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May 7, 2019

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 (not sampled 1st Quarter 2019)

If you have any questions or require further information, please contact Robert Mooshegian at robert.mooshegian@aecom.com (314/802-1185) or Samuel Fisher at samuel.fisher@aecom.com (314/802-1152).

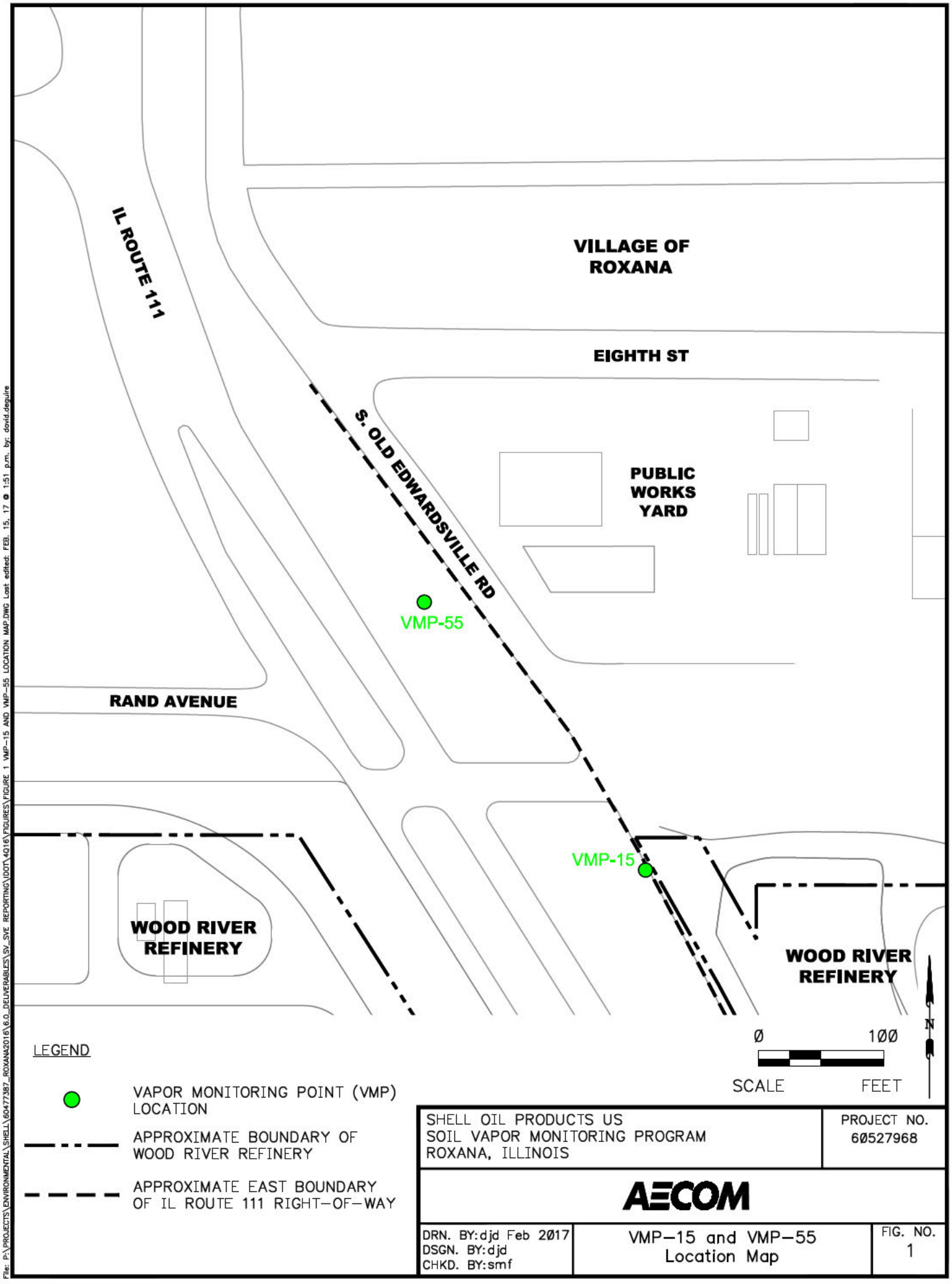
Sincerely,
AECOM, on behalf of Shell Oil Products US

Samuel Fisher
Environmental Scientist

Robert E. Mooshegian, STS
Senior Program Manager

Attachments

cc: Kevin Dyer, SOPUS
Repositories – 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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2/7/2019
Ms. Elizabeth Kunkel
AECOM
100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor
Project #: 60592794-1.04.001
Workorder #: 1901484A

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 1/25/2019 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 #: 1901484A

Work Order Summary

CLIENT:	Ms. Elizabeth Kunkel AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	**BILL TO:**	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
PHONE:	314-802-1171	**P.O. #**	110116ACM
FAX:		**PROJECT #**	60592794-1.04.001 Roxana Quarterly Soil Vapor
DATE RECEIVED:	01/25/2019	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	02/07/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VMP-15-5-012419	TO-15	3.5 "Hg	15 psi
02A	VMP-15-21.5-012419	TO-15	2.5 "Hg	15 psi
03A	VMP-15-25.5-012419	TO-15	2.5 "Hg	15 psi
04A	Lab Blank	TO-15	NA	NA
05A	CCV	TO-15	NA	NA
06A	LCS	TO-15	NA	NA
06AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 02/07/19

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.
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
AECOM
Workorder# 1901484A

Three 1 Liter Summa Canister samples were received on January 25, 2019. 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.

Definition of Data Qualifying Flags

Ten 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.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

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-15-5-012419

Lab ID#: 1901484A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.50 J	5.7	2.5 J
Acetone	11	3.3 J	27	7.7 J
2-Propanol	4.6	0.76 J	11	1.9 J
Chloroform	1.1	0.45 J	5.6	2.2 J

Client Sample ID: VMP-15-21.5-012419

Lab ID#: 1901484A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.35 J	5.4	1.7 J
2,2,4-Trimethylpentane	1.1	0.18 J	5.1	0.84 J
m,p-Xylene	1.1	0.22 J	4.8	0.96 J

Client Sample ID: VMP-15-25.5-012419

Lab ID#: 1901484A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.40 J	5.4	2.0 J
Acetone	11	6.0 J	26	14 J
2-Propanol	4.4	0.88 J	11	2.2 J
Chloroform	1.1	0.22 J	5.4	1.1 J
Isopentane	4.4	0.69 J	13	2.0 J

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Client Sample ID: VMP-15-5-012419

Lab ID#: 1901484A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020417**	**Date of Collection:**	**1/24/19 9:03:00 AM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**2/4/19 09:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.50 J	5.7	2.5 J
Freon 114	1.1	Not Detected	8.0	Not Detected
Chloromethane	11	Not Detected	24	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.6	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.4	Not Detected
Ethanol	4.6	Not Detected	8.6	Not Detected
Freon 113	1.1	Not Detected	8.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Acetone	11	3.3 J	27	7.7 J
2-Propanol	4.6	0.76 J	11	1.9 J
Carbon Disulfide	4.6	Not Detected	14	Not Detected
3-Chloropropene	4.6	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	40	Not Detected
Methyl tert-butyl ether	4.6	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.6	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.4	Not Detected
Chloroform	1.1	0.45 J	5.6	2.2 J
1,1,1-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.2	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.3	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	Not Detected	4.7	Not Detected
Trichloroethene	1.1	Not Detected	6.2	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.3	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.7	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.7	Not Detected
Toluene	1.1	Not Detected	4.3	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
2-Hexanone	4.6	Not Detected	19	Not Detected

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Client Sample ID: VMP-15-5-012419

Lab ID#: 1901484A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020417**	**Date of Collection:**	**1/24/19 9:03:00 AM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**2/4/19 09:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.8	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.8	Not Detected
Chlorobenzene	1.1	Not Detected	5.3	Not Detected
Ethyl Benzene	1.1	Not Detected	5.0	Not Detected
m,p-Xylene	1.1	Not Detected	5.0	Not Detected
o-Xylene	1.1	Not Detected	5.0	Not Detected
Styrene	1.1	Not Detected	4.9	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.6	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.9	Not Detected
Propylbenzene	1.1	Not Detected	5.6	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.6	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.9	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.9	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.9	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.9	Not Detected
1,2,4-Trichlorobenzene	4.6	Not Detected	34	Not Detected
Hexachlorobutadiene	4.6	Not Detected	49	Not Detected
Butane	4.6	Not Detected	11	Not Detected
Isopentane	4.6	Not Detected	14	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: VMP-15-21.5-012419

Lab ID#: 1901484A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020418**	**Date of Collection:**	**1/24/19 9:18:00 AM**
Dil. Factor:	**2.20**	**Date of Analysis:**	**2/4/19 10:04 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.35 J	5.4	1.7 J
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	4.4	Not Detected	8.3	Not Detected
Freon 113	1.1	Not Detected	8.4	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	26	Not Detected
2-Propanol	4.4	Not Detected	11	Not Detected
Carbon Disulfide	4.4	Not Detected	14	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	4.4	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.9	Not Detected
2,2,4-Trimethylpentane	1.1	0.18 J	5.1	0.84 J
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	Not Detected	4.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	Not Detected	18	Not Detected

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Client Sample ID: VMP-15-21.5-012419

Lab ID#: 1901484A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020418**	**Date of Collection: 1/24/19 9:18:00 AM**	
Dil. Factor:	**2.20**	**Date of Analysis: 2/4/19 10:04 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.4	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	0.22 J	4.8	0.96 J
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
Butane	4.4	Not Detected	10	Not Detected
Isopentane	4.4	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: VMP-15-25.5-012419

Lab ID#: 1901484A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020419**	**Date of Collection:**	**1/24/19 9:36:00 AM**
Dil. Factor:	**2.20**	**Date of Analysis:**	**2/4/19 10:30 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.40 J	5.4	2.0 J
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	4.4	Not Detected	8.3	Not Detected
Freon 113	1.1	Not Detected	8.4	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	6.0 J	26	14 J
2-Propanol	4.4	0.88 J	11	2.2 J
Carbon Disulfide	4.4	Not Detected	14	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	4.4	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	0.22 J	5.4	1.1 J
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.9	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.1	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	Not Detected	4.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	Not Detected	18	Not Detected

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Client Sample ID: VMP-15-25.5-012419

Lab ID#: 1901484A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020419**	**Date of Collection: 1/24/19 9:36:00 AM**	
Dil. Factor:	**2.20**	**Date of Analysis: 2/4/19 10:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.4	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
Butane	4.4	Not Detected	10	Not Detected
Isopentane	4.4	0.69 J	13	2.0 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1901484A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020406a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 12:43 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	Not Detected	12	Not Detected
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	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#: 1901484A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020406a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 12:43 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

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV

Lab ID#: 1901484A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020402**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 09:53 AM**

Compound	%Recovery
Freon 12	103
Freon 114	107
Chloromethane	87
Vinyl Chloride	89
1,3-Butadiene	87
Bromomethane	97
Chloroethane	92
Freon 11	92
Ethanol	78
Freon 113	92
1,1-Dichloroethene	86
Acetone	81
2-Propanol	77
Carbon Disulfide	83
3-Chloropropene	77
Methylene Chloride	83
Methyl tert-butyl ether	78
trans-1,2-Dichloroethene	83
Hexane	78
1,1-Dichloroethane	84
2-Butanone (Methyl Ethyl Ketone)	83
cis-1,2-Dichloroethene	87
Tetrahydrofuran	80
Chloroform	89
1,1,1-Trichloroethane	88
Cyclohexane	83
Carbon Tetrachloride	90
2,2,4-Trimethylpentane	84
Benzene	97
1,2-Dichloroethane	93
Heptane	88
Trichloroethene	95
1,2-Dichloropropane	94
1,4-Dioxane	95
Bromodichloromethane	97
cis-1,3-Dichloropropene	94
4-Methyl-2-pentanone	91
Toluene	98
trans-1,3-Dichloropropene	87
1,1,2-Trichloroethane	91
Tetrachloroethene	100
2-Hexanone	86

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Client Sample ID: CCV

Lab ID#: 1901484A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020402**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 09:53 AM**	

Compound	%Recovery
Dibromochloromethane	99
1,2-Dibromoethane (EDB)	95
Chlorobenzene	97
Ethyl Benzene	94
m,p-Xylene	93
o-Xylene	92
Styrene	92
Bromoform	99
Cumene	95
1,1,2,2-Tetrachloroethane	93
Propylbenzene	94
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	100
1,2,4-Trimethylbenzene	94
1,3-Dichlorobenzene	102
1,4-Dichlorobenzene	102
alpha-Chlorotoluene	95
1,2-Dichlorobenzene	104
1,2,4-Trichlorobenzene	98
Hexachlorobutadiene	102
Butane	69
Isopentane	83

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCS

Lab ID#: 1901484A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 10:46 AM**	

Compound	%Recovery	Method Limits
Freon 12	101	70-130
Freon 114	106	70-130
Chloromethane	87	70-130
Vinyl Chloride	93	70-130
1,3-Butadiene	85	70-130
Bromomethane	99	70-130
Chloroethane	93	70-130
Freon 11	92	70-130
Ethanol	78	70-130
Freon 113	93	70-130
1,1-Dichloroethene	87	70-130
Acetone	79	70-130
2-Propanol	78	70-130
Carbon Disulfide	84	70-130
3-Chloropropene	79	70-130
Methylene Chloride	83	70-130
Methyl tert-butyl ether	78	70-130
trans-1,2-Dichloroethene	90	70-130
Hexane	81	70-130
1,1-Dichloroethane	83	70-130
2-Butanone (Methyl Ethyl Ketone)	85	70-130
cis-1,2-Dichloroethene	80	70-130
Tetrahydrofuran	81	70-130
Chloroform	88	70-130
1,1,1-Trichloroethane	88	70-130
Cyclohexane	86	70-130
Carbon Tetrachloride	92	70-130
2,2,4-Trimethylpentane	86	70-130
Benzene	97	70-130
1,2-Dichloroethane	88	70-130
Heptane	88	70-130
Trichloroethene	95	70-130
1,2-Dichloropropane	95	70-130
1,4-Dioxane	97	70-130
Bromodichloromethane	98	70-130
cis-1,3-Dichloropropene	100	70-130
4-Methyl-2-pentanone	92	70-130
Toluene	97	70-130
trans-1,3-Dichloropropene	87	70-130
1,1,2-Trichloroethane	91	70-130
Tetrachloroethene	99	70-130
2-Hexanone	89	70-130

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Client Sample ID: LCS

Lab ID#: 1901484A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 10:46 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	99	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	98	70-130
Ethyl Benzene	95	70-130
m,p-Xylene	94	70-130
o-Xylene	96	70-130
Styrene	94	70-130
Bromoform	104	70-130
Cumene	95	70-130
1,1,2,2-Tetrachloroethane	94	70-130
Propylbenzene	96	70-130
4-Ethyltoluene	99	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	96	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	100	70-130
1,2-Dichlorobenzene	105	70-130
1,2,4-Trichlorobenzene	98	70-130
Hexachlorobutadiene	108	70-130
Butane	68	60-140
Isopentane	84	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCSD

Lab ID#: 1901484A-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 11:10 AM**	

Compound	%Recovery	Method Limits
Freon 12	100	70-130
Freon 114	104	70-130
Chloromethane	84	70-130
Vinyl Chloride	90	70-130
1,3-Butadiene	83	70-130
Bromomethane	97	70-130
Chloroethane	91	70-130
Freon 11	90	70-130
Ethanol	76	70-130
Freon 113	90	70-130
1,1-Dichloroethene	85	70-130
Acetone	79	70-130
2-Propanol	77	70-130
Carbon Disulfide	82	70-130
3-Chloropropene	80	70-130
Methylene Chloride	81	70-130
Methyl tert-butyl ether	77	70-130
trans-1,2-Dichloroethene	89	70-130
Hexane	80	70-130
1,1-Dichloroethane	81	70-130
2-Butanone (Methyl Ethyl Ketone)	83	70-130
cis-1,2-Dichloroethene	79	70-130
Tetrahydrofuran	80	70-130
Chloroform	87	70-130
1,1,1-Trichloroethane	86	70-130
Cyclohexane	84	70-130
Carbon Tetrachloride	90	70-130
2,2,4-Trimethylpentane	84	70-130
Benzene	94	70-130
1,2-Dichloroethane	87	70-130
Heptane	88	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	93	70-130
1,4-Dioxane	94	70-130
Bromodichloromethane	96	70-130
cis-1,3-Dichloropropene	97	70-130
4-Methyl-2-pentanone	91	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	86	70-130
1,1,2-Trichloroethane	91	70-130
Tetrachloroethene	99	70-130
2-Hexanone	89	70-130

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Client Sample ID: LCSD

Lab ID#: 1901484A-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3020404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/4/19 11:10 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	99	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	95	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	95	70-130
o-Xylene	94	70-130
Styrene	93	70-130
Bromoform	102	70-130
Cumene	94	70-130
1,1,2,2-Tetrachloroethane	94	70-130
Propylbenzene	95	70-130
4-Ethyltoluene	99	70-130
1,3,5-Trimethylbenzene	99	70-130
1,2,4-Trimethylbenzene	95	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	99	70-130
1,2-Dichlorobenzene	104	70-130
1,2,4-Trichlorobenzene	99	70-130
Hexachlorobutadiene	108	70-130
Butane	67	60-140
Isopentane	81	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	104	70-130

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2/7/2019
Ms. Elizabeth Kunkel
AECOM
100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor
Project #: 60592794-1.04.001
Workorder #: 1901484B

Dear Ms. Elizabeth Kunkel

The following report includes the data for the above referenced project for sample(s) received on 1/25/2019 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 #: 1901484B

Work Order Summary

CLIENT:	Ms. Elizabeth Kunkel AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	**BILL TO:**	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
PHONE:	314-802-1171	**P.O. #**	110116ACM
FAX:		**PROJECT #**	60592794-1.04.001 Roxana Quarterly Soil Vapor
DATE RECEIVED:	01/25/2019	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	02/07/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VMP-15-5-012419	Modified ASTM D-1946	3.5 "Hg	15 psi
02A	VMP-15-21.5-012419	Modified ASTM D-1946	2.5 "Hg	15 psi
03A	VMP-15-25.5-012419	Modified ASTM D-1946	2.5 "Hg	15 psi
04A	Lab Blank	Modified ASTM D-1946	NA	NA
04B	Lab Blank	Modified ASTM D-1946	NA	NA
05A	LCS	Modified ASTM D-1946	NA	NA
05AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:  DATE: 02/07/19

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.
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
AECOM
Workorder# 1901484B

Three 1 Liter Summa Canister samples were received on January 25, 2019. 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-15-5-012419

Lab ID#: 1901484B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	18
Nitrogen	0.23	80
Carbon Dioxide	0.023	2.1

Client Sample ID: VMP-15-21.5-012419

Lab ID#: 1901484B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	4.2
Nitrogen	0.22	84
Carbon Dioxide	0.022	12

Client Sample ID: VMP-15-25.5-012419

Lab ID#: 1901484B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	3.7
Nitrogen	0.22	81
Carbon Dioxide	0.022	15

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Client Sample ID: VMP-15-5-012419

Lab ID#: 1901484B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013109**	**Date of Collection: 1/24/19 9:03:00 AM**	
Dil. Factor:	**2.29**	**Date of Analysis: 1/30/19 10:25 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	18
Nitrogen	0.23	80
Carbon Monoxide	0.023	Not Detected
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	2.1
Ethane	0.0023	Not Detected
Ethene	0.0023	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-21.5-012419

Lab ID#: 1901484B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013110**	**Date of Collection: 1/24/19 9:18:00 AM**	
Dil. Factor:	**2.20**	**Date of Analysis: 1/30/19 10:47 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	4.2
Nitrogen	0.22	84
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	12
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: VMP-15-25.5-012419

Lab ID#: 1901484B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013111**	**Date of Collection: 1/24/19 9:36:00 AM**	
Dil. Factor:	**2.20**	**Date of Analysis: 1/31/19 08:13 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	3.7
Nitrogen	0.22	81
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	15
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: Lab Blank

Lab ID#: 1901484B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013104a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/30/19 08:05 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	0.027 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#: 1901484B-04B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013103c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/30/19 07:42 PM**	

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

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1901484B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013102**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/30/19 06:43 PM**	

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	90	85-115
Carbon Monoxide	89	85-115
Methane	105	85-115
Carbon Dioxide	97	85-115
Ethane	104	85-115
Ethene	102	85-115
Helium	101	85-115

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1901484B-05AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10013126**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/31/19 04:38 PM**	

Compound	%Recovery	Method Limits
Oxygen	104	85-115
Nitrogen	91	85-115
Carbon Monoxide	90	85-115
Methane	102	85-115
Carbon Dioxide	98	85-115
Ethane	101	85-115
Ethene	99	85-115
Helium	101	85-115

Container Type: NA - Not Applicable