

5/24/2018

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

Jefferson City MO 65109

Project Name: Bridgeton Landfill

Project #:

Workorder #: 1805232

Dear Mr. Curt Lueckenhoff

The following report includes the data for the above referenced project for sample(s) received on 5/14/2018 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 #: 1805232

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. #	180406-CFL-A
FAX:	573-526-3350	PROJECT #	Bridgeton Landfill
DATE RECEIVED:	05/14/2018	CONTACT:	Brian Whittaker
DATE COMPLETED:	05/24/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	D1 (181390)	Modified TO-15	7.3 "Hg	4.7 psi
02A	U1 (181391)	Modified TO-15	6.7 "Hg	5.2 psi
03A	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 05/24/18

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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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Missouri Dept. of Natural Resources
Workorder# 1805232

Two 6 Liter Summa Canister (100% Certified) samples were received on May 14, 2018. 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.

Due to the linear calibration range of the instrument, the reporting limit for Bromomethane was raised from 0.5ppbv to 1.0ppbv.

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 (181390)

Lab ID#: 1805232-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.18	0.23	0.98	1.3
Ethanol	0.88	4.3	1.6	8.1
Acetone	0.88	9.6	2.1	23
2-Propanol	0.88	3.1	2.2	7.6
Hexane	0.18	0.18	0.62	0.64
2-Butanone (Methyl Ethyl Ketone)	0.88	1.6	2.6	4.9

Client Sample ID: U1 (181391)

Lab ID#: 1805232-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.25	0.98	1.4
Ethanol	0.87	4.8	1.6	9.0
Acetone	0.87	4.8	2.1	12
2-Propanol	0.87	5.0	2.1	12
Hexane	0.17	0.18	0.61	0.64



Air Toxics

Client Sample ID: D1 (181390)

Lab ID#: 1805232-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051525	Date of Collection:	5/9/18 1:45:00 PM
Dil. Factor:	1.75	Date of Analysis:	5/15/18 09:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.88	Not Detected	4.3	Not Detected
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	1.8	Not Detected	6.8	Not Detected
Chloroethane	0.88	Not Detected	2.3	Not Detected
Freon 11	0.18	0.23	0.98	1.3
Ethanol	0.88	4.3	1.6	8.1
Freon 113	0.18	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Acetone	0.88	9.6	2.1	23
2-Propanol	0.88	3.1	2.2	7.6
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	0.18	0.62	0.64
1,1-Dichloroethane	0.18	Not Detected	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.88	1.6	2.6	4.9
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	0.95	Not Detected
Cyclohexane	0.18	Not Detected	0.60	Not Detected
Carbon Tetrachloride	0.18	Not Detected UJ	1.1	Not Detected UJ
2,2,4-Trimethylpentane	0.88	Not Detected	4.1	Not Detected
Benzene	0.18	Not Detected	0.56	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.71	Not Detected
Heptane	0.18	Not Detected	0.72	Not Detected
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	Not Detected	0.66	Not Detected
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: D1 (181390)

Lab ID#: 1805232-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051525	Date of Collection:	5/9/18 1:45:00 PM
Dil. Factor:	1.75	Date of Analysis:	5/15/18 09:56 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	6.5	Not Detected
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	113	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	85	70-130



Air Toxics

Client Sample ID: U1 (181391)

Lab ID#: 1805232-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051526	Date of Collection:	5/9/18 1:55:00 PM
Dil. Factor:	1.74	Date of Analysis:	5/15/18 10:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.87	Not Detected	4.3	Not Detected
Freon 114	0.17	Not Detected	1.2	Not Detected
Chloromethane	0.87	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	1.7	Not Detected	6.8	Not Detected
Chloroethane	0.87	Not Detected	2.3	Not Detected
Freon 11	0.17	0.25	0.98	1.4
Ethanol	0.87	4.8	1.6	9.0
Freon 113	0.17	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.69	Not Detected
Acetone	0.87	4.8	2.1	12
2-Propanol	0.87	5.0	2.1	12
Carbon Disulfide	0.87	Not Detected	2.7	Not Detected
3-Chloropropene	0.87	Not Detected	2.7	Not Detected
Methylene Chloride	0.35	Not Detected	1.2	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.63	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.69	Not Detected
Hexane	0.17	0.18	0.61	0.64
1,1-Dichloroethane	0.17	Not Detected	0.70	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.87	Not Detected	2.6	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.69	Not Detected
Tetrahydrofuran	0.87	Not Detected	2.6	Not Detected
Chloroform	0.17	Not Detected	0.85	Not Detected
1,1,1-Trichloroethane	0.17	Not Detected	0.95	Not Detected
Cyclohexane	0.17	Not Detected	0.60	Not Detected
Carbon Tetrachloride	0.17	Not Detected UJ	1.1	Not Detected UJ
2,2,4-Trimethylpentane	0.87	Not Detected	4.1	Not Detected
Benzene	0.17	Not Detected	0.56	Not Detected
1,2-Dichloroethane	0.17	Not Detected	0.70	Not Detected
Heptane	0.17	Not Detected	0.71	Not Detected
Trichloroethene	0.17	Not Detected	0.94	Not Detected
1,2-Dichloropropane	0.17	Not Detected	0.80	Not Detected
1,4-Dioxane	0.17	Not Detected	0.63	Not Detected
Bromodichloromethane	0.17	Not Detected	1.2	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.79	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.71	Not Detected
Toluene	0.17	Not Detected	0.66	Not Detected
trans-1,3-Dichloropropene	0.17	Not Detected	0.79	Not Detected
1,1,2-Trichloroethane	0.17	Not Detected	0.95	Not Detected
Tetrachloroethene	0.17	Not Detected	1.2	Not Detected
2-Hexanone	0.87	Not Detected	3.6	Not Detected



Client Sample ID: U1 (181391)

Lab ID#: 1805232-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051526	Date of Collection:	5/9/18 1:55:00 PM
Dil. Factor:	1.74	Date of Analysis:	5/15/18 10:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.17	Not Detected	1.5	Not Detected
1,2-Dibromoethane (EDB)	0.17	Not Detected	1.3	Not Detected
Chlorobenzene	0.17	Not Detected	0.80	Not Detected
Ethyl Benzene	0.17	Not Detected	0.76	Not Detected
m,p-Xylene	0.17	Not Detected	0.76	Not Detected
o-Xylene	0.17	Not Detected	0.76	Not Detected
Styrene	0.17	Not Detected	0.74	Not Detected
Bromoform	0.17	Not Detected	1.8	Not Detected
Cumene	0.17	Not Detected	0.86	Not Detected
1,1,2,2-Tetrachloroethane	0.17	Not Detected	1.2	Not Detected
Propylbenzene	0.17	Not Detected	0.86	Not Detected
4-Ethyltoluene	0.17	Not Detected	0.86	Not Detected
1,3,5-Trimethylbenzene	0.17	Not Detected	0.86	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.86	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	0.90	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.87	Not Detected	6.4	Not Detected
Hexachlorobutadiene	0.87	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	118	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	86	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1805232-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051506	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/15/18 11:08 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.10	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	1.0	Not Detected	3.9	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 UJ	0.63	Not Detected UJ
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#: 1805232-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051506	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/15/18 11:08 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	3.7	Not Detected
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	116	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1805232-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/15/18 08:46 AM

Compound	%Recovery
Freon 12	90
Freon 114	82
Chloromethane	78
Vinyl Chloride	84
1,3-Butadiene	89
Bromomethane	104
Chloroethane	89
Freon 11	82
Ethanol	106
Freon 113	81
1,1-Dichloroethene	96
Acetone	88
2-Propanol	107
Carbon Disulfide	92
3-Chloropropene	100
Methylene Chloride	84
Methyl tert-butyl ether	107
trans-1,2-Dichloroethene	88
Hexane	106
1,1-Dichloroethane	87
2-Butanone (Methyl Ethyl Ketone)	104
cis-1,2-Dichloroethene	95
Tetrahydrofuran	106
Chloroform	86
1,1,1-Trichloroethane	89
Cyclohexane	105
Carbon Tetrachloride	68 Q
2,2,4-Trimethylpentane	112
Benzene	78
1,2-Dichloroethane	73
Heptane	96
Trichloroethene	82
1,2-Dichloropropane	84
1,4-Dioxane	98
Bromodichloromethane	91
cis-1,3-Dichloropropene	103
4-Methyl-2-pentanone	116
Toluene	87
trans-1,3-Dichloropropene	100
1,1,2-Trichloroethane	85
Tetrachloroethene	86
2-Hexanone	113



Client Sample ID: CCV

Lab ID#: 1805232-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/15/18 08:46 AM

Compound	%Recovery
Dibromochloromethane	99
1,2-Dibromoethane (EDB)	95
Chlorobenzene	87
Ethyl Benzene	100
m,p-Xylene	94
o-Xylene	102
Styrene	104
Bromoform	112
Cumene	98
1,1,2,2-Tetrachloroethane	100
Propylbenzene	93
4-Ethyltoluene	111
1,3,5-Trimethylbenzene	112
1,2,4-Trimethylbenzene	122
1,3-Dichlorobenzene	80
1,4-Dichlorobenzene	81
alpha-Chlorotoluene	103
1,2-Dichlorobenzene	82
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	83

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1805232-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/15/18 09:25 AM

Compound	%Recovery	Method Limits
Freon 12	92	70-130
Freon 114	83	70-130
Chloromethane	81	70-130
Vinyl Chloride	88	70-130
1,3-Butadiene	88	70-130
Bromomethane	109	70-130
Chloroethane	93	70-130
Freon 11	82	70-130
Ethanol	99	70-130
Freon 113	80	70-130
1,1-Dichloroethene	96	70-130
Acetone	88	70-130
2-Propanol	106	70-130
Carbon Disulfide	89	70-130
3-Chloropropene	105	70-130
Methylene Chloride	84	70-130
Methyl tert-butyl ether	107	70-130
trans-1,2-Dichloroethene	96	70-130
Hexane	111	70-130
1,1-Dichloroethane	86	70-130
2-Butanone (Methyl Ethyl Ketone)	107	70-130
cis-1,2-Dichloroethene	87	70-130
Tetrahydrofuran	104	70-130
Chloroform	87	70-130
1,1,1-Trichloroethane	91	70-130
Cyclohexane	108	70-130
Carbon Tetrachloride	55 Q	70-130
2,2,4-Trimethylpentane	113	70-130
Benzene	81	70-130
1,2-Dichloroethane	73	70-130
Heptane	98	70-130
Trichloroethene	103	70-130
1,2-Dichloropropane	86	70-130
1,4-Dioxane	101	70-130
Bromodichloromethane	95	70-130
cis-1,3-Dichloropropene	109	70-130
4-Methyl-2-pentanone	121	70-130
Toluene	89	70-130
trans-1,3-Dichloropropene	105	70-130
1,1,2-Trichloroethane	91	70-130
Tetrachloroethene	90	70-130
2-Hexanone	124	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1805232-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/15/18 09:25 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	102	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	90	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	106	70-130
o-Xylene	111	70-130
Styrene	110	70-130
Bromoform	106	70-130
Cumene	101	70-130
1,1,2,2-Tetrachloroethane	72	70-130
Propylbenzene	103	70-130
4-Ethyltoluene	119	70-130
1,3,5-Trimethylbenzene	114	70-130
1,2,4-Trimethylbenzene	123	70-130
1,3-Dichlorobenzene	88	70-130
1,4-Dichlorobenzene	94	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	90	70-130
1,2,4-Trichlorobenzene	86	70-130
Hexachlorobutadiene	79	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: LCS D

Lab ID#: 1805232-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/15/18 10:03 AM

Compound	%Recovery	Method Limits
Freon 12	89	70-130
Freon 114	81	70-130
Chloromethane	79	70-130
Vinyl Chloride	86	70-130
1,3-Butadiene	87	70-130
Bromomethane	106	70-130
Chloroethane	91	70-130
Freon 11	83	70-130
Ethanol	101	70-130
Freon 113	78	70-130
1,1-Dichloroethene	93	70-130
Acetone	87	70-130
2-Propanol	106	70-130
Carbon Disulfide	89	70-130
3-Chloropropene	105	70-130
Methylene Chloride	83	70-130
Methyl tert-butyl ether	106	70-130
trans-1,2-Dichloroethene	96	70-130
Hexane	108	70-130
1,1-Dichloroethane	86	70-130
2-Butanone (Methyl Ethyl Ketone)	106	70-130
cis-1,2-Dichloroethene	86	70-130
Tetrahydrofuran	104	70-130
Chloroform	86	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	106	70-130
Carbon Tetrachloride	55 Q	70-130
2,2,4-Trimethylpentane	112	70-130
Benzene	80	70-130
1,2-Dichloroethane	75	70-130
Heptane	100	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	86	70-130
1,4-Dioxane	101	70-130
Bromodichloromethane	92	70-130
cis-1,3-Dichloropropene	110	70-130
4-Methyl-2-pentanone	123	70-130
Toluene	89	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	87	70-130
Tetrachloroethene	84	70-130
2-Hexanone	121	70-130



Client Sample ID: LCSD

Lab ID#: 1805232-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21051504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/15/18 10:03 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	98	70-130
1,2-Dibromoethane (EDB)	98	70-130
Chlorobenzene	89	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	103	70-130
o-Xylene	106	70-130
Styrene	108	70-130
Bromoform	100	70-130
Cumene	98	70-130
1,1,2,2-Tetrachloroethane	70	70-130
Propylbenzene	97	70-130
4-Ethyltoluene	113	70-130
1,3,5-Trimethylbenzene	109	70-130
1,2,4-Trimethylbenzene	116	70-130
1,3-Dichlorobenzene	84	70-130
1,4-Dichlorobenzene	89	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	87	70-130
1,2,4-Trichlorobenzene	87	70-130
Hexachlorobutadiene	78	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	91	70-130