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May 3, 2017

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, 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 Robert Mooshegian at robert.mooshegian@aecom.com (314/743-4106) or Samuel Fisher at samuel.fisher@aecom.com (314/296-1969).

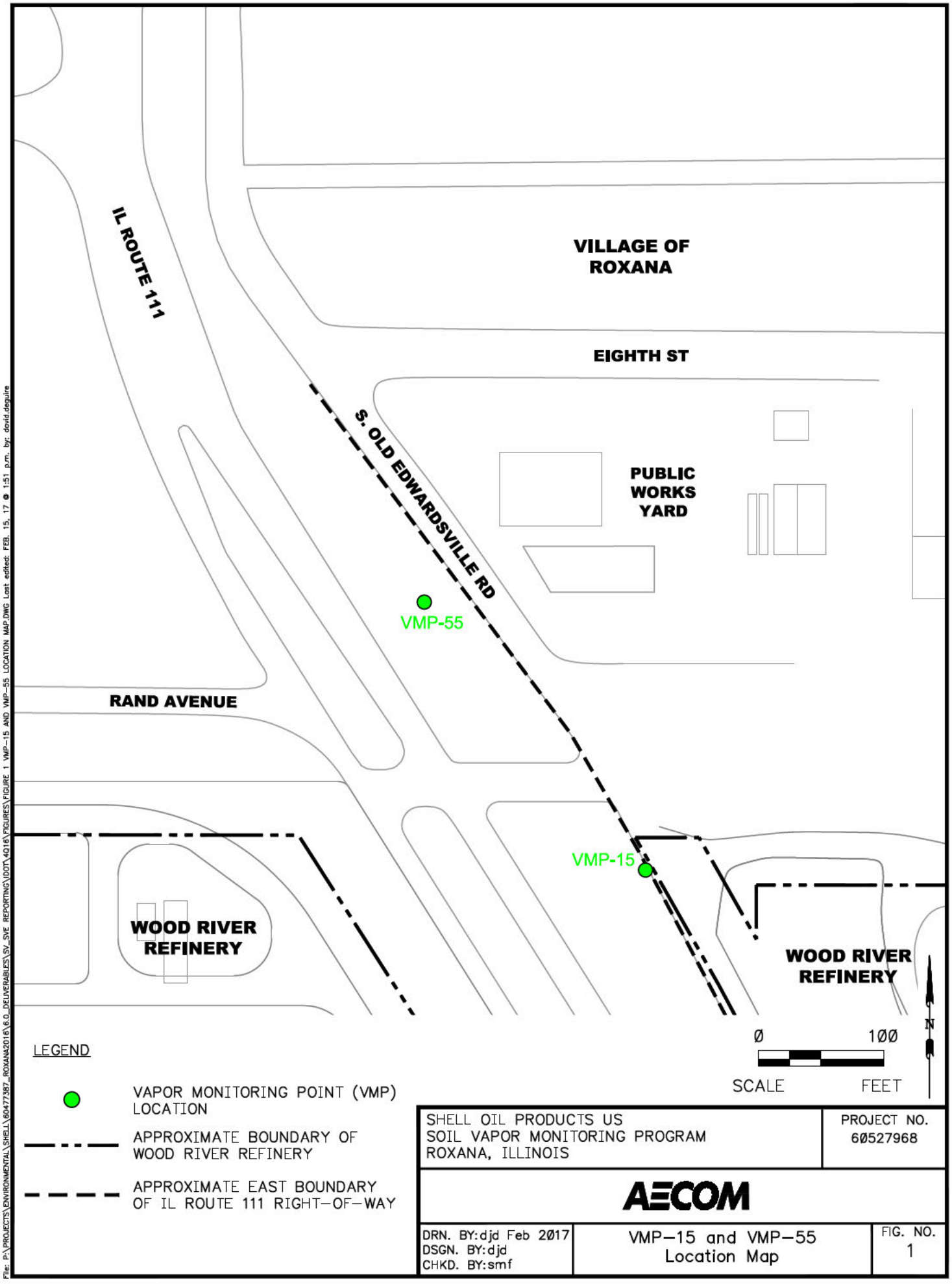
Sincerely,
AECOM, on behalf of Shell Oil Products US

Samuel Fisher
Environmental Scientist

Robert E. Mooshegian, CHMM
Senior Program Manager

Attachments

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



SHELL OIL PRODUCTS US
SOIL VAPOR MONITORING PROGRAM
ROXANA, ILLINOIS

PROJECT NO.
60527968

AECOM

DRN. BY: djd Feb 2017
DSGN. BY: djd
CHKD. BY: smf

VMP-15 and VMP-55
Location Map

FIG. NO.
1

File: P:\PROJECTS\ENVIRONMENTAL\SHELL\60477387_ROXANA2016\6.0_DELIVERABLES\SV_SVE REPORTING\IDOT\4Q16\FIGURES\FIGURE 1 VMP-15 AND VMP-55 LOCATION MAP.DWG Last edited: FEB. 15, 17 @ 1:51 p.m. by: dovid.depuire

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2/15/2017
Ms. Elizabeth Kunkel
URS Corporation
1001 Highlands Plaza Dr. West
Suite 300
St. Louis MO 63110

Project Name: Roxana Quarterly Soil Vapor
Project #: 60527968 - 1.04.001
Workorder #: 1702049A

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 2/2/2017 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 Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. 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 #: 1702049A

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 PO Box 203970 Austin, TX 78720
PHONE:	314-743-4179	**P.O. #**	60527968-104001
FAX:		**PROJECT #**	60527968 - 1.04.001 Roxana Quarterly Soil Vapor
DATE RECEIVED:	02/02/2017	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	02/15/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VMP-15-5-020117	TO-15	5.7 "Hg	14.9 psi
02A	VMP-15-21.5-020117	TO-15	5.7 "Hg	14.8 psi
03A	VMP-15-25.5-020117	TO-15	7.8 "Hg	14.9 psi
04A	VMP-55-5-020117	TO-15	6.3 "Hg	15 psi
05A	VMP-55-20-020117	TO-15	7.3 "Hg	14.9 psi
06A	VMP-55-20-020117-Dup	TO-15	4.3 "Hg	15.4 psi
07A	Lab Blank	TO-15	NA	NA
07B	Lab Blank	TO-15	NA	NA
07C	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
08B	CCV	TO-15	NA	NA
08C	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA
09B	LCS	TO-15	NA	NA
09BB	LCSD	TO-15	NA	NA
09C	LCS	TO-15	NA	NA
09CC	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 02/15/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
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 - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
URS Corporation
Workorder# 1702049A

Six 1 Liter Summa Canister samples were received on February 02, 2017. 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

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.

Dilution was performed on samples VMP-55-20-020117 and VMP-55-20-020117-Dup due to the presence of high level target species.

Dilution was performed on sample VMP-55-5-020117 due to matrix interference.

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-15-5-020117

Lab ID#: 1702049A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	0.45 J	6.1	2.2 J
Acetone	12	6.5 J	29	15 J
Carbon Disulfide	5.0	0.30 J	15	0.93 J
2-Butanone (Methyl Ethyl Ketone)	5.0	2.0 J	15	5.9 J
Cyclohexane	1.2	0.26 J	4.3	0.90 J
Benzene	1.2	0.22 J	4.0	0.69 J
2-Hexanone	5.0	0.49 J	20	2.0 J

Client Sample ID: VMP-15-21.5-020117

Lab ID#: 1702049A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	0.29 J	6.1	1.4 J
Acetone	12	3.3 J	29	7.9 J
Carbon Disulfide	5.0	0.22 J	15	0.70 J
Hexane	1.2	0.38 J	4.4	1.4 J
2-Butanone (Methyl Ethyl Ketone)	5.0	1.0 J	15	3.0 J
Cyclohexane	1.2	0.26 J	4.3	0.90 J
2,2,4-Trimethylpentane	1.2	66	5.8	310
Benzene	1.2	1.3	4.0	4.1
Toluene	1.2	0.11 J	4.7	0.40 J
Isopentane	5.0	1.7 J	15	5.1 J

Client Sample ID: VMP-15-25.5-020117

Lab ID#: 1702049A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	0.32 J	6.7	1.6 J
Acetone	14	15	32	35
2-Propanol	5.4	17	13	42
Carbon Disulfide	5.4	0.25 J	17	0.77 J
2-Butanone (Methyl Ethyl Ketone)	5.4	10	16	30
Cyclohexane	1.4	0.73 J	4.7	2.5 J

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

Client Sample ID: VMP-15-25.5-020117

Lab ID#: 1702049A-03A

2,2,4-Trimethylpentane	1.4	0.58 J	6.4	2.7 J
Benzene	1.4	1.0 J	4.3	3.4 J
Heptane	1.4	0.24 J	5.6	1.0 J
Toluene	1.4	0.45 J	5.1	1.7 J
2-Hexanone	5.4	0.81 J	22	3.3 J
m,p-Xylene	1.4	0.52 J	5.9	2.3 J
Cumene	1.4	0.36 J	6.7	1.8 J
Butane	5.4	2.6 J	13	6.2 J

Client Sample ID: VMP-55-5-020117

Lab ID#: 1702049A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	51	5.6 J	120	13 J
Carbon Disulfide	20	1.3 J	64	4.1 J
2,2,4-Trimethylpentane	5.1	4.6 J	24	22 J
Benzene	5.1	0.66 J	16	2.1 J
Cumene	5.1	1.0 J	25	5.2 J
Propylbenzene	5.1	5.4	25	26
4-Ethyltoluene	5.1	6.7	25	33
1,3,5-Trimethylbenzene	5.1	5.1	25	25
1,2,4-Trimethylbenzene	5.1	44	25	210

Client Sample ID: VMP-55-20-020117

Lab ID#: 1702049A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	130	7700	470	27000
Cyclohexane	130	12000	460	42000
2,2,4-Trimethylpentane	130	24000	620	110000
Heptane	130	3200	550	13000
Butane	530	12000	1300	29000
Isopentane	530	110000	1600	320000

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

Client Sample ID: VMP-55-20-020117-Dup

Lab ID#: 1702049A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	86	6200	300	22000
Cyclohexane	86	10000	290	34000
2,2,4-Trimethylpentane	86	20000	400	93000
Heptane	86	2600	350	11000
Butane	340	9700	810	23000
Isopentane	340	89000	1000	260000

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Client Sample ID: VMP-15-5-020117

Lab ID#: 1702049A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021413**	**Date of Collection:**	**2/1/17 10:53:00 AM**
Dil. Factor:	**2.48**	**Date of Analysis:**	**2/14/17 07:08 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	0.45 J	6.1	2.2 J
Freon 114	1.2	Not Detected	8.7	Not Detected
Chloromethane	12	Not Detected	26	Not Detected
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	7.0	Not Detected
Ethanol	5.0	Not Detected	9.3	Not Detected
Freon 113	1.2	Not Detected	9.5	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	12	6.5 J	29	15 J
2-Propanol	5.0	Not Detected	12	Not Detected
Carbon Disulfide	5.0	0.30 J	15	0.93 J
3-Chloropropene	5.0	Not Detected	16	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	Not Detected	4.4	Not Detected
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	2.0 J	15	5.9 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Cyclohexane	1.2	0.26 J	4.3	0.90 J
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.8	Not Detected
Benzene	1.2	0.22 J	4.0	0.69 J
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.1	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.3	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.1	Not Detected
Toluene	1.2	Not Detected	4.7	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
2-Hexanone	5.0	0.49 J	20	2.0 J

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Client Sample ID: VMP-15-5-020117

Lab ID#: 1702049A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021413**	**Date of Collection:**	**2/1/17 10:53:00 AM**
Dil. Factor:	**2.48**	**Date of Analysis:**	**2/14/17 07:08 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.5	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	Not Detected	5.4	Not Detected
o-Xylene	1.2	Not Detected	5.4	Not Detected
Styrene	1.2	Not Detected	5.3	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.1	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.5	Not Detected
Propylbenzene	1.2	Not Detected	6.1	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.1	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	5.0	Not Detected	37	Not Detected
Hexachlorobutadiene	5.0	Not Detected	53	Not Detected
Butane	5.0	Not Detected	12	Not Detected
Isopentane	5.0	Not Detected	15	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: VMP-15-21.5-020117

Lab ID#: 1702049A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020825**	**Date of Collection:**	**2/1/17 11:16:00 AM**
Dil. Factor:	**2.48**	**Date of Analysis:**	**2/8/17 11:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	0.29 J	6.1	1.4 J
Freon 114	1.2	Not Detected	8.7	Not Detected
Chloromethane	12	Not Detected	26	Not Detected
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	7.0	Not Detected
Ethanol	5.0	Not Detected	9.3	Not Detected
Freon 113	1.2	Not Detected	9.5	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	12	3.3 J	29	7.9 J
2-Propanol	5.0	Not Detected	12	Not Detected
Carbon Disulfide	5.0	0.22 J	15	0.70 J
3-Chloropropene	5.0	Not Detected	16	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	0.38 J	4.4	1.4 J
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	1.0 J	15	3.0 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Cyclohexane	1.2	0.26 J	4.3	0.90 J
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
2,2,4-Trimethylpentane	1.2	66	5.8	310
Benzene	1.2	1.3	4.0	4.1
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.1	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.3	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.1	Not Detected
Toluene	1.2	0.11 J	4.7	0.40 J
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
2-Hexanone	5.0	Not Detected	20	Not Detected

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Client Sample ID: VMP-15-21.5-020117

Lab ID#: 1702049A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020825**	**Date of Collection: 2/1/17 11:16:00 AM**	
Dil. Factor:	**2.48**	**Date of Analysis: 2/8/17 11:19 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.5	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	Not Detected	5.4	Not Detected
o-Xylene	1.2	Not Detected	5.4	Not Detected
Styrene	1.2	Not Detected	5.3	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.1	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.5	Not Detected
Propylbenzene	1.2	Not Detected	6.1	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.1	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	5.0	Not Detected	37	Not Detected
Hexachlorobutadiene	5.0	Not Detected	53	Not Detected
Butane	5.0	Not Detected	12	Not Detected
Isopentane	5.0	1.7 J	15	5.1 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

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: VMP-15-25.5-020117

Lab ID#: 1702049A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020826**	**Date of Collection:**	**2/1/17 11:44:00 AM**
Dil. Factor:	**2.72**	**Date of Analysis:**	**2/8/17 11:47 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	0.32 J	6.7	1.6 J
Freon 114	1.4	Not Detected	9.5	Not Detected
Chloromethane	14	Not Detected	28	Not Detected
Vinyl Chloride	1.4	Not Detected	3.5	Not Detected
1,3-Butadiene	1.4	Not Detected	3.0	Not Detected
Bromomethane	14	Not Detected	53	Not Detected
Chloroethane	5.4	Not Detected	14	Not Detected
Freon 11	1.4	Not Detected	7.6	Not Detected
Ethanol	5.4	Not Detected	10	Not Detected
Freon 113	1.4	Not Detected	10	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Acetone	14	15	32	35
2-Propanol	5.4	17	13	42
Carbon Disulfide	5.4	0.25 J	17	0.77 J
3-Chloropropene	5.4	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	47	Not Detected
Methyl tert-butyl ether	5.4	Not Detected	20	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Hexane	1.4	Not Detected	4.8	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.4	10	16	30
cis-1,2-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.0	Not Detected
Chloroform	1.4	Not Detected	6.6	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.4	Not Detected
Cyclohexane	1.4	0.73 J	4.7	2.5 J
Carbon Tetrachloride	1.4	Not Detected	8.6	Not Detected
2,2,4-Trimethylpentane	1.4	0.58 J	6.4	2.7 J
Benzene	1.4	1.0 J	4.3	3.4 J
1,2-Dichloroethane	1.4	Not Detected	5.5	Not Detected
Heptane	1.4	0.24 J	5.6	1.0 J
Trichloroethene	1.4	Not Detected	7.3	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.3	Not Detected
1,4-Dioxane	5.4	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.1	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.2	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.6	Not Detected
Toluene	1.4	0.45 J	5.1	1.7 J
trans-1,3-Dichloropropene	1.4	Not Detected	6.2	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.4	Not Detected
Tetrachloroethene	1.4	Not Detected	9.2	Not Detected
2-Hexanone	5.4	0.81 J	22	3.3 J

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Client Sample ID: VMP-15-25.5-020117

Lab ID#: 1702049A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020826**	**Date of Collection: 2/1/17 11:44:00 AM**	
Dil. Factor:	**2.72**	**Date of Analysis: 2/8/17 11:47 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	10	Not Detected
Chlorobenzene	1.4	Not Detected	6.3	Not Detected
Ethyl Benzene	1.4	Not Detected	5.9	Not Detected
m,p-Xylene	1.4	0.52 J	5.9	2.3 J
o-Xylene	1.4	Not Detected	5.9	Not Detected
Styrene	1.4	Not Detected	5.8	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	0.36 J	6.7	1.8 J
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.3	Not Detected
Propylbenzene	1.4	Not Detected	6.7	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.7	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.7	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.7	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.2	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.2	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.0	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.2	Not Detected
1,2,4-Trichlorobenzene	5.4	Not Detected	40	Not Detected
Hexachlorobutadiene	5.4	Not Detected	58	Not Detected
Butane	5.4	2.6 J	13	6.2 J
Isopentane	5.4	Not Detected	16	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: VMP-55-5-020117

Lab ID#: 1702049A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020824**	**Date of Collection:**	**2/1/17 8:59:00 AM**
Dil. Factor:	**10.2**	**Date of Analysis:**	**2/8/17 10:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.1	Not Detected	25	Not Detected
Freon 114	5.1	Not Detected	36	Not Detected
Chloromethane	51	Not Detected	100	Not Detected
Vinyl Chloride	5.1	Not Detected	13	Not Detected
1,3-Butadiene	5.1	Not Detected	11	Not Detected
Bromomethane	51	Not Detected	200	Not Detected
Chloroethane	20	Not Detected	54	Not Detected
Freon 11	5.1	Not Detected	29	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.1	Not Detected	39	Not Detected
1,1-Dichloroethene	5.1	Not Detected	20	Not Detected
Acetone	51	5.6 J	120	13 J
2-Propanol	20	Not Detected	50	Not Detected
Carbon Disulfide	20	1.3 J	64	4.1 J
3-Chloropropene	20	Not Detected	64	Not Detected
Methylene Chloride	51	Not Detected	180	Not Detected
Methyl tert-butyl ether	20	Not Detected	74	Not Detected
trans-1,2-Dichloroethene	5.1	Not Detected	20	Not Detected
Hexane	5.1	Not Detected	18	Not Detected
1,1-Dichloroethane	5.1	Not Detected	21	Not Detected
2-Butanone (Methyl Ethyl Ketone)	20	Not Detected	60	Not Detected
cis-1,2-Dichloroethene	5.1	Not Detected	20	Not Detected
Tetrahydrofuran	5.1	Not Detected	15	Not Detected
Chloroform	5.1	Not Detected	25	Not Detected
1,1,1-Trichloroethane	5.1	Not Detected	28	Not Detected
Cyclohexane	5.1	Not Detected	18	Not Detected
Carbon Tetrachloride	5.1	Not Detected	32	Not Detected
2,2,4-Trimethylpentane	5.1	4.6 J	24	22 J
Benzene	5.1	0.66 J	16	2.1 J
1,2-Dichloroethane	5.1	Not Detected	21	Not Detected
Heptane	5.1	Not Detected	21	Not Detected
Trichloroethene	5.1	Not Detected	27	Not Detected
1,2-Dichloropropane	5.1	Not Detected	24	Not Detected
1,4-Dioxane	20	Not Detected	74	Not Detected
Bromodichloromethane	5.1	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.1	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.1	Not Detected	21	Not Detected
Toluene	5.1	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.1	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.1	Not Detected	28	Not Detected
Tetrachloroethene	5.1	Not Detected	34	Not Detected
2-Hexanone	20	Not Detected	84	Not Detected

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Client Sample ID: VMP-55-5-020117

Lab ID#: 1702049A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020824**	**Date of Collection:**	**2/1/17 8:59:00 AM**
Dil. Factor:	**10.2**	**Date of Analysis:**	**2/8/17 10:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.1	Not Detected	43	Not Detected
1,2-Dibromoethane (EDB)	5.1	Not Detected	39	Not Detected
Chlorobenzene	5.1	Not Detected	23	Not Detected
Ethyl Benzene	5.1	Not Detected	22	Not Detected
m,p-Xylene	5.1	Not Detected	22	Not Detected
o-Xylene	5.1	Not Detected	22	Not Detected
Styrene	5.1	Not Detected	22	Not Detected
Bromoform	5.1	Not Detected	53	Not Detected
Cumene	5.1	1.0 J	25	5.2 J
1,1,2,2-Tetrachloroethane	5.1	Not Detected	35	Not Detected
Propylbenzene	5.1	5.4	25	26
4-Ethyltoluene	5.1	6.7	25	33
1,3,5-Trimethylbenzene	5.1	5.1	25	25
1,2,4-Trimethylbenzene	5.1	44	25	210
1,3-Dichlorobenzene	5.1	Not Detected	31	Not Detected
1,4-Dichlorobenzene	5.1	Not Detected	31	Not Detected
alpha-Chlorotoluene	5.1	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.1	Not Detected	31	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	220	Not Detected
Butane	20	Not Detected	48	Not Detected
Isopentane	20	Not Detected	60	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: VMP-55-20-020117

Lab ID#: 1702049A-05A

EPA METHOD TO-15 GC/MS

File Name:	**14020820**	**Date of Collection:**	**2/1/17 9:25:00 AM**
Dil. Factor:	**26.7**	**Date of Analysis:**	**2/8/17 07:35 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	130	Not Detected	660	Not Detected
Freon 114	130	Not Detected	930	Not Detected
Chloromethane	530	Not Detected	1100	Not Detected
Vinyl Chloride	130	Not Detected	340	Not Detected
1,3-Butadiene	130	Not Detected	300	Not Detected
Bromomethane	530	Not Detected	2100	Not Detected
Chloroethane	530	Not Detected	1400	Not Detected
Freon 11	130	Not Detected	750	Not Detected
Ethanol	530	Not Detected	1000	Not Detected
Freon 113	130	Not Detected	1000	Not Detected
1,1-Dichloroethene	130	Not Detected	530	Not Detected
Acetone	530	Not Detected	1300	Not Detected
2-Propanol	530	Not Detected	1300	Not Detected
Carbon Disulfide	530	Not Detected	1700	Not Detected
3-Chloropropene	530	Not Detected	1700	Not Detected
Methylene Chloride	530	Not Detected	1800	Not Detected
Methyl tert-butyl ether	130	Not Detected	480	Not Detected
trans-1,2-Dichloroethene	130	Not Detected	530	Not Detected
Hexane	130	7700	470	27000
1,1-Dichloroethane	130	Not Detected	540	Not Detected
2-Butanone (Methyl Ethyl Ketone)	530	Not Detected	1600	Not Detected
cis-1,2-Dichloroethene	130	Not Detected	530	Not Detected
Tetrahydrofuran	130	Not Detected	390	Not Detected
Chloroform	130	Not Detected	650	Not Detected
1,1,1-Trichloroethane	130	Not Detected	730	Not Detected
Cyclohexane	130	12000	460	42000
Carbon Tetrachloride	130	Not Detected	840	Not Detected
2,2,4-Trimethylpentane	130	24000	620	110000
Benzene	130	Not Detected	430	Not Detected
1,2-Dichloroethane	130	Not Detected	540	Not Detected
Heptane	130	3200	550	13000
Trichloroethene	130	Not Detected	720	Not Detected
1,2-Dichloropropane	130	Not Detected	620	Not Detected
1,4-Dioxane	530	Not Detected	1900	Not Detected
Bromodichloromethane	130	Not Detected	890	Not Detected
cis-1,3-Dichloropropene	130	Not Detected	600	Not Detected
4-Methyl-2-pentanone	130	Not Detected	550	Not Detected
Toluene	130	Not Detected	500	Not Detected
trans-1,3-Dichloropropene	130	Not Detected	600	Not Detected
1,1,2-Trichloroethane	130	Not Detected	730	Not Detected
Tetrachloroethene	130	Not Detected	900	Not Detected
2-Hexanone	530	Not Detected	2200	Not Detected

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Client Sample ID: VMP-55-20-020117

Lab ID#: 1702049A-05A

EPA METHOD TO-15 GC/MS

File Name:	**14020820**	**Date of Collection:**	**2/1/17 9:25:00 AM**
Dil. Factor:	**26.7**	**Date of Analysis:**	**2/8/17 07:35 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	130	Not Detected	1100	Not Detected
1,2-Dibromoethane (EDB)	130	Not Detected	1000	Not Detected
Chlorobenzene	130	Not Detected	610	Not Detected
Ethyl Benzene	130	Not Detected	580	Not Detected
m,p-Xylene	130	Not Detected	580	Not Detected
o-Xylene	130	Not Detected	580	Not Detected
Styrene	130	Not Detected	570	Not Detected
Bromoform	130	Not Detected	1400	Not Detected
Cumene	130	Not Detected	660	Not Detected
1,1,2,2-Tetrachloroethane	130	Not Detected	920	Not Detected
Propylbenzene	130	Not Detected	660	Not Detected
4-Ethyltoluene	130	Not Detected	660	Not Detected
1,3,5-Trimethylbenzene	130	Not Detected	660	Not Detected
1,2,4-Trimethylbenzene	130	Not Detected	660	Not Detected
1,3-Dichlorobenzene	130	Not Detected	800	Not Detected
1,4-Dichlorobenzene	130	Not Detected	800	Not Detected
alpha-Chlorotoluene	130	Not Detected	690	Not Detected
1,2-Dichlorobenzene	130	Not Detected	800	Not Detected
1,2,4-Trichlorobenzene	530	Not Detected	4000	Not Detected
Hexachlorobutadiene	530	Not Detected	5700	Not Detected
Butane	530	12000	1300	29000
Isopentane	530	110000	1600	320000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: VMP-55-20-020117-Dup

Lab ID#: 1702049A-06A

EPA METHOD TO-15 GC/MS

File Name:	**14020822**	**Date of Collection:**	**2/1/17 9:25:00 AM**
Dil. Factor:	**17.1**	**Date of Analysis:**	**2/8/17 08:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	86	Not Detected	420	Not Detected
Freon 114	86	Not Detected	600	Not Detected
Chloromethane	340	Not Detected	710	Not Detected
Vinyl Chloride	86	Not Detected	220	Not Detected
1,3-Butadiene	86	Not Detected	190	Not Detected
Bromomethane	340	Not Detected	1300	Not Detected
Chloroethane	340	Not Detected	900	Not Detected
Freon 11	86	Not Detected	480	Not Detected
Ethanol	340	Not Detected	640	Not Detected
Freon 113	86	Not Detected	660	Not Detected
1,1-Dichloroethene	86	Not Detected	340	Not Detected
Acetone	340	Not Detected	810	Not Detected
2-Propanol	340	Not Detected	840	Not Detected
Carbon Disulfide	340	Not Detected	1100	Not Detected
3-Chloropropene	340	Not Detected	1100	Not Detected
Methylene Chloride	340	Not Detected	1200	Not Detected
Methyl tert-butyl ether	86	Not Detected	310	Not Detected
trans-1,2-Dichloroethene	86	Not Detected	340	Not Detected
Hexane	86	6200	300	22000
1,1-Dichloroethane	86	Not Detected	350	Not Detected
2-Butanone (Methyl Ethyl Ketone)	340	Not Detected	1000	Not Detected
cis-1,2-Dichloroethene	86	Not Detected	340	Not Detected
Tetrahydrofuran	86	Not Detected	250	Not Detected
Chloroform	86	Not Detected	420	Not Detected
1,1,1-Trichloroethane	86	Not Detected	470	Not Detected
Cyclohexane	86	10000	290	34000
Carbon Tetrachloride	86	Not Detected	540	Not Detected
2,2,4-Trimethylpentane	86	20000	400	93000
Benzene	86	Not Detected	270	Not Detected
1,2-Dichloroethane	86	Not Detected	350	Not Detected
Heptane	86	2600	350	11000
Trichloroethene	86	Not Detected	460	Not Detected
1,2-Dichloropropane	86	Not Detected	400	Not Detected
1,4-Dioxane	340	Not Detected	1200	Not Detected
Bromodichloromethane	86	Not Detected	570	Not Detected
cis-1,3-Dichloropropene	86	Not Detected	390	Not Detected
4-Methyl-2-pentanone	86	Not Detected	350	Not Detected
Toluene	86	Not Detected	320	Not Detected
trans-1,3-Dichloropropene	86	Not Detected	390	Not Detected
1,1,2-Trichloroethane	86	Not Detected	470	Not Detected
Tetrachloroethene	86	Not Detected	580	Not Detected
2-Hexanone	340	Not Detected	1400	Not Detected

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Client Sample ID: VMP-55-20-020117-Dup

Lab ID#: 1702049A-06A

EPA METHOD TO-15 GC/MS

File Name:	**14020822**	**Date of Collection:**	**2/1/17 9:25:00 AM**
Dil. Factor:	**17.1**	**Date of Analysis:**	**2/8/17 08:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	86	Not Detected	730	Not Detected
1,2-Dibromoethane (EDB)	86	Not Detected	660	Not Detected
Chlorobenzene	86	Not Detected	390	Not Detected
Ethyl Benzene	86	Not Detected	370	Not Detected
m,p-Xylene	86	Not Detected	370	Not Detected
o-Xylene	86	Not Detected	370	Not Detected
Styrene	86	Not Detected	360	Not Detected
Bromoform	86	Not Detected	880	Not Detected
Cumene	86	Not Detected	420	Not Detected
1,1,2,2-Tetrachloroethane	86	Not Detected	590	Not Detected
Propylbenzene	86	Not Detected	420	Not Detected
4-Ethyltoluene	86	Not Detected	420	Not Detected
1,3,5-Trimethylbenzene	86	Not Detected	420	Not Detected
1,2,4-Trimethylbenzene	86	Not Detected	420	Not Detected
1,3-Dichlorobenzene	86	Not Detected	510	Not Detected
1,4-Dichlorobenzene	86	Not Detected	510	Not Detected
alpha-Chlorotoluene	86	Not Detected	440	Not Detected
1,2-Dichlorobenzene	86	Not Detected	510	Not Detected
1,2,4-Trichlorobenzene	340	Not Detected	2500	Not Detected
Hexachlorobutadiene	340	Not Detected	3600	Not Detected
Butane	340	9700	810	23000
Isopentane	340	89000	1000	260000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1702049A-07A

EPA METHOD TO-15 GC/MS

File Name:	**14020806a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 11:58 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	20	Not Detected	78	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	20	Not Detected	62	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	20	Not Detected	69	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#: 1702049A-07A

EPA METHOD TO-15 GC/MS

File Name:	**14020806a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 11:58 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
Butane	20	Not Detected	48	Not Detected
Isopentane	20	3.2 J	59	9.3 J

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1702049A-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020807d**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 11:54 AM**	

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	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	0.81 J	12	1.9 J
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	0.10 J	6.2	0.32 J
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	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	Not Detected	2.4	Not Detected
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	0.090 J	1.6	0.29 J
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#: 1702049A-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020807d**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 11:54 AM**	

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	Not Detected	2.4	Not Detected
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	0.12 J	2.4	0.61 J
1,2,4-Trimethylbenzene	0.50	0.23 J	2.4	1.1 J
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	Not Detected	3.0	Not Detected
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	104	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1702049A-07C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021411c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 05:25 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	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	0.53 J	12	1.3 J
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	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	Not Detected	2.4	Not Detected
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	0.078 J	1.6	0.25 J
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#: 1702049A-07C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021411c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 05:25 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	Not Detected	2.4	Not Detected
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	Not Detected	2.4	Not Detected
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	Not Detected	3.0	Not Detected
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	101	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: CCV

Lab ID#: 1702049A-08A

EPA METHOD TO-15 GC/MS

File Name:	**14020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:14 AM**	

Compound	%Recovery
Freon 12	108
Freon 114	108
Chloromethane	100
Vinyl Chloride	96
1,3-Butadiene	83
Bromomethane	108
Chloroethane	111
Freon 11	127
Ethanol	98
Freon 113	128
1,1-Dichloroethene	119
Acetone	112
2-Propanol	101
Carbon Disulfide	107
3-Chloropropene	109
Methylene Chloride	114
Methyl tert-butyl ether	112
trans-1,2-Dichloroethene	100
Hexane	118
1,1-Dichloroethane	115
2-Butanone (Methyl Ethyl Ketone)	107
cis-1,2-Dichloroethene	116
Tetrahydrofuran	100
Chloroform	114
1,1,1-Trichloroethane	111
Cyclohexane	114
Carbon Tetrachloride	116
2,2,4-Trimethylpentane	115
Benzene	116
1,2-Dichloroethane	103
Heptane	100
Trichloroethene	113
1,2-Dichloropropane	105
1,4-Dioxane	105
Bromodichloromethane	105
cis-1,3-Dichloropropene	101
4-Methyl-2-pentanone	94
Toluene	109
trans-1,3-Dichloropropene	101
1,1,2-Trichloroethane	106
Tetrachloroethene	118
2-Hexanone	99

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Client Sample ID: CCV
Lab ID#: 1702049A-08A
EPA METHOD TO-15 GC/MS

File Name:	**14020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:14 AM**	

Compound	%Recovery
Dibromochloromethane	110
1,2-Dibromoethane (EDB)	110
Chlorobenzene	110
Ethyl Benzene	107
m,p-Xylene	107
o-Xylene	105
Styrene	107
Bromoform	109
Cumene	106
1,1,2,2-Tetrachloroethane	104
Propylbenzene	104
4-Ethyltoluene	97
1,3,5-Trimethylbenzene	124
1,2,4-Trimethylbenzene	100
1,3-Dichlorobenzene	101
1,4-Dichlorobenzene	104
alpha-Chlorotoluene	91
1,2-Dichlorobenzene	104
1,2,4-Trichlorobenzene	82
Hexachlorobutadiene	80
Butane	88
Isopentane	129

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: CCV

Lab ID#: 1702049A-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 08:40 AM**	

Compound	%Recovery
Freon 12	101
Freon 114	98
Chloromethane	74
Vinyl Chloride	118
1,3-Butadiene	113
Bromomethane	103
Chloroethane	114
Freon 11	100
Ethanol	111
Freon 113	94
1,1-Dichloroethene	104
Acetone	114
2-Propanol	114
Carbon Disulfide	112
3-Chloropropene	114
Methylene Chloride	120
Methyl tert-butyl ether	107
trans-1,2-Dichloroethene	106
Hexane	123
1,1-Dichloroethane	119
2-Butanone (Methyl Ethyl Ketone)	114
cis-1,2-Dichloroethene	111
Tetrahydrofuran	123
Chloroform	111
1,1,1-Trichloroethane	102
Cyclohexane	111
Carbon Tetrachloride	101
2,2,4-Trimethylpentane	116
Benzene	100
1,2-Dichloroethane	114
Heptane	119
Trichloroethene	108
1,2-Dichloropropane	118
1,4-Dioxane	107
Bromodichloromethane	112
cis-1,3-Dichloropropene	114
4-Methyl-2-pentanone	115
Toluene	109
trans-1,3-Dichloropropene	110
1,1,2-Trichloroethane	108
Tetrachloroethene	100
2-Hexanone	116

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Client Sample ID: CCV

Lab ID#: 1702049A-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 08:40 AM**	

Compound	%Recovery
Dibromochloromethane	105
1,2-Dibromoethane (EDB)	108
Chlorobenzene	101
Ethyl Benzene	107
m,p-Xylene	105
o-Xylene	109
Styrene	111
Bromoform	105
Cumene	106
1,1,2,2-Tetrachloroethane	109
Propylbenzene	105
4-Ethyltoluene	103
1,3,5-Trimethylbenzene	103
1,2,4-Trimethylbenzene	104
1,3-Dichlorobenzene	103
1,4-Dichlorobenzene	105
alpha-Chlorotoluene	110
1,2-Dichlorobenzene	103
1,2,4-Trichlorobenzene	101
Hexachlorobutadiene	101
Butane	121
Isopentane	118

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: CCV

Lab ID#: 1702049A-08C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021402**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 09:38 AM**	

Compound	%Recovery
Freon 12	98
Freon 114	94
Chloromethane	72
Vinyl Chloride	117
1,3-Butadiene	115
Bromomethane	101
Chloroethane	112
Freon 11	96
Ethanol	113
Freon 113	91
1,1-Dichloroethene	101
Acetone	111
2-Propanol	112
Carbon Disulfide	110
3-Chloropropene	117
Methylene Chloride	118
Methyl tert-butyl ether	108
trans-1,2-Dichloroethene	105
Hexane	122
1,1-Dichloroethane	117
2-Butanone (Methyl Ethyl Ketone)	114
cis-1,2-Dichloroethene	108
Tetrahydrofuran	124
Chloroform	109
1,1,1-Trichloroethane	101
Cyclohexane	111
Carbon Tetrachloride	101
2,2,4-Trimethylpentane	118
Benzene	97
1,2-Dichloroethane	110
Heptane	116
Trichloroethene	106
1,2-Dichloropropane	116
1,4-Dioxane	105
Bromodichloromethane	110
cis-1,3-Dichloropropene	115
4-Methyl-2-pentanone	113
Toluene	108
trans-1,3-Dichloropropene	110
1,1,2-Trichloroethane	106
Tetrachloroethene	102
2-Hexanone	112

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Client Sample ID: CCV

Lab ID#: 1702049A-08C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021402**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 09:38 AM**	

Compound	%Recovery
Dibromochloromethane	105
1,2-Dibromoethane (EDB)	106
Chlorobenzene	102
Ethyl Benzene	106
m,p-Xylene	104
o-Xylene	107
Styrene	107
Bromoform	106
Cumene	105
1,1,2,2-Tetrachloroethane	107
Propylbenzene	103
4-Ethyltoluene	102
1,3,5-Trimethylbenzene	101
1,2,4-Trimethylbenzene	103
1,3-Dichlorobenzene	101
1,4-Dichlorobenzene	103
alpha-Chlorotoluene	108
1,2-Dichlorobenzene	101
1,2,4-Trichlorobenzene	103
Hexachlorobutadiene	102
Butane	118
Isopentane	117

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: LCS

Lab ID#: 1702049A-09A

EPA METHOD TO-15 GC/MS

File Name:	**14020803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:50 AM**	

Compound	%Recovery	Method Limits
Freon 12	106	70-130
Freon 114	114	70-130
Chloromethane	100	70-130
Vinyl Chloride	98	70-130
1,3-Butadiene	80	70-130
Bromomethane	105	70-130
Chloroethane	114	70-130
Freon 11	127	70-130
Ethanol	86	70-130
Freon 113	127	70-130
1,1-Dichloroethene	119	70-130
Acetone	114	70-130
2-Propanol	105	70-130
Carbon Disulfide	112	70-130
3-Chloropropene	110	70-130
Methylene Chloride	116	70-130
Methyl tert-butyl ether	112	70-130
trans-1,2-Dichloroethene	114	70-130
Hexane	119	70-130
1,1-Dichloroethane	114	70-130
2-Butanone (Methyl Ethyl Ketone)	110	70-130
cis-1,2-Dichloroethene	108	70-130
Tetrahydrofuran	104	70-130
Chloroform	114	70-130
1,1,1-Trichloroethane	112	70-130
Cyclohexane	115	70-130
Carbon Tetrachloride	116	70-130
2,2,4-Trimethylpentane	113	70-130
Benzene	114	70-130
1,2-Dichloroethane	99	70-130
Heptane	98	70-130
Trichloroethene	110	70-130
1,2-Dichloropropane	104	70-130
1,4-Dioxane	104	70-130
Bromodichloromethane	106	70-130
cis-1,3-Dichloropropene	105	70-130
4-Methyl-2-pentanone	92	70-130
Toluene	105	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	105	70-130
Tetrachloroethene	116	70-130
2-Hexanone	99	70-130

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Client Sample ID: LCS

Lab ID#: 1702049A-09A

EPA METHOD TO-15 GC/MS

File Name:	**14020803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:50 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	110	70-130
1,2-Dibromoethane (EDB)	109	70-130
Chlorobenzene	109	70-130
Ethyl Benzene	106	70-130
m,p-Xylene	107	70-130
o-Xylene	106	70-130
Styrene	107	70-130
Bromoform	111	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	99	70-130
1,3,5-Trimethylbenzene	126	70-130
1,2,4-Trimethylbenzene	102	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	108	70-130
alpha-Chlorotoluene	96	70-130
1,2-Dichlorobenzene	105	70-130
1,2,4-Trichlorobenzene	95	70-130
Hexachlorobutadiene	96	70-130
Butane	89	60-140
Isopentane	132	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCSD

Lab ID#: 1702049A-09AA

EPA METHOD TO-15 GC/MS

File Name:	**14020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 10:16 AM**	

Compound	%Recovery	Method Limits
Freon 12	102	70-130
Freon 114	109	70-130
Chloromethane	97	70-130
Vinyl Chloride	94	70-130
1,3-Butadiene	77	70-130
Bromomethane	99	70-130
Chloroethane	108	70-130
Freon 11	121	70-130
Ethanol	80	70-130
Freon 113	123	70-130
1,1-Dichloroethene	114	70-130
Acetone	107	70-130
2-Propanol	102	70-130
Carbon Disulfide	107	70-130
3-Chloropropene	107	70-130
Methylene Chloride	111	70-130
Methyl tert-butyl ether	106	70-130
trans-1,2-Dichloroethene	106	70-130
Hexane	113	70-130
1,1-Dichloroethane	109	70-130
2-Butanone (Methyl Ethyl Ketone)	103	70-130
cis-1,2-Dichloroethene	102	70-130
Tetrahydrofuran	101	70-130
Chloroform	108	70-130
1,1,1-Trichloroethane	108	70-130
Cyclohexane	112	70-130
Carbon Tetrachloride	112	70-130
2,2,4-Trimethylpentane	108	70-130
Benzene	112	70-130
1,2-Dichloroethane	98	70-130
Heptane	96	70-130
Trichloroethene	111	70-130
1,2-Dichloropropane	105	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	103	70-130
cis-1,3-Dichloropropene	105	70-130
4-Methyl-2-pentanone	92	70-130
Toluene	105	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	111	70-130
2-Hexanone	96	70-130

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Client Sample ID: LCSD
Lab ID#: 1702049A-09AA
EPA METHOD TO-15 GC/MS

File Name:	**14020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 10:16 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	107	70-130
1,2-Dibromoethane (EDB)	105	70-130
Chlorobenzene	107	70-130
Ethyl Benzene	106	70-130
m,p-Xylene	105	70-130
o-Xylene	106	70-130
Styrene	104	70-130
Bromoform	110	70-130
Cumene	102	70-130
1,1,2,2-Tetrachloroethane	102	70-130
Propylbenzene	102	70-130
4-Ethyltoluene	98	70-130
1,3,5-Trimethylbenzene	121	70-130
1,2,4-Trimethylbenzene	100	70-130
1,3-Dichlorobenzene	101	70-130
1,4-Dichlorobenzene	105	70-130
alpha-Chlorotoluene	94	70-130
1,2-Dichlorobenzene	105	70-130
1,2,4-Trichlorobenzene	92	70-130
Hexachlorobutadiene	84	70-130
Butane	85	60-140
Isopentane	128	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCS

Lab ID#: 1702049A-09B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:08 AM**	

Compound	%Recovery	Method Limits
Freon 12	101	70-130
Freon 114	97	70-130
Chloromethane	73	70-130
Vinyl Chloride	123	70-130
1,3-Butadiene	115	70-130
Bromomethane	106	70-130
Chloroethane	117	70-130
Freon 11	100	70-130
Ethanol	99	70-130
Freon 113	93	70-130
1,1-Dichloroethene	104	70-130
Acetone	110	70-130
2-Propanol	116	70-130
Carbon Disulfide	116	70-130
3-Chloropropene	122	70-130
Methylene Chloride	119	70-130
Methyl tert-butyl ether	106	70-130
trans-1,2-Dichloroethene	117	70-130
Hexane	124	70-130
1,1-Dichloroethane	117	70-130
2-Butanone (Methyl Ethyl Ketone)	118	70-130
cis-1,2-Dichloroethene	101	70-130
Tetrahydrofuran	128	70-130
Chloroform	111	70-130
1,1,1-Trichloroethane	102	70-130
Cyclohexane	112	70-130
Carbon Tetrachloride	101	70-130
2,2,4-Trimethylpentane	116	70-130
Benzene	98	70-130
1,2-Dichloroethane	110	70-130
Heptane	119	70-130
Trichloroethene	111	70-130
1,2-Dichloropropane	117	70-130
1,4-Dioxane	110	70-130
Bromodichloromethane	112	70-130
cis-1,3-Dichloropropene	120	70-130
4-Methyl-2-pentanone	118	70-130
Toluene	107	70-130
trans-1,3-Dichloropropene	110	70-130
1,1,2-Trichloroethane	108	70-130
Tetrachloroethene	100	70-130
2-Hexanone	118	70-130

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Client Sample ID: LCS

Lab ID#: 1702049A-09B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:08 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	107	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	108	70-130
m,p-Xylene	105	70-130
o-Xylene	108	70-130
Styrene	110	70-130
Bromoform	109	70-130
Cumene	106	70-130
1,1,2,2-Tetrachloroethane	107	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	106	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	106	70-130
alpha-Chlorotoluene	114	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	97	70-130
Hexachlorobutadiene	98	70-130
Butane	110	60-140
Isopentane	118	60-140

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD

Lab ID#: 1702049A-09BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:37 AM**	

Compound	%Recovery	Method Limits
Freon 12	100	70-130
Freon 114	97	70-130
Chloromethane	73	70-130
Vinyl Chloride	122	70-130
1,3-Butadiene	114	70-130
Bromomethane	106	70-130
Chloroethane	116	70-130
Freon 11	99	70-130
Ethanol	100	70-130
Freon 113	92	70-130
1,1-Dichloroethene	103	70-130
Acetone	106	70-130
2-Propanol	116	70-130
Carbon Disulfide	114	70-130
3-Chloropropene	122	70-130
Methylene Chloride	117	70-130
Methyl tert-butyl ether	106	70-130
trans-1,2-Dichloroethene	116	70-130
Hexane	123	70-130
1,1-Dichloroethane	117	70-130
2-Butanone (Methyl Ethyl Ketone)	116	70-130
cis-1,2-Dichloroethene	102	70-130
Tetrahydrofuran	128	70-130
Chloroform	110	70-130
1,1,1-Trichloroethane	102	70-130
Cyclohexane	112	70-130
Carbon Tetrachloride	101	70-130
2,2,4-Trimethylpentane	116	70-130
Benzene	97	70-130
1,2-Dichloroethane	108	70-130
Heptane	117	70-130
Trichloroethene	111	70-130
1,2-Dichloropropane	116	70-130
1,4-Dioxane	110	70-130
Bromodichloromethane	112	70-130
cis-1,3-Dichloropropene	121	70-130
4-Methyl-2-pentanone	116	70-130
Toluene	107	70-130
trans-1,3-Dichloropropene	110	70-130
1,1,2-Trichloroethane	108	70-130
Tetrachloroethene	100	70-130
2-Hexanone	118	70-130

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Client Sample ID: LCSD

Lab ID#: 1702049A-09BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/17 09:37 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	107	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	107	70-130
m,p-Xylene	105	70-130
o-Xylene	108	70-130
Styrene	111	70-130
Bromoform	108	70-130
Cumene	106	70-130
1,1,2,2-Tetrachloroethane	105	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	106	70-130
alpha-Chlorotoluene	115	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	104	70-130
Butane	114	60-140
Isopentane	118	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCS

Lab ID#: 1702049A-09C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 10:06 AM**	

Compound	%Recovery	Method Limits
Freon 12	96	70-130
Freon 114	93	70-130
Chloromethane	68 Q	70-130
Vinyl Chloride	119	70-130
1,3-Butadiene	114	70-130
Bromomethane	102	70-130
Chloroethane	112	70-130
Freon 11	95	70-130
Ethanol	100	70-130
Freon 113	90	70-130
1,1-Dichloroethene	101	70-130
Acetone	105	70-130
2-Propanol	113	70-130
Carbon Disulfide	111	70-130
3-Chloropropene	122	70-130
Methylene Chloride	116	70-130
Methyl tert-butyl ether	105	70-130
trans-1,2-Dichloroethene	115	70-130
Hexane	124	70-130
1,1-Dichloroethane	115	70-130
2-Butanone (Methyl Ethyl Ketone)	114	70-130
cis-1,2-Dichloroethene	100	70-130
Tetrahydrofuran	130	70-130
Chloroform	108	70-130
1,1,1-Trichloroethane	100	70-130
Cyclohexane	112	70-130
Carbon Tetrachloride	100	70-130
2,2,4-Trimethylpentane	118	70-130
Benzene	97	70-130
1,2-Dichloroethane	109	70-130
Heptane	120	70-130
Trichloroethene	110	70-130
1,2-Dichloropropane	116	70-130
1,4-Dioxane	111	70-130
Bromodichloromethane	111	70-130
cis-1,3-Dichloropropene	121	70-130
4-Methyl-2-pentanone	118	70-130
Toluene	107	70-130
trans-1,3-Dichloropropene	112	70-130
1,1,2-Trichloroethane	108	70-130
Tetrachloroethene	100	70-130
2-Hexanone	120	70-130

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Client Sample ID: LCS

Lab ID#: 1702049A-09C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 10:06 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	108	70-130
1,2-Dibromoethane (EDB)	108	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	110	70-130
m,p-Xylene	106	70-130
o-Xylene	110	70-130
Styrene	110	70-130
Bromoform	110	70-130
Cumene	106	70-130
1,1,2,2-Tetrachloroethane	105	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	108	70-130
1,3,5-Trimethylbenzene	105	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	107	70-130
alpha-Chlorotoluene	113	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	101	70-130
Butane	104	60-140
Isopentane	116	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD

Lab ID#: 1702049A-09CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 10:35 AM**	

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	95	70-130
Chloromethane	70	70-130
Vinyl Chloride	121	70-130
1,3-Butadiene	113	70-130
Bromomethane	105	70-130
Chloroethane	116	70-130
Freon 11	98	70-130
Ethanol	102	70-130
Freon 113	90	70-130
1,1-Dichloroethene	102	70-130
Acetone	109	70-130
2-Propanol	116	70-130
Carbon Disulfide	113	70-130
3-Chloropropene	121	70-130
Methylene Chloride	117	70-130
Methyl tert-butyl ether	108	70-130
trans-1,2-Dichloroethene	115	70-130
Hexane	127	70-130
1,1-Dichloroethane	118	70-130
2-Butanone (Methyl Ethyl Ketone)	116	70-130
cis-1,2-Dichloroethene	103	70-130
Tetrahydrofuran	132 Q	70-130
Chloroform	110	70-130
1,1,1-Trichloroethane	102	70-130
Cyclohexane	116	70-130
Carbon Tetrachloride	103	70-130
2,2,4-Trimethylpentane	120	70-130
Benzene	96	70-130
1,2-Dichloroethane	106	70-130
Heptane	118	70-130
Trichloroethene	110	70-130
1,2-Dichloropropane	116	70-130
1,4-Dioxane	112	70-130
Bromodichloromethane	111	70-130
cis-1,3-Dichloropropene	122	70-130
4-Methyl-2-pentanone	116	70-130
Toluene	106	70-130
trans-1,3-Dichloropropene	108	70-130
1,1,2-Trichloroethane	106	70-130
Tetrachloroethene	100	70-130
2-Hexanone	117	70-130

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Client Sample ID: LCSD

Lab ID#: 1702049A-09CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17021404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 10:35 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	105	70-130
1,2-Dibromoethane (EDB)	106	70-130
Chlorobenzene	101	70-130
Ethyl Benzene	107	70-130
m,p-Xylene	104	70-130
o-Xylene	108	70-130
Styrene	108	70-130
Bromoform	108	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	102	70-130
Propylbenzene	104	70-130
4-Ethyltoluene	105	70-130
1,3,5-Trimethylbenzene	103	70-130
1,2,4-Trimethylbenzene	106	70-130
1,3-Dichlorobenzene	100	70-130
1,4-Dichlorobenzene	105	70-130
alpha-Chlorotoluene	111	70-130
1,2-Dichlorobenzene	100	70-130
1,2,4-Trichlorobenzene	102	70-130
Hexachlorobutadiene	103	70-130
Butane	117	60-140
Isopentane	119	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	99	70-130

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2/15/2017
Ms. Elizabeth Kunkel
URS Corporation
1001 Highlands Plaza Dr. West
Suite 300
St. Louis MO 63110

Project Name: Roxana Quarterly Soil Vapor
Project #: 60527968 - 1.04.001
Workorder #: 1702049B

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 2/2/2017 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 Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. 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 #: 1702049B

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 PO Box 203970 Austin, TX 78720
PHONE:	314-743-4179	**P.O. #**	60527968-104001
FAX:		**PROJECT #**	60527968 - 1.04.001 Roxana Quarterly Soil Vapor
DATE RECEIVED:	02/02/2017	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	02/15/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VMP-15-5-020117	Modified ASTM D-1946	5.7 "Hg	14.9 psi
02A	VMP-15-21.5-020117	Modified ASTM D-1946	5.7 "Hg	14.8 psi
03A	VMP-15-25.5-020117	Modified ASTM D-1946	7.8 "Hg	14.9 psi
04A	VMP-55-5-020117	Modified ASTM D-1946	6.3 "Hg	15 psi
05A	VMP-55-20-020117	Modified ASTM D-1946	7.3 "Hg	14.9 psi
06A	VMP-55-20-020117-Dup	Modified ASTM D-1946	4.3 "Hg	15.4 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
07B	Lab Blank	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 02/15/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
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 - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
URS Corporation
Workorder# 1702049B

Six 1 Liter Summa Canister samples were received on February 02, 2017. 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-15-5-020117

Lab ID#: 1702049B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	17
Nitrogen	0.25	80
Carbon Dioxide	0.025	3.2

Client Sample ID: VMP-15-21.5-020117

Lab ID#: 1702049B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	1.8
Nitrogen	0.25	82
Methane	0.00025	0.99
Carbon Dioxide	0.025	15

Client Sample ID: VMP-15-25.5-020117

Lab ID#: 1702049B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	6.4
Nitrogen	0.27	80
Methane	0.00027	0.00071
Carbon Dioxide	0.027	13

Client Sample ID: VMP-55-5-020117

Lab ID#: 1702049B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	3.9
Nitrogen	0.26	80
Methane	0.00026	0.00018 J
Carbon Dioxide	0.026	16
Helium	0.13	0.034 J

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

Client Sample ID: VMP-55-20-020117

Lab ID#: 1702049B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	13
Nitrogen	0.27	77
Methane	0.00027	1.9
Carbon Dioxide	0.027	8.5
Ethane	0.0027	0.00060 J
Helium	0.13	0.042 J

Client Sample ID: VMP-55-20-020117-Dup

Lab ID#: 1702049B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	15
Nitrogen	0.24	77
Methane	0.00024	1.5
Carbon Dioxide	0.024	6.7
Ethane	0.0024	0.00047 J
Helium	0.12	0.034 J

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Client Sample ID: VMP-15-5-020117

Lab ID#: 1702049B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021407**	**Date of Collection: 2/1/17 10:53:00 AM**	
Dil. Factor:	**2.49**	**Date of Analysis: 2/14/17 09:59 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	17
Nitrogen	0.25	80
Carbon Monoxide	0.025	Not Detected
Methane	0.00025	Not Detected
Carbon Dioxide	0.025	3.2
Ethane	0.0025	Not Detected
Ethene	0.0025	Not Detected
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-21.5-020117

Lab ID#: 1702049B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021408**	**Date of Collection: 2/1/17 11:16:00 AM**	
Dil. Factor:	**2.48**	**Date of Analysis: 2/14/17 10:25 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	1.8
Nitrogen	0.25	82
Carbon Monoxide	0.025	Not Detected
Methane	0.00025	0.99
Carbon Dioxide	0.025	15
Ethane	0.0025	Not Detected
Ethene	0.0025	Not Detected
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-25.5-020117

Lab ID#: 1702049B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021409**	**Date of Collection: 2/1/17 11:44:00 AM**	
Dil. Factor:	**2.72**	**Date of Analysis: 2/14/17 10:51 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	6.4
Nitrogen	0.27	80
Carbon Monoxide	0.027	Not Detected
Methane	0.00027	0.00071
Carbon Dioxide	0.027	13
Ethane	0.0027	Not Detected
Ethene	0.0027	Not Detected
Helium	0.14	Not Detected

Container Type: 1 Liter Summa Canister

eurofins | Air Toxics

Client Sample ID: VMP-55-5-020117

Lab ID#: 1702049B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021410**	**Date of Collection: 2/1/17 8:59:00 AM**	
Dil. Factor:	**2.56**	**Date of Analysis: 2/14/17 11:17 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	3.9
Nitrogen	0.26	80
Carbon Monoxide	0.026	Not Detected
Methane	0.00026	0.00018 J
Carbon Dioxide	0.026	16
Ethane	0.0026	Not Detected
Ethene	0.0026	Not Detected
Helium	0.13	0.034 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

eurofins | Air Toxics

Client Sample ID: VMP-55-20-020117

Lab ID#: 1702049B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021412**	**Date of Collection: 2/1/17 9:25:00 AM**	
Dil. Factor:	**2.67**	**Date of Analysis: 2/14/17 12:13 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	13
Nitrogen	0.27	77
Carbon Monoxide	0.027	Not Detected
Methane	0.00027	1.9
Carbon Dioxide	0.027	8.5
Ethane	0.0027	0.00060 J
Ethene	0.0027	Not Detected
Helium	0.13	0.042 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

eurofins | Air Toxics

Client Sample ID: VMP-55-20-020117-Dup

Lab ID#: 1702049B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021413**	**Date of Collection: 2/1/17 9:25:00 AM**	
Dil. Factor:	**2.39**	**Date of Analysis: 2/14/17 12:41 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	15
Nitrogen	0.24	77
Carbon Monoxide	0.024	Not Detected
Methane	0.00024	1.5
Carbon Dioxide	0.024	6.7
Ethane	0.0024	0.00047 J
Ethene	0.0024	Not Detected
Helium	0.12	0.034 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1702049B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021404a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 08:31 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	0.014 J
Nitrogen	0.10	0.050 J
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1702049B-07B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021405c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 09:03 AM**	

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

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1702049B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021402**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 07:36 AM**	

Compound	%Recovery	Method Limits
Oxygen	97	85-115
Nitrogen	95	85-115
Carbon Monoxide	93	85-115
Methane	103	85-115
Carbon Dioxide	102	85-115
Ethane	102	85-115
Ethene	102	85-115
Helium	102	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1702049B-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021430**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/14/17 09:17 PM**	

Compound	%Recovery	Method Limits
Oxygen	97	85-115
Nitrogen	95	85-115
Carbon Monoxide	91	85-115
Methane	100	85-115
Carbon Dioxide	103	85-115
Ethane	99	85-115
Ethene	98	85-115
Helium	101	85-115

Container Type: NA - Not Applicable