



November 12, 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 and Soil Vapor Sampling according to Illinois Department of Transportation (IDOT) Permits No. 8-28548 and No. 8-28875

Dear Mr. Brown:

URS Corporation, on behalf of Shell Oil Products US (SOPUS), is submitting analytical results for soil and soil vapor sampling conducted according to IDOT Permits No. 8-28548 and No. 8-28875. Enclosed are the analytical results for the following sampling activities recently conducted:

- VMP-15 (Soil and Soil Vapor Samples)
- VMP-55 (Soil Vapor Samples)

If you have any questions or require further information please contact Nick Eldred at nicholas.eldred@urs.com (314/743-7753).

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

Michael Currier
Environmental Scientist

Nick Eldred
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

8/27/2014

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

Project Name: Roxana SoilVapor
Project #: 21562973.04003
Workorder #: 1408263A

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 8/15/2014 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

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

Client Sample ID: VMP-15-21.5-081414

Lab ID#: 1408263A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,2,4-Trimethylpentane	15	27	69	120
Isopentane	59	14 J	180	41 J

Client Sample ID: VMP-15-25.5-081414

Lab ID#: 1408263A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	15	10 J	52	37 J
Cyclohexane	15	460	51	1600
2,2,4-Trimethylpentane	15	2800	69	13000
Benzene	15	12 J	47	37 J
Heptane	15	9.6 J	60	39 J
Butane	59	93	140	220
Isopentane	59	2500	170	7400

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

Client Sample ID: VMP-15-29-081414

Lab ID#: 1408263A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	58	55 J	140	130 J
Carbon Disulfide	14	7.5 J	45	23 J
Cyclohexane	14	52	50	180
2,2,4-Trimethylpentane	14	1400	68	6700
Benzene	14	35	46	110
Butane	58	54 J	140	130 J
Isopentane	58	830	170	2400

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

Client Sample ID: VMP-55-20-081314

Lab ID#: 1408263A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	260	100 J	920	360 J
Cyclohexane	260	570	900	1900
2,2,4-Trimethylpentane	260	160000	1200	760000
Benzene	260	150 J	830	470 J
Toluene	260	100 J	980	400 J
m,p-Xylene	260	85 J	1100	370 J
4-Ethyltoluene	260	76 J	1300	370 J
1,2,4-Trimethylbenzene	260	84 J	1300	410 J
Butane	1000	540 J	2500	1300 J
Isopentane	1000	5000	3100	15000



Air Toxics

Client Sample ID: VMP-15-21.5-081414

Lab ID#: 1408263A-05A

EPA METHOD TO-15 GC/MS

File Name:	14081923	Date of Collection:	8/14/14 1:11:00 PM
Dil. Factor:	2.97	Date of Analysis:	8/19/14 07:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	15	Not Detected	73	Not Detected
Freon 114	15	Not Detected	100	Not Detected
Chloromethane	59	Not Detected	120	Not Detected
Vinyl Chloride	15	Not Detected	38	Not Detected
1,3-Butadiene	15	Not Detected	33	Not Detected
Bromomethane	15	Not Detected	58	Not Detected
Chloroethane	59	Not Detected	160	Not Detected
Freon 11	15	Not Detected	83	Not Detected
Ethanol	59	Not Detected	110	Not Detected
Freon 113	15	Not Detected	110	Not Detected
1,1-Dichloroethene	15	Not Detected	59	Not Detected
Acetone	59	Not Detected	140	Not Detected
2-Propanol	59	Not Detected	140	Not Detected
Carbon Disulfide	15	Not Detected	46	Not Detected
3-Chloropropene	59	Not Detected	180	Not Detected
Methylene Chloride	15	Not Detected	52	Not Detected
Methyl tert-butyl ether	15	Not Detected	54	Not Detected
trans-1,2-Dichloroethene	15	Not Detected	59	Not Detected
Hexane	15	Not Detected	52	Not Detected
1,1-Dichloroethane	15	Not Detected	60	Not Detected
2-Butanone (Methyl Ethyl Ketone)	59	Not Detected	180	Not Detected
cis-1,2-Dichloroethene	15	Not Detected	59	Not Detected
Tetrahydrofuran	15	Not Detected	44	Not Detected
Chloroform	15	Not Detected	72	Not Detected
1,1,1-Trichloroethane	15	Not Detected	81	Not Detected
Cyclohexane	15	Not Detected	51	Not Detected
Carbon Tetrachloride	15	Not Detected	93	Not Detected
2,2,4-Trimethylpentane	15	27	69	120
Benzene	15	Not Detected	47	Not Detected
1,2-Dichloroethane	15	Not Detected	60	Not Detected
Heptane	15	Not Detected	61	Not Detected
Trichloroethene	15	Not Detected	80	Not Detected
1,2-Dichloropropane	15	Not Detected	69	Not Detected
1,4-Dioxane	59	Not Detected	210	Not Detected
Bromodichloromethane	15	Not Detected	100	Not Detected
cis-1,3-Dichloropropene	15	Not Detected	67	Not Detected
4-Methyl-2-pentanone	15	Not Detected	61	Not Detected
Toluene	15	Not Detected	56	Not Detected
trans-1,3-Dichloropropene	15	Not Detected	67	Not Detected
1,1,2-Trichloroethane	15	Not Detected	81	Not Detected
Tetrachloroethene	15	Not Detected	100	Not Detected
2-Hexanone	59	Not Detected	240	Not Detected



Client Sample ID: VMP-15-21.5-081414

Lab ID#: 1408263A-05A

EPA METHOD TO-15 GC/MS

File Name:	14081923	Date of Collection:	8/14/14 1:11:00 PM
Dil. Factor:	2.97	Date of Analysis:	8/19/14 07:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	15	Not Detected	130	Not Detected
1,2-Dibromoethane (EDB)	15	Not Detected	110	Not Detected
Chlorobenzene	15	Not Detected	68	Not Detected
Ethyl Benzene	15	Not Detected	64	Not Detected
m,p-Xylene	15	Not Detected	64	Not Detected
o-Xylene	15	Not Detected	64	Not Detected
Styrene	15	Not Detected	63	Not Detected
Bromoform	15	Not Detected	150	Not Detected
Cumene	15	Not Detected	73	Not Detected
1,1,2,2-Tetrachloroethane	15	Not Detected	100	Not Detected
Propylbenzene	15	Not Detected	73	Not Detected
4-Ethyltoluene	15	Not Detected	73	Not Detected
1,3,5-Trimethylbenzene	15	Not Detected	73	Not Detected
1,2,4-Trimethylbenzene	15	Not Detected	73	Not Detected
1,3-Dichlorobenzene	15	Not Detected	89	Not Detected
1,4-Dichlorobenzene	15	Not Detected	89	Not Detected
alpha-Chlorotoluene	15	Not Detected	77	Not Detected
1,2-Dichlorobenzene	15	Not Detected	89	Not Detected
1,2,4-Trichlorobenzene	59	Not Detected	440	Not Detected
Hexachlorobutadiene	59	Not Detected	630	Not Detected
Butane	59	Not Detected	140	Not Detected
Isopentane	59	14 J	180	41 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: VMP-15-25.5-081414

Lab ID#: 1408263A-06A

EPA METHOD TO-15 GC/MS

File Name:	14081924	Date of Collection:	8/14/14 1:40:00 PM
Dil. Factor:	2.95	Date of Analysis:	8/19/14 07:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	15	Not Detected	73	Not Detected
Freon 114	15	Not Detected	100	Not Detected
Chloromethane	59	Not Detected	120	Not Detected
Vinyl Chloride	15	Not Detected	38	Not Detected
1,3-Butadiene	15	Not Detected	33	Not Detected
Bromomethane	15	Not Detected	57	Not Detected
Chloroethane	59	Not Detected	160	Not Detected
Freon 11	15	Not Detected	83	Not Detected
Ethanol	59	Not Detected	110	Not Detected
Freon 113	15	Not Detected	110	Not Detected
1,1-Dichloroethene	15	Not Detected	58	Not Detected
Acetone	59	Not Detected	140	Not Detected
2-Propanol	59	Not Detected	140	Not Detected
Carbon Disulfide	15	Not Detected	46	Not Detected
3-Chloropropene	59	Not Detected	180	Not Detected
Methylene Chloride	15	Not Detected	51	Not Detected
Methyl tert-butyl ether	15	Not Detected	53	Not Detected
trans-1,2-Dichloroethene	15	Not Detected	58	Not Detected
Hexane	15	10 J	52	37 J
1,1-Dichloroethane	15	Not Detected	60	Not Detected
2-Butanone (Methyl Ethyl Ketone)	59	Not Detected	170	Not Detected
cis-1,2-Dichloroethene	15	Not Detected	58	Not Detected
Tetrahydrofuran	15	Not Detected	43	Not Detected
Chloroform	15	Not Detected	72	Not Detected
1,1,1-Trichloroethane	15	Not Detected	80	Not Detected
Cyclohexane	15	460	51	1600
Carbon Tetrachloride	15	Not Detected	93	Not Detected
2,2,4-Trimethylpentane	15	2800	69	13000
Benzene	15	12 J	47	37 J
1,2-Dichloroethane	15	Not Detected	60	Not Detected
Heptane	15	9.6 J	60	39 J
Trichloroethene	15	Not Detected	79	Not Detected
1,2-Dichloropropane	15	Not Detected	68	Not Detected
1,4-Dioxane	59	Not Detected	210	Not Detected
Bromodichloromethane	15	Not Detected	99	Not Detected
cis-1,3-Dichloropropene	15	Not Detected	67	Not Detected
4-Methyl-2-pentanone	15	Not Detected	60	Not Detected
Toluene	15	Not Detected	56	Not Detected
trans-1,3-Dichloropropene	15	Not Detected	67	Not Detected
1,1,2-Trichloroethane	15	Not Detected	80	Not Detected
Tetrachloroethene	15	Not Detected	100	Not Detected
2-Hexanone	59	Not Detected	240	Not Detected



Client Sample ID: VMP-15-25.5-081414

Lab ID#: 1408263A-06A

EPA METHOD TO-15 GC/MS

File Name:	14081924	Date of Collection:	8/14/14 1:40:00 PM
Dil. Factor:	2.95	Date of Analysis:	8/19/14 07:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	15	Not Detected	120	Not Detected
1,2-Dibromoethane (EDB)	15	Not Detected	110	Not Detected
Chlorobenzene	15	Not Detected	68	Not Detected
Ethyl Benzene	15	Not Detected	64	Not Detected
m,p-Xylene	15	Not Detected	64	Not Detected
o-Xylene	15	Not Detected	64	Not Detected
Styrene	15	Not Detected	63	Not Detected
Bromoform	15	Not Detected	150	Not Detected
Cumene	15	Not Detected	72	Not Detected
1,1,2,2-Tetrachloroethane	15	Not Detected	100	Not Detected
Propylbenzene	15	Not Detected	72	Not Detected
4-Ethyltoluene	15	Not Detected	72	Not Detected
1,3,5-Trimethylbenzene	15	Not Detected	72	Not Detected
1,2,4-Trimethylbenzene	15	Not Detected	72	Not Detected
1,3-Dichlorobenzene	15	Not Detected	89	Not Detected
1,4-Dichlorobenzene	15	Not Detected	89	Not Detected
alpha-Chlorotoluene	15	Not Detected	76	Not Detected
1,2-Dichlorobenzene	15	Not Detected	89	Not Detected
1,2,4-Trichlorobenzene	59	Not Detected	440	Not Detected
Hexachlorobutadiene	59	Not Detected	630	Not Detected
Butane	59	93	140	220
Isopentane	59	2500	170	7400

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: VMP-15-29-081414

Lab ID#: 1408263A-07A

EPA METHOD TO-15 GC/MS

File Name:	14081925	Date of Collection:	8/14/14 2:05:00 PM
Dil. Factor:	2.89	Date of Analysis:	8/19/14 07:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	14	Not Detected	71	Not Detected
Freon 114	14	Not Detected	100	Not Detected
Chloromethane	58	Not Detected	120	Not Detected
Vinyl Chloride	14	Not Detected	37	Not Detected
1,3-Butadiene	14	Not Detected	32	Not Detected
Bromomethane	14	Not Detected	56	Not Detected
Chloroethane	58	Not Detected	150	Not Detected
Freon 11	14	Not Detected	81	Not Detected
Ethanol	58	Not Detected	110	Not Detected
Freon 113	14	Not Detected	110	Not Detected
1,1-Dichloroethene	14	Not Detected	57	Not Detected
Acetone	58	55 J	140	130 J
2-Propanol	58	Not Detected	140	Not Detected
Carbon Disulfide	14	7.5 J	45	23 J
3-Chloropropene	58	Not Detected	180	Not Detected
Methylene Chloride	14	Not Detected	50	Not Detected
Methyl tert-butyl ether	14	Not Detected	52	Not Detected
trans-1,2-Dichloroethene	14	Not Detected	57	Not Detected
Hexane	14	Not Detected	51	Not Detected
1,1-Dichloroethane	14	Not Detected	58	Not Detected
2-Butanone (Methyl Ethyl Ketone)	58	Not Detected	170	Not Detected
cis-1,2-Dichloroethene	14	Not Detected	57	Not Detected
Tetrahydrofuran	14	Not Detected	43	Not Detected
Chloroform	14	Not Detected	70	Not Detected
1,1,1-Trichloroethane	14	Not Detected	79	Not Detected
Cyclohexane	14	52	50	180
Carbon Tetrachloride	14	Not Detected	91	Not Detected
2,2,4-Trimethylpentane	14	1400	68	6700
Benzene	14	35	46	110
1,2-Dichloroethane	14	Not Detected	58	Not Detected
Heptane	14	Not Detected	59	Not Detected
Trichloroethene	14	Not Detected	78	Not Detected
1,2-Dichloropropane	14	Not Detected	67	Not Detected
1,4-Dioxane	58	Not Detected	210	Not Detected
Bromodichloromethane	14	Not Detected	97	Not Detected
cis-1,3-Dichloropropene	14	Not Detected	66	Not Detected
4-Methyl-2-pentanone	14	Not Detected	59	Not Detected
Toluene	14	Not Detected	54	Not Detected
trans-1,3-Dichloropropene	14	Not Detected	66	Not Detected
1,1,2-Trichloroethane	14	Not Detected	79	Not Detected
Tetrachloroethene	14	Not Detected	98	Not Detected
2-Hexanone	58	Not Detected	240	Not Detected



Client Sample ID: VMP-15-29-081414

Lab ID#: 1408263A-07A

EPA METHOD TO-15 GC/MS

File Name:	14081925	Date of Collection:	8/14/14 2:05:00 PM
Dil. Factor:	2.89	Date of Analysis:	8/19/14 07:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	14	Not Detected	120	Not Detected
1,2-Dibromoethane (EDB)	14	Not Detected	110	Not Detected
Chlorobenzene	14	Not Detected	66	Not Detected
Ethyl Benzene	14	Not Detected	63	Not Detected
m,p-Xylene	14	Not Detected	63	Not Detected
o-Xylene	14	Not Detected	63	Not Detected
Styrene	14	Not Detected	62	Not Detected
Bromoform	14	Not Detected	150	Not Detected
Cumene	14	Not Detected	71	Not Detected
1,1,2,2-Tetrachloroethane	14	Not Detected	99	Not Detected
Propylbenzene	14	Not Detected	71	Not Detected
4-Ethyltoluene	14	Not Detected	71	Not Detected
1,3,5-Trimethylbenzene	14	Not Detected	71	Not Detected
1,2,4-Trimethylbenzene	14	Not Detected	71	Not Detected
1,3-Dichlorobenzene	14	Not Detected	87	Not Detected
1,4-Dichlorobenzene	14	Not Detected	87	Not Detected
alpha-Chlorotoluene	14	Not Detected	75	Not Detected
1,2-Dichlorobenzene	14	Not Detected	87	Not Detected
1,2,4-Trichlorobenzene	58	Not Detected	430	Not Detected
Hexachlorobutadiene	58	Not Detected	620	Not Detected
Butane	58	54 J	140	130 J
Isopentane	58	830	170	2400

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: VMP-55-20-081314

Lab ID#: 1408263A-10A

EPA METHOD TO-15 GC/MS

File Name:	14081930	Date of Collection:	8/13/14 3:04:00 PM
Dil. Factor:	52.2	Date of Analysis:	8/19/14 09:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	260	Not Detected	1300	Not Detected
Freon 114	260	Not Detected	1800	Not Detected
Chloromethane	1000	Not Detected	2200	Not Detected
Vinyl Chloride	260	Not Detected	670	Not Detected
1,3-Butadiene	260	Not Detected	580	Not Detected
Bromomethane	260	Not Detected	1000	Not Detected
Chloroethane	1000	Not Detected	2800	Not Detected
Freon 11	260	Not Detected	1500	Not Detected
Ethanol	1000	Not Detected	2000	Not Detected
Freon 113	260	Not Detected	2000	Not Detected
1,1-Dichloroethene	260	Not Detected	1000	Not Detected
Acetone	1000	Not Detected	2500	Not Detected
2-Propanol	1000	Not Detected	2600	Not Detected
Carbon Disulfide	260	Not Detected	810	Not Detected
3-Chloropropene	1000	Not Detected	3300	Not Detected
Methylene Chloride	260	Not Detected	910	Not Detected
Methyl tert-butyl ether	260	Not Detected	940	Not Detected
trans-1,2-Dichloroethene	260	Not Detected	1000	Not Detected
Hexane	260	100 J	920	360 J
1,1-Dichloroethane	260	Not Detected	1000	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1000	Not Detected	3100	Not Detected
cis-1,2-Dichloroethene	260	Not Detected	1000	Not Detected
Tetrahydrofuran	260	Not Detected	770	Not Detected
Chloroform	260	Not Detected	1300	Not Detected
1,1,1-Trichloroethane	260	Not Detected	1400	Not Detected
Cyclohexane	260	570	900	1900
Carbon Tetrachloride	260	Not Detected	1600	Not Detected
2,2,4-Trimethylpentane	260	160000	1200	760000
Benzene	260	150 J	830	470 J
1,2-Dichloroethane	260	Not Detected	1000	Not Detected
Heptane	260	Not Detected	1100	Not Detected
Trichloroethene	260	Not Detected	1400	Not Detected
1,2-Dichloropropane	260	Not Detected	1200	Not Detected
1,4-Dioxane	1000	Not Detected	3800	Not Detected
Bromodichloromethane	260	Not Detected	1700	Not Detected
cis-1,3-Dichloropropene	260	Not Detected	1200	Not Detected
4-Methyl-2-pentanone	260	Not Detected	1100	Not Detected
Toluene	260	100 J	980	400 J
trans-1,3-Dichloropropene	260	Not Detected	1200	Not Detected
1,1,2-Trichloroethane	260	Not Detected	1400	Not Detected
Tetrachloroethene	260	Not Detected	1800	Not Detected
2-Hexanone	1000	Not Detected	4300	Not Detected



Client Sample ID: VMP-55-20-081314

Lab ID#: 1408263A-10A

EPA METHOD TO-15 GC/MS

File Name:	14081930	Date of Collection:	8/13/14 3:04:00 PM
Dil. Factor:	52.2	Date of Analysis:	8/19/14 09:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	260	Not Detected	2200	Not Detected
1,2-Dibromoethane (EDB)	260	Not Detected	2000	Not Detected
Chlorobenzene	260	Not Detected	1200	Not Detected
Ethyl Benzene	260	Not Detected	1100	Not Detected
m,p-Xylene	260	85 J	1100	370 J
o-Xylene	260	Not Detected	1100	Not Detected
Styrene	260	Not Detected	1100	Not Detected
Bromoform	260	Not Detected	2700	Not Detected
Cumene	260	Not Detected	1300	Not Detected
1,1,2,2-Tetrachloroethane	260	Not Detected	1800	Not Detected
Propylbenzene	260	Not Detected	1300	Not Detected
4-Ethyltoluene	260	76 J	1300	370 J
1,3,5-Trimethylbenzene	260	Not Detected	1300	Not Detected
1,2,4-Trimethylbenzene	260	84 J	1300	410 J
1,3-Dichlorobenzene	260	Not Detected	1600	Not Detected
1,4-Dichlorobenzene	260	Not Detected	1600	Not Detected
alpha-Chlorotoluene	260	Not Detected	1400	Not Detected
1,2-Dichlorobenzene	260	Not Detected	1600	Not Detected
1,2,4-Trichlorobenzene	1000	Not Detected	7700	Not Detected
Hexachlorobutadiene	1000	Not Detected	11000	Not Detected
Butane	1000	540 J	2500	1300 J
Isopentane	1000	5000	3100	15000

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

8/29/2014

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

Project Name: Roxana SoilVapor
Project #: 21562973.04003
Workorder #: 1408263B

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 8/15/2014 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

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

Client Sample ID: VMP-15-21.5-081414

Lab ID#: 1408263B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.30	1.8
Nitrogen	0.30	87
Methane	0.00030	0.10
Carbon Dioxide	0.030	11

Client Sample ID: VMP-15-25.5-081414

Lab ID#: 1408263B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.30	1.5
Nitrogen	0.30	86
Methane	0.00030	0.21
Carbon Dioxide	0.030	12
Ethane	0.0030	0.00012 J
Helium	0.15	0.025 J

Client Sample ID: VMP-15-29-081414

Lab ID#: 1408263B-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.29	1.5
Nitrogen	0.29	86
Methane	0.00029	0.13
Carbon Dioxide	0.029	12

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

Client Sample ID: VMP-55-20-081314

Lab ID#: 1408263B-10A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	2.5
Nitrogen	0.26	79
Methane	0.00026	0.90
Carbon Dioxide	0.026	17
Ethane	0.0026	0.014



Air Toxics

Client Sample ID: VMP-15-21.5-081414

Lab ID#: 1408263B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9082105	Date of Collection:	8/14/14 1:11:00 PM
Dil. Factor:	2.97	Date of Analysis:	8/21/14 09:32 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.30	1.8
Nitrogen	0.30	87
Carbon Monoxide	0.030	Not Detected
Methane	0.00030	0.10
Carbon Dioxide	0.030	11
Ethane	0.0030	Not Detected
Ethene	0.0030	Not Detected
Helium	0.15	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-25.5-081414

Lab ID#: 1408263B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9082106	Date of Collection:	8/14/14 1:40:00 PM
Dil. Factor:	2.95	Date of Analysis:	8/21/14 09:59 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.30	1.5
Nitrogen	0.30	86
Carbon Monoxide	0.030	Not Detected
Methane	0.00030	0.21
Carbon Dioxide	0.030	12
Ethane	0.0030	0.00012 J
Ethene	0.0030	Not Detected
Helium	0.15	0.025 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-29-081414

Lab ID#: 1408263B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9082107	Date of Collection:	8/14/14 2:05:00 PM
Dil. Factor:	2.89	Date of Analysis:	8/21/14 10:29 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.29	1.5
Nitrogen	0.29	86
Carbon Monoxide	0.029	Not Detected
Methane	0.00029	0.13
Carbon Dioxide	0.029	12
Ethane	0.0029	Not Detected
Ethene	0.0029	Not Detected
Helium	0.14	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-55-20-081314

Lab ID#: 1408263B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9082114	Date of Collection:	8/13/14 3:04:00 PM
Dil. Factor:	2.61	Date of Analysis:	8/21/14 02:40 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	2.5
Nitrogen	0.26	79
Carbon Monoxide	0.026	Not Detected
Methane	0.00026	0.90
Carbon Dioxide	0.026	17
Ethane	0.0026	0.014
Ethene	0.0026	Not Detected
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister

8/29/2014

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

Project Name: Roxana Soil Vapor
Project #: 21562973.04003
Workorder #: 1408264A

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 8/15/2014 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

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

Client Sample ID: VMP-15-5-081414

Lab ID#: 1408264A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.5	0.44 J	7.2	2.2 J
Ethanol	5.8	4.3 J	11	8.1 J
Acetone	15	12 J	35	28 J
2-Propanol	5.8	0.61 J	14	1.5 J
Carbon Disulfide	5.8	0.54 J	18	1.7 J
2-Butanone (Methyl Ethyl Ketone)	5.8	1.9 J	17	5.6 J
Chloroform	1.5	1.4 J	7.1	6.6 J
Toluene	1.5	0.22 J	5.5	0.81 J
Tetrachloroethene	1.5	1.2 J	9.9	8.4 J
Isopentane	5.8	1.1 J	17	3.3 J



Air Toxics

Client Sample ID: VMP-15-5-081414

Lab ID#: 1408264A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17082110	Date of Collection:	8/14/14 12:51:00 PM
Dil. Factor:	2.92	Date of Analysis:	8/21/14 12:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.5	0.44 J	7.2	2.2 J
Freon 114	1.5	Not Detected	10	Not Detected
Chloromethane	15	Not Detected	30	Not Detected
Vinyl Chloride	1.5	Not Detected	3.7	Not Detected
1,3-Butadiene	1.5	Not Detected	3.2	Not Detected
Bromomethane	15	Not Detected	57	Not Detected
Chloroethane	5.8	Not Detected	15	Not Detected
Freon 11	1.5	Not Detected	8.2	Not Detected
Ethanol	5.8	4.3 J	11	8.1 J
Freon 113	1.5	Not Detected	11	Not Detected
1,1-Dichloroethene	1.5	Not Detected	5.8	Not Detected
Acetone	15	12 J	35	28 J
2-Propanol	5.8	0.61 J	14	1.5 J
Carbon Disulfide	5.8	0.54 J	18	1.7 J
3-Chloropropene	5.8	Not Detected	18	Not Detected
Methylene Chloride	15	Not Detected	51	Not Detected
Methyl tert-butyl ether	1.5	Not Detected	5.3	Not Detected
trans-1,2-Dichloroethene	1.5	Not Detected	5.8	Not Detected
Hexane	1.5	Not Detected	5.1	Not Detected
1,1-Dichloroethane	1.5	Not Detected	5.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.8	1.9 J	17	5.6 J
cis-1,2-Dichloroethene	1.5	Not Detected	5.8	Not Detected
Tetrahydrofuran	1.5	Not Detected	4.3	Not Detected
Chloroform	1.5	1.4 J	7.1	6.6 J
1,1,1-Trichloroethane	1.5	Not Detected	8.0	Not Detected
Cyclohexane	1.5	Not Detected	5.0	Not Detected
Carbon Tetrachloride	1.5	Not Detected	9.2	Not Detected
2,2,4-Trimethylpentane	1.5	Not Detected	6.8	Not Detected
Benzene	1.5	Not Detected	4.7	Not Detected
1,2-Dichloroethane	1.5	Not Detected	5.9	Not Detected
Heptane	1.5	Not Detected	6.0	Not Detected
Trichloroethene	1.5	Not Detected	7.8	Not Detected
1,2-Dichloropropane	1.5	Not Detected	6.7	Not Detected
1,4-Dioxane	5.8	Not Detected	21	Not Detected
Bromodichloromethane	1.5	Not Detected	9.8	Not Detected
cis-1,3-Dichloropropene	1.5	Not Detected	6.6	Not Detected
4-Methyl-2-pentanone	1.5	Not Detected	6.0	Not Detected
Toluene	1.5	0.22 J	5.5	0.81 J
trans-1,3-Dichloropropene	1.5	Not Detected	6.6	Not Detected
1,1,2-Trichloroethane	1.5	Not Detected	8.0	Not Detected
Tetrachloroethene	1.5	1.2 J	9.9	8.4 J
2-Hexanone	5.8	Not Detected	24	Not Detected



Client Sample ID: VMP-15-5-081414

Lab ID#: 1408264A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17082110	Date of Collection:	8/14/14 12:51:00 PM
Dil. Factor:	2.92	Date of Analysis:	8/21/14 12:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.5	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.5	Not Detected	11	Not Detected
Chlorobenzene	1.5	Not Detected	6.7	Not Detected
Ethyl Benzene	1.5	Not Detected	6.3	Not Detected
m,p-Xylene	1.5	Not Detected	6.3	Not Detected
o-Xylene	1.5	Not Detected	6.3	Not Detected
Styrene	1.5	Not Detected	6.2	Not Detected
Bromoform	1.5	Not Detected	15	Not Detected
Cumene	1.5	Not Detected	7.2	Not Detected
1,1,2,2-Tetrachloroethane	1.5	Not Detected	10	Not Detected
Propylbenzene	1.5	Not Detected	7.2	Not Detected
4-Ethyltoluene	1.5	Not Detected	7.2	Not Detected
1,3,5-Trimethylbenzene	1.5	Not Detected	7.2	Not Detected
1,2,4-Trimethylbenzene	1.5	Not Detected	7.2	Not Detected
1,3-Dichlorobenzene	1.5	Not Detected	8.8	Not Detected
1,4-Dichlorobenzene	1.5	Not Detected	8.8	Not Detected
alpha-Chlorotoluene	1.5	Not Detected	7.6	Not Detected
1,2-Dichlorobenzene	1.5	Not Detected	8.8	Not Detected
1,2,4-Trichlorobenzene	5.8	Not Detected	43	Not Detected
Hexachlorobutadiene	5.8	Not Detected	62	Not Detected
Butane	5.8	Not Detected	14	Not Detected
Isopentane	5.8	1.1 J	17	3.3 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	101	70-130

8/29/2014

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

Project Name: Roxana Soil Vapor
Project #: 21562973.04003
Workorder #: 1408264B

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 8/15/2014 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

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

Client Sample ID: VMP-15-5-081414

Lab ID#: 1408264B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.29	11
Nitrogen	0.29	80
Carbon Dioxide	0.029	8.9



Air Toxics

Client Sample ID: VMP-15-5-081414

Lab ID#: 1408264B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10082609	Date of Collection:	8/14/14 12:51:00 PM
Dil. Factor:	2.92	Date of Analysis:	8/26/14 07:02 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.29	11
Nitrogen	0.29	80
Carbon Monoxide	0.029	Not Detected
Methane	0.00029	Not Detected
Carbon Dioxide	0.029	8.9
Ethane	0.0029	Not Detected
Ethene	0.0029	Not Detected
Helium	0.15	Not Detected

Container Type: 1 Liter Summa Canister