Trichlorophenol	2380	1710	72	1860	75	8	30-130/30
62-53-3	Aniline	2380	1540	65	1560	63	1	40-140/30
101-55-3	4-Bromophenyl phenyl ether	2380	1980	83	2140	86	8	40-140/30
85-68-7	Butyl benzyl phthalate	2380	2440	102	1910	77	24	40-140/30
100-51-6	Benzyl Alcohol	2380	1160	49	1270	51	9	40-140/30
91-58-7	2-Chloronaphthalene	2380	1870	78	1900	76	2	40-140/30
106-47-8	4-Chloroaniline	2380	1630	68	1710	69	5	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	2380	1660	70	1790	72	8	40-140/30
111-44-4	bis(2-Chloroethyl)ether	2380	2020	85	1700	68	17	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	2380	2860	120	1560	63	59* b	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	2380	1690	71	2010	81	17	40-140/30
122-66-7	1,2-Diphenylhydrazine	2380	1940	81	1970	79	2	40-140/30
121-14-2	2,4-Dinitrotoluene	2380	1910	80	2000	80	5	40-140/30
606-20-2	2,6-Dinitrotoluene	2380	1840	77	2050	82	11	40-140/30
91-94-1	3,3'-Dichlorobenzidine	2380	2360	99	2180	88	8	40-140/30
132-64-9	Dibenzofuran	2380	1730	73	1730	70	0	40-140/30
84-74-2	Di-n-butyl phthalate	2380	2340	98	1810	73	26	40-140/30
117-84-0	Di-n-octyl phthalate	2380	2500	105	1900	76	27	40-140/30
84-66-2	Diethyl phthalate	2380	1990	84	1920	77	4	40-140/30
131-11-3	Dimethyl phthalate	2380	2040	86	1930	78	6	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	2380	2610	110	2070	83	23	40-140/30
118-74-1	Hexachlorobenzene	2380	1930	81	2280	92	17	40-140/30

* = Outside of Control Limits.

7.3.1
 7

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39292-BS	F75201.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
OP39292-BSD	X04257.D	1	08/08/14	WK	08/06/14	OP39292	MSX140

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32628-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	2380	689	29* a	1160	47	51* a	40-140/30
67-72-1	Hexachloroethane	2380	1670	70	1760	71	5	40-140/30
78-59-1	Isophorone	2380	1600	67	1650	66	3	40-140/30
88-74-4	2-Nitroaniline	2380	2040	86	1990	80	2	40-140/30
99-09-2	3-Nitroaniline	2380	1940	81	1830	74	6	40-140/30
100-01-6	4-Nitroaniline	2380	1880	79	1760	71	7	40-140/30
98-95-3	Nitrobenzene	2380	1540	65	1750	70	13	40-140/30
62-75-9	n-Nitrosodimethylamine	2380	1690	71	1480	60	13	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	2380	1740	73	1780	72	2	40-140/30
86-30-6	N-Nitrosodiphenylamine	2380	1920	81	1760	71	9	40-140/30
110-86-1	Pyridine	2380	1380	58	1280	51	8	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	78%	64%	30-130%
4165-62-2	Phenol-d5	72%	69%	30-130%
118-79-6	2,4,6-Tribromophenol	83%	92%	30-130%
4165-60-0	Nitrobenzene-d5	67%	72%	30-130%
321-60-8	2-Fluorobiphenyl	73%	75%	30-130%
1718-51-0	Terphenyl-d14	86%	80%	30-130%

- (a) Outside control limits. Blank Spike meets program technical requirements.
- (b) Analyte recovery satisfactory.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39292-MS	F75203.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
OP39292-MSD	F75204.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
MC32628-2	F75205.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32628-2

CAS No.	Compound	MC32628-2 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND	3000	697	23* a	2940	659	22* a	6	30-130/30
95-57-8	2-Chlorophenol	ND	3000	2250	75	2940	1940	66	15	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND	3000	1830	61	2940	2180	74	17	30-130/30
120-83-2	2,4-Dichlorophenol	ND	3000	2070	69	2940	1840	63	12	30-130/30
105-67-9	2,4-Dimethylphenol	ND	3000	1630	54	2940	1630	55	0	30-130/30
51-28-5	2,4-Dinitrophenol	ND	3000	378	13* b	2940	371	13* b	2	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND	3000	682	23* b	2940	725	25* b	6	30-130/30
95-48-7	2-Methylphenol	ND	3000	2290	76	2940	1800	61	24	30-130/30
	3&4-Methylphenol	ND	5990	4520	75	5880	3510	60	25	30-130/30
88-75-5	2-Nitrophenol	ND	3000	1780	59	2940	1860	63	4	30-130/30
100-02-7	4-Nitrophenol	ND	3000	1620	54	2940	1520	52	6	30-130/30
87-86-5	Pentachlorophenol	ND	3000	2160	72	2940	2260	77	5	30-130/30
108-95-2	Phenol	ND	3000	2240	75	2940	1760	60	24	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND	3000	2330	78	2940	2180	74	7	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND	3000	2150	72	2940	2160	73	0	30-130/30
62-53-3	Aniline	ND	3000	1840	61	2940	1560	53	16	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND	3000	2260	75	2940	2200	75	3	40-140/30
85-68-7	Butyl benzyl phthalate	ND	3000	3040	101	2940	2970	101	2	40-140/30
100-51-6	Benzyl Alcohol	ND	3000	1290	43	2940	1190	40	8	40-140/30
91-58-7	2-Chloronaphthalene	ND	3000	2390	80	2940	2300	78	4	40-140/30
106-47-8	4-Chloroaniline	ND	3000	2010	67	2940	1800	61	11	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND	3000	1720	57	2940	1790	61	4	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND	3000	2420	81	2940	2120	72	13	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND	3000	3740	125	2940	2770	94	30	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND	3000	2040	68	2940	1960	67	4	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND	3000	2410	80	2940	2210	75	9	40-140/30
121-14-2	2,4-Dinitrotoluene	ND	3000	2230	74	2940	2160	73	3	40-140/30
606-20-2	2,6-Dinitrotoluene	ND	3000	2050	68	2940	2020	69	1	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND	3000	2600	87	2940	2680	91	3	40-140/30
132-64-9	Dibenzofuran	ND	3000	2180	73	2940	2100	71	4	40-140/30
84-74-2	Di-n-butyl phthalate	ND	3000	2520	84	2940	2910	99	14	40-140/30
117-84-0	Di-n-octyl phthalate	ND	3000	3000	100	2940	2920	99	3	40-140/30
84-66-2	Diethyl phthalate	ND	3000	2400	80	2940	2390	81	0	40-140/30
131-11-3	Dimethyl phthalate	ND	3000	2390	80	2940	2300	78	4	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND	3000	2900	97	2940	2920	99	1	40-140/30
118-74-1	Hexachlorobenzene	ND	3000	2200	73	2940	2360	80	7	40-140/30

* = Outside of Control Limits.

7.4.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39292-MS	F75203.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
OP39292-MSD	F75204.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309
MC32628-2	F75205.D	1	08/07/14	WK	08/06/14	OP39292	MSF3309

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32628-2

CAS No.	Compound	MC32628-2 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	3000	770	26* a	2940	703	24* a	9	40-140/30
67-72-1	Hexachloroethane	ND	3000	2140	71	2940	1530	52	33* c	40-140/30
78-59-1	Isophorone	ND	3000	1660	55	2940	1650	56	1	40-140/30
88-74-4	2-Nitroaniline	ND	3000	2510	84	2940	2510	85	0	40-140/30
99-09-2	3-Nitroaniline	ND	3000	2210	74	2940	2140	73	3	40-140/30
100-01-6	4-Nitroaniline	ND	3000	2140	71	2940	2120	72	1	40-140/30
98-95-3	Nitrobenzene	ND	3000	1680	56	2940	1480	50	13	40-140/30
62-75-9	n-Nitrosodimethylamine	ND	3000	1680	56	2940	1290	44	26	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND	3000	2250	75	2940	1710	58	27	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND	3000	2200	73	2940	2140	73	3	40-140/30
110-86-1	Pyridine	ND	3000	1470	49	2940	1100	37* b	29	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32628-2	Limits
367-12-4	2-Fluorophenol	74%	60%	56%	30-130%
4165-62-2	Phenol-d5	73%	64%	52%	30-130%
118-79-6	2,4,6-Tribromophenol	68%	71%	58%	30-130%
4165-60-0	Nitrobenzene-d5	57%	55%	52%	30-130%
321-60-8	2-Fluorobiphenyl	73%	72%	57%	30-130%
1718-51-0	Terphenyl-d14	79%	80%	70%	30-130%

- (a) Outside control limits. Blank Spike meets program technical requirements.
- (b) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (c) High RPD due to possible matrix interference and/or sample heterogeneity.

* = Outside of Control Limits.

7.4.1

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39293-MS	I91195.D	1	08/13/14	MR	08/06/14	OP39293	MSI3395
OP39293-MSD	I91196.D	1	08/13/14	MR	08/06/14	OP39293	MSI3395
MC32628-2	I91197.D	1	08/13/14	MR	08/06/14	OP39293	MSI3395

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32628-2

CAS No.	Compound	MC32628-2 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	3000	2200	73	2940	2030	69	8	40-140/30
208-96-8	Acenaphthylene	ND	3000	1910	64	2940	1760	60	8	40-140/30
120-12-7	Anthracene	ND	3000	2260	75	2940	2210	75	2	40-140/30
56-55-3	Benzo(a)anthracene	ND	3000	2770	92	2940	2810	96	1	40-140/30
50-32-8	Benzo(a)pyrene	ND	3000	2440	81	2940	2440	83	0	40-140/30
205-99-2	Benzo(b)fluoranthene	ND	3000	3110	104	2940	2990	102	4	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND	3000	2560	85	2940	2540	86	1	40-140/30
207-08-9	Benzo(k)fluoranthene	ND	3000	2300	77	2940	2360	80	3	40-140/30
218-01-9	Chrysene	ND	3000	2320	77	2940	2340	80	1	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND	3000	2760	92	2940	2750	94	0	40-140/30
206-44-0	Fluoranthene	ND	3000	2590	86	2940	2560	87	1	40-140/30
86-73-7	Fluorene	ND	3000	2190	73	2940	2080	71	5	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND	3000	2670	89	2940	2660	90	0	40-140/30
90-12-0	1-Methylnaphthalene	ND	3000	2160	72	2940	1920	65	12	40-140/30
91-57-6	2-Methylnaphthalene	1.3	J 3000	2230	74	2940	1950	66	13	40-140/30
85-01-8	Phenanthrene	ND	3000	2250	75	2940	2190	74	3	40-140/30
129-00-0	Pyrene	ND	3000	2540	85	2940	2520	86	1	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32628-2	Limits
4165-60-0	Nitrobenzene-d5	76%	68%	59%	30-130%
321-60-8	2-Fluorobiphenyl	73%	68%	57%	30-130%
1718-51-0	Terphenyl-d14	88%	92%	80%	30-130%

* = Outside of Control Limits.

7.4.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3309-CC3270	Injection Date:	08/07/14
Lab File ID:	F75186.D	Injection Time:	08:45
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6						
	AREA	RT	AREA	RT	AREA	RT						
Check Std	193076	2.94	700755	3.97	416854	5.45	722473	6.68	764260	8.95	723158	10.33
Upper Limit ^a	386152	3.44	1401510	4.47	833708	5.95	1444946	7.18	1528520	9.45	1446316	10.83
Lower Limit ^b	96538	2.44	350378	3.47	208427	4.95	361237	6.18	382130	8.45	361579	9.83

Lab	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
Sample ID	AREA	RT	AREA	RT	AREA	RT
OP39161-MB	166849	2.94	609129	3.96	349833	5.44
OP39161-BS	171585	2.94	606545	3.96	371491	5.44
ZZZZZZ	162061	2.94	562301	3.96	332595	5.44
ZZZZZZ	160733	2.94	585029	3.96	346910	5.45
ZZZZZZ	166143	2.94	593078	3.96	341975	5.44
ZZZZZZ	161644	2.94	604184	3.96	361850	5.44
ZZZZZZ	178142	2.94	629450	3.96	391337	5.44
ZZZZZZ	154544	2.94	564309	3.96	332056	5.44
ZZZZZZ	154787	2.94	536452	3.96	335781	5.45
ZZZZZZ	150456	2.94	584355	3.96	339535	5.44
ZZZZZZ	171285	2.94	618093	3.96	369953	5.44
ZZZZZZ	160085	2.94	556495	3.96	338545	5.44
ZZZZZZ	162356	2.94	553914	3.96	351440	5.44
OP39292-MB	164945	2.94	577376	3.96	332120	5.44
OP39292-BS	204204	2.94	691538	3.96	432114	5.45
ZZZZZZ	170185	2.94	632279	3.96	356879	5.45
OP39292-MS	151099	2.94	589564	3.96	343464	5.45
OP39292-MSD	173730	2.94	571244	3.96	330463	5.44
MC32628-2	170698	2.94	572941	3.96	390409	5.44
ZZZZZZ	137796	2.94	484381	3.96	294295	5.44
OP39281-MB	133154	2.94	489891	3.96	343275	5.44
OP39281-LB	133154	2.94	489891	3.96	343275	5.44
OP39281-BS	141599	2.94	521014	3.96	321089	5.44
OP39281-MS	148778	2.94	567950	3.96	331286	5.45
OP39281-MSD	156493	2.94	521043	3.96	351943	5.45
MC32562-11	153032	2.94	542488	3.96	344948	5.44
ZZZZZZ	125762	2.94	456221	3.96	289282	5.44
ZZZZZZ	160449	2.94	572098	3.96	345569	5.44
ZZZZZZ	156464	2.94	547292	3.96	333728	5.44

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

7.5.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32628
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3309-CC3270	Injection Date:	08/07/14
Lab File ID:	F75186.D	Injection Time:	08:45
Instrument ID:	GCMSF	Method:	SW846 8270D

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

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.

7.5.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3395-CC3386	Injection Date:	08/13/14
Lab File ID:	I91191.D	Injection Time:	08:05
Instrument ID:	GCMSI	Method:	SW846 8270D 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	447253	4.11	975761	5.16	513094	6.69	871613	8.08	610546	10.85	1551996	12.34
Upper Limit ^a	894506	4.61	1951522	5.66	1026188	7.19	1743226	8.58	1221092	11.35	3103992	12.84
Lower Limit ^b	223627	3.61	487881	4.66	256547	6.19	435807	7.58	305273	10.35	775998	11.84

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
MC32660-1	507137	4.10	1084237	5.16	568193	6.69	942660	8.08	626812	10.85	1617411	12.34
OP39293-MB	494701	4.11	1090832	5.16	566062	6.69	948781	8.08	631666	10.85	1585693	12.34
OP39293-BS	588769	4.11	1267065	5.16	653267	6.69	1080304	8.08	743701	10.86	1767654	12.35
OP39293-MS	503185	4.11	1085578	5.16	552507	6.69	911928	8.08	600305	10.85	1483414	12.34
OP39293-MSD	550135	4.11	1195700	5.16	607562	6.69	994336	8.08	654750	10.86	1626732	12.35
MC32628-2	555248	4.11	1220109	5.16	630036	6.69	1043936	8.08	680757	10.85	1735230	12.34
OP39356-MB	435653	4.11	963221	5.16	506097	6.69	849308	8.08	592632	10.85	1530979	12.34
OP39356-BS	458324	4.11	1009873	5.16	523460	6.69	872358	8.08	603586	10.85	1519524	12.34
OP39356-MS	454819	4.09	1001843	5.15	520945	6.69	863638	8.08	597521	10.85	1506939	12.34
OP39356-MSD	476030	4.11	1050582	5.16	542305	6.69	893006	8.08	615421	10.86	1542520	12.35
MC32762-3	427900	4.11	950806	5.16	501819	6.69	843346	8.08	577192	10.85	1494012	12.34
ZZZZZZ	432590	4.11	968953	5.16	505827	6.69	848352	8.08	586866	10.85	1515051	12.34
ZZZZZZ	430155	4.11	955854	5.16	500599	6.69	838315	8.08	577736	10.85	1493924	12.34

- 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

Semivolatile Internal Standard Area Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSX140-CC106	Injection Date:	08/08/14
Lab File ID:	X04256.D	Injection Time:	07:46
Instrument ID:	GCMSX	Method:	SW846 8270D

	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6						
	AREA	RT	AREA	RT	AREA	RT						
Check Std	352329	3.27	1356787	4.31	748213	5.82	1182365	7.08	978655	9.45	832751	10.96
Upper Limit ^a	704658	3.77	2713574	4.81	1496426	6.32	2364730	7.58	1957310	9.95	1665502	11.46
Lower Limit ^b	176165	2.77	678394	3.81	374107	5.32	591183	6.58	489328	8.95	416376	10.46

Lab	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6						
Sample ID	AREA	RT	AREA	RT	AREA	RT						
OP39292-BSD	574105 ^c	3.27	2075461 ^c	4.31	1101929 ^c	5.82	1665732 ^c	7.08	1296438 ^c	9.45	1165334 ^c	10.97
ZZZZZZ	294030	3.27	1045079	4.30	538637	5.81	767787	7.07	565819	9.44	518514	10.96
ZZZZZZ	259642	3.27	936435	4.30	493544	5.81	728403	7.07	614188	9.45	485246	10.97
ZZZZZZ	268912	3.27	964155	4.30	506623	5.81	744253	7.07	605863	9.45	485313	10.97
ZZZZZZ	256414	3.27	942138	4.31	482798	5.81	725784	7.08	625215	9.45	489397	10.97
ZZZZZZ	265843	3.27	935823	4.31	488459	5.81	713948	7.08	614397	9.46	484684	10.98
ZZZZZZ	284776	3.27	1030333	4.31	552313	5.81	821455	7.07	601300	9.44	547544	10.96
ZZZZZZ	301812	3.27	1081609	4.31	562736	5.81	805684	7.07	588589	9.44	534151	10.96
ZZZZZZ	284531	3.27	1022931	4.31	536258	5.81	755029	7.07	570005	9.44	526270	10.96
ZZZZZZ	272188	3.27	983896	4.31	523811	5.81	746386	7.07	577739	9.44	531264	10.96
ZZZZZZ	243355	3.28	812030	4.32	473558	5.83	755175	7.08	618680	9.46	487189	10.98
ZZZZZZ	224116	3.29	694328	4.36	424741	5.87	759579	7.09	645143	9.46	487804	10.98
ZZZZZZ	241422	3.27	846656	4.31	453419	5.82	656297	7.08	591955	9.45	483138	10.97
ZZZZZZ	216882	3.27	812938	4.31	461642	5.82	726169	7.08	597448	9.45	531968	10.97
ZZZZZZ	222379	3.27	832761	4.31	458688	5.81	720771	7.08	590051	9.45	508570	10.97
ZZZZZZ	243832	3.27	893291	4.31	504816	5.81	767621	7.08	625085	9.45	540886	10.97
ZZZZZZ	237581	3.27	882792	4.31	496838	5.81	766825	7.08	623350	9.45	539233	10.97
ZZZZZZ	223699	3.27	835390	4.31	471804	5.81	735754	7.08	600169	9.44	498009	10.97
ZZZZZZ	242487	3.27	910807	4.31	500865	5.81	769020	7.08	634796	9.45	522001	10.97
OP39286-MB	272984	3.27	1001003	4.31	531882	5.81	754320	7.07	553262	9.44	463172	10.96
OP39286-BS	332459	3.27	1234778	4.31	649066	5.82	950117	7.08	732201	9.45	658893	10.97
ZZZZZZ	325094	3.27	1170523	4.31	626844	5.81	898044	7.07	669277	9.45	579458	10.97
ZZZZZZ	306114	3.27	1115805	4.31	591610	5.81	850314	7.08	664360	9.45	609591	10.97
ZZZZZZ	299471	3.27	1090953	4.31	573073	5.81	837903	7.08	633816	9.45	560575	10.97
ZZZZZZ	313473	3.27	1139964	4.31	613084	5.81	881527	7.08	650084	9.45	538842	10.97
ZZZZZZ	273466	3.27	1002964	4.31	544634	5.81	800133	7.08	673219	9.45	535943	10.99
ZZZZZZ	306473	3.27	1109038	4.31	593954	5.81	844650	7.08	621486	9.45	510189	10.97

- 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

7.5.3
7

Semivolatile Internal Standard Area Summary

Job Number: MC32628
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std: MSX140-CC106	Injection Date: 08/08/14
Lab File ID: X04256.D	Injection Time: 07:46
Instrument ID: GCMSX	Method: SW846 8270D

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

- (a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
- (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
- (c) Internal standard spiked at 2x concentration.

7.5.3
7

Semivolatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC32628-2	F75205.D	56	52	58	52	57	70
OP39292-BS	F75201.D	78	72	83	67	73	86
OP39292-BSD	X04257.D	64	69	92	72	75	80
OP39292-MB	F75200.D	70	64	74	64	76	82
OP39292-MS	F75203.D	74	73	68	57	73	79
OP39292-MSD	F75204.D	60	64	71	55	72	80

Surrogate Compounds **Recovery Limits**

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

7.6.1

7

Semivolatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32628-2	I91197.D	59	57	80
OP39293-BS	I91194.D	78	75	98
OP39293-MB	I91193.D	77	74	94
OP39293-MS	I91195.D	76	73	88
OP39293-MSD	I91196.D	68	68	92

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	30-130%
S2 = 2-Fluorobiphenyl	30-130%
S3 = Terphenyl-d14	30-130%

7.6.2
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: MC32628
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-MB	YZ91281.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.72	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	107% 61-167%
460-00-4	Bromofluorobenzene (S)	107% 61-167%

8.1.1
8

Method Blank Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-MB	BK40149.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32628-4

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	94% 36-173%
460-00-4	Bromofluorobenzene (S)	94% 36-173%

8.1.2

8

Method Blank Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4535-MB	AB85228.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples:

Method: SW846 8015

MC32628-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	0.74	mg/kg	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	95% 61-116%

8.1.3

8

Blank Spike Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-BS	YZ91282.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32628-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	33.2	32.3	97	59-142
106-93-4	1,2-Dibromoethane	33.2	33.5	101	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	101%	61-167%
460-00-4	Bromofluorobenzene (S)	109%	61-167%

8.2.1

8

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-BS	BK40150.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32628-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.072	101	60-140
106-93-4	1,2-Dibromoethane	0.071	0.071	100	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	91%	36-173%
460-00-4	Bromofluorobenzene (S)	90%	36-173%

8.2.2
8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4535-BSP	AB85229.D	1	08/07/14	AF	n/a	n/a	GAB4535
GAB4535-BSD	AB85230.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples: Method: SW846 8015

MC32628-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	32.5	32.0	98	31.9	98	0	66-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	98%	97%	61-116%

8.3.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-MS	YZ91283.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
OP39346-MSD	YZ91284.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
MC32707-2	YZ91285.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32628-2

CAS No.	Compound	MC32707-2 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
96-12-8	1,2-Dibromo-3-chloropropane	ND		87.3	91.8	105	84.8	93.0	110	1	40-156/27
106-93-4	1,2-Dibromoethane	ND		87.3	95.7	110	84.8	95.0	112	1	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32707-2	Limits
460-00-4	Bromofluorobenzene (S)	115%	118%	122%	61-167%
460-00-4	Bromofluorobenzene (S)	114%	114%	119%	61-167%

8.4.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-MS	BK40151.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
OP39418-MSD	BK40152.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
MC32700-7	BK40153.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

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

MC32628-4

CAS No.	Compound	MC32700-7 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.071	0.067	94	0.071	0.075	106	11	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.072	101	0.071	0.071	100	1	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32700-7	Limits
460-00-4	Bromofluorobenzene (S)	84%	81%	84%	36-173%
460-00-4	Bromofluorobenzene (S)	86%	82%	85%	36-173%

8.4.2
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	AB85233.D	1	08/07/14	AF	n/a	n/a	GAB4535
MC32521-1MSD	AB85234.D	1	08/07/14	AF	n/a	n/a	GAB4535
MC32521-1	AB85232.D	1	08/07/14	AF	n/a	n/a	GAB4535

The QC reported here applies to the following samples: Method: SW846 8015

MC32628-2

CAS No.	Compound	MC32521-1 mg/kg	Spike Q	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND	94.1	94.9	101	94.1	95.1	101	0	41-150/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
	2,3,4-Trifluorotoluene	101%	100%	98%	61-116%

8.4.3
8

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32628-4	BK40154.D	82	84
OP39418-BS	BK40150.D	91	90
OP39418-MB	BK40149.D	94	94
OP39418-MS	BK40151.D	84	86
OP39418-MSD	BK40152.D	81	82

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32628-2	YZ91290.D	112	111
OP39346-BS	YZ91282.D	101	109
OP39346-MB	YZ91281.D	107	107
OP39346-MS	YZ91283.D	115	114
OP39346-MSD	YZ91284.D	118	114

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 61-167%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC32628-2	AB85245.D	98
GAB4535-BSD	AB85230.D	97
GAB4535-BSP	AB85229.D	98
GAB4535-MB	AB85228.D	95
MC32521-1MS	AB85233.D	101
MC32521-1MSD	AB85234.D	100

Surrogate Compounds	Recovery Limits
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S1 = 2,3,4-Trifluorotoluene	61-116%
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(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1303-ICC1303	Injection Date:	08/19/14
Lab File ID:	BK40145.D	Injection Time:	16:10
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	2.41	2.72
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39418-MB	BK40149.D	08/19/14	17:05	2.41	2.72
OP39418-BS	BK40150.D	08/19/14	17:19	2.41	2.72
OP39418-MS	BK40151.D	08/19/14	17:32	2.41	2.72
OP39418-MSD	BK40152.D	08/19/14	17:46	2.41	2.72
MC32700-7	BK40153.D	08/19/14	18:00	2.41	2.72
MC32628-4	BK40154.D	08/19/14	18:13	2.41	2.72
ZZZZZZ	BK40155.D	08/19/14	18:27	2.41	2.72
ZZZZZZ	BK40156.D	08/19/14	18:41	2.41	2.72
ZZZZZZ	BK40157.D	08/19/14	18:55	2.41	2.72
ZZZZZZ	BK40158.D	08/19/14	19:08	2.41	2.72
GBK1303-ECC130	BK40159.D	08/19/14	19:22	2.41	2.72

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.1
8

GC Surrogate Retention Time Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GYZ7620-ICC7620	Injection Date:	08/11/14
Lab File ID:	YZ91278.D	Injection Time:	18:16
Instrument ID:	GCYZ	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.14	4.39
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39346-MB	YZ91281.D	08/11/14	19:30	4.14	4.39
OP39346-BS	YZ91282.D	08/11/14	19:55	4.14	4.39
OP39346-MS	YZ91283.D	08/11/14	20:20	4.14	4.39
OP39346-MSD	YZ91284.D	08/11/14	20:45	4.14	4.39
MC32707-2	YZ91285.D	08/11/14	21:10	4.14	4.39
ZZZZZZ	YZ91286.D	08/11/14	21:36	4.14	4.39
ZZZZZZ	YZ91287.D	08/11/14	22:00	4.14	4.39
ZZZZZZ	YZ91288.D	08/11/14	22:25	4.14	4.39
ZZZZZZ	YZ91289.D	08/11/14	22:50	4.14	4.39
MC32628-2	YZ91290.D	08/11/14	23:15	4.14	4.39

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.2
8

GC Surrogate Retention Time Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4535-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85227.D	Injection Time:	07:43
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.33
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
GAB4535-MB	AB85228.D	08/07/14	08:21	20.33
GAB4536-MB	AB85228A.D	08/07/14	08:21	20.33
GAB4536-BSP	AB85229A.D	08/07/14	08:59	20.32
GAB4535-BSP	AB85229.D	08/07/14	08:59	20.32
GAB4535-BSD	AB85230.D	08/07/14	09:37	20.32
GAB4536-BSD	AB85230A.D	08/07/14	09:37	20.32
MC32468-3	AB85231.D	08/07/14	10:15	20.33
MC32521-1	AB85232.D	08/07/14	10:53	20.33
MC32521-1MS	AB85233.D	08/07/14	11:30	20.32
MC32521-1MSD	AB85234.D	08/07/14	12:08	20.32
MC32468-3MS	AB85235.D	08/07/14	12:45	20.32
MC32468-3MSD	AB85236.D	08/07/14	13:23	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.3
8

GC Surrogate Retention Time Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4536-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85227A.D	Injection Time:	07:43
Instrument ID:	GCAB	Method:	SW846 8015

S1^a
RT

Check Std	20.33
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
GAB4535-MB	AB85228.D	08/07/14	08:21	20.33
GAB4536-MB	AB85228A.D	08/07/14	08:21	20.33
GAB4536-BSP	AB85229A.D	08/07/14	08:59	20.32
GAB4535-BSP	AB85229.D	08/07/14	08:59	20.32
GAB4535-BSD	AB85230.D	08/07/14	09:37	20.32
GAB4536-BSD	AB85230A.D	08/07/14	09:37	20.32
MC32468-3	AB85231.D	08/07/14	10:15	20.33
MC32521-1	AB85232.D	08/07/14	10:53	20.33
MC32521-1MS	AB85233.D	08/07/14	11:30	20.32
MC32521-1MSD	AB85234.D	08/07/14	12:08	20.32
MC32468-3MS	AB85235.D	08/07/14	12:45	20.32
MC32468-3MSD	AB85236.D	08/07/14	13:23	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.4
8

GC Surrogate Retention Time Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4536-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85237A.D	Injection Time:	14:01
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
ZZZZZZ	AB85238.D	08/07/14	14:38	20.33
ZZZZZZ	AB85239.D	08/07/14	15:16	20.33
ZZZZZZ	AB85240.D	08/07/14	15:54	20.33
ZZZZZZ	AB85241.D	08/07/14	16:31	20.32
ZZZZZZ	AB85242.D	08/07/14	17:08	20.33
ZZZZZZ	AB85243.D	08/07/14	17:45	20.33
ZZZZZZ	AB85244.D	08/07/14	18:22	20.33
MC32628-2	AB85245.D	08/07/14	19:00	20.32
ZZZZZZ	AB85246.D	08/07/14	19:38	20.33
ZZZZZZ	AB85247.D	08/07/14	20:16	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.5
8

GC Surrogate Retention Time Summary

Job Number: MC32628
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4535-CC4488	Injection Date:	08/07/14
Lab File ID:	AB85237.D	Injection Time:	14:01
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
ZZZZZZ	AB85238.D	08/07/14	14:38	20.33
ZZZZZZ	AB85239.D	08/07/14	15:16	20.33
ZZZZZZ	AB85240.D	08/07/14	15:54	20.33
ZZZZZZ	AB85241.D	08/07/14	16:31	20.32
ZZZZZZ	AB85242.D	08/07/14	17:08	20.33
ZZZZZZ	AB85243.D	08/07/14	17:45	20.33
ZZZZZZ	AB85244.D	08/07/14	18:22	20.33
MC32628-2	AB85245.D	08/07/14	19:00	20.32
ZZZZZZ	AB85246.D	08/07/14	19:38	20.33
ZZZZZZ	AB85247.D	08/07/14	20:16	20.33

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.6
8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32628

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample: MC32628-2 Analyzed: 07-AUG-14 by HS Method: SM21 2540 B MOD.
ClientID: SVE42-080514(32-34')

Wet Weight (Total)	29.224	g
Tare Weight	21.09	g
Dry Weight (Total)	27.843	g
Solids, Percent	83	%

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e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
21562973.19200

SGS Accutest Job Number: MC32660

Sampling Date: 08/06/14

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. Madadian
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

October 27, 2016

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

RE: SGS Accutest Job # MC32660

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

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION,
TESTING AND CERTIFICATION COMPANY.

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Sample Summary

Shell Oil

Job No: MC32660

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC32660-1	08/06/14	14:30	08/07/14	SO	Soil	SVE45-080614 (40-42')
MC32660-2	08/06/14	00:00	08/07/14	AQ	Trip Blank Water	TB-080614 HCL
MC32660-3	08/06/14	00:00	08/07/14	AQ	Trip Blank Water	TB-080614 ST

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: She O

Job No MC32660

Site: URSMOSTL: Roxana 4th St Extens on We Insta , 900 South Cent **Report Date** 0/27/20 6 :27:3 P

Sample(s), 2 Trip Blank(s) were collected on 08/06/2014 and were received at SGS Accutest New England on 08/07/2014 properly preserved, at 4°C and intact. These samples received a job number of MC32660. 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, 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 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

Matrix: AQ **Batch ID:** MSN33 8

- All samples were analyzed within the recommended method holding time.
- Sample(s) MC32662-2MS, MC32662-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- MSN33 8-BSD for Acroene, Dichlorodifluoromethane, 2-Hexanone: Out of control limits.
- Matrix Spike Recovery(s) for 2-Butanone (MEK), 2-Hexanone, Acetone, Acroene, Dichlorodifluoromethane are out of control limits. Out of control limits due to possible matrix interference.
- Matrix Spike Duplicate Recovery(s) for 2-Butanone (MEK), 2-Hexanone, Acetone, Dichlorodifluoromethane are out of control limits. Out of control limits due to possible matrix interference.
- MC32660-2 for Dichlorodifluoromethane: Continuing Calibration out of acceptance criteria. Sample result may be biased.
- MC32660-2 for Acroene: Continuing Calibration out of acceptance criteria. Sample result may be biased.

Matrix: SO **Batch ID:** MSK2568

- All samples were analyzed within the recommended method holding time.
- Sample(s) MC32795- MS, MC32795- MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specification criteria.
- Matrix Spike Recovery(s) for 1,4-Dioxane, Vinyl Acetate are out of control limits. Out of control limits due to possible matrix interference.
- Matrix Spike Duplicate Recovery(s) for 1,4-Dioxane, Vinyl Acetate are out of control limits. Out of control limits due to possible matrix interference.
- MC32660- for Acetone: Continuing Calibration out of acceptance criteria. Sample result may be biased.
- MC32660- for 1,4-Dioxane, Dichlorodifluoromethane: In-tube Calibration Verification out of acceptance criteria. Sample result may be biased.

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP393 0

- 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) MC32660- MS, MC32660- MSD were used as the QC samples indicated.
- OP393 0-BS/MS/MSD Recovery(s) for Hexachlorocyclopentadiene are out of control limits.
- OP393 0-MS/MSD Recovery(s) for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol are out of control limits. Out of control limits due to possible matrix interference. Refer to Blank Spike.
- RPD(s) for MSD for Nitrobenzene are out of control limits for sample OP393 0-MSD. High RPD due to possible matrix interference and/or sample heterogeneity.

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: SO **Batch ID:** OP393

- 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) MC32660- MS, MC32660- MSD were used as the QC samples indicated

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP394 8

- All samples were analyzed within the recommended method holding time
- Sample(s) MC32700-7MS, MC32700-7MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification
- Continuing calibration check standard GBK 303-ECC 303 for 1,2-D bromoethane, 1,2-D bromo-3-chloropropane exceed 5% Dev (response bias high) Associated samples are non-detect for these analytes

Matrix: SO **Batch ID:** OP39346

- 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) MC32707-2MS, MC32707-2MSD were used as the QC samples indicated

Volatiles by GC By Method SW846 8015

Matrix: SO **Batch ID:** GAB4539

- All samples were analyzed within the recommended method holding time
- Sample(s) MC32660- MS, MC32660- MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification
- Calibration standard GAB4486-ICC4486, GAB4486-ICV4486, GAB4540-CC4486 not associated with this job

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN47968

- Sample(s) MC32660- DUP were used as the QC samples for Solids, Percent

SGS Accutest New Eng and 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 Eng and or assignee as verified by the signature on the cover page has authorized the release of this report (MC32660)

Summary of Hits

Job Number: MC32660
Account: Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Collected: 08/06/14



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
MC32660-1	SVE45-080614 (40-42')					
		n-Butylbenzene	3.66	0.64	0.031	mg/kg SW846 8260C
		sec-Butylbenzene	0.605 J	0.64	0.096	mg/kg SW846 8260C
		Ethylbenzene	21.4	0.26	0.089	mg/kg SW846 8260C
		Isopropylbenzene	2.08	0.64	0.022	mg/kg SW846 8260C
		p-Isopropyltoluene	0.344 J	0.64	0.022	mg/kg SW846 8260C
		Naphthalene	3.79	0.64	0.051	mg/kg SW846 8260C
		n-Propylbenzene	6.58	0.64	0.020	mg/kg SW846 8260C
		Toluene	7.76	0.64	0.026	mg/kg SW846 8260C
		1,2,4-Trimethylbenzene	33.7	0.64	0.18	mg/kg SW846 8260C
		1,3,5-Trimethylbenzene	9.38	0.64	0.20	mg/kg SW846 8260C
		m,p-Xylene	49.2	0.26	0.056	mg/kg SW846 8260C
		o-Xylene	18.6	0.26	0.036	mg/kg SW846 8260C
		Xylene (total)	67.8	0.26	0.028	mg/kg SW846 8260C
		Total TIC, Volatile	215.9 J			mg/kg
		Acenaphthene	0.0103	0.0058	0.0010	mg/kg SW846 8270D BY SIM
		Acenaphthylene	0.0035 J	0.0058	0.00088	mg/kg SW846 8270D BY SIM
		Anthracene	0.0056 J	0.0058	0.0013	mg/kg SW846 8270D BY SIM
		Fluoranthene	0.0040 J	0.0058	0.0017	mg/kg SW846 8270D BY SIM
		Fluorene	0.0149	0.0058	0.0011	mg/kg SW846 8270D BY SIM
		1-Methylnaphthalene	0.747	0.012	0.0013	mg/kg SW846 8270D BY SIM
		2-Methylnaphthalene	1.63	0.012	0.0011	mg/kg SW846 8270D BY SIM
		Phenanthrene	0.0242	0.0058	0.0012	mg/kg SW846 8270D BY SIM
		Pyrene	0.0067	0.0058	0.0018	mg/kg SW846 8270D BY SIM
		TPH-GRO (VOA)	249	14	2.0	mg/kg SW846 8015

MC32660-2 TB-080614 HCL

No hits reported in this sample.

MC32660-3 TB-080614 ST

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SVE45-080614 (40-42')	Date Sampled:	08/06/14
Lab Sample ID:	MC32660-1	Date Received:	08/07/14
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K81181.D	1	08/18/14	JM	n/a	n/a	MSK2568
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.81 g	10.0 ml	100 ul
Run #2			

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	1.3	0.36	mg/kg	
107-02-8	Acrolein	ND	3.2	1.1	mg/kg	
107-13-1	Acrylonitrile	ND	3.2	0.35	mg/kg	
71-43-2	Benzene	ND	0.064	0.043	mg/kg	
108-86-1	Bromobenzene	ND	0.64	0.032	mg/kg	
74-97-5	Bromochloromethane	ND	0.64	0.044	mg/kg	
75-27-4	Bromodichloromethane	ND	0.26	0.027	mg/kg	
75-25-2	Bromoform	ND	0.26	0.046	mg/kg	
74-83-9	Bromomethane	ND	0.26	0.077	mg/kg	
78-93-3	2-Butanone (MEK)	ND	1.3	0.40	mg/kg	
104-51-8	n-Butylbenzene	3.66	0.64	0.031	mg/kg	
135-98-8	sec-Butylbenzene	0.605	0.64	0.096	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.64	0.027	mg/kg	
75-15-0	Carbon disulfide	ND	0.64	0.017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.26	0.028	mg/kg	
108-90-7	Chlorobenzene	ND	0.26	0.020	mg/kg	
75-00-3	Chloroethane	ND	0.64	0.097	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.64	0.16	mg/kg	
67-66-3	Chloroform	ND	0.26	0.022	mg/kg	
74-87-3	Chloromethane	ND	0.64	0.073	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.64	0.025	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.64	0.034	mg/kg	
124-48-1	Dibromochloromethane	ND	0.26	0.041	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.26	0.027	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.26	0.039	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.26	0.044	mg/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	0.26	0.10	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.26	0.034	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.26	0.041	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.26	0.053	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.26	0.058	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.26	0.054	mg/kg	

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:	SVE45-080614 (40-42')	Date Sampled:	08/06/14
Lab Sample ID:	MC32660-1	Date Received:	08/07/14
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.26	0.054	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.64	0.042	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.64	0.073	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.64	0.034	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.26	0.029	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.26	0.034	mg/kg	
123-91-1	1,4-Dioxane ^c	ND	3.2	2.6	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.64	0.046	mg/kg	
100-41-4	Ethylbenzene	21.4	0.26	0.089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.64	0.074	mg/kg	
591-78-6	2-Hexanone	ND	1.3	0.097	mg/kg	
98-82-8	Isopropylbenzene	2.08	0.64	0.022	mg/kg	
99-87-6	p-Isopropyltoluene	0.344	0.64	0.022	mg/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	0.26	0.023	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.64	0.069	mg/kg	
74-95-3	Methylene bromide	ND	0.64	0.059	mg/kg	
75-09-2	Methylene chloride	ND	0.26	0.068	mg/kg	
91-20-3	Naphthalene	3.79	0.64	0.051	mg/kg	
103-65-1	n-Propylbenzene	6.58	0.64	0.020	mg/kg	
100-42-5	Styrene	ND	0.64	0.022	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.64	0.052	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.26	0.051	mg/kg	
127-18-4	Tetrachloroethene	ND	0.26	0.040	mg/kg	
108-88-3	Toluene	7.76	0.64	0.026	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.64	0.055	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.64	0.066	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.26	0.028	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.26	0.074	mg/kg	
79-01-6	Trichloroethene	ND	0.26	0.031	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.26	0.051	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.64	0.037	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	33.7	0.64	0.18	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	9.38	0.64	0.20	mg/kg	
108-05-4	Vinyl Acetate	ND	0.64	0.20	mg/kg	
75-01-4	Vinyl chloride	ND	0.26	0.12	mg/kg	
	m,p-Xylene	49.2	0.26	0.056	mg/kg	
95-47-6	o-Xylene	18.6	0.26	0.036	mg/kg	
1330-20-7	Xylene (total)	67.8	0.26	0.028	mg/kg	

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:	SVE45-080614 (40-42')	Date Sampled:	08/06/14
Lab Sample ID:	MC32660-1	Date Received:	08/07/14
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	113%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
107-83-5	Pentane, 2-methyl-	7.33	2.5	mg/kg	JN
565-59-3	Pentane, 2,3-dimethyl-	9.43	15	mg/kg	JN
594-82-1	Butane, 2,2,3,3-tetramethyl-	9.85	32	mg/kg	JN
592-13-2	Hexane, 2,5-dimethyl-	10.58	11	mg/kg	JN
589-43-5	Hexane, 2,4-dimethyl-	10.65	7.8	mg/kg	JN
565-75-3	Pentane, 2,3,4-trimethyl-	11.05	28	mg/kg	JN
2216-34-4	Octane, 4-methyl-	11.20	42	mg/kg	JN
3522-94-9	Hexane, 2,2,5-trimethyl-	11.55	6.2	mg/kg	JN
620-14-4	Benzene, 1-ethyl-3-methyl-	14.60	19	mg/kg	JN
611-14-3	Benzene, 1-ethyl-2-methyl-	14.65	9.3	mg/kg	JN
622-96-8	Benzene, 1-ethyl-4-methyl-	14.93	8.7	mg/kg	JN
526-73-8	Benzene, 1,2,3-trimethyl-	15.63	9.8	mg/kg	JN
4254-29-9	2-Indanol	15.81	10	mg/kg	JN
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	16.31	7.3	mg/kg	JN
95-93-2	Benzene, 1,2,4,5-tetramethyl-	16.87	7.3	mg/kg	JN
	Total TIC, Volatile		215.9	mg/kg	J

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

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:	SVE45-080614 (40-42')	Date Sampled:	08/06/14
Lab Sample ID:	MC32660-1	Date Received:	08/07/14
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75282.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.58	0.072	mg/kg	
95-57-8	2-Chlorophenol	ND	0.29	0.013	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.58	0.015	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.58	0.017	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.58	0.094	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.2	0.14	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.58	0.072	mg/kg	
95-48-7	2-Methylphenol	ND	0.58	0.023	mg/kg	
	3&4-Methylphenol	ND	0.58	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.58	0.015	mg/kg	
100-02-7	4-Nitrophenol	ND	1.2	0.11	mg/kg	
87-86-5	Pentachlorophenol	ND	0.58	0.041	mg/kg	
108-95-2	Phenol	ND	0.29	0.016	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.58	0.014	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.58	0.014	mg/kg	
62-53-3	Aniline	ND	0.58	0.029	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.29	0.015	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.29	0.012	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.58	0.029	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.29	0.016	mg/kg	
106-47-8	4-Chloroaniline	ND	0.58	0.014	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.29	0.014	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.29	0.018	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.29	0.021	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.29	0.018	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.29	0.013	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.58	0.039	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.58	0.014	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.29	0.029	mg/kg	
132-64-9	Dibenzofuran	ND	0.12	0.016	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.29	0.031	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.29	0.0090	mg/kg	

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: SVE45-080614 (40-42')	Date Sampled: 08/06/14
Lab Sample ID: MC32660-1	Date Received: 08/07/14
Matrix: SO - Soil	Percent Solids: 86.2
Method: SW846 8270D SW846 3546	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.29	0.014	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.29	0.017	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.29	0.011	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.29	0.018	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.58	0.14	mg/kg	
67-72-1	Hexachloroethane	ND	0.29	0.014	mg/kg	
78-59-1	Isophorone	ND	0.29	0.013	mg/kg	
88-74-4	2-Nitroaniline	ND	0.58	0.014	mg/kg	
99-09-2	3-Nitroaniline	ND	0.58	0.032	mg/kg	
100-01-6	4-Nitroaniline	ND	0.58	0.014	mg/kg	
98-95-3	Nitrobenzene	ND	0.29	0.016	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.29	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.29	0.017	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.29	0.017	mg/kg	
110-86-1	Pyridine	ND	0.58	0.029	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	70%		30-130%
4165-62-2	Phenol-d5	59%		30-130%
118-79-6	2,4,6-Tribromophenol	73%		30-130%
4165-60-0	Nitrobenzene-d5	55%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	83%		30-130%

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

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
4

Report of Analysis

Client Sample ID: SVE45-080614 (40-42')	Date Sampled: 08/06/14
Lab Sample ID: MC32660-1	Date Received: 08/07/14
Matrix: SO - Soil	Percent Solids: 86.2
Method: SW846 8270D BY SIM SW846 3546	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91192.D	1	08/13/14	MR	08/07/14	OP39311	MSI3395
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.0103	0.0058	0.0010	mg/kg	
208-96-8	Acenaphthylene	0.0035	0.0058	0.00088	mg/kg	J
120-12-7	Anthracene	0.0056	0.0058	0.0013	mg/kg	J
56-55-3	Benzo(a)anthracene	ND	0.0058	0.0027	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0058	0.0023	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0058	0.0026	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.0058	0.0016	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0058	0.0018	mg/kg	
218-01-9	Chrysene	ND	0.0058	0.0016	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0058	0.0017	mg/kg	
206-44-0	Fluoranthene	0.0040	0.0058	0.0017	mg/kg	J
86-73-7	Fluorene	0.0149	0.0058	0.0011	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0058	0.0014	mg/kg	
90-12-0	1-Methylnaphthalene	0.747	0.012	0.0013	mg/kg	
91-57-6	2-Methylnaphthalene	1.63	0.012	0.0011	mg/kg	
85-01-8	Phenanthrene	0.0242	0.0058	0.0012	mg/kg	
129-00-0	Pyrene	0.0067	0.0058	0.0018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		30-130%
321-60-8	2-Fluorobiphenyl	66%		30-130%
1718-51-0	Terphenyl-d14	93%		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

4.1
4

Report of Analysis

Client Sample ID: SVE45-080614 (40-42')	Date Sampled: 08/06/14
Lab Sample ID: MC32660-1	Date Received: 08/07/14
Matrix: SO - Soil	Percent Solids: 86.2
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ91292.D	1	08/12/14	SZ	08/11/14	OP39346	GYZ7620
Run #2							

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

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0028	0.00083	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0028	0.00070	mg/kg	

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

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

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

4.1
4

Report of Analysis

Client Sample ID: SVE45-080614 (40-42')	Date Sampled: 08/06/14
Lab Sample ID: MC32660-1	Date Received: 08/07/14
Matrix: SO - Soil	Percent Solids: 86.2
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85296.D	1	08/11/14	AF	n/a	n/a	GAB4539
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.51 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	249	14	2.0	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	95%		61-116%		

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

4.1
4

Report of Analysis

Client Sample ID:	TB-080614 HCL	Date Sampled:	08/06/14
Lab Sample ID:	MC32660-2	Date Received:	08/07/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N89565.D	1	08/20/14	KD	n/a	n/a	MSN3318
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	2.5	ug/l	
107-02-8	Acrolein ^a	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	TB-080614 HCL	Date Sampled:	08/06/14
Lab Sample ID:	MC32660-2	Date Received:	08/07/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: TB-080614 HCL		Date Sampled: 08/06/14
Lab Sample ID: MC32660-2		Date Received: 08/07/14
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

4.2
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		70-130%
2037-26-5	Toluene-D8	91%		70-130%
460-00-4	4-Bromofluorobenzene	94%		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.

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-080614 ST	Date Sampled: 08/06/14
Lab Sample ID: MC32660-3	Date Received: 08/07/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK40155.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
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	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0059	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	83%		36-173%
460-00-4	Bromofluorobenzene (S)	85%		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

4.3
4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

LAB (LOCATION)

KENCO
 CALSCIENCE
 ACCUTEST Labs: 495 Technology Cir W
 Marlborough, MA 01752 (508-491-6300)
 OTHER Lab Vendor # _____
 SPL _____



Shell Oil Products Chain Of Custody Record

URS

Please Check Appropriate Box:

ENV. SERVICES
 MOTIVA RETAIL
 SHELL RETAIL
 MOTIVA SOBCH
 CONSULTANT
 LAURES
 SHELL PIPELINE
 OTHER _____

Print Bill To Contact Name: Bob Billman
 INCIDENT # (ENV SERVICES): 9 7 2 1 6 6 4 0
 PO # _____ SAP # _____

CHECK IF NO INCIDENT & APPLIES
 DATE: 8/6/2014
 PAGE: 1 of 1

SAMPLING COMPANY: URS CORPORATION
 ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300; ST. LOUIS, MO 63110
 PROJECT CONTACT (Name/Title or PCF Project ID): Elizabeth Kunkel, Bob Billman
 TELEPHONE: 314-429-0100 FAX: 314-429-0462
 E-MAIL: bob.billman@urs.com; elizabeth.kunkel@urs.com
 TURNAROUND TIME (CALENDAR DAYS):
 STANDARD (10 DAY) 5 DAYS 3 DAYS 2 DAYS 24 HOURS RESULTS NEEDED ON WEEKEND
 LA - RWQC3 REPORT FORMAT UST AGENCY:
 DELIVERABLES: LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4 OTHER (SPECIFY) _____ EDD _____
 TEMPERATURE ON RECEIPT C° Cooler #1 _____ Cooler #2 _____ Cooler #3 _____
 SPECIAL INSTRUCTIONS OR NOTES:
 * Please include "J" values on Reports.
 * Please provide sample receipt upon login.
 SHELL CONTRACT RATE APPLIES
 STATE REIMBURSEMENT RATE APPLIES
 EDD NOT NEEDED
 RECEIPT VERIFICATION REQUESTED
 PROVIDE LEED DISK

SITE ADDRESS: Street and City: 900 South Central Ave; ROXANA
 State: IL COUNTRY (FPO): _____
 EOP DELIVERABLE TO (Name, Company, Office Location): _____ PHONE NO.: _____ EMAIL: _____ CONSULTANT PROJECT NO.: 4th St. Extension Well Install / 21562973.19200
 SAMPLER NAME(S) (PWC DRAWER): _____ LAB USE ONLY: MC32660

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE					NO. OF CONT.	REQUESTED ANALYSIS										PID (ppm)	FIELD NOTES: TEMPERATURE ON RECEIPT C° Container PID Readings or Laboratory Notes			
		DATE	TIME		HCL	HNO3	H2SO4	NONE	OTHER		VOC 8260B SL+TICS "Top 15"	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO									
-1	SVE45-080614 (40-42)	8/9/2014	1430	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X	X	794	
-2	TB-080614 HCL			W	2						X														
-3	TB-080614 ST			W				2	2		X														
																									IK4, 2D 1035

Released by (Signature):	Received by (Signature):	Date: 8/16/14	Time: 1830
Released by (Signature):	Received by (Signature):	Date: 8-7-14	Time: 8:30

11-~~11~~

5.1
5

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32660 **Client:** URS **Immediate Client Services Action Required:** No
Date / Time Received: 8/7/2014 **Delivery Method:** _____ **Client Service Action Required at Login:** No
Project: 4TH ST EXT WALL **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. Smp'l 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

Internal Sample Tracking Chronicle

Shell Oil

Job No: MC32660

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
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MC32660-1 Collected: 06-AUG-14 14:30 By: SVE45-080614 (40-42')
 Received: 07-AUG-14 By:

MC32660-1 SW846 8015	11-AUG-14 10:06	AF				V8015GRO
MC32660-1 SW846 8011	12-AUG-14 00:06	SZ		11-AUG-14 AZ		V8011SL
MC32660-1 SW846 8270D	12-AUG-14 12:16	WK		07-AUG-14 FC		AB8270SL +
MC32660-1 SM21 2540 B MOD.	13-AUG-14	HS				%SOL
MC32660-1 SW846 8270D BY SIM	13-AUG-14 08:28	MR		07-AUG-14 FC		B8270SIMSL
MC32660-1 SW846 8260C	18-AUG-14 18:20	JM				V8260SL +

MC32660-2 Collected: 06-AUG-14 00:00 By: TB-080614 HCL
 Received: 07-AUG-14 By:

MC32660-2 SW846 8260C	20-AUG-14 12:05	KD				V8260SL +
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MC32660-3 Collected: 06-AUG-14 00:00 By: TB-080614 ST
 Received: 07-AUG-14 By:

MC32660-3 SW846 8011	19-AUG-14 18:27	AP		14-AUG-14 MT		V8011SL
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SGS Accutest Internal Chain of Custody

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Received: 08/07/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32660-1.1	Walk In Ref #5	Aysia Wood	08/07/14 17:46	Retrieve from Storage
MC32660-1.1	Aysia Wood	Walk In Ref #5	08/07/14 22:00	Return to Storage
MC32660-1.1	Walk In Ref #5	Mehdi Abdolrahim	08/13/14 13:49	Retrieve from Storage
MC32660-1.1	Mehdi Abdolrahim	Walk In Ref #5	08/13/14 13:54	Return to Storage
MC32660-1.1	Scott Parsick		09/25/14 16:09	Disposed
MC32660-1.2	Walk In Ref #5	Alireza Zeighami	08/11/14 07:36	Retrieve from Storage
MC32660-1.2	Alireza Zeighami	Walk In Ref #5	08/11/14 08:12	Return to Storage
MC32660-1.2	Scott Parsick		09/25/14 16:09	Disposed
MC32660-1.5	VOC Ref #10	Krysten Dufort	08/08/14 16:22	Retrieve from Storage
MC32660-1.5	Krysten Dufort	VOC Ref #10	08/11/14 10:30	Return to Storage
MC32660-1.5	Scott Parsick		09/25/14 16:09	Disposed
MC32660-1.7	VOC Ref #10	Jaime Maslowski	08/18/14 09:54	Retrieve from Storage
MC32660-1.7	Jaime Maslowski	VOC Ref #10	08/19/14 09:47	Return to Storage
MC32660-1.7	Scott Parsick		09/25/14 16:09	Disposed
MC32660-2.1	VOC Ref #1	Krysten Dufort	08/20/14 10:23	Retrieve from Storage
MC32660-2.1	Krysten Dufort	GCMSN	08/20/14 10:23	Load on Instrument
MC32660-2.1	GCMSN	Jaclyn Bergeron	08/21/14 13:00	Unload from Instrument
MC32660-2.1	Jaclyn Bergeron	VOC Ref #1	08/21/14 13:00	Return to Storage
MC32660-2.1	Scott Parsick		09/25/14 16:09	Disposed
MC32660-3.1	VOC Ref #1	Marc Tahtamoni	08/14/14 20:19	Retrieve from Storage
MC32660-3.1	Scott Parsick		09/25/14 16:09	Disposed

5.3
5

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: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2568-MB	K81164.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	500	140	ug/kg	
107-02-8	Acrolein	ND	1300	440	ug/kg	
107-13-1	Acrylonitrile	ND	1300	140	ug/kg	
71-43-2	Benzene	ND	25	17	ug/kg	
108-86-1	Bromobenzene	ND	250	13	ug/kg	
74-97-5	Bromochloromethane	ND	250	17	ug/kg	
75-27-4	Bromodichloromethane	ND	100	10	ug/kg	
75-25-2	Bromoform	ND	100	18	ug/kg	
74-83-9	Bromomethane	ND	100	30	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	150	ug/kg	
104-51-8	n-Butylbenzene	ND	250	12	ug/kg	
135-98-8	sec-Butylbenzene	ND	250	37	ug/kg	
98-06-6	tert-Butylbenzene	ND	250	11	ug/kg	
75-15-0	Carbon disulfide	ND	250	6.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	11	ug/kg	
108-90-7	Chlorobenzene	ND	100	7.9	ug/kg	
75-00-3	Chloroethane	ND	250	38	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	250	63	ug/kg	
67-66-3	Chloroform	ND	100	8.5	ug/kg	
74-87-3	Chloromethane	ND	250	28	ug/kg	
95-49-8	o-Chlorotoluene	ND	250	9.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	250	13	ug/kg	
124-48-1	Dibromochloromethane	ND	100	16	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	100	11	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	100	15	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	100	17	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	100	40	ug/kg	
75-34-3	1,1-Dichloroethane	ND	100	13	ug/kg	
107-06-2	1,2-Dichloroethane	ND	100	16	ug/kg	
75-35-4	1,1-Dichloroethene	ND	100	21	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	100	23	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	100	21	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	21	ug/kg	
142-28-9	1,3-Dichloropropane	ND	250	16	ug/kg	
594-20-7	2,2-Dichloropropane	ND	250	28	ug/kg	
563-58-6	1,1-Dichloropropene	ND	250	13	ug/kg	

6.1.1
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Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2568-MB	K81164.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	11	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	13	ug/kg	
123-91-1	1,4-Dioxane	ND	1300	1000	ug/kg	
97-63-2	Ethyl methacrylate	ND	250	18	ug/kg	
100-41-4	Ethylbenzene	ND	100	34	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	29	ug/kg	
591-78-6	2-Hexanone	ND	500	38	ug/kg	
98-82-8	Isopropylbenzene	ND	250	8.4	ug/kg	
99-87-6	p-Isopropyltoluene	ND	250	8.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	100	9.1	ug/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	27	ug/kg	
74-95-3	Methylene bromide	ND	250	23	ug/kg	
75-09-2	Methylene chloride	ND	100	27	ug/kg	
91-20-3	Naphthalene	ND	250	20	ug/kg	
103-65-1	n-Propylbenzene	ND	250	7.6	ug/kg	
100-42-5	Styrene	ND	250	8.5	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	20	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	20	ug/kg	
127-18-4	Tetrachloroethene	ND	100	16	ug/kg	
108-88-3	Toluene	ND	250	10	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	21	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	26	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	11	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	29	ug/kg	
79-01-6	Trichloroethene	ND	100	12	ug/kg	
75-69-4	Trichlorofluoromethane	ND	100	20	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	14	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	72	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	76	ug/kg	
108-05-4	Vinyl Acetate	ND	250	77	ug/kg	
75-01-4	Vinyl chloride	ND	100	45	ug/kg	
	m,p-Xylene	ND	100	22	ug/kg	
95-47-6	o-Xylene	ND	100	14	ug/kg	
1330-20-7	Xylene (total)	ND	100	11	ug/kg	

6.1.1
6

Method Blank Summary

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2568-MB	K81164.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	103%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	104%	70-130%

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

Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3318-MB	N89563.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	

Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3318-MB	N89563.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	0.40	0.40	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	ug/l	

Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3318-MB	N89563.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	85% 70-130%
2037-26-5	Toluene-D8	93% 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	

6.1.2
6

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2568-BS	K81161.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	2500	2620	105	70-130
107-02-8	Acrolein	12500	12900	103	70-130
107-13-1	Acrylonitrile	2500	2150	86	70-130
71-43-2	Benzene	2500	2220	89	70-130
108-86-1	Bromobenzene	2500	2400	96	70-130
74-97-5	Bromochloromethane	2500	2230	89	70-130
75-27-4	Bromodichloromethane	2500	2510	100	70-130
75-25-2	Bromoform	2500	2220	89	70-130
74-83-9	Bromomethane	2500	2390	96	70-130
78-93-3	2-Butanone (MEK)	2500	2790	112	70-130
104-51-8	n-Butylbenzene	2500	2640	106	70-130
135-98-8	sec-Butylbenzene	2500	2700	108	70-130
98-06-6	tert-Butylbenzene	2500	2740	110	70-130
75-15-0	Carbon disulfide	2500	2590	104	70-130
56-23-5	Carbon tetrachloride	2500	2690	108	70-130
108-90-7	Chlorobenzene	2500	2340	94	70-130
75-00-3	Chloroethane	2500	2770	111	70-130
110-75-8	2-Chloroethyl vinyl ether	2500	2510	100	10-160
67-66-3	Chloroform	2500	2210	88	70-130
74-87-3	Chloromethane	2500	2520	101	70-130
95-49-8	o-Chlorotoluene	2500	2460	98	70-130
106-43-4	p-Chlorotoluene	2500	2410	96	70-130
124-48-1	Dibromochloromethane	2500	2260	90	70-130
95-50-1	1,2-Dichlorobenzene	2500	2320	93	70-130
541-73-1	1,3-Dichlorobenzene	2500	2400	96	70-130
106-46-7	1,4-Dichlorobenzene	2500	2410	96	70-130
75-71-8	Dichlorodifluoromethane	2500	2900	116	70-130
75-34-3	1,1-Dichloroethane	2500	2400	96	70-130
107-06-2	1,2-Dichloroethane	2500	2370	95	70-130
75-35-4	1,1-Dichloroethene	2500	2760	110	70-130
156-59-2	cis-1,2-Dichloroethene	2500	2220	89	70-130
156-60-5	trans-1,2-Dichloroethene	2500	2360	94	70-130
78-87-5	1,2-Dichloropropane	2500	2440	98	70-130
142-28-9	1,3-Dichloropropane	2500	2310	92	70-130
594-20-7	2,2-Dichloropropane	2500	2400	96	70-130
563-58-6	1,1-Dichloropropene	2500	2530	101	70-130

* = Outside of Control Limits.

6.2.1
6

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2568-BS	K81161.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	2500	2460	98	70-130
10061-02-6	trans-1,3-Dichloropropene	2500	2600	104	70-130
123-91-1	1,4-Dioxane	6250	5370	86	70-130
97-63-2	Ethyl methacrylate	2500	2360	94	76-141
100-41-4	Ethylbenzene	2500	2380	95	70-130
87-68-3	Hexachlorobutadiene	2500	2700	108	70-130
591-78-6	2-Hexanone	2500	2260	90	70-130
98-82-8	Isopropylbenzene	2500	2740	110	70-130
99-87-6	p-Isopropyltoluene	2500	2560	102	70-130
1634-04-4	Methyl Tert Butyl Ether	2500	2230	89	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	2500	2350	94	70-130
74-95-3	Methylene bromide	2500	2390	96	70-130
75-09-2	Methylene chloride	2500	2520	101	70-130
91-20-3	Naphthalene	2500	2390	96	70-130
103-65-1	n-Propylbenzene	2500	2620	105	70-130
100-42-5	Styrene	2500	2310	92	70-130
630-20-6	1,1,1,2-Tetrachloroethane	2500	2290	92	70-130
79-34-5	1,1,2,2-Tetrachloroethane	2500	2290	92	70-130
127-18-4	Tetrachloroethene	2500	2410	96	70-130
108-88-3	Toluene	2500	2360	94	70-130
87-61-6	1,2,3-Trichlorobenzene	2500	2450	98	70-130
120-82-1	1,2,4-Trichlorobenzene	2500	2470	99	70-130
71-55-6	1,1,1-Trichloroethane	2500	2400	96	70-130
79-00-5	1,1,2-Trichloroethane	2500	2260	90	70-130
79-01-6	Trichloroethene	2500	2340	94	70-130
75-69-4	Trichlorofluoromethane	2500	2840	114	70-130
96-18-4	1,2,3-Trichloropropane	2500	2310	92	70-130
95-63-6	1,2,4-Trimethylbenzene	2500	2540	102	70-130
108-67-8	1,3,5-Trimethylbenzene	2500	2460	98	70-130
108-05-4	Vinyl Acetate	2500	1750	70	70-130
75-01-4	Vinyl chloride	2500	2570	103	70-130
	m,p-Xylene	5000	4580	92	70-130
95-47-6	o-Xylene	2500	2240	90	70-130
1330-20-7	Xylene (total)	7500	6820	91	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2568-BS	K81161.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	70-130%
2037-26-5	Toluene-D8	106%	70-130%
460-00-4	4-Bromofluorobenzene	104%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3318-BS	N89560.D	1	08/20/14	KD	n/a	n/a	MSN3318
MSN3318-BSD	N89561.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	41.2	82	37.3	75	10	70-130/25
107-02-8	Acrolein	250	197	79	166	66* a	17	70-130/25
107-13-1	Acrylonitrile	50	50.8	102	40.4	81	23	70-130/25
71-43-2	Benzene	50	48.8	98	45.9	92	6	70-130/25
108-86-1	Bromobenzene	50	47.0	94	45.0	90	4	70-130/25
74-97-5	Bromochloromethane	50	50.0	100	46.5	93	7	70-130/25
75-27-4	Bromodichloromethane	50	52.5	105	48.3	97	8	70-130/25
75-25-2	Bromoform	50	49.9	100	44.1	88	12	70-130/25
74-83-9	Bromomethane	50	45.4	91	43.3	87	5	70-130/25
78-93-3	2-Butanone (MEK)	50	47.0	94	36.7	73	25	70-130/25
104-51-8	n-Butylbenzene	50	55.4	111	52.1	104	6	70-130/25
135-98-8	sec-Butylbenzene	50	50.8	102	48.3	97	5	70-130/25
98-06-6	tert-Butylbenzene	50	49.1	98	46.5	93	5	70-130/25
75-15-0	Carbon disulfide	50	49.4	99	45.9	92	7	70-130/25
56-23-5	Carbon tetrachloride	50	52.0	104	47.7	95	9	70-130/25
108-90-7	Chlorobenzene	50	47.6	95	45.9	92	4	70-130/25
75-00-3	Chloroethane	50	52.8	106	48.4	97	9	70-130/25
110-75-8	2-Chloroethyl vinyl ether	50	50.9	102	47.1	94	8	70-130/25
67-66-3	Chloroform	50	46.6	93	42.7	85	9	70-130/25
74-87-3	Chloromethane	50	43.3	87	38.6	77	11	70-130/25
95-49-8	o-Chlorotoluene	50	48.0	96	45.5	91	5	70-130/25
106-43-4	p-Chlorotoluene	50	48.3	97	45.5	91	6	70-130/25
124-48-1	Dibromochloromethane	50	51.7	103	47.6	95	8	70-130/25
95-50-1	1,2-Dichlorobenzene	50	51.4	103	48.4	97	6	70-130/25
541-73-1	1,3-Dichlorobenzene	50	48.7	97	46.8	94	4	70-130/25
106-46-7	1,4-Dichlorobenzene	50	48.7	97	46.2	92	5	70-130/25
75-71-8	Dichlorodifluoromethane	50	34.9	70	31.8	64* a	9	70-130/25
75-34-3	1,1-Dichloroethane	50	50.9	102	46.9	94	8	70-130/25
107-06-2	1,2-Dichloroethane	50	47.5	95	42.6	85	11	70-130/25
75-35-4	1,1-Dichloroethene	50	52.1	104	47.7	95	9	70-130/25
156-59-2	cis-1,2-Dichloroethene	50	46.3	93	42.5	85	9	70-130/25
156-60-5	trans-1,2-Dichloroethene	50	48.6	97	44.3	89	9	70-130/25
78-87-5	1,2-Dichloropropane	50	51.8	104	48.0	96	8	70-130/25
142-28-9	1,3-Dichloropropane	50	46.6	93	43.1	86	8	70-130/25
594-20-7	2,2-Dichloropropane	50	57.3	115	49.6	99	14	70-130/25
563-58-6	1,1-Dichloropropene	50	47.5	95	44.2	88	7	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3318-BS	N89560.D	1	08/20/14	KD	n/a	n/a	MSN3318
MSN3318-BSD	N89561.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	49.0	98	44.9	90	9	70-130/25
10061-02-6	trans-1,3-Dichloropropene	50	55.5	111	49.8	100	11	70-130/25
123-91-1	1,4-Dioxane	125	157	126	130	104	19	70-130/25
97-63-2	Ethyl methacrylate	50	52.4	105	45.0	90	15	77-137/25
100-41-4	Ethylbenzene	50	48.3	97	46.3	93	4	70-130/25
87-68-3	Hexachlorobutadiene	50	53.5	107	50.0	100	7	70-130/25
591-78-6	2-Hexanone	50	40.6	81	33.0	66* a	21	70-130/25
98-82-8	Isopropylbenzene	50	50.4	101	47.8	96	5	70-130/25
99-87-6	p-Isopropyltoluene	50	51.1	102	48.5	97	5	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	49.0	98	41.2	82	17	70-130/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	49.3	99	40.5	81	20	70-130/25
74-95-3	Methylene bromide	50	49.2	98	43.7	87	12	70-130/25
75-09-2	Methylene chloride	50	45.8	92	42.1	84	8	70-130/25
91-20-3	Naphthalene	50	49.8	100	39.5	79	23	70-130/25
103-65-1	n-Propylbenzene	50	50.3	101	47.9	96	5	70-130/25
100-42-5	Styrene	50	49.7	99	46.9	94	6	70-130/25
630-20-6	1,1,1,2-Tetrachloroethane	50	46.8	94	44.6	89	5	70-130/25
79-34-5	1,1,2,2-Tetrachloroethane	50	49.2	98	43.4	87	13	70-130/25
127-18-4	Tetrachloroethene	50	49.6	99	47.2	94	5	70-130/25
108-88-3	Toluene	50	49.9	100	47.1	94	6	70-130/25
87-61-6	1,2,3-Trichlorobenzene	50	51.8	104	44.2	88	16	70-130/25
120-82-1	1,2,4-Trichlorobenzene	50	50.1	100	44.9	90	11	70-130/25
71-55-6	1,1,1-Trichloroethane	50	49.4	99	45.3	91	9	70-130/25
79-00-5	1,1,2-Trichloroethane	50	48.7	97	44.7	89	9	70-130/25
79-01-6	Trichloroethene	50	44.0	88	41.6	83	6	70-130/25
75-69-4	Trichlorofluoromethane	50	44.2	88	41.0	82	8	70-130/25
96-18-4	1,2,3-Trichloropropane	50	48.3	97	41.3	83	16	70-130/25
95-63-6	1,2,4-Trimethylbenzene	50	50.1	100	47.2	94	6	70-130/25
108-67-8	1,3,5-Trimethylbenzene	50	47.1	94	45.0	90	5	70-130/25
108-05-4	Vinyl Acetate	50	49.1	98	39.3	79	22	70-130/25
75-01-4	Vinyl chloride	50	40.6	81	36.3	73	11	70-130/25
	m,p-Xylene	100	95.1	95	91.5	92	4	70-130/25
95-47-6	o-Xylene	50	47.6	95	45.3	91	5	70-130/25
1330-20-7	Xylene (total)	150	143	95	137	91	4	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3318-BS	N89560.D	1	08/20/14	KD	n/a	n/a	MSN3318
MSN3318-BSD	N89561.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	88%	84%	70-130%
2037-26-5	Toluene-D8	93%	92%	70-130%
460-00-4	4-Bromofluorobenzene	84%	84%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32795-1MS	K81173.D	1	08/18/14	JM	n/a	n/a	MSK2568
MC32795-1MSD	K81174.D	1	08/18/14	JM	n/a	n/a	MSK2568
MC32795-1	K81170.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Compound	MC32795-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	3490	3350	96	3490	4350	125	26	70-130/30
107-02-8	Acrolein	ND	17500	16800	96	17500	15600	89	7	70-130/30
107-13-1	Acrylonitrile	ND	3490	3160	90	3490	3110	89	2	70-130/30
71-43-2	Benzene	ND	3490	3250	93	3490	3190	91	2	70-130/30
108-86-1	Bromobenzene	ND	3490	3550	102	3490	3470	99	2	70-130/30
74-97-5	Bromochloromethane	ND	3490	3220	92	3490	3150	90	2	70-130/30
75-27-4	Bromodichloromethane	ND	3490	3610	103	3490	3590	103	1	70-130/30
75-25-2	Bromoform	ND	3490	3240	93	3490	3410	98	5	70-130/30
74-83-9	Bromomethane	ND	3490	3400	97	3490	3340	96	2	70-130/30
78-93-3	2-Butanone (MEK)	ND	3490	3490	100	3490	4160	119	18	70-130/30
104-51-8	n-Butylbenzene	ND	3490	3860	110	3490	3850	110	0	70-130/30
135-98-8	sec-Butylbenzene	ND	3490	3970	114	3490	3790	108	5	70-130/30
98-06-6	tert-Butylbenzene	ND	3490	3890	111	3490	3750	107	4	70-130/30
75-15-0	Carbon disulfide	ND	3490	3490	100	3490	3490	100	0	70-130/30
56-23-5	Carbon tetrachloride	ND	3490	3770	108	3490	3870	111	3	70-130/30
108-90-7	Chlorobenzene	ND	3490	3290	94	3490	3410	98	4	70-130/30
75-00-3	Chloroethane	ND	3490	3770	108	3490	3850	110	2	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	3490	3470	99	3490	3500	100	1	10-160/30
67-66-3	Chloroform	ND	3490	3160	90	3490	3190	91	1	70-130/30
74-87-3	Chloromethane	ND	3490	3480	100	3490	3470	99	0	70-130/30
95-49-8	o-Chlorotoluene	ND	3490	3600	103	3490	3600	103	0	70-130/30
106-43-4	p-Chlorotoluene	ND	3490	3550	102	3490	3420	98	4	70-130/30
124-48-1	Dibromochloromethane	ND	3490	3360	96	3490	3390	97	1	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	3490	3550	102	3490	3420	98	4	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	3490	3440	98	3490	3430	98	0	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	3490	3520	101	3490	3460	99	2	70-130/30
75-71-8	Dichlorodifluoromethane	ND	3490	4120	118	3490	4060	116	1	70-130/30
75-34-3	1,1-Dichloroethane	ND	3490	3420	98	3490	3310	95	3	70-130/30
107-06-2	1,2-Dichloroethane	ND	3490	3370	96	3490	3320	95	1	70-130/30
75-35-4	1,1-Dichloroethene	ND	3490	3740	107	3490	3650	104	2	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	3490	3190	91	3490	2990	86	6	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	3490	3330	95	3490	3200	92	4	70-130/30
78-87-5	1,2-Dichloropropane	ND	3490	3340	96	3490	3400	97	2	70-130/30
142-28-9	1,3-Dichloropropane	ND	3490	3250	93	3490	3270	94	1	70-130/30
594-20-7	2,2-Dichloropropane	ND	3490	3340	96	3490	3360	96	1	70-130/30
563-58-6	1,1-Dichloropropene	ND	3490	3540	101	3490	3440	98	3	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32795-1MS	K81173.D	1	08/18/14	JM	n/a	n/a	MSK2568
MC32795-1MSD	K81174.D	1	08/18/14	JM	n/a	n/a	MSK2568
MC32795-1	K81170.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Compound	MC32795-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	3490	3410	98	3490	3410	98	0	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	3490	3630	104	3490	3550	102	2	70-130/30
123-91-1	1,4-Dioxane	ND	8730	4820	55* a	8730	4430	51* a	8	70-130/30
97-63-2	Ethyl methacrylate	ND	3490	3420	98	3490	3490	100	2	41-160/30
100-41-4	Ethylbenzene	ND	3490	3330	95	3490	3420	98	3	70-130/30
87-68-3	Hexachlorobutadiene	ND	3490	3690	106	3490	3750	107	2	70-130/30
591-78-6	2-Hexanone	ND	3490	3600	103	3490	3590	103	0	70-130/30
98-82-8	Isopropylbenzene	ND	3490	3960	113	3490	3800	109	4	70-130/30
99-87-6	p-Isopropyltoluene	ND	3490	3770	108	3490	3660	105	3	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	3490	3140	90	3490	3140	90	0	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	3490	3410	98	3490	3450	99	1	70-130/30
74-95-3	Methylene bromide	ND	3490	3520	101	3490	3380	97	4	70-130/30
75-09-2	Methylene chloride	ND	3490	3310	95	3490	3160	90	5	70-130/30
91-20-3	Naphthalene	ND	3490	3440	98	3490	3390	97	1	70-130/30
103-65-1	n-Propylbenzene	ND	3490	3810	109	3490	3790	108	1	70-130/30
100-42-5	Styrene	ND	3490	3280	94	3490	3380	97	3	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	3490	3260	93	3490	3260	93	0	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	3490	3420	98	3490	3360	96	2	70-130/30
127-18-4	Tetrachloroethene	ND	3490	3440	98	3490	3370	96	2	70-130/30
108-88-3	Toluene	60.2	3490	3420	96	3490	3470	98	1	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	3490	3470	99	3490	3380	97	3	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	3490	3400	97	3490	3490	100	3	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	3490	3500	100	3490	3410	98	3	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	3490	3370	96	3490	3360	96	0	70-130/30
79-01-6	Trichloroethene	ND	3490	3520	101	3490	3470	99	1	70-130/30
75-69-4	Trichlorofluoromethane	ND	3490	4050	116	3490	3930	112	3	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	3490	3450	99	3490	3330	95	4	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	3490	3800	109	3490	3750	107	1	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	3490	3620	104	3490	3540	101	2	70-130/30
108-05-4	Vinyl Acetate	ND	3490	2070	59* a	3490	1900	54* a	9	70-130/30
75-01-4	Vinyl chloride	ND	3490	3520	101	3490	3470	99	1	70-130/30
	m,p-Xylene	ND	6990	6780	97	6990	6670	95	2	70-130/30
95-47-6	o-Xylene	ND	3490	3170	91	3490	3320	95	5	70-130/30
1330-20-7	Xylene (total)	ND	10500	9950	95	10500	9990	95	0	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32795-1MS	K81173.D	1	08/18/14	JM	n/a	n/a	MSK2568
MC32795-1MSD	K81174.D	1	08/18/14	JM	n/a	n/a	MSK2568
MC32795-1	K81170.D	1	08/18/14	JM	n/a	n/a	MSK2568

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-1

CAS No.	Surrogate Recoveries	MS	MSD	MC32795-1	Limits
1868-53-7	Dibromofluoromethane	101%	102%	107%	70-130%
2037-26-5	Toluene-D8	107%	106%	102%	70-130%
460-00-4	4-Bromofluorobenzene	108%	105%	104%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32662-2MS	N89583.D	5	08/20/14	KD	n/a	n/a	MSN3318
MC32662-2MSD	N89584.D	5	08/20/14	KD	n/a	n/a	MSN3318
MC32662-2	N89582.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Compound	MC32662-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	250	102	41* a	250	101	40* a	1	70-130/30
107-02-8	Acrolein	ND	1250	822	66* a	1250	885	71	7	70-130/30
107-13-1	Acrylonitrile	ND	250	240	96	250	257	103	7	70-130/30
71-43-2	Benzene	ND	250	249	100	250	245	98	2	70-130/30
108-86-1	Bromobenzene	ND	250	243	97	250	238	95	2	70-130/30
74-97-5	Bromochloromethane	ND	250	256	102	250	261	104	2	70-130/30
75-27-4	Bromodichloromethane	ND	250	274	110	250	265	106	3	70-130/30
75-25-2	Bromoform	ND	250	248	99	250	248	99	0	70-130/30
74-83-9	Bromomethane	ND	250	219	88	250	221	88	1	70-130/30
78-93-3	2-Butanone (MEK)	ND	250	168	67* a	250	172	69* a	2	70-130/30
104-51-8	n-Butylbenzene	ND	250	282	113	250	276	110	2	70-130/30
135-98-8	sec-Butylbenzene	ND	250	255	102	250	252	101	1	70-130/30
98-06-6	tert-Butylbenzene	ND	250	253	101	250	248	99	2	70-130/30
75-15-0	Carbon disulfide	ND	250	262	105	250	268	107	2	70-130/30
56-23-5	Carbon tetrachloride	ND	250	286	114	250	274	110	4	70-130/30
108-90-7	Chlorobenzene	ND	250	241	96	250	236	94	2	70-130/30
75-00-3	Chloroethane	ND	250	239	96	250	237	95	1	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	250	260	104	250	255	102	2	70-130/30
67-66-3	Chloroform	ND	250	240	96	250	239	96	0	70-130/30
74-87-3	Chloromethane	ND	250	183	73	250	188	75	3	70-130/30
95-49-8	o-Chlorotoluene	ND	250	245	98	250	242	97	1	70-130/30
106-43-4	p-Chlorotoluene	ND	250	248	99	250	243	97	2	70-130/30
124-48-1	Dibromochloromethane	ND	250	266	106	250	262	105	2	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	250	264	106	250	258	103	2	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	250	248	99	250	245	98	1	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	250	242	97	250	242	97	0	70-130/30
75-71-8	Dichlorodifluoromethane	ND	250	146	58* a	250	144	58* a	1	70-130/30
75-34-3	1,1-Dichloroethane	ND	250	260	104	250	263	105	1	70-130/30
107-06-2	1,2-Dichloroethane	ND	250	248	99	250	242	97	2	70-130/30
75-35-4	1,1-Dichloroethene	ND	250	272	109	250	271	108	0	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	250	229	92	250	237	95	3	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	250	243	97	250	248	99	2	70-130/30
78-87-5	1,2-Dichloropropane	ND	250	265	106	250	260	104	2	70-130/30
142-28-9	1,3-Dichloropropane	ND	250	240	96	250	234	94	3	70-130/30
594-20-7	2,2-Dichloropropane	ND	250	273	109	250	268	107	2	70-130/30
563-58-6	1,1-Dichloropropene	ND	250	245	98	250	241	96	2	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32662-2MS	N89583.D	5	08/20/14	KD	n/a	n/a	MSN3318
MC32662-2MSD	N89584.D	5	08/20/14	KD	n/a	n/a	MSN3318
MC32662-2	N89582.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Compound	MC32662-2 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD	
10061-01-5	cis-1,3-Dichloropropene	ND		250	243	97	250	243	0	70-130/30	
10061-02-6	trans-1,3-Dichloropropene	ND		250	276	110	250	275	0	70-130/30	
123-91-1	1,4-Dioxane	ND		625	699	112	625	699	0	70-130/30	
97-63-2	Ethyl methacrylate	ND		250	266	106	250	271	2	72-139/30	
100-41-4	Ethylbenzene	ND		250	247	99	250	241	2	70-130/30	
87-68-3	Hexachlorobutadiene	ND		250	272	109	250	267	2	70-130/30	
591-78-6	2-Hexanone	ND		250	145	58* a	250	145	0	70-130/30	
98-82-8	Isopropylbenzene	1.1	J	250	252	100	250	252	0	70-130/30	
99-87-6	p-Isopropyltoluene	ND		250	261	104	250	258	1	70-130/30	
1634-04-4	Methyl Tert Butyl Ether	20.2		250	261	96	250	266	2	70-130/30	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		250	247	99	250	238	4	70-130/30	
74-95-3	Methylene bromide	ND		250	248	99	250	246	98	1	70-130/30
75-09-2	Methylene chloride	ND		250	234	94	250	236	94	1	70-130/30
91-20-3	Naphthalene	ND		250	240	96	250	266	106	10	70-130/30
103-65-1	n-Propylbenzene	0.53	J	250	256	102	250	253	101	1	70-130/30
100-42-5	Styrene	ND		250	247	99	250	244	98	1	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		250	244	98	250	240	96	2	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		250	247	99	250	246	98	0	70-130/30
127-18-4	Tetrachloroethene	ND		250	252	101	250	246	98	2	70-130/30
108-88-3	Toluene	ND		250	256	102	250	248	99	3	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		250	253	101	250	268	107	6	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		250	245	98	250	253	101	3	70-130/30
71-55-6	1,1,1-Trichloroethane	ND		250	260	104	250	256	102	2	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		250	255	102	250	249	100	2	70-130/30
79-01-6	Trichloroethene	ND		250	217	87	250	220	88	1	70-130/30
75-69-4	Trichlorofluoromethane	ND		250	208	83	250	198	79	5	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		250	239	96	250	244	98	2	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		250	248	99	250	246	98	1	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		250	236	94	250	233	93	1	70-130/30
108-05-4	Vinyl Acetate	ND		250	264	106	250	270	108	2	70-130/30
75-01-4	Vinyl chloride	ND		250	176	70	250	182	73	3	70-130/30
	m,p-Xylene	ND		500	483	97	500	473	95	2	70-130/30
95-47-6	o-Xylene	ND		250	245	98	250	236	94	4	70-130/30
1330-20-7	Xylene (total)	ND		750	727	97	750	709	95	3	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32662-2MS	N89583.D	5	08/20/14	KD	n/a	n/a	MSN3318
MC32662-2MSD	N89584.D	5	08/20/14	KD	n/a	n/a	MSN3318
MC32662-2	N89582.D	1	08/20/14	KD	n/a	n/a	MSN3318

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32660-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32662-2	Limits
1868-53-7	Dibromofluoromethane	87%	89%	89%	70-130%
2037-26-5	Toluene-D8	94%	93%	92%	70-130%
460-00-4	4-Bromofluorobenzene	82%	84%	87%	70-130%

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

* = Outside of Control Limits.

6.4.2
6

Volatile Internal Standard Area Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSK2568-CC2552	Injection Date:	08/18/14
Lab File ID:	K81160.D	Injection Time:	08:39
Instrument ID:	GCMSK	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	111422	8.78	142863	9.63	60763	12.89	88089	15.44	56045	6.42
Upper Limit ^a	222844	9.28	285726	10.13	121526	13.39	176178	15.94	112090	6.92
Lower Limit ^b	55711	8.28	71432	9.13	30382	12.39	44045	14.94	28023	5.92

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSK2568-BS	115172	8.79	147128	9.63	62653	12.89	82833	15.44	60706	6.43
MSK2568-MB	119614	8.79	152151	9.63	59891	12.89	89512	15.44	60060	6.43
ZZZZZZ	123177	8.78	159530	9.63	61766	12.89	91553	15.44	63488	6.50
ZZZZZZ	114432	8.78	149143	9.63	58383	12.89	87570	15.44	74507	6.57
ZZZZZZ	109039	8.79	142795	9.63	56386	12.89	87348	15.45	49305	6.46
MC32795-1	112504	8.79	143534	9.63	57524	12.89	88854	15.44	44122	6.42
ZZZZZZ	109429	8.78	137427	9.63	55370	12.89	83910	15.44	51801	6.42
ZZZZZZ	113263	8.78	144035	9.63	57761	12.89	82916	15.44	57314	6.42
MC32795-1MS	105025	8.78	134640	9.63	58469	12.89	76189	15.44	56506	6.43
MC32795-1MSD	107058	8.78	136461	9.63	58711	12.89	80086	15.44	53346	6.42
ZZZZZZ	112076	8.78	144990	9.63	55781	12.89	83984	15.44	61872	6.43
ZZZZZZ	114048	8.78	146975	9.63	56918	12.89	85271	15.44	59599	6.43
ZZZZZZ	110772	8.78	139669	9.63	56680	12.89	83773	15.44	60538	6.43
ZZZZZZ	105899	8.78	139594	9.63	54205	12.89	81468	15.44	58354	6.43
ZZZZZZ	109705	8.78	139290	9.63	56492	12.89	84651	15.44	56239	6.43
ZZZZZZ	109119	8.78	141698	9.63	54668	12.89	86386	15.44	58569	6.43
MC32660-1	108056	8.78	139094	9.63	55685	12.89	78358	15.44	58684	6.43
ZZZZZZ	112636	8.78	147975	9.63	56223	12.89	85108	15.44	61592	6.44
ZZZZZZ	109388	8.78	140779	9.63	55773	12.89	79789	15.44	62106	6.41
ZZZZZZ	106677	8.78	137794	9.63	54143	12.89	77178	15.44	56679	6.40
ZZZZZZ	119253	8.79	149727	9.63	56961	12.89	80693	15.44	60317	6.40

- 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.

6.5.1

6

Volatile Internal Standard Area Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSN3318-CC3314	Injection Date:	08/20/14
Lab File ID:	N89560.D	Injection Time:	09:44
Instrument ID:	GCMSN	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	292287	9.12	439970	9.99	252390	13.24	192751	15.80	119215	6.70
Upper Limit ^a	584574	9.62	879940	10.49	504780	13.74	385502	16.30	238430	7.20
Lower Limit ^b	146144	8.62	219985	9.49	126195	12.74	96376	15.30	59608	6.20

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSN3318-BS	292287	9.12	439970	9.99	252390	13.24	192751	15.80	119215	6.70
MSN3318-BSD	299246	9.12	441831	9.99	246875	13.24	186702	15.80	92023	6.70
MSN3318-MB	275246	9.12	402077	9.99	215304	13.24	148303	15.80	120605	6.73
ZZZZZZ	264056	9.12	395589	9.99	213702	13.24	144414	15.80	114476	6.73
MC32660-2	260563	9.12	384420	9.99	208925	13.24	140277	15.80	96191	6.72
ZZZZZZ	248520	9.12	375712	9.99	203380	13.24	138033	15.80	102907	6.73
ZZZZZZ	252874	9.12	377994	9.99	209350	13.24	154006	15.80	105142	6.72
ZZZZZZ	246342	9.12	380170	9.99	200951	13.24	136594	15.80	103603	6.73
ZZZZZZ	249473	9.12	376081	9.99	203730	13.25	137545	15.80	87282	6.72
ZZZZZZ	240651	9.12	360737	9.99	193328	13.24	129959	15.80	92036	6.73
ZZZZZZ	242626	9.12	358401	9.99	196086	13.24	131753	15.80	85772	6.73
ZZZZZZ	239720	9.12	361346	9.99	195103	13.24	143179	15.80	91111	6.73
ZZZZZZ	245765	9.12	364082	9.99	200532	13.24	138274	15.80	103122	6.72
ZZZZZZ	242186	9.12	369238	9.99	200434	13.24	152806	15.80	85044	6.72
ZZZZZZ	244824	9.11	370613	9.99	202369	13.24	147433	15.80	100117	6.73
ZZZZZZ	244589	9.12	370051	9.99	199215	13.24	141705	15.80	105425	6.71
ZZZZZZ	253125	9.12	378833	9.99	202266	13.24	137918	15.80	146903	6.72
ZZZZZZ	245752	9.12	367947	9.99	199784	13.24	135460	15.80	133883	6.72
ZZZZZZ	240780	9.12	363625	9.99	199034	13.24	135292	15.80	102786	6.72
ZZZZZZ	239446	9.12	360329	9.99	193152	13.25	132467	15.80	83669	6.73
MC32662-2	230984	9.12	349968	9.99	188830	13.24	139513	15.80	89102	6.71
MC32662-2MS	253634	9.12	379437	9.99	222366	13.24	171706	15.80	93905	6.70
MC32662-2MSD	282242	9.12	429407	9.99	247555	13.24	187079	15.80	111319	6.70

- 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.

6.5.2
6

Volatile Surrogate Recovery Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, 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
MC32660-2	N89565.D	87	91	94
MC32662-2MS	N89583.D	87	94	82
MC32662-2MSD	N89584.D	89	93	84
MSN3318-BS	N89560.D	88	93	84
MSN3318-BSD	N89561.D	84	92	84
MSN3318-MB	N89563.D	85	93	93

Surrogate Compounds **Recovery Limits**

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

6.6.1

9

Volatile Surrogate Recovery Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8260C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32660-1	K81181.D	107	101	113
MC32795-1MS	K81173.D	101	107	108
MC32795-1MSD	K81174.D	102	106	105
MSK2568-BS	K81161.D	102	106	104
MSK2568-MB	K81164.D	103	101	104

Surrogate Compounds **Recovery Limits**

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

6.6.2
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: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39310-MB	F75278.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	480	60	ug/kg	
95-57-8	2-Chlorophenol	ND	240	11	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	480	12	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	480	14	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	480	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	970	120	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	480	60	ug/kg	
95-48-7	2-Methylphenol	ND	480	19	ug/kg	
	3&4-Methylphenol	ND	480	24	ug/kg	
88-75-5	2-Nitrophenol	ND	480	13	ug/kg	
100-02-7	4-Nitrophenol	ND	970	91	ug/kg	
87-86-5	Pentachlorophenol	ND	480	34	ug/kg	
108-95-2	Phenol	ND	240	14	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	480	12	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	480	12	ug/kg	
62-53-3	Aniline	ND	480	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	240	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	240	9.9	ug/kg	
100-51-6	Benzyl Alcohol	ND	480	24	ug/kg	
91-58-7	2-Chloronaphthalene	ND	240	13	ug/kg	
106-47-8	4-Chloroaniline	ND	480	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	240	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	240	15	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	240	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	240	15	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	240	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	480	32	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	480	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	240	24	ug/kg	
132-64-9	Dibenzofuran	ND	97	13	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	240	26	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	240	7.5	ug/kg	
84-66-2	Diethyl phthalate	ND	240	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	240	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	240	8.9	ug/kg	
118-74-1	Hexachlorobenzene	ND	240	15	ug/kg	

7.1.1
7

Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39310-MB	F75278.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	480	120	ug/kg	
67-72-1	Hexachloroethane	ND	240	12	ug/kg	
78-59-1	Isophorone	ND	240	11	ug/kg	
88-74-4	2-Nitroaniline	ND	480	12	ug/kg	
99-09-2	3-Nitroaniline	ND	480	26	ug/kg	
100-01-6	4-Nitroaniline	ND	480	12	ug/kg	
98-95-3	Nitrobenzene	ND	240	13	ug/kg	
62-75-9	n-Nitrosodimethylamine	ND	240	12	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	240	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	15	ug/kg	
110-86-1	Pyridine	ND	480	24	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	75% 30-130%
4165-62-2	Phenol-d5	72% 30-130%
118-79-6	2,4,6-Tribromophenol	79% 30-130%
4165-60-0	Nitrobenzene-d5	58% 30-130%
321-60-8	2-Fluorobiphenyl	77% 30-130%
1718-51-0	Terphenyl-d14	87% 30-130%

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

7.1.1
7

Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39311-MB	I91185.D	1	08/12/14	MR	08/07/14	OP39311	MSI3394

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.8	0.84	ug/kg	
208-96-8	Acenaphthylene	ND	4.8	0.73	ug/kg	
120-12-7	Anthracene	ND	4.8	1.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.8	2.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.8	1.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.8	2.1	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	4.8	1.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.8	1.5	ug/kg	
218-01-9	Chrysene	ND	4.8	1.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.8	1.4	ug/kg	
206-44-0	Fluoranthene	ND	4.8	1.4	ug/kg	
86-73-7	Fluorene	ND	4.8	0.95	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.8	1.2	ug/kg	
90-12-0	1-Methylnaphthalene	ND	9.7	1.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	9.7	0.90	ug/kg	
85-01-8	Phenanthrene	ND	4.8	1.0	ug/kg	
129-00-0	Pyrene	ND	4.8	1.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	77%	30-130%
321-60-8	2-Fluorobiphenyl	73%	30-130%
1718-51-0	Terphenyl-d14	101%	30-130%

7.1.2
7

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39310-BS	F75279.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32660-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic acid	2410	1740	72	30-130
95-57-8	2-Chlorophenol	2410	1600	66	30-130
59-50-7	4-Chloro-3-methyl phenol	2410	1470	61	30-130
120-83-2	2,4-Dichlorophenol	2410	1490	62	30-130
105-67-9	2,4-Dimethylphenol	2410	1450	60	30-130
51-28-5	2,4-Dinitrophenol	2410	848	35	30-130
534-52-1	4,6-Dinitro-o-cresol	2410	1240	51	30-130
95-48-7	2-Methylphenol	2410	1560	65	30-130
	3&4-Methylphenol	4830	3070	64	30-130
88-75-5	2-Nitrophenol	2410	1560	65	30-130
100-02-7	4-Nitrophenol	2410	1290	53	30-130
87-86-5	Pentachlorophenol	2410	2070	86	30-130
108-95-2	Phenol	2410	1530	63	30-130
95-95-4	2,4,5-Trichlorophenol	2410	1810	75	30-130
88-06-2	2,4,6-Trichlorophenol	2410	1700	70	30-130
62-53-3	Aniline	2410	1290	53	40-140
101-55-3	4-Bromophenyl phenyl ether	2410	1840	76	40-140
85-68-7	Butyl benzyl phthalate	2410	2390	99	40-140
100-51-6	Benzyl Alcohol	2410	1560	65	40-140
91-58-7	2-Chloronaphthalene	2410	1830	76	40-140
106-47-8	4-Chloroaniline	2410	1450	60	40-140
111-91-1	bis(2-Chloroethoxy)methane	2410	1340	56	40-140
111-44-4	bis(2-Chloroethyl)ether	2410	1650	68	40-140
108-60-1	bis(2-Chloroisopropyl)ether	2410	2260	94	40-140
7005-72-3	4-Chlorophenyl phenyl ether	2410	1520	63	40-140
122-66-7	1,2-Diphenylhydrazine	2410	1870	77	40-140
121-14-2	2,4-Dinitrotoluene	2410	1740	72	40-140
606-20-2	2,6-Dinitrotoluene	2410	1630	68	40-140
91-94-1	3,3'-Dichlorobenzidine	2410	2230	92	40-140
132-64-9	Dibenzofuran	2410	1650	68	40-140
84-74-2	Di-n-butyl phthalate	2410	2320	96	40-140
117-84-0	Di-n-octyl phthalate	2410	2270	94	40-140
84-66-2	Diethyl phthalate	2410	1820	75	40-140
131-11-3	Dimethyl phthalate	2410	1850	77	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	2410	2330	97	40-140
118-74-1	Hexachlorobenzene	2410	1780	74	40-140

* = Outside of Control Limits.

7.2.1
7

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39310-BS	F75279.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32660-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	2410	500	21* a	40-140
67-72-1	Hexachloroethane	2410	1400	58	40-140
78-59-1	Isophorone	2410	1320	55	40-140
88-74-4	2-Nitroaniline	2410	1970	82	40-140
99-09-2	3-Nitroaniline	2410	1820	75	40-140
100-01-6	4-Nitroaniline	2410	1740	72	40-140
98-95-3	Nitrobenzene	2410	1280	53	40-140
62-75-9	n-Nitrosodimethylamine	2410	1420	59	40-140
621-64-7	N-Nitroso-di-n-propylamine	2410	1450	60	40-140
86-30-6	N-Nitrosodiphenylamine	2410	1860	77	40-140
110-86-1	Pyridine	2410	1260	52	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	64%	30-130%
4165-62-2	Phenol-d5	63%	30-130%
118-79-6	2,4,6-Tribromophenol	79%	30-130%
4165-60-0	Nitrobenzene-d5	54%	30-130%
321-60-8	2-Fluorobiphenyl	69%	30-130%
1718-51-0	Terphenyl-d14	84%	30-130%

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39311-BS	I91186.D	1	08/12/14	MR	08/07/14	OP39311	MSI3394

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32660-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2410	1680	70	40-140
208-96-8	Acenaphthylene	2410	1470	61	40-140
120-12-7	Anthracene	2410	1830	76	40-140
56-55-3	Benzo(a)anthracene	2410	2270	94	40-140
50-32-8	Benzo(a)pyrene	2410	2000	83	40-140
205-99-2	Benzo(b)fluoranthene	2410	2400	99	40-140
191-24-2	Benzo(g,h,i)perylene	2410	2040	84	40-140
207-08-9	Benzo(k)fluoranthene	2410	1980	82	40-140
218-01-9	Chrysene	2410	1890	78	40-140
53-70-3	Dibenzo(a,h)anthracene	2410	2200	91	40-140
206-44-0	Fluoranthene	2410	2080	86	40-140
86-73-7	Fluorene	2410	1730	72	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2410	2130	88	40-140
90-12-0	1-Methylnaphthalene	2410	1630	68	40-140
91-57-6	2-Methylnaphthalene	2410	1670	69	40-140
85-01-8	Phenanthrene	2410	1800	75	40-140
129-00-0	Pyrene	2410	2050	85	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	69%	30-130%
321-60-8	2-Fluorobiphenyl	68%	30-130%
1718-51-0	Terphenyl-d14	94%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39310-MS	F75280.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312
OP39310-MSD	F75281.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312
MC32660-1	F75282.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32660-1

CAS No.	Compound	MC32660-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND	2870	2270	79	2880	2460	85	8	30-130/30
95-57-8	2-Chlorophenol	ND	2870	1990	69	2880	1940	67	3	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND	2870	1810	63	2880	1830	64	1	30-130/30
120-83-2	2,4-Dichlorophenol	ND	2870	1830	64	2880	1800	63	2	30-130/30
105-67-9	2,4-Dimethylphenol	ND	2870	1980	69	2880	1860	65	6	30-130/30
51-28-5	2,4-Dinitrophenol	ND	2870	382	13* a	2880	364	13* a	5	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND	2870	665	23* a	2880	744	26* a	11	30-130/30
95-48-7	2-Methylphenol	ND	2870	1880	66	2880	1660	58	12	30-130/30
	3&4-Methylphenol	ND	5730	3690	64	5760	3430	60	7	30-130/30
88-75-5	2-Nitrophenol	ND	2870	1960	68	2880	1870	65	5	30-130/30
100-02-7	4-Nitrophenol	ND	2870	1460	51	2880	1600	56	9	30-130/30
87-86-5	Pentachlorophenol	ND	2870	2200	77	2880	2280	79	4	30-130/30
108-95-2	Phenol	ND	2870	1750	61	2880	1960	68	11	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND	2870	2060	72	2880	2270	79	10	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND	2870	2090	73	2880	2550	89	20	30-130/30
62-53-3	Aniline	ND	2870	1530	53	2880	1580	55	3	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND	2870	2310	81	2880	2230	77	4	40-140/30
85-68-7	Butyl benzyl phthalate	ND	2870	2840	99	2880	2890	100	2	40-140/30
100-51-6	Benzyl Alcohol	ND	2870	1970	69	2880	1710	59	14	40-140/30
91-58-7	2-Chloronaphthalene	ND	2870	2220	77	2880	2120	74	5	40-140/30
106-47-8	4-Chloroaniline	ND	2870	1760	61	2880	1750	61	1	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND	2870	1470	51	2880	1800	63	20	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND	2870	2010	70	2880	2010	70	0	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND	2870	2750	96	2880	2420	84	13	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND	2870	1790	62	2880	2090	73	15	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND	2870	2510	88	2880	2310	80	8	40-140/30
121-14-2	2,4-Dinitrotoluene	ND	2870	2000	70	2880	2340	81	16	40-140/30
606-20-2	2,6-Dinitrotoluene	ND	2870	1930	67	2880	1970	68	2	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND	2870	2680	93	2880	2720	94	1	40-140/30
132-64-9	Dibenzofuran	ND	2870	1930	67	2880	2190	76	13	40-140/30
84-74-2	Di-n-butyl phthalate	ND	2870	2320	81	2880	2340	81	1	40-140/30
117-84-0	Di-n-octyl phthalate	ND	2870	2720	95	2880	2760	96	1	40-140/30
84-66-2	Diethyl phthalate	ND	2870	2120	74	2880	2430	84	14	40-140/30
131-11-3	Dimethyl phthalate	ND	2870	2180	76	2880	2140	74	2	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2870	2830	99	2880	2820	98	0	40-140/30
118-74-1	Hexachlorobenzene	ND	2870	2110	74	2880	2160	75	2	40-140/30

* = Outside of Control Limits.

7.3.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39310-MS	F75280.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312
OP39310-MSD	F75281.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312
MC32660-1	F75282.D	1	08/12/14	WK	08/07/14	OP39310	MSF3312

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32660-1

CAS No.	Compound	MC32660-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	2870	557	19* b	2880	609	21* b	9	40-140/30
67-72-1	Hexachloroethane	ND	2870	1770	62	2880	1630	57	8	40-140/30
78-59-1	Isophorone	ND	2870	1690	59	2880	1600	56	5	40-140/30
88-74-4	2-Nitroaniline	ND	2870	2310	81	2880	2630	91	13	40-140/30
99-09-2	3-Nitroaniline	ND	2870	2120	74	2880	2420	84	13	40-140/30
100-01-6	4-Nitroaniline	ND	2870	2010	70	2880	2180	76	8	40-140/30
98-95-3	Nitrobenzene	ND	2870	1370	48	2880	2010	70	38* c	40-140/30
62-75-9	n-Nitrosodimethylamine	ND	2870	1700	59	2880	1410	49	19	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND	2870	1850	65	2880	1680	58	10	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND	2870	2440	85	2880	2270	79	7	40-140/30
110-86-1	Pyridine	ND	2870	1520	53	2880	1290	45	16	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32660-1	Limits
367-12-4	2-Fluorophenol	70%	70%	70%	30-130%
4165-62-2	Phenol-d5	64%	63%	59%	30-130%
118-79-6	2,4,6-Tribromophenol	87%	75%	73%	30-130%
4165-60-0	Nitrobenzene-d5	50%	54%	55%	30-130%
321-60-8	2-Fluorobiphenyl	72%	67%	68%	30-130%
1718-51-0	Terphenyl-d14	82%	83%	83%	30-130%

- (a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
- (b) Outside control limits. Blank Spike meets program technical requirements.
- (c) High RPD due to possible matrix interference and/or sample heterogeneity.

* = Outside of Control Limits.

7.3.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39311-MS	I91187.D	1	08/12/14	MR	08/07/14	OP39311	MSI3394
OP39311-MSD	I91188.D	1	08/12/14	MR	08/07/14	OP39311	MSI3394
MC32660-1	I91192.D	1	08/13/14	MR	08/07/14	OP39311	MSI3395

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32660-1

CAS No.	Compound	MC32660-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
83-32-9	Acenaphthene	10.3		2870	2010	70	2880	2040	71	1	40-140/30
208-96-8	Acenaphthylene	3.5	J	2870	1760	61	2880	1770	61	1	40-140/30
120-12-7	Anthracene	5.6	J	2870	2130	74	2880	2170	75	2	40-140/30
56-55-3	Benzo(a)anthracene	ND		2870	2640	92	2880	2640	92	0	40-140/30
50-32-8	Benzo(a)pyrene	ND		2870	2310	81	2880	2320	81	0	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		2870	2810	98	2880	2760	96	2	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		2870	2370	83	2880	2350	82	1	40-140/30
207-08-9	Benzo(k)fluoranthene	ND		2870	2270	79	2880	2340	81	3	40-140/30
218-01-9	Chrysene	ND		2870	2200	77	2880	2200	76	0	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND		2870	2540	89	2880	2540	88	0	40-140/30
206-44-0	Fluoranthene	4.0	J	2870	2410	84	2880	2460	85	2	40-140/30
86-73-7	Fluorene	14.9		2870	2050	71	2880	2070	71	1	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2870	2480	86	2880	2460	85	1	40-140/30
90-12-0	1-Methylnaphthalene	747		2870	2710	68	2880	2680	67	1	40-140/30
91-57-6	2-Methylnaphthalene	1630		2870	3620	69	2880	3570	67	1	40-140/30
85-01-8	Phenanthrene	24.2		2870	2110	73	2880	2150	74	2	40-140/30
129-00-0	Pyrene	6.7		2870	2390	83	2880	2440	85	2	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32660-1	Limits
4165-60-0	Nitrobenzene-d5	73%	69%	69%	30-130%
321-60-8	2-Fluorobiphenyl	70%	70%	66%	30-130%
1718-51-0	Terphenyl-d14	91%	93%	93%	30-130%

* = Outside of Control Limits.

7.3.2
 7

Semivolatile Internal Standard Area Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3312-CC3270	Injection Date:	08/12/14
Lab File ID:	F75272.D	Injection Time:	08:24
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
	AREA	RT	AREA	RT	AREA	RT
Check Std	158860	2.86	561602	3.88	326601	5.36
Upper Limit ^a	317720	3.36	1123204	4.38	653202	5.86
Lower Limit ^b	79430	2.36	280801	3.38	163301	4.86

Lab Sample ID	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
	AREA	RT	AREA	RT	AREA	RT
ZZZZZZ	211132	2.86	861751	3.88	493229	5.35
ZZZZZZ	191298	2.85	688330	3.88	360511	5.35
ZZZZZZ	197299	2.86	678737	3.88	426037	5.35
ZZZZZZ	264373	2.86	885193	3.88	489024	5.35
MC32591-1	204048	2.86	687938	3.88	442302	5.35
OP39310-MB	247549	2.86	840763	3.87	519662	5.35
OP39310-BS	245515	2.86	835713	3.88	461982	5.36
OP39310-MS	246109	2.86	936785	3.88	511970	5.35
OP39310-MSD	286079	2.85	889060	3.88	434959	5.35
MC32660-1	282921	2.86	964722	3.88	475758	5.35
ZZZZZZ	291714	2.86	868398	3.88	483130	5.35
ZZZZZZ	306752	2.86	954239	3.88	470412	5.36
ZZZZZZ	290375	2.85	875967	3.87	484991	5.35
ZZZZZZ	281827	2.85	971926	3.87	528494	5.35
ZZZZZZ	254569	2.86	858188	3.88	469325	5.35
ZZZZZZ	233358	2.85	809979	3.87	455758	5.35
ZZZZZZ	260435	2.86	878169	3.87	449477	5.35
ZZZZZZ	264005	2.86	912551	3.88	463816	5.35
OP39207-MB	195577	2.86	652877	3.87	440515	5.35
OP39207-BS	220946	2.86	680389	3.88	380392	5.35
OP39207-MS	219822	2.86	743401	3.88	408268	5.35
OP39207-MSD	235956	2.86	792294	3.88	397925	5.35
MC32300-11	192039	2.85	761944	3.87	395519	5.35
ZZZZZZ	177577	2.86	765305	3.87	476864	5.35
ZZZZZZ	241084	2.86	843681	3.88	497521	5.35
ZZZZZZ	197296	2.86	709227	3.87	404804	5.35
ZZZZZZ	228036	2.86	784337	3.87	454727	5.35
ZZZZZZ	239661	2.86	818211	3.88	472242	5.35

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

7.4.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3312-CC3270	Injection Date:	08/12/14
Lab File ID:	F75272.D	Injection Time:	08:24
Instrument ID:	GCMSF	Method:	SW846 8270D

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

- (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.

7.4.1

7

Semivolatile Internal Standard Area Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3394-CC3386	Injection Date:	08/12/14
Lab File ID:	I91158.D	Injection Time:	08:07
Instrument ID:	GCMSI	Method:	SW846 8270D BY SIM

	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6						
	AREA	RT	AREA	RT	AREA	RT						
Check Std	460339	4.13	1013385	5.18	537346	6.71	915189	8.10	634800	10.88	1621801	12.38
Upper Limit ^a	920678	4.63	2026770	5.68	1074692	7.21	1830378	8.60	1269600	11.38	3243602	12.88
Lower Limit ^b	230170	3.63	506693	4.68	268673	6.21	457595	7.60	317400	10.38	810901	11.88

Lab	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
Sample ID	AREA	RT	AREA	RT	AREA	RT
ZZZZZZ	521021	4.13	1152855	5.18	597823	6.71
ZZZZZZ	534363	4.13	1178409	5.18	613510	6.71
OP39330-MB	489184	4.13	1074984	5.18	571793	6.71
OP39330-BS	500141	4.13	1106647	5.18	579270	6.71
OP39330-MS	505892	4.13	1137094	5.18	597454	6.71
OP39330-MSD	462014	4.13	1028178	5.18	537906	6.71
MC32644-12	473435	4.13	1054382	5.18	558960	6.71
ZZZZZZ	432661	4.13	957154	5.17	506093	6.71
ZZZZZZ	495264	4.13	1097764	5.18	571786	6.71
ZZZZZZ	454460	4.13	1013956	5.17	533555	6.71
ZZZZZZ	451567	4.13	1004981	5.17	530984	6.71
ZZZZZZ	461056	4.13	1020264	5.17	534254	6.71
ZZZZZZ	505873	4.13	1137533	5.17	608320	6.71
ZZZZZZ	493473	4.13	1109661	5.17	593534	6.71
ZZZZZZ	485230	4.13	1084469	5.17	576187	6.71
ZZZZZZ	491741	4.13	1100637	5.18	582671	6.71
ZZZZZZ	515736	4.13	1153855	5.17	610541	6.71
ZZZZZZ	514722	4.13	1147612	5.17	605819	6.71
ZZZZZZ	534322	4.13	1192042	5.17	636891	6.71
ZZZZZZ	481801	4.13	1070750	5.17	567563	6.71
ZZZZZZ	460429	4.13	1027417	5.17	545404	6.71
ZZZZZZ	461480	4.13	1020803	5.17	537514	6.71
ZZZZZZ	492538	4.13	1094640	5.17	586929	6.71
ZZZZZZ	494358	4.13	1098747	5.17	583420	6.71
ZZZZZZ	513546	4.13	1143735	5.17	611491	6.71
OP39311-MB	503870	4.13	1113075	5.17	583547	6.71
OP39311-BS	487729	4.13	1067846	5.18	556529	6.71
OP39311-MS	460193	4.13	1001080	5.18	525218	6.71
OP39311-MSD	516184	4.13	1119581	5.18	586725	6.71

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

7.4.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3394-CC3386	Injection Date:	08/12/14
Lab File ID:	I91158.D	Injection Time:	08:07
Instrument ID:	GCMSI	Method:	SW846 8270D 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

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 Internal Standard Area Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3395-CC3386	Injection Date:	08/13/14
Lab File ID:	I91191.D	Injection Time:	08:05
Instrument ID:	GCMSI	Method:	SW846 8270D 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	447253	4.11	975761	5.16	513094	6.69	871613	8.08	610546	10.85	1551996	12.34
Upper Limit ^a	894506	4.61	1951522	5.66	1026188	7.19	1743226	8.58	1221092	11.35	3103992	12.84
Lower Limit ^b	223627	3.61	487881	4.66	256547	6.19	435807	7.58	305273	10.35	775998	11.84

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
MC32660-1	507137	4.10	1084237	5.16	568193	6.69	942660	8.08	626812	10.85	1617411	12.34
OP39293-MB	494701	4.11	1090832	5.16	566062	6.69	948781	8.08	631666	10.85	1585693	12.34
OP39293-BS	588769	4.11	1267065	5.16	653267	6.69	1080304	8.08	743701	10.86	1767654	12.35
OP39293-MS	503185	4.11	1085578	5.16	552507	6.69	911928	8.08	600305	10.85	1483414	12.34
OP39293-MSD	550135	4.11	1195700	5.16	607562	6.69	994336	8.08	654750	10.86	1626732	12.35
MC32628-2	555248	4.11	1220109	5.16	630036	6.69	1043936	8.08	680757	10.85	1735230	12.34
OP39356-MB	435653	4.11	963221	5.16	506097	6.69	849308	8.08	592632	10.85	1530979	12.34
OP39356-BS	458324	4.11	1009873	5.16	523460	6.69	872358	8.08	603586	10.85	1519524	12.34
OP39356-MS	454819	4.09	1001843	5.15	520945	6.69	863638	8.08	597521	10.85	1506939	12.34
OP39356-MSD	476030	4.11	1050582	5.16	542305	6.69	893006	8.08	615421	10.86	1542520	12.35
MC32762-3	427900	4.11	950806	5.16	501819	6.69	843346	8.08	577192	10.85	1494012	12.34
ZZZZZZ	432590	4.11	968953	5.16	505827	6.69	848352	8.08	586866	10.85	1515051	12.34
ZZZZZZ	430155	4.11	955854	5.16	500599	6.69	838315	8.08	577736	10.85	1493924	12.34

- 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: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC32660-1	F75282.D	70	59	73	55	68	83
OP39310-BS	F75279.D	64	63	79	54	69	84
OP39310-MB	F75278.D	75	72	79	58	77	87
OP39310-MS	F75280.D	70	64	87	50	72	82
OP39310-MSD	F75281.D	70	63	75	54	67	83

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	30-130%
S2 = Phenol-d5	30-130%
S3 = 2,4,6-Tribromophenol	30-130%
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: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32660-1	I91192.D	69	66	93
OP39311-BS	I91186.D	69	68	94
OP39311-MB	I91185.D	77	73	101
OP39311-MS	I91187.D	73	70	91
OP39311-MSD	I91188.D	69	70	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

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: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-MB	YZ91281.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.72	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	107% 61-167%
460-00-4	Bromofluorobenzene (S)	107% 61-167%

8.1.1
8

Method Blank Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-MB	BK40149.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32660-3

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	94%	36-173%
460-00-4	Bromofluorobenzene (S)	94%	36-173%

8.1.2

8

Method Blank Summary

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4539-MB	AB85293.D	1	08/11/14	AF	n/a	n/a	GAB4539

The QC reported here applies to the following samples:

Method: SW846 8015

MC32660-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	0.74	mg/kg	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	93% 61-116%

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-BS	YZ91282.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32660-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	33.2	32.3	97	59-142
106-93-4	1,2-Dibromoethane	33.2	33.5	101	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	101%	61-167%
460-00-4	Bromofluorobenzene (S)	109%	61-167%

8.2.1
8

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-BS	BK40150.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32660-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.072	101	60-140
106-93-4	1,2-Dibromoethane	0.071	0.071	100	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	91%	36-173%
460-00-4	Bromofluorobenzene (S)	90%	36-173%

8.2.2
8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4539-BSP	AB85294.D	1	08/11/14	AF	n/a	n/a	GAB4539
GAB4539-BSD	AB85295.D	1	08/11/14	AF	n/a	n/a	GAB4539

The QC reported here applies to the following samples: Method: SW846 8015

MC32660-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	32.5	32.1	99	32.2	99	0	66-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	98%	99%	61-116%

8.3.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-MS	YZ91283.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
OP39346-MSD	YZ91284.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
MC32707-2	YZ91285.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32660-1

CAS No.	Compound	MC32707-2 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
96-12-8	1,2-Dibromo-3-chloropropane	ND		87.3	91.8	105	84.8	93.0	110	1	40-156/27
106-93-4	1,2-Dibromoethane	ND		87.3	95.7	110	84.8	95.0	112	1	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32707-2	Limits
460-00-4	Bromofluorobenzene (S)	115%	118%	122%	61-167%
460-00-4	Bromofluorobenzene (S)	114%	114%	119%	61-167%

8.4.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-MS	BK40151.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
OP39418-MSD	BK40152.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
MC32700-7	BK40153.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32660-3

CAS No.	Compound	MC32700-7 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.071	0.067	94	0.071	0.075	106	11	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.072	101	0.071	0.071	100	1	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32700-7	Limits
460-00-4	Bromofluorobenzene (S)	84%	81%	84%	36-173%
460-00-4	Bromofluorobenzene (S)	86%	82%	85%	36-173%

8.4.2
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32660-1MS	AB85297.D	1	08/11/14	AF	n/a	n/a	GAB4539
MC32660-1MSD	AB85298.D	1	08/11/14	AF	n/a	n/a	GAB4539
MC32660-1	AB85296.D	1	08/11/14	AF	n/a	n/a	GAB4539

The QC reported here applies to the following samples:

Method: SW846 8015

MC32660-1

CAS No.	Compound	MC32660-1 mg/kg	Spike Q	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	249	88.8	378	145	88.8	374	141	1	41-150/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32660-1	Limits
	2,3,4-Trifluorotoluene	97%	95%	95%	61-116%

8.4.3
8

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32660-3	BK40155.D	83	85
OP39418-BS	BK40150.D	91	90
OP39418-MB	BK40149.D	94	94
OP39418-MS	BK40151.D	84	86
OP39418-MSD	BK40152.D	81	82

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32660-1	YZ91292.D	125	119
OP39346-BS	YZ91282.D	101	109
OP39346-MB	YZ91281.D	107	107
OP39346-MS	YZ91283.D	115	114
OP39346-MSD	YZ91284.D	118	114

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 61-167%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32660

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC32660-1	AB85296.D	95
GAB4539-BSD	AB85295.D	99
GAB4539-BSP	AB85294.D	98
GAB4539-MB	AB85293.D	93
MC32660-1MS	AB85297.D	97
MC32660-1MSD	AB85298.D	95

Surrogate Compounds	Recovery Limits
---------------------	-----------------

S1 = 2,3,4-Trifluorotoluene	61-116%
-----------------------------	---------

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4540-CC4486	Injection Date:	08/11/14
Lab File ID:	AB85292A.D	Injection Time:	07:33
Instrument ID:	GCAB	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	20.32	20.32
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GAB4539-MB	AB85293.D	08/11/14	08:11		20.32
GAB4540-MB	AB85293A.D	08/11/14	08:11	20.32	20.32
GAB4540-BSP	AB85294A.D	08/11/14	08:49	20.32	20.32
GAB4539-BSP	AB85294.D	08/11/14	08:49		20.32
GAB4540-BSD	AB85295A.D	08/11/14	09:28	20.32	20.32
GAB4539-BSD	AB85295.D	08/11/14	09:28		20.32
MC32660-1	AB85296.D	08/11/14	10:06		20.32
MC32660-1MS	AB85297.D	08/11/14	10:44		20.32
MC32660-1MSD	AB85298.D	08/11/14	11:21		20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.1
8

GC Surrogate Retention Time Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1303-ICC1303	Injection Date:	08/19/14
Lab File ID:	BK40145.D	Injection Time:	16:10
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	2.41	2.72
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39418-MB	BK40149.D	08/19/14	17:05	2.41	2.72
OP39418-BS	BK40150.D	08/19/14	17:19	2.41	2.72
OP39418-MS	BK40151.D	08/19/14	17:32	2.41	2.72
OP39418-MSD	BK40152.D	08/19/14	17:46	2.41	2.72
MC32700-7	BK40153.D	08/19/14	18:00	2.41	2.72
ZZZZZZ	BK40154.D	08/19/14	18:13	2.41	2.72
MC32660-3	BK40155.D	08/19/14	18:27	2.41	2.72
ZZZZZZ	BK40156.D	08/19/14	18:41	2.41	2.72
ZZZZZZ	BK40157.D	08/19/14	18:55	2.41	2.72
ZZZZZZ	BK40158.D	08/19/14	19:08	2.41	2.72
GBK1303-ECC130	BK40159.D	08/19/14	19:22	2.41	2.72

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.2
8

GC Surrogate Retention Time Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GYZ7620-ICC7620	Injection Date:	08/11/14
Lab File ID:	YZ91278.D	Injection Time:	18:16
Instrument ID:	GCYZ	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.14	4.39
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39346-MB	YZ91281.D	08/11/14	19:30	4.14	4.39
OP39346-BS	YZ91282.D	08/11/14	19:55	4.14	4.39
OP39346-MS	YZ91283.D	08/11/14	20:20	4.14	4.39
OP39346-MSD	YZ91284.D	08/11/14	20:45	4.14	4.39
MC32707-2	YZ91285.D	08/11/14	21:10	4.14	4.39
ZZZZZZ	YZ91286.D	08/11/14	21:36	4.14	4.39
ZZZZZZ	YZ91287.D	08/11/14	22:00	4.14	4.39
ZZZZZZ	YZ91288.D	08/11/14	22:25	4.14	4.39
ZZZZZZ	YZ91289.D	08/11/14	22:50	4.14	4.39
ZZZZZZ	YZ91290.D	08/11/14	23:15	4.14	4.39

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.3
8

GC Surrogate Retention Time Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GYZ7620-CC7620	Injection Date:	08/11/14
Lab File ID:	YZ91291.D	Injection Time:	23:41
Instrument ID:	GCYZ	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.14	4.39
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
MC32660-1	YZ91292.D	08/12/14	00:06	4.14	4.39
ZZZZZZ	YZ91293.D	08/12/14	00:31	4.14	4.39
ZZZZZZ	YZ91294.D	08/12/14	00:57	4.14	4.38
GYZ7620-ECC7620	YZ91295.D	08/12/14	01:21	4.14	4.39

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.4
8

GC Surrogate Retention Time Summary

Job Number: MC32660
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4539-CC4488	Injection Date:	08/11/14
Lab File ID:	AB85292.D	Injection Time:	07:33
Instrument ID:	GCAB	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GAB4539-MB	AB85293.D	08/11/14	08:11		20.32
GAB4540-MB	AB85293A.D	08/11/14	08:11	20.32	20.32
GAB4540-BSP	AB85294A.D	08/11/14	08:49	20.32	20.32
GAB4539-BSP	AB85294.D	08/11/14	08:49		20.32
GAB4540-BSD	AB85295A.D	08/11/14	09:28	20.32	20.32
GAB4539-BSD	AB85295.D	08/11/14	09:28		20.32
MC32660-1	AB85296.D	08/11/14	10:06		20.32
MC32660-1MS	AB85297.D	08/11/14	10:44		20.32
MC32660-1MSD	AB85298.D	08/11/14	11:21		20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.5
8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32660
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample: MC32660-1 Analyzed: 13-AUG-14 by HS Method: SM21 2540 B MOD.
ClientID: SVE45-080614 (40-42')

Wet Weight (Total)	32.235	g
Tare Weight	21.266	g
Dry Weight (Total)	30.721	g
Solids, Percent	86.2	%

9.1
9

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VERIFICATION, TESTING AND CERTIFICATION COMPANY.



e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
21562973.19200

SGS Accutest Job Number: MC32763

Sampling Date: 08/08/14

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

October 27, 2016

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

RE: SGS Accutest Job # MC32763

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: MC32763

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC32763-1	08/08/14	13:00	08/09/14	SO	Soil	SVE43-080814 (30-32')
MC32763-2	08/08/14	00:00	08/09/14	AQ	Trip Blank Water	TB-080814 HCL
MC32763-3	08/08/14	00:00	08/09/14	AQ	Trip Blank Water	TB-080814 ST

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

SAMPLE DELIVERY GROUP CASE NARRATIVE



Client: She O

Job No MC32763

Site: URSMOSTL: Roxana 4th St Extens on We Insta , 900 South Cent **Report Date** 0/27/20 6 2:08:23 P

Sample(s), 2 Trip Blank(s) were collected on 08/08/2014 and were received at SGS Accutest New England on 08/09/2014 properly preserved, at 2 Deg C and intact. These Samples received a job number of MC32763. Listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report. Chloroethane, Benzene, Dichloroethane, 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 8260C

Matrix: AQ	Batch ID: MSN3320
-------------------	--------------------------

- All samples were analyzed within the recommended method holding time
- Sample(s) MC32987- MS, MC32987- MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification criteria
- Blank Spike Recovery(s) for Acroene, Bromomethane, Dichlorodifluoromethane are out of control limits
- MC32987- MS/MSD Recovery(s) for 2-Butanone (MEK), 2-Hexanone, Acetone, Acroene are out of control limits. Out of control limits due to possible matrix interference
- MC32763-2 for Trichloroethene: Controlling Calibration on out of acceptance criteria. Sample result may be biased low
- MC32763-2 for Bromomethane: Controlling Calibration on out of acceptance criteria. Sample result may be biased low
- MC32763-2 for Acroene: Controlling Calibration on out of acceptance criteria. Sample result may be biased low
- MC32763-2 for 2-Hexanone: Controlling Calibration on out of acceptance criteria. Sample result may be biased low
- MC32763-2 for Trichlorodifluoromethane: Controlling Calibration on out of acceptance criteria. Sample result may be biased low
- MC32763-2 for Dichlorodifluoromethane: Controlling Calibration on out of acceptance criteria. Sample result may be biased low
- MC32763-2 for Vinyl chloride: Controlling Calibration on out of acceptance criteria. Sample result may be biased low

Matrix: SO	Batch ID: MSK2572
-------------------	--------------------------

- All samples were analyzed within the recommended method holding time
- Sample(s) MC32899- MS, MC32899- MSD were used as the QC samples indicated
- All method blanks for this batch meet method specification criteria
- MC32899- MS/MSD Recovery(s) for 1,4-Dioxane, Vinyl Acetate are out of control limits. Out of control limits due to possible matrix interference
- MC32763- for 1,4-Dioxane, Dichlorodifluoromethane: Intra Calibration Verification on out of acceptance criteria. Sample result may be biased low
- MC32763- for 1,4-Dioxane, Vinyl Acetate: Controlling Calibration on out of acceptance criteria. Sample result may be biased low

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP39349

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- Sample(s) MC32763- MS, MC32763- MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification criteria
- OP39349-BS/MS/MSD Recovery(s) for 2,4-D nrophenol, 4,6-D nro-cresol, Benzyl Alcohol, Hexachlorocyclopentadiene are outside control limits
- Matrix Spike Recovery(s) for 4-Nrophenol are outside control limits. Out of control limits due to possible matrix interference. Refer to Blank Spike
- Matrix Spike Duplicate Recovery(s) for 4-Nrophenol, Pyridine are outside control limits. Out of control limits due to possible matrix interference. Refer to Blank Spike
- RPD(s) for MSD for Benzocaine are outside control limits for sample OP39349-MSD. High RPD due to possible matrix interference and/or sample heterogeneity

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: SO **Batch ID:** OP39348

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- A method blanks for this batch meet method specification criteria
- Sample(s) MC32763- MS, MC32763- MSD were used as the QC samples indicated

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP3948

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- A method blanks for this batch meet method specification criteria
- Sample(s) MC32700-7MS, MC32700-7MSD were used as the QC samples indicated
- Continuing calibration check standard GBK 303-ECC 303 for 1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane exceed 5% Dev (response bias high). Associated samples are non-detect for these analytes

Matrix: SO **Batch ID:** OP39346

- A samples were extracted with the recommended method holding time
- A samples were analyzed with the recommended method holding time
- Sample(s) MC32707-2MS, MC32707-2MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification criteria

Volatiles by GC By Method SW846 8015

Matrix: SO **Batch ID:** GAB454

- A samples were analyzed with the recommended method holding time
- Sample(s) MC32787- MS, MC32787- MSD were used as the QC samples indicated
- A method blanks for this batch meet method specification criteria
- Calibration standard GAB4486-ICC4486, GAB4486-ICV4486, GAB4540-CC4486, GAB4542-CC4486 not associated with this job

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO

Batch ID: GN47982

- Sample(s) MC32763- DUP were used as the QC samples for Sols, Percent

SGS Accutest New Eng 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 Eng and/or ass gnee as ver f ed by the s gnature on the cover page has authorized the release of this report (MC32763)

Thursday, October 27, 2016

Page 3 of 3

Summary of Hits

Job Number: MC32763
Account: Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Collected: 08/08/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC32763-1	SVE43-080814 (30-32')					
n-Butylbenzene		0.648 J	0.71	0.034	mg/kg	SW846 8260C
sec-Butylbenzene		0.573 J	0.71	0.11	mg/kg	SW846 8260C
Isopropylbenzene		0.307 J	0.71	0.024	mg/kg	SW846 8260C
p-Isopropyltoluene		0.162 J	0.71	0.025	mg/kg	SW846 8260C
n-Propylbenzene		0.569 J	0.71	0.022	mg/kg	SW846 8260C
Total TIC, Volatile		32.1 J			mg/kg	
Acenaphthene		0.238	0.0058	0.0010	mg/kg	SW846 8270D BY SIM
Acenaphthylene		0.0517	0.0058	0.00088	mg/kg	SW846 8270D BY SIM
Anthracene		0.189	0.0058	0.0013	mg/kg	SW846 8270D BY SIM
Benzo(a)anthracene		0.0230	0.0058	0.0027	mg/kg	SW846 8270D BY SIM
Benzo(a)pyrene		0.0036 J	0.0058	0.0023	mg/kg	SW846 8270D BY SIM
Benzo(b)fluoranthene		0.0046 J	0.0058	0.0026	mg/kg	SW846 8270D BY SIM
Chrysene		0.0446	0.0058	0.0016	mg/kg	SW846 8270D BY SIM
Fluoranthene		0.0589	0.0058	0.0017	mg/kg	SW846 8270D BY SIM
Fluorene		0.373	0.0058	0.0011	mg/kg	SW846 8270D BY SIM
1-Methylnaphthalene		2.82	0.012	0.0013	mg/kg	SW846 8270D BY SIM
Phenanthrene		1.56	0.0058	0.0012	mg/kg	SW846 8270D BY SIM
Pyrene		0.144	0.0058	0.0018	mg/kg	SW846 8270D BY SIM
TPH-GRO (VOA)		156	14	2.1	mg/kg	SW846 8015

MC32763-2 TB-080814 HCL

No hits reported in this sample.

MC32763-3 TB-080814 ST

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SVE43-080814 (30-32')	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-1	Date Received:	08/09/14
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K81283.D	1	08/20/14	JM	n/a	n/a	MSK2572
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.48 g	10.0 ml	100 ul
Run #2			

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1.4	0.40	mg/kg	
107-02-8	Acrolein	ND	3.6	1.2	mg/kg	
107-13-1	Acrylonitrile	ND	3.6	0.39	mg/kg	
71-43-2	Benzene	ND	0.071	0.048	mg/kg	
108-86-1	Bromobenzene	ND	0.71	0.036	mg/kg	
74-97-5	Bromochloromethane	ND	0.71	0.049	mg/kg	
75-27-4	Bromodichloromethane	ND	0.28	0.030	mg/kg	
75-25-2	Bromoform	ND	0.28	0.050	mg/kg	
74-83-9	Bromomethane	ND	0.28	0.086	mg/kg	
78-93-3	2-Butanone (MEK)	ND	1.4	0.44	mg/kg	
104-51-8	n-Butylbenzene	0.648	0.71	0.034	mg/kg	J
135-98-8	sec-Butylbenzene	0.573	0.71	0.11	mg/kg	J
98-06-6	tert-Butylbenzene	ND	0.71	0.030	mg/kg	
75-15-0	Carbon disulfide	ND	0.71	0.019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.28	0.031	mg/kg	
108-90-7	Chlorobenzene	ND	0.28	0.022	mg/kg	
75-00-3	Chloroethane	ND	0.71	0.11	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.71	0.18	mg/kg	
67-66-3	Chloroform	ND	0.28	0.024	mg/kg	
74-87-3	Chloromethane	ND	0.71	0.080	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.71	0.027	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.71	0.038	mg/kg	
124-48-1	Dibromochloromethane	ND	0.28	0.046	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.28	0.030	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.28	0.043	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.28	0.049	mg/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	0.28	0.12	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.28	0.038	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.28	0.046	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.28	0.059	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.28	0.064	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.28	0.059	mg/kg	

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:	SVE43-080814 (30-32')	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-1	Date Received:	08/09/14
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.28	0.060	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.71	0.047	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.71	0.080	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.71	0.038	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.28	0.032	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.28	0.037	mg/kg	
123-91-1	1,4-Dioxane ^b	ND	3.6	2.8	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.71	0.051	mg/kg	
100-41-4	Ethylbenzene	ND	0.28	0.098	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.71	0.082	mg/kg	
591-78-6	2-Hexanone	ND	1.4	0.11	mg/kg	
98-82-8	Isopropylbenzene	0.307	0.71	0.024	mg/kg	J
99-87-6	p-Isopropyltoluene	0.162	0.71	0.025	mg/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	0.28	0.026	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.71	0.077	mg/kg	
74-95-3	Methylene bromide	ND	0.71	0.065	mg/kg	
75-09-2	Methylene chloride	ND	0.28	0.076	mg/kg	
91-20-3	Naphthalene	ND	0.71	0.056	mg/kg	
103-65-1	n-Propylbenzene	0.569	0.71	0.022	mg/kg	J
100-42-5	Styrene	ND	0.71	0.024	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.71	0.057	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.28	0.056	mg/kg	
127-18-4	Tetrachloroethene	ND	0.28	0.045	mg/kg	
108-88-3	Toluene	ND	0.71	0.029	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.71	0.061	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.71	0.073	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.28	0.031	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.28	0.082	mg/kg	
79-01-6	Trichloroethene	ND	0.28	0.035	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.28	0.057	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.71	0.041	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.71	0.20	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.71	0.22	mg/kg	
108-05-4	Vinyl Acetate ^c	ND	0.71	0.22	mg/kg	
75-01-4	Vinyl chloride	ND	0.28	0.13	mg/kg	
	m,p-Xylene	ND	0.28	0.062	mg/kg	
95-47-6	o-Xylene	ND	0.28	0.040	mg/kg	
1330-20-7	Xylene (total)	ND	0.28	0.031	mg/kg	

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:	SVE43-080814 (30-32')	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-1	Date Received:	08/09/14
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	97%		70-130%
460-00-4	4-Bromofluorobenzene	109%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
589-53-7	Heptane, 4-methyl-	11.05	2.2	mg/kg	JN
1071-81-4	Hexane, 2,2,5,5-tetramethyl-	11.55	1.6	mg/kg	JN
6236-88-0	Cyclohexane, 1-ethyl-4-methyl-, trans-	13.50	2.5	mg/kg	JN
2051-30-1	Octane, 2,6-dimethyl-	13.95	3.4	mg/kg	JN
2847-72-5	Decane, 4-methyl-	15.17	2.1	mg/kg	JN
91-17-8	Naphthalene, decahydro-	16.15	4.3	mg/kg	JN
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	16.31	2.3	mg/kg	JN
527-84-4	Benzene, 1-methyl-2-(1-methylethyl)-	16.82	2.2	mg/kg	JN
767-99-7	Benzene, (1-methyl-1-propenyl)-, (Z)-	17.29	1.7	mg/kg	JN
17059-48-2	1H-Indene, 2,3-dihydro-1,6-dimethyl-	17.78	6.3	mg/kg	JN
6682-71-9	1H-Indene, 2,3-dihydro-4,7-dimethyl-	18.43	1.9	mg/kg	JN
2613-76-5	1H-Indene, 2,3-dihydro-1,1,3-trimethyl-	19.25	1.6	mg/kg	JN
	Total TIC, Volatile		32.1	mg/kg	J

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

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:	SVE43-080814 (30-32')	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-1	Date Received:	08/09/14
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75361.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.6 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.58	0.072	mg/kg	
95-57-8	2-Chlorophenol	ND	0.29	0.013	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.58	0.015	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.58	0.017	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.58	0.094	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.2	0.14	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.58	0.072	mg/kg	
95-48-7	2-Methylphenol	ND	0.58	0.023	mg/kg	
	3&4-Methylphenol	ND	0.58	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.58	0.015	mg/kg	
100-02-7	4-Nitrophenol	ND	1.2	0.11	mg/kg	
87-86-5	Pentachlorophenol	ND	0.58	0.041	mg/kg	
108-95-2	Phenol	ND	0.29	0.016	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.58	0.014	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.58	0.014	mg/kg	
62-53-3	Aniline	ND	0.58	0.029	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.29	0.015	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.29	0.012	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.58	0.029	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.29	0.016	mg/kg	
106-47-8	4-Chloroaniline	ND	0.58	0.014	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.29	0.014	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.29	0.018	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.29	0.021	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.29	0.018	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.29	0.013	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.58	0.039	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.58	0.014	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.29	0.029	mg/kg	
132-64-9	Dibenzofuran	ND	0.12	0.016	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.29	0.031	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.29	0.0090	mg/kg	

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: SVE43-080814 (30-32')	Date Sampled: 08/08/14
Lab Sample ID: MC32763-1	Date Received: 08/09/14
Matrix: SO - Soil	Percent Solids: 84.1
Method: SW846 8270D SW846 3546	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.29	0.014	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.29	0.017	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.29	0.011	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.29	0.018	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.58	0.14	mg/kg	
67-72-1	Hexachloroethane	ND	0.29	0.014	mg/kg	
78-59-1	Isophorone	ND	0.29	0.013	mg/kg	
88-74-4	2-Nitroaniline	ND	0.58	0.014	mg/kg	
99-09-2	3-Nitroaniline	ND	0.58	0.032	mg/kg	
100-01-6	4-Nitroaniline	ND	0.58	0.014	mg/kg	
98-95-3	Nitrobenzene	ND	0.29	0.016	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.29	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.29	0.017	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.29	0.017	mg/kg	
110-86-1	Pyridine	ND	0.58	0.029	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	60%		30-130%
4165-62-2	Phenol-d5	55%		30-130%
118-79-6	2,4,6-Tribromophenol	54%		30-130%
4165-60-0	Nitrobenzene-d5	58%		30-130%
321-60-8	2-Fluorobiphenyl	59%		30-130%
1718-51-0	Terphenyl-d14	52%		30-130%

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

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
4

Report of Analysis

Client Sample ID:	SVE43-080814 (30-32')	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-1	Date Received:	08/09/14
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8270D BY SIM SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91225.D	1	08/15/14	WK	08/11/14	OP39348	MSI3397
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.6 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.238	0.0058	0.0010	mg/kg	
208-96-8	Acenaphthylene	0.0517	0.0058	0.00088	mg/kg	
120-12-7	Anthracene	0.189	0.0058	0.0013	mg/kg	
56-55-3	Benzo(a)anthracene	0.0230	0.0058	0.0027	mg/kg	
50-32-8	Benzo(a)pyrene	0.0036	0.0058	0.0023	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0046	0.0058	0.0026	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	0.0058	0.0016	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0058	0.0018	mg/kg	
218-01-9	Chrysene	0.0446	0.0058	0.0016	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0058	0.0017	mg/kg	
206-44-0	Fluoranthene	0.0589	0.0058	0.0017	mg/kg	
86-73-7	Fluorene	0.373	0.0058	0.0011	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0058	0.0014	mg/kg	
90-12-0	1-Methylnaphthalene	2.82	0.012	0.0013	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.012	0.0011	mg/kg	
85-01-8	Phenanthrene	1.56	0.0058	0.0012	mg/kg	
129-00-0	Pyrene	0.144	0.0058	0.0018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	63%		30-130%
321-60-8	2-Fluorobiphenyl	53%		30-130%
1718-51-0	Terphenyl-d14	75%		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

Client Sample ID: SVE43-080814 (30-32')	Date Sampled: 08/08/14
Lab Sample ID: MC32763-1	Date Received: 08/09/14
Matrix: SO - Soil	Percent Solids: 84.1
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ91293.D	1	08/12/14	SZ	08/11/14	OP39346	GYZ7620
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	50.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0029	0.00085	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0029	0.00071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	116%		61-167%
460-00-4	Bromofluorobenzene (S)	122%		61-167%

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

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

4.1
4

Report of Analysis

Client Sample ID: SVE43-080814 (30-32')	Date Sampled: 08/08/14
Lab Sample ID: MC32763-1	Date Received: 08/09/14
Matrix: SO - Soil	Percent Solids: 84.1
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85339.D	1	08/12/14	AF	n/a	n/a	GAB4541
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.44 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	156	14	2.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	91%		61-116%		

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

4.1
4

Report of Analysis

Client Sample ID:	TB-080814 HCL	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-2	Date Received:	08/09/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N89627.D	1	08/21/14	KD	n/a	n/a	MSN3320
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	2.5	ug/l	
107-02-8	Acrolein ^a	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	TB-080814 HCL	Date Sampled:	08/08/14
Lab Sample ID:	MC32763-2	Date Received:	08/09/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone ^a	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene ^a	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane ^a	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: TB-080814 HCL		Date Sampled: 08/08/14
Lab Sample ID: MC32763-2		Date Received: 08/09/14
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

4.2
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	86%		70-130%
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	88%		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.

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-080814 ST	Date Sampled: 08/08/14
Lab Sample ID: MC32763-3	Date Received: 08/09/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK40158.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
Run #2							

	Initial Volume	Final Volume
Run #1	35.2 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	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	88%		36-173%
460-00-4	Bromofluorobenzene (S)	89%		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

4.3
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

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

LAB (LOCATION)

XENDC
 CALSCIENCE
 OTHER
 SPL

ADDRESS: 435 Technology Ct W
 Marlborough, MA 01752 (508-461-6300)
 Lab Vendor #

Lab Vendor #



Shell Oil Products Chain Of Custody Record

URS

Please Check Appropriate Box:

ENV. SERVICES
 MOTIVA SO&CH
 SHELL PIPELINE

MOTIVA RETAIL
 CONSULTANT
 OTHER

SHELL RETAIL
 LUBES

Print Bill To Contact Name: Bob Billman

INCIDENT # (ENV SERVICES): 9 7 2 1 6 6 4 0

PO #

SAP #

DATE: 8/8/2014

PAGE: 1 of 1

CLIENTS COMPANY: URS CORPORATION

ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300; ST. LOUIS, MO 63110

SITE ADDRESS: Street and City: 900 South Central Ave; ROXANA

State: IL

GLOBAL C.M.C.

PROJECT CONTACT (Personnel or POC Report to): Elizabeth Kunkel, Bob Billman

TELEPHONE: 314-429-0100

FAX: 314-429-0462

EMAIL: bob.billman@urs.com; elizabeth.kunkel@urs.com

CONTRACT PROJECT NO: 4th St. Extension Well Install / 21562973.19200

TURNAROUND TIME (CALENDAR DAYS):
 STANDARD (10 DAY)
 5 DAYS
 3 DAYS
 2 DAYS
 24 HOURS
 RESULTS NEEDED ON WEEKEND

SAMPLER NAME(S) (Print, Ink Author)

LAB USE ONLY: MC32763

LA - RWQCR REPORT FORMAT
 LA - RWQCR REPORT FORMAT
 UST AGENCY:

REQUESTED ANALYSIS

DELIVERABLES:
 LEVEL 1
 LEVEL 2
 LEVEL 3
 LEVEL 4
 OTHER (SPECIFY) EDD

FIELD NOTES:

TEMPERATURE ON RECEIPT C°
 Cooler #1
 Cooler #2
 Cooler #3

TEMPERATURE ON RECEIPT C°

SPECIAL INSTRUCTIONS OR NOTES:
 * Please include "J" values on Reports.
 * Please provide sample receipt upon login.

SHELL CONTRACT RATE APPLIES
 STATE REIMBURSEMENT RATE APPLIES
 EDD NOT NEEDED
 RECEIPT VERIFICATION REQUESTED
 PROVIDE LEDD DISK

Container PID Readings or Laboratory Notes

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE					NO. OF CONT.	REQUESTED ANALYSIS						PID (ppm)	FIELD NOTES
		DATE	TIME		HCL	HNCO	HQSO4	NONE	OTHER		VOC 8260B SL+TICS "Top 15"	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO		
	SVE43-080814 (30-32)	8/8/2014	1300	S				2	5	7	X	X	X	X	X	X	531	
	TB-080814 HCL			W	2					2	X							
	TB-080814 ST			W				2	2		X							
																		8B, 10K4, 2A3
																		2.1a

Requisitioned by (Signature): <i>[Signature]</i>	Received by (Signature):	Date: 8/8/14	Time: 1730
Requisitioned by (Signature): <i>FX</i>	Received by (Signature): <i>[Signature]</i>	Date: 8/9/14	Time: 10:00

FED EX

5.1 5

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32763 **Client:** URS **Immediate Client Services Action Required:** No
Date / Time Received: 8/9/2014 **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: MC32763

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
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MC32763-1 Collected: 08-AUG-14 13:00 By: Received: 09-AUG-14 By:
 SVE43-080814 (30-32')

MC32763-1 SW846 8011		12-AUG-14 00:31	SZ	11-AUG-14 AZ		V8011SL
MC32763-1 SW846 8015		12-AUG-14 15:17	AF			V8015GRO
MC32763-1 SM21 2540 B MOD.		13-AUG-14	CF			%SOL
MC32763-1 SW846 8270D		15-AUG-14 02:07	WK	11-AUG-14 AZ		AB8270SL +
MC32763-1 SW846 8270D BY SIM		15-AUG-14 22:19	WK	11-AUG-14 MT		B8270SIMSL
MC32763-1 SW846 8260C		20-AUG-14 18:19	JM			V8260SL +

MC32763-2 Collected: 08-AUG-14 00:00 By: Received: 09-AUG-14 By:
 TB-080814 HCL

MC32763-2 SW846 8260C		21-AUG-14 19:37	KD			V8260SL +
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MC32763-3 Collected: 08-AUG-14 00:00 By: Received: 09-AUG-14 By:
 TB-080814 ST

MC32763-3 SW846 8011		19-AUG-14 19:08	AP	14-AUG-14 MT		V8011SL
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SGS Accutest Internal Chain of Custody

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Received: 08/09/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32763-1.1	Walk In Ref #5	Alireza Zeighami	08/11/14 07:36	Retrieve from Storage
MC32763-1.1	Alireza Zeighami	Walk In Ref #5	08/11/14 08:12	Return to Storage
MC32763-1.1	Walk In Ref #5	Alireza Zeighami	08/11/14 10:55	Retrieve from Storage
MC32763-1.1	Alireza Zeighami	Walk In Ref #5	08/11/14 14:25	Return to Storage
MC32763-1.1	Walk In Ref #5	Crystall Woodruff	08/13/14 17:00	Retrieve from Storage
MC32763-1.1	Crystall Woodruff	Walk In Ref #5	08/13/14 18:36	Return to Storage
MC32763-1.1	Scott Parsick		09/25/14 16:09	Disposed
MC32763-1.5	VOC Ref #10	Jaime Maslowski	08/20/14 09:45	Retrieve from Storage
MC32763-1.5	Jaime Maslowski	VOC Ref #10	08/21/14 09:06	Return to Storage
MC32763-1.5	Scott Parsick		09/25/14 16:09	Disposed
MC32763-1.6	VOC Ref #10	Anthony Franciosa	08/12/14 07:47	Retrieve from Storage
MC32763-1.6	Anthony Franciosa	GCAB	08/12/14 07:47	Load on Instrument
MC32763-1.6	GCAB	Anthony Franciosa	08/12/14 10:05	Unload from Instrument
MC32763-1.6	Anthony Franciosa	VOC Ref #10	08/12/14 10:05	Return to Storage
MC32763-1.6	Scott Parsick		09/25/14 16:09	Disposed
MC32763-2.1	VOC Ref #2	Amy Min Yang	08/21/14 17:47	Retrieve from Storage
MC32763-2.1	Amy Min Yang	GCMSN	08/21/14 17:47	Load on Instrument
MC32763-2.1	GCMSN	Jaclyn Bergeron	08/22/14 09:58	Unload from Instrument
MC32763-2.1	Jaclyn Bergeron	VOC Ref #2	08/22/14 09:58	Return to Storage
MC32763-2.1	Scott Parsick		09/25/14 16:09	Disposed
MC32763-3.1	VOC Ref #2	Marc Tahtamoni	08/14/14 20:19	Retrieve from Storage
MC32763-3.1	Scott Parsick		09/25/14 16:09	Disposed

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: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2572-MB	K81265.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	500	140	ug/kg	
107-02-8	Acrolein	ND	1300	440	ug/kg	
107-13-1	Acrylonitrile	ND	1300	140	ug/kg	
71-43-2	Benzene	ND	25	17	ug/kg	
108-86-1	Bromobenzene	ND	250	13	ug/kg	
74-97-5	Bromochloromethane	ND	250	17	ug/kg	
75-27-4	Bromodichloromethane	ND	100	10	ug/kg	
75-25-2	Bromoform	ND	100	18	ug/kg	
74-83-9	Bromomethane	ND	100	30	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	150	ug/kg	
104-51-8	n-Butylbenzene	ND	250	12	ug/kg	
135-98-8	sec-Butylbenzene	ND	250	37	ug/kg	
98-06-6	tert-Butylbenzene	ND	250	11	ug/kg	
75-15-0	Carbon disulfide	ND	250	6.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	11	ug/kg	
108-90-7	Chlorobenzene	ND	100	7.9	ug/kg	
75-00-3	Chloroethane	ND	250	38	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	250	63	ug/kg	
67-66-3	Chloroform	ND	100	8.5	ug/kg	
74-87-3	Chloromethane	ND	250	28	ug/kg	
95-49-8	o-Chlorotoluene	ND	250	9.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	250	13	ug/kg	
124-48-1	Dibromochloromethane	ND	100	16	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	100	11	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	100	15	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	100	17	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	100	40	ug/kg	
75-34-3	1,1-Dichloroethane	ND	100	13	ug/kg	
107-06-2	1,2-Dichloroethane	ND	100	16	ug/kg	
75-35-4	1,1-Dichloroethene	ND	100	21	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	100	23	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	100	21	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	21	ug/kg	
142-28-9	1,3-Dichloropropane	ND	250	16	ug/kg	
594-20-7	2,2-Dichloropropane	ND	250	28	ug/kg	
563-58-6	1,1-Dichloropropene	ND	250	13	ug/kg	

6.1.1
6

Method Blank Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2572-MB	K81265.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	11	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	13	ug/kg	
123-91-1	1,4-Dioxane	ND	1300	1000	ug/kg	
97-63-2	Ethyl methacrylate	ND	250	18	ug/kg	
100-41-4	Ethylbenzene	ND	100	34	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	29	ug/kg	
591-78-6	2-Hexanone	ND	500	38	ug/kg	
98-82-8	Isopropylbenzene	ND	250	8.4	ug/kg	
99-87-6	p-Isopropyltoluene	ND	250	8.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	100	9.1	ug/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	27	ug/kg	
74-95-3	Methylene bromide	ND	250	23	ug/kg	
75-09-2	Methylene chloride	ND	100	27	ug/kg	
91-20-3	Naphthalene	ND	250	20	ug/kg	
103-65-1	n-Propylbenzene	ND	250	7.6	ug/kg	
100-42-5	Styrene	ND	250	8.5	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	20	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	20	ug/kg	
127-18-4	Tetrachloroethene	ND	100	16	ug/kg	
108-88-3	Toluene	ND	250	10	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	21	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	26	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	11	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	29	ug/kg	
79-01-6	Trichloroethene	ND	100	12	ug/kg	
75-69-4	Trichlorofluoromethane	ND	100	20	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	14	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	72	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	76	ug/kg	
108-05-4	Vinyl Acetate	ND	250	77	ug/kg	
75-01-4	Vinyl chloride	ND	100	45	ug/kg	
	m,p-Xylene	ND	100	22	ug/kg	
95-47-6	o-Xylene	ND	100	14	ug/kg	
1330-20-7	Xylene (total)	ND	100	11	ug/kg	

6.1.1
6

Method Blank Summary

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2572-MB	K81265.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	100% 70-130%
2037-26-5	Toluene-D8	104% 70-130%
460-00-4	4-Bromofluorobenzene	96% 70-130%

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

6.1.1
6

Method Blank Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3320-MB	N89625.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	

Method Blank Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3320-MB	N89625.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	0.40	0.40	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	ug/l	

Method Blank Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3320-MB	N89625.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	86% 70-130%
2037-26-5	Toluene-D8	92% 70-130%
460-00-4	4-Bromofluorobenzene	87% 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: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2572-BS	K81263.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	2500	3050	122	70-130
107-02-8	Acrolein	12500	13300	106	70-130
107-13-1	Acrylonitrile	2500	2380	95	70-130
71-43-2	Benzene	2500	2300	92	70-130
108-86-1	Bromobenzene	2500	2620	105	70-130
74-97-5	Bromochloromethane	2500	2520	101	70-130
75-27-4	Bromodichloromethane	2500	2570	103	70-130
75-25-2	Bromoform	2500	2390	96	70-130
74-83-9	Bromomethane	2500	2550	102	70-130
78-93-3	2-Butanone (MEK)	2500	2890	116	70-130
104-51-8	n-Butylbenzene	2500	2830	113	70-130
135-98-8	sec-Butylbenzene	2500	2950	118	70-130
98-06-6	tert-Butylbenzene	2500	2810	112	70-130
75-15-0	Carbon disulfide	2500	2820	113	70-130
56-23-5	Carbon tetrachloride	2500	2890	116	70-130
108-90-7	Chlorobenzene	2500	2470	99	70-130
75-00-3	Chloroethane	2500	2950	118	70-130
110-75-8	2-Chloroethyl vinyl ether	2500	2470	99	10-160
67-66-3	Chloroform	2500	2400	96	70-130
74-87-3	Chloromethane	2500	2720	109	70-130
95-49-8	o-Chlorotoluene	2500	2620	105	70-130
106-43-4	p-Chlorotoluene	2500	2510	100	70-130
124-48-1	Dibromochloromethane	2500	2400	96	70-130
95-50-1	1,2-Dichlorobenzene	2500	2550	102	70-130
541-73-1	1,3-Dichlorobenzene	2500	2520	101	70-130
106-46-7	1,4-Dichlorobenzene	2500	2560	102	70-130
75-71-8	Dichlorodifluoromethane	2500	2790	112	70-130
75-34-3	1,1-Dichloroethane	2500	2580	103	70-130
107-06-2	1,2-Dichloroethane	2500	2460	98	70-130
75-35-4	1,1-Dichloroethene	2500	3110	124	70-130
156-59-2	cis-1,2-Dichloroethene	2500	2350	94	70-130
156-60-5	trans-1,2-Dichloroethene	2500	2530	101	70-130
78-87-5	1,2-Dichloropropane	2500	2540	102	70-130
142-28-9	1,3-Dichloropropane	2500	2340	94	70-130
594-20-7	2,2-Dichloropropane	2500	2820	113	70-130
563-58-6	1,1-Dichloropropene	2500	2580	103	70-130

* = Outside of Control Limits.

6.2.1
6

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2572-BS	K81263.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	2500	2540	102	70-130
10061-02-6	trans-1,3-Dichloropropene	2500	2690	108	70-130
123-91-1	1,4-Dioxane	6250	6000	96	70-130
97-63-2	Ethyl methacrylate	2500	2390	96	76-141
100-41-4	Ethylbenzene	2500	2490	100	70-130
87-68-3	Hexachlorobutadiene	2500	2860	114	70-130
591-78-6	2-Hexanone	2500	2320	93	70-130
98-82-8	Isopropylbenzene	2500	2890	116	70-130
99-87-6	p-Isopropyltoluene	2500	2810	112	70-130
1634-04-4	Methyl Tert Butyl Ether	2500	2510	100	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	2500	2240	90	70-130
74-95-3	Methylene bromide	2500	2580	103	70-130
75-09-2	Methylene chloride	2500	2670	107	70-130
91-20-3	Naphthalene	2500	2450	98	70-130
103-65-1	n-Propylbenzene	2500	2770	111	70-130
100-42-5	Styrene	2500	2410	96	70-130
630-20-6	1,1,1,2-Tetrachloroethane	2500	2450	98	70-130
79-34-5	1,1,2,2-Tetrachloroethane	2500	2510	100	70-130
127-18-4	Tetrachloroethene	2500	2480	99	70-130
108-88-3	Toluene	2500	2540	102	70-130
87-61-6	1,2,3-Trichlorobenzene	2500	2510	100	70-130
120-82-1	1,2,4-Trichlorobenzene	2500	2540	102	70-130
71-55-6	1,1,1-Trichloroethane	2500	2700	108	70-130
79-00-5	1,1,2-Trichloroethane	2500	2380	95	70-130
79-01-6	Trichloroethene	2500	2500	100	70-130
75-69-4	Trichlorofluoromethane	2500	3060	122	70-130
96-18-4	1,2,3-Trichloropropane	2500	2390	96	70-130
95-63-6	1,2,4-Trimethylbenzene	2500	2680	107	70-130
108-67-8	1,3,5-Trimethylbenzene	2500	2650	106	70-130
108-05-4	Vinyl Acetate	2500	1790	72	70-130
75-01-4	Vinyl chloride	2500	2750	110	70-130
	m,p-Xylene	5000	4800	96	70-130
95-47-6	o-Xylene	2500	2420	97	70-130
1330-20-7	Xylene (total)	7500	7220	96	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2572-BS	K81263.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	98%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	98%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3320-BS	N89623.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	43.1	86	70-130
107-02-8	Acrolein	250	161	64* a	70-130
107-13-1	Acrylonitrile	50	49.0	98	70-130
71-43-2	Benzene	50	46.6	93	70-130
108-86-1	Bromobenzene	50	45.2	90	70-130
74-97-5	Bromochloromethane	50	47.6	95	70-130
75-27-4	Bromodichloromethane	50	49.9	100	70-130
75-25-2	Bromoform	50	48.5	97	70-130
74-83-9	Bromomethane	50	34.4	69* a	70-130
78-93-3	2-Butanone (MEK)	50	46.2	92	70-130
104-51-8	n-Butylbenzene	50	51.3	103	70-130
135-98-8	sec-Butylbenzene	50	45.8	92	70-130
98-06-6	tert-Butylbenzene	50	44.3	89	70-130
75-15-0	Carbon disulfide	50	48.6	97	70-130
56-23-5	Carbon tetrachloride	50	49.0	98	70-130
108-90-7	Chlorobenzene	50	46.1	92	70-130
75-00-3	Chloroethane	50	48.8	98	70-130
110-75-8	2-Chloroethyl vinyl ether	50	48.6	97	70-130
67-66-3	Chloroform	50	44.1	88	70-130
74-87-3	Chloromethane	50	40.5	81	70-130
95-49-8	o-Chlorotoluene	50	44.5	89	70-130
106-43-4	p-Chlorotoluene	50	45.0	90	70-130
124-48-1	Dibromochloromethane	50	50.7	101	70-130
95-50-1	1,2-Dichlorobenzene	50	49.0	98	70-130
541-73-1	1,3-Dichlorobenzene	50	46.9	94	70-130
106-46-7	1,4-Dichlorobenzene	50	46.5	93	70-130
75-71-8	Dichlorodifluoromethane	50	32.6	65* a	70-130
75-34-3	1,1-Dichloroethane	50	48.0	96	70-130
107-06-2	1,2-Dichloroethane	50	43.5	87	70-130
75-35-4	1,1-Dichloroethene	50	48.6	97	70-130
156-59-2	cis-1,2-Dichloroethene	50	44.8	90	70-130
156-60-5	trans-1,2-Dichloroethene	50	46.2	92	70-130
78-87-5	1,2-Dichloropropane	50	49.5	99	70-130
142-28-9	1,3-Dichloropropane	50	45.7	91	70-130
594-20-7	2,2-Dichloropropane	50	53.8	108	70-130
563-58-6	1,1-Dichloropropene	50	43.5	87	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3320-BS	N89623.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	48.0	96	70-130
10061-02-6	trans-1,3-Dichloropropene	50	55.2	110	70-130
123-91-1	1,4-Dioxane	125	141	113	70-130
97-63-2	Ethyl methacrylate	50	52.2	104	77-137
100-41-4	Ethylbenzene	50	45.7	91	70-130
87-68-3	Hexachlorobutadiene	50	51.1	102	70-130
591-78-6	2-Hexanone	50	37.2	74	70-130
98-82-8	Isopropylbenzene	50	46.3	93	70-130
99-87-6	p-Isopropyltoluene	50	47.1	94	70-130
1634-04-4	Methyl Tert Butyl Ether	50	50.0	100	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	44.8	90	70-130
74-95-3	Methylene bromide	50	47.3	95	70-130
75-09-2	Methylene chloride	50	44.2	88	70-130
91-20-3	Naphthalene	50	61.1	122	70-130
103-65-1	n-Propylbenzene	50	46.3	93	70-130
100-42-5	Styrene	50	48.2	96	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	45.5	91	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	46.7	93	70-130
127-18-4	Tetrachloroethene	50	46.4	93	70-130
108-88-3	Toluene	50	48.1	96	70-130
87-61-6	1,2,3-Trichlorobenzene	50	58.8	118	70-130
120-82-1	1,2,4-Trichlorobenzene	50	52.4	105	70-130
71-55-6	1,1,1-Trichloroethane	50	44.8	90	70-130
79-00-5	1,1,2-Trichloroethane	50	48.2	96	70-130
79-01-6	Trichloroethene	50	39.3	79	70-130
75-69-4	Trichlorofluoromethane	50	34.9	70	70-130
96-18-4	1,2,3-Trichloropropane	50	46.7	93	70-130
95-63-6	1,2,4-Trimethylbenzene	50	46.2	92	70-130
108-67-8	1,3,5-Trimethylbenzene	50	43.3	87	70-130
108-05-4	Vinyl Acetate	50	44.0	88	70-130
75-01-4	Vinyl chloride	50	35.1	70	70-130
	m,p-Xylene	100	91.9	92	70-130
95-47-6	o-Xylene	50	45.6	91	70-130
1330-20-7	Xylene (total)	150	137	91	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3320-BS	N89623.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	70-130%
2037-26-5	Toluene-D8	93%	70-130%
460-00-4	4-Bromofluorobenzene	83%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32899-1MS	K81280.D	1	08/20/14	JM	n/a	n/a	MSK2572
MC32899-1MSD	K81281.D	1	08/20/14	JM	n/a	n/a	MSK2572
MC32899-1	K81273.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Compound	MC32899-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
67-64-1	Acetone	ND		2830	3260	115	2830	3420	121	5	70-130/30
107-02-8	Acrolein	ND		14200	12500	88	14200	12600	89	1	70-130/30
107-13-1	Acrylonitrile	ND		2830	2680	95	2830	2810	99	5	70-130/30
71-43-2	Benzene	ND		2830	2600	92	2830	2570	91	1	70-130/30
108-86-1	Bromobenzene	ND		2830	2910	103	2830	2940	104	1	70-130/30
74-97-5	Bromochloromethane	ND		2830	2760	98	2830	2730	96	1	70-130/30
75-27-4	Bromodichloromethane	ND		2830	2950	104	2830	2930	104	1	70-130/30
75-25-2	Bromoform	ND		2830	2590	92	2830	2740	97	6	70-130/30
74-83-9	Bromomethane	ND		2830	2880	102	2830	2840	100	1	70-130/30
78-93-3	2-Butanone (MEK)	ND		2830	3150	111	2830	3150	111	0	70-130/30
104-51-8	n-Butylbenzene	ND		2830	3120	110	2830	3190	113	2	70-130/30
135-98-8	sec-Butylbenzene	ND		2830	3140	111	2830	3210	113	2	70-130/30
98-06-6	tert-Butylbenzene	ND		2830	3130	111	2830	3170	112	1	70-130/30
75-15-0	Carbon disulfide	ND		2830	3070	108	2830	2850	101	7	70-130/30
56-23-5	Carbon tetrachloride	ND		2830	3200	113	2830	3130	111	2	70-130/30
108-90-7	Chlorobenzene	ND		2830	2660	94	2830	2750	97	3	70-130/30
75-00-3	Chloroethane	ND		2830	3380	119	2830	3230	114	5	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		2830	2800	99	2830	2860	101	2	10-160/30
67-66-3	Chloroform	ND		2830	2720	96	2830	2610	92	4	70-130/30
74-87-3	Chloromethane	ND		2830	2980	105	2830	2860	101	4	70-130/30
95-49-8	o-Chlorotoluene	ND		2830	2940	104	2830	2950	104	0	70-130/30
106-43-4	p-Chlorotoluene	ND		2830	2850	101	2830	2900	102	2	70-130/30
124-48-1	Dibromochloromethane	ND		2830	2690	95	2830	2740	97	2	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		2830	2770	98	2830	2920	103	5	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		2830	2790	99	2830	2920	103	5	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		2830	2830	100	2830	2920	103	3	70-130/30
75-71-8	Dichlorodifluoromethane	ND		2830	2770	98	2830	2820	100	2	70-130/30
75-34-3	1,1-Dichloroethane	ND		2830	2940	104	2830	2840	100	3	70-130/30
107-06-2	1,2-Dichloroethane	ND		2830	2690	95	2830	2830	100	5	70-130/30
75-35-4	1,1-Dichloroethene	ND		2830	3220	114	2830	3080	109	4	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		2830	2650	94	2830	2600	92	2	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		2830	2790	99	2830	2620	93	6	70-130/30
78-87-5	1,2-Dichloropropane	ND		2830	2760	98	2830	2840	100	3	70-130/30
142-28-9	1,3-Dichloropropane	ND		2830	2580	91	2830	2680	95	4	70-130/30
594-20-7	2,2-Dichloropropane	ND		2830	2820	100	2830	2700	95	4	70-130/30
563-58-6	1,1-Dichloropropene	ND		2830	2890	102	2830	2880	102	0	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32899-1MS	K81280.D	1	08/20/14	JM	n/a	n/a	MSK2572
MC32899-1MSD	K81281.D	1	08/20/14	JM	n/a	n/a	MSK2572
MC32899-1	K81273.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Compound	MC32899-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
10061-01-5	cis-1,3-Dichloropropene	ND		2830	2770	98	2830	2680	95	3	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		2830	2920	103	2830	2980	105	2	70-130/30
123-91-1	1,4-Dioxane	ND		7080	2800	40* a	7080	2790	39* a	0	70-130/30
97-63-2	Ethyl methacrylate	ND		2830	2830	100	2830	2950	104	4	41-160/30
100-41-4	Ethylbenzene	ND		2830	2740	97	2830	2760	98	1	70-130/30
87-68-3	Hexachlorobutadiene	ND		2830	2840	100	2830	2900	102	2	70-130/30
591-78-6	2-Hexanone	ND		2830	2790	99	2830	2980	105	7	70-130/30
98-82-8	Isopropylbenzene	ND		2830	3170	112	2830	3280	116	3	70-130/30
99-87-6	p-Isopropyltoluene	ND		2830	3040	107	2830	3060	108	1	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		2830	2670	94	2830	2640	93	1	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		2830	2720	96	2830	2810	99	3	70-130/30
74-95-3	Methylene bromide	ND		2830	2780	98	2830	2850	101	2	70-130/30
75-09-2	Methylene chloride	ND		2830	2820	100	2830	2760	98	2	70-130/30
91-20-3	Naphthalene	ND		2830	2510	89	2830	2630	93	5	70-130/30
103-65-1	n-Propylbenzene	ND		2830	3140	111	2830	3170	112	1	70-130/30
100-42-5	Styrene	ND		2830	2650	94	2830	2740	97	3	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		2830	2630	93	2830	2700	95	3	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		2830	2690	95	2830	2780	98	3	70-130/30
127-18-4	Tetrachloroethene	ND		2830	2720	96	2830	2710	96	0	70-130/30
108-88-3	Toluene	ND		2830	2830	100	2830	2830	100	0	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		2830	2460	87	2830	2680	95	9	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		2830	2720	96	2830	2850	101	5	70-130/30
71-55-6	1,1,1-Trichloroethane	ND		2830	2950	104	2830	2950	104	0	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		2830	2740	97	2830	2810	99	3	70-130/30
79-01-6	Trichloroethene	ND		2830	2840	100	2830	2880	102	1	70-130/30
75-69-4	Trichlorofluoromethane	ND		2830	3210	113	2830	3160	112	2	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		2830	2680	95	2830	2750	97	3	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		2830	2960	105	2830	3080	109	4	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		2830	2910	103	2830	2960	105	2	70-130/30
108-05-4	Vinyl Acetate	ND		2830	1590	56* a	2830	1510	53* a	5	70-130/30
75-01-4	Vinyl chloride	ND		2830	2730	96	2830	2750	97	1	70-130/30
	m,p-Xylene	ND		5660	5370	95	5660	5560	98	3	70-130/30
95-47-6	o-Xylene	ND		2830	2550	90	2830	2700	95	6	70-130/30
1330-20-7	Xylene (total)	ND		8490	7920	93	8490	8250	97	4	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32899-1MS	K81280.D	1	08/20/14	JM	n/a	n/a	MSK2572
MC32899-1MSD	K81281.D	1	08/20/14	JM	n/a	n/a	MSK2572
MC32899-1	K81273.D	1	08/20/14	JM	n/a	n/a	MSK2572

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-1

CAS No.	Surrogate Recoveries	MS	MSD	MC32899-1	Limits
1868-53-7	Dibromofluoromethane	96%	94%	95%	70-130%
2037-26-5	Toluene-D8	98%	97%	90%	70-130%
460-00-4	4-Bromofluorobenzene	95%	97%	96%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32987-1MS	N89632.D	5	08/21/14	KD	n/a	n/a	MSN3320
MC32987-1MSD	N89633.D	5	08/21/14	KD	n/a	n/a	MSN3320
MC32987-1	N89629.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Compound	MC32987-1 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		250	100	40* a	250	88.6	12	70-130/30
107-02-8	Acrolein	ND		1250	720	58* a	1250	664	8	70-130/30
107-13-1	Acrylonitrile	ND		250	256	102	250	228	12	70-130/30
71-43-2	Benzene	0.41	J	250	249	99	250	238	5	70-130/30
108-86-1	Bromobenzene	ND		250	236	94	250	234	1	70-130/30
74-97-5	Bromochloromethane	ND		250	257	103	250	250	3	70-130/30
75-27-4	Bromodichloromethane	ND		250	272	109	250	255	6	70-130/30
75-25-2	Bromoform	ND		250	247	99	250	229	8	70-130/30
74-83-9	Bromomethane	ND		250	201	80	250	188	7	70-130/30
78-93-3	2-Butanone (MEK)	ND		250	160	64* a	250	150	6	70-130/30
104-51-8	n-Butylbenzene	ND		250	279	112	250	265	5	70-130/30
135-98-8	sec-Butylbenzene	ND		250	250	100	250	241	4	70-130/30
98-06-6	tert-Butylbenzene	ND		250	246	98	250	237	4	70-130/30
75-15-0	Carbon disulfide	ND		250	277	111	250	265	4	70-130/30
56-23-5	Carbon tetrachloride	ND		250	294	118	250	274	7	70-130/30
108-90-7	Chlorobenzene	ND		250	245	98	250	234	5	70-130/30
75-00-3	Chloroethane	ND		250	252	101	250	239	5	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		250	257	103	250	247	4	70-130/30
67-66-3	Chloroform	ND		250	246	98	250	235	5	70-130/30
74-87-3	Chloromethane	4.4		250	221	87	250	213	4	70-130/30
95-49-8	o-Chlorotoluene	ND		250	240	96	250	234	3	70-130/30
106-43-4	p-Chlorotoluene	ND		250	240	96	250	232	3	70-130/30
124-48-1	Dibromochloromethane	ND		250	265	106	250	250	6	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		250	255	102	250	249	2	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		250	243	97	250	236	3	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		250	239	96	250	229	4	70-130/30
75-71-8	Dichlorodifluoromethane	ND		250	217	87	250	194	11	70-130/30
75-34-3	1,1-Dichloroethane	ND		250	270	108	250	258	5	70-130/30
107-06-2	1,2-Dichloroethane	ND		250	242	97	250	224	8	70-130/30
75-35-4	1,1-Dichloroethene	ND		250	271	108	250	266	2	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		250	246	98	250	236	4	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		250	254	102	250	244	4	70-130/30
78-87-5	1,2-Dichloropropane	ND		250	262	105	250	251	4	70-130/30
142-28-9	1,3-Dichloropropane	ND		250	234	94	250	224	4	70-130/30
594-20-7	2,2-Dichloropropane	ND		250	294	118	250	271	8	70-130/30
563-58-6	1,1-Dichloropropene	ND		250	242	97	250	229	6	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32987-1MS	N89632.D	5	08/21/14	KD	n/a	n/a	MSN3320
MC32987-1MSD	N89633.D	5	08/21/14	KD	n/a	n/a	MSN3320
MC32987-1	N89629.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Compound	MC32987-1 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	250	252	101	250	238	95	6	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	250	288	115	250	269	108	7	70-130/30
123-91-1	1,4-Dioxane	ND	625	692	111	625	580	93	18	70-130/30
97-63-2	Ethyl methacrylate	ND	250	254	102	250	233	93	9	72-139/30
100-41-4	Ethylbenzene	ND	250	252	101	250	242	97	4	70-130/30
87-68-3	Hexachlorobutadiene	ND	250	277	111	250	263	105	5	70-130/30
591-78-6	2-Hexanone	ND	250	137	55* a	250	118	47* a	15	70-130/30
98-82-8	Isopropylbenzene	ND	250	248	99	250	241	96	3	70-130/30
99-87-6	p-Isopropyltoluene	ND	250	256	102	250	246	98	4	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	250	250	100	250	226	90	10	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	230	92	250	195	78	16	70-130/30
74-95-3	Methylene bromide	ND	250	247	99	250	228	91	8	70-130/30
75-09-2	Methylene chloride	ND	250	237	95	250	228	91	4	70-130/30
91-20-3	Naphthalene	ND	250	270	108	250	243	97	11	70-130/30
103-65-1	n-Propylbenzene	ND	250	251	100	250	243	97	3	70-130/30
100-42-5	Styrene	ND	250	258	103	250	248	99	4	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	244	98	250	235	94	4	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	250	231	92	250	213	85	8	70-130/30
127-18-4	Tetrachloroethene	ND	250	253	101	250	241	96	5	70-130/30
108-88-3	Toluene	ND	250	255	102	250	244	98	4	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	250	284	114	250	267	107	6	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	250	260	104	250	249	100	4	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	250	262	105	250	248	99	5	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	250	248	99	250	230	92	8	70-130/30
79-01-6	Trichloroethene	ND	250	224	90	250	214	86	5	70-130/30
75-69-4	Trichlorofluoromethane	ND	250	220	88	250	201	80	9	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	250	243	97	250	218	87	11	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	250	243	97	250	237	95	3	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	250	230	92	250	226	90	2	70-130/30
108-05-4	Vinyl Acetate	ND	250	246	98	250	221	88	11	70-130/30
75-01-4	Vinyl chloride	ND	250	190	76	250	189	76	1	70-130/30
	m,p-Xylene	ND	500	497	99	500	471	94	5	70-130/30
95-47-6	o-Xylene	ND	250	248	99	250	238	95	4	70-130/30
1330-20-7	Xylene (total)	ND	750	745	99	750	709	95	5	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32987-1MS	N89632.D	5	08/21/14	KD	n/a	n/a	MSN3320
MC32987-1MSD	N89633.D	5	08/21/14	KD	n/a	n/a	MSN3320
MC32987-1	N89629.D	1	08/21/14	KD	n/a	n/a	MSN3320

The QC reported here applies to the following samples:

Method: SW846 8260C

MC32763-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32987-1	Limits
1868-53-7	Dibromofluoromethane	88%	89%	88%	70-130%
2037-26-5	Toluene-D8	94%	93%	91%	70-130%
460-00-4	4-Bromofluorobenzene	82%	82%	88%	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: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSK2572-CC2552	Injection Date:	08/20/14
Lab File ID:	K81262.D	Injection Time:	08:38
Instrument ID:	GCMSK	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	103584	8.78	131183	9.63	57566	12.88	76225	15.44	52309	6.42
Upper Limit ^a	207168	9.28	262366	10.13	115132	13.38	152450	15.94	104618	6.92
Lower Limit ^b	51792	8.28	65592	9.13	28783	12.38	38113	14.94	26155	5.92

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSK2572-BS	101933	8.78	132971	9.63	57259	12.89	76098	15.44	55177	6.41
MSK2572-MB	113844	8.78	142997	9.63	58500	12.89	89195	15.44	59067	6.43
ZZZZZZ	107321	8.78	142512	9.63	55217	12.89	79846	15.44	58716	6.42
ZZZZZZ	110196	8.78	140270	9.63	54858	12.89	78203	15.44	55786	6.41
ZZZZZZ	111756	8.78	148476	9.63	59205	12.89	85114	15.44	55941	6.42
ZZZZZZ	110960	8.78	145940	9.63	53167	12.89	79560	15.44	57983	6.42
ZZZZZZ	111184	8.78	145417	9.63	56326	12.89	82805	15.44	58714	6.42
ZZZZZZ	123156	8.79	160387	9.63	62926	12.89	89519	15.44	69266	6.44
ZZZZZZ	115221	8.78	149321	9.63	59527	12.89	83837	15.44	58503	6.42
MC32899-1	113527	8.78	150286	9.63	58267	12.89	83920	15.44	57852	6.42
ZZZZZZ	113305	8.78	149967	9.63	58742	12.89	86963	15.44	57975	6.42
ZZZZZZ	114952	8.78	148735	9.63	55966	12.89	82592	15.44	57834	6.42
ZZZZZZ	115639	8.78	151552	9.63	58930	12.89	87775	15.44	59695	6.42
ZZZZZZ	117397	8.78	151513	9.63	57476	12.89	84441	15.44	58387	6.42
ZZZZZZ	111039	8.79	146546	9.63	56852	12.89	89346	15.44	60431	6.44
ZZZZZZ	116418	8.79	146323	9.63	58554	12.89	88816	15.44	47572	6.42
MC32899-1MS	105177	8.78	139675	9.63	62173	12.89	80945	15.44	51841	6.43
MC32899-1MSD	105850	8.78	138153	9.63	60545	12.89	80127	15.44	52847	6.42
ZZZZZZ	110061	8.78	143882	9.63	56949	12.89	82288	15.44	53433	6.43
MC32763-1	108980	8.78	140567	9.63	53844	12.89	84187	15.44	54349	6.42
ZZZZZZ	110208	8.78	144152	9.63	55964	12.89	79969	15.44	55291	6.41
ZZZZZZ	104375	8.78	140916	9.63	60068	12.89	87299	15.44	61522	6.43
ZZZZZZ	118895	8.78	156709	9.63	64339	12.89	91452	15.44	67374	6.43

- 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: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSN3320-CC3314	Injection Date:	08/21/14
Lab File ID:	N89623.D	Injection Time:	17:44
Instrument ID:	GCMSN	Method:	SW846 8260C

	IS 1	RT	IS 2	RT	IS 3	RT	IS 4	RT	IS 5	RT
	AREA		AREA		AREA		AREA		AREA	
Check Std	318713	9.12	482146	9.99	273951	13.24	214637	15.80	137189	6.70
Upper Limit ^a	637426	9.62	964292	10.49	547902	13.74	429274	16.30	274378	7.20
Lower Limit ^b	159357	8.62	241073	9.49	136976	12.74	107319	15.30	68595	6.20

Lab	IS 1	RT	IS 2	RT	IS 3	RT	IS 4	RT	IS 5	RT
Sample ID	AREA		AREA		AREA		AREA		AREA	
MSN3320-BS	318713	9.12	482146	9.99	273951	13.24	214637	15.80	137189	6.70
MSN3320-MB	283773	9.12	421941	9.99	227913	13.24	166738	15.80	96938	6.72
ZZZZZZ	272825	9.12	403423	9.99	221283	13.24	162522	15.80	121758	6.72
MC32763-2	259567	9.12	383372	9.99	207501	13.24	155031	15.80	102887	6.72
ZZZZZZ	253085	9.12	383796	9.99	206441	13.24	148799	15.80	91592	6.72
MC32987-1	251397	9.12	383899	9.99	208380	13.24	152901	15.80	110546	6.72
ZZZZZZ	245293	9.12	377801	9.99	203878	13.24	150802	15.80	96639	6.71
ZZZZZZ	249395	9.12	375609	9.99	206999	13.24	149275	15.80	87866	6.71
MC32987-1MS	259511	9.12	400659	9.99	230550	13.24	185375	15.80	105989	6.69
MC32987-1MSD	282785	9.12	437456	9.99	247672	13.24	195179	15.80	108845	6.69
ZZZZZZ	270135	9.12	410387	9.99	221738	13.25	166226	15.80	119100	6.71
ZZZZZZ	260517	9.12	391536	9.99	210239	13.24	156294	15.80	97614	6.72
ZZZZZZ	251112	9.12	389978	9.99	211477	13.25	153760	15.80	96079	6.72
ZZZZZZ	247421	9.12	375398	9.99	209080	13.24	152737	15.80	94227	6.71
ZZZZZZ	246067	9.12	369276	9.99	205945	13.24	150005	15.80	94332	6.71
ZZZZZZ	243967	9.12	379751	9.99	207831	13.24	152510	15.80	92660	6.72
ZZZZZZ	241435	9.12	371758	9.99	203885	13.24	149476	15.80	105687	6.71
ZZZZZZ	248339	9.12	373670	9.99	205818	13.24	150964	15.80	94312	6.72
ZZZZZZ	239353	9.12	373750	9.99	202023	13.24	159779	15.80	89987	6.72
ZZZZZZ	255743	9.12	417427	9.99	278702	13.25	249549	15.80	101070	6.70

- 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: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, 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
MC32763-2	N89627.D	86	93	88
MC32987-1MS	N89632.D	88	94	82
MC32987-1MSD	N89633.D	89	93	82
MSN3320-BS	N89623.D	88	93	83
MSN3320-MB	N89625.D	86	92	87

Surrogate Compounds Recovery Limits

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

6.5.1
6

Volatile Surrogate Recovery Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8260C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32763-1	K81283.D	99	97	109
MC32899-1MS	K81280.D	96	98	95
MC32899-1MSD	K81281.D	94	97	97
MSK2572-BS	K81263.D	98	101	98
MSK2572-MB	K81265.D	100	104	96

Surrogate Compounds Recovery Limits

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

6.5.2
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: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39349-MB	F75357.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	480	60	ug/kg	
95-57-8	2-Chlorophenol	ND	240	11	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	480	12	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	480	14	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	480	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	960	120	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	480	60	ug/kg	
95-48-7	2-Methylphenol	ND	480	19	ug/kg	
	3&4-Methylphenol	ND	480	23	ug/kg	
88-75-5	2-Nitrophenol	ND	480	13	ug/kg	
100-02-7	4-Nitrophenol	ND	960	90	ug/kg	
87-86-5	Pentachlorophenol	ND	480	34	ug/kg	
108-95-2	Phenol	ND	240	14	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	480	12	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	480	12	ug/kg	
62-53-3	Aniline	ND	480	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	240	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	240	9.8	ug/kg	
100-51-6	Benzyl Alcohol	ND	480	24	ug/kg	
91-58-7	2-Chloronaphthalene	ND	240	13	ug/kg	
106-47-8	4-Chloroaniline	ND	480	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	240	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	240	15	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	240	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	240	15	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	240	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	480	32	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	480	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	240	24	ug/kg	
132-64-9	Dibenzofuran	ND	96	13	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	240	26	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	240	7.5	ug/kg	
84-66-2	Diethyl phthalate	ND	240	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	240	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	240	8.9	ug/kg	
118-74-1	Hexachlorobenzene	ND	240	15	ug/kg	

7.1.1
7

Method Blank Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39349-MB	F75357.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	480	120	ug/kg	
67-72-1	Hexachloroethane	ND	240	12	ug/kg	
78-59-1	Isophorone	ND	240	11	ug/kg	
88-74-4	2-Nitroaniline	ND	480	12	ug/kg	
99-09-2	3-Nitroaniline	ND	480	26	ug/kg	
100-01-6	4-Nitroaniline	ND	480	12	ug/kg	
98-95-3	Nitrobenzene	ND	240	13	ug/kg	
62-75-9	n-Nitrosodimethylamine	ND	240	11	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	240	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	15	ug/kg	
110-86-1	Pyridine	ND	480	24	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	74% 30-130%
4165-62-2	Phenol-d5	67% 30-130%
118-79-6	2,4,6-Tribromophenol	69% 30-130%
4165-60-0	Nitrobenzene-d5	58% 30-130%
321-60-8	2-Fluorobiphenyl	75% 30-130%
1718-51-0	Terphenyl-d14	76% 30-130%

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

7.1.1
7

Method Blank Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39348-MB	I91221.D	1	08/15/14	WK	08/11/14	OP39348	MSI3397

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.8	0.83	ug/kg	
208-96-8	Acenaphthylene	ND	4.8	0.73	ug/kg	
120-12-7	Anthracene	ND	4.8	1.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.8	2.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.8	1.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.8	2.1	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	4.8	1.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.8	1.5	ug/kg	
218-01-9	Chrysene	ND	4.8	1.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.8	1.4	ug/kg	
206-44-0	Fluoranthene	ND	4.8	1.4	ug/kg	
86-73-7	Fluorene	ND	4.8	0.95	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.8	1.2	ug/kg	
90-12-0	1-Methylnaphthalene	1.3	9.6	1.1	ug/kg	J
91-57-6	2-Methylnaphthalene	ND	9.6	0.90	ug/kg	
85-01-8	Phenanthrene	ND	4.8	1.0	ug/kg	
129-00-0	Pyrene	ND	4.8	1.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	74%	30-130%
321-60-8	2-Fluorobiphenyl	71%	30-130%
1718-51-0	Terphenyl-d14	94%	30-130%

7.1.2
7

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39349-BS	F75358.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32763-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic acid	2430	1920	79	30-130
95-57-8	2-Chlorophenol	2430	1700	70	30-130
59-50-7	4-Chloro-3-methyl phenol	2430	1510	62	30-130
120-83-2	2,4-Dichlorophenol	2430	1600	66	30-130
105-67-9	2,4-Dimethylphenol	2430	1590	66	30-130
51-28-5	2,4-Dinitrophenol	2430	538	22* a	30-130
534-52-1	4,6-Dinitro-o-cresol	2430	696	29* a	30-130
95-48-7	2-Methylphenol	2430	1730	71	30-130
	3&4-Methylphenol	4850	3250	67	30-130
88-75-5	2-Nitrophenol	2430	1580	65	30-130
100-02-7	4-Nitrophenol	2430	969	40	30-130
87-86-5	Pentachlorophenol	2430	1710	70	30-130
108-95-2	Phenol	2430	1680	69	30-130
95-95-4	2,4,5-Trichlorophenol	2430	1710	70	30-130
88-06-2	2,4,6-Trichlorophenol	2430	1510	62	30-130
62-53-3	Aniline	2430	1160	48	40-140
101-55-3	4-Bromophenyl phenyl ether	2430	1790	74	40-140
85-68-7	Butyl benzyl phthalate	2430	2100	87	40-140
100-51-6	Benzyl Alcohol	2430	450	19* a	40-140
91-58-7	2-Chloronaphthalene	2430	1840	76	40-140
106-47-8	4-Chloroaniline	2430	1420	59	40-140
111-91-1	bis(2-Chloroethoxy)methane	2430	1520	63	40-140
111-44-4	bis(2-Chloroethyl)ether	2430	1820	75	40-140
108-60-1	bis(2-Chloroisopropyl)ether	2430	2590	107	40-140
7005-72-3	4-Chlorophenyl phenyl ether	2430	1480	61	40-140
122-66-7	1,2-Diphenylhydrazine	2430	1900	78	40-140
121-14-2	2,4-Dinitrotoluene	2430	1510	62	40-140
606-20-2	2,6-Dinitrotoluene	2430	1460	60	40-140
91-94-1	3,3'-Dichlorobenzidine	2430	2000	82	40-140
132-64-9	Dibenzofuran	2430	1590	66	40-140
84-74-2	Di-n-butyl phthalate	2430	1690	70	40-140
117-84-0	Di-n-octyl phthalate	2430	2040	84	40-140
84-66-2	Diethyl phthalate	2430	1770	73	40-140
131-11-3	Dimethyl phthalate	2430	1780	73	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	2430	2100	87	40-140
118-74-1	Hexachlorobenzene	2430	1700	70	40-140

* = Outside of Control Limits.

7.2.1
7

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39349-BS	F75358.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32763-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	2430	501	21* a	40-140
67-72-1	Hexachloroethane	2430	1520	63	40-140
78-59-1	Isophorone	2430	1440	59	40-140
88-74-4	2-Nitroaniline	2430	1860	77	40-140
99-09-2	3-Nitroaniline	2430	1670	69	40-140
100-01-6	4-Nitroaniline	2430	1510	62	40-140
98-95-3	Nitrobenzene	2430	1380	57	40-140
62-75-9	n-Nitrosodimethylamine	2430	1520	63	40-140
621-64-7	N-Nitroso-di-n-propylamine	2430	1570	65	40-140
86-30-6	N-Nitrosodiphenylamine	2430	1810	75	40-140
110-86-1	Pyridine	2430	1220	50	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	67%	30-130%
4165-62-2	Phenol-d5	63%	30-130%
118-79-6	2,4,6-Tribromophenol	64%	30-130%
4165-60-0	Nitrobenzene-d5	59%	30-130%
321-60-8	2-Fluorobiphenyl	69%	30-130%
1718-51-0	Terphenyl-d14	72%	30-130%

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39348-BS	I91222.D	1	08/15/14	WK	08/11/14	OP39348	MSI3397

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32763-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2430	1610	66	40-140
208-96-8	Acenaphthylene	2430	1400	58	40-140
120-12-7	Anthracene	2430	1700	70	40-140
56-55-3	Benzo(a)anthracene	2430	2090	86	40-140
50-32-8	Benzo(a)pyrene	2430	1840	76	40-140
205-99-2	Benzo(b)fluoranthene	2430	2220	91	40-140
191-24-2	Benzo(g,h,i)perylene	2430	1900	78	40-140
207-08-9	Benzo(k)fluoranthene	2430	1870	77	40-140
218-01-9	Chrysene	2430	1760	73	40-140
53-70-3	Dibenzo(a,h)anthracene	2430	2040	84	40-140
206-44-0	Fluoranthene	2430	1970	81	40-140
86-73-7	Fluorene	2430	1620	67	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2430	1980	82	40-140
90-12-0	1-Methylnaphthalene	2430	1630	67	40-140
91-57-6	2-Methylnaphthalene	2430	1670	69	40-140
85-01-8	Phenanthrene	2430	1690	70	40-140
129-00-0	Pyrene	2430	1940	80	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	34%	15-110%
4165-62-2	Phenol-d5	33%	15-110%
118-79-6	2,4,6-Tribromophenol	38%	15-110%
4165-60-0	Nitrobenzene-d5	71%	30-130%
321-60-8	2-Fluorobiphenyl	67%	30-130%
1718-51-0	Terphenyl-d14	87%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39349-MS	F75359.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314
OP39349-MSD	F75360.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314
MC32763-1	F75361.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32763-1

CAS No.	Compound	MC32763-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND	2900	1630	56	2880	3550	123	74* a	30-130/30
95-57-8	2-Chlorophenol	ND	2900	1850	64	2880	1950	68	5	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND	2900	1330	46	2880	1330	46	0	30-130/30
120-83-2	2,4-Dichlorophenol	ND	2900	1840	64	2880	1890	66	3	30-130/30
105-67-9	2,4-Dimethylphenol	ND	2900	1730	60	2880	1750	61	1	30-130/30
51-28-5	2,4-Dinitrophenol	ND	2900	ND	0* b	2880	ND	0* b	nc	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND	2900	486	17* b	2880	563	20* b	15	30-130/30
95-48-7	2-Methylphenol	ND	2900	1840	64	2880	1960	68	6	30-130/30
	3&4-Methylphenol	ND	5790	3470	60	5760	3680	64	6	30-130/30
88-75-5	2-Nitrophenol	ND	2900	1740	60	2880	1930	67	10	30-130/30
100-02-7	4-Nitrophenol	ND	2900	ND	0* c	2880	ND	0* c	nc	30-130/30
87-86-5	Pentachlorophenol	ND	2900	1830	63	2880	1820	63	1	30-130/30
108-95-2	Phenol	ND	2900	1900	66	2880	1960	68	3	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND	2900	1670	58	2880	1440	50	15	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND	2900	1680	58	2880	1890	66	12	30-130/30
62-53-3	Aniline	ND	2900	1350	47	2880	1330	46	1	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND	2900	1940	67	2880	1880	65	3	40-140/30
85-68-7	Butyl benzyl phthalate	ND	2900	2480	86	2880	2490	86	0	40-140/30
100-51-6	Benzyl Alcohol	ND	2900	564	19* b	2880	665	23* b	16	40-140/30
91-58-7	2-Chloronaphthalene	ND	2900	2200	76	2880	2260	78	3	40-140/30
106-47-8	4-Chloroaniline	ND	2900	1590	55	2880	1530	53	4	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND	2900	1800	62	2880	1890	66	5	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND	2900	2070	71	2880	2210	77	7	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND	2900	2650	92	2880	2910	101	9	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND	2900	1830	63	2880	1830	64	0	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND	2900	2280	79	2880	2420	84	6	40-140/30
121-14-2	2,4-Dinitrotoluene	ND	2900	1820	63	2880	1910	66	5	40-140/30
606-20-2	2,6-Dinitrotoluene	ND	2900	2010	69	2880	1980	69	2	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND	2900	2170	75	2880	2170	75	0	40-140/30
132-64-9	Dibenzofuran	ND	2900	2230	77	2880	2260	78	1	40-140/30
84-74-2	Di-n-butyl phthalate	ND	2900	2280	79	2880	2260	78	1	40-140/30
117-84-0	Di-n-octyl phthalate	ND	2900	2450	85	2880	2800	97	13	40-140/30
84-66-2	Diethyl phthalate	ND	2900	2020	70	2880	1980	69	2	40-140/30
131-11-3	Dimethyl phthalate	ND	2900	1930	67	2880	1890	66	2	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2900	2480	86	2880	2540	88	2	40-140/30
118-74-1	Hexachlorobenzene	ND	2900	2050	71	2880	2050	71	0	40-140/30

* = Outside of Control Limits.

7.3.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39349-MS	F75359.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314
OP39349-MSD	F75360.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314
MC32763-1	F75361.D	1	08/15/14	WK	08/11/14	OP39349	MSF3314

The QC reported here applies to the following samples:

Method: SW846 8270D

MC32763-1

CAS No.	Compound	MC32763-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	2900	356	12* b	2880	357	12* b	0	40-140/30
67-72-1	Hexachloroethane	ND	2900	1580	55	2880	1740	60	10	40-140/30
78-59-1	Isophorone	ND	2900	1590	55	2880	1580	55	1	40-140/30
88-74-4	2-Nitroaniline	ND	2900	2210	76	2880	2240	78	1	40-140/30
99-09-2	3-Nitroaniline	ND	2900	2090	72	2880	2090	73	0	40-140/30
100-01-6	4-Nitroaniline	ND	2900	1860	64	2880	2030	70	9	40-140/30
98-95-3	Nitrobenzene	ND	2900	1610	56	2880	1710	59	6	40-140/30
62-75-9	n-Nitrosodimethylamine	ND	2900	1880	65	2880	1410	49	29	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND	2900	2180	75	2880	2460	85	12	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND	2900	3500	121	2880	3600	125	3	40-140/30
110-86-1	Pyridine	ND	2900	1440	50	2880	1110	39* c	26	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32763-1	Limits
367-12-4	2-Fluorophenol	75%	58%	60%	30-130%
4165-62-2	Phenol-d5	62%	64%	55%	30-130%
118-79-6	2,4,6-Tribromophenol	61%	60%	54%	30-130%
4165-60-0	Nitrobenzene-d5	56%	71%	58%	30-130%
321-60-8	2-Fluorobiphenyl	68%	69%	59%	30-130%
1718-51-0	Terphenyl-d14	67%	70%	52%	30-130%

- (a) High RPD due to possible matrix interference and/or sample heterogeneity.
- (b) Outside control limits. Blank Spike meets program technical requirements.
- (c) Outside control limits due to possible matrix interference. Refer to Blank Spike.

* = Outside of Control Limits.

7.3.1
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39348-MS	I91223.D	1	08/15/14	WK	08/11/14	OP39348	MSI3397
OP39348-MSD	I91224.D	1	08/15/14	WK	08/11/14	OP39348	MSI3397
MC32763-1	I91225.D	1	08/15/14	WK	08/11/14	OP39348	MSI3397

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC32763-1

CAS No.	Compound	MC32763-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
83-32-9	Acenaphthene	238		2900	1990	60	2880	1920	58	4	40-140/30
208-96-8	Acenaphthylene	51.7		2900	1650	55	2880	1540	52	7	40-140/30
120-12-7	Anthracene	189		2900	1930	60	2880	2030	64	5	40-140/30
56-55-3	Benzo(a)anthracene	23.0		2900	2480	85	2880	2460	85	1	40-140/30
50-32-8	Benzo(a)pyrene	3.6	J	2900	2140	74	2880	2180	76	2	40-140/30
205-99-2	Benzo(b)fluoranthene	4.6	J	2900	2670	92	2880	2610	90	2	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		2900	2240	77	2880	2210	77	1	40-140/30
207-08-9	Benzo(k)fluoranthene	ND		2900	2040	70	2880	2070	72	1	40-140/30
218-01-9	Chrysene	44.6		2900	2050	69	2880	2040	69	0	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND		2900	2300	79	2880	2310	80	0	40-140/30
206-44-0	Fluoranthene	58.9		2900	2300	77	2880	2290	77	0	40-140/30
86-73-7	Fluorene	373		2900	2200	63	2880	2100	60	5	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2900	2290	79	2880	2270	79	1	40-140/30
90-12-0	1-Methylnaphthalene	2820		2900	4530	59	2880	4830	70	6	40-140/30
91-57-6	2-Methylnaphthalene	ND		2900	1910	66	2880	1880	65	2	40-140/30
85-01-8	Phenanthrene	1560		2900	3480	66	2880	3630	72	4	40-140/30
129-00-0	Pyrene	144		2900	2420	79	2880	2420	79	0	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32763-1	Limits
4165-60-0	Nitrobenzene-d5	71%	71%	63%	30-130%
321-60-8	2-Fluorobiphenyl	61%	63%	53%	30-130%
1718-51-0	Terphenyl-d14	87%	87%	75%	30-130%

* = Outside of Control Limits.

7.3.2
7

Semivolatile Internal Standard Area Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3314-CC3270	Injection Date:	08/14/14
Lab File ID:	F75336.D	Injection Time:	16:24
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
	AREA	RT	AREA	RT	AREA	RT
Check Std	190606	2.80	636924	3.82	364066	5.30
Upper Limit ^a	381212	3.30	1273848	4.32	728132	5.80
Lower Limit ^b	95303	2.30	318462	3.32	182033	4.80

Lab	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
Sample ID	AREA	RT	AREA	RT	AREA	RT
OP39342-MB	258606	2.80	917261	3.82	528740	5.29
OP39342-BS	277497	2.80	1105718	3.82	640278	5.30
OP39342-BSD	277194	2.80	933226	3.82	532590	5.30
OP39342-MS	327085	2.80	1121627	3.82	634971	5.30
OP39342-MSD	312938	2.80	932977	3.82	524373	5.30
MC32736-1	291108	2.80	990000	3.82	549871	5.29
ZZZZZZ	261502	2.80	1039373	3.82	518191	5.29
ZZZZZZ	270113	2.80	933652	3.82	591714	5.29
ZZZZZZ	216311	2.80	737664	3.82	416872	5.29
ZZZZZZ	255437	2.80	865677	3.82	469297	5.29
ZZZZZZ	261727	2.80	858605	3.82	481951	5.29
ZZZZZZ	268619	2.80	879420	3.82	483361	5.30
ZZZZZZ	230547	2.80	766416	3.82	434173	5.29
ZZZZZZ	256498	2.80	863912	3.82	557488	5.29
ZZZZZZ	268170	2.80	881008	3.82	482616	5.30
ZZZZZZ	269137	2.80	868420	3.83	475478	5.31
ZZZZZZ	193979	2.80	747056	3.82	397330	5.30
ZZZZZZ	292052	2.80	869616	3.82	472860	5.29
ZZZZZZ	243896	2.80	796793	3.83	446095	5.31
ZZZZZZ	278914	2.80	935803	3.83	519167	5.31
OP39349-MB	253401	2.80	862707	3.82	552064	5.29
OP39349-BS	298745	2.80	995916	3.82	549783	5.30
OP39349-MS	244619	2.80	783622	3.83	424628	5.31
OP39349-MSD	287185	2.80	932355	3.83	487949	5.32
MC32763-1	226521	2.80	759312	3.82	409311	5.31
ZZZZZZ	170097	2.80	684458	3.82	392276	5.30
ZZZZZZ	250731	2.80	856239	3.82	467151	5.30
ZZZZZZ	233288	2.80	783782	3.82	491459	5.29
ZZZZZZ	251218	2.80	843543	3.82	543674	5.29

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

7.4.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3314-CC3270	Injection Date:	08/14/14
Lab File ID:	F75336.D	Injection Time:	16:24
Instrument ID:	GCMSF	Method:	SW846 8270D

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

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.

7.4.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3397-CC3386	Injection Date:	08/15/14
Lab File ID:	I91207.D	Injection Time:	15:28
Instrument ID:	GCMSI	Method:	SW846 8270D 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	432999	4.09	938241	5.14	497917	6.67	847169	8.05	598340	10.83	1546574	12.32
Upper Limit ^a	865998	4.59	1876482	5.64	995834	7.17	1694338	8.55	1196680	11.33	3093148	12.82
Lower Limit ^b	216500	3.59	469121	4.64	248959	6.17	423585	7.55	299170	10.33	773287	11.82

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
OP39394-MB	410403	4.09	895552	5.13	473612	6.66	793466	8.05	552758	10.83	1462882	12.31
OP39394-BS	413954	4.09	896913	5.13	470146	6.67	799634	8.05	572136	10.83	1477530	12.32
OP39394-BSD	402406	4.09	873682	5.13	459698	6.67	781619	8.05	554328	10.83	1405938	12.32
OP39394-MS	401119	4.09	878700	5.14	462494	6.67	787104	8.05	563224	10.83	1431320	12.32
OP39394-MSD	411415	4.09	907550	5.14	476826	6.67	808977	8.05	580949	10.83	1469123	12.32
MC32644-25	411599	4.08	904546	5.13	476398	6.66	805746	8.05	559738	10.83	1476807	12.31
ZZZZZZ	431824	4.09	943418	5.14	502558	6.67	840721	8.05	585760	10.83	1317331	12.31
ZZZZZZ	363320	4.08	795000	5.13	418978	6.66	700747	8.05	486074	10.82	1282793	12.31
ZZZZZZ	367010	4.08	799899	5.13	418686	6.66	710653	8.05	495096	10.82	1316939	12.31
ZZZZZZ	377247	4.09	823128	5.13	430386	6.66	733955	8.05	507044	10.82	1340823	12.31
ZZZZZZ	415605	4.08	916216	5.13	479530	6.66	807783	8.05	565485	10.82	1482794	12.31
ZZZZZZ	410985	4.08	900360	5.13	476402	6.66	801578	8.05	563883	10.82	1456677	12.31
ZZZZZZ	384701	4.08	844464	5.13	443734	6.66	746484	8.05	526905	10.82	1348865	12.31
OP39348-MB	525666	4.08	1148841	5.13	598483	6.66	988555	8.05	653132	10.82	1622888	12.31
OP39348-BS	530199	4.08	1141573	5.14	591929	6.66	974155	8.05	649063	10.83	1564948	12.32
OP39348-MS	507614	4.09	1131776	5.14	591786	6.69	980097	8.07	634166	10.83	1527990	12.32
OP39348-MSD	508190	4.09	1132787	5.14	617539	6.69	975899	8.08	625771	10.83	1495026	12.32
MC32763-1	480785	4.09	1085166	5.14	599588	6.68	928000	8.06	594823	10.83	1459533	12.32
OP39407-MB	392472	4.08	873357	5.13	464114	6.67	778692	8.05	557447	10.82	1405505	12.31
OP39407-BS	479202	4.09	1048976	5.14	535427	6.66	885423	8.05	635576	10.83	1583336	12.32
ZZZZZZ	431789	4.08	959397	5.13	500324	6.66	844330	8.05	583802	10.82	1504670	12.31
ZZZZZZ	481296	4.08	1032047	5.13	512197	6.66	835271	8.05	623250	10.84	1454612	12.34

- 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.

7.4.2
7

Semivolatile Surrogate Recovery Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC32763-1	F75361.D	60	55	54	58	59	52
OP39349-BS	F75358.D	67	63	64	59	69	72
OP39349-MB	F75357.D	74	67	69	58	75	76
OP39349-MS	F75359.D	75	62	61	56	68	67
OP39349-MSD	F75360.D	58	64	60	71	69	70

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	30-130%
S2 = Phenol-d5	30-130%
S3 = 2,4,6-Tribromophenol	30-130%
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: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32763-1	I91225.D	63	53	75
OP39348-BS	I91222.D	71	67	87
OP39348-MB	I91221.D	74	71	94
OP39348-MS	I91223.D	71	61	87
OP39348-MSD	I91224.D	71	63	87

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: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-MB	YZ91281.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.72	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	107% 61-167%
460-00-4	Bromofluorobenzene (S)	107% 61-167%

8.1.1

8

Method Blank Summary

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-MB	BK40149.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32763-3

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	94%	36-173%
460-00-4	Bromofluorobenzene (S)	94%	36-173%

8.1.2
8

Method Blank Summary

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4541-MB	AB85328.D	1	08/12/14	AF	n/a	n/a	GAB4541

The QC reported here applies to the following samples:

Method: SW846 8015

MC32763-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	0.74	mg/kg	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	94% 61-116%

8.1.3

8

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-BS	YZ91282.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32763-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	33.2	32.3	97	59-142
106-93-4	1,2-Dibromoethane	33.2	33.5	101	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	101%	61-167%
460-00-4	Bromofluorobenzene (S)	109%	61-167%

8.2.1
8

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-BS	BK40150.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32763-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.072	101	60-140
106-93-4	1,2-Dibromoethane	0.071	0.071	100	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	91%	36-173%
460-00-4	Bromofluorobenzene (S)	90%	36-173%

8.2.2
8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4541-BSP	AB85329.D	1	08/12/14	AF	n/a	n/a	GAB4541
GAB4541-BSD	AB85330.D	1	08/12/14	AF	n/a	n/a	GAB4541

The QC reported here applies to the following samples: Method: SW846 8015

MC32763-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	32.5	31.7	98	32.2	99	2	66-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	99%	100%	61-116%

8.3.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39346-MS	YZ91283.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
OP39346-MSD	YZ91284.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620
MC32707-2	YZ91285.D	1	08/11/14	SZ	08/11/14	OP39346	GYZ7620

The QC reported here applies to the following samples:

Method: SW846 8011

MC32763-1

CAS No.	Compound	MC32707-2 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
96-12-8	1,2-Dibromo-3-chloropropane	ND		87.3	91.8	105	84.8	93.0	110	1	40-156/27
106-93-4	1,2-Dibromoethane	ND		87.3	95.7	110	84.8	95.0	112	1	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32707-2	Limits
460-00-4	Bromofluorobenzene (S)	115%	118%	122%	61-167%
460-00-4	Bromofluorobenzene (S)	114%	114%	119%	61-167%

8.4.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39418-MS	BK40151.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
OP39418-MSD	BK40152.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303
MC32700-7	BK40153.D	1	08/19/14	AP	08/14/14	OP39418	GBK1303

The QC reported here applies to the following samples:

Method: SW846 8011

MC32763-3

CAS No.	Compound	MC32700-7 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.071	0.067	94	0.071	0.075	106	11	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.072	101	0.071	0.071	100	1	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC32700-7	Limits
460-00-4	Bromofluorobenzene (S)	84%	81%	84%	36-173%
460-00-4	Bromofluorobenzene (S)	86%	82%	85%	36-173%

8.4.2
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32787-1MS	AB85332.D	1	08/12/14	AF	n/a	n/a	GAB4541
MC32787-1MSD	AB85333.D	1	08/12/14	AF	n/a	n/a	GAB4541
MC32787-1	AB85331.D	1	08/12/14	AF	n/a	n/a	GAB4541

The QC reported here applies to the following samples:

Method: SW846 8015

MC32763-1

CAS No.	Compound	MC32787-1 mg/kg	Spike Q	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND	55.2	55.6	101	55.2	55.3	100	1	41-150/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32787-1	Limits
	2,3,4-Trifluorotoluene	101%	100%	95%	61-116%

8.4.3
8

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32763-3	BK40158.D	88	89
OP39418-BS	BK40150.D	91	90
OP39418-MB	BK40149.D	94	94
OP39418-MS	BK40151.D	84	86
OP39418-MSD	BK40152.D	81	82

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC32763-1	YZ91293.D	116	122
OP39346-BS	YZ91282.D	101	109
OP39346-MB	YZ91281.D	107	107
OP39346-MS	YZ91283.D	115	114
OP39346-MSD	YZ91284.D	118	114

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 61-167%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC32763-1	AB85339.D	91
GAB4541-BSD	AB85330.D	100
GAB4541-BSP	AB85329.D	99
GAB4541-MB	AB85328.D	94
MC32787-1MS	AB85332.D	101
MC32787-1MSD	AB85333.D	100

Surrogate Compounds Recovery Limits

S1 = 2,3,4-Trifluorotoluene 61-116%

(a) Recovery from GC signal #1

8.5.3
8

GC Surrogate Retention Time Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4540-CC4486	Injection Date:	08/12/14
Lab File ID:	AB85326.D	Injection Time:	04:59
Instrument ID:	GCAB	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	20.32	20.32
-----------	-------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GAB4541-MB	AB85328.D	08/12/14	08:21		20.32
GAB4542-MB	AB85328A.D	08/12/14	08:21	20.32	20.32
GAB4541-BSP	AB85329.D	08/12/14	08:59		20.32
GAB4542-BSP	AB85329A.D	08/12/14	08:59	20.32	20.32
GAB4542-BSD	AB85330A.D	08/12/14	09:37	20.32	20.32
GAB4541-BSD	AB85330.D	08/12/14	09:37		20.32
MC32787-1	AB85331.D	08/12/14	10:15		20.32
MC32787-1MS	AB85332.D	08/12/14	10:52		20.32
MC32787-1MSD	AB85333.D	08/12/14	11:30		20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.1
8

GC Surrogate Retention Time Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4542-CC4486	Injection Date:	08/12/14
Lab File ID:	AB85334A.D	Injection Time:	12:07
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
ZZZZZZ	AB85335.D	08/12/14	12:45	20.32
ZZZZZZ	AB85337.D	08/12/14	14:02	20.32
ZZZZZZ	AB85338.D	08/12/14	14:39	20.32
MC32763-1	AB85339.D	08/12/14	15:17	20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.2
8

GC Surrogate Retention Time Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBK1303-ICC1303	Injection Date:	08/19/14
Lab File ID:	BK40145.D	Injection Time:	16:10
Instrument ID:	GCBK	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	2.41	2.72
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39418-MB	BK40149.D	08/19/14	17:05	2.41	2.72
OP39418-BS	BK40150.D	08/19/14	17:19	2.41	2.72
OP39418-MS	BK40151.D	08/19/14	17:32	2.41	2.72
OP39418-MSD	BK40152.D	08/19/14	17:46	2.41	2.72
MC32700-7	BK40153.D	08/19/14	18:00	2.41	2.72
ZZZZZZ	BK40154.D	08/19/14	18:13	2.41	2.72
ZZZZZZ	BK40155.D	08/19/14	18:27	2.41	2.72
ZZZZZZ	BK40156.D	08/19/14	18:41	2.41	2.72
ZZZZZZ	BK40157.D	08/19/14	18:55	2.41	2.72
MC32763-3	BK40158.D	08/19/14	19:08	2.41	2.72
GBK1303-ECC130	BK40159.D	08/19/14	19:22	2.41	2.72

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.3
8

GC Surrogate Retention Time Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GYZ7620-ICC7620	Injection Date:	08/11/14
Lab File ID:	YZ91278.D	Injection Time:	18:16
Instrument ID:	GCYZ	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.14	4.39
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39346-MB	YZ91281.D	08/11/14	19:30	4.14	4.39
OP39346-BS	YZ91282.D	08/11/14	19:55	4.14	4.39
OP39346-MS	YZ91283.D	08/11/14	20:20	4.14	4.39
OP39346-MSD	YZ91284.D	08/11/14	20:45	4.14	4.39
MC32707-2	YZ91285.D	08/11/14	21:10	4.14	4.39
ZZZZZZ	YZ91286.D	08/11/14	21:36	4.14	4.39
ZZZZZZ	YZ91287.D	08/11/14	22:00	4.14	4.39
ZZZZZZ	YZ91288.D	08/11/14	22:25	4.14	4.39
ZZZZZZ	YZ91289.D	08/11/14	22:50	4.14	4.39
ZZZZZZ	YZ91290.D	08/11/14	23:15	4.14	4.39

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.4
8

GC Surrogate Retention Time Summary

Job Number: MC32763
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GYZ7620-CC7620	Injection Date:	08/11/14
Lab File ID:	YZ91291.D	Injection Time:	23:41
Instrument ID:	GCYZ	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.14	4.39
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
ZZZZZZ	YZ91292.D	08/12/14	00:06	4.14	4.39
MC32763-1	YZ91293.D	08/12/14	00:31	4.14	4.39
ZZZZZZ	YZ91294.D	08/12/14	00:57	4.14	4.38
GYZ7620-ECC7620	YZ91295.D	08/12/14	01:21	4.14	4.39

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.5
8

GC Surrogate Retention Time Summary

Job Number: MC32763
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4541-CC4488	Injection Date:	08/12/14
Lab File ID:	AB85334.D	Injection Time:	12:07
Instrument ID:	GCAB	Method:	SW846 8015

S1 ^a
RT

Check Std	20.32
-----------	-------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT
ZZZZZZ	AB85335.D	08/12/14	12:45	20.32
ZZZZZZ	AB85337.D	08/12/14	14:02	20.32
ZZZZZZ	AB85338.D	08/12/14	14:39	20.32
MC32763-1	AB85339.D	08/12/14	15:17	20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

(a) Retention time from GC signal #1

8.6.6
8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32763

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample: MC32763-1 Analyzed: 13-AUG-14 by CF Method: SM21 2540 B MOD.
ClientID: SVE43-080814 (30-32')

Wet Weight (Total)	32.583	g
Tare Weight	24.908	g
Dry Weight (Total)	31.359	g
Solids, Percent	84.1	%

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION,
VERIFICATION, TESTING AND CERTIFICATION COMPANY.



e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
21562973.19200

SGS Accutest Job Number: MC33045

Sampling Date: 08/20/14

Report to:

AECOM, INC.

Melissa.mansker@aecom.com

ATTN: Melissa Mansker

Total number of pages in report: 114



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

October 27, 2016

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

RE: SGS Accutest Job # MC33045

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

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION,
TESTING AND CERTIFICATION COMPANY.

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Sample Summary

Shell Oil

Job No: MC33045

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Project No: 21562973.19200

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
MC33045-1	08/20/14	12:30 EA	08/21/14	SO	Soil	SVE44-082014(30-36')
MC33045-1D	08/20/14	12:30 EA	08/21/14	SO	Soil Dup/MSD	SVE44-082014(30-36')
MC33045-1S	08/20/14	12:30 EA	08/21/14	SO	Soil Matrix Spike	SVE44-082014(30-36')
MC33045-2	08/20/14	16:00 EA	08/21/14	AQ	Equipment Blank	EQB-082014
MC33045-3	08/20/14	00:00 EA	08/21/14	AQ	Trip Blank Water	TB-082014-HCL
MC33045-4	08/20/14	00:00 EA	08/21/14	AQ	Trip Blank Water	TB-082014-ST

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: She O

Job No MC33045

Site: URSMOSTL: Roxana 4th St Extens on We Insta , 900 South Cent **Report Date** 0/27/20 6 2:45:35 P

2 Samp e(s), 2 Tr p B ank(s) were co ected on 08/20/20 4 and were rece ved at SGS Accutest New Eng and on 08/2 /20 4 properly preserved, at 4 Deg C and ntact These Samp es rece ved a job number of MC33045 A st ng of the Laboratory Samp e ID, C ent Samp e ID and dates of co ect on are presented n the Resu ts Summary Sect on of th s report -Ch orohexane, Benzeneth o , D benz(a,h)acr d ne, Indene, and Quo ne were searched n the brary search and repo ted on y f detect ons were found Except as noted be ow, a method spec f ed ca brat ons and qua ty contro performance cr ter a were met for th s job For more nformat on, p ease refer to QC summary pages

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ

Batch ID: MSN3329

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33209-3MS, MC33209-3MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- MSN3329-BSD Recovery(s) for Acetone, 2-Hexanone are outs de contro m ts
- B ank Sp ke Recovery(s) for 2-Hexanone, Bromomethane are outs de contro m ts
- Matr x Sp ke Recovery(s) for 2-Hexanone, Acetone are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- Matr x Sp ke Dup cate Recove y(s) for 2-Butanone (MEK), 2-Hexanone, Acetone are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- 2-Hexanone: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- Bromomethane: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- Acetone: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- 2-Butanone (MEK): Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- Tr ch oroethene: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- Ch oromethane: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- D ch orod f uoromethane: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- V ny ch or de: Cont nu ng Ca brat on outs de of acceptance cr ter a Samp e resu t may be b ased ow

Matrix: SO

Batch ID: MSM2398

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33045- MS, MC33045- MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- MSM2398-BSD Recove y(s) for Acro e n, Ch oromethane are outs de contro m ts
- Matr x Sp ke Recovery(s) for ,2,3-Tr ch orobenzene, ,2,4-Tr ch orobenzene, ,2,4-Tr methy benzene, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,4-D ch orobenzene, 2-Ch oroethy v ny ether, 2-Hexanone, Acetone, Acro e n, D ch orod f uoromethane, Hexach orobutad ene, n-Buty benzene, n-Propy benzene, o-Ch oroto uene, p-Ch oroto uene, p-Isopropy to uene, sec-Buty benzene, te t-Buty benzene, V ny Acetate are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- Matr x Sp ke Dup cate Recove y(s) for ,2,3-Tr ch orobenzene, ,2,4-Tr ch orobenzene, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,4-D ch orobenzene, 2-Ch oroethy v ny ether, Acetone, Acro e n, Bromomethane, Ch oromethane, D ch orod f uoromethane, Hexach orobutad ene, n-Buty benzene, o-Ch oroto uene, p-Ch oroto uene, p-Isopropy to uene, sec-Buty benzene, tert-Buty benzene, Tr ch orof uoromethane, V ny Acetate, V ny ch or de are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- ROD of MSM2398-BSD for Acro e n, D ch orod f uoromethane: Outs de contro m ts
- MC33045- for D ch orod f uoromethane: Cont nu ng Ca brat on Ver f cat on outs de of acceptance cr ter a Samp e resu t may be b ased ow

Thursday, October 27, 2016

Page 1 of 3

Volatiles by GCMS By Method SW846 8260C

Matrix: SO **Batch ID:** MSM2398

- MC33045- for V ny Acetate: Cont nu ng Ca brat on Ver f cat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- MSM2398-BS/BSD for D ch orod f uoromethane: Outs de contro m ts Assoc ated samp es may be b ased ow

Extractables by GCMS By Method SW846 8270D

Matrix: AQ **Batch ID:** OP395 4

- A samp es were extracted w th n the recommended method ho d ng t me
- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33000- MS, MC33000- MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a

Matrix: SO **Batch ID:** OP39507

- A samp es were extracted w th n the recommended method ho d ng t me
- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33045- MS, MC33045- MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- OP39507-BS/MS/MSD Recovery(s) for Hexach orocyc opentad ene are outs de contro m ts

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ **Batch ID:** OP395 5

- A samp es were extracted w th n the recommended method ho d ng t me
- A samp es were ana yzed w th n the recommended method ho d ng t me
- A method b anks for th s batch meet method spec f c cr ter a
- Samp e(s) MC33000-2MS, MC33000-2MSD were used as the QC samp es nd cated

Matrix: SO **Batch ID:** OP39508

- A samp es were extracted w th n the recommended method ho d ng t me
- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33045- MS, MC33045- MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP39646

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33200-2MS, MC33200-2MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- Matr x Sp ke Dup cate Recove y(s) for ,2-D bromo-3-ch oropropane are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference

Matrix: SO **Batch ID:** OP39555

- A samp es were extracted w th n the recommended method ho d ng t me
- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC33045- MS, MC33045- MSD were used as the QC samp es nd cated
- A method b anks for th s batch meet method spec f c cr ter a
- Matr x Sp ke Recovery(s) for ,2-D bromo-3-ch oropropane are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference

Volatiles by GC By Method SW846 8015

Matrix: AQ **Batch ID:** GAB4558

- All samples were analyzed within the recommended method holding time
- All method blanks for this batch meet method specifications
- Sample(s) MC33 92-2MS, MC33 92-2MSD were used as the QC samples indicated
- Calibration check standard GAB4486-ICC4486, GAB4486-ICV4486, GAB4559-CC4486 not associated with this job
- MC33045-2: The pH of the sample aquifer for VOA analysis was >2 at time of analysis

Matrix: SO **Batch ID:** GWX365

- All samples were analyzed within the recommended method holding time
- Sample(s) MC33045- MS, MC33045- MSD were used as the QC samples indicated
- All method blanks for this batch meet method specifications
- Calibration check standard GWX3234-ICC3234, GWX3234-ICV3234, GWX3650-CC3234 not associated with this job

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN48067

- Sample(s) MC33045- DUP were used as the QC samples for Sols, Percent

SGS Accutest New England certifies that all analyses were performed within method specifications. 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 (MC33045)

Summary of Hits

Job Number: MC33045
Account: Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Collected: 08/20/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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MC33045-1 SVE44-082014(30-36')

Benzene		0.00085	0.00061	0.00041	mg/kg	SW846 8260C
Ethylbenzene		0.0016 J	0.0024	0.00084	mg/kg	SW846 8260C
Toluene		0.0022 J	0.0061	0.00025	mg/kg	SW846 8260C
m,p-Xylene		0.00077 J	0.0024	0.00053	mg/kg	SW846 8260C
Xylene (total)		0.0011 J	0.0024	0.00027	mg/kg	SW846 8260C
Total TIC, Volatile		0.059 J			mg/kg	
2-Methylnaphthalene		0.0012 J	0.010	0.00094	mg/kg	SW846 8270D BY SIM
Total TIC, Semi-Volatile		0.56 J			mg/kg	
TPH-GRO (VOA)		2.55 J	12	1.8	mg/kg	SW846 8015

MC33045-2 EQB-082014

Toluene		3.0	1.0	0.33	ug/l	SW846 8260C
Total TIC, Volatile		6.9 J			ug/l	

MC33045-3 TB-082014-HCL

No hits reported in this sample.

MC33045-4 TB-082014-ST

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SVE44-082014(30-36')	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-1	Date Received:	08/21/14
Matrix:	SO - Soil	Percent Solids:	96.6
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M67804.D	1	08/25/14	KD	n/a	n/a	MSM2398
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.27 g	5.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.012	0.0034	mg/kg	
107-02-8	Acrolein	ND	0.030	0.011	mg/kg	
107-13-1	Acrylonitrile	ND	0.030	0.0033	mg/kg	
71-43-2	Benzene	0.00085	0.00061	0.00041	mg/kg	
108-86-1	Bromobenzene	ND	0.0061	0.00030	mg/kg	
74-97-5	Bromochloromethane	ND	0.0061	0.00042	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0024	0.00025	mg/kg	
75-25-2	Bromoform	ND	0.0024	0.00043	mg/kg	
74-83-9	Bromomethane	ND	0.0024	0.00073	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.012	0.0037	mg/kg	
104-51-8	n-Butylbenzene	ND	0.0061	0.00029	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0061	0.00090	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0061	0.00026	mg/kg	
75-15-0	Carbon disulfide	ND	0.0061	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0024	0.00027	mg/kg	
108-90-7	Chlorobenzene	ND	0.0024	0.00019	mg/kg	
75-00-3	Chloroethane	ND	0.0061	0.00092	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.0061	0.0015	mg/kg	
67-66-3	Chloroform	ND	0.0024	0.00020	mg/kg	
74-87-3	Chloromethane	ND	0.0061	0.00068	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.0061	0.00023	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.0061	0.00032	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0024	0.00039	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0024	0.00026	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0024	0.00037	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0024	0.00042	mg/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	0.0024	0.00098	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0024	0.00032	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0024	0.00039	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0024	0.00050	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0024	0.00055	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0024	0.00051	mg/kg	

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:	SVE44-082014(30-36')	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-1	Date Received:	08/21/14
Matrix:	SO - Soil	Percent Solids:	96.6
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.0024	0.00051	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.0061	0.00040	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.0061	0.00068	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.0061	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0024	0.00027	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0024	0.00032	mg/kg	
123-91-1	1,4-Dioxane	ND	0.030	0.024	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.0061	0.00043	mg/kg	
100-41-4	Ethylbenzene	0.0016	0.0024	0.00084	mg/kg	J
87-68-3	Hexachlorobutadiene	ND	0.0061	0.00070	mg/kg	
591-78-6	2-Hexanone	ND	0.012	0.00092	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0061	0.00020	mg/kg	
99-87-6	p-Isopropyltoluene	ND	0.0061	0.00021	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0024	0.00022	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.0061	0.00065	mg/kg	
74-95-3	Methylene bromide	ND	0.0061	0.00055	mg/kg	
75-09-2	Methylene chloride	ND	0.0024	0.00064	mg/kg	
91-20-3	Naphthalene	ND	0.0061	0.00048	mg/kg	
103-65-1	n-Propylbenzene	ND	0.0061	0.00018	mg/kg	
100-42-5	Styrene	ND	0.0061	0.00021	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.0061	0.00049	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0024	0.00048	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0024	0.00038	mg/kg	
108-88-3	Toluene	0.0022	0.0061	0.00025	mg/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	0.0061	0.00052	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0061	0.00062	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0024	0.00026	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0024	0.00070	mg/kg	
79-01-6	Trichloroethene	ND	0.0024	0.00030	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0024	0.00048	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.0061	0.00035	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0061	0.0017	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0061	0.0018	mg/kg	
108-05-4	Vinyl Acetate ^a	ND	0.0061	0.0019	mg/kg	
75-01-4	Vinyl chloride	ND	0.0024	0.0011	mg/kg	
	m,p-Xylene	0.00077	0.0024	0.00053	mg/kg	J
95-47-6	o-Xylene	ND	0.0024	0.00034	mg/kg	
1330-20-7	Xylene (total)	0.0011	0.0024	0.00027	mg/kg	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

Client Sample ID: SVE44-082014(30-36')	Date Sampled: 08/20/14
Lab Sample ID: MC33045-1	Date Received: 08/21/14
Matrix: SO - Soil	Percent Solids: 96.6
Method: SW846 8260C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

4.1
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	90%		70-130%
460-00-4	4-Bromofluorobenzene	84%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
75-28-5	Isobutane	4.76	.012	mg/kg	JN
106-97-8	Butane	5.08	.027	mg/kg	JN
78-78-4	Butane, 2-methyl-	6.07	.013	mg/kg	JN
109-66-0	Pentane	6.47	.007	mg/kg	JN
	Total TIC, Volatile		.059	mg/kg	J

(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:	SVE44-082014(30-36')	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-1	Date Received:	08/21/14
Matrix:	SO - Soil	Percent Solids:	96.6
Method:	SW846 8270D SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R39577.D	1	08/26/14	WK	08/21/14	OP39507	MSR1458
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.6 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.50	0.063	mg/kg	
95-57-8	2-Chlorophenol	ND	0.25	0.011	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.50	0.013	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.50	0.015	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.50	0.082	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.0	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.50	0.063	mg/kg	
95-48-7	2-Methylphenol	ND	0.50	0.020	mg/kg	
	3&4-Methylphenol	ND	0.50	0.024	mg/kg	
88-75-5	2-Nitrophenol	ND	0.50	0.013	mg/kg	
100-02-7	4-Nitrophenol	ND	1.0	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.50	0.035	mg/kg	
108-95-2	Phenol	ND	0.25	0.014	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.50	0.013	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.50	0.012	mg/kg	
62-53-3	Aniline	ND	0.50	0.025	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.25	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.25	0.010	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.50	0.025	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.25	0.014	mg/kg	
106-47-8	4-Chloroaniline	ND	0.50	0.013	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.25	0.012	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.25	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.25	0.018	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.25	0.015	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.25	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.50	0.034	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.50	0.013	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.25	0.025	mg/kg	
132-64-9	Dibenzofuran	ND	0.10	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.25	0.027	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.25	0.0079	mg/kg	

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:	SVE44-082014(30-36')	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-1	Date Received:	08/21/14
Matrix:	SO - Soil	Percent Solids:	96.6
Method:	SW846 8270D SW846 3546		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.25	0.013	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.25	0.015	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.25	0.0093	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.25	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.50	0.13	mg/kg	
67-72-1	Hexachloroethane	ND	0.25	0.012	mg/kg	
78-59-1	Isophorone	ND	0.25	0.012	mg/kg	
88-74-4	2-Nitroaniline	ND	0.50	0.013	mg/kg	
99-09-2	3-Nitroaniline	ND	0.50	0.028	mg/kg	
100-01-6	4-Nitroaniline	ND	0.50	0.013	mg/kg	
98-95-3	Nitrobenzene	ND	0.25	0.014	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.25	0.012	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.25	0.014	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.25	0.015	mg/kg	
110-86-1	Pyridine	ND	0.50	0.025	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	76%		30-130%
4165-62-2	Phenol-d5	66%		30-130%
118-79-6	2,4,6-Tribromophenol	85%		30-130%
4165-60-0	Nitrobenzene-d5	68%		30-130%
321-60-8	2-Fluorobiphenyl	76%		30-130%
1718-51-0	Terphenyl-d14	82%		30-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
301-02-0	9-Octadecenamide, (Z)-	11.40	.56	mg/kg	JN
	Total TIC, Semi-Volatile		.56	mg/kg	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

Client Sample ID:	SVE44-082014(30-36')	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-1	Date Received:	08/21/14
Matrix:	SO - Soil	Percent Solids:	96.6
Method:	SW846 8270D BY SIM SW846 3546	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91330.D	1	08/22/14	WK	08/21/14	OP39508	MSI3403
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.6 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0050	0.00087	mg/kg	
208-96-8	Acenaphthylene	ND	0.0050	0.00077	mg/kg	
120-12-7	Anthracene	ND	0.0050	0.0011	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0050	0.0023	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0050	0.0020	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0050	0.0022	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.0050	0.0014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0050	0.0016	mg/kg	
218-01-9	Chrysene	ND	0.0050	0.0014	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0050	0.0015	mg/kg	
206-44-0	Fluoranthene	ND	0.0050	0.0015	mg/kg	
86-73-7	Fluorene	ND	0.0050	0.00099	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0050	0.0012	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.010	0.0011	mg/kg	
91-57-6	2-Methylnaphthalene	0.0012	0.010	0.00094	mg/kg	J
85-01-8	Phenanthrene	ND	0.0050	0.0011	mg/kg	
129-00-0	Pyrene	ND	0.0050	0.0016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	36%		15-110%
4165-62-2	Phenol-d5	36%		15-110%
118-79-6	2,4,6-Tribromophenol	37%		15-110%
4165-60-0	Nitrobenzene-d5	74%		30-130%
321-60-8	2-Fluorobiphenyl	71%		30-130%
1718-51-0	Terphenyl-d14	98%		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

Client Sample ID: SVE44-082014(30-36')	Date Sampled: 08/20/14
Lab Sample ID: MC33045-1	Date Received: 08/21/14
Matrix: SO - Soil	Percent Solids: 96.6
Method: SW846 8011 SW846 3550B	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB59391.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318
Run #2							

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

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0026	0.00076	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0026	0.00063	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	94%		61-167%
460-00-4	Bromofluorobenzene (S)	130%		61-167%

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

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

4.1
4

Report of Analysis

Client Sample ID: SVE44-082014(30-36')	Date Sampled: 08/20/14
Lab Sample ID: MC33045-1	Date Received: 08/21/14
Matrix: SO - Soil	Percent Solids: 96.6
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	WX74955.D	1	08/27/14	TB	n/a	n/a	GWX3651
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.26 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	2.55	12	1.8	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	100%		61-116%		

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
4

Report of Analysis

Client Sample ID:	EQB-082014	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-2	Date Received:	08/21/14
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N89896.D	1	09/02/14	KD	n/a	n/a	MSN3329
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 ^a	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane ^a	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	EQB-082014	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-2	Date Received:	08/21/14
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone ^a	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	3.0	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene ^a	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: EQB-082014		Date Sampled: 08/20/14
Lab Sample ID: MC33045-2		Date Received: 08/21/14
Matrix: AQ - Equipment Blank		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

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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	92%		70-130%
460-00-4	4-Bromofluorobenzene	90%		70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
67-63-0	Isopropyl Alcohol	6.25	6.9	ug/l	JN
	Total TIC, Volatile		6.9	ug/l	J

(a) Continuing Calibration 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: EQB-082014	Date Sampled: 08/20/14
Lab Sample ID: MC33045-2	Date Received: 08/21/14
Matrix: AQ - Equipment Blank	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75673.D	1	08/28/14	WK	08/22/14	OP39514	MSF3325
Run #2							

Run #	Initial Volume	Final Volume
Run #1	970 ml	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	2.6	ug/l	
95-57-8	2-Chlorophenol	ND	5.2	0.32	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	0.85	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	0.41	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	0.58	ug/l	
51-28-5	2,4-Dinitrophenol	ND	21	2.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	2.0	ug/l	
95-48-7	2-Methylphenol	ND	10	0.23	ug/l	
	3&4-Methylphenol	ND	10	0.48	ug/l	
88-75-5	2-Nitrophenol	ND	10	3.0	ug/l	
100-02-7	4-Nitrophenol	ND	21	0.55	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.2	ug/l	
108-95-2	Phenol	ND	5.2	0.31	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	10	0.38	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	0.18	ug/l	
62-53-3	Aniline	ND	10	0.66	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.2	0.49	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.2	0.55	ug/l	
100-51-6	Benzyl Alcohol	ND	10	2.3	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.2	0.32	ug/l	
106-47-8	4-Chloroaniline	ND	10	0.57	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.2	0.30	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.2	0.36	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.2	0.34	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.2	0.26	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.2	0.25	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	0.47	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	0.31	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.2	0.28	ug/l	
132-64-9	Dibenzofuran	ND	2.1	0.27	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.2	0.18	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.2	0.29	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:	EQB-082014	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-2	Date Received:	08/21/14
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	5.2	0.21	ug/l	
131-11-3	Dimethyl phthalate	ND	5.2	0.35	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	0.34	ug/l	
118-74-1	Hexachlorobenzene	ND	5.2	0.30	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	1.3	ug/l	
67-72-1	Hexachloroethane	ND	5.2	0.31	ug/l	
78-59-1	Isophorone	ND	5.2	0.46	ug/l	
88-74-4	2-Nitroaniline	ND	10	0.41	ug/l	
99-09-2	3-Nitroaniline	ND	10	1.4	ug/l	
100-01-6	4-Nitroaniline	ND	10	2.2	ug/l	
98-95-3	Nitrobenzene	ND	5.2	0.40	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.2	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.2	0.42	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.2	0.20	ug/l	
110-86-1	Pyridine	ND	10	0.53	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	42%		15-110%
4165-62-2	Phenol-d5	26%		15-110%
118-79-6	2,4,6-Tribromophenol	77%		15-110%
4165-60-0	Nitrobenzene-d5	70%		30-130%
321-60-8	2-Fluorobiphenyl	75%		30-130%
1718-51-0	Terphenyl-d14	83%		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:	EQB-082014	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-2	Date Received:	08/21/14
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91350.D	1	08/25/14	WK	08/22/14	OP39515	MSI3404
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	0.14	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	77%		30-130%
321-60-8	2-Fluorobiphenyl	71%		30-130%
1718-51-0	Terphenyl-d14	100%		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

Client Sample ID: EQB-082014	Date Sampled: 08/20/14
Lab Sample ID: MC33045-2	Date Received: 08/21/14
Matrix: AQ - Equipment Blank	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ91629.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636
Run #2							

	Initial Volume	Final Volume
Run #1	36.2 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	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0059	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	69%		36-173%
460-00-4	Bromofluorobenzene (S)	76%		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

4.2
4

Report of Analysis

Client Sample ID: EQB-082014	Date Sampled: 08/20/14
Lab Sample ID: MC33045-2	Date Received: 08/21/14
Matrix: AQ - Equipment Blank	Percent Solids: n/a
Method: SW846 8015	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AB85646.D	1	08/28/14	AF	n/a	n/a	GAB4558
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	0.10	0.013	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
	2,3,4-Trifluorotoluene	94%		60-135%		

(a) The pH of the sample aliquot for VOA analysis was > 2 at time of analysis.

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

4.2
4

Report of Analysis

Client Sample ID:	TB-082014-HCL	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-3	Date Received:	08/21/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C	Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N89895.D	1	09/02/14	KD	n/a	n/a	MSN3329
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 ^a	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane ^a	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	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:	TB-082014-HCL	Date Sampled:	08/20/14
Lab Sample ID:	MC33045-3	Date Received:	08/21/14
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone ^a	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene ^a	ND	1.0	0.47	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	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: TB-082014-HCL		Date Sampled: 08/20/14
Lab Sample ID: MC33045-3		Date Received: 08/21/14
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL		

4.3
4

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		70-130%
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	89%		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.

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-082014-ST	Date Sampled: 08/20/14
Lab Sample ID: MC33045-4	Date Received: 08/21/14
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8011 SW846 8011	
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ91630.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636
Run #2							

	Initial Volume	Final Volume
Run #1	36.1 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	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0059	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	70%		36-173%
460-00-4	Bromofluorobenzene (S)	76%		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

4.4
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

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



Shell Oil Products Chain Of Custody Record

URS

LAB (LOCATION)
 XENCO
 CALSCIENCE
 OTHER Accutest Labs, 455 Technology Ctr W, Marlborough, MA 01752 (508-481-6200)
 SPL Lab Vendor #

Please Check Appropriate Box:
 ENV. SERVICES
 MOTIVA RETAIL
 SHELL RETAIL
 MOTIVA SD&M
 CONSULTANT
 LUBES
 SHELL PIPELINE
 OTHER

Print Bill To Contact Name: Bob Billman
 PO #
 INCIDENT # (ENV. SERVICES): 9 7 2 1 6 6 4 0
 SAP #
 CHECK IF NO INCIDENT # APPLIES
 DATE: 8/20/2014
 PAGE: 1 of 1

SAMPLING COMPANY: URS CORPORATION
 ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300; ST. LOUIS, MO 63110
 PROJECT CONTACT (Name/Title or PO# Report to): Elizabeth Kunkel, Bob Billman
 TELEPHONE: 314-429-0100 FAX: 314-429-0462
 BILL TO CONTACT (Name/Title): Bob Billman
 bob.billman@urs.com; elizabeth.kunkel@urs.com

DATE ADDRESS: Street and City: 900 South Central Ave, ROXANA, IL
 ZIP: 62451 STATE: IL
 PHONE NO.: FAX NO.:
 CONSULTANT PROJECT NO.: 4th St. Extension Well Install / 21562973.19200
 SAMPLER NAME(S) (Print) (See Add'l):
 LAB USE ONLY: MC33045

TURNAROUND TIME (CALENDAR DAYS):
 STANDARD (10 DAY) 5 DAYS 3 DAYS 2 DAYS 24 HOURS RESULTS NEEDED ON WEEKEND
 LA - RWQCB REPORT FORMAT LIST AGENCY:
 DELIVERABLES: LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4 OTHER (SPECIFY) EDD
 TEMPERATURE ON RECEIPT °C: Cooler #1: Cooler #2: Cooler #3:
 SPECIAL INSTRUCTIONS OR NOTES:
 * Please include "J" values on Reports.
 * Please provide sample receipt upon login.
 SHELL CONTRACT RATE APPLIES
 STATE REIMBURSEMENT RATE APPLIES
 EDD NOT NEEDED
 RECEIPT VERIFICATION REQUESTED
 PROVIDE LDDO DISK

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	PRESERVATIVE					NO. OF CONT.	REQUESTED ANALYSIS										FIELD NOTES: TEMPERATURE ON RECEIPT °C Container PID Readings or Laboratory Notes			
		DATE	TIME		HCL	HNO3	H2SO4	HNO2	OTHER		VOC 8011 SL	VOC 8200B SL+TICS "Top 15"	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO	PID (ppm)							
1	SVE44-082014 (30-36)	8/20/2014	1230	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X	3.5	
15	SVE44-082014 (30-36)-MS	8/20/2014	1230	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X		
15	SVE44-082014 (30-36)-MSD	8/20/2014	1230	S				2	5	7	X	X	X	X	X	X	X	X	X	X	X	X		
2	EQB-082014	8/20/2014	1600	W	2			2	2	6	X	X	X	X										
3	TB-082014 HCL	8/20/2014		W	2					2	X													
4	TB-082014 ST	8/20/2014		W	2					2	X													
																								11F, 10A4, 16CC 2MR,

Retrieved by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Date: 08/20/14	Time: 1800
Retrieved by: (Signature) FK	Received by: (Signature) <i>[Signature]</i>	Date: 9-21-14	Time: 930

1.40

MC33045: Chain of Custody
 Page 1 of 2

5.1
 5

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC33045 **Client:** URS **Immediate Client Services Action Required:** No
Date / Time Received: 8/21/2014 **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

Internal Sample Tracking Chronicle

Shell Oil

Job No: MC33045

URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Project No: 21562973.19200

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC33045-1 Collected: 20-AUG-14 12:30 By: EA Received: 21-AUG-14 By: AF SVE44-082014(30-36')						
MC33045-1	SM21 2540 B MOD.	22-AUG-14	HS			%SOL
MC33045-1	SW846 8270D BY SIM	22-AUG-14 18:15	WK	21-AUG-14	MEW	B8270SIMSL
MC33045-1	SW846 8260C	25-AUG-14 20:59	KD			V8260SL +
MC33045-1	SW846 8270D	26-AUG-14 00:05	WK	21-AUG-14	MEW	AB8270SL +
MC33045-1	SW846 8015	27-AUG-14 12:44	TB			V8015GRO
MC33045-1	SW846 8011	27-AUG-14 15:31	NK	26-AUG-14	AW	V8011SL
MC33045-2 Collected: 20-AUG-14 16:00 By: EA Received: 21-AUG-14 By: AF EQB-082014						
MC33045-2	SW846 8270D BY SIM	25-AUG-14 11:07	WK	22-AUG-14	PA	B8270SIMSL
MC33045-2	SW846 8015	28-AUG-14 10:38	AF			V8015GRO
MC33045-2	SW846 8270D	28-AUG-14 22:36	WK	22-AUG-14	PA	AB8270SL +
MC33045-2	SW846 8260C	02-SEP-14 14:37	KD			V8260SL +
MC33045-2	SW846 8011	03-SEP-14 20:44	NK	02-SEP-14	MT	V8011SL
MC33045-3 Collected: 20-AUG-14 00:00 By: EA Received: 21-AUG-14 By: AF TB-082014-HCL						
MC33045-3	SW846 8260C	02-SEP-14 14:08	KD			V8260SL +
MC33045-4 Collected: 20-AUG-14 00:00 By: EA Received: 21-AUG-14 By: AF TB-082014-ST						
MC33045-4	SW846 8011	03-SEP-14 21:03	NK	02-SEP-14	MT	V8011SL

SGS Accutest Internal Chain of Custody

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
 Received: 08/21/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC33045-1.1	Walk In Ref #9	Hamid Siamak	08/22/14 09:46	Retrieve from Storage
MC33045-1.1	Hamid Siamak	Walk In Ref #9	08/22/14 11:03	Return to Storage
MC33045-1.1	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.2	Walk In Ref #9	Aysia Wood	08/21/14 14:27	Retrieve from Storage
MC33045-1.2	Aysia Wood	Walk In Ref #9	08/21/14 21:05	Return to Storage
MC33045-1.2	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.3	Walk In Ref #9	Nicole Estey	08/26/14 14:26	Retrieve from Storage
MC33045-1.3	Nicole Estey	Walk In Ref #9	08/26/14 20:03	Return to Storage
MC33045-1.3	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.7	VOC Ref #10	Krysten Dufort	08/25/14 14:51	Retrieve from Storage
MC33045-1.7	Krysten Dufort	GCMSM	08/25/14 14:51	Load on Instrument
MC33045-1.7	GCMSM	Krysten Dufort	08/26/14 09:27	Unload from Instrument
MC33045-1.7	Krysten Dufort	VOC Ref #10	08/26/14 09:27	Return to Storage
MC33045-1.7	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.11	VOC Ref #10	Krysten Dufort	08/25/14 14:51	Retrieve from Storage
MC33045-1.11	Krysten Dufort	GCMSM	08/25/14 14:51	Load on Instrument
MC33045-1.11	GCMSM	Krysten Dufort	08/26/14 09:27	Unload from Instrument
MC33045-1.11	Krysten Dufort	VOC Ref #10	08/26/14 09:27	Return to Storage
MC33045-1.11	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.12	VOC Ref #10	Krysten Dufort	08/25/14 14:51	Retrieve from Storage
MC33045-1.12	Krysten Dufort	GCMSM	08/25/14 14:51	Load on Instrument
MC33045-1.12	GCMSM	Krysten Dufort	08/26/14 09:27	Unload from Instrument
MC33045-1.12	Krysten Dufort	VOC Ref #10	08/26/14 09:27	Return to Storage
MC33045-1.12	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.19	VOC Ref #10	Todd Bahosh	08/27/14 10:57	Retrieve from Storage
MC33045-1.19	Todd Bahosh	GCWX	08/27/14 10:57	Load on Instrument
MC33045-1.19	GCWX	Todd Bahosh	08/28/14 10:58	Unload from Instrument
MC33045-1.19	Todd Bahosh	VOC Ref #10	08/28/14 10:58	Return to Storage
MC33045-1.19	Scott Parsick		10/27/14 14:47	Disposed
MC33045-1.20	VOC Ref #10	Jaime Maslowski	08/21/14 14:54	Retrieve from Storage
MC33045-1.20	Jaime Maslowski	VOC Ref #10	08/22/14 10:18	Return to Storage
MC33045-1.20	Scott Parsick		10/27/14 14:47	Disposed
MC33045-2.2	Walk In Ref #22	Alireza Zeighami	08/22/14 07:41	Retrieve from Storage
MC33045-2.2	Alireza Zeighami		08/23/14 15:26	Depleted
MC33045-2.4	VOC Ref #2	Krysten Dufort	09/02/14 12:30	Retrieve from Storage

5.3
5

SGS Accutest Internal Chain of Custody

Job Number: MC33045
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL
Received: 08/21/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC33045-2.4	Krysten Dufort	GCMSN	09/02/14 12:30	Load on Instrument
MC33045-2.4	GCMSN	Krysten Dufort	09/03/14 10:19	Unload from Instrument
MC33045-2.4	Krysten Dufort	VOC Ref #2	09/03/14 10:19	Return to Storage
MC33045-2.4	Scott Parsick		10/27/14 14:47	Disposed
MC33045-2.5	VOC Ref #2	Marc Tahtamoni	09/02/14 14:46	Retrieve from Storage
MC33045-2.5	Scott Parsick		10/27/14 14:47	Disposed
MC33045-2.6	VOC Ref #2	Anthony Franciosa	08/28/14 08:51	Retrieve from Storage
MC33045-2.6	Anthony Franciosa	GCAB	08/28/14 08:51	Load on Instrument
MC33045-2.6	GCAB	Anthony Franciosa	08/29/14 07:58	Unload from Instrument
MC33045-2.6	Anthony Franciosa	VOC Ref #2	08/29/14 07:58	Return to Storage
MC33045-2.6	Scott Parsick		10/27/14 14:47	Disposed
MC33045-3.1	VOC Ref #2	Krysten Dufort	09/02/14 12:30	Retrieve from Storage
MC33045-3.1	Krysten Dufort	GCMSN	09/02/14 12:30	Load on Instrument
MC33045-3.1	GCMSN	Krysten Dufort	09/03/14 10:19	Unload from Instrument
MC33045-3.1	Krysten Dufort	VOC Ref #2	09/03/14 10:19	Return to Storage
MC33045-3.1	Scott Parsick		10/27/14 14:47	Disposed
MC33045-4.2	VOC Ref #2	Marc Tahtamoni	09/02/14 14:46	Retrieve from Storage
MC33045-4.2	Scott Parsick		10/27/14 14:47	Disposed

5.3
5

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: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2398-MB	M67790.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.8	ug/kg	
107-02-8	Acrolein	ND	25	8.8	ug/kg	
107-13-1	Acrylonitrile	ND	25	2.7	ug/kg	
71-43-2	Benzene	ND	0.50	0.34	ug/kg	
108-86-1	Bromobenzene	ND	5.0	0.25	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	0.35	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.21	ug/kg	
75-25-2	Bromoform	ND	2.0	0.35	ug/kg	
74-83-9	Bromomethane	ND	2.0	0.60	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.1	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	0.24	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	0.75	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	0.21	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	0.13	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.22	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.16	ug/kg	
75-00-3	Chloroethane	ND	5.0	0.76	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/kg	
67-66-3	Chloroform	ND	2.0	0.17	ug/kg	
74-87-3	Chloromethane	ND	5.0	0.56	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	0.19	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	0.27	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.32	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.0	0.21	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.30	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.35	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.0	0.27	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.0	0.32	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.0	0.41	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.0	0.45	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.0	0.42	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.42	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	0.33	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	0.56	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	0.26	ug/kg	

6.1.1
6

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2398-MB	M67790.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.23	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.26	ug/kg	
123-91-1	1,4-Dioxane	ND	25	20	ug/kg	
97-63-2	Ethyl methacrylate	ND	5.0	0.36	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.69	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	0.57	ug/kg	
591-78-6	2-Hexanone	ND	10	0.76	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.17	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	0.17	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.54	ug/kg	
74-95-3	Methylene bromide	ND	5.0	0.46	ug/kg	
75-09-2	Methylene chloride	ND	2.0	0.53	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.40	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	0.15	ug/kg	
100-42-5	Styrene	ND	5.0	0.17	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	0.40	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.39	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.31	ug/kg	
108-88-3	Toluene	ND	5.0	0.21	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.43	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.51	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.22	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.57	ug/kg	
79-01-6	Trichloroethene	ND	2.0	0.24	ug/kg	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.29	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	1.4	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.5	ug/kg	
108-05-4	Vinyl Acetate	ND	5.0	1.5	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	0.91	ug/kg	
	m,p-Xylene	ND	2.0	0.44	ug/kg	
95-47-6	o-Xylene	ND	2.0	0.28	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	0.22	ug/kg	

6.1.1
6

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2398-MB	M67790.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	90% 70-130%
2037-26-5	Toluene-D8	89% 70-130%
460-00-4	4-Bromofluorobenzene	83% 70-130%

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

6.1.1
6

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3329-MB	N89890.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.5	ug/l	
107-02-8	Acrolein	ND	25	6.0	ug/l	
107-13-1	Acrylonitrile	ND	5.0	2.1	ug/l	
71-43-2	Benzene	ND	0.50	0.32	ug/l	
108-86-1	Bromobenzene	ND	5.0	0.35	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.57	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.34	ug/l	
75-25-2	Bromoform	ND	1.0	0.61	ug/l	
74-83-9	Bromomethane	ND	2.0	1.8	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	2.5	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	1.1	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.42	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.39	ug/l	
75-15-0	Carbon disulfide	ND	5.0	0.46	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.53	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.43	ug/l	
75-00-3	Chloroethane	ND	2.0	0.53	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	3.3	ug/l	
67-66-3	Chloroform	ND	1.0	0.41	ug/l	
74-87-3	Chloromethane	ND	2.0	1.1	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.38	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.45	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.38	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.56	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.71	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.36	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.84	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	0.89	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.3	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	0.47	ug/l	

6.1.2
6

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3329-MB	N89890.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.42	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	11	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.7	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.6	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	0.35	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	0.99	ug/l	
74-95-3	Methylene bromide	ND	5.0	0.52	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.28	ug/l	
91-20-3	Naphthalene	ND	5.0	0.69	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.49	ug/l	
100-42-5	Styrene	ND	5.0	0.85	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.43	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.40	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.59	ug/l	
108-88-3	Toluene	ND	1.0	0.33	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.68	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.46	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.45	ug/l	
79-01-6	Trichloroethene	ND	0.40	0.40	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.55	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.81	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.32	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.38	ug/l	
108-05-4	Vinyl Acetate	ND	5.0	0.71	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.58	ug/l	
	m,p-Xylene	ND	1.0	0.93	ug/l	
95-47-6	o-Xylene	ND	1.0	0.36	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.36	ug/l	

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3329-MB	N89890.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	88% 70-130%
2037-26-5	Toluene-D8	91% 70-130%
460-00-4	4-Bromofluorobenzene	89% 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/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2398-BS	M67787.D	1	08/25/14	KD	n/a	n/a	MSM2398
MSM2398-BSD	M67788.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	52.4	105	54.4	109	2	70-130/25
107-02-8	Acrolein	250	202	81	154	62* a	28* a	70-130/25
107-13-1	Acrylonitrile	50	47.7	95	49.3	99	2	70-130/25
71-43-2	Benzene	50	44.7	89	51.8	104	15	70-130/25
108-86-1	Bromobenzene	50	46.5	93	53.8	108	15	70-130/25
74-97-5	Bromochloromethane	50	48.0	96	55.7	111	13	70-130/25
75-27-4	Bromodichloromethane	50	49.0	98	58.2	116	17	70-130/25
75-25-2	Bromoform	50	50.0	100	53.0	106	6	70-130/25
74-83-9	Bromomethane	50	49.2	98	39.7	79	23	70-130/25
78-93-3	2-Butanone (MEK)	50	49.9	100	50.2	100	1	70-130/25
104-51-8	n-Butylbenzene	50	43.4	87	49.9	100	14	70-130/25
135-98-8	sec-Butylbenzene	50	43.7	87	51.3	103	16	70-130/25
98-06-6	tert-Butylbenzene	50	43.9	88	51.9	104	17	70-130/25
75-15-0	Carbon disulfide	50	42.1	84	49.1	98	14	70-130/25
56-23-5	Carbon tetrachloride	50	46.0	92	52.8	106	14	70-130/25
108-90-7	Chlorobenzene	50	45.6	91	53.1	106	15	70-130/25
75-00-3	Chloroethane	50	54.4	109	45.3	91	20	70-130/25
110-75-8	2-Chloroethyl vinyl ether	50	58.6	117	46.6	93	23	10-160/25
67-66-3	Chloroform	50	45.3	91	53.6	107	15	70-130/25
74-87-3	Chloromethane	50	41.5	83	33.2	66* a	24	70-130/25
95-49-8	o-Chlorotoluene	50	45.2	90	51.4	103	13	70-130/25
106-43-4	p-Chlorotoluene	50	45.1	90	51.0	102	12	70-130/25
124-48-1	Dibromochloromethane	50	47.7	95	53.7	107	12	70-130/25
95-50-1	1,2-Dichlorobenzene	50	47.7	95	54.8	110	14	70-130/25
541-73-1	1,3-Dichlorobenzene	50	45.8	92	53.2	106	15	70-130/25
106-46-7	1,4-Dichlorobenzene	50	45.7	91	52.9	106	15	70-130/25
75-71-8	Dichlorodifluoromethane	50	29.7	59* b	23.1	46* b	26* a	70-130/25
75-34-3	1,1-Dichloroethane	50	45.0	90	53.2	106	15	70-130/25
107-06-2	1,2-Dichloroethane	50	46.9	94	55.2	110	16	70-130/25
75-35-4	1,1-Dichloroethene	50	42.5	85	50.3	101	15	70-130/25
156-59-2	cis-1,2-Dichloroethene	50	44.5	89	52.0	104	14	70-130/25
156-60-5	trans-1,2-Dichloroethene	50	42.8	86	50.4	101	15	70-130/25
78-87-5	1,2-Dichloropropane	50	44.7	89	53.3	107	18	70-130/25
142-28-9	1,3-Dichloropropane	50	45.0	90	50.6	101	12	70-130/25
594-20-7	2,2-Dichloropropane	50	45.8	92	53.7	107	14	70-130/25
563-58-6	1,1-Dichloropropene	50	40.5	81	49.2	98	19	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2398-BS	M67787.D	1	08/25/14	KD	n/a	n/a	MSM2398
MSM2398-BSD	M67788.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	46.1	92	54.9	110	17	70-130/25
10061-02-6	trans-1,3-Dichloropropene	50	50.9	102	60.0	120	16	70-130/25
123-91-1	1,4-Dioxane	125	125	100	138	110	10	70-130/25
97-63-2	Ethyl methacrylate	50	48.8	98	54.4	109	11	76-141/25
100-41-4	Ethylbenzene	50	43.7	87	50.7	101	15	70-130/25
87-68-3	Hexachlorobutadiene	50	42.4	85	48.7	97	14	70-130/25
591-78-6	2-Hexanone	50	43.7	87	45.2	90	3	70-130/25
98-82-8	Isopropylbenzene	50	45.4	91	55.3	111	20	70-130/25
99-87-6	p-Isopropyltoluene	50	43.7	87	51.6	103	17	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	47.1	94	53.3	107	11	70-130/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	46.5	93	49.4	99	6	70-130/25
74-95-3	Methylene bromide	50	47.1	94	53.9	108	13	70-130/25
75-09-2	Methylene chloride	50	44.0	88	50.4	101	12	70-130/25
91-20-3	Naphthalene	50	50.3	101	54.8	110	9	70-130/25
103-65-1	n-Propylbenzene	50	44.1	88	51.5	103	15	70-130/25
100-42-5	Styrene	50	47.9	96	54.7	109	13	70-130/25
630-20-6	1,1,1,2-Tetrachloroethane	50	45.5	91	54.8	110	19	70-130/25
79-34-5	1,1,2,2-Tetrachloroethane	50	47.9	96	52.0	104	8	70-130/25
127-18-4	Tetrachloroethene	50	42.3	85	50.4	101	17	70-130/25
108-88-3	Toluene	50	44.3	89	53.7	107	19	70-130/25
87-61-6	1,2,3-Trichlorobenzene	50	48.1	96	55.4	111	14	70-130/25
120-82-1	1,2,4-Trichlorobenzene	50	47.4	95	54.5	109	14	70-130/25
71-55-6	1,1,1-Trichloroethane	50	44.7	89	53.2	106	16	70-130/25
79-00-5	1,1,2-Trichloroethane	50	46.9	94	55.0	110	16	70-130/25
79-01-6	Trichloroethene	50	43.0	86	51.6	103	18	70-130/25
75-69-4	Trichlorofluoromethane	50	45.9	92	36.8	74	24	70-130/25
96-18-4	1,2,3-Trichloropropane	50	46.8	94	51.4	103	9	70-130/25
95-63-6	1,2,4-Trimethylbenzene	50	45.7	91	53.7	107	16	70-130/25
108-67-8	1,3,5-Trimethylbenzene	50	44.0	88	50.2	100	13	70-130/25
108-05-4	Vinyl Acetate	50	36.5	73	39.8	80	7	70-130/25
75-01-4	Vinyl chloride	50	44.9	90	35.3	71	25	70-130/25
	m,p-Xylene	100	87.5	88	104	104	17	70-130/25
95-47-6	o-Xylene	50	45.7	91	54.6	109	18	70-130/25
1330-20-7	Xylene (total)	150	133	89	159	106	18	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2398-BS	M67787.D	1	08/25/14	KD	n/a	n/a	MSM2398
MSM2398-BSD	M67788.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	90%	90%	70-130%
2037-26-5	Toluene-D8	86%	88%	70-130%
460-00-4	4-Bromofluorobenzene	87%	85%	70-130%

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

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3329-BS	N89887.D	1	09/02/14	KD	n/a	n/a	MSN3329
MSN3329-BSD	N89888.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	34.9	70	32.5	65* a	7	70-130/25
107-02-8	Acrolein	250	250	100	251	100	0	70-130/25
107-13-1	Acrylonitrile	50	48.9	98	48.8	98	0	70-130/25
71-43-2	Benzene	50	43.4	87	44.9	90	3	70-130/25
108-86-1	Bromobenzene	50	45.0	90	46.1	92	2	70-130/25
74-97-5	Bromochloromethane	50	46.9	94	46.9	94	0	70-130/25
75-27-4	Bromodichloromethane	50	48.1	96	49.1	98	2	70-130/25
75-25-2	Bromoform	50	46.8	94	49.6	99	6	70-130/25
74-83-9	Bromomethane	50	33.8	68* a	35.4	71	5	70-130/25
78-93-3	2-Butanone (MEK)	50	38.6	77	41.0	82	6	70-130/25
104-51-8	n-Butylbenzene	50	48.2	96	49.3	99	2	70-130/25
135-98-8	sec-Butylbenzene	50	44.9	90	45.3	91	1	70-130/25
98-06-6	tert-Butylbenzene	50	43.9	88	44.4	89	1	70-130/25
75-15-0	Carbon disulfide	50	48.5	97	49.4	99	2	70-130/25
56-23-5	Carbon tetrachloride	50	49.7	99	49.8	100	0	70-130/25
108-90-7	Chlorobenzene	50	43.0	86	45.4	91	5	70-130/25
75-00-3	Chloroethane	50	47.8	96	49.8	100	4	70-130/25
110-75-8	2-Chloroethyl vinyl ether	50	45.8	92	46.4	93	1	70-130/25
67-66-3	Chloroform	50	42.7	85	42.9	86	0	70-130/25
74-87-3	Chloromethane	50	39.6	79	40.8	82	3	70-130/25
95-49-8	o-Chlorotoluene	50	44.6	89	44.5	89	0	70-130/25
106-43-4	p-Chlorotoluene	50	44.9	90	45.3	91	1	70-130/25
124-48-1	Dibromochloromethane	50	48.9	98	51.2	102	5	70-130/25
95-50-1	1,2-Dichlorobenzene	50	48.0	96	47.6	95	1	70-130/25
541-73-1	1,3-Dichlorobenzene	50	45.1	90	45.2	90	0	70-130/25
106-46-7	1,4-Dichlorobenzene	50	45.1	90	46.1	92	2	70-130/25
75-71-8	Dichlorodifluoromethane	50	37.6	75	37.2	74	1	70-130/25
75-34-3	1,1-Dichloroethane	50	46.3	93	46.5	93	0	70-130/25
107-06-2	1,2-Dichloroethane	50	44.4	89	44.2	88	0	70-130/25
75-35-4	1,1-Dichloroethene	50	46.1	92	46.7	93	1	70-130/25
156-59-2	cis-1,2-Dichloroethene	50	42.7	85	43.4	87	2	70-130/25
156-60-5	trans-1,2-Dichloroethene	50	44.2	88	44.9	90	2	70-130/25
78-87-5	1,2-Dichloropropane	50	46.6	93	47.2	94	1	70-130/25
142-28-9	1,3-Dichloropropane	50	43.3	87	45.1	90	4	70-130/25
594-20-7	2,2-Dichloropropane	50	54.8	110	54.6	109	0	70-130/25
563-58-6	1,1-Dichloropropene	50	44.8	90	45.0	90	0	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3329-BS	N89887.D	1	09/02/14	KD	n/a	n/a	MSN3329
MSN3329-BSD	N89888.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	46.8	94	47.9	96	2	70-130/25
10061-02-6	trans-1,3-Dichloropropene	50	54.1	108	55.6	111	3	70-130/25
123-91-1	1,4-Dioxane	125	146	117	128	102	13	70-130/25
97-63-2	Ethyl methacrylate	50	51.2	102	53.2	106	4	77-137/25
100-41-4	Ethylbenzene	50	42.9	86	44.7	89	4	70-130/25
87-68-3	Hexachlorobutadiene	50	41.8	84	42.9	86	3	70-130/25
591-78-6	2-Hexanone	50	32.0	64* a	33.0	66* a	3	70-130/25
98-82-8	Isopropylbenzene	50	45.6	91	45.4	91	0	70-130/25
99-87-6	p-Isopropyltoluene	50	45.9	92	46.8	94	2	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	51.5	103	53.3	107	3	70-130/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	44.4	89	45.5	91	2	70-130/25
74-95-3	Methylene bromide	50	46.1	92	47.1	94	2	70-130/25
75-09-2	Methylene chloride	50	42.6	85	43.4	87	2	70-130/25
91-20-3	Naphthalene	50	49.6	99	54.7	109	10	70-130/25
103-65-1	n-Propylbenzene	50	45.6	91	46.0	92	1	70-130/25
100-42-5	Styrene	50	45.1	90	47.5	95	5	70-130/25
630-20-6	1,1,1,2-Tetrachloroethane	50	43.1	86	45.2	90	5	70-130/25
79-34-5	1,1,2,2-Tetrachloroethane	50	46.4	93	47.7	95	3	70-130/25
127-18-4	Tetrachloroethene	50	43.8	88	46.0	92	5	70-130/25
108-88-3	Toluene	50	45.2	90	45.8	92	1	70-130/25
87-61-6	1,2,3-Trichlorobenzene	50	47.0	94	50.4	101	7	70-130/25
120-82-1	1,2,4-Trichlorobenzene	50	45.4	91	47.1	94	4	70-130/25
71-55-6	1,1,1-Trichloroethane	50	45.1	90	45.3	91	0	70-130/25
79-00-5	1,1,2-Trichloroethane	50	45.1	90	46.7	93	3	70-130/25
79-01-6	Trichloroethene	50	41.0	82	38.6	77	6	70-130/25
75-69-4	Trichlorofluoromethane	50	42.0	84	40.7	81	3	70-130/25
96-18-4	1,2,3-Trichloropropane	50	48.9	98	49.7	99	2	70-130/25
95-63-6	1,2,4-Trimethylbenzene	50	45.7	91	45.9	92	0	70-130/25
108-67-8	1,3,5-Trimethylbenzene	50	43.2	86	43.1	86	0	70-130/25
108-05-4	Vinyl Acetate	50	43.7	87	45.5	91	4	70-130/25
75-01-4	Vinyl chloride	50	36.5	73	36.4	73	0	70-130/25
	m,p-Xylene	100	85.1	85	89.0	89	4	70-130/25
95-47-6	o-Xylene	50	42.8	86	44.9	90	5	70-130/25
1330-20-7	Xylene (total)	150	128	85	134	89	5	70-130/25

* = Outside of Control Limits.

6.2.2
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Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3329-BS	N89887.D	1	09/02/14	KD	n/a	n/a	MSN3329
MSN3329-BSD	N89888.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	90%	88%	70-130%
2037-26-5	Toluene-D8	92%	92%	70-130%
460-00-4	4-Bromofluorobenzene	86%	84%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33045-1MS	M67805.D	1	08/25/14	KD	n/a	n/a	MSM2398
MC33045-1MSD	M67806.D	1	08/25/14	KD	n/a	n/a	MSM2398
MC33045-1	M67804.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Compound	MC33045-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	57	33.0	58* a	59.1	30.9	52* a	7	70-130/30
107-02-8	Acrolein	ND	285	128	45* a	295	115	39* a	11	70-130/30
107-13-1	Acrylonitrile	ND	57	59.5	104	59.1	57.2	97	4	70-130/30
71-43-2	Benzene	0.85	57	48.4	83	59.1	47.3	79	2	70-130/30
108-86-1	Bromobenzene	ND	57	43.3	76	59.1	43.8	74	1	70-130/30
74-97-5	Bromochloromethane	ND	57	55.1	97	59.1	55.4	94	1	70-130/30
75-27-4	Bromodichloromethane	ND	57	53.5	94	59.1	54.0	91	1	70-130/30
75-25-2	Bromoform	ND	57	52.0	91	59.1	53.2	90	2	70-130/30
74-83-9	Bromomethane	ND	57	46.4	81	59.1	40.8	69* a	13	70-130/30
78-93-3	2-Butanone (MEK)	ND	57	42.9	75	59.1	45.0	76	5	70-130/30
104-51-8	n-Butylbenzene	ND	57	33.6	59* a	59.1	37.3	63* a	10	70-130/30
135-98-8	sec-Butylbenzene	ND	57	36.0	63* a	59.1	39.7	67* a	10	70-130/30
98-06-6	tert-Butylbenzene	ND	57	36.9	65* a	59.1	40.4	68* a	9	70-130/30
75-15-0	Carbon disulfide	ND	57	51.6	91	59.1	46.9	79	10	70-130/30
56-23-5	Carbon tetrachloride	ND	57	51.8	91	59.1	47.3	80	9	70-130/30
108-90-7	Chlorobenzene	ND	57	45.1	79	59.1	45.0	76	0	70-130/30
75-00-3	Chloroethane	ND	57	53.3	94	59.1	47.2	80	12	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	57	ND	0* a	59.1	ND	0* a	nc	10-160/30
67-66-3	Chloroform	ND	57	51.3	90	59.1	51.1	86	0	70-130/30
74-87-3	Chloromethane	ND	57	42.2	74	59.1	36.3	61* a	15	70-130/30
95-49-8	o-Chlorotoluene	ND	57	38.8	68* a	59.1	41.0	69* a	6	70-130/30
106-43-4	p-Chlorotoluene	ND	57	38.4	67* a	59.1	39.7	67* a	3	70-130/30
124-48-1	Dibromochloromethane	ND	57	49.8	87	59.1	51.4	87	3	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	57	41.0	72	59.1	43.1	73	5	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	57	38.8	68* a	59.1	40.8	69* a	5	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	57	38.8	68* a	59.1	40.1	68* a	3	70-130/30
75-71-8	Dichlorodifluoromethane	ND	57	27.9	49* a	59.1	23.9	40* a	15	70-130/30
75-34-3	1,1-Dichloroethane	ND	57	52.1	91	59.1	51.2	87	2	70-130/30
107-06-2	1,2-Dichloroethane	ND	57	53.5	94	59.1	53.0	90	1	70-130/30
75-35-4	1,1-Dichloroethene	ND	57	52.6	92	59.1	48.0	81	9	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	57	50.2	88	59.1	49.8	84	1	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	57	49.8	87	59.1	47.2	80	5	70-130/30
78-87-5	1,2-Dichloropropane	ND	57	49.4	87	59.1	49.1	83	1	70-130/30
142-28-9	1,3-Dichloropropane	ND	57	48.8	86	59.1	49.8	84	2	70-130/30
594-20-7	2,2-Dichloropropane	ND	57	50.2	88	59.1	49.2	83	2	70-130/30
563-58-6	1,1-Dichloropropene	ND	57	46.9	82	59.1	43.9	74	7	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33045-1MS	M67805.D	1	08/25/14	KD	n/a	n/a	MSM2398
MC33045-1MSD	M67806.D	1	08/25/14	KD	n/a	n/a	MSM2398
MC33045-1	M67804.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Compound	MC33045-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
10061-01-5	cis-1,3-Dichloropropene	ND		57	49.0	86	59.1	48.8	83	0	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		57	55.1	97	59.1	54.6	92	1	70-130/30
123-91-1	1,4-Dioxane	ND		143	156	109	148	168	114	7	70-130/30
97-63-2	Ethyl methacrylate	ND		57	54.3	95	59.1	58.8	100	8	41-160/30
100-41-4	Ethylbenzene	1.6	J	57	43.7	74	59.1	44.5	73	2	70-130/30
87-68-3	Hexachlorobutadiene	ND		57	29.3	51* a	59.1	33.4	57* a	13	70-130/30
591-78-6	2-Hexanone	ND		57	38.3	67* a	59.1	44.9	76	16	70-130/30
98-82-8	Isopropylbenzene	ND		57	40.7	71	59.1	43.1	73	6	70-130/30
99-87-6	p-Isopropyltoluene	ND		57	35.5	62* a	59.1	39.2	66* a	10	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		57	51.1	90	59.1	56.3	95	10	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		57	58.8	103	59.1	61.9	105	5	70-130/30
74-95-3	Methylene bromide	ND		57	52.9	93	59.1	53.3	90	1	70-130/30
75-09-2	Methylene chloride	ND		57	49.8	87	59.1	48.1	81	3	70-130/30
91-20-3	Naphthalene	ND		57	45.2	79	59.1	49.8	84	10	70-130/30
103-65-1	n-Propylbenzene	ND		57	38.7	68* a	59.1	41.1	70	6	70-130/30
100-42-5	Styrene	ND		57	43.5	76	59.1	44.1	75	1	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		57	46.0	81	59.1	46.4	79	1	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		57	51.0	89	59.1	52.2	88	2	70-130/30
127-18-4	Tetrachloroethene	ND		57	41.4	73	59.1	41.7	71	1	70-130/30
108-88-3	Toluene	2.2	J	57	50.4	85	59.1	48.8	79	3	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		57	32.9	58* a	59.1	38.0	64* a	14	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		57	30.7	54* a	59.1	34.6	59* a	12	70-130/30
71-55-6	1,1,1-Trichloroethane	ND		57	53.4	94	59.1	50.5	85	6	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		57	54.8	96	59.1	55.0	93	0	70-130/30
79-01-6	Trichloroethene	ND		57	47.5	83	59.1	45.1	76	5	70-130/30
75-69-4	Trichlorofluoromethane	ND		57	43.7	77	59.1	39.4	67* a	10	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		57	50.8	89	59.1	52.6	89	3	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		57	38.6	68* a	59.1	42.2	71	9	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		57	36.3	64* a	59.1	39.3	67* a	8	70-130/30
108-05-4	Vinyl Acetate	ND		57	26.1	46* a	59.1	27.3	46* a	4	70-130/30
75-01-4	Vinyl chloride	ND		57	43.4	76	59.1	38.3	65* a	12	70-130/30
	m,p-Xylene	0.77	J	114	86.7	75	118	87.6	73	1	70-130/30
95-47-6	o-Xylene	ND		57	45.0	79	59.1	45.3	77	1	70-130/30
1330-20-7	Xylene (total)	1.1	J	171	132	77	177	133	74	1	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33045-1MS	M67805.D	1	08/25/14	KD	n/a	n/a	MSM2398
MC33045-1MSD	M67806.D	1	08/25/14	KD	n/a	n/a	MSM2398
MC33045-1	M67804.D	1	08/25/14	KD	n/a	n/a	MSM2398

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-1

CAS No.	Surrogate Recoveries	MS	MSD	MC33045-1	Limits
1868-53-7	Dibromofluoromethane	102%	102%	102%	70-130%
2037-26-5	Toluene-D8	90%	89%	90%	70-130%
460-00-4	4-Bromofluorobenzene	84%	85%	84%	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: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33209-3MS	N89911.D	5	09/02/14	KD	n/a	n/a	MSN3329
MC33209-3MSD	N89912.D	5	09/02/14	KD	n/a	n/a	MSN3329
MC33209-3	N89898.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Compound	MC33209-3 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND	250	99.4	40* a	250	94.1	38* a	5	70-130/30
107-02-8	Acrolein	ND	1250	1250	100	1250	1250	100	0	70-130/30
107-13-1	Acrylonitrile	ND	250	252	101	250	249	100	1	70-130/30
71-43-2	Benzene	ND	250	230	92	250	234	94	2	70-130/30
108-86-1	Bromobenzene	ND	250	236	94	250	234	94	1	70-130/30
74-97-5	Bromochloromethane	ND	250	259	104	250	252	101	3	70-130/30
75-27-4	Bromodichloromethane	ND	250	257	103	250	257	103	0	70-130/30
75-25-2	Bromoform	ND	250	241	96	250	239	96	1	70-130/30
74-83-9	Bromomethane	ND	250	186	74	250	204	82	9	70-130/30
78-93-3	2-Butanone (MEK)	ND	250	175	70	250	164	66* a	6	70-130/30
104-51-8	n-Butylbenzene	ND	250	239	96	250	236	94	1	70-130/30
135-98-8	sec-Butylbenzene	ND	250	221	88	250	218	87	1	70-130/30
98-06-6	tert-Butylbenzene	ND	250	222	89	250	218	87	2	70-130/30
75-15-0	Carbon disulfide	ND	250	255	102	250	258	103	1	70-130/30
56-23-5	Carbon tetrachloride	ND	250	248	99	250	255	102	3	70-130/30
108-90-7	Chlorobenzene	ND	250	226	90	250	230	92	2	70-130/30
75-00-3	Chloroethane	ND	250	249	100	250	248	99	0	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND	250	241	96	250	242	97	0	70-130/30
67-66-3	Chloroform	ND	250	232	93	250	234	94	1	70-130/30
74-87-3	Chloromethane	ND	250	202	81	250	210	84	4	70-130/30
95-49-8	o-Chlorotoluene	ND	250	229	92	250	229	92	0	70-130/30
106-43-4	p-Chlorotoluene	ND	250	229	92	250	230	92	0	70-130/30
124-48-1	Dibromochloromethane	ND	250	260	104	250	259	104	0	70-130/30
95-50-1	1,2-Dichlorobenzene	ND	250	246	98	250	244	98	1	70-130/30
541-73-1	1,3-Dichlorobenzene	ND	250	231	92	250	231	92	0	70-130/30
106-46-7	1,4-Dichlorobenzene	ND	250	229	92	250	231	92	1	70-130/30
75-71-8	Dichlorodifluoromethane	ND	250	187	75	250	184	74	2	70-130/30
75-34-3	1,1-Dichloroethane	1.0	250	251	100	250	253	101	1	70-130/30
107-06-2	1,2-Dichloroethane	ND	250	234	94	250	233	93	0	70-130/30
75-35-4	1,1-Dichloroethene	ND	250	233	93	250	240	96	3	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND	250	233	93	250	235	94	1	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND	250	236	94	250	241	96	2	70-130/30
78-87-5	1,2-Dichloropropane	ND	250	246	98	250	247	99	0	70-130/30
142-28-9	1,3-Dichloropropane	ND	250	224	90	250	225	90	0	70-130/30
594-20-7	2,2-Dichloropropane	ND	250	251	100	250	254	102	1	70-130/30
563-58-6	1,1-Dichloropropene	ND	250	224	90	250	228	91	2	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33209-3MS	N89911.D	5	09/02/14	KD	n/a	n/a	MSN3329
MC33209-3MSD	N89912.D	5	09/02/14	KD	n/a	n/a	MSN3329
MC33209-3	N89898.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Compound	MC33209-3 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	250	238	95	250	240	96	1	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND	250	277	111	250	277	111	0	70-130/30
123-91-1	1,4-Dioxane	ND	625	650	104	625	669	107	3	70-130/30
97-63-2	Ethyl methacrylate	ND	250	260	104	250	259	104	0	72-139/30
100-41-4	Ethylbenzene	ND	250	227	91	250	226	90	0	70-130/30
87-68-3	Hexachlorobutadiene	ND	250	196	78	250	197	79	1	70-130/30
591-78-6	2-Hexanone	ND	250	136	54* a	250	132	53* a	3	70-130/30
98-82-8	Isopropylbenzene	ND	250	226	90	250	226	90	0	70-130/30
99-87-6	p-Isopropyltoluene	ND	250	230	92	250	228	91	1	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND	250	234	94	250	237	95	1	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	250	232	93	250	220	88	5	70-130/30
74-95-3	Methylene bromide	ND	250	240	96	250	239	96	0	70-130/30
75-09-2	Methylene chloride	ND	250	230	92	250	231	92	0	70-130/30
91-20-3	Naphthalene	ND	250	235	94	250	245	98	4	70-130/30
103-65-1	n-Propylbenzene	ND	250	231	92	250	229	92	1	70-130/30
100-42-5	Styrene	ND	250	239	96	250	241	96	1	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND	250	230	92	250	235	94	2	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	250	233	93	250	231	92	1	70-130/30
127-18-4	Tetrachloroethene	ND	250	221	88	250	226	90	2	70-130/30
108-88-3	Toluene	ND	250	241	96	250	240	96	0	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND	250	226	90	250	229	92	1	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND	250	220	88	250	222	89	1	70-130/30
71-55-6	1,1,1-Trichloroethane	ND	250	234	94	250	237	95	1	70-130/30
79-00-5	1,1,2-Trichloroethane	ND	250	239	96	250	233	93	3	70-130/30
79-01-6	Trichloroethene	ND	250	201	80	250	206	82	2	70-130/30
75-69-4	Trichlorofluoromethane	ND	250	214	86	250	214	86	0	70-130/30
96-18-4	1,2,3-Trichloropropane	ND	250	240	96	250	237	95	1	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND	250	230	92	250	230	92	0	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND	250	216	86	250	214	86	1	70-130/30
108-05-4	Vinyl Acetate	ND	250	219	88	250	221	88	1	70-130/30
75-01-4	Vinyl chloride	ND	250	182	73	250	184	74	1	70-130/30
	m,p-Xylene	ND	500	451	90	500	454	91	1	70-130/30
95-47-6	o-Xylene	ND	250	229	92	250	229	92	0	70-130/30
1330-20-7	Xylene (total)	ND	750	680	91	750	683	91	0	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33209-3MS	N89911.D	5	09/02/14	KD	n/a	n/a	MSN3329
MC33209-3MSD	N89912.D	5	09/02/14	KD	n/a	n/a	MSN3329
MC33209-3	N89898.D	1	09/02/14	KD	n/a	n/a	MSN3329

The QC reported here applies to the following samples:

Method: SW846 8260C

MC33045-2, MC33045-3

CAS No.	Surrogate Recoveries	MS	MSD	MC33209-3	Limits
1868-53-7	Dibromofluoromethane	92%	91%	92%	70-130%
2037-26-5	Toluene-D8	93%	93%	92%	70-130%
460-00-4	4-Bromofluorobenzene	85%	85%	89%	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: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSM2398-CC2378	Injection Date:	08/25/14
Lab File ID:	M67787.D	Injection Time:	12:37
Instrument ID:	GCMSM	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	240871	9.35	392916	10.22	169370	13.51	223130	16.07	87001	6.84
Upper Limit ^a	481742	9.85	785832	10.72	338740	14.01	446260	16.57	174002	7.34
Lower Limit ^b	120436	8.85	196458	9.72	84685	13.01	111565	15.57	43501	6.34

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSM2398-BS	244570	9.35	392916	10.22	169370	13.51	223130	16.07	87001	6.84
MSM2398-BSD	252970	9.34	403445	10.22	176041	13.51	229592	16.07	86714	6.86
MSM2398-MB	250900	9.35	397203	10.22	167616	13.50	233384	16.07	86667	6.86
ZZZZZZ	223175	9.35	367495	10.22	158975	13.51	203639	16.07	137475	6.84
ZZZZZZ	252718	9.34	402530	10.22	172495	13.51	227342	16.07	91412	6.85
ZZZZZZ	252055	9.35	402902	10.22	173712	13.50	236297	16.07	92423	6.85
ZZZZZZ	268726	9.35	427639	10.23	180693	13.50	247457	16.07	93396	6.86
ZZZZZZ	253536	9.35	407234	10.23	176118	13.50	233933	16.07	93864	6.85
ZZZZZZ	248034	9.35	395707	10.22	169972	13.51	228974	16.07	92842	6.84
ZZZZZZ	250556	9.34	404786	10.23	176995	13.51	234406	16.07	87859	6.85
ZZZZZZ	246295	9.35	394685	10.22	169609	13.50	235309	16.07	87865	6.85
ZZZZZZ	246748	9.34	399199	10.22	173443	13.50	234740	16.07	84151	6.85
ZZZZZZ	232786	9.35	385004	10.22	169150	13.50	246045	16.07	161340	6.84
ZZZZZZ	255059	9.35	418317	10.22	185835	13.51	256138	16.07	158896	6.84
ZZZZZZ	240380	9.34	388861	10.22	173991	13.51	252902	16.07	154802	6.85
ZZZZZZ	260719	9.35	430778	10.23	182027	13.51	247783	16.07	173771	6.86
MC33045-1	244477	9.35	400688	10.23	180387	13.51	255721	16.07	154375	6.84
MC33045-1MS	242067	9.35	406089	10.23	185386	13.50	257364	16.07	162917	6.85
MC33045-1MSD	256203	9.35	433544	10.23	193191	13.51	265571	16.07	165200	6.86
ZZZZZZ	227765	9.35	361575	10.22	155941	13.51	216102	16.07	86365	6.84
ZZZZZZ	231691	9.35	373650	10.22	167261	13.51	226900	16.07	90913	6.86

- 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: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSN3329-CC3314	Injection Date:	09/02/14
Lab File ID:	N89887.D	Injection Time:	10:16
Instrument ID:	GCMSN	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	279331	9.12	424735	9.99	244469	13.24	181239	15.80	124653	6.70
Upper Limit ^a	558662	9.62	849470	10.49	488938	13.74	362478	16.30	249306	7.20
Lower Limit ^b	139666	8.62	212368	9.49	122235	12.74	90620	15.30	62327	6.20

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSN3329-BS	279331	9.12	424735	9.99	244469	13.24	181239	15.80	124653	6.70
MSN3329-BSD	300512	9.12	454308	9.99	256627	13.24	195886	15.80	134903	6.70
MSN3329-MB	266333	9.12	400460	9.99	211409	13.24	154306	15.80	131566	6.71
ZZZZZZ	252274	9.12	382658	9.99	206994	13.24	150629	15.80	127535	6.71
ZZZZZZ	244235	9.12	376433	9.99	202489	13.24	144955	15.80	130623	6.71
ZZZZZZ	237888	9.12	362038	9.99	197806	13.24	142945	15.80	115324	6.71
ZZZZZZ	231332	9.12	358143	9.99	192571	13.24	138513	15.80	123093	6.71
MC33045-3	226299	9.12	339750	9.99	188949	13.24	134772	15.80	119483	6.71
MC33045-2	220366	9.12	338766	9.99	185163	13.24	133551	15.80	118047	6.71
ZZZZZZ	219722	9.12	342533	9.99	188564	13.24	131637	15.80	114719	6.71
MC33209-3	218411	9.12	333822	9.99	182716	13.24	129014	15.80	107849	6.71
ZZZZZZ	217544	9.12	338416	9.99	184505	13.24	130467	15.80	102913	6.71
ZZZZZZ	210315	9.12	319948	9.99	177589	13.24	127427	15.80	103644	6.72
ZZZZZZ	211989	9.12	323103	9.99	177140	13.24	125721	15.80	103567	6.71
ZZZZZZ	207660	9.12	323001	9.99	179710	13.24	129486	15.80	107063	6.71
ZZZZZZ	215267	9.12	341968	9.99	235569	13.24	193135	15.80	121485	6.70
ZZZZZZ	237571	9.12	360581	9.99	241240	13.24	177481	15.80	104218	6.69
ZZZZZZ	248829	9.12	376308	9.99	205836	13.24	146290	15.80	118990	6.71
MC33209-3MS	250783	9.12	387649	9.99	226243	13.24	173172	15.80	105526	6.70
MC33209-3MSD	267448	9.12	412457	9.99	238861	13.24	183196	15.80	112318	6.69

- 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: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, 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
MC33045-2	N89896.D	92	92	90
MC33045-3	N89895.D	90	93	89
MC33209-3MS	N89911.D	92	93	85
MC33209-3MSD	N89912.D	91	93	85
MSN3329-BS	N89887.D	90	92	86
MSN3329-BSD	N89888.D	88	92	84
MSN3329-MB	N89890.D	88	91	89

Surrogate Compounds **Recovery Limits**

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

6.5.1

6

Volatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8260C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC33045-1	M67804.D	102	90	84
MC33045-1MS	M67805.D	102	90	84
MC33045-1MSD	M67806.D	102	89	85
MSM2398-BS	M67787.D	90	86	87
MSM2398-BSD	M67788.D	90	88	85
MSM2398-MB	M67790.D	90	89	83

Surrogate Compounds **Recovery Limits**

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

6.5.2
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: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39507-MB	R39553.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	480	60	ug/kg	
95-57-8	2-Chlorophenol	ND	240	11	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	480	12	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	480	14	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	480	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	960	120	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	480	60	ug/kg	
95-48-7	2-Methylphenol	ND	480	19	ug/kg	
	3&4-Methylphenol	ND	480	23	ug/kg	
88-75-5	2-Nitrophenol	ND	480	13	ug/kg	
100-02-7	4-Nitrophenol	ND	960	90	ug/kg	
87-86-5	Pentachlorophenol	ND	480	34	ug/kg	
108-95-2	Phenol	ND	240	14	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	480	12	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	480	12	ug/kg	
62-53-3	Aniline	ND	480	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	240	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	240	9.8	ug/kg	
100-51-6	Benzyl Alcohol	ND	480	24	ug/kg	
91-58-7	2-Chloronaphthalene	ND	240	13	ug/kg	
106-47-8	4-Chloroaniline	ND	480	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	240	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	240	15	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	240	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	240	15	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	240	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	480	32	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	480	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	240	24	ug/kg	
132-64-9	Dibenzofuran	ND	96	13	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	240	26	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	240	7.5	ug/kg	
84-66-2	Diethyl phthalate	ND	240	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	240	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	240	8.9	ug/kg	
118-74-1	Hexachlorobenzene	ND	240	15	ug/kg	

7.1.1
7

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39507-MB	R39553.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	480	120	ug/kg	
67-72-1	Hexachloroethane	ND	240	12	ug/kg	
78-59-1	Isophorone	ND	240	11	ug/kg	
88-74-4	2-Nitroaniline	ND	480	12	ug/kg	
99-09-2	3-Nitroaniline	ND	480	26	ug/kg	
100-01-6	4-Nitroaniline	ND	480	12	ug/kg	
98-95-3	Nitrobenzene	ND	240	13	ug/kg	
62-75-9	n-Nitrosodimethylamine	ND	240	11	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	240	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	15	ug/kg	
110-86-1	Pyridine	ND	480	24	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	69% 30-130%
4165-62-2	Phenol-d5	58% 30-130%
118-79-6	2,4,6-Tribromophenol	60% 30-130%
4165-60-0	Nitrobenzene-d5	64% 30-130%
321-60-8	2-Fluorobiphenyl	71% 30-130%
1718-51-0	Terphenyl-d14	85% 30-130%

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

7.1.1
7

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39514-MB	F75568.D	1	08/26/14	WK	08/22/14	OP39514	MSF3321

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	2.5	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	0.31	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	0.83	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	0.40	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	0.56	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	2.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	1.9	ug/l	
95-48-7	2-Methylphenol	ND	10	0.23	ug/l	
	3&4-Methylphenol	ND	10	0.47	ug/l	
88-75-5	2-Nitrophenol	ND	10	2.9	ug/l	
100-02-7	4-Nitrophenol	ND	20	0.53	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.1	ug/l	
108-95-2	Phenol	ND	5.0	0.30	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	10	0.37	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	0.18	ug/l	
62-53-3	Aniline	ND	10	0.64	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.47	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	0.53	ug/l	
100-51-6	Benzyl Alcohol	ND	10	2.3	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.31	ug/l	
106-47-8	4-Chloroaniline	ND	10	0.56	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.29	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	0.35	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.33	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.25	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	0.24	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	0.46	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	0.30	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.27	ug/l	
132-64-9	Dibenzofuran	ND	2.0	0.26	ug/l	
84-74-2	Di-n-butyl phthalate	0.33	5.0	0.17	ug/l	J
117-84-0	Di-n-octyl phthalate	ND	5.0	0.28	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	0.20	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	0.34	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.33	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.29	ug/l	

7.1.2
7

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39514-MB	F75568.D	1	08/26/14	WK	08/22/14	OP39514	MSF3321

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-2

CAS No.	Compound	Result	RL	MDL	Units	Q
77-47-4	Hexachlorocyclopentadiene	ND	10	1.3	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.30	ug/l	
78-59-1	Isophorone	ND	5.0	0.45	ug/l	
88-74-4	2-Nitroaniline	ND	10	0.40	ug/l	
99-09-2	3-Nitroaniline	ND	10	1.4	ug/l	
100-01-6	4-Nitroaniline	ND	10	2.2	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.39	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	0.40	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.19	ug/l	
110-86-1	Pyridine	ND	10	0.52	ug/l	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	47% 15-110%
4165-62-2	Phenol-d5	31% 15-110%
118-79-6	2,4,6-Tribromophenol	83% 15-110%
4165-60-0	Nitrobenzene-d5	76% 30-130%
321-60-8	2-Fluorobiphenyl	78% 30-130%
1718-51-0	Terphenyl-d14	89% 30-130%

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

7.1.2
7

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39508-MB	I91326.D	1	08/22/14	WK	08/21/14	OP39508	MSI3403

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.8	0.83	ug/kg	
208-96-8	Acenaphthylene	ND	4.8	0.73	ug/kg	
120-12-7	Anthracene	ND	4.8	1.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.8	2.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.8	1.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.8	2.1	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	4.8	1.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.8	1.5	ug/kg	
218-01-9	Chrysene	ND	4.8	1.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.8	1.4	ug/kg	
206-44-0	Fluoranthene	ND	4.8	1.4	ug/kg	
86-73-7	Fluorene	ND	4.8	0.95	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.8	1.2	ug/kg	
90-12-0	1-Methylnaphthalene	ND	9.6	1.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	9.6	0.90	ug/kg	
85-01-8	Phenanthrene	ND	4.8	1.0	ug/kg	
129-00-0	Pyrene	ND	4.8	1.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	36%	15-110%
4165-62-2	Phenol-d5	36%	15-110%
118-79-6	2,4,6-Tribromophenol	37%	15-110%
4165-60-0	Nitrobenzene-d5	74%	30-130%
321-60-8	2-Fluorobiphenyl	71%	30-130%
1718-51-0	Terphenyl-d14	105%	30-130%

7.1.3
7

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39515-MB	I91344.D	1	08/25/14	WK	08/22/14	OP39515	MSI3404

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC33045-2

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	0.13	ug/l	
85-01-8	Phenanthrene	0.022	0.050	0.013	ug/l	J
129-00-0	Pyrene	ND	0.10	0.038	ug/l	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	51%	15-110%
4165-62-2	Phenol-d5	33%	15-110%
118-79-6	2,4,6-Tribromophenol	79%	15-110%
4165-60-0	Nitrobenzene-d5	81%	30-130%
321-60-8	2-Fluorobiphenyl	75%	30-130%
1718-51-0	Terphenyl-d14	103%	30-130%

7.1.4
7

Blank Spike Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39507-BS	R39574.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic acid	2440	2000	82	30-130
95-57-8	2-Chlorophenol	2440	1820	75	30-130
59-50-7	4-Chloro-3-methyl phenol	2440	2140	88	30-130
120-83-2	2,4-Dichlorophenol	2440	2080	85	30-130
105-67-9	2,4-Dimethylphenol	2440	1960	80	30-130
51-28-5	2,4-Dinitrophenol	2440	1810	74	30-130
534-52-1	4,6-Dinitro-o-cresol	2440	2350	96	30-130
95-48-7	2-Methylphenol	2440	1790	73	30-130
	3&4-Methylphenol	4880	3620	74	30-130
88-75-5	2-Nitrophenol	2440	1830	75	30-130
100-02-7	4-Nitrophenol	2440	2220	91	30-130
87-86-5	Pentachlorophenol	2440	2400	98	30-130
108-95-2	Phenol	2440	1830	75	30-130
95-95-4	2,4,5-Trichlorophenol	2440	2250	92	30-130
88-06-2	2,4,6-Trichlorophenol	2440	2090	86	30-130
62-53-3	Aniline	2440	1450	59	40-140
101-55-3	4-Bromophenyl phenyl ether	2440	2660	109	40-140
85-68-7	Butyl benzyl phthalate	2440	2430	100	40-140
100-51-6	Benzyl Alcohol	2440	1980	81	40-140
91-58-7	2-Chloronaphthalene	2440	2390	98	40-140
106-47-8	4-Chloroaniline	2440	2090	86	40-140
111-91-1	bis(2-Chloroethoxy)methane	2440	2100	86	40-140
111-44-4	bis(2-Chloroethyl)ether	2440	1970	81	40-140
108-60-1	bis(2-Chloroisopropyl)ether	2440	2640	108	40-140
7005-72-3	4-Chlorophenyl phenyl ether	2440	2450	100	40-140
122-66-7	1,2-Diphenylhydrazine	2440	2440	100	40-140
121-14-2	2,4-Dinitrotoluene	2440	2480	102	40-140
606-20-2	2,6-Dinitrotoluene	2440	2330	95	40-140
91-94-1	3,3'-Dichlorobenzidine	2440	2180	89	40-140
132-64-9	Dibenzofuran	2440	2340	96	40-140
84-74-2	Di-n-butyl phthalate	2440	2550	104	40-140
117-84-0	Di-n-octyl phthalate	2440	2320	95	40-140
84-66-2	Diethyl phthalate	2440	2620	107	40-140
131-11-3	Dimethyl phthalate	2440	2530	104	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	2440	2550	104	40-140
118-74-1	Hexachlorobenzene	2440	2600	106	40-140

* = Outside of Control Limits.

7.2.1
7

Blank Spike Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39507-BS	R39574.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	2440	762	31* a	40-140
67-72-1	Hexachloroethane	2440	1810	74	40-140
78-59-1	Isophorone	2440	1930	79	40-140
88-74-4	2-Nitroaniline	2440	2510	103	40-140
99-09-2	3-Nitroaniline	2440	2530	104	40-140
100-01-6	4-Nitroaniline	2440	2390	98	40-140
98-95-3	Nitrobenzene	2440	2030	83	40-140
62-75-9	n-Nitrosodimethylamine	2440	1550	63	40-140
621-64-7	N-Nitroso-di-n-propylamine	2440	2130	87	40-140
86-30-6	N-Nitrosodiphenylamine	2440	2310	95	40-140
110-86-1	Pyridine	2440	1260	52	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	74%	30-130%
4165-62-2	Phenol-d5	73%	30-130%
118-79-6	2,4,6-Tribromophenol	86%	30-130%
4165-60-0	Nitrobenzene-d5	69%	30-130%
321-60-8	2-Fluorobiphenyl	75%	30-130%
1718-51-0	Terphenyl-d14	81%	30-130%

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

* = Outside of Control Limits.

7.2.1
7

Blank Spike Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39514-BS	R39563.D	1	08/25/14	WK	08/22/14	OP39514	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	18.6	37	30-130
95-57-8	2-Chlorophenol	50	38.7	77	30-130
59-50-7	4-Chloro-3-methyl phenol	50	42.6	85	30-130
120-83-2	2,4-Dichlorophenol	50	41.6	83	30-130
105-67-9	2,4-Dimethylphenol	50	20.7	41	30-130
51-28-5	2,4-Dinitrophenol	50	42.4	85	30-130
534-52-1	4,6-Dinitro-o-cresol	50	51.4	103	30-130
95-48-7	2-Methylphenol	50	31.8	64	30-130
	3&4-Methylphenol	100	61.8	62	30-130
88-75-5	2-Nitrophenol	50	45.4	91	30-130
100-02-7	4-Nitrophenol	50	19.5	39	30-130
87-86-5	Pentachlorophenol	50	47.7	95	30-130
108-95-2	Phenol	50	17.4	35	30-130
95-95-4	2,4,5-Trichlorophenol	50	44.4	89	30-130
88-06-2	2,4,6-Trichlorophenol	50	46.1	92	30-130
62-53-3	Aniline	50	32.4	65	40-140
101-55-3	4-Bromophenyl phenyl ether	50	47.0	94	40-140
85-68-7	Butyl benzyl phthalate	50	44.4	89	40-140
100-51-6	Benzyl Alcohol	50	31.3	63	40-140
91-58-7	2-Chloronaphthalene	50	43.9	88	40-140
106-47-8	4-Chloroaniline	50	38.1	76	40-140
111-91-1	bis(2-Chloroethoxy)methane	50	38.8	78	40-140
111-44-4	bis(2-Chloroethyl)ether	50	37.5	75	40-140
108-60-1	bis(2-Chloroisopropyl)ether	50	50.5	101	40-140
7005-72-3	4-Chlorophenyl phenyl ether	50	42.9	86	40-140
122-66-7	1,2-Diphenylhydrazine	50	47.2	94	40-140
121-14-2	2,4-Dinitrotoluene	50	44.3	89	40-140
606-20-2	2,6-Dinitrotoluene	50	43.4	87	40-140
91-94-1	3,3'-Dichlorobenzidine	50	42.6	85	40-140
132-64-9	Dibenzofuran	50	40.9	82	40-140
84-74-2	Di-n-butyl phthalate	50	45.7	91	40-140
117-84-0	Di-n-octyl phthalate	50	44.4	89	40-140
84-66-2	Diethyl phthalate	50	45.2	90	40-140
131-11-3	Dimethyl phthalate	50	44.1	88	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	50	45.1	90	40-140
118-74-1	Hexachlorobenzene	50	47.6	95	40-140

* = Outside of Control Limits.

7.2.2
7

Blank Spike Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39514-BS	R39563.D	1	08/25/14	WK	08/22/14	OP39514	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	50	25.1	50	40-140
67-72-1	Hexachloroethane	50	37.9	76	40-140
78-59-1	Isophorone	50	36.8	74	40-140
88-74-4	2-Nitroaniline	50	44.2	88	40-140
99-09-2	3-Nitroaniline	50	42.8	86	40-140
100-01-6	4-Nitroaniline	50	40.6	81	40-140
98-95-3	Nitrobenzene	50	39.4	79	40-140
62-75-9	n-Nitrosodimethylamine	50	23.9	48	40-140
621-64-7	N-Nitroso-di-n-propylamine	50	39.0	78	40-140
86-30-6	N-Nitrosodiphenylamine	50	40.1	80	40-140
110-86-1	Pyridine	50	24.1	48	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	49%	15-110%
4165-62-2	Phenol-d5	32%	15-110%
118-79-6	2,4,6-Tribromophenol	94%	15-110%
4165-60-0	Nitrobenzene-d5	79%	30-130%
321-60-8	2-Fluorobiphenyl	80%	30-130%
1718-51-0	Terphenyl-d14	92%	30-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39508-BS	I91327.D	1	08/22/14	WK	08/21/14	OP39508	MSI3403

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC33045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2440	2210	91	40-140
208-96-8	Acenaphthylene	2440	1900	78	40-140
120-12-7	Anthracene	2440	2340	96	40-140
56-55-3	Benzo(a)anthracene	2440	2890	118	40-140
50-32-8	Benzo(a)pyrene	2440	2530	104	40-140
205-99-2	Benzo(b)fluoranthene	2440	3300	135	40-140
191-24-2	Benzo(g,h,i)perylene	2440	2650	109	40-140
207-08-9	Benzo(k)fluoranthene	2440	2370	97	40-140
218-01-9	Chrysene	2440	2420	99	40-140
53-70-3	Dibenzo(a,h)anthracene	2440	2850	117	40-140
206-44-0	Fluoranthene	2440	2790	114	40-140
86-73-7	Fluorene	2440	2290	94	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2440	2770	113	40-140
90-12-0	1-Methylnaphthalene	2440	2100	86	40-140
91-57-6	2-Methylnaphthalene	2440	2150	88	40-140
85-01-8	Phenanthrene	2440	2350	96	40-140
129-00-0	Pyrene	2440	2780	114	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	36%	15-110%
4165-62-2	Phenol-d5	35%	15-110%
118-79-6	2,4,6-Tribromophenol	42%	15-110%
4165-60-0	Nitrobenzene-d5	75%	30-130%
321-60-8	2-Fluorobiphenyl	75%	30-130%
1718-51-0	Terphenyl-d14	100%	30-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39515-BS	I91345.D	1	08/25/14	WK	08/22/14	OP39515	MSI3404
OP39515-BSD	I91395.D	1	08/26/14	WK	08/22/14	OP39515	MSI3405

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC33045-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	50	39.7	79	40.6	81	2	40-140/30
208-96-8	Acenaphthylene	50	37.8	76	38.9	78	3	40-140/30
120-12-7	Anthracene	50	41.5	83	41.7	83	0	40-140/30
56-55-3	Benzo(a)anthracene	50	51.3	103	50.0	100	3	40-140/30
50-32-8	Benzo(a)pyrene	50	50.1	100	50.5	101	1	40-140/30
205-99-2	Benzo(b)fluoranthene	50	58.6	117	54.7	109	7	40-140/30
191-24-2	Benzo(g,h,i)perylene	50	49.3	99	50.0	100	1	40-140/30
207-08-9	Benzo(k)fluoranthene	50	42.0	84	45.7	91	8	40-140/30
218-01-9	Chrysene	50	43.4	87	42.5	85	2	40-140/30
53-70-3	Dibenzo(a,h)anthracene	50	51.8	104	52.9	106	2	40-140/30
206-44-0	Fluoranthene	50	48.3	97	47.4	95	2	40-140/30
86-73-7	Fluorene	50	41.8	84	41.5	83	1	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	50	50.8	102	51.4	103	1	40-140/30
90-12-0	1-Methylnaphthalene	50	39.4	79	40.3	81	2	40-140/30
91-57-6	2-Methylnaphthalene	50	40.0	80	41.0	82	2	40-140/30
85-01-8	Phenanthrene	50	41.8	84	41.7	83	0	40-140/30
129-00-0	Pyrene	50	48.6	97	47.8	96	2	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	51%	53%	15-110%
4165-62-2	Phenol-d5	34%	35%	15-110%
118-79-6	2,4,6-Tribromophenol	88%	88%	15-110%
4165-60-0	Nitrobenzene-d5	84%	85%	30-130%
321-60-8	2-Fluorobiphenyl	77%	79%	30-130%
1718-51-0	Terphenyl-d14	103%	103%	30-130%

* = Outside of Control Limits.

7.3.1
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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39507-MS	R39575.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458
OP39507-MSD	R39576.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458
MC33045-1	R39577.D	1	08/26/14	WK	08/21/14	OP39507	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-1

CAS No.	Compound	MC33045-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND	2510	1720	68	2540	1770	70	3	30-130/30
95-57-8	2-Chlorophenol	ND	2510	1880	75	2540	1880	74	0	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND	2510	2050	82	2540	2040	80	0	30-130/30
120-83-2	2,4-Dichlorophenol	ND	2510	2080	83	2540	2030	80	2	30-130/30
105-67-9	2,4-Dimethylphenol	ND	2510	1940	77	2540	1860	73	4	30-130/30
51-28-5	2,4-Dinitrophenol	ND	2510	1600	64	2540	1470	58	8	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND	2510	2360	94	2540	2300	91	3	30-130/30
95-48-7	2-Methylphenol	ND	2510	1850	74	2540	1820	72	2	30-130/30
	3&4-Methylphenol	ND	5020	3800	76	5070	3710	73	2	30-130/30
88-75-5	2-Nitrophenol	ND	2510	1900	76	2540	1810	71	5	30-130/30
100-02-7	4-Nitrophenol	ND	2510	2310	92	2540	2150	85	7	30-130/30
87-86-5	Pentachlorophenol	ND	2510	2720	108	2540	2780	110	2	30-130/30
108-95-2	Phenol	ND	2510	1910	76	2540	1870	74	2	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND	2510	2250	90	2540	2140	84	5	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND	2510	2240	89	2540	2090	82	7	30-130/30
62-53-3	Aniline	ND	2510	1560	62	2540	1480	58	5	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND	2510	2740	109	2540	2660	105	3	40-140/30
85-68-7	Butyl benzyl phthalate	ND	2510	2570	102	2540	2520	99	2	40-140/30
100-51-6	Benzyl Alcohol	ND	2510	2050	82	2540	1960	77	4	40-140/30
91-58-7	2-Chloronaphthalene	ND	2510	2590	103	2540	2470	97	5	40-140/30
106-47-8	4-Chloroaniline	ND	2510	2100	84	2540	2000	79	5	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND	2510	2180	87	2540	2120	84	3	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND	2510	2110	84	2540	1970	78	7	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND	2510	2760	110	2540	2680	106	3	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND	2510	2640	105	2540	2480	98	6	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND	2510	2550	102	2540	2490	98	2	40-140/30
121-14-2	2,4-Dinitrotoluene	ND	2510	2530	101	2540	2390	94	6	40-140/30
606-20-2	2,6-Dinitrotoluene	ND	2510	2440	97	2540	2320	91	5	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND	2510	2310	92	2540	2290	90	1	40-140/30
132-64-9	Dibenzofuran	ND	2510	2450	98	2540	2380	94	3	40-140/30
84-74-2	Di-n-butyl phthalate	ND	2510	2580	103	2540	2480	98	4	40-140/30
117-84-0	Di-n-octyl phthalate	ND	2510	2350	94	2540	2280	90	3	40-140/30
84-66-2	Diethyl phthalate	ND	2510	2730	109	2540	2610	103	4	40-140/30
131-11-3	Dimethyl phthalate	ND	2510	2670	106	2540	2560	101	4	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2510	2670	106	2540	2590	102	3	40-140/30
118-74-1	Hexachlorobenzene	ND	2510	2630	105	2540	2620	103	0	40-140/30

* = Outside of Control Limits.

7.4.1

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39507-MS	R39575.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458
OP39507-MSD	R39576.D	1	08/25/14	WK	08/21/14	OP39507	MSR1458
MC33045-1	R39577.D	1	08/26/14	WK	08/21/14	OP39507	MSR1458

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-1

7.4.1
7

CAS No.	Compound	MC33045-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND	2510	842	34* a	2540	786	31* a	7	40-140/30
67-72-1	Hexachloroethane	ND	2510	1850	74	2540	1850	73	0	40-140/30
78-59-1	Isophorone	ND	2510	1990	79	2540	1910	75	4	40-140/30
88-74-4	2-Nitroaniline	ND	2510	2620	104	2540	2500	99	5	40-140/30
99-09-2	3-Nitroaniline	ND	2510	2560	102	2540	2430	96	5	40-140/30
100-01-6	4-Nitroaniline	ND	2510	2510	100	2540	2370	93	6	40-140/30
98-95-3	Nitrobenzene	ND	2510	2070	82	2540	2070	82	0	40-140/30
62-75-9	n-Nitrosodimethylamine	ND	2510	1900	76	2540	1780	70	7	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND	2510	2200	88	2540	2130	84	3	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND	2510	2360	94	2540	2320	91	2	40-140/30
110-86-1	Pyridine	ND	2510	1470	59	2540	1450	57	1	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC33045-1	Limits
367-12-4	2-Fluorophenol	76%	72%	76%	30-130%
4165-62-2	Phenol-d5	72%	69%	66%	30-130%
118-79-6	2,4,6-Tribromophenol	86%	82%	85%	30-130%
4165-60-0	Nitrobenzene-d5	70%	67%	68%	30-130%
321-60-8	2-Fluorobiphenyl	77%	75%	76%	30-130%
1718-51-0	Terphenyl-d14	83%	81%	82%	30-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39514-MS	R39564.D	1	08/25/14	WK	08/22/14	OP39514	MSR1458
OP39514-MSD	R39565.D	1	08/25/14	WK	08/22/14	OP39514	MSR1458
MC33000-1	F75569.D	1	08/26/14	WK	08/22/14	OP39514	MSF3321

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-2

CAS No.	Compound	MC33000-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND	50	20.0	40	50	19.6	39	2	30-130/20
95-57-8	2-Chlorophenol	ND	50	36.8	74	50	40.2	80	9	30-130/20
59-50-7	4-Chloro-3-methyl phenol	ND	50	42.1	84	50	41.2	82	2	30-130/20
120-83-2	2,4-Dichlorophenol	ND	50	39.6	79	50	42.6	85	7	30-130/20
105-67-9	2,4-Dimethylphenol	ND	50	21.7	43	50	23.6	47	8	30-130/20
51-28-5	2,4-Dinitrophenol	ND	50	42.3	85	50	42.6	85	1	30-130/20
534-52-1	4,6-Dinitro-o-cresol	ND	50	50.4	101	50	53.0	106	5	30-130/20
95-48-7	2-Methylphenol	ND	50	31.3	63	50	33.3	67	6	30-130/20
	3&4-Methylphenol	ND	100	60.0	60	100	63.9	64	6	30-130/20
88-75-5	2-Nitrophenol	ND	50	39.4	79	50	42.8	86	8	30-130/20
100-02-7	4-Nitrophenol	ND	50	20.7	41	50	21.4	43	3	30-130/20
87-86-5	Pentachlorophenol	ND	50	45.8	92	50	45.1	90	2	30-130/20
108-95-2	Phenol	ND	50	17.0	34	50	18.1	36	6	30-130/20
95-95-4	2,4,5-Trichlorophenol	ND	50	45.2	90	50	45.7	91	1	30-130/20
88-06-2	2,4,6-Trichlorophenol	ND	50	43.4	87	50	44.2	88	2	30-130/20
62-53-3	Aniline	ND	50	31.2	62	50	33.4	67	7	40-140/20
101-55-3	4-Bromophenyl phenyl ether	ND	50	48.9	98	50	47.5	95	3	40-140/20
85-68-7	Butyl benzyl phthalate	ND	50	44.5	89	50	44.8	90	1	40-140/20
100-51-6	Benzyl Alcohol	ND	50	31.5	63	50	33.0	66	5	40-140/20
91-58-7	2-Chloronaphthalene	ND	50	42.0	84	50	44.4	89	6	40-140/20
106-47-8	4-Chloroaniline	ND	50	36.2	72	50	37.8	76	4	40-140/20
111-91-1	bis(2-Chloroethoxy)methane	ND	50	37.4	75	50	39.1	78	4	40-140/20
111-44-4	bis(2-Chloroethyl)ether	ND	50	37.0	74	50	40.6	81	9	40-140/20
108-60-1	bis(2-Chloroisopropyl)ether	ND	50	50.9	102	50	52.1	104	2	40-140/20
7005-72-3	4-Chlorophenyl phenyl ether	ND	50	43.6	87	50	42.0	84	4	40-140/20
122-66-7	1,2-Diphenylhydrazine	ND	50	48.7	97	50	48.2	96	1	40-140/20
121-14-2	2,4-Dinitrotoluene	ND	50	43.0	86	50	44.9	90	4	40-140/20
606-20-2	2,6-Dinitrotoluene	ND	50	40.4	81	50	43.9	88	8	40-140/20
91-94-1	3,3'-Dichlorobenzidine	ND	50	47.8	96	50	47.7	95	0	40-140/20
132-64-9	Dibenzofuran	ND	50	41.2	82	50	41.6	83	1	40-140/20
84-74-2	Di-n-butyl phthalate	0.33	J 50	46.4	92	50	46.3	92	0	40-140/20
117-84-0	Di-n-octyl phthalate	ND	50	43.9	88	50	45.1	90	3	40-140/20
84-66-2	Diethyl phthalate	ND	50	46.1	92	50	45.0	90	2	40-140/20
131-11-3	Dimethyl phthalate	ND	50	44.5	89	50	44.1	88	1	40-140/20
117-81-7	bis(2-Ethylhexyl)phthalate	ND	50	45.1	90	50	45.3	91	0	40-140/20
118-74-1	Hexachlorobenzene	ND	50	48.5	97	50	48.0	96	1	40-140/20

* = Outside of Control Limits.

7.4.2
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39514-MS	R39564.D	1	08/25/14	WK	08/22/14	OP39514	MSR1458
OP39514-MSD	R39565.D	1	08/25/14	WK	08/22/14	OP39514	MSR1458
MC33000-1	F75569.D	1	08/26/14	WK	08/22/14	OP39514	MSF3321

The QC reported here applies to the following samples:

Method: SW846 8270D

MC33045-2

CAS No.	Compound	MC33000-1 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	21.6	43	50	21.1	42	2	40-140/20
67-72-1	Hexachloroethane	ND	50	36.4	73	50	39.0	78	7	40-140/20
78-59-1	Isophorone	ND	50	35.6	71	50	37.7	75	6	40-140/20
88-74-4	2-Nitroaniline	ND	50	43.5	87	50	44.7	89	3	40-140/20
99-09-2	3-Nitroaniline	ND	50	43.9	88	50	42.9	86	2	40-140/20
100-01-6	4-Nitroaniline	ND	50	42.7	85	50	41.1	82	4	40-140/20
98-95-3	Nitrobenzene	ND	50	38.0	76	50	40.2	80	6	40-140/20
62-75-9	n-Nitrosodimethylamine	ND	50	21.9	44	50	24.3	49	10	40-140/20
621-64-7	N-Nitroso-di-n-propylamine	ND	50	39.3	79	50	39.7	79	1	40-140/20
86-30-6	N-Nitrosodiphenylamine	ND	50	41.8	84	50	40.1	80	4	40-140/20
110-86-1	Pyridine	ND	50	21.4	43	50	25.0	50	16	40-140/20

CAS No.	Surrogate Recoveries	MS	MSD	MC33000-1	Limits
367-12-4	2-Fluorophenol	47%	50%	49%	15-110%
4165-62-2	Phenol-d5	31%	33%	32%	15-110%
118-79-6	2,4,6-Tribromophenol	94%	93%	88%	15-110%
4165-60-0	Nitrobenzene-d5	75%	77%	74%	30-130%
321-60-8	2-Fluorobiphenyl	74%	79%	77%	30-130%
1718-51-0	Terphenyl-d14	91%	91%	91%	30-130%

* = Outside of Control Limits.

7.4.2
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39508-MS	I91328.D	1	08/22/14	WK	08/21/14	OP39508	MSI3403
OP39508-MSD	I91329.D	1	08/22/14	WK	08/21/14	OP39508	MSI3403
MC33045-1	I91330.D	1	08/22/14	WK	08/21/14	OP39508	MSI3403

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC33045-1

CAS No.	Compound	MC33045-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
83-32-9	Acenaphthene	ND		2510	2310	92	2540	2250	89	3	40-140/30
208-96-8	Acenaphthylene	ND		2510	1980	79	2540	1940	76	2	40-140/30
120-12-7	Anthracene	ND		2510	2460	98	2540	2350	93	5	40-140/30
56-55-3	Benzo(a)anthracene	ND		2510	3000	119	2540	2890	114	4	40-140/30
50-32-8	Benzo(a)pyrene	ND		2510	2630	105	2540	2510	99	5	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		2510	3140	125	2540	3330	131	6	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		2510	2760	110	2540	2610	103	6	40-140/30
207-08-9	Benzo(k)fluoranthene	ND		2510	2650	106	2540	2290	90	15	40-140/30
218-01-9	Chrysene	ND		2510	2520	100	2540	2420	95	4	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND		2510	2950	117	2540	2810	111	5	40-140/30
206-44-0	Fluoranthene	ND		2510	2920	116	2540	2820	111	3	40-140/30
86-73-7	Fluorene	ND		2510	2390	95	2540	2310	91	3	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2510	2880	115	2540	2740	108	5	40-140/30
90-12-0	1-Methylnaphthalene	ND		2510	2220	88	2540	2050	81	8	40-140/30
91-57-6	2-Methylnaphthalene	1.2	J	2510	2260	90	2540	2080	82	8	40-140/30
85-01-8	Phenanthrene	ND		2510	2450	98	2540	2370	93	3	40-140/30
129-00-0	Pyrene	ND		2510	2880	115	2540	2800	110	3	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC33045-1	Limits
367-12-4	2-Fluorophenol	35%	34%	36%	15-110%
4165-62-2	Phenol-d5	35%	34%	36%	15-110%
118-79-6	2,4,6-Tribromophenol	43%	41%	37%	15-110%
4165-60-0	Nitrobenzene-d5	75%	73%	74%	30-130%
321-60-8	2-Fluorobiphenyl	75%	73%	71%	30-130%
1718-51-0	Terphenyl-d14	99%	96%	98%	30-130%

* = Outside of Control Limits.

7.4.3
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39515-MS	I91346.D	1	08/25/14	WK	08/22/14	OP39515	MSI3404
OP39515-MSD	I91347.D	1	08/25/14	WK	08/22/14	OP39515	MSI3404
MC33000-2	I91348.D	1	08/25/14	WK	08/22/14	OP39515	MSI3404

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

MC33045-2

CAS No.	Compound	MC33000-2 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	50	39.8	80	50	39.9	80	0	40-140/20
208-96-8	Acenaphthylene	ND	50	38.1	76	50	38.3	77	1	40-140/20
120-12-7	Anthracene	ND	50	43.2	86	50	42.7	85	1	40-140/20
56-55-3	Benzo(a)anthracene	ND	50	52.7	105	50	51.5	103	2	40-140/20
50-32-8	Benzo(a)pyrene	ND	50	51.6	103	50	51.0	102	1	40-140/20
205-99-2	Benzo(b)fluoranthene	ND	50	59.3	119	50	58.1	116	2	40-140/20
191-24-2	Benzo(g,h,i)perylene	ND	50	51.1	102	50	50.5	101	1	40-140/20
207-08-9	Benzo(k)fluoranthene	ND	50	43.8	88	50	44.0	88	0	40-140/20
218-01-9	Chrysene	ND	50	44.1	88	50	43.5	87	1	40-140/20
53-70-3	Dibenzo(a,h)anthracene	ND	50	53.6	107	50	53.0	106	1	40-140/20
206-44-0	Fluoranthene	ND	50	49.0	98	50	48.6	97	1	40-140/20
86-73-7	Fluorene	ND	50	42.6	85	50	41.7	83	2	40-140/20
193-39-5	Indeno(1,2,3-cd)pyrene	ND	50	52.5	105	50	52.0	104	1	40-140/20
90-12-0	1-Methylnaphthalene	ND	50	38.3	77	50	39.7	79	4	40-140/20
91-57-6	2-Methylnaphthalene	ND	50	39.1	78	50	40.8	82	4	40-140/20
85-01-8	Phenanthrene	0.018	J 50	43.2	86	50	42.3	85	2	40-140/20
129-00-0	Pyrene	ND	50	49.2	98	50	48.7	97	1	40-140/20

CAS No.	Surrogate Recoveries	MS	MSD	MC33000-2	Limits
367-12-4	2-Fluorophenol	50%	52%	50%	15-110%
4165-62-2	Phenol-d5	33%	34%	33%	15-110%
118-79-6	2,4,6-Tribromophenol	90%	89%	82%	15-110%
4165-60-0	Nitrobenzene-d5	81%	84%	80%	30-130%
321-60-8	2-Fluorobiphenyl	74%	76%	74%	30-130%
1718-51-0	Terphenyl-d14	103%	103%	105%	30-130%

* = Outside of Control Limits.

7.4.4
 7

Semivolatile Internal Standard Area Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3321-CC3320	Injection Date:	08/26/14
Lab File ID:	F75552.D	Injection Time:	09:16
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	105941	4.46	388658	5.52	233145	7.05	398145	8.33	424610	10.98	402312	12.72
Upper Limit ^a	211882	4.96	777316	6.02	466290	7.55	796290	8.83	849220	11.48	804624	13.22
Lower Limit ^b	52971	3.96	194329	5.02	116573	6.55	199073	7.83	212305	10.48	201156	12.22

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
OP39491-MB	167414	4.46	627563	5.52	367987	7.05	610358	8.33	638288	10.98	566516	12.72
OP39491-BS	131236	4.46	489135	5.52	293555	7.05	484870	8.33	527548	10.98	487604	12.72
ZZZZZZ	149445	4.46	561713	5.52	324276	7.05	539013	8.33	555775	10.98	509373	12.72
ZZZZZZ	137633	4.46	516725	5.52	303330	7.05	523526	8.33	545294	10.98	478998	12.72
ZZZZZZ	146047	4.46	542046	5.51	321431	7.04	541380	8.33	566765	10.98	524681	12.72
ZZZZZZ	156872	4.46	586558	5.52	345208	7.05	579701	8.33	573207	10.98	525512	12.72
OP39482-MB	135927	4.46	503662	5.52	305689	7.05	519228	8.33	569661	10.98	545344	12.72
OP39482-BS	129703	4.46	482619	5.52	288785	7.05	493748	8.33	525732	10.98	499277	12.72
OP39482-MS	122451	4.46	459878	5.52	278057	7.05	477836	8.33	526905	10.98	502651	12.72
OP39482-MSD	119060	4.46	443773	5.52	262123	7.05	447932	8.33	481612	10.98	455767	12.72
MC32700-20	128467	4.46	476992	5.52	284074	7.05	489559	8.33	521861	10.98	493491	12.72
ZZZZZZ	135797	4.46	510268	5.52	307993	7.05	529468	8.33	587576	10.98	584486	12.72
ZZZZZZ	124701	4.46	464594	5.52	279223	7.05	470447	8.33	508733	10.98	500488	12.72
ZZZZZZ	120861	4.46	461060	5.52	280561	7.05	487680	8.33	555989	10.98	527813	12.72
OP39514-MB	145291	4.46	531725	5.52	317453	7.05	551361	8.33	597399	10.98	579216	12.72
MC33000-1	137076	4.46	520103	5.52	315551	7.05	544532	8.33	602842	10.98	596957	12.72
ZZZZZZ	135555	4.46	497748	5.51	293244	7.04	488335	8.33	489280	10.98	446390	12.72
OP39535-MB	125274	4.46	482214	5.52	289623	7.05	494320	8.33	549995	10.98	532294	12.72
OP39535-BS	133161	4.46	498457	5.52	300908	7.05	508920	8.33	549894	10.98	516555	12.72
ZZZZZZ	123405	4.46	468494	5.52	283778	7.05	492222	8.33	545541	10.98	530533	12.72
OP39498-MB	127709	4.46	479560	5.52	289382	7.04	494281	8.33	541153	10.98	542047	12.72
OP39498-BS	135077	4.46	498049	5.52	294044	7.05	502225	8.33	554861	10.98	544832	12.72
ZZZZZZ	141251	4.46	532602	5.52	322530	7.04	537000	8.33	574746	10.98	568266	12.72
ZZZZZZ	135441	4.46	503210	5.51	299802	7.04	521224	8.33	572784	10.98	572558	12.71

- 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.

7.5.1
7

Semivolatile Internal Standard Area Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSF3325-CC3320	Injection Date:	08/28/14
Lab File ID:	F75655.D	Injection Time:	15:40
Instrument ID:	GCMSF	Method:	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	120178	4.40	451306	5.46	275933	6.99	481127	8.27	548032	10.90	526966	12.63
Upper Limit ^a	240356	4.90	902612	5.96	551866	7.49	962254	8.77	1096064	11.40	1053932	13.13
Lower Limit ^b	60089	3.90	225653	4.96	137967	6.49	240564	7.77	274016	10.40	263483	12.13

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
MC33000-5	129152	4.40	488809	5.45	294928	6.99	501749	8.27	548643	10.90	534726	12.63
ZZZZZZ	136492	4.40	513128	5.46	312118	6.98	527968	8.27	584374	10.90	564520	12.63
ZZZZZZ	125831	4.40	474753	5.46	293395	6.99	509526	8.27	585473	10.90	575543	12.63
ZZZZZZ	122684	4.40	473215	5.45	287769	6.98	510048	8.27	583782	10.90	564863	12.63
ZZZZZZ	132748	4.40	503034	5.45	304558	6.98	533265	8.27	610580	10.90	598656	12.63
ZZZZZZ	137967	4.40	466848	5.47	299712	6.98	497250	8.27	544141	10.90	530605	12.63
ZZZZZZ	129906	4.40	497125	5.46	304355	6.98	534784	8.27	609016	10.90	592271	12.63
ZZZZZZ	141755	4.40	536376	5.45	319290	6.98	555055	8.27	618171	10.90	602366	12.63
ZZZZZZ	138144	4.40	529378	5.46	327148	6.98	564549	8.27	652765	10.90	633456	12.63
OP39543-MB	158931	4.40	583827	5.45	347455	6.98	579565	8.27	583923	10.90	534780	12.63
OP39543-BS	125433	4.40	468038	5.46	279268	6.98	472203	8.27	517051	10.90	489205	12.63
ZZZZZZ	147148	4.40	533368	5.45	309978	6.99	496307	8.27	546162	10.90	617788	12.63
ZZZZZZ	128323	4.40	481018	5.46	292110	6.99	487756	8.27	550466	10.90	602067	12.63
ZZZZZZ	147863	4.40	537799	5.46	311851	6.98	499124	8.27	540762	10.90	597949	12.63
MC33045-2	145816	4.40	551129	5.46	338449	6.99	596003	8.27	697971	10.90	747375	12.63
ZZZZZZ	144574	4.40	532620	5.46	309125	6.98	513388	8.27	631163	10.90	708430	12.63
ZZZZZZ	137388	4.40	521888	5.45	323861	6.98	559617	8.27	659362	10.90	715621	12.63
ZZZZZZ	141153	4.40	524093	5.45	305074	6.98	514559	8.27	624391	10.90	685045	12.63
ZZZZZZ	149570	4.40	557240	5.46	340866	6.99	592620	8.27	710600	10.90	766623	12.63
ZZZZZZ	135768	4.40	507447	5.45	308921	6.99	535685	8.27	644649	10.90	694391	12.63
ZZZZZZ	165483	4.40	604357	5.45	338555	6.98	538353	8.27	643657	10.90	728021	12.63

- 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

Semivolatile Internal Standard Area Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3403-CC3386	Injection Date:	08/22/14
Lab File ID:	I91321.D	Injection Time:	14:48
Instrument ID:	GCMSI	Method:	SW846 8270D 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	431227	3.93	964297	4.99	514249	6.52	875697	7.89	622016	10.66	1558066	12.14
Upper Limit ^a	862454	4.43	1928594	5.49	1028498	7.02	1751394	8.39	1244032	11.16	3116132	12.64
Lower Limit ^b	215614	3.43	482149	4.49	257125	6.02	437849	7.39	311008	10.16	779033	11.64

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
OP39497-LB	551445	3.95	1229705	4.99	641266	6.52	1054862	7.89	729328	10.66	1858781	12.14
OP39497-MB	551445	3.95	1229705	4.99	641266	6.52	1054862	7.89	729328	10.66	1858781	12.14
OP39497-BS	518317	3.95	1137654	5.00	593864	6.52	999914	7.89	717821	10.67	1783828	12.14
ZZZZZZ	516245	3.95	1151161	4.99	601850	6.52	998200	7.88	688843	10.66	1772880	12.14
ZZZZZZ	495448	3.95	1100614	4.99	575579	6.52	952714	7.88	660795	10.66	1681734	12.14
OP39508-MB	463847	3.95	1039382	4.99	541173	6.52	884484	7.88	572497	10.66	1431517	12.14
OP39508-BS	512451	3.95	1117131	5.00	570544	6.52	927803	7.89	616420	10.66	1463580	12.14
OP39508-MS	442016	3.95	958069	5.00	496648	6.52	815761	7.89	548522	10.66	1327140	12.14
OP39508-MSD	508097	3.95	1098200	5.00	560081	6.52	898246	7.89	588867	10.66	1414721	12.14
MC33045-1	553561	3.95	1217825	4.99	630157	6.52	1008333	7.88	655931	10.66	1615679	12.14
ZZZZZZ	464389	3.95	1017944	4.99	515146	6.52	820965	7.88	523016	10.66	1271895	12.14
ZZZZZZ	499262	3.95	1103935	4.99	562368	6.52	889389	7.88	554747	10.66	1333271	12.14
ZZZZZZ	502091	3.95	1068495	4.99	518125	6.52	798857	7.88	465896	10.66	1171720	12.14
ZZZZZZ	545800	3.95	1175742	4.99	581753	6.52	895217	7.89	516456	10.66	1269287	12.14
OP39445-MB	462626	3.95	1008381	4.99	502237	6.52	793490	7.88	518310	10.66	1371218	12.14
OP39445-BS	456587	3.95	995544	5.00	492310	6.52	784109	7.89	531305	10.66	1351561	12.14
OP39445-BSD	491885	3.95	1077255	5.00	535056	6.52	851851	7.89	580181	10.66	1485967	12.14
ZZZZZZ	492522	3.95	1049176	5.00	531491	6.52	848110	7.88	564220	10.66	1475574	12.14
ZZZZZZ	478461	3.95	1024188	5.00	518898	6.52	830336	7.88	556137	10.66	1449865	12.14
ZZZZZZ	473354	3.95	1037138	4.99	524486	6.52	837678	7.88	562757	10.66	1463117	12.14

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

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

7.5.3
7

Semivolatile Internal Standard Area Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3404-CC3386	Injection Date:	08/25/14
Lab File ID:	I91343.D	Injection Time:	08:29
Instrument ID:	GCMSI	Method:	SW846 8270D 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	436327	3.92	972159	4.97	512179	6.49	875428	7.86	619001	10.63	1547330	12.10
Upper Limit ^a	872654	4.42	1944318	5.47	1024358	6.99	1750856	8.36	1238002	11.13	3094660	12.60
Lower Limit ^b	218164	3.42	486080	4.47	256090	5.99	437714	7.36	309501	10.13	773665	11.60

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
OP39515-MB	465329	3.92	1045090	4.97	557134	6.49	935831	7.85	654721	10.63	1682789	12.10
OP39515-BS	442417	3.92	981014	4.97	521264	6.49	892709	7.86	637299	10.63	1573759	12.10
OP39515-MS	468910	3.92	1033941	4.97	550398	6.50	933398	7.86	677811	10.63	1652211	12.10
OP39515-MSD	448810	3.92	995998	4.97	534558	6.49	899987	7.86	650501	10.63	1582312	12.10
MC33000-2	467286	3.92	1049302	4.96	559701	6.49	940068	7.85	654073	10.63	1662261	12.10
ZZZZZZ	446440	3.92	1001482	4.96	529002	6.49	887371	7.85	622711	10.63	1549888	12.10
MC33045-2	472078	3.92	1056611	4.96	560888	6.49	938882	7.85	661002	10.63	1687896	12.10
OP39374-MB	433286	3.92	968894	4.96	512254	6.49	853690	7.85	600162	10.63	1520708	12.10
OP39374-BS	458492	3.92	1033725	4.97	542110	6.49	911613	7.86	655774	10.63	1590613	12.10
ZZZZZZ	473006	3.92	1066821	4.96	567341	6.49	953171	7.85	673120	10.63	1697909	12.10
ZZZZZZ	487009	3.92	1087125	4.96	583641	6.49	980512	7.85	687370	10.63	1740551	12.10
ZZZZZZ	468076	3.92	1054516	4.96	554681	6.49	937294	7.85	652236	10.63	1656084	12.10
ZZZZZZ	468012	3.92	1052025	4.96	560945	6.49	923649	7.85	654732	10.63	1666470	12.10
ZZZZZZ	439188	3.92	983387	4.96	520567	6.49	871126	7.85	605678	10.63	1542690	12.10
ZZZZZZ	486312	3.92	1082474	4.96	569645	6.49	960496	7.85	674741	10.63	1713788	12.10
ZZZZZZ	449362	3.92	1003762	4.96	531186	6.49	891084	7.85	622212	10.63	1578091	12.10
ZZZZZZ	439061	3.92	976706	4.96	511727	6.49	860242	7.85	602767	10.63	1539723	12.10
ZZZZZZ	444707	3.91	992440	4.96	520608	6.49	873341	7.85	608825	10.62	1555230	12.10
ZZZZZZ	434864	3.92	965899	4.96	506525	6.49	838408	7.85	588338	10.63	1489989	12.10
ZZZZZZ	452826	3.92	1012094	4.96	531971	6.49	888459	7.85	622843	10.63	1585771	12.10
ZZZZZZ	440887	3.92	984974	4.96	525197	6.49	883702	7.85	614956	10.63	1560870	12.10
ZZZZZZ	462240	3.92	1028780	4.96	542776	6.49	890609	7.85	628132	10.63	1596545	12.10
ZZZZZZ	465448	3.92	1031843	4.96	545974	6.49	909688	7.85	624691	10.62	1601023	12.10
ZZZZZZ	495796	3.92	1105800	4.96	586019	6.49	979505	7.85	685275	10.63	1727953	12.10
ZZZZZZ	493656	3.92	1102014	4.96	579429	6.49	968635	7.85	676434	10.63	1711150	12.10
ZZZZZZ	484936	3.92	1084628	4.96	571280	6.49	954694	7.85	668985	10.62	1692088	12.10
ZZZZZZ	468027	3.92	1046889	4.96	553381	6.49	931602	7.85	654322	10.63	1665480	12.10
ZZZZZZ	436671	3.92	967927	4.96	508551	6.49	856497	7.85	593830	10.62	1505148	12.10
ZZZZZZ	426558	3.92	948658	4.96	502373	6.49	836992	7.85	584280	10.62	1490673	12.10
ZZZZZZ	464427	3.92	1023410	4.96	540725	6.49	905145	7.85	627690	10.62	1590022	12.10
ZZZZZZ	466261	3.92	1035841	4.96	541731	6.49	904027	7.85	631942	10.62	1588436	12.10

IS 1 = 1,4-Dichlorobenzene-d4
 IS 2 = Naphthalene-d8
 IS 3 = Acenaphthene-D10

7.5.4
7

Semivolatile Internal Standard Area Summary

Job Number: MC33045
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3404-CC3386	Injection Date:	08/25/14
Lab File ID:	I91343.D	Injection Time:	08:29
Instrument ID:	GCMSI	Method:	SW846 8270D 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

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.

7.5.4
7

Semivolatile Internal Standard Area Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSI3405-CC3386	Injection Date:	08/26/14
Lab File ID:	I91378.D	Injection Time:	09:08
Instrument ID:	GCMSI	Method:	SW846 8270D 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	433622	3.90	951427	4.95	507266	6.47	861488	7.83	615999	10.60	1539129	12.07
Upper Limit ^a	867244	4.40	1902854	5.45	1014532	6.97	1722976	8.33	1231998	11.10	3078258	12.57
Lower Limit ^b	216811	3.40	475714	4.45	253633	5.97	430744	7.33	308000	10.10	769565	11.57

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
OP39483-MB	476578	3.90	1063971	4.94	568286	6.47	968141	7.83	690165	10.60	1744557	12.08
OP39483-BS	434916	3.90	959551	4.95	517486	6.47	881096	7.83	647175	10.61	1584951	12.08
OP39483-BSD	407105	3.90	912916	4.95	487903	6.47	839859	7.83	610754	10.61	1496548	12.08
OP39483-MS	410095	3.90	917422	4.95	495153	6.47	841923	7.83	616201	10.61	1501604	12.08
OP39483-MSD	382667	3.90	853234	4.95	462335	6.47	790024	7.83	571448	10.61	1399342	12.07
MC32700-21	422937	3.90	954423	4.94	510188	6.47	864296	7.82	607280	10.60	1524613	12.07
ZZZZZZ	410260	3.90	928047	4.94	496983	6.47	838461	7.82	589244	10.60	1486733	12.07
ZZZZZZ	453301	3.90	1026374	4.94	547383	6.47	933549	7.82	653164	10.60	1647448	12.07
ZZZZZZ	414146	3.90	923695	4.95	498429	6.47	842342	7.82	586102	10.60	1494416	12.07
ZZZZZZ	410755	3.90	925529	4.94	495438	6.47	839728	7.82	588667	10.60	1487884	12.07
ZZZZZZ	405603	3.90	917523	4.94	486168	6.47	821478	7.82	572821	10.60	1442088	12.07
ZZZZZZ	442562	3.90	984500	4.94	521308	6.47	890830	7.82	634731	10.60	1604237	12.07
ZZZZZZ	417951	3.90	931488	4.94	495465	6.47	838859	7.82	582218	10.60	1462099	12.07
ZZZZZZ	382923	3.90	853389	4.94	452027	6.47	765612	7.82	526538	10.60	1314688	12.07
ZZZZZZ	413929	3.90	926351	4.94	488894	6.47	818423	7.82	570935	10.60	1425794	12.07
OP39515-BSD	445157	3.90	996336	4.95	535845	6.47	912498	7.83	663704	10.61	1579796	12.07
ZZZZZZ	408498	3.90	923552	4.94	490261	6.47	837501	7.82	582534	10.60	1455846	12.07

- 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.

7.5.5
7

Semivolatile Internal Standard Area Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	MSR1458-CC1457	Injection Date:	08/25/14
Lab File ID:	R39551A.D	Injection Time:	14:14
Instrument ID:	GCMSR	Method:	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	34540	5.47	141538	6.57	93756	8.10	172733	9.41	241057	12.04	266906	13.76
Upper Limit ^a	69080	5.97	283076	7.07	187512	8.60	345466	9.91	482114	12.54	533812	14.26
Lower Limit ^b	17270	4.97	70769	6.07	46878	7.60	86367	8.91	120529	11.54	133453	13.26

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
ZZZZZZ	40285	5.47	150181	6.57	101334	8.10	193105	9.41	262140	12.03	317422	13.76
OP39507-MB	16755 ^c	5.47	60011 ^c	6.57	39690 ^c	8.10	79480 ^c	9.41	122328	12.03	165180	13.76
ZZZZZZ	29756	5.47	110290	6.57	72144	8.10	143588	9.41	195578	12.03	231189	13.76
ZZZZZZ	53258	5.47	209784	6.57	140451	8.10	271185	9.41	346411	12.03	397119	13.76
ZZZZZZ	34790	5.47	137364	6.57	94702	8.10	183359	9.41	270206	12.03	353825	13.76
ZZZZZZ	39881	5.47	157809	6.57	104214	8.10	204538	9.41	283182	12.03	343228	13.76
ZZZZZZ	20795	5.47	75947	6.57	48625	8.10	88760	9.41	118545 ^c	12.03	151675	13.76
ZZZZZZ	50306	5.47	195967	6.57	127948	8.10	241692	9.41	319111	12.03	366553	13.76
OP39514-BS	42890	5.47	166540	6.57	107005	8.10	198081	9.41	262973	12.03	293826	13.76
OP39514-MS	22732	5.47	89941	6.57	58782	8.10	108459	9.41	151697	12.03	172933	13.76
OP39514-MSD	35586	5.47	142868	6.57	91519	8.10	169093	9.41	226537	12.03	246873	13.76
OP39495-MB	32348	5.47	126471	6.57	80408	8.10	151129	9.41	198602	12.03	238527	13.76
OP39495-LB	32348	5.47	126471	6.57	80408	8.10	151129	9.41	198602	12.03	238527	13.76
OP39495-BS	42380	5.47	168042	6.57	108631	8.11	204148	9.41	268005	12.03	301924	13.76
OP39495-MS	14175 ^d	5.47	54648 ^d	6.57	34451 ^d	8.10	65840 ^d	9.41	88338 ^d	12.03	93858 ^d	13.76
OP39495-MSD	29214	5.47	112675	6.57	69713	8.10	127428	9.41	162919	12.03	182960	13.76
MC32957-1	29918	5.47	115187	6.57	72559	8.10	134637	9.41	178190	12.03	208876	13.76
ZZZZZZ	24462	5.47	91639	6.57	56488	8.10	107774	9.41	143444	12.03	164935	13.76
OP39507-BS	22999	5.47	86542	6.57	56967	8.10	108059	9.41	156243	12.03	191779	13.76
OP39507-MS	20366	5.47	78280	6.57	49289	8.10	94208	9.41	129240	12.03	160685	13.76
OP39507-MSD	21179	5.47	81841	6.57	51384	8.10	94356	9.41	128770	12.03	159249	13.75
MC33045-1	25894	5.47	95556	6.57	58763	8.10	110681	9.41	145716	12.03	194338	13.76

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

- (a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
- (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
- (c) Outside control limits. Confirmed by reanalysis.
- (d) Outside control limits due to possible matrix interference.

7.5.6
7

Semivolatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC33045-2	F75673.D	42	26	77	70	75	83
OP39514-BS	R39563.D	49	32	94	79	80	92
OP39514-MB	F75568.D	47	31	83	76	78	89
OP39514-MS	R39564.D	47	31	94	75	74	91
OP39514-MSD	R39565.D	50	33	93	77	79	91

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%

7.6.1

7

Semivolatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC33045-1	R39577.D	76	66	85	68	76	82
OP39507-BS	R39574.D	74	73	86	69	75	81
OP39507-MB	R39553.D	69	58	60	64	71	85
OP39507-MS	R39575.D	76	72	86	70	77	83
OP39507-MSD	R39576.D	72	69	82	67	75	81

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	30-130%
S2 = Phenol-d5	30-130%
S3 = 2,4,6-Tribromophenol	30-130%
S4 = Nitrobenzene-d5	30-130%
S5 = 2-Fluorobiphenyl	30-130%
S6 = Terphenyl-d14	30-130%

7.6.2
7

Semivolatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC33045-2	I91350.D	77	71	100
OP39515-BS	I91345.D	84	77	103
OP39515-BSD	I91395.D	85	79	103
OP39515-MB	I91344.D	81	75	103
OP39515-MS	I91346.D	81	74	103
OP39515-MSD	I91347.D	84	76	103

Surrogate Compounds Recovery Limits

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

7.6.3

7

Semivolatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8270D BY SIM

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC33045-1	I91330.D	36	36	37	74	71	98
OP39508-BS	I91327.D	36	35	42	75	75	100
OP39508-MB	I91326.D	36	36	37	74	71	105
OP39508-MS	I91328.D	35	35	43	75	75	99
OP39508-MSD	I91329.D	34	34	41	73	73	96

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%

7.6.4

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: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39555-MB	BB59382.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318

The QC reported here applies to the following samples:

Method: SW846 8011

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.73	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.5	0.61	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	127% 61-167%
460-00-4	Bromofluorobenzene (S)	137% 61-167%

8.1.1
8

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39646-MB	YZ91624.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636

The QC reported here applies to the following samples:

Method: SW846 8011

MC33045-2, MC33045-4

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.015	0.0061	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.015	0.0061	ug/l	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	80%	36-173%
460-00-4	Bromofluorobenzene (S)	74%	36-173%

8.1.2
8

Method Blank Summary

Job Number: MC33045
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GWX3651-MB	WX74951A.D	1	08/27/14	TB	n/a	n/a	GWX3651

The QC reported here applies to the following samples:

Method: SW846 8015

MC33045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	0.74	mg/kg	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	99% 61-116%

8.1.3
8

Method Blank Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4558-MB	AB85642.D	1	08/28/14	AF	n/a	n/a	GAB4558

The QC reported here applies to the following samples: Method: SW846 8015

MC33045-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	0.10	0.013	mg/l	

CAS No.	Surrogate Recoveries	Limits
	2,3,4-Trifluorotoluene	91% 60-135%

8.1.4
8

Blank Spike Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39646-BS	YZ91625.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636

The QC reported here applies to the following samples:

Method: SW846 8011

MC33045-2, MC33045-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
96-12-8	1,2-Dibromo-3-chloropropane	0.071	0.058	82	60-140
106-93-4	1,2-Dibromoethane	0.071	0.063	89	60-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	81%	36-173%
460-00-4	Bromofluorobenzene (S)	76%	36-173%

8.2.1
8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39555-BS	BB59383.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318
OP39555-BSD	BB59389.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318

The QC reported here applies to the following samples:

Method: SW846 8011

MC33045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	33	33.5	102	44.5	136	28	59-142/30
106-93-4	1,2-Dibromoethane	33	32.4	98	36.0	110	11	56-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	Bromofluorobenzene (S)	113%	100%	61-167%
460-00-4	Bromofluorobenzene (S)	128%	141%	61-167%

8.3.1
8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GWX3651-BSP	WX74952A.D	1	08/27/14	TB	n/a	n/a	GWX3651
GWX3651-BSD	WX74953A.D	1	08/27/14	TB	n/a	n/a	GWX3651

The QC reported here applies to the following samples:

Method: SW846 8015

MC33045-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	32.5	32.1	99	32.4	100	1	66-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	101%	96%	61-116%

8.3.2

8

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB4558-BSP	AB85643.D	1	08/28/14	AF	n/a	n/a	GAB4558
GAB4558-BSD	AB85644.D	1	08/28/14	AF	n/a	n/a	GAB4558

The QC reported here applies to the following samples:

Method: SW846 8015

MC33045-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	0.65	0.636	98	0.635	98	0	68-134/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
	2,3,4-Trifluorotoluene	100%	99%	60-135%



* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39555-MS	BB59387.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318
OP39555-MSD	BB59388.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318
MC33045-1	BB59391.D	1	08/27/14	NK	08/26/14	OP39555	GBB3318

The QC reported here applies to the following samples:

Method: SW846 8011

MC33045-1

CAS No.	Compound	MC33045-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
96-12-8	1,2-Dibromo-3-chloropropane	ND		34.3	55.9	163* ^a	34.1	50.5	148	10	40-156/27
106-93-4	1,2-Dibromoethane	ND		34.3	40.2	117	34.1	37.3	109	7	48-141/27

CAS No.	Surrogate Recoveries	MS	MSD	MC33045-1	Limits
460-00-4	Bromofluorobenzene (S)	107%	93%	94%	61-167%
460-00-4	Bromofluorobenzene (S)	142%	129%	130%	61-167%

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

8.4.1
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39646-MS	YZ91626.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636
OP39646-MSD	YZ91627.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636
MC33200-2	YZ91628.D	1	09/03/14	NK	09/02/14	OP39646	GYZ7636

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

MC33045-2, MC33045-4

CAS No.	Compound	MC33200-2 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	0.071	0.049	69	0.071	0.045	63* a	9	64-141/29
106-93-4	1,2-Dibromoethane	ND	0.071	0.055	77	0.071	0.052	73	6	63-163/27

CAS No.	Surrogate Recoveries	MS	MSD	MC33200-2	Limits
460-00-4	Bromofluorobenzene (S)	77%	66%	67%	36-173%
460-00-4	Bromofluorobenzene (S)	64%	60%	72%	36-173%

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

8.4.2
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33045-1MS	WX74956.D	1	08/27/14	TB	n/a	n/a	GWX3651
MC33045-1MSD	WX74957.D	1	08/27/14	TB	n/a	n/a	GWX3651
MC33045-1	WX74955.D	1	08/27/14	TB	n/a	n/a	GWX3651

The QC reported here applies to the following samples:

Method: SW846 8015

MC33045-1

CAS No.	Compound	MC33045-1 mg/kg	Spike Q	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD	
	TPH-GRO (VOA)	2.55	J	80.1	80.1	97	80.1	79.9	97	0	41-150/20

CAS No.	Surrogate Recoveries	MS	MSD	MC33045-1	Limits
	2,3,4-Trifluorotoluene	105%	104%	100%	61-116%

8.4.3
8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC33192-2MS	AB85648.D	1	08/28/14	AF	n/a	n/a	GAB4558
MC33192-2MSD	AB85649.D	1	08/28/14	AF	n/a	n/a	GAB4558
MC33192-2	AB85647.D	1	08/28/14	AF	n/a	n/a	GAB4558

The QC reported here applies to the following samples:

Method: SW846 8015

MC33045-2

CAS No.	Compound	MC33192-2 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND	0.65	0.640	98	0.65	0.642	99	0	72-131/20

CAS No.	Surrogate Recoveries	MS	MSD	MC33192-2	Limits
	2,3,4-Trifluorotoluene	100%	100%	92%	60-135%

8.4.4
8

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC33045-2	YZ91629.D	69	76
MC33045-4	YZ91630.D	70	76
OP39646-BS	YZ91625.D	81	76
OP39646-MB	YZ91624.D	80	74
OP39646-MS	YZ91626.D	77	64
OP39646-MSD	YZ91627.D	66	60

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 36-173%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
MC33045-1	BB59391.D	94	130
OP39555-BS	BB59383.D	113	128
OP39555-BSD	BB59389.D	100	141
OP39555-MB	BB59382.D	127	137
OP39555-MS	BB59387.D	107	142
OP39555-MSD	BB59388.D	93	129

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 61-167%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC33045-2	AB85646.D	94
GAB4558-BSD	AB85644.D	99
GAB4558-BSP	AB85643.D	100
GAB4558-MB	AB85642.D	91
MC33192-2MS	AB85648.D	100
MC33192-2MSD	AB85649.D	100

Surrogate Compounds	Recovery Limits
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S1 = 2,3,4-Trifluorotoluene	60-135%
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(a) Recovery from GC signal #1

Volatile Surrogate Recovery Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Method: SW846 8015

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a
MC33045-1	WX74955.D	100
GWX3651-BSD	WX74953A.D	96
GWX3651-BSP	WX74952A.D	101
GWX3651-MB	WX74951A.D	99
MC33045-1MS	WX74956.D	105
MC33045-1MSD	WX74957.D	104

Surrogate Compounds	Recovery Limits
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S1 = 2,3,4-Trifluorotoluene	61-116%
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(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4559-CC4486	Injection Date:	08/28/14
Lab File ID:	AB85641A.D	Injection Time:	07:26
Instrument ID:	GCAB	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	20.32	20.32
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GAB4558-MB	AB85642.D	08/28/14	08:04		20.32
GAB4559-MB	AB85642A.D	08/28/14	08:04	20.32	20.32
GAB4558-BSP	AB85643.D	08/28/14	08:42		20.32
GAB4559-BSP	AB85643A.D	08/28/14	08:42	20.32	20.32
GAB4558-BSD	AB85644.D	08/28/14	09:21		20.32
GAB4559-BSD	AB85644A.D	08/28/14	09:21	20.32	20.32
ZZZZZ	AB85645.D	08/28/14	10:00		20.32
MC33045-2	AB85646.D	08/28/14	10:38		20.32
MC33192-2	AB85647.D	08/28/14	11:16		20.32
MC33192-2MS	AB85648.D	08/28/14	11:54		20.32
MC33192-2MSD	AB85649.D	08/28/14	12:32		20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.1
8

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GWX3650-CC3234	Injection Date:	08/27/14
Lab File ID:	WX74950.D	Injection Time:	09:37
Instrument ID:	GCWX	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	19.95	19.95
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GWX3651-MB	WX74951A.D	08/27/14	10:14		19.95
GWX3650-MB	WX74951.D	08/27/14	10:14	19.95	19.95
GWX3650-BSP	WX74952.D	08/27/14	10:51	19.95	19.95
GWX3651-BSP	WX74952A.D	08/27/14	10:51		19.95
GWX3651-BSD	WX74953A.D	08/27/14	11:29		19.95
GWX3650-BSD	WX74953.D	08/27/14	11:29	19.95	19.95
ZZZZZZ	WX74954.D	08/27/14	12:06	19.95	19.95
MC33045-1	WX74955.D	08/27/14	12:44		19.95
MC33045-1MS	WX74956.D	08/27/14	13:22		19.95
MC33045-1MSD	WX74957.D	08/27/14	14:00		19.95
ZZZZZZ	WX74958.D	08/27/14	14:38		19.95
ZZZZZZ	WX74959.D	08/27/14	15:16		19.95
ZZZZZZ	WX74960.D	08/27/14	15:54		19.95

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.2
8

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBB3318-ICC3318	Injection Date:	08/27/14
Lab File ID:	BB59377.D	Injection Time:	09:51
Instrument ID:	GCBB	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.24	4.23
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
ZZZZZZ	BB59380.D	08/27/14	11:03	4.25	4.23
ZZZZZZ	BB59381.D	08/27/14	11:28	4.24	4.23
OP39555-MB	BB59382.D	08/27/14	11:52	4.24	4.23
OP39555-BS	BB59383.D	08/27/14	12:16	4.24	4.23
ZZZZZZ	BB59384.D	08/27/14	12:40	4.24	4.23
ZZZZZZ	BB59385.D	08/27/14	13:05	4.24	4.23
ZZZZZZ	BB59386.D	08/27/14	13:29	4.24	4.23
OP39555-MS	BB59387.D	08/27/14	13:54	4.24	4.23
OP39555-MSD	BB59388.D	08/27/14	14:18	4.24	4.23
OP39555-BSD	BB59389.D	08/27/14	14:42	4.24	4.23

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.3
8

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GBB3318-CC3318	Injection Date:	08/27/14
Lab File ID:	BB59390.D	Injection Time:	15:07
Instrument ID:	GCBB	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.24	4.23
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
MC33045-1	BB59391.D	08/27/14	15:31	4.24	4.23
ZZZZZZ	BB59392.D	08/27/14	15:56	4.24	4.23
ZZZZZZ	BB59393.D	08/27/14	16:20	4.24	4.23
ZZZZZZ	BB59394.D	08/27/14	16:45	4.24	4.23
GBB3318-ECC3318	BB59395.D	08/27/14	17:09	4.24	4.23

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.4
8

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GYZ7636-ICC7636	Injection Date:	09/03/14
Lab File ID:	YZ91620.D	Injection Time:	17:51
Instrument ID:	GCYZ	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	3.30	3.51
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP39646-MB	YZ91624.D	09/03/14	19:08	3.29	3.51
OP39646-BS	YZ91625.D	09/03/14	19:27	3.30	3.51
OP39646-MS	YZ91626.D	09/03/14	19:47	3.29	3.51
OP39646-MSD	YZ91627.D	09/03/14	20:06	3.30	3.51
MC33200-2	YZ91628.D	09/03/14	20:25	3.29	3.51
MC33045-2	YZ91629.D	09/03/14	20:44	3.30	3.51
MC33045-4	YZ91630.D	09/03/14	21:03	3.30	3.51
ZZZZZZ	YZ91631.D	09/03/14	21:22	3.29	3.51
ZZZZZZ	YZ91632.D	09/03/14	21:42	3.30	3.51
GYZ7636-ECC7636	YZ91633.D	09/03/14	22:01	3.30	3.51

Surrogate Compounds

S1 = Bromofluorobenzene (S)

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

8.6.5
8

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GAB4558-CC4488	Injection Date:	08/28/14
Lab File ID:	AB85641.D	Injection Time:	07:26
Instrument ID:	GCAB	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	20.32
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GAB4558-MB	AB85642.D	08/28/14	08:04		20.32
GAB4559-MB	AB85642A.D	08/28/14	08:04	20.32	20.32
GAB4558-BSP	AB85643.D	08/28/14	08:42		20.32
GAB4559-BSP	AB85643A.D	08/28/14	08:42	20.32	20.32
GAB4558-BSD	AB85644.D	08/28/14	09:21		20.32
GAB4559-BSD	AB85644A.D	08/28/14	09:21	20.32	20.32
ZZZZZ	AB85645.D	08/28/14	10:00		20.32
MC33045-2	AB85646.D	08/28/14	10:38		20.32
MC33192-2	AB85647.D	08/28/14	11:16		20.32
MC33192-2MS	AB85648.D	08/28/14	11:54		20.32
MC33192-2MSD	AB85649.D	08/28/14	12:32		20.32

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.6

GC Surrogate Retention Time Summary

Job Number: MC33045
 Account: SHELLWIC Shell Oil
 Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Check Std:	GWX3651-CC3510	Injection Date:	08/27/14
Lab File ID:	WX74950A.D	Injection Time:	09:37
Instrument ID:	GCWX	Method:	SW846 8015

S1^a S1^b
 RT RT

Check Std	19.95
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
GWX3651-MB	WX74951A.D	08/27/14	10:14		19.95
GWX3650-MB	WX74951.D	08/27/14	10:14	19.95	19.95
GWX3650-BSP	WX74952.D	08/27/14	10:51	19.95	19.95
GWX3651-BSP	WX74952A.D	08/27/14	10:51		19.95
GWX3651-BSD	WX74953A.D	08/27/14	11:29		19.95
GWX3650-BSD	WX74953.D	08/27/14	11:29	19.95	19.95
ZZZZZZ	WX74954.D	08/27/14	12:06	19.95	19.95
MC33045-1	WX74955.D	08/27/14	12:44		19.95
MC33045-1MS	WX74956.D	08/27/14	13:22		19.95
MC33045-1MSD	WX74957.D	08/27/14	14:00		19.95
ZZZZZZ	WX74958.D	08/27/14	14:38		19.95
ZZZZZZ	WX74959.D	08/27/14	15:16		19.95
ZZZZZZ	WX74960.D	08/27/14	15:54		19.95

Surrogate Compounds

S1 = 2,3,4-Trifluorotoluene

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

8.6.7
8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC33045

Account: SHELLWIC Shell Oil

Project: URSMOSTL: Roxana 4th St. Extension Well Instal, 900 South Central Ave, Roxana,IL

Sample: MC33045-1 Analyzed: 22-AUG-14 by HS
ClientID: SVE44-082014(30-36')

Method: SM21 2540 B MOD.

Wet Weight (Total)	35.751	g
Tare Weight	24.765	g
Dry Weight (Total)	35.375	g
Solids, Percent	96.6	%
