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November 9, 2015

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) Permits No. 8-28548 and No. 8-28875**

Dear Mr. Brown,

AECOM (formerly URS Corporation), on behalf of Shell Oil Products US (SOPUS), is submitting the attached analytical results for soil vapor samples collected from the following vapor monitoring points in accordance with IDOT Permits No. 8-28548 and No. 8-28875:

- VMP-15
- VMP-55

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

Sincerely,
AECOM, on behalf of Shell Oil Products US

Michael Currier
Environmental Scientist

Nicholas Eldred
Senior Project Manager

Attachments

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

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8/13/2015
Ms. Elizabeth Kunkel
URS Corporation
1001 Highlands Plaza Dr. West
Suite 300
St. Louis MO 63110

Project Name: Roxana Soil Vapor
Project #: 21563720.04203
Workorder #: 1507533A

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 7/31/2015 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 #: 1507533A

Work Order Summary

CLIENT:	Ms. Elizabeth Kunkel AECOM 1001 Highlands Plaza Dr. West Suite 300 St. Louis, MO 63110	**BILL TO:**	Accounts Payable Austin AECOM P.O. BOX 203970 Austin, TX 78720-1088
PHONE:	314-743-4179	**P.O. #**	87243.UB
FAX:		**PROJECT #**	21563720.04203 Roxana Soil Vapor
DATE RECEIVED:	07/31/2015	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	08/13/2015		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
04A	VMP-15-5-072915	TO-15	8.4 "Hg	15.3 psi
05A	VMP-15-21.5-072915	TO-15	10.8 "Hg	15.1 psi
06A	VMP-15-25.5-072915	TO-15	8.4 "Hg	15.1 psi
07A	VMP-15-29-072915	TO-15	10.6 "Hg	15.2 psi
08A	VMP-15-29-072915-DUP	TO-15	6.7 "Hg	15.3 psi
09A	VMP-55-20-072915	TO-15	7.8 "Hg	15 psi
10A	VMP-55-20-072915-DUP	TO-15	9.2 "Hg	14.9 psi
11A	Lab Blank	TO-15	NA	NA
11B	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
12B	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA
13B	LCS	TO-15	NA	NA
13BB	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 08/13/15

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.
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
EPA Method TO-15
URS Corporation
Workorder# 1507533A

Ten 1 Liter Summa Canister samples were received on July 31, 2015. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

Dilution was performed on samples VMP-15-21.5-072915, VMP-15-25.5-072915, VMP-15-29-072915, VMP-15-29-072915-DUP, VMP-55-20-072915, and VMP-55-20-072915-DUP due to the presence of high level target species.

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

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 FULL SCAN

Client Sample ID: VMP-15-5-072915

Lab ID#: 1507533A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	0.83 J	7.0	4.1 J
Ethanol	5.7	4.3 J	11	8.2 J
Acetone	14	6.8 J	34	16 J
Carbon Disulfide	5.7	2.5 J	18	7.7 J
Hexane	1.4	1.5	5.0	5.3
2-Butanone (Methyl Ethyl Ketone)	5.7	1.3 J	17	3.8 J
Chloroform	1.4	0.77 J	6.9	3.7 J
Cyclohexane	1.4	0.78 J	4.9	2.7 J
2,2,4-Trimethylpentane	1.4	15	6.6	70
Benzene	1.4	3.8	4.5	12
Heptane	1.4	0.64 J	5.8	2.6 J
Isopentane	5.7	1.9 J	17	5.5 J

Client Sample ID: VMP-15-21.5-072915

Lab ID#: 1507533A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	160	16 J	380	39 J
Carbon Disulfide	63	6.2 J	200	19 J
2,2,4-Trimethylpentane	16	3200	74	15000
Benzene	16	4.6 J	51	15 J
Butane	63	460	150	1100
Isopentane	63	590	190	1700

Client Sample ID: VMP-15-25.5-072915

Lab ID#: 1507533A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)

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

Client Sample ID: VMP-15-25.5-072915

Lab ID#: 1507533A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	18	88	62	310
Cyclohexane	18	700	60	2400
2,2,4-Trimethylpentane	18	5300	82	25000
Benzene	18	61	56	190
m,p-Xylene	18	6.8 J	76	30 J
o-Xylene	18	2.4 J	76	11 J
1,2,4-Trimethylbenzene	18	2.7 J	86	13 J
Butane	70	2600	170	6300
Isopentane	70	12000	210	36000

Client Sample ID: VMP-15-29-072915

Lab ID#: 1507533A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	20	79	69	280
Cyclohexane	20	720	68	2500
2,2,4-Trimethylpentane	20	5400	92	25000
Benzene	20	67	63	210
Toluene	20	5.1 J	74	19 J
m,p-Xylene	20	3.7 J	86	16 J
Butane	79	3100	190	7300
Isopentane	79	13000	230	39000

Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	66	25 J	160	60 J
Hexane	16	68	58	240
Cyclohexane	16	730	57	2500
2,2,4-Trimethylpentane	16	5600	77	26000
Benzene	16	63	52	200
Heptane	16	16 J	67	65 J

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

Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533A-08A

Ethyl Benzene	16	4.8 J	71	21 J
m,p-Xylene	16	3.9 J	71	17 J
Butane	66	3000	160	7100
Isopentane	66	13000	190	39000

Client Sample ID: VMP-55-20-072915

Lab ID#: 1507533A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	140	18 J	320	43 J
Carbon Disulfide	55	6.2 J	170	19 J
Methyl tert-butyl ether	14	30	49	110
Hexane	14	14	48	51
2,2,4-Trimethylpentane	14	3600	64	17000
Benzene	14	5.1 J	44	16 J
Butane	55	180	130	420
Isopentane	55	1500	160	4400

Client Sample ID: VMP-55-20-072915-DUP

Lab ID#: 1507533A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	140	16 J	340	37 J
Carbon Disulfide	58	5.8 J	180	18 J
Methyl tert-butyl ether	14	31	52	110
Hexane	14	15	51	52
2,2,4-Trimethylpentane	14	3600	68	17000
Benzene	14	5.8 J	46	18 J
Butane	58	170	140	400
Isopentane	58	1500	170	4400

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Client Sample ID: VMP-15-5-072915

Lab ID#: 1507533A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080610**	**Date of Collection:**	**7/29/15 9:13:00 AM**
Dil. Factor:	**2.83**	**Date of Analysis:**	**8/6/15 04:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	0.83 J	7.0	4.1 J
Freon 114	1.4	Not Detected	9.9	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	55	Not Detected
Chloroethane	5.7	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	8.0	Not Detected
Ethanol	5.7	4.3 J	11	8.2 J
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Acetone	14	6.8 J	34	16 J
2-Propanol	5.7	Not Detected	14	Not Detected
Carbon Disulfide	5.7	2.5 J	18	7.7 J
3-Chloropropene	5.7	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	49	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.1	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Hexane	1.4	1.5	5.0	5.3
1,1-Dichloroethane	1.4	Not Detected	5.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.7	1.3 J	17	3.8 J
cis-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.2	Not Detected
Chloroform	1.4	0.77 J	6.9	3.7 J
1,1,1-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Cyclohexane	1.4	0.78 J	4.9	2.7 J
Carbon Tetrachloride	1.4	Not Detected	8.9	Not Detected
2,2,4-Trimethylpentane	1.4	15	6.6	70
Benzene	1.4	3.8	4.5	12
1,2-Dichloroethane	1.4	Not Detected	5.7	Not Detected
Heptane	1.4	0.64 J	5.8	2.6 J
Trichloroethene	1.4	Not Detected	7.6	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.5	Not Detected
1,4-Dioxane	5.7	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.5	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.8	Not Detected
Toluene	1.4	Not Detected	5.3	Not Detected
trans-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Tetrachloroethene	1.4	Not Detected	9.6	Not Detected
2-Hexanone	5.7	Not Detected	23	Not Detected

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Client Sample ID: VMP-15-5-072915

Lab ID#: 1507533A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080610**	**Date of Collection:**	**7/29/15 9:13:00 AM**
Dil. Factor:	**2.83**	**Date of Analysis:**	**8/6/15 04:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.5	Not Detected
Ethyl Benzene	1.4	Not Detected	6.1	Not Detected
m,p-Xylene	1.4	Not Detected	6.1	Not Detected
o-Xylene	1.4	Not Detected	6.1	Not Detected
Styrene	1.4	Not Detected	6.0	Not Detected
Bromoform	1.4	Not Detected	15	Not Detected
Cumene	1.4	Not Detected	7.0	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.7	Not Detected
Propylbenzene	1.4	Not Detected	7.0	Not Detected
4-Ethyltoluene	1.4	Not Detected	7.0	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	7.0	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	7.0	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.3	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
1,2,4-Trichlorobenzene	5.7	Not Detected	42	Not Detected
Hexachlorobutadiene	5.7	Not Detected	60	Not Detected
Butane	5.7	Not Detected	13	Not Detected
Isopentane	5.7	1.9 J	17	5.5 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: VMP-15-21.5-072915

Lab ID#: 1507533A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080611**	**Date of Collection:**	**7/29/15 9:33:00 AM**
Dil. Factor:	**31.7**	**Date of Analysis:**	**8/6/15 05:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	16	Not Detected	78	Not Detected
Freon 114	16	Not Detected	110	Not Detected
Chloromethane	160	Not Detected	330	Not Detected
Vinyl Chloride	16	Not Detected	40	Not Detected
1,3-Butadiene	16	Not Detected	35	Not Detected
Bromomethane	160	Not Detected	620	Not Detected
Chloroethane	63	Not Detected	170	Not Detected
Freon 11	16	Not Detected	89	Not Detected
Ethanol	63	Not Detected	120	Not Detected
Freon 113	16	Not Detected	120	Not Detected
1,1-Dichloroethene	16	Not Detected	63	Not Detected
Acetone	160	16 J	380	39 J
2-Propanol	63	Not Detected	160	Not Detected
Carbon Disulfide	63	6.2 J	200	19 J
3-Chloropropene	63	Not Detected	200	Not Detected
Methylene Chloride	160	Not Detected	550	Not Detected
Methyl tert-butyl ether	16	Not Detected	57	Not Detected
trans-1,2-Dichloroethene	16	Not Detected	63	Not Detected
Hexane	16	Not Detected	56	Not Detected
1,1-Dichloroethane	16	Not Detected	64	Not Detected
2-Butanone (Methyl Ethyl Ketone)	63	Not Detected	190	Not Detected
cis-1,2-Dichloroethene	16	Not Detected	63	Not Detected
Tetrahydrofuran	16	Not Detected	47	Not Detected
Chloroform	16	Not Detected	77	Not Detected
1,1,1-Trichloroethane	16	Not Detected	86	Not Detected
Cyclohexane	16	Not Detected	54	Not Detected
Carbon Tetrachloride	16	Not Detected	100	Not Detected
2,2,4-Trimethylpentane	16	3200	74	15000
Benzene	16	4.6 J	51	15 J
1,2-Dichloroethane	16	Not Detected	64	Not Detected
Heptane	16	Not Detected	65	Not Detected
Trichloroethene	16	Not Detected	85	Not Detected
1,2-Dichloropropane	16	Not Detected	73	Not Detected
1,4-Dioxane	63	Not Detected	230	Not Detected
Bromodichloromethane	16	Not Detected	110	Not Detected
cis-1,3-Dichloropropene	16	Not Detected	72	Not Detected
4-Methyl-2-pentanone	16	Not Detected	65	Not Detected
Toluene	16	Not Detected	60	Not Detected
trans-1,3-Dichloropropene	16	Not Detected	72	Not Detected
1,1,2-Trichloroethane	16	Not Detected	86	Not Detected
Tetrachloroethene	16	Not Detected	110	Not Detected
2-Hexanone	63	Not Detected	260	Not Detected

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Client Sample ID: VMP-15-21.5-072915

Lab ID#: 1507533A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080611**	**Date of Collection:**	**7/29/15 9:33:00 AM**
Dil. Factor:	**31.7**	**Date of Analysis:**	**8/6/15 05:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	16	Not Detected	140	Not Detected
1,2-Dibromoethane (EDB)	16	Not Detected	120	Not Detected
Chlorobenzene	16	Not Detected	73	Not Detected
Ethyl Benzene	16	Not Detected	69	Not Detected
m,p-Xylene	16	Not Detected	69	Not Detected
o-Xylene	16	Not Detected	69	Not Detected
Styrene	16	Not Detected	68	Not Detected
Bromoform	16	Not Detected	160	Not Detected
Cumene	16	Not Detected	78	Not Detected
1,1,2,2-Tetrachloroethane	16	Not Detected	110	Not Detected
Propylbenzene	16	Not Detected	78	Not Detected
4-Ethyltoluene	16	Not Detected	78	Not Detected
1,3,5-Trimethylbenzene	16	Not Detected	78	Not Detected
1,2,4-Trimethylbenzene	16	Not Detected	78	Not Detected
1,3-Dichlorobenzene	16	Not Detected	95	Not Detected
1,4-Dichlorobenzene	16	Not Detected	95	Not Detected
alpha-Chlorotoluene	16	Not Detected	82	Not Detected
1,2-Dichlorobenzene	16	Not Detected	95	Not Detected
1,2,4-Trichlorobenzene	63	Not Detected	470	Not Detected
Hexachlorobutadiene	63	Not Detected	680	Not Detected
Butane	63	460	150	1100
Isopentane	63	590	190	1700

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: VMP-15-25.5-072915

Lab ID#: 1507533A-06A

EPA METHOD TO-15 GC/MS

File Name:	**14080732**	**Date of Collection:**	**7/29/15 9:55:00 AM**
Dil. Factor:	**3.52**	**Date of Analysis:**	**8/7/15 09:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	18	Not Detected	87	Not Detected
Freon 114	18	Not Detected	120	Not Detected
Chloromethane	70	Not Detected	140	Not Detected
Vinyl Chloride	18	Not Detected	45	Not Detected
1,3-Butadiene	18	Not Detected	39	Not Detected
Bromomethane	18	Not Detected	68	Not Detected
Chloroethane	70	Not Detected	180	Not Detected
Freon 11	18	Not Detected	99	Not Detected
Ethanol	70	Not Detected	130	Not Detected
Freon 113	18	Not Detected	130	Not Detected
1,1-Dichloroethene	18	Not Detected	70	Not Detected
Acetone	70	Not Detected	170	Not Detected
2-Propanol	70	Not Detected	170	Not Detected
Carbon Disulfide	18	Not Detected	55	Not Detected
3-Chloropropene	70	Not Detected	220	Not Detected
Methylene Chloride	18	Not Detected	61	Not Detected
Methyl tert-butyl ether	18	Not Detected	63	Not Detected
trans-1,2-Dichloroethene	18	Not Detected	70	Not Detected
Hexane	18	88	62	310
1,1-Dichloroethane	18	Not Detected	71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	70	Not Detected	210	Not Detected
cis-1,2-Dichloroethene	18	Not Detected	70	Not Detected
Tetrahydrofuran	18	Not Detected	52	Not Detected
Chloroform	18	Not Detected	86	Not Detected
1,1,1-Trichloroethane	18	Not Detected	96	Not Detected
Cyclohexane	18	700	60	2400
Carbon Tetrachloride	18	Not Detected	110	Not Detected
2,2,4-Trimethylpentane	18	5300	82	25000
Benzene	18	61	56	190
1,2-Dichloroethane	18	Not Detected	71	Not Detected
Heptane	18	Not Detected	72	Not Detected
Trichloroethene	18	Not Detected	94	Not Detected
1,2-Dichloropropane	18	Not Detected	81	Not Detected
1,4-Dioxane	70	Not Detected	250	Not Detected
Bromodichloromethane	18	Not Detected	120	Not Detected
cis-1,3-Dichloropropene	18	Not Detected	80	Not Detected
4-Methyl-2-pentanone	18	Not Detected	72	Not Detected
Toluene	18	Not Detected	66	Not Detected
trans-1,3-Dichloropropene	18	Not Detected	80	Not Detected
1,1,2-Trichloroethane	18	Not Detected	96	Not Detected
Tetrachloroethene	18	Not Detected	120	Not Detected
2-Hexanone	70	Not Detected	290	Not Detected

eurofins | Air Toxics

Client Sample ID: VMP-15-25.5-072915

Lab ID#: 1507533A-06A

EPA METHOD TO-15 GC/MS

File Name:	**14080732**	**Date of Collection:**	**7/29/15 9:55:00 AM**
Dil. Factor:	**3.52**	**Date of Analysis:**	**8/7/15 09:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	18	Not Detected	150	Not Detected
1,2-Dibromoethane (EDB)	18	Not Detected	140	Not Detected
Chlorobenzene	18	Not Detected	81	Not Detected
Ethyl Benzene	18	Not Detected	76	Not Detected
m,p-Xylene	18	6.8 J	76	30 J
o-Xylene	18	2.4 J	76	11 J
Styrene	18	Not Detected	75	Not Detected
Bromoform	18	Not Detected	180	Not Detected
Cumene	18	Not Detected	86	Not Detected
1,1,2,2-Tetrachloroethane	18	Not Detected	120	Not Detected
Propylbenzene	18	Not Detected	86	Not Detected
4-Ethyltoluene	18	Not Detected	86	Not Detected
1,3,5-Trimethylbenzene	18	Not Detected	86	Not Detected
1,2,4-Trimethylbenzene	18	2.7 J	86	13 J
1,3-Dichlorobenzene	18	Not Detected	100	Not Detected
1,4-Dichlorobenzene	18	Not Detected	100	Not Detected
alpha-Chlorotoluene	18	Not Detected	91	Not Detected
1,2-Dichlorobenzene	18	Not Detected	100	Not Detected
1,2,4-Trichlorobenzene	70	Not Detected	520	Not Detected
Hexachlorobutadiene	70	Not Detected	750	Not Detected
Butane	70	2600	170	6300
Isopentane	70	12000	210	36000

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: VMP-15-29-072915

Lab ID#: 1507533A-07A

EPA METHOD TO-15 GC/MS

File Name:	**14080733**	**Date of Collection:**	**7/29/15 10:15:00 AM**
Dil. Factor:	**3.94**	**Date of Analysis:**	**8/8/15 06:13 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	20	Not Detected	97	Not Detected
Freon 114	20	Not Detected	140	Not Detected
Chloromethane	79	Not Detected	160	Not Detected
Vinyl Chloride	20	Not Detected	50	Not Detected
1,3-Butadiene	20	Not Detected	44	Not Detected
Bromomethane	20	Not Detected	76	Not Detected
Chloroethane	79	Not Detected	210	Not Detected
Freon 11	20	Not Detected	110	Not Detected
Ethanol	79	Not Detected	150	Not Detected
Freon 113	20	Not Detected	150	Not Detected
1,1-Dichloroethene	20	Not Detected	78	Not Detected
Acetone	79	Not Detected	190	Not Detected
2-Propanol	79	Not Detected	190	Not Detected
Carbon Disulfide	20	Not Detected	61	Not Detected
3-Chloropropene	79	Not Detected	250	Not Detected
Methylene Chloride	20	Not Detected	68	Not Detected
Methyl tert-butyl ether	20	Not Detected	71	Not Detected
trans-1,2-Dichloroethene	20	Not Detected	78	Not Detected
Hexane	20	79	69	280
1,1-Dichloroethane	20	Not Detected	80	Not Detected
2-Butanone (Methyl Ethyl Ketone)	79	Not Detected	230	Not Detected
cis-1,2-Dichloroethene	20	Not Detected	78	Not Detected
Tetrahydrofuran	20	Not Detected	58	Not Detected
Chloroform	20	Not Detected	96	Not Detected
1,1,1-Trichloroethane	20	Not Detected	110	Not Detected
Cyclohexane	20	720	68	2500
Carbon Tetrachloride	20	Not Detected	120	Not Detected
2,2,4-Trimethylpentane	20	5400	92	25000
Benzene	20	67	63	210
1,2-Dichloroethane	20	Not Detected	80	Not Detected
Heptane	20	Not Detected	81	Not Detected
Trichloroethene	20	Not Detected	100	Not Detected
1,2-Dichloropropane	20	Not Detected	91	Not Detected
1,4-Dioxane	79	Not Detected	280	Not Detected
Bromodichloromethane	20	Not Detected	130	Not Detected
cis-1,3-Dichloropropene	20	Not Detected	89	Not Detected
4-Methyl-2-pentanone	20	Not Detected	81	Not Detected
Toluene	20	5.1 J	74	19 J
trans-1,3-Dichloropropene	20	Not Detected	89	Not Detected
1,1,2-Trichloroethane	20	Not Detected	110	Not Detected
Tetrachloroethene	20	Not Detected	130	Not Detected
2-Hexanone	79	Not Detected	320	Not Detected

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Client Sample ID: VMP-15-29-072915

Lab ID#: 1507533A-07A

EPA METHOD TO-15 GC/MS

File Name:	**14080733**	**Date of Collection:**	**7/29/15 10:15:00 AM**
Dil. Factor:	**3.94**	**Date of Analysis:**	**8/8/15 06:13 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	20	Not Detected	170	Not Detected
1,2-Dibromoethane (EDB)	20	Not Detected	150	Not Detected
Chlorobenzene	20	Not Detected	91	Not Detected
Ethyl Benzene	20	Not Detected	86	Not Detected
m,p-Xylene	20	3.7 J	86	16 J
o-Xylene	20	Not Detected	86	Not Detected
Styrene	20	Not Detected	84	Not Detected
Bromoform	20	Not Detected	200	Not Detected
Cumene	20	Not Detected	97	Not Detected
1,1,2,2-Tetrachloroethane	20	Not Detected	140	Not Detected
Propylbenzene	20	Not Detected	97	Not Detected
4-Ethyltoluene	20	Not Detected	97	Not Detected
1,3,5-Trimethylbenzene	20	Not Detected	97	Not Detected
1,2,4-Trimethylbenzene	20	Not Detected	97	Not Detected
1,3-Dichlorobenzene	20	Not Detected	120	Not Detected
1,4-Dichlorobenzene	20	Not Detected	120	Not Detected
alpha-Chlorotoluene	20	Not Detected	100	Not Detected
1,2-Dichlorobenzene	20	Not Detected	120	Not Detected
1,2,4-Trichlorobenzene	79	Not Detected	580	Not Detected
Hexachlorobutadiene	79	Not Detected	840	Not Detected
Butane	79	3100	190	7300
Isopentane	79	13000	230	39000

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533A-08A

EPA METHOD TO-15 GC/MS

File Name:	**14080734**	**Date of Collection:**	**7/29/15 10:15:00 AM**
Dil. Factor:	**3.29**	**Date of Analysis:**	**8/8/15 06:48 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	16	Not Detected	81	Not Detected
Freon 114	16	Not Detected	120	Not Detected
Chloromethane	66	Not Detected	140	Not Detected
Vinyl Chloride	16	Not Detected	42	Not Detected
1,3-Butadiene	16	Not Detected	36	Not Detected
Bromomethane	16	Not Detected	64	Not Detected
Chloroethane	66	Not Detected	170	Not Detected
Freon 11	16	Not Detected	92	Not Detected
Ethanol	66	Not Detected	120	Not Detected
Freon 113	16	Not Detected	130	Not Detected
1,1-Dichloroethene	16	Not Detected	65	Not Detected
Acetone	66	25 J	160	60 J
2-Propanol	66	Not Detected	160	Not Detected
Carbon Disulfide	16	Not Detected	51	Not Detected
3-Chloropropene	66	Not Detected	200	Not Detected
Methylene Chloride	16	Not Detected	57	Not Detected
Methyl tert-butyl ether	16	Not Detected	59	Not Detected
trans-1,2-Dichloroethene	16	Not Detected	65	Not Detected
Hexane	16	68	58	240
1,1-Dichloroethane	16	Not Detected	66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	66	Not Detected	190	Not Detected
cis-1,2-Dichloroethene	16	Not Detected	65	Not Detected
Tetrahydrofuran	16	Not Detected	48	Not Detected
Chloroform	16	Not Detected	80	Not Detected
1,1,1-Trichloroethane	16	Not Detected	90	Not Detected
Cyclohexane	16	730	57	2500
Carbon Tetrachloride	16	Not Detected	100	Not Detected
2,2,4-Trimethylpentane	16	5600	77	26000
Benzene	16	63	52	200
1,2-Dichloroethane	16	Not Detected	66	Not Detected
Heptane	16	16 J	67	65 J
Trichloroethene	16	Not Detected	88	Not Detected
1,2-Dichloropropane	16	Not Detected	76	Not Detected
1,4-Dioxane	66	Not Detected	240	Not Detected
Bromodichloromethane	16	Not Detected	110	Not Detected
cis-1,3-Dichloropropene	16	Not Detected	75	Not Detected
4-Methyl-2-pentanone	16	Not Detected	67	Not Detected
Toluene	16	Not Detected	62	Not Detected
trans-1,3-Dichloropropene	16	Not Detected	75	Not Detected
1,1,2-Trichloroethane	16	Not Detected	90	Not Detected
Tetrachloroethene	16	Not Detected	110	Not Detected
2-Hexanone	66	Not Detected	270	Not Detected

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Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533A-08A

EPA METHOD TO-15 GC/MS

File Name:	**14080734**	**Date of Collection:**	**7/29/15 10:15:00 AM**
Dil. Factor:	**3.29**	**Date of Analysis:**	**8/8/15 06:48 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	16	Not Detected	140	Not Detected
1,2-Dibromoethane (EDB)	16	Not Detected	130	Not Detected
Chlorobenzene	16	Not Detected	76	Not Detected
Ethyl Benzene	16	4.8 J	71	21 J
m,p-Xylene	16	3.9 J	71	17 J
o-Xylene	16	Not Detected	71	Not Detected
Styrene	16	Not Detected	70	Not Detected
Bromoform	16	Not Detected	170	Not Detected
Cumene	16	Not Detected	81	Not Detected
1,1,2,2-Tetrachloroethane	16	Not Detected	110	Not Detected
Propylbenzene	16	Not Detected	81	Not Detected
4-Ethyltoluene	16	Not Detected	81	Not Detected
1,3,5-Trimethylbenzene	16	Not Detected	81	Not Detected
1,2,4-Trimethylbenzene	16	Not Detected	81	Not Detected
1,3-Dichlorobenzene	16	Not Detected	99	Not Detected
1,4-Dichlorobenzene	16	Not Detected	99	Not Detected
alpha-Chlorotoluene	16	Not Detected	85	Not Detected
1,2-Dichlorobenzene	16	Not Detected	99	Not Detected
1,2,4-Trichlorobenzene	66	Not Detected	490	Not Detected
Hexachlorobutadiene	66	Not Detected	700	Not Detected
Butane	66	3000	160	7100
Isopentane	66	13000	190	39000

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: VMP-55-20-072915

Lab ID#: 1507533A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080613**	**Date of Collection:**	**7/29/15 9:08:00 AM**
Dil. Factor:	**27.3**	**Date of Analysis:**	**8/6/15 07:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	14	Not Detected	68	Not Detected
Freon 114	14	Not Detected	95	Not Detected
Chloromethane	140	Not Detected	280	Not Detected
Vinyl Chloride	14	Not Detected	35	Not Detected
1,3-Butadiene	14	Not Detected	30	Not Detected
Bromomethane	140	Not Detected	530	Not Detected
Chloroethane	55	Not Detected	140	Not Detected
Freon 11	14	Not Detected	77	Not Detected
Ethanol	55	Not Detected	100	Not Detected
Freon 113	14	Not Detected	100	Not Detected
1,1-Dichloroethene	14	Not Detected	54	Not Detected
Acetone	140	18 J	320	43 J
2-Propanol	55	Not Detected	130	Not Detected
Carbon Disulfide	55	6.2 J	170	19 J
3-Chloropropene	55	Not Detected	170	Not Detected
Methylene Chloride	140	Not Detected	470	Not Detected
Methyl tert-butyl ether	14	30	49	110
trans-1,2-Dichloroethene	14	Not Detected	54	Not Detected
Hexane	14	14	48	51
1,1-Dichloroethane	14	Not Detected	55	Not Detected
2-Butanone (Methyl Ethyl Ketone)	55	Not Detected	160	Not Detected
cis-1,2-Dichloroethene	14	Not Detected	54	Not Detected
Tetrahydrofuran	14	Not Detected	40	Not Detected
Chloroform	14	Not Detected	67	Not Detected
1,1,1-Trichloroethane	14	Not Detected	74	Not Detected
Cyclohexane	14	Not Detected	47	Not Detected
Carbon Tetrachloride	14	Not Detected	86	Not Detected
2,2,4-Trimethylpentane	14	3600	64	17000
Benzene	14	5.1 J	44	16 J
1,2-Dichloroethane	14	Not Detected	55	Not Detected
Heptane	14	Not Detected	56	Not Detected
Trichloroethene	14	Not Detected	73	Not Detected
1,2-Dichloropropane	14	Not Detected	63	Not Detected
1,4-Dioxane	55	Not Detected	200	Not Detected
Bromodichloromethane	14	Not Detected	91	Not Detected
cis-1,3-Dichloropropene	14	Not Detected	62	Not Detected
4-Methyl-2-pentanone	14	Not Detected	56	Not Detected
Toluene	14	Not Detected	51	Not Detected
trans-1,3-Dichloropropene	14	Not Detected	62	Not Detected
1,1,2-Trichloroethane	14	Not Detected	74	Not Detected
Tetrachloroethene	14	Not Detected	92	Not Detected
2-Hexanone	55	Not Detected	220	Not Detected

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Client Sample ID: VMP-55-20-072915

Lab ID#: 1507533A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080613**	**Date of Collection:**	**7/29/15 9:08:00 AM**
Dil. Factor:	**27.3**	**Date of Analysis:**	**8/6/15 07:41 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	100	Not Detected
Chlorobenzene	14	Not Detected	63	Not Detected
Ethyl Benzene	14	Not Detected	59	Not Detected
m,p-Xylene	14	Not Detected	59	Not Detected
o-Xylene	14	Not Detected	59	Not Detected
Styrene	14	Not Detected	58	Not Detected
Bromoform	14	Not Detected	140	Not Detected
Cumene	14	Not Detected	67	Not Detected
1,1,2,2-Tetrachloroethane	14	Not Detected	94	Not Detected
Propylbenzene	14	Not Detected	67	Not Detected
4-Ethyltoluene	14	Not Detected	67	Not Detected
1,3,5-Trimethylbenzene	14	Not Detected	67	Not Detected
1,2,4-Trimethylbenzene	14	Not Detected	67	Not Detected
1,3-Dichlorobenzene	14	Not Detected	82	Not Detected
1,4-Dichlorobenzene	14	Not Detected	82	Not Detected
alpha-Chlorotoluene	14	Not Detected	71	Not Detected
1,2-Dichlorobenzene	14	Not Detected	82	Not Detected
1,2,4-Trichlorobenzene	55	Not Detected	400	Not Detected
Hexachlorobutadiene	55	Not Detected	580	Not Detected
Butane	55	180	130	420
Isopentane	55	1500	160	4400

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: VMP-55-20-072915-DUP

Lab ID#: 1507533A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080614**	**Date of Collection:**	**7/29/15 9:08:00 AM**
Dil. Factor:	**29.0**	**Date of Analysis:**	**8/6/15 08:04 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	14	Not Detected	72	Not Detected
Freon 114	14	Not Detected	100	Not Detected
Chloromethane	140	Not Detected	300	Not Detected
Vinyl Chloride	14	Not Detected	37	Not Detected
1,3-Butadiene	14	Not Detected	32	Not Detected
Bromomethane	140	Not Detected	560	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	140	16 J	340	37 J
2-Propanol	58	Not Detected	140	Not Detected
Carbon Disulfide	58	5.8 J	180	18 J
3-Chloropropene	58	Not Detected	180	Not Detected
Methylene Chloride	140	Not Detected	500	Not Detected
Methyl tert-butyl ether	14	31	52	110
trans-1,2-Dichloroethene	14	Not Detected	57	Not Detected
Hexane	14	15	51	52
1,1-Dichloroethane	14	Not Detected	59	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	71	Not Detected
1,1,1-Trichloroethane	14	Not Detected	79	Not Detected
Cyclohexane	14	Not Detected	50	Not Detected
Carbon Tetrachloride	14	Not Detected	91	Not Detected
2,2,4-Trimethylpentane	14	3600	68	17000
Benzene	14	5.8 J	46	18 J
1,2-Dichloroethane	14	Not Detected	59	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	55	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

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Client Sample ID: VMP-55-20-072915-DUP

Lab ID#: 1507533A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080614**	**Date of Collection:**	**7/29/15 9:08:00 AM**
Dil. Factor:	**29.0**	**Date of Analysis:**	**8/6/15 08:04 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	67	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	100	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	170	140	400
Isopentane	58	1500	170	4400

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1507533A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080606a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 01:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	1.3 J	3.8	2.4 J
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	0.73 J	12	1.7 J
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	0.22 J	6.2	0.68 J
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	0.069 J	2.4	0.34 J
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1507533A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080606a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 01:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	0.085 J	2.4	0.42 J
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	0.11 J	2.4	0.54 J
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	0.062 J	3.0	0.37 J
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1507533A-11B

EPA METHOD TO-15 GC/MS

File Name:	**14080707a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 10:47 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	Not Detected	38	Not Detected
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#: 1507533A-11B

EPA METHOD TO-15 GC/MS

File Name:	**14080707a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 10:47 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	1.5 J	24	7.4 J
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	106	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CCV

Lab ID#: 1507533A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080603**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 10:30 AM**	

Compound	%Recovery
Freon 12	96
Freon 114	94
Chloromethane	97
Vinyl Chloride	94
1,3-Butadiene	90
Bromomethane	91
Chloroethane	94
Freon 11	94
Ethanol	87
Freon 113	87
1,1-Dichloroethene	86
Acetone	110
2-Propanol	84
Carbon Disulfide	90
3-Chloropropene	91
Methylene Chloride	97
Methyl tert-butyl ether	89
trans-1,2-Dichloroethene	95
Hexane	93
1,1-Dichloroethane	97
2-Butanone (Methyl Ethyl Ketone)	98
cis-1,2-Dichloroethene	93
Tetrahydrofuran	94
Chloroform	96
1,1,1-Trichloroethane	96
Cyclohexane	97
Carbon Tetrachloride	96
2,2,4-Trimethylpentane	103
Benzene	95
1,2-Dichloroethane	97
Heptane	98
Trichloroethene	96
1,2-Dichloropropane	100
1,4-Dioxane	93
Bromodichloromethane	101
cis-1,3-Dichloropropene	101
4-Methyl-2-pentanone	88
Toluene	99
trans-1,3-Dichloropropene	96
1,1,2-Trichloroethane	96
Tetrachloroethene	92
2-Hexanone	75

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Client Sample ID: CCV

Lab ID#: 1507533A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080603**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 10:30 AM**	

Compound	%Recovery
Dibromochloromethane	96
1,2-Dibromoethane (EDB)	97
Chlorobenzene	92
Ethyl Benzene	92
m,p-Xylene	100
o-Xylene	95
Styrene	89
Bromoform	95
Cumene	97
1,1,2,2-Tetrachloroethane	100
Propylbenzene	98
4-Ethyltoluene	95
1,3,5-Trimethylbenzene	94
1,2,4-Trimethylbenzene	93
1,3-Dichlorobenzene	97
1,4-Dichlorobenzene	99
alpha-Chlorotoluene	94
1,2-Dichlorobenzene	97
1,2,4-Trichlorobenzene	100
Hexachlorobutadiene	102
Butane	98
Isopentane	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: CCV

Lab ID#: 1507533A-12B

EPA METHOD TO-15 GC/MS

File Name:	**14080702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 08:47 AM**	

Compound	%Recovery
Freon 12	111
Freon 114	108
Chloromethane	104
Vinyl Chloride	95
1,3-Butadiene	92
Bromomethane	83
Chloroethane	98
Freon 11	113
Ethanol	117
Freon 113	107
1,1-Dichloroethene	106
Acetone	98
2-Propanol	105
Carbon Disulfide	103
3-Chloropropene	104
Methylene Chloride	102
Methyl tert-butyl ether	106
trans-1,2-Dichloroethene	107
Hexane	104
1,1-Dichloroethane	109
2-Butanone (Methyl Ethyl Ketone)	108
cis-1,2-Dichloroethene	108
Tetrahydrofuran	107
Chloroform	111
1,1,1-Trichloroethane	116
Cyclohexane	107
Carbon Tetrachloride	123
2,2,4-Trimethylpentane	106
Benzene	106
1,2-Dichloroethane	120
Heptane	112
Trichloroethene	97
1,2-Dichloropropane	107
1,4-Dioxane	110
Bromodichloromethane	115
cis-1,3-Dichloropropene	116
4-Methyl-2-pentanone	115
Toluene	107
trans-1,3-Dichloropropene	113
1,1,2-Trichloroethane	113
Tetrachloroethene	109
2-Hexanone	109

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Client Sample ID: CCV

Lab ID#: 1507533A-12B

EPA METHOD TO-15 GC/MS

File Name:	**14080702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 08:47 AM**	

Compound	%Recovery
Dibromochloromethane	117
1,2-Dibromoethane (EDB)	111
Chlorobenzene	111
Ethyl Benzene	116
m,p-Xylene	118
o-Xylene	114
Styrene	126
Bromoform	126
Cumene	118
1,1,2,2-Tetrachloroethane	140 Q
Propylbenzene	116
4-Ethyltoluene	119
1,3,5-Trimethylbenzene	123
1,2,4-Trimethylbenzene	121
1,3-Dichlorobenzene	112
1,4-Dichlorobenzene	114
alpha-Chlorotoluene	143 Q
1,2-Dichlorobenzene	119
1,2,4-Trichlorobenzene	116
Hexachlorobutadiene	117
Butane	94
Isopentane	103

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: LCS

Lab ID#: 1507533A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 11:09 AM**	

Compound	%Recovery	Method Limits
Freon 12	104	70-130
Freon 114	102	70-130
Chloromethane	104	70-130
Vinyl Chloride	98	70-130
1,3-Butadiene	94	70-130
Bromomethane	94	70-130
Chloroethane	101	70-130
Freon 11	102	70-130
Ethanol	97	70-130
Freon 113	91	70-130
1,1-Dichloroethene	89	70-130
Acetone	92	70-130
2-Propanol	105	70-130
Carbon Disulfide	83	70-130
3-Chloropropene	90	70-130
Methylene Chloride	102	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	85	70-130
Hexane	98	70-130
1,1-Dichloroethane	103	70-130
2-Butanone (Methyl Ethyl Ketone)	102	70-130
cis-1,2-Dichloroethene	105	70-130
Tetrahydrofuran	100	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	102	70-130
Carbon Tetrachloride	102	70-130
2,2,4-Trimethylpentane	107	70-130
Benzene	98	70-130
1,2-Dichloroethane	102	70-130
Heptane	103	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	104	70-130
1,4-Dioxane	100	70-130
Bromodichloromethane	106	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	108	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	100	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	96	70-130
2-Hexanone	110	70-130

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Client Sample ID: LCS

Lab ID#: 1507533A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 11:09 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	101	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	96	70-130
Ethyl Benzene	98	70-130
m,p-Xylene	104	70-130
o-Xylene	101	70-130
Styrene	103	70-130
Bromoform	100	70-130
Cumene	102	70-130
1,1,2,2-Tetrachloroethane	106	70-130
Propylbenzene	104	70-130
4-Ethyltoluene	108	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	105	70-130
1,3-Dichlorobenzene	101	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	109	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	110	70-130
Hexachlorobutadiene	107	70-130
Butane	100	70-130
Isopentane	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCSD

Lab ID#: 1507533A-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080605**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 11:48 AM**	

Compound	%Recovery	Method Limits
Freon 12	103	70-130
Freon 114	102	70-130
Chloromethane	103	70-130
Vinyl Chloride	102	70-130
1,3-Butadiene	95	70-130
Bromomethane	96	70-130
Chloroethane	103	70-130
Freon 11	100	70-130
Ethanol	99	70-130
Freon 113	90	70-130
1,1-Dichloroethene	93	70-130
Acetone	94	70-130
2-Propanol	103	70-130
Carbon Disulfide	83	70-130
3-Chloropropene	90	70-130
Methylene Chloride	103	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	85	70-130
Hexane	98	70-130
1,1-Dichloroethane	101	70-130
2-Butanone (Methyl Ethyl Ketone)	100	70-130
cis-1,2-Dichloroethene	106	70-130
Tetrahydrofuran	100	70-130
Chloroform	101	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	102	70-130
Carbon Tetrachloride	102	70-130
2,2,4-Trimethylpentane	108	70-130
Benzene	98	70-130
1,2-Dichloroethane	101	70-130
Heptane	103	70-130
Trichloroethene	101	70-130
1,2-Dichloropropane	104	70-130
1,4-Dioxane	101	70-130
Bromodichloromethane	105	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	110	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	99	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	95	70-130
2-Hexanone	111	70-130

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Client Sample ID: LCSD

Lab ID#: 1507533A-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a080605**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/6/15 11:48 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	102	70-130
1,2-Dibromoethane (EDB)	99	70-130
Chlorobenzene	96	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	103	70-130
o-Xylene	100	70-130
Styrene	102	70-130
Bromoform	100	70-130
Cumene	103	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	105	70-130
4-Ethyltoluene	107	70-130
1,3,5-Trimethylbenzene	102	70-130
1,2,4-Trimethylbenzene	106	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	103	70-130
alpha-Chlorotoluene	109	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	112	70-130
Hexachlorobutadiene	108	70-130
Butane	101	70-130
Isopentane	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCS

Lab ID#: 1507533A-13B

EPA METHOD TO-15 GC/MS

File Name:	**14080703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 09:12 AM**	

Compound	%Recovery	Method Limits
Freon 12	109	70-130
Freon 114	110	70-130
Chloromethane	95	70-130
Vinyl Chloride	95	70-130
1,3-Butadiene	87	70-130
Bromomethane	98	70-130
Chloroethane	98	70-130
Freon 11	109	70-130
Ethanol	97	70-130
Freon 113	107	70-130
1,1-Dichloroethene	99	70-130
Acetone	92	70-130
2-Propanol	98	70-130
Carbon Disulfide	85	70-130
3-Chloropropene	87	70-130
Methylene Chloride	97	70-130
Methyl tert-butyl ether	84	70-130
trans-1,2-Dichloroethene	86	70-130
Hexane	96	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	88	70-130
cis-1,2-Dichloroethene	107	70-130
Tetrahydrofuran	94	70-130
Chloroform	106	70-130
1,1,1-Trichloroethane	105	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	107	70-130
2,2,4-Trimethylpentane	97	70-130
Benzene	98	70-130
1,2-Dichloroethane	111	70-130
Heptane	95	70-130
Trichloroethene	95	70-130
1,2-Dichloropropane	97	70-130
1,4-Dioxane	104	70-130
Bromodichloromethane	107	70-130
cis-1,3-Dichloropropene	96	70-130
4-Methyl-2-pentanone	99	70-130
Toluene	100	70-130
trans-1,3-Dichloropropene	97	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	102	70-130
2-Hexanone	93	70-130

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Client Sample ID: LCS

Lab ID#: 1507533A-13B

EPA METHOD TO-15 GC/MS

File Name:	**14080703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 09:12 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	104	70-130
1,2-Dibromoethane (EDB)	104	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	105	70-130
o-Xylene	105	70-130
Styrene	109	70-130
Bromoform	111	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	116	70-130
Propylbenzene	107	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	114	70-130
1,2,4-Trimethylbenzene	110	70-130
1,3-Dichlorobenzene	107	70-130
1,4-Dichlorobenzene	106	70-130
alpha-Chlorotoluene	117	70-130
1,2-Dichlorobenzene	108	70-130
1,2,4-Trichlorobenzene	109	70-130
Hexachlorobutadiene	118	70-130
Butane	94	60-140
Isopentane	100	60-140

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD

Lab ID#: 1507533A-13BB

EPA METHOD TO-15 GC/MS

File Name:	**14080704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 09:32 AM**	

Compound	%Recovery	Method Limits
Freon 12	108	70-130
Freon 114	111	70-130
Chloromethane	99	70-130
Vinyl Chloride	101	70-130
1,3-Butadiene	88	70-130
Bromomethane	95	70-130
Chloroethane	99	70-130
Freon 11	110	70-130
Ethanol	90	70-130
Freon 113	104	70-130
1,1-Dichloroethene	101	70-130
Acetone	89	70-130
2-Propanol	100	70-130
Carbon Disulfide	87	70-130
3-Chloropropene	94	70-130
Methylene Chloride	98	70-130
Methyl tert-butyl ether	90	70-130
trans-1,2-Dichloroethene	90	70-130
Hexane	98	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	92	70-130
cis-1,2-Dichloroethene	106	70-130
Tetrahydrofuran	97	70-130
Chloroform	110	70-130
1,1,1-Trichloroethane	107	70-130
Cyclohexane	103	70-130
Carbon Tetrachloride	109	70-130
2,2,4-Trimethylpentane	98	70-130
Benzene	98	70-130
1,2-Dichloroethane	109	70-130
Heptane	97	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	102	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	106	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	99	70-130
1,1,2-Trichloroethane	103	70-130
Tetrachloroethene	103	70-130
2-Hexanone	98	70-130

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Client Sample ID: LCSD
Lab ID#: 1507533A-13BB
EPA METHOD TO-15 GC/MS

File Name:	**14080704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/15 09:32 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	104	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	107	70-130
o-Xylene	107	70-130
Styrene	112	70-130
Bromoform	112	70-130
Cumene	108	70-130
1,1,2,2-Tetrachloroethane	119	70-130
Propylbenzene	111	70-130
4-Ethyltoluene	108	70-130
1,3,5-Trimethylbenzene	117	70-130
1,2,4-Trimethylbenzene	109	70-130
1,3-Dichlorobenzene	111	70-130
1,4-Dichlorobenzene	109	70-130
alpha-Chlorotoluene	122	70-130
1,2-Dichlorobenzene	114	70-130
1,2,4-Trichlorobenzene	124	70-130
Hexachlorobutadiene	118	70-130
Butane	104	60-140
Isopentane	93	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

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8/13/2015
Ms. Elizabeth Kunkel
URS Corporation
1001 Highlands Plaza Dr. West
Suite 300
St. Louis MO 63110

Project Name: Roxana Soil Vapor
Project #: 21563720.04203
Workorder #: 1507533B

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 7/31/2015 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 #: 1507533B

Work Order Summary

CLIENT:	Ms. Elizabeth Kunkel AECOM 1001 Highlands Plaza Dr. West Suite 300 St. Louis, MO 63110	**BILL TO:**	Accounts Payable Austin AECOM P.O. BOX 203970 Austin, TX 78720-1088
PHONE:	314-743-4179	**P.O. #**	87243.UB
FAX:		**PROJECT #**	21563720.04203 Roxana Soil Vapor
DATE RECEIVED:	07/31/2015	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	08/13/2015		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
04A	VMP-15-5-072915	Modified ASTM D-1946	8.4 "Hg	15.3 psi
05A	VMP-15-21.5-072915	Modified ASTM D-1946	10.8 "Hg	15.1 psi
06A	VMP-15-25.5-072915	Modified ASTM D-1946	8.4 "Hg	15.1 psi
07A	VMP-15-29-072915	Modified ASTM D-1946	10.6 "Hg	15.2 psi
08A	VMP-15-29-072915-DUP	Modified ASTM D-1946	6.7 "Hg	15.3 psi
09A	VMP-55-20-072915	Modified ASTM D-1946	7.8 "Hg	15 psi
10A	VMP-55-20-072915-DUP	Modified ASTM D-1946	9.2 "Hg	14.9 psi
11A	Lab Blank	Modified ASTM D-1946	NA	NA
11B	Lab Blank	Modified ASTM D-1946	NA	NA
12A	LCS	Modified ASTM D-1946	NA	NA
12AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 08/13/15

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.
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# 1507533B

Ten 1 Liter Summa Canister samples were received on July 31, 2015. 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 minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
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-15-5-072915

Lab ID#: 1507533B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.28	6.4
Nitrogen	0.28	82
Carbon Dioxide	0.028	12

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

Client Sample ID: VMP-15-21.5-072915

Lab ID#: 1507533B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.32	1.8
Nitrogen	0.32	83
Methane	0.00032	4.6
Carbon Dioxide	0.032	11
Ethane	0.0032	0.0016 J

Client Sample ID: VMP-15-25.5-072915

Lab ID#: 1507533B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.28	2.1
Nitrogen	0.28	80
Methane	0.00028	5.0
Carbon Dioxide	0.028	13
Ethane	0.0028	0.0021 J

Client Sample ID: VMP-15-29-072915

Lab ID#: 1507533B-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.32	1.9
Nitrogen	0.32	79
Methane	0.00032	5.4
Carbon Dioxide	0.032	14
Ethane	0.0032	0.0022 J

Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533B-08A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	1.9
Nitrogen	0.26	79

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

Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533B-08A

Methane	0.00026	5.3
Carbon Dioxide	0.026	14
Ethane	0.0026	0.0022 J

Client Sample ID: VMP-55-20-072915

Lab ID#: 1507533B-09A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	3.2
Nitrogen	0.27	82
Methane	0.00027	0.17
Carbon Dioxide	0.027	15
Ethane	0.0027	0.00027 J

Client Sample ID: VMP-55-20-072915-DUP

Lab ID#: 1507533B-10A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.29	2.3
Nitrogen	0.29	82
Methane	0.00029	0.17
Carbon Dioxide	0.029	15
Ethane	0.0029	0.00028 J

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Client Sample ID: VMP-15-5-072915

Lab ID#: 1507533B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080808**	**Date of Collection: 7/29/15 9:13:00 AM**	
Dil. Factor:	**2.83**	**Date of Analysis: 8/8/15 09:31 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.28	6.4
Nitrogen	0.28	82
Carbon Monoxide	0.028	Not Detected
Methane	0.00028	Not Detected
Carbon Dioxide	0.028	12
Ethane	0.0028	Not Detected
Ethene	0.0028	Not Detected
Helium	0.14	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-21.5-072915

Lab ID#: 1507533B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080809**	**Date of Collection: 7/29/15 9:33:00 AM**	
Dil. Factor:	**3.17**	**Date of Analysis: 8/8/15 09:53 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.32	1.8
Nitrogen	0.32	83
Carbon Monoxide	0.032	Not Detected
Methane	0.00032	4.6
Carbon Dioxide	0.032	11
Ethane	0.0032	0.0016 J
Ethene	0.0032	Not Detected
Helium	0.16	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-25.5-072915

Lab ID#: 1507533B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080812**	**Date of Collection: 7/29/15 9:55:00 AM**	
Dil. Factor:	**2.81**	**Date of Analysis: 8/8/15 11:08 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.28	2.1
Nitrogen	0.28	80
Carbon Monoxide	0.028	Not Detected
Methane	0.00028	5.0
Carbon Dioxide	0.028	13
Ethane	0.0028	0.0021 J
Ethene	0.0028	Not Detected
Helium	0.14	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-29-072915

Lab ID#: 1507533B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080813**	**Date of Collection:**	**7/29/15 10:15:00 AM**
Dil. Factor:	**3.15**	**Date of Analysis:**	**8/8/15 11:30 AM**

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.32	1.9
Nitrogen	0.32	79
Carbon Monoxide	0.032	Not Detected
Methane	0.00032	5.4
Carbon Dioxide	0.032	14
Ethane	0.0032	0.0022 J
Ethene	0.0032	Not Detected
Helium	0.16	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-29-072915-DUP

Lab ID#: 1507533B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080814**	**Date of Collection: 7/29/15 10:15:00 AM**	
Dil. Factor:	**2.63**	**Date of Analysis: 8/8/15 11:53 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	1.9
Nitrogen	0.26	79
Carbon Monoxide	0.026	Not Detected
Methane	0.00026	5.3
Carbon Dioxide	0.026	14
Ethane	0.0026	0.0022 J
Ethene	0.0026	Not Detected
Helium	0.13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-55-20-072915

Lab ID#: 1507533B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080810**	**Date of Collection: 7/29/15 9:08:00 AM**	
Dil. Factor:	**2.72**	**Date of Analysis: 8/8/15 10:19 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	3.2
Nitrogen	0.27	82
Carbon Monoxide	0.027	Not Detected
Methane	0.00027	0.17
Carbon Dioxide	0.027	15
Ethane	0.0027	0.00027 J
Ethene	0.0027	Not Detected
Helium	0.14	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-55-20-072915-DUP

Lab ID#: 1507533B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080811**	**Date of Collection: 7/29/15 9:08:00 AM**	
Dil. Factor:	**2.90**	**Date of Analysis: 8/8/15 10:43 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.29	2.3
Nitrogen	0.29	82
Carbon Monoxide	0.029	Not Detected
Methane	0.00029	0.17
Carbon Dioxide	0.029	15
Ethane	0.0029	0.00028 J
Ethene	0.0029	Not Detected
Helium	0.14	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

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Client Sample ID: Lab Blank

Lab ID#: 1507533B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/8/15 07:18 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
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
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1507533B-11B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080804c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/8/15 07:43 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
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
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1507533B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/8/15 06:53 AM**	

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Nitrogen	92	85-115
Carbon Monoxide	94	85-115
Methane	105	85-115
Carbon Dioxide	97	85-115
Ethane	103	85-115
Ethene	104	85-115
Helium	102	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1507533B-12AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10080819**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/8/15 01:53 PM**	

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Nitrogen	92	85-115
Carbon Monoxide	94	85-115
Methane	103	85-115
Carbon Dioxide	98	85-115
Ethane	101	85-115
Ethene	102	85-115
Helium	103	85-115

Container Type: NA - Not Applicable