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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
Soil Vapor Sampling and SVE Monitoring – 3rd Quarter 2014
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 figures
- 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

Robert Billman, PG
Senior Project Manager

Robert E. Mooshegian, CHMM
Senior Program Manager

Enclosures: 2 copies

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

Illinois Environmental Protection Agency

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

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.

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: [signature] 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: [signature] 5/17/17 Date

Professional's Name: Robert B. Billman

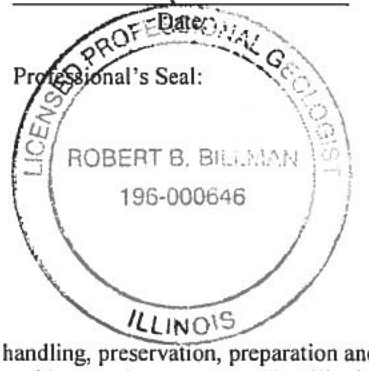
Professional's Address: AECOM Technical Services, Inc.

1001 Highlands Plaza Drive West, Suite 300

St. Louis, MO 63110

Professional's Phone No.: 314-429-0100

Professional's Seal:



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

5.17.17

Signature of Laboratory Responsible Officer — Date

HOSSAIN (BABU) MADAJAN

Name and Title of Laboratory Responsible Officer

LAB Director

Mailing Address of Laboratory:

50 D'Angelo Drive

495 Technology Center West, Building I

Marlboro, MA 01752

LEGAL REVIEWED
BY: MD
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	VMP15-29-073014(28-30')	MC32497-1	07/30/2014	Acrolein	ND	ND		mg/kg	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	VMP15-29-073014(28-30')DUP	MC32497-2	07/30/2014	Acrolein	ND	ND		mg/kg	Ana: Continuing Calibration Verification outside of acceptance criteria. Sample result may be biased low.	UJ
SW846 8260C	VMP15-25.5-073114(24- 28')	MC32521-1	07/31/2014	Acrolein	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.

SEE LAST PAGE OF TABLE FOR NOTES

SUMMARY OF SOIL ANALYTICAL DATA
VMP-15

Location	Sample ID	Depth	Sample Date	Hydrocarbons			VOCs																
				TPH-GRO (VOA)			1,1,1,2-Tetrachloroethane			1,1,1-Trichloroethane (Methyl chloroform)			1,1,2,2-Tetrachloroethane			1,1,2-Trichloroethane			1,1-Dichloroethane			1,1-Dichloroethene		
							3.4			2			3.3			0.02			23			0.06		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 14	U		< 0.0055	U		< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0022	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 13	U		< 0.0053	U		< 0.0021	U		< 0.0021	U		< 0.0021	U		< 0.0021	U		< 0.0021	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 13	U		< 0.0054	U		< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0022	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				1,1-Dichloropropene			1,2,3-Trichlorobenzene			1,2,3-Trichloropropane			1,2,4-Trichlorobenzene			1,2,4-Trimethylbenzene			1,2-Dibromo-3-chloropropane (DBCP)			1,2-Dibromoethane		
										0.0001			5						0.002			0.0004		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0055	U		< 0.0055	U		< 0.0055	U		< 0.0055	U		< 0.0055	U		< 0.0028	U		< 0.0028	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0053	U		< 0.0053	U		< 0.0053	U		< 0.0053	U		< 0.0053	U		< 0.0051	U		< 0.0051	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0054	U		< 0.0054	U		< 0.0054	U		< 0.0054	U		< 0.0054	U		< 0.0051	U		< 0.0051	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				1,2-Dichlorobenzene			1,2-Dichloroethane			1,2-Dichloropropane			1,3,5-Trimethylbenzene			1,3-Dichlorobenzene			1,3-Dichloropropane			1,4-Dichlorobenzene		
				17			0.02			0.03			10						0.83			2		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0055	U		< 0.0022	U		< 0.0055	U		< 0.0022	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0021	U		< 0.0021	U		< 0.0021	U		< 0.0053	U		< 0.0021	U		< 0.0053	U		< 0.0021	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0054	U		< 0.0022	U		< 0.0054	U		< 0.0022	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				1,4-Dioxane			2,2-Dichloropropane			2-Butanone			2-Chloroethyl vinyl ether			2-Chlorotoluene			2-Hexanone (Methyl N-Butyl Ketone)			4-Chlorotoluene		
										17						4								
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.028	U		< 0.0055	U		< 0.011	U		< 0.0055	U		< 0.0055	U		< 0.011	U		< 0.0055	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.027	U		< 0.0053	U		< 0.011	U		< 0.0053	U		< 0.0053	U		< 0.011	U		< 0.0053	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.027	U		< 0.0054	U		< 0.011	U		< 0.0054	U		< 0.0054	U		< 0.011	U		< 0.0054	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				4-Methyl-2-pentanone (Methyl Isobutyl Ketone)			Acetone			Acrolein			Acrylonitrile			Benzene			Bromobenzene			Bromochloromethane		
							25									0.03			2.2					
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0055	U		< 0.011	U		< 0.028	U	UJ	< 0.028	U		0.004			< 0.0055	U		< 0.0055	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0053	U		< 0.011	U		< 0.027	U	UJ	< 0.027	U		0.0072			< 0.0053	U		< 0.0053	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0054	U		< 0.011	U		< 0.027	U	UJ	< 0.027	U		0.0058			< 0.0054	U		< 0.0054	U	

SUMMARY OF SOIL ANALYTICAL DATA
VMP-15

Location	Sample ID	Depth	Sample Date	VOCs																			
				Bromodichloromethane			Bromoform			Bromomethane			Carbon disulfide			Carbon tetrachloride			Chlorobenzene			Chlorodibromomethane		
				0.6			0.8			0.2			32			0.07			1			0.4		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0022	U		< 0.0022	U		< 0.0022	U		0.00079	J		< 0.0022	U		< 0.0022	U		< 0.0022	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0021	U		< 0.0021	U		< 0.0021	U		0.0015	J		< 0.0021	U		< 0.0021	U		< 0.0021	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0022	U		< 0.0022	U		< 0.0022	U		0.0005	J		< 0.0022	U		< 0.0022	U		< 0.0022	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				Chloroethane			Chloroform			Chloromethane			cis-1,2-Dichloroethene			cis-1,3-Dichloropropene			Cymene (p-Isopropyltoluene)			Dibromomethane		
							0.6						0.4			0.004						0.34		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0055	U		< 0.0022	U		< 0.0055	U		< 0.0022	U		< 0.0022	U		< 0.0055	U		< 0.0055	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0053	U		< 0.0021	U		< 0.0053	U		< 0.0021	U		< 0.0021	U		< 0.0053	U		< 0.0053	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0054	U		< 0.0022	U		< 0.0054	U		< 0.0022	U		< 0.0022	U		< 0.0054	U		< 0.0054	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				Dichlorodifluoromethane			Dichloromethane (Methylene chloride)			Ethyl methacrylate			Ethylbenzene			Hexachlorobutadiene			Isopropylbenzene (Cumene)			m,p-Xylenes		
							0.02						13			2.2			91			150		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0022	U		< 0.0022	U		< 0.0055	U		< 0.0022	U		< 0.0055	U		< 0.0055	U		< 0.0022	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0021	U		< 0.0021	U		< 0.0053	U		< 0.0021	U		< 0.0053	U		< 0.0053	U		< 0.0021	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0022	U		< 0.0022	U		< 0.0054	U		< 0.0022	U		< 0.0054	U		< 0.0054	U		< 0.0022	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				Methyl tert-Butyl Ether (MTBE)			Naphthalene			n-Butylbenzene			n-Propylbenzene			o-Xylenes			sec-Butylbenzene			Styrene		
				0.32			12									190						4		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0022	U		< 0.0055	U		< 0.0055	U		< 0.0055	U		< 0.0022	U		< 0.0055	U		< 0.0055	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0021	U		< 0.0053	U		< 0.0053	U		< 0.0053	U		< 0.0021	U		< 0.0053	U		< 0.0053	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0022	U		< 0.0054	U		< 0.0054	U		< 0.0054	U		< 0.0022	U		< 0.0054	U		< 0.0054	U	

Location	Sample ID	Depth	Sample Date	VOCs																			
				tert-Butylbenzene			Tetrachloroethene			Toluene			trans-1,2-Dichloroethene			trans-1,3-Dichloropropene			Trichloroethene			Trichlorofluoromethane		
							0.06			12			0.7						0.06			34		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0055	U		< 0.0022	U		< 0.0055	U		< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0022	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0053	U		< 0.0021	U		0.00056	J		< 0.0021	U		< 0.0021	U		< 0.0021	U		< 0.0021	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0054	U		< 0.0022	U		< 0.0054	U		< 0.0022	U		< 0.0022	U		< 0.0022	U		< 0.0022	U	

SEE LAST PAGE OF TABLE FOR NOTES

SUMMARY OF SOIL ANALYTICAL DATA
VMP-15

Location	Sample ID	Depth	Sample Date	VOCs									SVOCs										
				Vinyl acetate			Vinyl chloride			Xylenes (total)			1,2-Diphenylhydrazine			1-Methylnaphthalene			2,4,5-Trichlorophenol			2,4,6-Trichlorophenol		
				170			0.01			150									270			0.2		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0055	U		< 0.0022	U		< 0.0022	U		< 0.28	U		< 0.011	U		< 0.56	U		< 0.56	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0053	U		< 0.0021	U		< 0.0021	U		< 0.26	U		< 0.01	U		< 0.52	U		< 0.52	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0054	U		< 0.0022	U		< 0.0022	U		< 0.26	U		< 0.01	U		< 0.51	U		< 0.51	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				2,4-Dichlorophenol			2,4-Dimethylphenol			2,4-Dinitrophenol			2,4-Dinitrotoluene			2,6-Dinitrotoluene			2-Chloronaphthalene			2-Chlorophenol		
				1			9			0.2			0.0008			0.0007						4		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.56	U		< 0.56	U		< 1.1	U		< 0.56	U		< 0.56	U		< 0.28	U		< 0.28	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.52	U		< 0.52	U		< 1	U		< 0.52	U		< 0.52	U		< 0.26	U		< 0.26	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.51	U		< 0.51	U		< 1	U		< 0.51	U		< 0.51	U		< 0.26	U		< 0.26	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				2-Methylnaphthalene			2-Methylphenol (o-Cresol)			2-Nitroaniline			2-Nitrophenol			3 & 4-Methylphenol (m & p-Cresol)			3,3'-Dichlorobenzidine			3-Nitroaniline		
							15												0.007					
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.011	U		< 0.56	U		< 0.56	U		< 0.56	U		< 0.56	U		< 0.28	U		< 0.56	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.01	U		< 0.52	U		< 0.52	U		< 0.52	U		< 0.52	U		< 0.26	U		< 0.52	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.01	U		< 0.51	U		< 0.51	U		< 0.51	U		< 0.51	U		< 0.26	U		< 0.51	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				4,6-Dinitro-2-methylphenol (4,6-dinitro-o-cresol)			4-Bromophenyl phenyl ether			4-Chloro-3-methylphenol (p-Chloro-m-cresol)			4-Chlorophenyl phenyl ether			4-Nitrophenol			4-Nitrophenylamine			Acenaphthene		
																						570		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.56	U		< 0.28	U		< 0.56	U		< 0.28	U		< 1.1	U		< 0.56	U		< 0.0056	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.52	U		< 0.26	U		< 0.52	U		< 0.26	U		< 1	U		< 0.52	U		< 0.0051	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.51	U		< 0.26	U		< 0.51	U		< 0.26	U		< 1	U		< 0.51	U		< 0.0051	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				Acenaphthylene			Aniline			Anthracene			Benzo(a)anthracene			Benzo(a)pyrene			Benzo(b)fluoranthene			Benzo(g,h,i)perylene		
										12000			2			8			5					
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0056	U		< 0.56	U		< 0.0056	U		< 0.0056	U		< 0.0056	U		< 0.0056	U		0.0018	J	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0051	U		< 0.52	U		< 0.0051	U		< 0.0051	U		< 0.0051	U		< 0.0051	U		< 0.0051	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0051	U		< 0.51	U		< 0.0051	U		< 0.0051	U		< 0.0051	U		< 0.0051	U		< 0.0051	U	

SEE LAST PAGE OF TABLE FOR NOTES

SUMMARY OF SOIL ANALYTICAL DATA
VMP-15

Location	Sample ID	Depth	Sample Date	SVOCs																			
				Benzo(k)fluoranthene			Benzoic Acid			Benzyl alcohol			bis(2-Chloroethoxy)methane			bis(2-Chloroethyl)ether			Bis(2-chloroisopropyl)ether			bis(2-Ethylhexyl)phthalate		
				49												0.0004						3600		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.0056	U		< 0.56	U		< 0.56	U	UJ	< 0.28	U		< 0.28	U		< 0.28	U		< 0.28	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0051	U		< 0.52	U		< 0.52	U	UJ	< 0.26	U		< 0.26	U		< 0.26	U		< 0.26	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0051	U		< 0.51	U		< 0.51	U	UJ	< 0.26	U		< 0.26	U		< 0.26	U		< 0.26	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				Butyl benzyl phthalate			Chrysene (1,2-Benzphenanthracene)			Dibenzo(a,h)anthracene			Dibenzofuran			Diethyl phthalate			Dimethyl phthalate			Di-n-butyl phthalate		
				930			160			2						470						2300		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.28	U		< 0.0056	U		< 0.0056	U		< 0.11	U		< 0.28	U		< 0.28	U		< 0.28	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.26	U		< 0.0051	U		< 0.0051	U		< 0.1	U		< 0.26	U		< 0.26	U		< 0.26	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.26	U		< 0.0051	U		< 0.0051	U		< 0.1	U		< 0.26	U		< 0.26	U		< 0.26	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				Di-n-octyl phthalate			Fluoranthene			Fluorene			Hexachlorobenzene			Hexachlorocyclopentadiene			Hexachloroethane			Indeno(1,2,3-cd)pyrene		
				10000			560			560			2			400			0.5			14		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.28	U		< 0.0056	U		< 0.0056	U		< 0.28	U		< 0.56	U		< 0.28	U		< 0.0056	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.26	U		< 0.0051	U		< 0.0051	U		< 0.26	U		< 0.52	U		< 0.26	U		0.0014	J	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.26	U		< 0.0051	U		< 0.0051	U		< 0.26	U		< 0.51	U		< 0.26	U		< 0.0051	U	

Location	Sample ID	Depth	Sample Date	SVOCs																			
				Isophorone (3,5,5-trimethyl-2-cyclohexene-1-one)			Nitrobenzene			N-Nitrosodimethylamine			N-Nitrosodi-n-propylamine			N-Nitrosodiphenylamine			p-Chloroaniline			Pentachlorophenol		
				8			0.1						0.00005			1			0.7			0.03		
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	< 0.28	U		< 0.28	U		< 0.28	U		< 0.28	U		< 0.28	U		< 0.56	U		< 0.56	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.26	U		< 0.26	U		< 0.26	U		< 0.26	U		< 0.26	U		< 0.52	U		< 0.52	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.26	U		< 0.26	U		< 0.26	U		< 0.26	U		< 0.26	U		< 0.51	U		< 0.51	U	

SUMMARY OF SOIL ANALYTICAL DATA
VMP-15

				SVOCs											
Location	Sample ID	Depth	Sample Date	Phenanthrene			Phenol			Pyrene			Pyridine		
							100			4200					
				Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals	Result (mg/kg)	Lab Quals	URS Quals
VMP-15	VMP15-25.5-073114(24-28')	24 - 28 ft	7/31/2014	0.0015	J		< 0.28	U		< 0.0056	U		< 0.56	U	
VMP-15	VMP15-29-073014(28-30')	28 - 30 ft	7/30/2014	< 0.0051	U		< 0.26	U		< 0.0051	U		< 0.52	U	
VMP-15	VMP15-29-073014(28-30')DUP	28 - 30 ft	7/30/2014	< 0.0051	U		< 0.26	U		< 0.0051	U		< 0.51	U	

Notes

Lab Qualifiers

J = Estimated value; results between the MDL and RL

U = Compound analyzed for but not detected above the RL

URS Qualifiers

J = Estimated detection

UJ = Estimated non-detect

U = Non-detect due to blank contamination

ND, UJ = Non-detected compound associated with low bias in the continuing calibration verification

File: \\URSSTLOUIS\STLOUIS\PROJECTS\ENVIRONMENTAL\SHELL\ACCUTEST DATA REVIEW\1. DRAFT DELIVERABLES\2014.10.30 – ROXANA SV-SVE 3Q14 RPT\FIGURES\FIG 12 – 3Q14 DISS PH BENZ IN GW.DWG Last edited: MAY 05, 17 @ 08:46 a.m. by: wendy.pennington

LEGEND

- GROUNDWATER MONITORING WELL SAMPLING LOCATION
- GROUNDWATER MONITORING WELL LOCATION NOT SAMPLED
- GROUNDWATER MONITORING WELL LNAPL THICKNESS
- GROUNDWATER PIEZOMETER SAMPLING LOCATION
- GROUNDWATER PIEZOMETER LOCATION NOT SAMPLED
- GROUNDWATER PIEZOMETER LNAPL THICKNESS
- LNAPL THICKNESS CONTOUR (FEET)
- EXTENT OF EVS MODEL DATA SET
- 50.0 GROUNDWATER CONCENTRATION BENZENE (mg/L)

NOTES:

1. IMAGES GENERATED UTILIZING CTECH ENVIRONMENTAL VISUALIZATION SYSTEM MODELING SOFTWARE. CONCENTRATIONS BETWEEN KNOWN DATA POINTS (E.G. GROUNDWATER MONITORING WELLS) ARE INTERPOLATIONS AND EXTRAPOLATIONS OF THE MEASURED DATA. SOME INTERPRETATION WAS COMPLETED UTILIZING PROFESSIONAL JUDGEMENT AND CONTOUR LINES WERE MODIFIED BY HAND.
2. ALL RESULTS SHOWN IN mg/L.
3. ANALYTICAL REPORTING LIMITS ARE SHOWN FOR SAMPLES WITH NON-DETECT RESULTS (e.g., <0.0005 mg/L).
4. J = THE TARGET ANALYTE WAS DETECTED BELOW THE REPORTING LIMIT AND THE RESULT IS ESTIMATED.
   U = RESULTS IS NON-DETECT.
5. NON-DETECT VALUES ARE MODELED AT HALF THE REPORTING LIMIT.
6. MULTIPLE RESULTS (e.g. 1290/1390) INDICATE DUPLICATE SAMPLES.
7. CONTOUR LINES IN AREA OF P-55 ADJUSTED BASED ON AVAILABLE 3Q14 AND HISTORICAL ANALYTICAL DATA FROM WELLS IN THE AREA.

LNAPL THICKNESS WAS MEASURED DURING THE COMPREHENSIVE GROUNDWATER MONITORING GAUGING EVENT ON JULY 1–3, 2014. REFER TO TABLE 1 FOR GROUNDWATER GAUGING INFORMATION.

SECOND ST
THIRD ST
FOURTH ST
FIFTH ST
SIXTH ST
SEVENTH ST
EIGHTH ST
HIGHWAY 111 (S. CENTRAL AVE)
CHAFFER ST
RAND AVENUE
VILLAGE OF ROXANA
BP
NORTH PROPERTY
WOOD RIVER REFINERY
MAIN PROPERTY
WEST PROPERTY
PUBLIC WORKS YARD
A-27
A-28
1986 APPROXIMATE BENZENE RELEASE SITE

MW-9 <0.0005
MW-10 <0.0005
MW-11 <0.0005
MW-24 <0.0005
MW-22 1.74
MW-18
MW-19
MW-16 <0.0005
MW-12 <0.0005
MW-1 <0.0005
MW-2 0.0102J
MW-3 0.00062
MW-4 1.86
MW-5 0.001
MW-7 1270/1370
MW-8 276
MW-13 <0.0005
P-54 <0.0005
P-114 <0.0005
P-55 0.13
P-60-11
P-60-S 0.02
P-60 0.08
P-68 0.05
P-59 12.2
P-56 0.127J
P-57 378/371
P-58 406
P-74 0.309
P-61 0.74*
P-70 0.66*
P-66 0.0429
MW-6A <0.0005
MW-6B <0.0005
MW-6C <0.0005
MW-6D <0.0005/ <0.0005
MW-14 <0.0005
T-12 2.1
T-24 0.17
P-93A 170/174
P-93B 172
P-93C 1.52
P-93D 0.00063
ROST-4-PZ(A)
ROST-4-PZ(B)
ROST-4-PZ(C) 0.0751
ROST-4-PZ(D)
ROST-4-PZ(E)
ROST-4-PZ(F)
ROST-4-PZ(G)
ROST-3-MW 0.0058
0.10
0.01
0.005
0.05
0.5
5.0
50.0
500.0

0 200 SCALE FEET

SHELL OIL PRODUCTS US
SOIL VAPOR MONITORING PROGRAM
ROXANA, ILLINOIS

PROJECT NO. 21562973

URS

REVISION 1 MAY 2017

DRN. BY: djd October 2014
DSGN. BY: djd
CHKD. BY: mcc

3Q14 Dissolved Phase Benzene Concentrations in Groundwater

FIG. NO. 12

e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

21562973.18000

SGS Accutest Job Number: MC32497

Sampling Date: 07/30/14

Report to:

AECOM, INC.

elizabeth.kunkel@aecom.com

ATTN: Elizabeth Kunkel

Total number of pages in report: 95

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)

SGS ACCUTEST

October 27, 2016

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

RE: SGS Accutest Job # MC32497

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

January 17, 2017

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

RE: SGS Accutest Job # MC32497 (reissue #2)

Dear Elizabeth Kunkel,

The report of SGS Accutest job number MC32497 has been revised and reissued due to report corrected ICVs which were originally evaluated based on DoD criteria in sample MC32497-3. These corrections have been incorporated into the revised report.

Sincerely,

H. (Brad) Madadian

Regional Laboratory Director
SGS Accutest Inc. - Marlborough

Sections: 1 2 3 4 5 6 7 8 9

Table of Contents

Sample Summary

Shell Oil

Job No: MC32497

URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Project No: 21562973.18000

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
MC32497-1	07/30/14	11:00		07/31/14	SO	Soil	VMP15-29-073014(28-30')
MC32497-2	07/30/14	11:00		07/31/14	SO	Soil	VMP15-29-073014(28-30')DUP
MC32497-3	07/30/14	00:00		07/31/14	AQ	Trip Blank Water	TB-073014-HCL
MC32497-4	07/30/14	00:00		07/31/14	AQ	Trip Blank Water	TB-073014-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** MC32497

Site: URSMOSTL: Roxana VMP- 5 Rep acement, 900 South Centra Av **Report Date** / 7/20 7 4:33:50 PM

2 Samp e(s), 2 Tr p B ank(s) were co ected on 07/30/20 4 and were rece ved at SGS Accutest New Eng and on 07/3 /20 4 proper y preserved, at 4 Deg C and ntact These Samp es rece ved a job number of MC32497 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

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:** MSL3863

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC32562- MS, MC32562- 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 Acro e n, D ch orod f uoromethane are outs de contro m ts
- Matr x Sp ke Recovery(s) for 2-Butanone (MEK), 2-Hexanone, Acetone, D ch orod f uoromethane 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-Hexanone, Acetone are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference

Matrix: SO **Batch ID:** MSM2388

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC3252 - MS, MC3252 - 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 Acro e n are outs de contro m ts
- Matr x Sp ke Recovery(s) for , , ,2-Tetrach oroethane, , , -Tr ch oroethane, , -D ch oroethene, , -D ch oropropene, ,2,4-Tr methy benzene, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,4-D ch orobenzene, ,4-D oxane, 2,2-D ch oropropane, 2-Ch oroethy v ny ether, Acro e n, Benzene, Carbon d su f de, Carbon tetrach or de, Ch orobenzene, Ch oroform, c s- ,2-D ch oroethene, Ethy benzene, Hexach orobutad ene, Isopropy benzene, m,p-Xy ene, n-Buty benzene, n-Propy benzene, 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, Tr ch oroethene, V ny Acetate, Xy ene (tota) 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-Tetrach oroethane, , , -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 oropropane, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,4-D ch orobenzene, 2,2-D ch oropropane, 2-Butanone (MEK), 2-Ch oroethy v ny ether, Acetone, Benzene, Bromobenzene, Carbon d su f de, Carbon tetrach or de, Ch orobenzene, Ch oroform, c s- ,2-D ch oroethene, Ethy benzene, Hexach orobutad ene, Isopropy benzene, m,p-Xy ene, n-Buty benzene, n-Propy benzene, 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, Tr ch oroethene, V ny Acetate, Xy ene (tota), 2-Hexanone, Acro e n are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference
- RPD(s) for MSD for ,2,3-Tr ch oropropane, 2-Hexanone, 4-Methy -2-pentanone (MIBK), Acro e n, Naphtha ene are outs de contro m ts for samp e MC3252 - MSD H gh RPD due to poss b e matr x nterference and/or samp e non-homogene ty
- Acro e n: 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

Extractables by GCMS By Method SW846 8270D

Matrix: SO **Batch ID:** OP392

- 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) MC3252 - MS, MC3252 - 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/B ank Sp ke Dup cate Recovery(s) for Benzy A coho are outs de contro m ts
- Matr x Sp ke/Matr x Sp ke Dup cate Recovery(s) for Benzo c ac d are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference Refer to B ank Sp ke
- RPD(s) for MSD for Benzo c ac d are outs de contro m ts for samp e OP392 -MSD H gh RPD due to poss b e matr x nterference and/or samp e heterogene ty
- RPD of OP392 -BSD for Benzo c ac d: Outs de contro m ts

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: SO **Batch ID:** OP39255

- 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) MC32549- MS, MC32549- 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
- OP39255-MS/MSD Recovery(s) for -Methy naphtha ene, 2-Methy naphtha ene are outs de contro m ts Outs de contro m ts due to h gh eve n samp e re at ve to sp ke amount

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP39247

- 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) MC32300- 9MS, MC32300- 9MSD were used as the QC samp es nd cated

Matrix: SO **Batch ID:** OP39257

- 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) MC3252 - MS, MC3252 - MSD were used as the QC samp es nd cated

Volatiles by GC By Method SW846 8015

Matrix: SO **Batch ID:** GAB4535

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC3252 - MS, MC3252 - 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

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN47846

- Samp e(s) MC3252 - DUP were used as the QC samp es for So ds, Percent

SGS Accutest New Eng and cert f es that a ana ys s were performed w th n method spec f cat on It s further recommended that th s report to be used n ts ent rety The Laborato y D rector for SGS Accutest New Eng and or ass gnee as ver f ed by the s gnature on the cover page has author zed the re ease of th s repo t(MC32497)

Summary of Hits

Job Number: MC32497
Account: Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Collected: 07/30/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC32497-1	**VMP15-29-073014(28-30')**					
Benzene		0.0072	0.00053	0.00036	mg/kg	SW846 8260C
Carbon disulfide		0.0015 J	0.0053	0.00014	mg/kg	SW846 8260C
Toluene		0.00056 J	0.0053	0.00022	mg/kg	SW846 8260C
Indeno(1,2,3-cd)pyrene		0.0014 J	0.0051	0.0013	mg/kg	SW846 8270D BY SIM
MC32497-2	**VMP15-29-073014(28-30')DUP**					
Benzene		0.0058	0.00054	0.00037	mg/kg	SW846 8260C
Carbon disulfide		0.00050 J	0.0054	0.00014	mg/kg	SW846 8260C
MC32497-3	**TB-073014-HCL**					
No hits reported in this sample.						
MC32497-4	**TB-073014-ST**					
No hits reported in this sample.						

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M67513.D	1	08/12/14	KD	n/a	n/a	MSM2388
Run #2							

	Initial Weight	Final Volume
Run #1	4.93 g	5.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0030	mg/kg	
107-02-8	Acrolein [a]	ND	0.027	0.0094	mg/kg	
107-13-1	Acrylonitrile	ND	0.027	0.0029	mg/kg	
71-43-2	Benzene	0.0072	0.00053	0.00036	mg/kg	
108-86-1	Bromobenzene	ND	0.0053	0.00027	mg/kg	
74-97-5	Bromochloromethane	ND	0.0053	0.00037	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00022	mg/kg	
75-25-2	Bromoform	ND	0.0021	0.00038	mg/kg	
74-83-9	Bromomethane	ND	0.0021	0.00064	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0033	mg/kg	
104-51-8	n-Butylbenzene	ND	0.0053	0.00026	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0053	0.00080	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0053	0.00023	mg/kg	
75-15-0	Carbon disulfide	0.0015	0.0053	0.00014	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.0021	0.00023	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0053	0.00081	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.0053	0.0013	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00018	mg/kg	
74-87-3	Chloromethane	ND	0.0053	0.00060	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.0053	0.00021	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.0053	0.00028	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00034	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0021	0.00023	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0021	0.00032	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0021	0.00037	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0021	0.00086	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0021	0.00029	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0021	0.00034	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0021	0.00044	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0021	0.00048	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0021	0.00045	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:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00045	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.0053	0.00035	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.0053	0.00060	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.0053	0.00028	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00024	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.027	0.021	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.0053	0.00038	mg/kg	
100-41-4	Ethylbenzene	ND	0.0021	0.00074	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.0053	0.00061	mg/kg	
591-78-6	2-Hexanone	ND	0.011	0.00081	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0053	0.00018	mg/kg	
99-87-6	p-Isopropyltoluene	ND	0.0053	0.00019	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0021	0.00019	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.0053	0.00058	mg/kg	
74-95-3	Methylene bromide	ND	0.0053	0.00049	mg/kg	
75-09-2	Methylene chloride	ND	0.0021	0.00057	mg/kg	
91-20-3	Naphthalene	ND	0.0053	0.00042	mg/kg	
103-65-1	n-Propylbenzene	ND	0.0053	0.00016	mg/kg	
100-42-5	Styrene	ND	0.0053	0.00018	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.0053	0.00043	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00042	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00033	mg/kg	
108-88-3	Toluene	0.00056	0.0053	0.00022	mg/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	0.0053	0.00046	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0053	0.00055	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00023	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00061	mg/kg	
79-01-6	Trichloroethene	ND	0.0021	0.00026	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0021	0.00042	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.0053	0.00031	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0053	0.0015	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0053	0.0016	mg/kg	
108-05-4	Vinyl Acetate	ND	0.0053	0.0016	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00097	mg/kg	
	m,p-Xylene	ND	0.0021	0.00047	mg/kg	
95-47-6	o-Xylene	ND	0.0021	0.00030	mg/kg	
1330-20-7	Xylene (total)	ND	0.0021	0.00023	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:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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	89%		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	mg/kg	

(a) Continuing 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:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X04143.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
Run #2							

	Initial Weight	Final Volume
Run #1	20.3 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.52	0.065	mg/kg	
95-57-8	2-Chlorophenol	ND	0.26	0.012	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.52	0.013	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.52	0.015	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.52	0.085	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.0	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.52	0.065	mg/kg	
95-48-7	2-Methylphenol	ND	0.52	0.021	mg/kg	
	3&4-Methylphenol	ND	0.52	0.025	mg/kg	
88-75-5	2-Nitrophenol	ND	0.52	0.014	mg/kg	
100-02-7	4-Nitrophenol	ND	1.0	0.097	mg/kg	
87-86-5	Pentachlorophenol	ND	0.52	0.037	mg/kg	
108-95-2	Phenol	ND	0.26	0.015	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.52	0.013	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.52	0.013	mg/kg	
62-53-3	Aniline	ND	0.52	0.026	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.26	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.26	0.011	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.52	0.026	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.26	0.014	mg/kg	
106-47-8	4-Chloroaniline	ND	0.52	0.013	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.26	0.012	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.26	0.016	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.26	0.019	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.26	0.016	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.26	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.52	0.035	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.52	0.013	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.26	0.026	mg/kg	
132-64-9	Dibenzofuran	ND	0.10	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.26	0.028	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.26	0.0081	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:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.26	0.013	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.26	0.015	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.26	0.0096	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.26	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.52	0.13	mg/kg	
67-72-1	Hexachloroethane	ND	0.26	0.013	mg/kg	
78-59-1	Isophorone	ND	0.26	0.012	mg/kg	
88-74-4	2-Nitroaniline	ND	0.52	0.013	mg/kg	
99-09-2	3-Nitroaniline	ND	0.52	0.028	mg/kg	
100-01-6	4-Nitroaniline	ND	0.52	0.013	mg/kg	
98-95-3	Nitrobenzene	ND	0.26	0.014	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.26	0.012	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.26	0.015	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.26	0.016	mg/kg	
110-86-1	Pyridine	ND	0.52	0.026	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		30-130%
4165-62-2	Phenol-d5	78%		30-130%
118-79-6	2,4,6-Tribromophenol	95%		30-130%
4165-60-0	Nitrobenzene-d5	81%		30-130%
321-60-8	2-Fluorobiphenyl	77%		30-130%
1718-51-0	Terphenyl-d14	96%		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:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8270D BY SIM SW846 3546	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91098.D	1	08/08/14	MR	08/04/14	OP39255	MSI3392
Run #2							

	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	0.0051	0.00088	mg/kg	
208-96-8	Acenaphthylene	ND	0.0051	0.00078	mg/kg	
120-12-7	Anthracene	ND	0.0051	0.0011	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0051	0.0023	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0051	0.0020	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0051	0.0023	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.0051	0.0014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0051	0.0016	mg/kg	
218-01-9	Chrysene	ND	0.0051	0.0014	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0051	0.0015	mg/kg	
206-44-0	Fluoranthene	ND	0.0051	0.0015	mg/kg	
86-73-7	Fluorene	ND	0.0051	0.0010	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0014	0.0051	0.0013	mg/kg	J
90-12-0	1-Methylnaphthalene	ND	0.010	0.0011	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.010	0.00095	mg/kg	
85-01-8	Phenanthrene	ND	0.0051	0.0011	mg/kg	
129-00-0	Pyrene	ND	0.0051	0.0016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		30-130%
321-60-8	2-Fluorobiphenyl	69%		30-130%
1718-51-0	Terphenyl-d14	95%		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:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39970.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
Run #2							

	Initial Weight	Final Volume
Run #1	15.4 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	0.0051	0.0015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0051	0.0013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	99%		61-167%
460-00-4	Bromofluorobenzene (S)	145%		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

Report of Analysis

Client Sample ID:	VMP15-29-073014(28-30')		
Lab Sample ID:	MC32497-1	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8015	**Percent Solids:**	94.9
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85243.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.07 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	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

Report of Analysis

Client Sample ID:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M67514.D	1	08/12/14	KD	n/a	n/a	MSM2388
Run #2							

	Initial Weight	Final Volume
Run #1	4.80 g	5.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0031	mg/kg	
107-02-8	Acrolein [a]	ND	0.027	0.0096	mg/kg	
107-13-1	Acrylonitrile	ND	0.027	0.0030	mg/kg	
71-43-2	Benzene	0.0058	0.00054	0.00037	mg/kg	
108-86-1	Bromobenzene	ND	0.0054	0.00027	mg/kg	
74-97-5	Bromochloromethane	ND	0.0054	0.00038	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00023	mg/kg	
75-25-2	Bromoform	ND	0.0022	0.00039	mg/kg	
74-83-9	Bromomethane	ND	0.0022	0.00066	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0033	mg/kg	
104-51-8	n-Butylbenzene	ND	0.0054	0.00026	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0054	0.00081	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0054	0.00023	mg/kg	
75-15-0	Carbon disulfide	0.00050	0.0054	0.00014	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.0022	0.00024	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0054	0.00082	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.0054	0.0014	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00018	mg/kg	
74-87-3	Chloromethane	ND	0.0054	0.00061	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.0054	0.00021	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.0054	0.00029	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00035	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0022	0.00023	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0022	0.00033	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0022	0.00038	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0022	0.00088	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0022	0.00029	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0022	0.00035	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0022	0.00045	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0022	0.00049	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0022	0.00046	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:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00046	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.0054	0.00036	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.0054	0.00061	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.0054	0.00029	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00025	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.027	0.022	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.0054	0.00039	mg/kg	
100-41-4	Ethylbenzene	ND	0.0022	0.00075	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.0054	0.00063	mg/kg	
591-78-6	2-Hexanone	ND	0.011	0.00083	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0054	0.00018	mg/kg	
99-87-6	p-Isopropyltoluene	ND	0.0054	0.00019	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0022	0.00020	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.0054	0.00059	mg/kg	
74-95-3	Methylene bromide	ND	0.0054	0.00050	mg/kg	
75-09-2	Methylene chloride	ND	0.0022	0.00058	mg/kg	
91-20-3	Naphthalene	ND	0.0054	0.00043	mg/kg	
103-65-1	n-Propylbenzene	ND	0.0054	0.00017	mg/kg	
100-42-5	Styrene	ND	0.0054	0.00019	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.0054	0.00044	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00043	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0022	0.00034	mg/kg	
108-88-3	Toluene	ND	0.0054	0.00022	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0054	0.00047	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0054	0.00056	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00024	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00062	mg/kg	
79-01-6	Trichloroethene	ND	0.0022	0.00027	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0022	0.00043	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.0054	0.00031	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0054	0.0016	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0054	0.0017	mg/kg	
108-05-4	Vinyl Acetate	ND	0.0054	0.0017	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.00099	mg/kg	
	m,p-Xylene	ND	0.0022	0.00048	mg/kg	
95-47-6	o-Xylene	ND	0.0022	0.00031	mg/kg	
1330-20-7	Xylene (total)	ND	0.0022	0.00024	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:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	90%		70-130%
460-00-4	4-Bromofluorobenzene	86%		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
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:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X04144.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
Run #2							

	Initial Weight	Final Volume
Run #1	20.4 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.51	0.064	mg/kg	
95-57-8	2-Chlorophenol	ND	0.26	0.012	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.51	0.013	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.51	0.015	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.51	0.084	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.0	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.51	0.064	mg/kg	
95-48-7	2-Methylphenol	ND	0.51	0.020	mg/kg	
	3&4-Methylphenol	ND	0.51	0.025	mg/kg	
88-75-5	2-Nitrophenol	ND	0.51	0.014	mg/kg	
100-02-7	4-Nitrophenol	ND	1.0	0.096	mg/kg	
87-86-5	Pentachlorophenol	ND	0.51	0.036	mg/kg	
108-95-2	Phenol	ND	0.26	0.015	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.51	0.013	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.51	0.013	mg/kg	
62-53-3	Aniline	ND	0.51	0.026	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.26	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.26	0.010	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.51	0.026	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.26	0.014	mg/kg	
106-47-8	4-Chloroaniline	ND	0.51	0.013	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.26	0.012	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.26	0.016	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.26	0.018	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.26	0.016	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.26	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.51	0.034	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.51	0.013	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.26	0.026	mg/kg	
132-64-9	Dibenzofuran	ND	0.10	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.26	0.027	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.26	0.0080	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:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.26	0.013	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.26	0.015	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.26	0.0095	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.26	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.51	0.13	mg/kg	
67-72-1	Hexachloroethane	ND	0.26	0.012	mg/kg	
78-59-1	Isophorone	ND	0.26	0.012	mg/kg	
88-74-4	2-Nitroaniline	ND	0.51	0.013	mg/kg	
99-09-2	3-Nitroaniline	ND	0.51	0.028	mg/kg	
100-01-6	4-Nitroaniline	ND	0.51	0.013	mg/kg	
98-95-3	Nitrobenzene	ND	0.26	0.014	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.26	0.012	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.26	0.015	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.26	0.016	mg/kg	
110-86-1	Pyridine	ND	0.51	0.026	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		30-130%
4165-62-2	Phenol-d5	71%		30-130%
118-79-6	2,4,6-Tribromophenol	102%		30-130%
4165-60-0	Nitrobenzene-d5	73%		30-130%
321-60-8	2-Fluorobiphenyl	74%		30-130%
1718-51-0	Terphenyl-d14	104%		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:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8270D BY SIM SW846 3546	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91099.D	1	08/08/14	MR	08/04/14	OP39255	MSI3392
Run #2							

	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	0.0051	0.00088	mg/kg	
208-96-8	Acenaphthylene	ND	0.0051	0.00077	mg/kg	
120-12-7	Anthracene	ND	0.0051	0.0011	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0051	0.0023	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0051	0.0020	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0051	0.0022	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.0051	0.0014	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0051	0.0016	mg/kg	
218-01-9	Chrysene	ND	0.0051	0.0014	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0051	0.0015	mg/kg	
206-44-0	Fluoranthene	ND	0.0051	0.0015	mg/kg	
86-73-7	Fluorene	ND	0.0051	0.0010	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0051	0.0013	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.010	0.0011	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.010	0.00095	mg/kg	
85-01-8	Phenanthrene	ND	0.0051	0.0011	mg/kg	
129-00-0	Pyrene	ND	0.0051	0.0016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	79%		30-130%
321-60-8	2-Fluorobiphenyl	77%		30-130%
1718-51-0	Terphenyl-d14	103%		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:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39972.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
Run #2							

	Initial Weight	Final Volume
Run #1	15.4 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	0.0051	0.0015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0051	0.0013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	106%		61-167%
460-00-4	Bromofluorobenzene (S)	147%		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

Report of Analysis

Client Sample ID:	VMP15-29-073014(28-30')DUP		
Lab Sample ID:	MC32497-2	**Date Sampled:**	07/30/14
Matrix:	SO - Soil	**Date Received:**	07/31/14
Method:	SW846 8015	**Percent Solids:**	95.6
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85244.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.12 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
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-073014-HCL		
Lab Sample ID:	MC32497-3	**Date Sampled:**	07/30/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L86225.D	1	08/11/14	GK	n/a	n/a	MSL3863
Run #2							

	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-073014-HCL		
Lab Sample ID:	MC32497-3	**Date Sampled:**	07/30/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	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-073014-HCL		
Lab Sample ID:	MC32497-3	**Date Sampled:**	07/30/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	07/31/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%		70-130%
2037-26-5	Toluene-D8	90%		70-130%
460-00-4	4-Bromofluorobenzene	101%		70-130%

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

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-073014-ST		
Lab Sample ID:	MC32497-4	**Date Sampled:**	07/30/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	07/31/14
Method:	SW846 8011 SW846 8011	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39943.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
Run #2							

	Initial Volume	Final Volume
Run #1	36.7 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	0.0058	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)	87%		36-173%
460-00-4	Bromofluorobenzene (S)	101%		36-173%

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

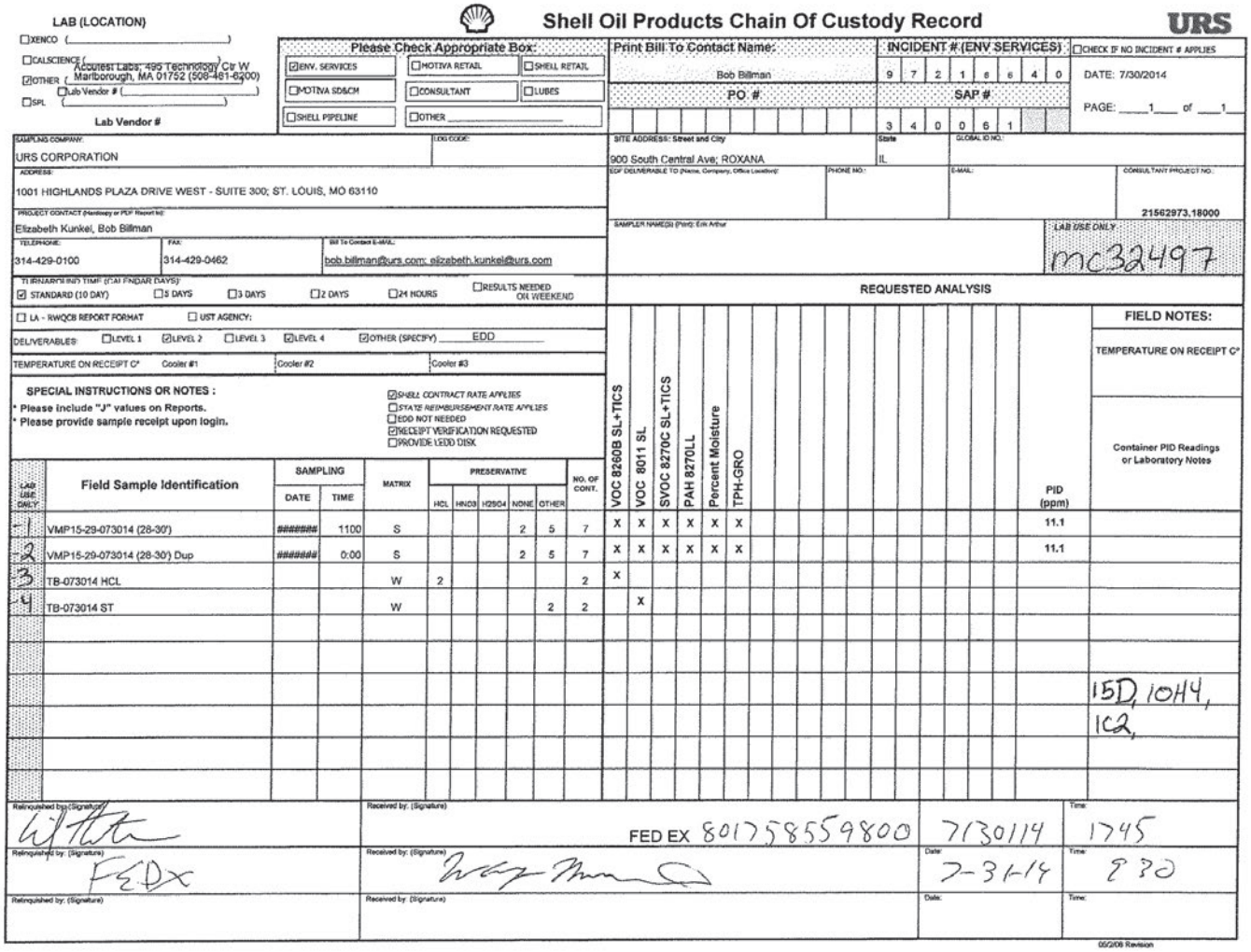
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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)
☐XENCO (_____)
☐CALSCIENCE (_____)
☑OTHER (Accutest Labs; 495 Technology Ctr W Marlborough, MA 01752 (508-481-6200))
☐SPL (_____)
Lab Vendor #: ☐Lab Vendor # (_____)

Please Check Appropriate Box:
☑ENV. SERVICES | ☐MOTIVA RETAIL | ☐SHELL RETAIL
☐MOTIVA SD&CM | ☐CONSULTANT | ☐LUBES
☐SHELL PIPELINE | ☐OTHER _____

Print Bill To Contact Name: Bob Billman
PO #:
INCIDENT # (ENV SERVICES): 9 7 2 1 8 6 4 0
SAP #: 3 4 0 0 6 1
☐CHECK IF NO INCIDENT # APPLIES
DATE: 7/30/2014
PAGE: 1 of 1

SAMPLING COMPANY: URS CORPORATION
LOG CODE:
SITE ADDRESS: Street and City: 900 South Central Ave; ROXANA
State: IL
GLOBAL ID NO.:
ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300; ST. LOUIS, MO 63110
EDF DELIVERABLE TO (Name, Company, Office Location):
PHONE NO.:
E-MAIL:
CONSULTANT PROJECT NO.: 21562973.18000
PROJECT CONTACT (Hardcopy or PDF Report to): Elizabeth Kunkel, Bob Billman
SAMPLER NAME(S) (Print): Erik Arthur
LAB USE ONLY: MC32497
TELEPHONE: 314-429-0100
FAX: 314-429-0462
Bill To Contact 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 - 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

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	VOC 8260B SL+TICS	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO	PID (ppm)	FIELD NOTES: Container PID Readings or Laboratory Notes
-1	VMP15-29-073014 (28-30')	########	1100	S				2	5	7	X	X	X	X	X	X	11.1	
-2	VMP15-29-073014 (28-30') Dup	########	0:00	S				2	5	7	X	X	X	X	X	X	11.1	
-3	TB-073014 HCL			W	2					2	X							
-4	TB-073014 ST			W					2	2		X						
																		15D, 10H4, 1C2,

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
[signature]	FED EX 801758559800	7/30/14	1745
FEDX	[signature]	7-31-14	830

05/2008 Revision

1.4°C

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32497 **Client:** URS **Immediate Client Services Action Required:** No

Date / Time Received: 7/31/2014 **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:	Infared 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

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

MC32497: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Shell Oil

Job No: MC32497

URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Project No: 21562973.18000

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC32497-1 Collected: 30-JUL-14 11:00 By: VMP15-29-073014(28-30')			Received: 31-JUL-14 By:			
MC32497-1	SM21 2540 B MOD.	04-AUG-14	BF			%SOL
MC32497-1	SW846 8270D	04-AUG-14 12:44	WK	01-AUG-14	AZ	AB8270SL+
MC32497-1	SW846 8011	07-AUG-14 12:01	NK	05-AUG-14	NE	V8011SL
MC32497-1	SW846 8015	07-AUG-14 17:45	AF			V8015GRO
MC32497-1	SW846 8270D BY SIM	08-AUG-14 10:26	MR	04-AUG-14	NE	B8270SIMSL
MC32497-1	SW846 8260C	12-AUG-14 12:07	KD			V8260SL+
MC32497-2 Collected: 30-JUL-14 11:00 By: VMP15-29-073014(28-30')DUP			Received: 31-JUL-14 By:			
MC32497-2	SM21 2540 B MOD.	04-AUG-14	BF			%SOL
MC32497-2	SW846 8270D	04-AUG-14 13:04	WK	01-AUG-14	AZ	AB8270SL+
MC32497-2	SW846 8011	07-AUG-14 12:40	NK	05-AUG-14	NE	V8011SL
MC32497-2	SW846 8015	07-AUG-14 18:22	AF			V8015GRO
MC32497-2	SW846 8270D BY SIM	08-AUG-14 10:49	MR	04-AUG-14	NE	B8270SIMSL
MC32497-2	SW846 8260C	12-AUG-14 12:37	KD			V8260SL+
MC32497-3 Collected: 30-JUL-14 00:00 By: TB-073014-HCL			Received: 31-JUL-14 By:			
MC32497-3	SW846 8260C	11-AUG-14 12:34	GK			V8260SL+
MC32497-4 Collected: 30-JUL-14 00:00 By: TB-073014-ST			Received: 31-JUL-14 By:			
MC32497-4	SW846 8011	05-AUG-14 12:11	NK	04-AUG-14	MT	V8011SL

SGS Accutest Internal Chain of Custody

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Received: 07/31/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32497-1.1	Walk In Ref #9	Nicole Estey	08/01/14 16:15	Retrieve from Storage
MC32497-1.1	Nicole Estey	Walk In Ref #9	08/01/14 21:44	Return to Storage
MC32497-1.1	Scott Parsick		09/25/14 16:09	Disposed
MC32497-1.2	Walk In Ref #9	Aysia Wood	08/04/14 15:49	Retrieve from Storage
MC32497-1.2	Aysia Wood	Walk In Ref #9	08/04/14 20:23	Return to Storage
MC32497-1.2	Walk In Ref #9	Alireza Zeighami	08/05/14 07:53	Retrieve from Storage
MC32497-1.2	Alireza Zeighami	Walk In Ref #9	08/05/14 12:08	Return to Storage
MC32497-1.2	Scott Parsick		09/25/14 16:09	Disposed
MC32497-1.3	VOC Ref #10	Krysten Dufort	08/12/14 11:02	Retrieve from Storage
MC32497-1.3	Krysten Dufort	GCMSM	08/12/14 11:02	Load on Instrument
MC32497-1.3	GCMSM	Krysten Dufort	08/13/14 09:24	Unload from Instrument
MC32497-1.3	Krysten Dufort	VOC Ref #10	08/13/14 09:24	Return to Storage
MC32497-1.3	Scott Parsick		09/25/14 16:09	Disposed
MC32497-1.7	VOC Ref #10	Krysten Dufort	08/01/14 15:25	Retrieve from Storage
MC32497-1.7	Krysten Dufort	VOC Ref #10	08/04/14 16:09	Return to Storage
MC32497-1.7	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32497-1.7	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32497-1.7	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32497-1.7	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32497-1.7	Scott Parsick		09/25/14 16:09	Disposed
MC32497-2.1	Walk In Ref #9	Nicole Estey	08/01/14 16:15	Retrieve from Storage
MC32497-2.1	Nicole Estey	Walk In Ref #9	08/01/14 21:44	Return to Storage
MC32497-2.1	Walk In Ref #9	Mehdi Abdolrahim	08/04/14 10:03	Retrieve from Storage
MC32497-2.1	Mehdi Abdolrahim	Walk In Ref #9	08/04/14 11:36	Return to Storage
MC32497-2.1	Scott Parsick		09/25/14 16:09	Disposed
MC32497-2.2	Walk In Ref #9	Aysia Wood	08/04/14 15:49	Retrieve from Storage
MC32497-2.2	Aysia Wood	Walk In Ref #9	08/04/14 20:23	Return to Storage
MC32497-2.2	Walk In Ref #9	Alireza Zeighami	08/05/14 07:53	Retrieve from Storage
MC32497-2.2	Alireza Zeighami	Walk In Ref #9	08/05/14 12:08	Return to Storage
MC32497-2.2	Scott Parsick		09/25/14 16:09	Disposed
MC32497-2.3	VOC Ref #10	Krysten Dufort	08/12/14 11:02	Retrieve from Storage
MC32497-2.3	Krysten Dufort	GCMSM	08/12/14 11:02	Load on Instrument
MC32497-2.3	GCMSM	Krysten Dufort	08/13/14 09:24	Unload from Instrument
MC32497-2.3	Krysten Dufort	VOC Ref #10	08/13/14 09:24	Return to Storage
MC32497-2.3	Scott Parsick		09/25/14 16:09	Disposed
MC32497-2.7	VOC Ref #10	Krysten Dufort	08/01/14 15:25	Retrieve from Storage
MC32497-2.7	Krysten Dufort	VOC Ref #10	08/04/14 16:09	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Received: 07/31/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32497-2.7	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32497-2.7	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32497-2.7	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32497-2.7	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32497-2.7	Scott Parsick		09/25/14 16:09	Disposed
MC32497-3.2	VOC Ref #1	Gary Krasinski	08/11/14 12:08	Retrieve from Storage
MC32497-3.2	Gary Krasinski	GCMSL	08/11/14 12:08	Load on Instrument
MC32497-3.2	GCMSL	Gary Krasinski	08/12/14 09:41	Unload from Instrument
MC32497-3.2	Gary Krasinski	VOC Ref #1	08/12/14 09:41	Return to Storage
MC32497-3.2	Scott Parsick		09/25/14 16:09	Disposed
MC32497-4.2	VOC Ref #1	Marc Tahtamoni	08/04/14 14:37	Retrieve from Storage
MC32497-4.2	Marc Tahtamoni		08/06/14 14:22	Depleted

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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSL3863-MB	L86223.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSL3863-MB	L86223.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSL3863-MB	L86223.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	83%	70-130%
2037-26-5	Toluene-D8	89%	70-130%
460-00-4	4-Bromofluorobenzene	99%	70-130%

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

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-MB	M67512.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

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	

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-MB	M67512.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

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	

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-MB	M67512.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	70-130%
2037-26-5	Toluene-D8	91%	70-130%
460-00-4	4-Bromofluorobenzene	86%	70-130%

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

Blank Spike Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-BS	M67509.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	50	45.4	91	70-130
107-02-8	Acrolein	250	156	62* [a]	70-130
107-13-1	Acrylonitrile	50	55.1	110	70-130
71-43-2	Benzene	50	55.4	111	70-130
108-86-1	Bromobenzene	50	56.8	114	70-130
74-97-5	Bromochloromethane	50	57.2	114	70-130
75-27-4	Bromodichloromethane	50	61.2	122	70-130
75-25-2	Bromoform	50	53.2	106	70-130
74-83-9	Bromomethane	50	49.2	98	70-130
78-93-3	2-Butanone (MEK)	50	47.5	95	70-130
104-51-8	n-Butylbenzene	50	54.3	109	70-130
135-98-8	sec-Butylbenzene	50	54.8	110	70-130
98-06-6	tert-Butylbenzene	50	55.9	112	70-130
75-15-0	Carbon disulfide	50	53.9	108	70-130
56-23-5	Carbon tetrachloride	50	52.5	105	70-130
108-90-7	Chlorobenzene	50	54.8	110	70-130
75-00-3	Chloroethane	50	58.0	116	70-130
110-75-8	2-Chloroethyl vinyl ether	50	52.6	105	10-160
67-66-3	Chloroform	50	56.6	113	70-130
74-87-3	Chloromethane	50	49.0	98	70-130
95-49-8	o-Chlorotoluene	50	56.7	113	70-130
106-43-4	p-Chlorotoluene	50	55.9	112	70-130
124-48-1	Dibromochloromethane	50	56.6	113	70-130
95-50-1	1,2-Dichlorobenzene	50	57.5	115	70-130
541-73-1	1,3-Dichlorobenzene	50	56.2	112	70-130
106-46-7	1,4-Dichlorobenzene	50	55.8	112	70-130
75-71-8	Dichlorodifluoromethane	50	51.8	104	70-130
75-34-3	1,1-Dichloroethane	50	58.5	117	70-130
107-06-2	1,2-Dichloroethane	50	57.5	115	70-130
75-35-4	1,1-Dichloroethene	50	53.3	107	70-130
156-59-2	cis-1,2-Dichloroethene	50	55.9	112	70-130
156-60-5	trans-1,2-Dichloroethene	50	53.3	107	70-130
78-87-5	1,2-Dichloropropane	50	58.1	116	70-130
142-28-9	1,3-Dichloropropane	50	54.7	109	70-130
594-20-7	2,2-Dichloropropane	50	55.6	111	70-130
563-58-6	1,1-Dichloropropene	50	51.3	103	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-BS	M67509.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	57.9	116	70-130
10061-02-6	trans-1,3-Dichloropropene	50	61.6	123	70-130
123-91-1	1,4-Dioxane	125	155	124	70-130
97-63-2	Ethyl methacrylate	50	56.5	113	76-141
100-41-4	Ethylbenzene	50	53.9	108	70-130
87-68-3	Hexachlorobutadiene	50	50.6	101	70-130
591-78-6	2-Hexanone	50	41.4	83	70-130
98-82-8	Isopropylbenzene	50	57.8	116	70-130
99-87-6	p-Isopropyltoluene	50	54.8	110	70-130
1634-04-4	Methyl Tert Butyl Ether	50	58.0	116	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	51.9	104	70-130
74-95-3	Methylene bromide	50	55.9	112	70-130
75-09-2	Methylene chloride	50	56.6	113	70-130
91-20-3	Naphthalene	50	56.6	113	70-130
103-65-1	n-Propylbenzene	50	56.2	112	70-130
100-42-5	Styrene	50	55.2	110	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	55.2	110	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	55.1	110	70-130
127-18-4	Tetrachloroethene	50	50.3	101	70-130
108-88-3	Toluene	50	56.1	112	70-130
87-61-6	1,2,3-Trichlorobenzene	50	56.0	112	70-130
120-82-1	1,2,4-Trichlorobenzene	50	55.7	111	70-130
71-55-6	1,1,1-Trichloroethane	50	54.8	110	70-130
79-00-5	1,1,2-Trichloroethane	50	56.7	113	70-130
79-01-6	Trichloroethene	50	53.4	107	70-130
75-69-4	Trichlorofluoromethane	50	46.9	94	70-130
96-18-4	1,2,3-Trichloropropane	50	53.8	108	70-130
95-63-6	1,2,4-Trimethylbenzene	50	57.7	115	70-130
108-67-8	1,3,5-Trimethylbenzene	50	54.3	109	70-130
108-05-4	Vinyl Acetate	50	44.6	89	70-130
75-01-4	Vinyl chloride	50	49.1	98	70-130
	m,p-Xylene	100	108	108	70-130
95-47-6	o-Xylene	50	55.5	111	70-130
1330-20-7	Xylene (total)	150	163	109	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-BS	M67509.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	70-130%
2037-26-5	Toluene-D8	88%	70-130%
460-00-4	4-Bromofluorobenzene	87%	70-130%

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

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSL3863-BS	L86220.D	1	08/11/14	GK	n/a	n/a	MSL3863
MSL3863-BSD	L86221.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	45.6	91	47.2	94	3	70-130/25
107-02-8	Acrolein	250	166	66* [a]	181	72	9	70-130/25
107-13-1	Acrylonitrile	50	45.6	91	52.1	104	13	70-130/25
71-43-2	Benzene	50	47.6	95	49.7	99	4	70-130/25
108-86-1	Bromobenzene	50	49.7	99	50.5	101	2	70-130/25
74-97-5	Bromochloromethane	50	50.9	102	50.4	101	1	70-130/25
75-27-4	Bromodichloromethane	50	49.6	99	50.1	100	1	70-130/25
75-25-2	Bromoform	50	49.7	99	51.9	104	4	70-130/25
74-83-9	Bromomethane	50	55.5	111	58.1	116	5	70-130/25
78-93-3	2-Butanone (MEK)	50	41.6	83	45.5	91	9	70-130/25
104-51-8	n-Butylbenzene	50	50.2	100	55.2	110	9	70-130/25
135-98-8	sec-Butylbenzene	50	49.4	99	53.7	107	8	70-130/25
98-06-6	tert-Butylbenzene	50	50.8	102	54.6	109	7	70-130/25
75-15-0	Carbon disulfide	50	47.6	95	52.5	105	10	70-130/25
56-23-5	Carbon tetrachloride	50	42.9	86	47.7	95	11	70-130/25
108-90-7	Chlorobenzene	50	45.6	91	47.7	95	5	70-130/25
75-00-3	Chloroethane	50	52.1	104	56.4	113	8	70-130/25
110-75-8	2-Chloroethyl vinyl ether	50	45.4	91	48.3	97	6	70-130/25
67-66-3	Chloroform	50	44.2	88	46.1	92	4	70-130/25
74-87-3	Chloromethane	50	46.1	92	52.7	105	13	70-130/25
95-49-8	o-Chlorotoluene	50	51.2	102	52.8	106	3	70-130/25
106-43-4	p-Chlorotoluene	50	50.4	101	52.2	104	4	70-130/25
124-48-1	Dibromochloromethane	50	50.3	101	52.4	105	4	70-130/25
95-50-1	1,2-Dichlorobenzene	50	50.1	100	51.7	103	3	70-130/25
541-73-1	1,3-Dichlorobenzene	50	47.9	96	50.0	100	4	70-130/25
106-46-7	1,4-Dichlorobenzene	50	45.2	90	46.2	92	2	70-130/25
75-71-8	Dichlorodifluoromethane	50	31.7	63* [a]	36.4	73	14	70-130/25
75-34-3	1,1-Dichloroethane	50	46.1	92	49.1	98	6	70-130/25
107-06-2	1,2-Dichloroethane	50	46.1	92	47.0	94	2	70-130/25
75-35-4	1,1-Dichloroethene	50	43.0	86	48.2	96	11	70-130/25
156-59-2	cis-1,2-Dichloroethene	50	46.3	93	49.3	99	6	70-130/25
156-60-5	trans-1,2-Dichloroethene	50	43.7	87	49.4	99	12	70-130/25
78-87-5	1,2-Dichloropropane	50	47.1	94	48.6	97	3	70-130/25
142-28-9	1,3-Dichloropropane	50	48.2	96	49.6	99	3	70-130/25
594-20-7	2,2-Dichloropropane	50	49.2	98	54.2	108	10	70-130/25
563-58-6	1,1-Dichloropropene	50	44.6	89	49.0	98	9	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSL3863-BS	L86220.D	1	08/11/14	GK	n/a	n/a	MSL3863
MSL3863-BSD	L86221.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

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	50.4	101	51.7	103	3	70-130/25
10061-02-6	trans-1,3-Dichloropropene	50	53.8	108	56.4	113	5	70-130/25
123-91-1	1,4-Dioxane	125	130	104	147	118	12	70-130/25
97-63-2	Ethyl methacrylate	50	49.2	98	52.6	105	7	77-137/25
100-41-4	Ethylbenzene	50	51.0	102	54.8	110	7	70-130/25
87-68-3	Hexachlorobutadiene	50	46.1	92	50.4	101	9	70-130/25
591-78-6	2-Hexanone	50	41.4	83	46.9	94	12	70-130/25
98-82-8	Isopropylbenzene	50	52.2	104	55.8	112	7	70-130/25
99-87-6	p-Isopropyltoluene	50	47.9	96	52.2	104	9	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	51.3	103	55.4	111	8	70-130/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	47.8	96	51.9	104	8	70-130/25
74-95-3	Methylene bromide	50	47.1	94	48.0	96	2	70-130/25
75-09-2	Methylene chloride	50	45.6	91	48.1	96	5	70-130/25
91-20-3	Naphthalene	50	44.5	89	48.2	96	8	70-130/25
103-65-1	n-Propylbenzene	50	52.0	104	54.8	110	5	70-130/25
100-42-5	Styrene	50	52.6	105	55.0	110	4	70-130/25
630-20-6	1,1,1,2-Tetrachloroethane	50	46.7	93	48.4	97	4	70-130/25
79-34-5	1,1,2,2-Tetrachloroethane	50	44.3	89	46.0	92	4	70-130/25
127-18-4	Tetrachloroethene	50	46.0	92	50.3	101	9	70-130/25
108-88-3	Toluene	50	50.3	101	52.0	104	3	70-130/25
87-61-6	1,2,3-Trichlorobenzene	50	48.5	97	51.8	104	7	70-130/25
120-82-1	1,2,4-Trichlorobenzene	50	49.6	99	52.8	106	6	70-130/25
71-55-6	1,1,1-Trichloroethane	50	46.0	92	50.3	101	9	70-130/25
79-00-5	1,1,2-Trichloroethane	50	46.7	93	48.1	96	3	70-130/25
79-01-6	Trichloroethene	50	44.8	90	47.8	96	6	70-130/25
75-69-4	Trichlorofluoromethane	50	41.7	83	45.7	91	9	70-130/25
96-18-4	1,2,3-Trichloropropane	50	46.6	93	49.3	99	6	70-130/25
95-63-6	1,2,4-Trimethylbenzene	50	55.2	110	58.4	117	6	70-130/25
108-67-8	1,3,5-Trimethylbenzene	50	51.8	104	54.4	109	5	70-130/25
108-05-4	Vinyl Acetate	50	39.8	80	44.0	88	10	70-130/25
75-01-4	Vinyl chloride	50	44.4	89	49.3	99	10	70-130/25
	m,p-Xylene	100	106	106	112	112	6	70-130/25
95-47-6	o-Xylene	50	46.3	93	49.0	98	6	70-130/25
1330-20-7	Xylene (total)	150	152	101	161	107	6	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSL3863-BS	L86220.D	1	08/11/14	GK	n/a	n/a	MSL3863
MSL3863-BSD	L86221.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	78%	79%	70-130%
2037-26-5	Toluene-D8	89%	88%	70-130%
460-00-4	4-Bromofluorobenzene	89%	89%	70-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32562-1MS	L86233.D	1	08/11/14	GK	n/a	n/a	MSL3863
MC32562-1MSD	L86234.D	1	08/11/14	GK	n/a	n/a	MSL3863
MC32562-1	L86227.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

CAS No.	Compound	MC32562-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		50	22.0	44* [a]	50	21.2	42* [a]	4	70-130/30
107-02-8	Acrolein	ND		250	190	76	250	187	75	2	70-130/30
107-13-1	Acrylonitrile	ND		50	47.3	95	50	48.2	96	2	70-130/30
71-43-2	Benzene	ND		50	50.7	101	50	51.7	103	2	70-130/30
108-86-1	Bromobenzene	ND		50	50.2	100	50	51.3	103	2	70-130/30
74-97-5	Bromochloromethane	ND		50	52.3	105	50	51.6	103	1	70-130/30
75-27-4	Bromodichloromethane	ND		50	51.1	102	50	51.0	102	0	70-130/30
75-25-2	Bromoform	ND		50	50.6	101	50	51.4	103	2	70-130/30
74-83-9	Bromomethane	ND		50	38.2	76	50	50.4	101	28	70-130/30
78-93-3	2-Butanone (MEK)	ND		50	34.6	69* [a]	50	36.4	73	5	70-130/30
104-51-8	n-Butylbenzene	ND		50	53.2	106	50	55.5	111	4	70-130/30
135-98-8	sec-Butylbenzene	ND		50	51.8	104	50	53.8	108	4	70-130/30
98-06-6	tert-Butylbenzene	ND		50	52.6	105	50	54.8	110	4	70-130/30
75-15-0	Carbon disulfide	ND		50	52.6	105	50	54.1	108	3	70-130/30
56-23-5	Carbon tetrachloride	ND		50	47.2	94	50	48.2	96	2	70-130/30
108-90-7	Chlorobenzene	ND		50	47.2	94	50	48.3	97	2	70-130/30
75-00-3	Chloroethane	ND		50	58.8	118	50	59.1	118	1	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		50	48.7	97	50	52.6	105	8	70-130/30
67-66-3	Chloroform	ND		50	47.1	94	50	47.1	94	0	70-130/30
74-87-3	Chloromethane	ND		50	51.8	104	50	49.3	99	5	70-130/30
95-49-8	o-Chlorotoluene	ND		50	52.2	104	50	54.2	108	4	70-130/30
106-43-4	p-Chlorotoluene	ND		50	51.7	103	50	53.0	106	2	70-130/30
124-48-1	Dibromochloromethane	ND		50	51.1	102	50	52.3	105	2	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		50	51.5	103	50	52.9	106	3	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		50	49.1	98	50	50.5	101	3	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		50	46.1	92	50	47.3	95	3	70-130/30
75-71-8	Dichlorodifluoromethane	ND		50	34.4	69* [a]	50	34.9	70	1	70-130/30
75-34-3	1,1-Dichloroethane	ND		50	49.5	99	50	50.0	100	1	70-130/30
107-06-2	1,2-Dichloroethane	ND		50	48.5	97	50	48.3	97	0	70-130/30
75-35-4	1,1-Dichloroethene	ND		50	48.0	96	50	49.2	98	2	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		50	49.6	99	50	50.5	101	2	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		50	48.1	96	50	49.5	99	3	70-130/30
78-87-5	1,2-Dichloropropane	ND		50	50.3	101	50	50.6	101	1	70-130/30
142-28-9	1,3-Dichloropropane	ND		50	49.0	98	50	50.6	101	3	70-130/30
594-20-7	2,2-Dichloropropane	ND		50	56.0	112	50	56.0	112	0	70-130/30
563-58-6	1,1-Dichloropropene	ND		50	49.7	99	50	49.8	100	0	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32562-1MS	L86233.D	1	08/11/14	GK	n/a	n/a	MSL3863
MC32562-1MSD	L86234.D	1	08/11/14	GK	n/a	n/a	MSL3863
MC32562-1	L86227.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

CAS No.	Compound	MC32562-1 ug/l	Q	Spike 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		50	52.1	104	50	52.8	106	1	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		50	56.1	112	50	56.3	113	0	70-130/30
123-91-1	1,4-Dioxane	ND		125	142	114	125	131	105	8	70-130/30
97-63-2	Ethyl methacrylate	ND		50	53.6	107	50	53.7	107	0	72-139/30
100-41-4	Ethylbenzene	ND		50	53.3	107	50	55.4	111	4	70-130/30
87-68-3	Hexachlorobutadiene	ND		50	47.7	95	50	50.0	100	5	70-130/30
591-78-6	2-Hexanone	ND		50	32.5	65* [a]	50	33.2	66* [a]	2	70-130/30
98-82-8	Isopropylbenzene	ND		50	54.2	108	50	56.5	113	4	70-130/30
99-87-6	p-Isopropyltoluene	ND		50	50.6	101	50	52.0	104	3	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		50	54.5	109	50	55.7	111	2	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		50	51.6	103	50	51.8	104	0	70-130/30
74-95-3	Methylene bromide	ND		50	49.0	98	50	49.3	99	1	70-130/30
75-09-2	Methylene chloride	ND		50	49.4	99	50	49.0	98	1	70-130/30
91-20-3	Naphthalene	ND		50	45.5	91	50	48.1	96	6	70-130/30
103-65-1	n-Propylbenzene	ND		50	54.0	108	50	56.0	112	4	70-130/30
100-42-5	Styrene	ND		50	53.5	107	50	54.9	110	3	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		50	47.7	95	50	48.5	97	2	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		50	46.7	93	50	46.7	93	0	70-130/30
127-18-4	Tetrachloroethene	ND		50	48.5	97	50	50.5	101	4	70-130/30
108-88-3	Toluene	ND		50	53.6	107	50	54.0	108	1	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		50	50.5	101	50	52.2	104	3	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		50	51.0	102	50	52.8	106	3	70-130/30
71-55-6	1,1,1-Trichloroethane	ND		50	50.8	102	50	51.4	103	1	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		50	49.2	98	50	48.7	97	1	70-130/30
79-01-6	Trichloroethene	ND		50	48.2	96	50	48.5	97	1	70-130/30
75-69-4	Trichlorofluoromethane	ND		50	46.2	92	50	46.0	92	0	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		50	48.2	96	50	49.6	99	3	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		50	57.4	115	50	58.8	118	2	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		50	53.4	107	50	54.9	110	3	70-130/30
108-05-4	Vinyl Acetate	ND		50	44.8	90	50	43.5	87	3	70-130/30
75-01-4	Vinyl chloride	ND		50	48.9	98	50	48.8	98	0	70-130/30
	m,p-Xylene	ND		100	110	110	100	114	114	4	70-130/30
95-47-6	o-Xylene	ND		50	48.4	97	50	50.0	100	3	70-130/30
1330-20-7	Xylene (total)	ND		150	158	105	150	164	109	4	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32562-1MS	L86233.D	1	08/11/14	GK	n/a	n/a	MSL3863
MC32562-1MSD	L86234.D	1	08/11/14	GK	n/a	n/a	MSL3863
MC32562-1	L86227.D	1	08/11/14	GK	n/a	n/a	MSL3863

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

MC32497-3

CAS No.	Surrogate Recoveries	MS	MSD	MC32562-1	Limits
1868-53-7	Dibromofluoromethane	81%	80%	86%	70-130%
2037-26-5	Toluene-D8	91%	90%	90%	70-130%
460-00-4	4-Bromofluorobenzene	87%	88%	103%	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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	M67519.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1MSD	M67520.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		56.4	39.4	70	59	33.6	57* a	16	70-130/30
107-02-8	Acrolein	ND		282	131	46* a	295	185	63* a	34* b	70-130/30
107-13-1	Acrylonitrile	ND		56.4	64.2	114	59	50.6	86	24	70-130/30
71-43-2	Benzene	4.0		56.4	37.8	60* a	59	39.2	60* a	4	70-130/30
108-86-1	Bromobenzene	ND		56.4	40.0	71	59	36.2	61* a	10	70-130/30
74-97-5	Bromochloromethane	ND		56.4	44.6	79	59	44.0	75	1	70-130/30
75-27-4	Bromodichloromethane	ND		56.4	45.5	81	59	44.0	75	3	70-130/30
75-25-2	Bromoform	ND		56.4	55.2	98	59	43.5	74	24	70-130/30
74-83-9	Bromomethane	ND		56.4	50.3	89	59	53.2	90	6	70-130/30
78-93-3	2-Butanone (MEK)	ND		56.4	51.3	91	59	38.4	65* a	29	70-130/30
104-51-8	n-Butylbenzene	ND		56.4	33.3	59* a	59	29.9	51* a	11	70-130/30
135-98-8	sec-Butylbenzene	ND		56.4	34.0	60* a	59	31.6	54* a	7	70-130/30
98-06-6	tert-Butylbenzene	ND		56.4	35.0	62* a	59	32.8	56* a	6	70-130/30
75-15-0	Carbon disulfide	0.79	J	56.4	34.9	60* a	59	37.6	62* a	7	70-130/30
56-23-5	Carbon tetrachloride	ND		56.4	33.9	60* a	59	34.9	59* a	3	70-130/30
108-90-7	Chlorobenzene	ND		56.4	36.2	64* a	59	35.6	60* a	2	70-130/30
75-00-3	Chloroethane	ND		56.4	59.1	105	59	63.3	107	7	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		56.4	ND	0* a	59	ND	0* a	nc	10-160/30
67-66-3	Chloroform	ND		56.4	39.1	69* a	59	40.3	68* a	3	70-130/30
74-87-3	Chloromethane	ND		56.4	48.5	86	59	51.7	88	6	70-130/30
95-49-8	o-Chlorotoluene	ND		56.4	36.2	64* a	59	33.8	57* a	7	70-130/30
106-43-4	p-Chlorotoluene	ND		56.4	35.7	63* a	59	33.7	57* a	6	70-130/30
124-48-1	Dibromochloromethane	ND		56.4	45.2	80	59	41.9	71	8	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		56.4	43.9	78	59	35.2	60* a	22	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		56.4	37.5	67* a	59	32.8	56* a	13	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		56.4	38.4	68* a	59	32.9	56* a	15	70-130/30
75-71-8	Dichlorodifluoromethane	ND		56.4	53.3	95	59	57.1	97	7	70-130/30
75-34-3	1,1-Dichloroethane	ND		56.4	39.3	70	59	40.7	69* a	4	70-130/30
107-06-2	1,2-Dichloroethane	ND		56.4	45.6	81	59	43.9	74	4	70-130/30
75-35-4	1,1-Dichloroethene	ND		56.4	34.4	61* a	59	36.9	63* a	7	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		56.4	38.0	67* a	59	39.3	67* a	3	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		56.4	35.0	62* a	59	37.0	63* a	6	70-130/30
78-87-5	1,2-Dichloropropane	ND		56.4	40.8	72	59	40.6	69* a	0	70-130/30
142-28-9	1,3-Dichloropropane	ND		56.4	45.3	80	59	43.1	73	5	70-130/30
594-20-7	2,2-Dichloropropane	ND		56.4	36.7	65* a	59	37.6	64* a	2	70-130/30
563-58-6	1,1-Dichloropropene	ND		56.4	32.6	58* a	59	34.4	58* a	5	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	M67519.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1MSD	M67520.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND		56.4	41.9	74	59	41.3	70	1	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		56.4	49.7	88	59	46.0	78	8	70-130/30
123-91-1	1,4-Dioxane	ND		141	229	162* a	147	169	115	30	70-130/30
97-63-2	Ethyl methacrylate	ND		56.4	60.3	107	59	49.1	83	20	41-160/30
100-41-4	Ethylbenzene	ND		56.4	34.0	60* a	59	34.6	59* a	2	70-130/30
87-68-3	Hexachlorobutadiene	ND		56.4	34.0	60* a	59	26.8	45* a	24	70-130/30
591-78-6	2-Hexanone	ND		56.4	55.1	98	59	36.9	63* a	40* b	70-130/30
98-82-8	Isopropylbenzene	ND		56.4	35.5	63* a	59	35.2	60* a	1	70-130/30
99-87-6	p-Isopropyltoluene	ND		56.4	33.8	60* a	59	30.8	52* a	9	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		56.4	50.8	90	59	47.5	81	7	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		56.4	73.4	130	59	53.5	91	31* b	70-130/30
74-95-3	Methylene bromide	ND		56.4	47.0	83	59	45.5	77	3	70-130/30
75-09-2	Methylene chloride	ND		56.4	39.6	70	59	41.0	70	3	70-130/30
91-20-3	Naphthalene	ND		56.4	63.7	113	59	45.8	78	33* b	70-130/30
103-65-1	n-Propylbenzene	ND		56.4	34.7	62* a	59	33.5	57* a	4	70-130/30
100-42-5	Styrene	ND		56.4	38.1	68* a	59	36.6	62* a	4	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		56.4	38.2	68* a	59	36.7	62* a	4	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		56.4	65.9	117	59	48.8	83	30	70-130/30
127-18-4	Tetrachloroethene	ND		56.4	31.2	55* a	59	32.2	55* a	3	70-130/30
108-88-3	Toluene	ND		56.4	36.9	65* a	59	37.2	63* a	1	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		56.4	46.1	82	59	34.0	58* a	30	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		56.4	40.3	71	59	30.6	52* a	27	70-130/30
71-55-6	1,1,1-Trichloroethane	ND		56.4	35.6	63* a	59	37.2	63* a	4	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		56.4	52.3	93	59	45.7	78	13	70-130/30
79-01-6	Trichloroethene	ND		56.4	34.9	62* a	59	35.4	60* a	1	70-130/30
75-69-4	Trichlorofluoromethane	ND		56.4	47.7	85	59	51.3	87	7	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		56.4	65.4	116	59	48.0	81	31* b	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		56.4	36.3	64* a	59	33.9	58* a	7	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		56.4	33.7	60* a	59	31.7	54* a	6	70-130/30
108-05-4	Vinyl Acetate	ND		56.4	29.5	52* a	59	25.0	42* a	17	70-130/30
75-01-4	Vinyl chloride	ND		56.4	50.5	90	59	54.1	92	7	70-130/30
	m,p-Xylene	ND		113	68.4	61* a	118	68.3	58* a	0	70-130/30
95-47-6	o-Xylene	ND		56.4	35.7	63* a	59	35.0	59* a	2	70-130/30
1330-20-7	Xylene (total)	ND		169	104	61* a	177	103	58* a	1	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	M67519.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1MSD	M67520.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32497-1, MC32497-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
1868-53-7	Dibromofluoromethane	98%	98%	102%	70-130%
2037-26-5	Toluene-D8	89%	88%	89%	70-130%
460-00-4	4-Bromofluorobenzene	88%	88%	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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSL3863-CC3863	**Injection Date:**	08/11/14
Lab File ID:	L86219.D	**Injection Time:**	09:26
Instrument ID:	GCMSL	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	209494	8.11	328736	8.93	212467	12.12	189873	14.66	61915	5.85
Upper Limit [a]	418988	8.61	657472	9.43	424934	12.62	379746	15.16	123830	6.35
Lower Limit [b]	104747	7.61	164368	8.43	106234	11.62	94937	14.16	30958	5.35

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
MSL3863-BS	213035	8.11	327772	8.93	210155	12.12	186778	14.66	60902	5.86
MSL3863-BSD	214814	8.11	334884	8.93	213063	12.12	193434	14.66	70821	5.85
MSL3863-MB	195713	8.12	301741	8.93	177493	12.12	132569	14.66	58032	5.91
ZZZZZZ	180669	8.12	284405	8.93	174482	12.13	129671	14.67	52795	5.90
MC32497-3	173002	8.11	270718	8.93	164595	12.12	121600	14.66	51751	5.90
ZZZZZZ	170666	8.12	267852	8.93	164353	12.12	120140	14.66	51944	5.91
MC32562-1	169937	8.11	269739	8.93	164898	12.12	119872	14.66	48211	5.90
ZZZZZZ	169871	8.12	269240	8.93	166080	12.12	124821	14.66	57171	5.89
ZZZZZZ	180445	8.12	285967	8.93	187116	12.12	175971	14.66	60012	5.88
ZZZZZZ	198205	8.12	308958	8.93	186174	12.12	139564	14.66	67566	5.90
ZZZZZZ	183052	8.12	285028	8.93	172239	12.12	126985	14.66	55891	5.90
ZZZZZZ	172789	8.12	273141	8.93	168856	12.12	122831	14.66	57347	5.90
ZZZZZZ	175761	8.12	286060	8.93	183035	12.12	146070	14.66	56331	5.90
MC32562-1MS	201974	8.11	316848	8.93	208608	12.12	189215	14.66	61632	5.85
MC32562-1MSD	208348	8.11	323792	8.93	209252	12.12	188577	14.66	66861	5.85
ZZZZZZ	171842	8.12	267929	8.93	158644	12.12	117173	14.66	52700	5.90
ZZZZZZ	162040	8.12	250564	8.93	151722	12.12	112394	14.66	51968	5.91
ZZZZZZ	173842	8.12	275706	8.93	167250	12.12	122669	14.66	53550	5.89
ZZZZZZ	166689	8.12	267325	8.93	164335	12.12	119951	14.66	55914	5.89
ZZZZZZ	161471	8.12	258597	8.93	162295	12.12	118522	14.66	50681	5.90
ZZZZZZ	162316	8.12	255871	8.93	161216	12.12	117978	14.66	48562	5.91
ZZZZZZ	161703	8.12	258400	8.93	165151	12.12	121956	14.66	61518	5.89
ZZZZZZ	159659	8.12	255309	8.93	160021	12.12	118246	14.66	54810	5.90

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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSM2388-CC2378	**Injection Date:**	08/12/14
Lab File ID:	M67509.D	**Injection Time:**	10:09
Instrument ID:	GCMSM	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	287799	9.35	471287	10.23	198271	13.50	249889	16.07	95403	6.84
Upper Limit [a]	575598	9.85	942574	10.73	396542	14.00	499778	16.57	190806	7.34
Lower Limit [b]	143900	8.85	235644	9.73	99136	13.00	124945	15.57	47702	6.34

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
MSM2388-BS	287799	9.35	471287	10.23	198271	13.50	249889	16.07	95403	6.84
MSM2388-MB	249706	9.35	394306	10.22	166750	13.51	222180	16.07	88218	6.84
MC32497-1	288020	9.35	467298	10.23	203258	13.50	273791	16.07	161691	6.85
MC32497-2	280295	9.35	456371	10.23	196409	13.50	272496	16.07	163686	6.85
MC32521-1	275320	9.35	457329	10.23	195518	13.50	270230	16.07	153521	6.85
ZZZZZZ	261533	9.35	430548	10.22	187264	13.51	254986	16.07	149101	6.84
ZZZZZZ	265470	9.35	429936	10.22	188806	13.50	251613	16.07	149707	6.85
ZZZZZZ	262874	9.35	431210	10.22	178193	13.51	223771	16.07	161284	6.84
MC32521-1MS	300481	9.35	498393	10.23	220745	13.50	286803	16.07	170757	6.85
MC32521-1MSD	306944	9.35	512436	10.23	221077	13.50	288417	16.07	178617	6.85
ZZZZZZ	204338	9.35	324449	10.23	141236	13.50	189618	16.07	81425	6.84
ZZZZZZ	289128	9.35	456368	10.23	193512	13.51	258862	16.07	92050	6.85
ZZZZZZ	282615	9.35	449010	10.23	187142	13.50	246977	16.07	91357	6.84
ZZZZZZ	272802	9.35	439962	10.23	182088	13.50	236009	16.07	101190	6.84
ZZZZZZ	273222	9.35	437060	10.23	183747	13.51	238326	16.07	107369	6.85
ZZZZZZ	289038	9.35	463133	10.23	191150	13.50	245933	16.07	88150	6.86
ZZZZZZ	264981	9.35	423077	10.22	176187	13.50	237185	16.07	86026	6.85
ZZZZZZ	274116	9.35	442403	10.23	188760	13.51	246916	16.07	94912	6.84
ZZZZZZ	264176	9.35	420716	10.23	175498	13.51	233637	16.07	85340	6.85
ZZZZZZ	273059	9.35	442340	10.23	185565	13.51	244440	16.07	97349	6.85

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 Surrogate Recovery Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Method: SW846 8260C **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32497-3	L86225.D	85	90	101
MC32562-1MS	L86233.D	81	91	87
MC32562-1MSD	L86234.D	80	90	88
MSL3863-BS	L86220.D	78	89	89
MSL3863-BSD	L86221.D	79	88	89
MSL3863-MB	L86223.D	83	89	99

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

Volatile Surrogate Recovery Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32497-1	M67513.D	99	89	87
MC32497-2	M67514.D	100	90	86
MC32521-1MS	M67519.D	98	89	88
MC32521-1MSD	M67520.D	98	88	88
MSM2388-BS	M67509.D	91	88	87
MSM2388-MB	M67512.D	91	91	86

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

GC/MS Semi-volatiles

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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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MB	X04130.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32497-1, MC32497-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	490	61	ug/kg	
95-57-8	2-Chlorophenol	ND	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	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	970	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	970	91	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	9.9	ug/kg	
100-51-6	Benzyl Alcohol	ND	490	24	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	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	490	32	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	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	7.6	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	

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MB	X04130.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32497-1, MC32497-2

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	70%	30-130%
4165-62-2	Phenol-d5	80%	30-130%
118-79-6	2,4,6-Tribromophenol	81%	30-130%
4165-60-0	Nitrobenzene-d5	77%	30-130%
321-60-8	2-Fluorobiphenyl	72%	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	

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

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	0.74	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%

Blank Spike Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

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.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-BS	X04131.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-BSD	X04132.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32497-1, MC32497-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	2460	1230	50	840	35	38* [a]	30-130/30
95-57-8	2-Chlorophenol	2460	1790	73	1750	73	2	30-130/30
59-50-7	4-Chloro-3-methyl phenol	2460	2060	84	2140	89	4	30-130/30
120-83-2	2,4-Dichlorophenol	2460	1940	79	1950	81	1	30-130/30
105-67-9	2,4-Dimethylphenol	2460	1940	79	1960	82	1	30-130/30
51-28-5	2,4-Dinitrophenol	2460	1360	55	1370	57	1	30-130/30
534-52-1	4,6-Dinitro-o-cresol	2460	1980	81	2160	90	9	30-130/30
95-48-7	2-Methylphenol	2460	1680	68	1730	72	3	30-130/30
	3&4-Methylphenol	4910	3690	75	3870	81	5	30-130/30
88-75-5	2-Nitrophenol	2460	1850	75	1840	77	1	30-130/30
100-02-7	4-Nitrophenol	2460	1930	79	1520	63	24	30-130/30
87-86-5	Pentachlorophenol	2460	1700	69	1880	78	10	30-130/30
108-95-2	Phenol	2460	1820	74	1850	77	2	30-130/30
95-95-4	2,4,5-Trichlorophenol	2460	2020	82	2160	90	7	30-130/30
88-06-2	2,4,6-Trichlorophenol	2460	1930	79	2030	85	5	30-130/30
62-53-3	Aniline	2460	1330	54	1320	55	1	40-140/30
101-55-3	4-Bromophenyl phenyl ether	2460	2490	101	2600	108	4	40-140/30
85-68-7	Butyl benzyl phthalate	2460	2330	95	2480	103	6	40-140/30
100-51-6	Benzyl Alcohol	2460	833	34* [a]	919	38* [a]	10	40-140/30
91-58-7	2-Chloronaphthalene	2460	2080	85	2130	89	2	40-140/30
106-47-8	4-Chloroaniline	2460	1870	76	1930	81	3	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	2460	1990	81	2010	84	1	40-140/30
111-44-4	bis(2-Chloroethyl)ether	2460	1920	78	1850	77	4	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	2460	1930	79	1830	76	5	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	2460	2270	92	2400	100	6	40-140/30
122-66-7	1,2-Diphenylhydrazine	2460	2410	98	2550	106	6	40-140/30
121-14-2	2,4-Dinitrotoluene	2460	2510	102	2660	111	6	40-140/30
606-20-2	2,6-Dinitrotoluene	2460	2490	101	2600	108	4	40-140/30
91-94-1	3,3'-Dichlorobenzidine	2460	2380	97	2790	116	16	40-140/30
132-64-9	Dibenzofuran	2460	1960	80	2060	86	5	40-140/30
84-74-2	Di-n-butyl phthalate	2460	2220	90	2390	100	7	40-140/30
117-84-0	Di-n-octyl phthalate	2460	2650	108	2870	120	8	40-140/30
84-66-2	Diethyl phthalate	2460	2340	95	2510	105	7	40-140/30
131-11-3	Dimethyl phthalate	2460	2360	96	2500	104	6	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	2460	2500	102	2700	113	8	40-140/30
118-74-1	Hexachlorobenzene	2460	2520	103	2720	113	8	40-140/30

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-BS	X04131.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-BSD	X04132.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32497-1, MC32497-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	2460	1370	56	1340	56	2	40-140/30
67-72-1	Hexachloroethane	2460	1830	75	1680	70	9	40-140/30
78-59-1	Isophorone	2460	1930	79	1980	83	3	40-140/30
88-74-4	2-Nitroaniline	2460	2390	97	2500	104	4	40-140/30
99-09-2	3-Nitroaniline	2460	2240	91	2410	101	7	40-140/30
100-01-6	4-Nitroaniline	2460	2100	86	2340	98	11	40-140/30
98-95-3	Nitrobenzene	2460	2020	82	2000	83	1	40-140/30
62-75-9	n-Nitrosodimethylamine	2460	1490	61	1490	62	0	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	2460	2130	87	2100	88	1	40-140/30
86-30-6	N-Nitrosodiphenylamine	2460	2070	84	2180	91	5	40-140/30
110-86-1	Pyridine	2460	1190	48	1170	49	2	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	63%	62%	30-130%
4165-62-2	Phenol-d5	71%	74%	30-130%
118-79-6	2,4,6-Tribromophenol	84%	94%	30-130%
4165-60-0	Nitrobenzene-d5	75%	76%	30-130%
321-60-8	2-Fluorobiphenyl	72%	76%	30-130%
1718-51-0	Terphenyl-d14	84%	90%	30-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MS	X04133.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-MSD	X04134.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
MC32521-1	X04135.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32497-1, MC32497-2

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND		2820	217	8* [a]	2820	380	13* [a]	55* [b]	30-130/30
95-57-8	2-Chlorophenol	ND		2820	2270	80	2820	2340	83	3	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND		2820	2430	86	2820	2620	93	8	30-130/30
120-83-2	2,4-Dichlorophenol	ND		2820	2330	83	2820	2480	88	6	30-130/30
105-67-9	2,4-Dimethylphenol	ND		2820	2420	86	2820	2460	87	2	30-130/30
51-28-5	2,4-Dinitrophenol	ND		2820	1040	37	2820	1340	47	25	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND		2820	2060	73	2820	2370	84	14	30-130/30
95-48-7	2-Methylphenol	ND		2820	2160	77	2820	2210	78	2	30-130/30
	3&4-Methylphenol	ND		5640	4760	84	5650	4800	85	1	30-130/30
88-75-5	2-Nitrophenol	ND		2820	2280	81	2820	2360	84	3	30-130/30
100-02-7	4-Nitrophenol	ND		2820	1580	56	2820	1900	67	18	30-130/30
87-86-5	Pentachlorophenol	ND		2820	1970	70	2820	2170	77	10	30-130/30
108-95-2	Phenol	ND		2820	2310	82	2820	2390	85	3	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND		2820	2390	85	2820	2670	95	11	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND		2820	2390	85	2820	2510	89	5	30-130/30
62-53-3	Aniline	ND		2820	1650	58	2820	1700	60	3	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND		2820	2970	105	2820	3100	110	4	40-140/30
85-68-7	Butyl benzyl phthalate	ND		2820	2800	99	2820	2950	104	5	40-140/30
100-51-6	Benzyl Alcohol	ND		2820	1140	40	2820	1150	41	1	40-140/30
91-58-7	2-Chloronaphthalene	ND		2820	2600	92	2820	2610	92	0	40-140/30
106-47-8	4-Chloroaniline	ND		2820	2220	79	2820	2340	83	5	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND		2820	2430	86	2820	2510	89	3	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND		2820	2460	87	2820	2500	89	2	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND		2820	2410	85	2820	2420	86	0	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND		2820	2770	98	2820	2930	104	6	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND		2820	2870	102	2820	3010	107	5	40-140/30
121-14-2	2,4-Dinitrotoluene	ND		2820	2880	102	2820	3150	112	9	40-140/30
606-20-2	2,6-Dinitrotoluene	ND		2820	2890	102	2820	3060	108	6	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND		2820	2890	102	2820	3190	113	10	40-140/30
132-64-9	Dibenzofuran	ND		2820	2410	85	2820	2480	88	3	40-140/30
84-74-2	Di-n-butyl phthalate	ND		2820	2520	89	2820	2780	98	10	40-140/30
117-84-0	Di-n-octyl phthalate	ND		2820	2980	106	2820	3360	119	12	40-140/30
84-66-2	Diethyl phthalate	ND		2820	2730	97	2820	2970	105	8	40-140/30
131-11-3	Dimethyl phthalate	ND		2820	2800	99	2820	2940	104	5	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND		2820	2990	106	2820	3190	113	6	40-140/30
118-74-1	Hexachlorobenzene	ND		2820	3040	108	2820	3190	113	5	40-140/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MS	X04133.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-MSD	X04134.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
MC32521-1	X04135.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32497-1, MC32497-2

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND		2820	1680	60	2820	1630	58	3	40-140/30
67-72-1	Hexachloroethane	ND		2820	2320	82	2820	2350	83	1	40-140/30
78-59-1	Isophorone	ND		2820	2340	83	2820	2420	86	3	40-140/30
88-74-4	2-Nitroaniline	ND		2820	2800	99	2820	3040	108	8	40-140/30
99-09-2	3-Nitroaniline	ND		2820	2650	94	2820	2820	100	6	40-140/30
100-01-6	4-Nitroaniline	ND		2820	2480	88	2820	2740	97	10	40-140/30
98-95-3	Nitrobenzene	ND		2820	2540	90	2820	2600	92	2	40-140/30
62-75-9	n-Nitrosodimethylamine	ND		2820	1960	69	2820	1950	69	1	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND		2820	2640	94	2820	2710	96	3	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND		2820	2450	87	2820	2620	93	7	40-140/30
110-86-1	Pyridine	ND		2820	1570	56	2820	1570	56	0	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
367-12-4	2-Fluorophenol	69%	70%	65%	30-130%
4165-62-2	Phenol-d5	76%	78%	72%	30-130%
118-79-6	2,4,6-Tribromophenol	89%	95%	81%	30-130%
4165-60-0	Nitrobenzene-d5	81%	81%	74%	30-130%
321-60-8	2-Fluorobiphenyl	80%	79%	70%	30-130%
1718-51-0	Terphenyl-d14	89%	91%	82%	30-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

CAS No.	Compound	MC32549-1 ug/kg	Q	Spike ug/kg	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.

Semivolatile Internal Standard Area Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**	**IS 6 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
MC32497-1	637271	4.17	1407726	5.22	712496	6.76	1131219	8.16	689913	10.93	1726250	12.43
MC32497-2	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.

Semivolatile Internal Standard Area Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSX136-CC106	**Injection Date:**	08/04/14
Lab File ID:	X04129.D	**Injection Time:**	07:53
Instrument ID:	GCMSX	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	269102	3.38	1034275	4.42	567950	5.93	930188	7.20	810477	9.59	656948	11.14
Upper Limit [a]	538204	3.88	2068550	4.92	1135900	6.43	1860376	7.70	1620954	10.09	1313896	11.64
Lower Limit [b]	134551	2.88	517138	3.92	283975	5.43	465094	6.70	405239	9.09	328474	10.64

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP39211-MB	329202	3.38	1284213	4.42	697000	5.93	1034735	7.20	766975	9.59	560078	11.14
OP39211-BS	306224	3.38	1142232	4.42	632064	5.93	1004364	7.20	821561	9.59	653074	11.14
OP39211-BSD	286801	3.38	1067731	4.42	588614	5.93	930796	7.20	791546	9.59	632709	11.14
OP39211-MS	333747	3.38	1266255	4.42	673571	5.93	1045985	7.20	775406	9.59	618318	11.14
OP39211-MSD	306924	3.38	1163682	4.42	642556	5.93	1021511	7.20	811608	9.59	637169	11.14
MC32521-1	305760	3.38	1173204	4.41	646738	5.92	1009317	7.19	745436	9.59	553839	11.13
ZZZZZZ	293924	3.38	1104211	4.41	620527	5.93	952435	7.20	748352	9.59	590352	11.14
ZZZZZZ	291038	3.38	1091651	4.42	603738	5.93	909086	7.20	649808	9.59	514449	11.14
ZZZZZZ	275553	3.38	1023638	4.41	563019	5.93	863454	7.20	695729	9.59	564240	11.13
ZZZZZZ	288914	3.38	1064126	4.42	580151	5.93	833741	7.20	612759	9.61	483544	11.16
ZZZZZZ	308045	3.38	1119775	4.42	603497	5.93	895300	7.20	640264	9.59	511642	11.14
ZZZZZZ	331523	3.38	1225425	4.42	650792	5.93	952491	7.20	667966	9.59	570416	11.14
ZZZZZZ	288811	3.38	1043149	4.42	558433	5.93	845411	7.20	662283	9.59	547993	11.14
MC32497-1	281645	3.38	1055631	4.42	586165	5.93	908461	7.20	681316	9.59	525367	11.14
MC32497-2	304527	3.38	1139635	4.42	611412	5.93	920986	7.20	666799	9.59	529101	11.13
ZZZZZZ	292153	3.38	1081748	4.41	600734	5.93	928351	7.20	686018	9.59	522901	11.13
ZZZZZZ	277392	3.38	1013364	4.42	560833	5.93	869099	7.20	674421	9.59	533920	11.14
ZZZZZZ	283827	3.38	1045649	4.41	562693	5.92	839179	7.20	654623	9.59	563418	11.14
ZZZZZZ	334405	3.38	1213208	4.41	635275	5.93	911034	7.20	635882	9.59	529539	11.15
ZZZZZZ	261811	3.38	976136	4.42	550000	5.93	851585	7.20	671423	9.59	566863	11.14
ZZZZZZ	291432	3.38	1048347	4.41	558869	5.93	818933	7.20	646682	9.59	551021	11.14
OP39205-MB	294698	3.38	1088705	4.42	586862	5.93	895526	7.20	697813	9.59	529536	11.14
OP39205-BS	296747	3.38	1096072	4.42	590440	5.93	903850	7.20	726981	9.59	600437	11.14
ZZZZZZ	302990	3.38	1112739	4.41	614020	5.92	932369	7.20	707451	9.59	532223	11.14
ZZZZZZ	315073	3.38	1174079	4.41	626324	5.92	920105	7.20	707333	9.59	539944	11.13

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

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

Semivolatile Surrogate Recovery Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32497-1	X04143.D	74	78	95	81	77	96
MC32497-2	X04144.D	65	71	102	73	74	104
OP39211-BS	X04131.D	63	71	84	75	72	84
OP39211-BSD	X04132.D	62	74	94	76	76	90
OP39211-MB	X04130.D	70	80	81	77	72	87
OP39211-MS	X04133.D	69	76	89	81	80	89
OP39211-MSD	X04134.D	70	78	95	81	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%

Semivolatile Surrogate Recovery Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32497-1	I91098.D	71	69	95
MC32497-2	I91099.D	79	77	103
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%

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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-4

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%

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

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%

Method Blank Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

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%

Blank Spike Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-4

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%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

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%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

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%

* = Outside of Control Limits.

8.3.1

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-4

CAS No.	Compound	MC32300-19 ug/l	Q	Spike 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	0.087	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%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	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%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32497-1, MC32497-2

CAS No.	Compound	MC32521-1 mg/kg	Q	Spike mg/kg	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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Method: SW846 8011 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
MC32497-4	BK39943.D	87	101
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

8.5.1

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Volatile Surrogate Recovery Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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]
MC32497-1	BK39970.D	99	145
MC32497-2	BK39972.D	106	147
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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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]
MC32497-1	AB85243.D	96
MC32497-2	AB85244.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: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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] RT	S1 [b] 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
MC32497-4	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

GC Surrogate Retention Time Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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] RT	S1 [b] 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
MC32497-1	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

GC Surrogate Retention Time Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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] RT	S1 [b] RT
Check Std	4.27	4.28

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
MC32497-2	BK39972.D	08/07/14	12:40	4.27	4.28
ZZZZZZ	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

GC Surrogate Retention Time Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

GC Surrogate Retention Time Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

GC Surrogate Retention Time Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32497-1	AB85243.D	08/07/14	17:45	20.33
MC32497-2	AB85244.D	08/07/14	18:22	20.33
ZZZZZZ	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

GC Surrogate Retention Time Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32497-1	AB85243.D	08/07/14	17:45	20.33
MC32497-2	AB85244.D	08/07/14	18:22	20.33
ZZZZZZ	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

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32497
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample: MC32497-1 **Analyzed:** 04-AUG-14 by BF **Method:** SM21 2540 B MOD.
ClientID: VMP15-29-073014(28-30')

Wet Weight (Total)	36.286	g
Tare Weight	24.654	g
Dry Weight (Total)	35.698	g
Solids, Percent	94.9	%

Sample: MC32497-2 **Analyzed:** 04-AUG-14 by BF **Method:** SM21 2540 B MOD.
ClientID: VMP15-29-073014(28-30')DUP

Wet Weight (Total)	37.2	g
Tare Weight	26.651	g
Dry Weight (Total)	36.735	g
Solids, Percent	95.6	%

e-Hardcopy 2.0
Automated Report

Technical Report for

Shell Oil

URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

21562973.18000

SGS Accutest Job Number: MC32521

Sampling Date: 07/31/14

Report to:

AECOM, INC.

elizabeth.kunkel@aecom.com

ATTN: Elizabeth Kunkel

Total number of pages in report: 117

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)

SGS ACCUTEST

October 27, 2016

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

RE: SGS Accutest Job # MC32521

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

Sections: 1 2 3 4 5 6 7 8 9

Table of Contents

Sample Summary

Shell Oil

Job No: MC32521

URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Project No: 21562973.18000

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
MC32521-1	07/31/14	11:30		08/01/14	SO	Soil	VMP15-25.5-073114(24-28')
MC32521-1D	07/31/14	11:30		08/01/14	SO	Soil Dup/MSD	VMP15-25.5-073114(24-28')
MC32521-1S	07/31/14	11:30		08/01/14	SO	Soil Matrix Spike	VMP15-25.5-073114(24-28')
MC32521-2	07/31/14	12:30		08/01/14	AQ	Equipment Blank	EQB-073114 (24-28')
MC32521-3	07/31/14	00:00		08/01/14	AQ	Trip Blank Water	TB-073114-HCL
MC32521-4	07/31/14	00:00		08/01/14	AQ	Trip Blank Water	TB-073114-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** MC3252

Site: URSMOSTL: Roxana VMP- 5 Rep acement, 900 South Centra Av **Report Date** 0/27/20 6 :3 :50 P

2 Samp e(s), 2 Tr p B ank(s) and 0 F e d B ank(s) were co ected on 07/3 /20 4 and were rece ved at SGS Accutest New Eng and on 08/0 /20 4 proper y preserved, at 2 2 Deg C and ntact These Samp es rece ved a job number of MC3252 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 Qu no ne were searched n the brary search and reported 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:** MSU962

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC32529-5MS, MC32529-5MSD 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 Recove y(s) for ,4-D oxane, D ch orod f uoromethane are outs de contro m ts
- Matr x Sp ke Recovery(s) for , , -Tr ch oroethane, 2-Butanone (MEK), 2-Ch oroethy v ny ether, 2-Hexanone, Acetone, D ch orod f uoromethane are outs de contro m ts Outs de contro m ts due to h gh eve n samp e re at ve to sp ke amount
- Matr x Sp ke Dup cate Recovery(s) for 2-Ch oroethy v ny ether, Acetone, D ch orod f uoromethane are outs de contro m ts Probab e cause due to matr x nterference
- RPD(s) for MSD for ,4-D oxane are outs de contro m ts for samp e MC32529-5MSD H gh RPD due to poss b e matr x nterference and/or samp e non-homogene ty
- MSU962-BSD for trans- ,3-D ch oropropene: Outs de contro m ts
- MSU962-BSD for 2-Ch oroethy v ny ether: Outs de contro m ts Ind v dua sp ke recover es w th n acceptance m ts
- 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

Matrix: AQ **Batch ID:** MSU964

- 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) MC32593-2AMSD were used as the QC samp es nd cated
- B ank Sp ke Recove y(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 Recovery(s) for 2-Ch oroethy v ny ether, 2-Hexanone, Acetone, Acro e n are outs de contro m ts Probab e cause due to matr x nterference
- Acrolein: Ca brat on Ver f cat on outs de of acceptance cr ter a Samp e resu t may be b ased ow
- Sample(s) MC32593-2AMS were used as the QC samples indicated.
- 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:** MSM2388

- 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) MC3252 - MS, MC3252 - MSD were used as the QC samp es nd cated
- B ank Sp ke Recove y(s) for Acro e n are outs de contro m ts

Volatiles by GCMS By Method SW846 8260C

Matrix: SO **Batch ID:** MSM2388

- Matr x Sp ke Recovery(s) for , , ,2-Tetrach oroethane, , , -Tr ch oroethane, , -D ch oroethene, , -D ch oropropene, ,2,4-Tr methy benzene, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,4-D ch orobenzene, ,4-D oxane, 2,2-D ch oropropane, 2-Ch oroethy v ny ether, Acro e n, Benzene, Carbon d su f de, Carbon tetrach or de, Ch orobenzene, Ch oroform, c s- ,2-D ch oroethene, Ethy benzene, Hexach orobutad ene, Isopropy benzene, m,p-Xy ene, n-Buty benzene, n-Propy benzene, 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, Tr ch oroethene, V ny Acetate, Xy ene (tota) are outs de contro m ts Outs de contro m ts due to poss b e matr x nte ference
- Matr x Sp ke Dup cate Recovery(s) for , , ,2-Tetrach oroethane, , , -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 oropropane, ,3,5-Tr methy benzene, ,3-D ch orobenzene, ,4-D ch orobenzene, 2,2-D ch oropropane, 2-Butanone (MEK), 2-Ch oroethy v ny ether, Acetone, Benzene, Bromobenzene, Carbon d su f de, Carbon tetrach or de, Ch orobenzene, Ch oroform, c s- ,2-D ch oroethene, Ethy benzene, Hexach orobutad ene, Isopropy benzene, m,p-Xy ene, n-Buty benzene, n-Propy benzene, o-Ch oroto uene, o-Xy ene, p-Ch oroto uene, p-Isopropy to uene, sec-Buty benzene, Styrene, te t-Buty benzene, Tetrach oroethene, To uene, trans- ,2-D ch oroethene, Tr ch oroethene, V ny Acetate, Xy ene (tota), 2-Hexanone, Acro e n are outs de contro m ts H gh RPD due to poss b e matr x nterference and/or samp e non-homogene ty
- RPD(s) for MSD for ,2,3-Tr ch oropropane, 2-Hexanone, 4-Methy -2-pentanone (MIBK), Acro e n, Naphtha ene are outs de contro m ts for samp e MC3252 - MSD H gh RPD due to poss b e matr x nterference and/or samp e non-homogene ty
- Acro e n: 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

Extractables by GCMS By Method SW846 8270D

Matrix: AQ **Batch ID:** OP39228

- 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) MC32300- 3MS, MC32300- 3MSD were used as the QC samp es nd cated
- Samp e(s) MC3252 -2 have compound(s) reported w th a “B” qua f er, nd cat ng ana yte s found n the assoc ated method b ank
- B ank Sp ke Recove y(s) for D -n-octy phtha ate, Hexach orocyc opentad ene are outs de contro m ts
- Matr x Sp ke Recovery(s) for 4-N tropheno , An ne, n-N trosod methy am ne, Pheno , Pyr d ne, Hexach orocyc opentad ene are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference Refer to B ank Sp ke
- Matr x Sp ke Dup cate Recovery(s) for 4-N tropheno , Pheno , Pyr d ne, Hexach orocyc opentad ene are outs de contro m ts H gh RPD due to poss b e matr x nterference and/or samp e heterogene ty
- RPD(s) for MSD for 2,4,5-Tr ch oropheno , 2-Ch oronaphtha ene, b s(2-Ch oro sopropy)ether, Hexach orocyc opentad ene are outs de contro m ts for samp e OP39228-MSD H gh RPD due to poss b e matr x nterference and/or samp e heterogene ty

Matrix: SO **Batch ID:** OP392

- 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) MC3252 - MS, MC3252 - MSD were used as the QC samp es nd cated
- B ank Sp ke Recove y(s) for Benzy A coho are outs de contro m ts
- Matr x Sp ke/Matr x Sp ke Dup cate Recovery(s) for Benzo c ac d are outs de contro m ts Outs de contro m ts due to poss b e matr x nterference Refer to B ank Sp ke
- RPD(s) for MSD for Benzo c ac d are outs de contro m ts for samp e OP392 -MSD H gh RPD due to poss b e matr x nterference and/or samp e heterogene ty

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ **Batch ID:** OP39229

- 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) MC32300- 4MS, MC32300- 4MSD were used as the QC samp es nd cated

Matrix: SO **Batch ID:** OP392 2

- 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) MC3252 - MS, MC3252 - MSD were used as the QC samp es nd cated

Volatiles by GC By Method SW846 8011

Matrix: AQ **Batch ID:** OP39247

- 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) MC32300- 9MS, MC32300- 9MSD 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:** OP39257

- 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) MC3252 - MS, MC3252 - 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 8015

Matrix: SO **Batch ID:** GAB4535

- A samp es were ana yzed w th n the recommended method ho d ng t me
- Samp e(s) MC3252 - MS, MC3252 - 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

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN47846

- Samp e(s) MC3252 - DUP were used as the QC samp es for So ds, Percent

SGS Accutest New Eng and ce t f es that a ana ys s were performed w th n method spec f cat on It s further recommended that th s report to be used n ts ent rety The Laborato y D rector for SGS Accutest New Eng and or ass gnee as ver f ed by the s gnature on the cover page has author zed the re ease of th s report(MC3252)

Summary of Hits

Job Number: MC32521
Account: Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Collected: 07/31/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC32521-1	VMP15-25.5-073114(24-28')					
Benzene		0.0040	0.00055	0.00037	mg/kg	SW846 8260C
Carbon disulfide		0.00079 J	0.0055	0.00014	mg/kg	SW846 8260C
Benzo(g,h,i)perylene		0.0018 J	0.0056	0.0015	mg/kg	SW846 8270D BY SIM
Phenanthrene		0.0015 J	0.0056	0.0012	mg/kg	SW846 8270D BY SIM
MC32521-2	EQB-073114 (24-28')					
Toluene		4.1	1.0	0.33	ug/l	SW846 8260C
Di-n-butyl phthalate		0.60 JB	5.2	0.18	ug/l	SW846 8270D
Diethyl phthalate		0.62 J	5.2	0.21	ug/l	SW846 8270D
bis(2-Ethylhexyl)phthalate		3.0	2.1	0.34	ug/l	SW846 8270D
MC32521-3	TB-073114-HCL					
No hits reported in this sample.						
MC32521-4	TB-073114-ST					
No hits reported in this sample.						

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388
Run #2							

	Initial Weight	Final Volume
Run #1	5.17 g	5.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0031	mg/kg	
107-02-8	Acrolein [a]	ND	0.028	0.0097	mg/kg	
107-13-1	Acrylonitrile	ND	0.028	0.0030	mg/kg	
71-43-2	Benzene	0.0040	0.00055	0.00037	mg/kg	
108-86-1	Bromobenzene	ND	0.0055	0.00028	mg/kg	
74-97-5	Bromochloromethane	ND	0.0055	0.00038	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00023	mg/kg	
75-25-2	Bromoform	ND	0.0022	0.00039	mg/kg	
74-83-9	Bromomethane	ND	0.0022	0.00066	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0034	mg/kg	
104-51-8	n-Butylbenzene	ND	0.0055	0.00027	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0055	0.00082	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0055	0.00023	mg/kg	
75-15-0	Carbon disulfide	0.00079	0.0055	0.00014	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.0022	0.00024	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0055	0.00083	mg/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	0.0055	0.0014	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00019	mg/kg	
74-87-3	Chloromethane	ND	0.0055	0.00062	mg/kg	
95-49-8	o-Chlorotoluene	ND	0.0055	0.00021	mg/kg	
106-43-4	p-Chlorotoluene	ND	0.0055	0.00029	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00036	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0022	0.00023	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0022	0.00033	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0022	0.00038	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0022	0.00089	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0022	0.00029	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0022	0.00035	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0022	0.00046	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0022	0.00050	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0022	0.00046	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:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00046	mg/kg	
142-28-9	1,3-Dichloropropane	ND	0.0055	0.00036	mg/kg	
594-20-7	2,2-Dichloropropane	ND	0.0055	0.00062	mg/kg	
563-58-6	1,1-Dichloropropene	ND	0.0055	0.00029	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00025	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.028	0.022	mg/kg	
97-63-2	Ethyl methacrylate	ND	0.0055	0.00039	mg/kg	
100-41-4	Ethylbenzene	ND	0.0022	0.00076	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.0055	0.00063	mg/kg	
591-78-6	2-Hexanone	ND	0.011	0.00083	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0055	0.00018	mg/kg	
99-87-6	p-Isopropyltoluene	ND	0.0055	0.00019	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0022	0.00020	mg/kg	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	0.0055	0.00059	mg/kg	
74-95-3	Methylene bromide	ND	0.0055	0.00050	mg/kg	
75-09-2	Methylene chloride	ND	0.0022	0.00059	mg/kg	
91-20-3	Naphthalene	ND	0.0055	0.00044	mg/kg	
103-65-1	n-Propylbenzene	ND	0.0055	0.00017	mg/kg	
100-42-5	Styrene	ND	0.0055	0.00019	mg/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.0055	0.00044	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00043	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0022	0.00035	mg/kg	
108-88-3	Toluene	ND	0.0055	0.00023	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0055	0.00047	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0055	0.00056	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00024	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00063	mg/kg	
79-01-6	Trichloroethene	ND	0.0022	0.00027	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0022	0.00044	mg/kg	
96-18-4	1,2,3-Trichloropropane	ND	0.0055	0.00032	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0055	0.0016	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0055	0.0017	mg/kg	
108-05-4	Vinyl Acetate	ND	0.0055	0.0017	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.0010	mg/kg	
	m,p-Xylene	ND	0.0022	0.00048	mg/kg	
95-47-6	o-Xylene	ND	0.0022	0.00031	mg/kg	
1330-20-7	Xylene (total)	ND	0.0022	0.00024	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:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	89%		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	mg/kg	

(a) Continuing 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:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8270D SW846 3546	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X04135.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
Run #2							

	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	0.56	0.070	mg/kg	
95-57-8	2-Chlorophenol	ND	0.28	0.013	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.56	0.014	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.56	0.016	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.56	0.092	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	1.1	0.14	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.56	0.070	mg/kg	
95-48-7	2-Methylphenol	ND	0.56	0.022	mg/kg	
	3&4-Methylphenol	ND	0.56	0.027	mg/kg	
88-75-5	2-Nitrophenol	ND	0.56	0.015	mg/kg	
100-02-7	4-Nitrophenol	ND	1.1	0.11	mg/kg	
87-86-5	Pentachlorophenol	ND	0.56	0.040	mg/kg	
108-95-2	Phenol	ND	0.28	0.016	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.56	0.014	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.56	0.014	mg/kg	
62-53-3	Aniline	ND	0.56	0.028	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.28	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.28	0.011	mg/kg	
100-51-6	Benzyl Alcohol	ND	0.56	0.028	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.28	0.015	mg/kg	
106-47-8	4-Chloroaniline	ND	0.56	0.014	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.28	0.013	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.28	0.017	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.28	0.020	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.28	0.017	mg/kg	
122-66-7	1,2-Diphenylhydrazine	ND	0.28	0.013	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.56	0.038	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.56	0.014	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.28	0.028	mg/kg	
132-64-9	Dibenzofuran	ND	0.11	0.016	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.28	0.030	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.28	0.0088	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:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8270D SW846 3546	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	ND	0.28	0.014	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.28	0.016	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.28	0.010	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.28	0.018	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.56	0.14	mg/kg	
67-72-1	Hexachloroethane	ND	0.28	0.014	mg/kg	
78-59-1	Isophorone	ND	0.28	0.013	mg/kg	
88-74-4	2-Nitroaniline	ND	0.56	0.014	mg/kg	
99-09-2	3-Nitroaniline	ND	0.56	0.031	mg/kg	
100-01-6	4-Nitroaniline	ND	0.56	0.014	mg/kg	
98-95-3	Nitrobenzene	ND	0.28	0.015	mg/kg	
62-75-9	n-Nitrosodimethylamine	ND	0.28	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.28	0.016	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.28	0.017	mg/kg	
110-86-1	Pyridine	ND	0.56	0.028	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		30-130%
4165-62-2	Phenol-d5	72%		30-130%
118-79-6	2,4,6-Tribromophenol	81%		30-130%
4165-60-0	Nitrobenzene-d5	74%		30-130%
321-60-8	2-Fluorobiphenyl	70%		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	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:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8270D BY SIM SW846 3546	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I90992.D	1	08/04/14	MR	08/01/14	OP39212	MSI3396
Run #2							

	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0056	0.00097	mg/kg	
208-96-8	Acenaphthylene	ND	0.0056	0.00086	mg/kg	
120-12-7	Anthracene	ND	0.0056	0.0012	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.0056	0.0026	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.0056	0.0022	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.0056	0.0025	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0018	0.0056	0.0015	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.0056	0.0017	mg/kg	
218-01-9	Chrysene	ND	0.0056	0.0015	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0056	0.0016	mg/kg	
206-44-0	Fluoranthene	ND	0.0056	0.0017	mg/kg	
86-73-7	Fluorene	ND	0.0056	0.0011	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0056	0.0014	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.011	0.0012	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.011	0.0010	mg/kg	
85-01-8	Phenanthrene	0.0015	0.0056	0.0012	mg/kg	J
129-00-0	Pyrene	ND	0.0056	0.0017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		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	77%		30-130%
321-60-8	2-Fluorobiphenyl	66%		30-130%
1718-51-0	Terphenyl-d14	86%		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:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8011 SW846 3550B	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39965.D	1	08/07/14	NK	08/05/14	OP39257	GBK1299
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 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	0.00082	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0028	0.00068	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	155%		61-167%
460-00-4	Bromofluorobenzene (S)	155%		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

Report of Analysis

Client Sample ID:	VMP15-25.5-073114(24-28')		
Lab Sample ID:	MC32521-1	**Date Sampled:**	07/31/14
Matrix:	SO - Soil	**Date Received:**	08/01/14
Method:	SW846 8015	**Percent Solids:**	87.8
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB85232.D	1	08/07/14	AF	n/a	n/a	GAB4535
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.13 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	14	2.1	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	2,3,4-Trifluorotoluene	98%		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

Report of Analysis

Client Sample ID:	EQB-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U21700.D	1	08/11/14	GK	n/a	n/a	MSU962
Run #2							

	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 [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-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	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	4.1	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	

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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:	EQB-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	121%		70-130%
2037-26-5	Toluene-D8	116%		70-130%
460-00-4	4-Bromofluorobenzene	115%		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
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Report of Analysis

Client Sample ID:	EQB-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F75169.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308
Run #2							

	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	0.60	5.2	0.18	ug/l	JB
117-84-0	Di-n-octyl phthalate	ND	5.2	0.29	ug/l	

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Report of Analysis

Client Sample ID:	EQB-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
84-66-2	Diethyl phthalate	0.62	5.2	0.21	ug/l	J
131-11-3	Dimethyl phthalate	ND	5.2	0.35	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	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	36%		15-110%
4165-62-2	Phenol-d5	22%		15-110%
118-79-6	2,4,6-Tribromophenol	73%		15-110%
4165-60-0	Nitrobenzene-d5	57%		30-130%
321-60-8	2-Fluorobiphenyl	67%		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	

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Report of Analysis

Client Sample ID:	EQB-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I91100.D	1	08/08/14	MR	08/02/14	OP39229	MSI3392
Run #2							

	Initial Volume	Final Volume
Run #1	970 ml	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.071	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.051	ug/l	
120-12-7	Anthracene	ND	0.10	0.095	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.052	0.020	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.030	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.052	0.033	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.028	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.040	ug/l	
218-01-9	Chrysene	ND	0.10	0.025	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.033	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.042	ug/l	
86-73-7	Fluorene	ND	0.10	0.10	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.032	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.21	0.051	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.21	0.076	ug/l	
85-01-8	Phenanthrene	ND	0.052	0.013	ug/l	
129-00-0	Pyrene	ND	0.10	0.040	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	101%		30-130%

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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-073114 (24-28')		
Lab Sample ID:	MC32521-2	**Date Sampled:**	07/31/14
Matrix:	AQ - Equipment Blank	**Date Received:**	08/01/14
Method:	SW846 8011 SW846 8011	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39944.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
Run #2							

	Initial Volume	Final Volume
Run #1	36.4 ml	2.0 ml
Run #2		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.014	0.0059	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.014	0.0059	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	94%		36-173%
460-00-4	Bromofluorobenzene (S)	105%		36-173%

ND = Not detected MDL = Method Detection Limit
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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-073114-HCL		
Lab Sample ID:	MC32521-3	**Date Sampled:**	07/31/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	U21739.D	1	08/12/14	GK	n/a	n/a	MSU964
Run #2							

	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	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	

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB-073114-HCL		
Lab Sample ID:	MC32521-3	**Date Sampled:**	07/31/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	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	

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Report of Analysis

Client Sample ID:	TB-073114-HCL		
Lab Sample ID:	MC32521-3	**Date Sampled:**	07/31/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	08/01/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	121%		70-130%
2037-26-5	Toluene-D8	107%		70-130%
460-00-4	4-Bromofluorobenzene	112%		70-130%

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

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

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-073114-ST		
Lab Sample ID:	MC32521-4	**Date Sampled:**	07/31/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	08/01/14
Method:	SW846 8011 SW846 8011	**Percent Solids:**	n/a
Project:	URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BK39945.D	1	08/05/14	NK	08/04/14	OP39247	GBK1298
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)	99%		36-173%
460-00-4	Bromofluorobenzene (S)	113%		36-173%

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

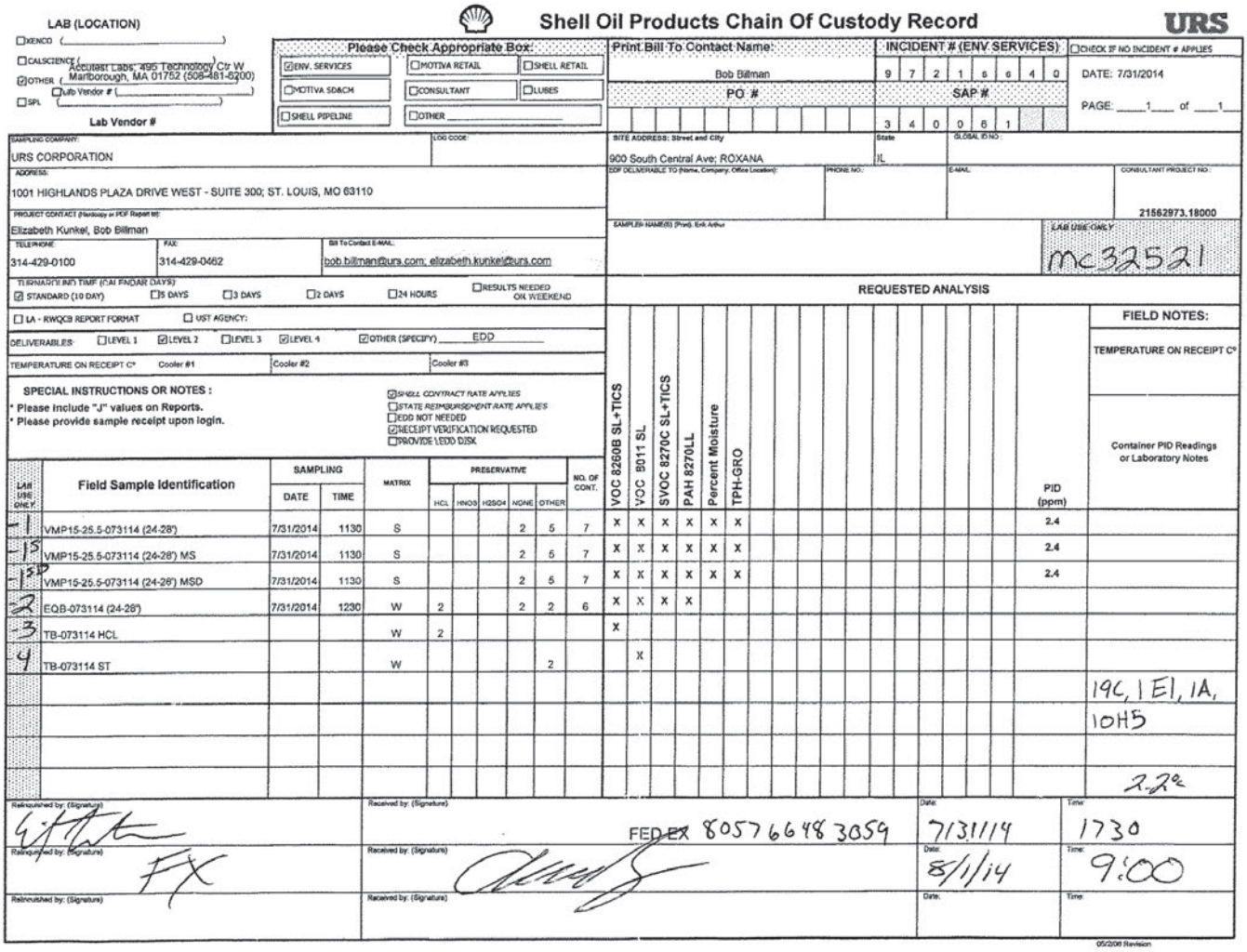
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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)
☐XENCO (_____)
☐CALSCIENCE (_____)
☑OTHER (Accutest Labs; 495 Technology Ctr W Marlborough, MA 01752 (508-481-6200))
☐SPL (_____)
Lab Vendor #

Please Check Appropriate Box:
☑ENV. SERVICES ☐MOTIVA RETAIL ☐SHELL RETAIL
☐MOTIVA SD&CM ☐CONSULTANT ☐LUBES
☐SHELL PIPELINE ☐OTHER

Print Bill To Contact Name: Bob Billman
INCIDENT # (ENV SERVICES): 9721164 0
☐CHECK IF NO INCIDENT # APPLIES
DATE: 7/31/2014
PO #:
SAP #: 340061
PAGE: 1 of 1

SAMPLING COMPANY: URS CORPORATION
LOG CODE:
SITE ADDRESS: Street and City: 900 South Central Ave; ROXANA
State: IL
GLOBAL ID NO.:
ADDRESS: 1001 HIGHLANDS PLAZA DRIVE WEST - SUITE 300; ST. LOUIS, MO 63110
EDF DELIVERABLE TO (Name, Company, Office Location):
PHONE NO.:
E-MAIL:
CONSULTANT PROJECT NO.: 21562973.18000
PROJECT CONTACT (Hardcopy or PDF Report to): Elizabeth Kunkel, Bob Billman
SAMPLER NAME(S) (Print): Erik Arthur
LAB USE ONLY: MC32521
TELEPHONE: 314-429-0100
FAX: 314-429-0462
Bill To Contact 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 - 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

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	VOC 8260B SL+TICS	VOC 8011 SL	SVOC 8270C SL+TICS	PAH 8270LL	Percent Moisture	TPH-GRO	PID (ppm)	Container PID Readings or Laboratory Notes
-1	VMP15-25.5-073114 (24-28')	7/31/2014	1130	S				2	5	7	X	X	X	X	X	X	2.4	
-1S	VMP15-25.5-073114 (24-28') MS	7/31/2014	1130	S				2	5	7	X	X	X	X	X	X	2.4	
-1SD	VMP15-25.5-073114 (24-28') MSD	7/31/2014	1130	S				2	5	7	X	X	X	X	X	X	2.4	
-2	EQB-073114 (24-28')	7/31/2014	1230	W	2			2	2	6	X	X	X	X				
-3	TB-073114 HCL			W	2						X							
-4	TB-073114 ST			W					2			X						
																		19C, 1E, 1A, 10H5
																		2.2°

FIELD NOTES:
TEMPERATURE ON RECEIPT C°

Relinquished by: (Signature) — Received by: (Signature) — FED EX 805766483059 — Date: 7/31/14 — Time: 1730
Relinquished by: (Signature) — Received by: (Signature) — Date: 8/1/14 — Time: 9:00
Relinquished by: (Signature) — Received by: (Signature) — Date: — Time:

05/2008 Revision

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MC32521: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC32521 **Client:** URS **Immediate Client Services Action Required:** No

Date / Time Received: 8/1/2014 **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:	Infared 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

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

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MC32521: Chain of Custody
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Internal Sample Tracking Chronicle

Shell Oil

Job No: MC32521

URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Project No: 21562973.18000

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC32521-1 Collected: 31-JUL-14 11:30 By: VMP15-25.5-073114(24-28')				Received: 01-AUG-14	By:	
MC32521-1	SM21 2540 B MOD.	04-AUG-14	BF			%SOL
MC32521-1	SW846 8270D	04-AUG-14 10:01	WK	01-AUG-14	AZ	AB8270SL+
MC32521-1	SW846 8270D BY SIM	04-AUG-14 14:18	MR	01-AUG-14	AZ	B8270SIMSL
MC32521-1	SW846 8011	07-AUG-14 10:24	NK	05-AUG-14	NE	V8011SL
MC32521-1	SW846 8015	07-AUG-14 10:53	AF			V8015GRO
MC32521-1	SW846 8260C	12-AUG-14 13:07	KD			V8260SL+
MC32521-2 Collected: 31-JUL-14 12:30 By: EQB-073114 (24-28')				Received: 01-AUG-14	By:	
MC32521-2	SW846 8011	05-AUG-14 12:30	NK	04-AUG-14	MT	V8011SL
MC32521-2	SW846 8270D	06-AUG-14 14:35	WK	02-AUG-14	FC	AB8270SL+
MC32521-2	SW846 8270D BY SIM	08-AUG-14 11:14	MR	02-AUG-14	SC	B8270SIMSL
MC32521-2	SW846 8260C	11-AUG-14 19:34	GK			V8260SL+
MC32521-3 Collected: 31-JUL-14 00:00 By: TB-073114-HCL				Received: 01-AUG-14	By:	
MC32521-3	SW846 8260C	12-AUG-14 13:20	GK			V8260SL+
MC32521-4 Collected: 31-JUL-14 00:00 By: TB-073114-ST				Received: 01-AUG-14	By:	
MC32521-4	SW846 8011	05-AUG-14 12:49	NK	04-AUG-14	MT	V8011SL

SGS Accutest Internal Chain of Custody

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Received: 08/01/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32521-1.2	Walk In Ref #5	Nicole Estey	08/01/14 16:21	Retrieve from Storage
MC32521-1.2	Nicole Estey	Walk In Ref #5	08/01/14 21:44	Return to Storage
MC32521-1.2	Walk In Ref #5	Mehdi Abdolrahim	08/04/14 10:05	Retrieve from Storage
MC32521-1.2	Mehdi Abdolrahim	Walk In Ref #5	08/04/14 11:37	Return to Storage
MC32521-1.2	Walk In Ref #5	Alireza Zeighami	08/05/14 07:52	Retrieve from Storage
MC32521-1.2	Alireza Zeighami	Walk In Ref #5	08/05/14 12:08	Return to Storage
MC32521-1.2	Scott Parsick		09/25/14 16:09	Disposed
MC32521-1.7	VOC Ref #10	Krysten Dufort	08/12/14 11:02	Retrieve from Storage
MC32521-1.7	Krysten Dufort	GCMSM	08/12/14 11:02	Load on Instrument
MC32521-1.7	GCMSM	Krysten Dufort	08/13/14 09:24	Unload from Instrument
MC32521-1.7	Krysten Dufort	VOC Ref #10	08/13/14 09:24	Return to Storage
MC32521-1.7	Scott Parsick		09/25/14 16:09	Disposed
MC32521-1.8	VOC Ref #10	Krysten Dufort	08/12/14 11:02	Retrieve from Storage
MC32521-1.8	Krysten Dufort	GCMSM	08/12/14 11:02	Load on Instrument
MC32521-1.8	GCMSM	Krysten Dufort	08/13/14 09:24	Unload from Instrument
MC32521-1.8	Krysten Dufort	VOC Ref #10	08/13/14 09:24	Return to Storage
MC32521-1.8	Scott Parsick		09/25/14 16:09	Disposed
MC32521-1.9	VOC Ref #10	Krysten Dufort	08/12/14 11:02	Retrieve from Storage
MC32521-1.9	Krysten Dufort	GCMSM	08/12/14 11:02	Load on Instrument
MC32521-1.9	GCMSM	Krysten Dufort	08/13/14 09:24	Unload from Instrument
MC32521-1.9	Krysten Dufort	VOC Ref #10	08/13/14 09:24	Return to Storage
MC32521-1.9	Scott Parsick		09/25/14 16:09	Disposed
MC32521-1.13	VOC Ref #10	Krysten Dufort	08/04/14 16:31	Retrieve from Storage
MC32521-1.13	Krysten Dufort	VOC Ref #10	08/05/14 10:11	Return to Storage
MC32521-1.13	Scott Parsick		09/25/14 16:09	Disposed
MC32521-1.20	VOC Ref #10	Anthony Franciosa	08/07/14 07:53	Retrieve from Storage
MC32521-1.20	Anthony Franciosa	GCAB	08/07/14 07:53	Load on Instrument
MC32521-1.20	GCAB	Anthony Franciosa	08/08/14 09:08	Unload from Instrument
MC32521-1.20	Anthony Franciosa	VOC Ref #10	08/08/14 09:08	Return to Storage
MC32521-1.20	Scott Parsick		09/25/14 16:09	Disposed
MC32521-2.1	Walk In Ref #22	Alireza Zeighami	08/02/14 09:50	Retrieve from Storage
MC32521-2.1	Alireza Zeighami		08/02/14 14:19	Depleted
MC32521-2.4	VOC Ref #1	Gary Krasinski	08/11/14 10:34	Retrieve from Storage
MC32521-2.4	Gary Krasinski	GCMSU	08/11/14 10:34	Load on Instrument
MC32521-2.4	GCMSU	Gary Krasinski	08/12/14 09:41	Unload from Instrument
MC32521-2.4	Gary Krasinski	VOC Ref #1	08/12/14 09:41	Return to Storage
MC32521-2.4	Scott Parsick		09/25/14 16:09	Disposed

SGS Accutest Internal Chain of Custody

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL
Received: 08/01/14

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
MC32521-2.5	VOC Ref #1	Marc Tahtamoni	08/04/14 14:37	Retrieve from Storage
MC32521-2.5	Marc Tahtamoni		08/06/14 14:22	Depleted
MC32521-3.1	VOC Ref #1	Gary Krasinski	08/11/14 10:34	Retrieve from Storage
MC32521-3.1	Gary Krasinski	GCMSU	08/11/14 10:34	Load on Instrument
MC32521-3.1	GCMSU	Gary Krasinski	08/12/14 09:41	Unload from Instrument
MC32521-3.1	Gary Krasinski	VOC Ref #1	08/12/14 09:41	Return to Storage
MC32521-3.1	Scott Parsick		09/25/14 16:09	Disposed
MC32521-3.2	VOC Ref #1	Gary Krasinski	08/12/14 11:36	Retrieve from Storage
MC32521-3.2	Gary Krasinski	GCMSU	08/12/14 11:36	Load on Instrument
MC32521-3.2	GCMSU	Gary Krasinski	08/13/14 08:47	Unload from Instrument
MC32521-3.2	Gary Krasinski	VOC Ref #1	08/13/14 08:47	Return to Storage
MC32521-3.2	Scott Parsick		09/25/14 16:09	Disposed
MC32521-4.2	VOC Ref #1	Marc Tahtamoni	08/04/14 14:37	Retrieve from Storage
MC32521-4.2	Marc Tahtamoni		08/06/14 14:22	Depleted

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU962-MB	U21680.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU962-MB	U21680.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU962-MB	U21680.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	119%	70-130%
2037-26-5	Toluene-D8	105%	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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-MB	M67512.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-MB	M67512.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-MB	M67512.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	70-130%
2037-26-5	Toluene-D8	91%	70-130%
460-00-4	4-Bromofluorobenzene	86%	70-130%

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

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-BS	M67509.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	50	45.4	91	70-130
107-02-8	Acrolein	250	156	62* [a]	70-130
107-13-1	Acrylonitrile	50	55.1	110	70-130
71-43-2	Benzene	50	55.4	111	70-130
108-86-1	Bromobenzene	50	56.8	114	70-130
74-97-5	Bromochloromethane	50	57.2	114	70-130
75-27-4	Bromodichloromethane	50	61.2	122	70-130
75-25-2	Bromoform	50	53.2	106	70-130
74-83-9	Bromomethane	50	49.2	98	70-130
78-93-3	2-Butanone (MEK)	50	47.5	95	70-130
104-51-8	n-Butylbenzene	50	54.3	109	70-130
135-98-8	sec-Butylbenzene	50	54.8	110	70-130
98-06-6	tert-Butylbenzene	50	55.9	112	70-130
75-15-0	Carbon disulfide	50	53.9	108	70-130
56-23-5	Carbon tetrachloride	50	52.5	105	70-130
108-90-7	Chlorobenzene	50	54.8	110	70-130
75-00-3	Chloroethane	50	58.0	116	70-130
110-75-8	2-Chloroethyl vinyl ether	50	52.6	105	10-160
67-66-3	Chloroform	50	56.6	113	70-130
74-87-3	Chloromethane	50	49.0	98	70-130
95-49-8	o-Chlorotoluene	50	56.7	113	70-130
106-43-4	p-Chlorotoluene	50	55.9	112	70-130
124-48-1	Dibromochloromethane	50	56.6	113	70-130
95-50-1	1,2-Dichlorobenzene	50	57.5	115	70-130
541-73-1	1,3-Dichlorobenzene	50	56.2	112	70-130
106-46-7	1,4-Dichlorobenzene	50	55.8	112	70-130
75-71-8	Dichlorodifluoromethane	50	51.8	104	70-130
75-34-3	1,1-Dichloroethane	50	58.5	117	70-130
107-06-2	1,2-Dichloroethane	50	57.5	115	70-130
75-35-4	1,1-Dichloroethene	50	53.3	107	70-130
156-59-2	cis-1,2-Dichloroethene	50	55.9	112	70-130
156-60-5	trans-1,2-Dichloroethene	50	53.3	107	70-130
78-87-5	1,2-Dichloropropane	50	58.1	116	70-130
142-28-9	1,3-Dichloropropane	50	54.7	109	70-130
594-20-7	2,2-Dichloropropane	50	55.6	111	70-130
563-58-6	1,1-Dichloropropene	50	51.3	103	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-BS	M67509.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	50	57.9	116	70-130
10061-02-6	trans-1,3-Dichloropropene	50	61.6	123	70-130
123-91-1	1,4-Dioxane	125	155	124	70-130
97-63-2	Ethyl methacrylate	50	56.5	113	76-141
100-41-4	Ethylbenzene	50	53.9	108	70-130
87-68-3	Hexachlorobutadiene	50	50.6	101	70-130
591-78-6	2-Hexanone	50	41.4	83	70-130
98-82-8	Isopropylbenzene	50	57.8	116	70-130
99-87-6	p-Isopropyltoluene	50	54.8	110	70-130
1634-04-4	Methyl Tert Butyl Ether	50	58.0	116	70-130
108-10-1	4-Methyl-2-pentanone (MIBK)	50	51.9	104	70-130
74-95-3	Methylene bromide	50	55.9	112	70-130
75-09-2	Methylene chloride	50	56.6	113	70-130
91-20-3	Naphthalene	50	56.6	113	70-130
103-65-1	n-Propylbenzene	50	56.2	112	70-130
100-42-5	Styrene	50	55.2	110	70-130
630-20-6	1,1,1,2-Tetrachloroethane	50	55.2	110	70-130
79-34-5	1,1,2,2-Tetrachloroethane	50	55.1	110	70-130
127-18-4	Tetrachloroethene	50	50.3	101	70-130
108-88-3	Toluene	50	56.1	112	70-130
87-61-6	1,2,3-Trichlorobenzene	50	56.0	112	70-130
120-82-1	1,2,4-Trichlorobenzene	50	55.7	111	70-130
71-55-6	1,1,1-Trichloroethane	50	54.8	110	70-130
79-00-5	1,1,2-Trichloroethane	50	56.7	113	70-130
79-01-6	Trichloroethene	50	53.4	107	70-130
75-69-4	Trichlorofluoromethane	50	46.9	94	70-130
96-18-4	1,2,3-Trichloropropane	50	53.8	108	70-130
95-63-6	1,2,4-Trimethylbenzene	50	57.7	115	70-130
108-67-8	1,3,5-Trimethylbenzene	50	54.3	109	70-130
108-05-4	Vinyl Acetate	50	44.6	89	70-130
75-01-4	Vinyl chloride	50	49.1	98	70-130
	m,p-Xylene	100	108	108	70-130
95-47-6	o-Xylene	50	55.5	111	70-130
1330-20-7	Xylene (total)	150	163	109	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSM2388-BS	M67509.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	70-130%
2037-26-5	Toluene-D8	88%	70-130%
460-00-4	4-Bromofluorobenzene	87%	70-130%

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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/Blank Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU962-BS	U21677.D	1	08/11/14	GK	n/a	n/a	MSU962
MSU962-BSD	U21678.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	45.7	91	50.1	100	9	70-130/25
107-02-8	Acrolein	250	273	109	294	118	7	70-130/25
107-13-1	Acrylonitrile	50	57.6	115	57.3	115	1	70-130/25
71-43-2	Benzene	50	50.2	100	51.4	103	2	70-130/25
108-86-1	Bromobenzene	50	49.1	98	54.6	109	11	70-130/25
74-97-5	Bromochloromethane	50	48.6	97	51.3	103	5	70-130/25
75-27-4	Bromodichloromethane	50	51.5	103	54.4	109	5	70-130/25
75-25-2	Bromoform	50	46.5	93	47.8	96	3	70-130/25
74-83-9	Bromomethane	50	44.5	89	49.1	98	10	70-130/25
78-93-3	2-Butanone (MEK)	50	47.1	94	54.0	108	14	70-130/25
104-51-8	n-Butylbenzene	50	54.8	110	57.1	114	4	70-130/25
135-98-8	sec-Butylbenzene	50	56.1	112	58.5	117	4	70-130/25
98-06-6	tert-Butylbenzene	50	48.6	97	49.3	99	1	70-130/25
75-15-0	Carbon disulfide	50	51.6	103	53.2	106	3	70-130/25
56-23-5	Carbon tetrachloride	50	44.8	90	45.4	91	1	70-130/25
108-90-7	Chlorobenzene	50	48.3	97	51.4	103	6	70-130/25
75-00-3	Chloroethane	50	57.1	114	63.0	126	10	70-130/25
110-75-8	2-Chloroethyl vinyl ether	50	45.0	90	64.7	129	36* [a]	70-130/25
67-66-3	Chloroform	50	49.9	100	51.2	102	3	70-130/25
74-87-3	Chloromethane	50	44.6	89	48.6	97	9	70-130/25
95-49-8	o-Chlorotoluene	50	52.1	104	55.8	112	7	70-130/25
106-43-4	p-Chlorotoluene	50	49.7	99	54.7	109	10	70-130/25
124-48-1	Dibromochloromethane	50	47.4	95	50.6	101	7	70-130/25
95-50-1	1,2-Dichlorobenzene	50	53.3	107	56.0	112	5	70-130/25
541-73-1	1,3-Dichlorobenzene	50	51.2	102	54.8	110	7	70-130/25
106-46-7	1,4-Dichlorobenzene	50	51.6	103	54.5	109	5	70-130/25
75-71-8	Dichlorodifluoromethane	50	27.3	55* [b]	28.3	57* [b]	4	70-130/25
75-34-3	1,1-Dichloroethane	50	51.5	103	53.9	108	5	70-130/25
107-06-2	1,2-Dichloroethane	50	46.2	92	47.4	95	3	70-130/25
75-35-4	1,1-Dichloroethene	50	49.5	99	50.7	101	2	70-130/25
156-59-2	cis-1,2-Dichloroethene	50	47.9	96	50.7	101	6	70-130/25
156-60-5	trans-1,2-Dichloroethene	50	46.8	94	49.7	99	6	70-130/25
78-87-5	1,2-Dichloropropane	50	51.5	103	55.5	111	7	70-130/25
142-28-9	1,3-Dichloropropane	50	48.2	96	55.3	111	14	70-130/25
594-20-7	2,2-Dichloropropane	50	52.6	105	54.3	109	3	70-130/25
563-58-6	1,1-Dichloropropene	50	48.1	96	47.3	95	2	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU962-BS	U21677.D	1	08/11/14	GK	n/a	n/a	MSU962
MSU962-BSD	U21678.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

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	50.7	101	58.8	118	15	70-130/25
10061-02-6	trans-1,3-Dichloropropene	50	49.5	99	65.5	131* b	28* b	70-130/25
123-91-1	1,4-Dioxane	125	178	142* b	177	142* b	1	70-130/25
97-63-2	Ethyl methacrylate	50	45.6	91	57.3	115	23	77-137/25
100-41-4	Ethylbenzene	50	49.4	99	50.3	101	2	70-130/25
87-68-3	Hexachlorobutadiene	50	50.2	100	51.2	102	2	70-130/25
591-78-6	2-Hexanone	50	42.7	85	50.2	100	16	70-130/25
98-82-8	Isopropylbenzene	50	56.8	114	59.0	118	4	70-130/25
99-87-6	p-Isopropyltoluene	50	53.2	106	55.7	111	5	70-130/25
1634-04-4	Methyl Tert Butyl Ether	50	49.1	98	51.9	104	6	70-130/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	50.3	101	57.0	114	12	70-130/25
74-95-3	Methylene bromide	50	48.6	97	51.5	103	6	70-130/25
75-09-2	Methylene chloride	50	50.0	100	52.3	105	4	70-130/25
91-20-3	Naphthalene	50	59.1	118	59.2	118	0	70-130/25
103-65-1	n-Propylbenzene	50	55.6	111	58.4	117	5	70-130/25
100-42-5	Styrene	50	47.3	95	50.1	100	6	70-130/25
630-20-6	1,1,1,2-Tetrachloroethane	50	47.0	94	45.0	90	4	70-130/25
79-34-5	1,1,2,2-Tetrachloroethane	50	56.4	113	60.7	121	7	70-130/25
127-18-4	Tetrachloroethene	50	49.2	98	48.3	97	2	70-130/25
108-88-3	Toluene	50	49.4	99	55.0	110	11	70-130/25
87-61-6	1,2,3-Trichlorobenzene	50	53.6	107	55.5	111	3	70-130/25
120-82-1	1,2,4-Trichlorobenzene	50	53.5	107	55.3	111	3	70-130/25
71-55-6	1,1,1-Trichloroethane	50	47.1	94	47.6	95	1	70-130/25
79-00-5	1,1,2-Trichloroethane	50	48.4	97	59.6	119	21	70-130/25
79-01-6	Trichloroethene	50	48.8	98	48.2	96	1	70-130/25
75-69-4	Trichlorofluoromethane	50	40.9	82	43.2	86	5	70-130/25
96-18-4	1,2,3-Trichloropropane	50	55.1	110	58.9	118	7	70-130/25
95-63-6	1,2,4-Trimethylbenzene	50	54.5	109	57.9	116	6	70-130/25
108-67-8	1,3,5-Trimethylbenzene	50	52.9	106	55.6	111	5	70-130/25
108-05-4	Vinyl Acetate	50	45.4	91	49.5	99	9	70-130/25
75-01-4	Vinyl chloride	50	42.7	85	47.3	95	10	70-130/25
	m,p-Xylene	100	96.7	97	98.7	99	2	70-130/25
95-47-6	o-Xylene	50	48.7	97	48.0	96	1	70-130/25
1330-20-7	Xylene (total)	150	145	97	147	98	1	70-130/25

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSU962-BS	U21677.D	1	08/11/14	GK	n/a	n/a	MSU962
MSU962-BSD	U21678.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	114%	112%	70-130%
2037-26-5	Toluene-D8	112%	119%	70-130%
460-00-4	4-Bromofluorobenzene	110%	118%	70-130%

(a) Outside control limits. Individual spike recoveries within acceptance limits.
(b) Outside control limits. Blank Spike meets program technical requirements.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32529-5MS	U21693.D	1	08/11/14	GK	n/a	n/a	MSU962
MC32529-5MSD	U21694.D	1	08/11/14	GK	n/a	n/a	MSU962
MC32529-5	U21688.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

CAS No.	Compound	MC32529-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		50	20.0	40* [a]	50	25.0	50* [a]	22	70-130/30
107-02-8	Acrolein	ND		250	201	80	250	243	97	19	70-130/30
107-13-1	Acrylonitrile	ND		50	50.7	101	50	57.1	114	12	70-130/30
71-43-2	Benzene	ND		50	53.1	106	50	53.1	106	0	70-130/30
108-86-1	Bromobenzene	ND		50	50.3	101	50	51.4	103	2	70-130/30
74-97-5	Bromochloromethane	ND		50	50.7	101	50	52.9	106	4	70-130/30
75-27-4	Bromodichloromethane	ND		50	52.0	104	50	52.2	104	0	70-130/30
75-25-2	Bromoform	ND		50	42.4	85	50	46.8	94	10	70-130/30
74-83-9	Bromomethane	ND		50	47.7	95	50	50.3	101	5	70-130/30
78-93-3	2-Butanone (MEK)	ND		50	33.3	67* [a]	50	37.3	75	11	70-130/30
104-51-8	n-Butylbenzene	ND		50	53.9	108	50	54.9	110	2	70-130/30
135-98-8	sec-Butylbenzene	ND		50	56.6	113	50	56.3	113	1	70-130/30
98-06-6	tert-Butylbenzene	ND		50	49.7	99	50	47.6	95	4	70-130/30
75-15-0	Carbon disulfide	ND		50	49.4	99	50	50.6	101	2	70-130/30
56-23-5	Carbon tetrachloride	ND		50	47.5	95	50	49.6	99	4	70-130/30
108-90-7	Chlorobenzene	ND		50	49.8	100	50	51.0	102	2	70-130/30
75-00-3	Chloroethane	ND		50	59.9	120	50	63.4	127	6	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		50	4.9	10* [a]	50	4.9	10* [a]	0	70-130/30
67-66-3	Chloroform	ND		50	52.8	106	50	54.4	109	3	70-130/30
74-87-3	Chloromethane	ND		50	47.2	94	50	50.5	101	7	70-130/30
95-49-8	o-Chlorotoluene	ND		50	53.8	108	50	53.4	107	1	70-130/30
106-43-4	p-Chlorotoluene	ND		50	50.8	102	50	51.6	103	2	70-130/30
124-48-1	Dibromochloromethane	ND		50	45.8	92	50	47.4	95	3	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		50	52.9	106	50	53.3	107	1	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		50	51.7	103	50	52.4	105	1	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		50	51.9	104	50	52.8	106	2	70-130/30
75-71-8	Dichlorodifluoromethane	ND		50	25.1	50* [a]	50	28.1	56* [a]	11	70-130/30
75-34-3	1,1-Dichloroethane	3.0		50	57.5	109	50	59.7	113	4	70-130/30
107-06-2	1,2-Dichloroethane	ND		50	46.1	92	50	47.1	94	2	70-130/30
75-35-4	1,1-Dichloroethene	9.7		50	60.8	102	50	64.8	110	6	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		50	51.5	103	50	54.0	108	5	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		50	51.8	104	50	53.7	107	4	70-130/30
78-87-5	1,2-Dichloropropane	ND		50	54.2	108	50	55.3	111	2	70-130/30
142-28-9	1,3-Dichloropropane	ND		50	49.2	98	50	53.9	108	9	70-130/30
594-20-7	2,2-Dichloropropane	ND		50	55.9	112	50	57.5	115	3	70-130/30
563-58-6	1,1-Dichloropropene	ND		50	50.8	102	50	50.7	101	0	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32529-5MS	U21693.D	1	08/11/14	GK	n/a	n/a	MSU962
MC32529-5MSD	U21694.D	1	08/11/14	GK	n/a	n/a	MSU962
MC32529-5	U21688.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

CAS No.	Compound	MC32529-5 ug/l	Q	Spike 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		50	52.1	104	50	55.2	110	6	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		50	49.9	100	50	59.6	119	18	70-130/30
123-91-1	1,4-Dioxane	ND		125	109	87	125	152	122	33* [b]	70-130/30
97-63-2	Ethyl methacrylate	ND		50	46.4	93	50	55.4	111	18	72-139/30
100-41-4	Ethylbenzene	ND		50	51.1	102	50	51.1	102	0	70-130/30
87-68-3	Hexachlorobutadiene	ND		50	45.7	91	50	49.9	100	9	70-130/30
591-78-6	2-Hexanone	ND		50	30.0	60* [a]	50	35.6	71	17	70-130/30
98-82-8	Isopropylbenzene	ND		50	59.2	118	50	57.1	114	4	70-130/30
99-87-6	p-Isopropyltoluene	ND		50	53.1	106	50	53.9	108	1	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		50	50.2	100	50	54.1	108	7	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		50	48.0	96	50	56.7	113	17	70-130/30
74-95-3	Methylene bromide	ND		50	47.7	95	50	50.6	101	6	70-130/30
75-09-2	Methylene chloride	ND		50	52.7	105	50	55.7	111	6	70-130/30
91-20-3	Naphthalene	ND		50	51.2	102	50	57.1	114	11	70-130/30
103-65-1	n-Propylbenzene	ND		50	57.3	115	50	56.2	112	2	70-130/30
100-42-5	Styrene	ND		50	47.2	94	50	49.3	99	4	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		50	48.0	96	50	47.2	94	2	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		50	56.4	113	50	60.4	121	7	70-130/30
127-18-4	Tetrachloroethene	ND		50	50.6	101	50	49.5	99	2	70-130/30
108-88-3	Toluene	ND		50	52.5	105	50	55.2	110	5	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		50	46.7	93	50	52.2	104	11	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		50	47.9	96	50	52.1	104	8	70-130/30
71-55-6	1,1,1-Trichloroethane	109		50	140	62* [c]	50	146	74	4	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		50	49.7	99	50	56.7	113	13	70-130/30
79-01-6	Trichloroethene	ND		50	51.3	103	50	49.9	100	3	70-130/30
75-69-4	Trichlorofluoromethane	ND		50	43.2	86	50	44.6	89	3	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		50	51.4	103	50	55.6	111	8	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		50	54.2	108	50	55.1	110	2	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		50	53.3	107	50	53.4	107	0	70-130/30
108-05-4	Vinyl Acetate	ND		50	44.6	89	50	46.3	93	4	70-130/30
75-01-4	Vinyl chloride	ND		50	46.2	92	50	49.1	98	6	70-130/30
	m,p-Xylene	ND		100	99.8	100	100	101	101	1	70-130/30
95-47-6	o-Xylene	ND		50	50.0	100	50	49.9	100	0	70-130/30
1330-20-7	Xylene (total)	ND		150	150	100	150	151	101	1	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32529-5MS	U21693.D	1	08/11/14	GK	n/a	n/a	MSU962
MC32529-5MSD	U21694.D	1	08/11/14	GK	n/a	n/a	MSU962
MC32529-5	U21688.D	1	08/11/14	GK	n/a	n/a	MSU962

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

MC32521-2

CAS No.	Surrogate Recoveries	MS	MSD	MC32529-5	Limits
1868-53-7	Dibromofluoromethane	115%	120%	115%	70-130%
2037-26-5	Toluene-D8	112%	119%	111%	70-130%
460-00-4	4-Bromofluorobenzene	110%	116%	110%	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.
(c) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	M67519.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1MSD	M67520.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		56.4	39.4	70	59	33.6	57* a	16	70-130/30
107-02-8	Acrolein	ND		282	131	46* a	295	185	63* a	34* b	70-130/30
107-13-1	Acrylonitrile	ND		56.4	64.2	114	59	50.6	86	24	70-130/30
71-43-2	Benzene	4.0		56.4	37.8	60* a	59	39.2	60* a	4	70-130/30
108-86-1	Bromobenzene	ND		56.4	40.0	71	59	36.2	61* a	10	70-130/30
74-97-5	Bromochloromethane	ND		56.4	44.6	79	59	44.0	75	1	70-130/30
75-27-4	Bromodichloromethane	ND		56.4	45.5	81	59	44.0	75	3	70-130/30
75-25-2	Bromoform	ND		56.4	55.2	98	59	43.5	74	24	70-130/30
74-83-9	Bromomethane	ND		56.4	50.3	89	59	53.2	90	6	70-130/30
78-93-3	2-Butanone (MEK)	ND		56.4	51.3	91	59	38.4	65* a	29	70-130/30
104-51-8	n-Butylbenzene	ND		56.4	33.3	59* a	59	29.9	51* a	11	70-130/30
135-98-8	sec-Butylbenzene	ND		56.4	34.0	60* a	59	31.6	54* a	7	70-130/30
98-06-6	tert-Butylbenzene	ND		56.4	35.0	62* a	59	32.8	56* a	6	70-130/30
75-15-0	Carbon disulfide	0.79	J	56.4	34.9	60* a	59	37.6	62* a	7	70-130/30
56-23-5	Carbon tetrachloride	ND		56.4	33.9	60* a	59	34.9	59* a	3	70-130/30
108-90-7	Chlorobenzene	ND		56.4	36.2	64* a	59	35.6	60* a	2	70-130/30
75-00-3	Chloroethane	ND		56.4	59.1	105	59	63.3	107	7	70-130/30
110-75-8	2-Chloroethyl vinyl ether	ND		56.4	ND	0* a	59	ND	0* a	nc	10-160/30
67-66-3	Chloroform	ND		56.4	39.1	69* a	59	40.3	68* a	3	70-130/30
74-87-3	Chloromethane	ND		56.4	48.5	86	59	51.7	88	6	70-130/30
95-49-8	o-Chlorotoluene	ND		56.4	36.2	64* a	59	33.8	57* a	7	70-130/30
106-43-4	p-Chlorotoluene	ND		56.4	35.7	63* a	59	33.7	57* a	6	70-130/30
124-48-1	Dibromochloromethane	ND		56.4	45.2	80	59	41.9	71	8	70-130/30
95-50-1	1,2-Dichlorobenzene	ND		56.4	43.9	78	59	35.2	60* a	22	70-130/30
541-73-1	1,3-Dichlorobenzene	ND		56.4	37.5	67* a	59	32.8	56* a	13	70-130/30
106-46-7	1,4-Dichlorobenzene	ND		56.4	38.4	68* a	59	32.9	56* a	15	70-130/30
75-71-8	Dichlorodifluoromethane	ND		56.4	53.3	95	59	57.1	97	7	70-130/30
75-34-3	1,1-Dichloroethane	ND		56.4	39.3	70	59	40.7	69* a	4	70-130/30
107-06-2	1,2-Dichloroethane	ND		56.4	45.6	81	59	43.9	74	4	70-130/30
75-35-4	1,1-Dichloroethene	ND		56.4	34.4	61* a	59	36.9	63* a	7	70-130/30
156-59-2	cis-1,2-Dichloroethene	ND		56.4	38.0	67* a	59	39.3	67* a	3	70-130/30
156-60-5	trans-1,2-Dichloroethene	ND		56.4	35.0	62* a	59	37.0	63* a	6	70-130/30
78-87-5	1,2-Dichloropropane	ND		56.4	40.8	72	59	40.6	69* a	0	70-130/30
142-28-9	1,3-Dichloropropane	ND		56.4	45.3	80	59	43.1	73	5	70-130/30
594-20-7	2,2-Dichloropropane	ND		56.4	36.7	65* a	59	37.6	64* a	2	70-130/30
563-58-6	1,1-Dichloropropene	ND		56.4	32.6	58* a	59	34.4	58* a	5	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	M67519.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1MSD	M67520.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND		56.4	41.9	74	59	41.3	70	1	70-130/30
10061-02-6	trans-1,3-Dichloropropene	ND		56.4	49.7	88	59	46.0	78	8	70-130/30
123-91-1	1,4-Dioxane	ND		141	229	162* [a]	147	169	115	30	70-130/30
97-63-2	Ethyl methacrylate	ND		56.4	60.3	107	59	49.1	83	20	41-160/30
100-41-4	Ethylbenzene	ND		56.4	34.0	60* [a]	59	34.6	59* [a]	2	70-130/30
87-68-3	Hexachlorobutadiene	ND		56.4	34.0	60* [a]	59	26.8	45* [a]	24	70-130/30
591-78-6	2-Hexanone	ND		56.4	55.1	98	59	36.9	63* [a]	40* [b]	70-130/30
98-82-8	Isopropylbenzene	ND		56.4	35.5	63* [a]	59	35.2	60* [a]	1	70-130/30
99-87-6	p-Isopropyltoluene	ND		56.4	33.8	60* [a]	59	30.8	52* [a]	9	70-130/30
1634-04-4	Methyl Tert Butyl Ether	ND		56.4	50.8	90	59	47.5	81	7	70-130/30
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		56.4	73.4	130	59	53.5	91	31* [b]	70-130/30
74-95-3	Methylene bromide	ND		56.4	47.0	83	59	45.5	77	3	70-130/30
75-09-2	Methylene chloride	ND		56.4	39.6	70	59	41.0	70	3	70-130/30
91-20-3	Naphthalene	ND		56.4	63.7	113	59	45.8	78	33* [b]	70-130/30
103-65-1	n-Propylbenzene	ND		56.4	34.7	62* [a]	59	33.5	57* [a]	4	70-130/30
100-42-5	Styrene	ND		56.4	38.1	68* [a]	59	36.6	62* [a]	4	70-130/30
630-20-6	1,1,1,2-Tetrachloroethane	ND		56.4	38.2	68* [a]	59	36.7	62* [a]	4	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	ND		56.4	65.9	117	59	48.8	83	30	70-130/30
127-18-4	Tetrachloroethene	ND		56.4	31.2	55* [a]	59	32.2	55* [a]	3	70-130/30
108-88-3	Toluene	ND		56.4	36.9	65* [a]	59	37.2	63* [a]	1	70-130/30
87-61-6	1,2,3-Trichlorobenzene	ND		56.4	46.1	82	59	34.0	58* [a]	30	70-130/30
120-82-1	1,2,4-Trichlorobenzene	ND		56.4	40.3	71	59	30.6	52* [a]	27	70-130/30
71-55-6	1,1,1-Trichloroethane	ND		56.4	35.6	63* [a]	59	37.2	63* [a]	4	70-130/30
79-00-5	1,1,2-Trichloroethane	ND		56.4	52.3	93	59	45.7	78	13	70-130/30
79-01-6	Trichloroethene	ND		56.4	34.9	62* [a]	59	35.4	60* [a]	1	70-130/30
75-69-4	Trichlorofluoromethane	ND		56.4	47.7	85	59	51.3	87	7	70-130/30
96-18-4	1,2,3-Trichloropropane	ND		56.4	65.4	116	59	48.0	81	31* [b]	70-130/30
95-63-6	1,2,4-Trimethylbenzene	ND		56.4	36.3	64* [a]	59	33.9	58* [a]	7	70-130/30
108-67-8	1,3,5-Trimethylbenzene	ND		56.4	33.7	60* [a]	59	31.7	54* [a]	6	70-130/30
108-05-4	Vinyl Acetate	ND		56.4	29.5	52* [a]	59	25.0	42* [a]	17	70-130/30
75-01-4	Vinyl chloride	ND		56.4	50.5	90	59	54.1	92	7	70-130/30
	m,p-Xylene	ND		113	68.4	61* [a]	118	68.3	58* [a]	0	70-130/30
95-47-6	o-Xylene	ND		56.4	35.7	63* [a]	59	35.0	59* [a]	2	70-130/30
1330-20-7	Xylene (total)	ND		169	104	61* [a]	177	103	58* [a]	1	70-130/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC32521-1MS	M67519.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1MSD	M67520.D	1	08/12/14	KD	n/a	n/a	MSM2388
MC32521-1	M67515.D	1	08/12/14	KD	n/a	n/a	MSM2388

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

MC32521-1

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
1868-53-7	Dibromofluoromethane	98%	98%	102%	70-130%
2037-26-5	Toluene-D8	89%	88%	89%	70-130%
460-00-4	4-Bromofluorobenzene	88%	88%	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.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

CAS No.	Compound	MC32593-2A ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

CAS No.	Compound	MC32593-2A ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-3

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.

Volatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSM2388-CC2378	**Injection Date:**	08/12/14
Lab File ID:	M67509.D	**Injection Time:**	10:09
Instrument ID:	GCMSM	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	287799	9.35	471287	10.23	198271	13.50	249889	16.07	95403	6.84
Upper Limit [a]	575598	9.85	942574	10.73	396542	14.00	499778	16.57	190806	7.34
Lower Limit [b]	143900	8.85	235644	9.73	99136	13.00	124945	15.57	47702	6.34

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
MSM2388-BS	287799	9.35	471287	10.23	198271	13.50	249889	16.07	95403	6.84
MSM2388-MB	249706	9.35	394306	10.22	166750	13.51	222180	16.07	88218	6.84
ZZZZZZ	288020	9.35	467298	10.23	203258	13.50	273791	16.07	161691	6.85
ZZZZZZ	280295	9.35	456371	10.23	196409	13.50	272496	16.07	163686	6.85
MC32521-1	275320	9.35	457329	10.23	195518	13.50	270230	16.07	153521	6.85
ZZZZZZ	261533	9.35	430548	10.22	187264	13.51	254986	16.07	149101	6.84
ZZZZZZ	265470	9.35	429936	10.22	188806	13.50	251613	16.07	149707	6.85
ZZZZZZ	262874	9.35	431210	10.22	178193	13.51	223771	16.07	161284	6.84
MC32521-1MS	300481	9.35	498393	10.23	220745	13.50	286803	16.07	170757	6.85
MC32521-1MSD	306944	9.35	512436	10.23	221077	13.50	288417	16.07	178617	6.85
ZZZZZZ	204338	9.35	324449	10.23	141236	13.50	189618	16.07	81425	6.84
ZZZZZZ	289128	9.35	456368	10.23	193512	13.51	258862	16.07	92050	6.85
ZZZZZZ	282615	9.35	449010	10.23	187142	13.50	246977	16.07	91357	6.84
ZZZZZZ	272802	9.35	439962	10.23	182088	13.50	236009	16.07	101190	6.84
ZZZZZZ	273222	9.35	437060	10.23	183747	13.51	238326	16.07	107369	6.85
ZZZZZZ	289038	9.35	463133	10.23	191150	13.50	245933	16.07	88150	6.86
ZZZZZZ	264981	9.35	423077	10.22	176187	13.50	237185	16.07	86026	6.85
ZZZZZZ	274116	9.35	442403	10.23	188760	13.51	246916	16.07	94912	6.84
ZZZZZZ	264176	9.35	420716	10.23	175498	13.51	233637	16.07	85340	6.85
ZZZZZZ	273059	9.35	442340	10.23	185565	13.51	244440	16.07	97349	6.85

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSU962-CC957	**Injection Date:**	08/11/14
Lab File ID:	U21676.D	**Injection Time:**	08:33
Instrument ID:	GCMSU	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	738932	8.97	1247773	9.84	463911	13.10	751644	15.66	334124	6.62
Upper Limit [a]	1477864	9.47	2495546	10.34	927822	13.60	1503288	16.16	668248	7.12
Lower Limit [b]	369466	8.47	623887	9.34	231956	12.60	375822	15.16	167062	6.12

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
MSU962-BS	847507	8.97	1421245	9.84	508966	13.10	725338	15.66	403451	6.61
MSU962-BSD	828962	8.97	1389816	9.84	558492	13.10	741474	15.66	365390	6.61
MSU962-MB	779495	8.98	1238311	9.84	418332	13.10	687883	15.67	356820	6.61
ZZZZZZ	792767	8.97	1271106	9.84	425377	13.10	689208	15.67	290291	6.62
ZZZZZZ	743882	8.98	1260791	9.84	391925	13.10	641350	15.66	374325	6.63
ZZZZZZ	828923	8.98	1365888	9.84	532781	13.10	748738	15.66	354106	6.61
ZZZZZZ	894522	8.97	1468927	9.84	566031	13.10	799994	15.66	358765	6.59
ZZZZZZ	866627	8.98	1375710	9.85	460652	13.10	772474	15.67	366158	6.63
MC32529-5	824693	8.98	1306605	9.85	442750	13.10	715615	15.67	354447	6.63
ZZZZZZ	773073	8.98	1195501	9.85	403716	13.10	683238	15.67	366018	6.62
ZZZZZZ	742921	8.98	1178121	9.85	431579	13.10	650774	15.67	349126	6.62
ZZZZZZ	740007	8.98	1175574	9.84	395303	13.10	664245	15.67	310199	6.62
ZZZZZZ	755968	8.98	1203758	9.85	418353	13.10	641967	15.67	358346	6.62
MC32529-5MS	848675	8.96	1436680	9.83	527137	13.09	752842	15.66	319059	6.60
MC32529-5MSD	751001	8.97	1254610	9.84	498705	13.10	716327	15.66	324714	6.59
ZZZZZZ	739432	8.98	1156315	9.85	389193	13.10	653140	15.67	341279	6.62
ZZZZZZ	732843	8.98	1156700	9.85	396449	13.10	679175	15.67	343215	6.61
ZZZZZZ	703635	8.98	1130713	9.84	397473	13.10	638271	15.67	319441	6.61
ZZZZZZ	698423	8.98	1105920	9.85	389199	13.10	626290	15.67	312115	6.60
ZZZZZZ	710963	8.98	1134732	9.85	380242	13.10	651414	15.67	315626	6.60
MC32521-2	686808	8.98	1083432	9.85	405957	13.10	616560	15.67	285191	6.62
ZZZZZZ	728101	8.98	1156034	9.84	384926	13.10	651979	15.67	314070	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.

Volatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
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 Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
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
ZZZZZZ	891179	8.98	1406478	9.85	477609	13.10	785838	15.67	326751	6.63
ZZZZZZ	856398	8.98	1357622	9.85	477254	13.10	737578	15.67	315519	6.61
ZZZZZZ	818836	8.98	1267918	9.85	423888	13.10	762580	15.67	339815	6.62
MC32521-3	818252	8.98	1275326	9.85	442772	13.10	762825	15.67	329437	6.61
ZZZZZZ	814558	8.98	1295143	9.85	456710	13.10	717939	15.67	295241	6.61
ZZZZZZ	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
ZZZZZZ	781023	8.98	1256863	9.85	419984	13.10	699690	15.67	304734	6.62
ZZZZZZ	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
MC32593-2AMSD	807172	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
MC32593-3AMSD	821327	8.97	1385754	9.84	510132	13.09	725910	15.66	338164	6.62
ZZZZZZ	767882	8.98	1235142	9.84	425478	13.10	709044	15.66	347369	6.63
ZZZZZZ	786314	8.98	1249693	9.84	422130	13.10	711293	15.67	339285	6.62
ZZZZZZ	721001	8.98	1157270	9.85	403758	13.10	682954	15.67	345611	6.63
ZZZZZZ	770447	8.98	1276432	9.84	423141	13.10	681996	15.67	293157	6.62
ZZZZZZ	752004	8.98	1219553	9.85	412350	13.10	690110	15.67	338502	6.62
ZZZZZZ	777148	8.97	1299958	9.84	467791	13.10	663033	15.67	331601	6.61
ZZZZZZ	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.

Volatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Method: SW846 8260C **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC32521-2	U21700.D	121	116	115
MC32521-3	U21739.D	121	107	112
MC32529-5MS	U21693.D	115	112	110
MC32529-5MSD	U21694.D	120	119	116
MC32593-2AMS	U21746.D	119	112	114
MC32593-2AMSD	U21747.D	112	120	120
MSU962-BS	U21677.D	114	112	110
MSU962-BSD	U21678.D	112	119	118
MSU962-MB	U21680.D	119	105	111
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%

Volatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32521-1	M67515.D	102	89	87
MC32521-1MS	M67519.D	98	89	88
MC32521-1MSD	M67520.D	98	88	88
MSM2388-BS	M67509.D	91	88	87
MSM2388-MB	M67512.D	91	91	86

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

GC/MS Semi-volatiles

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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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MB	X04130.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32521-1

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	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	970	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	970	91	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	9.9	ug/kg	
100-51-6	Benzyl Alcohol	ND	490	24	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	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	490	32	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	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	7.6	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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MB	X04130.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32521-1

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	70%	30-130%
4165-62-2	Phenol-d5	80%	30-130%
118-79-6	2,4,6-Tribromophenol	81%	30-130%
4165-60-0	Nitrobenzene-d5	77%	30-130%
321-60-8	2-Fluorobiphenyl	72%	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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39228-MB	F75162.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308

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

MC32521-2

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	0.45	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	

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39228-MB	F75162.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308

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

MC32521-2

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	45%	15-110%
4165-62-2	Phenol-d5	28%	15-110%
118-79-6	2,4,6-Tribromophenol	81%	15-110%
4165-60-0	Nitrobenzene-d5	67%	30-130%
321-60-8	2-Fluorobiphenyl	63%	30-130%
1718-51-0	Terphenyl-d14	95%	30-130%

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

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39212-MB	I90988.D	1	08/04/14	MR	08/01/14	OP39212	MSI3396

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

MC32521-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.9	0.84	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	2.1	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	9.7	1.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	9.7	0.90	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	38%	15-110%
4165-62-2	Phenol-d5	39%	15-110%
118-79-6	2,4,6-Tribromophenol	39%	15-110%
4165-60-0	Nitrobenzene-d5	74%	30-130%
321-60-8	2-Fluorobiphenyl	71%	30-130%
1718-51-0	Terphenyl-d14	88%	30-130%

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39229-MB	I91065.D	1	08/07/14	MR	08/02/14	OP39229	MSI3391

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

MC32521-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.069	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.092	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.020	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.029	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.032	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.027	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.024	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.032	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.041	ug/l	
86-73-7	Fluorene	ND	0.10	0.099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.031	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.20	0.050	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.20	0.074	ug/l	
85-01-8	Phenanthrene	0.025	0.050	0.013	ug/l	J
129-00-0	Pyrene	ND	0.10	0.038	ug/l	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	89%	30-130%
321-60-8	2-Fluorobiphenyl	66%	30-130%
1718-51-0	Terphenyl-d14	100%	30-130%

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39228-BS	F75163.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308

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

MC32521-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	23.1	46	30-130
95-57-8	2-Chlorophenol	50	39.9	80	30-130
59-50-7	4-Chloro-3-methyl phenol	50	45.1	90	30-130
120-83-2	2,4-Dichlorophenol	50	38.6	77	30-130
105-67-9	2,4-Dimethylphenol	50	30.9	62	30-130
51-28-5	2,4-Dinitrophenol	50	40.8	82	30-130
534-52-1	4,6-Dinitro-o-cresol	50	49.7	99	30-130
95-48-7	2-Methylphenol	50	34.0	68	30-130
	3&4-Methylphenol	100	60.9	61	30-130
88-75-5	2-Nitrophenol	50	42.5	85	30-130
100-02-7	4-Nitrophenol	50	17.7	35	30-130
87-86-5	Pentachlorophenol	50	49.6	99	30-130
108-95-2	Phenol	50	16.1	32	30-130
95-95-4	2,4,5-Trichlorophenol	50	44.8	90	30-130
88-06-2	2,4,6-Trichlorophenol	50	42.2	84	30-130
62-53-3	Aniline	50	24.0	48	40-140
101-55-3	4-Bromophenyl phenyl ether	50	47.4	95	40-140
85-68-7	Butyl benzyl phthalate	50	62.5	125	40-140
100-51-6	Benzyl Alcohol	50	39.0	78	40-140
91-58-7	2-Chloronaphthalene	50	46.9	94	40-140
106-47-8	4-Chloroaniline	50	38.8	78	40-140
111-91-1	bis(2-Chloroethoxy)methane	50	35.6	71	40-140
111-44-4	bis(2-Chloroethyl)ether	50	46.9	94	40-140
108-60-1	bis(2-Chloroisopropyl)ether	50	65.0	130	40-140
7005-72-3	4-Chlorophenyl phenyl ether	50	42.6	85	40-140
122-66-7	1,2-Diphenylhydrazine	50	50.5	101	40-140
121-14-2	2,4-Dinitrotoluene	50	51.0	102	40-140
606-20-2	2,6-Dinitrotoluene	50	44.8	90	40-140
91-94-1	3,3'-Dichlorobenzidine	50	45.8	92	40-140
132-64-9	Dibenzofuran	50	44.5	89	40-140
84-74-2	Di-n-butyl phthalate	50	53.7	107	40-140
117-84-0	Di-n-octyl phthalate	50	71.5	143* [a]	40-140
84-66-2	Diethyl phthalate	50	50.2	100	40-140
131-11-3	Dimethyl phthalate	50	49.6	99	40-140
117-81-7	bis(2-Ethylhexyl)phthalate	50	61.2	122	40-140
118-74-1	Hexachlorobenzene	50	45.9	92	40-140

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39228-BS	F75163.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308

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

MC32521-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
77-47-4	Hexachlorocyclopentadiene	50	16.7	33* [a]	40-140
67-72-1	Hexachloroethane	50	26.9	54	40-140
78-59-1	Isophorone	50	37.9	76	40-140
88-74-4	2-Nitroaniline	50	53.0	106	40-140
99-09-2	3-Nitroaniline	50	46.0	92	40-140
100-01-6	4-Nitroaniline	50	50.0	100	40-140
98-95-3	Nitrobenzene	50	35.9	72	40-140
62-75-9	n-Nitrosodimethylamine	50	25.8	52	40-140
621-64-7	N-Nitroso-di-n-propylamine	50	43.6	87	40-140
86-30-6	N-Nitrosodiphenylamine	50	46.7	93	40-140
110-86-1	Pyridine	50	22.9	46	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	53%	15-110%
4165-62-2	Phenol-d5	31%	15-110%
118-79-6	2,4,6-Tribromophenol	84%	15-110%
4165-60-0	Nitrobenzene-d5	68%	30-130%
321-60-8	2-Fluorobiphenyl	69%	30-130%
1718-51-0	Terphenyl-d14	89%	30-130%

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39212-BS	I90989.D	1	08/04/14	MR	08/01/14	OP39212	MSI3396

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

MC32521-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	2460	2050	83	40-140
208-96-8	Acenaphthylene	2460	1890	77	40-140
120-12-7	Anthracene	2460	2220	90	40-140
56-55-3	Benzo(a)anthracene	2460	2700	110	40-140
50-32-8	Benzo(a)pyrene	2460	2380	97	40-140
205-99-2	Benzo(b)fluoranthene	2460	2800	114	40-140
191-24-2	Benzo(g,h,i)perylene	2460	2470	101	40-140
207-08-9	Benzo(k)fluoranthene	2460	2320	94	40-140
218-01-9	Chrysene	2460	2250	92	40-140
53-70-3	Dibenzo(a,h)anthracene	2460	2590	105	40-140
206-44-0	Fluoranthene	2460	2510	102	40-140
86-73-7	Fluorene	2460	2140	87	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	2460	2530	103	40-140
90-12-0	1-Methylnaphthalene	2460	1870	76	40-140
91-57-6	2-Methylnaphthalene	2460	1900	77	40-140
85-01-8	Phenanthrene	2460	2180	89	40-140
129-00-0	Pyrene	2460	2440	99	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	36%	15-110%
4165-62-2	Phenol-d5	36%	15-110%
118-79-6	2,4,6-Tribromophenol	45%	15-110%
4165-60-0	Nitrobenzene-d5	73%	30-130%
321-60-8	2-Fluorobiphenyl	72%	30-130%
1718-51-0	Terphenyl-d14	89%	30-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39229-BS	I91066.D	1	08/07/14	MR	08/02/14	OP39229	MSI3391

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

MC32521-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
83-32-9	Acenaphthene	50	44.7	89	40-140
208-96-8	Acenaphthylene	50	40.5	81	40-140
120-12-7	Anthracene	50	46.7	93	40-140
56-55-3	Benzo(a)anthracene	50	60.8	122	40-140
50-32-8	Benzo(a)pyrene	50	53.2	106	40-140
205-99-2	Benzo(b)fluoranthene	50	64.5	129	40-140
191-24-2	Benzo(g,h,i)perylene	50	57.7	115	40-140
207-08-9	Benzo(k)fluoranthene	50	49.8	100	40-140
218-01-9	Chrysene	50	50.6	101	40-140
53-70-3	Dibenzo(a,h)anthracene	50	60.8	122	40-140
206-44-0	Fluoranthene	50	51.9	104	40-140
86-73-7	Fluorene	50	46.1	92	40-140
193-39-5	Indeno(1,2,3-cd)pyrene	50	59.3	119	40-140
90-12-0	1-Methylnaphthalene	50	40.6	81	40-140
91-57-6	2-Methylnaphthalene	50	40.8	82	40-140
85-01-8	Phenanthrene	50	47.2	94	40-140
129-00-0	Pyrene	50	52.0	104	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	88%	30-130%
321-60-8	2-Fluorobiphenyl	71%	30-130%
1718-51-0	Terphenyl-d14	98%	30-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-BS	X04131.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-BSD	X04132.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32521-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	2460	1230	50	840	35	38* [a]	30-130/30
95-57-8	2-Chlorophenol	2460	1790	73	1750	73	2	30-130/30
59-50-7	4-Chloro-3-methyl phenol	2460	2060	84	2140	89	4	30-130/30
120-83-2	2,4-Dichlorophenol	2460	1940	79	1950	81	1	30-130/30
105-67-9	2,4-Dimethylphenol	2460	1940	79	1960	82	1	30-130/30
51-28-5	2,4-Dinitrophenol	2460	1360	55	1370	57	1	30-130/30
534-52-1	4,6-Dinitro-o-cresol	2460	1980	81	2160	90	9	30-130/30
95-48-7	2-Methylphenol	2460	1680	68	1730	72	3	30-130/30
	3&4-Methylphenol	4910	3690	75	3870	81	5	30-130/30
88-75-5	2-Nitrophenol	2460	1850	75	1840	77	1	30-130/30
100-02-7	4-Nitrophenol	2460	1930	79	1520	63	24	30-130/30
87-86-5	Pentachlorophenol	2460	1700	69	1880	78	10	30-130/30
108-95-2	Phenol	2460	1820	74	1850	77	2	30-130/30
95-95-4	2,4,5-Trichlorophenol	2460	2020	82	2160	90	7	30-130/30
88-06-2	2,4,6-Trichlorophenol	2460	1930	79	2030	85	5	30-130/30
62-53-3	Aniline	2460	1330	54	1320	55	1	40-140/30
101-55-3	4-Bromophenyl phenyl ether	2460	2490	101	2600	108	4	40-140/30
85-68-7	Butyl benzyl phthalate	2460	2330	95	2480	103	6	40-140/30
100-51-6	Benzyl Alcohol	2460	833	34* [a]	919	38* [a]	10	40-140/30
91-58-7	2-Chloronaphthalene	2460	2080	85	2130	89	2	40-140/30
106-47-8	4-Chloroaniline	2460	1870	76	1930	81	3	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	2460	1990	81	2010	84	1	40-140/30
111-44-4	bis(2-Chloroethyl)ether	2460	1920	78	1850	77	4	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	2460	1930	79	1830	76	5	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	2460	2270	92	2400	100	6	40-140/30
122-66-7	1,2-Diphenylhydrazine	2460	2410	98	2550	106	6	40-140/30
121-14-2	2,4-Dinitrotoluene	2460	2510	102	2660	111	6	40-140/30
606-20-2	2,6-Dinitrotoluene	2460	2490	101	2600	108	4	40-140/30
91-94-1	3,3'-Dichlorobenzidine	2460	2380	97	2790	116	16	40-140/30
132-64-9	Dibenzofuran	2460	1960	80	2060	86	5	40-140/30
84-74-2	Di-n-butyl phthalate	2460	2220	90	2390	100	7	40-140/30
117-84-0	Di-n-octyl phthalate	2460	2650	108	2870	120	8	40-140/30
84-66-2	Diethyl phthalate	2460	2340	95	2510	105	7	40-140/30
131-11-3	Dimethyl phthalate	2460	2360	96	2500	104	6	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	2460	2500	102	2700	113	8	40-140/30
118-74-1	Hexachlorobenzene	2460	2520	103	2720	113	8	40-140/30

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-BS	X04131.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-BSD	X04132.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32521-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	2460	1370	56	1340	56	2	40-140/30
67-72-1	Hexachloroethane	2460	1830	75	1680	70	9	40-140/30
78-59-1	Isophorone	2460	1930	79	1980	83	3	40-140/30
88-74-4	2-Nitroaniline	2460	2390	97	2500	104	4	40-140/30
99-09-2	3-Nitroaniline	2460	2240	91	2410	101	7	40-140/30
100-01-6	4-Nitroaniline	2460	2100	86	2340	98	11	40-140/30
98-95-3	Nitrobenzene	2460	2020	82	2000	83	1	40-140/30
62-75-9	n-Nitrosodimethylamine	2460	1490	61	1490	62	0	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	2460	2130	87	2100	88	1	40-140/30
86-30-6	N-Nitrosodiphenylamine	2460	2070	84	2180	91	5	40-140/30
110-86-1	Pyridine	2460	1190	48	1170	49	2	40-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	63%	62%	30-130%
4165-62-2	Phenol-d5	71%	74%	30-130%
118-79-6	2,4,6-Tribromophenol	84%	94%	30-130%
4165-60-0	Nitrobenzene-d5	75%	76%	30-130%
321-60-8	2-Fluorobiphenyl	72%	76%	30-130%
1718-51-0	Terphenyl-d14	84%	90%	30-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MS	X04133.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-MSD	X04134.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
MC32521-1	X04135.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32521-1

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND		2820	217	8* [a]	2820	380	13* [a]	55* [b]	30-130/30
95-57-8	2-Chlorophenol	ND		2820	2270	80	2820	2340	83	3	30-130/30
59-50-7	4-Chloro-3-methyl phenol	ND		2820	2430	86	2820	2620	93	8	30-130/30
120-83-2	2,4-Dichlorophenol	ND		2820	2330	83	2820	2480	88	6	30-130/30
105-67-9	2,4-Dimethylphenol	ND		2820	2420	86	2820	2460	87	2	30-130/30
51-28-5	2,4-Dinitrophenol	ND		2820	1040	37	2820	1340	47	25	30-130/30
534-52-1	4,6-Dinitro-o-cresol	ND		2820	2060	73	2820	2370	84	14	30-130/30
95-48-7	2-Methylphenol	ND		2820	2160	77	2820	2210	78	2	30-130/30
	3&4-Methylphenol	ND		5640	4760	84	5650	4800	85	1	30-130/30
88-75-5	2-Nitrophenol	ND		2820	2280	81	2820	2360	84	3	30-130/30
100-02-7	4-Nitrophenol	ND		2820	1580	56	2820	1900	67	18	30-130/30
87-86-5	Pentachlorophenol	ND		2820	1970	70	2820	2170	77	10	30-130/30
108-95-2	Phenol	ND		2820	2310	82	2820	2390	85	3	30-130/30
95-95-4	2,4,5-Trichlorophenol	ND		2820	2390	85	2820	2670	95	11	30-130/30
88-06-2	2,4,6-Trichlorophenol	ND		2820	2390	85	2820	2510	89	5	30-130/30
62-53-3	Aniline	ND		2820	1650	58	2820	1700	60	3	40-140/30
101-55-3	4-Bromophenyl phenyl ether	ND		2820	2970	105	2820	3100	110	4	40-140/30
85-68-7	Butyl benzyl phthalate	ND		2820	2800	99	2820	2950	104	5	40-140/30
100-51-6	Benzyl Alcohol	ND		2820	1140	40	2820	1150	41	1	40-140/30
91-58-7	2-Chloronaphthalene	ND		2820	2600	92	2820	2610	92	0	40-140/30
106-47-8	4-Chloroaniline	ND		2820	2220	79	2820	2340	83	5	40-140/30
111-91-1	bis(2-Chloroethoxy)methane	ND		2820	2430	86	2820	2510	89	3	40-140/30
111-44-4	bis(2-Chloroethyl)ether	ND		2820	2460	87	2820	2500	89	2	40-140/30
108-60-1	bis(2-Chloroisopropyl)ether	ND		2820	2410	85	2820	2420	86	0	40-140/30
7005-72-3	4-Chlorophenyl phenyl ether	ND		2820	2770	98	2820	2930	104	6	40-140/30
122-66-7	1,2-Diphenylhydrazine	ND		2820	2870	102	2820	3010	107	5	40-140/30
121-14-2	2,4-Dinitrotoluene	ND		2820	2880	102	2820	3150	112	9	40-140/30
606-20-2	2,6-Dinitrotoluene	ND		2820	2890	102	2820	3060	108	6	40-140/30
91-94-1	3,3'-Dichlorobenzidine	ND		2820	2890	102	2820	3190	113	10	40-140/30
132-64-9	Dibenzofuran	ND		2820	2410	85	2820	2480	88	3	40-140/30
84-74-2	Di-n-butyl phthalate	ND		2820	2520	89	2820	2780	98	10	40-140/30
117-84-0	Di-n-octyl phthalate	ND		2820	2980	106	2820	3360	119	12	40-140/30
84-66-2	Diethyl phthalate	ND		2820	2730	97	2820	2970	105	8	40-140/30
131-11-3	Dimethyl phthalate	ND		2820	2800	99	2820	2940	104	5	40-140/30
117-81-7	bis(2-Ethylhexyl)phthalate	ND		2820	2990	106	2820	3190	113	6	40-140/30
118-74-1	Hexachlorobenzene	ND		2820	3040	108	2820	3190	113	5	40-140/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39211-MS	X04133.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
OP39211-MSD	X04134.D	1	08/04/14	WK	08/01/14	OP39211	MSX136
MC32521-1	X04135.D	1	08/04/14	WK	08/01/14	OP39211	MSX136

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

MC32521-1

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND		2820	1680	60	2820	1630	58	3	40-140/30
67-72-1	Hexachloroethane	ND		2820	2320	82	2820	2350	83	1	40-140/30
78-59-1	Isophorone	ND		2820	2340	83	2820	2420	86	3	40-140/30
88-74-4	2-Nitroaniline	ND		2820	2800	99	2820	3040	108	8	40-140/30
99-09-2	3-Nitroaniline	ND		2820	2650	94	2820	2820	100	6	40-140/30
100-01-6	4-Nitroaniline	ND		2820	2480	88	2820	2740	97	10	40-140/30
98-95-3	Nitrobenzene	ND		2820	2540	90	2820	2600	92	2	40-140/30
62-75-9	n-Nitrosodimethylamine	ND		2820	1960	69	2820	1950	69	1	40-140/30
621-64-7	N-Nitroso-di-n-propylamine	ND		2820	2640	94	2820	2710	96	3	40-140/30
86-30-6	N-Nitrosodiphenylamine	ND		2820	2450	87	2820	2620	93	7	40-140/30
110-86-1	Pyridine	ND		2820	1570	56	2820	1570	56	0	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
367-12-4	2-Fluorophenol	69%	70%	65%	30-130%
4165-62-2	Phenol-d5	76%	78%	72%	30-130%
118-79-6	2,4,6-Tribromophenol	89%	95%	81%	30-130%
4165-60-0	Nitrobenzene-d5	81%	81%	74%	30-130%
321-60-8	2-Fluorobiphenyl	80%	79%	70%	30-130%
1718-51-0	Terphenyl-d14	89%	91%	82%	30-130%

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39228-MS	F75164.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308
OP39228-MSD	F75165.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308
MC32300-13	F75166.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308

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

MC32521-2

CAS No.	Compound	MC32300-13 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		50	23.9	48	50	24.4	49	2	30-130/20
95-57-8	2-Chlorophenol	ND		50	31.2	62	50	36.2	72	15	30-130/20
59-50-7	4-Chloro-3-methyl phenol	ND		50	31.7	63	50	34.9	70	10	30-130/20
120-83-2	2,4-Dichlorophenol	ND		50	31.5	63	50	37.0	74	16	30-130/20
105-67-9	2,4-Dimethylphenol	ND		50	22.2	44	50	24.6	49	10	30-130/20
51-28-5	2,4-Dinitrophenol	ND		50	41.4	83	50	44.6	89	7	30-130/20
534-52-1	4,6-Dinitro-o-cresol	ND		50	47.8	96	50	51.5	103	7	30-130/20
95-48-7	2-Methylphenol	ND		50	26.1	52	50	29.9	60	14	30-130/20
	3&4-Methylphenol	ND		100	47.7	48	100	52.7	53	10	30-130/20
88-75-5	2-Nitrophenol	ND		50	35.0	70	50	40.9	82	16	30-130/20
100-02-7	4-Nitrophenol	ND		50	8.4	17* [a]	50	8.7	17* [a]	4	30-130/20
87-86-5	Pentachlorophenol	ND		50	48.1	96	50	52.1	104	8	30-130/20
108-95-2	Phenol	ND		50	12.3	25* [a]	50	13.0	26* [a]	6	30-130/20
95-95-4	2,4,5-Trichlorophenol	ND		50	38.4	77	50	47.7	95	22* [b]	30-130/20
88-06-2	2,4,6-Trichlorophenol	ND		50	36.7	73	50	44.4	89	19	30-130/20
62-53-3	Aniline	ND		50	19.2	38* [a]	50	22.5	45	16	40-140/20
101-55-3	4-Bromophenyl phenyl ether	ND		50	45.1	90	50	47.1	94	4	40-140/20
85-68-7	Butyl benzyl phthalate	ND		50	61.6	123	50	65.0	130	5	40-140/20
100-51-6	Benzyl Alcohol	ND		50	29.1	58	50	35.7	71	20	40-140/20
91-58-7	2-Chloronaphthalene	ND		50	39.7	79	50	49.6	99	22* [b]	40-140/20
106-47-8	4-Chloroaniline	ND		50	32.5	65	50	36.0	72	10	40-140/20
111-91-1	bis(2-Chloroethoxy)methane	ND		50	29.3	59	50	33.5	67	13	40-140/20
111-44-4	bis(2-Chloroethyl)ether	ND		50	38.2	76	50	42.3	85	10	40-140/20
108-60-1	bis(2-Chloroisopropyl)ether	ND		50	52.8	106	50	66.1	132	22* [b]	40-140/20
7005-72-3	4-Chlorophenyl phenyl ether	ND		50	39.3	79	50	41.9	84	6	40-140/20
122-66-7	1,2-Diphenylhydrazine	ND		50	43.7	87	50	45.9	92	5	40-140/20
121-14-2	2,4-Dinitrotoluene	ND		50	50.0	100	50	54.7	109	9	40-140/20
606-20-2	2,6-Dinitrotoluene	ND		50	43.1	86	50	46.5	93	8	40-140/20
91-94-1	3,3'-Dichlorobenzidine	ND		50	41.1	82	50	44.3	89	7	40-140/20
132-64-9	Dibenzofuran	ND		50	39.9	80	50	43.6	87	9	40-140/20
84-74-2	Di-n-butyl phthalate	1.2	JB	50	52.8	103	50	57.9	113	9	40-140/20
117-84-0	Di-n-octyl phthalate	ND		50	61.2	122	50	65.4	131	7	40-140/20
84-66-2	Diethyl phthalate	0.72	J	50	49.4	97	50	52.9	104	7	40-140/20
131-11-3	Dimethyl phthalate	ND		50	46.2	92	50	49.8	100	7	40-140/20
117-81-7	bis(2-Ethylhexyl)phthalate	ND		50	61.6	123	50	63.7	127	3	40-140/20
118-74-1	Hexachlorobenzene	ND		50	45.2	90	50	47.5	95	5	40-140/20

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39228-MS	F75164.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308
OP39228-MSD	F75165.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308
MC32300-13	F75166.D	1	08/06/14	WK	08/02/14	OP39228	MSF3308

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

MC32521-2

CAS No.	Compound	MC32300-13 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
77-47-4	Hexachlorocyclopentadiene	ND		50	12.9	26* c	50	16.1	32* c	22* b	40-140/20
67-72-1	Hexachloroethane	ND		50	20.1	40	50	22.2	44	10	40-140/20
78-59-1	Isophorone	ND		50	32.4	65	50	37.1	74	14	40-140/20
88-74-4	2-Nitroaniline	ND		50	51.1	102	50	52.4	105	3	40-140/20
99-09-2	3-Nitroaniline	ND		50	44.9	90	50	48.5	97	8	40-140/20
100-01-6	4-Nitroaniline	ND		50	49.6	99	50	52.8	106	6	40-140/20
98-95-3	Nitrobenzene	ND		50	30.2	60	50	36.2	72	18	40-140/20
62-75-9	n-Nitrosodimethylamine	ND		50	19.7	39* a	50	20.9	42	6	40-140/20
621-64-7	N-Nitroso-di-n-propylamine	ND		50	36.4	73	50	41.9	84	14	40-140/20
86-30-6	N-Nitrosodiphenylamine	ND		50	45.3	91	50	47.8	96	5	40-140/20
110-86-1	Pyridine	ND		50	18.0	36* a	50	18.3	37* a	2	40-140/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32300-13	Limits
367-12-4	2-Fluorophenol	36%	40%	45%	15-110%
4165-62-2	Phenol-d5	23%	25%	26%	15-110%
118-79-6	2,4,6-Tribromophenol	78%	86%	81%	15-110%
4165-60-0	Nitrobenzene-d5	55%	69%	70%	30-130%
321-60-8	2-Fluorobiphenyl	55%	76%	73%	30-130%
1718-51-0	Terphenyl-d14	85%	100%	90%	30-130%

(a) Outside control limits due to possible matrix interference. Refer to Blank Spike.
(b) High RPD due to possible matrix interference and/or sample heterogeneity.
(c) Outside control limits. Blank Spike meets program technical requirements.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39212-MS	I90990.D	1	08/04/14	MR	08/01/14	OP39212	MSI3396
OP39212-MSD	I90991.D	1	08/04/14	MR	08/01/14	OP39212	MSI3396
MC32521-1	I90992.D	1	08/04/14	MR	08/01/14	OP39212	MSI3396

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

MC32521-1

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		2820	2450	87	2820	2530	90	3	40-140/30
208-96-8	Acenaphthylene	ND		2820	2260	80	2820	2340	83	3	40-140/30
120-12-7	Anthracene	ND		2820	2520	89	2820	2710	96	7	40-140/30
56-55-3	Benzo(a)anthracene	ND		2820	3080	109	2820	3370	119	9	40-140/30
50-32-8	Benzo(a)pyrene	ND		2820	2730	97	2820	2950	104	8	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		2820	3400	120	2820	3710	131	9	40-140/30
191-24-2	Benzo(g,h,i)perylene	1.8	J	2820	2800	99	2820	3080	109	10	40-140/30
207-08-9	Benzo(k)fluoranthene	ND		2820	2480	88	2820	2670	95	7	40-140/30
218-01-9	Chrysene	ND		2820	2570	91	2820	2770	98	7	40-140/30
53-70-3	Dibenzo(a,h)anthracene	ND		2820	2920	103	2820	3200	113	9	40-140/30
206-44-0	Fluoranthene	ND		2820	2890	102	2820	3070	109	6	40-140/30
86-73-7	Fluorene	ND		2820	2480	88	2820	2650	94	7	40-140/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2820	2870	102	2820	3150	112	9	40-140/30
90-12-0	1-Methylnaphthalene	ND		2820	2280	81	2820	2330	82	2	40-140/30
91-57-6	2-Methylnaphthalene	ND		2820	2320	82	2820	2370	84	2	40-140/30
85-01-8	Phenanthrene	1.5	J	2820	2480	88	2820	2650	94	7	40-140/30
129-00-0	Pyrene	ND		2820	2810	100	2820	3020	107	7	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC32521-1	Limits
367-12-4	2-Fluorophenol	38%	39%	35%	15-110%
4165-62-2	Phenol-d5	37%	39%	33%	15-110%
118-79-6	2,4,6-Tribromophenol	45%	48%	38%	15-110%
4165-60-0	Nitrobenzene-d5	78%	78%	77%	30-130%
321-60-8	2-Fluorobiphenyl	77%	77%	66%	30-130%
1718-51-0	Terphenyl-d14	90%	96%	86%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP39229-MS	I91067.D	1	08/07/14	MR	08/02/14	OP39229	MSI3391
OP39229-MSD	I91068.D	1	08/07/14	MR	08/02/14	OP39229	MSI3391
MC32300-14	I91069.D	1	08/07/14	MR	08/02/14	OP39229	MSI3391

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

MC32521-2

CAS No.	Compound	MC32300-14 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		50	40.2	80	50	43.1	86	7	40-140/20
208-96-8	Acenaphthylene	ND		50	36.0	72	50	38.8	78	7	40-140/20
120-12-7	Anthracene	ND		50	46.4	93	50	48.4	97	4	40-140/20
56-55-3	Benzo(a)anthracene	ND		50	60.4	121	50	64.5	129	7	40-140/20
50-32-8	Benzo(a)pyrene	ND		50	52.8	106	50	55.5	111	5	40-140/20
205-99-2	Benzo(b)fluoranthene	ND		50	64.4	129	50	67.3	135	4	40-140/20
191-24-2	Benzo(g,h,i)perylene	ND		50	57.6	115	50	60.4	121	5	40-140/20
207-08-9	Benzo(k)fluoranthene	ND		50	49.6	99	50	52.7	105	6	40-140/20
218-01-9	Chrysene	ND		50	50.5	101	50	53.4	107	6	40-140/20
53-70-3	Dibenzo(a,h)anthracene	ND		50	60.7	121	50	64.0	128	5	40-140/20
206-44-0	Fluoranthene	ND		50	51.5	103	50	54.9	110	6	40-140/20
86-73-7	Fluorene	ND		50	43.4	87	50	45.8	92	5	40-140/20
193-39-5	Indeno(1,2,3-cd)pyrene	ND		50	59.2	118	50	62.4	125	5	40-140/20
90-12-0	1-Methylnaphthalene	ND		50	34.3	69	50	38.4	77	11	40-140/20
91-57-6	2-Methylnaphthalene	ND		50	34.6	69	50	38.7	77	11	40-140/20
85-01-8	Phenanthrene	0.023	J	50	46.5	93	50	48.5	97	4	40-140/20
129-00-0	Pyrene	ND		50	51.5	103	50	54.7	109	6	40-140/20

CAS No.	Surrogate Recoveries	MS	MSD	MC32300-14	Limits
367-12-4	2-Fluorophenol	37%	43%	45%	15-110%
4165-62-2	Phenol-d5	25%	28%	30%	15-110%
118-79-6	2,4,6-Tribromophenol	83%	93%	82%	15-110%
4165-60-0	Nitrobenzene-d5	71%	84%	86%	30-130%
321-60-8	2-Fluorobiphenyl	58%	70%	72%	30-130%
1718-51-0	Terphenyl-d14	95%	106%	102%	30-130%

* = Outside of Control Limits.

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSF3308-CC3270	**Injection Date:**	08/06/14
Lab File ID:	F75161.D	**Injection Time:**	09:01
Instrument ID:	GCMSF	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	127423	2.97	472476	4.00	341336	5.48	588249	6.72	612982	8.99	518605	10.38
Upper Limit [a]	254846	3.47	944952	4.50	682672	5.98	1176498	7.22	1225964	9.49	1037210	10.88
Lower Limit [b]	63712	2.47	236238	3.50	170668	4.98	294125	6.22	306491	8.49	259303	9.88

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP39228-MB	121447	2.97	444842	3.99	274954	5.48	458897	6.71	508482	8.98	487435	10.38
OP39228-BS	127786	2.97	467257	3.99	342411	5.48	578437	6.72	614397	8.99	499649	10.38
OP39228-MS	132445	2.97	479113	4.00	295152	5.48	511636	6.72	549545	8.99	543705	10.38
OP39228-MSD	152476	2.97	534448	4.00	294211	5.48	516324	6.72	563369	8.99	552061	10.38
MC32300-13	154543	2.97	559433	3.99	335520	5.48	559155	6.71	550202	8.98	540632	10.38
ZZZZZZ	160561	2.97	582703	3.99	356910	5.48	609438	6.71	663942	8.98	628518	10.38
ZZZZZZ	155144	2.97	607929	3.99	370478	5.48	632067	6.71	687933	8.98	653533	10.38
MC32521-2	145161	2.97	529891	3.99	322866	5.47	537880	6.71	565803	8.98	575505	10.37
OP38681-MB	150102	2.97	548761	3.99	357480	5.48	608893	6.71	672395	8.98	643098	10.38
ZZZZZZ	141800	2.97	521332	3.99	309673	5.48	526941	6.71	585070	8.98	546152	10.38
ZZZZZZ	157057	2.97	570246	3.99	340821	5.48	550495	6.71	631937	8.98	585005	10.38
ZZZZZZ	168429	2.97	572470	3.99	361969	5.48	614830	6.71	667924	8.98	611779	10.38
ZZZZZZ	162750	2.97	600100	3.99	360744	5.48	612493	6.71	651570	8.98	591420	10.38
ZZZZZZ	154205	2.97	572525	3.99	352115	5.48	585220	6.71	618997	8.98	581723	10.38
ZZZZZZ	137265	2.97	517732	3.99	311652	5.47	532481	6.71	586133	8.98	562315	10.37
ZZZZZZ	163362	2.97	612863	3.99	370910	5.48	635991	6.71	693046	8.98	623319	10.38
OP38681-BS1	138684	2.97	509648	3.99	347066	5.48	555882	6.71	638775	8.98	612304	10.37
OP38681-BS2	158937	2.97	577973	3.99	362701	5.48	617314	6.71	654232	8.98	634575	10.37
OP38681-BS3	169220	2.97	618288	3.99	358722	5.48	616403	6.71	641780	8.99	670204	10.38
OP38681-BS4	142077	2.97	521798	3.99	319077	5.48	567678	6.71	625461	8.98	594117	10.38

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

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

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSI3396-CC3386	**Injection Date:**	08/04/14
Lab File ID:	I90976B.D	**Injection Time:**	08:11
Instrument ID:	GCMSI	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	351338	4.27	755459	5.32	383295	6.86	649039	8.27	415122	11.04	1109650	12.55
Upper Limit [a]	702676	4.77	1510918	5.82	766590	7.36	1298078	8.77	830244	11.54	2219300	13.05
Lower Limit [b]	175669	3.77	377730	4.82	191648	6.36	324520	7.77	207561	10.54	554825	12.05

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP39074-MB	365839	4.27	778671	5.32	395362	6.86	653902	8.27	422260	11.04	1146594	12.55
OP39074-BS	348760	4.27	745810	5.32	375924	6.86	629851	8.27	407023	11.04	1095424	12.55
OP39074-BSD	363729	4.27	780758	5.32	396576	6.86	662198	8.27	435155	11.04	1149990	12.55
OP39074-MS	339098	4.27	728314	5.32	369444	6.86	614716	8.27	401305	11.04	1070789	12.55
OP39074-MSD	358001	4.27	769570	5.32	386172	6.86	644103	8.27	423640	11.04	1116209	12.55
MC32291-4F	352987	4.27	760115	5.32	381661	6.86	635856	8.27	408123	11.04	1103402	12.55
ZZZZZZ	358727	4.27	738097	5.32	383705	6.86	644205	8.27	412969	11.04	1121589	12.55
ZZZZZZ	356742	4.27	768513	5.32	387143	6.86	640858	8.27	410166	11.04	1116014	12.55
ZZZZZZ	356747	4.27	769118	5.32	387800	6.86	646100	8.27	418660	11.04	1139870	12.55
ZZZZZZ	347010	4.27	714646	5.32	373049	6.86	624200	8.27	405257	11.04	1105252	12.55
ZZZZZZ	350334	4.27	721479	5.32	377149	6.86	630970	8.27	414184	11.04	1121524	12.55
OP39212-MB	382944	4.27	832919	5.32	415203	6.86	700260	8.27	445795	11.04	1184508	12.55
OP39212-BS	399319	4.27	872951	5.32	433555	6.86	716011	8.27	449390	11.04	1168537	12.55
OP39212-MS	427276	4.27	911451	5.32	448198	6.86	723467	8.27	440706	11.04	1141262	12.55
OP39212-MSD	383507	4.27	841221	5.32	423006	6.86	708650	8.27	449522	11.04	1171068	12.55
MC32521-1	498434	4.27	963797	5.32	507621	6.86	794284	8.27	464696	11.04	1195273	12.55
OP39206-MB	375496	4.27	820093	5.32	405871	6.86	670457	8.27	430551	11.04	1155071	12.55
OP39206-BS	374012	4.27	815697	5.32	408105	6.86	679372	8.27	442247	11.04	1169438	12.55
ZZZZZZ	358430	4.27	795669	5.32	403872	6.86	687143	8.27	458421	11.04	1249616	12.55
ZZZZZZ	378633	4.27	832825	5.32	427044	6.86	717703	8.27	475467	11.04	1271787	12.55
ZZZZZZ	368029	4.27	810813	5.32	413626	6.86	690287	8.27	458828	11.04	1229496	12.55
OP39193-MB	378506	4.27	825036	5.32	414053	6.86	677498	8.27	447485	11.04	1187175	12.55
OP39193-BS	374946	4.27	825927	5.32	414199	6.86	691584	8.27	455298	11.04	1200532	12.55
ZZZZZZ	379977	4.27	834967	5.32	418731	6.86	694351	8.27	453629	11.04	1226901	12.55
ZZZZZZ	373164	4.27	809834	5.32	406126	6.86	666753	8.27	429384	11.04	1173306	12.55
ZZZZZZ	379489	4.27	827469	5.32	414091	6.86	673197	8.27	432718	11.04	1171580	12.55
ZZZZZZ	384929	4.27	846304	5.32	422343	6.86	693594	8.27	444584	11.04	1196353	12.55
ZZZZZZ	383326	4.27	832744	5.32	418639	6.86	683452	8.27	440310	11.04	1188460	12.55

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

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSI3396-CC3386	**Injection Date:**	08/04/14
Lab File ID:	I90976B.D	**Injection Time:**	08:11
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**

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

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSI3388-CC3320	**Injection Date:**	08/04/14
Lab File ID:	I90976.D	**Injection Time:**	08:11
Instrument ID:	GCMSI	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	357805	4.27	755459	5.32	383295	6.86	649039	8.27	415122	11.04	1109159	12.55
Upper Limit [a]	715610	4.77	1510918	5.82	766590	7.36	1298078	8.77	830244	11.54	2218318	13.05
Lower Limit [b]	178903	3.77	377730	4.82	191648	6.36	324520	7.77	207561	10.54	554580	12.05

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP39074-MB	365839	4.27	778671	5.32	395362	6.86	653902	8.27	422260	11.04	1146594	12.55
OP39074-BS	348760	4.27	745810	5.32	375924	6.86	629851	8.27	407023	11.04	1095424	12.55
OP39074-BSD	363729	4.27	780758	5.32	396576	6.86	662198	8.27	435155	11.04	1149990	12.55
OP39074-MS	339098	4.27	728314	5.32	369444	6.86	614716	8.27	401305	11.04	1070789	12.55
OP39074-MSD	358001	4.27	769570	5.32	386172	6.86	644103	8.27	423640	11.04	1116209	12.55
MC32291-4F	352987	4.27	760115	5.32	381661	6.86	635856	8.27	408123	11.04	1103402	12.55
ZZZZZZ	358727	4.27	738097	5.32	383705	6.86	644205	8.27	412969	11.04	1121589	12.55
ZZZZZZ	356742	4.27	768513	5.32	387143	6.86	640858	8.27	410166	11.04	1116014	12.55
ZZZZZZ	356747	4.27	769118	5.32	387800	6.86	646100	8.27	418660	11.04	1139870	12.55
ZZZZZZ	347010	4.27	714646	5.32	373049	6.86	624200	8.27	405257	11.04	1105252	12.55
ZZZZZZ	350334	4.27	721479	5.32	377149	6.86	630970	8.27	414184	11.04	1121524	12.55
OP39212-MB	382944	4.27	832919	5.32	415203	6.86	700260	8.27	445795	11.04	1184508	12.55
OP39212-BS	399319	4.27	872951	5.32	433555	6.86	716011	8.27	449390	11.04	1168537	12.55
OP39212-MS	427276	4.27	911451	5.32	448198	6.86	723467	8.27	440706	11.04	1141262	12.55
OP39212-MSD	383507	4.27	841221	5.32	423006	6.86	708650	8.27	449522	11.04	1171068	12.55
MC32521-1	498434	4.27	963797	5.32	507621	6.86	794284	8.27	464696	11.04	1195273	12.55
OP39206-MB	375496	4.27	820093	5.32	405871	6.86	670457	8.27	430551	11.04	1155071	12.55
OP39206-BS	374012	4.27	815697	5.32	408105	6.86	679372	8.27	442247	11.04	1169438	12.55
ZZZZZZ	358430	4.27	795669	5.32	403872	6.86	687143	8.27	458421	11.04	1249616	12.55
ZZZZZZ	378633	4.27	832825	5.32	427044	6.86	717703	8.27	475467	11.04	1271787	12.55
ZZZZZZ	368029	4.27	810813	5.32	413626	6.86	690287	8.27	458828	11.04	1229496	12.55
OP39193-MB	378506	4.27	825036	5.32	414053	6.86	677498	8.27	447485	11.04	1187175	12.55
OP39193-BS	374946	4.27	825927	5.32	414199	6.86	691584	8.27	455298	11.04	1200532	12.55
ZZZZZZ	379977	4.27	834967	5.32	418731	6.86	694351	8.27	453629	11.04	1226901	12.55
ZZZZZZ	373164	4.27	809834	5.32	406126	6.86	666753	8.27	429384	11.04	1173306	12.55
ZZZZZZ	379489	4.27	827469	5.32	414091	6.86	673197	8.27	432718	11.04	1171580	12.55
ZZZZZZ	384929	4.27	846304	5.32	422343	6.86	693594	8.27	444584	11.04	1196353	12.55
ZZZZZZ	383326	4.27	832744	5.32	418639	6.86	683452	8.27	440310	11.04	1188460	12.55

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

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSI3388-CC3320	**Injection Date:**	08/04/14
Lab File ID:	I90976.D	**Injection Time:**	08:11
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

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

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSI3391-CC3386	**Injection Date:**	08/07/14
Lab File ID:	I91064.D	**Injection Time:**	10:36
Instrument ID:	GCMSI	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	423684	4.19	913022	5.25	475385	6.78	820697	8.18	572135	10.95	1505465	12.44
Upper Limit [a]	847368	4.69	1826044	5.75	950770	7.28	1641394	8.68	1144270	11.45	3010930	12.94
Lower Limit [b]	211842	3.69	456511	4.75	237693	6.28	410349	7.68	286068	10.45	752733	11.94

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP39229-MB	487241	4.19	1058495	5.25	549326	6.78	925824	8.18	641375	10.95	1729874	12.44
OP39229-BS	523249	4.19	1135749	5.25	590215	6.78	1007715	8.18	720018	10.95	1860378	12.45
OP39229-MS	517056	4.19	1132776	5.25	591655	6.78	1015872	8.18	731192	10.95	1887422	12.45
OP39229-MSD	514734	4.19	1132455	5.25	590498	6.78	1009905	8.18	711707	10.95	1851233	12.45
MC32300-14	527235	4.19	1155763	5.24	604071	6.78	1015843	8.18	708538	10.95	1889657	12.44
ZZZZZZ	525514	4.19	1141978	5.24	596901	6.78	1013170	8.18	708116	10.95	1885645	12.44
ZZZZZZ	522567	4.19	1141691	5.24	588879	6.78	992905	8.18	689076	10.95	1839075	12.44
OP39249-MB	507752	4.19	1100699	5.24	571213	6.78	956536	8.17	640214	10.95	1689912	12.44
OP39249-BS	575606	4.18	1259704	5.24	646816	6.78	1092110	8.18	732636	10.95	1839782	12.45
OP39249-MS	576098	4.19	1128704	5.25	640696	6.78	1070344	8.18	704821	10.95	1786245	12.45
OP39249-MSD	593384	4.19	1298459	5.25	672393	6.78	1129232	8.18	754387	10.95	1876825	12.45
MC32300-17	588215	4.19	1276070	5.24	629379	6.78	1102588	8.18	733559	10.95	1860836	12.44
ZZZZZZ	504916	4.19	1099901	5.24	563169	6.77	952744	8.17	632383	10.95	1639058	12.44
ZZZZZZ	524089	4.19	1131971	5.24	581060	6.77	965752	8.17	617551	10.95	1577568	12.44
ZZZZZZ	627015	4.19	1347511	5.24	678824	6.78	1112412	8.18	695964	10.95	1724400	12.45
ZZZZZZ	466367	4.19	1008664	5.24	517533	6.78	837387	8.18	524866	10.95	1387253	12.45
ZZZZZZ	547610	4.19	1194188	5.24	613285	6.78	1003782	8.18	613159	10.95	1511061	12.45
ZZZZZZ	586356	4.19	1293771	5.24	657857	6.78	1059795	8.18	659631	10.95	1611523	12.45
ZZZZZZ	576459	4.19	1245939	5.24	639500	6.78	1039999	8.18	644555	10.95	1572937	12.45
OP39266-MB	547047	4.19	1199232	5.24	623103	6.78	1023695	8.18	673062	10.95	1711177	12.45
OP39266-BS	549765	4.19	1222148	5.25	628926	6.78	1049439	8.18	706327	10.95	1766974	12.45
OP39266-MS	519799	4.19	1155507	5.25	598788	6.78	1010781	8.18	681858	10.96	1708959	12.45
OP39266-MSD	527705	4.19	1167330	5.25	606817	6.78	1015599	8.18	685445	10.95	1712585	12.45
MC32644-1	506953	4.18	1114599	5.24	587402	6.78	989516	8.18	683514	10.95	1768699	12.44
ZZZZZZ	487588	4.19	1079663	5.24	568720	6.78	956475	8.18	655170	10.94	1682796	12.45

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

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

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 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
MC32521-2	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.

Semivolatile Internal Standard Area Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Check Std:	MSX136-CC106	**Injection Date:**	08/04/14
Lab File ID:	X04129.D	**Injection Time:**	07:53
Instrument ID:	GCMSX	**Method:**	SW846 8270D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	269102	3.38	1034275	4.42	567950	5.93	930188	7.20	810477	9.59	656948	11.14
Upper Limit [a]	538204	3.88	2068550	4.92	1135900	6.43	1860376	7.70	1620954	10.09	1313896	11.64
Lower Limit [b]	134551	2.88	517138	3.92	283975	5.43	465094	6.70	405239	9.09	328474	10.64

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP39211-MB	329202	3.38	1284213	4.42	697000	5.93	1034735	7.20	766975	9.59	560078	11.14
OP39211-BS	306224	3.38	1142232	4.42	632064	5.93	1004364	7.20	821561	9.59	653074	11.14
OP39211-BSD	286801	3.38	1067731	4.42	588614	5.93	930796	7.20	791546	9.59	632709	11.14
OP39211-MS	333747	3.38	1266255	4.42	673571	5.93	1045985	7.20	775406	9.59	618318	11.14
OP39211-MSD	306924	3.38	1163682	4.42	642556	5.93	1021511	7.20	811608	9.59	637169	11.14
MC32521-1	305760	3.38	1173204	4.41	646738	5.92	1009317	7.19	745436	9.59	553839	11.13
ZZZZZZ	293924	3.38	1104211	4.41	620527	5.93	952435	7.20	748352	9.59	590352	11.14
ZZZZZZ	291038	3.38	1091651	4.42	603738	5.93	909086	7.20	649808	9.59	514449	11.14
ZZZZZZ	275553	3.38	1023638	4.41	563019	5.93	863454	7.20	695729	9.59	564240	11.13
ZZZZZZ	288914	3.38	1064126	4.42	580151	5.93	833741	7.20	612759	9.61	483544	11.16
ZZZZZZ	308045	3.38	1119775	4.42	603497	5.93	895300	7.20	640264	9.59	511642	11.14
ZZZZZZ	331523	3.38	1225425	4.42	650792	5.93	952491	7.20	667966	9.59	570416	11.14
ZZZZZZ	288811	3.38	1043149	4.42	558433	5.93	845411	7.20	662283	9.59	547993	11.14
ZZZZZZ	281645	3.38	1055631	4.42	586165	5.93	908461	7.20	681316	9.59	525367	11.14
ZZZZZZ	304527	3.38	1139635	4.42	611412	5.93	920986	7.20	666799	9.59	529101	11.13
ZZZZZZ	292153	3.38	1081748	4.41	600734	5.93	928351	7.20	686018	9.59	522901	11.13
ZZZZZZ	277392	3.38	1013364	4.42	560833	5.93	869099	7.20	674421	9.59	533920	11.14
ZZZZZZ	283827	3.38	1045649	4.41	562693	5.92	839179	7.20	654623	9.59	563418	11.14
ZZZZZZ	334405	3.38	1213208	4.41	635275	5.93	911034	7.20	635882	9.59	529539	11.15
ZZZZZZ	261811	3.38	976136	4.42	550000	5.93	851585	7.20	671423	9.59	566863	11.14
ZZZZZZ	291432	3.38	1048347	4.41	558869	5.93	818933	7.20	646682	9.59	551021	11.14
OP39205-MB	294698	3.38	1088705	4.42	586862	5.93	895526	7.20	697813	9.59	529536	11.14
OP39205-BS	296747	3.38	1096072	4.42	590440	5.93	903850	7.20	726981	9.59	600437	11.14
ZZZZZZ	302990	3.38	1112739	4.41	614020	5.92	932369	7.20	707451	9.59	532223	11.14
ZZZZZZ	315073	3.38	1174079	4.41	626324	5.92	920105	7.20	707333	9.59	539944	11.13

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

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

Semivolatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32521-2	F75169.D	36	22	73	57	67	89
OP39228-BS	F75163.D	53	31	84	68	69	89
OP39228-MB	F75162.D	45	28	81	67	63	95
OP39228-MS	F75164.D	36	23	78	55	55	85
OP39228-MSD	F75165.D	40	25	86	69	76	100

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%

Semivolatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32521-1	X04135.D	65	72	81	74	70	82
OP39211-BS	X04131.D	63	71	84	75	72	84
OP39211-BSD	X04132.D	62	74	94	76	76	90
OP39211-MB	X04130.D	70	80	81	77	72	87
OP39211-MS	X04133.D	69	76	89	81	80	89
OP39211-MSD	X04134.D	70	78	95	81	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%

Semivolatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32521-2	I91100.D	75	68	101
OP39229-BS	I91066.D	88	71	98
OP39229-MB	I91065.D	89	66	100
OP39229-MS	I91067.D	71	58	95
OP39229-MSD	I91068.D	84	70	106

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	30-130%
S2 = 2-Fluorobiphenyl	30-130%
S3 = Terphenyl-d14	30-130%

Semivolatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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
MC32521-1	I90992.D	35	33	38	77	66	86
OP39212-BS	I90989.D	36	36	45	73	72	89
OP39212-MB	I90988.D	38	39	39	74	71	88
OP39212-MS	I90990.D	38	37	45	78	77	90
OP39212-MSD	I90991.D	39	39	48	78	77	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%

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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-2, MC32521-4

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%

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-1

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%

Method Blank Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-1

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%

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-2, MC32521-4

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%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-1

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%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-1

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%

* = Outside of Control Limits.

8.3.1

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-2, MC32521-4

CAS No.	Compound	MC32300-19 ug/l	Q	Spike 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	0.087	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%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-1

CAS No.	Compound	MC32521-1 ug/kg	Q	Spike ug/kg	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%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

MC32521-1

CAS No.	Compound	MC32521-1 mg/kg	Q	Spike mg/kg	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%

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Method: SW846 8011 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
MC32521-2	BK39944.D	94	105
MC32521-4	BK39945.D	99	113
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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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]
MC32521-1	BK39965.D	155	155
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: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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]
MC32521-1	AB85232.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
S1 = 2,3,4-Trifluorotoluene	61-116%

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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] RT	S1 [b] 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
MC32521-2	BK39944.D	08/05/14	12:30	4.36	4.38
MC32521-4	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

GC Surrogate Retention Time Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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] RT	S1 [b] 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

GC Surrogate Retention Time Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

GC Surrogate Retention Time Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, 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

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: MC32521
Account: SHELLWIC Shell Oil
Project: URSMOSTL: Roxana VMP-15 Replacement, 900 South Central Avenue, Roxana, IL

Sample: MC32521-1 **Analyzed:** 04-AUG-14 by BF **Method:** SM21 2540 B MOD.
ClientID: VMP15-25.5-073114(24-28')

Wet Weight (Total)	33.52	g
Tare Weight	18.966	g
Dry Weight (Total)	31.748	g
Solids, Percent	87.8	%