

9/29/2017

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

Jefferson City MO 65109

Project Name: Bridgeton Landfill

Project #:

Workorder #: 1709335

Dear Mr. Curt Lueckenhoff

The following report includes the data for the above referenced project for sample(s) received on 9/18/2017 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 #: 1709335

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. #	3ESP180137
FAX:	573-526-3350	PROJECT #	Bridgeton Landfill
DATE RECEIVED:	09/18/2017	CONTACT:	Brian Whittaker
DATE COMPLETED:	09/29/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	D1 (172370)	Modified TO-15	6.1 "Hg	4.6 psi
02A	U1 (172371)	Modified TO-15	1.2 "Hg	4.3 psi
03A	Lab Blank	Modified TO-15	NA	NA
03B	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
04B	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA
05B	LCS	Modified TO-15	NA	NA
05BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/29/17

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

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LABORATORY NARRATIVE
Modified TO-15
Missouri Dept. of Natural Resources
Workorder# 1709335

Two 6 Liter Summa Canister (100% Certified) samples were received on September 18, 2017. 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

There were no receiving discrepancies.

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. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

The Relative Percent Difference (RPD) of the LCS/LCSD exceeded acceptance limits for 1,2,4-Trichlorobenzene and Hexachlorobutadiene (analytical batch from 09/23/17).

Due to the linear calibration range of the instrument, the reporting limit for Ethanol was raised from 0.5ppbv to 1.0ppbv (analytical batch from 09/23/17).

Ethanol exceeded the instrument's calibration range for sample U1 (172371) and was flagged accordingly.

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 (172370)

Lab ID#: 1709335-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.46	0.82	2.3
Freon 11	0.16	0.21	0.93	1.2
Ethanol	0.82	5.6	1.6	11
Acetone	0.82	6.0	2.0	14
2-Propanol	0.82	1.1	2.0	2.7
Hexane	0.16	0.82	0.58	2.9
2-Butanone (Methyl Ethyl Ketone)	0.82	0.86	2.4	2.5
Heptane	0.16	0.62	0.68	2.5
Toluene	0.16	0.26	0.62	0.99

Client Sample ID: U1 (172371)

Lab ID#: 1709335-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.14	0.40	0.67	2.0
Chloromethane	0.68	0.79	1.4	1.6
Freon 11	0.14	0.22	0.76	1.2
Ethanol	1.4	120 E	2.5	230 E
Acetone	0.68	410 E	1.6	970 E
2-Propanol	0.68	23	1.6	56
Methylene Chloride	0.27	2.1	0.94	7.3
Methyl tert-butyl ether	0.14	0.17	0.49	0.62
Hexane	0.14	9.6	0.48	34
2-Butanone (Methyl Ethyl Ketone)	0.68	12	2.0	34
Tetrahydrofuran	0.68	0.68	2.0	2.0
Cyclohexane	0.14	2.8	0.46	9.7
2,2,4-Trimethylpentane	0.68	20	3.2	93
Benzene	0.14	1.2	0.43	3.8
1,2-Dichloroethane	0.14	0.48	0.55	1.9
Heptane	0.14	4.8	0.55	20
Trichloroethene	0.14	0.15	0.72	0.79
4-Methyl-2-pentanone	0.14	2.3	0.55	9.3
Toluene	0.14	39	0.51	150

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

Client Sample ID: U1 (172371)

Lab ID#: 1709335-02A

Ethyl Benzene	0.14	5.0	0.59	22
m,p-Xylene	0.14	16	0.59	68
o-Xylene	0.14	5.9	0.59	26
Styrene	0.14	1.1	0.58	4.7
Cumene	0.14	0.47	0.66	2.3
Propylbenzene	0.14	0.78	0.66	3.8
4-Ethyltoluene	0.14	3.6	0.66	17
1,2,4-Trimethylbenzene	0.14	4.5	0.66	22



Air Toxics

Client Sample ID: D1 (172370)

Lab ID#: 1709335-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092216	Date of Collection:	9/12/17 1:05:00 PM
Dil. Factor:	1.65	Date of Analysis:	9/22/17 07:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.46	0.82	2.3
Freon 114	0.16	Not Detected	1.2	Not Detected
Chloromethane	0.82	Not Detected	1.7	Not Detected
Vinyl Chloride	0.16	Not Detected	0.42	Not Detected
1,3-Butadiene	0.16	Not Detected	0.36	Not Detected
Bromomethane	0.82	Not Detected	3.2	Not Detected
Chloroethane	0.82	Not Detected	2.2	Not Detected
Freon 11	0.16	0.21	0.93	1.2
Ethanol	0.82	5.6	1.6	11
Freon 113	0.16	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Acetone	0.82	6.0	2.0	14
2-Propanol	0.82	1.1	2.0	2.7
Carbon Disulfide	0.82	Not Detected	2.6	Not Detected
3-Chloropropene	0.82	Not Detected	2.6	Not Detected
Methylene Chloride	0.33	Not Detected	1.1	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.59	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Hexane	0.16	0.82	0.58	2.9
1,1-Dichloroethane	0.16	Not Detected	0.67	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.82	0.86	2.4	2.5
cis-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Tetrahydrofuran	0.82	Not Detected	2.4	Not Detected
Chloroform	0.16	Not Detected	0.80	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.90	Not Detected
Cyclohexane	0.16	Not Detected	0.57	Not Detected
Carbon Tetrachloride	0.16	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.82	Not Detected	3.8	Not Detected
Benzene	0.16	Not Detected	0.53	Not Detected
1,2-Dichloroethane	0.16	Not Detected	0.67	Not Detected
Heptane	0.16	0.62	0.68	2.5
Trichloroethene	0.16	Not Detected	0.89	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.76	Not Detected
1,4-Dioxane	0.16	Not Detected	0.59	Not Detected
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.75	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.68	Not Detected
Toluene	0.16	0.26	0.62	0.99
trans-1,3-Dichloropropene	0.16	Not Detected	0.75	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.90	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.82	Not Detected	3.4	Not Detected



Client Sample ID: D1 (172370)

Lab ID#: 1709335-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092216	Date of Collection:	9/12/17 1:05:00 PM
Dil. Factor:	1.65	Date of Analysis:	9/22/17 07:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.3	Not Detected
Chlorobenzene	0.16	Not Detected	0.76	Not Detected
Ethyl Benzene	0.16	Not Detected	0.72	Not Detected
m,p-Xylene	0.16	Not Detected	0.72	Not Detected
o-Xylene	0.16	Not Detected	0.72	Not Detected
Styrene	0.16	Not Detected	0.70	Not Detected
Bromoform	0.16	Not Detected	1.7	Not Detected
Cumene	0.16	Not Detected	0.81	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.81	Not Detected
4-Ethyltoluene	0.16	Not Detected	0.81	Not Detected
1,3,5-Trimethylbenzene	0.16	Not Detected	0.81	Not Detected
1,2,4-Trimethylbenzene	0.16	Not Detected	0.81	Not Detected
1,3-Dichlorobenzene	0.16	Not Detected	0.99	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.99	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.85	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.99	Not Detected
1,2,4-Trichlorobenzene	0.82	Not Detected	6.1	Not Detected
Hexachlorobutadiene	0.82	Not Detected	8.8	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: U1 (172371)

Lab ID#: 1709335-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092316	Date of Collection:	9/12/17 12:45:00 PM
Dil. Factor:	1.35	Date of Analysis:	9/23/17 09:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.14	0.40	0.67	2.0
Freon 114	0.14	Not Detected	0.94	Not Detected
Chloromethane	0.68	0.79	1.4	1.6
Vinyl Chloride	0.14	Not Detected	0.34	Not Detected
1,3-Butadiene	0.14	Not Detected	0.30	Not Detected
Bromomethane	0.68	Not Detected	2.6	Not Detected
Chloroethane	0.68	Not Detected	1.8	Not Detected
Freon 11	0.14	0.22	0.76	1.2
Ethanol	1.4	120 E	2.5	230 E
Freon 113	0.14	Not Detected	1.0	Not Detected
1,1-Dichloroethene	0.14	Not Detected	0.54	Not Detected
Acetone	0.68	410 E	1.6	970 E
2-Propanol	0.68	23	1.6	56
Carbon Disulfide	0.68	Not Detected	2.1	Not Detected
3-Chloropropene	0.68	Not Detected	2.1	Not Detected
Methylene Chloride	0.27	2.1	0.94	7.3
Methyl tert-butyl ether	0.14	0.17	0.49	0.62
trans-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected
Hexane	0.14	9.6	0.48	34
1,1-Dichloroethane	0.14	Not Detected	0.55	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.68	12	2.0	34
cis-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected
Tetrahydrofuran	0.68	0.68	2.0	2.0
Chloroform	0.14	Not Detected	0.66	Not Detected
1,1,1-Trichloroethane	0.14	Not Detected	0.74	Not Detected
Cyclohexane	0.14	2.8	0.46	9.7
Carbon Tetrachloride	0.14	Not Detected	0.85	Not Detected
2,2,4-Trimethylpentane	0.68	20	3.2	93
Benzene	0.14	1.2	0.43	3.8
1,2-Dichloroethane	0.14	0.48	0.55	1.9
Heptane	0.14	4.8	0.55	20
Trichloroethene	0.14	0.15	0.72	0.79
1,2-Dichloropropane	0.14	Not Detected	0.62	Not Detected
1,4-Dioxane	0.14	Not Detected	0.49	Not Detected
Bromodichloromethane	0.14	Not Detected	0.90	Not Detected
cis-1,3-Dichloropropene	0.14	Not Detected	0.61	Not Detected
4-Methyl-2-pentanone	0.14	2.3	0.55	9.3
Toluene	0.14	39	0.51	150
trans-1,3-Dichloropropene	0.14	Not Detected	0.61	Not Detected
1,1,2-Trichloroethane	0.14	Not Detected	0.74	Not Detected
Tetrachloroethene	0.14	Not Detected	0.92	Not Detected
2-Hexanone	0.68	Not Detected	2.8	Not Detected

Client Sample ID: U1 (172371)

Lab ID#: 1709335-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092316	Date of Collection:	9/12/17 12:45:00 PM
Dil. Factor:	1.35	Date of Analysis:	9/23/17 09:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.14	Not Detected	1.2	Not Detected
1,2-Dibromoethane (EDB)	0.14	Not Detected	1.0	Not Detected
Chlorobenzene	0.14	Not Detected	0.62	Not Detected
Ethyl Benzene	0.14	5.0	0.59	22
m,p-Xylene	0.14	16	0.59	68
o-Xylene	0.14	5.9	0.59	26
Styrene	0.14	1.1	0.58	4.7
Bromoform	0.14	Not Detected	1.4	Not Detected
Cumene	0.14	0.47	0.66	2.3
1,1,2,2-Tetrachloroethane	0.14	Not Detected	0.93	Not Detected
Propylbenzene	0.14	0.78	0.66	3.8
4-Ethyltoluene	0.14	3.6	0.66	17
1,3,5-Trimethylbenzene	0.14	Not Detected	0.66	Not Detected
1,2,4-Trimethylbenzene	0.14	4.5	0.66	22
1,3-Dichlorobenzene	0.14	Not Detected	0.81	Not Detected
1,4-Dichlorobenzene	0.14	Not Detected	0.81	Not Detected
alpha-Chlorotoluene	0.14	Not Detected	0.70	Not Detected
1,2-Dichlorobenzene	0.14	Not Detected	0.81	Not Detected
1,2,4-Trichlorobenzene	0.68	Not Detected	5.0	Not Detected
Hexachlorobutadiene	0.68	Not Detected	7.2	Not Detected

E = Exceeds instrument calibration range.

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1709335-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092209	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/22/17 01:06 PM

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	0.54	Not Detected
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#: 1709335-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092209	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/17 01:06 PM

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	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1709335-03B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092309	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/23/17 03:51 PM

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	1.0	Not Detected	1.9	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	0.54	Not Detected
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#: 1709335-03B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092309	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/23/17 03:51 PM

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	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: NA - Not Applicable

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



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709335-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092207	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/17 10:40 AM

Compound	%Recovery
Freon 12	102
Freon 114	96
Chloromethane	98
Vinyl Chloride	107
1,3-Butadiene	100
Bromomethane	122
Chloroethane	106
Freon 11	103
Ethanol	112
Freon 113	98
1,1-Dichloroethene	102
Acetone	94
2-Propanol	104
Carbon Disulfide	106
3-Chloropropene	123
Methylene Chloride	98
Methyl tert-butyl ether	103
trans-1,2-Dichloroethene	98
Hexane	97
1,1-Dichloroethane	105
2-Butanone (Methyl Ethyl Ketone)	103
cis-1,2-Dichloroethene	100
Tetrahydrofuran	108
Chloroform	88
1,1,1-Trichloroethane	96
Cyclohexane	101
Carbon Tetrachloride	126
2,2,4-Trimethylpentane	144 Q
Benzene	100
1,2-Dichloroethane	102
Heptane	97
Trichloroethene	99
1,2-Dichloropropane	105
1,4-Dioxane	100
Bromodichloromethane	100
cis-1,3-Dichloropropene	104
4-Methyl-2-pentanone	100
Toluene	100
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	98
Tetrachloroethene	91
2-Hexanone	99



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709335-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092207	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/17 10:40 AM

Compound	%Recovery
Dibromochloromethane	99
1,2-Dibromoethane (EDB)	98
Chlorobenzene	97
Ethyl Benzene	95
m,p-Xylene	94
o-Xylene	96
Styrene	91
Bromoform	101
Cumene	95
1,1,2,2-Tetrachloroethane	98
Propylbenzene	94
4-Ethyltoluene	94
1,3,5-Trimethylbenzene	92
1,2,4-Trimethylbenzene	94
1,3-Dichlorobenzene	91
1,4-Dichlorobenzene	91
alpha-Chlorotoluene	99
1,2-Dichlorobenzene	88
1,2,4-Trichlorobenzene	98
Hexachlorobutadiene	91

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709335-04B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092305	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/23/17 12:09 PM

Compound	%Recovery
Freon 12	103
Freon 114	102
Chloromethane	108
Vinyl Chloride	107
1,3-Butadiene	110
Bromomethane	111
Chloroethane	112
Freon 11	105
Ethanol	130
Freon 113	104
1,1-Dichloroethene	108
Acetone	89
2-Propanol	124
Carbon Disulfide	111
3-Chloropropene	118
Methylene Chloride	109
Methyl tert-butyl ether	107
trans-1,2-Dichloroethene	109
Hexane	110
1,1-Dichloroethane	109
2-Butanone (Methyl Ethyl Ketone)	125
cis-1,2-Dichloroethene	109
Tetrahydrofuran	121
Chloroform	106
1,1,1-Trichloroethane	106
Cyclohexane	107
Carbon Tetrachloride	119
2,2,4-Trimethylpentane	112
Benzene	105
1,2-Dichloroethane	106
Heptane	111
Trichloroethene	104
1,2-Dichloropropane	108
1,4-Dioxane	114
Bromodichloromethane	103
cis-1,3-Dichloropropene	111
4-Methyl-2-pentanone	126
Toluene	107
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	104
Tetrachloroethene	104
2-Hexanone	128



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709335-04B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092305	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/23/17 12:09 PM

Compound	%Recovery
Dibromochloromethane	111
1,2-Dibromoethane (EDB)	106
Chlorobenzene	106
Ethyl Benzene	104
m,p-Xylene	95
o-Xylene	101
Styrene	101
Bromoform	109
Cumene	97
1,1,2,2-Tetrachloroethane	105
Propylbenzene	96
4-Ethyltoluene	99
1,3,5-Trimethylbenzene	101
1,2,4-Trimethylbenzene	105
1,3-Dichlorobenzene	92
1,4-Dichlorobenzene	91
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	89
1,2,4-Trichlorobenzene	81
Hexachlorobutadiene	77

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1709335-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092204	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/22/17 08:12 AM

Compound	%Recovery	Method Limits
Freon 12	109	70-130
Freon 114	108	70-130
Chloromethane	107	70-130
Vinyl Chloride	118	70-130
1,3-Butadiene	105	70-130
Bromomethane	114	70-130
Chloroethane	113	70-130
Freon 11	112	70-130
Ethanol	133 Q	70-130
Freon 113	101	70-130
1,1-Dichloroethene	107	70-130
Acetone	95	70-130
2-Propanol	114	70-130
Carbon Disulfide	98	70-130
3-Chloropropene	121	70-130
Methylene Chloride	103	70-130
Methyl tert-butyl ether	108	70-130
trans-1,2-Dichloroethene	89	70-130
Hexane	105	70-130
1,1-Dichloroethane	110	70-130
2-Butanone (Methyl Ethyl Ketone)	107	70-130
cis-1,2-Dichloroethene	118	70-130
Tetrahydrofuran	112	70-130
Chloroform	91	70-130
1,1,1-Trichloroethane	100	70-130
Cyclohexane	106	70-130
Carbon Tetrachloride	138 Q	70-130
2,2,4-Trimethylpentane	161 Q	70-130
Benzene	106	70-130
1,2-Dichloroethane	105	70-130
Heptane	104	70-130
Trichloroethene	101	70-130
1,2-Dichloropropane	110	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	108	70-130
cis-1,3-Dichloropropene	103	70-130
4-Methyl-2-pentanone	106	70-130
Toluene	107	70-130
trans-1,3-Dichloropropene	106	70-130
1,1,2-Trichloroethane	106	70-130
Tetrachloroethene	98	70-130
2-Hexanone	111	70-130

Client Sample ID: LCS

Lab ID#: 1709335-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/17 08:12 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	104	70-130
Chlorobenzene	106	70-130
Ethyl Benzene	104	70-130
m,p-Xylene	104	70-130
o-Xylene	105	70-130
Styrene	104	70-130
Bromoform	112	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	106	70-130
Propylbenzene	105	70-130
4-Ethyltoluene	103	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	104	70-130
1,3-Dichlorobenzene	98	70-130
1,4-Dichlorobenzene	97	70-130
alpha-Chlorotoluene	116	70-130
1,2-Dichlorobenzene	95	70-130
1,2,4-Trichlorobenzene	95	70-130
Hexachlorobutadiene	82	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	94	70-130



Client Sample ID: LCS D

Lab ID#: 1709335-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092205	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/22/17 08:51 AM

Compound	%Recovery	Method Limits
Freon 12	113	70-130
Freon 114	110	70-130
Chloromethane	109	70-130
Vinyl Chloride	121	70-130
1,3-Butadiene	109	70-130
Bromomethane	117	70-130
Chloroethane	116	70-130
Freon 11	116	70-130
Ethanol	133 Q	70-130
Freon 113	104	70-130
1,1-Dichloroethene	110	70-130
Acetone	97	70-130
2-Propanol	118	70-130
Carbon Disulfide	100	70-130
3-Chloropropene	126	70-130
Methylene Chloride	105	70-130
Methyl tert-butyl ether	111	70-130
trans-1,2-Dichloroethene	92	70-130
Hexane	107	70-130
1,1-Dichloroethane	114	70-130
2-Butanone (Methyl Ethyl Ketone)	111	70-130
cis-1,2-Dichloroethene	121	70-130
Tetrahydrofuran	125	70-130
Chloroform	103	70-130
1,1,1-Trichloroethane	103	70-130
Cyclohexane	109	70-130
Carbon Tetrachloride	142 Q	70-130
2,2,4-Trimethylpentane	161 Q	70-130
Benzene	108	70-130
1,2-Dichloroethane	107	70-130
Heptane	106	70-130
Trichloroethene	105	70-130
1,2-Dichloropropane	114	70-130
1,4-Dioxane	107	70-130
Bromodichloromethane	112	70-130
cis-1,3-Dichloropropene	105	70-130
4-Methyl-2-pentanone	108	70-130
Toluene	109	70-130
trans-1,3-Dichloropropene	111	70-130
1,1,2-Trichloroethane	108	70-130
Tetrachloroethene	100	70-130
2-Hexanone	114	70-130

Client Sample ID: LCSD

Lab ID#: 1709335-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20092205	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/17 08:51 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	110	70-130
1,2-Dibromoethane (EDB)	107	70-130
Chlorobenzene	108	70-130
Ethyl Benzene	106	70-130
m,p-Xylene	105	70-130
o-Xylene	106	70-130
Styrene	104	70-130
Bromoform	115	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	110	70-130
Propylbenzene	107	70-130
4-Ethyltoluene	104	70-130
1,3,5-Trimethylbenzene	100	70-130
1,2,4-Trimethylbenzene	103	70-130
1,3-Dichlorobenzene	100	70-130
1,4-Dichlorobenzene	100	70-130
alpha-Chlorotoluene	117	70-130
1,2-Dichlorobenzene	96	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	89	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1709335-05B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092306	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/23/17 01:22 PM

Compound	%Recovery	Method Limits
Freon 12	104	70-130
Freon 114	102	70-130
Chloromethane	106	70-130
Vinyl Chloride	107	70-130
1,3-Butadiene	101	70-130
Bromomethane	105	70-130
Chloroethane	113	70-130
Freon 11	103	70-130
Ethanol	134 Q	70-130
Freon 113	97	70-130
1,1-Dichloroethene	105	70-130
Acetone	90	70-130
2-Propanol	116	70-130
Carbon Disulfide	92	70-130
3-Chloropropene	100	70-130
Methylene Chloride	102	70-130
Methyl tert-butyl ether	99	70-130
trans-1,2-Dichloroethene	89	70-130
Hexane	104	70-130
1,1-Dichloroethane	104	70-130
2-Butanone (Methyl Ethyl Ketone)	116	70-130
cis-1,2-Dichloroethene	114	70-130
Tetrahydrofuran	114	70-130
Chloroform	99	70-130
1,1,1-Trichloroethane	98	70-130
Cyclohexane	99	70-130
Carbon Tetrachloride	114	70-130
2,2,4-Trimethylpentane	107	70-130
Benzene	98	70-130
1,2-Dichloroethane	98	70-130
Heptane	106	70-130
Trichloroethene	98	70-130
1,2-Dichloropropane	102	70-130
1,4-Dioxane	100	70-130
Bromodichloromethane	100	70-130
cis-1,3-Dichloropropene	97	70-130
4-Methyl-2-pentanone	113	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	106	70-130
1,1,2-Trichloroethane	101	70-130
Tetrachloroethene	99	70-130
2-Hexanone	106	70-130

Client Sample ID: LCS

Lab ID#: 1709335-05B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092306	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/23/17 01:22 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	108	70-130
1,2-Dibromoethane (EDB)	101	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	94	70-130
o-Xylene	101	70-130
Styrene	100	70-130
Bromoform	108	70-130
Cumene	95	70-130
1,1,2,2-Tetrachloroethane	99	70-130
Propylbenzene	96	70-130
4-Ethyltoluene	94	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	97	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	90	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	89	70-130
1,2,4-Trichlorobenzene	84	70-130
Hexachlorobutadiene	82	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: LCS D

Lab ID#: 1709335-05BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092307	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/23/17 02:03 PM

Compound	%Recovery	Method Limits
Freon 12	102	70-130
Freon 114	102	70-130
Chloromethane	104	70-130
Vinyl Chloride	106	70-130
1,3-Butadiene	104	70-130
Bromomethane	108	70-130
Chloroethane	112	70-130
Freon 11	105	70-130
Ethanol	132 Q	70-130
Freon 113	99	70-130
1,1-Dichloroethene	103	70-130
Acetone	89	70-130
2-Propanol	115	70-130
Carbon Disulfide	93	70-130
3-Chloropropene	109	70-130
Methylene Chloride	104	70-130
Methyl tert-butyl ether	101	70-130
trans-1,2-Dichloroethene	90	70-130
Hexane	106	70-130
1,1-Dichloroethane	103	70-130
2-Butanone (Methyl Ethyl Ketone)	116	70-130
cis-1,2-Dichloroethene	114	70-130
Tetrahydrofuran	112	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	99	70-130
Carbon Tetrachloride	116	70-130
2,2,4-Trimethylpentane	104	70-130
Benzene	104	70-130
1,2-Dichloroethane	102	70-130
Heptane	108	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	105	70-130
1,4-Dioxane	105	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	118	70-130
Toluene	104	70-130
trans-1,3-Dichloropropene	105	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	99	70-130
2-Hexanone	105	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1709335-05BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v092307	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/23/17 02:03 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	101	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	92	70-130
o-Xylene	99	70-130
Styrene	95	70-130
Bromoform	108	70-130
Cumene	94	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	96	70-130
4-Ethyltoluene	94	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	100	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	92	70-130
alpha-Chlorotoluene	103	70-130
1,2-Dichlorobenzene	90	70-130
1,2,4-Trichlorobenzene	122	70-130
Hexachlorobutadiene	116	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	95	70-130