

1/30/2018

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

Jefferson City MO 65109

Project Name: Bridgeton Landfill

Project #:

Workorder #: 1801226

Dear Mr. Curt Lueckenhoff

The following report includes the data for the above referenced project for sample(s) received on 1/17/2018 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 #: 1801226

Work Order Summary

CLIENT: PHONE: FAX: DATE RECEIVED: DATE COMPLETED:	Mr. Curt Lueckenhoff Missouri Dept. of Natural Resources 2710 West Main Jefferson City, MO 65109 573-526-3363 573-526-3350 01/17/2018 01/30/2018	BILL TO: P.O. # PROJECT # CONTACT:	Accounts Payable Missouri Dept. of Natural Resources P.O Box 176 Jefferson City, MO 65102 3ESP180496 Bridgeton Landfill Brian Whittaker
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<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	D1 (180973)	Modified TO-15	5.5 "Hg	5 psi
02A	U1 (180974)	Modified TO-15	5.5 "Hg	5 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: 01/30/18

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# 1801226

Two 6 Liter Summa Canister (100% Certified) samples were received on January 17, 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.

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 (180973)

Lab ID#: 1801226-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.41	0.81	2.0
Freon 11	0.16	0.17	0.92	0.98
Ethanol	0.82	1.4	1.5	2.7
Acetone	0.82	3.1	1.9	7.3
Heptane	0.16	0.38	0.67	1.6
Toluene	0.16	2.5	0.62	9.3

Client Sample ID: U1 (180974)

Lab ID#: 1801226-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.40	0.81	2.0
Freon 11	0.16	0.18	0.92	1.0
Ethanol	0.82	1.3	1.5	2.4
Acetone	0.82	5.7	1.9	14
Cyclohexane	0.16	0.17	0.56	0.60
Heptane	0.16	1.3	0.67	5.4
Toluene	0.16	9.4	0.62	35
m,p-Xylene	0.16	0.22	0.71	0.96



Air Toxics

Client Sample ID: D1 (180973)

Lab ID#: 1801226-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011807	Date of Collection:	1/10/18 1:35:00 PM
Dil. Factor:	1.64	Date of Analysis:	1/18/18 12:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.41	0.81	2.0
Freon 114	0.16	Not Detected	1.1	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	0.17	0.92	0.98
Ethanol	0.82	1.4	1.5	2.7
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Acetone	0.82	3.1	1.9	7.3
2-Propanol	0.82	Not Detected	2.0	Not Detected
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	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.82	Not Detected	2.4	Not Detected
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	0.89	Not Detected
Cyclohexane	0.16	Not Detected	0.56	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	0.52	Not Detected
1,2-Dichloroethane	0.16	Not Detected	0.66	Not Detected
Heptane	0.16	0.38	0.67	1.6
Trichloroethene	0.16	Not Detected	0.88	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	0.74	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.67	Not Detected
Toluene	0.16	2.5	0.62	9.3
trans-1,3-Dichloropropene	0.16	Not Detected	0.74	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.89	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.82	Not Detected	3.4	Not Detected



Air Toxics

Client Sample ID: D1 (180973)

Lab ID#: 1801226-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011807	Date of Collection:	1/10/18 1:35:00 PM
Dil. Factor:	1.64	Date of Analysis:	1/18/18 12:03 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	0.71	Not Detected
m,p-Xylene	0.16	Not Detected	0.71	Not Detected
o-Xylene	0.16	Not Detected	0.71	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	8.7	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	111	70-130



Air Toxics

Client Sample ID: U1 (180974)

Lab ID#: 1801226-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011808	Date of Collection:	1/10/18 1:55:00 PM
Dil. Factor:	1.64	Date of Analysis:	1/18/18 12:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.40	0.81	2.0
Freon 114	0.16	Not Detected	1.1	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	0.18	0.92	1.0
Ethanol	0.82	1.3	1.5	2.4
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Acetone	0.82	5.7	1.9	14
2-Propanol	0.82	Not Detected	2.0	Not Detected
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	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.82	Not Detected	2.4	Not Detected
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	0.89	Not Detected
Cyclohexane	0.16	0.17	0.56	0.60
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	0.52	Not Detected
1,2-Dichloroethane	0.16	Not Detected	0.66	Not Detected
Heptane	0.16	1.3	0.67	5.4
Trichloroethene	0.16	Not Detected	0.88	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	0.74	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.67	Not Detected
Toluene	0.16	9.4	0.62	35
trans-1,3-Dichloropropene	0.16	Not Detected	0.74	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.89	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.82	Not Detected	3.4	Not Detected



Air Toxics

Client Sample ID: U1 (180974)

Lab ID#: 1801226-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011808	Date of Collection:	1/10/18 1:55:00 PM
Dil. Factor:	1.64	Date of Analysis:	1/18/18 12:39 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	0.71	Not Detected
m,p-Xylene	0.16	0.22	0.71	0.96
o-Xylene	0.16	Not Detected	0.71	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	8.7	Not Detected

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1801226-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011806	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/18/18 11:01 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	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#: 1801226-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011806	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/18/18 11:01 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

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	111	70-130

Client Sample ID: CCV

Lab ID#: 1801226-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011802	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/18/18 08:28 AM

Compound	%Recovery
Freon 12	89
Freon 114	86
Chloromethane	88
Vinyl Chloride	84
1,3-Butadiene	87
Bromomethane	99
Chloroethane	98
Freon 11	88
Ethanol	90
Freon 113	88
1,1-Dichloroethene	87
Acetone	77
2-Propanol	87
Carbon Disulfide	79
3-Chloropropene	84
Methylene Chloride	80
Methyl tert-butyl ether	85
trans-1,2-Dichloroethene	88
Hexane	86
1,1-Dichloroethane	84
2-Butanone (Methyl Ethyl Ketone)	87
cis-1,2-Dichloroethene	83
Tetrahydrofuran	89
Chloroform	83
1,1,1-Trichloroethane	87
Cyclohexane	86
Carbon Tetrachloride	74
2,2,4-Trimethylpentane	91
Benzene	83
1,2-Dichloroethane	89
Heptane	92
Trichloroethene	91
1,2-Dichloropropane	86
1,4-Dioxane	86
Bromodichloromethane	87
cis-1,3-Dichloropropene	87
4-Methyl-2-pentanone	94
Toluene	86
trans-1,3-Dichloropropene	90
1,1,2-Trichloroethane	90
Tetrachloroethene	99
2-Hexanone	92



Air Toxics

Client Sample ID: CCV

Lab ID#: 1801226-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011802	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/18/18 08:28 AM

Compound	%Recovery
Dibromochloromethane	97
1,2-Dibromoethane (EDB)	94
Chlorobenzene	90
Ethyl Benzene	89
m,p-Xylene	85
o-Xylene	88
Styrene	89
Bromoform	105
Cumene	84
1,1,2,2-Tetrachloroethane	87
Propylbenzene	84
4-Ethyltoluene	89
1,3,5-Trimethylbenzene	87
1,2,4-Trimethylbenzene	94
1,3-Dichlorobenzene	87
1,4-Dichlorobenzene	90
alpha-Chlorotoluene	83
1,2-Dichlorobenzene	86
1,2,4-Trichlorobenzene	84
Hexachlorobutadiene	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1801226-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: v011803

Date of Collection: NA

Dil. Factor: 1.00

Date of Analysis: 1/18/18 09:04 AM

Compound	%Recovery	Method Limits
Freon 12	89	70-130
Freon 114	93	70-130
Chloromethane	88	70-130
Vinyl Chloride	84	70-130
1,3-Butadiene	85	70-130
Bromomethane	99	70-130
Chloroethane	101	70-130
Freon 11	92	70-130
Ethanol	90	70-130
Freon 113	87	70-130
1,1-Dichloroethene	89	70-130
Acetone	77	70-130
2-Propanol	91	70-130
Carbon Disulfide	71	70-130
3-Chloropropene	72	70-130
Methylene Chloride	82	70-130
Methyl tert-butyl ether	85	70-130
trans-1,2-Dichloroethene	76	70-130
Hexane	87	70-130
1,1-Dichloroethane	85	70-130
2-Butanone (Methyl Ethyl Ketone)	88	70-130
cis-1,2-Dichloroethene	94	70-130
Tetrahydrofuran	86	70-130
Chloroform	84	70-130
1,1,1-Trichloroethane	88	70-130
Cyclohexane	86	70-130
Carbon Tetrachloride	60 Q	70-130
2,2,4-Trimethylpentane	89	70-130
Benzene	82	70-130
1,2-Dichloroethane	90	70-130
Heptane	90	70-130
Trichloroethene	93	70-130
1,2-Dichloropropane	88	70-130
1,4-Dioxane	82	70-130
Bromodichloromethane	91	70-130
cis-1,3-Dichloropropene	83	70-130
4-Methyl-2-pentanone	93	70-130
Toluene	85	70-130
trans-1,3-Dichloropropene	90	70-130
1,1,2-Trichloroethane	89	70-130
Tetrachloroethene	102	70-130
2-Hexanone	91	70-130

Client Sample ID: LCS

Lab ID#: 1801226-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/18/18 09:04 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	91	70-130
Ethyl Benzene	90	70-130
m,p-Xylene	85	70-130
o-Xylene	89	70-130
Styrene	87	70-130
Bromoform	102	70-130
Cumene	85	70-130
1,1,2,2-Tetrachloroethane	89	70-130
Propylbenzene	87	70-130
4-Ethyltoluene	88	70-130
1,3,5-Trimethylbenzene	87	70-130
1,2,4-Trimethylbenzene	94	70-130
1,3-Dichlorobenzene	86	70-130
1,4-Dichlorobenzene	86	70-130
alpha-Chlorotoluene	80	70-130
1,2-Dichlorobenzene	84	70-130
1,2,4-Trichlorobenzene	67 Q	70-130
Hexachlorobutadiene	75	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCSD

Lab ID#: 1801226-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/18/18 09:49 AM

Compound	%Recovery	Method Limits
Freon 12	90	70-130
Freon 114	91	70-130
Chloromethane	91	70-130
Vinyl Chloride	87	70-130
1,3-Butadiene	86	70-130
Bromomethane	101	70-130
Chloroethane	103	70-130
Freon 11	92	70-130
Ethanol	87	70-130
Freon 113	88	70-130
1,1-Dichloroethene	88	70-130
Acetone	76	70-130
2-Propanol	93	70-130
Carbon Disulfide	72	70-130
3-Chloropropene	69 Q	70-130
Methylene Chloride	83	70-130
Methyl tert-butyl ether	85	70-130
trans-1,2-Dichloroethene	75	70-130
Hexane	88	70-130
1,1-Dichloroethane	85	70-130
2-Butanone (Methyl Ethyl Ketone)	90	70-130
cis-1,2-Dichloroethene	94	70-130
Tetrahydrofuran	86	70-130
Chloroform	84	70-130
1,1,1-Trichloroethane	89	70-130
Cyclohexane	88	70-130
Carbon Tetrachloride	60 Q	70-130
2,2,4-Trimethylpentane	91	70-130
Benzene	83	70-130
1,2-Dichloroethane	91	70-130
Heptane	94	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	86	70-130
1,4-Dioxane	83	70-130
Bromodichloromethane	90	70-130
cis-1,3-Dichloropropene	82	70-130
4-Methyl-2-pentanone	93	70-130
Toluene	87	70-130
trans-1,3-Dichloropropene	88	70-130
1,1,2-Trichloroethane	86	70-130
Tetrachloroethene	99	70-130
2-Hexanone	89	70-130

Client Sample ID: LCSD

Lab ID#: 1801226-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v011804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/18/18 09:49 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	94	70-130
1,2-Dibromoethane (EDB)	93	70-130
Chlorobenzene	89	70-130
Ethyl Benzene	90	70-130
m,p-Xylene	84	70-130
o-Xylene	89	70-130
Styrene	87	70-130
Bromoform	100	70-130
Cumene	84	70-130
1,1,2,2-Tetrachloroethane	87	70-130
Propylbenzene	88	70-130
4-Ethyltoluene	89	70-130
1,3,5-Trimethylbenzene	86	70-130
1,2,4-Trimethylbenzene	93	70-130
1,3-Dichlorobenzene	88	70-130
1,4-Dichlorobenzene	92	70-130
alpha-Chlorotoluene	80	70-130
1,2-Dichlorobenzene	88	70-130
1,2,4-Trichlorobenzene	73	70-130
Hexachlorobutadiene	80	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	97	70-130
4-Bromofluorobenzene	100	70-130