URS

May 7, 2014

Illinois Department of Transportation
Kirk H. Brown, PE
Project Support Engineer
Division of Highways/Region 5/District 8
1102 Eastport Plaza Drive
Collinsville, Illinois 62234-6198

Subject: **Analytical Data for Soil Vapor Sampling according to Illinois Department of Transportation (IDOT) Permit No. 8-28548**

Dear Mr. Brown:

URS Corporation, on behalf of Shell Oil Products US (SOPUS), is submitting analytical results for soil vapor sampling conducted according to IDOT Permit No. 8-28548. Enclosed are the analytical results for the following sampling activities recently conducted:

- VMP-55 (Vapor Samples)

If you have any questions or require further information please contact Bob Billman at bob.billman@urs.com (314/743-4108).

Sincerely,
URS Corporation, on behalf of Shell Oil Products US

Michael Currier
Environmental Scientist

Bob Billman
Senior Project Manager

Attachments

cc: Kevin Dyer, SOPUS
Repositories – Roxana Public Works, Roxana Public Library, website
Project File

1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
Phone: 314.429.0100
Fax: 314.429.0462

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3/11/2014
Ms. Elizabeth Kunkel
URS Corporation
1001 Highlands Plaza Dr. West
Suite 300
St. Louis MO 63110

Project Name: Roxana Soil Vapor
Project #: 21562973.04001
Workorder #: 1402412A

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 2/25/2014 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1402412A

Work Order Summary

CLIENT:	Ms. Elizabeth Kunkel URS Corporation 1001 Highlands Plaza Dr. West Suite 300 St. Louis, MO 63110	**BILL TO:**	Accounts Payable Austin URS Corporation P.O. BOX 203970 Austin, TX 78720-1088
PHONE:	314-743-4179	**P.O. #**	282676
FAX:		**PROJECT #**	21562973.04001 Roxana Soil Vapor
DATE RECEIVED:	02/25/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	03/04/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VMP-55-20-021814	TO-15	4.7 "Hg	14.8 psi
01B	VMP-55-20-021814	TO-15	4.7 "Hg	14.8 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 03/11/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 956
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15 Soil Gas
URS Corporation
Workorder# 1402412A

Two 1 Liter Summa Canister samples were received on February 25, 2014. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Due to high-level target compounds, sample VMP-55-20-021814 was analyzed twice. In the "A" fraction, the sample was diluted to bring the highest-level compounds within the calibration range. The "B" fraction is also reported by client request and may be reported with "E" flags indicating the compound exceeds the calibration range. Both runs and associated QC are reported.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS

Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	600	13000	2000	45000
2,2,4-Trimethylpentane	600	96000	2800	450000
Butane	2400	110000	5600	270000
Isopentane	2400	460000	7000	1400000

Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412A-01B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	60	17000	200	60000
2,2,4-Trimethylpentane	60	110000 E	280	530000 E
Ethyl Benzene	60	22 J	260	94 J
m,p-Xylene	60	88	260	380
o-Xylene	60	26 J	260	110 J
Cumene	60	17 J	290	83 J
4-Ethyltoluene	60	39 J	290	190 J
1,3,5-Trimethylbenzene	60	23 J	290	120 J
1,2,4-Trimethylbenzene	60	49 J	290	240 J
Butane	240	120000 E	560	280000 E
Isopentane	240	460000 E	700	1400000 E

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Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412A-01A

EPA METHOD TO-15 GC/MS

File Name:	**14030413**	**Date of Collection: 2/18/14 3:16:00 PM**	
Dil. Factor:	**119**	**Date of Analysis: 3/4/14 02:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	600	Not Detected	2900	Not Detected
Freon 114	600	Not Detected	4200	Not Detected
Chloromethane	2400	Not Detected	4900	Not Detected
Vinyl Chloride	600	Not Detected	1500	Not Detected
1,3-Butadiene	600	Not Detected	1300	Not Detected
Bromomethane	600	Not Detected	2300	Not Detected
Chloroethane	2400	Not Detected	6300	Not Detected
Freon 11	600	Not Detected	3300	Not Detected
Ethanol	2400	Not Detected	4500	Not Detected
Freon 113	600	Not Detected	4600	Not Detected
1,1-Dichloroethene	600	Not Detected	2400	Not Detected
Acetone	2400	Not Detected	5600	Not Detected
2-Propanol	2400	Not Detected	5800	Not Detected
Carbon Disulfide	600	Not Detected	1800	Not Detected
3-Chloropropene	2400	Not Detected	7400	Not Detected
Methylene Chloride	600	Not Detected	2100	Not Detected
Methyl tert-butyl ether	600	Not Detected	2100	Not Detected
trans-1,2-Dichloroethene	600	Not Detected	2400	Not Detected
Hexane	600	Not Detected	2100	Not Detected
1,1-Dichloroethane	600	Not Detected	2400	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2400	Not Detected	7000	Not Detected
cis-1,2-Dichloroethene	600	Not Detected	2400	Not Detected
Tetrahydrofuran	600	Not Detected	1800	Not Detected
Chloroform	600	Not Detected	2900	Not Detected
1,1,1-Trichloroethane	600	Not Detected	3200	Not Detected
Cyclohexane	600	13000	2000	45000
Carbon Tetrachloride	600	Not Detected	3700	Not Detected
2,2,4-Trimethylpentane	600	96000	2800	450000
Benzene	600	Not Detected	1900	Not Detected
1,2-Dichloroethane	600	Not Detected	2400	Not Detected
Heptane	600	Not Detected	2400	Not Detected
Trichloroethene	600	Not Detected	3200	Not Detected
1,2-Dichloropropane	600	Not Detected	2700	Not Detected
1,4-Dioxane	2400	Not Detected	8600	Not Detected
Bromodichloromethane	600	Not Detected	4000	Not Detected
cis-1,3-Dichloropropene	600	Not Detected	2700	Not Detected
4-Methyl-2-pentanone	600	Not Detected	2400	Not Detected
Toluene	600	Not Detected	2200	Not Detected
trans-1,3-Dichloropropene	600	Not Detected	2700	Not Detected
1,1,2-Trichloroethane	600	Not Detected	3200	Not Detected
Tetrachloroethene	600	Not Detected	4000	Not Detected
2-Hexanone	2400	Not Detected	9700	Not Detected

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Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412A-01A

EPA METHOD TO-15 GC/MS

File Name:	**14030413**	**Date of Collection: 2/18/14 3:16:00 PM**	
Dil. Factor:	**119**	**Date of Analysis: 3/4/14 02:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	600	Not Detected	5100	Not Detected
1,2-Dibromoethane (EDB)	600	Not Detected	4600	Not Detected
Chlorobenzene	600	Not Detected	2700	Not Detected
Ethyl Benzene	600	Not Detected	2600	Not Detected
m,p-Xylene	600	Not Detected	2600	Not Detected
o-Xylene	600	Not Detected	2600	Not Detected
Styrene	600	Not Detected	2500	Not Detected
Bromoform	600	Not Detected	6200	Not Detected
Cumene	600	Not Detected	2900	Not Detected
1,1,2,2-Tetrachloroethane	600	Not Detected	4100	Not Detected
Propylbenzene	600	Not Detected	2900	Not Detected
4-Ethyltoluene	600	Not Detected	2900	Not Detected
1,3,5-Trimethylbenzene	600	Not Detected	2900	Not Detected
1,2,4-Trimethylbenzene	600	Not Detected	2900	Not Detected
1,3-Dichlorobenzene	600	Not Detected	3600	Not Detected
1,4-Dichlorobenzene	600	Not Detected	3600	Not Detected
alpha-Chlorotoluene	600	Not Detected	3100	Not Detected
1,2-Dichlorobenzene	600	Not Detected	3600	Not Detected
1,2,4-Trichlorobenzene	2400	Not Detected	18000	Not Detected
Hexachlorobutadiene	2400	Not Detected	25000	Not Detected
Butane	2400	110000	5600	270000
Isopentane	2400	460000	7000	1400000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412A-01B

EPA METHOD TO-15 GC/MS

File Name:	**14030411**	**Date of Collection: 2/18/14 3:16:00 PM**	
Dil. Factor:	**11.9**	**Date of Analysis: 3/4/14 01:34 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	60	Not Detected	290	Not Detected
Freon 114	60	Not Detected	420	Not Detected
Chloromethane	240	Not Detected	490	Not Detected
Vinyl Chloride	60	Not Detected	150	Not Detected
1,3-Butadiene	60	Not Detected	130	Not Detected
Bromomethane	60	Not Detected	230	Not Detected
Chloroethane	240	Not Detected	630	Not Detected
Freon 11	60	Not Detected	330	Not Detected
Ethanol	240	Not Detected	450	Not Detected
Freon 113	60	Not Detected	460	Not Detected
1,1-Dichloroethene	60	Not Detected	240	Not Detected
Acetone	240	Not Detected	560	Not Detected
2-Propanol	240	Not Detected	580	Not Detected
Carbon Disulfide	60	Not Detected	180	Not Detected
3-Chloropropene	240	Not Detected	740	Not Detected
Methylene Chloride	60	Not Detected	210	Not Detected
Methyl tert-butyl ether	60	Not Detected	210	Not Detected
trans-1,2-Dichloroethene	60	Not Detected	240	Not Detected
Hexane	60	Not Detected	210	Not Detected
1,1-Dichloroethane	60	Not Detected	240	Not Detected
2-Butanone (Methyl Ethyl Ketone)	240	Not Detected	700	Not Detected
cis-1,2-Dichloroethene	60	Not Detected	240	Not Detected
Tetrahydrofuran	60	Not Detected	180	Not Detected
Chloroform	60	Not Detected	290	Not Detected
1,1,1-Trichloroethane	60	Not Detected	320	Not Detected
Cyclohexane	60	17000	200	60000
Carbon Tetrachloride	60	Not Detected	370	Not Detected
2,2,4-Trimethylpentane	60	110000 E	280	530000 E
Benzene	60	Not Detected	190	Not Detected
1,2-Dichloroethane	60	Not Detected	240	Not Detected
Heptane	60	Not Detected	240	Not Detected
Trichloroethene	60	Not Detected	320	Not Detected
1,2-Dichloropropane	60	Not Detected	270	Not Detected
1,4-Dioxane	240	Not Detected	860	Not Detected
Bromodichloromethane	60	Not Detected	400	Not Detected
cis-1,3-Dichloropropene	60	Not Detected	270	Not Detected
4-Methyl-2-pentanone	60	Not Detected	240	Not Detected
Toluene	60	Not Detected	220	Not Detected
trans-1,3-Dichloropropene	60	Not Detected	270	Not Detected
1,1,2-Trichloroethane	60	Not Detected	320	Not Detected
Tetrachloroethene	60	Not Detected	400	Not Detected
2-Hexanone	240	Not Detected	970	Not Detected

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Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412A-01B

EPA METHOD TO-15 GC/MS

File Name:	**14030411**	**Date of Collection: 2/18/14 3:16:00 PM**	
Dil. Factor:	**11.9**	**Date of Analysis: 3/4/14 01:34 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	60	Not Detected	510	Not Detected
1,2-Dibromoethane (EDB)	60	Not Detected	460	Not Detected
Chlorobenzene	60	Not Detected	270	Not Detected
Ethyl Benzene	60	22 J	260	94 J
m,p-Xylene	60	88	260	380
o-Xylene	60	26 J	260	110 J
Styrene	60	Not Detected	250	Not Detected
Bromoform	60	Not Detected	620	Not Detected
Cumene	60	17 J	290	83 J
1,1,2,2-Tetrachloroethane	60	Not Detected	410	Not Detected
Propylbenzene	60	Not Detected	290	Not Detected
4-Ethyltoluene	60	39 J	290	190 J
1,3,5-Trimethylbenzene	60	23 J	290	120 J
1,2,4-Trimethylbenzene	60	49 J	290	240 J
1,3-Dichlorobenzene	60	Not Detected	360	Not Detected
1,4-Dichlorobenzene	60	Not Detected	360	Not Detected
alpha-Chlorotoluene	60	Not Detected	310	Not Detected
1,2-Dichlorobenzene	60	Not Detected	360	Not Detected
1,2,4-Trichlorobenzene	240	Not Detected	1800	Not Detected
Hexachlorobutadiene	240	Not Detected	2500	Not Detected
Butane	240	120000 E	560	280000 E
Isopentane	240	460000 E	700	1400000 E

E = Exceeds instrument calibration range.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1402412A-02A

EPA METHOD TO-15 GC/MS

File Name:	**14030406a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 09:44 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	20	Not Detected	53	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	10 J	38	20 J
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	20	Not Detected	59	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected
2-Hexanone	20	Not Detected	82	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1402412A-02A

EPA METHOD TO-15 GC/MS

File Name:	**14030406a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 09:44 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
Butane	20	Not Detected	48	Not Detected
Isopentane	20	Not Detected	59	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CCV

Lab ID#: 1402412A-03A

EPA METHOD TO-15 GC/MS

File Name:	**14030402**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 07:18 AM**

Compound	%Recovery
Freon 12	98
Freon 114	94
Chloromethane	98
Vinyl Chloride	91
1,3-Butadiene	92
Bromomethane	91
Chloroethane	95
Freon 11	97
Ethanol	106
Freon 113	87
1,1-Dichloroethene	90
Acetone	97
2-Propanol	92
Carbon Disulfide	96
3-Chloropropene	91
Methylene Chloride	96
Methyl tert-butyl ether	92
trans-1,2-Dichloroethene	96
Hexane	95
1,1-Dichloroethane	97
2-Butanone (Methyl Ethyl Ketone)	94
cis-1,2-Dichloroethene	92
Tetrahydrofuran	94
Chloroform	96
1,1,1-Trichloroethane	96
Cyclohexane	93
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	96
Benzene	95
1,2-Dichloroethane	100
Heptane	98
Trichloroethene	94
1,2-Dichloropropane	98
1,4-Dioxane	90
Bromodichloromethane	96
cis-1,3-Dichloropropene	91
4-Methyl-2-pentanone	110
Toluene	95
trans-1,3-Dichloropropene	92
1,1,2-Trichloroethane	97
Tetrachloroethene	94
2-Hexanone	90

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Client Sample ID: CCV

Lab ID#: 1402412A-03A

EPA METHOD TO-15 GC/MS

File Name:	**14030402**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 07:18 AM**	

Compound	%Recovery
Dibromochloromethane	97
1,2-Dibromoethane (EDB)	96
Chlorobenzene	95
Ethyl Benzene	96
m,p-Xylene	99
o-Xylene	99
Styrene	108
Bromoform	98
Cumene	104
1,1,2,2-Tetrachloroethane	101
Propylbenzene	104
4-Ethyltoluene	105
1,3,5-Trimethylbenzene	109
1,2,4-Trimethylbenzene	107
1,3-Dichlorobenzene	100
1,4-Dichlorobenzene	103
alpha-Chlorotoluene	110
1,2-Dichlorobenzene	105
1,2,4-Trichlorobenzene	126
Hexachlorobutadiene	120
Butane	91
Isopentane	97

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: LCS

Lab ID#: 1402412A-04A

EPA METHOD TO-15 GC/MS

File Name:	**14030403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 07:51 AM**	

Compound	%Recovery	Method Limits
Freon 12	100	70-130
Freon 114	96	70-130
Chloromethane	100	70-130
Vinyl Chloride	95	70-130
1,3-Butadiene	95	70-130
Bromomethane	92	70-130
Chloroethane	93	70-130
Freon 11	100	70-130
Ethanol	110	70-130
Freon 113	97	70-130
1,1-Dichloroethene	106	70-130
Acetone	100	70-130
2-Propanol	96	70-130
Carbon Disulfide	90	70-130
3-Chloropropene	91	70-130
Methylene Chloride	107	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	86	70-130
Hexane	100	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	97	70-130
cis-1,2-Dichloroethene	107	70-130
Tetrahydrofuran	98	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	98	70-130
Cyclohexane	99	70-130
Carbon Tetrachloride	99	70-130
2,2,4-Trimethylpentane	100	70-130
Benzene	96	70-130
1,2-Dichloroethane	100	70-130
Heptane	98	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	95	70-130
1,4-Dioxane	95	70-130
Bromodichloromethane	99	70-130
cis-1,3-Dichloropropene	95	70-130
4-Methyl-2-pentanone	115	70-130
Toluene	92	70-130
trans-1,3-Dichloropropene	86	70-130
1,1,2-Trichloroethane	93	70-130
Tetrachloroethene	91	70-130
2-Hexanone	95	70-130

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Client Sample ID: LCS

Lab ID#: 1402412A-04A

EPA METHOD TO-15 GC/MS

File Name:	**14030403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 07:51 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	99	70-130
1,2-Dibromoethane (EDB)	93	70-130
Chlorobenzene	91	70-130
Ethyl Benzene	93	70-130
m,p-Xylene	96	70-130
o-Xylene	95	70-130
Styrene	108	70-130
Bromoform	100	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Propylbenzene	102	70-130
4-Ethyltoluene	102	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	102	70-130
1,3-Dichlorobenzene	94	70-130
1,4-Dichlorobenzene	96	70-130
alpha-Chlorotoluene	113	70-130
1,2-Dichlorobenzene	99	70-130
1,2,4-Trichlorobenzene	109	70-130
Hexachlorobutadiene	105	70-130
Butane	97	60-140
Isopentane	100	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCSD

Lab ID#: 1402412A-04AA

EPA METHOD TO-15 GC/MS

File Name:	**14030404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 08:20 AM**	

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	94	70-130
Chloromethane	98	70-130
Vinyl Chloride	91	70-130
1,3-Butadiene	91	70-130
Bromomethane	94	70-130
Chloroethane	91	70-130
Freon 11	97	70-130
Ethanol	100	70-130
Freon 113	96	70-130
1,1-Dichloroethene	101	70-130
Acetone	98	70-130
2-Propanol	95	70-130
Carbon Disulfide	88	70-130
3-Chloropropene	92	70-130
Methylene Chloride	104	70-130
Methyl tert-butyl ether	91	70-130
trans-1,2-Dichloroethene	84	70-130
Hexane	97	70-130
1,1-Dichloroethane	99	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	104	70-130
Tetrahydrofuran	96	70-130
Chloroform	97	70-130
1,1,1-Trichloroethane	95	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	96	70-130
2,2,4-Trimethylpentane	98	70-130
Benzene	97	70-130
1,2-Dichloroethane	100	70-130
Heptane	98	70-130
Trichloroethene	93	70-130
1,2-Dichloropropane	96	70-130
1,4-Dioxane	97	70-130
Bromodichloromethane	99	70-130
cis-1,3-Dichloropropene	97	70-130
4-Methyl-2-pentanone	117	70-130
Toluene	93	70-130
trans-1,3-Dichloropropene	88	70-130
1,1,2-Trichloroethane	94	70-130
Tetrachloroethene	93	70-130
2-Hexanone	98	70-130

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Client Sample ID: LCSD

Lab ID#: 1402412A-04AA

EPA METHOD TO-15 GC/MS

File Name:	**14030404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/14 08:20 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	93	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	97	70-130
o-Xylene	96	70-130
Styrene	108	70-130
Bromoform	101	70-130
Cumene	106	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	104	70-130
4-Ethyltoluene	105	70-130
1,3,5-Trimethylbenzene	105	70-130
1,2,4-Trimethylbenzene	105	70-130
1,3-Dichlorobenzene	98	70-130
1,4-Dichlorobenzene	99	70-130
alpha-Chlorotoluene	115	70-130
1,2-Dichlorobenzene	101	70-130
1,2,4-Trichlorobenzene	112	70-130
Hexachlorobutadiene	106	70-130
Butane	96	60-140
Isopentane	98	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	99	70-130

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3/11/2014
Ms. Elizabeth Kunkel
URS Corporation
1001 Highlands Plaza Dr. West
Suite 300
St. Louis MO 63110

Project Name: Roxana Soil Vapor
Project #: 21562973.04001
Workorder #: 1402412B

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 2/25/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1402412B

Work Order Summary

CLIENT:	Ms. Elizabeth Kunkel URS Corporation 1001 Highlands Plaza Dr. West Suite 300 St. Louis, MO 63110	**BILL TO:**	Accounts Payable Austin URS Corporation P.O. BOX 203970 Austin, TX 78720-1088
PHONE:	314-743-4179	**P.O. #**	282676
FAX:		**PROJECT #**	21562973.04001 Roxana Soil Vapor
DATE RECEIVED:	02/25/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	03/11/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VMP-55-20-021814	Modified ASTM D-1946	4.7 "Hg	14.8 psi
02A	Lab Blank	Modified ASTM D-1946	NA	NA
02B	Lab Blank	Modified ASTM D-1946	NA	NA
03A	LCS	Modified ASTM D-1946	NA	NA
03AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 03/11/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
URS Corporation
Workorder# 1402412B

One 1 Liter Summa Canister sample was received on February 25, 2014. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	1.9
Nitrogen	0.24	78
Methane	0.00024	5.2
Carbon Dioxide	0.024	15
Ethane	0.0024	0.023

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Client Sample ID: VMP-55-20-021814

Lab ID#: 1402412B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10030324**	**Date of Collection: 2/18/14 3:16:00 PM**	
Dil. Factor:	**2.38**	**Date of Analysis: 3/3/14 08:48 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	1.9
Nitrogen	0.24	78
Carbon Monoxide	0.024	Not Detected
Methane	0.00024	5.2
Carbon Dioxide	0.024	15
Ethane	0.0024	0.023
Ethene	0.0024	Not Detected
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: Lab Blank

Lab ID#: 1402412B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10030304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/14 10:42 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	0.020 J
Nitrogen	0.10	0.088 J
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1402412B-02B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10030303c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/14 10:10 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1402412B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10030302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/14 09:36 AM**	

Compound	%Recovery	Method Limits
Oxygen	101	85-115
Nitrogen	100	85-115
Carbon Monoxide	100	85-115
Methane	100	85-115
Carbon Dioxide	100	85-115
Ethane	98	85-115
Ethene	101	85-115
Helium	100	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1402412B-03AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10030325**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/3/14 09:13 PM**	

Compound	%Recovery	Method Limits
Oxygen	101	85-115
Nitrogen	100	85-115
Carbon Monoxide	100	85-115
Methane	100	85-115
Carbon Dioxide	100	85-115
Ethane	98	85-115
Ethene	101	85-115
Helium	100	85-115

Container Type: NA - Not Applicable