

12/6/2016

Mr. Curt Lueckenhoff
Missouri Dept. of Natural Resources
2710 West Main

Jefferson City MO 65109

Project Name: Bridgeton Landfill

Project #:

Workorder #: 1611406

Dear Mr. Curt Lueckenhoff

The following report includes the data for the above referenced project for sample(s) received on 11/21/2016 at Air Toxics Ltd.

The data and associated QC analyzed by Modified 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: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker
Project Manager

WORK ORDER #: 1611406

Work Order Summary

CLIENT:	Mr. Curt Lueckenhoff Missouri Dept. of Natural Resources 2710 West Main Jefferson City, MO 65109	BILL TO:	Accounts Payable Missouri Dept. of Natural Resources P.O Box 176 Jefferson City, MO 65102
PHONE:	573-526-3363	P.O. #	3ESP170362
FAX:	573-526-3350	PROJECT #	Bridgeton Landfill
DATE RECEIVED:	11/21/2016	CONTACT:	Brian Whittaker
DATE COMPLETED:	12/06/2016		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	D1 (163922)	Modified TO-15	6.0 "Hg	5 psi
02A	D2 (163923)	Modified TO-15	6.5 "Hg	5 psi
03A	U1 (163924)	Modified TO-15	7.0 "Hg	5 psi
04A	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/06/16

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

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LABORATORY NARRATIVE
Modified TO-15 Low Level
Missouri Dept. of Natural Resources
Workorder# 1611406

Three 6 Liter Summa Canister (100% Certified) samples were received on November 21, 2016. The laboratory performed analysis via modified 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.

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

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	$\leq 30\%$ RSD with 4 compounds allowed out to $< 40\%$ RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

The Chain of Custody (COC) information for samples D2 (163923) and U1 (163924) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

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.

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

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

Client Sample ID: D1 (163922)

Lab ID#: 1611406-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	0.46	0.83	2.2
Freon 11	0.17	0.42	0.94	2.4
Ethanol	0.84	4.9	1.6	9.3
Acetone	0.84	3.5	2.0	8.4
Hexane	0.17	0.17	0.59	0.61
Benzene	0.17	0.17	0.54	0.56
Heptane	0.17	0.17	0.69	0.71
Toluene	0.17	0.21	0.63	0.81

Client Sample ID: D2 (163923)

Lab ID#: 1611406-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	0.45	0.84	2.2
Freon 11	0.17	0.20	0.96	1.1
Ethanol	0.86	1.8	1.6	3.5
Acetone	0.86	3.2	2.0	7.7
Benzene	0.17	0.17 J	0.55	0.54 J
Toluene	0.17	0.20	0.64	0.76

Client Sample ID: U1 (163924)

Lab ID#: 1611406-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.18	0.44	0.86	2.2
Freon 11	0.18	0.20	0.98	1.1
Ethanol	0.88	2.6	1.6	5.0
Acetone	0.88	2.8	2.1	6.8
2-Propanol	0.88	0.89	2.2	2.2
Hexane	0.18	0.29	0.62	1.0
Benzene	0.18	0.19	0.56	0.61
Heptane	0.18	0.26	0.72	1.0
Toluene	0.18	0.50	0.66	1.9

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

Client Sample ID: U1 (163924)

Lab ID#: 1611406-03A



Air Toxics

Client Sample ID: D1 (163922)

Lab ID#: 1611406-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112316	Date of Collection:	11/15/16 12:55:00 P
Dil. Factor:	1.68	Date of Analysis:	11/23/16 06:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	0.46	0.83	2.2
Freon 114	0.17	Not Detected	1.2	Not Detected
Chloromethane	0.84	Not Detected	1.7	Not Detected
Vinyl Chloride	0.17	Not Detected	0.43	Not Detected
1,3-Butadiene	0.17	Not Detected	0.37	Not Detected
Bromomethane	0.84	Not Detected	3.3	Not Detected
Chloroethane	0.84	Not Detected	2.2	Not Detected
Freon 11	0.17	0.42	0.94	2.4
Ethanol	0.84	4.9	1.6	9.3
Freon 113	0.17	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Acetone	0.84	3.5	2.0	8.4
2-Propanol	0.84	Not Detected	2.1	Not Detected
Carbon Disulfide	0.84	Not Detected	2.6	Not Detected
3-Chloropropene	0.84	Not Detected	2.6	Not Detected
Methylene Chloride	0.34	Not Detected	1.2	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.60	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Hexane	0.17	0.17	0.59	0.61
1,1-Dichloroethane	0.17	Not Detected	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.84	Not Detected	2.5	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Tetrahydrofuran	0.84	Not Detected	2.5	Not Detected
Chloroform	0.17	Not Detected	0.82	Not Detected
1,1,1-Trichloroethane	0.17	Not Detected UJ	0.92	Not Detected UJ
Cyclohexane	0.17	Not Detected	0.58	Not Detected
Carbon Tetrachloride	0.17	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.84	Not Detected	3.9	Not Detected
Benzene	0.17	0.17	0.54	0.56
1,2-Dichloroethane	0.17	Not Detected	0.68	Not Detected
Heptane	0.17	0.17	0.69	0.71
Trichloroethene	0.17	Not Detected	0.90	Not Detected
1,2-Dichloropropane	0.17	Not Detected	0.78	Not Detected
1,4-Dioxane	0.17	Not Detected	0.60	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.69	Not Detected
Toluene	0.17	0.21	0.63	0.81
trans-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
1,1,2-Trichloroethane	0.17	Not Detected	0.92	Not Detected
Tetrachloroethene	0.17	Not Detected	1.1	Not Detected
2-Hexanone	0.84	Not Detected	3.4	Not Detected



Client Sample ID: D1 (163922)

Lab ID#: 1611406-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112316	Date of Collection:	11/15/16 12:55:00 P
Dil. Factor:	1.68	Date of Analysis:	11/23/16 06:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.17	Not Detected	1.3	Not Detected
Chlorobenzene	0.17	Not Detected	0.77	Not Detected
Ethyl Benzene	0.17	Not Detected	0.73	Not Detected
m,p-Xylene	0.17	Not Detected	0.73	Not Detected
o-Xylene	0.17	Not Detected	0.73	Not Detected
Styrene	0.17	Not Detected	0.72	Not Detected
Bromoform	0.17	Not Detected	1.7	Not Detected
Cumene	0.17	Not Detected	0.82	Not Detected
1,1,2,2-Tetrachloroethane	0.17	Not Detected	1.2	Not Detected
Propylbenzene	0.17	Not Detected	0.82	Not Detected
4-Ethyltoluene	0.17	Not Detected	0.82	Not Detected
1,3,5-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.87	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.84	Not Detected UJ	6.2	Not Detected UJ
Hexachlorobutadiene	0.84	Not Detected	9.0	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: D2 (163923)

Lab ID#: 1611406-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112317	Date of Collection:	11/15/16 1:05:00 PM
Dil. Factor:	1.71	Date of Analysis:	11/23/16 07:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	0.45	0.84	2.2
Freon 114	0.17	Not Detected	1.2	Not Detected
Chloromethane	0.86	Not Detected	1.8	Not Detected
Vinyl Chloride	0.17	Not Detected	0.44	Not Detected
1,3-Butadiene	0.17	Not Detected	0.38	Not Detected
Bromomethane	0.86	Not Detected	3.3	Not Detected
Chloroethane	0.86	Not Detected	2.2	Not Detected
Freon 11	0.17	0.20	0.96	1.1
Ethanol	0.86	1.8	1.6	3.5
Freon 113	0.17	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Acetone	0.86	3.2	2.0	7.7
2-Propanol	0.86	Not Detected	2.1	Not Detected
Carbon Disulfide	0.86	Not Detected	2.7	Not Detected
3-Chloropropene	0.86	Not Detected	2.7	Not Detected
Methylene Chloride	0.34	Not Detected	1.2	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.62	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Hexane	0.17	Not Detected	0.60	Not Detected
1,1-Dichloroethane	0.17	Not Detected	0.69	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.86	Not Detected	2.5	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Tetrahydrofuran	0.86	Not Detected	2.5	Not Detected
Chloroform	0.17	Not Detected	0.83	Not Detected
1,1,1-Trichloroethane	0.17	Not Detected UJ	0.93	Not Detected UJ
Cyclohexane	0.17	Not Detected	0.59	Not Detected
Carbon Tetrachloride	0.17	Not Detected	1.1	Not Detected
2,2,4-Trimethylpentane	0.86	Not Detected	4.0	Not Detected
Benzene	0.17	0.17 J	0.55	0.54 J
1,2-Dichloroethane	0.17	Not Detected	0.69	Not Detected
Heptane	0.17	Not Detected	0.70	Not Detected
Trichloroethene	0.17	Not Detected	0.92	Not Detected
1,2-Dichloropropane	0.17	Not Detected	0.79	Not Detected
1,4-Dioxane	0.17	Not Detected	0.62	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.78	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.70	Not Detected
Toluene	0.17	0.20	0.64	0.76
trans-1,3-Dichloropropene	0.17	Not Detected	0.78	Not Detected
1,1,2-Trichloroethane	0.17	Not Detected	0.93	Not Detected
Tetrachloroethene	0.17	Not Detected	1.2	Not Detected
2-Hexanone	0.86	Not Detected	3.5	Not Detected



Client Sample ID: D2 (163923)

Lab ID#: 1611406-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112317	Date of Collection:	11/15/16 1:05:00 PM
Dil. Factor:	1.71	Date of Analysis:	11/23/16 07:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.17	Not Detected	1.3	Not Detected
Chlorobenzene	0.17	Not Detected	0.79	Not Detected
Ethyl Benzene	0.17	Not Detected	0.74	Not Detected
m,p-Xylene	0.17	Not Detected	0.74	Not Detected
o-Xylene	0.17	Not Detected	0.74	Not Detected
Styrene	0.17	Not Detected	0.73	Not Detected
Bromoform	0.17	Not Detected	1.8	Not Detected
Cumene	0.17	Not Detected	0.84	Not Detected
1,1,2,2-Tetrachloroethane	0.17	Not Detected	1.2	Not Detected
Propylbenzene	0.17	Not Detected	0.84	Not Detected
4-Ethyltoluene	0.17	Not Detected	0.84	Not Detected
1,3,5-Trimethylbenzene	0.17	Not Detected	0.84	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.84	Not Detected
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.88	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.86	Not Detected UJ	6.3	Not Detected UJ
Hexachlorobutadiene	0.86	Not Detected	9.1	Not Detected

UJ = Analyte associated with low bias in the CCV.

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: U1 (163924)

Lab ID#: 1611406-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112318	Date of Collection:	11/15/16 12:45:00 P
Dil. Factor:	1.75	Date of Analysis:	11/23/16 08:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.18	0.44	0.86	2.2
Freon 114	0.18	Not Detected	1.2	Not Detected
Chloromethane	0.88	Not Detected	1.8	Not Detected
Vinyl Chloride	0.18	Not Detected	0.45	Not Detected
1,3-Butadiene	0.18	Not Detected	0.39	Not Detected
Bromomethane	0.88	Not Detected	3.4	Not Detected
Chloroethane	0.88	Not Detected	2.3	Not Detected
Freon 11	0.18	0.20	0.98	1.1
Ethanol	0.88	2.6	1.6	5.0
Freon 113	0.18	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Acetone	0.88	2.8	2.1	6.8
2-Propanol	0.88	0.89	2.2	2.2
Carbon Disulfide	0.88	Not Detected	2.7	Not Detected
3-Chloropropene	0.88	Not Detected	2.7	Not Detected
Methylene Chloride	0.35	Not Detected	1.2	Not Detected
Methyl tert-butyl ether	0.18	Not Detected	0.63	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Hexane	0.18	0.29	0.62	1.0
1,1-Dichloroethane	0.18	Not Detected	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.88	Not Detected	2.6	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Tetrahydrofuran	0.88	Not Detected	2.6	Not Detected
Chloroform	0.18	Not Detected	0.85	Not Detected
1,1,1-Trichloroethane	0.18	Not Detected UJ	0.95	Not Detected UJ
Cyclohexane	0.18	Not Detected	0.60	Not Detected
Carbon Tetrachloride	0.18	Not Detected	1.1	Not Detected
2,2,4-Trimethylpentane	0.88	Not Detected	4.1	Not Detected
Benzene	0.18	0.19	0.56	0.61
1,2-Dichloroethane	0.18	Not Detected	0.71	Not Detected
Heptane	0.18	0.26	0.72	1.0
Trichloroethene	0.18	Not Detected	0.94	Not Detected
1,2-Dichloropropane	0.18	Not Detected	0.81	Not Detected
1,4-Dioxane	0.18	Not Detected	0.63	Not Detected
Bromodichloromethane	0.18	Not Detected	1.2	Not Detected
cis-1,3-Dichloropropene	0.18	Not Detected	0.79	Not Detected
4-Methyl-2-pentanone	0.18	Not Detected	0.72	Not Detected
Toluene	0.18	0.50	0.66	1.9
trans-1,3-Dichloropropene	0.18	Not Detected	0.79	Not Detected
1,1,2-Trichloroethane	0.18	Not Detected	0.95	Not Detected
Tetrachloroethene	0.18	Not Detected	1.2	Not Detected
2-Hexanone	0.88	Not Detected	3.6	Not Detected

Client Sample ID: U1 (163924)

Lab ID#: 1611406-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112318	Date of Collection:	11/15/16 12:45:00 P
Dil. Factor:	1.75	Date of Analysis:	11/23/16 08:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.18	Not Detected	1.5	Not Detected
1,2-Dibromoethane (EDB)	0.18	Not Detected	1.3	Not Detected
Chlorobenzene	0.18	Not Detected	0.80	Not Detected
Ethyl Benzene	0.18	Not Detected	0.76	Not Detected
m,p-Xylene	0.18	Not Detected	0.76	Not Detected
o-Xylene	0.18	Not Detected	0.76	Not Detected
Styrene	0.18	Not Detected	0.74	Not Detected
Bromoform	0.18	Not Detected	1.8	Not Detected
Cumene	0.18	Not Detected	0.86	Not Detected
1,1,2,2-Tetrachloroethane	0.18	Not Detected	1.2	Not Detected
Propylbenzene	0.18	Not Detected	0.86	Not Detected
4-Ethyltoluene	0.18	Not Detected	0.86	Not Detected
1,3,5-Trimethylbenzene	0.18	Not Detected	0.86	Not Detected
1,2,4-Trimethylbenzene	0.18	Not Detected	0.86	Not Detected
1,3-Dichlorobenzene	0.18	Not Detected	1.0	Not Detected
1,4-Dichlorobenzene	0.18	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.18	Not Detected	0.90	Not Detected
1,2-Dichlorobenzene	0.18	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.88	Not Detected UJ	6.5	Not Detected UJ
Hexachlorobutadiene	0.88	Not Detected	9.3	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 6 Liter Summa Canister (100% Certified)

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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1611406-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112306	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/23/16 10:36 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.50	Not Detected	1.0	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected UJ	0.54	Not Detected UJ
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected



Client Sample ID: Lab Blank

Lab ID#: 1611406-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112306	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/23/16 10:36 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected UJ	3.7	Not Detected UJ
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1611406-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/23/16 06:48 AM

Compound	%Recovery
Freon 12	74
Freon 114	73
Chloromethane	92
Vinyl Chloride	77
1,3-Butadiene	79
Bromomethane	74
Chloroethane	73
Freon 11	72
Ethanol	75
Freon 113	70
1,1-Dichloroethene	70
Acetone	84
2-Propanol	82
Carbon Disulfide	82
3-Chloropropene	72
Methylene Chloride	73
Methyl tert-butyl ether	71
trans-1,2-Dichloroethene	72
Hexane	78
1,1-Dichloroethane	77
2-Butanone (Methyl Ethyl Ketone)	72
cis-1,2-Dichloroethene	72
Tetrahydrofuran	90
Chloroform	75
1,1,1-Trichloroethane	69 Q
Cyclohexane	70
Carbon Tetrachloride	72
2,2,4-Trimethylpentane	79
Benzene	82
1,2-Dichloroethane	84
Heptane	87
Trichloroethene	77
1,2-Dichloropropane	82
1,4-Dioxane	79
Bromodichloromethane	81
cis-1,3-Dichloropropene	76
4-Methyl-2-pentanone	94
Toluene	79
trans-1,3-Dichloropropene	76
1,1,2-Trichloroethane	82
Tetrachloroethene	76
2-Hexanone	83

Client Sample ID: CCV

Lab ID#: 1611406-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/23/16 06:48 AM

Compound	%Recovery
Dibromochloromethane	78
1,2-Dibromoethane (EDB)	78
Chlorobenzene	79
Ethyl Benzene	78
m,p-Xylene	78
o-Xylene	77
Styrene	79
Bromoform	80
Cumene	78
1,1,2,2-Tetrachloroethane	86
Propylbenzene	81
4-Ethyltoluene	77
1,3,5-Trimethylbenzene	78
1,2,4-Trimethylbenzene	72
1,3-Dichlorobenzene	75
1,4-Dichlorobenzene	77
alpha-Chlorotoluene	78
1,2-Dichlorobenzene	78
1,2,4-Trichlorobenzene	65 Q
Hexachlorobutadiene	74

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

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



Air Toxics

Client Sample ID: LCS

Lab ID#: 1611406-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/23/16 07:32 AM

Compound	%Recovery	Method Limits
Freon 12	95	70-130
Freon 114	94	70-130
Chloromethane	131 Q	70-130
Vinyl Chloride	101	70-130
1,3-Butadiene	100	70-130
Bromomethane	97	70-130
Chloroethane	98	70-130
Freon 11	90	70-130
Ethanol	77	70-130
Freon 113	87	70-130
1,1-Dichloroethene	86	70-130
Acetone	102	70-130
2-Propanol	106	70-130
Carbon Disulfide	88	70-130
3-Chloropropene	88	70-130
Methylene Chloride	90	70-130
Methyl tert-butyl ether	86	70-130
trans-1,2-Dichloroethene	90	70-130
Hexane	101	70-130
1,1-Dichloroethane	93	70-130
2-Butanone (Methyl Ethyl Ketone)	87	70-130
cis-1,2-Dichloroethene	85	70-130
Tetrahydrofuran	114	70-130
Chloroform	92	70-130
1,1,1-Trichloroethane	87	70-130
Cyclohexane	91	70-130
Carbon Tetrachloride	69 Q	70-130
2,2,4-Trimethylpentane	97	70-130
Benzene	104	70-130
1,2-Dichloroethane	103	70-130
Heptane	112	70-130
Trichloroethene	100	70-130
1,2-Dichloropropane	104	70-130
1,4-Dioxane	96	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	120	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	92	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	92	70-130
2-Hexanone	103	70-130

Client Sample ID: LCS

Lab ID#: 1611406-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/23/16 07:32 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	97	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	95	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	95	70-130
o-Xylene	95	70-130
Styrene	96	70-130
Bromoform	97	70-130
Cumene	97	70-130
1,1,2,2-Tetrachloroethane	102	70-130
Propylbenzene	97	70-130
4-Ethyltoluene	95	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	86	70-130
1,3-Dichlorobenzene	91	70-130
1,4-Dichlorobenzene	94	70-130
alpha-Chlorotoluene	96	70-130
1,2-Dichlorobenzene	95	70-130
1,2,4-Trichlorobenzene	77	70-130
Hexachlorobutadiene	93	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS D

Lab ID#: 1611406-06AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112304	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/23/16 08:17 AM

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	97	70-130
Chloromethane	124	70-130
Vinyl Chloride	103	70-130
1,3-Butadiene	102	70-130
Bromomethane	97	70-130
Chloroethane	98	70-130
Freon 11	93	70-130
Ethanol	74	70-130
Freon 113	90	70-130
1,1-Dichloroethene	89	70-130
Acetone	100	70-130
2-Propanol	109	70-130
Carbon Disulfide	90	70-130
3-Chloropropene	91	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	89	70-130
trans-1,2-Dichloroethene	91	70-130
Hexane	104	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	94	70-130
cis-1,2-Dichloroethene	89	70-130
Tetrahydrofuran	116	70-130
Chloroform	93	70-130
1,1,1-Trichloroethane	90	70-130
Cyclohexane	91	70-130
Carbon Tetrachloride	70	70-130
2,2,4-Trimethylpentane	100	70-130
Benzene	102	70-130
1,2-Dichloroethane	103	70-130
Heptane	110	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	105	70-130
1,4-Dioxane	98	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	97	70-130
4-Methyl-2-pentanone	118	70-130
Toluene	100	70-130
trans-1,3-Dichloropropene	92	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	95	70-130
2-Hexanone	103	70-130

Client Sample ID: LCSD

Lab ID#: 1611406-06AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	e112304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/23/16 08:17 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	97	70-130
1,2-Dibromoethane (EDB)	96	70-130
Chlorobenzene	94	70-130
Ethyl Benzene	95	70-130
m,p-Xylene	94	70-130
o-Xylene	95	70-130
Styrene	97	70-130
Bromoform	98	70-130
Cumene	97	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	98	70-130
4-Ethyltoluene	95	70-130
1,3,5-Trimethylbenzene	92	70-130
1,2,4-Trimethylbenzene	87	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	94	70-130
alpha-Chlorotoluene	98	70-130
1,2-Dichlorobenzene	95	70-130
1,2,4-Trichlorobenzene	77	70-130
Hexachlorobutadiene	91	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130